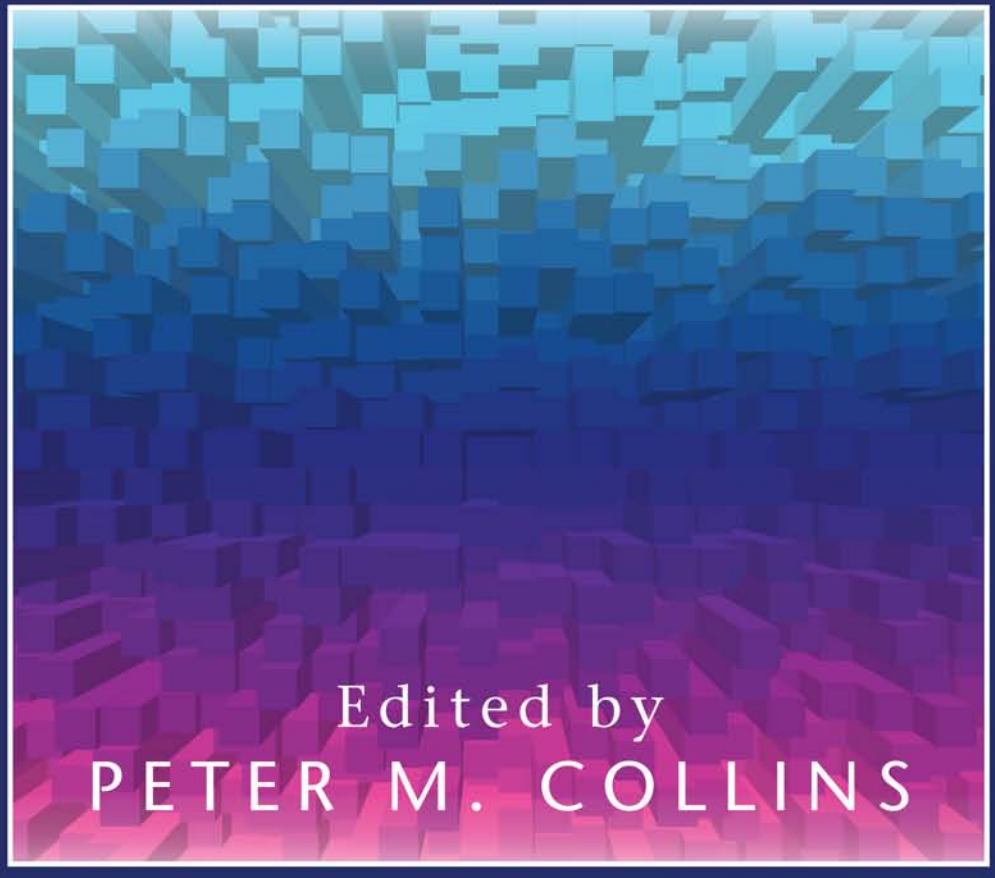
SECOND EDITION

Dictionary of CARBOHYDRATES with CD-ROM



Edited by
PETER M. COLLINS

Chapman & Hall/CRC
Taylor & Francis Group

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Boca Raton London New York

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Preface

This Dictionary is intended to provide an easy-to-use reference source for all scientists working with carbohydrates on a regular or occasional basis. It represents a much enlarged and revised new edition of the dictionary first published in 1998, which in turn was an expansion of the earlier title *Carbohydrates* (chemistry sourcebook series) (1987). The previous edition was welcomed by carbohydrate researchers and has been found to be of considerable practical use and it is therefore anticipated that this new edition, with its numerous improvements in response to users' comments, will be equally welcomed.

Compared with the previous volumes, the number of compounds included has been substantially increased, while at the same time the presentation has been sharpened. A further careful review of the coverage was carried out so that the best possible selection of the parent sugars and their derivatives could be made. A number of entries present in the previous compilation for antibiotic and other natural product types in which the sugar component is not central to the structure have been omitted. Despite these deletions, the extensive compilation of further important carbohydrate compounds means that the total number of compounds included is now 24,000.

The vast majority of references given for each entry are now labelled to indicate their content, particularly in respect to their derivative(s) that they document. In general, therefore, the Dictionary takes the user straight from the entry to the correct literature citation for the compound, eliminating several steps compared with a literature search carried out by other routes.

Carbohydrate science is no longer seen as a specialised subdivision of organic chemistry, but as a discipline of central importance to the chemical and biological sciences. Every attempt has been made in the coverage of the Dictionary to provide all glycoscientists, not just synthetic carbohydrate chemists, with the key information that they will need for their day-to-day work.

The *Dictionary of Carbohydrates* is published as a book with a CD-ROM. The CD-ROM version has a number of benefits compared to the book. Users already familiar with other titles in the Chapman & Hall series will find the CD-ROM uses the same familiar interface, but even those with no previous experience will find the CD-ROM intuitive to use.

P. M. Collins

Editorial Board

Introduction

1. COVERAGE

The *Dictionary of Carbohydrates* covers the following classes of compound.

(1) **The parent monosaccharides and their important derivatives.** All of the fundamental aldoses and ketoses are extensively documented. The coverage of their derivatives is extensive although not of course comprehensive. Entries have been compiled to present a wide range of derivatives of most interest in synthetic carbohydrate chemistry, including a good selection of those containing the more recently developed blocking groups.

Sugars differently derivatised at several functional groups are common in carbohydrate chemistry and these are presented as 'derivatives of derivatives', sometimes branching off into their own entries (see below).

(2) **Modified monosaccharides.** Compounds such as halodeoxy-, aminodeoxy-, thio- and anhydrosugars, glycuronic acids, etc. are covered extensively.

(3) **Disaccharides.** The coverage of disaccharides derived from two unmodified sugar residues is virtually complete. There is selective coverage of modified disaccharides (e.g. aminodeoxysucroses).

(4) **Tri-, oligo- and polysaccharides.** The coverage of these has also been increased and concentrates on those with biochemical significance and/or industrial usage.

(5) **Alditols and cyclitols.** These are extensively documented along with their most important derivatives.

(6) **Nucleosides.** The number of these included has been considerably increased. The coverage centres on naturally occurring nucleosides such as those found in RNA, their analogues and other nucleosides with pronounced drug activities.

(7) **Glycoside antibiotics and related compounds**. An up-to-date coverage of these is given.

(8) **Other glycosides.** Some natural products containing markedly unusual sugars or unusual glycosidic linkages are included. A very large number of plant and animal glycosides is now known, and for comprehensive coverage of these the user is referred to the *Dictionary of Natural Products* website (www.chemnetbase.com) or CD-ROM. The glycosinolates are covered.

In compiling the printed version and the CD-ROM, the primary literature has been reviewed up to late 2004.

2. ORGANISATION OF ENTRIES

The Dictionary is arranged alphabetically by entry name. Every entry is numbered to assist ready location. Many compounds are included as derivatives of main entry compounds but important derivatives have their own individual cross-referenced entries. Use of the indexes enables the rapid location of all compounds in the Dictionary by name or compound type, regardless of their location.

In most cases the stereoisomeric and ring-form (i.e. pyranose/furanose) variants of a given carbohydrate are included in the same entry, with a few exceptions (for example, glucoseptanose has its own entry).

The organisation of the entry for a typical important monosaccharide therefore follows the following scheme:

Entry Compound
- **D-form**
  - Derivatives generally applicable to the D-form (e.g. derivatives of the open chain form)
  - **D-Pyranose-form**
    - Derivatives not specifically assigned to either the α- or β-anomer
    - **α-D-Pyranose-form**
      - Derivatives
    - **β-D-Pyranose-form**
      - Derivatives
  - **D-Furanose-form**
    - Derivatives not specifically assigned to either the α- or β-anomer
    - **α-D-Furanose-form**
      - Derivatives
    - **β-D-Furanose-form**
      - Derivatives
- **L-form**
- etc.

A representative dictionary entry is shown in Fig. 1.

2.1 Chemical names and synonyms; nomenclature of carbohydrates

The Dictionary contains a wide range of synonyms which may be (a) those found in the primary literature, (b) *Chemical Abstracts* names, or (c) names added editorially to achieve as much consistency as possible with other closely related substances. Names corresponding to those used by CAS during the 9th and subsequent Collective Index periods (1973-) are

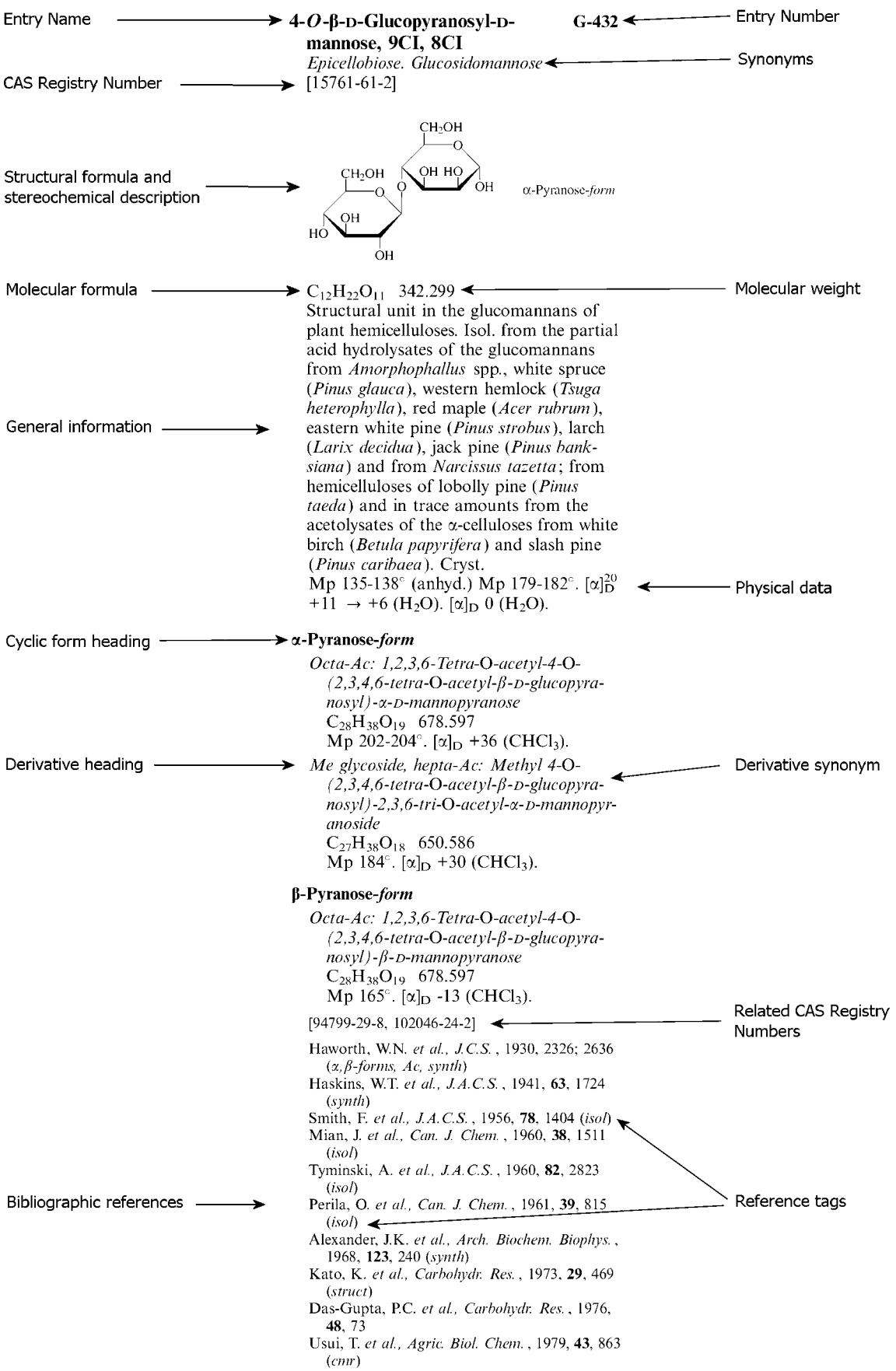

Entry Name
4-O-β-D-Glucopyranosyl-D-mannose, 9CI, 8CI
G-432
Entry Number
Synonyms
Epicellobiose. Glucosidomannose
CAS Registry Number
[15761-61-2]
Structural formula and stereochemical description
α-Pyranose-form
Molecular formula
C12H22O11 342.299
Molecular weight
Structural unit in the glucomannans of plant hemicelluloses. Isol. from the partial acid hydrolysates of the glucomannans from Amorphophallus spp., white spruce (Pinus glauca), western hemlock (Tsuga heterophylla), red maple (Acer rubrum), eastern white pine (Pinus strobus), larch (Larix decidua), jack pine (Pinus banksiana) and from Narcissus tazetta; from hemicelluloses of lobolly pine (Pinus taeda) and in trace amounts from the acetolysates of the α-celluloses from white birch (Betula papyrifera) and slash pine (Pinus caribaea). Cryst.
General information
Mp 135-138° (anhyd.) Mp 179-182°. [α]D20 +11 → +6 (H2O). [α]D 0 (H2O).
Physical data
Cyclic form heading
α-Pyranose-form
Octa-Ac: 1,2,3,6-Tetra-O-acetyl-4-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-α-D-mannopyranose
C28H38O19 678.597
Mp 202-204°. [α]D +36 (CHCl3).
Derivative heading
Me glycoside, hepta-Ac: Methyl 4-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-2,3,6-tri-O-acetyl-α-D-mannopyranoside
Derivative synonym
C27H38O18 650.586
Mp 184°. [α]D +30 (CHCl3).
β-Pyranose-form
Octa-Ac: 1,2,3,6-Tetra-O-acetyl-4-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-β-D-mannopyranose
C28H38O19 678.597
Mp 165°. [α]D -13 (CHCl3).
[94799-29-8, 102046-24-2]
Related CAS Registry Numbers
Haworth, W.N. et al., J.C.S., 1930, 2326; 2636 (α,β-forms, Ac, synth)
Haskins, W.T. et al., J.A.C.S., 1941, 63, 1724 (synth)
Smith, F. et al., J.A.C.S., 1956, 78, 1404 (isol)
Mian, J. et al., Can. J. Chem., 1960, 38, 1511 (isol)
Tyminski, A. et al., J.A.C.S., 1960, 82, 2823 (isol)
Bibliographic references
Perila, O. et al., Can. J. Chem., 1961, 39, 815 (isol)
Reference tags
Alexander, J.K. et al., Arch. Biochem. Biophys., 1968, 123, 240 (synth)
Kato, K. et al., Carbohydr. Res., 1973, 29, 469 (struct)
Das-Gupta, P.C. et al., Carbohydr. Res., 1976, 48, 73
Usui, T. et al., Agric. Biol. Chem., 1979, 43, 863 (cnr)

FIGURE 1

labelled 9CI (there have been no substantial changes in CAS nomenclature for most carbohydrates since 1973). Names used during the 8th Collective Index period (1967-1972) are labelled 8CI. All important derivatives embedded within entries are named (but see comment on CAS nomenclature below).

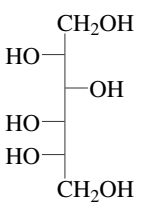
If a compound cannot be located immediately in the main body of the entries, it is important to use the indexes.

The most authoritative current statement of good practice on carbohydrate nomenclature is the document *IUPAC/IUBMB Joint Commission on Biochemical Nomenclature of Carbohydrates Recommendations*, (*Pure Appl. Chem.,* 1996, **68**, 1919) the full text of which can be read on the Dictionary of Carbohydrates CD-ROM (access from the Windows® Start menu item or via the Help menu in the main program).

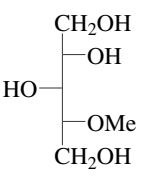
For the majority of carbohydrates documented in the dictionary there is full agreement between the IUPAC/IUBMB recommendations and current practice by the vast majority of authors active in carbohydrate science, and therefore no difficulty in deciding on the entry name for the majority of compounds in the Dictionary. However, a number of complications arise at a more detailed level.

(1) The complexity of the names of carbohydrate derivatives containing a variety of different substituents means that trivial errors in naming them according to the correct IUPAC alphabetical rules are quite widespread in the primary literature. In general, these errors have been corrected in the Dictionary and the incorrect versions are not given as synonyms.

(2) IUPAC rules for nomenclature of a few types of carbohydrate contain certain features that differ from those for general organic compounds. For carbohydrates which do not possess a functional group to receive the locant 1 such as alditols, two names are possible. In such cases precedence is given to the name deriving from the parent structure coming *first in alphabetical order*, then to assignment to the *D- rather than L-series*; these rules take precedence over the usual IUPAC numbering principle of lowest possible locants (rule 2-Carb-2-1-3). This is illustrated by the following examples.

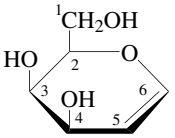


L-Glucitol not D-Gulitol



4-*O*-Methyl-D-xylitol not 2-*O*-methyl-L-xylitol

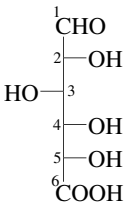
The rule can lead to names which are less than user friendly. D-Galactal, for example, is 2,6-anhydro-5-deoxy-D-*arabino*-hex-5-enitol rather than 1,5-anhydro-2-deoxy-D-*lyxo*-hex-1-enitol which is more intuitive and would be the choice of workers in the field (in the Dictionary all three names are quoted).



D-Galactal
(IUPAC numbering)

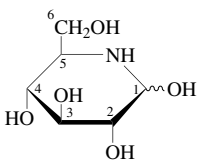
Not all authors follow strict IUPAC principles. In this Dictionary the policy has been to follow IUPAC in the choice of the entry name for the compound, but to give the 'incorrect' forms as synonyms. Such entries are often given notes explaining the nomenclature situation with a view to eliminating as much confusion as possible.

(3) The –CHO (or potential CHO) group in aldoses (but *not* the CO group in ketoses) takes numbering precedence over any other group in the molecule, including groups such as –COOH which in general organic nomenclature are senior to –CHO.



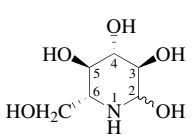
D-Glucuronic acid

(4) Complexities arise at the interface between carbohydrate and aliphatic chemistry, where it is frequently possible to name compounds either as modified sugars or as aliphatic structures such as lactones or furans. The transition between the two systems is not rigidly defined by IUPAC and compounds treated in *Chemical Abstracts* as sugars may be named by other authors as aliphatic compounds, and vice-versa. The numbering scheme invariably changes and so does the preferred system for



5-Amino-5-deoxy-D-glucopyranose (carbohydrate representation and numbering)

≡



(3*R*,4*S*,5*R*,6*R*)-6-(Hydroxymethyl)-2,3,4,5-piperidinetetrol (aliphatic representation and numbering)

denoting configurations, meaning that great care is necessary to avoid errors. The following example is typical:

In this Dictionary, compounds containing three or more chiral centres are usually named and numbered as carbohydrates, while the majority of compounds containing one or two chiral centres are named and numbered as aliphatics[1]. The alternative schemes are usually given as synonyms.

(5) Although Chemical Abstracts names for carbohydrates follow IUPAC principles, the CAS names for some common groups found in carbohydrate derivatives do not correspond to those used by the majority of carbohydrate chemists as given in this Dictionary. For example;

Dictionary name	*CAS name*
Isopropylidene	1-Methylethylidene
Benzylidene	Phenylmethylene

In the majority of cases, the CAS alternative is not given as a synonym in the Dictionary entry.

2.2 CAS Registry numbers

CAS numbers are identifying numbers allocated to each distinctly definable chemical substance indexed by CAS since 1965 (plus some retrospective allocation of numbers by CAS to compounds from earlier index periods). The numbers have no chemical significance but they provide a label for each substance independent of any system of nomenclature. They are extensively used for exchanging information between individuals and databases. The numbers take the form NNNNNN-NN-R, where the total number of digits is five or more and R is a check digit.

For practical purposes, CAS numbers have certain shortcomings arising from their free allocation, resulting in one substance having more than one potential number. Duplication may arise for one of several reasons to do with the detailed chemistry of the substance, for example tautomerism, solvent formation, partially unspecified stereochemistry. There are also replaced numbers. For this reason, Carbohydrates entries will often contain one or more *Additional CAS numbers* which may help the user to obtain further information about the substance, especially by online searching.

Clearly, the additional CAS numbers given in Carbohydrates have to be used with care. Their inclusion in the entry is the result of an editorial decision by the Carbohydrates contributor that they refer to what is essentially the same substance, but this decision may be a subjective one. Care has been taken to ensure that the main CAS number given in Carbohydrates for each substance is the correct one.

Further information on CAS number allocation policy can be obtained from CAS indexes or *The Organic Chemist's Desk Reference*.

2.3 Structural formulae

Every attempt has been made to present the structures of chemical substances as accurately as possible according to best current practice and recommendations of IUPAC (The International Union of Pure and Applied Chemistry). As much consistency as possible has been aimed at between closely-related structures. For example, all sugars are shown as Haworth formulae, and whenever possible in complex structures the rings are oriented in the standard Haworth convention so that structural comparisons can be quickly made.

2.4 Molecular formula and molecular weight

The elements in the molecular formula are given according to the Hill convention (C, H, then other elements in alphabetical order). The molecular weights given are formula weights (or more strictly, molar masses in daltons) and are rounded to three places in decimals. In the case of some high molecular mass substances, such as proteins, the value quoted may be that taken from an original literature source and may be an aggregate molar mass.

2.5 Physical data

Carbohydrates gives the following physical characteristics of substances, when available; appearance, melting point, boiling point, optical rotation, density, refractive index, solubility, p*K*a. All of these fields are searchable by numerical value (including range searching) in the CD-ROM version of Carbohydrates.

2.5.1 Appearance

Organic compounds are considered to be colourless unless otherwise stated. Where the compound contains a chromophore which would be expected to lead to visible colour, but no colour is mentioned in the literature, the Carbohydrates entry will mention this fact if it has been noticed by the contributor. An indication of crystal form and of recrystallisation solvent is often given but these are imprecise items of data; most compounds can be crystallised from several solvent systems and the crystal form often varies. In the case of the small number of compounds where crystal behaviour has been intensively studied (e.g. pharmaceuticals), it is found that polymorphism is a very common phenomenon and there is no reason to believe that it is not widespread among organic compounds generally.

[1] Lichtenthaler, F.W., *et.al*., *Annalen*, 1989, 1153

2.5.2 Melting points and boiling points

The policy followed in the case of conflicting data is as follows:

(a) Where the literature melting points are closely similar, only one figure (the highest or most probable) is quoted.
(b) Where two or more melting points are recorded and differ by several degrees (the most likely explanation being that one sample was impure) the lower figure is given in parentheses, thus Mp 139° (134-135°).
(c) Where quoted figures differ widely and some other explanation such as polymorphism or incorrect identity seems the most likely explanation, both figures are quoted without parentheses, thus Mp 142°, Mp 205-206°.
(d) Known cases of polymorphism or double melting points are noted.

Boiling point determination is less precise than that of melting points and conflicting boiling point data is not usually reported except when there appears to be a serious discrepancy between the different authors.

2.5.3 Optical rotations

These are given wherever possible, and normally refer to what the Carbohydrates contributor believes to be the best characterised sample of highest chemical and optical purity. Where available an indication of the optical purity (op) or enantiomeric excess (ee) of the sample measured follows the specific rotation value.

Specific rotations are dimensionless numbers and the degree sign which was formerly universal in the literature has been discontinued.

2.5.4 Densities and refractive indexes

Densities and refractive indexes are now of less importance for the identification of liquids than has been the case in the past, but are quoted for common or industrially important substances, or where no boiling point can be found in the literature.

Densities and refractive indexes are not quoted where the determination appears to refer to an undefined mixture of stereoisomers.

2.5.5 Solubilities

Solubilities are given only where the solubility is unusual for a compound. Typical organic compounds are soluble in the usual organic solvents such as ether and chloroform, and virtually insoluble in water. The presence of polar groups (OH, NH_2, and especially COOH, SO_3H and NR_3^+) increases water solubility.

2.5.6 pK_a values

pK_a values are given for both acids and bases. The pK_b of a base can be obtained by subtracting its pK_a from 14.17 (at 20°) or from 14.00 (at 25°).

2.6 Spectroscopic data

Many Carbohydrates entries include ultraviolet spectra which are presented in the format:

[neutral] λ_{max} 198 (log ε 1.55); 224 (sh) (log ε 0.61); 241 (sh) (log ε 0.55) (H_2O) (Berdy)

where ε is the absorption coefficient for a given UV maxima value (λ_{max}). A description of the solvent conditions used, if reported in the literature, is listed at the beginning and end of the UV data in parentheses. All peak absorptions cited are maxima unless otherwise described, e.g. shoulder/inflection (sh) and end absorption (end). In addition, UV data may be followed by the term 'Berdy' or 'DEREP' indicating from which database the data originated. The absence of either of these terms implies that the data was abstracted from the primary literature.

On the CD-ROM, all the λ_{max} values are indexed in the UV Maxima field and can be searched for numerically including range searching. Similarly, the solvent data associated with the UV data are indexed in the UV Solvent field.

2.7 Hazard and toxicity information

2.7.1 General

Toxicity and hazard information is highlighted by the symbol ► and has been selected to assist in risk assessments for experimental, manufacturing and manipulative procedures with chemicals.

Physical, ***reactive*** and ***toxic*** properties all contribute to the hazard associated with a particular chemical. As part of the ***physical data***, flash points, explosive limits and autoignition temperatures have been included where appropriate. Flammable classifications, which are based on flash point measurements and boiling points, are also mentioned, and the opportunity has been taken to include UK occupational exposure limits, or for some compounds threshold limit values published by the American Conference of Governmental Industrial Hygienists (ACGIH). For the ***reactive*** hazards, a brief comment is made on any explosive (or violent polymerisation) properties and aspects of the chemical reactivity of a substance which are of concern. These include the potential for peroxidation, oxidising/reducing properties and incompatibility with commonly available chemicals. ***Toxicity*** information has been chosen to show hazardous effects from short-term or long-term

exposure. Observations from human exposure are summarised if available (including possible adverse effects of drugs), otherwise experimental (exp.) tests are quoted. Included in the toxicity data are the results of irritancy tests, acute lethality data, target organ toxicity, and carcinogenic and reproductive properties where appropriate. Those chemicals which have been classified by the International Agency for Research on Cancer (IARC) as *human carcinogens*, *probable human carcinogens* or *possible human carcinogens* have been identified in Carbohydrates accordingly.

The Publishers cannot be held responsible for any inaccuracies in the reported information, neither does the omission of hazard data in the *Dictionary* imply an absence of this data from the literature. Widely recognised hazards are included however, and where possible key toxicity reviews are identified in the references. Further advice on the storage, handling and disposal of chemicals is given in *The Organic Chemist's Desk Reference*.

Finally, it should be emphasised that any chemical has the potential for harm if it is carelessly used.

2.7.2 RTECS® Accession Numbers*

Many entries in Carbohydrates contain one or more RTECS® Accession Numbers. Possession of these numbers allows users to locate toxicity information on relevant substances from the NIOSH *Registry of Toxic Effects of Chemical Substances*, which is a compendium of toxicity data extracted from the scientific literature.

For each Accession Number the RTECS® database provides the following data when available: substance prime name and synonyms; data when the substance record was last updated; CAS Registry Number; molecular weight and formula; reproductive, tumorigenic, and toxic dose data; and citations to aquatic toxicity ratings, IARC reviews, ACGIH Threshold Limit Values, toxicological reviews, existing Federal standards, the NIOSH criteria document program for recommended standards, the NIOSH current intelligence program, the NCI Carcinogenesis Testing Program, and the EPA Toxic Substance Control Act inventory. Each data line and citation is referenced to the source from which the information was extracted.

2.8 Bibliographic references

The selection of references is made with the aim of facilitating entry into the literature for the user who wishes to locate more detailed information about a particular compound. The contents of most references are indicated by reference tags (suffixes) indicating their content and in particular the stereoisomers and derivatives of the parent compound which they document. Many carbohydrates are documented in several different literature references, and unless there are marked differences in their reported physical properties or syntheses, recent and accessible references are preferred to older and/or less accessible ones. The number of references cited does not indicate the relative importance of a compound; one key recent citation may supersede a number of older ones.

Journal abbreviations generally follow the practice of the Chemical Abstracts Service Source Index (CASSI), except for a short list of very well known journals where the Dictionary gives shorter abbreviations to save space (e.g. *J.A.C.S.* instead of *J. Am. Chem. Soc.*)

2.8.1 Further References

Further useful information on a variety of topics concerned with the structure, description, stereochemistry and nomenclature of organic compounds, including carbohydrates can be found in the *Organic Chemist's Desk Reference* (Chapman & Hall, 1995).

3. INDEXES

There are two printed indexes:

(1) A **Name Index** which lists every compound name and synonym in the Dictionary, and
(2) A **Type of Compound** index listing all compounds given in the Dictionary.

The indexes refer to the entry number. In the Name Index an entry number preceded by the word '*see*' means that the name listed is a synonym to an entry name, and appearance of the term '*in*' means that the name listed is the name of a derivative embedded within the entry.

Searches on all text and numerical indexes, as well as structure and substructure searching can be carried out on the CD-ROM version of the Dictionary. In the CD-ROM Type of Compound Index, all carbohydrates in the Dictionary are classified under one or more of the headings given in Fig. 2.

* RTECS® Accession Numbers are compiled and distributed by the National Institute for Occupational Safety and Health Service of the U.S. Department of Health and Human Services of The United States of America.

AF0100 Tetroses
AF0200 *arabino*-Pentoses
AF0300 *lyxo*-Pentoses
AF0400 *ribo*-Pentoses
AF0500 *xylo*-Pentoses
AF0600 *allo*-Hexoses
AF0700 *altro*-Hexoses
AF0800 *galacto*-Hexoses
AF0900 *gluco*-Hexoses
AF1000 *gulo*-Hexoses
AF1100 *ido*-Hexoses
AF1200 *manno*-Hexoses
AF1300 *talo*-Hexoses
AF1400 Higher aldoses
AF1500 *erythro*-Pentuloses
AF1600 *threo*-Pentuloses
AF1700 *fructo*-Hexuloses
AF1800 *psico*-Hexuloses
AF1900 *sorbo*-Hexuloses
AF2000 *tagato*-Hexuloses
AF2100 Miscellaneous ketoses
AF2200 Higher ketoses
AF2300 1,2-Anhydrosugars
AF2400 1,3-Anhydrosugars
AF2500 1,4-Anhydrosugars
AF2600 1,5-Anhydrosugars
AF2700 1,6-Anhydrosugars
AF2800 2,3-Anhydrosugars
AF2900 2,5-Anhydrosugars
AF3000 2,6-Anhydrosugars
AF3100 3,4-Anhydrosugars
AF3200 3,6-Anhydrosugars
AF3300 4,6-Anhydrosugars
AF3400 5,6-Anhydrosugars
AF3500 Dianhydrosugars
AF3600 Other anhydrosugars
AF3700 Glycosyl halides and other 1-halogenosugars
AF3800 2-Halogenosugars
AF3900 3-Halogenosugars
AF4000 4-Halogenosugars
AF4100 5-Halogenosugars
AF4200 6-Halogenosugars
AF4300 Glycosylamines
AF4400 2-Amino-2-deoxysugars
AF4500 3-Amino-3-deoxysugars
AF4600 4-Amino-4-deoxysugars
AF4700 5-Amino-5-deoxysugars
AF4800 6-Amino-6-deoxysugars
AF4900 Aminodeoxyalditols
AF4950 Azidosugars
AF5000 Thioglycosides and 1-thiosugars
AF5100 Other thiosugars
AF5150 1-Deoxy sugars
AF5200 2-Deoxy sugars
AF5300 3-Deoxy sugars
AF5400 4-Deoxy sugars
AF5500 5-Deoxy sugars
AF5600 2,6-Dideoxy sugars
AF5700 3,6-Dideoxy sugars
AF5800 4,6-Dideoxy sugars
AF5850 Polydeoxy sugars
AF5900 6-Deoxyalloses
AF6000 6-Deoxyaltroses
AF6100 6-Deoxygalactoses
AF6200 6-Deoxyglucoses
AF6300 6-Deoxyguloses
AF6400 6-Deoxyidoses
AF6500 6-Deoxymannoses
AF6600 6-Deoxytaloses
AF6650 Other deoxy sugars
AF6700 Unsaturated sugars; 1-enes
AF6800 Unsaturated sugars; 2-enes
AF6900 Unsaturated sugars; 3-enes
AF7000 Unsaturated sugars; 4-enes
AF7100 Unsaturated sugars; 5-enes
AF7150 Other unsaturated sugars
AF7160 Sugar alkynes
AF7200 Branched chain sugars
AF7300 Dicarbonyl sugars; glycos-2-uloses
AF7400 Dicarbonyl sugars; glycos-3-uloses
AF7500 Dicarbonyl sugars; glycos-4-uloses
AF7600 Dicarbonyl sugars; glycos-5-uloses
AF7700 Diuloses
AF7800 Dialdoses
AF7900 Aldonic acids and lactones
AF8000 Glycuronic acids and lactones
AF8100 Aldaric acids and lactones
AF8200 Ketoacid sugars and lactones
AF8300 Higher sugar acids and lactones
AF8400 Other sugar acids and lactones
AF8500 Glycerol derivatives
AF8600 Tetritols
AF8700 Pentitols
AF8800 Hexitols
AF8900 Higher alditols
AF9000 Cyclitols
AF9100 Other polyols
AF9150 Sugar phosphates
AF9200 Reducing disaccharides
AF9220 Non-reducing disaccharides
AF9230 Trisaccharides
AF9300 Linear oligosaccharides
AF9350 Cyclic oligosaccharides
AF9400 Polysaccharides
AF9500 Miscellaneous carbohydrate antibiotics
AF9600 Glycosinolates
AF9900 Nucleosides
AF9999 Carbohydrates of unknown or partially unknown structure

FIGURE 2

4. ABBREVIATIONS

The following is a selection of the most common Database abbreviations used:

Abbreviation	Name
[α]	specific rotation
abs config	absolute configuration
Ac	acetyl
acc	according
AcOH	acetic acid
Ac_2O	acetic anhydride
ADI	Acceptable Daily Intake
alk	alkaline
amorph	amorphous
amt	amount
anal	analytical applications, analysis of detection
anhyd	anhydrous
aq	aqueous
BAN	British Approved Name
bibl	bibliography
biosynth	biosynthesis
Bp	boiling point
c	concentration
ca	(*circa*) about
cd	circular dichroism
CAS	Chemical Abstracts Service
chromatog	chromatography
cmr	carbon (^{13}C) nuclear magnetic resonance
CNS	central nervous system
col	color, coloration
coml	commercial(ly)
compd	compound
conc	concentrated
config	configuration
conformn	conformation
constit	constituent
cryst struct	X-ray crystal structure determination
d	density
dec	decomposes, decomposition
degradn	degradation
deg	degree
deriv(s)	derivative(s)
detn	detection, determination
dil	dilute, dilution
dimorph	dimorphic
diss	dissolves, dissolved
dist(n)	distil, distillation
DMF	dimethylformamide
DMSO	dimethyl sulfoxide
ee	enantiomeric excess
epr	electron paramagnetic (spin) resonance
equilib	equilibrium
esp	especially
Et	ethyl
EtOAc	ethyl acetate
EtOH	ethanol
EtOH aq	aqueous ethanol
exp	experimental
FEMA	Flavor and Extract Manufacturers' Association
fl p	flash point
fluor	fluoresces, fluorescence
formn	formation
Fp	freezing point
g	gram
glc	gas liquid chromatography
Glc	β-D-glucopyranosyl
GRAS	Generally Recognized As Safe
ham	hamster
haz	hazard
hplc	high performance liquid chromatography
hydrol	hydrolyses, hydrolyzed, hydrolysis
ihl	inhalation
ims	intramuscular
INN	International Nonproprietary Name
intermed	intermediate
ipr	intraperitoneal
ir	infra-red spectrum
isol(n)	isolation, isolated
isom	isomerism, isomers, isomerises
ivn	intravenous
JAN	Japanese Accepted Name
JMAF	Japanese Ministry for Agriculture, Forestry and Fisheries
LC	lethal concentration
LD	lethal dose: LD_{50}, a dose that is lethal to 50% of the animals tested
M	molecular weight (formula weight)
manuf	manufacturer, manufactured
max	maximum
Me	methyl
MeOH	methanol
Me_2CO	acetone
MEL	maximum exposure limit
metab	metabolite, metabolism
misc	miscible
mixt	mixture
mod	moderately
Mp	melting point
ms	mass spectrum
mus	mouse
n	index of refraction, e.g. n_D^{20} for 20° and sodium light
nmr	nuclear magnetic resonance spectrum (general)
obt	obtained
oc	open cup
occup	occupational
OES	Occupational Exposure Standard
op	optical purity
ord	optical rotatory dispersion
orl	oral
Ph	phenyl (C_6H_5)

Abbreviation	Name
pharmacol	pharmacology
pmr	proton (^{1}H) nuclear magnetic resonance
polarog	polarography
polym	polymerises, polymer
ppd	precipitated
ppm	parts per million
props	properties
purifn	purification
Py	pyridine
rbt	rabbit
ref	reference
resoln	resolution
rev	review
rt	room temperature
scu	subcutaneous
sepn	separation
skn	skin
sl	slightly
sol	soluble
soln	solution
solv	solvent
sp	species (singular)
spar	sparingly
spp	species (plural)
ssp	subspecies
subl	sublimation, sublimes
synth	synthesis
tautom	tautomerism
THF	tetrahydrofuran
tlc	thin layer chromatography
TLV	Threshold Limit Value
tox	toxicity
unsatd	unsaturated
USAN	United States Adopted Name
uv	ultraviolet spectrum
v	very
var	variety
vis	visible
vol	volume

4.1 Reference tags

The following is a selection of the most common Reference Tag abbreviations used:

Abbreviation	Name
abs config	absolute configuration
anal	analysis
bibl	bibliography
biosynth	biosynthesis
cd	circular dichroism
chromatog	chromatography
cmr	^{13}C nuclear magnetic resonance spectrum
config	configuration
conformn	conformation
cryst struct	X-ray crystal structure determination
deriv(s)	derivative(s)
detn	determination, detection
dta	differential thermal analysis
glc	gas-liquid chromatography
hplc	high performance liquid chromatography
ir	infrared spectrum
isol	isolation
isom	isomerism
manuf	manufacture
metab	metabolism
ms	mass spectrum
nmr	nuclear magnetic resonance spectrum
occur	occurrence
ord	optical rotatory dispersion
pharmacol	pharmacology
pmr	proton (^{1}H) nuclear magnetic resonance spectrum
props	properties (chemical or physical)
Raman	Raman spectrum
resoln	resolution
rev	review
sepn	separation
struct	structure
synth	synthesis
tautom	tautomerism
tlc	thin layer chromatography
tox	toxicity
trans	transition(s)
uv	ultraviolet spectrum
uv-vis	ultraviolet visible spectrum

5. DICTIONARY OF CARBOHYDRATES ON CD-ROM

The *Dictionary of Carbohydrates* is published together with a fully searchable CD-ROM. Space considerations have precluded the inclusion of indexes other than the Name Index and the Molecular Formula index in the hard-copy version of The *Dictionary of Carbohydrates*. These were considered to be the most useful types of indexing for users primarily wishing to locate carbohydrates. In contrast, the CD-ROM contains searchable indexes on the following 33 fields:

Accurate Mass
All Entries
All Text
Biological Source
Biological Use/Importance
Boiling Point
Boiling Point Pressure
CAS Registry Number
Chapman & Hall Number
Chemical Name
Density
Development Status
Dissociation Constant
Hazard & Toxicity
Hazard Flag
Ion Charge
Melting Point
Molecular Formula
Molecular Weight
Optical Rotation
Partition Coefficient (Calc.)
Percent Composition
References
Refractive Index
Rotation Conditions
RTECS Accession No.
Source/Synthesis
Supplier
Type of Compound
Type of Compound Words
Use/Importance
UV Maxima
UV Solvent

In addition to searching the above text fields, it is possible to search on structure and substructure.

Once installed, a User manual and Help file providing additional information on data content and guide to searching are available from the Chapman & Hall CRC folder in the Start Menu and from the Help menu on the CD-ROM.

When accessing the *Dictionary of Carbohydrates on CD-ROM* the first screen that is obtained is the Search Form window (Fig. 3).

The Search Form window is split into three panes:

1. Structure Search pane — allowing structure and substructure searching.
2. Search Terms pane — search from one or more of the 29 available data/text fields.
3. Index pane — displays the indexed terms within a selected field.

From the Search Form window design your search profile using text, structure or text/structure searching. Once your search has been performed the resultant hits are listed alphabetically by chemical name in the Hit List screen. Clicking on any one of the hits in the hit list screen will result in that entry being displayed in the Entry Display screen (Fig. 4).

Any comments and suggestions for inclusion may be sent to:

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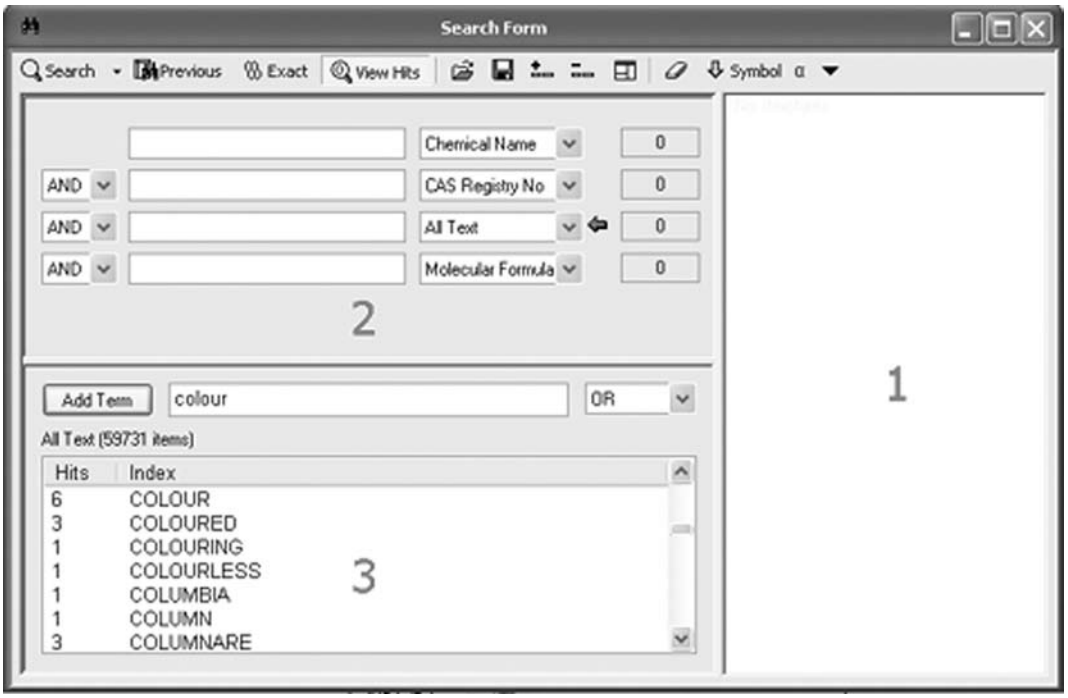


FIGURE 3

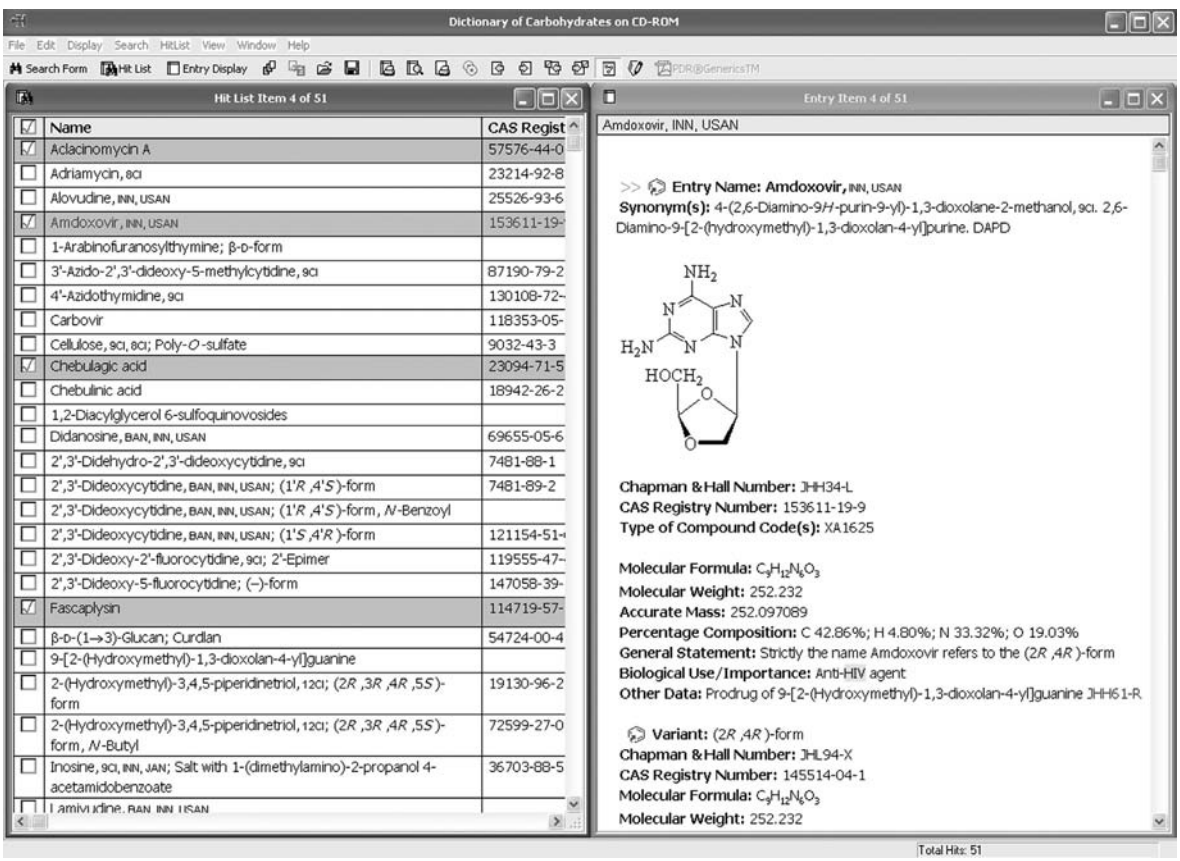
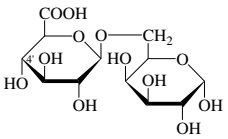


FIGURE 4

Acaciabiuronic acid A-1

6-O-β-D-Glucopyranuronosyl-D-galactose, 9CI, 8CI
[7264-19-9]



α-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283
Probably the commonest aldobiouronic acid present as a structural unit in plant gums. Isol. from partial acid hydrolysates from the following plants; black wattle (*Acacia mollissima*), *Acacia senegal*, *Acacia pycnantha*, *Acacia karroo*, *Acacia cyanophylla*, egg plum (*Prunus domestica*), almond (*Prunus amygdalus*), peach (*Prunus persica*), *Anogeissus lattifolia* (gum ghatti), *Vigilia oroboides*, *Afraegle paniculata*, *Ferula* and *Chorisia* spp. Also isol. from hydrolysates of maritime pine (*Pinus pinaster*) hemicellulose and wheat straw. Mp 118-119° (hydrate). $[\alpha]_D$ +11.6 → -8.6 (H_2O).

Ca salt: $[\alpha]_D$ +2 (H_2O).

Ba salt: $[\alpha]_D$ -3 (H_2O).

Me ester:
$C_{13}H_{22}O_{12}$ 370.31
Mp 119°. $[\alpha]_D$ -9 (H_2O).

Hepta-Ac, Me ester:
$C_{27}H_{36}O_{19}$ 664.57
Mp 202-203°. $[\alpha]_D$ -17.5 ($CHCl_3$).

4′-Me: 6-O-(4-O-Methyl-β-D-glucuronopyranuronosyl)-D-galactose, 9CI, 8CI
[13006-41-2]
$C_{13}H_{22}O_{12}$ 370.31
Structural unit in plant gums, e.g. *Prosopsis juliflora, Commiphora myrrha, Boswellia carteri*.
$[\alpha]_D$ -1 (H_2O).

α-Pyranose-*form* [52554-59-3]
$[\alpha]_D$ +2 (H_2O).

1,2:3,4-Di-O-isopropylidene, 2′,3′,4′-tri-Ac, Me ester: [35906-41-3]
$C_{25}H_{36}O_{15}$ 576.55
Mp 114-115°. $[\alpha]_D$ -65 (c, 4.5 in $CHCl_3$).

Me glycoside, hexa-Me, Me ester:
$C_{20}H_{36}O_{12}$ 468.497
$[\alpha]_D$ +42 ($CHCl_3$).

β-Pyranose-*form* [52554-60-6]

Me glycoside, hexa-Ac, Me ester:
$C_{26}H_{36}O_{18}$ 636.56
Mp 140°. $[\alpha]_D$ -54 ($CHCl_3$).

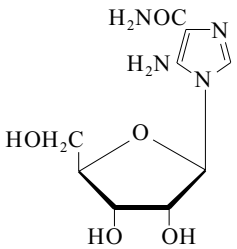
Me glycoside, hexa-Me, Me ester: [22854-45-1]
Mp 86-90°. $[\alpha]_D$ -35 ($CHCl_3$).

[1693-80-7, 5566-99-4]

Hotchkiss, R.D. *et al., J. Biol. Chem.*, 1936, **115**, 285 (*deriv*)
Goebel, W.F. *et al., J. Biol. Chem.*, 1938, **124**, 207 (*isol*)
Jackson, J. *et al., J.C.S.*, 1940, 74 (*α-Me pyr hexa-Me Me ester, isol*)
Aspinall, G.O. *et al., J.C.S.*, 1955, 1160; 1961, 3461 (*isol*)
Mukherjee, S. *et al., J.A.C.S.*, 1958, **80**, 2536 (*isol*)
Jones, J.K.N. *et al., Can. J. Chem.*, 1961, **39**, 162 (*isol*)
Bailey, R.W. *et al., Oligosaccharides*, Pergamon Press, London, 1965, **4**, 134 (*occur*)
De, K.K. *et al., Carbohydr. Res.*, 1967, **4**, 177 (*synth, diisopropylidene tri-Ac Me ester*)
Peciar, C. *et al., Chem. Zvesti*, 1974, **28**, 83 (*config, pmr*)
Di Fabio, J.L. *et al., Carbohydr. Res.*, 1982, **99**, 41 (*isol*)

Acadesine, BAN, INN, USAN A-2

5-Amino-1-ribofuranosyl-1H-imidazole-4-carboxamide, 9CI. AICA-Riboside. AICAR. GP 1-110
[2627-69-2]



$C_9H_{14}N_4O_5$ 258.233
Accumulates in the culture medium of *E. coli* under sulfonamide stasis. Manuf. by *Bacillus pumilus* and *Bacillus subtilis*. Platelet aggregation inhibitor. Pink rosettes (EtOH). Sol. H_2O.
Mp 215-216° dec. $[\alpha]_D^{27}$ -62.4 (c, 0.5 in H_2O). Log P -2.97 (calc).

Picrate: [24418-25-5]
Mp 146-147°.

5′-Phosphate: [3031-94-5]
$C_9H_{15}N_4O_8P$ 338.213
Produced by the action of brewer's yeast on the riboside. The 5′-phosphate and its nontoxic salts are potent flavour enhancers of soups, canned foods, beverages, etc. Nucleotide involved in the *de novo* biosynth. of other purine nucleotides. Converted by Bratton-Marshall reagents to a purple dye with λ_{max} 540 nm. λ_{max} 268 (ε 12800) (H_2O).

2′,3′,5′-Tri-Ac: [23274-21-7]
$C_{15}H_{20}N_4O_8$ 384.345
Mp 69° (88-90°, 130-131°). $[\alpha]_D^{27}$ -30.5 (c, 1.0 in EtOH).

N,*2′,3′,5′-Tetra-Ac:* [37805-74-6]
$C_{17}H_{22}N_4O_9$ 426.382
Cryst. (EtOH). Mp 208-209°. $[\alpha]_D^{26}$ +2.9 (c, 0.51 in $CHCl_3$).

2′,3′-O-Isopropylidene, 5′-Ac:
$C_{14}H_{20}N_4O_6$ 340.335
Mp 168-169°.

2′-Deoxy:
Cryst. (MeOH). Mp 177-178°.

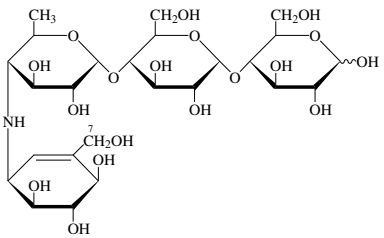
3′-Deoxy:
Cryst. (MeOH aq.). Mp 214-216°.

Greenberg, G.R. *et al., J. Biol. Chem.*, 1956, **219**, 411; 423 (*isol*)
Burrows, I.E. *et al., J.C.S.(C)*, 1967, 1088 (*synth, phosphate*)
U.S. Pat., 1967, 3 355 301; *CA*, **68**, 28636q (*use*)
U.K. Pat., 1968, 1 134 974; *CA*, **70**, 58231n (*isopropylidene Ac*)
Panzica, R.P. *et al., J.O.C.*, 1971, **36**, 1594 (*synth*)
Panzica, R.P. *et al., J. Het. Chem.*, 1972, **9**, 623 (*synth, tri-Ac, tetra-Ac*)
Ivanovics, G.A. *et al., J.O.C.*, 1974, **39**, 3651 (*synth*)
Adamiak, D.A. *et al., Acta Cryst. B*, 1979, **35**, 924 (*cryst struct*)
Sabina, R.L. *et al., J. Biol. Chem.*, 1982, **257**, 10178 (*metab*)
Ferris, J.P. *et al., J.O.C.*, 1985, **50**, 747 (*synth, uv, pmr*)
Mullane, K. *et al., Cardiovasc. Res.*, 1993, **27**, 43 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1329
Minakawa, N. *et al., Chem. Pharm. Bull.*, 1996, **44**, 288 (*2′-deoxy, 3′-deoxy*)
Kohyama, N. *et al., Synthesis*, 2003, 2639-2642 (*synth, pmr, cmr*)

Acarbose, BAN, INN, USAN A-3

4,6-Dideoxy-4-[[4,5,6-trihydroxy-3-(hydroxymethyl)-2-cyclohexen-1-yl]amino]-α-D-glucopyranosyl-(1→4)-α-D-glucopyranosyl-(1→4)-D-glucose, 9CI. Amylostatin J. Glucobay. Bay g 5421. α-GHI. Precose. Prandase
[56180-94-0]

[82642-63-5]



$C_{25}H_{43}NO_{18}$ 645.611
A component of the Amylostatin complex. See also Amylostatin, A-475. Isol. from *Actinoplanes* sp. A potent inhibitor of α-glucosidases and saccharases. Used for treatment of diabetes, hyperlipidaemia and obesity. Launched in 1990.
Amorph. Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane. $[\alpha]_D$ +147.2 (H_2O). $[\alpha]_D^{20}$ +171.3.

▶ LZ7153000

7-O-Phosphate:
$C_{25}H_{43}NO_{21}P$ 724.583
From *Actinoplanes* sp.

Ger. Pat., 1975, 2 347 782; *CA*, **83**, 56721s
Schmidt, D.D. *et al., Naturwissenschaften*, 1977, **64**, 535-536; 536-537 (*isol, props*)
Truscheit, E. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 744-761 (*rev*)
Creutzfeldt, W. *et al., Int. Congr. Ser. Excerpta Med.*, 1982, 594 (*book*)
Junge, B. *et al., Carbohydr. Res.*, 1984, **128**, 235-268 (*struct*)
Bock, K. *et al., Carbohydr. Res.*, 1984, **132**, 142-149 (*conformn*)
Ogawa, S. *et al., Chem. Comm.*, 1988, 605 (*synth*)
Clissold, S.P. *et al., Drugs*, 1988, **35**, 214 (*rev, pharmacol*)
Maul, W. *et al., Arzneim.-Forsch.*, 1989, **39**, 1251-1253 (*synth*)
Shibata, Y. *et al., Carbohydr. Res.*, 1989, **189**, 309-322 (*synth*)
Peruche, B. *et al., Pharm. Ztg.*, 1992, **137**, 30; 32; 34; 36 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 276

Goeke, K. *et al., J. Antibiot.*, 1996, **49**, 661-663; 664 (*7-phosphate*)
Mahmud, T. *et al., Chem. Rev.*, 2001, 300-301 (*rev, biosynth*)
Bowers, S.G. *et al., Carbohydr. Res.*, 2002, **337**, 297-304 (*biosynth, bibl*)
Périon, R. *et al., Carbohydr. Res.*, 2003, **338**, 2779-2792 (*synth*)

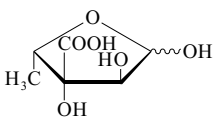
Acemannan, INN, USAN A-4

Carrisyn. Polymannoacetate
[110042-95-0]
Long chain polymer consisting of linear (1→4)-D-mannopyranosyl units, randomly acetylated (0.8 Ac per monomer) MW >10000 Dalton. Constit. of leaf juice of *Aloe barbadensis* and *Aloe arborescens* (Liliaceae). Biol. active component of carrisyn extract (73-90%). Potent inducer of Interleukin 1 and Prostaglandin E_2 production by human peripheral blood adherent cells *in vitro*. Influences activity and production of T-lymphocytes, fibroblasts, B-lymphocytes and endothelial cells. Adjuvant and immunoenhancer. Increases antibody production, stimulates phagocytosis. Shows specific antineoplastic activity against sarcoid tumours in horse. Used in the treatment of inflammatory bowel disease. Fluffy amorph. powder.

Pat. Coop. Treaty (WIPO), 1987, 0 052, (*Carrington Lab*); *CA*, **107**, 183550z (*extraction*)
Womble, D. *et al., Int. J. Immunopharmacol.*, 1988, **10**, 967; *CA*, **110**, 50917q (*activity*)
Pat. Coop. Treaty (WIPO), 1990, 01 253, (*Carrington Lab*); *CA*, **114**, 55783k (*prep, activity*)
Fogleman, R.W. *et al., Vet. Hum. Toxicol.*, 1992, **34**, 144; 201 tox
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 536

Aceric acid A-5

3-C-*Carboxy-5-deoxyxylose. Ace A*
[87863-99-8]



L–Furanose–*form*

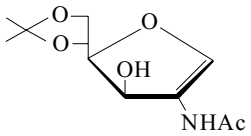
$C_6H_{10}O_6$ 178.141

L-*form*
Constit. of Rhamnogalacturonan II, R-10, a primary cell wall pectic polysaccharide isol. from cultured cells of *Acer pseudoplatanus* (Sycamore). First branched chain acidic sugar to be found as a natural product.

1,4-Lactone: 3-C-Carboxy-5-deoxyxylono-1,4-lactone
[87864-05-9]
$C_6H_8O_5$ 160.126
Cryst. (2-pentanone/$CHCl_3$). Mp 120-122°.

Spellman, M.W. *et al., Carbohydr. Res.*, 1983, **122**, 115 (*isol, pmr, cmr, ms, cryst struct, lactone*)
Whitcombe, A.J. *et al., Carbohydr. Res.*, 1995, **271**, 15-29

2-Acetamido-1,4-anhydro-2-deoxy-5,6-*O*-isopropylidene-*arabino*-hex-1-enitol A-6



$C_{11}H_{17}NO_5$ 243.259

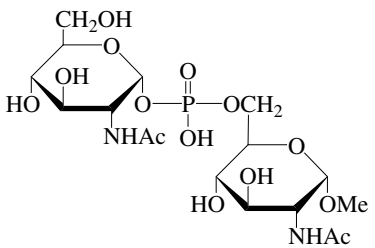
D-*form* [66335-63-5]
Plates (MeOH/Et_2O). Mp 152°. $[\alpha]_D^{25}$ -1 (c, 0.5 in MeOH).

3-O-*(2-Acetamido-2,3-dideoxy-5,6*-O-*isopropylidene-α-D*-erythro-*hex-2-enofuranosyl): 2-Acetamido-3*-O-*(2-acetamido-2,3-dideoxy-5,6*-O-*isopropylidene-α-D*-erythro-*hex-2-enofuranosyl)-1,4-anhydro-2-deoxy-5,6*-O-*isopropylidene-D*-arabino-*hex-1-enitol*
[73745-59-2]
Amorph. solid. $[\alpha]_D^{25}$ -81.7 (c, 1.0 in $CHCl_3$).

3-O-*(2-Acetamido-2,3-dideoxy-5,6*-O-*isopropylidene-β-D*-erythro-*hex-2-enofuranosyl): 2-Acetamido-3*-O-*(2-acetamido-2,3-dideoxy-5,6*-O-*isopropylidene-β-D*-erythro-*hex-2-enofuranosyl)-1,4-anhydro-2-deoxy-5,6*-O-*isopropylidene-D*-arabino-*hex-1-enitol*
[73836-73-4]
Plates (Et_2O/EtOH). Mp 198-199°. $[\alpha]_D^{25}$ +7.6 (c, 1.0 in $CHCl_3$).

Hasegawa, A. *et al., Carbohydr. Res.*, 1979, **74**, 341; 1978, **63**, 91; 1980, **79**, 255 (*synth, ms, pmr*)

(2-Acetamido-2-deoxy-α-D-glucopyranos-1-yl)(methyl 2-acetamido-2-deoxy-α-D-glucopyranosid-6-yl) phosphate A-7

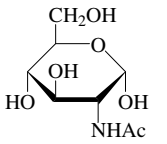


$C_{17}H_{31}N_2O_{14}P$ 518.411
Prod. by *Streptomyces* sp. A50. Amorph. solid.

Ben-Bashat, D. *et al., J. Nat. Prod.*, 2001, **64**, 1538-1540 (*isol, pmr, cmr, ms*)

2-Acetamido-2-deoxyglucose A-8

2-(Acetylamino)-2-deoxyglucose, 9CI.
N-*Acetylglucosamine*
[7512-17-6]



α-D-Pyranose-*form*

$C_8H_{15}NO_6$ 221.21

D-*form*
Monomer of Chitin, C-58. Also in the exopolysaccharide from blue-green alga *Cyanospira capsulata*.
Mp 205°. $[\alpha]_D^{18}$ +64 → +41 (H_2O). Homopolymers with α-1,4- and with β-1,6-glycosidic links have been synth. using condensation polym.

6-Phosphate: [1746-32-3]
$C_8H_{16}NO_9P$ 301.189
Mp 147-148° dec. (as mono-NH_4 salt).

Di-Et dithioacetal:
$C_{12}H_{25}NO_5S_2$ 327.465
Mp 121-122°. $[\alpha]_D$ -24 (H_2O).

3-Ac: 2-Acetamido-3-O-*acetyl-2-deoxy-D-glucose*
[51449-93-5]
$C_{10}H_{17}NO_7$ 263.247
Cryst. (EtOH/Et_2O). Mp 157-160°. $[\alpha]_D$ +19 (c, 1.0 in EtOH).

1,3,4-Tri-Ac, 6-phosphate:
$C_{14}H_{22}NO_{12}P$ 427.301
Mp 166-168°. $[\alpha]_D^{20}$ +125 (c, 1 in H_2O).

1,3,4-Tri-Ac, di-Ph ester, 6-phosphate:
$C_{26}H_{30}NO_{12}P$ 579.496
Mp 144-145°. $[\alpha]_D$ +25 (c, 0.7 in $CHCl_3$).

3,4,5,6-Tetra-Ac, di-Et dithioacetal:
$C_{20}H_{33}NO_9S_2$ 495.614
Mp 126-127°. $[\alpha]_D$ -32 ($CHCl_3$).

3-Benzoyl: 2-Acetamido-3-O-*benzoyl-2-deoxy-D-glucose*
$C_{15}H_{19}NO_7$ 325.318
Cryst. (MeOH). Mp 198° dec. $[\alpha]_D^{20}$ +35 (c, 0.85 in 50% dioxan aq.).

4,6-O-*Isopropylidene, di-Et dithioacetal:*
$C_{15}H_{29}NO_5S_2$ 367.53
Needles (EtOH/petrol). Mp 39-40°. $[\alpha]_D^{20}$ +9 (c, 1 in H_2O).

3-Me: 2-Acetamido-2-deoxy-3-O-*methyl-D-glucose*
[94825-74-8]
$C_9H_{17}NO_6$ 235.236
Mp 195-196° (183-185°). $[\alpha]_D$ +33 (H_2O).

4-Me: 2-Acetamido-2-deoxy-4-O-*methyl-D-glucose*
[111537-25-8]
$C_9H_{17}NO_6$ 235.236
Mp 211-215° dec. $[\alpha]_D$ +79 → +69 (H_2O).

6-Me: 2-Acetamido-2-deoxy-6-O-*methyl-D-glucose*
$C_9H_{17}NO_6$ 235.236
Mp 224-225°. $[\alpha]_D$ +74 → +48 (H_2O).

*3,4-Di-Me: 2-Acetamido-2-deoxy-3,4-di-*O*-methyl-D-glucose*
[53684-98-3]
$C_{10}H_{19}NO_6$ 249.263
Cryst. (Me_2CO/Et_2O). Mp 173-175°. $[\alpha]_D$ +64 → +48 (1d) (c, 0.81 in $CHCl_3$).

*3,6-Di-Me: 2-Acetamido-2-deoxy-3,6-di-*O*-methyl-D-glucose*
$C_{10}H_{19}NO_6$ 249.263
Mp 232-233°. $[\alpha]_D$ +90 → +37 (H_2O).

*4,6-Di-Me: 2-Acetamido-2-deoxy-4,6-di-*O*-methyl-D-glucose*
$C_{10}H_{19}NO_6$ 249.263
Mp 227-228°. $[\alpha]_D$ +88 → +68 (H_2O).

*3,4,6-Tri-Me: 2-Acetamido-2-deoxy-3,4,6-tri-*O*-methyl-D-glucose*
$C_{11}H_{21}NO_6$ 263.29
Needles (EtOH). Mp 234°. $[\alpha]_D$ +75 → +44.8 (H_2O).

*3,4-Di-Me, 4,6-*O*-isopropylidene, di-Et dithioacetal:* [18422-19-0]
$C_{17}H_{33}NO_5S_2$ 395.583
Needles (Et_2O/petrol). Mp 120-121°. $[\alpha]_D^{20}$ +13.6 (c, 1 in H_2O).

D-Pyranose-*form* [72-87-7]

*4,6-*O*-Isopropylidene: 2-Acetamido-2-deoxy-4,6-*O*-isopropylidene-D-glucopyranose*
$C_{11}H_{19}NO_6$ 261.274
Needles (EtOH). Mp 189-190°. $[\alpha]_D^{20}$ +57.5 (c, 1 in MeOH).

*3,4,6-Tribenzyl: 2-Acetamido-3,4,6-tri-*O*-benzyl-2-deoxy-D-glucopyranose*
[4171-72-6]
$C_{29}H_{33}NO_6$ 491.583
Cryst. (MeOH). Mp 218-219°. $[\alpha]_D^{20}$ +71.3 (c, 1.08 in $CHCl_3$).

Me glycoside: See Methyl 2-acetamido-2-deoxyglucopyranoside, M-144

Benzyl glycoside: See Benzyl 2-amino-2-deoxyglucopyranoside, B-13

α-D-Pyranose-*form* [10036-64-3]
Mp 203-205° dec. $[\alpha]_D^{21}$ +75 → +41 (c, 2 in H_2O).

1-Ac: See 1-*O*-Acetyl-2-amino-2-deoxy-glucose, A-13

*Di-Ac: 2-Acetamido-1,3-di-*O*-acetyl-2-deoxy-α-D-glucopyranose*
[50605-11-3]
$C_{12}H_{19}NO_8$ 305.284
Cryst. ($CHCl_3$). Mp 172-173°. $[\alpha]_D^{20}$ +80 (c, 1.0 in MeOH).

*1,3,4,6-Tetra-Ac: 2-Acetamido-1,3,4,6-tetra-*O*-acetyl-2-deoxy-α-D-glucopyranose*
[7784-54-5]
$C_{16}H_{23}NO_{10}$ 389.358
Mp 139°. $[\alpha]_D$ +92 ($CHCl_3$).

3-Octadecanoyl, 6-propanoyl: ***Dictyoglucosamine A***
$C_{29}H_{53}NO_8$ 543.74
Isol. from *Dictyostelium purpureum*.
Amorph. $[\alpha]_D$ +11.9 (c, 0.96 in $CHCl_3$).

3-Octadecanoyl, 6-(3-methylbutanoyl): ***Dictyoglucosamine B***
$C_{31}H_{57}NO_8$ 571.793
Isol. from *Dictyostelium discoideum*.
Amorph. $[\alpha]_D$ +18.2 (c, 0.01 in $CHCl_3$).

*1-Benzoyl: 2-Acetamido-1-*O*-benzoyl-2-deoxy-α-D-glucopyranose*
$C_{15}H_{19}NO_7$ 325.318
Needles (EtOAc/EtOH). Mp 192-193°. $[\alpha]_D^{20}$ +190 (c, 0.83 in MeOH).

*1-Benzoyl, 3,4,6-tri-Ac: 2-Acetamido-3,4,6-tri-*O*-acetyl-1-*O*-benzoyl-2-deoxy-α-D-glucopyranose*
[10583-53-6]
$C_{21}H_{25}NO_{10}$ 451.429
Mp 161-162°. $[\alpha]_D^{20}$ +114 (c, 1.2 in $CHCl_3$).

*4,6-*O*-Isopropylidene, di-Ac: 2-Acetamido-1,3-di-*O*-acetyl-2-deoxy-4,6-*O*-isopropylidene-α-D-glucopyranose*
[50605-10-2]
$C_{15}H_{23}NO_8$ 345.349
Cryst. (Et_2O). Mp 137-138°. $[\alpha]_D^{20}$ +73 (c, 1.0 in $CHCl_3$).

*3,4,6-Tribenzyl, 1-benzoyl: 2-Acetamido-1-*O*-benzoyl-3,4,6-tri-*O*-benzyl-2-deoxy-α-D-glucopyranose*
$C_{36}H_{37}NO_7$ 595.691
Needles (diisopropyl ether). Mp 118-119°. $[\alpha]_D^{20}$ +171 (c, 0.54 in $CHCl_3$).

β-D-Pyranose-*form* [14131-68-1]
Mp 182-184°. $[\alpha]_D$ -21.5 → +40.4 (H_2O).

*1,3,4,6-Tetra-Ac: 2-Acetamido-1,3,4,6-tetra-*O*-acetyl-2-deoxy-β-D-glucopyranose.* N*,1,3,4,6-Pentaacetylglucosamine*
[7772-79-4]
$C_{16}H_{23}NO_{10}$ 389.358
Mp 186-189°. $[\alpha]_D^{24}$ +3.9 (c, 10 in $CHCl_3$).

*1-Benzoyl: 2-Acetamido-1-*O*-benzoyl-2-deoxy-β-D-glucopyranose*
[4171-78-2]
$C_{15}H_{19}NO_7$ 325.318
Cryst. (H_2O). Mp 154-160°. $[\alpha]_D^{20}$ -38 (c, 0.82 in $CHCl_3$). Becomes anisotropic at *ca*. 100°.

*3,4,6-Tribenzyl, 1-benzoyl: 2-Acetamido-1-*O*-benzoyl-3,4,6-tri-*O*-benzyl-2-deoxy-β-D-glucopyranose*
$C_{36}H_{37}NO_7$ 595.691
Needles (EtOH/petrol). Mp 147-148°. $[\alpha]_D^{20}$ -11.1 (c, 0.54 in $CHCl_3$).

α-D-Furanose-*form*

*1-Benzoyl, 3,5,6-tri-Ac: 2-Acetamido-3,4,6-tri-*O*-acetyl-1-*O*-benzoyl-2-deoxy-α-D-glucofuranose*
$C_{21}H_{25}NO_{10}$ 451.429
$[\alpha]_D^{20}$ +110 (c, 0.3 in $CHCl_3$).

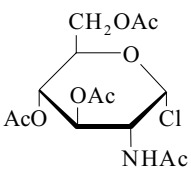
4-Nitrophenyl glycoside: 4-Nitrophenyl 2-acetamido-2-deoxy-α-D-glucofuranoside
[14948-96-0]
$C_{14}H_{18}N_2O_8$ 342.305
Chromogenic substrate for *N*-acetyl-β-glucosaminidase detn. Mp 206-207°. $[\alpha]_D^{20}$ +19 (c, 0.1 in H_2O).

DL-*form*
Cryst. (EtOH). Mp 184-191° dec.

[134451-97-1, 134522-12-6]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 757D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1238A (*nmr*)
White, T. *et al., J.C.S.*, 1940, 428 (*D-form, synth, D-tri-Me*)
Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247 (*rev*)
Jeanloz, R.W. *et al., J.A.C.S.*, 1952, **74**, 4597 (*D-3,4-di-Me*)
Kuhn, R. *et al., Chem. Ber.*, 1953, **86**, 722 (*β-D-pyr, synth*)
Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*Me ethers, rev, D-form, cryst struct*)
Johnson, L.N. *et al., Nature (London)*, 1964, **202**, 588
Harrison, R. *et al., J.O.C.*, 1965, **30**, 2317 (*D-pyr tribenzoyl, α-D-pyr 1-benzoyl, α-D-pyr 1-benzoyl tribenzyl, β-D-pyr 1-benzoyl, β-D-pyr 1-benzoyl tribenzyl*)
Inch, T.D. *et al., J.O.C.*, 1966, **31**, 1821 (*D-3-benzoyl, α-D-pyr 1-benzoyl tri-Ac, α-D-fur 1-benzoyl tri-Ac*)
Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2655 (*D-di-Et-dithioacetal derivs*)
Horton, D. *et al., The Amino Sugars*, (Jeanloz, R.W., Ed.), Academic Press, 1969, **1A**, (*rev*)
Cerezo, A.S. *et al., Chem. Ind. (London)*, 1971, 96 (*pmr*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 282 (*α-D-pyr, synth*)
Bundle, D.R. *et al., Can. J. Chem.*, 1973, **51**, 3812 (*D-3-Ac, cmr*)
Hasegawa, A. *et al., Carbohydr. Res.*, 1973, **29**, 209 (*D-pyr isopropylidene, α-D-pyr isopropylidene di-Ac, α-D-pyr di-Ac*)
Matta, K.L. *et al., Carbohydr. Res.*, 1976, **48**, 65-71 (*4-nitrophenyl glycoside*)
Higashimura, T. *et al., Polymer*, 1977, **18**, 291 (*polym*)
Lehmann, J. *et al., Annalen*, 1991, 937 (*DL-pyr, DL-pyr tetra-Ac, synth*)
Garozzo, D. *et al., Carbohydr. Res.*, 1995, **270**, 97-106 (*occur*)
Sukwattanasinitt, M. *et al., Carbohydr. Res.*, 2002, **337**, 133-137; 557-559 (*enzymic synth*)
Maeda, H. *et al., Tet. Lett.*, 2002, **43**, 1481-1486 (*Dictyoglucosamines*)

2-Acetamido-2-deoxy-3,4,6-tri-*O*-acetylglucopyranosyl chloride, 8CI A-9



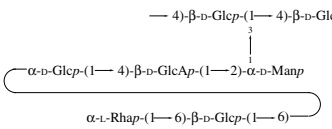
$C_{14}H_{20}ClNO_8$ 365.767

α-D-*form* [3068-34-6]
Mp 127-128° (133-134° dec.). $[\alpha]_D^{24}$ +110 (c, 1.1 in $CHCl_3$).

Micheel, F. *et al., Chem. Ber.*, 1957, **90**, 521 (*struct, ir*)
Conchie, J. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 332 (*synth*)
Org. Synth., 1966, **46**, 1 (*synth*)
Horton, D. *et al., J.O.C.*, 1967, **32**, 1073 (*pmr*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 282 (*synth*)
Pravdic, N. *et al., Carbohydr. Res.*, 1975, **45**, 302
Nashed, M.A. *et al., Carbohydr. Res.*, 1980, **82**, 237 (*synth*)

Acetan, 9CI A-10

[110865-71-9]

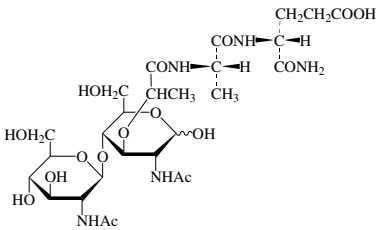


Exopolysaccharide prod. by *Acetobacter xylinum*.

Jansson, P.E. *et al., Carbohydr. Res.*, 1993, **245**, 303 (*struct*)
Colquhoun, I.J. *et al., Carbohydr. Res.*, 1995, **269**, 319 (*pmr, cmr, bibl*)

N^2-[*N*-[*N*-Acetyl-4-*O*-[2-(acetylamino)-2-deoxy-β-D-glucopyranosyl]muramoyl]-L-alanyl]-D-α-glutamine, 9CI A-11

N-*Acetyl-β-D-glucosaminyl-(1→4)*-N-*acetylmuramyl-L-alanyl-D-isoglutamine*
[70280-03-4]

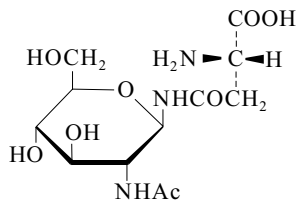


$C_{27}H_{45}N_5O_{16}$ 695.676
Repeating disaccharide-dipeptide unit of bacterial cell wall peptidoglycan. Exhibits immunoadjuvant activity. Hygroscopic powder. Mp 170-178° (dec.). $[\alpha]_D^{24}$ +0.6 (c, 1 in H_2O).

Kusumoto, S. *et al., Tet. Lett.*, 1978, 4407-4410 (*synth*)
Durette, P.L. *et al., Carbohydr. Res.*, 1979, **77**, C1-C4 (*synth, pmr*)
Kiso, M. *et al., Carbohydr. Res.*, 1982, **104**, 253-269 (*synth, pmr*)
Guinard, M. *et al., Eur. J. Biochem.*, 1984, **143**, 359-362 (*enzymic synth*)

N-[2-(Acetylamino)-2-deoxy-β-D-glucopyranosyl]-L-asparagine, 9CI A-12

2-Acetamido-1β-(L-β-aspartamido)-1,2-dideoxy-D-glucose
[2776-93-4]



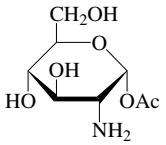
$C_{12}H_{21}N_3O_8$ 335.313
Found in hydrolysates of glycopeptides/glycoproteins. Needles (EtOH).
Mp 255-258° dec. $[\alpha]_D^{22}$ +23.6 (c, 1 in H_2O).

Trihydrate:
Plates (EtOH aq.). Mp 215-222° dec. $[\alpha]_D^{24}$ +23.2 (c, 1.5 in H_2O).

Marks, G.S. *et al., Biochem. J.*, 1963, **87**, 274 (*isol, struct*)
Tsukamoto, H. *et al., Biochem. Biophys. Res. Commun.*, 1964, **15**, 151 (*synth*)
Kiyozumi, M. *et al., Carbohydr. Res.*, 1970, **14**, 355-364 (*synth*)
Likhosherstov, L.M. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1986, 1663-1669; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1986, 1512-1517 (*synth*)
Augé, C. *et al., Carbohydr. Res.*, 1989, **193**, 288-293 (*synth, pmr*)

1-*O*-Acetyl-2-amino-2-deoxyglucose A-13

1-O-*Acetylglucosamine*



α-D-Pyranose-*form*

$C_8H_{15}NO_6$ 221.21

α-D-Pyranose-*form*

N-*Ac: 2-Acetamido-1*-O-*acetyl-2-deoxy-α-D-glucopyranose*
$C_{10}H_{17}NO_7$ 263.247
Mp 169-170°. $[\alpha]_D^{20}$ +149 (c, 0.29 in MeOH).

*2*N,*3-Di-Ac: 2-Acetamido-2-deoxy-1,3-di*-O-*acetyl-α-D-glucopyranose*
$C_{12}H_{19}NO_8$ 305.284
Mp 172-173°. $[\alpha]_D^{20}$ +8 (c, 1.0 in MeOH).

N,*3,4-Tri-Ac: 2-Acetamido-2-deoxy-1,3,4-tri*-O-*acetyl-α-D-glucopyranose*
[10034-17-0]
$C_{14}H_{21}NO_9$ 347.321
Mp 110°. $[\alpha]_D$ +57 (c, 1.0 in $CHCl_3$).

N,*3,6-Tri-Ac: 2-Acetamido-2-deoxy-1,3,6-tri*-O-*acetyl-α-D-glucopyranose*
[76612-22-1]
$C_{14}H_{21}NO_9$ 347.321
Mp 160-161°. $[\alpha]_D$ +62 (c, 1.0 in $CHCl_3$).

3,4,6-Tri-Ac: 1,3,4,6-Tetra-O-*acetyl-2-amino-2-deoxy-α-D-glucopyranose*
$C_{14}H_{21}NO_9$ 347.321
Mp 143°. $[\alpha]_D$ +25.9 ($CHCl_3$).

N,*3,4,6-Tetra-Ac:* See 2-Acetamido-2-deoxyglucose, A-8

N-*Benzoyl, 3,4,6-tri-Ac: 1,3,4,6-Tetra*-O-*acetyl-2-benzamido-2-deoxy-α-D-glucopyranose*
$C_{21}H_{25}NO_{10}$ 451.429
Mp 240°. $[\alpha]_D$ +41.9 ($CHCl_3$).

4-Triflyl, N,*3,6-tri-Ac: 2-Acetamido-2-deoxy-1,3,6-tri*-O-*acetyl-4*-O-*triflyl-α-D-glucopyranose*
$C_{15}H_{20}F_3NO_{11}S$ 479.384
Characterised spectroscopically.

3,4,6-Tribenzyl, N-*Ac: 2-Acetamido-1*-O-*acetyl-3,4,6-tri*-O-*benzyl-2-deoxy-α-D-glucopyranose*
$C_{31}H_{35}NO_7$ 533.62
Mp 146-147°. $[\alpha]_D^{20}$ +108 (c, 0.74 in $CHCl_3$).

β-D-Pyranose-*form*

3,4,6-Tri-Ac: 1,3,4,6-Tetra-O-*acetyl-2-amino-2-deoxy-β-D-glucopyranose*
$C_{14}H_{21}NO_9$ 347.321
Mp 230° (as hydrochloride). $[\alpha]_D$ +29.7 (H_2O).

*2*N,*3,4,6-Tetra-Ac:* See 2-Acetamido-2-deoxyglucose, A-8

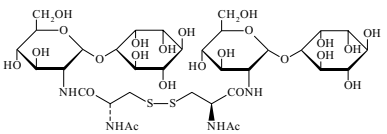
N-*Benzyloxycarbonyl, 3,4,6-tri-Ac:* Mp 150-151°. $[\alpha]_D$ +21.5 (Py).

3,4,6-Tribenzyl, N-*Ac: 2-Acetamido-1*-O-*acetyl-3,4,6-tri*-O-*benzyl-2-deoxy-β-D-glucopyranose*
$C_{31}H_{35}NO_7$ 533.62
Mp 168-169°. $[\alpha]_D^{20}$ +31 (c, 0.9 in $CHCl_3$).

Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247
Harrison, R. *et al., J.O.C.*, 1965, **30**, 2317
Inch, T.D. *et al., J.O.C.*, 1966, **31**, 1813
Hasegawa, A. *et al., Carbohydr. Res.*, 1973, **29**, 209
Chaplin, D. *et al., J.C.S. Perkin 1*, 1992, 235 (*acetyl derivs, triflate*)

2-(*N*-Acetylcysteinyl)amido-2-deoxy-α-D-glucopyranosyl-D-*myo*-inositol disulfide A-14

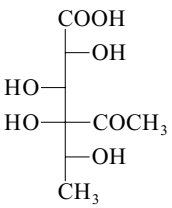
*2′,2‴-[Dithiobis[[2-(acetylamino)-1-oxo-3,1-propanediyl]imino]]bis[3-*O-*(2-deoxy-α-D-glucopyranosyl)]-D-*myo-*inositol, 9CI*
[157230-65-4]



$C_{34}H_{58}N_4O_{24}S_2$ 970.977
Prod. by *Streptomyces* sp. AJ-9463. Powder.
Mp 199-204° dec. $[\alpha]_D^{27}$ +48.8 (c, 0.14 in H_2O). λ_{max} 250 (sh) (ε 530) (H_2O).

Sakuda, S. *et al., Biosci., Biotechnol., Biochem.*, 1994, **58**, 1347 (*isol, uv, ir, pmr, cmr*)

4-*C*-Acetyl-6-deoxygalactonic acid A-15



$C_8H_{14}O_7$ 222.194

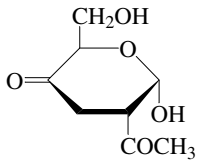
D-*form*

2,3-Methylene, Me ester: Methyl 4-C-*acetyl-6-deoxy-2,3*-O-*methylene-D-galactonate. Methyl eurekanate*
$C_{10}H_{16}O_7$ 248.232
Residue found in Avilamycin A (see Avilamycin C, A-880) and Flambamycin, F-8. Syrup.

2,3-Methylene, Ac, Me ester: Methyl 4-C-*acetyl-5*-O-*acetyl-2,3*-O-*methylene-D-galactonate*
$C_{12}H_{18}O_8$ 290.269
Mp 87°. $[\alpha]_D$ -55 (MeOH).

Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **100**, 283 (*synth, pmr, cmr*)

2-*C*-Acetyl-2,3-dideoxy-*erythro*-hexopyranos-4-ulose A-16



α-D-*form*

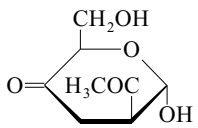
$C_8H_{12}O_5$ 188.18

α-D-*form*

Et glycoside, 6-trityl: [76101-44-5]
$C_{29}H_{30}O_5$ 458.553
Syrup.

Fraser-Reid, B. *et al., Can. J. Chem.*, 1977, **55**, 3986; 1980, **58**, 2694

2-*C*-Acetyl-2,3-dideoxy-*threo*-hexopyranos-4-ulose A-17



$C_8H_{12}O_5$ 188.18

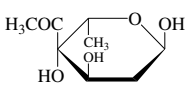
α-D-*form*

Et glycoside, 6-trityl: [60903-86-8]
$C_{29}H_{30}O_5$ 458.553
Needles (Et_2O). Mp 107.8-108°. $[\alpha]_D^{23}$ +152.6 (c, 1.25 in $CHCl_3$).

Fraser-Reid, B. *et al., Can. J. Chem.*, 1977, **55**, 3986; 1980, **58**, 2694 (α-D-*Et gly deriv, pmr*)

4-*C*-Acetyl-2,6-dideoxy-*xylo*-hexose A-18

Quinovose B. *Trioxacarcinose B*



α-L-Pyranose-*form*

$C_8H_{14}O_5$ 190.196

L-*form*

Occurs in Trioxacarcin A.

α-L-Pyranose-*form*

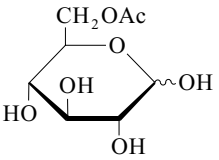
*Me glycoside: Methyl 4-*C*-acetyl-2,6-dideoxy-α-L-*xylo*-hexopyranoside*
$C_9H_{16}O_5$ 204.222
Needles (MeOH). Mp 109-112°. $[\alpha]_D^{20}$ -60 (c, 0.1 in $CHCl_3$).

β-L-Pyranose-*form*

*Me glycoside: Methyl 4-*C*-acetyl-2,6-dideoxy-β-L-*xylo*-hexopyranoside*
[81534-45-4]
$C_9H_{16}O_5$ 204.222
Plates. Mp 103-107°. $[\alpha]_D^{20}$ +46 (c, 0.2 in $CHCl_3$).

Matern, U. *et al., Eur. J. Biochem.*, 1972, **29**, 1 (*synth, pmr*)

6-*O*-Acetylglucose, 9CI A-19



$C_8H_{14}O_7$ 222.194

D-*form* [7286-45-5]
Produced by *Bacillus megaterium*.

Phenylhydrazone: Mp 134-136°. $[\alpha]_D^{20}$ -13 (c, 1.3 in H_2O).

α-D-Pyranose-*form*

Mp 150-152°. $[\alpha]_D^{25}$ +90 → +51 (H_2O).

β-D-Pyranose-*form*

Mp 148-149°. $[\alpha]_D^{25}$ +22 → +51 (H_2O).

Reeves, R.E. *et al., J.A.C.S.*, 1957, **79**, 6041 (α-D-*pyr,* β-D-*pyr*)

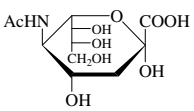
Duff, R.B. *et al., Nature (London)*, 1957, **179**, 103 (*isol*)

Gotor, V. *et al., J.C.S. Perkin 1*, 1991, 491 (*synth*)

Pulido, R. *et al., J.C.S. Perkin 1*, 1992, 2891 (*cmr*)

N-Acetylneuraminic acid A-20

*5-(Acetylamino)-3,5-dideoxy-*D*-glycero-*D*-galacto-2-nonulosonic acid, 9CI.* O-*Sialic acid.* ***Aceneuramic acid, INN.*** *Lactaminic acid. Gynaminic acid. Serolactaminic acid. KI 111. NANA. Neu5Ac. Neu5NAc*
[131-48-6]



α-D-Pyranose-*form*

$C_{11}H_{19}NO_9$ 309.272

See also Sialic acids, S-37. Isol. from eggs, milk, colostrum, submaxillary mucin and meconium by acid or enzymic hydrol. of the constit. sialoproteins and oligosaccharides. Present in urine of patients with sialuria. Most abundant source is Collocalia mucoid, the nest cementing glycoprotein substance of the Chinese Swiftlet. Chiral synthon. Anti-inflammatory, antiviral and antitussive agent. Involved with blood protein half-life regulation, bacterial adhesion, toxin neutralisation, glycoprotein lytic protection.
Mp 185-187° dec. $[\alpha]_D^{22}$ -32 (H_2O). The only sialic acid formed in human tissues. Store below 0° in the dark.

Me ester: Methyl N-*acetylneuraminate*
$C_{12}H_{21}NO_9$ 323.299
Mp 194-195°. $[\alpha]_D$ -28 (c, 3.5 in H_2O).

4-Ac:
$C_{13}H_{21}NO_{10}$ 351.31
Mp 199-200°. $[\alpha]_D$ -62 (H_2O).

7-Ac: B-*Sialic acid*
$C_{13}H_{21}NO_{10}$ 351.31
Mp 138-140°. $[\alpha]_D$ +6.

4,7,8,9-Tetra-Ac, Me ester:
$C_{20}H_{29}NO_{13}$ 491.448
Mp 174-175°. $[\alpha]_D^{20}$ -4.8 → -5.2 (c, 0.5 in $CHCl_3$).

*2,4,7,8,9-Penta-Ac, Me ester: Methyl 5-*N*-acetyl-2,4,7,8,9-penta-*O*-acetylneuraminate*
$C_{22}H_{31}NO_{14}$ 533.485
Cryst. (EtOAc/petrol). Mp 156-157°. $[\alpha]_D^{20}$ -3.3 (c, 1.0 in $CHCl_3$).

4,7,8,9-Tetrabenzoyl, Me ester:
$C_{40}H_{37}NO_{13}$ 739.731
$[\alpha]_D^{20}$ -0.4 (c, 1.0 in $CHCl_3$).

α-Pyranose-*form*

Me glycoside, 4,7,8,9-tetra-Ac: [50669-91-5]
$C_{20}H_{29}NO_{13}$ 491.448
Mp 185-188° dec. $[\alpha]_D^{25}$ -16.5 (MeOH).

Me glycoside, Me ester: [6730-26-3]
$C_{13}H_{23}NO_9$ 337.326
Mp 166-168°. $[\alpha]_D^{25}$ -5.2 (c, 0.52 in MeOH).

*Me glycoside, 4,7,8,9-tetra-Ac, Me ester: Methyl (methyl 5-acetamido-4,7,8,9-tetra-*O*-acetyl-3,5-dideoxy-α-D-*glycero*-D-galacto-2-nonulopyranosid)onate*
[73208-80-7]
$C_{21}H_{31}NO_{13}$ 505.475
Mp 135-137°. $[\alpha]_D^{25}$ -19 (MeOH).

*Allyl glycoside, Me ester: Methyl (allyl 5-acetamido-3,5-dideoxy-D-*glycero*-α-D-galacto-2-nonulopyranosid)onate. Methyl* N-*acetylneuraminate α-allylpyranoside*
$C_{15}H_{25}NO_9$ 363.364
Mp 143-144°. $[\alpha]_D$ -10.1 (c, 1.0 in MeOH).

Benzyl glycoside, 4,7,8,9-tetra-Ac: [73208-81-8]
$C_{26}H_{33}NO_{13}$ 567.546
Mp 194-195°. $[\alpha]_D^{25}$ -7.5 (MeOH).

Benzyl glycoside, 4,7,8,9-tetra-Ac, Me ester: [19342-75-7]
$C_{27}H_{35}NO_{13}$ 581.572
Mp 85-89°. $[\alpha]_D^{25}$ -3.5 (MeOH).

α(2→8)-Homopolymer: ***Colominic acid***
[9013-15-4]

[70431-34-4, 175674-06-3] Isol. from *Escherichia coli*. Homologous to the weakly immunogenic group B capsular polysaccharide of *Neisserria meningitidis*. An α-(2→8)-*N*-acetylneuraminic acid polymer (av. Mw 10 KDa). Readily undergoes intramolecular lactonisation.

β-Pyranose-*form*

Me ester: Methyl N-*acetyl-β-D-neuraminate*
$C_{12}H_{21}NO_9$ 323.299
Prisms + $1H_2O$ (MeOH). Mp 180-182° dec. $[\alpha]_D^{20}$ -28 (c, 1.0 in H_2O).

Me glycoside, Me ester: [6730-43-4]
Mp 115-130°. $[\alpha]_D^{20}$ -46 (c, 0.67 in MeOH).

Me glycoside, 4,7,8,9-tetra-Ac, Me ester: [41521-03-3]
$C_{21}H_{31}NO_{13}$ 505.475
Mp 134-135°. $[\alpha]_D^{20}$ -19.9 (c, 1.0 in $CHCl_3$).

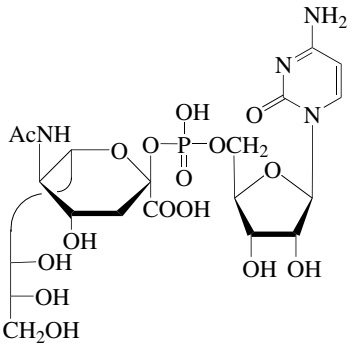
[19342-33-7, 126934-33-6]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 758C (*ir*)

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1239A (*nmr*)
Gottschalk, A. *et al., The Chemistry and Biology of Sialic Acids and Related Substances*, Cambridge Univ. Press, London, 1960, (*book*)
Blix, G. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 246-250 (*isol*)
Kuhn, R. *et al., Chem. Ber.*, 1966, **99**, 611-617 (*tetra-Ac Me ester, penta-Ac Me ester, tetrabenzoyl Me ester, β-D-pyr Me ester*)
O'Connell, A.M. *et al., Acta Cryst. B*, 1973, **29**, 2320-2328 (*cryst struct*)
Codington, J.F. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 226-232 (*isol, detn*)
Martin, J.E. *et al., Carbohydr. Res.*, 1977, **56**, 423-425 (*isol*)
Haverkamp, J. *et al., FEBS Lett.*, 1977, **73**, 215-219 (*Colominic acid, struct*)
Jaques, L.W. *et al., J. Biol. Chem.*, 1977, **252**, 4533-4538 (*cmr*)
Czarniecki, M.F. *et al., J.A.C.S.*, 1977, **99**, 8273-8279 (*isol, cmr*)
Benzing-Nguyen, L. *et al., J.O.C.*, 1978, **43**, 551-554 (*synth, cmr*)
Haverkamp, J. *et al., Adv. Mass Spectrom.*, 1980, **8A**, 983-989 (*Colominic acid, ms*)
Gekko, K. *et al., Agric. Biol. Chem.*, 1980, **44**, 1183-1184 (*Colominic acid, cd*)
Friebolin, H. *et al., Angew. Chem., Int. Ed.*, 1980, **19**, 208-209 (*equilib*)
Eschenfelder, V. *et al., Carbohydr. Res.*, 1980, **78**, 190-194 (*α-D-Me gly, tetra-Ac Me ester*)
Noehle, U. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1981, **362**, 1495-1506 (*metab*)
Schauer, R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1982, **40**, 131-234 (*rev*)
Van der Vleugel, D.J.M. *et al., Carbohydr. Res.*, 1982, **102**, 121-130 (*α-D-Me pyr Me ester*)
Sialic Acids: Chem. Metab. and Function, (Ed. Schauer, R.), Springer-Verlag, Vienna, 1982, 5 (*rev*)
Julina, R. *et al., Carbohydr. Res.*, 1987, **164**, 415-432 (*β-D-Me pyr Me ester, synth*)
Csuk, R. *et al., Helv. Chim. Acta*, 1988, **71**, 609-618 (*synth*)
Roy, R. *et al., Can. J. Chem.*, 1990, **68**, 2045-2054 (*isol, Me ester, allyl gly, pmr*)
Kai, H. *et al., J. Pharm. Pharmacol.*, 1990, **42**, 773-777 (*pharmacol*)
Prytulla, A. *et al., Magn. Reson. Chem.*, 1990, **28**, 888-901 (*cmr, pmr*)
Kragl, U. *et al., Angew. Chem., Int. Ed.*, 1991, **30**, 827-828 (*enzymic synth*)
DeNinno, M.P. *et al., Synthesis*, 1991, 583-593 (*synth, gly, rev*)
Gordon, D.M. *et al., J.O.C.*, 1993, **58**, 7937-7938 (*Et ester, synth, pmr, cmr*)
Bodenmüller, A. *et al., Annalen*, 1994, 541-548 (*synth*)
Kragl, U. *et al., Ann. N.Y. Acad. Sci.*, 1995, **750**, 300-305 (***synth***)
Chan, T.H. *et al., J.O.C.*, 1995, **60**, 4228-4232 (*synth*)
Flaherty, T.M. *et al., Carbohydr. Res.*, 1996, **281**, 173 (*cmr, bibl, Colominic acid*)
Maru, I. *et al., Carbohydr. Res.*, 1998, **306**, 575-578 (***synth***)
Banwell, M. *et al., J.C.S. Perkin 1*, 1998, 2251-2252 (*synth*)
Ooi, H.C. *et al., Aust. J. Chem.*, 1999, **52**, 937-940 (*synth*)

N-Acetyl-β-neuraminic acid 2-(hydrogen 5′-cytidylate) A-21

5-(Acetylamino)-3,5-dideoxy-D-glycero-β-D-galacto-2-nonulopyranosonic acid 2-(hydrogen 5′-cytidylate), 9CI. 5-Acetamido-3,5-dideoxy-D-glycero-D-galacto-nonulosonic acid 2-ester with 5′-cytidylic acid, 8CI. Cytidine 5′-monophosphate N-acetylneuraminic acid. Cytidine 5′-monophosphosialate. CMP-NAN. CMP-Neu5Ac. CMP-Sialic acid
[3063-71-6]

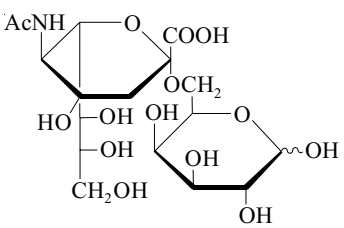


$C_{20}H_{31}N_4O_{16}P$ 614.456
Cryst. (as bis(triethylammonium) salt). $[\alpha]_D^{20}$ +18 (c, 1.9 in H_2O) (salt).

Warren, L. *et al., J. Biol. Chem.*, 1962, **237**, 3527-3534 (*synth*)
Kean, E.L. *et al., J. Biol. Chem.*, 1966, **241**, 5643-5650 (*purifn, props*)
Schauer, R. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1972, **353**, 883-886 (*synth*)
Higa, H.H. *et al., J. Biol. Chem.*, 1985, **260**, 8838-8848 (*synth, pmr*)
Simon, E.S. *et al., Methods Enzymol.*, 1989, **179**, 275-287 (*synth, pmr, cmr*)
Thiem, J. *et al., Annalen*, 1990, 1101-1105 (*synth, pmr*)
Auge, C. *et al., Carbohydr. Res.*, 1990, **200**, 257-268 (*synth, pmr*)

6-*O*-(*N*-Acetyl-α-D-neuraminyl)-D-galactose A-22

6-O-(5-Acetamido-3,5-dideoxy-α-D-glycero-D-galacto-2-nonulopyranosylonic acid)-D-galactose

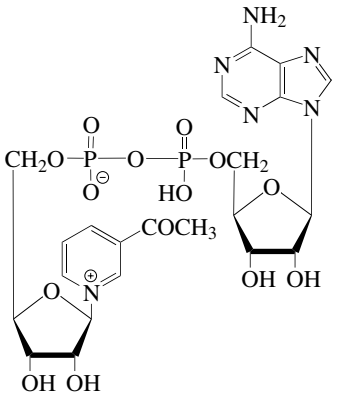


$C_{17}H_{29}NO_{14}$ 471.414
K salt: $[\alpha]_D^{25}$ +16.7 (c, 0.3 in H_2O).
Me ester: $[\alpha]_D^{20}$ +5.4 (c, 0.8 in MeOH).
Me ester, benzyl-β-glycoside: Mp 183-184°. $[\alpha]_D^{20}$ -1.3 (c, 0.95 in MeOH).

Khorlim, A.Ya. *et al., Carbohydr. Res.*, 1971, **19**, 272
Van Der Vleugel, D.J.M. *et al., Carbohydr. Res.*, 1982, **104**, 221

3-Acetylpyridine adenine dinucleotide A-23

Adenosine 5′-(trihydrogen diphosphate) P′→5′-ester with 3-acetyl-1-β-D-ribofuranosylpyridinium inner salt, 9CI. 3-Acetyl NAD. 3-Acetylpyridine NAD. APAD
[86-08-8]

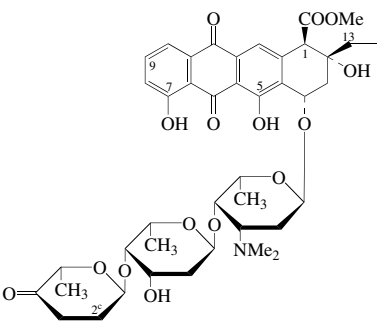


$C_{22}H_{28}N_6O_{14}P_2$ 662.443
Analogue of Coenzyme I, C-143. Used in enzymic assays of lactate, malate and glutamate. Synthetic cofactor for NAD(P)H dehydrogenases. Solid.

Kaplan, N.O. *et al., J.A.C.S.*, 1954, **76**, 1713-1714 (*enzymic synth, uv*)
Sarma, R.H. *et al., Biochem. Biophys. Res. Commun.*, 1969, **36**, 780-788 (*nmr, config*)
Williams, T.J. *et al., Arch. Biochem. Biophys.*, 1976, **172**, 490-501 (*cmr*)
Anderson, B.M. *et al., Anal. Biochem.*, 1984, **140**, 250-255 (*synth*)
Anderson, B.M. *et al., Methods Enzymol.*, 1986, **122**, 173-181 (*synth*)
Pietta, P.G. *et al., Chromatographia*, 1988, **25**, 543-544 (*enzymic synth, hplc*)
Ferrier, B. *et al., Anal. Biochem.*, 1990, **186**, 229-232 (*use*)
Friedlos, F. *et al., Biochem. Pharmacol.*, 1992, **44**, 25-31 (*biochem*)

Aclacinomycin A A-24

Aclarubicin, BAN, INN, USAN. *Aclacin. Aclacinon. Aclacur. Aclaplastin. MA 144A. NSC 208734. Antibiotic MA 144A$_1$*
[57576-44-0]



$C_{42}H_{53}NO_{15}$ 811.878
Anthracycline antibiotic. Isol. from *Streptomyces galilaeus*. Antineoplastic agent used to treat malignant blood disorders. Shows anti-HIV activity. Yellow powder. Sol. $CHCl_3$, EtOAc;

fairly sol. MeOH, C_6H_6, acids, Py, Me_2CO, EtOH, dioxan; poorly sol. Et_2O, hexane, H_2O.
Mp 129-135° dec. $[\alpha]_D^{24}$ +29 (c, 1 in $CHCl_3$). Log P 0.98 (uncertain value) (calc). λ_{max} 230 (ϵ 46900); 258 (ϵ 26700); 290 (ϵ 11400); 434 (ϵ 13300) (MeOH/HCl) (Derep). λ_{max} 240 (ϵ 55000); 288 (ϵ 18800); 314 (ϵ 12700); 523 (ϵ 13800) (MeOH/NaOH) (Derep). λ_{max} 230 (ϵ 43800); 258 (ϵ 24400); 290 (ϵ 10400); 434 (ϵ 11900) (MeOH) (Derep). λ_{max} 228 (E1%/1cm 480); 256 (E1%/1cm 260); 292 (E1%/1cm 100); 432 (E1%/1cm 130) (MeOH) (Berdy). λ_{max} 229 (E1%/1cm 540); 258 (E1%/1cm 325); 433 (E1%/1cm 160) (EtOH) (Berdy). λ_{max} 228 (E1%/1cm 490); 256 (E1%/1cm 280); 295 (E1%/1cm 115); 430 (E1%/1cm 138) (MeOH/HCl) (Berdy).

▶ Cardiotoxic effects and bone-marrow depression reported when used therapeutically. Eye irritant. LD_{50} (mus, orl) approx. 30 mg/kg. LD_{50} (mus, ipr) approx. 16 mg/kg. LD_{50} (mus, ipr) 22.6 mg/kg , LD_{50} (mus, ivn) 33.7 mg/kg. Exp. reprod. effects. QI9279300

Hydrochloride: ***Aclarubicin hydrochloride, JAN***
[75443-99-1]
Mp 150-151° dec.

N-*De-Me:* ***Aclacinomycin L***. *MA 144L1. Antibiotic MA 144L1*. N-*Demethylaclacinomycin A*
[64431-58-9]
$C_{41}H_{51}NO_{15}$ 797.852
Prod. by *Streptomyces galilaeus*. Antitumour and antibacterial agent. Yellow powder.
Mp 134-136°. λ_{max} 230; 259; 290; 433 (MeOH).

5-Me ether: [76264-92-1]
$C_{43}H_{55}NO_{15}$ 825.905
Semisynthetic. Shows reduced tox. Mp 144-146°. $[\alpha]_D^{22}$ -58 (c, 0.05 in $CHCl_3$).

▶ QI9280700

7-Me ether: [76304-86-4]
$C_{43}H_{55}NO_{15}$ 825.905
Semisynthetic. Shows reduced tox. Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Mp 144-146°. $[\alpha]_D^{22}$ -38 (c, 0.2 in $CHCl_3$). λ_{max} 229 (E1%/1cm 527); 258 (E1%/1cm 324); 418 (E1%/1cm 13) (MeOH) (Berdy). λ_{max} 258 (ϵ 23300); 288 (ϵ 11400); 419 (ϵ 10900) ($CHCl_3$) (Berdy). λ_{max} 217 (E1%/1cm 871); 250 (E1%/1cm 390); 320 (E1%/1cm 77); 525 (E1%/1cm 90) (MeOH/NaOH) (Berdy).

▶ QI9280600

9-Hydroxy: ***9-Hydroxyaclacinomycin A***
[79127-36-9]
$C_{42}H_{53}NO_{16}$ 827.878
From *Streptomyces galilaeus*. Antineoplastic agent. Dark yellow powder.
Mp 165-167°. $[\alpha]_D^{23}$ +42.3 (c, 0.04 in MeOH). Log P 0.35 (uncertain value) (calc).

▶ LD_{50} (mus, ipr) 50 mg/kg. QI9279180

2^c-Amino, 2^c,3^c-didehydro: ***Antibiotic CG 1C***. *CG 1C*
$C_{42}H_{52}N_2O_{15}$ 824.877

Biosynth. prod. of *Streptomyces galilaeus*. Yellow powder. Sol. MeOH, Me_2CO, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 142-145°. $[\alpha]_D$ +36 (c, 0.01 in $CHCl_3$). λ_{max} 229 (E1%/1cm 411); 262 (E1%/1cm 294); 282 (E1%/1cm 294); 431 (E1%/1cm 115) (MeOH) (Berdy).

5^C-Epimer: ***Aclacinomycin G***. *MA 144G1. Antibiotic MA 144G1*. *5^C-Epiaclacinomycin A*
[64520-15-6]
$C_{42}H_{53}NO_{15}$ 811.878
Prod. by *Streptomyces galilaeus*. Antitumour and antibacterial agent. Yellow powder.
Mp 146-148°. $[\alpha]_D^{22}$ +54 ($CHCl_3$). λ_{max} 230; 258; 290; 432 (MeOH).

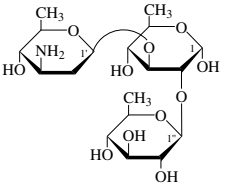
13-Methyl: ***13-Methylaclacinomycin A***
[78776-19-9]
$C_{43}H_{55}NO_{15}$ 825.905
From *Streptomyces galilaeus*. Antineoplastic agent.
Mp 160.5°. $[\alpha]_D^{20}$ +1.96 (c, 0.93 in $CHCl_3$). λ_{max} 229 (E1%/1cm 531); 258 (E1%/1cm 310); 289 (E1%/1cm 121); 430 (E1%/1cm 158) (MeOH) (Berdy).

▶ QI9288960

Oki, T. *et al., J. Antibiot.*, 1975, **28**, 830; 1977, **30**, 683; 1979, **32**, 791; 801; 1980, **33**, 1331; 1981, **34**, 916 (*isol, uv, ir, struct, derivs*)
Belg. Pat., 1978, 859 236; *CA*, **89**, 105874d (*MA 144G1*)
Hori, S. *et al., CA*, 1978, **88**, 145957u (*props, MA 144G1*)
Doyle, T.W. *et al., J.A.C.S.*, 1979, **101**, 7041 (*cmr*)
Mori, S. *et al., Jpn. J. Antibiot.*, 1980, **33**, 618-622 (*synth, ir, uv*)
Oki, T. *et al., Recent Results Cancer Res.*, 1980, **74**, 207 (*rev*)
Soga, K. *et al., J. Antibiot.*, 1981, **34**, 770 (*deriv*)
Matsuzawa, Y. *et al., J. Antibiot.*, 1981, **34**, 1495; 1596
Smith, R.G. *et al., Anal. Chem.*, 1982, **54**, 2006 (*ms*)
Egorin, M.J. *et al., Dev. Oncol.*, 1982, **10**, 527 (*rev, pharmacol*)
Eur. Pat., 1983, 72 974; *CA*, **98**, 21413 (*deriv*)
Hoshino, T. *et al., J. Antibiot.*, 1983, **36**, 1458 (*synth*)
Monneret, C. *et al., J. Carbohydr. Chem.*, 1988, **7**, 417-438 (*partial synth*)
Juelich, T. *et al., Magn. Reson. Chem.*, 1991, **29**, 178 (*pmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 454
Parkinson, J.A. *et al., Tetrahedron*, 1995, **51**, 7215 (*pmr, cmr, conformn*)
Johdo, O. *et al., J. Antibiot.*, 1996, **49**, 669 (*Antibiotic CG 1C*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, APU500; HIS300

Aculexitriose A-25

*3-Amino-2,3,6-trideoxy-β-D-*arabino*-hexopyranosyl-(1→3)-[6-deoxy-β-D-glucopyranosyl-(1→2)]-6-deoxy-D-glucose, 9CI*
[122037-03-0]



α-Pyranose-*form*

$C_{18}H_{33}NO_{11}$ 439.459
Constit. of Aculeximycin isol. from the culture broth of *Streptosporangium albidum* (actinomycete). Amorph. powder. Mp 198-200°. $[\alpha]_D^{24}$ +12.9 (c, 0.1 in MeOH).

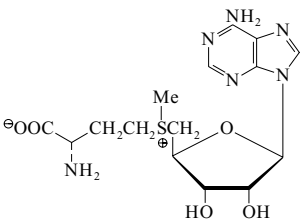
N-*Ac:* [122037-04-1]
$C_{20}H_{35}NO_{12}$ 481.496
Amorph. powder. Mp 162-166°. $[\alpha]_D^{24}$ +16.5 (c, 1.0 in MeOH).

Hepta-Ac: [122037-02-9]
$C_{32}H_{47}NO_{18}$ 733.719
Amorph. powder. Mp 123-127°. $[\alpha]_D^{24}$ +51.3 (c, 0.1 in MeOH).

Murata, H. *et al., J. Antibiot.*, 1989, **42**, 691; 701 (*isol, synth, pmr, cmr, ms, hplc*)

Ademetionine, INN A-26

5′-[[(3-Amino-3-carboxypropyl)methyl]-sulfonio]-5′-deoxyadenosine hydroxide inner salt, 9CI. S-*Adenosylmethionine. Active methionine*
[2613-02-7]



(*S*)-*form*

$C_{15}H_{22}N_6O_5S$ 398.442
Strictly the name Ademetionine refers to the (*S*)-form. Metab. intermed. which functions as the principal biological donor of methyl groups, as the source of the propylamine moieties of spermidine and spermine, and as the regulator of a variety of enzymatic reactions. Metabolic; used to treat hepatic disorders. Also under investigation as an antidepressant, and for the treatment of osteoarthritis.

4-Methylbenzenesulfonate, sulfate (1:2): Ceritan. Gumbaral. FO 1561
[97540-22-2]

(S)-form
Donor. S Amet IM. SAM. Samet. Samyr. Tunik
[29908-03-0]

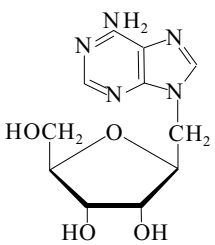
▶ AU7334000

[485-80-3, 14031-35-7, 17176-17-9]

Cantoni, G.L. *et al., J.A.C.S.*, 1952, **74**, 2942 (*synth*)
Cantoni, G.L. *et al., J. Biol. Chem.*, 1953, **204**, 403 (*struct*)
Baddiley, J. *et al., J.C.S.*, 1953, 2662; 1954, 4280; 1955, 1085 (*synth, struct*)
de la Haba, G. *et al., J.A.C.S.*, 1959, **81**, 3975 (*synth, resoln*)
Lombardini, J.B. *et al., Adv. Enzyme Regul.*, 1971, **9**, 349 (*rev*)
Cantoni, G.L. *et al., Annu. Rev. Biochem.*, 1975, **44**, 435 (*rev*)
Follmann, H. *et al., Eur. J. Biochem.*, 1975, **58**, 31 (*uv, cd*)
Cornforth, J.W. *et al., J.A.C.S.*, 1977, **99**, 7292 (*abs config*)
The Biochemistry of Adenosylmethionine, (Eds. Salvatore, F. *et al*), Columbia Univ. Press, 1977, (*book*)
Stolowitz, M.L. *et al., J.A.C.S.*, 1981, **103**, 6015 (*pmr*)
Minch, M.J. *et al., J.A.C.S.*, 1981, **103**, 6015 (*nmr*)
Zappià, V. *et al., Methods Enzymol.*, 1983, **94**, 57 (*rev, hplc*)
Giulidori, P. *et al., Eur. J. Clin. Pharmacol.*, 1984, **27**, 119 (*pharmacol*)
Moriguchi, K. *et al., Yakuri to Chiryo*, 1987, **15**, 4547; *CA*, **108**, 142870f (*pharmacol, tosylate*)
Drugs of Today (Barcelona), 1988, **24**, 165-168 (*use*)
Deurre, J.A. *et al., Biochim. Biophys. Acta*, 1989, **985**, 211 (*pharmacol*)
Friedel, H.A. *et al., Drugs*, 1989, **38**, 389 (*rev*)
Almasio, P. *et al., Drugs, Suppl.* 3, 1990, **40**, 111 (*rev*)
Osman, E. *et al., Aliment. Pharmacol. Ther.*, 1993, **7**, 21 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1331
Bottiglieri, T. *et al., Drugs*, 1994, **48**, 137 (*neuropharmacol, rev*)
Park, J. *et al., Bioorg. Med. Chem.*, 1996, **4**, 2179-2185 (*synth*)
Jorgens, S. *et al., Chem. Rev.*, 2003, **9**, 2405-2410 (*rev*)

1-(9-Adeninyl)-2,5-anhydro-1-deoxyallitol A-27

*1-(6-Amino-9*H*-purin-9-yl)-2,5-anhydro-1-deoxyallitol, 9CI, 8CI*



$C_{11}H_{15}N_5O_4$ 281.271

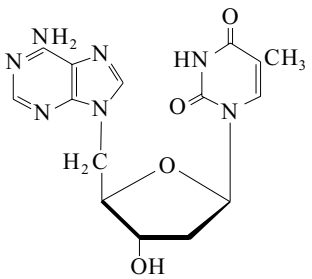
D-*form* [29868-39-1]
Mp 206°. $[\alpha]_D^{24}$ +15.7 (c, 1.07 in 50% EtOH aq.). λ_{max} 261 (ε 14 600) (H_2O), 258 (14 300) (pH 1), 261 nm (14 600) (pH 13).

*2′,3′-*O*-(Ethoxyethylidene):*
Syrup. λ_{max} 257 (pH 1), 260 nm (pH 7, 13).

Montgomery, J.A. *et al., J. Het. Chem.*, 1970, **7**, 443 (*synth*)
Farkas, J. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 3043 (*synth*)

5′-(9-Adeninyl)-5′-deoxythymidine A-28

*1-[5′-(6-Amino-9*H*-purin-9-yl)-2′,5′-dideoxy-β-*D*-*erythro*-pentofuranosyl]thymine, 8CI*
[28220-19-1]

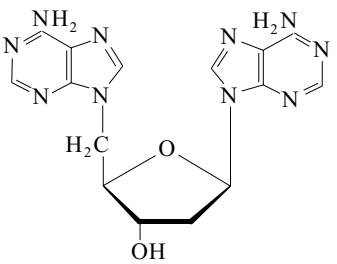


$C_{15}H_{17}N_7O_4$ 359.344
Cryst. (H_2O). Mp 239-240° (monohydrate). λ_{max} 257 (ε 19 840) (H_2O), 260 (18 700) (0.1N HCl), 260 nm (18 200) (0.1N NaOH).

Fecher, R. *et al., Carbohydr. Res.*, 1970, **13**, 105 (*synth, pmr, cd*)
Fecher, R. *et al., J.A.C.S.*, 1970, **92**, 1400 (*synth, pmr, cd*)

5′-(9-Adeninyl)-2′,5′-dideoxyribofuranosyladenine A-29

*9-[5-(6-Amino-9*H*-purin-9-yl)-2,5-dideoxy*-erythro-*pentofuranosyl]adenine, 8CI*



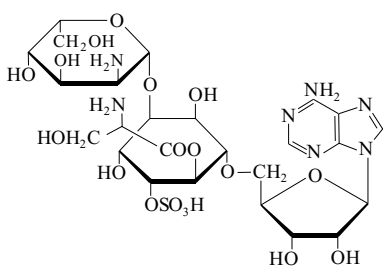
$C_{15}H_{16}N_{10}O_2$ 368.357

β-D-*form* [28220-20-4]
Mp 305-306°. λ_{max} 256 nm (ε 24 900) (H_2O).

Fecher, R. *et al., Carbohydr. Res.*, 1970, **13**, 105 (*synth*)
Fecher, R. *et al., J.A.C.S.*, 1970, **92**, 1400 (*synth, pmr, cd*)

Adenomycin, 9CI A-30

C19-97 Substance. Antibiotic C19-97. C8030C. Antibiotic C8030C
[76174-56-6]



$C_{25}H_{39}N_7O_{18}S$ 757.685
Nucleoside antibiotic. Isol. from *Streptomyces griseoflavus* C19-97. Active against gram-positive and -negative bacteria and tumours.
Mp 165-168° dec. $[\alpha]_D^{22.5}$ +10.5 (c, 2 in H_2O). λ_{max} 260 (ε 11400) (H_2O) (Derep).

Hydrochloride (1:2):
Powder. Mp 210-220°. $[\alpha]_D^{25}$ +14 (c, 1 in H_2O).

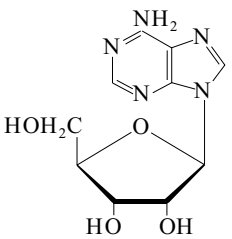
*De-*O*-seryl:* ***Deseryladenomycin****. C8030E. Antibiotic C8030E*
[71427-17-3]
$C_{22}H_{34}N_6O_{16}S$ 670.607
Prod. by *Streptomyces pseudogriseolus*. Insecticide, miticide. Sol. H_2O, DMSO; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane. $[\alpha]_D$ -9.1 (H_2O). λ_{max} 259 (E1%/1cm 210) (pH 7 buffer) (Berdy). λ_{max} 256 (E1%/1cm 206) (HCl) (Berdy). λ_{max} 259 (E1%/1cm 210) (NaOH) (Berdy).

[70535-13-6, 71427-15-1]

Japan. Pat., 1979, 79 14 595; *CA*, **91**, 37478 (*isol*)
Ogita, T. *et al., Tet. Lett.*, 1980, **21**, 3203 (*struct*)
Iwasa, T. *et al., CA*, 1981, **95**, 148651v (*Deseryladenomycin*)
Otake, N. *et al., J. Antibiot.*, 1981, **34**, 130 (*spectra*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Adenosine, 9CI, 8CI, BAN, USAN A-31

*9-β-D-Ribofuranosyl-9*H*-purin-6-amine, 9CI. 9-β-D-Ribofuranosyladenine, 8CI. 6-Amino-9-β-D-ribofuranosyl-9*H*-purine. Adenocard. Adenocor. Adenoscan. SR 96225*
[58-61-7]



$C_{10}H_{13}N_5O_4$ 267.244
Widely distributed in nature. One of the four principal nucleosides of nucleic acid. Antiarrhythmic agent. Cardiac depressant. Launched 1989. Cryst. (H_2O). Sol. H_2O, MeOH; poorly sol. Me_2CO, hexane.
Mp 234-236°. $[\alpha]_D^{11}$ -61.7 (c, 0.7 in H_2O). pK_{a1} 3.6; pK_{a2} 12.4 (25°). Log P -2.88 (calc). Component of numerous preparations. λ_{max} 259 (ε 15400) (H_2O). λ_{max} 260 (ε 15100) (H_2O) (Berdy).
▶ LD_{50} (mus, ipr) 500 mg/kg. AU7175000

2′-Phosphate: See 2′-Adenylic acid, A-45

3′-Phosphate: 3′-Adenylic acid. Adenosine 3′-(dihydrogen phosphate)
[84-21-9]
$C_{10}H_{14}N_5O_7P$ 347.224
Mp 195° dec. $[\alpha]_D^{20}$ -38.5 (c, 2.0 in H_2O).

5′-Phosphate: See Adenylic acid, A-44

5′-Diphosphate: See Adenosine diphosphate, A-33

5′-Triphosphate: See Adenosine triphosphate, A-39

2′,5′-Diphosphate: See Adenosine 2′,5′-diphosphate, A-34

3′,5′-Diphosphate: See Adenosine 3′,5′-diphosphate, A-35

2′,3′-Cyclic monophosphate: See Adenosine cyclic 2′,3′-(hydrogen phosphate), A-32

3′,5′-Cyclic monophosphate: See Cyclic AMP, C-162

3′-(Butyl hydrogen phosphate): Monobutyl 3′-adenylate. 3′-Butylphosphoryladenosine. ***B-factor***
[52278-63-4]
$C_{14}H_{22}N_5O_7P$ 403.331
Prod. by *Nocardia* sp. Inducer of biosynth. of Rifamycin B. Powder. Sol. MeOH, Py, H_2O; poorly sol. Me_2CO, EtOAc, $CHCl_3$. Mp 182-186°. λ_{max} 207 (ϵ 16700); 260 (ϵ 12700) (H_2O). λ_{max} 260 (ϵ 13000) (NaOH) (Berdy). λ_{max} 209 (ϵ 16700); 260 (ϵ 12700) (H_2O) (Berdy). λ_{max} 238 (ϵ 10800); 258 (ϵ 11900) (HCl) (Berdy).

1-Oxide: [146-92-9]
$C_{10}H_{13}N_5O_5$ 283.243
Cryst. (EtOH). Mp 223-224°. $[\alpha]_D^{21}$ -40 (c, 0.8 in H_2O).

3-Oxide: [71074-55-0]
$C_{10}H_{13}N_5O_5$ 283.243
Light brown powder. Mp 158°.

3′-Ac: [6554-21-8]
$C_{12}H_{15}N_5O_5$ 309.281
Cryst. (EtOH). Mp 180-181°. λ_{max} 260 (ϵ 14130) (95% EtOH).

5′-Ac: [2140-25-2]
$C_{12}H_{15}N_5O_5$ 309.281
Cryst. (MeOH). Mp 143° (132-133°). $[\alpha]_D^{25}$ -51.8 (c, 1 in MeOH).

2′,3′-Di-Ac: [29886-19-9]
$C_{14}H_{17}N_5O_6$ 351.318
Cryst. (Me_2CO). Mp 180-181°. $[\alpha]_D^{25}$ -49.5 (c, 1 in MeOH).

3′,5′-Di-Ac: [6554-24-1]
$C_{14}H_{17}N_5O_6$ 351.318
Cryst. (EtOH). Mp 175-176°.

2′,3′,5′-Tri-Ac: [7387-57-7]
$C_{16}H_{19}N_5O_7$ 393.355
Cryst. (EtOH or toluene). Mp 174°. $[\alpha]_D^{20}$ -27.9 (c, 2 in $CHCl_3$).

3′,5′-Dibenzoyl: [62374-24-7]
$C_{24}H_{21}N_5O_6$ 475.46
Mp 193-194°.

2′,3′,5′-Tribenzoyl: [51549-15-6]
$C_{31}H_{25}N_5O_7$ 579.568
Glass. $[\alpha]_D^{22}$ -71 (c, 1 $CHCl_3$). λ_{max} 231 (ϵ 47100); 258 (ϵ 20500) (EtOH).

6N,2′,3′,5′-Tetrabenzoyl: [6984-53-8]
$C_{38}H_{29}N_5O_8$ 683.676
Glass. $[\alpha]_D^{22}$ -94 (c, 1 in $CHCl_3$). λ_{max} 230 (ϵ 49200); 279 (ϵ 22400) (EtOH).

5′-Tosyl: [5135-30-8]
$C_{17}H_{19}N_5O_6S$ 421.433
Mp 151-153°.

5′-O-Sulfamoyl: Antibiotic AI-R 2748. AI-R 2748
[25030-31-3]
$C_{10}H_{14}N_6O_6S$ 346.323
Isol. from *Streptomyces* sp. Cytotoxic to P388 cells and inhibitory to bacteria. Cryst. + 1H_2O (H_2O). Mp 153-155° (softened) 165° dec. $[\alpha]_D^{33}$ -33.6 (c, 1.0 in DMF).

2′,3′-O-Isopropylidene: [362-75-4]
$C_{13}H_{17}N_5O_4$ 307.308
Cryst. (EtOH). Mp 220°.

2′,3′-O-Isopropylidene, 5′-Ac: [15888-38-7]
$C_{15}H_{19}N_5O_5$ 349.346
Cryst. ($CHCl_3$/Et_2O). Mp 170-172°.

6-N-Me: N^6*-Methyladenosine*
[1867-73-8]
$C_{11}H_{15}N_5O_4$ 281.271
Modified nucleoside present in tRNAs. Hygroscopic cryst. (EtOAc or MeOH). Mp 135-140° Mp 208° dec. (double Mp.). $[\alpha]_D^{26}$ -54 (c, 0.63 in H_2O). λ_{max} 265 (ϵ 16300) (H_2O).

6N,6N-Di-Me: See *N,N*-Dimethyladenosine, D-724

6N-(3-Methyl-2-butenyl): See *N*-(3-Methyl-2-butenyl)adenosine, M-234

6N-Cyclohexyl, 2′-O-Me: SDZ WAG 994
[130714-47-5]
$C_{17}H_{25}N_5O_4$ 363.416
Selective adenosine A_1 receptor agonist. Mp 88-91°.

6N-Benzyl: [4294-16-0]
$C_{17}H_{19}N_5O_4$ 357.368
Isol. from various plant spp.
Mp 184-186°.

6N-Benzyl, 3′-O-β-D-glucopyranosyl:
[150035-65-7]
$C_{23}H_{29}N_5O_9$ 519.51
Prod. during shoot organogenesis in *Petunia* sp.

6N-(2-Hydroxybenzyl): ***Cytokinin R***
[50868-58-1]
$C_{17}H_{19}N_5O_5$ 373.368
Isol. from leaves of poplar *Populus robusta*. λ_{max} 260 (EtOH at pH 2) (Derep). λ_{max} 265 (EtOH/pH 11) (Derep). λ_{max} 266 (EtOH) (Derep).

6N-(3-Hydroxybenzyl): **meta-*Topolin 9-riboside***
[110505-76-5]
$C_{17}H_{19}N_5O_5$ 373.368
Isol. from *Populus* x *canadensis* cv. *robusta*. Cytokinin.
Mp 171-174°.

N-*(2-Methylbenzyl):* N-*[(2-Methylphenyl)methyl]adenosine, 9CI.* ***Metrifudil, INN.*** *Th 322*
[23707-33-7]
$C_{18}H_{21}N_5O_4$ 371.395
Coronary vasodilator. Never marketed. Mp 157-158°. Log P -0.16 (calc).

2-Me: See 2-Methyladenosine, M-223

2′-Me: See 2′-*O*-Methyladenosine, M-221

6N-Cyclopentyl: N^6*-Cyclopentyladenosine. CPA*
[41552-82-3]
$C_{15}H_{21}N_5O_4$ 335.362
Adenosine A_1 receptor agonist. Platelet aggregation inhibitor. Cryst. (H_2O). Mp 77-81° Mp 105-107°.

6N-Cyclohexyl: [36396-99-3]
$C_{16}H_{23}N_5O_4$ 349.389
Adenosine A1 receptor agonist. Platelet aggregation inhibitor. Cryst. (EtOH/EtOAc). Mp 100°.

6N-(1-Methyl-2-phenylethyl): See *N*-(1-Methyl-2-phenylethyl)adenosine, M-278

1′-Epimer: 9-α-D-Ribofuranosyladenine. α-Adenosine
[5682-25-7]
$C_{10}H_{13}N_5O_4$ 267.244
Mp 205-207°. $[\alpha]_D^{20}$ +28 (c, 0.65 in H_2O).

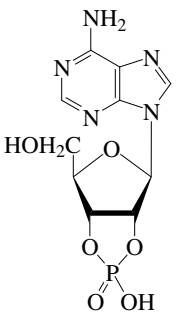
[3080-29-3]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 719C; 720A; 721A; 722C; 725B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 222A; 224A; 227B; 229B (*nmr*)
Levene, P.A. *et al., J. Biol. Chem.*, 1920, **41**, 483-494 (*3′-phosphate*)
Bredereck, H. *et al., Chem. Ber.*, 1947, **80**, 401-405 (*2′,3′,5′-tri-Ac*)
Davoll, J. *et al., J.C.S.*, 1948, 967-969 (*synth*)
Brown, D.M. *et al., J.C.S.*, 1950, 3299-3304 (*synth*)
Michelson, A.M. *et al., J.C.S.*, 1956, 1546-1549 (*2′,3′,5′-tri-Ac*)
Johnson, J.A. *et al., J.A.C.S.*, 1958, **80**, 699-702 (*6-N-Me*)
Biemann, K. *et al., J.A.C.S.*, 1962, **84**, 2005-2007 (*ms*)
Sundaralingam, M. *et al., Acta Cryst.*, 1966, **21**, 495-506 (*3′-phosphate, cryst struct*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1967, **23**, 2315 (*3′-Ac, 5′-Ac, di-Ac, isopropylidene*)
South African Pat., 1968, 6 707 414; *CA*, **70**, 115505f (*metrifudil*)
Shuman, D.A. *et al., J.A.C.S.*, 1970, **92**, 3434-3440 (*5′-O-sulfamoyl, synth*)
Saffhill, R. *et al., J.O.C.*, 1970, **35**, 2881-2883 (*3′-phosphate*)
Shikata, K. *et al., Acta Cryst. B*, 1973, **29**, 31-38 (*cryst struct*)
Kikugawa, K. *et al., J. Med. Chem.*, 1973, **16**, 358-364 (*6N-alkyl derivs*)
Sarma, R.H. *et al., J.A.C.S.*, 1974, **96**, 7337-7348 (*pmr, conformn*)
Earl, R.A. *et al., J.O.C.*, 1975, **40**, 1822-1828 (*cmr*)
Horgan, R. *et al., Phytochemistry*, 1975, **14**, 1005-1008 (*Cytokinin R*)
Ishido, Y. *et al., J.C.S. Perkin 1*, 1977, 657-660 (*2′,3′,5′-tribenzoyl, 6N,2′,3′,5′-tetrabenzoyl*)
Gregoire, R.J. *et al., Can. J. Chem.*, 1978, **56**, 487-490 (*2′,3′,5′-tri-Ac*)
Kemal, O. *et al., Synthesis*, 1980, 1025-1028 (*6-N-Methyladenosine*)
Mathlouth, M. *et al., Carbohydr. Res.*, 1984, **131**, 1-15 (*ir, Raman*)
Kawaguchi, T. *et al., J. Antibiot.*, 1984, 37, 1587-1595 (*B-factor*)
Moos, W.H. *et al., J. Med. Chem.*, 1985, **28**, 1383-1384 (*N-cyclopentyl*)
Wilson, C.C. *et al., Acta Cryst. C*, 1986, **42**, 697-700 (*cryst struct, triacetyl*)
Rengaraju, S. *et al., CA*, 1987, **106**, 134902 (*5′-O-sulfamoyl, isol*)
Puech, P. *et al., Handb. Exp. Pharmacol.*, 1989, **89**, 453-460 (*rev, metab, props, use*)
Adenosine and Adenosine Receptors, Williams, M., ed., Chapman and Hall, 1990, (*book*)
Pinski, S.L. *et al., Cleveland Clin. J. Med.*, 1990, **57**, 383 (*use*)
Reddy, A.M. *et al., J. Het. Chem.*, 1990, **27**, 1297-1305 (*ms*)
Robins, M.J. *et al., Can. J. Chem.*, 1991, **69**, 1468-1474 (*1-oxide, synth, pmr, cmr*)
Morgan, J.M. *et al., Circulation*, 1991, **84**, 1145 (*use*)
Thompson, R.D. *et al., J. Med. Chem.*, 1991, **34**, 3388-3390 (*6N-alkyl derivs*)

Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 57
Auer, C.A. *et al., Plant Physiol.*, 1993, **102**, 541-545 (*N-benzyl 3′-glucoside*)
Peakman, M.-C. *et al., Br. J. Pharmacol.*, 1995, **115**, 801-810 (*N-cyclopentyl*)
Rhie, S.Y. *et al., Heterocycles*, 1995, **41**, 323-328 (*3-oxide*)
Prashad, M. *et al., Synth. Commun.*, 1996, **26**, 3967-3977 (*6N-cyclohexyl 2′-O-Me*)
Saladino, R. *et al., Tetrahedron*, 1996, **52**, 6759-6780 (*2′,3′,5′-tri-Ac*)
Strnad, M. *et al., Phytochemistry*, 1997, **45**, 213-218 (*meta-Topolin 9-riboside*)
Mahler, G.S. *et al., Anal. Profiles Drug Subst.*, 1998, **25**, 1-37 (*rev*)
Moyroud, E. *et al., Tetrahedron*, 1999, **55**, 1277-1284 (*L-form, synth, pmr, cmr*)
Mikkola, S. *et al., Eur. J. Org. Chem.*, 2000, 2315-2323 (*6-N-Me*)
Ciuffreda, P. *et al., Tetrahedron*, 2000, **56**, 3239-3243 (*2′,3′-di-Ac, 5′-Ac, 3′-Ac, synth, pmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AEH750

Adenosine cyclic 2′,3′-(hydrogen phosphate), 9CI A-32

2′,3′-AMP
[634-01-5]



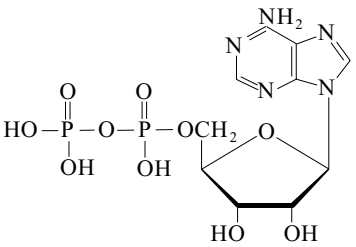
$C_{10}H_{12}N_5O_6P$ 329.209
Needles (EtOH). λ_{max} 257 (ϵ 14270) (H_2O).

Na salt: [37063-35-7]
Hydrate. Mp 241-243° (dec.).

Brown, D.M. *et al., J.C.S.*, 1952, 2708-2714 (*synth*)
Smith, M. *et al., J.A.C.S.*, 1958, **80**, 6204-6212 (*synth*)
Jardetsky, C.D. *et al., J.A.C.S.*, 1960, **82**, 222-229; 1962, **84**, 62-66 (*pmr*)
Ikehara, M. *et al., J.O.C.*, 1966, **31**, 819-821 (*synth*)
Ueda, T. *et al., Chem. Pharm. Bull.*, 1970, **18**, 2303-2308 (*synth*)
Van Boom, J.H. *et al., Nucleic Acids Res.*, 1976, **3**, 2731-2747 (*synth, tlc*)
Eto, M. *et al., Agric. Biol. Chem.*, 1978, **42**, 199-200 (*synth, props, uv, pmr*)
Uesugi, U. *et al., Chem. Pharm. Bull.*, 1978, **26**, 3040-3049 (*cmr*)
Fathi, R. *et al., J.O.C.*, 1986, **51**, 4143-4146 (*P-31 nmr*)

Adenosine diphosphate A-33

Adenosine 5′-(trihydrogen diphosphate), 9CI. Adenosine 5′-pyrophosphate. ADP. Adenosine-5′-diphosphoric acid
[58-64-0]



$C_{10}H_{15}N_5O_{10}P_2$ 427.203
Formed from ATP in the muscle by the enzyme adenosinetriphosphatase. Prod. by various bacteria. Platelet aggregating factor. Inhibits adenylate cyclase. P_2 receptor agonist. pK_{a4} 4; pK_{a5} 6.48 (25°, 0.15*M* NaCl). λ_{max} 259 (ϵ 15400) (H_2O).

▶ AU7467000

Acridine salt: Mp 215° dec. λ_{max} 281 (ϵ 19400) (H_2O).

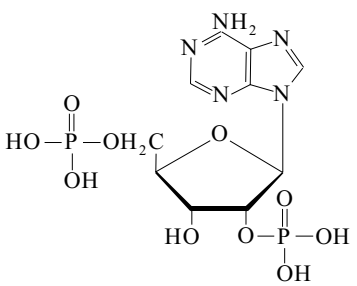
6N-Benzoyl, tri-Na salt: λ_{max} 281 (ϵ 19400) (H_2O).

[1172-42-5, 20398-34-9, 123333-51-7]

Baddiley, J. *et al., J.C.S.*, 1947, 648
Biochem. Prep., 1949, **1**, 1
Chambers, R.W. *et al., J.A.C.S.*, 1960, **82**, 970 (*synth*)
Mitsugi, K. *et al., Agric. Biol. Chem.*, 1964, **28**, 571 (*isol*)
Wieland, T. *et al., Chem. Ber.*, 1968, **107**, 3031 (*synth*)
Sarma, R.H. *et al., Chem. Comm.*, 1973, 140 (*pmr, nmr*)
Hampton, A. *et al., Biochemistry*, 1975, **14**, 5438
Swaminathan, P. *et al., Acta Cryst. B*, 1980, **36**, 2590 (*cryst struct*)
Hourani, S.M.O. *et al., Trends Pharmacol. Sci.*, 1994, **15**, 103-108 (*pharmacol*)
Merck Index, 13th edn., 2001, No. 155 (*rev*)
Barnard, E.A. *et al., Trends Pharmacol. Sci.*, 2001, **22**, 388-391 (*pharmacol*)

Adenosine 2′,5′-diphosphate A-34

2′-Adenylic acid 5′-(dihydrogen phosphate), 9CI. Adenosine 2′,5′-bis(phosphate), 8CI. Adenosine 2′,5′-diphosphoric acid
[3805-37-6]



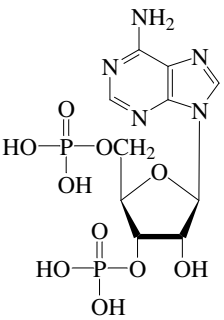
$C_{10}H_{15}N_5O_{10}P_2$ 427.203
Component of coenzyme II. Amorph. powder.

Di-Ca salt:
Octahydrate. λ_{max} 258 nm (ϵ 14 250) (H_2O).

Wang, T.P. *et al., J. Biol. Chem.*, 1954, **206**, 299
Baddiley, J. *et al., J.C.S.*, 1958, 1000 (*synth*)
Japan. Pat., 1967, 536; *CA*, **66**, 64391y (*synth*)
Takaku, H. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1844 (*synth*)
Roeder, S.B.W. *et al., Physiol. Chem. Phys.*, 1975, **7**, 115 (*cmr*)

Adenosine 3′,5′-diphosphate A-35

3′-Adenylic acid 5′-(dihydrogen phosphate), 9CI. Adenosine 3′,5′-bis(phosphate), 8CI. Adenosine 3′,5′-diphosphoric acid
[1053-73-2]



$C_{10}H_{15}N_5O_{10}P_2$ 427.203
Component of coenzyme A. Amorph. powder.

Ca salt:
Pentahydrate. λ_{max} 258 (ϵ 14050) (H_2O).

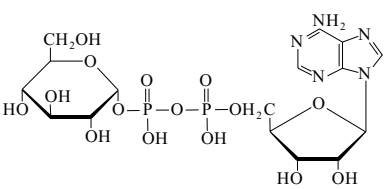
2′-Deoxy, N*-Me: MRS 2179*
[101204-49-3]

[201048-81-9]
$C_{11}H_{17}N_5O_9P_2$ 425.231
Purine (P_{2Y1}) receptor antagonist. Characterised by pmr and P-31 nmr (as tetra-NH_4 salt).

Wang, T.P. *et al., J. Biol. Chem.*, 1954, **206**, 299
Baddiley, J. *et al., J.C.S.*, 1958, 1000 (*synth*)
Takaku, H. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1844 (*synth*)
Lee, C. *et al., FEBS Lett.*, 1974, **43**, 271; *CA*, **82**, 12479u (*pmr*)
Roeder, S.B.W. *et al., Physiol. Chem. Phys.*, 1975, **7**, 115 (*cmr*)
Moro, S. *et al., J. Med. Chem.*, 1998, **41**, 183-190; 1456-1466; 2000, **43**, 829-842 (*MRS 2179, synth, pmr, pharmacol*)
Baurand, A. *et al., Eur. J. Pharmacol.*, 2001, **412**, 213-221 (*MRS 2179, pharmacol*)

Adenosine diphosphate glucose A-36

Adenosine 5′-(trihydrogen diphosphate) mono-α-D-glucopyranosyl ester, 9CI. ADPG
[2140-58-1]

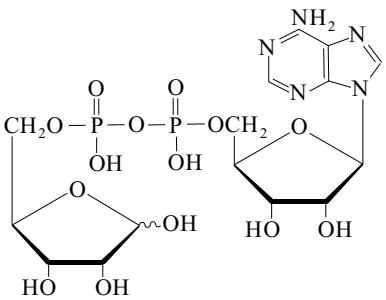


$C_{16}H_{25}N_5O_{15}P_2$ 589.345
Present in ripening cereal grains. Also obt. from algal cells. Glucose donor in glycogen synth., sucrose synth. and glucoside formn.
λ_{max} 257 nm (pH 2). λ_{max} 259 (ϵ 15400) (H_2O) (as di-K salt). λ_{max} 257 (dil. acid) (pH2).

Roseman, S. *et al., J.A.C.S.*, 1961, **83**, 659
Murata, T. *et al., Arch. Biochem. Biophys.*, 1964, **106**, 371 (*isol, synth*)
Frydman, R.B. *et al., Biochim. Biophys. Acta*, 1966, **113**, 620 (*occur*)
Krauss, G. *et al., J. Chromatogr.*, 1973, **76**, 248 (*chromatog*)
Sarma, R.H. *et al., FEBS Lett.*, 1973, **36**, 157 (*nmr*)
Lee, C.H. *et al., Biochemistry*, 1976, **15**, 697 (*conformn, pmr*)

Adenosine diphosphate ribose A-37

Adenosine 5′-(trihydrogen diphosphate) (5′→5) ester with D-ribose, 9CI. ADPR
[20762-30-5]

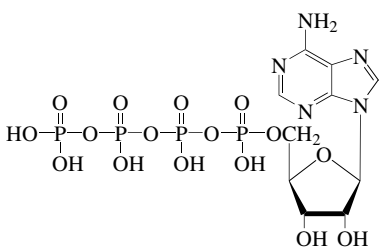


$C_{15}H_{23}N_5O_{14}P_2$ 559.319
Prod. of enzymic or chemical hydrol. of diphosphopyridine nucleotide. Inhibits coenzyme action of diphosphopyridine nucleotide.

Rosenberg, S. *et al., J. Biol. Chem.*, 1954, **211**, 763 (*isol*)
Blumenstein, M. *et al., Biochemistry*, 1972, **11**, 1643 (*cmr, nmr*)
Sarma, R.H. *et al., J.A.C.S.*, 1973, **95**, 7470 (*conformn, pmr*)
Abdallah, M.A. *et al., Eur. J. Biochem.*, 1975, **50**, 475 (*cryst struct*)

Adenosine 5′-tetraphosphate, 8CI A-38

Adenosine 5′-(pentahydrogen tetraphosphate), 9CI
[1062-98-2]

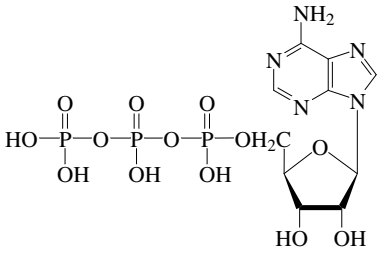


$C_{10}H_{17}N_5O_{16}P_4$ 587.163
No phys. props. reported.

Feldkaus, P. *et al., Eur. J. Biochem.*, 1975, **57**, 197-204 (*synth*)

Adenosine triphosphate A-39

Adenosine 5′-(tetrahydrogen triphosphate), 9CI, 8CI. ATP. Adenosine 5′-triphosphoric acid. Adenylpyrophosphoric acid. Atriphos. Cardenosine. Fosfobion. Striadyne
[56-65-5]



$C_{10}H_{16}N_5O_{13}P_3$ 507.183
Isol. from muscle extracts. Mammalian skeletal muscle at rest contains 0.3-0.4 g of ATP/100 g. Isol. from various plant sources. Important metabolic coenzyme; fundamental role in biological energy transformations. Used in the treatment of supraventricular tachycardia. Sol. H_2O. Mp 143-145° dec. $[\alpha]_D^{22}$ -26.7 (c, 3.1 in H_2O). pK_{a4} 4.06; pK_{a5} 6.53 (25°). Component of numerous preparations. λ_{max} 259 (ϵ 15400) (H_2O).
▶ LD_{50} (rat, ipr) 200mg/kg. AU7416000

Di-Na salt: ***Adenosine triphosphate disodium, JAN.*** *Adetphos. Trinosin*
[987-65-5]

[51963-61-2]
Inhibits enzymatic browning of apples, potatoes etc. Mp 188-190° dec. (hydrate).

Ca salt: [15866-84-9]

[71937-66-1]
Solid.

Triacridine salt: Mp 208-209° dec.

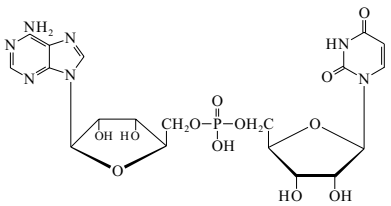
6N-Benzoyl:
$C_{17}H_{20}N_5O_{14}P_3$ 611.292
λ_{max} 259 (ϵ 19400) (H_2O) (as Na salt).

[1476-84-2, 2964-07-0, 22887-44-1, 37866-02-7, 56842-80-9]

Biochem. Prep., 1949, **1**, 5 (*isol*)
Baddiley, J. *et al., J.C.S.*, 1949, 582 (*synth*)
Michelson, A.M. *et al., The Chemistry of Nucleosides and Nucleotides*, Academic Press, N.Y. and London, 1963, 153 (*rev*)
Feldman, I. *et al., J.A.C.S.*, 1968, **90**, 7329 (*pmr*)
Kennard, O. *et al., Nature (London)*, 1970, **225**, 333 (*cryst struct*)
Dorman, D.E. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 19 (*cmr*)
Hampton, A. *et al., Biochemistry*, 1975, **14**, 5438
Bock, J.L. *et al., J. Inorg. Biochem.*, 1980, **12**, 119-130 (*synth, Ca salt*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 58
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ARQ500

Adenosine 5′-uridine 5′-phosphate A-40

Uridylyl-(5′,5′)-adenosine

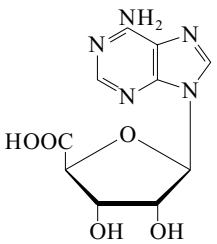


$C_{19}H_{24}N_7O_{12}P$ 573.412
Amorph. hygroscopic powder. Dec. at 180-200° without melting. λ_{max} 259.5 (ϵ 21 300) (0.01N H_2SO_4), 260.5 nm (20 300) (0.01N NaOH).

Elmore, D.T. *et al., J.C.S.*, 1952, 3681 (*synth*)
Michelson, A.M. *et al., CA*, 1962, **56**, 14622b

Adenosine-5′-uronic acid A-41

1-(6-Amino-9H-purin-9-yl)-1-deoxy-β-D-ribofuranuronic acid, 9CI. Adenosine-5′-carboxylic acid
[3415-09-6]



$C_{10}H_{11}N_5O_5$ 281.227
Coronary vasodilator.

Me ester: [35803-56-6]
$C_{11}H_{13}N_5O_5$ 295.254
Cryst. (MeOH). Mp 217° (220-222°).

Et ester: [35803-57-7]
$C_{12}H_{15}N_5O_5$ 309.281
Cryst. (EtOH/C_6H_6). Mp 210-211° (218°).

Et ester, hydrochloride: Abbott 40557
[50663-70-2]
Cryst. (EtOH). Mp 207-209°.

Benzyl ester: [35788-20-6]
$C_{17}H_{17}N_5O_5$ 371.352
Solid. Mp 135-137°.

Amide: Adenosine-5′-carboxamide
[35788-21-7]
$C_{10}H_{12}N_6O_4$ 280.243
Cryst. (EtOH). Mp 245-247°. $[\alpha]_D^{25}$ -29 (c, 1.08 in 1*M* HCl).

N-*Methylamide:* [35788-27-3]
$C_{11}H_{14}N_6O_4$ 294.269
Cryst. (MeOH). Mp 241-243°.

N-*Ethylamide: 1-(6-Amino-9H-purin-9-yl)-1-deoxy-*N-*ethyl-β-D-ribofuranuronamide, 9CI. Adenosine-5′-*N-*ethyluronamide. 5′-*N-*Ethylcarboxamideadenosine. NECA*
[35920-39-9]
$C_{12}H_{16}N_6O_4$ 308.296
Non-selective adenosine receptor agonist. Cryst. (EtOH or H_2O). Mp249-250° (245-246°). $[\alpha]_D^{26}$ -16.3 (c, 0.92 in HCl).

N-*Ethylamide, 2,3-di-Ac:* [58048-26-3]
$C_{16}H_{20}N_6O_6$ 392.371
Mp 96-102°. $[\alpha]_D^{26}$ -19 (c, 1.8 in H_2O).

N-*Ethylamide, 6*-N-*cyclopentyl:* ***Selodenoson, INN.*** *RG 14202*
[110299-05-3]
$C_{17}H_{24}N_6O_4$ 376.414
Adenosine A_1 receptor agonist. Solid. Mp 95-101°.

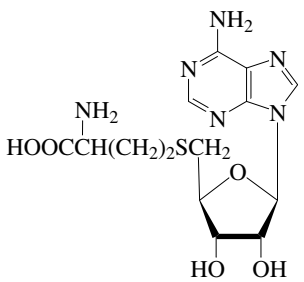
N,N-*Diethylamide:*
$C_{14}H_{20}N_6O_4$ 336.35
Cryst. (MeOH). Mp 244-245°.

[41110-76-3]

Stein, H.H. *et al., J. Med. Chem.*, 1973, **16**, 1306 (*synth*)
Meris, I. *et al., Xenobiotica*, 1973, **3**, 381 (*metab*)
U.S. Pat., 1974, 3 855 205, (*Abbott*); *CA*, **82**, 171372v (*synth*)
Stein, H.H. *et al., Ann. N.Y. Acad. Sci.*, 1975, **255**, 380 (*rev, pharmacol*)
Prasad, R.N. *et al., J. Med. Chem.*, 1976, **19**, 1180; 1980, **23**, 313-319 (*synth, derivs, bibl*)
Raberger, G. *et al., Arch. Int. Pharmacodyn. Ther.*, 1977, **230**, 140-149 (*NECA, pharmacol*)
Prasad, R.N. *et al., J. Med. Chem.*, 1980, **23**, 313-319 (*NECA, synth, pharmacol*)
Olsson, R.A. *et al., J. Med. Chem.*, 1986, **29**, 1683-1689 (*synth*)
Eur. Pat., 1987, 222 330, (*Warner-Lambert*); *CA*, **107**, 134632u (*selodenoson, synth, pharmacol*)
Moos, W.H. *et al., Nucleosides Nucleotides*, 1989, **8**, 449-461 (*cryst struct, ethylamide*)
Bridges, A.J. *et al., Nucleic Acid Chem.*, 1991, **4**, 230-239 (*NECA, synth, derivs, pharmacol, selodenoson*)
Merkel, L.A. *et al., J. Pharmacol. Exp. Ther.*, 1993, **265**, 699-706 (*selodenoson, pharmacol*)
Wnuk, S.F. *et al., J. Med. Chem.*, 1996, **39**, 4162-4166 (*benzyl ester, amide derivs, synth, pmr*)
Cox, B.F. *et al., J. Cardiovasc. Pharmacol.*, 1997, **29**, 417-426 (*selodenoson, pharmacol*)
Sreekante, G. *et al., Acta Cryst. C*, 1998, **54**, 647-649 (*cryst struct*)

S-Adenosylhomocysteine A-42

5′-S-*(3-Amino-3-carboxypropyl)-5′-thioadenosine, 9CI, 8CI. SAH*
[979-92-0]



$C_{14}H_{20}N_6O_5S$ 384.415
Methyl transferase inhibitor. Mp 210-211° dec. $[\alpha]_D^{23}$ +44.5 (c, 0.1 in 0.05*M* HCl). λ_{max} 260 (H_2O).

Picrate: Mp 170° dec.

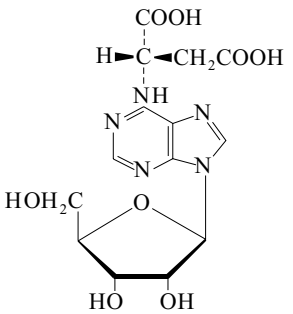
S-*Oxide:* See Ademetionine, A-26

*6*N-*Me:*
$C_{15}H_{22}N_6O_5S$ 398.442
Mp 208-210°.

de la Haba, G. *et al., J. Biol. Chem.*, 1959, **234**, 603 (*synth*)
Duerre, J.A. *et al., Arch. Biochem. Biophys.*, 1962, **96**, 70
Follmann, H. *et al., Eur. J. Biochem.*, 1974, **47**, 187 (*conformn, pmr*)
Borchardt, R.T. *et al., J. Med. Chem.*, 1976, **19**, 1094 (*pharmacol*)
Borchardt, R.T. *et al., J.O.C.*, 1976, **41**, 565 (*synth*)
Ramalingan, K. *et al., J.O.C.*, 1984, **49**, 1291 (*synth*)

Adenosylsuccinic acid A-43

N-*(9-β-D-Ribofuranosyl-9*H*-purin-6-yl)-L-aspartic acid, 9CI. 6-Succinamidopurine riboside*
[4542-23-8]



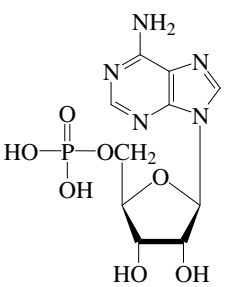
$C_{14}H_{17}N_5O_8$ 383.317
Found in the mycelium of *Penicillium chrysogenum* and in other microorganisms. Cryst. (EtOH).
Mp 240-245° dec. $[\alpha]_D^{24}$ -18 (dil. alkali). $[\alpha]_D^{24}$ -44.7 (dil. acid).

6′-Phosphate: ***Adenylosuccinic acid***
[19046-78-7]
$C_{14}H_{18}N_5O_{11}P$ 463.297
Found in *Penicillium chrysogenum* and *Fusarium nivale*. Intermed. in adenylic acid formn. $[\alpha]_D^{25}$ -3.4 (c, 1.04 in H_2O).

Lieberman, I. *et al., J. Biol. Chem.*, 1956, **223**, 327
Ballio, A. *et al., Arch. Biochem. Biophys.*, 1963, **101**, 311 (*struct*)
Mansurova, S.E. *et al., Biokhimiya (Moscow)*, 1966, **31**, 1057
Ballio, A. *et al., Ann. Ist. Super. Sanita*, 1967, **3**, 149; *CA*, **68**, 59824d (*synth*)
Van der Weyden, M.B. *et al., J. Biol. Chem.*, 1974, **249**, 7282

Adenylic acid, 9CI, 8CI A-44

Adenosine phosphate, BAN, INN, USAN. *Adenosine 5′-phosphate. Adenosine 5′-monophosphate. Adenosine-5′-phosphoric acid. Muscle adenylic acid. AMP. 5′-Adenylic acid. Phosphaden. NSC 20264*
[61-19-8]



$C_{10}H_{14}N_5O_7P$ 347.224
Nucleoside widely distributed in nature. Isol. from muscle. Has been used as an antiviral agent; nutrient.
Mp 196-200°. $[\alpha]_D^{20}$ -47.5 (c, 2.0 in 2% NaOH). $[\alpha]_D^{20}$ -26 (c, 2.0 in 10% HCl). pK_{a2} 3.74; pK_{a3} 6.05; pK_{a4} 13.1 (25°). Component of numerous preparations. λ_{max} 259 (ε 15400) (H_2O).

▶ Human systemic effects when used therapeutically incl. anaphylactoid reactions. Exp. reprod. effects. LD_{50} (mus, ipr) 4000 mg/kg. AU7480500

Acridine salt: Mp 208°.

2′,3′-O-*Isopropylidene, 5′-dibenzylphosphate:* Mp 97-98°.

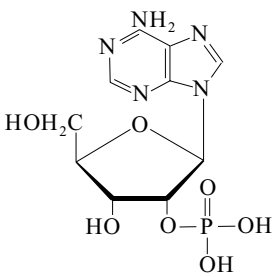
5′-Dibenzylphosphate: Mp 234° dec.

[485-84-7, 4578-31-8, 7384-99-8, 13474-03-8, 18422-05-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 723D (*ir*)
Kerr, S.E. *et al., J. Biol. Chem.*, 1941, **139**, 131 (*synth*)
Baddiley, J. *et al., J.C.S.*, 1947, 648 (*synth*)
Yathindra, N. *et al., Biopolymers*, 1973, **12**, 297 (*conformn, cryst struct*)
Sarma, R.H. *et al., J.A.C.S.*, 1974, **96**, 7337 (*pmr*)
Norton, R.S. *et al., J.A.C.S.*, 1976, **98**, 1007 (*cmr*)
Hampton, A. *et al., J. Med. Chem.*, 1976, **19**, 1029
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1331
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AOA125

2′-Adenylic acid, 9CI, 8CI A-45

Adenosine 2′-(dihydrogen phosphate), 9CI. Adenylic acid a. Adenosine-2′-phosphoric acid
[130-49-4]



$C_{10}H_{14}N_5O_7P$ 347.224
Isol. from yeast ribonucleic acid. Also from *Penicillium* sp.
Mp 205-215° (187°) dec. pK_{a1} 0.89; pK_{a2} 3.81; pK_{a3} 6.17 (25°).

Acridine salt: Mp 215° dec.

Dibrucine salt: Mp 165-175°.

3′-O-*(3,4-Di*-O*-phospho-α-D-glucopyranoside):* ***Adenophostin A***
[149091-92-9]
$C_{16}H_{26}N_5O_{18}P_3$ 669.325
Prod. by *Penicillium brevicompactum*. Calcium channel activator. Activates inositol triphosphate (Ins(1,4,5)P_3) receptor. Sol. H_2O, DMSO; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, $CHCl_3$, EtOAc. $[\alpha]_D^{25}$ +28.6 (c, 0.7 in H_2O).

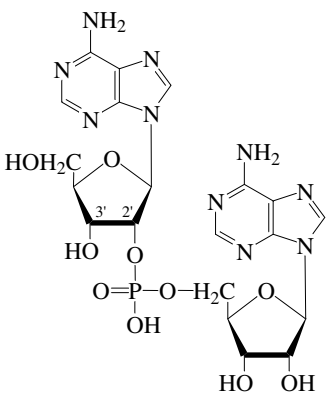
λ_{max} 256 (ϵ) (H_2O/HCl) (Derep). λ_{max} 260 (ϵ) (H_2O/NaOH) (Derep). λ_{max} 258 (ϵ 12000) (H_2O) (Derep). λ_{max} 256 (ϵ 13300) (HCl) (Berdy).

3′-O-(6-O-Acetyl-3,4-di-O-phosphono-α-D-glucopyranoside): ***Adenophostin B***
[149091-93-0]
$C_{18}H_{28}N_5O_{19}P_3$ 711.362
Prod. by *Penicillium brevicompactum*. Inositol-1,4,5-triphosphate receptor agonist. Sol. H_2O, DMSO; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, EtOAc, $CHCl_3$. $[\alpha]_D^{25}$ +33.8 (c, 0.9 in H_2O). λ_{max} 256 (ϵ) (H_2O) (Derep). λ_{max} 260 (ϵ) (H_2O/NaOH) (Derep). λ_{max} 258 (ϵ 12000) (H_2O) (Derep). λ_{max} 256 (ϵ 13300) (HCl) (Berdy).

Brown, D.M. *et al., J.C.S.*, 1952, 44-51 (*synth*)
Brown, D.M. *et al., Nature (London)*, 1953, **172**, 1184-1185 (*struct*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1966, **22**, 705-710 (*pmr*)
Kotowycz, G. *et al., Biochemistry*, 1973, **12**, 517-520 (*cmr*)
Son, T. *et al., Biochim. Biophys. Acta*, 1974, **335**, 1-13 (*conformn, pmr*)
Takahashi, M. *et al., J. Antibiot.*, 1993, **46**, 1643-1647; 1994, **47**, 95-100 (*Adenophostins A, B*)
Hotoda, H. *et al., Tet. Lett.*, 1995, **36**, 5037-5040 (*Adenophostin A, synth*)
Van Straten, N.C.R. *et al., Tetrahedron*, 1997, **53**, 6509-6522 (*Adenophostin A, synth*)
Bird, G.S. *et al., J. Biol. Chem.*, 1999, **274**, 20643-20649 (*Adenophostin A, pharmacol*)
Marwood, R.D. *et al., J.C.S. Perkin 1*, 2000, 1935-1947 (*Adenophostin A, synth*)
Parekh, A.B. *et al., Biochem. J.*, 2002, **361**, 133-141 (*Adenophostin A, pharmacol*)

Adenylyl-(2′ →5′)-adenosine, 9CI A-46

[2273-76-9]



$C_{20}H_{25}N_{10}O_{10}P$ 596.452
No phys. props. reported. λ_{max} 260 (pH 7.1).

Mizuno, Y. *et al., J.A.C.S.*, 1966, **88**, 863-864 (*synth*)
Doornbos, J. *et al., Eur. J. Biochem.*, 1981, **116**, 403-412 (*pmr, ord*)
Kvasyuk, E.I. *et al., Zh. Org. Khim.*, 1990, **26**, 1229-1236; *J. Org. Chem. USSR (Engl. Transl.)*, 1990, **26**, 1063-1068 (*synth, uv, pmr*)
Suzuki, H. *et al., Biomed. Chromatogr.*, 1992, **6**, 35-38 (*hplc*)
Sawai, H. *et al., Bioorg. Med. Chem. Lett.*, 1996, **6**, 1785-1790 (*synth, conformn*)

Adenylyl-(3′ →5′)-adenosine, 9CI A-47

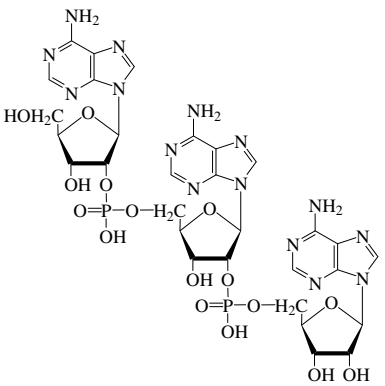
[2391-46-0]

$C_{20}H_{25}N_{10}O_{10}P$ 596.452
No phys. props. reported. λ_{max} 259 (log ϵ 4.41) (H_2O, pH 7.0).

Mizuno, Y. *et al., J.A.C.S.*, 1966, **88**, 863-864 (*synth*)
Annamalai, A. *et al., J.A.C.S.*, 1987, **109**, 3125-3132 (*cd*)
Kvasyuk, E.I. *et al., Zh. Org. Khim.*, 1990, **26**, 1229-1236; *J. Org. Chem. USSR (Engl. Transl.)*, 1990, **26**, 1063-1068 (*synth, uv, pmr*)
Yashima, E. *et al., J. Chromatogr.*, 1992, **603**, 111-119 (*hplc*)
Sekine, M. *et al., J.O.C.*, 1993, **58**, 3204-3208 (*synth*)
McNeff, C. *et al., Anal. Chem.*, 1995, **67**, 2350-2353 (*hplc*)

Adenylyl-(2′ →5′)-adenylyl-(2′ →5′)-adenosine, 9CI A-48

[70062-83-8]

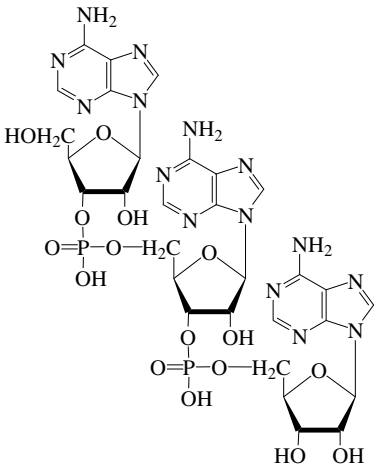


$C_{30}H_{37}N_{15}O_{16}P_2$ 925.661
No phys. props. reported. λ_{max} 259 (log ϵ 4.55) (phosphate buffer pH 7).

Charubala, R. *et al., Tet. Lett.*, 1980, **21**, 1933-1936 (*synth, pmr, cd*)
Doornbos, J. *et al., Eur. J. Biochem.*, 1981, **116**, 403-412 (*pmr, conformn*)
White, J.C. *et al., Biochemistry*, 1987, **26**, 7737-7744 (*Raman*)
Kvasyuk, E.I. *et al., Synthesis*, 1987, 535-541 (*synth, pmr*)
Suzuki, H. *et al., Biomed. Chromatogr.*, 1992, **6**, 35-38 (*hplc*)
Foldesi, A. *et al., J. Biochem. Biophys. Methods*, 1993, **26**, 1-26 (*pmr*)
Sawai, H. *et al., Bioorg. Med. Chem. Lett.*, 1996, **6**, 1785-1790 (*synth*)

Adenylyl-(3′ →5′)-adenylyl-(3′ →5′)-adenosine, 9CI A-49

[917-44-2]

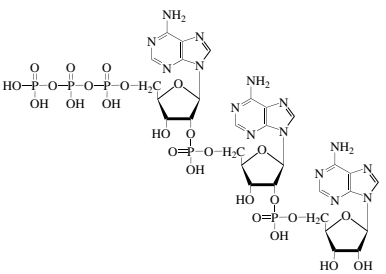


$C_{30}H_{37}N_{15}O_{16}P_2$ 925.661
No phys. props. reported.

Lohrmann, R. *et al., J.A.C.S.*, 1966, **88**, 819-829 (*synth*)
Yoshida, S. *et al., Chem. Pharm. Bull.*, 1986, **34**, 2456-2461 (*synth, cd*)
White, J.C. *et al., Biochemistry*, 1987, **26**, 7737-7744 (*Raman*)
Ozaki, H. *et al., Chem. Lett.*, 1990, 959-962 (*synth*)
Sawai, H. *et al., Bioorg. Med. Chem. Lett.*, 1996, **6**, 1785-1790 (*synth*)

Adenylyl-(5′ →2′)-adenylyl-(5′ →2′)-adenosine 5′-(tetrahydrogen triphosphate), 9CI A-50

[65954-93-0]

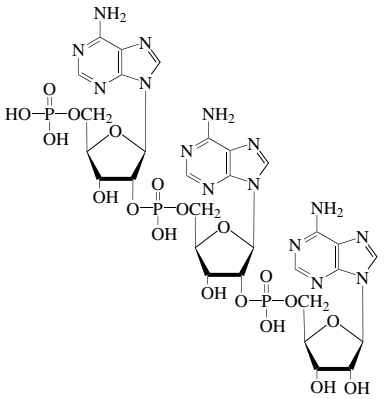


$C_{30}H_{40}N_{15}O_{25}P_5$ 1165.601
No phys. props. reported. λ_{max} 259 ($Et_4NH^{\oplus}HCO_3^{\ominus}$ buffer pH 7.6).

Jones, S.S. *et al., J.A.C.S.*, 1979, **101**, 7399-7401 (*synth, pmr, P-31 nmr, uv*)
Jamoulle, J.-C. *et al., Biochemistry*, 1987, **26**, 376-383 (*synth, pmr, P-31 nmr*)
White, J.C. *et al., Biochemistry*, 1987, **26**, 7737-7744 (*Raman*)
Noyori, R. *et al., Aust. J. Chem.*, 1992, **45**, 205-225 (*synth, bibl*)

Adenylyl-(5′ →2′)-adenylyl-(5′ →2′)-5′-adenylic acid A-51

p5′A2′p5′A2′p5′A
[61172-40-5]

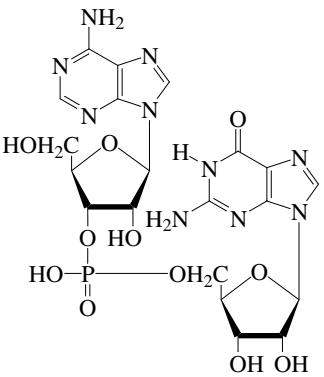


$C_{30}H_{38}N_{15}O_{19}P_3$ 1005.641

den Hartog, J.A.J. *et al., J.O.C.*, 1981, **46**, 2242-2251 (*synth, P-31 nmr*)
Noyori, R. *et al., Aust. J. Chem.*, 1992, **45**, 205-225 (*synth*)

Adenylyl-(3′ →5′)-guanosine, 9CI A-52

ApG
[3352-23-6]



$C_{20}H_{25}N_{10}O_{11}P$ 612.452

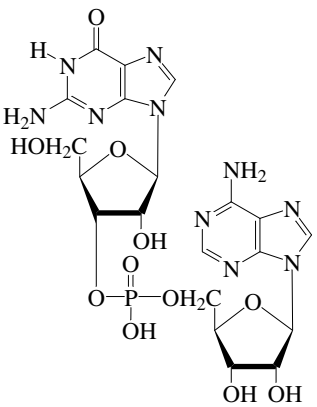
[21027-47-4]

Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Takaku, H. *et al., Chem. Lett.*, 1979, 811-814 (*synth*)
Heikkilae, J. *et al., Acta Chem. Scand., Ser. B*, 1985, **39**, 657-659 (*synth, pmr, P-31 nmr*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Damha, M.J. *et al., Biochemistry*, 1988, **27**, 6403-6416 (*pmr, cmr, cd, uv, conformn*)

Adenylyl-(5′ →3′)-guanosine, 9CI A-53

Guanylyl-(3′ →5′)-adenosine. GpA
[6554-00-3]

[102029-53-8]

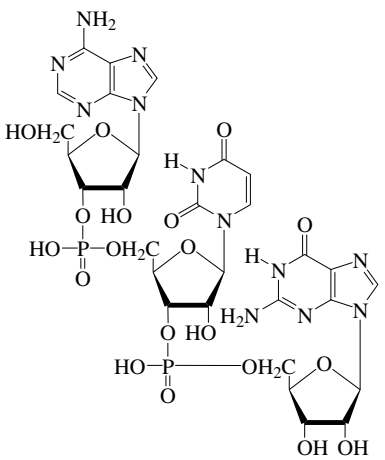


$C_{20}H_{25}N_{10}O_{11}P$ 612.452

Sato-Asano, K. *et al., Biochim. Biophys. Acta*, 1958, **29**, 655-656 (*synth*)
Dimroth, K. *et al., Annalen*, 1959, **620**, 109-122 (*uv*)
Michelson, A.M. *et al., J.C.S.*, 1959, 3655-3669 (*synth, uv*)
Tomasz, J. *et al., Nucleic Acids Res.*, 1978, **5**, 2945-2957 (*synth*)
Seuvre, A.M. *et al., Carbohydr. Res.*, 1987, **169**, 83-103 (*ir, Raman*)

Adenylyl-(3′ →5′)-uridylyl-(3′ →5′)-guanosine, 9CI A-54

ApUpG
[3494-35-7]

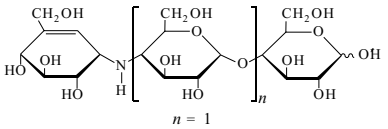


$C_{29}H_{36}N_{12}O_{19}P_2$ 918.62

Lohrmann, R. *et al., J.A.C.S.*, 1966, **88**, 819-829 (*synth*)
Bell, R.A. *et al., Biopolymers*, 1981, **20**, 1383-1398 (*synth, pmr*)
Stone, M.P. *et al., Biophys. Chem.*, 1985, **23**, 129-138 (*synth, cmr*)
Fujii, M. *et al., Chem. Pharm. Bull.*, 1987, **35**, 3066-3069 (*synth*)

Adiposin 1 A-55

TAI-2. TAI-B. Antibiotic A2396 1-0. A2396 1-0
[83764-11-8]



$C_{19}H_{33}NO_{14}$ 499.468

Aminocyclitol antibiotic. Prod. by *Streptomyces calvus* and other *Streptomyces* spp. Active against gram-positive and -negative bacteria and phytopathogenic fungi. α-Amylase inhibitor. Powder + $2H_2O$.
Mp 138-143° dec. $[\alpha]_D^{22}$ +139 (c, 1 in H_2O). pK_a 5.1. Adiposin is also the name of a hormone.

▶ LZ7150300

[74870-01-2]

Japan. Pat., 1980, 80 64 509; 80 64 524; *CA*, **93**, 166097; **94**, 45580 (*isol*)
Namiki, S. *et al., J. Antibiot.*, 1982, **35**, 1156; 1167; 1234
Kangouri, K. *et al., J. Antibiot.*, 1982, **35**, 1160
Ogawa, S. *et al., Carbohydr. Res.*, 1985, **141**, 29 (*synth*)

Adiposin 2 A-56

TAI-1. TAI-A. Antibiotic A2396-2-0. A2396 2-0
[83764-12-9]
As Adiposin 1, A-55 with n = 2

$C_{25}H_{43}NO_{19}$ 661.61
Prod. by *Streptomyces calvus* and other *Streptomyces* spp. Active against gram-positive and -negative bacteria and phytopathogenic fungi. α-Amylase inhibitor. Powder + $2H_2O$. Sol. H_2O, DMF, MeOH, DMSO, Py; poorly sol. hexane.
Mp 157-162° dec. $[\alpha]_D^{22}$ +163 (c, 1 in H_2O). pK_a 5.

▶ LD_{50} (mus, ivn) 10000-30000 mg/kg.
LZ7150500

Dihydro: ***Dihydroadiposin II***
$C_{25}H_{45}NO_{19}$ 663.626
Prod. by *Streptomyces castaneoglobisporus*. α-Amylase inhibitor. Sol. H_2O.

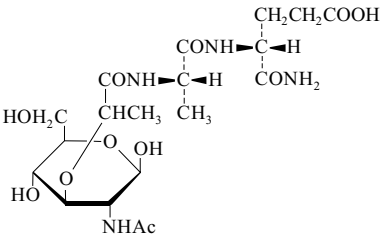
[76090-51-2]

Japan. Pat., 1980, 80 64 509; 80 64 524; *CA*, **93**, 166097; **94**, 4550 (*isol*)
Namiki, S. *et al., J. Antibiot.*, 1982, **35**, 1156; 1167; 1234
Kangouri, K. *et al., J. Antibiot.*, 1982, **35**, 1160
Shibata, Y. *et al., Carbohydr. Res.*, 1989, **189**, 309 (*synth*)
Japan. Pat., 1990, 90 92 267; *CA*, **113**, 189796e (*Dihydroadiposin II*)

Adjuvant peptide A-57

N^2-*[*N-*(*N-*Acetylmuramoyl)-*L*-alanyl]-*D*-α-glutamine, 9CI*. N-*Acetylmuramyl-*L*-alanyl-*D*-isoglutamine. Muramyl dipeptide. MDP*

[53678-77-6]



$C_{19}H_{32}N_4O_{11}$ 492.482

Identified as the minimum structural constit. of the mycobacterial cell wall component of Freund's complete adjuvant which is necessary for adjuvant activity. It and many of its analogues have been investigated as adjuvants in the immunisation of animals. Immunomodulator. Somnogenic and pyrogenic agent.

Mp 190-194°. $[\alpha]_D^{25}$ +44 (c, 1 in AcOH).

▶ MA2275260

LeFrancier, P. *et al., Int. J. Pept. Protein Res.*, 1977, **9**, 249; 1978, **11**, 289 (*synth*)

Nebelin, E. *et al., FEBS Lett.*, 1979, **107**, 254 (*ms*)

LeFrancier, P. *et al., Prog. Chem. Org. Nat. Prod.*, 1981, **40**, 1 (*rev*)

Chapman, B.E. *et al., Aust. J. Chem.*, 1982, **35**, 489 (*pmr*)

Fogler, W.E. *et al., Immunol. Ser.*, 1984, **25**, 499 (*rev*)

Masek, K. *et al., Int. J. Immunother.*, 1985, **1**, 177 (*rev, pharmacol*)

Ivanov, V.T. *et al., Pure Appl. Chem.*, 1987, **59**, 317 (*synth, pharmacol*)

LeFrancier, P. *et al., Pure Appl. Chem.*, 1987, **59**, 449 (*rev, pharmacol*)

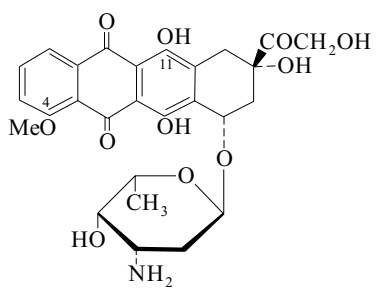
Misra, P.K. *et al., J. Chem. Res., Synop.*, 1988, 374 (*bibl, synth*)

Boulanger, Y. *et al., Tetrahedron*, 1992, **48**, 8855 (*bibl, conformn, pmr*)

Adriamycin, 8CI A-58

Doxorubicin, BAN, INN, USAN. *14-Hydroxydaunomycin. Adriacin. Adriblastin. Caelyx. Dox. Doxil. Farmiblastina. FI 106. K 1039. KW 125. NSC 123127*

[23214-92-8]



$C_{27}H_{29}NO_{11}$ 543.526

Anthracycline antibiotic. Numbering scheme and numbering of derivs. is variable. Metab. of *Streptomyces peucetius*. Antineoplastic antibiotic; shows anti-HIV activity. Used in the treatment of ovarian cancer and AIDS related Kaposi sarcoma. Approved 1995. Sol. MeOH, acids, $CHCl_3$; poorly sol. H_2O, hexane. Log P -1.45 (uncertain value) (calc). Acid hydrol. affords Daunosamine and Adriamycinone. λ_{max} 234 (ϵ 40700); 252 (ϵ 27700); 290 (ϵ 9400); 480 (ϵ 13300); 500 (ϵ 13300); 530 (ϵ 7200) (pH 4 MeOH) (Derep). λ_{max} 237 (ϵ 26700); 250 (ϵ 32000); 287 (ϵ 6000); 362 (ϵ 4850); 560 (ϵ 13900); 597 (ϵ 12900) (MeOH/NaOH) (Derep). λ_{max} 234 (ϵ 40700); 252 (ϵ 27700); 290 (ϵ 9400); 480 (ϵ 13300); 500 (ϵ 13300); 530 (ϵ 7200) (pH 4 MeOH) (Derep). λ_{max} 233 (E1%/1cm 658); 253 (E1%/1cm 440); 290 (E1%/1cm 145); 477 (E1%/1cm 225); 495 (E1%/1cm 223); 530 (E1%/1cm 124) (MeOH) (Berdy).

▶ Local and systemic adverse effects reported when used therapeutically incl. bone-marrow depression, alopecia, gastrointestinal effects, and dose-related cardiotoxicity. Probable human carcinogen. LD_{50} (mus, orl) 570 mg/kg. LD_{50} (mus, ivn) approx. 9 mg/kg. Exp. carcinogenic, reprod. and teratogenic effects. AV9800000

Hydrochloride: ***Doxorubicin hydrochloride, JAN, USAN***

[25316-40-9]

Orange-red needles. Mp 204-205° dec. $[\alpha]_D^{20}$ +248 (c, 0.1 in MeOH).

▶ Systemic adverse effects reported when used therapeutically incl. nephrotoxic, cardiotoxic and pulmonary effects. LD_{50} (mus, orl) 698 mg/kg. LD_{50} (mus, ivn) 1.25 mg/kg. Exp. reprod. effects. QI9295900

N-*L*-*Leucyl:* See Leurubicin in *The Combined Chemical Dictionary.*

O^{14}-*Pentanoyl,* N-*trifluoroacetyl:* See Valrubicin in *The Combined Chemical Dictionary.*

*13*S-*Alcohol:* ***Adriamycinol***. *13-Dihydroadriamycin. Deoxorubicinol. Doxorubicinol*

[54193-28-1]

[39061-20-6]

$C_{27}H_{31}NO_{11}$ 545.542

Prod. by *Streptomyces peuceticus-caesius*. Metab. of adriamycin. Cytotoxic agent. Red powder.

4′-Epimer: ***Epirubicin, BAN, INN***. *Ellence. NSC 256942. IMI 28*

[56420-45-2]

$C_{27}H_{29}NO_{11}$ 543.526

Approved 1999.

Antineoplastic antibiotic. Used in the treatment of breast cancer. Log P -1.45 (uncertain value) (calc). Apparently incorrectly described as β-anomer in CAS.

▶ Adverse effects similar to Adriamycin when used therapeutically. LD_{50} (rat, ivn) 14.3 mg/kg. QI9295840

4′-Epimer, hydrochloride: ***Epirubicin hydrochloride, USAN***. *Farmorubicin. Pharmorubicin*

[56390-09-1]

Launched 1984.

Red cryst. Mp 185° (dec.). $[\alpha]_D$ +274 (c, 0.01 in MeOH).

▶ QI9295750

4′-Deoxy: ***Esorubicin, INN***. *4′-Deoxydoxorubicin. IMI 58. NSC 267469*

[63521-85-7]

$C_{27}H_{29}NO_{10}$ 527.527

Antineoplastic agent. Mp 163° (as hydrochloride). $[\alpha]_D^{20}$ +320 (c, 0.05 in MeOH). Log P -0.99 (uncertain value) (calc).

▶ QI9295700

4′-Deoxy, 4′-iodo: 4′-Deoxy-4′-iodoadriamycin. 4′-Deoxy-4′-iododoxorubicin

[83997-75-5]

[83943-83-3]

$C_{27}H_{28}INO_{10}$ 653.423

Analogue of Adriamycin exhibiting antitumour avtivity. Monohydrate (as hydrochloride). Mp 137-138° (hydrochloride monohydrate). $[\alpha]_D^{20}$ +160 (c, 0.05 in MeOH).

11-Deoxy: ***11-Deoxydoxorubicin***

[71800-89-0]

[73952-94-0]

$C_{27}H_{29}NO_{10}$ 527.527

Isol. from *Micromonospora* sp. nov. Antibacterial, cytotoxic and antileukaemic. Sol. MeOH, $CHCl_3$, Py, acids, dioxan; poorly sol. Et_2O, hexane, H_2O.

Mp 171-173° dec. (as hydrochloride). $[\alpha]_D^{23}$ +111 (c, 0.2 in MeOH). Log P -0.91 (uncertain value) (calc). λ_{max} 228 (ϵ 36400); 260 (ϵ 23700); 418 (ϵ 10900) (MeOH) (Derep). λ_{max} 228 (E1%/1cm 645); 260 (E1%/1cm 420); 418 (E1%/1cm 193) (MeOH) (Berdy). λ_{max} 235 (E1%/1cm 600); 262 (E1%/1cm 406); 426 (E1%/1cm 161) (pH 7 buffer) (Berdy). λ_{max} 510 (E1%/1cm 120) (NaOH) (Berdy).

11-Deoxy, O^4*-de-Me:* ***4-O-Demethyl-11-deoxydoxorubicin***

[81382-05-0]

$C_{26}H_{27}NO_{10}$ 513.5

Isol. from *Streptomyces peucetius* var. *aureus*. Antibacterial, cytotoxic and antineoplastic substance. Sol. MeOH, $CHCl_3$, Py, dioxan, acids; poorly sol. Et_2O, H_2O, hexane.

Mp 208-210° dec. (as hydrochloride). $[\alpha]_D^{25}$ +130 (c, 0.1 in MeOH) (hydrochloride). Log P -1.39 (uncertain value) (calc). λ_{max} 228 (E1%/1cm 650); 258 (E1%/1cm 435); 430 (E1%/1cm 217) (MeOH) (Berdy). λ_{max} 520 (E1%/1cm 152) (MeOH-NaOH) (Berdy).

Demethoxy: ***Medorubicin, INN***. *4-Demethoxyadriamycin. NSC 256438*

[64314-52-9]

[64363-63-9]

$C_{26}H_{27}NO_{10}$ 513.5

Antineoplastic agent. Orange cryst. (as hydrochloride). Mp 226-229° dec. (hydrochloride). $[\alpha]_D^{20}$ +190 (c, 0.042 in MeOH). Log P -1.39 (uncertain value) (calc).

▶ QI9329300

*4′-*O*-(Tetrahydropyran-2-yl): 4′-*O*-(Tetrahydropyranyl)adriamycin.* ***Pirarubicin, INN***. *Theprubicin. THP-ADM. THP-ADR*

[72496-41-4]

$C_{32}H_{37}NO_{12}$ 627.644

Launched 1988.
Antineoplastic agent. Mp 188-192° dec. $[\alpha]_D^{25}$ +175 (c, 0.2 in $CHCl_3$). Log P -0.06 (uncertain value) (calc).

▶ Adverse effects similar to Adriamycin when used therapeutically. LD_{50} (mus, ivn) approx. 28 mg/kg. QI9296000

3′-Deamino, 3′-(3-cyanomorpholinyl): 3′-Deamino-3′-(3-cyanomorpholino)doxorubicin. A 489. MRA-CN. NSC 357704
[88254-07-3]
$C_{32}H_{34}N_2O_{12}$ 638.627
Antineoplastic agent. Log P -1.32 (calc). Mixt. of diastereoisomers.

▶ Exp. carcinogen. QI9405000

Aglycone: 7,8,9,10-Tetrahydro-6,8,10,11-tetrahydroxy-8-(hydroxyacetyl)-1-methoxy-5,12-naphthacenedione, 9CI. Adriamycinone. Doxorubicinone
[24385-10-2]
$C_{21}H_{18}O_9$ 414.368
Mp 223-224°. $[\alpha]_D^{23}$ +188 (c, 0.1 in dioxan).

Aglycone, penta-Ac: Mp 166°. $[\alpha]_D^{23}$ -94 (c, 0.1 in $CHCl_3$).

De(glycosyloxy): Deoxyadriamycinone
[38554-25-5]
$C_{21}H_{18}O_8$ 398.368
Red cryst. Numbering schemes vary. CAS no. refers ro the *R*-enantiomer which corresp. to the abs. config. of natural Adriamycin.

N-*Benzyl, 14-pentanoyl:* N-*Benzyladriamycin-14-valerate. AD 198*
[98983-21-2]
$C_{39}H_{43}NO_{12}$ 717.768
Antineoplastic agent.

BR96 - Doxorubicin immunoconjugate: SGN 15. BMS 182248. BR96 - DOX
Chimeric human/mouse monoclonal antibody linked to 8 doxorubicin mols. Antibody directed against Lewis-Y antigen.

[63950-06-1]

Arcamone, F. *et al., Tet. Lett.*, 1969, 1007 (*struct, ir, uv, ms, nmr*)
Arcamone, F. *et al., J. Med. Chem.*, 1975, **18**, 703 (*Epirubicin*)
Takanishi, T. *et al., Drug Metab. Dispos.*, 1976, **4**, 79-87 (*Actinomycinol*)
IARC Monog., 1976, **10**, 43; *Suppl.* 6, 35; *Suppl.* 7, 82 (*rev, tox*)
Smith, T.H. *et al., J.A.C.S.*, 1976, **98**, 1969 (*synth*)
Arnone, A. *et al., Tet. Lett.*, 1976, 3349 (*cmr*)
Ger. Pat., 1977, 2 642 837; *CA*, **87**, 68589 (*Esorubicin*)
Smith, T.H. *et al., J.O.C.*, 1977, **42**, 3653-3660 (*synth, ir, pmr, ms, Deoxyadriamycinone*)
Arcamone, F. *et al., Experientia*, 1978, **34**, 1255 (*Medorubicin*)
Suzuki, F. *et al., J.A.C.S.*, 1978, **100**, 2272 (*synth*)
Swenton, J.S. *et al., J.A.C.S.*, 1978, **100**, 6188 (*synth, ir, uv, ms, nmr*)
Umezawa, H. *et al., J. Antibiot.*, 1979, **32**, 1082; 1984, **37**, 1094 (*Pirarubicin, synth, props, abs config*)
Vigevani, A. *et al., Anal. Profiles Drug Subst.*, 1980, **9**, 245 (*rev, synth, anal*)
Cassinelli, G. *et al., J. Antibiot.*, 1980, **33**, 1468; 1982, **35**, 176 (*derivs*)
Cassinelli, G. *et al., J.A.C.S.*, 1980, **102**, 1462 (*derivs*)
Gioia, B. *et al., Biomed. Mass Spectrom.*, 1984, **11**, 35 (*ms, derivs*)
White, R.J. *et al., Drugs Pharm. Sci.*, 1984, **22**, 569 (*rev*)
Salmon, S.E. *et al., J. Clin. Oncol.*, 1984, **2**, 282 (*Esorubicin*)
Barranco, S.C. *et al., Pharmacol. Ther.*, 1984, **24**, 303 (*rev, pharmacol*)
Brown, J.R. *et al., Prog. Med. Chem.*, 1984, **21**, 169 (*rev*)
Iguchi, H. *et al., Cancer Chemother. Pharmacol.*, 1985, **15**, 132 (*Pirarubicin*)
Traganos, F. *et al., Cancer Res.*, 1985, **45**, 6273-6279; 1991, **51**, 3682-3689 (*AD 198*)
Acton, E.M. *et al., Drugs Exp. Clin. Res.*, 1985, **11**, 1 (*A 489, rev*)
Castegnaro, M. *et al., IARC Sci. Publ.*, 1985, **49**, (*disposal*)
Kimura, Y. *et al., Bull. Chem. Soc. Jpn.*, 1986, **59**, 423 (*Medorubicin*)
Acton, E.M. *et al., J. Med. Chem.*, 1986, **29**, 1225 (*A 489, synth*)
U.S. Pat., 1986, 4 610 977, (*Univ. of Tennessee*); *CA*, **105**, 209343v (*AD 198*)
Allman, T. *et al., Can. J. Chem.*, 1987, **65**, 2405 (*pmr, conformn*)
Barbieri, B. *et al., Cancer Res.*, 1987, **47**, 4001-4006 (*4′-Deoxy-4′-iodoadriamycin*)
Kajii, K. *et al., Iyakuhin Kenkyu*, 1987, **18**, 704 (*Pirarubicin, uv, ir, pmr, struct*)
Nakashima, H. *et al., J. Antibiot.*, 1987, 396 (*anti-HIV activity*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 7522
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 475; 477; 497
Barthwal, R. *et al., J. Mol. Struct.*, 1994, **327**, 201 (*pmr, conformn*)
Harstrick, A. *et al., Anti-Cancer Drugs*, 1995, **6**, 681-685 (*AD 198*)
Coukell, A.J. *et al., Drugs*, 1997, **53**, 453-482; 520-538 (*Epirubicin, Doxorubicin, pharmacol, rev*)
Tolcher, A.W. *et al., J. Clin. Oncol.*, 1999, **17**, 478-484 (*SGN 15, pharmacol*)
Smith, S. *et al., Curr. Opin. Mol. Ther.*, 2001, **3**, 295-302 (*SGN 15, rev*)
Rho, Y.S. *et al., Synth. Commun.*, 2004, **34**, 3497-3511 (*aglycone, synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AES750; EBB100; HKA300; COP765; DAM800

Agar A-59

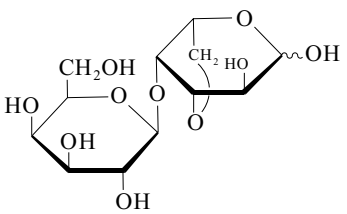
Agar-agar. Gum agar. Gelose. Japan agar. Bengal isinglass. Ceylon isinglass. Chinese isinglass. Japan isinglass. FEMA 2012. E406
[9002-18-0]
See also Agarose, A-61. Consists of a mixt. of 2 polysaccharides, Agarose A-61 and Agaropectin, which has essentially the same struct. except that a variable proportion of the sugars in the polymer are replaced by 4,6-*O*-(1-carboxyethylidene)galactose or by sulfated or methylated sugar residues such as to retain the alternating sequence of 3-linked β-D- and 4-linked α-L- units. Mucilaginous substance extracted from red marine algae (Rhodophyceae); *Gelidiella acerosa*, various *Gelidium* spp. *Gracilaria confervoides*, *Pterocladia capillacea* and *Pterocladia lucida* are used in various parts of the world. There is some species variation in gel structure and strength. An important thickener, stabiliser and gelling agent in the food industry. Also used as protective colloid in photometric detn. of Sn, Mg, Si, $SO_4^{2\ominus}$. Solid medium for the cultivation of bacteria. Laxative-cathartic. Strips or fine powder. Sl. sol. in hot H_2O.

▶ AW7950000

Clark, R.E. *et al., Analyst (London)*, 1937, **62**, 661 (*detn, Sn*)
Bogan, E.J. *et al., Ind. Eng. Chem., Anal. Ed.*, 1942, **14**, 849 (*detn, $SO_4^{2\ominus}$*)
Welcher, F.J. *et al., Organic Analytical Reagents*, Van Nostrand, New York, 1948, **4**, (*use*)
BeMiller, J.N. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 65 (*purifn*)
Duckworth, M. *et al., Carbohydr. Res.*, 1971, **18**, 1 (*struct, bibl*)
Davidson, R.L. *et al., Handb. Water-Soluble Gums Resins*, McGraw-Hill, N.Y., 1980, 7/1 (*rev*)
Glickmann, M. *et al., Food Hydrocolloids*, CRC Press, Boca Raton, Florida, 1983, **2**, 73 (*rev*)
Rochas, C. *et al., Carbohydr. Res.*, 1994, **253**, 69 (*bibl*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 53-56 (*use, props*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 1470
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AEX250

Agarobiose, 9CI A-60

3,6-Anhydro-4-O-β-D-galactopyranosyl-L-galactose, 9CI. β-D-Galactopyranosyl-(1→4)-3,6-anhydro-L-galactose
[5627-25-8]



$C_{12}H_{20}O_{10}$ 324.284
Obt. from agar by partial acid hydrol. and from the polysaccharide of the red seaweed *Gloiopeltis furcata*. Amorph. solid. $[\alpha]_D^{15}$ -15.9 (c, 0.82 in H_2O).

Phenylosazone: Mp 220-221°. $[\alpha]_D^{16}$ +136.2 → -109.2 (c, 0.42 in 3:2 MeOH/Py).

Di-Me acetal: Mp 162-164°. $[\alpha]_D$ -36 (MeOH).

Diethyldithioacetal: Mp 171-172°.

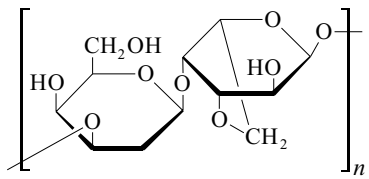
1,2-O-Isopropylidene:
$C_{15}H_{24}O_{10}$ 364.349
Cryst. (MeOH). Mp 163-165°. $[\alpha]_D^{16}$ -29.4 (c, 1.2 in H_2O).

Hirase, S. *et al., Bull. Chem. Soc. Jpn.*, 1958, **31**, 428; 1968, **41**, 626 (*isol, synth*)
BeMiller, J.N. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 65 (*synth*)

Agarose A-61

Neutral agarose. Indubiose A4
[9012-36-6]

[9036-61-7]



See also Agar, A-59. Composed of repeating units of β-D-Galp (1→4) 3,6-anhydro-α-L-Galp(1→3). Has a domain struct. of double helixes aggregating into a three-dimensional framework holding water molecules. Isol. from red seaweed agar (*Gelidium* spp.). Gives gels of high strength at low concs. in water which are nearly transparent. These are used commercially as gelling agents and for biomedical applications, e.g. electrophoresis media, chromatography and immunology assays.
There are two other polysaccharides in agar, one is similar to agarose but with 4,6-acetals of pyruvic acid at some of the D-galactose units. The other contains fewer 3,6-anhydro-L-galactose units and is sulfated.

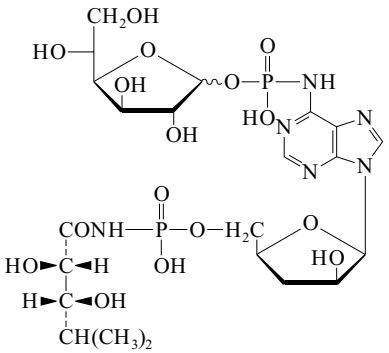
Poly(6-aminohexyl) ether: Agarose (6-aminohexyl)carbamimidate. Sepharose AH
[58856-73-8] Intermed. for the prepn. of affinity chromatog. absorbents. Non-stoichiometric.

Poly(5-carboxypentyl) ether: [55128-01-3] Intermed. for the prepn. of affinity chromatog. absorbents. Non-stoichiometric.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 201C; 201D (*ir*)
Hegenauer, J.C. *et al., Biochim. Biophys. Acta*, 1965, **111**, 334 (*isol*)
BeMiller, J.N. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 65 (*purifn*)
Percival, E. *et al., The Carbohydrates*, 1970, **2B**, 553
Batey, J.F. *et al., Carbohydr. Res.*, 1975, **43**, 133
Turvey, J.R. *et al., Carbohydr. Res.*, 1976, **49**, 419
Rees, D. *et al., Angew. Chem., Int. Ed.*, 1977, **16**, 214
Taylor, J.L. *et al., J. Chromatogr.*, 1983, **257**, 275-284 (*5-carboxypentyl ether*)
Szewezyk, A. *et al., Biochim. Biophys. Acta*, 1987, **89**, 252-260 (*6-aminohexyl ether*)
Kiwitt-Haschemie, K. *et al., Carbohydr. Res.*, 1993, **248**, 267
Arndt, E.R. *et al., Carbohydr. Res.*, 1997, **303**, 73-78 (*cd, struct*)
Gamini, A. *et al., Carbohydr. Res.*, 1997, **304**, 293-302 (*pmr, cmr, conformn*)

Agrocin 84, 9CI A-62

[59111-78-3]



$C_{22}H_{36}N_6O_{16}P_2$ 702.504

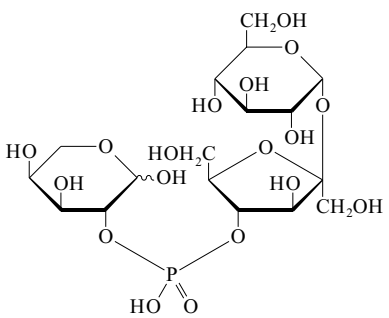
Nucleotide antibiotic. Isol. from *Agrobacterium radiobacter*. Bacteriocin active against *Agrobacterium tumefaciens*. λ_{max} 270 (ϵ 19000) (pH 1) (Derep). λ_{max} 264 (ϵ 19500); 270 (sh) (ϵ 15000) (pH 7 H_2O) (Derep). λ_{max} 270 (pH 1 buffer) (Berdy).

Heip, J. *et al., Arch. Int. Physiol. Biochim.*, 1975, **83**, 974 (*isol*)
Roberts, W.P. *et al., Nature (London)*, 1977, **265**, 379 (*struct*)
Das, P.K. *et al., J. Antibiot.*, 1978, **31**, 490 (*props*)
Thompson, R.J. *et al., Antimicrob. Agents Chemother.*, 1979, **16**, 293 (*isol, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Filippov, D. *et al., Tet. Lett.*, 1998, **39**, 4891-4894 (*partial synth*)

Agrocinopin A A-63

Sucrose 4′-(L-arabinos-2-yl phosphate). L-Arabinos-2-yl sucros-2-yl phosphate
[77193-02-3]

[92590-11-9]



$C_{17}H_{31}O_{18}P$ 554.395

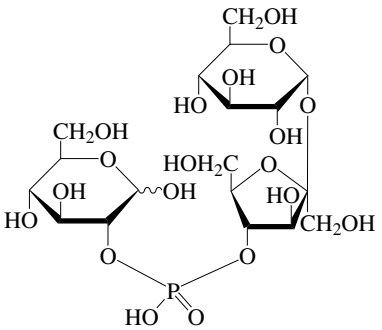
Produced in crown gall tumours incited by nopaline strains of *Agrobacterium tumefaciens*. Amorph. solid (as Na salt). $[\alpha]_D^{25}$ +47.9 (c, 1 in H_2O) (Na salt).

De-O-glucopyranosyl: ***Agrocinopin B****. L-Arabinos-2-yl D-fructos-2-yl phosphate*
[77193-03-4]
$C_{11}H_{21}O_{13}P$ 392.253
Prod. in crown gall tumours induced by nopaline strains of *Agrobacterium tumefaciens*.

Ellis, J.G. *et al., MGG, Mol. Gen. Genet.*, 1981, **181**, 36 (*Agrocinopin B*)
Ryder, M.H. *et al., J. Biol. Chem.*, 1984, **259**, 9704 (*isol, struct, cmr*)
Messens, E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 683 (*pmr, P-31 nmr*)
Franzkowiak, M. *et al., Annalen*, 1987, 1065 (*synth*)
Lindberg, M. *et al., J. Carbohydr. Chem.*, 1988, **7**, 749-755 (*synth*)

Agrocinopin C A-64

D-Glucos-2-yl sucros-2-yl phosphate
[153888-63-2]



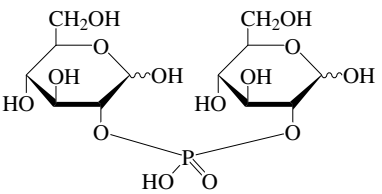
$C_{18}H_{33}O_{19}P$ 584.421

Revised struct., originally assigned as the sucros-6-yl isomer. Produced in crown gall tumours by *Agrobacterium tumefaciens*.
$[\alpha]_D$ +56.5 (c, 1.0 in H_2O) (equilib., as Na salt). CAS no. refers to the Na salt.

Lindberg, M. *et al., J. Carbohydr. Chem.*, 1993, **12**, 1139-1147 (*synth, pmr, cmr, P-31 nmr*)

Agrocinopin D A-65

Di-D-glucos-2-yl phosphate
[153888-66-5]

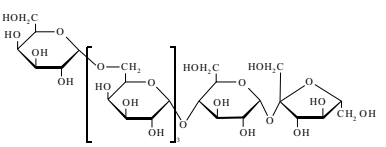


$C_{12}H_{23}O_{14}P$ 422.279

Revised struct. Prod. in crown gall tumours by *Agrobacterium tumefaciens*. Monohydrate (as Na salt). $[\alpha]_D$ +51.4 (c, 1.1 in H_2O) (Na salt, equilib.). CAS no. refers to the Na salt.

Lindberg, M. *et al., J. Carbohydr. Chem.*, 1993, **12**, 1139-1147 (*synth, struct, cmr, P-31 nmr*)

Ajugose A-66



$C_{36}H_{62}O_{31}$ 990.867

Found in the root of *Ajuga nipponensis* and *Verbascum thapsiforme* and in the transfer products formed by the action of coffee α-D-galactosidase upon Raffinose, R-1 and Stachyose, S-72.

Mp 270°. $[\alpha]_D^{12}$ +190.8 (H_2O). $[\alpha]_D^{18}$ +161.3 (H_2O).

Eicosa-Ac: Mp 140°. $[\alpha]_D^{21}$ +163.7 (C_6H_6).

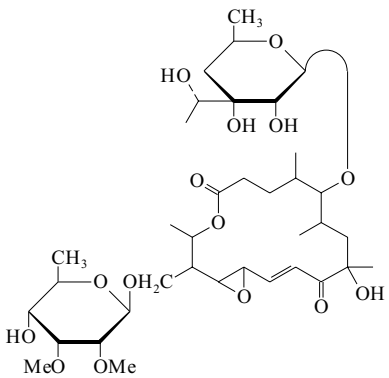
Eicosabenzoyl: Mp 150°. $[\alpha]_D^{28}$ +152.4 (C_6H_6).

Eicosa-Me:
Syrup. $[\alpha]_D^{27}$ +157.5 (C_6H_6).

Murakami, S. *et al., Acta Phytochim.*, 1941, **12**, 97
Anagnostopoulos, C. *et al., Bull. Soc. Chim. Biol.*, 1954, **36**, 1115
Herissey, H. *et al., C. R. Hebd. Seances Acad. Sci.*, 1964, **259**, 824 (*isol*)

Aldgamycin C, 9CI, 8CI A-67

AL 471C. Antibiotic AL 471C
[11020-65-8]



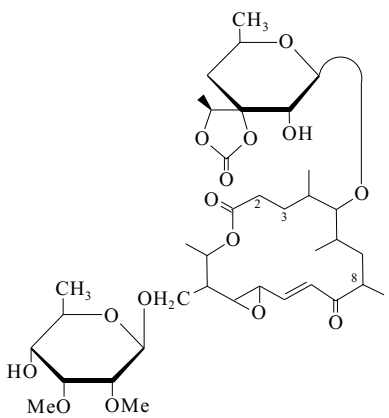
$C_{35}H_{56}O_{15}$ 716.818

Macrolide antibiotic. Produced by *Streptomyces lavendulae* (Lederle soil isol. AL 471). Broad spectrum antibiotic. Cryst. (CH_2Cl_2/Et_2O). Sol. MeOH, C_6H_6; fairly sol. H_2O, Et_2O; poorly sol. hexane.
Mp 150-153°. $[\alpha]_D^{25}$ -70 (c, 0.67 in MeOH). λ_{max} 217 (E1%/1cm 190) (MeOH) (Berdy).

Ellestad, G.A. *et al., Tetrahedron*, 1967, **23**, 3893 (*struct, ir, uv, ms, pmr*)
Achenbach, H. *et al., Chem. Ber.*, 1975, **108**, 759; 772; 780 (*ms, struct*)

Aldgamycin E, 9CI A-68

[11011-06-6]



$C_{37}H_{58}O_{15}$ 742.856

Macrolide antibiotic. Prod. by *Streptomyces lavendulae*. Broad spectrum antibiotic. Needles or plates (dimorph.). Sol. MeOH, C_6H_6; fairly sol. Et_2O, H_2O; poorly sol. hexane.
Mp 158-161° (needles) Mp 173-178° (plates). $[\alpha]_D^{25}$ -56 (c, 0.972 in MeOH). λ_{max} 218 (ϵ 21100); 240 (ϵ 12400) (MeOH) (Derep). λ_{max} 218 (E1%/1cm 185) (EtOH) (Berdy).

Di-Ac: Mp 167-171° Mp 239-243° (dimorph.).

2,3-Didehydro: ***Aldgamycin G***
$C_{37}H_{56}O_{15}$ 740.84
Prod. by *Streptomyces avidinii*. Active against gram-positive bacteria. Cryst. ($CHCl_3$/hexane). Sol. MeOH, $CHCl_3$, C_6H_6, EtOAc; poorly sol. H_2O, hexane. Mp 145.5-148.5°. $[\alpha]_D^{27}$ -29 (c, 1.09 in $CHCl_3$). λ_{max} 218 (ϵ 21100); 240 (ϵ 12400) (MeOH) (Derep). λ_{max} 218 (ϵ 22500); 241 (ϵ 12300) (MeOH) (Berdy).

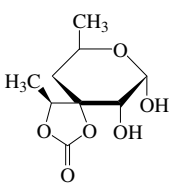
▶ LD_{50} (mus, ipr) 1000 - 2000 mg/kg.

2,3-Didehydro, 8-hydroxy: ***Aldgamycin F***
[55141-41-8]
$C_{37}H_{56}O_{16}$ 756.84
From *Streptomyces lavendulae*. Broad spectrum antibiotic. Noncryst. Sol. MeOH, Et_2O; poorly sol. H_2O. $[\alpha]_D^{20}$ -25 (c, 0.3 in $CHCl_3$). λ_{max} 218 (ϵ 21100); 240 (ϵ 12400) (MeOH) (Derep). λ_{max} 218 (ϵ 21000); 240 (ϵ 12400) (MeOH) (Berdy). λ_{max} 217 (ϵ 22000) (EtOH) (Berdy).

Kunstmann, M.P. *et al., Antimicrob. Agents Chemother.*, 1964, 87 (*isol*)
Ellestad, G.A. *et al., Tetrahedron*, 1967, **23**, 3893 (*ms, pmr*)
Achenbach, H. *et al., Chem. Ber.*, 1975, **108**, 759; 772; 780 (*struct, ir, uv, ms, nmr*)
Mizobuchi, S. *et al., J. Antibiot.*, 1986, **39**, 1776 (*deriv*)

Aldgarose A-69

*3-C-[1-(Carboxyoxy)ethyl]-4,6-dideoxy-*D*-ribo-hexose intramol. 1′,3-ester, 9CI. 4,6-Dideoxy-3-C-(*L*-glycero-hydroxyethyl)-*D*-ribo-hexopyranose cyclic 3,1′-carbonate*



α-D-Pyranose-*form*

$C_9H_{14}O_6$ 218.206

D-*form* [26428-87-5]
Carbohydrate component of Aldgamycin E, A-68. The epimer with (1′*R*)-config. is also known.

α-D-Pyranose-*form*

1,2-O-Isopropylidene:
$C_{12}H_{18}O_6$ 258.271
Syrup. $[\alpha]_D^{20}$ +30 (c, 2 in $CHCl_3$). ν_{max} 1818 cm^{-1} (CO).

Me glycoside: [10343-10-9]
$C_{10}H_{16}O_6$ 232.233
Mp 91-94°.

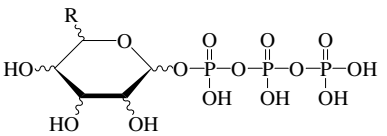
β-D-Pyranose-*form*

Me glycoside: [17184-26-8]
Cryst. (CH_2Cl_2/Et_2O). Mp 178-180° (175-176°). $[\alpha]_D$ -43.5 (c, 0.86 in MeOH). ν 1770 cm^{-1} (CO).

Me glycoside, 2-benzyl:
$C_{17}H_{22}O_6$ 322.357
Cryst. (Et_2O). Mp 105-107°. $[\alpha]_D^{20}$ -53.2 (c, 0.69 in MeOH).

Ellestad, G.A. *et al., Tetrahedron*, 1967, **23**, 3893 (*Me gly, isol, struct*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 2992; 1976, **109**, 1362 (*β-D-Me pyr, β-D-Me pyr benzyl, α-D-pyr isopropylidene, pmr*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1975, 682 (*β-D-Me pyr, pmr, synth*)

Aldose 1-triphosphates A-70



R = H or CH_2OH

Practical synth. gives mixt. of anomers, ratio depending on the sugar. Characterised by pmr, cmr and P-31 nmr.

D-Ribose 1-triphosphate
[263715-17-9]
$C_5H_{13}O_{14}P_3$ 390.071

D-Arabinose 1-triphosphate
[263715-21-5]
$C_5H_{13}O_{14}P_3$ 390.071

D-Xylose 1-triphosphate
[263715-16-8]
$C_5H_{13}O_{14}P_3$ 390.071

D-Allose 1-triphosphate
$C_6H_{15}O_{15}P_3$ 420.097

D-Galactose 1-triphosphate
[263715-15-7]
$C_6H_{15}O_{15}P_3$ 420.097

D-Glucose 1-triphosphate
[207568-17-0]
$C_6H_{15}O_{15}P_3$ 420.097

D-Mannose 1-triphosphate
[263715-20-4]
$C_6H_{15}O_{15}P_3$ 420.097

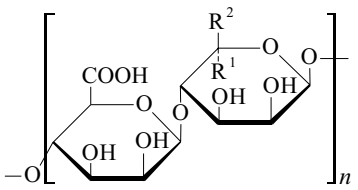
[263715-18-0]

Inoue, H. *et al., Chem. Pharm. Bull.*, 1998, **46**, 681-683 (*synth, pmr, cmr, P-31 nmr, hplc*)
Inoue, H. *et al., Carbohydr. Res.*, 2000, **314**, 10-16 (*pmr, cmr*)

Alginic acid, BAN A-71

Gum levan. Levan gum. Kelacid. Norgine. Sazio. E400

[9005-32-7]



R^1 = H, R^2 = COOH
or R^1 = COOH, R^2 = H

[$C_6H_8O_6$]

A polymer consisting of various proportions of β-D-Mannuronic acid and α-L-Guluronic acid linked 1→4 and arranged in a block fashion. Polymeric. Minimum formula given. Occurs as the major matrix polysaccharide in brown seaweed (Phaeophyceae) as an insol. complex of K, Na, Ca and Mg alginates. Alginates are used to improve food texture, e.g. in ice cream, pie fillings. Used in tablet disintegrants and paper coatings. Food additive: emulsifier, stabiliser, thickener. Pharmaceutical aid for preparation of water-miscible pastes, creams and gels. Co-administered with antacid or H_2-receptor agonist for management of gastro-oesophageal reflux. $[\alpha]_D$ -120 (as Na salt in H_2O). Approx. 200 grades of the acid and its salts (ammonium, Ca, K, Na) comly. available. Alginates with the highest guluronic acid content display the strongest gel-forming activity.

▶ AZ5775000

Na salt: Sodium alginate. Algin. E401
[9005-38-3] Stabiliser, emulsifier, thickener, formulation aid; used in food processing.
Pale yellow-brown powder. Sol. H_2O; poorly sol. EtOH, hexane. λ_{max} 260 (H_2O) (Berdy).

▶ AZ5820000

K salt: Potassium alginate. E402
[9005-36-1] Stabiliser, emulsifier, thickener, formulation aid; used in food processing. Insol. EtOH, Et_2O.

Ca salt: Calcium alginate. E404
[9005-35-0] Stabiliser, emulsifier, thickener, formulation aid; used in food processing. Sl. sol. EtOH; insol. H_2O, Et_2O.

NH_4 salt: Ammonium alginate. E403
[9005-34-9] Stabiliser, emulsifier, thickener, formulation aid; used in food processing. Insol. EtOH, Et_2O.

2-Hydroxypropyl ester: Propylene glycol alginate. Colloid 602. Dricoid. Kelcoloid. FEMA 2941. E405. Many other trade names

[39306-87-1, 51374-11-9, 52441-26-6, 57762-73-9, 59125-52-9, 95328-14-6]

Manuf. by reaction of alginic acid with propylene oxide. White to yellowish fibrous or granular powder. Sol. H_2O.

Composition varies acc. to the degree of esterification.

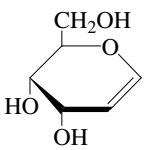
[9005-31-6, 9019-42-5]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1225B (*ir*)
Hirst, E. *et al., Chem. Ind. (London)*, 1963, 257
Haug, A. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 69 (*synth*)
Percival, E. *et al., The Carbohydrates*, (Pigman, W., Ed.), Academic Press, 1970, **2B**, 545
Ger. Pat., 1971, 2 046 966; *CA*, **75**, 22923d (*2-hydroxypropyl ester, manuf*)
Rees, D.A. *et al., Angew. Chem., Int. Ed.*, 1977, **16**, 214 (*struct, rev*)
Grasdalen, H. *et al., Carbohydr. Res.*, 1977, **56**, C11; 1981, **89**, 179 (*nmr, cmr*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **12**, 45 (*use*)
Cottrell, I.W. *et al., Handb. Water-Soluble Gums Resins*, McGraw-Hill, N.Y., 1980, 2/1-2/43 (*rev*)
Fed. Regist., 1982, **47**, 29946-29952 (*propylene glycol alginate*)
Martin, G. *et al., Sci. Aliments*, 1986, **6**, 473 (*rev*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, AFL000
Beale, J.M. *et al., Environ. Sci. Res.*, 1992, **44**, 209 (*rev, biosynth, struct*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 10-11; 428-430
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1535
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 71-74; 2349-2352 (*props, use*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AFL000; SEH000; CAM200; PKU700

Allal A-72

1,5-Anhydro-2-deoxy-ribo-*hex-1-enitol, 9CI. 1,2-Dideoxy*-ribo-*hex-1-enopyranose*

[25312-13-4]



D-*form*

$C_6H_{10}O_4$ 146.143

D-*form* [63949-52-0]
Syrup. $[\alpha]_D^{22}$ +309 (c, 1.7 in H_2O).

Tri-Ac: 3,4,6-Tri-O-*acetyl-1,5-anhydro-2-deoxy-D*-ribo-*hex-1-enitol. 3,4,6-Tri*-O-*acetyl-1,2-dideoxy-D*-ribo-*hex-1-enopyranose. 3,4,6-Tri*-O-*acetyl-D-allal*
[52485-06-0]
$C_{12}H_{16}O_7$ 272.254
Mp 81-83°. $[\alpha]_D^{20}$ +314 (c, 1 in $CHCl_3$).

4,6-O-*Benzylidene: 1,5-Anhydro-4,6*-O-*benzylidene-2-deoxy-D*-ribo-*hex-1-enitol. 4,6*-O-*Benzylidene-1,2-dideoxy-D*-ribo-*hex-1-enopyranose. 4,6*-O-*Benzylidene-D-allal*
[5987-33-7]
$C_{13}H_{14}O_4$ 234.251
Cryst. (Et_2O/hexane). Mp 84-85°. $[\alpha]_D$ +210 (EtOH).

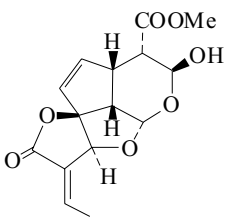
4,6-O-*Benzylidene, 3-Ac: 3*-O-*Acetyl-1,5-anhydro-4,6*-O-*benzylidene-2-deoxy-D*-ribo-*hex-1-enitol. 3*-O-*Acetyl-4,6*-O-*benzylidene-1,2-dideoxy-D*-ribo-*hex-1-enopyranose. 3*-O-*Acetyl-4,6*-O-*benzylidene-D-allal*
$C_{15}H_{16}O_5$ 276.288
Cryst. (EtOH). Mp 121-122°. $[\alpha]_D^{24}$ +253 (c, 0.2 in EtOH).

3-Me, 4,6-O-*benzylidene: 1,5-Anhydro-4,6*-O-*benzylidene-2-deoxy-3*-O-*methyl-D*-ribo-*hex-1-enitol. 4,6*-O-*Benzylidene-1,2-dideoxy-3*-O-*methyl-D*-ribo-*hex-1-enopyranose. 4,6*-O-*Benzylidene-3*-O-*methyl-D-allal*
[16697-45-3]
$C_{14}H_{16}O_4$ 248.278
Cryst. (hexane). Mp 69.5-70°. $[\alpha]_D^{20}$ +181.3 (c, 1.03 in $CHCl_3$).

Micheel, M. *et al., Ber.*, 1930, **63**, 347 (*D-deoxy, D-deoxy di-Ac*)
Feast, A.A.J. *et al., J.C.S.*, 1965, 7378 (*D-benzylidene, D-benzylidene Ac*)
Sharma, M. *et al., Can. J. Chem.*, 1966, **44**, 2825 (*D-benzylidene*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*D-benzylidene*)
Burfitt, A.I.R. *et al., Aust. J. Chem.*, 1977, **30**, 1037 (*4,6-benzylidene 3-Me*)
Guthrie, R.D. *et al., Carbohydr. Res.*, 1979, **72**, 285-288; 1980, **82**, 225-236 (*synth, D-form, ir, pmr, D-benzylidene, D-benzylidene Ac*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1980, **33**, 1037-1040 (*cmr*)

Allamandin A-73

[51820-82-7]

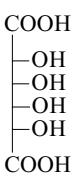


$C_{15}H_{16}O_7$ 308.287
Constit. of *Allamanda cathartica*. Antineoplastic agent, possesses antibacterial props. Cryst. (MeOH/EtOAc).
Mp 212-215°. $[\alpha]_D^{21}$ +15 (c, 0.06 in MeOH).
Log P -1.35 (uncertain value) (calc).

Kupchan, S.M. *et al., J.O.C.*, 1974, **39**, 2477 (*isol*)
Trost, B.M. *et al., Tet. Lett.*, 1985, **26**, 1807 (*synth*)
Parkes, K.E.B. *et al., J.C.S. Perkin 1*, 1988, 1119 (*synth*)

Allaric acid A-74

Allomucic acid



$C_6H_{10}O_8$ 210.14

For stereoisomers see, Idaric acid, I-1, Mannaric acid, M-23, Galactaric acid, G-2 and Glucaric acid, G-241. The "Allomucic acid" of lit. prior to 1934 was DL-altraric acid.

D-*form*

A constit. exotoxin from *Bacillus thuringiensis*.
Mp 188-192° (176°).

Di-Et ester: Diethyl D-allarate
$C_{10}H_{18}O_8$ 266.247
Mp 137-138°.

Bisphenylhydrazide: Mp 218° (213°) dec.

Diamide: D-Allaric acid diamide
$C_6H_{12}N_2O_6$ 208.171
Mp 209° dec.

1,4-Lactone, 3,5-dibenzoyl, 6-Me ester:
[52514-33-7]
$C_{21}H_{18}O_9$ 414.368
Mp 191-193°. $[\alpha]_D^{25}$ -34 (c, 1.0 in $CHCl_3$).

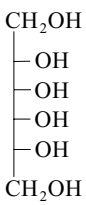
1,4-Lactone, 2,3,5-tribenzoyl, 6-Me ester:
$C_{28}H_{22}O_{10}$ 518.476
Mp 159-160°. $[\alpha]_D^{25}$ -14.1 (c, 0.5 in $CHCl_3$).

1,4-Lactone, 3-benzyl, 5-benzoyl, 6-Me ester:
$C_{21}H_{20}O_8$ 400.384
Cryst. (Et_2O/petrol). Mp 130-131°. $[\alpha]_D^{25}$ -3.8 (c, 0.5 in $CHCl_3$).

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 187
Humoller, F.L. *et al., J.A.C.S.*, 1936, **58**, 2479 (*D-form, synth*)
Rodd's Chem. Carbon Compd. (1st edn.), 1952, **1B**, 1282 (*rev*)
Bond, R.P.M. *et al., Chem. Comm.*, 1969, 338 (*isol*)
Kalvoda, L. *et al., Tet. Lett.*, 1973, 4671 (*D-lactone dibenzoyl Me ester*)
Kalvoda, L. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 800 (*D-lactone tribenzoyl Me ester*)
Prystaś, M. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 1426 (*D-lactone benzyl benzoyl Me ester*)

Allitol, 9CI, 8CI A-75

Allodulcitol. allo-*Hexitol*
[488-44-8]



$C_6H_{14}O_6$ 182.173

A *meso* compd. which can be rendered optically active by substitution. Occurs in the leaves and branches of *Itea illcifolia* and *Itea virginica*. Needles (EtOH).
Mp 150-151°.

Hexa-Ac:
$C_{18}H_{26}O_{12}$ 434.396
Cryst. (Me_2CO aq.). Mp 61°.

2,4:3,5-Di-O-methylene:
$C_8H_{14}O_6$ 206.195
Cryst. (EtOH). Mp 258-259°.

2,4:3,5-Di-O-methylene, 1,6-di-Ac:
$C_{12}H_{18}O_8$ 290.269
Mp 177-178°.

2,4:3,5-Di-O-methylene, 1,6-ditosyl:
$C_{22}H_{26}O_{10}S_2$ 514.573
Hexagonal plates (Ac_2O/AcOH). Mp 200-202°.

D-2,3:5,6-Di-O-isopropylidene, 1-benzoyl: 1-O-Benzoyl-2,3:5,6-di-O-isopropylidene-D-allitol
$C_{19}H_{26}O_7$ 366.41
Cryst. (EtOH). Mp 62.3°. $[\alpha]_D^{22}$ -36.7 (c, 0.67 in EtOH).

D-2,3:5,6-Di-O-isopropylidene, 1,4-dibenzoyl:
$C_{26}H_{30}O_8$ 470.518
Cryst. (EtOH). Mp 107-108°. $[\alpha]_D^{22}$ +7.4 (c, 2.1 in EtOH).

D-2,3:4,5-Dibenzylidene: 2,3:4,5-Di-O-benzylidene-D-allitol
$C_{20}H_{22}O_6$ 358.39
Mp 203-205° dec. $[\alpha]_D^{20}$ +76.7 (c, 0.1 in Py).

D-3-Benzyl: 3-O-Benzyl-D-allitol
$C_{13}H_{20}O_6$ 272.297
Cryst. (EtOAc). Mp 76-78°.

D-3-Benzyl, penta-Me: 3-O-Benzyl-1,2,4,5,6-penta-O-methyl-D-allitol
$C_{18}H_{30}O_6$ 342.431
$Bp_{0.05}$ 168°.

1,2,3,4,6-Penta-Me: 1,2,3,4,6-Penta-O-methyl-D-allitol
[57130-07-1]
$C_{11}H_{24}O_6$ 252.307
$Bp_{0.2}$ 135°.

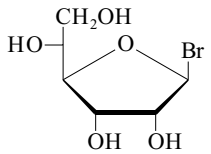
1,2,3,4,6-Penta-Me, 5-Ac: 5-O-Acetyl-1,2,3,4,6-penta-O-methylallitol
$C_{13}H_{26}O_7$ 294.344
$Bp_{0.3}$ 105°.

1,2,4,5,6-Penta-Me: 1,2,4,5,6-Penta-O-methylallitol
[57098-97-2]
$C_{11}H_{24}O_6$ 252.307
$Bp_{0.05}$ 122°.

[45007-61-2]

Steiger, M. *et al., Helv. Chim. Acta*, 1936, **19**, 184 (*synth*)
Haskins, W.T. *et al., J.A.C.S.*, 1943, **65**, 1419 (*D-dibenzylidene*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1946, **68**, 1443 (*synth, dimethylene, dimethylene di-Ac, dimethylene ditosyl, hexa-Ac*)
Barker, S.A. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 137 (*rev, acetals*)
Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1959, **249**, 2828 (*occur*)
Hough, L. *et al., Phytochemistry*, 1966, **5**, 215 (*biosynth*)
Wu, G.Y. *et al., Carbohydr. Res.*, 1970, **13**, 89 (*diisopropylidene benzoyl, diisopropylidene dibenzoyl*)
Azarnia, N. *et al., Acta Cryst. B*, 1972, **28**, 1007 (*cryst struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1972, **23**, 121 (*pmr*)
Brimacombe, J.S. *et al., The Carbohydrates*, Academic Press, 2nd Ed., 1972, **1A**, 485 (*rev*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 1775 (*D-benzyl, D-benzyl penta-Me, 1,2,4,5,6-penta-Me, 1,2,3,4,6-penta-Me, 1,2,3,4,6-penta-Me Ac*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1992, **229**, 17 (*cryst struct, hexa-Ac*)

Allofuranosyl bromide A-76



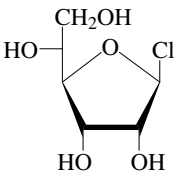
$C_6H_{11}BrO_5$ 243.054

β-D-*form*

2,3:5,6-Di-O-isopropylidene: 2,3:5,6-Di-O-isopropylidene-β-D-allofuranosyl bromide
[65502-92-3]
$C_{12}H_{19}BrO_5$ 323.183
Syrup.

Eitelman, S.J.E. *et al., Chem. Comm.*, 1977, 552 (*diisopropylidene, cmr*)
Eitelman, S.J.E. *et al., J.C.S. Perkin 1*, 1978, 595 (*diisopropylidene, pmr*)

Allofuranosyl chloride A-77



β-D-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form*

2,3:5,6-Di-O-isopropylidene: 2,3:5,6-Di-O-isopropylidene-D-allofuranosyl chloride
[33823-06-2]
$C_{12}H_{19}ClO_5$ 278.732
Cryst. Mp 39-42°. $Bp_{0.1}$ 75-76°.
Unstable at ambient temp.

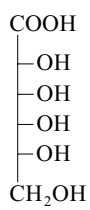
β-D-*form*

2,3:5,6-Di-O-isopropylidene: 2,3:5,6-Di-O-isopropylidene-β-D-allofuranosyl chloride
[67253-98-9]
Oil. Not clear if this is the same as the D-diisopropylidene deriv.

Kohn, B.D. *et al., Carbohydr. Res.*, 1971, **18**, 349 (*D-deriv*)
Boigegrain, R.A. *et al., J. Chem. Res., Synop.*, 1978, 85; *J. Chem. Res., Miniprint*, 1978, 1229 (*β-D-deriv*)
Eitelman, S.J. *et al., J.C.S. Perkin 1*, 1978, 595 (*β-D-deriv*)
Bischofberger, K. *et al., S. Afr. J. Chem.*, 1981, **34**, 33 (*β-D-deriv*)

Allonic acid A-78

allo-*Hexonic acid*
[28223-42-9]



D–*form*

$C_6H_{12}O_7$ 196.157

For stereoisomers see Altronic acid, A-102, Galactonic acid, G-23, Gluconic acid, G-250, Gulonic acid, G-584, Idonic acid, I-4, Mannonic acid, M-36 and Talonic acid, T-5.

D-*form* [21675-42-3]
$[\alpha]_D$ -10 (H_2O).

1,4-Lactone: D-Allono-1,4-lactone. D-allo-Hexono-1,4-lactone
[29474-78-0]
$C_6H_{10}O_6$ 178.141
Mp 120°.

L-*form*

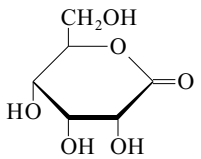
Phenylhydrazide: Mp 143°.

1,4-Lactone: L-Allono-1,4-lactone
[78184-43-7]
$C_6H_{10}O_6$ 178.141
$[\alpha]_D$ +3.6 (H_2O).

Levene, P.A. *et al., Ber.*, 1910, **43**, 3141 (*D-lactone*)
Levene, P.A. *et al., J. Biol. Chem.*, 1924, **59**, 123 (*D-form*)
Humoller, F.L. *et al., J.A.C.S.*, 1936, **58**, 2479 (*L-form*)
Serianni, A.S. *et al., J.O.C.*, 1980, **45**, 3329 (*glc*)
Sotofte, I. *et al., Acta Cryst. C*, 1994, **50**, 941 (*cryst struct, lactone deriv*)

1,5-Allonolactone A-79

allo-*1,5-Hexonolactone*



$C_6H_{10}O_6$ 178.141

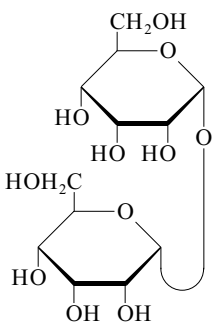
D-*form*

3,4-Cyclohexylidene: 3,4-O-Cyclohexylidene-D-allono-1,5-lactone
[165610-94-6]
$C_{12}H_{18}O_6$ 258.271
Cryst. solid (EtOAc/hexane). Mp 128-130°. $[\alpha]_D^{20}$ -68.1 (c, 1.03 in EtOH).

Fairbanks, A.J. *et al., Tetrahedron*, 1995, **51**, 3881 (*synth, pmr, 3,4-cyclohexylidene*)

α-D-Allopyranosyl α-D-allopyranoside, 9CI A-80

α,α-allo-*Trehalose. α,α-Allotrehalose*
[60967-08-0]



$C_{12}H_{22}O_{11}$ 342.299

Non-reducing disaccharide. Mp 109-110° Mp 182-183°. $[\alpha]_D^{25}$ +173.9 (c, 0.4 in H_2O). Double Mp due to loss of solvent of recryst.

Bis-4,6-O-benzylidene: 4,6-O-Benzylidene-α-D-allopyranosyl 4,6-O-benzylidene-α-D-allopyranoside
[60949-45-3]
$C_{26}H_{30}O_{11}$ 518.516
Cryst. (EtOH). Mp 267-267.5° dec. $[\alpha]_D^{23}$ +145 (c, 0.3 in Me_2CO).

Bis-4,6-O-benzylidene, bis-2,3-anhydro: 2,3-Anhydro-4,6-O-benzylidene-α-D-allopyranosyl 2,3-anhydro-4,6-O-benzylidene-α-D-allopyranoside
[32849-11-9]
$C_{26}H_{26}O_9$ 482.486
Needles (DMF). Mp 318-320° dec. $[\alpha]_D$ +103 (c, 0.25 in DMF).

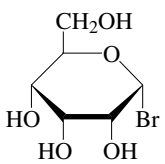
Bis-4,6-O-benzylidene, tetra-Ac: 2,3-Di-O-acetyl-4,6-O-benzylidene-α-D-allopyranosyl 2,3-di-O-acetyl-4,6-O-benzylidene-α-D-allopyranoside
[61161-46-4]
$C_{34}H_{38}O_{15}$ 686.665
Syrup. $[\alpha]_D^{23}$ +53 (c, 0.2 in $CHCl_3$).

Bis-4,6-O-benzylidene, tetrabenzoyl: 2,3-Di-O-benzoyl-4,6-O-benzylidene-α-D-allopyranosyl 2,3-di-O-benzoyl-4,6-O-benzylidene-α-D-allopyranoside
[60945-35-9]
$C_{54}H_{46}O_{15}$ 934.948
Mp 163-164°. $[\alpha]_D^{25}$ +144.6 (c, 0.3 in $CHCl_3$).

Bis-4,6-O-benzylidene, 2,2′-dibenzoyl: 2-O-Benzoyl-4,6-O-benzylidene-α-D-allopyranosyl 2-O-benzoyl-4,6-O-benzylidene-α-D-allopyranoside
[60930-08-7]
$C_{40}H_{38}O_{13}$ 726.732
Mp 215-218°. $[\alpha]_D^{23}$ +90 (c, 0.25 in $CHCl_3$).

Richardson, A.C. *et al., J.C.S.(C)*, 1971, 1090
Birch, G.G. *et al., Carbohydr. Res.*, 1976, **49**, 153 (*synth, pmr, deriv*)
Baer, H.H. *et al., Carbohydr. Res.*, 1984, **128**, 165
Linden, A. *et al., Acta Cryst. C*, 1995, **51**, 1007 (*cryst struct*)

Allopyranosyl bromide A-81



α-D-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*

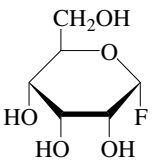
Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-α-D-allopyranosyl bromide
[53369-42-9]
$C_{14}H_{19}BrO_9$ 411.203
Pale yellow syrup. $[\alpha]_D^{23}$ +170.7 (c, 4.8 in $CHCl_3$).

β-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-β-D-allopyranosyl bromide
[75247-30-2]
Syrup.

Haga, M. *et al., Carbohydr. Res.*, 1974, **34**, 214 (*α-tetra-Ac, pmr*)
Stowell, C.P. *et al., Biochemistry*, 1980, **19**, 4899 (*β-tetra-Ac*)
Markham, K.R. *et al., Phytochemistry*, 1983, **22**, 2827 (*α-tetra-Ac, pmr*)
Cano, F.H. *et al., Carbohydr. Res.*, 1986, **145**, 319 (*α-tetra-Ac*)

Allopyranosyl fluoride A-82



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form* [80409-18-3]
Syrup.

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-α-D-allopyranosyl fluoride
[23235-96-3]
$C_{14}H_{19}FO_9$ 350.297
Syrup.

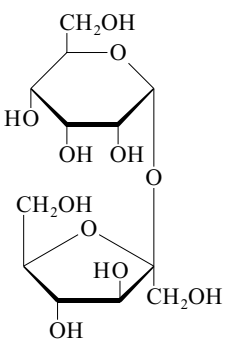
β-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-β-D-allopyranosyl fluoride
[20409-31-8]
$C_{14}H_{19}FO_9$ 350.297
Needles (EtOH aq.). Mp 149-151°. $[\alpha]_D$ -1.3 (c, 1.55 in $CHCl_3$).

Foster, A.B. *et al., Chem. Comm.*, 1968, 158 (*tetra-Ac, F-19 nmr*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 1 (*tetra-Ac, conformn, pmr*)
Grier, T.J. *et al., Arch. Biochem. Biophys.*, 1981, **212**, 651 (*synth*)
Kadentsev, V.I. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1987, 2580; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1987, 2395 (*ms*)

α-D-Allopyranosyl β-D-fructofuranoside A-83

allo-*Sucrose. Allosucrose*



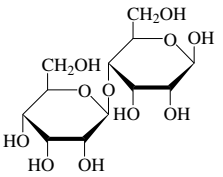
$C_{12}H_{22}O_{11}$ 342.299
Foam. Tasteless.

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Syrup. $[\alpha]_D$ +39 (c, 1.45 in $CHCl_3$).

Octabenzoyl:
$C_{68}H_{54}O_{19}$ 1175.163
Mp 85-87°. $[\alpha]_D$ +70.6 (c, 0.4 in $CHCl_3$).

Hough, L. *et al., Carbohydr. Res.*, 1980, **84**, 95

4-*O*-β-D-Allopyranosyl-D-allose A-84



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

β-Pyranose-*form*

Me glycoside: Methyl 4-O-β-D-allopyranosyl-β-D-allopyranoside
[84129-57-7]
$C_{13}H_{24}O_{11}$ 356.326
Mp 206-207°. $[\alpha]_D^{15}$ -18.7 (c, 1.1 in H_2O).

Me glycoside, 4′,6′-O-benzylidene: Methyl 4-O-(4,6-O-benzylidene-β-D-allopyranosyl)-β-D-allopyranoside
[84094-20-2]
$C_{20}H_{28}O_{11}$ 444.435
Mp 227-229°. $[\alpha]_D^{15}$ -41.4 (c, 1.0 in DMF).

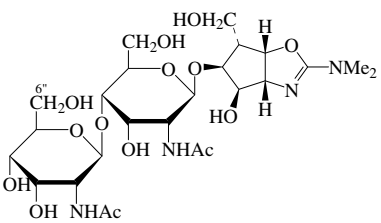
Me glycoside, 4′,6′-O-benzylidene, penta-Ac: Methyl 2,3,6-tri-O-acetyl-4-O-(2,3-di-O-acetyl-4,6-O-benzylidene-β-D-allopyranosyl)-β-D-allopyranoside
[84094-19-9]
$C_{30}H_{38}O_{16}$ 654.621
Cryst. (EtOH). Mp 211-212°. $[\alpha]_D^{16}$ -36.7 (c, 1.1 in $CHCl_3$).

Me glycoside, hepta-Ac: [84094-21-3]
$C_{27}H_{38}O_{18}$ 650.586
Cryst. (Et_2O/petrol). Mp 150-151°. $[\alpha]_D^{15}$ -17.4 (c, 1.2 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1982, **107**, 71

Allosamidin A-85

A 82516. Antibiotic A 82516
[103782-08-7]



$C_{25}H_{42}N_4O_{14}$ 622.625

Aminoglycoside antibiotic. Prod. by *Streptomyces* sp. Chitinase inhibitor. Insecticide. Powder. $[\alpha]_D$ -24.8 (c, 0.5 in 0.1*M* AcOH).

N-*De-Me:* **N-*Demethylallosamidin***
[124796-31-2]
$C_{24}H_{40}N_4O_{14}$ 608.598
Prod. by *Streptomyces* spp. AT9463 and SA-684. Chitinase inhibitor, insecticide and antifungal agent. Sol. acids; fairly sol. H_2O; poorly sol. Me_2CO, hexane.

N,N-*Di-de-Me:* **N-*Didemethylallosamidin***
[152540-89-1]
$C_{23}H_{38}N_4O_{14}$ 594.572
Prod. by *Streptomyces* sp. AT9463. Chitinase inhibitor, insecticide. Powder. Sol. H_2O. $[\alpha]_D$ -29.2 (c, 0.16 in AcOH aq.). Mp >231° dec.

6″-Me ether: ***Methylallosamidin***
[107395-29-9]
$C_{26}H_{44}N_4O_{14}$ 636.652
From *Streptomyces* sp. Insect chitinase inhibitor. Powder.
Mp 205-215°. $[\alpha]_D^{23}$ -30.2 (c, 0.5 in 0.1*M* AcOH).

6″-Me ether, N-*de-Me:* ***Methyl*-N-*de-methylallosamidin***
[136196-62-8]
$C_{25}H_{42}N_4O_{14}$ 622.625
From *Streptomyces* sp. SA-684. No phys. props. reported. Sol. acids; fairly sol. H_2O; poorly sol. butanol, hexane.

3′-Epimer, 6″-Me ether: ***Glucoallosamidin A***
[136236-41-4]
$C_{26}H_{44}N_4O_{14}$ 636.652
From *Streptomyces* sp. SA-684. Sol. acids; fairly sol. H_2O; poorly sol. butanol, hexane.
Mp 222-233° dec. $[\alpha]_D^{13}$ -8.5 (c, 0.51 in AcOH aq.).

3′-Epimer, 6″-Me ether, N-*de-Me:* ***Glucoallosamidin B***
[136236-42-5]
$C_{25}H_{42}N_4O_{14}$ 622.625
From *Streptomyces* sp. SA-684. Sol. acids; fairly sol. H_2O; poorly sol. butanol, hexane.
Mp 212-230° dec. $[\alpha]_D^{14}$ -14.8 (c, 0.53 in AcOH aq.).

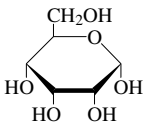
Aglycone: Allosamizoline
[114673-96-0]
$C_9H_{16}N_2O_4$ 216.236
$[\alpha]_D^{21}$ -15.7 (c, 0.35 in H_2O). CAS no. refers to hydrochloride.

Aglycone, tri-Ac: [114621-71-5]
Cryst. (EtOAc/hexane). Mp 82-83°. $[\alpha]_D^{26}$ +28.8 (c, 0.2 in $CHCl_3$).

Koga, D. *et al., Agric. Biol. Chem.*, 1987, **51**, 471 (*props*)
Sakuda, S. *et al., Agric. Biol. Chem.*, 1987, **51**, 3251-3259; 1988, **52**, 1615-1617 (*isol, pmr, cmr, struct, deriv*)
Sakuda, S. *et al., CA*, 1987, **106**, 134812 (*isol, struct, props*)
Sakuda, S. *et al., J. Antibiot.*, 1987, **40**, 296-300 (*props*)
Somers, P.J.B. *et al., J. Antibiot.*, 1987, **40**, 1751 (*isol*)
Nishimoto, Y. *et al., J. Antibiot.*, 1991, **44**, 116; 716-722 (*Glucoallosamidin, N-Demethylallosamidin*)
Maloisel, J.L. *et al., Helv. Chim. Acta*, 1992, **34**, 1515 (*synth*)
Simpkins, N.S. *et al., J.C.S. Perkin 1*, 1992, 2471 (*aglycone, synth*)
Takahashi, S. *et al., Tet. Lett.*, 1992, **33**, 7565 (*synth*)
Kinoshita, M. *et al., Biosci., Biotechnol., Biochem.*, 1993, **57**, 1699-1703 (*synth*)
Kitahara, T. *et al., Biosci., Biotechnol., Biochem.*, 1993, **57**, 1906-1909 (*synth, pmr, aglycone*)
Zhou, Z.Y. *et al., J. Antibiot.*, 1993, **46**, 1582-1588 (*N-Didemethylallosamidin*)
Blattner, R. *et al., J.C.S. Perkin 1*, 1994, 3411 (*synth*)
Griffith, D.A. *et al., J.A.C.S.*, 1996, **118**, 9526-9538 (*synth*)
Berecibar, A. *et al., Chem. Rev.*, 1999, **99**, 779-844 (*rev, synth*)
Wakabayashi, T. *et al., Tetrahedron: Asymmetry*, 2000, **11**, 2083-2091 (*aglycone derivs, synth*)
Lu, H. *et al., Tet. Lett.*, 2001, **42**, 4755-4757 (*aglycone, synth*)
Germer, A. *et al., J.O.C.*, 2002, **67**, 6328-6338 (*pmr, cmr, conformn*)

Allose, 9CI, 8CI A-86

[6038-51-3]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

For septanose form see LJC74-I. An aq. soln. at 31° contains 14% α-pyr, 77.5% β-pyr, 3.5% α-fur, 5% β-fur and 0.01% aldehyde.

D-*form* [2595-97-3]
Occurs as a 6-*O*-cinnamyl glycoside in the leaves of *Protea rubropilosa*. Extracts from the fresh-water alga *Ochromonas malhamensis* contain allose of unknown absolute configuration.

Di-Et dithioacetal: [18545-97-6]
$C_{10}H_{22}O_5S_2$ 286.413
Mp 94-95°. $[\alpha]_D^{26}$ -27.4 (c, 1.84 in MeOH).

3-Tosyl: 3-O-Tosyl-D-allose
[20847-04-5]
Mp 140-143°. $[\alpha]_D$ +3.4 (c, 1.0 in H_2O).

Pentabenzyl: 2,3,4,5,6-Penta-O-benzyl-D-allose
$C_{41}H_{42}O_6$ 630.779
$[\alpha]_D^{20}$ +11.7 (c, 0.53 in $CHCl_3$).

Pentabenzyl, di-Et dithioacetal: 2,3,4,5,6-Penta-O-benzyl-D-allose diethyl dithioacetal
$C_{45}H_{52}O_5S_2$ 737.035
Oil. $[\alpha]_D^{20}$ +24.4 (c, 0.97 in $CHCl_3$).

Phenylosazone: See Hexose phenylosazones, H-90

α-D-Pyranose-*form* [7282-79-3]

1,2-O-Ethylidene, 3,4,6-tri-Ac: 3,4,6-Tri-O-acetyl-1,2-O-ethylidene-α-D-allopyranose
[56687-80-0]
$C_{14}H_{20}O_9$ 332.307
Cryst. (2-propanol). Mp 111-112°. $[\alpha]_D^{20}$ +34.7 (c, 1.1 in $CHCl_3$).

3-Benzyl, 1,2-O-ethylidene, 4,6-di-Ac: 4,6-Di-O-acetyl-3-O-benzyl-1,2-O-ethylidene-α-D-allopyranose
[56632-48-5]
$C_{19}H_{24}O_8$ 380.394
Syrup. $[\alpha]_D^{25}$ -11.6 (c, 1.1 in $CHCl_3$).

3-Benzyl, 1,2:4,6-di-O-ethylidene: 3-O-Benzyl-1,2:4,6-di-O-ethylidene-α-D-allopyranose
[56632-51-0]
$C_{17}H_{22}O_6$ 322.357

Cryst. (heptane). Mp 108-110°. $[\alpha]_D^{25}$ +119.4 (c, 1.0 in $CHCl_3$).

Me glycoside: See Methyl alloside, M-148

β-D-Pyranose-*form* [7283-09-2]
Cryst. (EtOH aq.). Mp 141-142° (Mp 128° dimorph.). $[\alpha]_D^{25}$ -2.5 → +14.5 (c, 1.0 in H_2O).

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-β-D-allopyranose*
[4257-94-7]
$C_{16}H_{22}O_{11}$ 390.343
Mp 95-96°. $[\alpha]_D^{25}$ -15 (c, 2.9 in $CHCl_3$).

*1,2,6-Tris-*O*-(3,4,5-trihydroxybenzoyl): 1,2,6-Tri-*O*-galloyl-β-D-allopyranose*
[135093-93-5]
$C_{27}H_{24}O_{18}$ 636.476
Isol. from the root of *Euphorbia fischeriana*. Off-white amorph. powder + ½H_2O. $[\alpha]_D^{20}$ -13.3 (c, 0.8 in Me_2CO).

*1,3,6-Tris-*O*-(3,4,5-trihydroxybenzoyl): 1,3,6-Tri-*O*-galloyl-β-D-allopyranose*
[135029-93-5]
$C_{27}H_{24}O_{18}$ 636.476
Tannin constit. of the root of *Euphorbia fischeriana*. Cryst. powder (H_2O). Mp 187-188°. $[\alpha]_D^{20}$ -76 (c, 0.6 in Me_2CO).

*1,2,3,6-Tetrakis-*O*-(3,4,5-trihydroxybenzoyl): 1,2,3,6-Tetra-*O*-galloyl-β-D-allopyranose*
[135029-94-6]
$C_{34}H_{28}O_{22}$ 788.582
Gallotannin isol. from the root of *Euphorbia fischeriana*. Pale brown amorph. powder. $[\alpha]_D^{20}$ -97.5 (c, 0.7 in Me_2CO).

*3-Me: 3-*O*-Methyl-β-D-allopyranose*
$C_7H_{14}O_6$ 194.184
Cryst. (EtOH). Mp 112-114°. $[\alpha]_D^{20}$ +3.9 (6 min.) → +17.4 (19 hr.) (c, 1.0 in H_2O).

*3-Me, 1,2,4,6-tetrabenzoyl: 1,2,4,6-Tetra-*O*-benzoyl-3-*O*-methyl-β-D-allopyranose*
$C_{35}H_{30}O_{10}$ 610.616
Mp 112-114°. $[\alpha]_D^{20}$ +3.4 (c, 1.8 in $CHCl_3$).

Me glycoside: See Methyl alloside, M-148

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylideneallose, I-58

Me glycoside: See Methyl 2-benzamido-2-deoxyglucopyranoside, M-154

β-D-Furanose-*form* [36468-80-1]

*2,3-*O*-Ethylidene, tri-Ac: 1,5,6-Tri-*O*-acetyl-2,3-*O*-ethylidene-β-D-allofuranose*
$C_{14}H_{20}O_9$ 332.307
Syrup. $[\alpha]_D^{22}$ -59.6 (c, 0.7 in $CHCl_3$).

*(S,S)-2,3:5,6-Di-*O*-ethylidene: 2,3:5,6-Di-O-ethylidene-β-D-allofuranose*
$C_{10}H_{16}O_6$ 232.233
Cryst. (Et_2O). Mp 132-133°. $[\alpha]_D^{26}$ -26.7 (c, 0.86 in $CHCl_3$).

2,3:5,6-Isopropylidene: See 2,3:5,6-Di-*O*-isopropylideneallofuranose, D-713

Me glycoside: See Methyl alloside, M-148

L-*form*
Mp 128-129° Mp 141° (dimorph.). $[\alpha]_D^{25}$ -2 → -14 (c, 4.0 in H_2O).

DL-*form*
Needles (EtOH aq.). Mp 181-183°.

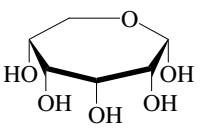
*α,β-Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-DL-allose*
$C_{16}H_{22}O_{11}$ 390.343
Needles (Et_2O/pentane). Mp 132-133°.

*2-Me: 2-*O*-Methyl-DL-allose*
$C_7H_{14}O_6$ 194.184
Needles (MeOH/Et_2O). Mp 111-113°.

*2-Me, α,β-tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-*O*-methyl-DL-allose*
$C_{15}H_{22}O_{10}$ 362.333
Needles (CH_2Cl_2/pentane). Mp 125-126°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 299C (*nmr*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1954, **76**, 5816 (*dimorphism*)
Humoller, F.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 102; 105 (*β-D-pyr, L-form, synth*)
Christensen, J.E. *et al., Carbohydr. Res.*, 1968, **7**, 510 (*D-tosyl*)
Coxon, B. *et al., Carbohydr. Res.*, 1968, **8**, 379 (*D-di-Et dithioacetal*)
Dorman, D.E. *et al., J.A.C.S.*, 1970, **92**, 1355 (*cmr*)
Singh, U.P. *et al., Can. J. Chem.*, 1971, **49**, 1179 (*DL-form, synth, DL-penta-Ac, DL-tetra-Ac Me, DL-Me*)
Beylis, P. *et al., Chem. Comm.*, 1971, 597 (*occur*)
Naga, M. *et al., Carbohydr. Res.*, 1972, **21**, 440 (*β-D-pyr-Me*)
Baker, D.C. *et al., Carbohydr. Res.*, 1972, **24**, 192 (*β-D-pyr, synth*)
Stevens, J.D. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 123 (*synth*)
Dick, W.E. *et al., Carbohydr. Res.*, 1975, **39**, 87 (*β-D-fur-ethylidene tri-Ac, β-D-fur, diethylidene*)
Dick, W.E. *et al., Carbohydr. Res.*, 1975, **42**, 55; 65 (*α-D-pyr ethylidene tri-Ac, α-D-pyr ethylidene di-Ac benzyl, α-D-pyr ethylidene benzyl*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A., ed.), Acad. Press, London and New York, 1982, **13**, 37; 41 (*pmr, cmr*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949 (*total synth, L-form*)
Kroon-Batenburg, L.M.J. *et al., Acta Cryst. C*, 1984, **40**, 1863 (*β-D-pyr, cryst struct*)
Lee, S.H. *et al., Phytochemistry*, 1991, **30**, 1251 (*gallates*)
Krülle, T. *et al., Carbohydr. Res.*, 1993, **247**, 145 (*D-form pentabenzyl*)

Alloseptanose A-87



α-D-*form*

$C_6H_{12}O_6$ 180.157

D-*form*

*2,5-Anhydro, 3,4-*O*-isopropylidene: 2,5-Anhydro-3,4-*O*-isopropylidene-D-alloseptanose, 9CI*
[85761-44-0]
$C_9H_{14}O_5$ 202.207
Mp 168-170°. $[\alpha]_D^{23}$ +12 (c, 1.0 in $CHCl_3$).

α-D-*form* [41847-23-8]

*Me glycoside, 2,3:4,5-diisopropylidene: Methyl 2,3:4,5-di-*O*-isopropylidene-α-D-alloseptanoside*
[51823-72-4]
$C_{13}H_{22}O_6$ 274.313
Cryst. (EtOAc/petrol).

α-DL-*form*

*2,5-Anhydro, 3,4-*O*-isopropylidene: 2,5-Anhydro-3,4-*O*-isopropylidene-DL-alloseptanose, 9CI*
[42756-84-3]
Mp 185-186°.

β-D-*form* [41846-83-7]

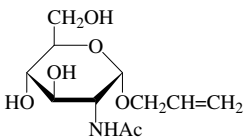
*Me glycoside, 2,3,4,5-tetra-Ac: Methyl 2,3,4,5-tetra-*O*-acetyl-β-D-alloseptanoside*
[82438-47-9]
$C_{15}H_{22}O_{10}$ 362.333

[41847-21-6, 41847-22-7]

Craig, D.C. *et al., Cryst. Struct. Commun.*, 1974, **3**, 77-81 (*cryst struct, α-D-Me gly diisopropylidene*)
Just, G. *et al., Can. J. Chem.*, 1976, **54**, 2940-2947 (*DL-form, 2,5-anhydroisopropylidene*)
Grasdalen, H. *et al., Acta Chem. Scand., Ser. A*, 1978, **32**, 31-39 (*pmr*)
James, V.J. *et al., Cryst. Struct. Commun.*, 1982, **11**, 79-83 (*cryst struct, β-D-Me gly tetra-Ac*)
Robins, M.J. *et al., Can. J. Chem.*, 1983, **61**, 312-316 (*D-2,5-anhydroisopropylidene*)

Allyl 2-acetamido-2-deoxyglucopyranoside A-88

2-Propenyl 2-acetamido-2-deoxyglucopyranoside



α-D-*form*

$C_{11}H_{19}NO_6$ 261.274

α-D-*form* [54400-75-8]
Cryst. (EtOH/Et_2O). Mp 172-174°. $[\alpha]_D^{25}$ +148.8 (c, 1.62 in H_2O).

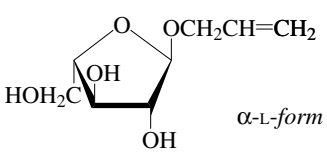
β-D-*form* [54400-77-0]
Mp 171-172°. $[\alpha]_D^{25}$ -33.9 (c, 4.99 in H_2O).

*Tri-Ac: Allyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-β-D-glucopyranoside*
$C_{17}H_{25}NO_9$ 387.386
Mp 162-163°. $[\alpha]_D^{25}$ -17.4 ($CHCl_3$).

Lee, R.T. *et al., Carbohydr. Res.*, 1974, **37**, 193 (*α-D-form, β-D-form*)
Nashed, M.A. *et al., Carbohydr. Res.*, 1980, **82**, 237 (*α-D-form, pmr*)

Allyl arabinofuranoside A-89

2-Propenyl arabinofuranoside



α-L-*form*

$C_8H_{14}O_5$ 190.196

α-D-*form*

Tribenzoyl: Allyl 2,3,5-tri-O-*benzoyl-α-D-arabinofuranoside*
[103702-72-3]
$C_{29}H_{26}O_8$ 502.52
Syrup. $[\alpha]_D^{25}$ -8.2 (c, 1.00 in $CHCl_3$).

5-Trityl, 2,3-dibenzoyl: Allyl 2,3-di-O-*benzoyl-5*-O-*trityl-α-D-arabinofuranoside*
[103702-77-8]
$C_{41}H_{36}O_7$ 640.731
Syrup. $[\alpha]_D^{25}$ -19.6 (c, 1.05 in $CHCl_3$).

β-D-*form*

Tri-Ac: Allyl 2,3,5-tri-O-*acetyl-β-D-arabinofuranoside*
$C_{14}H_{20}O_8$ 316.307
Oil. $[\alpha]_D^{20}$ -112.4 (c, 2 in CH_2Cl_2).

L-*form*

Pale yellow syrup. Mixt. of anomers.

β-L-*form* [134149-40-9]

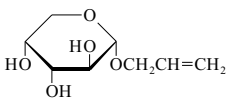
Tribenzyl: Allyl 2,3,5-tri-O-*benzyl-β-L-arabinofuranoside*
[134149-41-0]
$C_{29}H_{32}O_5$ 460.569
Syrup. $[\alpha]_D^{25}$ +50 (c, 1 in CH_2Cl_2).

[134149-34-1, 134149-40-9]

Hatanaka, K. *et al., J. Carbohydr. Chem.*, 1985, **4**, 333 (*α-D-tribenzoyl, α-D-dibenzoyl trityl*)
Finch, P. *et al., Carbohydr. Res.*, 1991, **210**, 319 (*L-form, synth, cmr*)
Klotz, W. *et al., Annalen*, 1993, 683 (*tri-Ac, synth, pmr*)

Allyl arabinopyranoside A-90

2-Propenyl arabinopyranoside



α-D-Pyranose-*form*

$C_8H_{14}O_5$ 190.196

α-D-Pyranose-*form*

Tri-Ac: Allyl 2,4,5-tri-O-*acetyl-α-D-arabinopyranoside*
[151557-77-6]
$C_{14}H_{20}O_8$ 316.307
Oil.

β-D-*form* [130450-63-4]
Cryst. (EtOH). Mp 121-123°. $[\alpha]_D^{21}$ -216 (c, 1.1 in H_2O).

Tri-Ac: Allyl 2,4,5-tri-O-*acetyl-β-D-arabinopyranoside*
$C_{14}H_{20}O_8$ 316.307
Oil. $[\alpha]_D^{20}$ -8.1 (c, 1 in CH_2Cl_2).

2-Tosyl: Allyl 2-O-*tosyl-β-D-arabinopyranoside*
$C_{15}H_{20}O_7S$ 344.385
Cryst. (CH_2Cl_2/Et_2O). Mp 69-71°. $[\alpha]_D^{21}$ -125 (c, 1.2 in $CHCl_3$).

3,4-Isopropylidene: Allyl 3,4-O-*isopropylidene-β-D-arabinopyranoside*
[111192-28-0]
$C_{11}H_{18}O_5$ 230.26
Cryst. (petrol). Mp 71-73°. $[\alpha]_D^{21}$ -191 (c, 1.2 in $CHCl_3$).

3,4-Isopropylidene, 2-tosyl: Allyl 3,4-O-*isopropylidene-2*-O-*tosyl-β-D-arabinopyranoside*
[130450-64-5]
$C_{18}H_{24}O_7S$ 384.449
Cryst. (Et_2O/hexane). Mp 77-78°. $[\alpha]_D^{21}$ -184 (c, 1.2 in $CHCl_3$).

β-L-*form* [134149-43-2]
Needles. Mp 118-120°. $[\alpha]_D^{20}$ +179 (c, 1 in H_2O).

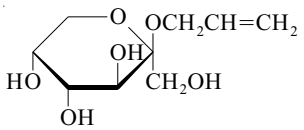
3,4-Isopropylidene: Allyl 3,4-O-*isopropylidene-β-L-arabinopyranoside*
[134149-44-3]
$C_{11}H_{18}O_5$ 230.26
Syrup, cryst. on storage. Mp 71°. $[\alpha]_D^{20}$ +209 (c, 1.1 in CH_2Cl_2).

Tribenzyl: Allyl 2,3,4-tri-O-*benzyl-β-L-arabinopyranoside*
$C_{29}H_{32}O_5$ 460.569
Syrup. $[\alpha]_D$ +47 (c, 1.1 in CH_2Cl_2).

Takeo, K. *et al., Carbohydr. Res.*, 1990, **201**, 261 (*β-D-form, β-D-tosyl, β-D-isopropylidene, β-D-isopropylidenetosyl*)
Finch, P. *et al., Carbohydr. Res.*, 1991, **210**, 319 (*synth, cmr*)
Klotz, W. *et al., Annalen*, 1993, 683 (*tri-Ac, synth, pmr*)

Allyl fructopyranoside, 9CI A-91

2-Propenyl fructopyranoside



$C_9H_{16}O_6$ 220.222

β-D-*form* [156881-29-7] Alkyl glycoside directly obtainable from D-fructose in good yield (fructose is usually intractable in this respect).
Cryst. (EtOH). Mp 162-164°. $[\alpha]_D$ -149.9 (MeOH).

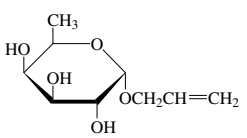
Tetrabenzoyl: Allyl 1,3,4,5-tetra-O-*benzoyl-β-D-fructopyranoside*
[156916-60-8]
$C_{37}H_{32}O_{10}$ 636.654
Cryst. (EtOH). Mp 133-135°. $[\alpha]_D$ -169 ($CHCl_3$).

[156881-29-7]

Raaijmakers, H.W.C. *et al., Carbohydr. Res.*, 1994, **257**, 293 (*synth, pmr, cmr*)

Allyl fucopyranoside A-92

2-Propenyl 6-deoxygalactopyranoside



α-D-*form*

$C_9H_{16}O_5$ 204.222

α-D-*form* [201858-29-9]
No phys. props. reported.

2,3-Dibenzyl: 2-Propenyl 2,3-di-O-*benzyl-6-deoxy-α-D-galactopyranoside. Allyl 2,3-di*-O-*benzyl-α-D-fucopyranoside*
[100605-72-9]
$C_{23}H_{28}O_5$ 384.471
Syrup. $[\alpha]_D^{20}$ +47.1 (c, 1.7 in $CHCl_3$).

α-L-*form* [41308-77-4]
Cryst. (MeOH). Mp 159°. $[\alpha]_D$ -190 (c, 0.5 in MeOH).

2-Me: 2-Propenyl 6-deoxy-2-O-*methyl-α-L-galactopyranoside. Allyl 2*-O-*methyl-α-L-fucopyranoside*
[108182-36-1]
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D^{20}$ -195 (c, 1.6 in $CHCl_3$).

3,4-O-*Isopropylidene: Allyl 3,4*-O-*isopropylidene-α-L-fucopyranoside*
[108182-34-9]
$C_{12}H_{20}O_5$ 244.287
Cryst. (pentane). Mp 35-36°. $[\alpha]_D^{20}$ -153 (c, 1.1 in $CHCl_3$).

2,4-Dibenzyl: 2-Propenyl 2,4-di-O-*benzyl-6-deoxy-α-L-galactopyranoside. Allyl 2,4-di*-O-*benzyl-α-L-fucopyranoside*
[62396-57-0]
$C_{23}H_{28}O_5$ 384.471
Cryst. (hexane). Mp 86-87°. $[\alpha]_D$ -92 (c, 0.5 in $CHCl_3$).

3,4-Dibenzyl: 2-Propenyl 3,4-di-O-*benzyl-6-deoxy-α-L-galactopyranoside. Allyl 3,4-di*-O-*benzyl-α-L-galactopyranoside*
[62396-58-1]
$C_{23}H_{28}O_5$ 384.471
Cryst. (hexane). Mp 85-86°. $[\alpha]_D$ -126 (c, 0.5 in $CHCl_3$).

β-L-*form* [60431-32-5]
$[\alpha]_D^{23}$ +21.5 (c, 1.0 in H_2O).

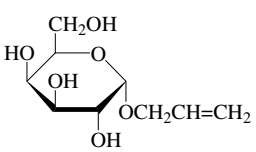
2,4-Di-Ac: 2-Propenyl 2,4-di-O-*acetyl-6-deoxy-β-L-galactopyranoside*
$C_{13}H_{20}O_7$ 288.297
Powder. $[\alpha]_D^{20}$ +6 (c, 1 in $CHCl_3$).

Tri-Ac: 2-Propenyl 2,3,4-tri-O-*acetyl-6-deoxy-β-L-galactopyranoside*
[60431-31-4]
$C_{15}H_{22}O_8$ 330.334
Powder. $[\alpha]_D^{20}$ +13 (c, 1 in $CHCl_3$).

James, K. *et al., Aust. J. Chem.*, 1976, **29**, 1159-1162 (*β-L-form*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1976, **52**, 235-240 (*α-L-form, synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1986, **150**, 133-150 (*α-L-2-Me, α-L-3,4-isopropylidene*)
Thiem, J. *et al., Annalen*, 1987, 289-295 (*α-D-2,3-dibenzyl*)
Kunz, H. *et al., J. Prakt. Chem.*, 1992, **334**, 579-583 (*α-L-form, synth, pmr, cmr*)
de Souza, A.C. *et al., Eur. J. Org. Chem.*, 2004, 4323-4339 (*β-L-2,4-di-Ac, β-L-tri-Ac*)

Allyl galactopyranoside A-93

2-Propenyl galactopyranoside, 9CI



α-D-*form*

$C_9H_{16}O_6$ 220.222

α-D-*form* [48149-72-0]
Mp 143-145°. $[\alpha]_D^{25}$ +181.3 (c, 1.6 in H_2O).

4,6-O-Benzylidene: Allyl 4,6-O-benzylidene-α-D-galactopyranoside
[20746-64-9]
$C_{16}H_{20}O_6$ 308.33
Mp 115-117°. $[\alpha]_D$ +121 (c, 1.9 in $CHCl_3$).

3,4-O-Isopropylidene: Allyl 3,4-O-isopropylidene-α-D-galactopyranoside
[81713-32-8]
$C_{12}H_{20}O_6$ 260.286
Syrup. $[\alpha]_D^{25}$ +131.5 (c, 1 in $CHCl_3$).

2,3-Dibenzyl: Allyl 2,3-di-O-benzyl-α-D-galactopyranoside
[100605-69-4]
$C_{23}H_{28}O_6$ 400.471
Syrup. $[\alpha]_D^{20}$ +96.1 (c, 0.6 in $CHCl_3$). $[\alpha]_D$ +68 (c, 1.0 in $CHCl_3$).

2,3-Dibenzyl, 4,6-O-benzylidene: Allyl 2,3-di-O-benzyl-4,6-O-benzylidene-α-D-galactopyranoside
[20746-71-8]
$C_{30}H_{32}O_6$ 488.579
Cryst. (petrol). Mp 123-125°. $[\alpha]_D^{20}$ +82.4 (c, 1 in $CHCl_3$).

2,6-Dibenzyl: Allyl 2,6-di-O-benzyl-α-D-galactopyranoside
[37111-91-4]
$C_{23}H_{28}O_6$ 400.471
Mp 49-51° (48-49°).

2,6-Dibenzyl, 3,4-isopropylidene: Allyl 2,6-di-O-benzyl-3,4-O-isopropylidene-α-D-galactopyranoside
[81713-34-0]
$C_{26}H_{32}O_6$ 440.535
Syrup. $[\alpha]_D^{25}$ +112.7 (c, 0.35 in $CHCl_3$).

4,6-Dibenzyl: Allyl 4,6-di-O-benzyl-α-D-galactopyranoside
$C_{23}H_{28}O_6$ 400.471
$[\alpha]_D^{25}$ +30.1 (c, 2.6 in $CHCl_3$).

2,3,6-Tribenzyl: Allyl 2,3,6-tri-O-benzyl-α-D-galactopyranoside
[61893-74-1]
$C_{30}H_{34}O_6$ 490.595
$[\alpha]_D^{21}$ +54 (c, 0.8 in $CHCl_3$).

2,4,6-Tribenzyl: Allyl 2,4,6-tri-O-benzyl-α-D-galactopyranoside
[61236-87-1]
$C_{30}H_{34}O_6$ 490.595
Solid (Et_2O). Mp 64-65°. $[\alpha]_D^{20}$ +61.9 (c, 1 in $CHCl_3$).

β-D-*form* [2595-07-5]
Mp 102-103°. $[\alpha]_D^{25}$ -11 (c, 3.4 in H_2O).

2,6-Di-Ac: Allyl 2,6-di-O-acetyl-β-D-galactopyranoside
[85207-12-1]
$C_{13}H_{20}O_8$ 304.296
Cryst. (Et_2O/petrol). Mp 75-76.5°. $[\alpha]_D^{20}$ -9.5 (c, 2.0 in $CHCl_3$).

2,3,4-Tri-Ac: Allyl 2,3,4-tri-O-acetyl-β-D-galactopyranoside
[101528-71-6]
$C_{15}H_{22}O_9$ 346.333
Mp 96-97°. $[\alpha]_D$ +1.5 (c, 1.5 in $CHCl_3$).

3,4,6-Tri-Ac: Allyl 3,4,6-tri-O-acetyl-β-D-galactopyranoside
[152772-84-4]
$C_{15}H_{22}O_9$ 346.333
Syrup. $[\alpha]_D$ +59.4 (c, 0.9 in $CHCl_3$).

3,4-O-Isopropylidene: Allyl 3,4-O-isopropylidene-β-D-galactopyranoside
[85207-10-9]
$C_{12}H_{20}O_6$ 260.286
Cryst. (Me_2CO/petrol). Mp 91-92°. $[\alpha]_D^{22}$ +10 (c, 2.0 in $CHCl_3$). $[\alpha]_D^{25}$ +131.5 (c, 1.0 in $CHCl_3$).

4,6-O-Isopropylidene: Allyl 4,6-O-isopropylidene-β-D-galactopyranoside
[92516-88-6]
$C_{12}H_{20}O_6$ 260.286
Mp 95.5-97° (88.5-90°). $[\alpha]_D^{22}$ +4.3 (c, 0.3 in $CHCl_3$).

4,6-O-Benzylidene: Allyl 4,6-O-benzylidene-β-D-galactopyranoside
[71925-95-6]
$C_{16}H_{20}O_6$ 308.33
Cryst. (EtOH). Mp 178-179°. $[\alpha]_D$ -7 (c, 1.0 in Py).

2,3-Dibenzyl: Allyl 2,3-di-O-benzyl-β-D-galactopyranoside
[97817-99-7]
$C_{23}H_{28}O_6$ 400.471
Needles (C_6H_6/hexane). Mp 70-70.5°. $[\alpha]_D^{20}$ -3.1 (c, 1.0 in $CHCl_3$).

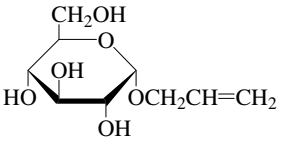
2,3-Dibenzyl, 4,6-isopropylidene: Allyl 2,3-di-O-benzyl-4,6-O-isopropylidene-β-D-galactopyranoside
[117780-15-1]
$C_{26}H_{32}O_6$ 440.535
Prisms (hexane/Et_2O). Mp 68-69.5°. $[\alpha]_D^{20}$ -19.6 (c, 1.33 in $CHCl_3$).

α-L-*form* [821794-27-8]
Cryst. (2-propanol). $[\alpha]_D^{20}$ -28 (c, 0.4 in MeOH).

Talley, E.A. *et al., J.A.C.S.*, 1945, **67**, 2037 (*synth*)
Gigg, R. *et al., J.C.S.(C)*, 1968, 1903 (*α-D-4,6-benzylidene, 2,3-dibenzyl*)
Lee, R.T. *et al., Carbohydr. Res.*, 1974, **37**, 193 (*synth*)
Jacquinet, J.C. *et al., Tetrahedron*, 1979, **35**, 365 (*β-D-form, benzylidene, synth*)
Nashed, M.A. *et al., Carbohydr. Res.*, 1982, **102**, 99 (*benzylidene, pmr*)
Chernyak, N.Y. *et al., Carbohydr. Res.*, 1984, **128**, 269 (*β-D-form derivs*)
Nakahara, Y. *et al., Carbohydr. Res.*, 1988, **173**, 306 (*β-D-2,3-dibenzyl derivs*)
Catelani, G. *et al., Carbohydr. Res.*, 1988, **182**, 297 (***synth, 3,4-isopropylidene***)
Thiem, J. *et al., Annalen*, 1991, 289-295 (*α-D-2,3-dibenzyl*)
He, D.-Y. *et al., Carbohydr. Res.*, 1993, **239**, 267-271 (*α-D-3,4-isopropylidene, 2,6-dibenzyl 3,4-isopropylidene, 2,6-dibenzyl*)
Stevenson, D.E. *et al., Carbohydr. Res.*, 1996, **284**, 279-283 (*β-D synth*)
Liu, M.Z. *et al., Carbohydr. Res.*, 1996, **290**, 233-237 (*3,4,6-tri-Ac*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 967-976; 2003, **76**, 1603-1615 (*α-D-form, α-D-2,3-dibenzyl, α-D-2,3,6-tribenzyl*)
Lay, L. *et al., Eur. J. Org. Chem.*, 2001, 4331-4336 (*α-D-2,4,6-tribenzyl*)
de Souza, A.C. *et al., Eur. J. Org. Chem.*, 2004, 4323-4339 (*α-L-form, synth*)

Allyl glucopyranoside A-94

2-Propenyl glucopyranoside, 9CI



α-D-*form*

$C_9H_{16}O_6$ 220.222

α-D-*form* [7464-56-4]
Syrup. Mp 101-102° (95-97°). $[\alpha]_D^{25}$ +133.8 (c, 1.65 in H_2O) (+151). $[\alpha]_D$ +75.7 (c, 0.9 in $CHCl_3$).

3,4,6-Tri-Ac: Allyl 3,4,6-tri-O-acetyl-α-D-glucopyranoside
$C_{15}H_{22}O_9$ 346.333
Syrup. $[\alpha]_D$ +75.7 (c, 0.9 in $CHCl_3$).

Tetra-Ac: Allyl 2,3,4,6-tetra-O-acetyl-α-D-glucopyranoside
[39698-55-0]
$C_{17}H_{24}O_{10}$ 388.371
Cryst. (Et_2O/hexane). Mp 51-53°. $[\alpha]_D$ +131 (c, 1.1 in MeOH).

2,3-Dibenzoyl: Allyl 2,3-di-O-benzoyl-α-D-glucopyranoside
[155786-53-1]
$C_{23}H_{24}O_8$ 428.438
Mp 116-118°. $[\alpha]_D^{20}$ +169 (c, 1.1 in $CHCl_3$).

2,6-Dibenzoyl: Allyl 2,6-di-O-benzoyl-α-D-glucopyranoside
[127446-71-3]
$C_{23}H_{24}O_8$ 428.438
Mp 136-137°. $[\alpha]_D$ +74 ($CHCl_3$) (+70.1).

2,3,4-Tribenzoyl: Allyl 2,3,4-tri-O-benzoyl-α-D-glucopyranoside
[155786-52-0]
$C_{30}H_{28}O_9$ 532.546
$[\alpha]_D^{20}$ +5 (c, 1.17 in $CHCl_3$).

3,4-Isopropylidene: Allyl 3,4-O-isopropylidene-α-D-glucopyranoside
[169822-02-0]
$C_{12}H_{20}O_6$ 260.286
Oil. $[\alpha]_D$ +114 (c, 1.3 in $CHCl_3$).

3,4-Isopropylidene, 2,6-dibenzoyl: Allyl 2,6-di-O-benzoyl-3,4-O-isopropylidene-α-D-glucopyranoside
[169822-01-9]
$C_{26}H_{28}O_8$ 468.502
Pale yellow oil. $[\alpha]_D$ +69.4 (c, 2.2 in $CHCl_3$).

4,6-Isopropylidene, 2,3-dibenzoyl: Allyl 2,3-di-O-benzoyl-4,6-O-isopropylidene-α-D-glucopyranoside
[155786-54-2]
$C_{26}H_{28}O_8$ 468.502
Cryst. (Et_2O/pentane). Mp 119-121°. $[\alpha]_D^{20}$ +131 (c, 2.3 in $CHCl_3$).

2,6-Dibenzyl: Allyl 2,6-di-O-benzyl-α-D-glucopyranoside
[169822-03-1]
$C_{23}H_{28}O_6$ 400.471
Cryst. (diisopropyl ether). $[\alpha]_D$ +76.4 (c, 0.8 in $CHCl_3$).

2,6-Dibenzyl, 3,4-isopropylidene: Allyl 2,6-di-O-benzyl-3,4-O-isopropylidene-α-D-glucopyranoside
[169822-00-8]

$C_{26}H_{32}O_6$ 440.535
Pale yellow oil. $[\alpha]_D$ +27.8 (c, 2.0 in $CHCl_3$).

*2,3-Dibenzyl, 4,6-isopropylidene: Allyl 2,3-dibenzyl-4,6-*O*-isopropylidene-α-D-glucopyranoside*
[181777-10-6]
$C_{26}H_{32}O_6$ 440.535
Oil. $[\alpha]_D^{20}$ +26.5 (c, 0.7 in $CHCl_3$).

β-D-*form* [34384-79-7]
Syrup. Mp 100-101°. $[\alpha]_D^{25}$ -40 (c, 3.52 in H_2O).

*3,4,6-Tri-Ac: Allyl 3,4,6-tri-*O*-acetyl-β-D-glucopyranoside*
$C_{15}H_{22}O_9$ 346.333
Syrup.

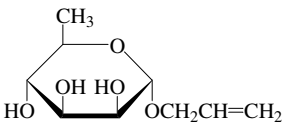
*Tetra-Ac: Allyl 2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranoside*
[10343-15-4]
$C_{17}H_{24}O_{10}$ 388.371
Cryst. (Et_2O). Mp 89-90° (88°). $[\alpha]_D^{23}$ -25 (c, 1 in $CHCl_3$).

[160412-85-1]

Lee, R.T. *et al., Carbohydr. Res.*, 1974, **37**, 193-201 (*α-D-form, β-D-form, synth, tetra-Ac*)
Nepogodev, S.A. *et al., Carbohydr. Res.*, 1994, **254**, 43-60 (*α-D-form, tetra-Ac, 2,3-dibenzoyl, 2,3,4-tribenzoyl, 4,6-isopropylidene 2,3-dibenzoyl*)
Liu, M.Z. *et al., Carbohydr. Res.*, 1996, **190**, 233-237 (*3,4,6-tri-Ac*)
Jenkins, D.J. *et al., Carbohydr. Res.*, 1996, **287**, 169-182 (*α-D-2,6-dibenzoyl, 2,6-dibenzoyl 3,4-isopropylidene, 3,4-isopropylidene, 2,6-dibenzyl, 2,3-dibenzyl 4,6-isopropylidene*)
Yuasa, Y. *et al., Org. Process Res. Dev.*, 2004, **8**, 405-407 (*α-D-tetra-Ac, β-D-tetra-Ac*)

Allyl rhamnopyranoside A-95

2-Propenyl 6-deoxymannopyranoside



α-D-*form*

$C_9H_{16}O_5$ 204.222

α-D-*form*

*2,3-*O*-Isopropylidene: Allyl 2,3-*O*-isopropylidene-α-D-rhamnopyranoside*
[100639-25-6]
$C_{12}H_{20}O_5$ 244.287
Oil. $[\alpha]_D^{26}$ +32 (c, 1 in $CHCl_3$).

*4-Benzyl: Allyl 4-*O*-benzyl-α-D-rhamnopyranoside*
[100639-27-8]
$C_{16}H_{22}O_5$ 294.347
Mp 69-70°. $[\alpha]_D^{25}$ +70 (c, 1 in $CHCl_3$).

*2,4-Dibenzyl: Allyl 2,4-di-*O*-benzyl-α-D-rhamnopyranoside*
[603962-03-4]
$C_{23}H_{28}O_5$ 384.471
$[\alpha]_D^{24}$ +5 (c, 1.2 in CH_2Cl_2).

*3,4-Dibenzyl: Allyl 3,4-di-*O*-benzyl-α-D-rhamnopyranoside*
[603962-20-5]
$C_{23}H_{28}O_5$ 384.471
$[\alpha]_D^{23}$ +51 (c, 0.3 in $CHCl_3$).

*2,3,4-Tribenzyl: Allyl 2,3,4-tri-*O*-benzyl-α-D-rhamnopyranoside*
[603961-98-4]
$C_{30}H_{34}O_5$ 474.596
$[\alpha]_D^{23}$ +12 (c, 0.3 in CH_2Cl_2).

α-L-*form* [64650-81-3]
Syrup. $[\alpha]_D$ -49 (c, 1.0 in $CHCl_3$).

*4-Ac: Allyl 4-*O*-acetyl-α-L-rhamnopyranoside*
[155165-95-0]
$C_{11}H_{18}O_6$ 246.26
Cryst. Mp 50-52°. $[\alpha]_D$ -80 (c, 1 in $CHCl_3$).

*Tri-Ac: Allyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside*
[109917-80-8]
$C_{15}H_{22}O_8$ 330.334
Oil. $[\alpha]_D$ -53 (c, 1.4 in $CHCl_3$).

*4-Me: Allyl 4-*O*-methyl-α-L-rhamnopyranoside*
[71695-56-2]
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D$ -78.5 (c, 1.0 in MeOH).

*2,4-Di-Me: Allyl 2,4-di-*O*-methyl-α-L-rhamnopyranoside*
[155165-91-6]
$C_{11}H_{20}O_5$ 232.276
Syrup. $[\alpha]_D$ -59 (c, 1 in $CHCl_3$).

*2,3,4-Tri-Me: Allyl 2,3,4-tri-*O*-methyl-α-L-rhamnopyranoside*
[155165-92-7]
$C_{12}H_{22}O_5$ 246.303
Syrup. $[\alpha]_D$ -32 (c, 1 in $CHCl_3$).

*2,3-*O*-Isopropylidene: Allyl 2,3-*O*-isopropylidene-α-L-rhamnopyranoside*
[71695-57-3]
$C_{12}H_{20}O_5$ 244.287
Syrup. $[\alpha]_D^{24}$ -36.6 (c, 1 in $CHCl_3$).

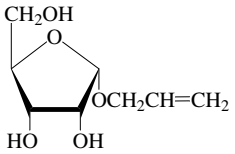
*4-Benzyl: Allyl 4-*O*-benzyl-α-L-rhamnopyranoside*
[89821-78-3]
$C_{16}H_{22}O_5$ 294.347
Prisms (CH_2Cl_2/hexane). Mp 66-67.5°. $[\alpha]_D^{25}$ -75.2 (c, 1.0 in $CHCl_3$).

*3,4-Dibenzyl: Allyl 3,4-di-*O*-benzyl-α-L-rhamnopyranoside*
[119471-45-3]
$C_{23}H_{28}O_5$ 384.471
Syrup. $[\alpha]_D$ -43.6 (c, 1 in $CHCl_3$).

Gigg, R. *et al., J. Carbohydr. Chem.*, 1983, **2**, 207-223 (*α-L-isopropylidene, α-L-4-benzyl*)
Gigg, J. *et al., Carbohydr. Res.*, 1985, **141**, 91-97 (*α-D-isopropylidene, α-D-4-benzyl*)
Chatterjee, D. *et al., Carbohydr. Res.*, 1986, **156**, 39-56 (*α-L-form, α-L-isopropylidene*)
Pinto, B.M. *et al., J.C.S. Perkin 1*, 1987, 9-14 (*α-L-4-benzyl*)
Westerduin, P. *et al., Carbohydr. Res.*, 1988, **180**, 195-205 (*α-L-tri-Ac, α-L-3,4-dibenzyl*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1991, **216**, 337-355 (*α-L-4-Me*)
Mahajan, R. *et al., J. Carbohydr. Chem.*, 1994, **13**, 63-73 (*α-L-4-Ac, α-L-2,4-di-Me, α-L-2,3,4-tri-Me*)
Zhang, J. *et al., Tetrahedron: Asymmetry*, 1994, **5**, 2283-2290 (*α-L-form, α-L-4-benzyl*)
Bousquet, E. *et al., Carbohydr. Res.*, 1998, **311**, 171-181 (*α-L-3,4-dibenzyl*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1409-1421 (*α-D-2,4-dibenzyl, α-D-3,4-dibenzyl, α-D-2,3,4-tribenzyl*)

Allyl ribofuranoside A-96

2-Propenyl ribofuranoside



α-D-*form*

$C_8H_{14}O_5$ 190.196

D-*form* [134149-47-6]
Syrup. Anomeric mixt.

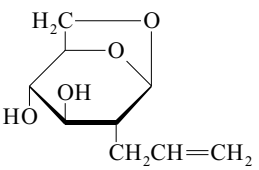
*Tribenzyl: Allyl 2,3,5-tri-*O*-benzyl-D-ribofuranoside*
[134149-48-7]
$C_{29}H_{32}O_5$ 460.569
Syrup. Anomeric mixt.

[121682-55-1, 134149-38-5, 185809-26-1]

Finch, P. *et al., Carbohydr. Res.*, 1991, **210**, 319 (*synth, cmr*)
Liu, M.Z. *et al., Carbohydr. Res.*, 1991, **290**, 233-237 (*3,4-di-Ac*)

2-*C*-Allyl-1,6-anhydro-2-deoxyglucose A-97

*1,6-Anhydro-2-deoxy-2-*C*-(2-propenyl)glucose*



$C_9H_{14}O_4$ 186.207

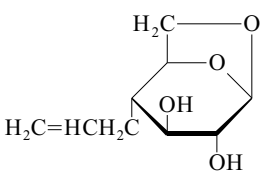
β-D-Pyranose-*form* [149300-19-6]
$[\alpha]_D^{22}$ -52 (c, 1.3 in MeOH).

*4-Ac: 4-*O*-Acetyl-2-*C*-allyl-1,6-anhydro-2-deoxy-β-D-glucopyranose*
[149300-20-9]
$C_{11}H_{16}O_5$ 228.244
Syrup. $[\alpha]_D^{22}$ -49 (c, 1.25 in MeOH).

*Di-Ac: 3,4-Di-*O*-acetyl-2-*C*-allyl-1,6-anhydro-2-deoxy-β-D-glucopyranose*
[149300-18-5]
$C_{13}H_{18}O_6$ 270.282
Syrup. $[\alpha]_D^{22}$ -66 (c, 1.13 in $CHCl_3$).

Leteux, C. *et al., Carbohydr. Res.*, 1993, **242**, 119 (*β-D-pyr-form, β-D-di-Ac, pmr*)

4-*C*-Allyl-1,6-anhydro-4-deoxyglucose A-98



$C_9H_{14}O_4$ 186.207

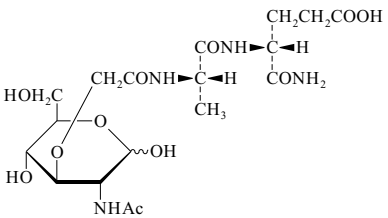
D-*form*

*2-Tosyl: 4-*C*-Allyl-1,6-anhydro-4-deoxy-2-*O*-tosyl-β-D-glucopyranose*
[74878-90-3]
$C_{16}H_{20}O_6S$ 340.396
Synthon. Cryst. Mp 70-71°. $[\alpha]_D^{25}$ -58 (c, 0.9 in $CHCl_3$).

Kelly, A.G. *et al., Chem. Comm.*, 1980, 228 (*synth*)
Kale, V.N. *et al., J.O.C.*, 1984, **49**, 1554 (*synth, ir, pmr, cmr*)

Almurtide, BAN, INN A-99

N^2-*[N-(N-Acetylmuramoyl)glycyl]-α-D-glutamine, 9CI.* N^2-*[(2-Acetamido-2-deoxy-D-glucopyranos-3-O-yl)acetyl-L-alanyl]-D-glutamic 1-amide. Nor MDP. Desmethyl muramyl dipeptide*
[61136-12-7]

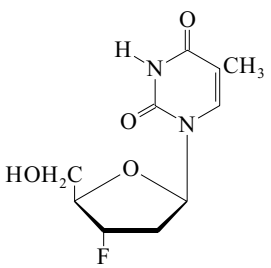


$C_{18}H_{30}N_4O_{11}$ 478.455
Immunostimulant, potentiates cytotoxicity of human monocytes. Cryst. (MeOH). Mp 234° dec. $[\alpha]_D^{28}$ +33 (c, 0.46 in H_2O).

Adam, A. *et al., Biochem. Biophys. Res. Commun.*, 1976, **72**, 339 (*pharmacol*)
Lefrancier, P. *et al., Int. J. Pept. Protein Res.*, 1977, **9**, 249 (*synth*)
Kusumoto, S. *et al., Bull. Chem. Soc. Jpn.*, 1979, **52**, 1665 (*synth*)
Utsugi, T. *et al., J. Immunol.*, 1986, **136**, 1117 (*pharmacol*)

Alovudine, INN, USAN A-100

3′-Deoxy-3′-fluorothymidine. CL 184824
[25526-93-6]



$C_{10}H_{13}FN_2O_4$ 244.222
Antiviral agent. Potent HIV inhibitor, use limited by haemotoxicity. Mp 178-180° (176-177°).

► Exp. and human haematopoietic effects. XP2073000

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 375C (*nmr*)
Herdewijn, P. *et al., J. Med. Chem.*, 1987, **30**, 1270-1278 (*synth, pmr, activity*)
Motawia, M.A. *et al., Annalen*, 1990, 1137-1139 (*synth, bibl*)
Kong, X.-B. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 808-818 (*activity*)
Sandstroem, E. *et al., Drugs*, 1993, **45**, 488-508 (*pharmacol, rev*)
Sundseth, R. *et al., Antimicrob. Agents Chemother.*, 1996, **40**, 331-335 (*pharmacol, tox*)
Rusconi, S. *et al., Curr. Opin. Invest. Drugs*, 2003, **4**, 219-223 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAR200

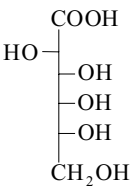
Alternan A-101

B-1355 dextran fraction S
[136510-13-9]
$[-\alpha\text{-D-Glc-}(1\rightarrow3)\text{-}\alpha\text{-D-Glc-}(1\rightarrow6)\text{-}]_n$
Contains alternating (1→3) and (1→6) linkages. Prod. by *Leuconostoc mesenteroides* NRRL B-1355.
$[\alpha]_D$ +220. Resistant to hydrol. by most enzymes.

Misaki, A. *et al., Carbohydr. Res.*, 1980, **84**, 273-285 (*isol, struct, bibl*)
Côté, G.L. *et al., Carbohydr. Res.*, 1982, **101**, 57-74 (*isol, struct*)
Côté, G.L. *et al., Carbohydr. Polym.*, 1992, **19**, 249-252 (*props*)
Biely, P. *et al., Eur. J. Biochem.*, 1994, **226**, 633-639 (*purifn, props*)

Altronic acid A-102

altro-*Hexonic acid*
[24871-35-0]



$C_6H_{12}O_7$ 196.157
For stereoisomers see Allonic acid, A-78, Galactonic acid, G-23, Gluconic acid, G-250, Gulonic acid, G-584, Idonic acid, I-4, Mannonic acid, M-36 and Talonic acid, T-5.

D-*form*

2,5-Anhydro, 3,4,6-tribenzoyl: 2,5-Anhydro-3,4,6-tri-O-benzoyl-D-altronic acid
[61407-83-8]
$C_{27}H_{22}O_9$ 490.465
Amorph. solid. $[\alpha]_D^{19}$ -494.6 (c, 1.9 in $CHCl_3$). λ_{max} 230 (log ϵ 4.36); 275 (log ϵ 3.37) (no solvent reported).

1,4-Lactone: D-1,4-Altronolactone
[28060-83-5]

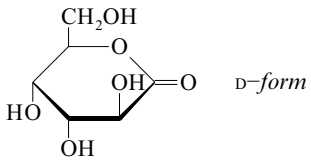
[83602-36-2]
$C_6H_{10}O_6$ 178.141

1,4-Lactone, tetrabenzoyl: 2,3,5,6-Tetra-O-benzoyl-D-1,4-altronolactone
$C_{34}H_{26}O_{10}$ 594.573
Needles ($CHCl_3$/EtOH). Mp 189-190°. $[\alpha]_D$ -69.8 (c, 4.04 in CH_2Cl_2).

Kohn, P. *et al., J.A.C.S.*, 1965, **87**, 5475-5480 (*1,4-lactone tetrabenzoyl*)
Arakawa, K. *et al., Chem. Lett.*, 1976, 1119 (*D-anhydro tribenzoyl*)
London, R.E. *et al., Org. Magn. Reson.*, 1981, **15**, 333 (*cmr, lactone*)

1,5-Altronolactone A-103

altrono-*1,5-Lactone.* altro-*1,5-Hexonolactone*



$C_6H_{10}O_6$ 178.141

D-*form*

*3,4-*O*-Isopropylidene: 3,4-*O*-Isopropylidene-D-altrono-1,5-lactone*
[137126-34-2]
$C_9H_{14}O_6$ 218.206
Cryst. Mp 120-122°. $[\alpha]_D^{20}$ +101.3 (c, 0.9 in EtOH).

*3,4-*O*-Cyclohexylidene: 3,4-*O*-Cyclohexylidene-D-altrono-1,5-lactone*
[150496-21-2]
$C_{12}H_{18}O_6$ 258.271
Cryst. solid. Mp 119-120°. $[\alpha]_D$ +80.4 (c, 1.02 in EtOH).

*3,4-Cyclohexylidene, 6-*O*-(*tert*-butyldimethylsilyl): 3,4-*O*-Isopropylidene-6-*O*-(*tert*-butyldimethylsilyl)-D-altrono-1,5-lactone*
[150496-22-3]
$C_{18}H_{32}O_6Si$ 372.533
Cryst. solid (MeOH aq.). Mp 74-75°. $[\alpha]_D^{20}$ +71.3 (c, 1.02 in $CHCl_3$).

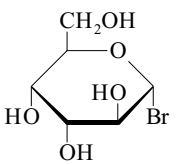
*3,4-*O*-Cyclohexylidene, 6-*O*-(*tert*-butyldimethylsilyl), 2-*O*-(trifluoromethanesulfonyl): 6-*O*-(*tert*-Butyldimethylsilyl)-3,4-*O*-cyclohexylidene-2-*O*-triflyl-D-altrono-1,5-lactone*
[145372-71-0]
$C_{19}H_{31}F_3O_8SSi$ 504.596
Cryst. solid (MeOH aq.). Mp 76-78°. $[\alpha]_D$ +19 (c, 1.1 in $CHCl_3$).

L-*form*

*2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-L-*altrono*-1,5-lactone*
[167904-07-6]
$C_{34}H_{34}O_6$ 538.639
$[\alpha]_D^{24}$ +14.3 (c, 1.01 in $CHCl_3$).

Bichard, C.J.F. *et al., Tetrahedron: Asymmetry*, 1991, **2**, 901 (*isopropylidene*)
Fairbanks, A.J. *et al., Tetrahedron*, 1995, **51**, 3881 (*synth, pmr, 3,4-cyclohexylidene derivs*)
Takahashi, H. *et al., J.A.C.S.*, 2000, **122**, 2995-3000 (*L-form, tetrabenzyl*)

Altropyranosyl bromide A-104



$C_6H_{11}BrO_5$ 243.054

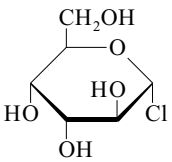
α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-altropyranosyl bromide*
[29907-26-4]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. Mp 107-108°. $[\alpha]_D^{20}$ +160 (c, 2.2 in $CHCl_3$).

de Pascual, J. *et al., An. Quim., Ser. B*, 1967, **63**, 221; *CA*, **67**, 82333f (*tetra-Ac*)

Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 2463; 1973, **106**, 3850 (*tetra-Ac*)

Altropyranosyl chloride A-105



$C_6H_{11}ClO_5$ 198.603

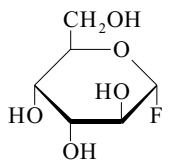
α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-altropyranosyl chloride*
[17081-03-7]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. ($CHCl_3$/Et_2O/2-methylbutane). Mp 102°. $[\alpha]_D^{20}$ +110 (c, 5 in $CHCl_3$).

Richtmyer, N.K. *et al., J.A.C.S.*, 1941, **63**, 1727 (*tetra-Ac*)

de Pascual, J. *et al., An. Quim., Ser. B*, 1967, **63**, 221; *CA*, **67**, 82333f (*tetra-Ac*)

Altropyranosyl fluoride A-106



$C_6H_{11}FO_5$ 182.148

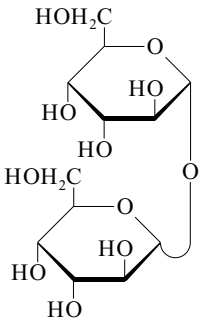
α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-altropyranosyl fluoride*
[51897-75-7]
$C_{14}H_{19}FO_9$ 350.297
Syrup. $[\alpha]_D^{20}$ +35.9 (c, 4.3 in $CHCl_3$).

Hall, L.D. *et al., Can. J. Chem.*, 1969, **49**, 1 (*tetra-Ac, pmr*)

Bock, K. *et al., Acta Chem. Scand.*, 1973, **27**, 2701; *Acta Chem. Scand., Ser. B*, 1975, **29**, 682 (*tetra-Ac, cmr, F-19 nmr*)

α-D-Altropyranosyl-α-D-altropyranoside A-107



$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide.

4,6:4′,6′-Di-O-*benzylidene, 2,2′-dibenzyl: 2*-O-*Benzyl-4,6*-O-*benzylidene-α-D-altropyranosyl 2*-O-*benzyl-4,6*-O-*benzylidene-α-D-altropyranoside*
$C_{40}H_{42}O_{11}$ 698.765
Cryst. (MeOH). Mp 197-199°. $[\alpha]_D$ +94.7 (c, 0.5 in $CHCl_3$).

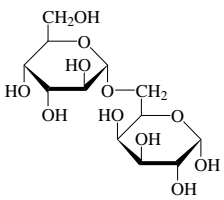
4,6:4′,6′-Di-O-*benzylidene, 2,2′-dibenzyl, 3,3′-ditriflyl:* [96530-47-1]
$C_{42}H_{40}F_6O_{15}S_2$ 962.891
Cryst. (EtOH). Mp 98-102°. $[\alpha]_D^{25}$ +80 (c, 0.5 in $CHCl_3$).

Baer, H.H. *et al., Carbohydr. Res.*, 1984, **128**, 165

Baer, H.H. *et al., Can. J. Chem.*, 1985, **63**, 440 (*triflyl*)

6-*O*-α-D-Altropyranosyl-D-galactose, 8CI A-108

[19940-03-5]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
$[\alpha]_D$ +100 (H_2O).

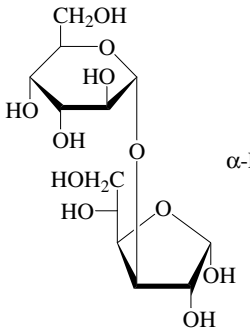
α-Pyranose-*form*

1,2:3,4-Di-O-*isopropylidene:* [19940-08-0]
$C_{18}H_{30}O_{11}$ 422.428
$[\alpha]_D$ +13 (EtOH).

Ferrier, R.J. *et al., Chem. Comm.*, 1968, 476

3-*O*-α-D-Altropyranosyl-D-glucose A-109

[57820-43-6]



α-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Amorph. powder. $[\alpha]_D^{20}$ +114 (c, 1.0 in H_2O).

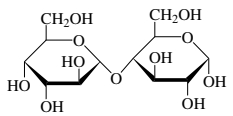
α-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene:* [57800-19-8]
$C_{18}H_{30}O_{11}$ 422.428
Amorph. powder. $[\alpha]_D^{20}$ +40.2 (c, 1.4 in $CHCl_3$).

David, S. *et al., J.C.S. Perkin 1*, 1976, 1836 (*synth*)

4-*O*-α-D-Altropyranosyl-D-glucose, 9CI A-110

[78215-52-8]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Amorph. hygroscopic powder + 1.5 H_2O. $[\alpha]_D^{23}$ +110.5 (c, 1.17 in H_2O).

α-Pyranose-*form*

Octa-Ac: [78215-51-7]
$C_{28}H_{38}O_{19}$ 678.597
Amorph. powder. $[\alpha]_D^{20}$ +93.5 (c, 0.62 in $CHCl_3$).

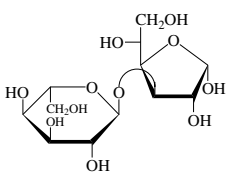
β-Pyranose-*form*

Octa-Ac: [78215-50-6]
Amorph. powder. $[\alpha]_D^{20}$ +51.5 (c, 0.74 in $CHCl_3$).

Mori, M. *et al., Chem. Pharm. Bull.*, 1981, **29**, 421 (*synth*)

3-*O*-α-L-Altropyranosyl-D-glucose A-111

[61914-39-4]



α-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299

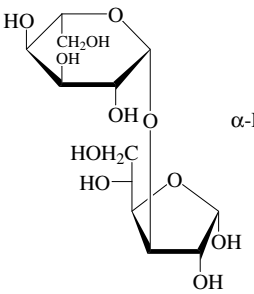
Reducing disaccharide. $[\alpha]_D^{20}$ -27.8 (c, 0.5 in H_2O).

α-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene:* [57800-16-5]
$C_{18}H_{30}O_{11}$ 422.428
$[\alpha]_D^{20}$ -108 (c, 0.6 in $CHCl_3$).
David, S. *et al., J.C.S. Perkin 1*, 1976, 1836 (*synth*)

3-*O*-β-L-Altropyranosyl-D-glucose, 9CI A-112

[61914-38-3]



α-Furanose-*form*

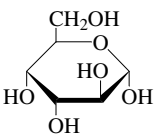
$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. $[\alpha]_D^{20}$ +42.3 (c, 0.6 in H_2O).

α-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene:* [57800-17-6]
$C_{18}H_{30}O_{11}$ 422.428
Amorph. powder. $[\alpha]_D^{20}$ +1.7 (c, 0.7 in CH_2Cl_2).
David, S. *et al., J.C.S. Perkin 1*, 1976, **136**, (*synth*)

Altrose, 9CI, 8CI A-113

[5987-68-8]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157
An aq. soln. at 22° contains 27% α-pyr, 43% β-pyr, 17% α-fur, 13% β-fur and 0.04% aldehyde. Crystallises in β-form.

D-*form* [1990-29-0]
Mp 103-105° Mp 141°. $[\alpha]_D^{20}$ -69 → +32.8 (c, 3.5 in H_2O).
Benzylphenylhydrazone: Mp 146-147°. $[\alpha]_D$ +22 (c, 0.37 in MeOH).
Di-Et dithioacetal: [4258-05-3]
$C_{10}H_{22}O_5S_2$ 286.413
Needles (MeOH/Et_2O). Mp 98-100°. $[\alpha]_D$ +11.7 (c, 2.42 in H_2O).
Dibenzyl dithioacetal:
Cryst. (EtOAc/petrol). Mp 119-120°. $[\alpha]_D^{24}$ +39.8 (c, 1.75 in Py).
2,3,4,5,6-Pentabenzyl: 2,3,4,5,6-Penta-O-*benzyl-D-altrose*
$C_{41}H_{42}O_6$ 630.779
$[\alpha]_D$ -13.9 (c, 0.83 in $CHCl_3$).
Phenylosazone: See Hexose phenylosazones, H-90

α-D-Pyranose-*form* [7282-80-6]
Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-α-D-altropyranose*
[4257-96-9]
$C_{16}H_{22}O_{11}$ 390.343
Mp 118-119°. $[\alpha]_D^{20}$ +63 ($CHCl_3$).
Me glycoside: See Methyl altroside, M-149

β-D-Pyranose-*form* [7283-10-5]
1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenealtrose, I-59
Me glycoside: See Methyl altroside, M-149

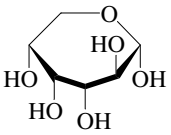
β-D-Furanose-*form* [40461-79-8]
1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenealtrose, I-59

L-*form* [1949-88-8]
Mp 107-109.5°. $[\alpha]_D^{20}$ -32.3 (H_2O).
Benzylphenylhydrazone: [15354-63-9]
Cryst. (EtOH aq.). Mp 146-147°. $[\alpha]_D$ -20 (c, 0.33 in MeOH).
2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-L-altrose*
[222416-57-1]
$C_{34}H_{36}O_6$ 540.655
$[\alpha]_D^{24}$ +8.64 (c, 1.1 in $CHCl_3$).

α-L-Furanose-*form*
Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-*benzyl-α-L-altrofuranoside*
[16895-96-8]
$C_{21}H_{26}O_6$ 374.433
Syrup. $[\alpha]_D^{20}$ -55.8 (c, 2.69 in $CHCl_3$).

β-L-Furanose-*form*
Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-*benzyl-β-L-altrofuranoside*
[16895-97-9]
$C_{21}H_{26}O_6$ 374.433
Amorph. powder. $[\alpha]_D^{20}$ +55.5 (c, 2.73 in $CHCl_3$).
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 301B (*nmr*)
Richtmyer, N.K. *et al., Adv. Carbohydr. Chem.*, 1945, **1**, 37 (*rev*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 107 (*D-form, synth*)
Humoller, F.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 114 (*L-form, synth*)
Williams, D.J. *et al., Can. J. Chem.*, 1967, **45**, 741 (*L-form, synth*)
Iwashige, T. *et al., Chem. Pharm. Bull.*, 1967, **15**, 132 (*α-L-Me fur dibenzyl, β-L-Me fur dibenzyl*)
Hough, L. *et al., Rodd's Chem. Carbon Compd. (2nd edn.)*, 1967, **1F**, 234 (*rev*)
Coxon, B. *et al., Carbohydr. Res.*, 1968, **8**, 379 (*D-di-Et dithioacetal*)
Sowa, W. *et al., Can. J. Chem.*, 1972, **50**, 1092 (*D-form, synth, dibenzyl dithioacetal*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 258 (*pmr*)
Ollis, J. *et al., Cryst. Struct. Commun.*, 1975, **4**, 215 (*cryst struct*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949 (*total synth, L-form*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equil*)
Matsumoto, K. *et al., Bull. Chem. Soc. Jpn.*, 1991, **64**, 2309 (*D-form, synth, cmr*)
Krülle, T. *et al., Carbohydr. Res.*, 1994, **254**, 141 (*pentabenzyl*)
Takahashi, H. *et al., J.A.C.S.*, 2000, **122**, 2995-3000 (*L-form, tetrabenzyl*)

Altroseptanose A-114

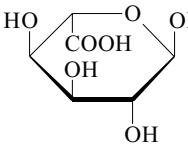


α-D-*form*

$C_6H_{12}O_6$ 180.157

β-L-*form*
1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-L-altroseptanose*
$C_{12}H_{20}O_6$ 260.286
Cryst. (C_6H_6/petrol). Mp 101-102°. $[\alpha]_D^{24}$ +38.7 (c, 0.6 in $CHCl_3$).
1,2:3,4-Di-O-*isopropylidene, 5-Ac: 5*-O-*Acetyl-1,2:3,4-di*-O-*isopropylidene-β-L-altroseptanose*
$C_{14}H_{22}O_7$ 302.324
Liq. $[\alpha]_D^{24}$ +23.9 (c, 1.2 in $CHCl_3$).
Driver, G.E. *et al., Carbohydr. Res.*, 2001, **334**, 81-89 (*1,2:3,4-diisopropylidene, 1,2:3,4-diisopropylidene 5-Ac*)

Altruronic acid, 9CI A-115



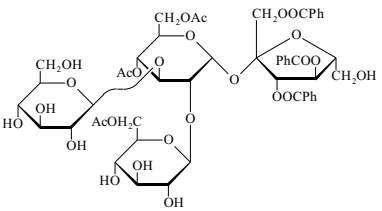
α–L–Pyranose–*form*

$C_6H_{10}O_7$ 194.141

L-*form* [39737-41-2]
Mp 124-127°. $[\alpha]_D^{18}$ +5.3 (c, 0.568 in H_2O).
[21675-51-4]
Fisher, F.G. *et al., Chem. Ber.*, 1959, **92**, 2184 (*synth*)
Carlsson, B. *et al., Acta Chem. Scand.*, 1969, **23**, 261 (*synth*)
Kjolberg, O. *et al., Acta Chem. Scand.*, 1972, **26**, 3245 (*synth*)
Bilik, V. *et al., Chem. Zvesti*, 1982, **36**, 831 (*synth*)
Zhan, D. *et al., Carbohydr. Res.*, 2001, **330**, 357-363 (*occur*)

Amarelloside, 9CI A-116

1,3,4-Tri-O-*benzoyl-β-D-fructofuranosyl 6*-O-*acetyl-β-D-glucopyranosyl-(1→2)-[β-D-glucopyranosyl-(1→3)]-4,6-di*-O-*acetyl-α-D-glucopyranoside, 9CI*
[126025-05-6]



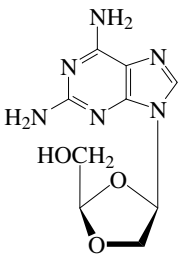
$C_{51}H_{60}O_{27}$ 1105.019
Not to be confused with Amareloside.
Isol. from the aerial parts of *Polygala amarella*. Plants of the genus Polygala

(widely distributed in America, Europe and Asia) are used in traditional medicine for treatment of parasitical diseases. Amorph. powder.
Mp 137-142° dec. $[\alpha]_D^{25}$ -12 (c, 0.1 in MeOH). Bitter taste.

Dubois, M.A. *et al., Phytochemistry*, 1989, **28**, 3355 (*isol, pmr, ms*)

Amdoxovir, INN, USAN A-117

*4-(2,6-Diamino-9*H*-purin-9-yl)-1,3-dioxolane-2-methanol, 9CI. 2,6-Diamino-9-[2-(hydroxymethyl)-1,3-dioxolan-4-yl]purine. DAPD*
[153611-19-9]



$C_9H_{12}N_6O_3$ 252.232

Strictly the name Amdoxovir refers to the (2*R*,4*R*)-form. Anti-HIV agent. Prodrug of 9-[2-(Hydroxymethyl)-1,3-dioxolan-4-yl]guanine, H-161.

(2*R*,4*R*)-*form* [145514-04-1]
Microneedles (MeOH). Mp 236-237°. $[\alpha]_D^{25}$ -71.44 (c, 0.25 in MeOH). Pharmacol. active isomer.

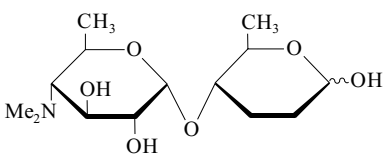
(2*S*,4*R*)-*form* [147060-53-5]
Solid (Et_2O). Mp 148-149°. $[\alpha]_D^{25}$ -24.24 (c, 0.26 in MeOH).

(2*S*,4*S*)-*form* [147060-52-4]
Cryst. (2-propanol). Mp 176-178°. $[\alpha]_D^{25}$ +29.4 (c, 0.32 in MeOH).

Kim, H.O. *et al., J. Med. Chem.*, 1993, **36**, 30-37; 519-528 (*synth, pharmacol*)
Pat. Coop. Treaty (WIPO), 1994, 94 09 793, (*Emory Univ.*); *CA*, **121**, 99776j (*synth, isomers, pharmacol*)
Gu, Z. *et al., Antimicrob. Agents Chemother.*, 1999, **43**, 2376-2382 (*activity*)
Furman, P.A. *et al., Antimicrob. Agents Chemother.*, 2001, **45**, 158-165 (*activity*)
Corbett, A.H. *et al., Curr. Opin. Invest. Drugs*, 2001, **2**, 348-353 (*rev*)

Amicetamine A-118

*4-O-(4,6-Dideoxy-4-dimethylamino-α-D-glucopyranosyl)-2,3,6-trideoxy-D-*erythro*-hexose*



$C_{14}H_{27}NO_6$ 305.37

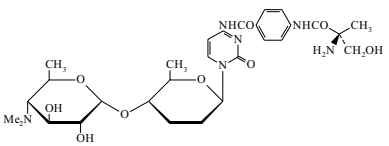
Obt. by mild acid hydrol. of Amicetin, A-119.
$[\alpha]_D^{26}$ +124 (c, 1.0 in 0.1*M* HCl). An earlier Stevens ref. (1962) gave the wrong struct.

Hydrochloride: Mp 168-171.5°.

Haskell, T.H. *et al., J.A.C.S.*, 1958, **80**, 747 (*isol*)
Stevens, C.L. *et al., J.A.C.S.*, 1963, **85**, 1552 (*struct*)
Hanessian, S. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1970, 139 (*rev*)

Amicetin A-119

Allomycin. Amicetin A. Sacromycin. Antibiotic 4009A. NSC 5340. U 4761
[17650-86-1]



$C_{29}H_{42}N_6O_9$ 618.686

Nucleoside antibiotic. Obt. from *Streptomyces vinaceus-drappus, Streptomyces fasciculatus* and *Streptomyces coeruleoaurantiacus*. Antitubercular and antileukaemic factor. Bacterial peptidyl transferase inhibitor. Needles (H_2O). Mp 165-169° (from cold H_2O) Mp 244-245° (from hot H_2O). $[\alpha]_D^{25}$ +98 (c, 0.8 in 0.05*N* HCl). $[\alpha]_D$ +116.5 (c, 0.5 in 1*N* HCl). pK_{a1} 1.1; pK_{a2} 7; pK_{a3} 7; pK_{a4} 10.4 (acidic). Log P -1.43 (uncertain value) (calc). λ_{max} 316 (ϵ 26800) (0.1*N* HCl) (Derep). λ_{max} 265 (sh) (ϵ 15000); 322 (ϵ 29000) (0.1*N* NaOH) (Derep). λ_{max} 265 (sh) (ϵ); 305 (ϵ 28700) (pH 7 phosphate buffer) (Derep).

▶ LD_{50} (mus, orl) 2000 mg/kg. LD_{50} (mus, ipr) 530 mg/kg. BE5950000

Hydrochloride (1:2):
Cryst. (MeOH/Me_2CO). Mp 190-192°. $[\alpha]_D^{24.5}$ +117 (c, 0.4 in EtOH).

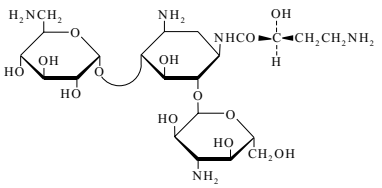
Tribenzoyl:
Cryst. (EtOH). Mp 177-179°.

N-*De-Me:* ***Bamicetin***
[43043-14-7]
$C_{28}H_{40}N_6O_9$ 604.659
From *Streptomyces plicatus*. Shows antibiotic props. Cryst. Sol. MeOH, EtOH, acids; fairly sol. EtOH, butanol, $CHCl_3$, H_2O; poorly sol. hexane.
Mp 240-241°. $[\alpha]_D^{26}$ +123 (c, 0.5 in 0.1*M* HCl). Log P -2.01 (uncertain value) (calc). λ_{max} 316 (ϵ 26800) (0.1*N* HCl) (Derep). λ_{max} 265 (sh) (ϵ 15000); 322 (ϵ 29000) (0.1*N* NaOH) (Derep). λ_{max} 265 (sh) (ϵ); 305 (ϵ 28700) (pH 7 phosphate buffer) (Derep). λ_{max} 302 (E1%/1cm 455) (pH 7 buffer) (Berdy). λ_{max} 314 (E1%/1cm 437) (HCl) (Berdy). λ_{max} 322 (E1%/1cm 525) (NaOH) (Berdy). λ_{max} 304 (E1%/1cm 400) (H_2O) (Berdy).

Hinman, J.W. *et al., J.A.C.S.*, 1953, **75**, 499; 5864; 5867
Stevens, C.L. *et al., J.A.C.S.*, 1963, **85**, 1552 (*struct*)
Hanessian, S. *et al., Tet. Lett.*, 1964, 2451 (*config*)
Smith, J.L. *et al., Acta Cryst. B*, 1981, **37**, 1095 (*cryst struct*)
Gauze, G.F. *et al., Antibiotiki (Moscow)*, 1982, **27**, 243; 403 (*isol, pharmacol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Gu, Z. *et al., J. Bacteriol.*, 1995, **177**, 3616 (*pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AHL000

Amikacin, BAN, INN, USAN A-120

*1-*N*-(4-Amino-2-hydroxybutyryl)kanamycin. Amikin. Akim. Biclin. Chemacin. Flexelite. Negasin. Antibiotic BB-K8. BB-K8. Many other names*
[37517-28-5]



$C_{22}H_{43}N_5O_{13}$ 585.607

Aminoglycoside antibiotic. Semisynthetically derived from Kanamycin A, K-3. Shows antimicrobial activity incl. synergism with third-generation cephalosporins. Cryst. + $6H_2O$ (MeOH/2-propanol). Sol. H_2O, MeOH; poorly sol. butanol, hexane. Mp 203-204° dec. $[\alpha]_D^{23}$ +99 (c, 1 in H_2O). Log P -9.09 (uncertain value) (calc).

▶ Main adverse effects are ototoxicity and nephrotoxicity. LD_{50} (mus, ipr) 750 mg/kg. Exp. fetotoxic and teratogenic effects; LD_{50} (mus, ivn) 340 mg/kg , LD_{50} (mus, ivn) 560 mg/kg. WK1955000

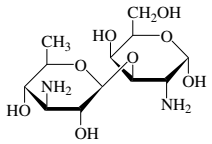
Sulfate (1:2): ***Amikacin sulfate, JAN, USAN***. *Biklin. Novamin*
[39831-55-5]
Amorph. Mp 220-230° dec. $[\alpha]_D^{22}$ +74 (H_2O).

▶ WK1961200

[40732-88-5, 50896-99-6, 50897-00-2, 56086-43-2, 75282-58-5]

Naito, T. *et al., J. Antibiot.*, 1972, **25**, 695; 1973, **26**, 297; 1974, **27**, 851 (*synth*)
Price, K.E. *et al., J. Antibiot.*, 1972, **25**, 709 (*props*)
Kerridge, A. *et al., Pharmacol. Biochem. Prop. Drug Subst.*, 1977, **1**, 125 (*rev, pharmacol*)
Horii, S. *et al., Carbohydr. Res.*, 1978, **60**, 275 (*synth*)
Cooper, A.B. *et al., J. Antibiot.*, 1978, **31**, 681 (*synth, use, pmr, cmr*)
Cron, M.J. *et al., Chem. Comm.*, 1979, 266 (*synth*)
Aminoglycosides, (Eds. Whelton, A. *et al*), M. Dekker, 1982, (*book*)
Jones, R.N. *et al., Antimicrob. Agents Chemother.*, 1982, **22**, 985 (*props*)
Monteleone, P.M. *et al., Anal. Profiles Drug Subst.*, 1983, **12**, 37 (*rev, synth, metab, anal*)
Textbook of Adverse Drug Reactions, 4th edn., (ed. Davies, D.M.), Oxford University Press, 1991, 578
Papp, E.A. *et al., J. Chromatogr.*, 1992, **574**, 93 (*hplc*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 114
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 9336 (*synonyms*)
Bau, R. *et al., Tetrahedron*, 1999, **55**, 14839-14846 (*cryst struct*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, APS750; APT000

2-Amino-3-*O*-(3-amino-3,6-dideoxy-β-D-glucopyranosyl)-2-deoxy-D-galactose A-121



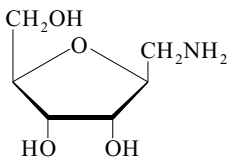
α-Pyranose-*form*

$C_{12}H_{24}N_2O_8$ 324.33

N,N′-*Di-Ac: 2-Acetamido-3*-O-*(3-acetamido-3,6-dideoxy-β-D-glucopyranosyl)-2-deoxy-D-galactopyranose*
[126247-65-2]
$C_{16}H_{28}N_2O_{10}$ 408.405
Isol. from hydrol. of *Vibrio parahaemolyticus* O12 lipopolysaccharide. Isol. as a mixt. of α- and β-Me glycosides after methylation.

Kondo, S. *et al., Carbohydr. Res.*, 1990, **196**, 191 (*isol*)

1-Amino-2,5-anhydro-1-deoxyallitol, 9CI A-122



$C_6H_{13}NO_4$ 163.173

D-*form*

N-*Ac: 1-Acetamido-2,5-anhydro-1-deoxy-D-allitol*
[73853-56-2]
$C_8H_{15}NO_5$ 205.21
Syrup.

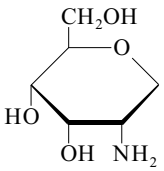
3,4,6-Tribenzoyl: 1-Amino-2,5-anhydro-3,4,6-tri-O-*benzoyl-1-deoxy-D-allitol*
[137272-74-3]
$C_{27}H_{25}NO_7$ 475.497
Pale yellow syrup.

3,4,6-Tribenzoyl, N-*Ac: 1-Acetamido-2,5-anhydro-3,4,6-tri*-O-*benzoyl-1-deoxy-D-allitol*
[137272-88-9]
$C_{29}H_{27}NO_8$ 517.534
Syrup.

3,4,6-Tribenzyl, N-*Ac: 1-Acetamido-2,5-anhydro-3,4,6-tri*-O-*benzyl-1-deoxy-D-allitol*
[68628-85-3]
$C_{29}H_{33}NO_5$ 475.583
Solid (Et_2O/cyclohexane). Mp 68°.

Acton, E.M. *et al., Nucleic Acid Chem.*, 1st edn., Wiley, New York, 1978, **1**, 475-480
Sauer, D.R. *et al., Synthesis*, 1991, 747 (*tribenzoyl, tribenzoyl N-Ac, tribenzyl N-Ac*)

2-Amino-1,5-anhydro-2-deoxyallitol A-123



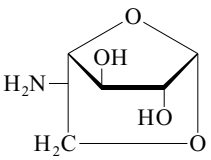
$C_6H_{13}NO_4$ 163.173

D-*form*

*4,6-*O-*Isopropylidene: 2-Amino-1,5-anhydro-2-deoxy-4,6-*O-*isopropylidene-D-allitol*
[106708-38-7]
$C_9H_{17}NO_4$ 203.238

Japan. Pat., 1986, 61 197 586; *CA*, **106**, 84992t (*isopropylidene*)

5-Amino-1,6-anhydro-5-deoxyaltrose A-124



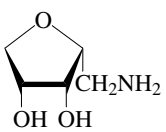
$C_6H_{11}NO_4$ 161.157

β-L-Furanose-*form* [75124-14-0]
Cryst. Mp 162°. $[\alpha]_D^{20}$ +20.6 (c, 1.4 in H_2O).

*2,3,5*N-*Tri-Ac: 5-Acetamido-2,3-di*-O-*acetyl-1,6-anhydro-5-deoxy-β-L-altrofuranose*
[75124-20-8]
$C_{12}H_{17}NO_7$ 287.269
Syrup. $[\alpha]_D^{20}$ +92.5 (c, 1.1 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1980, **113**, 2601 (*synth, β-L-form, tri-Ac, pmr*)

1-Amino-2,5-anhydro-1-deoxyarabinitol, 9CI A-125



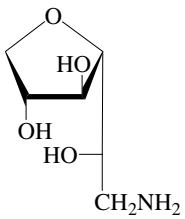
$C_5H_{11}NO_3$ 133.147

D-*form* [183507-02-0]

[183623-19-0, 188478-39-9]
Flakes (EtOH aq.) (as hydrobromide). Mp 128-129° (hydrobromide). $[\alpha]_D^{25}$ +8.6 (c, 1.25 in H_2O).

Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

1-Amino-3,6-anhydro-1-deoxygalactitol A-126



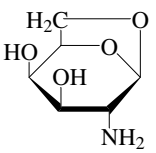
$C_6H_{13}NO_4$ 163.173

D-*form* [183506-99-2]
Cryst. Mp 140-141°. $[\alpha]_D^{25}$ +14 (c, 1.52 in H_2O).

Oxalate salt: [183623-21-4]
Cryst. Mp 142-144°. $[\alpha]_D^{25}$ +3.6 (c, 1.16 in H_2O).

Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

2-Amino-1,6-anhydro-2-deoxygalactose A-127



$C_6H_{11}NO_4$ 161.157

β-D-Pyranose-*form*
Cryst. (2-propanol). Mp 168-170°. $[\alpha]_D^{18}$ -27.5 (c, 0.64 in H_2O).

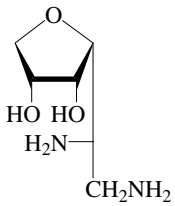
Hydrochloride:
Cryst. (MeOH aq.). Mp 215° dec. $[\alpha]_D^{22}$ -15.5 (c, 2.2 in H_2O).

N-*Ac: 2-Acetamido-1,6-anhydro-2-deoxy-β-D-galactopyranose*
[61074-38-2]
$C_8H_{13}NO_5$ 203.194
Cryst. (Et_2O/MeOH). Mp 205°. $[\alpha]_D$ -5.8 (c, 1 in MeOH).

Di-O-*Ac,* N-*Ac: 2-Acetamido-3,4-di*-O-*acetyl-1,6-anhydro-2-deoxy-β-D-galactopyranose*
[61074-19-9]
$C_{12}H_{17}NO_7$ 287.269
Cryst. (EtOH). Mp 213-215° (207°). $[\alpha]_D$ -76.5 (c, 0.5 in H_2O).

James, S.P. *et al., J.C.S.*, 1946, 625-628 (*synth, tri-Ac*)
Gent, P.A. *et al., J.C.S. Perkin 1*, 1976, 1395-1404 (*N-Ac, tri-Ac*)
Hawley, J. *et al., Eur. J. Org. Chem.*, 2002, 1925-1936 (*synth, pmr*)

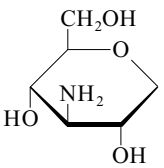
2-Amino-3,6-anhydro-2-deoxyglucitol, 9CI A-128



$C_6H_{13}NO_4$ 163.173

D-*form* [183294-09-9]
Mp 97-102°. $[\alpha]_D^{25}$ +4.5 (c, 1.64 in H_2O).
Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

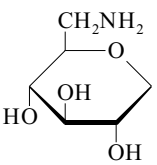
3-Amino-1,5-anhydro-3-deoxyglucitol A-129



$C_6H_{13}NO_4$ 163.173

D-*form* [114529-52-1] Shows anorexic activity in rats.
Syrup.
Fujimoto, K. *et al., Eur. J. Pharmacol.*, 1988, **147**, 477; *CA*, **108**, 215835k (*synth*)

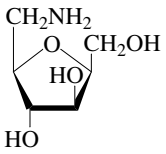
6-Amino-1,5-anhydro-6-deoxyglucitol A-130



$C_6H_{13}NO_4$ 163.173

D-*form* [102419-16-9]
Syrup.
2,3,4-Tri-Ac: [106445-60-7]
$C_{12}H_{19}NO_7$ 289.285
Syrup. $[\alpha]_D^{20}$ +9 (c, 1.6 in $CHCl_3$).
N-*Mesyl, 2,3,4-tri-Ac:* [106466-49-3]
$C_{13}H_{21}NO_9S$ 367.376
Cryst. (EtOH). Mp 148-150°. $[\alpha]_D^{20}$ +66 (c, 1.0 in MeOH).
N-*Tosyl, 2,3,4-tri-Ac:* [106445-61-8]
$C_{19}H_{25}NO_9S$ 443.474
Cryst. (EtOAc/Et_2O). Mp 124-126° dec. $[\alpha]_D^{20}$ +59 (c, 1.0 in $CHCl_3$).
Witczak, Z.J. *et al., Carbohydr. Res.*, 1986, **150**, 121 (*tri-Ac derivs*)
Fujimoto, K. *et al., Eur. J. Pharmacol.*, 1988, 147; 477 (*synth*)

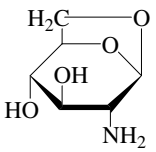
6-Amino-2,5-anhydro-6-deoxyglucitol A-131



$C_6H_{13}NO_4$ 163.173

D-*form* [571177-13-4]
$[\alpha]_D^{20}$ +25 (c, 1 in H_2O).
McCort, I. *et al., J.A.C.S.*, 2003, **125**, 2693-2700 (*synth, pmr, cmr*)

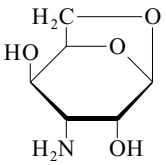
2-Amino-1,6-anhydro-2-deoxyglucose A-132



$C_6H_{11}NO_4$ 161.157

β-D-Pyranose-*form* [50447-93-3]
Cryst. (MeOH/Et_2O). Mp 176° dec. $[\alpha]_D$ -74 (c, 1 in H_2O).
Hydrochloride: [53437-21-1]
Solid + H_2O. Mp 120° (94-98°). $[\alpha]_D$ -46 (c, 0.83 in H_2O).
N-*Ac: 2-Acetamido-1,6-anhydro-2-deoxy-β-D-glucopyranose*
[37042-52-7]
$C_8H_{13}NO_5$ 203.194
Prisms (EtOH/Et_2O). Mp 190-191°. $[\alpha]_D^{20}$ -45.2 (c, 2.3 in H_2O).
O^3,N-*Di-Ac: 2-Acetamido-3*-O-*acetyl-1,6-anhydro-2-deoxy-β-D-glucopyranose*
[37042-50-5]
$C_{10}H_{15}NO_6$ 245.232
Cryst. (EtOAc/Et_2O). Mp 143-144°. $[\alpha]_D^{20}$ -82 (c, 1 in MeOH).
O^4,N-*Di-Ac: 2-Acetamido-4*-O-*acetyl-1,6-anhydro-2-deoxy-β-D-glucopyranose*
[50604-70-1]
$C_{10}H_{15}NO_6$ 245.232
Cryst. + H_2O (EtOAc/Et_2O). Mp 81°. $[\alpha]_D^{20}$ -68 (c, 1 in MeOH).
O,O,N-*Tri-Ac: 2-Acetamido-3,4-di*-O-*acetyl-1,6-anhydro-2-deoxy-β-D-glucopyranose*
[50604-71-2]
$C_{12}H_{17}NO_7$ 287.269
Cryst. (EtOH/Et_2O/petrol). Mp 137-139°. $[\alpha]_D$ -91 (c, 0.75 in $CHCl_3$).
Akagi, M. *et al., Chem. Pharm. Bull.*, 1962, **10**, 1039-1042 (*N-Ac, tri-Ac*)
Micheel, F. *et al., Chem. Ber.*, 1963, **96**, 1959-1964 (*synth*)
Schmitt, F. *et al., Carbohydr. Res.*, 1973, **29**, 99-111 (*N-Ac, N,3-di-Ac, N,4-di-Ac*)
Černy, M. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1391-1396 (*synth, tri-Ac*)
Oguri, S. *et al., Chem. Pharm. Bull.*, 1980, **28**, 3196-3202 (*N,3-di-Ac*)
Hawley, J. *et al., Eur. J. Org. Chem.*, 2002, 1925-1936 (*synth, pmr*)

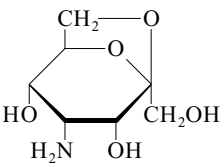
3-Amino-1,6-anhydro-3-deoxygulose A-133



$C_6H_{11}NO_4$ 161.157

β-D-Pyranose-*form*
N-*Ac: 3-Acetamido-1,6-anhydro-3-deoxy-β-D-gulopyranose*
[34296-92-9]
$C_8H_{13}NO_5$ 203.194
Mp 203-204° (201-203°). $[\alpha]_D$ +8.3 (c, 0.4 in MeOH).
Jeanloz, R.W. *et al., J.O.C.*, 1961, **26**, 537 (*N-Ac*)

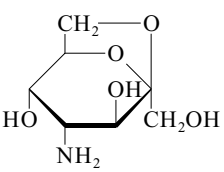
4-Amino-2,7-anhydro-4-deoxy-*allo*-heptulose A-134



$C_7H_{13}NO_5$ 191.183

β-D-Pyranose-*form*
Prismatic columns (AcOH aq.) (as hydrochloride). $[\alpha]_D^{23}$ -54.7 (c, 1 in H_2O) (hydrochloride).
*1,3,4*N,*5-Tetra-Ac: 4-Acetamido-1,3,5-tri*-O-*acetyl-2,7-anhydro-4-deoxy-β-D-*allo-*heptulopyranose*
$C_{15}H_{21}NO_9$ 359.332
Platelets ($CHCl_3$/Et_2O). Mp 213-214° dec. $[\alpha]_D^{22}$ -60.9 (c, 1 in $CHCl_3$).
Baer, H.H. *et al., J.O.C.*, 1963, **28**, 1287; 1964, **29**, 2014 (*synth, tetra-Ac, pmr*)

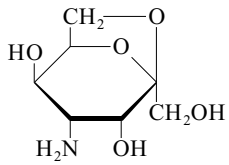
4-Amino-2,7-anhydro-4-deoxy-*altro*-heptulose A-135



$C_7H_{13}NO_5$ 191.183

β-D-Pyranose-*form*
Needles (AcOH aq.) (as hydrochloride). $[\alpha]_D^{23}$ -126 (c, 1 in H_2O).
*1,3,4*N,*5-Tetra-Ac: 4-Acetamido-1,3,5-tri*-O-*acetyl-2,7-anhydro-4-deoxy-β-D-*altro-*heptulopyranose*
$C_{15}H_{21}NO_9$ 359.332
Needles ($CHCl_3$/Et_2O). Mp 189-190°. $[\alpha]_D^{22}$ -145.5 (c, 1 in $CHCl_3$).
Baer, H.H. *et al., J.O.C.*, 1963, **28**, 1287; 1964, **29**, 2014 (*synth, tetra-Ac, pmr*)

4-Amino-2,7-anhydro-4-deoxy-*gulo*-heptulose A-136

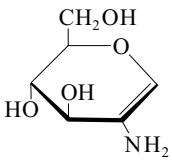


$C_7H_{13}NO_5$ 191.183

β-D-Pyranose-*form*
Prisms (AcOH aq.) (as hydrochloride). $[\alpha]_D^{23}$ +39 (c, 1 in H_2O).

*1,3,4*N,*5-Tetra-Ac: 4-Acetamido-1,3,5-tri*-O-*acetyl-2,7-anhydro-4-deoxy-β-D*-gulo-*heptulopyranose*
$C_{15}H_{21}NO_9$ 359.332
Prisms ($CHCl_3$/Et_2O). Mp 128-129°. $[\alpha]_D^{22}$ +43.7 (c, 1 in $CHCl_3$).
Baer, H.H. *et al., J.O.C.*, 1963, **28**, 1287; 1964, **29**, 2014 (*synth, tetra-Ac, pmr*)

2-Amino-1,5-anhydro-2-deoxy-*arabino*-hex-1-enitol A-137



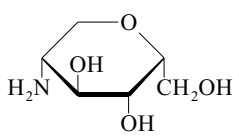
$C_6H_{11}NO_4$ 161.157

D-*form*
N-*Ac: 2-Acetamido-1,2-dideoxy-D*-arabino-*hex-1-enopyranose, 8CI*
[10293-59-1]
$C_8H_{13}NO_5$ 203.194
Cryst. (2-propanol). Mp 124-125°. $[\alpha]_D^{22}$ +64.7 (c, 0.34 in H_2O).

N,*3,4,6-Tetra-Ac: 2-Acetamido-3,4,6-tri*-O-*acetyl-1,2-dideoxy-D*-arabino-*hex-1-enopyranose*
[10293-60-4]
$C_{14}H_{19}NO_8$ 329.306
Syrup. $[\alpha]_D^{23}$ -24.6 (c, 0.5 in $CHCl_3$).

N,N,*3,4,6-Penta-Ac: 3,4,6-Tri*-O-*acetyl-2-(diacetylamino)-1,2-dideoxy-D*-arabino-*hex-1-enopyranose*
[10293-54-6]
$C_{16}H_{21}NO_9$ 371.343
Cryst. (EtOH or C_6H_6). Mp 95-96°. $[\alpha]_D^{20}$ -18.3 (c, 1.0 in $CHCl_3$).
Pravdić, N. *et al., J.O.C.*, 1967, **32**, 1806 (*synth*)
Pravdić, N. *et al., Carbohydr. Res.*, 1975, **45**, 302 (*D-penta-Ac*)
Kojic-Prodic, B. *et al., Acta Cryst. B*, 1978, **34**, 858 (*cryst struct*)

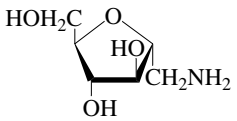
5-Amino-2,6-anhydro-5-deoxyiditol A-138



$C_6H_{13}NO_4$ 163.173

D-*form*
N-*Ac:*
$C_8H_{15}NO_5$ 205.21
Solid.
Pravdic, N. *et al., Croat. Chem. Acta*, 1969, **41**, 125; *CA*, **72**, 3692z (*synth*)

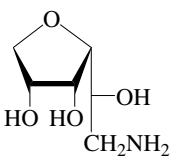
1-Amino-2,5-anhydro-1-deoxymannitol A-139



$C_6H_{13}NO_4$ 163.173

D-*form*
Oil. $[\alpha]_D^{25}$ +28.7 (c, 1 in MeOH).
N-*Benzyl:*
$C_{13}H_9NO_4$ 243.218
Oil. $[\alpha]_D^{25}$ +75.3 (c, 1.1 in MeOH).
N-*Ph:*
$C_{12}H_{17}NO_4$ 239.271
Hygroscopic pale yellow solid + $1H_2O$. $[\alpha]_D^{25}$ +35.6 (c, 1.15 in H_2O).
Claustre, S. *et al., Carbohydr. Res.*, 1999, **315**, 339-344 (*synth, pmr, cmr*)

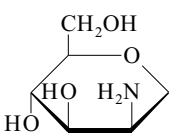
1-Amino-3,6-anhydro-1-deoxymannitol A-140



$C_6H_{13}NO_4$ 163.173

D-*form* [109445-43-4]
[114579-55-4]
Cryst. (as hydrochloride). Mp 165-167° (hydrochloride). $[\alpha]_D^{25}$ -10.7 (c, 1.57 in H_2O).
Skinner, G.S. *et al., J.A.C.S.*, 1958, **80**, 3788-3790 (*synth*)
Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

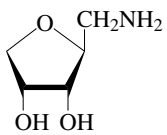
2-Amino-1,5-anhydro-2-deoxymannitol A-141



$C_6H_{13}NO_4$ 163.173

D-*form*
N-*Ac: 2-Acetamido-1,5-anhydro-2-deoxy-D-mannitol*
[10293-61-5]
$C_8H_{15}NO_5$ 205.21
Foam.
3,4-Dibenzyl, N-*Ac: 2-Acetamido-1,5-anhydro-3,4-di*-O-*benzyl-2-deoxy-D-mannitol*
[135186-28-6]
$C_{22}H_{27}NO_5$ 385.459
Foam.
3-Benzyl, 4,6-O-*benzylidene,* N-*Ac: 2-Acetamido-1,5-anhydro-3*-O-*benzyl-4,6*-O-*benzylidene-2-deoxy-D-mannitol*
[135186-24-2]
$C_{22}H_{25}NO_5$ 383.443
Cryst. (Et_2O/hexane). Mp 188°.
[135269-03-3]
Broxterman, H.J. *et al., J. Carbohydr. Chem.*, 1991, **10**, 215 (*N-Ac derivs, pmr, cmr*)

1-Amino-2,5-anhydro-1-deoxyribitol, 9CI A-142

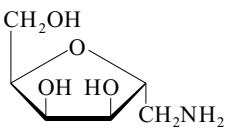


$C_5H_{11}NO_3$ 133.147

D-*form* [17019-59-9]
Long needles (EtOH aq.) (as hydrochloride). Mp 166-168° (hydrochloride). $[\alpha]_D^{25}$ -57.3 (c, 1.56 in H_2O). CAS no. refers to hydrochloride.
Cleophax, J. *et al., Bull. Soc. Chim. Fr.*, 1968, 1415-1417 (*synth*)
Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

1-Amino-2,5-anhydro-1-deoxytalitol A-143

6-Amino-2,5-anhydro-6-deoxyaltritol, 9CI

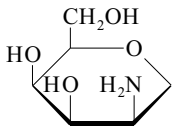


$C_6H_{13}NO_4$ 163.173

D-*form*
3,4-O-*Isopropylidene,* N,*6-di-Ac: 1-Acetamido-6*-O-*acetyl-2,5-anhydro-1-deoxy-3,4*-O-*isopropylidene-D-talitol*
[110911-40-5]
$C_{13}H_{21}NO_6$ 287.312
Cryst. (Et_2O/hexane). Mp 140°. $[\alpha]_D^{20}$ +128 (c, 1.2 in CH_2Cl_2).
3,4-O-*Isopropylidene,* N-*allyl,* N-*Ac:*
[110911-47-2]
$C_{14}H_{23}NO_5$ 285.339
Cryst. (Et_2O/hexane). Mp 73°.
3,4,6-Tri-Me, N-*Ac: 1-Acetamido-2,5-anhydro-1-deoxy-3,4,6-tri*-O-*methyl-D-talitol*
[110911-51-8]
$C_{11}H_{21}NO_5$ 247.291
Cryst. (MeOH/Et_2O). Mp 75°. $[\alpha]_D^{20}$ +16.5 (c, 1.5 in CH_2Cl_2).
Fleet, G.W.J. *et al., Tet. Lett.*, 1987, **28**, 3015

2-Amino-1,5-anhydro-2-deoxytalitol A-144

5-Amino-2,6-anhydro-5-deoxyaltritol, 8CI



$C_6H_{13}NO_4$ 163.173

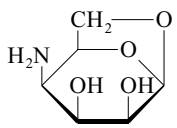
D-*form*

N-*Ac: 2-Acetamido-1,5-anhydro-2-deoxy-D-talitol*
[26302-25-0]
$C_8H_{15}NO_5$ 205.21
Cryst. Mp 110-112°. $[\alpha]_D$ -76.8 (H_2O).

*2*N*,3,4,6-Tetra-Ac: 2-Acetamido-3,4,6-tri-*O*-acetyl-1,5-anhydro-2-deoxy-D-talitol*
[26302-26-1]
$C_{14}H_{21}NO_8$ 331.322
Syrup. $[\alpha]_D$ -13.9 ($CHCl_3$).

Pravdic, N. *et al., Croat. Chem. Acta*, 1969, **41**, 125; *CA*, **72**, 3692z (*N-Ac, tetra-Ac*)

4-Amino-1,6-anhydro-4-deoxytalose A-145



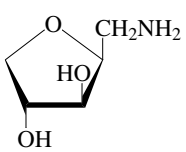
$C_6H_{11}NO_4$ 161.157

β-D-Pyranose-*form* [14166-59-7]
Mp 175-180° dec. (as hydrochloride). $[\alpha]_D^{20}$ -68 (c, 1.5 in H_2O). CAS no. refers to hydrochloride.

*2,3,4*N*-Tri-Ac: 4-Acetamido-2,3-di-*O*-acetyl-1,6-anhydro-4-deoxy-β-D-talopyranose*
[14166-61-1]
$C_{12}H_{17}NO_7$ 287.269
Cryst. Mp 146°.

Horton, D. *et al., Carbohydr. Res.*, 1966, **3**, 255 (*synth, tri-Ac*)

1-Amino-2,5-anhydro-1-deoxyxylitol, 9CI A-146



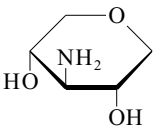
$C_5H_{11}NO_3$ 133.147

D-*form* [183507-03-1]

[183623-20-3] Mp 152-154° (as hemioxalate salt). $[\alpha]_D^{25}$ +1.4 (c, 1.43 in H_2O). Racemate previously known.

Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

3-Amino-1,5-anhydro-3-deoxyxylitol A-147



$C_5H_{11}NO_3$ 133.147
meso-.

N-*Benzyl,* N-*Me:* [38149-81-4]
$C_{13}H_{19}NO_3$ 237.298
Cryst. (H_2O). Mp 108-109°.

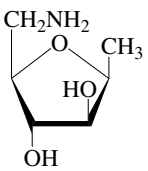
N-*Benzyl:* [38149-80-3]
$C_{12}H_{17}NO_3$ 223.271
Cryst. (Et_2O). Mp 152-153°.

N-*(3,4,5-Trimethoxybenzyl):*
$C_{15}H_{23}NO_6$ 313.35
Cryst. (MeOH/EtOAc). Mp 209°.

Ger. Pat., 1972, 2 105 355; *CA*, **77**, 126197c (*N-benzyl derivs*)

6-Amino-2,5-anhydro-1,6-di-deoxyglucitol, 9CI A-148

1-Amino-2,5-anhydro-1,6-dideoxygulitol



D-*form*

$C_6H_{13}NO_3$ 147.174

The *gluco*- name is preferred by the IUPAC special nomenclature rules for carbohydrates. The D- enantiomer of the the *gluco*- name corresponds to the L-enantiomer of the *gulo*- name.

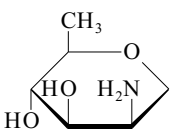
D-*form* [79698-09-2]
Syrup (as hydrochloride). $[\alpha]_D^{20}$ +46 (H_2O).

L-*form* [183507-00-8]
Sl. hygroscopic fine needles (as oxalate salt). Mp 143-145° (oxalate salt). $[\alpha]_D^{25}$ -41.1 (c, 1.72 in H_2O). CAS no. refers to oxalate salt.

N,N-*Di-Me: 2,5-Anhydro-1,6-dideoxy-1-dimethylamino-D-gulitol*
[183507-01-9]
$C_8H_{17}NO_3$ 175.227
Cryst. (EtOH) (as hydrochloride). Mp 154-155°. $[\alpha]_D^{25}$ -59.5 (c, 1.70 in H_2O). Enantiomer also known. CAS no refers to hydrochloride.

Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*synth, cmr*)

2-Amino-1,5-anhydro-2,6-di-deoxymannitol A-149



$C_6H_{13}NO_3$ 147.174

D-*form*

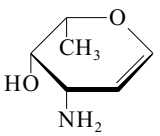
N-*Ac: 2-Acetamido-1,5-anhydro-2,6-di-deoxy-D-mannitol*
[135269-02-2]
$C_8H_{15}NO_4$ 189.211
Foam.

3,4-Dibenzyl, N-*Ac: 2-Acetamido-1,5-anhydro-3,4-di-*O*-benzyl-2,6-dideoxy-D-mannitol*
[135186-20-8]
$C_{22}H_{27}NO_4$ 369.46
Oil.

Broxterman, H.J.G. *et al., J. Carbohydr. Chem.*, 1991, **10**, 215 (*N-Ac derivs, pmr, cmr*)

4-Amino-2,6-anhydro-1,4,5-trideoxy-*arabino*-hex-5-enitol A-150

3-Amino-1,5-anhydro-2,3,6-trideoxy-lyxo-*hex-1-enitol*



$C_6H_{11}NO_2$ 129.158

L-*form*

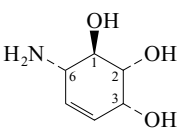
N-*(Trifluoroacetyl): 2,6-Anhydro-1,4,5-trideoxy-4-(trifluoroacetamido)-L-*arabino-*hex-5-enitol. 1,5-Anhydro-2,3,6-trideoxy-3-(trifluoroacetamido)-L-*lyxo-*hex-1-enitol*
[100164-94-1]
$C_8H_{10}F_3NO_3$ 225.167
Cryst. Mp 90-92°. $[\alpha]_D^{23}$ +11.3 (c, 0.12 in $CHCl_3$).

N-*Trifluoroacetyl,* O-*Ac: 1-*O*-Acetyl-2,6-anhydro-1,4,5-trideoxy-4-(trifluoroacetamido)-L-*arabino-*hex-5-enitol. 4-*O*-Acetyl-1,5-anhydro-2,3,6-trideoxy-3-trifluoroacetamido-L-*lyxo-*hex-1-enitol*
[73352-88-2]
$C_{10}H_{12}F_3NO_4$ 267.204
Key intermed. in synth. of daunosamine glycosides. Cryst. (Me_2CO/hexane). Mp 118-119°. $[\alpha]_D^{25}$ -98 (c, 1.0 in $CHCl_3$).

Dyong, I. *et al., Annalen*, 1986, 545 (*synth, ir, pmr, ms*)

Horton, D. *et al., Carbohydr. Res.*, 1989, **187**, 145 (*synth, pmr, cmr*)

6-Amino-4-cyclohexene-1,2,3-triol, 9CI A-152



(1*R*,2*R*,3*R*,6*S*)–*form*

$C_6H_{11}NO_3$ 145.158

(1*R*,2*R*,3*R*,6*S*)-*form*
Conduramine F4
[157752-14-2]
Mp 189°.

(1*R*,2*R*,3*S*,6*R*)-*form*
Conduramine F1
[79435-30-6]

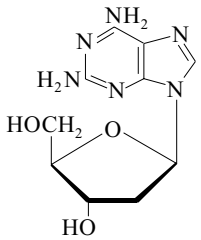
Hydrochloride: [78774-27-3]
Cryst. (MeOH/EtOH/H_2O 8:6:1). Mp 165°. $[\alpha]_D^{20}$ +39.5 (c, 0.22 in MeOH).

Tetra-Ac:
$C_{14}H_{19}NO_7$ 313.307
Mp 142°.

Kresze, G. *et al., Annalen*, 1981, 610 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3242 (*synth*)
Balci, M. *et al., Synth. Commun.*, 1994, **24**, 2103 (*synth, pmr, cmr, ir*)

2-Amino-2′-deoxyadenosine, 9CI A-153

2-Amino-9-(2-deoxy-β-D-ribofuranosyl)adenine
[4546-70-7]



$C_{10}H_{14}N_6O_3$ 266.259

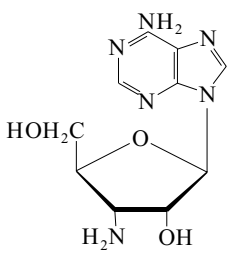
Nucleoside antibiotic. Prod. by certain aerobic bacteria in the presence of purine and *Actinomadura* sp. Shows antitumour activity. Needles (H_2O). Mp 146-148°. $[\alpha]_D^{26}$ -39.2 (c, 0.83 in H_2O).

► UO7523300

Fr. Pat., 1965, 1 402 909, (*Takeda*); *CA*, **63**, 17100 (*biosynth*)
Christensen, L.F. *et al., J. Med. Chem.*, 1972, **15**, 735 (*synth, pmr*)
Ueda, T. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2122 (*synth*)
Muraoka, M. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3449 (*synth*)
Japan. Pat., 1981, 81 42 595, (*Kitasato Inst*); *CA*, **95**, 22948 (*biosynth*)

3′-Amino-3′-deoxyadenosine, 9CI, 8CI A-154

9-(3-Amino-3-deoxy-β-D-ribofuranosyl)-adenine
[2504-55-4]



$C_{10}H_{14}N_6O_3$ 266.259

Nucleoside antibiotic. Obt. from the mould *Cordyceps militaris* and from *Helminthosporium* spp. culture filtrates. Antineoplastic agent. Sol. MeOH, DMF; fairly sol. EtOH; poorly sol. H_2O, butanol, hexane, THF.

Mp 275-278° dec. (265-267°). $[\alpha]_D^{25}$ -37 (c, 2.0 in 0.1*M* HCl) (c, 0.4 in DMF). Log P -2.83 (calc). λ_{max} 260 (ϵ 17300) (H_2O).

► LD_{50} (mus, ipr) 28 mg/kg.

Dipicrate: Mp 222-224° dec.

3′N-Ac: [21299-78-5]
$C_{12}H_{16}N_6O_4$ 308.296
Prod. by *Helminthosporium* sp. 215. Sol. MeOH, H_2O. λ_{max} 260 (ϵ 15600) (H_2O) (Berdy).

3′N-Me: [25787-43-3]
$C_{11}H_{16}N_6O_3$ 280.286
Cryst. (H_2O). Mp 247-250° dec. $[\alpha]_D^{19}$ -103 (c, 1.0 in 1*M* NaOH). λ_{max} 207 (ϵ 20400); 259 (ϵ 15100) (pH 7). λ_{max} 206 (ϵ 22100); 256 (ϵ 14800) (pH 1). λ_{max} 259 (ϵ 15200) (pH 13).

3′N-Me, 2′,3′,5′-tri-Ac: [25834-71-3]
$C_{17}H_{22}N_6O_6$ 406.397
Cryst. (EtOH). Mp 224-225.5°. $[\alpha]_D^{21}$ -15 (c, 1.0 in Py). λ_{max} 259 (ϵ 13900) (pH 7). λ_{max} 257 (ϵ 13800) (pH 1). λ_{max} 260 (ϵ 14200) (pH 13).

6,6-Di-N-Me: Puromycin aminonucleoside
[58-60-6]
$C_{12}H_{18}N_6O_3$ 294.313
Cryst. (MeOH or EtOH). Mp 215-216°. $[\alpha]_D^{25}$ -24.6 (c, 3.0 in H_2O).

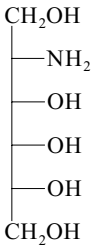
► Nephritis inducer.

3′,6,6-Tri-N-Me: [34522-43-5]
$C_{13}H_{20}N_6O_3$ 308.339
Cryst. (H_2O). Mp 216-218°. $[\alpha]_D^{23}$ -52 (c, 0.97 in EtOH). λ_{max} 214 (ϵ 17100); 275 (ϵ 19400) (pH 7). λ_{max} 208 (ϵ 20100); 267 (ϵ 19200) (pH 1). λ_{max} 275 (ϵ 19700) (pH 13).

3′,3′,6,6-Tetra-N-Me: [25787-42-2]
$C_{14}H_{22}N_6O_3$ 322.366
Cryst. (H_2O). Mp 184.5-186°. $[\alpha]_D^{22}$ -27 (c, 1.0 in H_2O). λ_{max} 214 (ϵ 16100); 275 (ϵ 19000) (pH 7). λ_{max} 209 (ϵ 17700); 267 (ϵ 18600) (pH 1). λ_{max} 276 (ϵ 700) (pH 13).

Baker, B.R. *et al., J.A.C.S.*, 1954, **76**, 2838; 1955, **77**, 1-7 (*di-N-Me*)
Gerber, N.N. *et al., J.O.C.*, 1962, **27**, 1731 (*isol*)
Guarino, A.J. *et al., Biochim. Biophys. Acta*, 1963, **68**, 317 (*isol*)
Suhadolnik, R.J. *et al., Biochim. Biophys. Acta*, 1969, **179**, 258-267; **182**, 316-321 (*isol, 3′-Ac*)
Lee, W.W. *et al., J.O.C.*, 1970, **35**, 3808 (*N-Me, tri-N-Me, tetra-N-Me, N-Me N,O-tri-Ac*)
Nagasawa, H.T. *et al., J. Med. Chem.*, 1972, **15**, 177 (*tri-N-Me, tetra-N-Me*)
Azhayev, A.V. *et al., Coll. Czech. Chem. Comm.*, 1978, **43**, 1520 (*synth, pmr*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1979, **112**, 2588 (*synth, pmr, cmr*)
Klimke, G. *et al., Z. Naturforsch., C*, 1979, **34**, 1075 (*conformn*)
Sheldrick, W.S. *et al., Acta Cryst. B*, 1980, **36**, 2328 (*cryst struct*)
Padmaja, N. *et al., Acta Cryst. C*, 1988, **44**, 2176-2178 (*cryst struct, di-N-Me*)
Samano, M.C. *et al., Tet. Lett.*, 1989, **30**, 2329 (*synth*)
Morr, M. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 1396 (*phosphates*)

2-Amino-2-deoxyallitol A-155



$C_6H_{15}NO_5$ 181.188

D-*form*

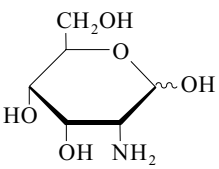
N-*Benzoyl: 2-Benzamido-2-deoxy-D-allitol*
[35477-70-4]
$C_{13}H_{19}NO_6$ 285.296
Cryst. (butanol). Mp 142-143°. $[\alpha]_D^{28}$ -7.5 (c, 1.0 in H_2O).

1,2N,3,4,5,6-Hexabenzoyl: 2-Benzamido-1,3,4,5,6-penta-O-benzoyl-D-allitol
[35477-71-5]
$C_{48}H_{39}NO_{11}$ 805.836
Cryst. (C_6H_6/petrol). Mp 178-180°. $[\alpha]_D^{28}$ -6.3 (c, 1.0 in $CHCl_3$).

Gent, P.A. *et al., J.C.S. Perkin 1*, 1972, 248 (*N-benzoyl, hexabenzoyl*)

2-Amino-2-deoxyallose, 9CI, 8CI A-156

Allosamine



$C_6H_{13}NO_5$ 179.172

D-*form* [14635-95-1]

Hydrochloride: [2861-47-4]
Mp 145-148° dec. $[\alpha]_D^{22}$ +26 → +17 (c, 1.0 in H_2O). $[\alpha]_D$ +1 → +16 (H_2O). Hygroscopic.

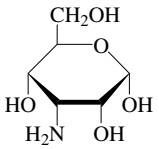
N-*(2-Hydroxy-1-naphthylidene):*
Yellow prisms (Py/MeOH/Me_2CO). Mp 199-200° dec. $[\alpha]_D^{25}$ -80 (c, 0.2 in MeOH).

N-*Ac: 2-Acetamido-2-deoxy-D-allose*
$C_8H_{15}NO_6$ 221.21
Cryst. (EtOH). Mp 207-208°. $[\alpha]_D^{24}$ -88 (c, 0.2 in H_2O).

N-*Benzoyl: 2-Benzamido-2-deoxy-D-allose*
$C_{13}H_{17}NO_6$ 283.28
Needles (EtOH aq.). Mp 201-204°. $[\alpha]_D$ -16 (c, 1 in H_2O).

Jeanloz, R.W. *et al., J.A.C.S.*, 1957, **79**, 2591 (*D-form, synth, D-N-Ac, N-2-hydroxy-1-naphthylidene*)
Kuhn, R. *et al., Annalen*, 1961, **641**, 143 (*D-form, synth*)
Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 212 (*synth*)
Gigg, R. *et al., J.C.S.*, 1965, 1351 (*D-form, D-N-benzoyl*)
Perry, M.B. *et al., Can. J. Chem.*, 1968, **46**, 2859 (*D-form, D-N-Ac*)
Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 25 (*D-N-Ac*)

3-Amino-3-deoxyallose A-157



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form*

Mp 209° dec. (as hydrochloride). $[\alpha]_D$ -28 (c, 0.6 in H_2O). Hydrochloride crystallises as β-D-furanose-form.

Di-Et dithioacetal, N-*Ac: 3-Acetamido-3-deoxy-D-allose diethyl dithioacetal*
$C_{12}H_{25}NO_5S_2$ 327.465
Cryst. (EtOH/petrol). Mp 160°. $[\alpha]_D$ -24.5 (c, 1.88 in MeOH).

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3-deoxy-α-D-allopyranoside
$C_7H_{15}NO_5$ 193.199
Extremely hygroscopic cryst. (EtOH/Et_2O) (as hydrochloride). $[\alpha]_D$ +103.3 (c, 2 in D_2O).

Me glycoside, N,*2,4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri-*O-*acetyl-3-deoxy-α-D-allopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Cryst. (EtOAc/hexane). Mp 114° Mp 127-128° (double Mp). $[\alpha]_D$ +83 (c, 1.3 in $CHCl_3$).

Me glycoside, 4,6-benzylidene, N-*Ac: Methyl 3-acetamido-4,6-*O-*benzylidene-3-deoxy-α-D-allopyranoside*
$C_{16}H_{21}NO_6$ 323.345
Glass.

Me glycoside, 4,6-benzylidene, N,*2-di-Ac: Methyl 3-acetamido-2-*O-*acetyl-4,6-*O-*benzylidene-3-deoxy-α-D-allopyranoside*
$C_{18}H_{23}NO_7$ 365.382
Noncryst. $[\alpha]_D^{24}$ +32.7 (c, 2.4 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3-deoxy-β-D-allopyranoside
$C_7H_{15}NO_5$ 193.199
Mp 199-200°.

Me glycoside, N,*2,4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri-*O-*acetyl-3-deoxy-β-D-allopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Cryst. (butanone). Mp 179°. $[\alpha]_D$ -41.2 (c, 2 in $CHCl_3$).

α-D-Furanose-*form*

*1,2:5,6-Diisopropylidene: 3-Amino-3-deoxy-1,2:5,6-di-*O-*isopropylidene-α-D-allofuranose*
$C_{12}H_{21}NO_5$ 259.302
Cryst. (Et_2O). Mp 92-93°.

1,2-Isopropylidene, N-*Ac: 3-Acetamido-3-deoxy-1,2-*O-*isopropylidene-α-D-allofuranose*
$C_{11}H_{19}NO_6$ 261.274
Needles (MeOH/Et_2O). Mp 158-159°. $[\alpha]_D$ +150 (c, 1.89 in H_2O).

1,2:5,6-Diisopropylidene, N-*Ac: 3-Acetamido-3-deoxy-1,2:5,6-di-*O-*isopropylidene-α-D-allofuranose*
$C_{14}H_{23}NO_6$ 301.339
Cryst. (Et_2O). Mp 132-133° (123-128°). $[\alpha]_D$ +71.8 (c, 2.12 in $CHCl_3$).

*1,2:5,6-Di-*O-*cyclohexylidene:*
$C_{18}H_{29}NO_5$ 339.431
Cryst. (Et_2O). Mp 140-144°. $[\alpha]_D^{14}$ +118 (c, 0.5 in $CHCl_3$).

*1,2:5,6-Di-*O-*cyclohexylidene,* N-*Ac: 3-Acetamido-1,2:5,6-di-*O-*cyclohexylidene-3-deoxy-α-D-allofuranose*
$C_{20}H_{31}NO_6$ 381.468
$[\alpha]_D^{12}$ +78 (c, 1.0 in MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-3-deoxy-α-D-allofuranoside*
$C_9H_{17}NO_6$ 235.236
Stout cryst. Obt. only in small yield, characterised spectroscopically.

β-D-Furanose-*form*

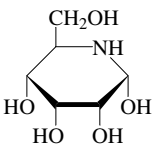
Me glycoside: Methyl 3-amino-3-deoxy-β-D-allofuranoside
$C_7H_{15}NO_5$ 193.199
Cryst. (EtOH). Mp 169-170°. $[\alpha]_D$ -45.2 (c, 1 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3-deoxy-β-D-allofuranoside*
$C_9H_{17}NO_6$ 235.236
Mp 102-103°. $[\alpha]_D$ -6.7 (c, 2 in H_2O).

Me glycoside, N,*2,4,6-tetra-Ac: Methyl 3-acetamido-2,5,6-tri-*O-*acetyl-3-deoxy-β-D-allofuranoside*
$C_{15}H_{23}NO_9$ 361.348
Syrup, cryst. on standing. Mp 89-90°. $[\alpha]_D$ +18.4 (c, 1.2 in $CHCl_3$).

Baker, B.R. *et al., J.O.C.*, 1954, **19**, 646 (α-D-*Me pyr benzylidene N-Ac, N,O-di-Ac*)
Lemieux, R.U. *et al., J.A.C.S.*, 1958, **80**, 4745 (*diisopropylidene*)
Coxon, B. *et al., J.C.S.*, 1961, 1643 (*N-Ac derivs*)
Onodera, K. *et al., Carbohydr. Res.*, 1972, **21**, 159 (*dicyclohexylidene derivs*)
Baer, H.H. *et al., Carbohydr. Res.*, 1991, **210**, 233 (*synth, pmr, cmr, derivs*)

5-Amino-5-deoxyallose A-158



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-Pyranose-*form*

Mp 104-106° (as bisulfite adduct). $[\alpha]_D^{20}$ -3.8 (c, 1.55 in H_2O).

α-D-Furanose-*form*

*1,2-*O-*Isopropylidene, 3,5*N-*dibenzoyl: 5-Benzamido-3-*O-*benzoyl-5-deoxy-1,2-*O-*isopropylidene-α-D-allofuranose*
[31718-81-7]
$C_{23}H_{25}NO_7$ 427.453
Mp 206-208°. $[\alpha]_D^{22}$ +100 (c, 1.2 in $CHCl_3$).

*1,2-*O-*Isopropylidene, 3,5*N-*dibenzoyl, 6-trityl: 5-Benzamido-3-*O-*benzoyl-5-deoxy-1,2-*O-*isopropylidene-6-*O-*trityl-α-D-allofuranose*
[31718-80-6]
$C_{42}H_{39}NO_7$ 669.773
Syrup. $[\alpha]_D^{22}$ +67 (c, 1.1 in $CHCl_3$).

β-D-Furanose-*form*

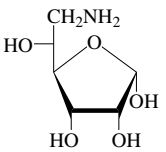
*Allyl glycoside, 2,3-*O-*isopropylidene: Allyl 5-amino-5-deoxy-2,3-*O-*isopropylidene-β-D-allofuranoside*
[123168-75-2]
$C_{12}H_{21}NO_5$ 259.302
Solid. Mp 83.5-84.5°. $[\alpha]_D^{20}$ -46.5 (c, 0.72 in CH_2Cl_2).

[123149-59-7, 123237-48-9]

Naka, T. *et al., Tet. Lett.*, 1971, 95 (α-D-*fur deriv, pmr*)
Auberson, Y. *et al., Angew. Chem., Int. Ed.*, 1989, **28**, 1498 (*synth, allyl glycoside, ir*)

6-Amino-6-deoxyallose A-159

[119181-88-3]



α-D-Furanose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [24384-96-1]

Inhibitor of glycon-binding site of human acid β-glucosidase from spleens of Gaucher disease patients. Mp 145-147° dec. (as hydrochloride). $[\alpha]_D^{20}$ +7.8 → +17.7 (c, 0.99 in H_2O). CAS no. refers to hydrochloride.

Diethyl dithioacetal:
$C_{10}H_{23}NO_4S_2$ 285.428
Hygroscopic foam (as hydrochloride). CAS no. refers to hydrochloride.

α-D-Furanose-*form*

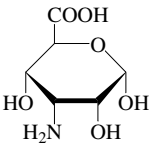
*1,2-Isopropylidene: 6-Amino-6-deoxy-1,2-*O-*isopropylidene-α-D-allofuranose*
[24384-94-9]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOAc). Mp 150-152°. $[\alpha]_D^{21}$ +39.03 (c, 0.8 in H_2O).

1,2-Isopropylidene, hydrochloride: [24384-95-0]
Cryst. (2-propanol). Mp 165-168°. $[\alpha]_D^{24}$ +49.6 (c, 1.1 in H_2O).

*1,2-Isopropylidene, 3-tosyl: 6-Amino-6-deoxy-1,2-*O-*isopropylidene-3-*O-*tosyl-α-D-allofuranose*
[33639-96-2]
$C_{16}H_{23}NO_7S$ 373.426
Cryst. (EtOAc/Et_2O). Mp 173° dec. $[\alpha]_D^{20}$ +88 (c, 1.0 in MeOH).

Jary, J. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 1452 (*synth,* D-*form,* α-D-*fur isopropylidene*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1971, **18**, 157 (α-D-*fur isopropylidene deriv*)
Osiecki-Newman, K. *et al., Enzyme*, 1988, **40**, 173; *CA*, 1989, **110**, 91215c (*use*)

3-Amino-3-deoxyalluronic acid A-160



α-D-Pyranose-*form*

$C_6H_{11}NO_6$ 193.156

D-*form*

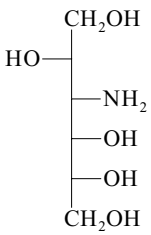
Me ester: Methyl 3-amino-3-deoxy-D-alluronate
$C_7H_{13}NO_6$ 207.183
Solid. Mp 138-153°. $[\alpha]_D$ +35 (10 min.) → +27 (60 min.). Obt. as a mixt. of α-Pyr (20%), β-Pyr (50%), α-Fur (10%) and β-Fur (20%) isomers.

[144368-71-8, 144368-72-9, 144368-73-0, 144368-74-1]

Gomtsyan, A. *et al., Carbohydr. Res.*, 1992, **232**, 341

3-Amino-3-deoxyaltritol, 9CI A-161

4-Amino-4-deoxytalitol



$C_6H_{15}NO_5$ 181.188

D-*form*

*1,2:5,6-Diisopropylidene: 3-Amino-3-deoxy-1,2:5,6-di-*O*-isopropylidene-D-altritol*
[29709-67-9]
$C_{12}H_{23}NO_5$ 261.317
Cryst. (EtOAc/petrol). Mp 115-115.5°. $[\alpha]_D^{24}$ +2.1 (c, 1.0 in $CHCl_3$).

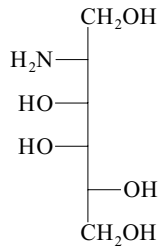
*1,2:5,6-Di-*O*-isopropylidene, 3*N*,4-dimesyl:*
[29919-83-3]
$C_{14}H_{27}NO_9S_2$ 417.501
Cryst. (EtOH). Mp 112-114°. $[\alpha]_D^{21}$ +24 (c, 1.0 in $CHCl_3$).

Barford, A.D. *et al., Carbohydr. Res.*, 1970, **14**, 231 (*diisopropylidene deriv*)

Kim, B.M. *et al., Tet. Lett.*, 1989, **30**, 655 (*diisopropylidene*)

5-Amino-5-deoxyaltritol, 9CI A-162

2-Amino-2-deoxytalitol
[82768-53-4]



D−*form*

$C_6H_{15}NO_5$ 181.188

The name 5-Amino-5-deoxyaltritol is preferred acc. to the IUPAC special rules for carbohydrates.

D-*form* [91685-30-2]

N-*Ac:* [20874-63-9]
$C_8H_{17}NO_6$ 223.225
Cryst. (MeOH). Mp 153°. $[\alpha]_D$ +33 (c, 0.8 in H_2O).

L-*form*

N-*Ac:* [22430-19-9]
Needles (MeOH/Et_2O). Mp 143-146°. $[\alpha]_D$ -39.8 (c, 0.98 in H_2O).

*4,5-Dibenzyl, 1,3-*O*-benzylidene, 2*N*,6-di-Ac:* [22435-20-7]
$C_{31}H_{35}NO_7$ 533.62
Needles (C_6H_6/petrol). Mp 100°. $[\alpha]_D^{22}$ +34.7 (c, 0.9 on $CHCl_3$) (lit. gives a temp. range).

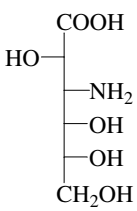
1,4,5-Tribenzyl:
$C_{27}H_{33}NO_5$ 451.561
Cryst. (petrol). Mp 74-76°. $[\alpha]_D$ -5.9 (c, 1.0 in $CHCl_3$).

Perry, M.B. *et al., Can. J. Chem.*, 1968, **46**, 2481 (*D-N-Ac*)

Gigg, R. *et al., J.C.S.(C)*, 1968, 2661 (*L-N-Ac, L-dibenzyl deriv, L-tribenzyl*)

Kontrohr, T. *et al., J. Chromatogr.*, 1984, **291**, 119 (*glc*)

3-Amino-3-deoxyaltronic acid A-163



$C_6H_{13}NO_6$ 195.172

D-*form*

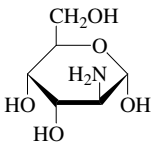
*2,4,5,6-Tetra-Me: 3-Amino-3-deoxy-2,4,5,6-tetra-*O*-methyl-D-altronic acid*
[312714-58-2]
$C_{10}H_{21}NO_6$ 251.279
Mp 163-164° dec. (as hydrochloride). $[\alpha]_D$ -40 (c, 0.87 in MeOH) (hydrochloride). CAS no. refers to hydrochloride.

2,4,5,6-Tetra-Me, N*-Ac, Me ester:*
[312714-56-0]
$C_{13}H_{25}NO_7$ 307.343
Oil. $[\alpha]_D$ +17 (c, 1.63 in MeOH).

de García-Martín, M. *et al., J. Carbohydr. Chem.*, 2000, **19**, 805-815 (*synth, cmr*)

2-Amino-2-deoxyaltrose A-164

Altrosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [14307-09-6]

Hydrochloride: [20880-44-8]
Syrup. $[\alpha]_D$ -17.3 (c, 2.2 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-altrose*
[20880-43-7]
$C_8H_{15}NO_6$ 221.21
Cryst. (EtOH). Mp 99-100°. $[\alpha]_D$ -2.4 → +5 (c, 1.0 in H_2O).

α-D-Pyranose-*form*

Me glycoside, N*-Ac: Methyl 2-acetamido-2-deoxy-α-D-altropyranoside*
[17327-09-2]
$C_9H_{17}NO_6$ 235.236
Cryst. (EtOH/Et_2O). Mp 132°. $[\alpha]_D^{17}$ +80.1 (c, 1.1 in H_2O).

Me glycoside, 6-tosyl, N*-Ac: Methyl 2-acetamido-2-deoxy-6-*O*-tosyl-α-D-altropyranoside*
[17495-04-4]
$C_{16}H_{23}NO_8S$ 389.426
Mp 170° dec. $[\alpha]_D^{21}$ +57.9 (c, 0.35 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-amino-4,6-*O*-benzylidene-2-deoxy-α-D-altropyranoside*
[6038-60-4]
$C_{14}H_{19}NO_5$ 281.308
Mp 168-169°. $[\alpha]_D^{21}$ +110.5 (c, 1.4 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene,* N*-Ac: Methyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-α-D-altropyranoside*
[17327-07-0]
$C_{16}H_{21}NO_6$ 323.345
Mp 193-194°. $[\alpha]_D^{21}$ +72.5 (c, 0.7 in $CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-amino-4,6-*O*-benzylidene-2-deoxy-β-D-altropyranoside*
[25605-61-2]
$C_{14}H_{19}NO_5$ 281.308
Cryst. (EtOH/petrol). Mp 188-190°. $[\alpha]_D^{22}$ -36.6 (c, 0.45 in $CHCl_3$).

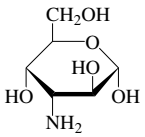
Horton, D. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 159 (*rev, derivs*)

Zobáčová, A. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 3560 (*α-D-Me pyr N-Ac benzylidene, α-D-Me pyr-N-Ac, α-D-Me pyr N-Ac tosyl*)

Perry, M.B. *et al., Can. J. Chem.*, 1968, **46**, 2859 (*D-form, D-N-Ac*)

Guthrie, R.D. *et al., J.C.S.(C)*, 1970, 1961 (*β-D-Me pyr benzylidene*)
Richardson, A.C. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 218 (*α-D-Me pyr benzylidene*)
Jarý, J. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 238 (*α-D-Me pyr N-Ac benzylidene*)
Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 25 (*D-N-Ac*)

3-Amino-3-deoxyaltrose A-165



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [176779-91-2]
Glassy solid. $[\alpha]_D^{20}$ +11.7 (c, 0.5 in MeOH).

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3-deoxy-α-D-altropyranoside
[55274-73-2]
$C_7H_{15}NO_5$ 193.199
Mp 208° (188°) dec. (hydrochloride). $[\alpha]_D^{25}$ +91 (c, 1.1 in H_2O). CAS no. refers to hydrochloride.

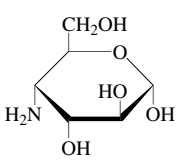
*Me glycoside, 2,3*N*,4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri*-O-*acetyl-3-deoxy-α-D-altropyranoside*
[72523-30-9]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (EtOAc/$CHCl_3$). Mp 177° (171-172°). $[\alpha]_D$ +42.2 ($CHCl_3$).

β-D-Pyranose-*form*

Benzyl glycoside: Benzyl 3-amino-3-deoxy-β-D-altropyranoside
$C_{13}H_{19}NO_5$ 269.297
Cryst. (EtOH) (as hydrochloride). Mp 200-250° dec. (hydrochloride). $[\alpha]_D^{25}$ -72 (c, 0.5 in D_2O).

Baker, B.R. *et al., J.O.C.*, 1954, **19**, 646 (*α-Me pyr tetra-Ac*)
Baer, H.H. *et al., Carbohydr. Res.*, 1979, **76**, 141 (*α-Me pyr*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 605 (*α-Me pyr deriv*)
Matsumoto, K. *et al., Carbohydr. Res.*, 1995, **267**, 187-201 (*synth, N-Ac*)
Spanu, P. *et al., Tetrahedron*, 1996, **52**, 4829-4838 (*synth, pmr, cmr*)

4-Amino-4-deoxyaltrose, 9CI A-166



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-Pyranose-*form*

N-*Ac: 4-Acetamido-4-deoxy-D-altropyranose*

[163356-97-6]
$C_8H_{15}NO_6$ 221.21
$[\alpha]_D^{23}$ +54.1 (c, 1.28 in H_2O). 2:1 Mixt. of anomers.

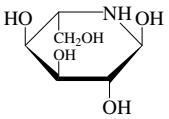
*1,2,3,4-*N*,6-Penta-Ac: 4-Acetamido-1,2,3,6-tetra-*O*-acetyl-4-deoxy-D-altropyranose*

[163438-29-7, 163438-30-0]
$C_{16}H_{23}NO_{10}$ 389.358
Amorph. solid. $[\alpha]_D^{28}$ +62.4 (c, 1.13 in $CHCl_3$). 2:1 Mixt. of anomers.

Matsumoto, K. *et al., Carbohydr. Res.*, 1995, **267**, 187-201 (*synth, pmr, cmr*)

5-Amino-5-deoxyaltrose A-167

altro-*Nojirimycin*



α-L-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

L-*form*
Syrup.

α-L-Pyranose-*form* [109718-64-1]
Mp 165-170° dec. (as H_2SO_3 adduct).

β-L-Furanose-*form* [109718-65-2]

*6-Trityl, 1,2-isopropylidene: 5-Amino-5-deoxy-1,2-*O*-isopropylidene-6-*O*-trityl-β-L-altrofuranose*
$C_{28}H_{31}NO_5$ 461.557
Pale yellow viscous oil. $[\alpha]_D^{20}$ -29 ($CHCl_3$).

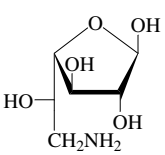
β-DL-Pyranose-*form*

Me glycoside, N*-benzoyl: Methyl 5-benzamido-5-deoxy-β-DL-altropyranoside*
[69538-38-1]
$C_{14}H_{19}NO_6$ 297.307
Prisms (2-propanol). Mp 190-192°.

*Me glycoside, 3,4-*O*-isopropylidene,* N*-benzoyl, 2,6-di-Ac: Methyl 2,6-di-*O*-acetyl-5-benzamido-5-deoxy-3,4-*O*-isopropylidene-β-DL-altropyranoside*
[69538-41-6]
$C_{21}H_{27}NO_8$ 421.446
Prisms (2-propanol/hexane). Mp 146.5-147°.

Natsume, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 3364 (*β-DL-Me pyr derivs, pmr*)
Legler, G. *et al., Carbohydr. Res.*, 1986, **155**, 119 (*β-L-fur isopropylidene deriv, pmr*)

6-Amino-6-deoxyaltrose A-168



α-L-Furanose-*form*

$C_6H_{13}NO_5$ 179.172

L-*form*

1-Dibenzyl dithioacetal, N*-benzoyl:* [23567-73-9]
$C_{27}H_{31}NO_5S_2$ 513.678
Needles (EtOH). Mp 156-156.5°.

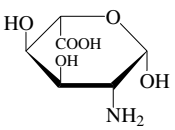
α-L-Furanose-*form*

Me glycoside, 2,3-dibenzyl, N*-Ac: Methyl 6-acetamido-2,3-di-*O*-benzyl-6-deoxy-α-L-altrofuranose*
[23567-78-4]
$C_{23}H_{29}NO_6$ 415.485
Syrup.

Saeki, H. *et al., Chem. Pharm. Bull.*, 1968, **16**, 2410 (*L-dibenzyldithioacetal deriv, α-L-fur N-Ac deriv*)

2-Amino-2-deoxyaltruronic acid A-169

Altrosaminuronic acid



β-L-Pyranose-*form*

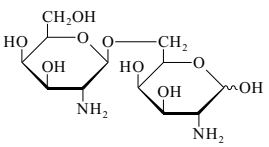
$C_6H_{11}NO_6$ 193.156

L-*form* [64838-34-2]
Constit. of the lipopolysaccharide of *Shigella sonnei*.

Kontrohr, T. *et al., Carbohydr. Res.*, 1977, **58**, 498

2-Amino-2-deoxy-6-*O*-(2-amino-2-deoxy-β-D-galactopyranosyl)-D-galactose A-170

2-Amino-2-deoxy-β-D-galactopyranosyl-(1→6)-2-amino-2-deoxy-D-galactose. 6-β-D-Galactosaminylgalactosamine



Pyranose–*form*

$C_{12}H_{24}N_2O_9$ 340.33

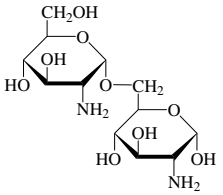
N,N′*-Di-Ac: 2-Acetamido-2-deoxy-6-*O*-(2-acetamido-2-deoxy-β-D-galactopyranosyl)-D-galactose. 6-*N*-Acetylgalactosaminyl-*N*-acetylgalactosamine*
[56981-05-6]
Mp 182°. $[\alpha]_D^{25}$ +46 (c, 2.05 in H_2O).

[134108-94-4]

King, R.R. *et al., Can. J. Chem.*, 1975, **53**, 1970
Colson, P. *et al., Carbohydr. Res.*, 1976, **47**, 1 (*cmr*)
Larsson, P.O. *et al., Methods Enzymol.*, 1987, 136
Defaye, J. *et al., Carbohydr. Res.*, 1989, **186**, 177 (*synth*)

2-Amino-2-deoxy-6-*O*-(2-amino-2-deoxy-α-D-glucopyranosyl)-D-glucose A-171

*2-Amino-6-*O*-(2-amino-2-deoxy-α-D-glucopyranosyl)-D-glucose. 2-Amino-2-deoxy-α-D-glucopyranosyl-(1→6)-2-amino-2-deoxy-D-glucopyranose. 6-α-D-Glucosaminyl-D-glucosamine*



α-Pyranose-*form*

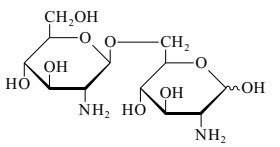
$C_{12}H_{24}N_2O_9$ 340.33

N,N′-*Di-Ac: 2-Acetamido-2-deoxy-6-*O*-(2-acetamido-2-deoxy-α-D-glucopyranosyl)-D-glucose. 6-α-*N*-Acetylglucosaminyl-*N*-acetylglucosamine*
$C_{16}H_{28}N_2O_{11}$ 424.404
Mp 215°. $[\alpha]_D$ +125 (H_2O).

Foster, A.B. *et al., J.C.S.*, 1958, 1890 (*synth*)

2-Amino-2-deoxy-6-*O*-(2-amino-2-deoxy-β-D-glucopyranosyl)-D-glucose A-172

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→6)-2-amino-2-deoxy-β-D-glucopyranose. 6-β-D-Glucosaminylglucosamine



Pyranose–*form*

$C_{12}H_{24}N_2O_9$ 340.33

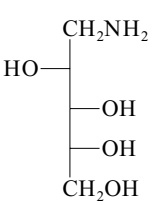
N,N′-*Di-Ac: 2-Acetamido-2-deoxy-6-*O*-(2-acetamido-2-deoxy-β-D-glucopyranosyl)-D-glucose. 6-β-*N*-Acetylglucosaminyl-*N*-acetylglucosamine*
[35385-05-8]
$C_{16}H_{28}N_2O_{11}$ 424.404
Mp 200° (163°) dec. $[\alpha]_D$ +8 → +1.2 (H_2O). $[\alpha]_D^{25}$ +0.7 (c, 4.56 in H_2O).

[33289-65-5, 133773-83-8, 134108-93-3]

Foster, A.B. *et al., J.C.S.*, 1958, 1890 (*synth*)
Wang, Y. *et al., Acta Chim. Sin. (Engl. edn.)*, 1959, **25**, 50; *CA*, 1960, **54**, 6561 (*synth*)
Bundle, D. *et al., Carbohydr. Res.*, 1972, **21**, 211
Defaye, J. *et al., Carbohydr. Res.*, 1989, **186**, 177 (*synth, pmr, cmr*)

1-Amino-1-deoxyarabinitol A-173

5-Amino-5-deoxylyxitol



D–*form*

$C_5H_{13}NO_4$ 151.162

D-*form* [69686-08-4]

Hydrochloride: [69686-09-5]
Cryst. (MeOH aq.). Mp 136.5-137.5° (135-135.5°).

N-*Ac:* [92283-19-7]
$C_7H_{15}NO_5$ 193.199
Cryst.

*2,3:4,5-Di-*O*-benzylidene,* N-*Ac:* [23263-08-3]
$C_{21}H_{23}NO_5$ 369.416
Cryst. (EtOH). Mp 156°. $[\alpha]_D^{20}$ +1 (c, 2.40 in DMF).

*2,3:4,5-Di-*O*-isopropylidene:* [59055-70-8]
$C_{11}H_{21}NO_4$ 231.291
Liq. $[\alpha]_D^{22}$ +9 ($CHCl_3$).

N-*Ph,* N-*Me:* [56782-91-3]
$C_{12}H_{19}NO_4$ 241.286
Mp 150-160°. $[\alpha]_D^{23}$ -7.8 (c, 1.5 in MeOH).

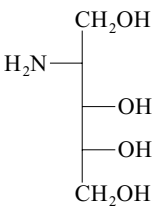
L-*form* [42015-12-3]
Cryst. Mp 96-98°.

N-*Ph,* N-*Me:*
Cryst. Mp 154-156°. $[\alpha]_D^{23}$ +8.1 (c, 1.5 in MeOH).

Zinner, H. *et al., Carbohydr. Res.*, 1969, **9**, 5 (*dibenzylidene N-Ac*)
Heard, D.D. *et al., J.O.C.*, 1970, **35**, 464 (*synth, D-form*)
Israel, M. *et al., J. Het. Chem.*, 1973, **10**, 209 (*synth, L-form*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1975, **42**, 347 (*diisopropylidene, pmr, ms*)
Bognar, R. *et al., Org. Prep. Proced. Int.*, 1975, **7**, 111 (*N-Ph N-Me*)
Blanc-Muesser, M. *et al., Carbohydr. Res.*, 1979, **68**, 175 (*synth, D-form, pmr*)
Andrews, M.A. *et al., J.O.C.*, 1989, **54**, 5257 (*N-Ac*)

2-Amino-2-deoxyarabinitol A-174

4-Amino-4-deoxylyxitol



$C_5H_{13}NO_4$ 151.162

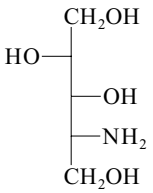
D-*form*

*4,5-*O*-Isopropylidene, 1,2*N*,3-tri-Ac: 2-Acetamido-1,3-di-*O*-acetyl-2-deoxy-4,5-*O*-isopropylidene-D-mannitol*
[80581-32-4]
$C_{14}H_{23}NO_7$ 317.338
Syrup.

Minami, N. *et al., J.A.C.S.*, 1982, **104**, 1109 (*isopropylidene tri-Ac*)

4-Amino-4-deoxyarabinitol A-175

2-Amino-2-deoxylyxitol



$C_5H_{13}NO_4$ 151.162

The name 4-amino-4-deoxyarabinitol has precedence acc. to the IUPAC special rules for carbohydrates.

D-*form*

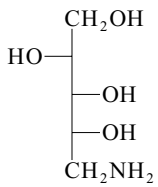
*1,2-*O*-Isopropylidene, 3,4*N*,5-tri-Ac: 4-Acetamido-3,5-di-*O*-acetyl-4-deoxy-1,2-O-isopropylidene-D-arabinitol*
[80581-31-3]
$C_{14}H_{23}NO_7$ 317.338
Syrup.

*5-*tert*-Butyl, 1,2,3,4*N*-tetra-Ac:* [100837-94-3]
$C_{17}H_{29}NO_8$ 375.418
Cryst. (heptane). Mp 128° (120-122°).

Minami, N. *et al., J.A.C.S.*, 1982, **104**, 1109 (*isopropylidene tri-Ac*)
Jaeger, V. *et al., Tet. Lett.*, 1985, **26**, 2997 (*tert-butyl tetra-Ac, cryst struct*)

5-Amino-5-deoxyarabinitol, 9CI A-176

1-Amino-1-deoxylyxitol. Lyxitylamine
[54676-23-2]



$C_5H_{13}NO_4$ 151.162

5-Amino-5-deoxyarabinitol is preferred over 1-amino-1-deoxylyxitol acc. to the IUPAC special nomenclature rules for carbohydrates.

D-*form* [55700-83-9]
Syrup.

N-*Ac:* [122741-77-9]
$C_7H_{15}NO_5$ 193.199
Cryst. (EtOH/Et_2O) or syrup. Mp 126-127°.

N-*Salicylidene:* [22566-19-4]
Mp 184-186°.

*1,3:2,4-Di-*O*-benzylidene,* N-*Ac:* [23263-07-2]
$C_{21}H_{23}NO_5$ 369.416
Cryst. (Me_2CO aq.). Mp 284-285.5°.

L-*form*

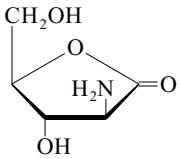
$[\alpha]_D$ -8.2 (c, 1.72 in MeOH).

[22566-18-3]

Winestock, C.H. *et al., J.O.C.*, 1961, **26**, 4456 (*synth*)
Zinner, H. *et al., Carbohydr. Res.*, 1969, **9**, 5 (*dibenzylidene, N-Ac*)

Heard, D.D. *et al., J.O.C.*, 1970, **35**, 464 (*deriv*)
Blanc-Muesser, M. *et al., Carbohydr. Res.*, 1979, **68**, 175 (*pmr, conformn*)
Andrews, M.A. *et al., J.O.C.*, 1989, **54**, 5257 (*synth, pmr, N-Ac*)
Bouchez, V. *et al., Carbohydr. Res.*, 2000, **323**, 213-217 (*L-form, synth, pmr, cmr*)

2-Amino-2-deoxy-1,4-arabinonolactone A-177

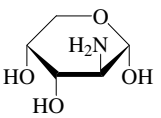


$C_5H_9NO_4$ 147.13

D-*form*
Solid (EtOH). Mp 175°. $[\alpha]_D^{20}$ +44 (c, 0.665 in H_2O).
Depezay, J.C. *et al., Carbohydr. Res.*, 1983, **112**, 51 (*synth, pmr, cmr, cryst struct*)

2-Amino-2-deoxyarabinose, 9CI, 8CI A-178

Arabinosamine



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form* [5840-75-5]
Hydrochloride: Mp 154-157° dec. $[\alpha]_D^{23}$ -158 → -124 (c, 1.17 in H_2O).
Di-Et mercaptal: [56206-87-2]
$C_9H_{21}NO_3S_2$ 255.402
Cryst. (EtOAc). Mp 131-132°. $[\alpha]_D^{22}$ -23.4 (c, 0.87 in MeOH).
N-*Ac: 2-Acetamido-2-deoxy-D-arabinose*
$C_7H_{13}NO_5$ 191.183
Cryst. (EtOH/EtOAc/petrol). Mp 160-163°. $[\alpha]_D^{24}$ -149 (2 min.) → -97 (c, 0.94 in H_2O).

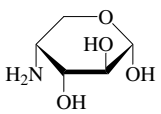
α-D-Pyranose-*form*
Me glycoside: Methyl 2-amino-2-deoxy-α-D-arabinopyranoside
[52706-45-3]
$C_6H_{13}NO_4$ 163.173
Cryst. (EtOAc). Mp 75-77°. $[\alpha]_D^{25}$ +100.8 (c, 0.75 in $CHCl_3$).

β-D-Pyranose-*form*
Me glycoside: Methyl 2-amino-2-deoxy-β-D-arabinopyranoside
$C_6H_{13}NO_4$ 163.173
Solid by subl. Mp 135° (crude). $[\alpha]_D^{22}$ -226 (c, 1.02 in H_2O).
*Me glycoside, tribenzyl: Methyl 2-benzamido-3,4-di-*O*-benzoyl-β-D-arabinopyranoside*
$C_{27}H_{25}NO_7$ 475.497
Cryst. (cyclohexane). Mp 128-129°. $[\alpha]_D^{23}$ -290 (c, 0.55 in EtOH). MF incorrectly given as $C_{27}H_{27}NO_7$.

L-*form*
Hydrochloride: Mp 153-155° dec. $[\alpha]_D$ +174 → +115 (H_2O).
N-*Ac: 2-Acetamido-2-deoxy-L-arabinose*
$C_7H_{13}NO_5$ 191.183
Mp 154-156°. $[\alpha]_D$ +147.5 → +94 (H_2O).

Kuhn, R. *et al., Annalen*, 1959, **628**, 193 (*D-form, synth, D-N-Ac*)
Horton, D. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 159 (*rev, L-form, derivs*)
Montgomery, J.A. *et al., Carbohydr. Res.*, 1974, **32**, 404 (*α-D-Me pyr*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1975, **41**, 117 (*D-di-Et mercaptal*)
Drivas, I. *et al., J. Carbohydr. Chem.*, 1984, **3**, 243-251 (*Me β-D-pyr*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1986, **153**, 150 (*synth*)

4-Amino-4-deoxyarabinose A-179



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form* [86288-09-7]
Constit. of lipopolysaccharide of some gram negative bacteria e.g. *Salmonella minnesota*, *Salmonella typhimurium*, *Proteus mirabilis, Rhodocyclus purpureus*.
N-*Ac: 4-Acetamido-4-deoxy-D-arabinose*
$C_7H_{13}NO_5$ 191.183
Cryst. (MeOH/Et_2O). Mp 157.5-158.5°. $[\alpha]_D^{23}$ -65 → -73 (c, 2.53 in H_2O).

α-D-Pyranose-*form*
Me glycoside: Methyl 4-amino-4-deoxy-α-D-arabinopyranoside
$C_6H_{13}NO_4$ 163.173
Cryst. (EtOH) (as hydrochloride). Mp 180-183° (hydrochloride). $[\alpha]_D^{23}$ +3 (c, 1.75 in H_2O).
Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-D-arabinopyranoside*
$C_8H_{15}NO_5$ 205.21
Cryst. (EtOH). Mp 129-130°. $[\alpha]_D^{23}$ +1.6 (c, 1.83 in H_2O).

α-D-Furanose-*form*
*1,2,3,4*N,*5-Penta-Ac: 4-Acetamido-1,2,3,5-tetra-*O*-acetyl-4-deoxy-α-D-arabinofuranose*
$C_{15}H_{21}NO_9$ 359.332
Syrup. $[\alpha]_D^{23}$ -31 (c, 0.45 in $CHCl_3$).
Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-D-arabinofuranoside*
$C_8H_{15}NO_5$ 205.21
Cryst. (MeOH/Et_2O/heptane). Mp 145.5-146.5°. $[\alpha]_D^{23}$ -44 (c, 1 in H_2O).

β-D-Furanose-*form*
*1,2,3,4*N,*5-Penta-Ac: 4-Acetamido-1,2,3,5-tetra-*O*-acetyl-4-deoxy-β-D-arabinofuranose*
$C_{15}H_{21}NO_9$ 359.332
Syrup. $[\alpha]_D^{23}$ -70 (c, 1.35 in $CHCl_3$).
Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-β-D-arabinofuranoside*
$C_8H_{15}NO_5$ 205.21
Syrup. $[\alpha]_D^{23}$ -68 (c, 0.5 in H_2O).

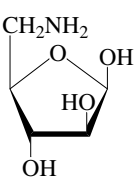
L-Pyranose-*form*
Hydrochloride:
Yellow glass. $[\alpha]_D^{20}$ +49.6 (c, 0.8 in D_2O).

α-L-Pyranose-*form*
Me glycoside: Methyl 4-amino-4-deoxy-α-L-arabinopyranoside
[19140-34-2]
$C_6H_{13}NO_4$ 163.173
Cryst. (as hydrochloride). Mp 184.5-185° dec. (hydrochloride). $[\alpha]_D$ -3 (c, 0.98 in H_2O). CAS no. refers to hydrochloride.
Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-L-arabinopyranoside*
[19140-35-3]
$C_8H_{15}NO_5$ 205.21
Cryst. Mp 129-130°. $[\alpha]_D$ -1.8 (c, 3.43 in H_2O).
*Me glycoside, 2,3,4*N*-tri-Ac: Methyl 4-acetamido-2,3-di-*O*-acetyl-4-deoxy-α-L-arabinopyranoside*
[19210-07-2]
$C_{12}H_{19}NO_7$ 289.285
Glass. $[\alpha]_D$ -34 (c, 1.35 in $CHCl_3$).

β-L-Pyranose-*form*
1-Dihydrogen phosphate: [83364-05-0]
$C_5H_{12}NO_7P$ 229.126
Constit. of lipopolysaccharide of *Salmonella minnesota*. Syrup.
Me glycoside: Methyl 4-amino-4-deoxy-β-L-arabinopyranoside
$C_6H_{13}NO_4$ 163.173
Syrup. $[\alpha]_D^{22}$ +185 (c, 0.4 in H_2O).
*Me glycoside, 2,3,4*N*-tri-Ac: Methyl 4-acetamido-2,3-di-*O*-acetyl-4-deoxy-β-L-arabinopyranoside*
[76800-61-8]
$C_{12}H_{19}NO_7$ 289.285
Prisms + 0.5H_2O (EtOAc/hexane). Mp 72-75°.
Me glycoside, 2,3-dimesyl, N-*Ac: Methyl 4-acetamido-4-deoxy-2,3-di-*O*-mesyl-β-L-arabinopyranoside*
[89195-93-7]
$C_{10}H_{19}NO_9S_2$ 361.393
Prisms (pentane). Mp 162-163° (158-159°).
[29973-49-7, 118117-12-7, 118149-40-9]

Dick, A.J. *et al., Can. J. Chem.*, 1968, **46**, 425 (*D-deriv, α-D-pyr derivs, α-D-fur derivs, β-D-fur derivs, α-L-pyr derivs*)
Arnarp, J. *et al., Carbohydr. Res.*, 1980, **86**, 143 (*β-L-Me pyr*)
Batley, M. *et al., Biochemistry*, 1982, **21**, 6580 (*phosphate, pmr, occur*)
Naleway, J.J. *et al., Carbohydr. Res.*, 1988, **179**, 199 (*L-pyr*)
Bhat, R. *et al., J. Bacteriol.*, 1990, **172**, 6631 (*occur*)
Dimitriev, B.A. *et al., FEMS Microbiol. Lett.*, 1991, **77**, 39 (*occur*)

5-Amino-5-deoxyarabinose A-180



β-D-Furanose-*form*

$C_5H_{11}NO_4$ 149.146

α-D-Furanose-*form*

Benzyl glycoside: Benzyl 5-amino-5-deoxy-α-D-arabinofuranoside
[154919-50-3]
$C_{12}H_{17}NO_4$ 239.271
Syrup. $[\alpha]_D^{20}$ +111.5 (c, 0.2 in dioxan).

β-D-Furanose-*form*

*1,2-*O-*Isopropylidene, 3-mesyl,* N-*Ac: 5-Acetamido-5-deoxy-1,2-*O-*isopropylidene-3-*O-*mesyl-β-D-arabinofuranose*
[7687-67-4]
$C_{11}H_{19}NO_7S$ 309.34
Cryst. (Me_2CO/Et_2O/pentane). Mp 127-128°. $[\alpha]_D^{25}$ +6.5 (c, 1.16 in MeOH).

*1,2-*O-*Isopropylidene, 3-mesyl,* N-*benzoyl: 5-Benzamido-5-deoxy-1,2-*O-*isopropylidene-3-*O-*mesyl-β-D-arabinofuranose*
[7687-68-5]
$C_{16}H_{21}NO_7S$ 371.41
Mp 117-118°. $[\alpha]_D^{25}$ +9 (c, 0.55 in MeOH).

L-*form*

*5*N-*Ac, benzylphenylhydrazone:*
Cryst. (Me_2CO/Et_2O/pentane). Mp 155-156°. $[\alpha]_D^{23}$ -12.2 (c, 2.05 in MeOH).

1-Diethyldithioacetal, N-*Ac:*
$C_{11}H_{23}NO_4S_2$ 297.439
Cryst. ($EtOH/Et_2O$/2,2,4-trimethylpentane). Mp 133-134°. $[\alpha]_D^{23}$ +90 (c, 1.0 in $CHCl_3$).

L-Pyranose-*form*

N-*Ac: 5-Acetamido-5-deoxy-L-arabinopyranose*
[13428-12-1]
$C_7H_{13}NO_5$ 191.183
Mp 145-146°. $[\alpha]_D^{24}$ +18.5 (c, 2.02 in H_2O). $[\alpha]_D^{24}$ +8.6 (0.1*M* HCl).

L-Furanose-*form*

*1,2,3,5*N-*Tetra-Ac: 5-Acetamido-1,2,3-tri-*O-*acetyl-5-deoxy-L-arabinofuranose*
$C_{13}H_{19}NO_8$ 317.295
Syrup. $[\alpha]_D$ +5 (c, 2.62 in $CHCl_3$).

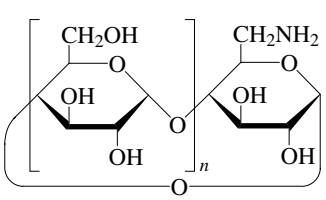
β-L-Furanose-*form*

*1,2-*O-*Isopropylidene,* N-*Ac: 5-Acetamido-5-deoxy-1,2-*O-*isopropylidene-β-L-arabinofuranose*
$C_{10}H_{17}NO_5$ 231.248
Cryst. Mp 143-144°. $[\alpha]_D$ -45 (c, 2.0 in MeOH).

Jones, J.K.N. *et al., J.C.S.*, 1962, 4699 (*L-form, β-L-fur*)
Hanessian, S. *et al., J.O.C.*, 1963, **28**, 2604; 1967, **32**, 163 (*L-form, L-pyr, β-D-fur*)
Wessel, H.P. *et al., J. Carbohydr. Chem.*, 1993, **12**, 1173-1186 (*benzyl α-D-fur*)

6^A-Amino-6^A-deoxy-α-cyclodextrin, 9CI A-181

6-Amino-6-deoxycyclohexaamylose
[29556-37-4]



n = 5

$C_{36}H_{61}NO_{29}$ 971.867
Forms inclusion complexes. Intermed. for synth. of derivatives and conjugates of α-Cyclodextrin, C-171. Mp 200° dec. (180° dec.). $[\alpha]_D^{25}$ +135 (c, 0.38 in H_2O).

Melton, L.D. *et al., Carbohydr. Res.*, 1971, **18**, 29-37 (*synth*)
Brown, S.E. *et al., Aust. J. Chem.*, 1993, **46**, 953-958 (*synth, cmr*)
Hamasaki, K. *et al., J.A.C.S.*, 1993, **115**, 5035-5040 (*synth, pmr*)
Hanessian, S. *et al., J.O.C.*, 1995, **60**, 4786-4797 (*synth, pmr, cmr*)
Yuan, D.Q. *et al., Tet. Lett.*, 2003, **44**, 565-568 (*synth*)

6^A-Amino-6^A-deoxy-β-cyclodextrin, 9CI A-182

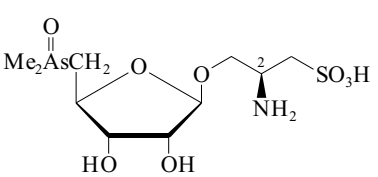
6-Amino-6-deoxycyclomaltoheptaose. 6-Amino-6-deoxycycloheptaamylose
[2930-67-8]
As 6^A-Amino-6^A-deoxy-α-cyclodextrin, A-181 with
n = 6
$C_{42}H_{71}NO_{34}$ 1134.009
Forms inclusion complexes. Intermed. for synth. of derivatives and conjugates of β-Cyclodextrin, C-172. Powder. Mp 203° dec. $[\alpha]_D^{20}$ +129.6 (c, 0.5 in H_2O).

Hydrochloride: [126927-47-7]
Fluffy solid. Mp 222-224° dec. (201° dec.). $[\alpha]_D^{23}$ +86.4.

N,N-*Di-Me:* [158258-31-2]
$C_{44}H_{75}NO_{34}$ 1162.063
Powder. Mp 200-205° dec.

Petter, R.C. *et al., J.A.C.S.*, 1990, **112**, 3860-3864 (*synth, pmr, cmr*)
Brown, S.E. *et al., Aust. J. Chem.*, 1993, **46**, 953-958 (*synth, cmr*)
Beeson, J.C. *et al., Bioorg. Med. Chem.*, 1994, **2**, 297-303 (*synth, pmr, cmr*)
Matsumoto, K. *et al., Inorg. Chim. Acta*, 1998, **272**, 162-167 (*synth*)
Christian, A.E. *et al., J. Lipid Res.*, 1999, **40**, 1475-1482 (*synth, pmr, cmr*)
Créminon, C. *et al., J. Pharm. Sci.*, 1999, **88**, 302-305 (*pharmacokinet*)
Ferruti, P. *et al., Macromol. Chem. Phys.*, 1999, **200**, 1644-1654 (*synth, ir, cmr*)
Jicsinszky, L. *et al., Carbohydr. Polym.*, 2001, **45**, 139-145 (*synth*)
Lo Meo, P. *et al., Tetrahedron*, 2002, **58**, 6039-6045 (*N,N-di-Me*)
Bonnet, V. *et al., Eur. J. Org. Chem.*, 2003, 4810-4818 (*synth, pmr, cmr*)

2-Amino-3-[[5-deoxy-5-(dimethylarsinoyl)ribofuranosyl]oxy]-1-propanesulfonic acid A-183



$C_{10}H_{22}AsNO_8S$ 391.273

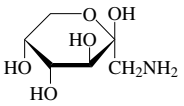
(2*S*)-β-D-*form* [138382-72-6]
Constit. of the seaweeds *Hizikia fusiforme, Sargassum lacerifolium* and *Sphaerotrichia divaricata*.

[109028-17-3]

Edmonds, J.S. *et al., J.C.S. Perkin 1*, 1987, 577 (*isol, pmr*)
Jin, K. *et al., Agric. Biol. Chem.*, 1988, **52**, 1965 (*isol*)
Francesconi, K.A. *et al., J.C.S. Perkin 1*, 1991, 2707 (*isol, pmr, cryst struct*)

1-Amino-1-deoxyfructose A-184

Fructosamine. Isoglucosamine
[27968-74-7]



β-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [4429-04-3]
Found in blood serum of human diabetics.

Hydrochloride: [39002-30-7]
Cryst. (EtOH aq.). Mp 118° Mp 140-141°. $[\alpha]_D^{22}$ -68 (c, 0.34 in H_2O) (final).

Acetate salt: [6333-49-9]
Cryst. (EtOH). Mp 145-146° (137°). $[\alpha]_D^{23}$ -63 (c, 1 in Py). $[\alpha]_D^{22}$ -69.8 (c, 1.6 in H_2O).

β-D-Pyranose-*form*

*2,3:4,5-Di-*O-*isopropylidene: 1-Amino-1-deoxy-2,3:4,5-di-*O-*isopropylidene-β-D-fructopyranose*
[128316-82-5]
$C_{12}H_{21}NO_5$ 259.302
Syrup. $[\alpha]_D^{25}$ -30.7 (c, 1.0 in $CHCl_3$).

*2,3:4,5-Di-*O-*isopropylidene, hydrochloride:*
[122470-00-2]
Powder (CH_2Cl_2/Et_2O). Mp 159-173° dec.

α-D-Furanose-*form*

Me glycoside: Methyl 1-amino-1-deoxy-α-D-fructofuranoside
[106220-86-4]
$C_7H_{15}NO_5$ 193.199
Syrup. $[\alpha]_D^{25}$ +37 (c, 1.0 in H_2O).

Me glycoside, oxalate: [129933-49-9]
Cryst. (EtOH). Mp 144-146°. $[\alpha]_D^{29}$ +59 (c, 1.0 in H_2O).

β-D-Furanose-*form*

Me glycoside: Methyl 1-amino-1-deoxy-β-D-fructofuranoside
[83031-88-3]
$C_7H_{15}NO_5$ 193.199
Cryst. Mp 144-145°. $[\alpha]_D^{25}$ -1.5 (MeOH).

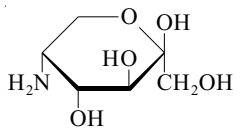
Me glycoside, N*,3,4,6-tetra-Ac: Methyl 1-acetamido-3,4,6-tri-*O-*acetyl-1-deoxy-β-D-fructofuranoside*
[82877-63-2]
$C_{15}H_{23}NO_9$ 361.348
Syrup. $[\alpha]_D^{25}$ -44.9 ($CHCl_3$).

[39002-30-7]

Neilson, T. *et al., J.C.S.*, 1962, 44 (*synth*)
Hodge, J.E. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 99 (*synth*)
Wolfrom, M.L. *et al., J.O.C.*, 1964, **29**, 3284 (*synth, uv*)
Haas, H.J. *et al., Annalen*, 1972, **759**, 208 (*synth*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 1003; 1019 (*β-D-Me fur, β-D-Me fur tetra-Ac, pmr*)

Gomez-Sanchez, A. *et al., Carbohydr. Res.*, 1986, **149**, 329 (*cmr, conformn, equilib, α-D-Me fur*)
Goodwin, J.C. *et al., Carbohydr. Res.*, 1989, **195**, 150 (*β-D-fur diisopropylidene*)
Reitz, A.B. *et al., J. Med. Chem.*, 1989, **32**, 2110 (*β-D-pyr diisopropylidene, ir, ms, pmr*)
Caldwell, G.W. *et al., Org. Mass Spectrom.*, 1989, **24**, 1051 (*β-D-pyr diisopropylidene, ms*)
Garcia, M. *et al., Carbohydr. Res.*, 1990, **199**, 139 (*α-D-Me pyr, pmr*)

5-Amino-5-deoxyfructose A-185



$C_6H_{13}NO_5$ 179.172

β-D-Pyranose-*form*

*Me glycoside, 1,3-*O*-benzylidene: Methyl 5-amino-1,3-*O*-benzylidene-5-deoxy-β-D-fructopyranoside*
[18610-11-2]
$C_{14}H_{19}NO_5$ 281.308
Cryst. (EtOH/petrol). Mp 92-94°. $[\alpha]_D^{20}$ -77.4 (c, 0.62 in $CHCl_3$) (lit. gives a temp. range).

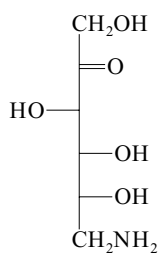
*Me glycoside, 1,3-*O*-benzylidene,* N*-Ac: Methyl 5-acetamido-1,3-*O*-benzylidene-5-deoxy-β-D-fructopyranoside*
[18610-13-4]
$C_{16}H_{21}NO_6$ 323.345
Cryst. (EtOH/petrol). Mp 199-201° dec. $[\alpha]_D$ -77.5 (c, 0.50 in $CHCl_3$).

*Me glycoside, 1,3-*O*-benzylidene, 4,5-*N*-di-Ac: Methyl 5-acetamido-4-*O*-acetyl-1,3-*O*-benzylidene-5-deoxy-β-D-fructopyranoside*
[18610-12-3]
$C_{18}H_{23}NO_7$ 365.382
Cryst. Mp 220-222°. $[\alpha]_D^{20}$ -67.3 (c, 0.40 in $CHCl_3$) (lit. gives a temp. range).

*Me glycoside, 1,3-*O*-benzylidene, 4-mesyl: Methyl 5-amino-1,3-*O*-benzylidene-5-deoxy-4-*O*-mesyl-β-D-fructopyranoside*
[18610-10-1]
$C_{15}H_{21}NO_7S$ 359.399
Cryst. (EtOH/petrol). Mp 175-176°. $[\alpha]_D^{20}$ -95.9 (c, 0.91 in $CHCl_3$) (lit. gives a temp. range).

Murphy, D. *et al., J.C.S.(C)*, 1967, 1732 (*β-D-Me pyr benzylidene derivs*)

6-Amino-6-deoxyfructose A-186



$C_6H_{13}NO_5$ 179.172

D-*form*

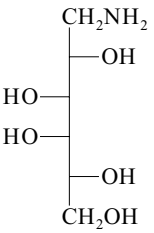
N-*Trifluoroacetyl:* [115827-09-3]
$C_8H_{12}F_3NO_6$ 275.181
Syrup. Unstable at r.t.

*6*N-*Phosphonyl, 1-dihydrogen phosphate:* [133473-45-7]
$C_6H_{15}NO_{11}P_2$ 339.132
Syrup.

Durrwachter, J.R. *et al., J.O.C.*, 1988, **53**, 4175 (*N-trifluoroacetyl, pmr*)
Sem, D.S. *et al., Biochemistry*, 1991, **30**, 4978 (*phosphate, P-31 nmr*)

1-Amino-1-deoxygalactitol A-187

[488-42-6]



$C_6H_{15}NO_5$ 181.188

D-*form* [42015-13-4]
Cryst. Mp 143° (138-140°).

Hydrochloride: [104833-42-3]
Cryst. Mp 143-145°.

Hydrobromide: [55399-81-0]
Cryst. (MeOH aq.). Mp 136°. $[\alpha]_D^{20}$ -10.5 (c, 4.59 in H_2O).

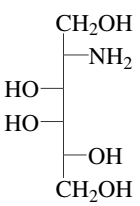
N-*Me:* [7115-46-0]
$C_7H_{17}NO_5$ 195.215
Mp 133-136°. $[\alpha]_D^{20}$ -16 (c, 1 in MeOH).

N-*Ph,* N-*Me, 2,3,4,5,6-penta-Ac:* [56782-94-6]
$C_{23}H_{31}NO_{10}$ 481.499
Cryst. Mp 128-130°. $[\alpha]_D^{23}$ +16.2 (c, 1.5 in MeOH).

Wolfrom, M.L. *et al., J.O.C.*, 1958, **23**, 571 (*synth*)
Israel, M. *et al., J. Het. Chem.*, 1973, **10**, 209 (*synth*)
Gassmann, N. *et al., Helv. Chim. Acta*, 1975, **58**, 182 (*synth*)
Bognar, R. *et al., Org. Prep. Proced. Int.*, 1975, **7**, 111 (*N-Ph N-Me penta-Ac*)
Van Dam, J.E.G. *et al., Carbohydr. Res.*, 1989, **187**, 25 (*glc, ms*)

2-Amino-2-deoxygalactitol A-188

5-Amino-5-deoxygalactitol. Galacosaminitol
[23018-80-6]



D-*form*

$C_6H_{15}NO_5$ 181.188

2-Amino-2-deoxy-D-galactitol ≡ 5-amino-5-deoxy-L-galactitol. Stabiliser of biological and pharmaceutical products during autoclaving.

D-*form* [20706-37-0]
Cryst. (MeOH aq.). Mp 174-178°.

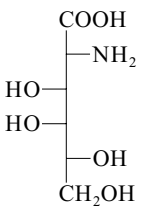
N-*Ac: 2-Acetamido-2-deoxy-D-galactitol*
[10486-91-6]
$C_8H_{17}NO_6$ 223.225
Cryst. Mp 176°. $[\alpha]_D$ -44 (c, 0.5 in H_2O).

*2,3:4,6-Di-*O*-isopropylidene:* [130281-95-7]
$C_{12}H_{23}NO_5$ 261.317
Oil. $[\alpha]_D^{25}$ +7.61 (c, 0.7 in $CHCl_3$).

*2,3:4,6-Di-*O*-isopropylidene,* N*-(p-methoxybenzyloxycarbonyl):*
[130114-47-5]
Oil. $[\alpha]_D^{25}$ -32.7 (c, 1.3 in $CHCl_3$).

Perry, M.B. *et al., Can. J. Chem.*, 1968, **46**, 2481 (*synth, N-Ac*)
Shabas, M.A.E. *et al., Carbohydr. Res.*, 1977, **59**, 213 (*synth, glc-ms*)
Shashkov, A.V. *et al., Carbohydr. Res.*, 1979, **72**, 218 (*N-Ac, cmr*)
Carter, S.R. *et al., J.C.S. Perkin 1*, 1985, 2775 (*synth, N-Ac*)
U.S. Pat., 1989, 4 876 241; *CA*, **112**, 240487p (*use*)
Aoyagi, S. *et al., J.O.C.*, 1991, **56**, 815 (*diisopropylidene, ir, pmr, cmr*)

2-Amino-2-deoxygalactonic acid A-189



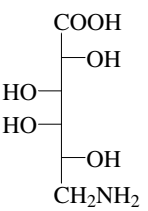
$C_6H_{13}NO_6$ 195.172

D-*form*

1,4-Lactone, N*-Ac: 2-Acetamido-2-deoxy-D-galactono-1,4-lactone*
[28876-38-2]
$C_8H_{13}NO_6$ 219.194
Cryst. (MeOH). Mp 173-175°. $[\alpha]_D^{25}$ -16 (c, 1.7 in H_2O).

Zsoldos-Mády, V. *et al., Carbohydr. Res.*, 1994, **252**, 85 (*synth*)

6-Amino-6-deoxygalactonic acid A-190



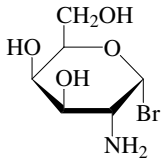
$C_6H_{13}NO_6$ 195.172

D-*form*

*Tetra-*O*-Me: 6-Amino-6-deoxy-2,3,4,5-tetra-*O*-methyl-D-galactonic acid*
[408360-24-7]
$C_{10}H_{21}NO_6$ 251.279
V. hygroscopic cryst. Mp 161°. $[\alpha]_D$ +13 (MeOH).

Romero Zaliz, C.L. *et al., J. Carbohydr. Chem.*, 2001, **20**, 689-701 (*tetra-Me*)

2-Amino-2-deoxygalactopyranosyl bromide A-191



α-D-*form*

$C_6H_{12}BrNO_4$ 242.069

α-D-*form*

Tri-Ac: 3,4,6-Tri-O-acetyl-2-amino-2-deoxy-α-D-galactopyranosyl bromide
$C_{12}H_{18}BrNO_7$ 368.181
Plates (CH_2Cl_2/Et_2O) (as hydrobromide). Mp 144-148° dec. $[\alpha]_D^{23}$ +160 (c, 0.7 in $CHCl_3$).

Tribenzoyl: 2-Amino-3,4,6-tri-O-benzoyl-2-deoxy-α-D-galactopyranosyl bromide
$C_{27}H_{24}BrNO_7$ 554.393
Cryst. (Et_2O/THF) (as hydrobromide). Mp 163-164° dec. $[\alpha]_D^{32}$ +139 (c, 1.2 in THF).

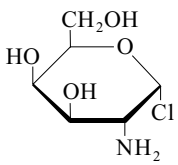
N-*Trifluoroacetyl, tri-Ac: 3,4,6-Tri-O-acetyl-2-deoxy-2-trifluoroacetyl-α-D-galactopyranosyl bromide*
[25324-48-5]
$C_{14}H_{17}BrF_3NO_8$ 464.189
Mp 60-62°. $[\alpha]_D^{22}$ +146 (c, 1.5 in $CHCl_3$).

Wolfrom M.L., *et al., J.O.C.*, 1963, **28**, 3231 (*α-D-tri-Ac*)

Strong, R.S. *et al., Annalen*, 1966, **692**, 215 (*α-D-tribenzoyl*)

Wolfrom, M.L. *et al., Carbohydr. Res.*, 1969, **11**, 63 (*α-D-N-trifluoroacetyl tri-Ac*)

2-Amino-2-deoxygalactopyranosyl chloride A-192



$C_6H_{12}ClNO_4$ 197.618

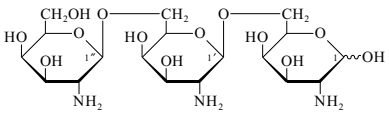
α-D-*form*

N,*3,4,6-Tetra-Ac: 2-Acetamido-3,4,6-tri-O-acetyl-2-deoxy-α-D-galactopyranosyl chloride. Acetochlorogalactosamine*
[41355-44-6]
$C_{14}H_{20}ClNO_8$ 365.767
Plates (EtOAc), rectangular stout prisms($EtOAc/Et_2O$). Mp 131-136° dec. (130°). $[\alpha]_D^{18}$ +138 (c, 0.7 in $CHCl_3$).

Tarasiejska, Z. *et al., J.A.C.S.*, 1958, **80**, 6325 (*α-D-tetra-Ac*)

Heyworth, R. *et al., J.C.S.*, 1959, 4121 (*α-D-tetra-Ac*)

2-Amino-2-deoxy-β-D-galactopyranosyl-(1→6)-2-amino-2-deoxy-β-D-galactopyranosyl-(1→6)-2-amino-2-deoxy-D-galactose, 9CI A-193



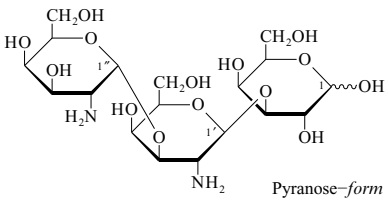
Pyranose–*form*

$C_{18}H_{35}N_3O_{13}$ 501.487

N,N′,N″-*Tri-Ac:* [121388-64-5]
$C_{24}H_{41}N_3O_{16}$ 627.598
Cryst. Mp 202°. $[\alpha]_D^{25}$ +32.5 (c, 0.73 in H_2O).

Defaye, J. *et al., Carbohydr. Res.*, 1989, **186**, 177 (*tri-N-Ac, cmr*)

2-Amino-2-deoxy-α-D-galactopyranosyl-(1→3)-2-amino-2-deoxy-β-D-galactopyranosyl-(1→3)-D-galactose, 9CI A-194



Pyranose–*form*

$C_{18}H_{34}N_2O_{14}$ 502.472
Constit. of the pentasaccharide chain of the Forssman antigen.

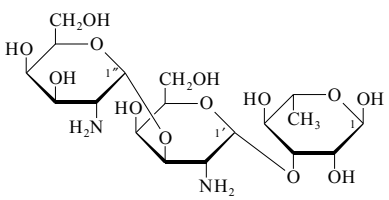
N,N′-*Di-Ac:* [80856-63-9]
$C_{22}H_{38}N_2O_{16}$ 586.546
Syrup. $[\alpha]_D^{20}$ +53.2 (c, 0.5 in H_2O).

[80856-73-1]

Paulsen, H. *et al., Annalen*, 1981, 2204 (*di-N-Ac, pmr*)

2-Amino-2-deoxy-α-D-galactopyranosyl-(1→3)-2-amino-2-deoxy-α-D-galactopyranosyl-(1→3)-L-rhamnose A-195

2-Amino-2-deoxy-α-D-galactopyranosyl-(1→3)-2-amino-2-deoxy-α-D-galactopyranosyl-(1→3)-6-deoxy-L-mannose, 9CI



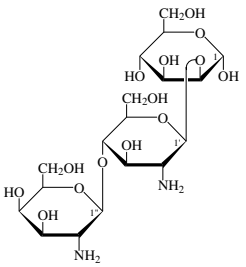
$C_{18}H_{34}N_2O_{13}$ 486.472

α-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, N,N′-*di-Ac:* [79276-35-0]
$C_{32}H_{56}N_2O_{17}$ 740.798
Syrup. $[\alpha]_D^{20}$ +146.5 (c, 0.5 in H_2O).

Iversen, T. *et al., J.C.S. Perkin 1*, 1981, 2379 (*α-methoxycarbonyloctyl pyr di-N-Ac, cmr*)

2-Amino-2-deoxy-β-D-galactopyranosyl-(1→4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1→2)-D-mannose, 9CI A-196



α-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472
Found in the peripheral trisaccharide sequence of Lutropin, L-54.

α-Pyranose-*form*

*Me glycoside, 3,3′,3″,4,6,6′,6″-heptabenzyl, 2′*N,*2″*N-*di-Ac:* [131222-03-2]
$C_{72}H_{82}N_2O_{16}$ 1231.444
Powder. $[\alpha]_D^{23}$ +5.5 (c, 0.11 in $CHCl_3$).

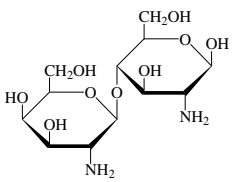
*Me glycoside, 3,3′,3″,4,6,6′,6″-heptabenzyl, 2′*N,*2″*N,*4″-tri-Ac:* [131222-02-1]
$C_{74}H_{84}N_2O_{17}$ 1273.481
Powder. $[\alpha]_D^{25}$ +2.7 (c, 0.55 in $CHCl_3$).

[131221-94-8, 131222-04-3]

Nishimura, S. *et al., Carbohydr. Res.*, 1990, **206**, 207 (*occur, α-Me pyr derivs, pmr, cmr*)

2-Amino-2-deoxy-β-D-galactopyranosyl-(1→4)-2-amino-2-deoxy-D-glucose A-197

Lactosediamine



β-D-Pyranose-*form*

$C_{12}H_{24}N_2O_9$ 340.33

N,N′-*Di-Ac:* [136198-41-9]
$C_{16}H_{28}N_2O_{11}$ 424.404
Structural element of a diverse group of glycans. Allergenically specific epitope of sea-squirt H-antigen.

β-D-Pyranose-*form*

Me glycoside, N,N′-*di-Ac:* [136198-40-8]
$C_{17}H_{30}N_2O_{11}$ 438.431
Solid. $[\alpha]_D$ -3 (c, 0.3 in H_2O).

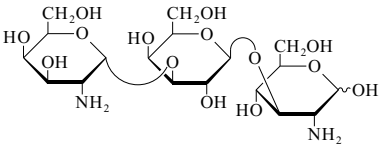
Ohta, M. *et al., Arch. Biochem. Biophys.*, 1991, **290**, 471-483 (*occur, N,N′-di-Ac*)

Hokke, C.H. *et al., Glycoconjugate J.*, 1993, **10**, 82-90 (*β-D-Me gly N,N′-di-Ac, synth, pmr, cmr*)

Needleman, A.P. *et al., Proc. Natl. Acad. Sci., India*, 1996, **93**, 10111-10116 (*bibl, N,N′-di-Ac*)

2-Amino-2-deoxy-α-D-galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose A-198

3^2-α-Galactosaminyl-3-β-galactosylglucosamine



Pyranose–*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

N,N′-*Di-Ac: 2-Acetamido-2-deoxy-α-D-galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →3)-2-acetamido-2-deoxy-D-glucose. 3^2-α-*N-*Acetylgalactosaminyl-3-β-galactosyl*-N-*acetylglucosamine*
[5536-47-0]
$C_{22}H_{38}N_2O_{16}$ 586.546
Isol. from the partial acid hydrolysates of human ovarian cyst blood-group A substance and human blood-group A substance.
$[\alpha]_D$ +136 (H_2O) (+110).

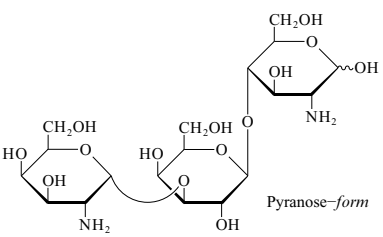
Undeca-Ac: [67313-34-2]
$C_{40}H_{56}N_2O_{25}$ 964.881
Syrup.

[5536-47-0, 85304-86-5]

Lister-Cheese, I.A.F. *et al., Nature (London)*, 1961, **191**, 149 (*isol*)
Schiffman, G. *et al., J.A.C.S.*, 1962, **84**, 73 (*isol*)
Paulsen, H. *et al., Chem. Ber.*, 1978, **111**, 2370 (*di-N-Ac*)
Bovin, N.Y. *et al., Bioorg. Khim.*, 1981, **7**, 1271; *CA*, **95**, 204316d (*synth*)
Bovin, N.V. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1982, 1148; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1982, 1023 (*undeca-Ac*)
Bovin, N.V. *et al., Carbohydr. Res.*, 1983, **112**, 23 (*di-N-Ac, pmr*)

2-Amino-2-deoxy-α-D-galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose A-199

3^2-β-Galactosaminyl-4-galactosylglucosamine



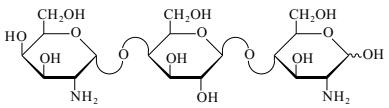
Pyranose–*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

N,N′-*Di-Ac: 2-Acetamido-2-deoxy-α-D-galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-2-acetamido-2-deoxy-D-glucose. 3^2-β-*N-*Acetylgalactosaminyl-4-β-galactosyl*-N-*acetylglucosamine*
[62897-09-0]
$C_{22}H_{38}N_2O_{16}$ 586.546
Isol. from the partial acid hydrolysate of human blood group A substance.
$[\alpha]_D$ +147 (H_2O).

Lister-Cheese, I.A.F. *et al., Nature (London)*, 1961, **191**, 149 (*isol*)
Donald, A.S.R. *et al., J. Chromatogr.*, 1977, **134**, 199 (*chromatog*)

2-Amino-2-deoxy-α-D-galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose A-200



Pyranose–*form*

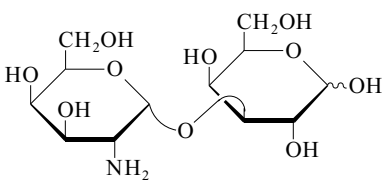
$C_{18}H_{34}N_2O_{14}$ 502.472

N,N′-*Di-Ac: 2-Acetamido-2-deoxy-α-D-galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-2-acetamido-2-deoxy-D-glucose. 4^2-α-D-Acetylgalactosaminyl-4-β-galactosyl*-N-*acetylglucosamine. Gastro*-N-*trisaccharide*
$C_{22}H_{38}N_2O_{16}$ 586.546
Isol. from the partial acetolysate of hog gastric mucin.
Mp 273-275°. $[\alpha]_D$ +140 (H_2O).

Masamune, H. *et al., Tohoku J. Exp. Med.*, 1956, **64**, 257; 1958, **69**, 65 (*isol*)

3-*O*-(2-Amino-2-deoxy-α-D-galactopyranosyl)-D-galactose A-201

3-α-Galactosaminylgalactose



Pyranose–*form*

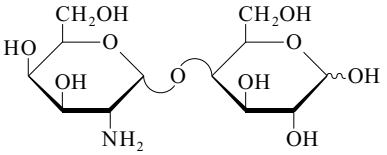
$C_{12}H_{23}NO_{10}$ 341.314
Reducing disaccharide.

N-*Ac: 3-*O*-(2-Acetamido-2-deoxy-α-D-galactopyranosyl)-D-galactose. 3-α-*N*-Acetylgalactosaminylgalactose*
[66781-75-7]
$C_{14}H_{25}NO_{11}$ 383.352
Isol. from partial acid hydrolysates of human-blood group A substance and other sources.
Mp 179-181°. $[\alpha]_D$ +200.7 (+150) (H_2O).

Cote, R.H. *et al., Nature (London)*, 1961, **178**, 1171 (*isol*)
Yosizawa, Z. *et al., J. Biochem. (Tokyo)*, 1962, **51**, 1 (*isol*)
Schiffman, G. *et al., J.A.C.S.*, 1962, **84**, 73 (*isol*)
Uhlenbruck, G. *et al., CA*, 1986, **105**, 40665p (*props*)

4-*O*-(2-Amino-2-deoxy-α-D-galactopyranosyl)-D-galactose A-202

4-α-Galactosaminylgalactose



Pyranose–*form*

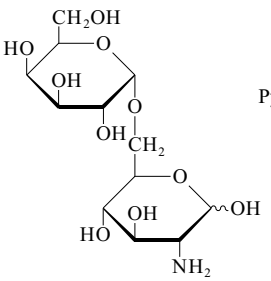
$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 4-*O*-(2-Acetamido-2-deoxy-α-D-galactopyranosyl)-D-galactose. 4-α-*N*-Acetylgalactosaminylgalactose. Gastro*-N-*disaccharide*
$C_{14}H_{25}NO_{11}$ 383.352
Isol. from the partial acetolysate of hog gastric mucin.
Mp 186-187°. $[\alpha]_D$ +203 (H_2O).

Shinohara, H. *et al., Tohoku J. Exp. Med.*, 1958, **67**, 141

2-Amino-2-deoxy-6-*O*-(α-D-galactopyranosyl)-D-glucose A-203

α-D-Galactopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose. 6-α-Galactosylglucosamine. Melibiosamine. Allolactosamine



Pyranose–*form*

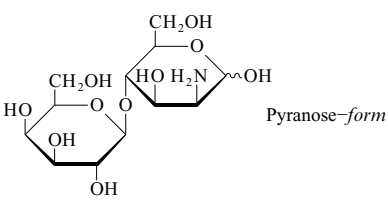
$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 2-Acetamido-2-deoxy-6-*O*-α-(D-galactopyranosyl)-D-glucose. 6-α-Galactosyl*-N-*acetylglucosamine.* N-*Acetylmelibiosamine*
[13071-21-1]
$C_{14}H_{25}NO_{11}$ 383.352
$[\alpha]_D$ +118 (H_2O).

Watkins, W.M. *et al., Nature (London)*, 1958, **181**, 117 (*synth*)
Clancy, M.J. *et al., Arch. Biochem. Biophys.*, 1967, **118**, 730 (*synth*)
Sakai, K. *et al., J. Carbohydr. Chem.*, 1992, **11**, 553-565 (*enzymic synth*)

2-Amino-2-deoxy-4-*O*-(β-D-galactopyranosyl)-D-mannose A-204

β-D-Galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-mannose



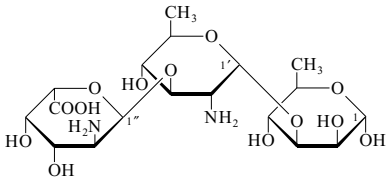
Pyranose–*form*

$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 2-Acetamido-2-deoxy-4*-O-*(β-D-galactopyranosyl)-D-mannose*
[50787-11-6]
$C_{14}H_{25}NO_{11}$ 383.352
Mp 233°. $[\alpha]_D$ +38.5 (H_2O).
Kuhn, R. *et al., Chem. Ber.*, 1961, **94**, 842 (*synth*)

2-Amino-2-deoxy-α-L-galacto-pyranuronosyl-(1→3)-2-amino-2-deoxy-α-D-quinovosyl-(1→3)-D-rhamnose A-205

2-Amino-2-deoxy-α-L-galactopyranuronosyl-(1→3)-2-amino-2,6-dideoxy-α-D-glucopyranosyl-(1→3)-6-deoxy-D-mannose, 9CI



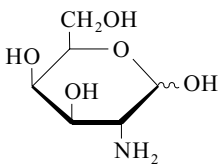
$C_{18}H_{32}N_2O_{13}$ 484.456

α-Pyranose-*form*

*2′*N,*2″*N-*Di-Ac:* [94345-38-7]
$C_{22}H_{36}N_2O_{15}$ 568.531
Repeating unit of the O-polysaccharide of *Pseudomonas aeruginosa*. Syrup.
Stanislavskii, E.S. *et al., CA*, 1988, **109**, 168481a (*struct*)
Kaya, S. *et al., J. Biochem. (Tokyo)*, 1989, **105**, 35 (*isol, pmr, cmr*)

2-Amino-2-deoxygalactose, 9CI, 8CI A-206

Galactosamine
[1948-54-5]



$C_6H_{13}NO_5$ 179.172

D-*form*

Chondrosamine
[7535-00-4]
Widespread in nature, found in many mucopolysaccharides (e.g. chondroitin sulphate from tendone, tracheae, nasal septa), glycoproteins, glyclipis, fungi, bacteria, antibiotics and uridine diphosphate complexes.
Mp 185°. $[\alpha]_D^{20}$ +59.3 (H_2O).
► LW5498000

Hydrochloride: [1772-03-8]
Mp 178-190° (168°) dec. $[\alpha]_D^{23}$ +47.3 → +91.5 (c, 0.95 in H_2O). $[\alpha]_D^{22}$ +119.3 → +94.1 (c, 0.75 in H_2O).
► LW5500000

N-*Ac: 2-Acetamido-2-deoxy-D-galactose*
[14215-68-0]

[1811-31-0]
$C_8H_{15}NO_6$ 221.21
Constit. of casein. Cryst. (EtOAc/MeOH). Mp 172-173° (159-160°) Mp 120-122° (monohydrate). $[\alpha]_D^{27}$ +86.1 (c, 1.0 in H_2O). $[\alpha]_D^{21}$ +115.

α-D-Pyranose-*form* [14196-84-0]

Penta-Ac: 2-Acetamido-1,3,4,6-tetra-O-*acetyl-2-deoxy-α-D-galactopyranose*
[10385-50-9]
$C_{16}H_{23}NO_{10}$ 389.358
Mp 178° Mp 197°. $[\alpha]_D^{20}$ +102 ($CHCl_3$).

3-Me: 2-Amino-2-deoxy-3-O-*methyl-α-D-galactopyranose*
$C_7H_{15}NO_5$ 193.199
$[\alpha]_D$ +119 (H_2O) (as hydrochloride).

4-Me: 2-Amino-2-deoxy-4-O-*methyl-α-D-galactopyranose*
$C_7H_{15}NO_5$ 193.199
Mp 179° dec. (as hydrochloride). $[\alpha]_D$ +125 → +100 (H_2O).

6-Me: 2-Amino-2-deoxy-6-O-*methyl-α-D-galactopyranose*
$C_7H_{15}NO_5$ 193.199
Mp 190-195° dec. (as hydrochloride). $[\alpha]_D$ +107 → +92 (H_2O).

3,4-Di-Me: 2-Amino-2-deoxy-3,4-di-O-*methyl-α-D-galactopyranose*
$C_8H_{17}NO_5$ 207.226
$[\alpha]_D$ +108 (H_2O) (as hydrochloride).

4,6-Di-Me: 2-Amino-2-deoxy-4,6-di-O-*methyl-α-D-galactopyranose*
$C_8H_{17}NO_5$ 207.226
Mp 190° dec. (as hydrochloride). $[\alpha]_D$ +107 → +91 (H_2O).

3,4,6-Tri-Me: 2-Amino-2-deoxy-3,4,6-tri-O-*methyl-α-D-galactopyranose*
$C_9H_{19}NO_5$ 221.253
Mp 178° (as hydrochloride). $[\alpha]_D$ +152.5 → +105 (H_2O).

Benzyl glycoside, N-*Ac: Benzyl 2-acetamido-2-deoxy-α-D-galactopyranoside*
[3554-93-6]
$C_{15}H_{21}NO_6$ 311.334
Cryst. (MeOH/Et_2O). Mp 203-205°. $[\alpha]_D^{23}$ +204 (c, 1 in H_2O).

Benzyl glycoside, 4,6-O-*benzylidene,* N-*Ac: Benzyl 2-acetamido-4,6*-O-*benzylidene-2-deoxy-α-D-galactopyranoside*
$C_{22}H_{25}NO_6$ 399.443
Needles (Py aq.). Mp 246-247°. $[\alpha]_D^{28}$ +219 (c, 2.1 in Py).

Me glycoside, 3,6-dibenzoyl, N-*Ac: Methyl 2-acetamido-3,6-di*-O-*benzoyl-2-deoxy-α-D-galactopyranoside*
$C_{23}H_{25}NO_8$ 443.452
Tiny needles. Mp 202-205° (188-189°). $[\alpha]_D$ +85.1 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form* [14196-86-2]

Penta-Ac: 2-Acetamido-1,3,4,6-tetra-O-*acetyl-2-deoxy-β-D-galactopyranose*
[3006-60-8]
$C_{16}H_{23}NO_{10}$ 389.358
Mp 235-237°. $[\alpha]_D^{20}$ +7 ($CHCl_3$).

Me glycoside, 3,6-dibenzoyl, N-*Ac: Methyl 2-acetamido-3,6-di*-O-*benzoyl-2-deoxy-β-D-galactopyranoside*
$C_{23}H_{25}NO_8$ 443.452
Tiny needles. Mp 249-252° (232-242°). $[\alpha]_D$ +13.6 (c, 1 in MeOH/$CHCl_3$ (1:1)).

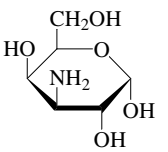
β-D-Furanose-*form*

Me glycoside, 5,6-isopropylidene, N-*Ac: Methyl 2-acetamido-2-deoxy-5,6*-O-*isopropylidene-β-D-galactofuranoside*
$C_{12}H_{21}NO_6$ 275.301
$[\alpha]_D^{35}$ -31.2 (c, 3.05 in $CHCl_3$).

[14131-60-3]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **1**, 305D (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 349D; 757C (*ir*)
Stacey, M. *et al., J.C.S.*, 1944, 272 (*D-form N-Ac, α-D-penta-Ac, β-D-penta-Ac*)
Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247 (*rev*)
Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*Me ethers, rev*)
Brossmer, R. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 216 (*synth*)
Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 221 (*synth*)
Biochem. Prep., 1963, **10**, 52 (*isol*)
Van der Veen, J.M. *et al., J.O.C.*, 1963, **28**, 564 (*pmr*)
Flowers, H.M. *et al., J.O.C.*, 1965, **30**, 2041 (*α-D-benzyl pyr Ac, α-D-benzyl pyr benzylidene Ac*)
Takai, M. *et al., Acta Cryst. B*, 1972, **28**, 2370 (*cryst struct*)
Gent, P.A. *et al., J.C.S. Perkin 1*, 1972, 277
Panagiotopalos, N.C. *et al., Acta Cryst. B*, 1974, **30**, 1402 (*cryst struct*)
Ghosh, R. *et al., J. Carbohydr. Chem.*, 1992, **11**, 71-75 (*Me β-D-fur isopropylidene N-Ac*)
Chaplin, D. *et al., J.C.S. Perkin 1*, 1992, 235, (*α-D-penta-Ac, synth, pmr, cmr*)
Berkin, A. *et al., Carbohydr. Res.*, 2000, **326**, 250-263 (*Me gly dibenzoyl N-Ac*)
Ito, N. *et al., Bull. Chem. Soc. Jpn.*, 2004, **77**, 1181-1186 (*N-Ac, α-D-penta-Ac*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GAT000

3-Amino-3-deoxygalactose A-207



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3-deoxy-α-D-galactopyranoside
[122204-77-7]
$C_7H_{15}NO_5$ 193.199
Cryst. Mp 96-99°.

Me glycoside, hydrochloride: [37073-85-1]
Mp 219-221° (197°) dec. $[\alpha]_D^{20}$ +159 (c, 0.3 in H_2O).

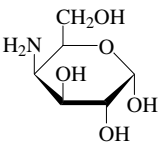
*Me glycoside, 2,3*N,*4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri*-O-*acetyl-α-D-galactopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Syrup. $[\alpha]_D$ +104 (c, 0.6 in $CHCl_3$).

β-D-Pyranose-*form*

N-*Ac: 3-Acetamido-3-deoxy-β-D-galactopyranose*
[135684-04-7]
$C_8H_{15}NO_6$ 221.21
Cryst. (MeOH). Mp 173-174°. $[\alpha]_D$ +99 → +119 (c, 2.5 in H_2O).

1,6-Anhydro: 3-Amino-1,6-anhydro-3-deoxy-β-D-galactopyranose
$C_6H_{11}NO_4$ 161.157
Cryst. ($MeOH/Me_2CO$) (as hydrochloride). Mp 180-185° dec. (hydrochloride). $[\alpha]_D^{20}$ -9 (c, 1.0 in H_2O).
Kuhn, R. *et al., Annalen*, 1960, **636**, 164 (*β-N-Ac*)
Heyns, K. *et al., Chem. Ber.*, 1965, **98**, 327 (*anhydro*)
Baer, H.H. *et al., Can. J. Chem.*, 1972, **50**, 1216 (*α-Me pyr*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 605 (*deriv, pmr, cmr*)
Defaye, J. *et al., Carbohydr. Res.*, 1991, **212**, 129 (*α-N-Ac, β-N-Ac, pmr, cmr*)

4-Amino-4-deoxygalactose, 9CI, 8CI A-208


α-D-Pyranose-*form*

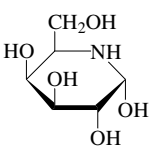
$C_6H_{13}NO_5$ 179.172

D-*form* [24558-85-8]
Hydrochloride: [51015-70-4]
Mp 120° dec. $[\alpha]_D^{20}$ +48.2 (c, 1 in H_2O).
N-*Ac: 4-Acetamido-4-deoxy-D-galactose*
$C_8H_{15}NO_6$ 221.21
Cryst. (EtOH). Mp 193-195° dec. $[\alpha]_D^{25}$ +45 → +65 (c, 1 in H_2O).

α-D-Pyranose-*form*
Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-D-galactopyranoside*
$C_9H_{17}NO_6$ 235.236
Mp 203-205°. $[\alpha]_D^{25}$ +182 (c, 1 in MeOH).
*Me glycoside, 2,3,4,6-tetra-Ac: Methyl 4-acetamido-2,3,6-tri-*O*-acetyl-4-deoxy-α-D-galactopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Syrup. $[\alpha]_D^{25}$ +129 (c, 1 in $CHCl_3$).
Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 1599 (*D-form, synth*)
Lichtenthaler, F.W. *et al., J.O.C.*, 1974, **39**, 1457 (*D-form, synth, D-N-Ac, α-D-Me pyr N-Ac, α-D-Me pyr*)

5-Amino-5-deoxygalactose A-209

6-Hydroxymethyl-2,3,4,5-piperidinetetrol, 9CI. ***Galactostatin***. galacto-*Nojirimycin. 5-Amino-5-deoxygalactopyranose*


α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172Log P -3.55 (calc).

D-*form* [107537-94-0]
Isol. from *Streptomyces lydicus*. β-Galactosidase inhibitor.
Amorph. solid + ½ H_2O or syrup.
Mp 94-98°. $[\alpha]_D^{23}$ +85.6 (c, 1 in H_2O).
Stable up to 5d at 4°.
Bisulfite adduct: Mp 149-150°. $[\alpha]_D$ +19 (c, 0.8 in H_2O).

D-Pyranose-*form*
Pentakis(trimethylsilyl): [40222-80-8]
$C_{21}H_{53}NO_5Si_5$ 540.081
Liq.

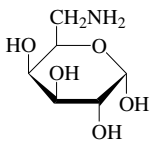
α-D-Furanose-*form*
*6-Trityl, 1,2-isopropylidene: 5-Amino-5-deoxy-1,2-*O*-isopropylidene-6-*O*-trityl-α-D-galactofuranose*
$C_{28}H_{31}NO_5$ 461.557
Mp 135°. $[\alpha]_D^{23}$ -11.5 (c, 1.0 in $CHCl_3$).

[40222-81-9, 108147-56-4, 109718-63-0]

Inouye, S. *et al., CA*, 1973, **78**, 47847g (*silyl deriv*)
Legler, G. *et al., Carbohydr. Res.*, 1986, **155**, 119 (*α-D-fur deriv*)
Miyake, Y. *et al., J. Antibiot.*, 1987, **40**, 122-123 (*isol*)
Miyake, Y. *et al., Agric. Biol. Chem.*, 1988, **52**, 153-158; 661-666 (*isol, pmr, cmr, struct, props*)
Aoyagi, S. *et al., J.O.C.*, 1991, **56**, 815-819 (*synth*)
Chida, N. *et al., Chem. Comm.*, 1994, 1247-1248 (*synth*)
Kirihata, M. *et al., Heterocycles*, 1995, **41**, 2271 (*synth*)
Dondoni, A. *et al., J.O.C.*, 1995, **60**, 4749 (*synth, pmr*)

6-Amino-6-deoxygalactose A-210

6-Aminofucose


α-D-Pyranose-*form*

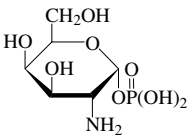
$C_6H_{13}NO_5$ 179.172

D-*form* [80255-40-9]
Syrup.
Hydrochloride: [4460-60-0]
Mp 229°.
N-*Benzoyl: 6-Benzamido-6-deoxy-D-galactose*
$C_{13}H_{17}NO_6$ 283.28
Cryst. (petrol). Mp 132.5°. $[\alpha]_D^{18}$ -26.7 (Me_2CO).
N-*Benzoyl, phenylhydrazone:* Mp 201°.

α-D-Pyranose-*form*
*1,2:3,4-Di-*O*-isopropylidene: 6-Amino-6-deoxy-1,2:3,4-di-*O*-isopropylidene-α-D-galactopyranose*
[4711-01-7]
$C_{12}H_{21}NO_5$ 259.302
Syrup. $Bp_{0.75}$ 122-126° (lit. gives a pressure range). $[\alpha]_D$ -70.9.
*Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-amino-6-deoxy-α-D-galactopyranoside*
[172911-54-5]
$C_{13}H_{21}NO_8$ 319.311
$[\alpha]_D^{22}$ +132.3 (c, 1.1 in MeOH) (as hydrochloride). CAS no. refers to hydrochloride.
*Me glycoside, 3,4-isopropylidene: Methyl 6-amino-6-deoxy-3,4-*O*-isopropylidene-α-D-galactopyranoside*
$C_{10}H_{19}NO_5$ 233.264
Cryst. ($MeOH/Me_2CO/Et_2O$)(as 4-methylbenzenesulfonate salt). Mp 175-176° (4-methylbenzenesulfonate salt). $[\alpha]_D^{20}$ +94.6 (c, 1.7 in H_2O) (4-methylbenzenesulfonate salt).
Freudenberg, K. *et al., Ber.*, 1925, **58**, 294 (*D-form, N-benzoyl, D-diisopropylidene*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1959, **81**, 3716 (*α-D-Me pyr isopropylidene*)
Coxon, B. *et al., Carbohydr. Res.*, 1980, **78**, 1 (*diisopropylidene*)
Ortiz Mellet, C. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1133-1152 (*Me α-D-gly tri-Ac*)

2-Amino-2-deoxygalactose 1-(dihydrogen phosphate), 8CI A-211

Galactosamine 1-phosphate. Chondrosamine 1-phosphate

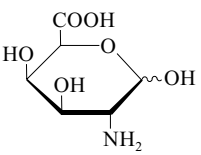

α-Pyranose-*form*

$C_6H_{14}NO_8P$ 259.152

α-D-Pyranose-*form* [35946-79-3]
$[\alpha]_D^{25}$ +142.6 (c, 2.0 in H_2O).
N-*Ac:* N-*Acetylgalactosamine 1-phosphate*
$C_8H_{16}NO_9P$ 301.189
$[\alpha]_D$ +178 (H_2O).
N-*Ac, Di-K salt:* $[\alpha]_D^{25}$ +112.4 (c, 2.9 in H_2O).
Biochem. Prep., 1971, **13**, 3 (*synth*)
Bauer, C. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1972, **353**, 1053; *CA*, **77**, 85209n (*pharmacol*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

2-Amino-2-deoxygalacturonic acid A-212

Galactosaminuronic acid


D−Pyranose−*form*

$C_6H_{11}NO_6$ 193.156

D-*form* [14307-17-6]
Isol. as *N*-acetate upon hydrol. of Vi antigen from *E. coli*. Amine component of the lipopolysaccharide of *Pseudomonas aeruginosa* NCTC 8505.
Mp 160° (blackens). $[\alpha]_D^{20}$ +84.5 (c, 1.0 in HCl, pH2).
N-*Formyl: 2-Deoxy-2-formamido-D-galacturonic acid*
[93772-80-6]
$C_7H_{11}NO_7$ 221.166
Component of *Pseudomonas aeruginosa* type 1 lipopolysaccharide.
N-*Ac: 2-Acetamido-2-deoxy-D-galacturonic acid*
$C_8H_{13}NO_7$ 235.193

Component of *Acinetobacter bowmannii*, *Pseudomonas fluorescens* and the marine *Pseudoalteromonas distincta* polysaccharides. Amorph. powder. $[\alpha]_D^{22}$ +29 (c, 1.4 in H_2O). Stored as Na salt.

N-*Ac, amide: 2-Acetamido-2-deoxy-D-galacturonamide*
[93790-40-0]
$C_8H_{14}N_2O_6$ 234.208
Component of *Pseudomonas aeruginosa* type 1 lipopolysaccharide.

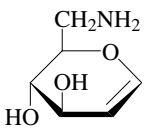
L-*form*

N-*Ac: 2-Acetamido-2-deoxy-L-galacturonic acid*
[82838-35-5]
$C_8H_{13}NO_7$ 235.193
The *O*-specific polysaccharide chains of the two serotypes of *Pseudomonas aeruginosa* are composed of repeating trisaccharide units consisting of L-rhamnose, *N*-acetyl-D-quinovosamine and *N*-acetyl-L-galactosaminuronic acid residues.

Heyns, K. *et al., Chem. Ber.*, 1957, **90**, 2443; 1959, **92**, 2435 (*isol, synth, D-form*)
Brownlee, S.T. *et al., Anal. Biochem.*, 1966, **14**, 414 (*anal*)
Wilkinson, S.G. *et al., Biochem. J.*, 1977, **161**, 103 (*occur*)
Dimitriev, B.A. *et al., Bioorg. Khim.*, 1979, **5**, 77 (*occur*)
Darakas, E. *et al., Carbohydr. Res.*, 1982, **103**, 176 (*synth, N-Ac*)
Knirel, Y.A. *et al., Carbohydr. Res.*, 1984, **133**, C12 (*occur, synth, derivs*)
Haseley, S.R. *et al., Eur. J. Biochem.*, 1996, **237**, 229 (*occur, N-Ac*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 1998, **306**, 297-303 (*occur, N-Ac*)
Muldoon, J. *et al., Carbohydr. Res.*, 2001, **330**, 231-239 (*occur, N-Ac*)

6-Amino-6-deoxyglucal A-213

6-Amino-1,5-anhydro-6-deoxy-arabino-*hex-1-enitol*



$C_6H_{11}NO_3$ 145.158

D-*form* [117136-34-2]

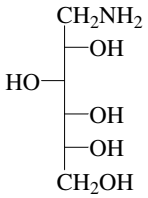
3,4-Di-Ac: 3,4-Di-O-*acetyl-6-amino-1,5-anhydro-6-deoxy-D*-arabino-*hex-1-enitol. 3,4-Di*-O-*acetyl-6-amino-6-deoxy-D-glucal*
[165274-74-8]
$C_{10}H_{15}NO_5$ 229.232
Golden gum. $[\alpha]_D^{23}$ -80.7 (c, 1 in $CHCl_3$).

*3,4,*N-*Tri-Ac: 6-Acetamido-3,4-di*-O-*acetyl-1,5-anhydro-6-deoxy-D*-arabino-*hex-1-enitol. 6-Acetamido-3,4-di*-O-*acetyl-6-deoxy-D-glucal*
[117136-29-5]
$C_{12}H_{17}NO_6$ 271.269
Orange syrup. $[\alpha]_D^{23}$ -5.45 (c, 0.18 in $CHCl_3$).

Dunkerton, L.V. *et al., J. Carbohydr. Chem.*, 1988, **7**, 49-65 (*D-form, tri-Ac*)
Mathews, W.B. *et al., J. Carbohydr. Chem.*, 1995, **14**, 287-297 (*D-form, di-Ac, tri-Ac, synth, pmr, cmr*)

1-Amino-1-deoxyglucitol, 9CI, 8CI A-214

1-Amino-1-deoxysorbitol. Sorbitylamine



$C_6H_{15}NO_5$ 181.188

D-*form*

Glucamine
[488-43-7]
Mp 126-128°. $[\alpha]_D^{25}$ -8 (c, 5.9 in H_2O). Slightly sweet taste.

Oxalate salt: Mp 177-179° dec. $[\alpha]_D^{25}$ -14 (c, 1.2 in H_2O).

Penta-O-*Ac: 2,3,4,5,6-Penta*-O-*acetyl-1-amino-1-deoxy-D-glucitol*
$C_{16}H_{25}NO_{10}$ 391.374
Cryst. (EtOH aq.) (as hydrochloride). Mp 178-180° (hydrochloride). $[\alpha]_D^{22}$ +1.5 (c, 0.7 in H_2O) (hydrochloride).

N-*Me: 1-Deoxy-1-(methylamino)glucitol, 9CI, 8CI.* ***Meglumine, BAN, INN, JAN, USAN.*** *Methylglucamine*
[6284-40-8]
$C_7H_{17}NO_5$ 195.215
Forms salts with iodinated carboxylic acids which are used as contrast media. V. sol. H_2O. Mp 128-129°. $[\alpha]_D^{18}$ -18.5 (H_2O). Forms salts with acids and complexes with metals.

N-*Me; antimonate: Glucantime. Protostib. RP 2168*
[133-51-7]
$C_7H_{18}NO_8Sb$ 365.971
Antileishmanial agent. Powder.

▶ LZ4370000

N-*Me,* N-*octanoyl:* [85316-98-9]
$C_{15}H_{31}NO_6$ 321.413
Mp 84-88°. $[\alpha]_D^{20}$ -16 (c, 1 in H_2O).

N-*Me,* N-*decanoyl: 1-Deoxy-1-[methyl(1-oxodecyl)amino]-D-glucitol, 9CI.* N-*Decanoyl*-N-*methylglucamine. MEG-10*
[85261-20-7]
$C_{17}H_{35}NO_6$ 349.467
Used in membrane research and chromatog. of proteins and nucleic acids. Readily removed by dialysis. Does not interfere with monitoring of proteins at 280 nm. Cryst. ($MeOH/Et_2O$). Mp 91-93°.

N,N,N-*Tri-Me:*

[95260-08-5, 155836-19-4]
$C_9H_{22}NO_5^{\oplus}$ 224.276
Mp 111° (as iodide).

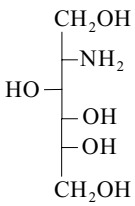
N-*Trityl:* [162104-94-1]
$C_{25}H_{29}NO_5$ 423.508
Mp 125-126°. $[\alpha]_D^{18.5}$ -9.8 (c, 1 in MeOH).

[8064-12-8]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 349C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 554A (*nmr*)
Karrer, P. *et al., Helv. Chim. Acta*, 1937, **20**, 83 (*synth*)
Holly, F. *et al., J.A.C.S.*, 1950, **72**, 5416 (*synth*)
Long, J.W. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 79 (*rev*)
Yakovleva, V.Y. *et al., Khim.-Farm. Zh.*, 1967, **1**, 51 (*Meglumine*)
Ger. Pat., 1975, 2 404 071, (*Henkel*); *CA*, **84**, 8854m (*Meglumine*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183-197 (*synth*)
Quesada, A.R. *et al., Biochem. J.*, 1988, **255**, 963 (*use, N-decanoyl-N-methylglucamine*)
Hildreth, J.E.K. *et al., Biochem. J.*, 1988, **255**, 963 (*synth, use, N-decanoyl-N-methylglucamine*)
Josic, D. *et al., J. Chromatogr.*, 1988, **476**, 309 (*use, N-decanoyl-N-methylglucamine*)
Silveria, F.T. *et al., Rev. Inst. Med. Trop. Sao Paulo*, 1993, **35**, 177 (*N-Me antimonate, use*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 302-303
Ortiz Mellet, C. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1133-1152 (*penta*-O-*Ac*)
Kilonda, A. *et al., Tetrahedron*, 1995, **51**, 849 (*trityl*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1724

2-Amino-2-deoxyglucitol, 9CI, 8CI A-215

Glucosaminol. Glucosaminitol



D-*form*

$C_6H_{15}NO_5$ 181.188

D-*form* [14307-03-0]
Mp 131-132°. pK_{a1} 8.81 (23°).

Hydrochloride: Mp 159-161°. $[\alpha]_{365}^{19}$ -6.8 (c, 0.76 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-glucitol*
$C_8H_{17}NO_6$ 223.225
Cryst. (MeOH). Mp 153°. $[\alpha]_D^{18}$ -11 (H_2O).

3,4:5,6-Di-O-*isopropylidene,* N-*Ac: 2-Acetamido-2-deoxy-3,4:5,6-di*-O-*isopropylidene-D-glucitol*
$C_{14}H_{25}NO_6$ 303.355
Mp 155-156°. $[\alpha]_D^{20}$ -19.9 (c, 1.72 in H_2O).

3-Phosphate:
$C_6H_{16}NO_8P$ 261.168
Mp 193-195°. $[\alpha]_D^{22}$ -20.5 (c, 0.25 in H_2O).

L-*form*

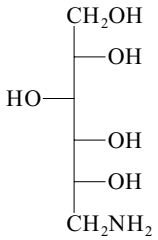
Hydrochloride:
Cryst. ($EtOH/H_2O$). Mp 159-161°. $[\alpha]_D^{19}$ +7 (c, 0.7 in H_2O).

Karrer, P. *et al., Helv. Chim. Acta*, 1937, **20**, 626 (*D-form, N-Ac*)
Lambert, R. *et al., Chem. Ber.*, 1963, **96**, 2350 (*phosphate*)
Karkkainen, J. *et al., Carbohydr. Res.*, 1969, **10**, 113 (*glc, ms*)

Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 459 (*N-Ac diisopropylidene*)
Kuzuhara, H. *et al., Carbohydr. Res.*, 1975, **45**, 245 (*L-form*)

6-Amino-6-deoxyglucitol A-216

1-Amino-1-deoxygulitol



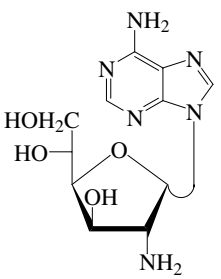
$C_6H_{15}NO_5$ 181.188

D-*form*

6-Amino-6-deoxy-D-glucitol. 1-Amino-1-deoxy-L-gulitol
[134354-65-7]

*1,3:2,4-Di-*O*-benzylidene: 6-Amino-1,3:2,4-di-*O*-benzylidene-6-deoxy-D-glucitol*
[128369-97-1]
$C_{20}H_{23}NO_5$ 357.405
Emulsion base for cosmetics. Syrup.
Japan. Pat., 1990, 02 67285; *CA*, **113**, 59775m (*dibenzylidene, use*)

9-(2-Amino-2-deoxyglucofuranosyl)adenine, 8CI A-217



α-D-*form*

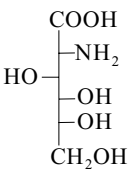
$C_{11}H_{16}N_6O_4$ 296.285

α-D-*form* [13190-59-5]
Mp 223-224° dec. $[\alpha]_D^{22}$ -3 (c, 1.0 in H_2O). λ_{max} 262 nm (ε 14 500) (H_2O).

β-D-*form* [14402-55-2]
Mp 225-226° dec. $[\alpha]_D^{22}$ -57 (c, 1.2 in H_2O). λ_{max} 262 nm (ε 14 400) (H_2O).
Wolfrom, M.L. *et al., Chem. Comm.*, 1966, 533 (*synth*)

2-Amino-2-deoxygluconic acid A-218

Glucosaminic acid



$C_6H_{13}NO_6$ 195.172

D-*form* [3646-68-2]
Mp 250° dec. $[\alpha]_D^{18}$ -14.3 (dil. HCl). pK_{a1} 9.24 (20°).

Me ester: [35813-12-8]
$C_7H_{15}NO_6$ 209.199
Mp 133-134° (as hydrochloride). $[\alpha]_D^{20}$ -12 (c, 2.0 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-gluconic acid*
[34051-47-3]
$C_8H_{15}NO_7$ 237.209
Mp 191-194° (as dicyclohexylammonium salt). $[\alpha]_D$ -2.9 (c, 1.0 in H_2O).

N-*Ac, Me ester: Methyl 2-acetamido-2-deoxy-D-gluconate*
[23558-10-3]
$C_9H_{17}NO_7$ 251.236
Cryst. (MeOH). Mp 145-147°. $[\alpha]_D$ +12.4 (c, 1.0 in H_2O).

N,*3,4,5,6-Penta-Ac, Me ester: Methyl 2-acetamido-3,4,5,6-tetra-*O*-acetyl-2-deoxy-D-gluconate*
$C_{17}H_{25}NO_{11}$ 419.385
Mp 113-114°. $[\alpha]_D^{23}$ -16.6 (c, 1.0 in CH_2Cl_2).

N-*Benzoyl, Et ester: Ethyl 2-benzamido-2-deoxy-D-gluconate*
$C_{15}H_{21}NO_7$ 327.333
Mp 144-145°. $[\alpha]_D$ +11.8 (H_2O).

*4,6-*O*-Isopropylidene,* N-*Ac: 2-Acetamido-2-deoxy-4,6-*O*-isopropylidene-D-gluconic acid*
[51844-22-5]
$C_{11}H_{19}NO_7$ 277.274
Mp 72° dec. $[\alpha]_D$ -35.1 (c, 1.0 in H_2O).

*5,6-*O*-Isopropylidene,* N-*Ac, Me ester: Methyl 2-acetamido-2-deoxy-5,6-*O*-isopropylidene-D-gluconate*
[51844-21-4]
$C_{12}H_{21}NO_7$ 291.3
Mp 83-85°. $[\alpha]_D$ +5.8 (c, 1.0 in Me_2CO).

*3,4:5,6-Di-*O*-isopropylidene,* N-*Ac: 2-Acetamido-2-deoxy-3,4:5,6-di-*O*-isopropylidene-D-gluconic acid*
$C_{14}H_{23}NO_7$ 317.338
Needles. Mp 195-196°. $[\alpha]_D^{22}$ -14.9 (c, 0.77 in MeOH).

*4,6-*O*-Benzylidene,* N*-benzoyl, Et ester: Ethyl 2-benzamido-4,6-*O*-benzylidene-2-deoxy-D-gluconate*
$C_{22}H_{25}NO_7$ 415.442
Cryst. (EtOH). Mp 175°. $[\alpha]_D^{27}$ -72 (c, 0.6 in $CHCl_3$).

N-*Me: 2-Deoxy-2-methylamino-D-gluconic acid*
$C_7H_{15}NO_6$ 209.199
Mp 230°. $[\alpha]_D$ +7.5 (dil. HCl).

*3-Me: 2-Amino-2-deoxy-3-*O*-methyl-D-gluconic acid*
$C_7H_{15}NO_6$ 209.199
Mp 230° (as hydrochloride). $[\alpha]_D$ -12 (dil. HCl).

*3,4,6-Tri-Me: 2-Amino-2-deoxy-3,4,6-tri-*O*-methyl-D-gluconic acid*
$C_9H_{19}NO_6$ 237.252
Mp 178-179°. $[\alpha]_D$ +10.5 (MeOH).

*3,4,5,6-Tetra-Me: 2-Amino-2-deoxy-3,4,5,6-tetra-*O*-methyl-D-gluconic acid*
$C_{10}H_{21}NO_6$ 251.279
Monohydrate (as hydrochloride). Mp 178-180° (hydrochloride). $[\alpha]_D$ 0 (c, 1 in MeOH).

3,4,6-Tribenzyl, N-*Ac, Me ester: Methyl 2-acetamido-3,4,6-tri-*O*-benzyl-2-deoxy-D-gluconate*
[34051-38-2]
$C_{30}H_{35}NO_7$ 521.609
$[\alpha]_D$ +24.8 (c, 1.0 in $CHCl_3$).

1,4-Lactone, N-*Ac: 2-Acetamido-2-deoxy-D-1,4-gluconolactone*
[5469-77-2]
$C_8H_{13}NO_6$ 219.194
Cryst. (Me_2CO). Mp 104-107°. $[\alpha]_D$ +112.7 → +100.9 (2 d) (c, 1.0 in H_2O).

*1,4-Lactone, 5,6-*O*-isopropylidene,* N-*Ac: 2-Acetamido-2-deoxy-5,6-*O*-isopropylidene-D-1,4-gluconolactone*
[51844-19-0]
$C_{11}H_{17}NO_6$ 259.258
Cryst. (Me_2CO). Mp 163-164°. $[\alpha]_D$ +140.8 (c, 0.5 in Me_2CO).

1,5-Lactone, 3,4-di-Me, N-*Ac: 2-Acetamido-2-deoxy-3,4-di-*O*-methyl-D-1,5-gluconolactone*
[53685-01-1]
$C_{10}H_{17}NO_6$ 247.247
Unstable foam. $[\alpha]_D$ +130.5 (c, 0.6 in Me_2CO).

*1,5-Lactone, 4,6-*O*-isopropylidene,* N-*Ac: 2-Acetamido-2-deoxy-4,6-*O*-isopropylidene-D-1,5-gluconolactone*
[51844-23-6]
$C_{11}H_{17}NO_6$ 259.258
Mp 148-150° Mp 162-164°. $[\alpha]_D$ +130.2 (c, 0.7 in Me_2CO).

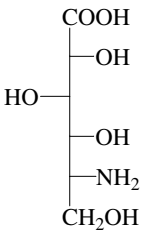
*1,5-Lactone, 4,6-*O*-benzylidene,* N-*Ac: 2-Acetamido-4,6-*O*-benzylidene-2-deoxy-D-1,5-gluconolactone*
[53684-94-9]
$C_{15}H_{17}NO_6$ 307.302
$[\alpha]_D$ -32.1 (c, 0.5 in Me_2CO).

1,5-Lactone, N-*Ac: 2-Acetamido-2-deoxy-D-1,5-gluconolactone*
[19026-22-3]
$C_8H_{13}NO_6$ 219.194
Mp 148-150°. $[\alpha]_D$ +137.7 (c, 0.5 in H_2O).

1,5-Lactone, 3,4,6-tribenzyl, N-*Ac: 2-Acetamido-3,4,6-tri-*O*-benzyl-2-deoxy-D-1,5-gluconolactone*
$C_{29}H_{31}NO_6$ 489.567
Cryst. (EtOH). Mp 141-142°. $[\alpha]_D$ +123.3 (c, 1.0 in $CHCl_3$).

Pringscheim, H. *et al., Ber.*, 1915, **48**, 680 (*D-form, synth*)
Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247 (*rev, derivs*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 1715 (*D-form, synth*)
Kuzuhara, H. *et al., Agric. Biol. Chem.*, 1962, **26**, 334 (*N-benzoyl Et ester benzylidene*)
Yoshimura, Y.J. *et al., Bull. Chem. Soc. Jpn.*, 1962, **35**, 467 (*N-Ac diisopropylidene*)
Pravdić, N. *et al., Carbohydr. Res.*, 1971, **19**, 339; 353; 1974, **32**, 115; **36**, 167 (*N-Ac derivs*)
Horton, D. *et al., Carbohydr. Res.*, 1972, **22**, 151 (*Me ester*)
de Gracia Garcia Martin, M. *et al., Carbohydr. Res.*, 1993, **240**, 301 (*3,4,5,6-tetra-Me*)

5-Amino-5-deoxygluconic acid, 9CI A-219



$C_6H_{13}NO_6$ 195.172

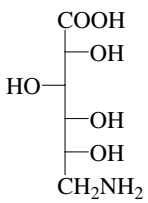
D-*form* [146979-27-3]

Lactam: D-Glucono-1,5-lactam
$C_6H_{11}NO_5$ 177.157
Prisms (EtOH aq.). Mp 203-205°. $[\alpha]_D^{22}$ +63 (H_2O).

*3,4,6-Tri-*O*-benzyl, lactam:*
$C_{27}H_{29}NO_5$ 447.53
Cryst. (EtOAc/hexane). Mp 95°. $[\alpha]_D^{20}$ +51.1 (c, 0.95 in $CHCl_3$).

Inouye, S. *et al., Tetrahedron*, 1968, **24**, 2125-2144 (*synth*)
Japan. Pat., 1971, 71 24 382; *CA*, **75**, 141114a (*synth*)
Ogura, H. *et al., Bull. Chem. Soc. Jpn.*, 1984, **57**, 2687-2688 (*cryst struct*)
Panday, N. *et al., Helv. Chim. Acta*, 2000, **83**, 513-538 (*derivs*)

6-Amino-6-deoxygluconic acid, 9CI A-220



D-*form*

$C_6H_{13}NO_6$ 195.172

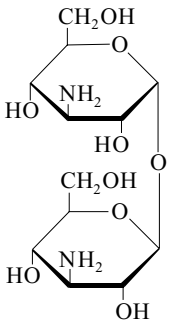
D-*form* [72402-40-5]
Mp 200-202°. $[\alpha]_D^{21}$ +23 (c, 1 in H_2O).

*1,6-Lactam: Hexahydro-3,4,5,6-tetrahydroxy-2*H*-azepin-2-one, 9CI. 3,4,5,6-Tetrahydroxyazepan-2-one*
[14199-62-3]
$C_6H_{11}NO_5$ 177.157
Cryst. (MeOH aq.). Mp 212-214°. $[\alpha]_D^{25}$ -71 (c, 0.4 in H_2O).

Hanessian, S. *et al., J.O.C.*, 1969, **34**, 675-681 (*D-form, lactam*)
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 2526-2535 (*D-form, synth*)
Joseph, C.C. *et al., Tetrahedron*, 2002, **58**, 6907-6911 (*D-form, synth, lactam*)

3-Amino-3-deoxy-β-D-gluco-pyranosyl 3-amino-3-deoxy-α-D-glucopyranoside, 9CI A-221

3,3′-Neotrehalosadiamine. BMY 28251. BU 2797. Antibiotic BMY 28251. Antibiotic Bu 2797
[104196-14-7]

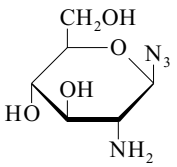


$C_{12}H_{24}N_2O_9$ 340.33

Aminoglycoside antibiotic. Prod. by *Bacillus pumilus* and *Bacillus circulans*. Active against gram-positive bacteria. Powder. Sol. H_2O.
Mp 116-119° dec. $[\alpha]_D^{24}$ +36 (c, 0.4 in H_2O).

Tsuno, T. *et al., J. Antibiot.*, 1986, **39**, 1001 (*isol, struct, props*)
Numata, K. *et al., J. Antibiot.*, 1986, **39**, 1346 (*isol*)

2-Amino-2-deoxyglucopyranosyl azide A-222



$C_6H_{12}N_4O_4$ 204.185

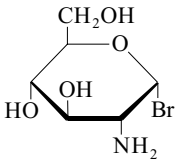
β-D-*form*

N-*Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl azide*
[29847-23-2]
$C_8H_{14}N_4O_5$ 246.222
Cryst. (EtOH/EtOAc). Mp 146-147° (142° dec.). $[\alpha]_D$ -45 (c, 0.6 in H_2O) (-30).

N,*3,4,6-Tetra-Ac: 2-Acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-β-D-glucopyranosyl azide*
[6205-69-2]
$C_{14}H_{20}N_4O_8$ 372.334
Chiral reagent for synth. of a variety of amino compds. Needles (EtOAc/hexane). Mp 166-167° dec. (160-161°). $[\alpha]_D^{25}$ -43.2 (c, 0.86 in $CHCl_3$).

Szilágyi, L. *et al., Carbohydr. Res.*, 1985, **143**, 21 (*β-D-form, synth*)
Sabesan, S. *et al., Carbohydr. Res.*, 1992, **223**, 169 (*synth, pmr*)
Unverzagt, C. *et al., J. Prakt. Chem.*, 1992, **334**, 570 (*synth*)
Tropper, F.D. *et al., Synthesis*, 1992, 618 (*synth, pmr, cmr*)

2-Amino-2-deoxyglucopyranosyl bromide A-223



$C_6H_{12}BrNO_4$ 242.069

α-D-*form*

*Tri-Ac: 3,4,6-Tri-*O*-acetyl-2-amino-2-deoxy-α-D-glucopyranosyl bromide*
$C_{12}H_{18}BrNO_7$ 368.181
Mp 149-150° (as hydrochloride). $[\alpha]_D$ +148.4 (Me_2CO).

Tri-Ac; hydrobromide: [4710-88-7]
Mp 154-155°. $[\alpha]_D^{20}$ +150 (Me_2CO).

N,*3,4,6-Tetra-Ac: 2-Acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-α-D-glucopyranosyl bromide*
[51533-00-7]
$C_{14}H_{20}BrNO_8$ 410.218
Mp 89-91° (128°). $[\alpha]_D^{20}$ +148 ($CHCl_3$). $[\alpha]_D^{24}$ +110 (c, 1 in $CHCl_3$).

N-*Benzoyl, tri-Ac: 3,4,6-Tri-*O*-acetyl-2-benzamido-2-deoxy-α-D-glucopyranosyl bromide*
[38191-63-8]
$C_{19}H_{22}BrNO_8$ 472.289
Mp 104°. $[\alpha]_D^{20}$ +166 (c, 1 in $CHCl_3$).

N,*3,4,6-Tetrabenzoyl: 2-Benzamido-3,4,6-tri-*O*-benzoyl-2-deoxy-α-D-glucopyranosyl bromide*
[38191-64-9]
$C_{34}H_{28}BrNO_8$ 658.501
Cryst. (Et_2O). Mp 130-132°.

N-*(3-Nitrobenzoyl), tribenzoyl:* [50604-53-0]
Cryst. (Et_2O/petrol). Mp 102-104°.

N-*(4-Nitrobenzoyl), tribenzoyl:* [50604-52-9]
Cryst. (Et_2O/petrol). Mp 109-110°.

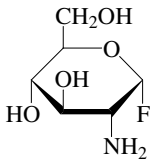
N-*Trifluoroacetyl, tri-Ac:* [6736-63-6]
Cryst. (Et_2O/hexane). Mp 96-97°. $[\alpha]_D^{20}$ +125 (c, 2.7 in $CHCl_3$).

N-*Trifluoroacetyl, tribenzoyl:* [50604-60-9]
Cryst. (petrol). Mp 135-137°.

N-*(2,4-Dinitrophenyl), tri-Ac:* [3068-36-8]
Cryst. (Me_2CO/petrol). Mp 162-164° (155-157°). $[\alpha]_D^{19}$ +45.6 (c, 0.8 in $CHCl_3$).

Irvine, J.C. *et al., J.C.S.*, 1922, **121**, 2370 (*α-D-tri-Ac*)
May, E.L. *et al., J.O.C.*, 1950, **15**, 890 (*α-D-tri-Ac*)
Lloyd, P.F. *et al., Tetrahedron*, 1960, **9**, 116 (*α-D-N-dinitrophenyl tri-Ac*)
Horton, D. *et al., J.O.C.*, 1962, **27**, 1794 (*α-D-N-dinitrophenyl tri-Ac*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1969, **11**, 63 (*α-D-N-trifluoroacetyl tri-Ac*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 282 (*tetraacetyl*)
Weidmann, H. *et al., Carbohydr. Res.*, 1973, **29**, 135; **31**, 135 (*α-D-benzamido tri-Ac, α-D-tetrabenzoyl, α-D-nitrobenzoyl derivs, α-D-N-trifluoroacetyl tribenzoyl*)
Stoeckl, P. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1974, **1**, 169 (*α-D-tetra-Ac, pmr*)

2-Amino-2-deoxyglucopyranosyl fluoride A-224



α-D-*form*

$C_6H_{12}FNO_4$ 181.163

α-D-*form*
Cryst. (as hydrofluoride).

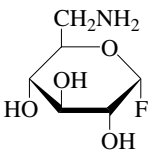
β-D-*form*

N-*Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl fluoride*
[60894-73-7]
$C_8H_{14}FNO_5$ 223.201
Cryst. (MeOH/$CHCl_3$/Et_2O). Mp 199-201°. $[\alpha]_D^{25}$ 0 (c, 0.4 in MeOH).

2N,3,4,5-Tetra-Ac: 2-Acetamido-3,4,5-tri-O-acetyl-β-D-glucopyranosyl fluoride
[60894-74-8]
$C_{14}H_{20}FNO_8$ 349.312
Prisms (MeOH/$CHCl_3$). Mp 156.5°.

Ballardie, F.W. *et al., Carbohydr. Res.*, 1976, **49**, 79 (*synth, Ac derivs, pmr, F-19 nmr*)
Fr. Pat., 1990, 2 640 627; *CA*, **114**, 185933v (*synth*)

6-Amino-6-deoxyglucopyranosyl fluoride A-225



$C_6H_{12}FNO_4$ 181.164

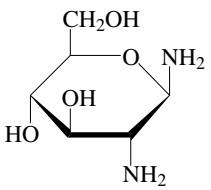
α-D-*form* [161925-19-5]
Amorph. solid.

N-*Ac: 6-Acetamido-6-deoxy-α-D-glucopyranosyl fluoride*
[161925-20-8]
$C_8H_{14}FNO_5$ 223.201
Cryst. (MeOH/Et_2O). Mp 156-157°. $[\alpha]_D^{20}$ +74.1 (c, 1.02 in H_2O).

Horneman, A.M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1-8 (*α-D-form, N-Ac, synth, pmr, cmr*)

2-Amino-2-deoxyglucopyranosylamine, 9CI A-226

[103172-84-5]



$C_6H_{14}N_2O_4$ 178.188

β-D-Pyranose-*form*

1-N-*Ac:* [18615-50-4]
$C_8H_{16}N_2O_5$ 220.225
Solid (Et_2O/MeOH aq.). Mp 233-234° dec. $[\alpha]_D^{22}$ -38.1 (c, 0.7 in H_2O).

2-N-*Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosylamine*
[4229-38-3]
$C_8H_{16}N_2O_5$ 220.225
Starting compd. for synth. of glycoconjugates. Hygroscopic solid. Mp 115° Mp 140-143° dec. $[\alpha]_D^{23}$ -9.2 (c, 1.49 in H_2O). Sinters at 70°, foams at 104-110°.

1,2-Di-N-*Ac:* [6205-72-7]
$C_{10}H_{18}N_2O_6$ 262.262
Cryst. (EtOH). Mp 265-266°. $[\alpha]_D^{24}$ +26.4 (c, 1.0 in H_2O).

2-N-*Ac, 3,4,6-tri*-O-*Ac:* [4515-24-6]
$C_{14}H_{22}N_2O_8$ 346.336
Cryst. (EtOH). Mp 235° dec. $[\alpha]_D^{24}$ -22.9 (c, 1.15 in $CHCl_3$). $[\alpha]_D$ +18 (c, 0.5 in Py).

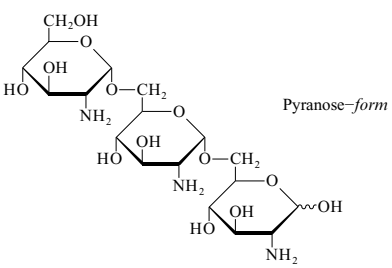
1,2-Di-N-*Ac, 3,4,6-tri*-O-*Ac:* [6205-71-6]
$C_{16}H_{24}N_2O_9$ 388.374
Needles (EtOH). Mp 239-240° dec. $[\alpha]_D^{32}$ +17.9 (c, 1.0 in Py).

1-N-*(4-L-Aspartyl), 2*-N-*Ac:* See *N*-[2-(Acetylamino)-2-deoxy-β-D-glucopyranosyl]-L-asparagine, A-12

Makino, M. *et al., J. Biochem. (Tokyo)*, 1968, **63**, 186-192 (*2-N-Ac*)
Kiyozumi, M. *et al., Carbohydr. Res.*, 1970, **14**, 355-364 (*2-N-Ac, penta-Ac*)
Cowley, D.E. *et al., Carbohydr. Res.*, 1971, **19**, 231-241 (*1-N-Ac*)
Paul, B. *et al., Carbohydr. Res.*, 1978, **67**, 457-468; 1980, **80**, 99-115 (*2-N-Ac, 1,2-di-N-Ac, penta-Ac*)
Tamura, M. *et al., Carbohydr. Res.*, 1984, **133**, 207-218 (*2-N-Ac*)
Likhosherstov, L.M. *et al., Carbohydr. Res.*, 1986, **146**, C1-C5 (*2-N-Ac, 1,2-di-N-Ac*)
Manger, I.D. *et al., Biochemistry*, 1992, **31**, 10724-10732 (*2-N-Ac*)
Christiansen-Brams, I. *et al., J.C.S. Perkin 1*, 1993, 1461-1471 (*2-N-Ac tri-O-Ac*)
Isac-Garcia, J. *et al., Eur. J. Org. Chem.*, 2001, 383-390 (*2-N-Ac tri-O-Ac*)

2-Amino-2-deoxy-α-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-α-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose, 9CI A-227

[67546-30-9]

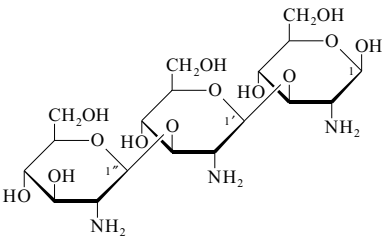


Pyranose–*form*

$C_{18}H_{35}N_3O_{13}$ 501.487
Amorph. solid +3H_2O (as trihydrochloride). $[\alpha]_D$ +92 (c, 1.03 in H_2O). CAS no. refers to trihydrochloride.

Paulsen, H. *et al., Chem. Ber.*, 1978, **111**, 2334 (*synth*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose, 9CI A-228



$C_{18}H_{35}N_3O_{13}$ 501.487
Constit. of the capsular polysaccharide of *Neisseria meningitidis*.

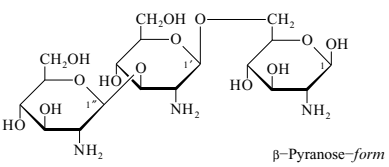
β-Pyranose-*form*

N,N′,N″-*Tri-Ac:* [99088-39-8]
$C_{24}H_{41}N_3O_{16}$ 627.598
Amorph. $[\alpha]_D^{20}$ +15.4 (c, 0.5 in H_2O).

Undeca-Ac: [99088-38-7]
$C_{40}H_{57}N_3O_{24}$ 963.896
Cryst. Mp 194° dec. $[\alpha]_D^{20}$ +7 (c, 1.0 in $CHCl_3$).

Kinzy, W. *et al., Annalen*, 1985, 1537 (*tri-Ac, undeca-Ac, pmr*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose, 8CI A-229



β–Pyranose–*form*

$C_{18}H_{35}N_3O_{13}$ 501.487

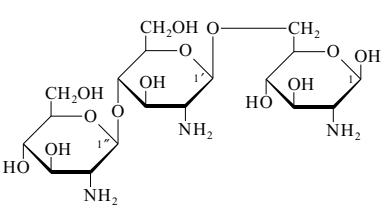
β-Pyranose-*form*

4-Nitrophenyl glycoside, N,N′,N″-*tri-Ac:* [30688-44-9]
Cryst. (EtOH aq.). Mp 209-210° dec. $[\alpha]_D^{20}$ +8 (c, 0.18 in MeOH aq.).

4-Nitrophenyl glycoside, deca-Ac: [30902-48-8]
Cryst. (MeOH). Mp 280-281° (MeOH). $[\alpha]_D^{20}$ +75 (c, 0.13 in $CHCl_3$/MeOH).

Zurabyan, S.E. *et al., Carbohydr. Res.*, 1970, **15**, 21 (*synth*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose, 8CI A-230



$C_{18}H_{35}N_3O_{13}$ 501.487

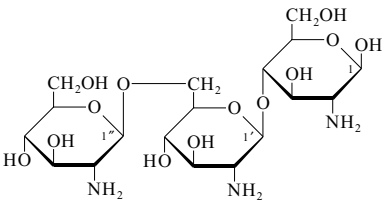
β-Pyranose-*form*

4-Nitrophenyl glycoside, N,N′,N′′-*tri-Ac:* [23262-60-4]
Cryst. + $2H_2O$ (MeOH aq.). Mp 239-241° dec. $[\alpha]_D^{20}$ -47.5 (c, 1.19 in H_2O).

4-Nitrophenyl glycoside, deca-Ac: [23262-61-5]
Cryst. (MeOH). Mp 289-290° dec. $[\alpha]_D^{20}$ -31 (c, 0.55 in MeOH/$MeNO_2$).

Zurabyan, S.E. *et al., Carbohydr. Res.*, 1969, **9**, 215 (*synth*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →6)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI A-231



$C_{18}H_{35}N_3O_{13}$ 501.487

β-Pyranose-*form*

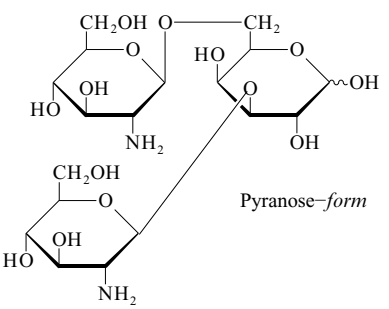
4-Nitrophenyl glycoside, N,N′,N′′-*tri-Ac:* [35942-04-2]
Cryst. (MeOH aq.). Mp 257.5-259°. $[\alpha]_D^{20}$ -2 (c, 0.21 in H_2O).

*4-Nitrophenyl glycoside, 2*N,*2′*N,*2′′*N,*3,3′,3′′,4′′,6,6′′-nona-Ac:* [35942-03-1]
Cryst. ($MeNO_2$). Mp 273.5-275° dec. $[\alpha]_D^{20}$ -44 (c, 0.2 in DMF).

Zurabyan, S.E. *et al., Khim. Prir. Soedin.*, 1971, **7**, 689; *Chem. Nat. Compd. (Engl. Transl.)*, 1971, **7**, 670 (*synth*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →3)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)]-D-galactose A-232

*6′-β-Glucosaminyllacto-*N-*biose II. 3,6-Di-glucosaminylgalactose*



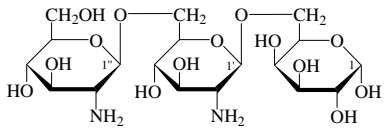
Pyranose–*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

N,N′-*Di-Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl-(1 →3)-[2-acetamido-2-deoxy-β-D-glucopyranosyl-(1 →6)]-D-glucose. 6′-β-*N-*Acetylglucosaminyllacto-*N-*biose II*
[55612-66-3]
$C_{22}H_{38}N_2O_{16}$ 586.546
Isol. from the partial acid hydrolysate of the hydrazinolysate of blood group A mucopolysaccharide from hog gastric mucin.
$[\alpha]_D$ +6.5 (H_2O).

Yosizawa, Z. *et al., J. Biochem. (Tokyo)*, 1962, **51**, 145
Blanken, W.M. *et al., Anal. Biochem.*, 1985, **145**, 322 (*hplc*)
Seppo, A. *et al., Biochem. Cell Biol.*, 1990, **68**, 44 (*synth*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →6)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-D-galactose A-233



α-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

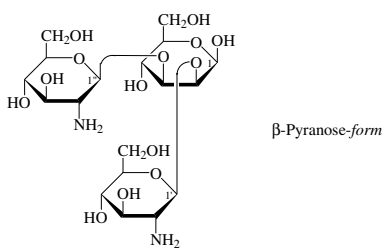
α-Pyranose-*form*

*1,2:3,4-Di-*O-*isopropylidene, 2′*N,*2′′*N,*3′,3′′,4′,4′′,6′′-hepta-Ac:* [128358-55-4]
$C_{38}H_{56}N_2O_{21}$ 876.861
Cryst. (EtOAc/MeOH/hexane). Mp 246-248° dec. $[\alpha]_D$ -48.2 (c, 1.03 in $CHCl_3$).

*1,2:3,4-Di-*O-*isopropylidene, 3′,3′′,4′,4′′,6′′-pentabenzyl,* N′,N′′-*bis(benzenesulfonyl):* [128358-54-3]
$C_{71}H_{80}N_2O_{18}S_2$ 1313.548
Glass. $[\alpha]_D$ -37.2 (c, 1.30 in $CHCl_3$).

Griffith, D.A. *et al., J.A.C.S.*, 1990, **112**, 5811 (*diisopropylidene derivs, ir, pmr, cmr, ms*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →2)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)]-D-mannose, 9CI A-234



β-Pyranose-*form*

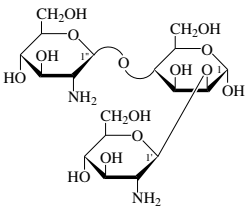
$C_{18}H_{34}N_2O_{14}$ 502.472

β-Pyranose-*form*

*1,2′*N,*2′′*N,*3′,3′′,4,4′,4′′,6,6′,6′′-Undeca-Ac:* [131940-22-2]
$C_{40}H_{56}N_2O_{25}$ 964.881
Cryst. (Me_2CO/hexane). Mp 230-232°. $[\alpha]_D^{20}$ -18 (c, 0.8 in $CHCl_3$).

Lafont, D. *et al., Bull. Soc. Chim. Fr.*, 1990, 576 (*undeca-Ac*)
Lafont, D. *et al., Can. J. Chem.*, 1990, **68**, 828 (*undeca-Ac, pmr, cmr*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →2)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)]-D-mannose, 9CI A-235



α-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472
Constit. of the primary struct. of the carbohydrate units of desialysed human plasma α_1-acid glycoprotein, e.g. orosomucoid.

N,N′-*Di-Ac:* [39523-54-1]
$C_{22}H_{38}N_2O_{16}$ 586.546
Amorph. powder. $[\alpha]_D^{21}$ -16 (c, 1.0 in H_2O).

α-Pyranose-*form*

Me glycoside, N,N′-*di-Ac:* [80599-59-3]
$C_{23}H_{40}N_2O_{16}$ 600.573
Amorph. solid + 1.5 H_2O. $[\alpha]_D^{25}$ +9.1 (c, 0.9 in MeOH).

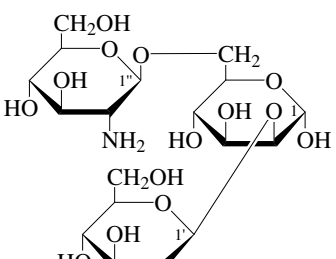
Me glycoside, 3,6-dibenzyl, N,N′-*di-Ac:* [80599-58-2]
$C_{37}H_{52}N_2O_{16}$ 780.822
Syrup. $[\alpha]_D^{25}$ +6.7 (c, 0.57 in MeOH).

Benzyl glycoside, 3,6-dibenzyl, octa-Ac: [80859-29-6]
$C_{55}H_{68}N_2O_{22}$ 1109.142
Syrup. $[\alpha]_D^{21}$ +7 (c, 1.0 in $CHCl_3$).

[129670-26-4, 129670-41-3, 136945-21-6]

Fournet, B. *et al., Biochemistry*, 1978, **17**, 5206 (*occur*)
Ogawa, T. *et al., Agric. Biol. Chem.*, 1981, **45**, 2329 (*α-Me pyr di-Ac derivs, pmr*)
Arnarp, J. *et al., Carbohydr. Res.*, 1981, **97**, 307 (*synth, α-benzyl pyr octa-Ac deriv, pmr, cmr*)
Lafont, D. *et al., Can. J. Chem.*, 1990, **68**, 828 (*synth, pmr, derivs*)
Paulsen, H. *et al., Carbohydr. Res.*, 1991, **216**, 289 (*derivs*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →2)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)]-D-mannose, 9CI A-236



$C_{18}H_{34}N_2O_{14}$ 502.472
Constit. of hen ovomucoid oligosaccharides.

α-Pyranose-*form*

1,2′N,2″N,3,3′,3″,4,4′,4″,6′,6″-Undeca-Ac: [136945-04-5]
$C_{40}H_{56}N_2O_{25}$ 964.881
Syrup.

2′N,2″N,3,3′,3″,4,4′,4″,6′,6″-Deca-Ac: [136945-05-6]
$C_{38}H_{54}N_2O_{24}$ 922.844
Syrup. $[\alpha]_D^{20}$ -11.5 (c, 1.2 in $CHCl_3$).

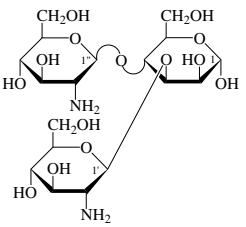
3,4-Dibenzyl, 2′N,2″N,3′,3″,4′,4″,6′,6″-octa-Ac: [136945-03-4]
$C_{48}H_{62}N_2O_{22}$ 1019.018
Syrup. $[\alpha]_D^{20}$ +0.85 (c, 1.05 in $CHCl_3$).

Me glycoside, N,N′*-di-Ac:* [109976-96-7]
$C_{23}H_{40}N_2O_{16}$ 600.573
Syrup.

[136945-22-7]

Cumming, D.A. *et al., Biochemistry*, 1987, **26**, 6664 (α-*Me pyr , conformn, pmr*)
Brockhausen, I. *et al., J. Biol. Chem.*, 1989, **264**, 11211 (α-*Me pyr di-Ac, ms, hplc, occur*)
Paulsen, H. *et al., Carbohydr. Res.*, 1991, **216**, 289 (α-*pyr Ac derivs, pmr*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →3)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)]-D-mannose A-237



α-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

α-Pyranose-*form*

Undeca-Ac:
$C_{40}H_{56}N_2O_{25}$ 964.881
Foam. $[\alpha]_D^{20}$ -17.9 (c, 1.0 in $CHCl_3$).

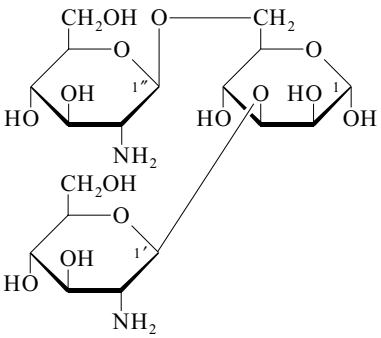
2′N,2″N-Di-allyloxycarbonyl, nona-Ac:
$C_{44}H_{60}N_2O_{27}$ 1048.955
Cryst. (2-propanol). $[\alpha]_D^{20}$ +2.8 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

1,6-Anhydro, 2′N,2″N-di-allyloxycarbonyl, 3′,3″,4′,4″,6′,6″-hexa-Ac:
$C_{38}H_{52}N_2O_{23}$ 904.828
Cryst. (EtOH). Mp 208-210°. $[\alpha]_D^{20}$ -21.5 (c, 1.0 in $CHCl_3$).

Lafont, D. *et al., Can. J. Chem.*, 1990, **68**, 828 (α-*undeca-Ac, α-nona-Ac deriv, β-anhydro hexa-Ac deriv*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →3)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)]-D-mannose, 9CI A-238



$C_{18}H_{34}N_2O_{14}$ 502.472
Constit. of complex type glycan chains *N*-linked to proteins.

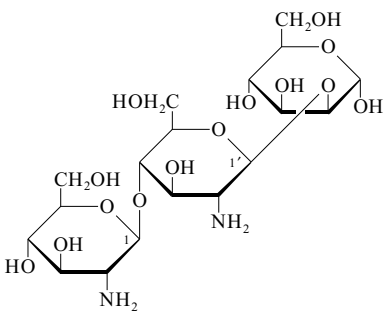
α-Pyranose-*form*

Me glycoside, N,N′*-di-Ac:* [80612-73-3]
$C_{23}H_{40}N_2O_{16}$ 600.573
Amorph. + $2H_2O$. $[\alpha]_D^{25}$ -6.9 (c, 0.8 in H_2O).

Me glycoside, 2,4-dibenzyl, N,N′*-di-Ac:* [80599-61-7]
$C_{37}H_{52}N_2O_{16}$ 780.822
Syrup. $[\alpha]_D^{25}$ -1.8 (c, 0.85 in MeOH).

Montreuil, J. *et al., Pure Appl. Chem.*, 1975, **42**, 431 (*occur*)
Ogawa, T. *et al., Agric. Biol. Chem.*, 1981, **45**, 2329 (α-*Me pyr di-Ac derivs, pmr, cmr*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →2)-D-mannose, 9CI A-239



$C_{18}H_{34}N_2O_{14}$ 502.472

α-Pyranose-*form*

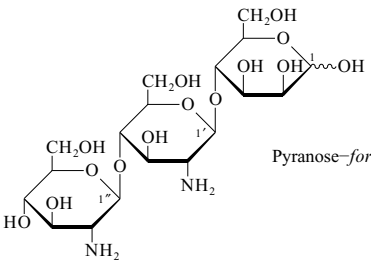
Me glycoside, 3,4,6-tribenzyl, N,N′*-di-Ac:* [131221-99-3]
$C_{44}H_{58}N_2O_{16}$ 870.946
Amorph. powder + $1.5H_2O$. $[\alpha]_D^{23}$ +32.8 (c, 0.082 in MeOH).

Me glycoside, 3,4,6-tribenzyl, 2′N,2″N,3′,3″,4″,6′,6″-hepta-Ac: [131221-74-4]
$C_{54}H_{68}N_2O_{21}$ 1081.132
Powder + H_2O. $[\alpha]_D^{23}$ +16.5 (c, 0.065 in $CHCl_3$).

Me glycoside, 3,3′,3″,4,6,6′,6″-heptabenzyl, N,N′*-di-Ac:* [131222-01-0]
$C_{72}H_{82}N_2O_{16}$ 1231.444
Syrup. $[\alpha]_D^{23}$ +3.8 (c, 0.40 in $CHCl_3$).

Nishimura, S. *et al., Carbohydr. Res.*, 1990, **206**, 207 (α-*Me pyr derivs, pmr*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-D-mannose, 9CI A-240



Pyranose–*form*

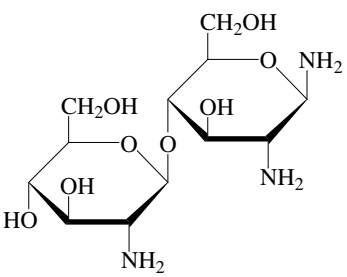
$C_{18}H_{34}N_2O_{14}$ 502.472

2,5-Anhydro, 2′N,2″N,3,3′,3″,4″,6,6′,6″-nona-Ac: [101667-44-1]
$C_{36}H_{50}N_2O_{22}$ 862.791
Depolymerised product of partially *N*-acetylated chitosan. Syrup + H_2O. $[\alpha]_D^{24}$ +1 (c, 1.0 in $CHCl_3$).

Hirano, S. *et al., Carbohydr. Res.*, 1985, **144**, 338 (*anhydro nona-Ac*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →4)-2-amino-2-deoxy-D-glucosylamine A-241

2-Amino-4-O-(2-amino-2-deoxy-β-D-glucopyranosyl)-2-deoxyglucopyranosylamine, 9CI. Chitobiosylamine



$C_{12}H_{25}N_3O_8$ 339.345

β-D-Pyranose-*form*

2,2′-N-*Di-Ac:* N,N′*-Diacetylchitobiosamine* [102039-77-0]
$C_{16}H_{29}N_3O_{10}$ 423.419
Starting compd. for synth. of glycoconjugates. Cryst. Mp 221-222° dec. $[\alpha]_D^{20}$ -11 (c, 1.1 in H_2O).

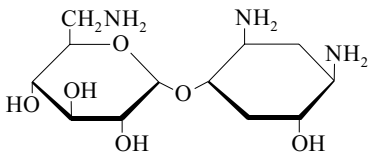
1,2,2′-N-*Tri-Ac:* [102039-78-1]
$C_{18}H_{31}N_3O_{11}$ 465.456
Solid (MeOH). Mp 303-304° dec. $[\alpha]_D^{20}$ +2.5 (c, 1.0 in H_2O).

2,2′,3,3′,4′,6,6′-O,O,O,O,O,O,N,N-*Hepta-Ac:* [29673-51-6]
$C_{26}H_{39}N_3O_{15}$ 633.605
Cryst. (MeOH). Mp 232-233° dec. $[\alpha]_D^{20}$ -33 (c, 1 in $CHCl_3$).

1-N-*(4-L-Aspartyl), 2,2′-di*-N-*Ac:* [29625-73-8]
$C_{20}H_{34}N_4O_{13}$ 538.508
Model glycopeptide. Cryst. (EtOH or H_2O). Mp 259-260° dec. $[\alpha]_D^{20}$ +5.6 (c, 1 in H_2O).
Spinola, M. *et al., J. Biol. Chem.*, 1970, **245**, 4158-4162 (*4-L-aspartyl, penta*-O-*Ac*)
Likhosherstov, L.M. *et al., Carbohydr. Res.*, 1986, **146**, C1-C5 (*synth, cmr, N-Ac*)
Likhosherstov, L.M. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1986, 1663-1669; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1986, 1512-1517 (*synth, 4-L-aspartyl*)
U.S. Pat., 1993, 5 212 298; *CA*, **122**, 188026 (*synth*)

4-*O*-(6-Amino-6-deoxygluco-pyranosyl)-2,5-dideoxystreptamine A-242

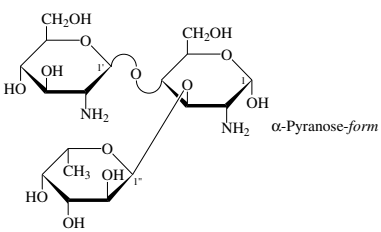
[61403-83-6]



$C_{12}H_{25}N_3O_6$ 307.346
Aminoglycoside antibiotic. Isol. from *Streptomyces kanamyceticus* with 2,5-Dideoxystreptamine. Active against gram-positive bacteria. Sol. H_2O; poorly sol. EtOH, hexane.
Carbonate (3:1): Mp 153°. $[\alpha]_D^{21}$ +104.6 (c, 1.39 in H_2O).
Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1976, **49**, 1975 (*synth, ir, pmr*)
Kavadias, G. *et al., Can. J. Chem.*, 1978, **56**, 2086 (*synth*)
Japan. Pat., 1978, 78 34 988; *CA*, **89**, 127758 (*isol*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1→4)-[α-L-fucopyranosyl-(1→3)]-2-amino-2-deoxy-D-glucose A-243

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→4)-[6-deoxy-α-L-galactopyranosyl-(1→3)]-2-amino-2-deoxy-D-glucose, 9CI. 3-O-*Fucopyranosylchitobiose*



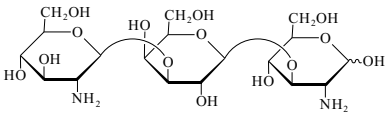
$C_{18}H_{34}N_2O_{13}$ 486.472
N,N′-*Di-Ac:* [77735-22-9]
$C_{22}H_{38}N_2O_{15}$ 570.547
Cryst. + $3H_2O$. Mp 169-172°. $[\alpha]_D^{22}$ +8.3 → +6.7 (c, 0.6 in H_2O).

α-Pyranose-*form*

*2″,3″,4″-Tribenzyl, 1,2*N,*2′*N,*3′,4′,6,6′-hepta-Ac:* [77735-21-8]
$C_{53}H_{66}N_2O_{20}$ 1051.106
Cryst. (EtOAc/Et_2O/hexane). Mp 165-166°. $[\alpha]_D^{22}$ -39.7 (c, 0.72 in MeOH).
Oguri, S. *et al., Chem. Pharm. Bull.*, 1980, **28**, 3196 (*di-Ac, α-tribenzyl hepta-Ac, pmr, cmr*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1→3)-β-D-galactopyrano-syl-(1→3)-2-amino-2-deoxy-D-glucose A-244

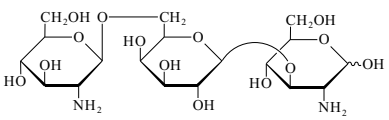
3^2*-β-*N-*Glucosaminyllacto*-N-*biose I*



$C_{18}H_{34}N_2O_{14}$ 502.472
N,N′-*Di-Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→3)-2-acetamido-2-deoxy-D-glucose. 3*^{2}*-β-*N-*Acetylglucosaminyllacto*-N-*biose I*
$C_{22}H_{38}N_2O_{16}$ 586.546
Isol. from the partial hydrolysate of hog gastric mucin.
$[\alpha]_D$ +19.5 (H_2O).
Okuyama, T. *et al., CA*, 1961, **55**, 88817; 1962, **57**, 1880 (*isol*)

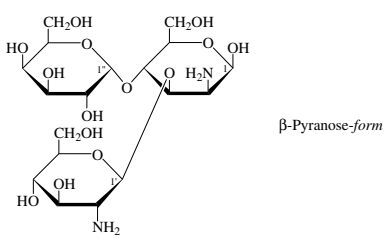
2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1→6)-β-D-galactopyrano-syl-(1→3)-2-amino-2-deoxy-D-glucose A-245

6^2-N-*Glucosaminyllacto*-N-*biose I*



$C_{18}H_{34}N_2O_{14}$ 502.472
N,N′-*Di-Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl-(1→6)-β-D-galactopyranosyl-(1→3)-2-acetamido-2-deoxy-D-glucose. 6*^{2}*-β-*N-*Acetylglucosaminyllacto*-N-*biose I*
$C_{22}H_{38}N_2O_{16}$ 586.546
Isol. from the partial hydrolysate of hog gastric mucin.
$[\alpha]_D$ +51.6 (H_2O).
Okuyama, T. *et al., CA*, 1961, **55**, 18817; 1962, **57**, 8880 (*isol*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1→3)-[α-D-galactopyrano-syl-(1→4)]-2-amino-2-deoxy-D-man-nose, 9CI A-246



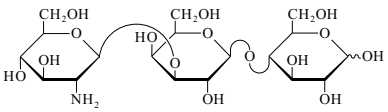
$C_{18}H_{34}N_2O_{14}$ 502.472
Repeating unit in the surface layer glycoproteins of the outermost cell envelope of *Clostridium thermosaccharolyticum* D120-70.

β-Pyranose-*form*

N,N′-*Di-Ac:* [126595-66-2]
$C_{22}H_{38}N_2O_{16}$ 586.546
Liq.
Altman, E. *et al., Eur. J. Biochem.*, 1990, **188**, 73 (*isol, pmr, cmr, glc, ms*)

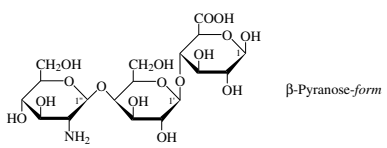
2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1→3)-β-D-galactopyrano-syl-(1→4)-D-glucose A-247

3^2*-Glucosaminyllactose*



$C_{18}H_{33}NO_{15}$ 503.456
N-*Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-D-glucose. 3*^{2}*-β-N-Acetylglucosaminyllactose. Lacto*-N-*triose II*
[75645-27-1]
$C_{20}H_{35}NO_{16}$ 545.494
Isol. from the partial acid hydrolysates of the tetra and higher saccharides obt. from human milk; does not occur free in milk. Mp 201-202°. $[\alpha]_D$ +40.7 (in H_2O).
N-*Ac, phenylosazone:* Mp 230°.
[24741-60-4]
Kuhn, R. *et al., Chem. Ber.*, 1958, **91**, 364; 1960, **93**, 647; 1962, **95**, 513; 518 (*isol*)
Okuyama, T. *et al., CA*, 1961, **55**, 18817; 1962, **57**, 8880 (*isol*)
Acher, A.J. *et al., J.O.C.*, 1970, **35**, 2436 (*synth*)
Koenderman, A.H.L. *et al., Biomed. Chromatogr.*, 1986, **1**, 104; *CA*, **106**, 191579k (*synth*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1→4)-β-D-galactopyrano-syl-(1→4)-D-glucose, 9CI A-248



$C_{18}H_{33}NO_{15}$ 503.456

Pyranose-*form*

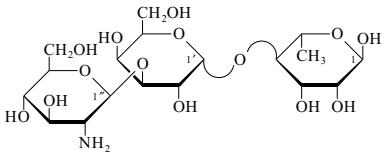
*2′,6′-Dibenzyl, 2,3,6-tribenzoyl, 2″*N,*3′,3″,4″,6″-penta-Ac:*
$C_{63}H_{67}NO_{23}$ 1206.215
Syrup + H_2O.

β-Pyranose-*form*

*Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, 2″*N,*3′,3″,4″,6″-penta-Ac:* [95580-55-5]
$C_{70}H_{79}NO_{20}$ 1254.389
Syrup. $[\alpha]_D$ +12.1 (c, 1.2 in $CHCl_3$).
Ito, Y. *et al., J. Carbohydr. Chem.*, 1988, **7**, 359 (*penta-Ac deriv, β-benzyl pyr penta-Ac deriv, pmr*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→3)-α-D-galactopyranosyl-(1→4)-L-rhamnose A-249

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→3)-α-D-galactopyranosyl-(1→4)-6-deoxy-L-mannose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457

Repeating trisaccharide unit of the lipopolysaccharide from *Escherichia coli* O 75.

α-Pyranose-*form*

*Benzyl glycoside, 2,3-*O*-isopropylidene, 2′,4′-dibenzyl, 2′′*N*,3′′,4′′,6′,6′′-penta-Ac:* [79705-63-8]

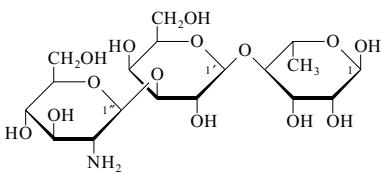
$C_{52}H_{65}NO_{19}$ 1008.081

Syrup. $[\alpha]_D^{20}$ -17.8 (c, 0.32 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3079 (*α-benzyl pyr penta-Ac deriv, pmr, occur*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-L-rhamnose A-250

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-6-deoxy-L-mannose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457

α-Pyranose-*form*

*Benzyl glycoside, 2,3-*O*-isopropylidene, 2′,4′-dibenzyl, 2′′*N*,3′′,4′′,6′,6′′-penta-Ac:* [79705-64-9]

$C_{52}H_{65}NO_{19}$ 1008.081

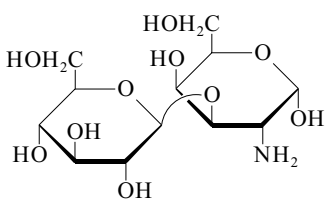
Syrup. $[\alpha]_D^{20}$ -45.5 (c, 1.8 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3079 (*α-benzyl pyr penta-Ac deriv, pmr*)

2-Amino-2-deoxy-3-*O*-β-D-glucopyranosyl-D-galactose, 8CI A-251

β-D-Glucopyranosyl-(1→3)-2-amino-2-deoxy-D-galactose. 3-β-Glucosylgalactosamine

[1811-33-2]



$C_{12}H_{23}NO_{10}$ 341.314

α-Pyranose-*form*

N-*Ac: 3-β-Glucosyl*-N-*acetylgalactosamine* [31718-87-3]

$C_{14}H_{25}NO_{11}$ 383.352

Isol. from the partial acid hydrolysate of reduced chondroitin. Cryst. + $2H_2O$.

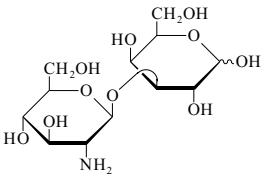
Mp 155-157°. $[\alpha]_D$ +19 (H_2O).

Davidson, E.A. *et al., J.A.C.S.*, 1954, **76**, 5686

Wolfrom, M.L. *et al., J.A.C.S.*, 1960, **82**, 1673 (*isol*)

3-*O*-(2-Amino-2-deoxy-β-D-glucopyranosyl)-D-galactose A-252

3-β-Glucosaminylgalactose



Pyranose–*form*

$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 3-*O*-(2-Acetamido-2-deoxy-β-D-glucopyranosyl)-D-galactose. 3-β-*N*-Acetylglucosaminylgalactose. Lacto-*N*-biose II* [67006-44-4]

$C_{14}H_{25}NO_{11}$ 383.352

Important repeating unit in many of the higher oligosaccharides obt. from milk. Repeating unit in mucopolysaccharides from partial acid hydrol. of human blood group A substance, *Pneumococcus* type XIV polysaccharide and blood group A mucopolysaccharide from hog gastric mucin.

Mp 131-133°. $[\alpha]_D$ +35.7 (H_2O).

[38711-46-5, 63121-25-5]

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 283; 1553; 1956, **89**, 1027; 1960, **93**, 647 (*isol*)

Malpress, F.H. *et al., Biochem. J.*, 1958, **68**, 708 (*isol*)

Barker, S.A. *et al., J.C.S.*, 1958, 3468 (*isol*)

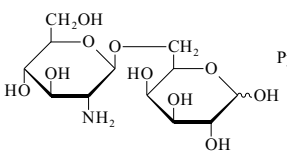
Glick, M.C. *et al., J. Biol. Chem.*, 1962, **237**, 981 (*isol*)

Bailey, R.W. *et al., Oligosaccharides*, Pergamon Press, London, 1965, **4**, 123 (*occur*)

Hounsell, E.F. *et al., Eur. J. Biochem.*, 1986, **157**, 375 (*pmr*)

6-*O*-(2-Amino-2-deoxy-β-D-glucopyranosyl)-D-galactose, 8CI A-253

6-β-Glucosaminylgalactose



Pyranose–*form*

$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 6-*O*-(2-Acetamido-2-deoxy-β-D-glucopyranosyl)-D-galactose. 6-β-*N*-Acetylglucosaminylgalactose*

$C_{14}H_{25}NO_{11}$ 383.352

Isol. from the partial acid hydrolysate from hog gastric mucin.

$[\alpha]_D$ +9.2 (H_2O).

Pyranose-*form* [5987-40-6]

Octa-Ac: [35014-63-2]

$C_{28}H_{39}NO_{18}$ 677.612

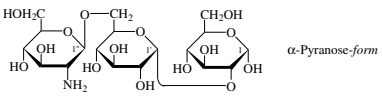
Mp 197-198°. $[\alpha]_D$ +6.3 ($CHCl_3$).

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 384 (*synth*)

Yosizawa, Z. *et al., J. Biochem. (Tokyo)*, 1962, **51**, 145 (*isol*)

Aston, W.P. *et al., Biochem. Biophys. Res. Commun.*, 1968, **30**, 1

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→6)-α-D-glucopyranosyl-(1→2)-D-glucose, 9CI A-254



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456

$[\alpha]_D^{22}$ +74 (c, 0.55 in H_2O).

α-Pyranose-*form*

Me glycoside, N-*Ac:* [130051-18-2]

$C_{21}H_{37}NO_{16}$ 559.52

Amorph. $[\alpha]_D^{22}$ +74 (c, 0.55 in H_2O).

Me glycoside, deca-Ac: [130074-05-4]

$C_{39}H_{55}NO_{25}$ 937.855

Cryst. (Et_2O/hexane). Mp 123-125°. $[\alpha]_D^{22}$ +125 (c, 1.2 in $CHCl_3$).

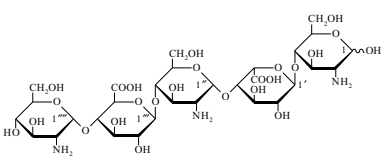
Me glycoside, N-*chloroacetyl, nona-Ac:* [130074-04-3]

$C_{39}H_{54}ClNO_{25}$ 972.3

Cryst. (Et_2O/hexane). Mp 125-126° (softens at 112°). $[\alpha]_D^{22}$ +126 (c, 0.9 in $CHCl_3$).

Dasgupta, F. *et al., Carbohydr. Res.*, 1990, **202**, 225 (*α-Me pyr derivs, pmr, cmr*)

2-Amino-2-deoxy-α-D-glucopyranosyl-(1→4)-β-D-glucopyranosyluronic acid-(1→4)-2-amino-2-deoxy-α-D-glucopyranosyl-(1→4)-α-L-idopyranosyluronic acid-(1→4)-2-amino-2-deoxy-D-glucopyranose A-255



$C_{30}H_{51}N_3O_{25}$ 853.738

2*N*,2′,2′′*N*,3′′,6,6′′,6′′′′-*Heptasulfo,* 2′′′′*N*-*Ac:* Occurs as a sequence in Heparin, H-5 and is the structural domain responsible for the binding to antithrombin III.

2*N*,2′,2′′*N*,2′′′′*N*,3′′,6,6′′,6′′′′-*Octasulfo: SR 90107. Org 31540*

[99095-61-1]

[88096-19-9]

$C_{30}H_{51}N_3O_{49}S_8$ 1494.252

Synthetic pentasaccharide representing the antithrombin III binding site of heparin. Antithrombotic agent; the first synthetic material having a high binding affinity for antithrombin III. $[\alpha]_D^{22}$ +42 (c, 1.0 in H_2O) (as di-Na salt).

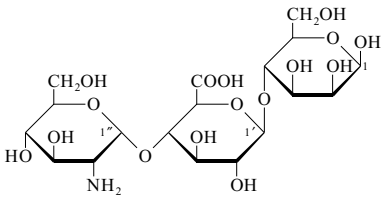
Me α-glycoside, 2N,2′,2″N,2‴′N,3″,6,6″,6‴′-octasulfo: Fondaparin. SR 90107/ ORG 31540 [104993-28-4]
$C_{31}H_{53}N_3O_{49}S_8$ 1508.278
Novel anti-factor Xa antithrombotic agent.

Me α-glycoside, 2N,2′,2″N,2‴′N,3″,6,6″,6‴′-octasulfo, deca-Na salt: ***Fondaparinux sodium****. Arixtra* [114870-03-0]
Approved by FDA (Dec 2001) for the prophylaxis of deep vein thrombosis. Powder. $[\alpha]_D^{23}$ +48 (c,0.61 in H_2O).

[87925-53-9, 87925-80-2, 93358-30-6, 99497-87-7]

Choay, J. *et al., Biochem. Biophys. Res. Commun.*, 1983, **116**, 492-499 (*synth, sar, pmr*)
Sinay, P. *et al., Carbohydr. Res.*, 1984, **132**, C5 (*synth*)
Torri, G. *et al., Biochem. Biophys. Res. Commun.*, 1985, **128**, 134-140 (*pmr*)
Atha, D.H. *et al., Biochemistry*, 1985, **24**, 6723-6729 (*pharmacol*)
Van Boeckel, C.A.A. *et al., J. Carbohydr. Chem.*, 1985, **4**, 293-321 (*synth*)
Uhlrich, S. *et al., Biochem. Biophys. Res. Commun.*, 1986, **139**, 728-732 (*activity*)
Ichikawa, Y. *et al., Tet. Lett.*, 1986, **27**, 611-614 (*bibl, synth, pmr*)
Petitou, M. *et al., Carbohydr. Res.*, 1987, **167**, 67-75; 1990, **195**, 169-185 (*pmr, cmr, activity, conformn, synth, fondaparin sodium*)
Walenga, J.M. *et al., Thromb. Res.*, 1988, **52**, 553-563 (*activity*)
Hobbelen, P.M.J. *et al., Thromb. Haemostasis*, 1990, **63**, 265-270 (*pharmacol*)
Van Boeckel, C.A.A. *et al., Angew. Chem., Int. Ed.*, 1993, **32**, 1671-1690 (*rev, analogues*)
Cadroy, Y. *et al., Thromb. Haemostasis*, 1993, **70**, 631-635 (*pharmacol*)
Carrie, D. *et al., Blood*, 1994, **84**, 2571-2577 (*pharmacol*)
Boneu, B. *et al., Thromb. Haemostasis*, 1995, **74**, 1468-1473; 1474-1477 (*bibl, pharmacol, pharmacokinet*)
Herbert, J.M. *et al., Circ. Res.*, 1996, **79**, 590-600 (*pharmacol, bibl*)
Herbert, J.M. *et al., Cardiovasc. Drug Rev.*, 1997, **15**, 1-26 (*rev, pharmacol*)
Petitou, M. *et al., J. Med. Chem.*, 1997, **40**, 1600-1607 (*sar*)
Lormeau, J.C. *et al., Thromb. Res.*, 1997, **85**, 67-75 (*pharmacol*)
Vuillemenot, A. *et al., Thromb. Haemostasis*, 1999, **81**, 214-220 (*pharmacol*)
Turpie, A.G. *et al., N. Engl. J. Med.*, 2001, **344**, 619-625 (*pharmacol*)
Bauer, K.A. *et al., Cardiovasc. Drug Rev.*, 2002, **20**, 37-52 (*fondaparin, rev*)
Keam, S.J. *et al., Drugs*, 2002, **62**, 1673-1685 (*fondaparin sodium, rev*)
Reverter, J.C. *et al., Drugs of the Future*, 2002, **27**, 122-131 (*rev*)
Reynolds, N.A. *et al., Drugs*, 2004, **64**, 1575-1596 (*fondaparinux sodium*)

2-Amino-2-deoxy-α-D-gluco-pyranosyl-(1 →4)-β-D-glucopyranuro-nosyl-(1 →4)-D-mannose, 9CI A-256



$C_{18}H_{31}NO_{16}$ 517.44

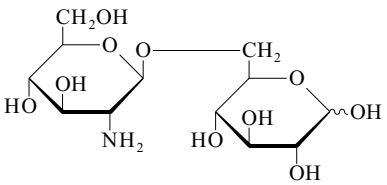
β-Pyranose-*form*

1,6:2,3-Dianhydro, 2′,3′,3″,4″-tetrabenzyl, 6′-Me, 2″N,6″-di-Ac: [87907-26-4]
$C_{51}H_{57}NO_{16}$ 940.008
Cryst. Mp 147-149°. $[\alpha]_D$ +35 ($CHCl_3$).

Duchaussoy, P. *et al., Bioorg. Med. Chem. Lett.*, 1991, **1**, 99 (*dianhydro deriv, pmr*)

6-*O*-(2-Amino-2-deoxy-β-D-glucopyranosyl)-D-glucose A-257

6-β-Glucosaminylglucose



Pyranose–*form*

$C_{12}H_{23}NO_{10}$ 341.314

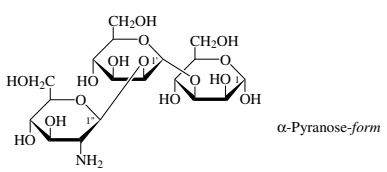
Pyranose-*form*

N-*Ac: 6*-O-*(2-Acetamido-2-deoxy-β-D-glucopyranosyl)-D-glucose. 6-β*-N-*Acetylglucosaminylglucose* [31981-93-8]
$C_{14}H_{25}NO_{11}$ 383.352
$[\alpha]_D$ +3.7 (H_2O).

Octa-Ac: [32590-28-6]
$C_{28}H_{39}NO_{18}$ 677.612
Mp 218-219°. $[\alpha]_D$ -9.5 ($CHCl_3$).

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 384 (*synth*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →2)-α-D-mannopyrano-syl-(1 →3)-D-mannose, 9CI A-258



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Constit. of glycolipid from the spermatozoa of bivalve *Hyriopsis schlegelii*. Isol. from the acetolysis product of a sialoglycopeptide β obtd. by enzymatic hydrolysis of avian ovomucoid.

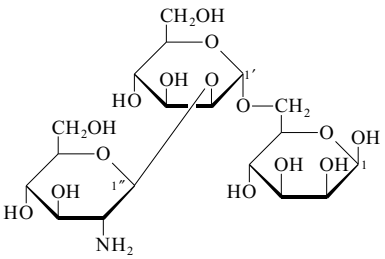
N-*Ac:* [39523-56-3]
$C_{20}H_{35}NO_{16}$ 545.494
Syrup.

α-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene, 2″-phthalimidoyl, 2,3′,3″,4′,4″,6′,6″-hepta-Ac:* [98293-09-5]
Syrup. $[\alpha]_D^{23}$ +12.9 (c, 0.43 in $CHCl_3$).

Bayard, B. *et al., Carbohydr. Res.*, 1972, **24**, 445 (*isol, chromatog*)
Takeda, T. *et al., Chem. Pharm. Bull.*, 1985, **33**, 540 (*N-Ac, α-Me pyr hepta-Ac deriv, pmr, cmr, occur*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →2)-α-D-mannopyrano-syl-(1 →6)-D-mannose, 9CI A-259



$C_{18}H_{33}NO_{15}$ 503.456
Partial struct. of naturally occurring asparagine linked oligosaccharides. Functions as a selective substrate in *N*-acetylglucosaminyl transferase assays.

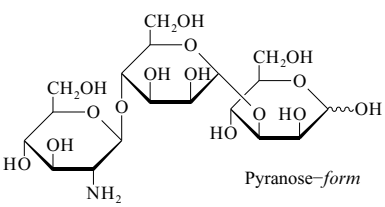
β-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [106444-87-5]
$C_{30}H_{53}NO_{18}$ 715.745
Powder. $[\alpha]_D^{23}$ -19.3 (c, 0.91 in H_2O).

8-Methoxycarbonyloctyl glycoside, 2,3′,4,4′,6′-pentabenzyl, N-*Ac:* [106444-86-4]
$C_{65}H_{83}NO_{18}$ 1166.367
Foam. $[\alpha]_D^{23}$ -20.46 (c, 0.88 in $CHCl_3$).

Tahir, S.H. *et al., Can. J. Chem.*, 1986, **64**, 1771 (*β-methoxycarbonyloctyl pyr N-Ac derivs, synth, pmr, cmr*)

2-Amino-2-deoxy-β-D-gluco-pyranosyl-(1 →4)-α-D-mannopyrano-syl-(1 →3)-D-mannose, 9CI A-260



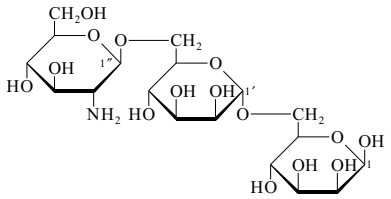
Pyranose–*form*

$C_{18}H_{33}NO_{15}$ 503.456
Isol. from the acetolysis product of a sialoglycopeptide β obt. by enzymatic hydrolysis of avian ovomucoid.

N-*Ac:* [39523-55-2]
$C_{20}H_{35}NO_{16}$ 545.494
Syrup.

Bayard, B. *et al., Carbohydr. Res.*, 1972, **24**, 445 (*isol, chromatog*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→6)-α-D-mannopyranosyl-(1→6)-D-mannose, 9CI A-261



β–Pyranose–*form*

$C_{18}H_{33}NO_{15}$ 503.456
Constit. of branched asparagine linked oligosaccharides in murine tissues and in human breast carcinomas.

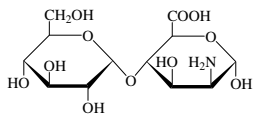
β-Pyranose-*form*

N-*Ac:* [120136-62-1]
$C_{20}H_{35}NO_{16}$ 545.494
Syrup.

Pierce, M. *et al., J. Biol. Chem.*, 1986, **261**, 10772 (*occur*)
Dennis, J.W. *et al., Cancer Res.*, 1989, **49**, 945 (*occur, pmr*)

2-Amino-2-deoxy-4-*O*-α-D-glucopyranosyl-D-mannopyranuronic acid A-262

α-D-Glucopyranosyl-(1→4)-2-amino-2-deoxy-D-mannopyranuronic acid



α-Pyranose-*form*

$C_{12}H_{21}NO_{11}$ 355.298

Pyranose-*form*

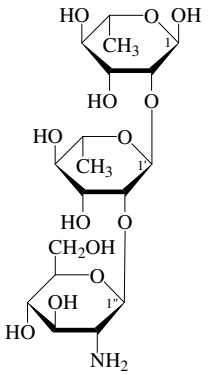
N-*Ac: 2-Acetamido-2-deoxy-4*-O-*α-D-glucopyranosyl-D-mannopyranuronic acid*
$C_{14}H_{23}NO_{12}$ 397.335
Repeat unit of the teichuronic acid from *Micrococcus luteus*. $[\alpha]_D^{20}$ +78 (c, 1.3 in H_2O). Isol. as anomeric mixt., α:β ratio 1.8:1.

[106837-34-7, 106837-35-8]

Paulsen, H. *et al., Annalen*, 1987, 431 (*synth, pmr*)

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→2)-α-L-rhamnopyranosyl-(1→2)-L-rhamnose A-263

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→2)-6-deoxy-α-L-mannopyranosyl-(1→2)-6-deoxy-L-mannose, 9CI



α-Pyranose-*form*

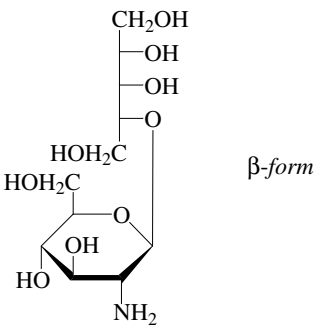
$C_{18}H_{33}NO_{13}$ 471.458
Constit. of the repeating unit of *Shigella flexneri* serogroup Y O-antigen.

α-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [72599-92-9]
$C_{30}H_{53}NO_{16}$ 683.746
Syrup. $[\alpha]_D$ -36.4 (c, 1.1 in MeOH).

Josephson, S. *et al., Can. J. Chem.*, 1979, **57**, 3073 (*α-methoxycarbonyloctyl pyr N-Ac, cmr*)
Wessel, H.P. *et al., J.C.S. Perkin 1*, 1985, 2251 (*α-methoxycarbonyloctyl pyr N-Ac, cmr, pmr*)

4-*O*-(2-Amino-2-deoxy-D-glucopyranosyl)-D-ribitol A-264



β-*form*

$C_{11}H_{23}NO_9$ 313.304

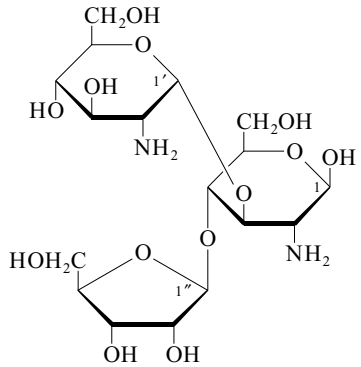
N-*Ac: 4*-N-*Acetylglucosaminylribitol*
$C_{13}H_{25}NO_{10}$ 355.341
The phosphate of this disaccharide is the repeating unit of *Staphylococcus aureus* techoic acid from which it is obt. by mild alkaline hydrolysis followed by dephosphorylation. On isol. the disaccharide is a mixt. of 1→4 linked α and β isomers, the proportions varying from sample to sample of techoic acid. $[\alpha]_D$ +12 (H_2O).

β-*form*

N-*Ac: 4*-O-*(2-Acetamido-2-deoxy-β-D-glucopyranosyl)-D-ribitol*
$C_{13}H_{25}NO_{10}$ 355.341
Powder + ½H_2O. Mp 85-87°. $[\alpha]_D^{20}$ -11.6 (c, 2.1 in H_2O).

Baddiley, J. *et al., Biochim. Biophys. Acta*, 1961, **52**, 406 (*isol*)
Boullanger, P. *et al., Carbohydr. Res.*, 1982, **110**, 153 (*synth, cmr, N-Ac*)

2-Amino-2-deoxy-α-D-glucopyranosyl-(1→3)-[β-D-ribofuranosyl-(1→4)]-2-amino-2-deoxy-D-glucose, 9CI A-265



$C_{17}H_{32}N_2O_{13}$ 472.445

β-Pyranose-*form*

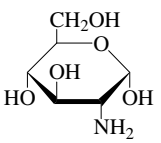
*1,6-Anhydro, 2*N-*benzyloxycarbonyl, 2′*N-*(2,4-dinitrophenyl):* [96182-10-4]
$C_{31}H_{38}N_4O_{18}$ 754.657
Cryst. Mp 103-105°. $[\alpha]_D$ -4 (MeOH).

[96182-09-1]

Yoshikawa, M. *et al., Chem. Lett.*, 1984, 2097 (*synth, pmr*)

2-Amino-2-deoxyglucose A-266

NSC 758



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form*

Glucosamine, 9CI, 8CI. Chitosamine
[3416-24-8]
Present in mucopolysaccharides and in polysaccharides found in bacteria, fungi, higher plants, invertebrates, vertebrates, antibiotics and UDP complexes. Obt. comly. by hydrol. of seashells. Inexpensive starting material for synthesis. Antiarthritic agent. pK_a 7.75 (24°).
▶ LZ6664000

3-Sulfate:
$C_6H_{13}NO_8S$ 259.237
Monohydrate. $[\alpha]_D^{20}$ +54 (c, 2.0 in H_2O).

6-Sulfate:
$C_6H_{13}NO_8S$ 259.237
$[\alpha]_D^{20}$ +66 (c, 2.0 in H_2O).

6-Phosphate: [3616-42-0]
$C_6H_{14}NO_8P$ 259.152
$[\alpha]_D^{20}$ +60 (c, 2 in 1*M* H_2SO_4). pK_{a1} 6.1; pK_{a2} 8.14 (26°).

Oxime: [21537-55-3]
$C_6H_{14}N_2O_5$ 194.187
Mp 127°.

Oxime; hydrochloride: [54947-34-1]
Mp 166°.

Semicarbazone: Mp 165°.

*Di-Et acetal, 5,6-*O*-isopropylidene:* [18422-17-8]
$C_{13}H_{27}NO_6$ 293.359
Mp 78-79°. $[\alpha]_D^{20}$ -3 (c, 1 in $CHCl_3$).

Di-Et dithioacetal: [18467-82-8]
$C_{10}H_{23}NO_4S_2$ 285.428
Mp 121-122° (as hydrochloride). $[\alpha]_D$ -24 (H_2O).

N-*Ac:* See 2-Acetamido-2-deoxyglucose, A-8

N-*Benzoyl:* See 2-Benzamido-2-deoxyglucose, B-7

N-*(*tert-*Butyloxycarbonyl):* [75251-80-8]
$C_{11}H_{21}NO_7$ 279.289
Mp 194° dec. $[\alpha]_D^{25}$ +64 (c, 1 in MeOH).

N-*Benzyloxycarbonyl:* [16684-31-4]
$C_{14}H_{19}NO_7$ 313.307
Mp 214°. $[\alpha]_D$ -75.4 (Py).

N-*(3,4-Dihydroxycinnamoyl): N-Caffeoylglucosamine*
[29028-19-1]
$C_{15}H_{19}NO_8$ 341.317
Isol. from tobacco tumours (*Nicotiana tabacum*).

N-*Carbamoyl:* See *N*-Carbamoylglucosamine, C-11

N-*Salicylidene:* Mp 183-184°. $[\alpha]_D$ +11 (MeOH).

1,3,4-Tri-Ac, 6-phosphate:
$C_{12}H_{20}NO_{11}P$ 385.264
Mp 166-167°. $[\alpha]_D^{20}$ +48.9 (c, 2.7 in HCl).

1,3,4-Tri-Ac, di-Ph ester, 6-phosphate:
$C_{24}H_{28}NO_{11}P$ 537.459
Mp 190-191°. $[\alpha]_D^{20}$ +49.6 (c, 4 in MeOH).

N-*Me: 2-Deoxy-2-methylamino-*D*-glucose*
[3329-30-4]
$C_7H_{15}NO_5$ 193.199
Mp 164-166° (hydrochloride). $[\alpha]_D$ +104 → +89 (H_2O).

3-Me: See 2-Amino-2-deoxy-3-*O*-methylglucose, A-318

4-Me: See 2-Amino-2-deoxy-4-*O*-methylglucose, A-319

6-Me: See 2-Amino-2-deoxy-6-*O*-methylglucose, A-320

*3,4,6-Tribenzyl: 3,4,6-Tri-*O*-benzyl-*D*-glucosamine*
[70279-93-5]
$C_{27}H_{31}NO_5$ 449.546
Mp 114-115°. $[\alpha]_D^{20}$ +76 (c, 1.1 in $CHCl_3$).

3,4,6-Tribenzyl; hydrochloride: Mp 184-185°. $[\alpha]_D^{20}$ +55.3 (c, 2.1 in 2-methoxyethanol).

α-D-Pyranose-*form* [6490-70-6]
Mp 88°. $[\alpha]_D$ +100 → +47.5 (H_2O).

Hydrochloride: [66-84-2]
Mp 190-210°. $[\alpha]_D$ +100 → +72.5 (H_2O).

► LZ6665000

Me glycoside: See Methyl 2-amino-2-deoxyglucopyranoside, M-150

*Et glycoside: Ethyl 2-amino-2-deoxy-α-*D*-glucopyranoside*
[57120-97-5]
$C_8H_{17}NO_5$ 207.226
Cryst. (EtOH). Mp 137-138°. $[\alpha]_D^{29}$ +155 (c, 1 in EtOH).

*Allyl glycoside: Allyl 2-amino-2-deoxy-α-*D*-glucopyranoside*
[112146-92-6]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 117-118°. $[\alpha]_D^{25}$ +142.5 (c, 0.8 in H_2O).

Benzyl glycoside: See Benzyl 2-amino-2-deoxyglucopyranoside, B-13

β-D-Pyranose-*form* [14257-69-3]
Mp 110-111°. $[\alpha]_D$ +28 → +47.5 (H_2O). Most common form.

Hydrochloride: Mp 185° dec.

Pentakis(3-pyridinecarbonyl): Glucosamine pentanicotinate. ***Glunicate, INN.*** *LG 13979*
[80763-86-6]
$C_{36}H_{28}N_6O_{10}$ 704.651
Antilipidaemic, cardiovascular agent.
Log P 1.55 (calc).

*Et glycoside: Ethyl β-*D*-glucosaminide*
[57121-00-3]
$C_8H_{17}NO_5$ 207.226
Mp 213-214° (as hydrochloride). $[\alpha]_D$ +27.8 (H_2O).

*Et glycoside, 3,4,6-tri-Ac: Ethyl 3,4,6-tri-*O*-acetyl-2-amino-2-deoxy-β-*D*-glucopyranoside*
[28708-20-5]
$C_{14}H_{23}NO_8$ 333.338
Mp 250-251° (as hydrochloride). $[\alpha]_D$ +12.5 (MeOH).

Allyl glycoside, N*-phthaloyl: Allyl 6-*O*-benzyl-2-deoxy-2-phthalimido-β-*D*-glucopyranoside*
[114853-29-1]
$C_{17}H_{19}NO_7$ 349.34
Mp 116-117°. $[\alpha]_D^{25}$ -27 (c, 0.8 in $CHCl_3$).

Benzyl glycoside: See Benzyl 2-amino-2-deoxyglucopyranoside, B-13

Ph glycoside, N*-propanoyl:*
$C_{15}H_{21}NO_6$ 311.334
Mp 230°. $[\alpha]_D$ +8 (Py).

*2,3-Dihydroxypropyl glycoside: 2,3-Dihydroxypropyl 2-amino-2-deoxy-β-*D*-glucopyranoside*
[172760-00-8]
$C_9H_{19}NO_7$ 253.252
Prod. by *Streptomyces albus* ATCC 21838. Config. of 2,3-dihydroxypropyl residue not detd.

*1,3,4,5,*N,N*-Hexa-Ac: 1,3,4,5-Tetra-*O*-acetyl-2-deoxy-2-(diacetylamino)-β-*D*-glucopyranose. 1,3,4,6-Tetra-*O*-acetyl-2-(*N*-acetylacetamido)-2-deoxy-β-*D*-glucopyranose*
$C_{18}H_{25}NO_{11}$ 431.396
Cryst. Mp 111-113°. $[\alpha]_D^{20}$ +8.9 (c, 2.06 in $CHCl_3$). An Mp of 84-85° was given by earlier workers but this appears to refer to the α-anomer.

α-D-Furanose-*form*

*Me glycoside: Methyl 2-amino-2-deoxy-α-*D*-glucofuranoside*
[57120-96-4]
$C_7H_{15}NO_5$ 193.199
Syrup. $[\alpha]_D^{23}$ +105 (c, 1 in H_2O).

*Et glycoside: Ethyl 2-amino-2-deoxy-α-*D*-glucofuranoside*
[112146-91-5]
$C_8H_{17}NO_5$ 207.226
Foam. $[\alpha]_D^{20}$ +101 (c, 1.5 in EtOH).

*Allyl glycoside: Allyl 2-amino-2-deoxy-α-*D*-glucofuranoside*
[112154-62-8]
$C_9H_{17}NO_5$ 219.237
Syrup. $[\alpha]_D^{18}$ +102 (c, 1 in H_2O).

Allyl glycoside, N*-Ac: Allyl 2-acetamido-2-deoxy-α-*D*-glucofuranoside*
[112146-93-7]
$C_{11}H_{19}NO_6$ 261.274
$[\alpha]_D^{18}$ +89.5 (c, 0.8 in EtOH).

L-*form*

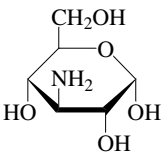
N-*Me: 2-Deoxy-2-methylamino-*L*-glucose*
[6032-19-5]
$C_7H_{15}NO_5$ 193.199
Residue present in Streptomycin, S-83.
$[\alpha]_D^{25}$ -65 (c, 1 in MeOH).

[38899-05-7, 84868-34-8]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 350A; 758A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1238C (*nmr*)
Horton, D. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 159 (*rev, derivs*)
Stacey, M. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 228 (*isol*)
Ramachandran, G.N. *et al., Biochim. Biophys. Acta*, 1967, **148**, 317 (*cryst struct*)
Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2655 (*di-Et acetal isopropylidene*)
Horton, D. *et al., The Amino Sugars*, (Jeanloz, R.W., Ed.), Academic Press, 1969, **1A**, 1 (*rev*)
Buta, J.G. *et al., Phytochemistry*, 1970, **9**, 1143-1144 (*N-Caffeoylglucosamine*)
Belg. Pat., 1981, 888 890; *CA*, **96**, 85934 (*Glunicate*)
Feher, J. *et al., Drugs Exp. Clin. Res.*, 1985, **11**, 413 (*Glunicate*)
Renzetti, A.R. *et al., J. Pharm. Pharmacol.*, 1985, **37**, 906 (*Glunicate*)
Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 1987, **162**, 181 (*α-D-pyr Et gly, α-D-fur Et gly, α-D-fur Me gly, α-D-pyr allyl gly, α-D-fur allyl gly*)
Sato, S. *et al., Carbohydr. Res.*, 1987, **167**, 197 (*β-D-pyr allyl gly N-phthaloyl*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 990; 1374 (*Glunicate, Glucosamine*)
Vertesy, L. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 1844 (*α-D-pyr dihydroxypropyl gly*)
Mackie, W. *et al., Carbohydr. Res.*, 1995, **266**, 65-74 (*cryst struct, 3-sulfate, 6-sulfate*)
Suihko, M. *et al., Carbohydr. Res.*, 2001, **334**, 337-341 (*hexa-Ac, synth, ir, pmr, cmr, cryst struct*)
Merck Index, 13th edn., 2001, No. 4471 (*bibl*)

3-Amino-3-deoxyglucose, 9CI, 8CI A-267

Kanosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [576-44-3]
Isol. from the antibiotic Kanamycin. Occurs as the free sugar in fermentation broths of *Bacillus aminoglucosidicus*, a deep-sea strain of *Bacillus* sp. and *Streptomyces lansus*. Has bactericidal props. The only amino sugar antibiotic.

Hydrochloride:
Hygroscopic solid. Mp 132-137° Mp 150° dec. approx. $[\alpha]_D^{20}$ +47 (c, 1.0 in H_2O).

α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 3-amino-4,6-*O*-benzylidene-3-deoxy-α-D-glucopyranoside*
[4603-89-8]
$C_{14}H_{19}NO_5$ 281.308
Cryst. (petrol/EtOH). Subl. 186. $[\alpha]_D^{22}$ +102 (c, 1.02 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene,* N*-Ac: Methyl 3-acetamido-4,6-*O*-benzylidene-3-deoxy-α-D-glucopyranoside*
$C_{16}H_{21}NO_6$ 323.345
Cryst. (EtOH). Mp 283-286° dec.

*Me glycoside, 4,6-*O*-ethylidene,* N*-Ac: Methyl 3-acetamido-3-deoxy-4,6-*O*-ethylidene-α-D-glucopyranoside*
$C_{11}H_{19}NO_6$ 261.274
Cryst. (MeOH). Subl. 320.

Me glycoside, N*,2,4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri-*O*-acetyl-3-deoxy-α-D-glucopyranoside*
[2595-38-2]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (EtOH). Mp 182-184°. $[\alpha]_D^{20}$ +109 (c, 1.1 in $CHCl_3$).

β-D-Pyranose-*form*

N*-Ac: 3-Acetamido-3-deoxy-β-D-glucopyranose*
$C_8H_{15}NO_6$ 221.21
Needles (EtOH aq.). Mp 204-205° dec. $[\alpha]_D$ +37 (5 min.) → +50 (equilib.) (c, 2.5 in H_2O).

Me glycoside: Methyl 3-amino-3-deoxy-β-D-glucopyranoside
[14133-36-9]
$C_7H_{15}NO_5$ 193.199
Cryst. (EtOH). Mp 205-207° (201-202°). $[\alpha]_D^{20}$ -38 (c, 2 in H_2O).

Me glycoside, N*-Ac: Methyl 3-acetamido-3-deoxy-β-D-glucopyranoside*
$C_9H_{17}NO_6$ 235.236
Mp 214-215°. $[\alpha]_D$ -21 (H_2O).

*Me glycoside, 4,6-*O*-benzylidene,* N*-Ac: Methyl 3-acetamido-4,6-*O*-benzylidene-3-deoxy-β-D-glucopyranoside*
$C_{16}H_{21}NO_6$ 323.345
Subl. 277-278. $[\alpha]_D^{23}$ -80.8 (c, 0.5 in DMF).

*Me glycoside, 4,6-*O*-benzylidene,* N*,2-di-Ac: Methyl 3-acetamido-2-*O*-acetyl-4,6-*O*-benzylidene-3-deoxy-β-D-glucopyranoside*
$C_{18}H_{23}NO_7$ 365.382
Subl. 276. $[\alpha]_D^{21}$ -96.2 (c, 1.0 in $CHCl_3$).

Me glycoside, N*,2,4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri-*O*-acetyl-3-deoxy-β-D-glucopyranoside*
[4338-42-5]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (C_6H_6/petrol). Mp 156°. $[\alpha]_D^{22}$ -21.4 (c, 2.5 in $CHCl_3$).

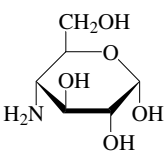
α-D-Furanose-*form*

*1,2-*O*-Isopropylidene,* N*-Ac: 3-Acetamido-3-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{11}H_{19}NO_6$ 261.274
$[\alpha]_D^{24}$ -2 (c, 1.5 in $CHCl_3$).

*1,2:5,6-Di-*O*-Isopropylidene,* N*-Ac: 3-Acetamido-3-deoxy-1,2:5,6-di-*O*-isopropylidene-α-D-glucofuranose*
$C_{14}H_{23}NO_6$ 301.339
Mp 76-77° Mp 108-109° (double Mp). $[\alpha]_D$ -30 (c, 3.5 in $CHCl_3$).

Cron, M.J. *et al., J.A.C.S.*, 1958, **80**, 2342; 4115; 4741 (*isol, struct*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1959, **13**, 1226 (*β-D-Me pyr, β-D-Me pyr tetra-Ac*)
Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 213 (*rev*)
Baer, H.H. *et al., J.A.C.S.*, 1961, **83**, 1882 (*struct, β-D-N-Ac*)
Guthrie, R.D. *et al., J.C.S.*, 1961, 4166 (*α-D-Me pyr benzylidene, α-D-Me pyr benzylidene N-Ac, α-D-Me pyr tetra-Ac*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1965, **1**, 196 (*α-D-Me pyr benzylidene, α-D-Me pyr ethylidene N-Ac, β-D-Me pyr benzylidene di-Ac, β-D-Me pyr tetra-Ac*)
Meyer zu Reckendorf, W. *et al., Angew. Chem., Int. Ed.*, 1966, **5**, 967 (*D-N-Ac*)
Bishop, E.O. *et al., Carbohydr. Res.*, 1967, **5**, 477 (*α-D-Me pyr benzylidene N-Ac*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1969, **102**, 994 (*β-D-Me pyr tetra-Ac, pmr*)
Horton, D. *et al., The Amino Sugars*, (Ed. Jeanloz, R.W.), Academic Press, 1969, **1A**, 1 (*rev*)
Richardson, A.C. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 218 (*β-D-pyr-N-Ac, α-D-fur diisopropylidene N-Ac*)
Lichtenthaler, F.W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 250 (*β-D-Me pyr*)
Trnka, T. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 3038 (*D-form, synth*)
Uchida, K. *et al., Tetrahedron*, 1975, **31**, 2315 (*cmr*)
Dolak, L.A. *et al., J. Antibiot.*, 1980, **33**, 900 (*isol*)
Horton, D. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1980, **1B**, 644 (*rev*)
Fusetani, N. *et al., Experientia*, 1987, **43**, 464 (*isol*)

4-Amino-4-deoxyglucose, 8CI A-268



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [24558-84-7]
A constit. of antibiotics Apramycin, A-787 and P-2563 from *Pseudomonas fluorescens*.

*2,3:5,6-Di-*O*-isopropylidene, di-Me acetal:*
[28441-69-2]
$C_{14}H_{27}NO_6$ 305.37
Syrup.

D-Pyranose-*form*

Hydrochloride: [28535-73-1]
Hygroscopic powder (Et_2O). $[\alpha]_D^{20}$ +25.2 (c, 1 in H_2O).

α-D-Pyranose-*form*

N*-Ac: 4-Acetamido-4-deoxy-α-D-glucopyranose*
[24558-81-4]
$C_8H_{15}NO_6$ 221.21
Cryst. (EtOH). Mp 190-191°. $[\alpha]_D^{20}$ +91 → +66 (c, 1.0 in H_2O).

*1,2,3,4*N*,6-Penta-Ac: 4-Acetamido-1,2,3,6-tetra-*O*-acetyl-4-deoxy-α-D-glucopyranose*
[4337-07-9]
$C_{16}H_{23}NO_{10}$ 389.358
Syrup. $[\alpha]_D^{20}$ +83 (c, 0.5 in $CHCl_3$). No anomeric config. assigned but presumably the α-anomer since the props. differ from those of the β-anomer below.

Me glycoside: Methyl 4-amino-4-deoxy-α-D-glucopyranoside
[4097-95-4]
$C_7H_{15}NO_5$ 193.199
Cryst. Mp 159-160°. $[\alpha]_D^{25}$ +148 (c, 1.1 in H_2O).

*Me glycoside, 2,3,4*N*,6-tetra-Ac: Methyl 4-acetamido-2,3,6-tri-*O*-acetyl-4-deoxy-α-D-glucopyranoside*
[2595-35-9]
$C_{15}H_{23}NO_9$ 361.348
Cryst. ($CHCl_3$/hexane). Mp 139-140°. $[\alpha]_D^{25}$ +147.2 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

*1,2,3,4*N*,6-Penta-Ac: 4-Acetamido-1,2,3,6-tetra-*O*-acetyl-4-deoxy-β-D-glucopyranose*
[39937-65-0]
Needles (Me_2CO/Et_2O/petrol). Mp 164-166°. $[\alpha]_D^{20}$ +21 (c, 1.0 in $CHCl_3$).

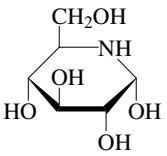
*1,2,3,4*N*,6-Pentabenzoyl: 4-Benzamido-1,2,3,6-tetra-*O*-benzoyl-4-deoxy-β-D-glucopyranose*
[39937-67-2]
$C_{41}H_{33}NO_{10}$ 699.712
Cryst. (EtOH). Mp 197-204°. $[\alpha]_D^{22}$ +32.8 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3,4*N*,6-tetra-Ac: Methyl 4-acetamido-2,3,6-tri-*O*-acetyl-4-deoxy-β-D-glucopyranoside*
[21209-55-2]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (THF). Mp 196-197°. $[\alpha]_D^{25}$ +7.9 (c, 0.95 in $CHCl_3$).

[24558-83-6, 39937-73-0]

Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 1599; 1972, **105**, 3456 (*synth, pmr*)
Uchida, K. *et al., Tetrahedron*, 1975, **31**, 2315 (*synth, cmr*)
O'Connor, S. *et al., J.O.C.*, 1976, **41**, 2087 (*synth, ms, occur*)

5-Amino-5-deoxyglucose, 9CI, 8CI A-269



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-Pyranose-*form*

Nojirimycin

[15218-38-9]

Amino sugar antibiotic. Produced by several *Streptomyces* spp. Primarily active against gram-positive bacteria. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.

Mp 126-130° dec. $[\alpha]_D^{24}$ +100 (3 min.) → +73.5 (20 hr.).

► LD_{50} (mus, ipr) 1600 mg/kg; LD_{50} (mus, ivn) 1250 mg/kg. LZ5655000

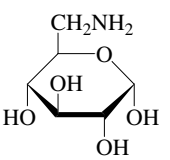
1-Deoxy: See 2-(Hydroxymethyl)-3,4,5-piperidinetriol, H-175

L-Pyranose-*form*

Mp 122-124°. $[\alpha]_D^{20}$ -72.1 (c, 0.3 in H_2O).

Inouye, S. *et al., J. Antibiot.*, 1966, **19**, 288 (*struct, nmr*)
Saeki, H. *et al., Chem. Pharm. Bull.*, 1968, **16**, 962 (*synth*)
Inouye, S. *et al., Tetrahedron*, 1968, **24**, 2125 (*ir, ms, nmr, struct, synth*)
Ger. Pat., 1978, 2 658 561; *CA*, **89**, 152713 (*use*)
Kinast, G. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 805 (*bibl*)
Austrian Pat., 1982, 366 032; *CA*, **97**, 90401 (*synth*)
Vasella, A. *et al., Helv. Chim. Acta*, 1982, **65**, 1134 (*synth*)
Ezure, Y. *et al., Agric. Biol. Chem.*, 1985, **49**, 1119 (*isol, bibl*)
Iida, H. *et al., J.O.C.*, 1987, **52**, 3337 (*synth*)
Tsuda, Y. *et al., Heterocycles*, 1988, **27**, 63 (*synth*)
Chida, N. *et al., Carbohydr. Res.*, 1992, **237**, 185 (*synth*)
Dondoni, A. *et al., Tetrahedron*, 1993, **49**, 2939 (*synth, L-form*)
Moutel, S. *et al., J.C.S. Perkin 1*, 1999, 1403-1406 (*synth*)

6-Amino-6-deoxyglucose, 9CI A-270



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-form [576-47-6]

Hydrol. prod. of Kanamycin A, K-3.

Hydrochloride: [55324-97-5]

Cryst. (AcOH). Mp 161-162° dec. $[\alpha]_D^{25}$ +23 → +50.1 (c, 1 in H_2O).

► LZ6667000

N-*Ac: 6-Acetamido-6-deoxy-D-glucose* [55701-80-9]

$C_8H_{15}NO_6$ 221.21

Cryst. (EtOH aq.). Mp 196-198° dec. $[\alpha]_D^{25}$ +44 → +34.9 (c, 1 in H_2O).

Di-Et dithioacetal: [24384-90-5]

$C_{10}H_{23}NO_4S_2$ 285.428

Cryst. (EtOH) (as hydrochloride). Mp 119-121° (as hydrochloride). $[\alpha]_D^{20}$ -25.5 (c, 0.5 in H_2O).

α-D-Pyranose-*form* [103119-91-1]

*Penta-Ac: 6-Acetamido-1,2,3,4-tetra-*O*-acetyl-6-deoxy-α-D-glucopyranose* [55443-23-7]

$C_{16}H_{23}NO_{10}$ 389.358

Mp 141-142°. $[\alpha]_D^{23}$ +92.6 (c, 0.4 in $CHCl_3$).

Me glycoside: Methyl 6-amino-6-deoxy-α-D-glucopyranoside [14257-74-0]

$C_7H_{15}NO_5$ 193.199

Cryst. (MeOH/Et_2O) (as hydrochloride). Mp 195-200° dec. (hydrochloride). $[\alpha]_D^{20}$ +147 (c, 1 in H_2O). CAS no. refers to hydrochloride.

*Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-amino-6-deoxy-α-D-glucopyranoside* [109410-55-1]

$C_{13}H_{21}NO_8$ 319.311

Cryst. (MeOH/Et_2O) (as hydrochloride). Mp 200-210° dec. (hydrochloride). $[\alpha]_D^{25}$ +121 (c, 1.3 in H_2O). CAS no. refers to hydrochloride.

*Me glycoside, 2,3,4-tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-6-amino-6-deoxy-α-D-glucopyranoside* [72471-11-5]

$C_{28}H_{33}NO_5$ 463.572

Solid. Mp 86-89°. $[\alpha]_D^{22}$ +67 (c, 1.1 in $CHCl_3$).

β-D-Pyranose-*form*

*Penta-Ac: 6-Acetamido-1,2,3,4-tetra-*O*-acetyl-6-deoxy-β-D-glucopyranose*

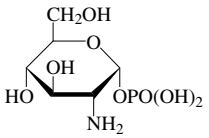
$C_{16}H_{23}NO_{10}$ 389.358

Mp 114-120°. $[\alpha]_D^{25}$ +9.9 (c, 0.8 in $CHCl_3$).

Cron, M.J. *et al., J.A.C.S.*, 1958, **80**, 2342 (*isol, D-N-Ac, α-D-penta-Ac, β-D-penta-Ac*)
Cramer, F. *et al., Chem. Ber.*, 1959, **92**, 384-391 (*D-N-Ac, α-D-Me pyr, α-D-Me pyr tri-Ac*)
Cramer, F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 242-246 (*D-N-Ac, α-D-Me pyr tri-Ac*)
Hardegger, E. *et al., Helv. Chim. Acta*, 1963, **46**, 282-287 (*D-form, synth, D-N-Ac*)
Jarý, J. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 1452-1458 (*D-form, synth, di-Et dithioacetal*)
Csuk, R. *et al., Carbohydr. Res.*, 1985, **140**, 167-168 (*synth, D-N-Ac*)
Ortiz Mellet, C. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1133-1152 (*α-D-Me gly 2,3,4-tri-Ac*)
Kobertz, W.R. *et al., J.O.C.*, 1996, **61**, 1894-1897 (*α-D-Me pyr, tribenzyl, synth, ir, pmr, cmr*)
Tagmose, T.M. *et al., Chem. Eur. J.*, 1997, **3**, 453-462 (*α-D-Me pyr, tribenzyl, synth, pmr, cmr*)

2-Amino-2-deoxyglucose 1-(dihydrogen phosphate) A-271

Glucosylamine 1-phosphate



α-Pyranose-*form*

$C_6H_{14}NO_8P$ 259.152

D-form

Mp 178-179° dec. $[\alpha]_D$ -20 (calc) (H_2O).

α-D-*form*

N-*Ac: 2-Acetamido-2-deoxy-α-D-glucose 1-(dihydrogen phosphate)*

$C_8H_{16}NO_9P$ 301.189

$[\alpha]_D$ +79 (H_2O) (as mono-K salt).

N-*Ac, di-K salt:*

Monohydrate. $[\alpha]_D^{25}$ +76.1 (c, 3.4 in H_2O).

*3,4,6-Tri-*O*-Ac, diphenyl ester, hydrochloride:* Mp 137-138°. $[\alpha]_D^{23}$ +110 (c, 2.44 in MeOH).

β-D-*form*

N-*Ac: 2-Acetamido-2-deoxy-β-D-glucose 1-(dihydrogen phosphate)*

$C_8H_{16}NO_9P$ 301.189

Mp 170-171° dec. (as mono-Na salt).

$[\alpha]_D$ -1.7 (H_2O).

N-*Ac, di-Na salt:* $[\alpha]_D^{25}$ -1.6 (c, 2.9 in H_2O).

Maley, F. *et al., J.A.C.S.*, 1956, **78**, 5303
Buluja, G. *et al., J.C.S.*, 1960, 4678
O'Brien, P.J. *et al., Biochim. Biophys. Acta*, 1964, **86**, 628

2-Amino-2-deoxyglucose 3-(dihydrogen phosphate) A-272

Glucosylamine 3-phosphate

$C_6H_{14}NO_8P$ 259.152

D-form

Mp 180°. $[\alpha]_D^{20}$ +70 (c, 0.03 in H_2O).

α-D-*Pyranose-form*

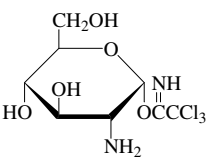
*Benzyl glycoside, 4,6-*O*-benzylidene: Benzyl 2-amino-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside 3-(dihydrogen phosphate)*

$C_{20}H_{24}NO_8P$ 437.385

Mp 212-213°. $[\alpha]_D^{20}$ +40 (c, 0.25 in DMF).

Lambert, R. *et al., Chem. Ber.*, 1963, **96**, 2350
Westphal, O. *et al., Angew. Chem., Int. Ed.*, 1963, **2**, 327

2-Amino-2-deoxyglucosyl trichloroacetimidate A-273



α-D-Pyranose-*form*

$C_8H_{13}Cl_3N_2O_5$ 323.559

α-D-Pyranose-*form*

3,4,6-Tri-Ac, N-*trichloroacetyl: 3,4,6-Tri*-O-*acetyl-2-deoxy-2-trichloroacetamido-α-D-glucopyranosyl trichloroacetimidate*
[161545-19-3]
$C_{16}H_{18}Cl_6N_2O_9$ 595.042
Mp 160-161°. $[\alpha]_D$ +75 (c, 1.0 in $CHCl_3$).

3,4,6-Tribenzyl, N-*trichloroacetyl: 3,4,6-Tri*-O-*benzyl-2-deoxy-2-trichloroacetamido-α-D-glucopyranosyl trichloroacetimidate*
[161545-22-8]
$C_{31}H_{30}Cl_6N_2O_6$ 739.304
$[\alpha]_D$ +77 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

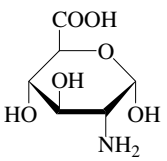
3,4,6-Tri-Ac, N-*phthalimide: 3,4,6-Tri*-O-*acetyl-2-deoxy-2-phthalimido-β-D-glucopyranosyl trichloracetimidate*
$C_{22}H_{21}Cl_3N_2O_{10}$ 579.773
Mp 146°. $[\alpha]_D^{25}$ +76 (c, 1.0 in $CHCl_3$).

3,4,6-Tri-Ac, N-*dithiasuccinimide deriv.: 3,4,6-Tri*-O-*acetyl-2-deoxy-2-(dithiasuccinimido)-β-D-glucopyranosyl trichloroacetimidate*
[162894-83-9]
$C_{16}H_{17}Cl_3N_2O_{10}S_2$ 567.808
$[\alpha]_D^{25}$ +35.3 (c, 1.1 in $CHCl_3$).

Grundler, G. *et al., Carbohydr. Res.*, 1985, **135**, 203 (*β-D-tri-Ac N-phthalimide*)
Blatter, G. *et al., Carbohydr. Res.*, 1994, **260**, 189 (*α-D tri-Ac N-trichloroacetyl*)
Meinjohanns, E. *et al., J.C.S. Perkin 1*, 1995, 405 (*β-D tri-Ac N-dithiasuccinimide*)
Coutant, C. *et al., J.C.S. Perkin 1*, 1995, 1573 (*α-D-tribenzyl trichloroacetyl*)

2-Amino-2-deoxyglucuronic acid, 9CI, 8CI A-274

Glucosaminuronic acid



α-D-Pyranose-*form*

$C_6H_{11}NO_6$ 193.156

D-*form* [13237-23-5]
Constit. of an extracellular polysaccharide occuring in culture fluids of two black yeast-like fungi *Rhinocladiella elatior* and *Rhinocladiella mansorii*. Present in the polysaccharide of *Haemophilus influenzae* type d. Associated as a polym.
Mp 172°. $[\alpha]_D^{20}$ +55 (H_2O).

4-Me, N-*Ac: 2-Acetamido-2-deoxy-4*-O-*methyl-D-glucuronic acid*
$C_9H_{15}NO_7$ 249.22
Component of the glycopeptides *Flavobacterium columnare*.

α-D-Pyranose-*form*

Benzyl glycoside, 3,4-dibenzyl, N-*Ac: Benzyl 2-acetamido-3,4-di*-O-*benzyl-2-deoxy-α-D-glucopyranosiduronic acid*
[69940-06-3]
$C_{29}H_{31}NO_7$ 505.566
Cryst. (Me_2CO/hexane). Mp 210-212.5°. $[\alpha]_D^{18}$ +80.4 (c, 1.3 in Me_2CO).

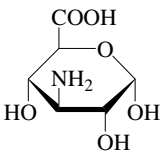
Benzyl glycoside, N-*benzyloxycarbonyl: Benzyl* N-*benzyloxycarbonyl-2-deoxy-α-D-glucopyranosiduronic acid*
$C_{21}H_{23}NO_8$ 417.415
Mp 186° dec. $[\alpha]_D^{20}$ +132.3 (c, 2.5 in Py).

D-Furanose-*form*

6,3-Lactone, N-*Ac: 2-Acetamido-2-deoxy-D-mannofuranurono-6,3-lactone*
$C_8H_{11}NO_6$ 217.178
Mp 175-178°. $[\alpha]_D^{21}$ +44 (c, 0.6 in H_2O).

Heyns, K. *et al., Chem. Ber.*, 1955, **88**, 188 (*synth, α-D-benzyl pyr N-benzyloxycarbonyl*)
Horton, D. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 159 (*rev*)
Williamson, A.R. *et al., J. Biol. Chem.*, 1963, **238**, 2255 (*isol*)
Hanessian, S. *et al., J. Biol. Chem.*, 1964, **239**, 2758 (*occur*)
Karakawa, W.W. *et al., J. Immunol.*, 1972, **108**, 1199 (*occur*)
Kitagawa, I. *et al., Chem. Pharm. Bull.*, 1978, **26**, 3825 (*α-D-benzyl pyr N-Ac dibenzyl*)
Sandford, P.A. *et al., J. Appl. Polym. Sci.*, 1978, **22**, 701; *CA*, **89**, 1978z (*isol*)
Dakaras, E. *et al., Carbohydr. Res.*, 1982, **103**, 176 (*synth, lactone N-Ac*)
Vinogradov, E. *et al., Carbohydr. Res.*, 2003, **338**, 2653-2658 (*4-Me N-Ac, occur*)

3-Amino-3-deoxyglucuronic acid A-275



α-D-Pyranose-*form*

$C_6H_{11}NO_6$ 193.156

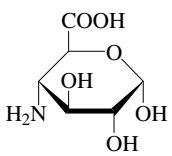
D-*form* [37073-95-3]
Amorph. solid. $[\alpha]_D^{20}$ +28.5 (c, 0.6 in H_2O).

α-D-Furanose-*form*

1,2-Isopropylidene: 3-Amino-3-deoxy-1,2-O-*isopropylidene-α-D-glucofuranuronic acid*
[37073-93-1]
$C_9H_{15}NO_6$ 233.221
Needles (dioxan). Mp 206-209° dec. $[\alpha]_D^{20}$ -16.6 (c, 1.0 in H_2O).

Paulsen, H. *et al., Chem. Ber.*, 1972, **105**, 1524 (*D-pyr-form, synth, α-D-fur isopropylidene*)

4-Amino-4-deoxyglucuronic acid A-276



α-D-Pyranose-*form*

$C_6H_{11}NO_6$ 193.156

D-*form*
The glucuronamide has been identified as the carbohydrate moiety of the nucleoside antibiotic Gougerotin, G-563.

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4-deoxy-α-D-glucopyranosiduronic acid, 8CI
[26302-28-3]
$C_7H_{13}NO_6$ 207.183
Cryst. + ½ H_2O (H_2O). Mp 250°. $[\alpha]_D^{26}$ +95 (c, 1.1 in H_2O).

Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-D-glucopyranosiduronic acid, 8CI*
[26398-56-1]
$C_9H_{15}NO_7$ 249.22
Cryst. +1EtOH (EtOH). Mp 133-137°. $[\alpha]_D^{26}$ +117 (c, 0.5 in H_2O).

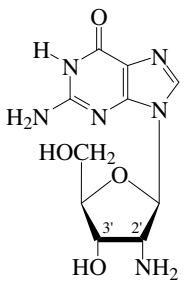
Me glycoside, N-*Ac, Me ester:* [26302-29-4]
$C_{10}H_{17}NO_7$ 263.247
Needles (EtOH/petrol). Mp 159-160°. $[\alpha]_D^{26}$ +92 (c, 0.79 in $CHCl_3$).

Me glycoside, N*,2,3-tri-Ac, Me ester:*
[26398-57-2]
$C_{14}H_{21}NO_9$ 347.321
Foam. $[\alpha]_D^{26}$ +107 (c, 1.3 in $CHCl_3$).

Kotick, M.P. *et al., Carbohydr. Res.*, 1969, **11**, 369 (*Me gly, Me gly N-Ac, Me gly Me ester N-Ac, Me gly Me ester tri-Ac*)
Lichtenthaler, F.W. *et al., Tet. Lett.*, 1975, 665 (*glucuronamide, occur*)

2′-Amino-2′-deoxyguanosine, 9CI A-277

9-(2-Amino-2-deoxy-β-D-ribofuranosyl)-guanine. 2AG
[60966-26-9]



$C_{10}H_{14}N_6O_4$ 282.258

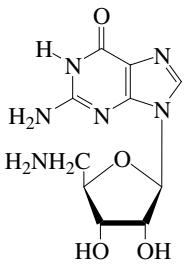
Nucleoside antibiotic. Isol. from *Enterobacter cloacae*. Possesses antitumour and limited antibacterial activity. Needles + ½H_2O (H_2O). Sol. H_2O; poorly sol. butanol, hexane.
Mp 252-254° dec. $[\alpha]_D^{26}$ -56.6 (c, 0.5 in H_2O). λ_{max} 256 (ϵ 12700); 280 (sh) (ϵ 8800) (pH 2) (Derep). λ_{max} 256 (ϵ 12000); 268 (ϵ 12100) (pH 12) (Derep). λ_{max} 252 (ϵ 13900); 275 (sh) (ϵ 9500) (H_2O at pH 7) (Derep). λ_{max} 255 (ϵ 13000) (-12) (Berdy).
▶ MF8752000

Nakanishi, T. *et al., Agric. Biol. Chem.*, 1974, **38**, 2465 (*isol, ir, pmr, props*)
Nakanishi, T. *et al., Chem. Pharm. Bull.*, 1976, **24**, 2955 (*cmr, struct*)
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 240 (*synth*)
Sato, A. *et al., Chem. Pharm. Bull.*, 1979, **27**, 821 (*synth*)
Imazawa, M. *et al., J.O.C.*, 1979, **44**, 2039 (*synth, uv, ir, pmr, cd*)
Morisawa, H. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3191 (*synth*)

Patnaik, L.N. *et al., J. Biol. Phys.*, 1984, **12**, 12 (*conformn*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

5′-Amino-5′-deoxyguanosine, 9CI A-278

9-(5-Amino-5-deoxy-β-D-ribofuranosyl)-guanine
[4099-84-7]

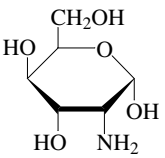


$C_{10}H_{14}N_6O_4$ 282.258
Cryst. + H_2O (H_2O). Mp 219-220°. $[\alpha]_D$ -41.6 (c, 0.5 in DMSO).

Jahn, W. *et al., Chem. Ber.*, 1965, **98**, 1705-1708 (*synth*)
Schattka, K. *et al., Chem. Ber.*, 1972, **105**, 3824-3832 (*synth, uv*)
Dean, D.K. *et al., Synth. Commun.*, 2002, **32**, 1517-1521 (*synth, uv, pmr, cmr*)

2-Amino-2-deoxygulose, 9CI A-279

Gulosamine
[26315-48-0]



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

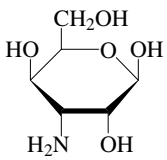
D-*form*
Obt. by acid hydrol. of Streptothricin, S-86.
Hydrochloride: Mp 152-162° Mp 165-170° dec. $[\alpha]_D^{21}$ +5.6 → -18.7 (c, 2.9 in H_2O).
N-*Ac: 2-Acetamido-2-deoxy-D-gulose*
$C_8H_{15}NO_6$ 221.21
Cryst. (EtOH). Mp 125-126°. $[\alpha]_D$ -55 → -59 (H_2O). $[\alpha]_D$ -66 (H_2O).
N-*Me: 2-Deoxy-2-(*N*-methylamino)-D-gulose*
$C_7H_{15}NO_5$ 193.199
Isol. from acid hydrol. of the antibiotic LL-AC 541 prod. by *Streptomyces hygroscopicus*. Active against Gram-negative and Gram-positive bacteria. Mp 155° (as hydrochloride). $[\alpha]_D^{25}$ +39 → -22 (c, 0.79 in H_2O).

α-D-Pyranose-*form*
Me glycoside, N-*Ac: Methyl 2-acetamido-2-deoxy-α-D-gulopyranoside*
$C_9H_{17}NO_6$ 235.236
Mp 79-82°. $[\alpha]_D^{25}$ +72 (c, 0.74 in MeOH).
*Me glycoside, tetra-Ac: Methyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-α-D-gulopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Mp 123-124°. $[\alpha]_D^{21}$ +76 (c, 0.91 in $CHCl_3$).

β-D-Pyranose-*form*
*Me glycoside, tetra-Ac: Methyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-β-D-gulopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Mp 116-119°. $[\alpha]_D^{23}$ -54 ($CHCl_3$).

L-*form*
A constit. of Adenomycin, A-30.
Hydrochloride: Mp 153-164° dec. $[\alpha]_D$ -8.5 → +17.8 (H_2O).
Van Tamelen, E.E. *et al., J.A.C.S.*, 1956, **78**, 4817 (*isol*)
Tarasiejska, Z. *et al., J.A.C.S.*, 1957, **79**, 2660 (*D-form, synth, α-D-Me pyr N-Ac, α-D-Me pyr tetra-Ac*)
Sowden, J.C. *et al., J.O.C.*, 1961, **26**, 2153 (*D-form, synth*)
Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 231 (*synth*)
Borders, D.B. *et al., Tet. Lett.*, 1967, 4187 (*α-D-N-Me, isol*)
Yaguchi, M. *et al., Can. J. Biochem.*, 1970, **48**, 386 (*chromatog*)
Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 29 (*D-N-Ac*)
Ogita, T. *et al., Tet. Lett.*, 1980, **21**, 3203 (*L-form, isol*)
Suami, T. *et al., Carbohydr. Res.*, 1985, **135**, 319 (*synth*)

3-Amino-3-deoxygulose A-280



β-D-Pyranose-*form*

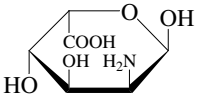
$C_6H_{13}NO_5$ 179.172

β-D-Pyranose-*form*
Me glycoside: Methyl 3-amino-3-deoxy-β-D-gulopyranoside
[122291-79-6]
$C_7H_{15}NO_5$ 193.199
Syrup (as hydrochloride). CAS no. refers to hydrochloride.

α-D-Furanose-*form*
*1,2-*O*-Isopropylidene,* N-*Ac: 3-Acetamido-3-deoxy-1,2-*O*-isopropylidene-α-D-gulofuranose*
[34296-93-0]
$C_{11}H_{19}NO_6$ 261.274
Cryst. (MeOH/Et_2O). Mp 146-147°. $[\alpha]_D$ +14 (c, 1.0 in MeOH).
*1,2:5,6-Di-*O*-isopropylidene,* N-*Ac: 3-Acetamido-3-deoxy-1,2:5,6-di-*O*-isopropylidene-α-D-gulofuranose*
[34296-91-8]
$C_{14}H_{23}NO_6$ 301.339
Cryst. ($CHCl_3$/petrol). Mp 141.5-142.5°. $[\alpha]_D$ -45 (c, 1.0 in $CHCl_3$).
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1971, **16**, 303 (*α-D-fur N-Ac derivs, pmr*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 605 (*β-D-Me pyr, pmr*)

2-Amino-2-deoxyguluronic acid, 9CI A-281

Gulosaminuronic acid
[51166-45-1]

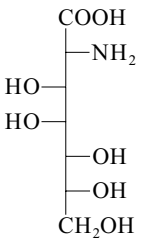


α-L-*form*

$C_6H_{11}NO_6$ 193.156

L-*form*
Constit. of the cell wall of *Halococcus morrhuae* and of *Vibrio parahaemolyticus* K15 antigen.
Torii, M. *et al., Eur. J. Biochem.*, 1973, **37**, 401 (*isol*)
Reistad, R. *et al., Carbohydr. Res.*, 1974, **36**, 420 (*isol*)
Reistad, R. *et al., Arch. Microbiol.*, 1975, **102**, 71; *CA*, **82**, 167189y (*occur*)
Steber, J. *et al., Arch. Microbiol.*, 1979, **123**, 209; *CA*, **92**, 18498c (*isol*)

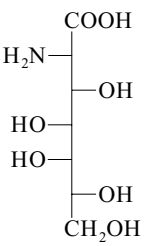
2-Amino-2-deoxy-D-*glycero*-D-*galacto*-heptonic acid A-282



$C_7H_{15}NO_7$ 225.198
Cryst. + $1H_2O$ (MeOH aq.). Mp 221-223° dec. $[\alpha]_D$ -6.6 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ -13 (12*M* HCl).

N-*Benzyl:*
$C_{14}H_{21}NO_7$ 315.322
Cryst. + $1H_2O$ (Me_2CO aq.). Mp 175-177° dec. $[\alpha]_D$ +0.4 (c, 0.5 in 0.1*M* NaOH). $[\alpha]_D$ -5 (12*M* HCl).
Peréz, J.A.G. *et al., Carbohydr. Res.*, 1983, **114**, 158

2-Amino-2-deoxy-D-*glycero*-L-*gluco*-heptonic acid A-283

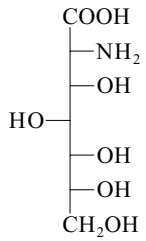


$C_7H_{15}NO_7$ 225.198
Cryst. + $1H_2O$ (H_2O). Mp 236-238° dec. $[\alpha]_D$ +1.1 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ +11.1 (12*M* HCl).

N-*Benzyl:*
$C_{14}H_{21}NO_7$ 315.322
Mp 229-231° dec. $[\alpha]_D$ -47.1 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ -13.5 (12*M* HCl).

Pérez, J.A.G. *et al., Carbohydr. Res.*, 1983, **114**, 158

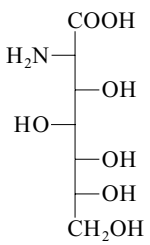
2-Amino-2-deoxy-D-*glycero*-D-*gulo*-heptonic acid A-284



$C_7H_{15}NO_7$ 225.198
Cryst. (MeOH aq.). Mp 155-157° dec. $[\alpha]_D$ 0 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ -17.2 (12*M* HCl).

N-*Benzyl:*
$C_{14}H_{21}NO_7$ 315.322
Cryst. (H_2O). Mp 180-182° dec. $[\alpha]_D$ +9.2 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ -7.3 (12*M* HCl).
Peréz, J.A.G. *et al., Carbohydr. Res.*, 1983, **114**, 158

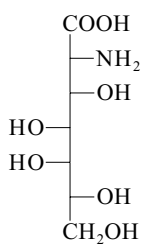
2-Amino-2-deoxy-D-*glycero*-D-*ido*-heptonic acid A-285



$C_7H_{15}NO_7$ 225.198
Cryst. (MeOH aq.). Mp 213-215° dec. $[\alpha]_D$ -6.2 (c, 0.5 in 1*M* NaOH). $[\alpha]_D$ +4.4 (12*M* HCl).

N-*Benzyl:*
$C_{14}H_{21}NO_7$ 315.322
Cryst. (Me_2CO aq.). Mp 163-163.5° dec. $[\alpha]_D$ -14 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ -10.3 (12*M* HCl).
Peréz, J.A.G. *et al., Carbohydr. Res.*, 1983, **114**, 158

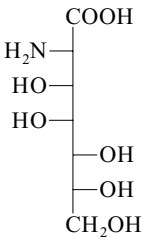
2-Amino-2-deoxy-D-*glycero*-L-*manno*-heptonic acid A-286



$C_7H_{15}NO_7$ 225.198
Cryst. (MeOH aq.). Mp 184-186°. $[\alpha]_D$ +4.9 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ -6.2 (12*M* HCl).

N-*Benzyl:*
$C_{14}H_{21}NO_7$ 315.322
Cryst. (EtOH aq.). Mp 205-207° dec. $[\alpha]_D$ +10 (c, 1 in 0.1*M* NaOH). $[\alpha]_D$ +0.8 (12*M* HCl).
Peréz, J.A.G. *et al., Carbohydr. Res.*, 1983, **114**, 158

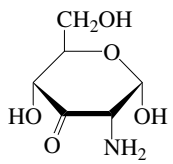
2-Amino-2-deoxy-D-*glycero*-D-*talo*-heptonic acid A-287



$C_7H_{15}NO_7$ 225.198
Cryst. (MeOH aq.). Mp 223-225° dec. $[\alpha]_D$ -3.4 (c, 0.5 in 0.1*M* NaOH). $[\alpha]_D$ +3.2 (12*M* HCl).

N-*Benzyl:*
$C_{14}H_{21}NO_7$ 315.322
Cryst. + ½H_2O (H_2O). Mp 189-191° dec. $[\alpha]_D$ -9.8 (c, 0.5 in 0.1*M* NaOH). $[\alpha]_D$ +2.4 (12*M* HCl).
Peréz, J.A.G. *et al., Carbohydr. Res.*, 1983, **114**, 158

2-Amino-2-deoxy-*ribo*-hexopyranos-3-ulose A-288



α-D-Pyranose-*form*

$C_6H_{11}NO_5$ 177.157

α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene,* N-*Ac: Methyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-α-D-*ribo*-hexopyranosid-3-ulose*
$C_{16}H_{19}NO_6$ 321.329
Mp 222°. $[\alpha]_D^{22}$ +128 (c, 1.0 in DMF).

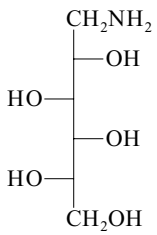
*Me glycoside, 4,6-*O*-benzylidene,* N-*benzoyl: Methyl 2-benzamido-4,6-*O*-benzylidene-2-deoxy-α-D-*ribo*-hexopyranosid-3-ulose*
$C_{21}H_{21}NO_6$ 383.4
Mp 204-206°. $[\alpha]_D^{25}$ +114 (DMF).

β-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene,* N-*Ac: Methyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-β-D-*ribo*-hexopyranosid-3-ulose*
$C_{16}H_{19}NO_6$ 321.329
Mp 204-205°. $[\alpha]_D$ -49.8 (c, 1.0 in DMSO).

Baker, B.R. *et al., J.O.C.*, 1965, **30**, 2306
Onedera, K. *et al., Carbohydr. Res.*, 1968, **6**, 276
Collins, P.M. *et al., J.C.S. Perkin 1*, 1972, 2596
Kumazawa, S. *et al., Angew. Chem., Int. Ed.*, 1973, **12**, 921

1-Amino-1-deoxyiditol A-289



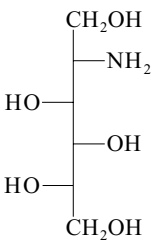
$C_6H_{15}NO_5$ 181.188

L-*form*

N-*Ac:* [55780-32-0]
$C_8H_{17}NO_6$ 223.225
Syrup.
Kiely, D.E. *et al., J.O.C.*, 1975, **40**, 2630 (*N-Ac*)

2-Amino-2-deoxyiditol A-290

5-Amino-5-deoxyiditol



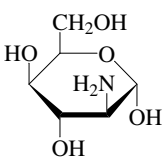
$C_6H_{15}NO_5$ 181.188

L-*form*

*2,3,6-Tribenzyl: 2-Amino-1,4,5-tri-*O*-benzyl-2-deoxy-L-iditol*
[22430-18-8]
$C_{27}H_{33}NO_5$ 451.561
Needles (diisopropyl ether). Mp 90-92°. $[\alpha]_D^{23}$ -25.1 (c, 1.0 in $CHCl_3$).
Gigg, R. *et al., J.C.S.(C)*, 1968, 2661 (*tribenzyl*)

2-Amino-2-deoxyidose A-291

Idosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form*

Hydrochloride: $[\alpha]_D^{23}$ +1 (c, 3.0 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-idose*
[23655-50-7]
$C_8H_{15}NO_6$ 221.21
Syrup. $[\alpha]_D$ -38 (c, 2.0 in H_2O). $[\alpha]_D^{22}$ -45 (c, 4.7 in H_2O).

α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-amino-4,6-*O*-benzylidene-2-deoxy-α-D-idopyranoside*
[52941-73-8]
$C_{14}H_{19}NO_5$ 281.308
$[\alpha]_D^{20}$ +48 (c, 0.8 in $CHCl_3$) (lit. gives a temp. range).

*Me glycoside, 4,6-*O*-benzylidene,* N*-Ac: Methyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-α-D-idopyranoside*
[52885-36-6]
$C_{16}H_{21}NO_6$ 323.345
Cryst. (EtOAc). Mp 195-196° (201-202°). $[\alpha]_D$ -12 (c, 0.7 in $CHCl_3$). $[\alpha]_D$ -18 (c, 1.0 in$CHCl_3$).

Me glycoside, N*,3-di-Ac: Methyl 2-acetamido-3-*O*-acetyl-2-deoxy-α-D-idopyranoside*
[52885-38-8]
$C_{11}H_{19}NO_7$ 277.274
Cryst. (EtOAc/petrol). Mp 193°. $[\alpha]_D^{20}$ +49 (c, 1.0 in $CHCl_3$) (lit. gives a temp. range).

Me glycoside, N*-Ac, 3-tosyl: Methyl 2-acetamido-2-deoxy-3-*O*-tosyl-α-D-idopyranoside*
[52885-39-9]
$C_{16}H_{23}NO_8S$ 389.426
Mp 152-154°. $[\alpha]_D^{20}$ 0 (c, 0.8 in $CHCl_3$) (lit. gives a temp. range).

*Me glycoside, 4,6-*O*-benzylidene,* N*-benzoyl, 3-tosyl: Methyl 2-benzamido-4,6-*O*-benzylidene-2-deoxy-3-*O*-tosyl-α-D-idopyranoside*
[52941-74-9]
$C_{28}H_{29}NO_8S$ 539.605
Cryst. ($CHCl_3$/Et_2O). Mp 164-165°. $[\alpha]_D^{20}$ -39 (c, 0.7 in $CHCl_3$) (lit. gives a temp. range).

β-D-Pyranose-*form*

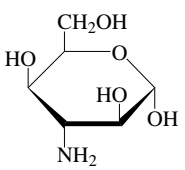
*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-amino-4,6-*O*-benzylidene-2-deoxy-β-D-idopyranoside*
[52885-44-6]
$C_{14}H_{19}NO_5$ 281.308
Syrup. $[\alpha]_D^{20}$ -55 (c, 0.7 in $CHCl_3$) (lit. gives a temp. range).

L-*form* [14307-12-1]

Hydrochloride: $[\alpha]_D$ -4.8 (c, 1 in H_2O).

Heyns, K. *et al., Chem. Ber.*, 1957, **90**, 2039 (*L-form, synth*)
Kuhn, R. *et al., Annalen*, 1958, **617**, 92 (*D-form, D-N-Ac*)
Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1967, **7**, 29 (*D-N-Ac*)
Guthrie, R.D. *et al., J.C.S. Perkin 1*, 1974, 650 (*α-D-Me pyr derivs, β-D-Me pyr deriv*)

3-Amino-3-deoxyidose A-292



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

α-D-Pyranose-*form*

Me glycoside, N*-Ac: Methyl 3-acetamido-3-deoxy-α-D-idopyranoside*
$C_9H_{17}NO_6$ 235.236
Mp 157-158°. $[\alpha]_D$ +66 (MeOH).

*Me glycoside, 2,4,3*N*,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri-*O*-acetyl-3-deoxy-α-D-idopyranoside*
[113951-07-8]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (EtOH). Mp 135-135.6° (134-135°). $[\alpha]_D$ +49 (c, 0.1 in $CHCl_3$).

*Me glycoside, 4,6-benzylidene: Methyl 3-amino-4,6-*O*-benzylidene-3-deoxy-α-D-idopyranoside*
[52918-89-5]
$C_{14}H_{19}NO_5$ 281.308
Cryst. (EtOAc). Mp 140-141°. $[\alpha]_D^{20}$ +65 (c, 0.8 in $CHCl_3$) (lit. gives a temp. range).

Me glycoside, 4,6-benzylidene, N*-Ac: Methyl 3-acetamido-4,6-*O*-benzylidene-3-deoxy-α-D-idopyranoside*
[15384-59-5]
$C_{16}H_{21}NO_6$ 323.345
Cryst. (EtOH). Mp 226° (216-218°). $[\alpha]_D^{24}$ +47 (c, 0.98 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside, 4,6-benzylidene, N*-Ac: Methyl 3-acetamido-4,6-*O*-benzylidene-3-deoxy-β-D-idopyranoside*
[52885-41-3]
$C_{16}H_{21}NO_6$ 323.345
Mp 100-103°. $[\alpha]_D^{20}$ -52 (c, 0.8 in $CHCl_3$) (lit. gives a temp. range).

β-D-Furanose-*form*

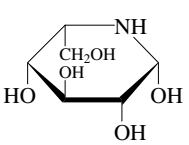
*1,2:5,6-Diisopropylidene: 3-Amino-3-deoxy-1,2:5,6-di-*O*-isopropylidene-β-D-idofuranose*
[91067-83-3]
$C_{12}H_{21}NO_5$ 259.302
Cryst. (EtOH). Mp 98-98.5°. $[\alpha]_D^{22}$ +40 (c, 0.26 in $CHCl_3$).

β-L-Furanose-*form*

1,2:5,6-Diisopropylidene, N*-Ac: 3-Acetamido-3-deoxy-1,2:5,6-di-*O*-isopropylidene-β-L-idofuranose*
[27581-58-4]
$C_{14}H_{23}NO_6$ 301.339
Cryst. Mp 158.5-159.5°. $[\alpha]_D$ -18.5 (c, 0.6 in $CHCl_3$).

Jeanloz, R.W. *et al., J.O.C.*, 1961, **26**, 537 (*α-Me pyr N-Ac, β-Me pyr N-Ac*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1970, **12**, 475 (*β-L-fur isopropylidene N-Ac, pmr*)
Guthrie, R.D. *et al., J.C.S. Perkin 1*, 1974, 650 (*β-Me pyr benzylidene N-Ac*)
Tachibana, Y. *et al., Bull. Chem. Soc. Jpn.*, 1984, **57**, 237 (*β-D-fur, diisopropylidene, pmr*)
Defaye, J. *et al., Carbohydr. Res.*, 1991, **212**, 129 (*α-D-Me pyr tetra-Ac, pmr*)

5-Amino-5-deoxyidose A-293



β-L-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

β-L-Pyranose-*form*

1,6-Anhydro: 5-Amino-1,6-anhydro-5-deoxy-β-L-idopyranose
[15065-80-2]
$C_6H_{11}NO_4$ 161.157
Cryst. (MeOH). Mp 140° dec. $[\alpha]_D^{23}$ +114.5 (c, 1.0 in H_2O).

1,6-Anhydro, N*-Ac: 5-Acetamido-1,6-anhydro-5-deoxy-β-L-idopyranose*
[14679-59-5]
$C_8H_{13}NO_5$ 203.194
Cryst. (MeOH). Mp 190-191°. $[\alpha]_D^{20}$ +79.3 (c, 2.0 in H_2O).

*1,6-Anhydro, 2,3,4,5*N*-tetra-Ac: 5-Acetamido-2,3,4-tri-*O*-acetyl-1,6-anhydro-5-deoxy-β-L-idopyranose*
[15072-72-7]
$C_{14}H_{19}NO_8$ 329.306
Syrup. $[\alpha]_D^{20}$ +48.9 (c, 2.0 in MeOH).

β-L-Furanose-*form*

*1,2-*O*-Isopropylidene: 5-Amino-5-deoxy-1,2-*O*-isopropylidene-β-L-idofuranose*
[14685-99-5]
$C_9H_{17}NO_5$ 219.237
Leaflets (EtOH/Et_2O). Mp 184-185° (178°). $[\alpha]_D^{20}$ -3.7 (c, 1.1 in MeOH).

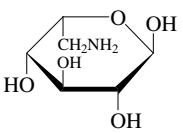
*1,2-*O*-Isopropylidene, 3,5*N*,6-tri-Ac: 5-Acetamido-3,6-di-*O*-acetyl-5-deoxy-1,2-*O*-isopropylidene-β-L-idofuranose*
[25474-01-5]
$C_{15}H_{23}NO_8$ 345.349
Cryst. (Et_2O). Mp 92-94°. $[\alpha]_D^{23}$ -14.4 (c, 2.3 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-benzyl,* N*-Ac: 5-Acetamido-3-*O*-benzyl-5-deoxy-1,2-*O*-isopropylidene-β-L-idofuranose*
[22412-62-0]
$C_{18}H_{25}NO_6$ 351.399
Needles (2-propanol/hexane). Mp 143-144°. $[\alpha]_D^{21}$ -7.4 (c, 5.3 in $CHCl_3$).

*1,2-*O*-Isopropylidene,* N*-benzyloxycarbonyl:* [129279-37-4]
$C_{17}H_{23}NO_7$ 353.371
Cryst. (EtOAc). Mp 140-141°. $[\alpha]_D$ -24.5 (c, 0.5 in $CHCl_3$).

Gramera, R.E. *et al., J.O.C.*, 1963, **28**, 1401 (*isopropylidene*)
Paulsen, H. *et al., Chem. Ber.*, 1966, **99**, 3450 (*β-L-pyr deriv*)
Saeki, H. *et al., Chem. Pharm. Bull.*, 1968, **16**, 962; 2471 (*isopropyldiene, ir*)
Tsuda, Y. *et al., Chem. Pharm. Bull.*, 1989, **37**, 2673 (*tri-Ac, ir, pmr, cmr*)
Kayakiri, H. *et al., Chem. Pharm. Bull.*, 1991, **39**, 1397 (*N-benzyloxycarbonyl, pmr, cmr, ms*)

6-Amino-6-deoxyidose A-294



α-L-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

α-L-Pyranose-*form*

Me glycoside: Methyl 6-amino-6-deoxy-α-L-idopyranoside
$C_7H_{15}NO_5$ 193.199
Solid + ½ H_2CO_3. $[\alpha]_D^{20}$ -88 (c, 1 in H_2O).

Isopropyl glycoside: Isopropyl 6-amino-6-deoxy-α-L-idopyranoside
$C_9H_{19}NO_5$ 221.253
Solid + ⅙ H_2CO_3. $[\alpha]_D^{24}$ -73 (c, 1 in H_2O).

β-L-Pyranose-*form*

Me glycoside: Methyl 6-amino-6-deoxy-β-L-idopyranoside
$C_7H_{15}NO_5$ 193.199
Solid + ½ H_2CO_3. $[\alpha]_D^{20}$ +52 (c, 0.9 in H_2O).

Isopropyl glycoside: Isopropyl 6-amino-6-deoxy-β-L-idopyranoside
$C_9H_{19}NO_5$ 221.253
Solid + ⅙ H_2CO_3. $[\alpha]_D^{24}$ +42 (c, 1 in H_2O).

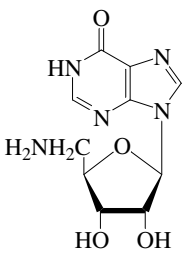
β-L-Furanose-*form*

*1,2:3,5-Di-*O*-isopropylidene, tosyl: 6-Deoxy-1,2:3,5-di-*O*-isopropylidene-6-tosylamino-β-D-idofuranose*
$C_{19}H_{27}NO_7S$ 413.491
Mp 198-200° dec. $[\alpha]_D$ +0.84 (EtOH).

Grosheintz, J.M. *et al., J.A.C.S.*, 1948, **70**, 1476 (*deriv*)
Matsuda, K. *et al., Bull. Chem. Soc. Jpn.*, 1986, **59**, 1397 (*synth, pmr*)

5′-Amino-5′-deoxyinosine, 9CI A-295

[18945-35-2]

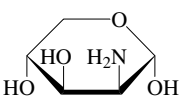


$C_{10}H_{13}N_5O_4$ 267.244
Cryst. (H_2O). Mp 179°.

Morr, M. *et al., Annalen*, 1983, 575-584 (*synth, pmr, uv*)
Sato, H. *et al., Tetrahedron*, 2003, **59**, 7871-7878 (*synth, pmr*)

2-Amino-2-deoxylyxose A-296

Lyxosamine



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

Prod. by cultures of *Streptomyces alboniger*.

Hydrochloride:
Cryst. (MeOH). Mp 148-155° dec. $[\alpha]_D^{25}$ +54 → -3.6 (c, 2.3 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-lyxose*
[30100-62-0]
$C_7H_{13}NO_5$ 191.183
Syrup. $[\alpha]_D^{22}$ +22.6 (c, 1.1 in H_2O).

α-D-Furanose-*form*

Me glycoside: Methyl 2-amino-2-deoxy-α-D-lyxofuranoside
$C_6H_{13}NO_4$ 163.173
Mp 150-151°. $[\alpha]_D^{29}$ +109.5 (c, 1.7 in H_2O).

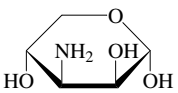
L-*form*

Hydrochloride: Mp 150-160°. $[\alpha]_D$ -16 → +5 (H_2O).

N-*Ac: 2-Acetamido-2-deoxy-L-lyxose*
$C_7H_{13}NO_5$ 191.183
$[\alpha]_D$ -31 (H_2O).

Wolfrom, M.L. *et al., J.A.C.S.*, 1959, **81**, 3716 (*D-form, synth*)
Horton, D. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 159 (*rev, derivs*)
Rebello, P.F. *et al., Biochim. Biophys. Acta*, 1969, **177**, 468 (*isol*)
McLean, R.L. *et al., J. Biol. Chem.*, 1971, **246**, 803 (*D-N-Ac, synth*)

3-Amino-3-deoxylyxose A-297



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3-deoxy-α-D-lyxopyranoside
[122291-84-3]
$C_6H_{13}NO_4$ 163.173
Syrup.

Me glycoside, hydrochloride: [122291-85-4]
Cryst. (EtOAc/EtOH). Mp 194° dec. $[\alpha]_D^{25}$ +42 (c, 0.8 in H_2O).

L-*form*

Hydrochloride: [34296-95-2]
Syrup. $[\alpha]_D$ -24 (c, 0.5 in H_2O).

N,*1,2,4-Tetra-Ac: 3-Acetamido-1,2,4-tri-*O*-acetyl-3-deoxy-L-lyxose*
$C_{13}H_{19}NO_8$ 317.295
Amorph. solid. $[\alpha]_D$ +5 (c, 0.5 in $CHCl_3$).

β-L-Pyranose-*form*

*Me glycoside, 2,3*N*-di-Ac, 4-mesyl: Methyl 3-acetamido-2-*O*-acetyl-3-deoxy-4-*O*-mesyl-β-L-lyxopyranoside*
$C_{11}H_{19}NO_8S$ 325.339
Mp 172-173°. $[\alpha]_D$ -11 (Py).

β-L-Furanose-*form*

*1,2-*O*-Isopropylidene,* N*-Ac: 3-Acetamido-3-deoxy-1,2-*O*-isopropylidene-β-L-lyxofuranose*
[34296-94-1]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (EtOAc/hexane). Mp 166-167°.
$[\alpha]_D$ -5 (c, 1.0 in MeOH).

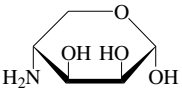
α-DL-Pyranose-*form*

*Me glycoside, 2,3*N,*4-tribenzoyl: Methyl 3-benzamido-2,4-di-*O*-benzoyl-3-deoxy-α-DL-lyxopyranoside*
[92051-10-0]
$C_{27}H_{25}NO_7$ 475.497
Cryst. (Et_2O). Mp 163°.

[34296-95-2, 92051-09-7]

Baker, B.R. *et al., J.O.C.*, 1954, **19**, 646 (*β-L-Me pyr di-Ac*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1971, **16**, 303 (*L-form, α-L-fur isopropylidene N-Ac*)
Picq, D. *et al., Carbohydr. Res.*, 1984, **128**, 283 (*α-DL-Me pyr tribenzoyl, pmr*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 605 (*α-D-Me pyr, pmr*)

4-Amino-4-deoxylyxose A-298



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

α-D-Pyranose-*form*

Benzyl glycoside, 2,3-anhydro: Benzyl 4-amino-2,3-anhydro-4-deoxy-α-D-lyxopyranoside
[78907-34-3]
$C_{12}H_{15}NO_3$ 221.255
Cryst. $[\alpha]_D^{20}$ +91 ($CHCl_3$).

α-L-Pyranose-*form*

*Me glycoside, 2-mesyl: Methyl 4-amino-4-deoxy-2-*O*-mesyl-α-L-lyxopyranoside*
[101305-43-5]
$C_7H_{15}NO_6S$ 241.265
Cryst. (EtOAc). Mp 134°. $[\alpha]_{365}^{25}$ -99 (c, 0.53 in $CHCl_3$).

Me glycoside, N,N*-di-Me, 2,3-dimesyl: Methyl 4-deoxy-2,3-di-*O*-mesyl-4-(*N*-dimethylamino)-α-L-lyxopyranoside*
[87908-09-6]
$C_{10}H_{21}NO_8S_2$ 347.41
Cryst. Mp 118°.

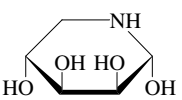
β-L-Pyranose-*form*

Benzyl glycoside, 2,3-anhydro: Benzyl 4-amino-2,3-anhydro-4-deoxy-β-L-lyxopyranoside
[78907-33-2]
Cryst. Mp 37-38°. $[\alpha]_D^{20}$ +105 ($CHCl_3$).

L-Furanose-*form* [28441-49-8]
Amorph. powder (MeOH). $[\alpha]_D$ +4 (c, 0.92 in H_2O).

Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 1621 (*L-fur*)
Picq, D. *et al., Tetrahedron*, 1983, **39**, 1797; 1985, **41**, 2681 (*Me gly deriv, pmr*)
Malik, A. *et al., Chem. Comm.*, 1984, 1530 (*benzyl gly deriv*)

5-Amino-5-deoxylyxose A-299



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

N-*Ac, benzylphenylhydrazone:* [13391-66-7]
Cryst. (Me_2CO/Et_2O). Mp 155-156°.
$[\alpha]_D^{23}$ +23.4 (c, 0.17 in MeOH).

α-D-Pyranose-*form*

N-*Ac: 5-Acetamido-5-deoxy-α-D-lyxopyranose*
[7687-55-0]

$C_7H_{13}NO_5$ 191.183
Mp 166-167° (156-158°). $[\alpha]_D^{25}$ -71 (c, 1.0 in H_2O). $[\alpha]_D$ -55 (c, 1.0 in H_2O).

*1,2,3,4,5*N-*Penta-Ac: 5-Acetamido-1,2,3,4-tetra*-O-*acetyl-5-deoxy-α-D-lyxopyranose*
[7700-00-7]
$C_{15}H_{21}NO_9$ 359.332
Mp 131-132° (121-122°). $[\alpha]_D$ -20 (c, 0.6 in $CHCl_3$).

α-D-Furanose-*form*

2,3-O-*Isopropylidene,* N-*Ac: 5-Acetamido-5-deoxy-2,3*-O-*isopropylidene-α-D-lyxofuranose*
[20750-25-8]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (EtOAc). Mp 125-125.5°. $[\alpha]_D$ +23 (c, 1.0 in MeOH).

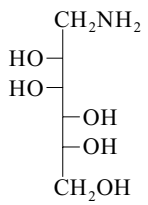
Benzyl glycoside, N-*Ac: Benzyl 5-acetamido-5-deoxy-α-D-lyxofuranoside*
[20750-26-9]
$C_{14}H_{19}NO_5$ 281.308
Syrup. $[\alpha]_D$ +84 (c, 0.9 in MeOH).

Benzyl glycoside, 2,3-O-*isopropylidene,* N-*Ac: Benzyl 5-acetamido-5-deoxy-2,3*-O-*isopropylidene-α-D-lyxofuranoside*
[20750-24-7]
$C_{17}H_{23}NO_5$ 321.372
Cryst. ($CHCl_3$/petrol). Mp 86-87°. $[\alpha]_D$ +84 (c, 1.0 in $CHCl_3$).

Hanessian, S. *et al., J.O.C.*, 1967, **32**, 163 (*synth, derivs*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 181 (*α-D-fur deriv*)
Poh, B. *et al., Aust. J. Chem.*, 1984, **37**, 971 (*α-D-pyr deriv, pmr, ir*)

1-Amino-1-deoxymannitol, 9CI A-300

Mannamine



$C_6H_{15}NO_5$ 181.188

D-*form* [57027-74-4]
Mp 134-135° dec. $[\alpha]_D^{23}$ +1 (H_2O).

Hydrochloride: [53833-78-6]
Mp 161.5-162.5°. $[\alpha]_D^{20}$ +3 (c, 0.3 in H_2O).

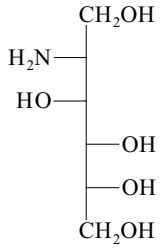
Hydrobromide: [55324-98-6]
Mp 147-148°. $[\alpha]_D$ +3.7 (c, 1.0 in H_2O).

N-*Ac:*
$C_8H_{17}NO_6$ 223.225
Mp 153°. $[\alpha]_D^{23}$ +13 (H_2O).

3,4:5,6-Di-O-*isopropylidene,* N-*succinoyl:*
[53766-08-8]
$C_{16}H_{25}NO_7$ 343.376
Mp 146-147°. $[\alpha]_D^{20}$ +10.7 (c, 1.1 in $CHCl_3$).

Jones, J.K.N. *et al., Can. J. Chem.*, 1962, **40**, 503 (*synth*)
Komura, H. *et al., Carbohydr. Res.*, 1973, **31**, 154 (*synth*)
Gassmann, N. *et al., Helv. Chim. Acta*, 1975, **58**, 182 (*synth*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183-197 (*synth*)

2-Amino-2-deoxymannitol, 9CI A-301



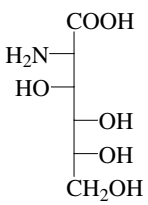
$C_6H_{15}NO_5$ 181.188

D-*form* [14635-94-0]
Used in cosmetics and hair conditioners. Internal standard for hplc detn. of hexosamines and hexosaminitols. Sol. H_2O.

N-*Ac: 2-Acetamido-2-deoxy-D-mannitol*
[10486-92-7]
$C_8H_{17}NO_6$ 223.225
Cryst. (EtOH). Mp 137-138.5°. $[\alpha]_D^{20}$ +46.7 (c, 0.5 in 5% ammonium molybdate). $[\alpha]_D$ +163 (c, 0.4 in acid ammonium molybdate).

Zissis, E. *et al., Carbohydr. Res.*, 1973, **26**, 323 (*N-Ac*)
Japan. Pat., 1984, 59 212 421; *CA*, **102**, 119443m (*use*)
Cheng, P.W. *et al., Anal. Biochem.*, 1987, **167**, 265 (*hplc*)

2-Amino-2-deoxymannonic acid, 9CI A-302



$C_6H_{13}NO_6$ 195.172

D-*form* [16932-62-0]

N-*Ac: 2-Acetamido-2-deoxy-D-mannonic acid*
[50257-06-2]
$C_8H_{15}NO_7$ 237.209
Cryst. Mp 173.5-174°. $[\alpha]_D^{20}$ -10.8 (5 min.) → +83.4 (5 days) (c, 2.5 in AcOH aq.). Converted to lactone in hot AcOH.

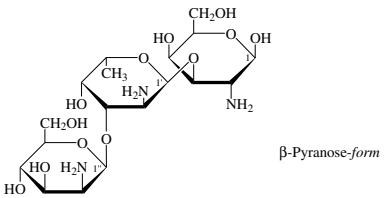
1,4-Lactone, N-*Ac: 2-Acetamido-2-deoxy-D-1,4-mannonolactone*
[28876-37-1]
$C_8H_{13}NO_6$ 219.194
Cryst. (MeOH). Mp 172-173°. $[\alpha]_D$ +87.4 (c, 1 in H_2O).

1,4-Lactone, 5,6-O-*isopropylidene,* N-*Ac: 2-Acetamido-2-deoxy-5,6*-O-*isopropylidene-D-1,4-mannonolactone*
[34044-52-5]
$C_{11}H_{17}NO_6$ 259.258
Mp 161-164°. $[\alpha]_D$ +75.8 (c, 1.04 in MeOH).

Pravdic, N. *et al., Carbohydr. Res.*, 1970, **12**, 471-474; 1971, **19**, 339-352 (*lactone N-Ac*)
Zissis, E. *et al., Carbohydr. Res.*, 1973, **28**, 327-337 (*N-Ac*)
Otaka, K. *et al., Eur. J. Org. Chem.*, 1999, 1795-1802 (*lactone N-Ac*)

2-Amino-2-deoxy-β-D-manno-pyranosyl-(1 →3)-2-amino-2-deoxy-α-L-fucopyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose A-303

2-Amino-2-deoxy-β-D-mannopyranosyl-(1 →3)-2-amino-2,6-dideoxy-α-L-galacto-pyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose, 9CI



β-Pyranose-*form*

$C_{18}H_{35}N_3O_{12}$ 485.487
Constit. of the capsular polysaccharide of *Streptococcus pneumoniae* type 4.

Pyranose-*form*

N,N′,N″-*Tri-Ac:* [103751-44-6]
$C_{24}H_{41}N_3O_{15}$ 611.599
Syrup. $[\alpha]_D$ -93 → -89.4 (MeOH).

β-Pyranose-*form*

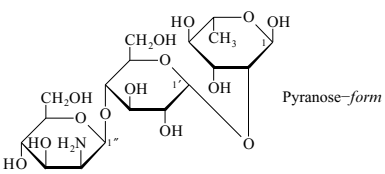
Benzyl glycoside, 4,6-O-*benzylidene, 3″,4″,6″-tribenzyl, 2*N,*2′*N,*2″*N, *4′-tetra-Ac:* [103751-42-4]
$C_{61}H_{71}N_3O_{16}$ 1102.242
Syrup. $[\alpha]_D^{20}$ -59.4 (c, 1.5 in $CHCl_3$).

[103751-45-7]

Horito, S. *et al., Annalen*, 1986, 1880 (*tri-Ac, β-benzyl pyr tetra-Ac deriv, pmr, cmr*)

2-Amino-2-deoxy-β-D-manno-pyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →2)-L-rhamnose A-304

2-Amino-2-deoxy-β-D-mannopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



Pyranose–*form*

$C_{18}H_{33}NO_{14}$ 487.457
Constit. of the repeating unit of the capsular polysaccharide of *Streptococcus pneumoniae* type 19F.

Pyranose-*form*

N-*Ac:* [115964-33-5]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. powder. $[\alpha]_D^{20}$ +50 (c, 0.9 in MeOH). $[\alpha]_D$ +15.9 (c, 0.3 in H_2O).

2′′N,6′′,6′-Tri-Ac: [116306-82-2]
$C_{24}H_{39}NO_{17}$ 613.569
Syrup. $[\alpha]_D$ +28 (c, 0.5 in MeOH).

2′,3,3′,3′′,4,6′-Hexabenzyl, N-*Ac:* [115946-03-7]
$C_{62}H_{71}NO_{15}$ 1070.241
Powder. $[\alpha]_D^{23}$ +16.8 (c, 0.43 in $CHCl_3$).

α-Pyranose-*form*

1,2′′N,4,6′-Tetra-Ac: [118581-36-5]
$C_{26}H_{41}NO_{18}$ 655.606
Syrup. $[\alpha]_D^{20}$ +23 (c, 1.3 in MeOH).

1,2′,2′′N,3,3′,3′′,4,4′′,6′-Deca-Ac: [118561-22-1]
$C_{38}H_{53}NO_{24}$ 907.829
Syrup. $[\alpha]_D^{20}$ +27 (c, 0.6 in $CHCl_3$).

β-Pyranose-*form*

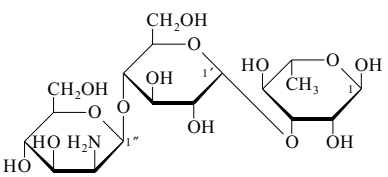
8-Methoxycarbonyloctyl glycoside, N-*Ac:* [115946-07-1]
$C_{30}H_{53}NO_{17}$ 699.745
Powder. $[\alpha]_D^{20.5}$ +30.4 (c, 0.286 in H_2O).

[115946-04-8, 115964-34-6]

Jennings, H.J. *et al., Can. J. Chem.*, 1980, **58**, 1069 (*occur*)
Ohno, N. *et al., Carbohydr. Res.*, 1980, **80**, 297 (*occur*)
Panza, L. *et al., J.C.S. Perkin 1*, 1987, 2745 (*synth, pmr*)
Sugawara, T. *et al., Carbohydr. Res.*, 1988, **172**, 195 (*hexabenzyl N-Ac, β-methoxycarbonyloctyl pyr N-Ac, pmr, ms*)
Paulsen, H. *et al., Carbohydr. Res.*, 1988, **179**, 173 (*N-Ac, α-tetra-Ac, α-deca-Ac, pmr*)

2-Amino-2-deoxy-β-D-manno-pyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →3)-L-rhamnose A-305

2-Amino-2-deoxy-β-D-mannopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



α–Pyranose–*form*

$C_{18}H_{33}NO_{14}$ 487.457

Pyranose-*form*

N-*Ac:* [118561-28-7]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. powder. $[\alpha]_D^{20}$ +31 (c, 0.75 in H_2O). $[\alpha]_D^{20}$ +49 (c, 1.0 in MeOH).

2N′′,3′,6′,6′′-Tetra-Ac: [119927-44-5]
$C_{26}H_{41}NO_{18}$ 655.606
Syrup. $[\alpha]_D^{20}$ +44 (c, 1.5 in MeOH).

1,2,2′,2′′N,3′,3′′,4,4′′,6′,6′′-Deca-Ac: [118561-38-9]
$C_{38}H_{53}NO_{24}$ 907.829
Syrup.

α-Pyranose-*form*

Benzyl glycoside, 2′,3′,4-tribenzyl, N-*Ac:* [118561-25-4]
$C_{48}H_{59}NO_{15}$ 889.992
Syrup. $[\alpha]_D^{20}$ +8.3 (c, 1.2 in MeOH).

Benzyl glycoside, 2′,3′,4-tribenzyl, 2,2′′N,3′′,4′′,6′,6′′-hexa-Ac: [118561-24-3]
$C_{58}H_{69}NO_{20}$ 1100.178
Syrup. $[\alpha]_D^{20}$ +33 (c, 1.0 in $CHCl_3$).

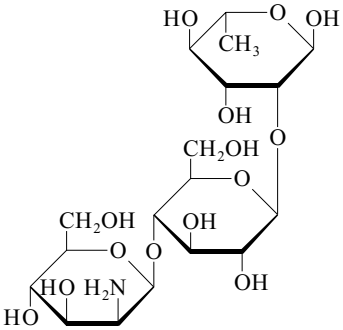
Benzyl glycoside, 2,2′,3′′,4,4′′-pentabenzyl, 2N′′,3′,6′,6′′-tetra-Ac: [119927-42-3]
$C_{68}H_{77}NO_{18}$ 1196.352
Syrup. $[\alpha]_D^{20}$ -3 (c, 2.6 in $CHCl_3$).

[118561-27-6, 118561-39-0]

Paulsen, H. *et al., Carbohydr. Res.*, 1988, **179**, 173 (*N-Ac, α-benzyl pyr tribenzyl derivs, pmr*)
Panza, L. *et al., Carbohydr. Res.*, 1988, **181**, 242 (*N-Ac, tetra-Ac, deca-Ac, α-benzyl pyr pentabenzyl deriv, pmr*)

2-Amino-2-deoxy-β-D-manno-pyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →2)-L-rhamnose A-306

2-Amino-2-deoxy-β-D-mannopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457

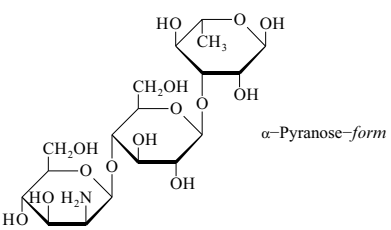
α-Pyranose-*form*

2′,3,3′,3′′,4′′,6′′-Hexabenzyl, 1,2′′N,4,6′-tetra-Ac: [118561-20-9]
$C_{68}H_{77}NO_{18}$ 1196.352
Syrup. $[\alpha]_D^{20}$ -7.8 (c, 1.3 in $CHCl_3$).

Paulsen, H. *et al., Carbohydr. Res.*, 1988, **179**, 173 (*hexabenzyl tetra-Ac, pmr*)

2-Amino-2-deoxy-β-D-manno-pyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →3)-L-rhamnose A-307

2-Amino-2-deoxy-β-D-mannopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



α–Pyranose–*form*

$C_{18}H_{33}NO_{14}$ 487.457

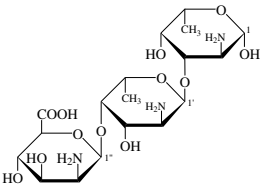
α-Pyranose-*form*

Benzyl glycoside, 2′,3′,4-tribenzyl, 2,2′′N,3′′,4′′,6′,6′′-hexa-Ac: [118561-26-5]
$C_{58}H_{69}NO_{20}$ 1100.178
Syrup. $[\alpha]_D^{20}$ +1.8 (c, 0.5 in $CHCl_3$).

Paulsen, H. *et al., Carbohydr. Res.*, 1988, **179**, 173 (*α-benzyl pyr hexa-Ac deriv*)

2-Amino-2-deoxy-β-D-manno-pyranuronosyl-(1 →4)-2-amino-2-deoxy-α-L-fucopyranosyl-(1 →3)-2-amino-2-deoxy-L-fucose A-308

2-Amino-2-deoxy-β-D-mannopyranuronosyl-(1 →4)-2-amino-2,6-dideoxy-α-L-galactopyranosyl-(1 →3)-2-amino-2,6-dideoxy-L-galactose, 9CI



β-Pyranose-*form*

$C_{18}H_{33}N_3O_{12}$ 483.472
Repeating unit of *Staphylococcus aureus* type 8 polysaccharide.

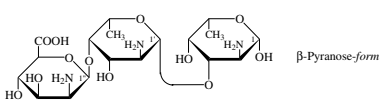
β-Pyranose-*form*

N,N′,N′′-*Tri-Ac:* [117048-28-9]
$C_{24}H_{39}N_3O_{15}$ 609.583
Foam.

Vann, W.F. *et al., UCLA Symp. Mol. Cell. Biol.*, 1988, **64**, 287; *CA*, **109**, 168479f (*occur, struct, pmr, anal, immunochem*)

2-Amino-2-deoxy-β-D-manno-pyranuronosyl-(1 →4)-2-amino-2-deoxy-β-L-fucopyranosyl-(1 →3)-2-amino-2-deoxy-L-fucose A-309

2-Amino-2-deoxy-β-D-mannopyranuronosyl-(1 →4)-2-amino-2,6-dideoxy-β-L-galactopyranosyl-(1 →3)-2-amino-2,6-dideoxy-L-galactose, 9CI



β-Pyranose-*form*

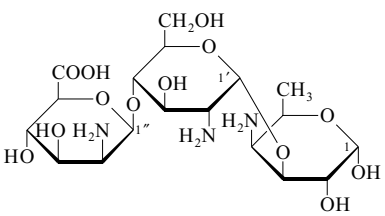
$C_{18}H_{33}N_3O_{12}$ 483.472
Repeating unit of *Staphylococcus aureus* type 5 polysaccharide.

[117048-27-8]

Vann, W.F. *et al., UCLA Symp. Mol. Cell. Biol.*, 1988, **64**, 187; *CA*, **109**, 168479f (*occur, struct, pmr, anal, immunochem*)

2-Amino-2-deoxy-β-D-manno-pyranuronosyl-(1 →4)-2-amino-2-deoxy-α-D-glucopyranosyl-(1 →3)-4-amino-4-deoxy-D-fucose A-310

2-Amino-2-deoxy-β-D-mannopyranuronosyl-(1 →4)-2-amino-2-deoxy-α-D-glucopyranosyl-(1 →3)-4-amino-4,6-dideoxy-D-galactose, 9CI



$C_{18}H_{33}N_3O_{13}$ 499.471

Repeating unit of the enterobacterial common antigen.

α-Pyranose-*form*

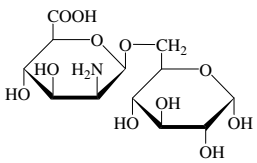
Me glycoside, 2′N,2′′N,4N-tri-Ac: [109898-82-0]
$C_{25}H_{41}N_3O_{16}$ 639.609
Amorph. $[\alpha]_D^{20}$ +74 (c, 1.1 in H_2O). $[\alpha]_D^{20}$ +84.6 (c, 1.1 in MeOH).

Me glycoside, 2,2′N,2′′N,3′,3′′,4N,4′,4′′-octa-Ac, Me ester: [109898-80-8]
$C_{36}H_{53}N_3O_{21}$ 863.822
Syrup. $[\alpha]_D^{20}$ +57 (c, 1.1 in $CHCl_3$).

[97783-82-9, 109898-79-5, 109911-81-1]

Paulsen, H. *et al., Carbohydr. Res.*, 1986, **150**, 63 (*α-Me pyr tri-Ac, α-Me pyr octa-Ac Me ester, pmr, occur*)

6-(2-Amino-2-deoxy-β-D-mannopyranuronosyl)-D-glucose A-311



α-Pyranose-*form*

$C_{12}H_{21}NO_{11}$ 355.298

Pyranose-*form*

N-*Ac: 6-(2-Acetamido-2-deoxy-β-D-mannopyranuronosyl)-D-glucose*
$C_{14}H_{23}NO_{12}$ 397.335
Repeat unit of the teichuronic acid from *Micrococcus luteus*. Amorph. solid. $[\alpha]_D^{20}$ -19 (c, 0.6 in H_2O). Isol. ad α:β anomeric ratio *ca*. 1:2.

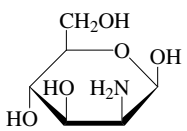
[2-(Octadecanoylamino)ethyl] glycoside, N-*Ac:* N-*[2-[[6-O-[2-(Acetylamino)-2-deoxy-β-D-mannopyranuronosyl]-D-glucopyranosyl]oxy]ethyl]octadecanamide*
$C_{34}H_{62}N_2O_{13}$ 706.869
Teichuronic acid residue prod. by *Micrococcus luteus*. $[\alpha]_D^{25}$ -5.3 (c, 1 in MeOH). Isol. as a mixt. of anomers (α,β ratio 4:1 approx.).

[40879-33-2, 106837-36-9, 152252-29-4, 152252-52-3]

Paulsen, H. *et al., Annalen*, 1987, 431 (*N-Ac*)
Osa, Y. *et al., Chem. Lett.*, 1993, 1567 (*synth, pmr, cmr, deriv*)

2-Amino-2-deoxymannose, 9CI, 8CI A-312

Mannosamine
[2636-92-2]



β-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [14307-02-9]

[5505-63-5]
Constit. of the lipopolysaccharides of several strains of *Salmonella, Arizona, Proteus vulgaris* and *Clostridium welchii*. Cryst. (EtOH/Me_2CO aq.) (as hydrochloride). Mp 187° (178-180°) (hydrochloride). $[\alpha]_D^{20}$ -4.6 (c, 10 in 5% HCl aq.) (hydrochloride). pK_a 7.28 (25°).

6-Phosphate:
$C_6H_{15}NO_8P$ 260.16
Powder. Mp 141-143°.

N-*Ac: 2-Acetamido-2-deoxy-D-mannose.* N-*Acetyl-D-mannosamine*
[3615-17-6]
$C_8H_{15}NO_6$ 221.21
Intermed. in biosynth. of bacterial antigens. Cryst. (Me_2CO aq.).
Mp 128-129° (112-114°). $[\alpha]_D^{20}$ -9.4 → +9.7 (c, 10 in H_2O). Rapidly equilibrates in alk. soln. to form the *gluco* isomer.

N-*Ac, 6-phosphate:*
$C_8H_{17}NO_9P$ 302.197
Important intermed. in biosynth. of *N*-Acetylneuraminic acid, A-20 in bacteria and higher animals. Powder.
Mp 53-55°.

β-D-Pyranose-*form*

N,*1,3,4,6-Penta-Ac: 2-Acetamido-1,3,4,6-tetra*-O-*acetyl-2-deoxy-β-D-mannopyranose*
$C_{16}H_{23}NO_{10}$ 389.358
Cryst. (EtOH/Et_2O). Mp 162-163°. $[\alpha]_D^{24}$ -17 (c, 1.8 in $CHCl_3$).

Me glycoside, N-*Ac: Methyl 2-acetamido-2-deoxy-β-D-mannopyranoside*
$C_9H_{17}NO_6$ 235.236
$[\alpha]_D$ -68 (-62) (H_2O).

Mel glycoside, N,O,O,O-*tetra-Ac: Methyl 2-acetamido-3,4,6-tri*-O-*acetyl-2-deoxy-β-D-mannopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Cryst. (toluene). Mp 154-156°. $[\alpha]_D$ -36 (c, 0.5 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside, 3,5,6-tri-Me: Methyl 2-amino-2-deoxy-3,5,6-tri-O-*methyl-β-D-mannofuranoside*
$C_{10}H_{21}NO_5$ 235.28
Cryst. (EtOH). Mp 227-232° (as hydrochloride). $[\alpha]_D^{20}$ -57.2 (c, 1.0 in H_2O).

L-*form*

Mp 175-177° dec. (as hydrochloride). $[\alpha]_D^{25}$ +4.7 (c, 10 in 5% HCl aq.) (hydrochloride).

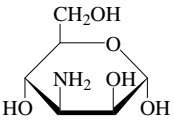
β-L-Pyranose-*form*

N,*1,3,4,6-Penta-Ac: 2-Acetamido-1,3,4,6-tetra*-O-*acetyl-2-deoxy-β-L-mannopyranose*
$C_{16}H_{23}NO_{10}$ 389.358
Mp 162°. $[\alpha]_D$ +18 (c, 1.8 in $CHCl_3$).

[4773-29-9]

O'Neill, A.N. *et al., Can. J. Chem.*, 1959, **37**, 1747 (*D-form, synth, β-D-pyr penta-Ac, β-L-pyr penta-Ac*)
Spivak, C.T. *et al., J.A.C.S.*, 1959, **81**, 2403 (*D-form, synth, D-N-Ac*)
Roth, W. *et al., J.O.C.*, 1961, **26**, 2455 (*β-D-Me fur tri-Me*)
Sowden, J.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 235 (*synth*)
Pickering, B.T. *et al., Nature (London)*, 1965, **206**, 400 (*isol*)
Lemieux, R.U. *et al., Tet. Lett.*, 1965, 2143 (*D-form, synth*)
Luederitz, O. *et al., J. Bacteriol.*, 1968, **95**, 490 (*isol*)
Goustin, A.S. *et al., Carbohydr. Res.*, 1983, **119**, 258 (*pmr*)
Mack, H. *et al., Carbohydr. Res.*, 1988, **175**, 311 (*synth, D-N-Ac*)
Classon, B. *et al., Carbohydr. Res.*, 1991, **216**, 187 (*β-D-tetra-Ac, β-D-Me N-Ac*)
Liu, M.Z. *et al., Carbohydr. Res.*, 2001, **230**, 413-419 (*6-phosphates*)

3-Amino-3-deoxymannose A-313



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

α-D-Pyranose-*form*

Hydrochloride: [32795-22-5]
Cryst. Mp 165-167° dec. $[\alpha]_D^{20}$ +17 → +6 (c, 1.0 in H_2O).

1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3-amino-3-deoxy-α-D-mannopyranose*
[33034-49-0]
$C_{14}H_{21}NO_9$ 347.321
Syrup (as hydrochloride). CAS no. refers to hydrochloride.

*1,3*N,*4,6-Tetra-Ac: 3-Acetamido-1,4,6-tri*-O-*acetyl-3-deoxy-α-D-mannopyranose*
[32795-23-6]
$C_{14}H_{21}NO_9$ 347.321
Cryst. Mp 142-143°. $[\alpha]_D^{20}$ +98 (c, 0.9 in H_2O).

*1,2,3*N,*4,6-Penta-Ac: 3-Acetamido-1,2,4,6-tetra*-O-*acetyl-3-deoxy-α-D-mannopyranose*
[33034-50-3]
$C_{16}H_{23}NO_{10}$ 389.358
Cryst. (Me_2CO/Et_2O/petrol). Mp 117-119°. $[\alpha]_D^{20}$ +35 (c, 1.0 in $CHCl_3$).

N-*Benzoyl, 1,2,4,6-tetra-Ac: 1,2,4,6-Tetra*-O-*acetyl-3-benzamido-3-deoxy-α-D-mannopyranose*
[32795-21-4]
$C_{21}H_{25}NO_{10}$ 451.429
Mp 150-153° (Et_2O/petrol). $[\alpha]_D^{20}$ +8 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 3-amino-3-deoxy-α-D-mannopyranoside
[14193-51-2]
$C_7H_{15}NO_5$ 193.199
Syrup.

Me glycoside, hydrochloride: [14133-35-8]
Cryst. Mp 205° dec. $[\alpha]_D$ +60 (H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3-deoxy-α-D-mannopyranoside*
[14196-89-5]
$C_9H_{17}NO_6$ 235.236
Cryst. (EtOH). Mp 241-243° (192-193°) dec. $[\alpha]_D$ +44 (c, 1.66 in H_2O).

*Me glycoside, 3*N,*4,6-tri-Ac: Methyl 3-acetamido-4,6-di*-O-*acetyl-3-deoxy-α-D-mannopyranoside*
[22412-70-0]
$C_{13}H_{21}NO_8$ 319.311
Cryst. Mp 139-140°.

*Me glycoside, 2,3*N*,4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri-*O*-acetyl-3-deoxy-α-D-mannopyranoside*
[72523-35-4]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (Me_2CO/Et_2O). Mp 153° (142-143°). $[\alpha]_D$ +24.6 (c, 2.0 in $CHCl_3$). $[\alpha]_D$ +41 (c, 1.8 in H_2O). $[\alpha]_D$ +28 (c, 0.7 in H_2O).

Me glycoside, N*-benzoyl: Methyl 3-benzamido-3-deoxy-α-D-mannopyranoside*
[22412-65-3]
$C_{14}H_{19}NO_6$ 297.307
Amorph. solid.

Me glycoside, N*-benzoyl, 2,4,6-tri-Ac: Methyl 2,4,6-tri-*O*-acetyl-3-benzamido-3-deoxy-α-D-mannopyranoside*
[22412-66-4]
$C_{20}H_{25}NO_9$ 423.419
Needles (EtOH). Mp 144°.

*Me glycoside, 4,6-*O*-benzylidene,* N*-benzoyl: Methyl 3-benzamido-4,6-*O*-benzylidene-3-deoxy-α-D-mannopyranoside*
[22412-67-5]
$C_{21}H_{23}NO_6$ 385.416
Needles (EtOH). Mp 178-180°.

β-D-Pyranose-*form*

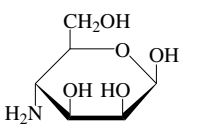
Me glycoside: Methyl 3-amino-3-deoxy-β-D-mannopyranoside
$C_7H_{15}NO_5$ 193.199
Cryst. (as hydrochloride). Mp 230-231° dec. (hydrochloride). $[\alpha]_D$ -68.5 (H_2O).

1,6-Anhydro: 3-Amino-1,6-anhydro-3-deoxy-β-D-mannopyranose
[122204-79-9]
$C_6H_{11}NO_4$ 161.157
Syrup.

1,6-Anhydro, hydrochloride: [122204-83-5]
Cryst. (EtOH). Mp 187° dec. $[\alpha]_D^{25}$ -102 (c, 0.7 in H_2O).

Baer, H.H. *et al., J.A.C.S.*, 1960, **82**, 3709 (*α-Me gly*)
Baer, H.H. *et al., Can. J. Chem.*, 1963, **41**, 1606 (*β-Me gly*)
Shigeharu, I. *et al., Chem. Pharm. Bull.*, 1966, **14**, 902; 1210; 1972, **20**, 2320 (*deriv, ms*)
Shibata, H. *et al., Agric. Biol. Chem.*, 1968, **32**, 1006 (*α-Me pyr N-benzoyl deriv, ir*)
Paulsen, H. *et al., Chem. Ber.*, 1971, **104**, 1311 (*α-pyr tetra-Ac, α-pyr penta-Ac*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 605 (*β-pyr deriv, pmr*)
Defaye, J. *et al., Carbohydr. Res.*, 1991, **212**, 129 (*α-Me gly N-Ac, pmr*)

4-Amino-4-deoxymannose A-314



β-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [114912-49-1]
Syrup.

β-D-Pyranose-*form*

1,6-Anhydro: 4-Amino-1,6-anhydro-4-deoxy-β-D-mannopyranose
$C_6H_{11}NO_4$ 161.157
Cryst. (EtOH aq.) (as hydrochloride). Mp 175-180° dec. (hydrochloride). $[\alpha]_D^{18}$ -100.4 (c, 4.56 in H_2O).

*1,6-Anhydro, 2,3,4*N*-tri-Ac: 4-Acetamido-2,3-di-*O*-acetyl-1,6-anhydro-4-deoxy-β-D-mannopyranose*
$C_{12}H_{17}NO_7$ 287.269
Needles (EtOH). Mp 180°. $[\alpha]_D^{18}$ -76 (c, 0.54 in $CHCl_3$).

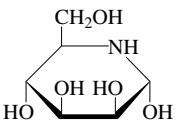
α-D-Furanose-*form*

*Benzyl glycoside, 2,3-*O*-isopropylidene: Benzyl 4-amino-4-deoxy-2,3-*O*-isopropylidene-α-D-mannofuranoside*
$C_{16}H_{23}NO_5$ 309.361
Syrup.

James, S.P. *et al., J.C.S.*, 1946, 625 (*β-D-pyr derivs*)
Bashyal, B.P. *et al., Tetrahedron*, 1987, **43**, 3083 (*α-D-fur deriv, pmr, ms*)

5-Amino-5-deoxymannose A-315

Nojirimycin B. *Mannojirimycin*



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172
Aminoglycoside antibiotic.

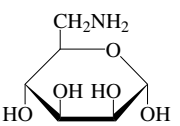
D-Pyranose-*form* [62362-40-7]
Prod. by *Streptomyces lavendulae* SF-425. Weakly active against *Xanthomonas oryzae*. Glucosidase and mannosidase inhibitor.
Pale yellow powder. Sol. H_2O; poorly sol. Me_2CO, hexane. Unstable.

Bisulfite adduct:
Needles (H_2O). Mp 163-165° dec. $[\alpha]_D^{20}$ +4.6 (c, 0.5 in H_2O).

L-Pyranose-*form*
Mp 162-164° (as bisulfite adduct). $[\alpha]_D^{20}$ -4.5 (c, 0.31 in H_2O).

Japan. Pat., 1976, 76 151 393; *CA*, **86**, 153954 (*isol*)
Niwa, T. *et al., J. Antibiot.*, 1984, **37**, 1579 (*isol, cryst struct, props, nmr, ir*)
Dondoni, A. *et al., Tetrahedron*, 1993, **49**, 2939 (*L-form*)

6-Amino-6-deoxymannose A-316



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-Pyranose-*form* [78003-52-8]
Hydrochloride: [20744-44-9]
Syrup. Anomeric mixt.

α-D-Pyranose-*form* [18439-59-3]

Me glycoside: Methyl 6-amino-6-deoxy-α-D-mannopyranoside
[79695-15-1]
$C_7H_{15}NO_5$ 193.199
Syrup or hygroscopic foam. $[\alpha]_D$ +78 (c, 1.2 in MeOH).

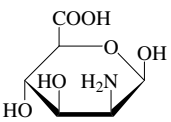
Me glycoside; hydrochloride: [20744-43-8]
Cryst. (EtOH). Mp 161-162° dec. $[\alpha]_D^{20}$ +65.7 (c, 2.2 in H_2O).

Me glycoside, N*-Ac: Methyl 6-acetamido-6-deoxy-α-D-mannopyranoside*
[18439-62-8]
$C_9H_{17}NO_6$ 235.236
Leaflets ($MeOH/Et_2O$). Mp 171-172°. $[\alpha]_D^{20}$ +63.5 (c, 2.0 in H_2O). $[\alpha]_D^{30.5}$ +70 (c, 2.0 in MeOH).

*Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-amino-6-deoxy-α-D-mannopyranoside*
[172911-51-2]
$C_{13}H_{21}NO_8$ 319.311
$[\alpha]_D^{22}$ +20.4 (c, 1.1 in MeOH) (as hydrochloride). CAS no. refers to hydrochloride.

Ito, Y. *et al., CA*, 1967, **67**, 117217 (*α-D-Me pyr N-Ac, pmr*)
Horton, D. *et al., Carbohydr. Res.*, 1968, **7**, 101 (*synth, α-D-Me pyr*)
Castro, B. *et al., Bull. Soc. Chim. Fr.*, 1973, 3034 (*α-D-Me pyr N-Ac*)
Cottaz, S. *et al., Carbohydr. Res.*, 1993, **247**, 341 (*α-D-Me pyr*)
Ortiz Mellet, C. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1133-1152 (*α-D-Me gly tri-Ac*)

2-Amino-2-deoxymannuronic acid, 9CI, 8CI A-317



β-D-Pyranose-*form*

$C_6H_{11}NO_6$ 193.156

D-*form* [21940-29-4]
Constit. of the cell wall polysaccharides associated with *Micrococcus lysodeikticus, Vibrio parahaemolyticus* and in *E. coli* K7 antigen.
Mp 92-94° dec. $[\alpha]_D$ -9.9 (c, 0.6 in H_2O).

N*-Ac:*
$C_8H_{13}NO_7$ 235.193
Present in the enterobacterial common antigen from *Streptomyces montivideo* SH 94 and *Streptomyces aureus*.

6,3-Lactone, N*-Ac: 2-Acetamido-2-deoxy-D-mannofuranurono-6,3-lactone*
$C_8H_{11}NO_6$ 217.178
Cryst. (H_2O). Mp 198-201°. $[\alpha]_D^{21}$ +121 (c, 0.4 in H_2O).

Benzyl glycoside, N*-benzyloxycarbonyl:*
Needles (EtOH aq.). Mp 160-161°. $[\alpha]_D^{25}$ +45.7 (c, 0.4 in dioxan).

α-D-Pyranose-*form*

Benzyl glycoside, N*-Ac: Benzyl 2-acetamido-2-deoxy-α-D-mannopyranosiduronic acid*
[38191-77-4]
$C_{15}H_{19}NO_7$ 325.318
Cryst. (H_2O). Mp 197° dec. $[\alpha]_D^{23}$ +52.6 (c, 0.5 in H_2O).

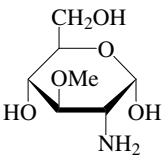
Benzyl glycoside, O,O,N*-tri-Ac, Me ester:*
$C_{20}H_{25}NO_9$ 423.419
Syrup. $[\alpha]_D^{22}$ +77.3 (c, 0.8 in MeOH).

Perkins, H.R. *et al., Biochem. J.*, 1963, **86**, 475; **89**, 104P (*N-Ac, isol*)

Mayer, H. *et al., Eur. J. Biochem.*, 1969, **8**, 139 (*isol*)
Kundu, N.G. *et al., Carbohydr. Res.*, 1970, **12**, 225 (*synth, N-BOC benzyl gly*)
Hase, S. *et al., J. Biochem. (Tokyo)*, 1971, **69**, 559 (*occur*)
Yoshimura, J. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2027 (*N-Ac benzyl gly, benzyl gly N-O-tri-Ac Me ester*)
Torri, M. *et al., Eur. J. Biochem.*, 1973, **37**, 401 (*isol*)
Maennel, D. *et al., Eur. J. Biochem.*, 1978, **86**, 371 (*isol*)
Dakaras, E. *et al., Carbohydr. Res.*, 1982, **103**, 176 (*synth, lactone N-Ac*)
Moreau, M. *et al., Carbohydr. Res.*, 1990, **201**, 285 (*isol, N-Ac*)

2-Amino-2-deoxy-3-*O*-methylglucose A-318

3-O-*Methylglucosamine*



α-D-Pyranose-*form*

$C_7H_{15}NO_5$ 193.199

D-*form* [25521-07-7] pK_a 6.92 (30°, 0.1*M* KNO_3). pK_a 7.1 (30°, 0.1*M* KNO_3).

Hydrochloride: Mp 215° dec. $[\alpha]_D$ +123 → +91.3 (H_2O). α-Anomeric config. assigned.

4-Me: 3,4-Di-O-*methyl-D-glucosamine*
[25521-10-2]
$C_8H_{17}NO_5$ 207.226
Mp 215-225° (200-205° dec.) (as hydrochloride). $[\alpha]_D$ +121 → +115 (H_2O). α-Anomeric config. assigned.

6-Me: 3,6-Di-O-*methyl-D-glucosamine*
[25521-11-3]
$C_8H_{17}NO_5$ 207.226
$[\alpha]_D$ +84 (H_2O) (as hydrochloride).

4,6-Di-Me: 3,4,6-Tri-O-*methyl-D-glucosamine*
[28872-62-0]
$C_9H_{19}NO_5$ 221.253
Mp 210° dec. (as hydrochloride). $[\alpha]_D$ +49.2 → +99.4 (H_2O). β-Anomeric config. assigned.

Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*rev*)
Perry, M.B. *et al., Can. J. Chem.*, 1969, **47**, 4091 (*glc*)
Horton, D. *et al., The Amino Sugars*, (Jeanloz, R.W., Ed.), Academic Press, 1969, **1A**, 1
Adams, G.A. *et al., Carbohydr. Res.*, 1970, **12**, 267 (*chromatog*)

2-Amino-2-deoxy-4-*O*-methylglucose A-319

4-O-*Methylglucosamine*

$C_7H_{15}NO_5$ 193.199

D-*form*

Hydrochloride: $[\alpha]_D$ +90 (H_2O).

6-Me: 2-Amino-2-deoxy-4,6-di-O-*methyl-D-glucose*
[25521-12-4]
$C_8H_{17}NO_5$ 207.226
$[\alpha]_D$ +88 (H_2O) (as hydrochloride).

Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*rev*)
Perry, M.B. *et al., Can. J. Chem.*, 1969, **47**, 4091 (*glc*)
Horton, D. *et al., The Amino Sugars*, (Jeanloz, R.W., Ed.), Academic Press, 1969, **1A**, 1
Adams, G.A. *et al., Carbohydr. Res.*, 1970, **12**, 267 (*chromatog*)

2-Amino-2-deoxy-6-*O*-methylglucose A-320

$C_7H_{15}NO_5$ 193.199

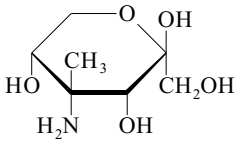
D-*form*

Component of the lipopolysaccharide of *Rhodopseudomonas palustris*.

Hydrochloride: Mp 185-186° dec. $[\alpha]_D$ +92 → +68 (H_2O).

Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189
Perry, M.B. *et al., Can. J. Chem.*, 1969, **47**, 4091 (*glc*)
Horton, D. *et al., The Amino Sugars*, (Jeanloz, R.W., Ed.), Academic Press, 1969, **1A**, 1
Adams, G.A. *et al., Carbohydr. Res.*, 1970, **12**, 267 (*chromatog*)
Mayer, H. *et al., Eur. J. Biochem.*, 1974, **44**, 181

4-Amino-4-deoxy-4-*C*-methylpsicose A-321



$C_7H_{15}NO_5$ 193.199

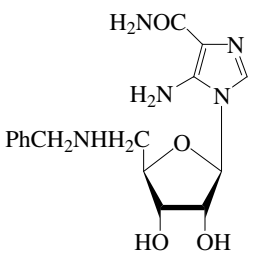
β-D-Pyranose-*form*

1,2-O-*Isopropylidene, 3,4*N,*5-tri-Ac: 4-Acetamido-3,5-di*-O-*acetyl-4-deoxy-1,2*-O-*isopropylidene-4*-C-*methyl-β-D-psicopyranose*
[113863-65-3]
$C_{16}H_{25}NO_8$ 359.375
Cryst. (EtOH). Mp 167°. $[\alpha]_D^{20}$ -53 (c, 0.2 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1987, **164**, 357 (*isopropylidene, pmr*)

5-Amino-1-[5-deoxy-5-[(phenylmethyl)amino]ribofuranosyl]-1*H*-imidazole-4-carboxamide, 9CI A-322

GP 531

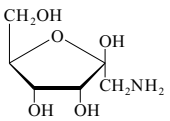


$C_{16}H_{21}N_5O_4$ 347.373
Adenosine regulating agent. Cardioprotective agent.

β-D-*form* [142344-87-4]
Off-white foam.

Pat. Coop. Treaty (WIPO), 1992, 92 02 213, (*Gensia*); *CA*, **117**, 40462t (*synth, pmr, pharmacol*)
Kurz, M.A. *et al., Eur. J. Pharmacol.*, 1997, **322**, 211-220 (*pharmacol*)

1-Amino-1-deoxypsicose A-323



β-D-Furanose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form*

N,*3,4,5,6-Penta-Ac: 1-Acetamido-3,4,5,6-tetra*-O-*acetyl-1-deoxy-D-psicose*
[51296-46-9]
$C_{16}H_{23}NO_{10}$ 389.358
Cryst. (diisopropyl ether/EtOH). Mp 111-112°. $[\alpha]_D^{25}$ -19.1 (c, 0.5 in EtOAc).

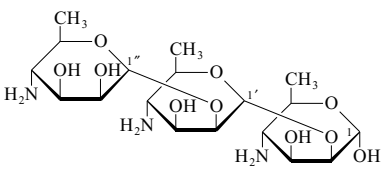
β-D-Furanose-*form*

Me glycoside, 3,4,6-tribenzoyl, N-*Ac: Methyl 1-acetamido-3,4,6-tri*-O-*benzoyl-1-deoxy-β-D-psicofuranoside*
[51296-41-4]
$C_{30}H_{29}NO_9$ 547.56
Foam. $[\alpha]_D^{25}$ -1 (c, 0.5 in EtOAc).

Hrebabecky, H. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 3181 (*D-penta-Ac, β-D-Me fur N-Ac deriv, ir*)

4-Amino-4-deoxy-α-D-rhamnopyranosyl-(1→2)-4-amino-4-deoxy-α-D-rhamnopyranosyl-(1→2)-4-amino-4-deoxy-D-rhamnose A-324

4-Amino-4,6-dideoxy-α-D-mannopyranosyl-(1→2)-4-amino-4,6-dideoxy-α-D-mannopyranosyl-(1→2)-4-amino-4,6-dideoxy-D-mannose, 9CI



$C_{18}H_{35}N_3O_{10}$ 453.489
Constit. of the cell wall polysaccharides of *Brucella* M and A antigens.

α-Pyranose-*form*

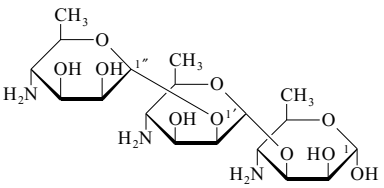
Me glycoside, N,N′,N″-*triformyl:* [115197-09-6]
$C_{22}H_{37}N_3O_{13}$ 551.547
Syrup. $[\alpha]_D^{20}$ +48.7 (c, 0.2 in H_2O).

Me glycoside, 3,3′,3″-tribenzyl, N,N′,N″-*triformyl:* [115197-04-1]
$C_{43}H_{55}N_3O_{13}$ 821.92
Syrup. $[\alpha]_D^{20}$ +40.16 (c, 1.02 in $CHCl_3$).

Peters, T.H. *et al., Chem. Comm.*, 1987, 1648 (α-*Me pyr derivs, occur*)
Peters, T.H. *et al., Can. J. Chem.*, 1989, **67**, 491 (α-*Me pyr derivs, pmr*)
Bundle, D.R. *et al., Infect. Immun.*, 1989, **57**, 2829

4-Amino-4-deoxy-α-D-rhamnopyranosyl-(1→2)-4-amino-4-deoxy-α-D-rhamnopyranosyl-(1→3)-4-amino-4-deoxy-D-rhamnose A-325

4-Amino-4,6-dideoxy-α-D-mannopyranosyl-(1→2)-4-amino-4,6-dideoxy-α-D-mannopyranosyl-(1→3)-4-amino-4,6-dideoxy-D-mannose, 9CI



$C_{18}H_{35}N_3O_{10}$ 453.489

Constit. of the cell wall polysaccharide of *Brucella* M antigen.

α-Pyranose-*form*

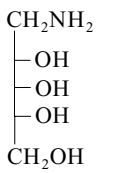
Me glycoside, N,N′,N″-*triformyl:* [115197-08-5]
$C_{22}H_{37}N_3O_{13}$ 551.547
Syrup. $[\alpha]_D^{20}$ +80.5 (c, 0.65 in H_2O).

Me glycoside, 2,3′,3″-tribenzyl, N,N′,N″-*triformyl:* [121803-93-8]
$C_{43}H_{55}N_3O_{13}$ 821.92
Syrup. $[\alpha]_D^{20}$ +34.6 (c, 1.1 in $CHCl_3$).

Peters, T.H. *et al., Can. J. Chem.*, 1989, **67**, 491 (*α-Me pyr derivs*)

1-Amino-1-deoxyribitol, 9CI A-326

Ribitylamine. Ribamine. 5-Amino-5-deoxyribitol
[51108-70-4]



D-*form*

$C_5H_{13}NO_4$ 151.162

D-*form* [527-47-9]

Syrup. $[\alpha]_D^{23}$ +5 (H_2O).

Hydrochloride: [22566-17-2]
Mp 132.5-134°. $[\alpha]_D^{23}$ -8 (H_2O).

N-*Ac: 1-Acetamido-1-deoxy-D-ribitol.* N-*Acetyl-D-ribitylamine*
$C_7H_{15}NO_5$ 193.199
Cryst. Mp 92°. $[\alpha]_D^{23}$ -24 (H_2O).

*Penta-Ac: 1-Acetamido-2,3,4,5-tetra-*O-*acetyl-1-deoxy-D-ribitol*
$C_{15}H_{23}NO_9$ 361.348
Mp 114-115°.

N-*Ph:* N-*Phenyl-D-ribitylamine*
$C_{11}H_{17}NO_4$ 227.26
Mp 125-127°. $[\alpha]_D^{25}$ -43 (Py).

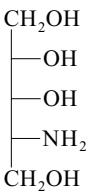
L-*form* *5-Amino-5-deoxy-D-ribitol*

[263330-61-6]
$[\alpha]_D$ -47.6 (c. 0.47 in MeOH). The name 5-amino-5-deoxy-D-ribitol is preferred acc. to the IUPAC special rules for carbohydrates.

N-*(3,4-Dimethylphenyl):* N-*(3,4-Dimethylphenyl)-L-ribitylamine*
[83916-71-6]
Cryst. (EtOH). Mp 142-143° (135-137°). $[\alpha]_D^{21}$ +31 (Py).

Weygand, F. *et al., Ber.*, 1940, **73**, 1259 (*L-N-dimethylphenyl*)
Kuhn, R. *et al., Chem. Ber.*, 1948, **81**, 553 (*D-form, synth*)
Jones, J.K.N. *et al., Can. J. Chem.*, 1962, **40**, 503 (*D-form, synth, N-Ac*)
Heard, D.D. *et al., J.O.C.*, 1970, **35**, 464 (*D-form, synth*)
Plant, G.W.E. *et al., Methods Enzymol.*, 1971, **18B**, 515 (*D-form, synth*)
Israel, M. *et al., J. Het. Chem.*, 1973, **10**, 209 (*D-form, synth*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183-197 (*synth*)
Smith, D.B. *et al., Tetrahedron*, 1990, **46**, 4793 (*L-N-dimethylphenyl*)
Bouchez, V. *et al., Carbohydr. Res.*, 2000, **323**, 213-217 (*L-form, synth, pmr, cmr*)

4-Amino-4-deoxyribitol A-327



$C_5H_{13}NO_4$ 151.162

D-*form*

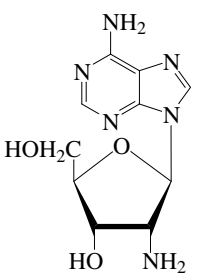
2-Benzyl, 5-trityl, N-*(*tert-*butyloxycarbonyl):* [127298-76-4]
$C_{36}H_{41}NO_6$ 583.723
Cryst. + H_2O (EtOAc/hexane). Mp 73°. $[\alpha]_D^{20}$ +14.9 (c, 0.4 in $CHCl_3$).

2-Benzyl, 5-trityl, N-*(*tert-*butyloxycarbonyl), 1-(*tert-*butyldimethylsilyl):* [127298-77-5]
$C_{42}H_{55}NO_6Si$ 697.985
Liq. $[\alpha]_D^{20}$ +5.3 (c, 1.0 in $CHCl_3$).

Ikota, N. *et al., Chem. Pharm. Bull.*, 1989, **37**, 3399 (*benzyl derivs, ir, pmr, cmr*)

9-(2-Amino-2-deoxyribofuranosyl)adenine, 8CI A-328

*9-(2-Amino-2-deoxyribofuranosyl)-9*H-*purin-6-amine, 9CI*



β-D-*form*

$C_{10}H_{14}N_6O_3$ 266.259

α-D-*form* [10407-64-4]

Mp 149-151°. $[\alpha]_D^{23}$ +90 (c, 0.7 in MeOH). λ_{max} 262 (14500) (H_2O).

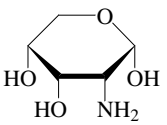
β-D-*form*

2′-Amino-2′-deoxyadenosine, 9CI. 9-(2-Amino-2-deoxy-β-D-ribofuranosyl)adenine. 2-AA. SA 4427
Prod. by *Actinomadura* sp. SA-4427 and an actinomycete. Antiviral, antineoplastic and antimycoplasmal agent.
Cryst. Mp 197-198° (190-191°). $[\alpha]_D^{24}$ -67 (c, 1.0 in MeOH). Log P -2.83 (calc). λ_{max} (no shifts reported) (Derep). λ_{max} (no shifts reported) (Derep). λ_{max} 259 (ε 14600) (H_2O) (Derep). λ_{max} 262 (14700) (H_2O).

Wolfrom, M.L. *et al., J.O.C.*, 1967, **32**, 1823 (*synth, pmr*)
Rohrer, D. *et al., J.A.C.S.*, 1970, **92**, 4956 (*cryst struct*)
Sundaralingam, M. *et al., J.A.C.S.*, 1971, **93**, 6644 (*conformn*)
Saran, A. *et al., Biochim. Biophys. Acta*, 1973, **299**, 497 (*conformn*)
Ikehara, M. *et al., Tetrahedron*, 1978, **34**, 1133 (*synth, bibl*)
Iwai, Y. *et al., J. Antibiot.*, 1979, **32**, 1367 (*isol, props*)
Imazawa, M. *et al., J.O.C.*, 1979, **44**, 2039 (*synth, bibl*)
Klimke, G. *et al., Z. Naturforsch., C*, 1979, **34**, 1075 (*conformn*)
Okawa, N. *et al., Agric. Biol. Chem.*, 1980, **44**, 1671 (*isol, props*)
Uesugi, S. *et al., Chem. Pharm. Bull.*, 1981, **29**, 2199 (*cmr*)
Morisawa, H. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3191 (*synth*)
Ikehara, M. *et al., Heterocycles*, 1984, **21**, 75 (*conformn, props*)

2-Amino-2-deoxyribose A-329

Ribosamine



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

Occurs naturally in 2′-Amino-2′-deoxyguanosine, A-277.
Cryst. (EtOH) (as hydrochloride). Mp 147-148° dec. (hydrochloride). $[\alpha]_D^{22}$ +14 → -3 (c, 1 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-ribose*
$C_7H_{13}NO_5$ 191.183
Mp 141-143°. $[\alpha]_D$ -73 → -39 (H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 2-amino-2-deoxy-β-D-ribopyranoside
$C_6H_{13}NO_4$ 163.173
Mp 175-183° dec. (as hydrochloride). $[\alpha]_D^{25}$ -91.8 (c, 3.04 in H_2O).

β-D-Furanose-*form*

*Me glycoside, 2-benzoyl, 3,5-di-Ac: Methyl 3,5-di-*O-*acetyl-2-benzamido-2-deoxy-β-D-ribofuranoside*
$C_{17}H_{21}NO_7$ 351.355
Mp 115°. $[\alpha]_D^{22}$ +29 (c, 1 in $CHCl_3$).

L-*form*

Mp 153-154° (as hydrochloride). $[\alpha]_D^{20}$ -11.2 (2 min) → +5.6 (c, 0.4 in H_2O).

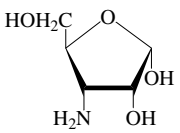
N-*Ac: 2-Acetamido-2-deoxy-L-ribose*
$C_7H_{13}NO_5$ 191.183
Mp 115-123°.

β-L-Pyranose-*form*

Me glycoside: Methyl 2-amino-2-deoxy-β-L-ribopyranoside
$C_6H_{13}NO_4$ 163.173
Mp 186-187° (as hydrochloride). $[\alpha]_D^{20}$ +94 (c, 0.2 in H_2O).

Horton, D. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 159; 195 (*β-D-Me pyr, β-L-Me pyr, rev*)
Shafizadeh, F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 206 (*synth*)
Gigg, R. *et al., J.C.S.*, 1965, 1351 (*D-form*)
Collins, P.M. *et al., J.C.S.*, 1965, 3448 (*L-form*)
Horton, D. *et al., The Amino Sugars*, (Jeanloz, R.W., Ed.), Academic Press, 1969, **1A**, 1 (*D-Ac, L-Ac, rev*)
Nakanishi, T. *et al., Chem. Pharm. Bull.*, 1976, **24**, 2955 (*D-form isol, D-N-Ac*)

3-Amino-3-deoxyribose A-330



α-D-Furanose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

Present as a component of Puromycin, P-111. Isol. as 3′-amino-3′-deoxyadenosine from *Helminthosporium* spp.

Hydrochloride: [20590-58-3]
Cryst. (EtOH). Mp 160° dec. (164-165°). $[\alpha]_D$ -25 (c, 2.0 in H_2O). $[\alpha]_D^{26}$ -38.4 → -25.6 (10 min., c, 1.2 in H_2O).

α-D-Furanose-*form*

*1,2-*O-*Isopropylidene: 3-Amino-3-deoxy-1,2-*O-*isopropylidene-α-D-ribofuranose*
[14125-95-2]
$C_8H_{15}NO_4$ 189.211
Cryst. (petrol). Mp 63-67°. $[\alpha]_D^{24}$ +43.9 (c, 0.5 in H_2O).

*1,2-*O-*Isopropylidene,* N*,5-di-Ac: 3-Acetamido-5-*O*-acetyl-3-deoxy-1,2-*O*-isopropylidene-α-D-ribofuranose*
[29881-54-7]
$C_{12}H_{19}NO_6$ 273.285
Cryst. (Et_2O/hexane). Mp 165°. $[\alpha]_D^{25}$ +101 (c, 1.5 in $CHCl_3$).

*1,2-*O-*Isopropylidene,* N*-trifluoroacetyl: 3-Deoxy-1,2-*O*-isopropylidene-3-trifluoroacetamido-α-D-ribofuranose*
$C_{10}H_{14}F_3NO_5$ 285.219
Cryst. (2-propanol/petrol). Mp 156-158°.

Me glycoside, N*,2,4-tri-Ac: Methyl 3-acetamido-2,4-di-*O*-acetyl-3-deoxy-α-D-ribopyranoside*
$C_{12}H_{19}NO_7$ 289.285
Mp 116-117°. $[\alpha]_D^{24}$ +93.7 (c, 1.6 in $CHCl_3$).

Me glycoside, N*,2,5-tri-Ac: Methyl 3-acetamido-2,5-di-*O*-acetyl-3-deoxy-α-D-ribofuranoside*
$C_{12}H_{19}NO_7$ 289.285
Cryst. (C_6H_6/heptane). Mp 90-91°. $[\alpha]_D^{23}$ +135 (c, 2 in $CHCl_3$).

β-D-Furanose-*form*

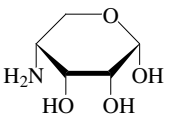
N*,1,2,5-Tetra-Ac: 3-Acetamido-1,2,5-tri-*O*-acetyl-3-deoxy-β-D-ribofuranose*
[35085-30-4]
$C_{13}H_{19}NO_8$ 317.295
Cryst. (EtOAc/heptane). Mp 102-103°. $[\alpha]_D^{25}$ +44 (c, 1.5 in $CHCl_3$).

Me glycoside: Methyl 3-amino-3-deoxy-β-D-ribofuranoside, 8CI
$C_6H_{13}NO_4$ 163.173
Cryst. (EtOH/petrol). Mp 108-110°.

Me glycoside, N*,2,5-tri-Ac: Methyl 3-acetamido-2,5-di-*O*-acetyl-3-deoxy-β-D-ribofuranoside*
$C_{12}H_{19}NO_7$ 289.285
Cryst. (C_6H_6/heptane). Mp 98-99°. $[\alpha]_D^{24}$ +34.6 (c, 2.0 in $CHCl_3$).

Waller, C.W. *et al., J.A.C.S.*, 1953, **75**, 2025 (*struct*)
Baker, B.R. *et al., J.A.C.S.*, 1953, **75**, 3864; 1955, **77**, 7 (*α-D-Me fur N,2,4-tri-Ac, synth, α-D-Me fur N,2,5-tri-Ac, β-D-Me fur N,2,5-tri-Ac*)
Sowa, W. *et al., Can. J. Chem.*, 1968, **46**, 1586 (*D-form, synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1969, **9**, 250 (*D-form, synth*)
Fujiwara, A.N. *et al., J. Het. Chem.*, 1970, **7**, 891 (*α-D-fur isopropylidene, α-D-fur isopropylidene trifluoroacetyl, β-D-Me fur*)
Anisuzzaman, A.K.M. *et al., J.O.C.*, 1972, **37**, 3187 (*α-D-fur isopropylidene N,5-di-Ac, β-D-fur tetra-Ac*)
Joseph, J.P. *et al., J.O.C.*, 1996, **31**, 3404 (*α-D-fur isopropylidene*)

4-Amino-4-deoxyribose A-331



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

α-D-Pyranose-*form*

Hydrochloride: [136766-50-2]
Syrup.

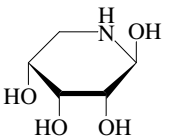
β-D-Pyranose-*form*

Hydrochloride: [136766-51-3]
Syrup.

Benzyl glycoside, 2,3-anhydro: Benzyl 4-amino-2,3-anhydro-4-deoxy-β-D-ribopyranoside
[65518-85-6]
$C_{12}H_{15}NO_3$ 221.255
Cryst. Mp 55°. $[\alpha]_D^{20}$ +54.4 ($CHCl_3$).

Kimmich, R. *et al., Annalen*, 1981, 1100 (*benzyl gly*)
Malik, A. *et al., Chem. Comm.*, 1984, 1530 (*benzyl gly*)
Witte, J.F. *et al., Tet. Lett.*, 1991, **32**, 3927 (*synth, pmr, cmr*)

5-Amino-5-deoxyribose A-332



β-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

*Benzylphenylhydrazone, 5*N*-Ac:*
Cryst. (MeOH/Et_2O/petrol). Mp 143-144°. $[\alpha]_D^{23}$ -36.4 (c, 1.72 in MeOH).

β-D-Pyranose-*form*

*3,4,5*N*-Tri-Ac: 5-Acetamido-3,4-di-*O*-acetyl-5-deoxy-β-D-ribopyranose*
$C_{11}H_{17}NO_7$ 275.258
Cryst. (EtOAc). Mp 139-140°.

*2,3,4,5*N*-Tetra-Ac: 5-Acetamido-2,3,4-tri-*O*-acetyl-5-deoxy-β-D-ribopyranose*
$C_{13}H_{19}NO_8$ 317.295
Cryst. (EtOAc). Mp 147-148°.

D-Furanose-*form*

N-*Ac: 5-Acetamido-5-deoxy-β-D-ribopyranose*
$C_7H_{13}NO_5$ 191.183
Amorph. solid. $[\alpha]_D^{24}$ +19 (c, 1.6 in H_2O).

α-D-Furanose-*form*

*Me glycoside: 5-Amino-5-deoxy-*O*-methyl-α-D-ribofuranose*
[262600-85-1]
$C_6H_{13}NO_4$ 163.173
Characterised spectroscopically.

β-D-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-amino-5-deoxy-2,3-*O*-isopropylidene-β-D-ribofuranoside*
[14131-74-9]
$C_9H_{17}NO_4$ 203.238
Oil. $[\alpha]_D^{25}$ -71.6 (c, 0.8 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, hydrochloride:*
Needles (EtOH). Mp 201.5-202°. $[\alpha]_D^{25}$ -34.5 (c, 6.3 in H_2O).

*Benzyl glycoside, 2,3-*O*-isopropylidene,* N*-Ac: Benzyl 5-acetamido-5-deoxy-2,3-*O*-isopropylidene-β-D-ribofuranoside*
$C_{17}H_{23}NO_5$ 321.372
Cryst. (Et_2O/pentane). Mp 50° Mp 65° (solvate).

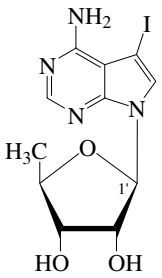
DL-*form*

*Di-Me acetal, 2,3,4,5*N*-tetra-Ac:* [119830-25-0]
$C_{15}H_{25}NO_9$ 363.364
Cryst. (EtOAc/cyclohexane). Mp 101-102°.

Hanessian, S. *et al., J.O.C.*, 1963, **28**, 2604 (*D-fur deriv, ir, cryst struct*)
Leonard, N.J. *et al., J. Het. Chem.*, 1966, **3**, 485 (*Me β-D-fur deriv, pmr*)
Defoin, A. *et al., Helv. Chim. Acta*, 1988, **71**, 1642 (*DL-form, β-D-pyr deriv, ir, pmr, cmr*)
Han, M.J. *et al., Org. Biomol. Chem.*, 2003, **1**, 2276-2286 (*α-D-fur Me gly*)

4-Amino-7-(5-deoxyribosyl)-5-iodopyrrolo[2,3-*d*]pyrimidine A-333

*7-(5-Deoxyribofuranosyl)-5-iodo-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-amine, 9CI.*
5′-Deoxy-5-iodotubercidin



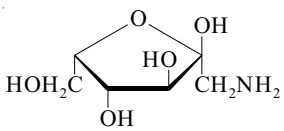
1′β-*form*

$C_{11}H_{13}IN_4O_3$ 376.153
Smooth muscle relaxant, hypothermic, inhibitor of adenosine kinase. λ_{max} 239 (ϵ 19500); 286 (ϵ 8320) (pH 1) (Derep). λ_{max} 232 (sh) (ϵ 13200); 280 (ϵ 8920) (pH 12) (Derep). λ_{max} 239 (ϵ 19500); 286 (ϵ 8320) (pH 1) (Derep). λ_{max} 205 (ϵ 21000); 283 (ϵ 8200) (H_2O) (Berdy). λ_{max} 203 (ϵ 19450); 240 (ϵ 18850); 287 (ϵ 8000) (HCl) (Berdy). λ_{max} 282 (ϵ 8400) (NaOH) (Berdy).

1′α-*form* [85209-85-4]
Isol. from the red alga *Hypnea valendiae*. Muscle relaxant.
Pale yellow gum. Sol. H_2O. $[\alpha]_D^{22}$ -50 (c, 0.36 in MeOH). Structural identification of this anomer not certain. λ_{max} 203; 240; 287 (HCl) (Berdy). λ_{max} 283 (H_2O) (Berdy). λ_{max} 282 (NaOH) (Berdy).

1′β-*form* [85209-84-3]
Isol. from *Hypnea valendiae*.
Needles (Py).
Mp 227-228° dec. $[\alpha]_D^{25}$ -55 (c, 0.2 in MeOH).
Kazlauskas, R. *et al., Aust. J. Chem.*, 1983, **36**, 165 (*isol, uv, pmr, cmr, ms, struct*)

1-Amino-1-deoxysorbose A-334



$C_6H_{13}NO_5$ 179.172

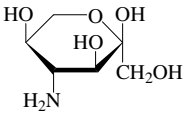
α-L-Furanose-*form*

2,3:4,6-Di-O-*isopropylidene: 1-Amino-1-deoxy-2,3:4,6-di*-O-*isopropylidene-α-L-sorbofuranose*
$C_{12}H_{21}NO_5$ 259.302
Cryst. (hexane). Mp 71.5°. $[\alpha]_D^{23}$ -3.7 (c, 1.04 in $CHCl_3$).

2,3:4,6-Di-O-*isopropylidene,* N-*Ac: 1-Acetamido-1-deoxy-2,3:4,6-di*-O-*isopropylidene-α-L-sorbofuranose*
[35170-84-4]
$C_{14}H_{23}NO_6$ 301.339
Cryst. (Et_2O). Mp 146-148°. $[\alpha]_D^{25}$ -62.2 (c, 2.27 in EtOH).

2,3:4,6-Di-O-*isopropylidene,* N-*benzoyl: 1-Benzamido-1-deoxy-2,3:4,6-di*-O-*isopropylidene-α-L-sorbofuranose*
[35170-85-5]
$C_{19}H_{25}NO_6$ 363.41
Oil.
Tokuyama, K. *et al., Bull. Chem. Soc. Jpn.*, 1964, **37**, 1133 (*diisopropylidene*)
Glass, R.S. *et al., J.O.C.*, 1972, **37**, 3366 (*diisopropylidene derivs, ms, pmr*)

4-Amino-4-deoxysorbose A-335



α-L-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

α-L-Pyranose-*form*

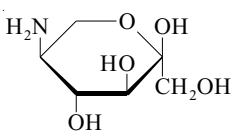
1,2-O-*Isopropylidene, 3,4*N,*5-tri-Ac: 4-Acetamido-3,5-di*-O-*acetyl-4-deoxy-1,2*-O-*isopropylidene-α-L-sorbopyranose*
[113863-56-2]
$C_{15}H_{23}NO_8$ 345.349
Cryst. (EtOH). Mp 164°. $[\alpha]_D^{22}$ -77 (c, 0.5 in $CHCl_3$). $[\alpha]_D$ -61 (c, 0.3 in MeOH).

Me glycoside: Methyl 4-amino-4-deoxy-α-L-sorbopyranoside
[17184-33-7]
$C_7H_{15}NO_5$ 193.199
Syrup (as hydrochloride). $[\alpha]_D^{21}$ -71 (c, 1.4 in H_2O). CAS no. refers to hydrochloride.

Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-L-sorbopyranoside*
[17184-34-8]
$C_9H_{17}NO_6$ 235.236
Needles (EtOH). Mp 162°. $[\alpha]_D^{21}$ -51.2 (c, 0.52 in H_2O).

*Me glycoside, 1,3,4*N,*5-tetra-Ac: Methyl 4-acetamido-1,3,5-tri*-O-*acetyl-4-deoxy-α-L-sorbopyranoside*
[17184-35-9]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (EtOH). Mp 156°. $[\alpha]_D^{21}$ -52 (c, 1.0 in $CHCl_3$).
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1967, **100**, 2389 (*α-L-Me pyr, α-L-Me pyr Ac derivs*)
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1987, **164**, 357 (*isopropylidene tri-Ac, pmr*)

5-Amino-5-deoxysorbose A-336



$C_6H_{13}NO_5$ 179.172

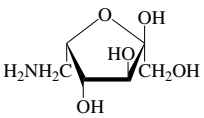
α-L-Pyranose-*form*

Me glycoside, 1,3-O-*benzylidene: Methyl 5-amino-1,3*-O-*benzylidene-5-deoxy-α-L-sorbopyranoside*
[18610-14-5]
$C_{14}H_{19}NO_5$ 281.308
Cryst. (EtOH/petrol). Mp 171-172°. $[\alpha]_D^{20}$ -56.3 (c, 0.59 in $CHCl_3$) (lit. gives a temp. range).

Me glycoside, 1,3-O-*benzylidene,* N-*Ac: Methyl 5-acetamido-1,3*-O-*benzylidene-5-deoxy-α-L-sorbopyranoside*
[18610-16-7]
$C_{16}H_{21}NO_6$ 323.345
Cryst. Mp 210° dec. $[\alpha]_D^{20}$ -63.8 (c, 0.61 in $CHCl_3$) (lit. gives a temp. range).

Me glycoside, 1,3-O-*benzylidene, 4,5*N-*di-Ac: Methyl 5-acetamido-4*-O-*acetyl-1,3*-O-*benzylidene-5-deoxy-α-L-sorbopyranoside*
[18610-15-6]
$C_{18}H_{23}NO_7$ 365.382
Cryst. Mp 226-228° dec. $[\alpha]_D^{20}$ -64.6 (c, 0.7 in $CHCl_3$) (lit. gives a temp. range).
Barlow, C.B. *et al., J.C.S.(C)*, 1967, 1194 (*props*)
Murphy, D. *et al., J.C.S.(C)*, 1967, 1732 (*α-L-Me pyr benzylidene derivs*)

6-Amino-6-deoxysorbose A-337



α-L-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

L-Furanose-*form*

N-*Ac: 6-Acetamido-6-deoxy-L-sorbofuranose*
$C_8H_{15}NO_6$ 221.21
Syrup. $[\alpha]_D^{20}$ -41.2 (c, 0.32 in EtOH).

α-L-Furanose-*form*

Hydrochloride: [73980-92-4] Glucosidase inhibitor for diet therapy.
Cryst. (EtOH aq.). Mp 127-129° dec. $[\alpha]_D^{20}$ -26.5 (c, 1.0 in H_2O).

N-*Benzyloxycarbonyl:* [75016-28-3]
$C_{14}H_{19}NO_7$ 313.307
Cryst. Mp 106-110°. $[\alpha]_D^{20}$ -15.1 (c, 1.0 in MeOH).

*2,3-Isopropylidene: 6-Amino-6-deoxy-2,3-*O-*isopropylidene-α-L-sorbofuranose*
[4698-00-4]
$C_9H_{17}NO_5$ 219.237
Cryst. (2-propanol). Mp 141-143° (138-140°). $[\alpha]_D^{20}$ +11.4 (c, 1.0 in EtOH). $[\alpha]_D^{20}$ +15.1 (c, 1.0 in MeOH).

2,3-Isopropylidene, N-*Ac: 6-Acetamido-6-deoxy-2,3*-O-*isopropylidene-α-L-sorbofuranose*
$C_{11}H_{19}NO_6$ 261.274
Cryst. Mp 164-166°. $[\alpha]_D^{20}$ -53.7 (c, 1.0 in EtOH).

2,3-Isopropylidene, N-*tosyl:*
$C_{16}H_{23}NO_7S$ 373.426
Cryst. (MeOH/Et_2O). Mp 110-112°. $[\alpha]_D^{20}$ +11.1 (c, 1.36 in EtOH).

2,3-Isopropylidene, N-*benzyloxycarbonyl:*
[126210-26-2]
$C_{17}H_{23}NO_7$ 353.371
Cryst. Mp 111-113°. $[\alpha]_D^{20}$ -14.9 (c, 1.0 in MeOH).

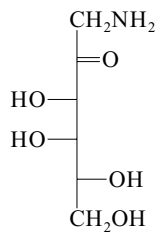
2,3-Isopropylidene, N-*Me: 6-Deoxy-2,3*-O-*isopropylidene-6-methylamino-α-L-sorbofuranose*
[28079-73-4]
$C_{10}H_{19}NO_5$ 233.264
Syrup. $[\alpha]_D^{21}$ -1.9 (c, 0.5 in MeOH).

1-Me 2,3-isopropylidene: 6-Amino-6-deoxy-2,3-O-*isopropylidene-1*-O-*methyl-α-L-sorbofuranose*
[17331-47-4]
$C_{10}H_{19}NO_5$ 233.264
Cryst. Mp 55°. Bp_3 125°. $[\alpha]_D^{24.5}$ +8.3 (c, 1.07 in MeOH).

[74244-24-9, 74815-37-5]

Tokuyama, K. *et al., Bull. Chem. Soc. Jpn.*, 1966, **39**, 2728 (*isopropylidene 1-Me*)
Paulsen, H. *et al., Chem. Ber.*, 1967, **100**, 802 (*N-Ac, isopropylidene, isopropylidene N-Ac*)
Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 475 (*isopropylidene N-Me*)
Eur. Pat., 1982, 49 858; *CA*, **97**, 182801v (*synth*)
Beaupere, D. *et al., Carbohydr. Res.*, 1989, **191**, 163 (*N-benzyloxycarbonyl deriv, cmr*)

1-Amino-1-deoxytagatose A-338



$C_6H_{13}NO_5$ 179.172

D-*form*

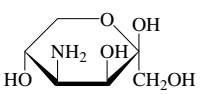
N-*Benzyl,* N-*Me:* [100759-89-5]
$C_{14}H_{21}NO_5$ 283.324
Cryst. (EtOH). Mp 146-148°. $[\alpha]_D^{22}$ +27 (c, 1.0 in Py).

N,N-*Dibenzyl:* [23568-26-5]
$C_{20}H_{25}NO_5$ 359.421
Cryst. (EtOH). Mp 128-131°. $[\alpha]_D^{21}$ +60 (c, 1.0 in Py).

N-*Hexyl:* [74043-64-4]
$C_{12}H_{25}NO_5$ 263.333
Cryst. (as oxalate salt). Mp 143-144° (oxalate). $[\alpha]_{Hg}^{23}$ -7 (c, 1.0 in MeOH). CAS no. refers to oxalate.

Gruennagel, R. *et al., Annalen*, 1969, **721**, 234 (*N,N-dibenzyl*)
Fernandez-Bolanos, J. *et al., An. Quim.*, 1979, **75**, 1010 (*N-hexyl*)
Fernandez-Bolanos, J. *et al., Carbohydr. Res.*, 1985, **143**, 260 (*N-benzyl N-Me*)

4-Amino-4-deoxytagatose A-339



β-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [70490-89-0]
Syrup.

β-D-Pyranose-*form*

1,3,5-Tri-Ac: 1,3,5-Tri-O-*acetyl-4-amino-4-deoxy-β-D-tagatopyranose*
[17184-36-0]
$C_{12}H_{19}NO_8$ 305.284
Syrup (as hydrochloride). CAS no. refers to hydrochloride.

*1,2,3,4*N,*5-Penta-Ac: 4-Acetamido-1,2,3,5-tetra*-O-*acetyl-4-deoxy-β-D-tagatopyranose*
[17184-37-1]
$C_{16}H_{23}NO_{10}$ 389.358
Needles (EtOH). Mp 230°. $[\alpha]_D^{21}$ -42 (c, 0.5 in $CHCl_3$).

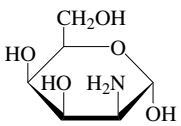
α-L-Pyranose-*form*

*1,2,3,4*N,*5-Penta-Ac: 4-Acetamido-1,2,3,5-tetra*-O-*acetyl-4-deoxy-α-L-tagatopyranose*
[113863-52-8]
$C_{16}H_{23}NO_{10}$ 389.358
Cryst. (EtOH). Mp 230-231°. $[\alpha]_D^{20}$ -45 (c, 0.3 in $CHCl_3$) (-42).

Lichtenthaler, F.W. *et al., Chem. Ber.*, 1967, **100**, 2389 (*β-D-pyr tri-Ac, β-D-pyr penta-Ac*)
Delaware, D.L. *et al., CA*, 1979, **91**, 20927q (*synth*)
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1987, **164**, 357 (*α-L-pyr penta-Ac, pmr*)

2-Amino-2-deoxytalose, 8CI A-340

Talosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [14307-14-3]
Present (possibly as its enantiomer) as amino component of ovine and bovine cartilage.

Hydrochloride: [4773-26-6]
Mp 152-153°. $[\alpha]_D^{23}$ -5.8 (c, 1.0 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-D-talose*
$C_8H_{15}NO_6$ 221.21
Syrup. $[\alpha]_D^{20}$ -8.8 (c, 2.0 in H_2O).

α-D-Pyranose-*form*

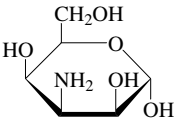
Me glycoside, N-*Ac: Methyl 2-acetamido-2-deoxy-α-D-talopyranoside*
$C_9H_{17}NO_6$ 235.236
Syrup. $[\alpha]_D^{26}$ +7 (c, 1.2 in MeOH).

Me glycoside, tetra-Ac: Methyl 2-acetamido-3,4,6-tri-O-*acetyl-2-deoxy-α-D-talopyranoside*
$C_{15}H_{23}NO_9$ 361.348
Prisms (Et_2O/pentane). Mp 102-103°. $[\alpha]_D^{23}$ +61 (c, 1.54 in $CHCl_3$).

Me glycoside, 4,6-O-*benzylidene,* N-*Ac: Methyl 2-acetamido-4,6*-O-*benzylidene-2-deoxy-α-D-talopyranoside*
$C_{16}H_{21}NO_6$ 323.345
Platelets (Me_2CO/Et_2O). Mp 193-195°. $[\alpha]_D^{27}$ +45 (c, 1.27 in $CHCl_3$).

Crumpton, M.J. *et al., Nature (London)*, 1957, **180**, 605 (*sepn*)
Jeanloz, R.W. *et al., J.O.C.*, 1961, **26**, 533 (*D-form, synth, α-D-Me pyr N-Ac, α-D-Me pyr tetra-Ac, α-D-Me pyr N-Ac benzylidene*)
Lemieux, R.U. *et al., Tet. Lett.*, 1965, 2143 (*D-form, synth*)
Perry, M.B. *et al., Can. J. Chem.*, 1968, **46**, 2481 (*D-form, synth, D-N-Ac*)
Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 32
Barili, P.L. *et al., Carbohydr. Res.*, 1996, **290**, 17-31 (*synth, bibl, derivs*)

3-Amino-3-deoxytalose A-341



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

α-D-Pyranose-*form*

Prisms and needles (as hydrochloride). Mp 160-161° (hydrochloride). $[\alpha]_D^{20}$ +29.5 → +23.7 (c, 1.0 in H_2O).

Me glycoside: Methyl 3-amino-3-deoxy-α-D-talopyranoside
$C_7H_{15}NO_5$ 193.199
Prisms (EtOH) (as hydrochloride). Mp 191° dec. (hydrochloride). $[\alpha]_D^{20}$ +90 (c, 2.0 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3-deoxy-α-D-talopyranoside*
[135635-16-4]
$C_9H_{17}NO_6$ 235.236
Cryst. (EtOH). Mp 200-201°. $[\alpha]_D$ +99 (c, 1.6 in H_2O).

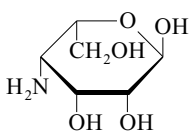
*Me glycoside, 2,3*N,*4,6-tetra-Ac: Methyl 3-acetamido-2,4,6-tri*-O-*acetyl-3-deoxy-α-D-talopyranoside*
[135684-05-8]
$C_{15}H_{23}NO_9$ 361.348
Syrup.

α-DL-Pyranose-*form*

Me glycoside, N,N-*di-Me, 2,4,6-tri-Ac: Methyl 2,4,6-tri*-O-*acetyl-3-deoxy-3-dimethylamino-α-DL-talopyranoside*
[51785-33-2]
$C_{15}H_{25}NO_8$ 347.364
Syrup.

Baer, H.H. *et al., J.A.C.S.*, 1962, **84**, 83 (*synth, α-D-Me pyr*)
Banaszek, A. *et al., Bull. Acad. Pol. Sci., Ser. Sci. Chim.*, 1974, **22**, 79; *CA*, 1974, **80**, 108769y (*α-DL-Me pyr di-Me tri-Ac*)
Defaye, J. *et al., Carbohydr. Res.*, 1991, **212**, 129 (*α-D-Me pyr Ac derivs, pmr, cmr*)

4-Amino-4-deoxytalose A-342



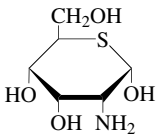
$C_6H_{13}NO_5$ 179.172

α-L-Pyranose-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 4-amino-4-deoxy-2,3*-O-*isopropylidene-α-L-talopyranoside*
[30572-82-8]
$C_{10}H_{19}NO_5$ 233.264
Syrup.

Al-Radhi, A.K. *et al., Chem. Comm.*, 1970, 1250 (α-L-*Me pyr isopropylidene*)

2-Amino-2-deoxy-5-thioallose A-343



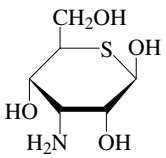
α-D-Pyranose-*form*

$C_6H_{13}NO_4S$ 195.239

D-*form*

N-*Ac:* [81893-43-8]
$C_8H_{15}NO_5S$ 237.276
No phys. props. reported in abstract.
Tanahashi, E. *et al., CA*, 1982, **96**, 218155h

3-Amino-3-deoxy-5-thioallose A-344



β-D-Pyranose-*form*

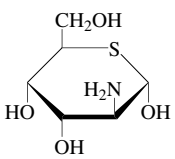
$C_6H_{13}NO_4S$ 195.239

D-*form* [149001-79-6]
Mp 236-241° (as hydrochloride). $[\alpha]_D$ -12 → +65 (0.78 in H_2O) (equilib.). CAS no. refers to hydrochloride.

β-D-Pyranose-*form*

N-*1,2,4,6-Penta-Ac: 3-Acetamido-1,2,4,6-tetra*-O-*acetyl-3-deoxy-5-thio-β-D-allopyranose*
[149001-80-9]
$C_{16}H_{23}NO_9S$ 405.425
Cryst. (EtOH/diisopropyl ether). Mp 84-88°. $[\alpha]_D$ -13 (c, 0.95 in $CHCl_3$).
Al-Masoudi, N.A.L. *et al., Carbohydr. Res.*, 1993, **239**, 273-278

2-Amino-2-deoxy-5-thioaltrose, 9CI A-345



α-D-Pyranose-*form*

$C_6H_{13}NO_4S$ 195.239

α-D-Pyranose-*form*

Me glycoside: Methyl 2-amino-2-deoxy-5-thio-α-D-altropyranoside, 9CI
[171079-39-3]
$C_7H_{15}NO_4S$ 209.266
Syrup. $[\alpha]_D$ +138 (c, 2.01 in MeOH).

Me glycoside, N-*Ac: Methyl 2-acetamido-2-deoxy-5-thio-α-D-altropyranoside, 9CI*
[171079-38-2]
$C_9H_{17}NO_5S$ 251.303
Cryst. (EtOH/EtOAc). Mp 178-180°. $[\alpha]_D$ +132 (c, 1.14 in MeOH).

*Me glycoside, 4,6-isopropylidene: Methyl 2-amino-2-deoxy-4,6-*O-*isopropylidene-5-thio-α-D-altropyranoside, 9CI*
[171079-48-4]
$C_{10}H_{19}NO_4S$ 249.33
Cryst. (diisopropyl ether). Mp 127-129°. $[\alpha]_D$ +230 (c, 2.05 in CH_2Cl_2).

Me glycoside, 4,6-isopropylidene, N-*Ac: Methyl 2-acetamido-2-deoxy-4,6-*O-*isopropylidene-5-thio-α-D-altropyranoside, 9CI*
[171079-49-5]
$C_{12}H_{21}NO_5S$ 291.368
Cryst. (Et_2O). Mp 198-200°. $[\alpha]_D$ +184 (c, 0.81 in $CHCl_3$).

Me glycoside, 4,6-isopropylidene, N,*3-di-Ac: Methyl 2-acetamido-3-*O-*acetyl-2-deoxy-4,6-*O-*isopropylidene-5-thio-α-D-altropyranoside, 9CI*
[171079-50-8]
$C_{14}H_{23}NO_6S$ 333.405
Mp 211-213°. $[\alpha]_D$ +164 (c, 1.06 in $CHCl_3$).

β-D-Pyranose-*form*

N-*Ac: 2-Acetamido-2-deoxy-5-thio-β-D-altropyranoside, 9CI*
[171079-41-7]
$C_8H_{15}NO_5S$ 237.276
Mp 215-217°. $[\alpha]_D$ -70.4 (5 min) → -62.8 (equilib.) (c, 1.00 in H_2O).

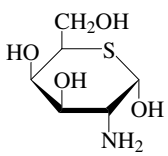
N,*1,3,4,6-Penta-Ac: 2-Acetamido-1,3,4,6-tetra*-O-*acetyl-2-deoxy-5-thio-β-D-altropyranoside, 9CI*
[171079-53-1]
$C_{16}H_{23}NO_9S$ 405.425
Syrup. $[\alpha]_D$ -132 (c, 2.23 in CH_2Cl_2).

Me glycoside, N-*Ac: Methyl 2-acetamido-2-deoxy-5-thio-β-D-altropyranoside, 9CI*
[171079-40-6]
$C_9H_{17}NO_5S$ 251.303
Cryst. (EtOAc). Mp 168-170°. $[\alpha]_D$ -207 (c, 1.20 in MeOH).

[171079-42-8]

Al-Masoudi, N.A.L. *et al., Carbohydr. Res.*, 1995, **272**, 111-119

2-Amino-2-deoxy-5-thiogalactose A-346



α-D-Pyranose-*form*

$C_6H_{13}NO_4S$ 195.239

α-D-Pyranose-*form*

N-*Ac: 2-Acetamido-2-deoxy-5-thio-α-D-galactopyranose*
[89950-73-2]
$C_8H_{15}NO_5S$ 237.276
Needles (EtOH). Mp 189° dec. $[\alpha]_D$ +173.8 (c, 0.37 in MeOH).

D-Furanose-*form*

*Penta-Ac: 2-Acetamido-1,3,6-tri-*O-*acetyl-2-deoxy-*S-*acetyl-5-thio-D-galactofuranose*
[89950-72-1]

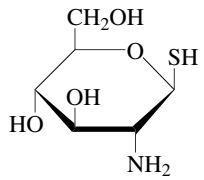
[89950-74-3]
$C_{16}H_{23}NO_9S$ 405.425
Syrup. $[\alpha]_D$ -15 (c, 0.5 in $CHCl_3$). Approx. 1:1 anomer ratio.

β-D-Furanose-*form*

*Me glycoside, tetra-Ac: Methyl 2-acetamido-3,6-di-*O-*acetyl-5-*S-*acetyl-2-deoxy-5-thio-β-D-galactofuranoside*
[89950-71-0]
$C_{15}H_{23}NO_8S$ 377.415
Syrup. $[\alpha]_D$ -96 (c, 0.9 in MeOH).
Tanahashi, E. *et al., J. Carbohydr. Chem.*, 1983, **2**, 129-137 (α-D-*pyr N-Ac,* D-*fur penta-Ac,* β-D-*fur Me gly tetra-Ac*)

2-Amino-2-deoxy-1-thioglucose A-347

1-Thioglucosamine



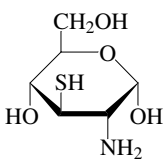
$C_6H_{13}NO_4S$ 195.239

β-D-Pyranose-*form* [91288-32-3]

*2-*N,*3,4,6-Tetra-Ac: 2-Acetamido-3,4,6-tri-*O-*acetyl-2-deoxy-1-thio-β-D-glucopyranose*
[51450-09-0]
$C_{14}H_{21}NO_8S$ 363.388
Mp 173° (160-162°). $[\alpha]_D^{23}$ -16 (c, 1.08 in $CHCl_3$).

*1-*S,*2-*N,*3,4,6-Penta-Ac: 2-Acetamido-3,4,6-tri-*O-*acetyl-1-*S-*acetyl-2-deoxy-1-thio-β-D-glucopyranose. 2-Acetamido-1,3,4,6-tetraacetyl-2-deoxy-1-thio-β-D-glucopyranose*
[10043-46-6]
$C_{16}H_{23}NO_9S$ 405.425
Needles (MeOH/Et_2O). Mp 199-200°. $[\alpha]_D^{23}$ -2 (c, 1.29 in $CHCl_3$).
Horton, D. *et al., J.O.C.*, 1962, **27**, 1794 (*penta-Ac, synth, ir*)
Brajeswar, P. *et al., Carbohydr. Res.*, 1984, **126**, 27 (*tetra-Ac*)

2-Amino-2-deoxy-3-thioglucose A-348



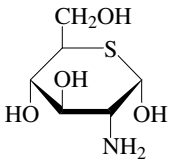
α-D-Pyranose-*form*

$C_6H_{13}NO_4S$ 195.239

D-*form* [87236-55-3]
Hygroscopic brownish solid (as hydrochloride). $[\alpha]_D^{17.5}$ +126.5 → +66.6 (c, 0.5 in MeOH).
Yamaguchi, T. *et al., Carbohydr. Res.*, 1983, **119**, 279 (*synth*)

2-Amino-2-deoxy-5-thioglucose A-349

5-Thioglucosamine



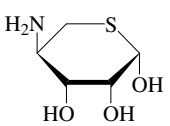
α-D-*form*

$C_6H_{13}NO_4S$ 195.239

D-Pyranose-*form*
N-*Ac: 2-Acetamido-2-deoxy-5-thio-D-glucopyranose.* N-*Acetyl-5-thio-D-glucosamine*
$C_8H_{15}NO_5S$ 237.276
Cryst. (EtOH/Et_2O). Mp 115-117° Mp 101-102°. $[\alpha]_D^{23}$ +88 (c, 1 in MeOH). $[\alpha]_D^{20}$ +61 (c, 0.3 in MeOH).

α-D-Pyranose-*form*
N-*Ac: 2-Acetamido-2-deoxy-5-thio-α-D-glucopyranose*
$C_8H_{15}NO_5S$ 237.276
Cryst. (MeOH/CH_2Cl_2). Mp 152-163° (as hydrate). $[\alpha]_D$ +141.
N*,1,3,4,6-Penta-Ac: 2-Acetamido-1,3,4,6-tetra*-O-*acetyl-2-deoxy-5-thio-α-D-glucopyranose*
Needles. Mp 174-175° Mp 166-167°. $[\alpha]_D^{23}$ +195.5 (c, 0.4 in MeOH). $[\alpha]_D^{23}$ +178.5 (c, 0.23 in $CHCl_3$).
Me glycoside, N-*Ac: Methyl 2-acetamido-2-deoxy-5-thio-α-D-glucopyranoside*
$C_9H_{17}NO_5S$ 251.303
Cryst. (EtOH). Mp 197-199° dec. $[\alpha]_D^{25}$ +219 (c, 1 in MeOH).
Hasegawa, A. *et al., Carbohydr. Res.*, 1979, **63**, 131; 1983, **117**, 304 (*synth, N-Ac, penta-Ac*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1981, **34**, 2225 (*α-D-N-Ac, penta-Ac, Me gly, cmr*)
Bognar, R. *et al., Carbohydr. Res.*, 1981, **90**, 138 (*N-Ac, penta-Ac*)
Csuk, R. *et al., Chem. Comm.*, 1986, 343 (*synth*)

4-Amino-4-deoxy-5-thiolyxose A-350



β-L-Pyranose-*form*

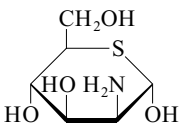
$C_5H_{11}NO_3S$ 165.213

L-*form*
N-*Ac: 4-Acetamido-4-deoxy-5-thio-L-lyxopyranose*
[142544-16-9]
$C_7H_{13}NO_4S$ 207.25
Cryst. (EtOH). Mp 205-206°. $[\alpha]_D^{25}$ -66 → -74 (equilib.) (c, 0.6 in MeOH).

α-L-Pyranose-*form*
N*,1,2,3-Tetra-Ac: 4-Acetamido-1,2,3-tri*-O-*acetyl-4-deoxy-5-thio-α-L-lyxopyranose*
[142544-15-8]
$C_{13}H_{19}NO_7S$ 333.362
Cryst. (EtOH/hexane). Mp 182-184° dec. $[\alpha]_D^{23}$ -71 (c, 1.4 in $CHCl_3$).

β-L-Pyranose-*form*
Me glycoside: Methyl 4-amino-4-deoxy-5-thio-β-L-lyxopyranoside
[142544-13-6]
$C_6H_{13}NO_3S$ 179.24
Mp 191-192°. $[\alpha]_D^{22}$ +164 (c, 0.88 in MeOH).
Me glycoside, N*,2,3-tri-Ac: Methyl 4-acetamido-2,3-di*-O-*acetyl-4-deoxy-5-thio-β-L-lyxopyranoside*
[142544-14-7]
$C_{12}H_{19}NO_6S$ 305.351
Cryst. (EtOH). Mp 162-163°. $[\alpha]_D^{25}$ +166 (c, 1.3 in $CHCl_3$).
Al-Masoudi, N.A.L. *et al., Carbohydr. Res.*, 1992, **228**, 339

2-Amino-2-deoxy-5-thiomannose A-351

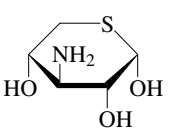


$C_6H_{13}NO_4S$ 195.239

α-D-Pyranose-*form*
N-*Ac: 2-Acetamido-2-deoxy-5-thio-α-D-mannopyranose*
[88043-82-7]
$C_8H_{15}NO_5S$ 237.276
Needles (EtOH/Et_2O). Mp 189°. $[\alpha]_D$ +28.8 (c, 0.4 in MeOH).
N*,1,3,4,6-Penta-Ac: 2-Acetamido-1,3,4,6-tetra*-O-*acetyl-2-deoxy-5-thio-α-D-mannopyranose*
[88043-81-6]
$C_{16}H_{23}NO_9S$ 405.425
Amorph. Mp 64-66°. $[\alpha]_D^{25}$ +122.5 (c, 0.5 in MeOH).

[102996-86-1]
Hasegawa, A. *et al., Carbohydr. Res.*, 1983, **122**, 168 (*N-Ac, N-penta-Ac, pmr*)
Csuk, R. *et al., Chem. Comm.*, 1986, 343 (*N-Ac*)

3-Amino-3-deoxy-5-thioxylose A-352



α-D-Pyranose-*form*

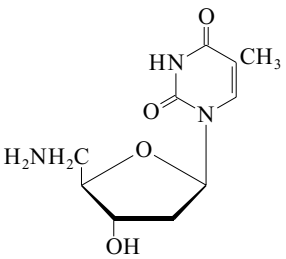
$C_5H_{11}NO_3S$ 165.213

D-*form*
N-*Ac: 3-Acetamido-3-deoxy-5-thio-D-xylose*
[142544-11-4]
$C_7H_{13}NO_4S$ 207.25
Mp 107-111°. $[\alpha]_D^{24}$ +49.5 → +52 (equilib.) (c, 0.84 in MeOH).

α-D-Pyranose-*form*
N*,1,2,4-Tetra-Ac: 3-Acetamido-1,2,4-tri*-O-*acetyl-3-deoxy-5-thio-α-D-xylopyranose*
[142544-10-3]
$C_{13}H_{19}NO_7S$ 333.362
Syrup. $[\alpha]_D^{22}$ +61 (c, 0.56 in $CHCl_3$).
Me glycoside: Methyl 3-amino-3-deoxy-5-thio-α-D-xylopyranoside
[142544-08-9]
$C_6H_{13}NO_3S$ 179.24
Mp 169-171°. $[\alpha]_D^{22}$ +310 (c, 0.69 in MeOH).
Me glycoside, N*,2,4-tri-Ac: Methyl 3-acetamido-2,4-di*-O-*acetyl-3-deoxy-5-thio-α-D-xylopyranoside*
[142544-09-0]
$C_{12}H_{19}NO_6S$ 305.351
Cryst. (CH_2Cl_2/Et_2O). Mp 79-80°. $[\alpha]_D$ +161 (c, 1.1 in $CHCl_3$).
Al-Masoudi, N.A.L. *et al., Carbohydr. Res.*, 1992, **228**, 339

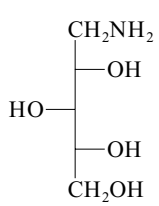
5′-Amino-5′-deoxythymidine, 9CI, 8CI A-353

5′-Azathymidine
[25152-20-9]



$C_{10}H_{15}N_3O_4$ 241.246
Cryst. (EtOH). Mp 178-180° (173.5-174.5°). $[\alpha]_D^{26}$ +39 (c, 1 in MeOH).
Horwitz, J.P. *et al., J.O.C.*, 1962, **27**, 3045-3048 (*synth, ir, uv*)
Jastorff, B. *et al., Chem. Ber.*, 1969, **102**, 4119 (*uv, ms*)
Hata, T. *et al., Chem. Lett.*, 1976, 601 (*synth*)
Nottol, E.M. *et al., J.A.C.S.*, 1977, **99**, 3486 (*pmr*)
Lin, T.S. *et al., J. Med. Chem.*, 1987, **30**, 440 (*activity*)
Bannwarth, W. *et al., Helv. Chim. Acta*, 1988, **71**, 1517-1527 (*synth*)
Nyilas, A. *et al., Tetrahedron*, 1990, **46**, 2149-2164 (*pmr, cmr, uv*)
Huang, B. *et al., Synthesis*, 1993, 769 (*synth*)
Altmann, K.H. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 1655 (*synth, N-Ac*)
Tetzlaff, C.N. *et al., Tet. Lett.*, 1998, **39**, 4215-4218 (*synth*)
Beilstein, A.E. *et al., J. Organomet. Chem.*, 2001, **637-639**, 398-406 (*synth, pmr*)

1-Amino-1-deoxyxylitol A-354



D–*form*

$C_5H_{13}NO_4$ 151.162

D-*form* [55700-82-8]

Hydrochloride: [22566-18-3]
Cryst. Mp 139-140° (108-113°).

2,4:3,5-Di-O-*benzylidene,* N-*Ac:* [23843-33-6]
$C_{21}H_{23}NO_5$ 369.416
Cryst. (Me_2CO/petrol). Mp 250.5-252.5°. $[\alpha]_D^{20}$ -38.6 (c, 1.34 in DMF).

N,*2,3,4-Tetrabenzyl:* [133437-07-7]
$C_{33}H_{37}NO_4$ 511.66
Syrup.

DL-*form*

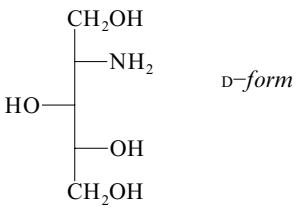
$[\alpha]_D$ -2.8 (c, 0.35 in MeOH).

N,N-*Di-Me, 2,4:3,5-di*-O-*benzylidene:* [34050-72-1]
$C_{21}H_{25}NO_4$ 355.433
Cryst. (EtOH). Mp 154-155°.

N,N-*Di-Me, 2,4:3,5-di*-O-*methylene:* [34050-71-0]
$C_9H_{17}NO_4$ 203.238
Mp 112-113°.

Zinner, H. *et al., Carbohydr. Res.*, 1969, **9**, 5 (D-*dibenzylidene N-Ac*)
Heard, D. *et al., J.O.C.*, 1970, **35**, 464 (*synth*)
Veksler, V.I. *et al., Zh. Obshch. Khim.*, 1971, **41**, 1399; *J. Gen. Chem. USSR (Engl. Transl.)*, 1971, **41**, 1404 (DL-*di-Me derivs*)
Blanc-Muesser, M. *et al., Carbohydr. Res.*, 1979, **68**, 175 (*synth, pmr*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183-197 (*synth*)
Bernotas, R.C. *et al., Tet. Lett.*, 1991, **32**, 161 (D-*tetrabenzyl*)
Bouchez, V. *et al., Carbohydr. Res.*, 2000, **323**, 213-217 (L-*form, synth, pmr, cmr*)

2-Amino-2-deoxyxylitol A-355



D–*form*

$C_5H_{13}NO_4$ 151.162
Used in skin and hair conditioners.

D-*form* [62445-77-6]

N-*Ac: 2-Acetamido-2-deoxy-*D-*xylitol* [30077-03-3]
$C_7H_{15}NO_5$ 193.199
Cryst. Mp 81-82°. $[\alpha]_D^{20}$ -14 (c, 2.3 in MeOH).

3-Benzyl, N-*Ac: 2-Acetamido-3*-O-*benzyl-2-deoxy-*D-*xylitol* [65947-44-6]
$C_{14}H_{21}NO_5$ 283.324
Needles (MeOH/Et_2O). Mp 131-132°. $[\alpha]_D^{25}$ -32 (c, 0.4 in MeOH).

3,4-Dibenzyl, N-*Ac: 2-Acetamido-3,4-di*-O-*benzyl-2-deoxy-*D-*xylitol* [65947-43-5]
$C_{21}H_{27}NO_5$ 373.448
Syrup. $[\alpha]_D^{20}$ -42 (c, 2.4 in $CHCl_3$).

4,5-O-*Isopropylidene, 1,2*N,*3-tri-Ac: 2-Acetamido-1,3-di*-O-*acetyl-2-deoxy-4,5*-O-*isopropylidene-*D-*xylitol* [80581-33-5]
$C_{14}H_{23}NO_7$ 317.338
Syrup.

DL-*form*

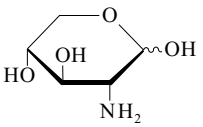
1-tert-*Butyl, 3,5-isopropylidene:* [100743-24-6]
$C_{12}H_{25}NO_4$ 247.334
Pale yellow oil.

1-tert-*Butyl, 2*N,*3,4,5-tetra-Ac:* [100743-22-4]
$C_{17}H_{29}NO_8$ 375.418
Oil or cryst. Mp 133-134°. 2 Diastereomers: one is crystalline and the other is an oil.

Shaban, M.A.E. *et al., Carbohydr. Res.*, 1977, **59**, 213 (D-*N-Ac derivs*)
Minami, N. *et al., J.A.C.S.*, 1982, **104**, 1109 (*isopropylidene tri-Ac*)
Japan. Pat., 1984, 59 212 421; *CA*, 119443m (*use*)
Volker, J. *et al., Tet. Lett.*, 1985, **26**, 2997 (DL-*tert-butyl derivs*)

2-Amino-2-deoxyxylose, 9CI A-356

Xylosamine
[6790-34-7]



D–Pyranose–*form*

$C_5H_{11}NO_4$ 149.146
Present in Seldomycin 1, S-21.

α-D-*form* [22738-07-4]

Hydrochloride: Mp 165-167° dec. $[\alpha]_D^{31}$ +80 → +40 (c, 0.8 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-α-*D-*xylose*
$C_7H_{13}NO_5$ 191.183
Mp 186-189° dec. $[\alpha]_D^{29}$ +56 → +9 (c, 0.8 in H_2O).

β-D-Pyranose-*form*

Tetra-Ac:
$C_{13}H_{19}NO_8$ 317.295
Mp 214-215°. $[\alpha]_D^{30}$ -48 (c, 1.3 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside, N-*benzoyl, di-Ac: Methyl 3,5-di*-O-*acetyl-2-benzamido-2-deoxy-α-*D-*xylofuranoside*
$C_{17}H_{21}NO_7$ 351.355
Mp 142-143°. $[\alpha]_D^{22.5}$ +21 (c, 1.0 in $CHCl_3$).

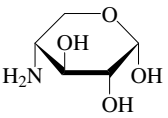
α-L-*form*

Hydrochloride: Mp 160-162° dec. $[\alpha]_D^{19}$ -63.9 → -46.3 (c, 0.58 in H_2O).

N-*Ac: 2-Acetamido-2-deoxy-α-*L-*xylose*
$C_7H_{13}NO_5$ 191.183
Mp 194-195° dec. $[\alpha]_D$ -41.7.

Wolfrom, M.L. *et al., J.A.C.S.*, 1953, **75**, 1038 (*synth*)
Kuhn, R. *et al., Annalen*, 1959, **628**, 193
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 209 (*synth*)
Gigg, R. *et al., J.C.S.*, 1965, 1351 (*synth*)
Kazuhara, H. *et al., Agric. Biol. Chem.*, 1973, **37**, 349

4-Amino-4-deoxyxylose A-357



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

Di-Et dithioacetal, N-*benzoyl:* [91876-89-0]
$C_{16}H_{25}NO_4S_2$ 359.51
Cryst. (MeOH/EtOAc/hexane). Mp 144-147°. $[\alpha]_D^{20}$ +15 (c, 0.9 in Pyr).

Di-Et dithioacetal, N-*benzoyl, 5-Ac:* [91876-88-9]
$C_{18}H_{27}NO_5S_2$ 401.547
Cryst. (EtOAc/hexane). Mp 139-141°. $[\alpha]_D^{22}$ -10 (c, 2 in $CHCl_3$).

Di-Et dithioacetal, 5-benzoyl, N-*Ac:* [91876-87-8]
$C_{18}H_{27}NO_5S_2$ 401.547
Cryst. (EtOAc/hexane). Mp 120-125°. $[\alpha]_D^{22}$ +27 (c, 2.5 in $CHCl_3$).

*Di-Et dithioacetal, 4*N,*5-dibenzoyl:* [91876-99-2]
$C_{23}H_{29}NO_5S_2$ 463.618
Cryst. ($CHCl_3$/Et_2O). Mp 113-115°. $[\alpha]_D^{22}$ +21 (c, 1.4 in $CHCl_3$).

Di-Et dithioacetal, 2,3-O-*isopropylidene, 4*N,*5-dibenzoyl:* [91876-86-7]
$C_{26}H_{33}NO_5S_2$ 503.682
Cryst. ($CHCl_3$/Et_2O). Mp 125-128°. $[\alpha]_D^{22}$ -41 (c, 1 in $CHCl_3$).

N,N-*Di-Me: 4-Deoxy-4-(*N-*dimethylamino)-*D-*xylose*
$C_7H_{15}NO_4$ 177.2
Cryst. (as hydrochloride). Mp 166-169° dec. (hydrochloride). $[\alpha]_D^{24}$ -18 (c, 2 in H_2O).

α-D-Pyranose-*form*

*Me glycoside: Methyl 4-amino-4-deoxy-α-*D-*xylopyranoside*
$C_6H_{13}NO_4$ 163.173
Mp 196-197° dec. $[\alpha]_D$ +44 (c, 1 in H_2O).

*Benzyl glycoside, 2,3-anhydro: Benzyl 4-amino-2,3-anhydro-4-deoxy-α-*D-*xylopyranoside*
$C_{12}H_{15}NO_3$ 221.255
Cryst. Mp 48-49°. $[\alpha]_D^{20}$ +91 ($CHCl_3$).

α-D-Furanose-*form*

1,2-O-*Isopropylidene,* N-*Ac: 4-Acetamido-4-deoxy-1,2*-O-*isopropylidene-α-*D-*xylofuranose* [91876-94-7]
$C_{10}H_{17}NO_5$ 231.248
Oil. $[\alpha]_D^{22}$ -92 (c, 0.3 in $CHCl_3$).

1,2-O-*Isopropylidene, 5-benzoyl,* N-*Ac: 4-Acetamido-5*-O-*benzoyl-4-deoxy-1,2*-O-*isopropylidene-α-*D-*xylofuranose* [91876-95-8]
$C_{17}H_{21}NO_6$ 335.356
Mp 135-137°. $[\alpha]_D^{22}$ -2 (c, 0.4 in $CHCl_3$).

1,2:3,5-Di-O-*isopropylidene,* N-*benzoyl: 4-Benzamido-4-deoxy-1,2:3,5-di*-O-*isopropylidene-α-*D-*xylofuranose* [91876-90-3]
$C_{18}H_{23}NO_5$ 333.383

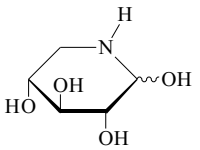
Cryst. Mp 106-110°. $[\alpha]_D^{22}$ -22 (c, 1.1 in $CHCl_3$).

β-L-Pyranose-*form*

Benzyl glycoside, 2,3-anhydro: Benzyl 4-amino-2,3-anhydro-4-deoxy-β-L-xylopyranoside
$C_{12}H_{15}NO_3$ 221.255
Mp 37-38°. $[\alpha]_D^{20}$ +105 ($CHCl_3$).

Overend, W.G. *et al., Chem. Ind. (London)*, 1963, 1840 (*α-D-Me pyr*)
Malik, A. *et al., Chem. Comm.*, 1984, 1530 (*benzyl gly, pmr*)
Coetzee, I. *et al., S. Afr. J. Chem.*, 1984, **37**, 11 (*D-derivs, α-D-fur derivs, pmr, ms*)

5-Amino-5-deoxyxylose A-358



D–Pyranose–*form*

$C_5H_{11}NO_4$ 149.146

D-*form*

*5*N-*Ac, benzylphenylhydrazone:*
Cryst. ($MeOH/Et_2O$). Mp 132-133°. $[\alpha]_D^{23}$ 0 (c, 3.56 in MeOH).

D-Pyranose-*form*

N-*Ac: 5-Acetamido-5-deoxy-D-xylopyranose*
$C_7H_{13}NO_5$ 191.183
Mp 163-164° (153-154°). $[\alpha]_D$ -21.8 (c, 2.69 in H_2O). $[\alpha]_D$ -11.3 (MeOH).

D-Furanose-*form*

N-*Ac: 5-Acetamido-5-deoxy-D-xylofuranose*
$C_7H_{13}NO_5$ 191.183
Amorph. solid. $[\alpha]_D$ +13.2 (c, 1.36 in MeOH). $[\alpha]_D^{23}$ +30 (c, 0.6 in H_2O).

*1,2,3,5*N-*Tetra-Ac: 5-Acetamido-1,2,3-tri-*O-*acetyl-5-deoxy-D-xylofuranose*
$C_{13}H_{19}NO_8$ 317.295
$[\alpha]_D^{20}$ +94 (c, 1.4 in MeOH).

α-D-Furanose-*form*

1,2-O-*Isopropylidene: 5-Amino-5-deoxy-1,2*-O-*isopropylidene-α-D-xylofuranose*
[4613-58-5]
$C_8H_{15}NO_4$ 189.211
Mp 100-102°. $[\alpha]_D^{17}$ -12 (c, 2.6 in EtOH).

1,2-O-*Isopropylidene, 3-benzyl: 5-Amino-3-*O-*benzyl-5-deoxy-1,2*-O-*isopropylidene-α-D-xylofuranose*
[59055-65-1]
$C_{15}H_{21}NO_4$ 279.335
Syrup. $[\alpha]_D^{22}$ -70 ($CHCl_3$).

1,2-O-*Isopropylidene,* N-*Ac: 5-Acetamido-5-deoxy-1,2*-O-*isopropylidene-α-D-xylofuranose*
$C_{10}H_{17}NO_5$ 231.248
Rectangular plates. Mp 111-112°. $[\alpha]_D^{23}$ +31 (c, 2.29 in MeOH).

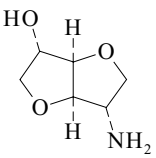
1,2-O-*Isopropylidene, 3-Me: 5-Amino-5-deoxy-1,2*-O-*isopropylidene-3*-O-*methyl-α-D-xylofuranose*
[59055-64-0]
$C_9H_{17}NO_4$ 203.238
Syrup. $[\alpha]_D^{22}$ -70 ($CHCl_3$).

1,2-O-*Cyclohexylidene,* N-*Ac: 5-Acetamido-1,2*-O-*cyclohexylidene-5-deoxy-α-D-xylofuranose*
$C_{13}H_{21}NO_5$ 271.313
Mp 125-126°. $[\alpha]_D^{20}$ +39.2 (c, 1.0 in MeOH). $[\alpha]_D^{20}$ +18.2 (c, 1.0 in 0.1*M* HCl).

Akiya, S. *et al., Yakugaku Zasshi*, 1956, **76**, 1280 (*α-D-fur deriv*)
Paulsen, H. *et al., Annalen*, 1963, **670**, 121 (*fur deriv, ir*)
Jones, J.K.N. *et al., Can. J. Chem.*, 1963, **41**, 636 (*deriv*)
Jones, J.K.N. *et al., J.O.C.*, 1963, **28**, 2604 (*fur deriv, pyr deriv*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1981, **96**, 167 (*α-D-fur deriv, pmr, ms*)

2-Amino-1,4:3,6-dianhydro-2-deoxyiditol A-359

5-Amino-1,4:3,6-dianhydro-5-deoxyiditol



$C_6H_{11}NO_3$ 145.158

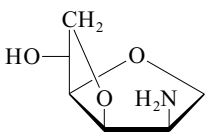
L-*form* [81621-58-1]
Cryst. ($CHCl_3/H_2O$/EtOAc). Mp 103-104°. $[\alpha]_D$ +31.6 (c, 2.0 in H_2O).

Methanesulfonate salt: [81621-59-2]
Cryst. ($EtOH/CHCl_3$). Mp 151-154°. $[\alpha]_D^{25}$ +27.6 (c, 1.0 in H_2O).

N,N-*Di-Me:* [81621-70-7]
$C_8H_{15}NO_3$ 173.211
Cryst. (2-propanol) (as hydrochloride). Mp 227-229° (hydrochloride). $[\alpha]_D^{25}$ +46.8 (c, 0.58 in H_2O). CAS no. refers to hydrochloride.

Eur. Pat., 1982, 44932; 44940; *CA*, **96**, 218188w; **97**, 110337a (*synth, L-form, di-Me*)

2-Amino-1,4:3,6-dianhydro-2-deoxymannitol A-360

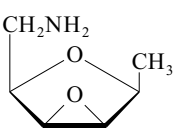


$C_6H_{11}NO_3$ 145.158

D-*form* [81621-64-9]
Cryst. (EtOH) (as hydrochloride). Mp 263-268° dec. (hydrochloride). $[\alpha]_D^{25}$ +77.8 (c, 1.0 in H_2O). CAS no. refers to hydrochloride.

Eur. Pat., 1982, 44 932; *CA*, **97**, 110337a (*synth*)

6-Amino-2,5:3,4-dianhydro-1,6-dideoxygalactitol A-361



$C_6H_{11}NO_2$ 129.158

D-*form*

4-Methylbenzenesulfonate salt:
Cryst. (Et_2O). Mp 171-174°. $[\alpha]_D^{20}$ 0 (c, 1.0 in $CHCl_3$).

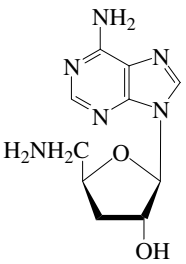
N,N-*Di-Me:* [100778-22-1]
$C_8H_{15}NO_2$ 157.212
Syrup. $[\alpha]_D^{20}$ -9.3 (c, 1.0 in $CHCl_3$).

N,N,N-*Tri-Me:* [100778-23-2]
$C_9H_{18}NO_2^{\oplus}$ 172.247
Pale yellow amorph. solid (as iodide).

Kuszman, J. *et al., Carbohydr. Res.*, 1985, **142**, 71 (*synth, Me derivs, pmr*)

5′-Amino-3′,5′-dideoxyadenosine, 9CI A-362

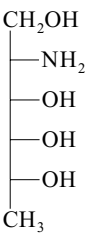
[125944-06-1]



$C_{10}H_{14}N_6O_2$ 250.26
Cryst. (H_2O). Mp 215-217° (dec.).

Herdewijn, P. *et al., Nucleosides Nucleotides*, 1989, **8**, 1231-1257 (*synth*)
Kvasyuk, E.T. *et al., Helv. Chim. Acta*, 1999, **82**, 19-29 (*synth, uv, pmr*)

2-Amino-2,6-dideoxyallitol A-363



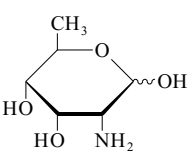
$C_6H_{15}NO_4$ 165.189

D-*form*

*1,2*N,*3,4,5-Penta-Ac:* [51250-08-9]
$C_{16}H_{25}NO_9$ 375.375
Syrup.

Perry, M.B. *et al., Can. J. Biochem.*, 1973, **51**, 1335 (*chromatog*)
Perry, M.B. *et al., Carbohydr. Res.*, 1973, **31**, 131 (*penta-Ac, glc*)

2-Amino-2,6-dideoxyallose A-364



D–Pyranose–*form*

$C_6H_{13}NO_4$ 163.173

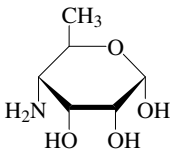
D-*form* [55385-63-2]

Hydrochloride: [51250-05-6]
Cryst. (Me_2CO/MeOH). Mp 135° dec. $[\alpha]_D^{20}$ +4 (c, 0.9 in H_2O).

N-*Ac: 2-Acetamido-2,6-dideoxy-D-allose*
[51250-01-2]
$C_8H_{15}NO_5$ 205.21
Cryst. (EtOH). Mp 169-170°. $[\alpha]_D^{20}$ -88.5 (c, 0.4 in H_2O).

Brendel, K. *et al., Annalen*, 1966, **691**, 192 (*N-Ac*)
Perry, M.B. *et al., Carbohydr. Res.*, 1973, **31**, 131 (*synth*)

4-Amino-4,6-dideoxyallose A-365



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*

N,N-*Di-Me: 4,6-Dideoxy-4-(*N*-dimethylamino)-D-allose*
[42213-97-8]
$C_8H_{17}NO_4$ 191.227
Cryst. (EtOH/Et_2O) (as hydrochloride). Mp 166-168° (hydrochloride). $[\alpha]_D^{26}$ +38.09 → +33.2 (c, 1.52 in MeOH). CAS no. refers to hydrochloride.

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-allopyranoside
[37699-08-4]
$C_7H_{15}NO_4$ 177.2
Gum.

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-α-D-allopyranoside*
[42214-19-7]
$C_9H_{17}NO_5$ 219.237
Cryst. (MeOH/Et_2O). Mp 150-152°. $[\alpha]_D^{25}$ +235 (c, 0.75 in MeOH).

Me glycoside, 2,3-anhydro, N-*Ac: Methyl 4-acetamido-2,3-anhydro-4,6-dideoxy-α-D-allopyranoside*
[51255-03-9]
$C_9H_{15}NO_4$ 201.222
Cryst. (EtOAc/petrol). Mp 186-187°. $[\alpha]_D$ +209 (c, 1 in $CHCl_3$).

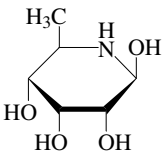
β-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4,6-dideoxy-β-D-allopyranoside
[35942-00-8]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH/Et_2O). Mp 174-176°. $[\alpha]_D^{26}$ -50.6 (c, 0.75 in MeOH). pK_a 7.2 (50% MeOH aq.).

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-β-D-allopyranoside*
[35941-99-2]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH/Et_2O). Mp 224-225°. $[\alpha]_D^{26}$ +3.9 (c, 0.4 in MeOH).

Bryant, C.P. *et al., CA*, 1972, **76**, 86058d (*D-form*)
Stevens, C.L. *et al., Carbohydr. Res.*, 1972, **21**, 166 (*β-Me pyr deriv*)
Stevens, C.L. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 235 (*α-Me pyr deriv*)
Stevens, C.L. *et al., J.O.C.*, 1973, **38**, 4311 (*α-Me-pyr deriv, β-Me pyr deriv, ir*)
Capek, K. *et al., Coll. Czech. Chem. Comm.*, 1987, **52**, 2248 (*anhydro, pmr*)

5-Amino-5,6-dideoxyallose A-366



β-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

β-D-Pyranose-*form*

*2,3,4,5*N*-Tetra-Ac: 5-Acetamido-2,3,4-tri-*O*-acetyl-5,6-dideoxy-β-D-allopyranose*
$C_{14}H_{21}NO_8$ 331.322
Cryst. (EtOAc/cyclohexane). Mp 165-166°.

β-D-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-amino-5,6-dideoxy-2,3-*O*-isopropylidene-β-D-allofuranoside*
[41545-21-5]
$C_{10}H_{19}NO_4$ 217.264
Syrup. $Bp_{0.35}$ 48-50° (bath). $[\alpha]_D$ -72 (c, 1.0 in $CHCl_3$).

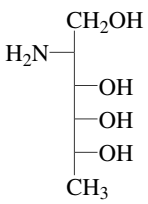
DL-*form*

*1,1-Di-Me acetal, 2,3,4,5*N*-tetra-Ac:*
[110261-74-0]
$C_{16}H_{27}NO_9$ 377.391
Cryst. (Et_2O/C_6H_6). Mp 110.5-111.5°.

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1972, **25**, 267; 1974, **35**, 55 (*β-D-Me fur isopropylidene, pmr*)
Defoin, A. *et al., Tet. Lett.*, 1986, **27**, 4727 (*DL-tetra-Ac, ir*)

2-Amino-2,6-dideoxyaltritol, 9CI A-367

5-Amino-1,5-dideoxytalitol



$C_6H_{15}NO_4$ 165.189

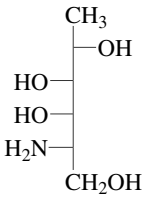
D-*form*

*1,2*N*3,4,5-Penta-Ac: 2-Acetamido-1,3,4,5-tetra-*O*-acetyl-2,6-dideoxy-D-altritol. 5-Acetamido-2,3,4,6-tetra-*O*-acetyl-1,5-dideoxy-D-talitol*
[51268-89-4]
$C_{16}H_{25}NO_9$ 375.375
Syrup.

Perry, M.B. *et al., Can. J. Biochem.*, 1973, **51**, 1335 (*chromatog*)
Perry, M.B. *et al., Carbohydr. Res.*, 1973, **31**, 131 (*penta-Ac, glc*)

5-Amino-1,5-dideoxyaltritol, 9CI A-368

2-Amino-2,6-dideoxytalitol



$C_6H_{15}NO_4$ 165.189

L-*form*

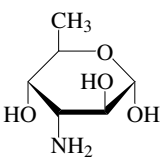
*2,3,4,5*N*,6-Penta-Ac: 5-Acetamido-2,3,4,6-tetra-*O*-acetyl-1,5-dideoxy-L-altritol. 2-Acetamido-1,3,4,5-tetra-*O*-acetyl-2,6-dideoxy-L-talitol*
[51268-95-2]
$C_{16}H_{25}NO_9$ 375.375
Syrup.

*2,3-Dibenzyl, 4,6-*O*-benzylidene: 5-Amino-2,3-di-*O*-benzyl-4,6-*O*-benzylidene-1,5-dideoxy-L-altritol. 2-Amino-4,5-di-*O*-benzyl-1,3-*O*-benzylidene-2,6-dideoxy-L-talitol*
[22435-28-5]
$C_{27}H_{31}NO_4$ 433.546
Cryst. Mp 91-93°. $[\alpha]_D^{22}$ +17.6 (c, 1.0 in $CHCl_3$) (lit. gives a temp. range).

*2,3-Dibenzyl, 4,6-*O*-benzylidene, sulfate salt (2:1):* [22430-15-5]
Cryst. Mp 193-194°. $[\alpha]_D$ +34.3 (c, 1.0 in $CHCl_3$).

Gigg, R. *et al., J.C.S.(C)*, 1968, 2661 (*benzylidene derivs*)
Perry, M.B. *et al., Can. J. Biochem.*, 1973, **51**, 1335 (*penta-Ac*)

3-Amino-3,6-dideoxyaltrose A-369



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [29475-88-5]
Mp 215-220° (as dihydrochloride). $[\alpha]_D$ -142 (c, 0.52 in H_2O).

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-D-altropyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOAc/petrol). Mp 130.5-132°. $[\alpha]_D^{22}$ +84.7 (c, 0.61 in MeOH).

*Me glycoside, 2,3*N*,4-tri-Ac: Methyl 3-acetamido-2,4-di-*O*-acetyl-3,6-dideoxy-α-D-altropyranoside*
$C_{13}H_{21}NO_7$ 303.311
Cryst. (EtOAc/petrol). Mp 98.5-99.5°. $[\alpha]_D^{23}$ +56.5 (c, 1.26 in $CHCl_3$).

Me glycoside, 2,4-dimesyl, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-2,4-di-O-mesyl-α-D-altropyranoside*
$C_{11}H_{21}NO_9S_2$ 375.42

Cryst. (EtOAc/petrol). Mp 123.5-125.5°. $[\alpha]_D^{27}$ +38.3 (c, 0.45 in $CHCl_3$).

Me glycoside, N,N-*di-Me: Methyl 3,6-dideoxy-3-dimethylamino-α-D-altropyranoside*
$C_9H_{19}NO_4$ 205.253
Syrup. $Bp_{0.7}$ 101-102°. $[\alpha]_D^{21}$ -3.7 (c, 1.86 in H_2O).

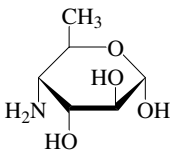
Me glycoside, hydrochloride: Cryst. (EtOH/Et_2O). Mp 178-179° dec. $[\alpha]_D^{21}$ -14.1 (c, 1.14 in H_2O).

L-*form*

Mp 212-213° (as dihydrochloride). $[\alpha]_D^{20}$ +149 (c, 1.5 in H_2O).

Jarý, J. *et al., Coll. Czech. Chem. Comm.*, 1965, **30**, 1144 (*D-form*)
Florent, J.C. *et al., Carbohydr. Res.*, 1980, **85**, 243 (*L-form*)

4-Amino-4,6-dideoxyaltrose A-370



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*

N,N-*Di-Me: 4,6-Dideoxy-4-(*N-*dimethylamino)-*D-*altrose*
[55570-42-8]
$C_8H_{17}NO_4$ 191.227
Cryst. (2-propanol/Et_2O) (as hydrochloride). Mp 176-177° (hydrochloride). $[\alpha]_D^{25}$ +86.8 (c, 1 in H_2O). CAS no. refers to hydrochloride.

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-altropyranoside
[55637-43-9]
$C_7H_{15}NO_4$ 177.2
Cryst. (propanol/Et_2O). Mp 116-117°. $[\alpha]_D^{24}$ +128.5 (c, 0.85 in MeOH).

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-α-D-altropyranoside*
[51255-06-2]
$C_9H_{17}NO_5$ 219.237
Cryst. (2-propanol/Et_2O). Mp 151-153°. $[\alpha]_D^{22}$ +198.3 (c, 1 in MeOH).

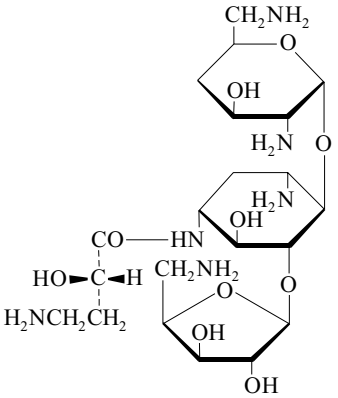
*Me glycoside, 2,3,4*N-*tri-Ac: Methyl 4-acetamido-2,3-di*-O-*acetyl-4,6-dideoxy-α-D-altropyranoside*
[51269-16-0]
$C_{13}H_{21}NO_7$ 303.311
Cryst. (2-propanol/pentane). Mp 168-169°. $[\alpha]_D^{24}$ +129.2 (c, 1 in $CHCl_3$).

Me glycoside, N,N-*di-Me: Methyl 4,6-dideoxy-4-(*N-*dimethylamino)-α-D-altropyranoside*
[55570-40-6]
$C_9H_{19}NO_4$ 205.253
Cryst. (Et_2O/petrol). Mp 110-112°. pK_a 7.52 (50% EtOH aq.).

Stevens, C.L. *et al., J.O.C.*, 1975, **40**, 2471 (*D-deriv, α-Me pyr derivs, pmr*)

5″-Amino-4′,5″-dideoxybutirosin A A-371

[55480-22-3]

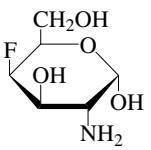


$C_{21}H_{42}N_6O_{10}$ 538.597

Aminoglycoside antibiotic. Semisynthetic. Log P -7.77 (uncertain value) (calc).

Japan. Pat., 1975, 75 35 132; *CA*, **83**, 97868 (*synth*)
U.S. Pat., 1976, 3 983 102; *CA*, **86**, 16916 (*synth*)

2-Amino-2,4-dideoxy-4-fluorogalactose A-372



α-D-Pyranose-*form*

$C_6H_{12}FNO_4$ 181.164

D-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-4-fluoro-D-galactopyranose*
$C_8H_{14}FNO_5$ 223.201
Tiny needles (EtOH/Et_2O). Mp 205-209° (195°). $[\alpha]_D$ +87.7 (c, 1 in MeOH) (equilib.). Mixt. of anomers.

O,O,O,N-*Tetra-Ac: 2-Acetamido-1,3,6-tri*-O-*acetyl-2,4-dideoxy-4-fluoro-D-galactopyranose*
$C_{14}H_{20}FNO_8$ 349.312
Cryst. (EtOAc/hexane). Mp 155-158° (140-142°). $[\alpha]_D$ +144 (c, 1 in $CHCl_3$) (+114). Mixt. of anomers.

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-4-fluoro-α-D-galactopyranoside*
$C_9H_{16}FNO_5$ 237.228
Amorph. solid (EtOH/Me_2CO). Mp 227-228°. $[\alpha]_D$ +173.4 (c, 1 in MeOH).

Me glycoside, O,O,N-*tri-Ac: Methyl 2-acetamido-3,6-di*-O-*acetyl-2,4-dideoxy-4-fluoro-α-D-galactopyranoside*
$C_{13}H_{20}FNO_7$ 321.302
Needles (EtOAc/hexane). Mp 166-168°. $[\alpha]_D$ +101.6 (c, 1 in $CHCl_3$).

Me glycoside, 3,6-dibenzyl, N-*Ac: Methyl 2-acetamido-3,6-di*-O-*benzyl-2,4-dideoxy-4-fluoro-α-D-galactopyranoside*
$C_{23}H_{28}FNO_5$ 417.476
Tiny needles (EtOAc/hexane). Mp 203-204°. $[\alpha]_D$ +131.7 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form*

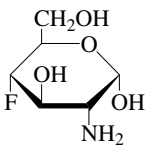
Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-4-fluoro-β-D-galactopyranoside*
$C_9H_{16}FNO_5$ 237.228
Tiny cryst. (EtOH/hexane). Mp 209-211°. $[\alpha]_D$ -24.8 (c, 1 in MeOH).

Me glycoside, 3,6-dibenzyl, N-*Ac: Methyl 2-acetamido-3,6-di*-O-*benzyl-2,4-dideoxy-4-fluoro-β-D-galactopyranoside*
$C_{23}H_{28}FNO_5$ 417.476
Amorph. solid. Mp 208-210°. $[\alpha]_D$ +29.9 (c, 1.1 in $CHCl_3$).

Me glycoside, O,O,N-*tri-Ac: Methyl 2-acetamido-3,6-di*-O-*acetyl-2,4-dideoxy-4-fluoro-β-D-galactopyranoside*
$C_{13}H_{20}FNO_7$ 321.302
Tiny needles (EtOAc). Mp 235-236°. $[\alpha]_D$ -19.4 (c, 1 in MeOH/$CHCl_3$ 1:1).

Berkin, A. *et al., Carbohydr. Res.*, 2000, **326**, 250-263

2-Amino-2,4-dideoxy-4-fluoroglucose A-373



α-D-Pyranose-*form*

$C_6H_{12}FNO_4$ 181.164

D-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-4-fluoro-D-glucose*
$C_8H_{14}FNO_5$ 223.201
Mp 176-180° dec. (174-175°). $[\alpha]_D$ +59.3 (c, 1 in MeOH) (equilib.). 5.7:1 mixt. of α- and β-pyranose anomers.

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-4-fluoro-α-D-glucopyranoside*
$C_9H_{16}FNO_5$ 237.228
Needles (EtOH). Mp 189-190°. $[\alpha]_D$ +139 (c, 1 in MeOH).

Me glycoside, N,O,O-*tri-Ac: Methyl 2-acetamido-3,6-di*-O-*acetyl-2,4-dideoxy-4-fluoro-α-D-glucopyranoside*
$C_{13}H_{20}FNO_7$ 321.302
Cryst. (EtOAc/hexane). Mp 112-113°. $[\alpha]_D$ +58.9 (c, 1 in $CHCl_3$).

Benzyl glycoside, N-*Ac: Benzyl 2-acetamido-2,4-dideoxy-4-fluoro-α-D-glucopyranoside*
$C_{15}H_{20}FNO_5$ 313.325
Tiny cryst. (EtOH). Mp 197-198°. $[\alpha]_D$ +206.3 (c, 1 in MeOH).

β-D-Pyranose-*form*

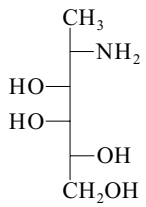
N,O,O,O-*Tetra-Ac: 2-Acetamido-1,3,6-tri-*O-*acetyl-2,4-dideoxy-4-fluoro-β-D-glucopyranose*
$C_{14}H_{20}FNO_8$ 349.312
Cryst. (EtOAc/hexane). Mp 188-189°. $[\alpha]_D$ -29.2 (c, 1 in $CHCl_3$).

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-4-fluoro-β-D-glucopyranoside*
$C_9H_{16}FNO_5$ 237.228
Amorph. solid (EtOH). Mp 192-194°. $[\alpha]_D$ -50 (c, 0.61 in MeOH).

Me glycoside, N,O,O-*tri-Ac: Methyl 2-acetamido-3,6-di-*O-*acetyl-2,4-dideoxy-4-fluoro-β-D-glucopyranoside*
$C_{13}H_{20}FNO_7$ 321.302
Rods (EtOAc/Et_2O). Mp 174-176°. $[\alpha]_D$ -61.4 (c, 1 in MeOH).

Berkin, A. *et al., Carbohydr. Res.*, 2000, **326**, 250-263

2-Amino-1,2-dideoxygalactitol A-374



$C_6H_{15}NO_4$ 165.189

D-*form*

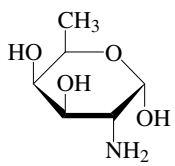
Syrup (as hydrochloride).

[144218-99-5, 144409-91-6]

Adelhorst, K. *et al., Carbohydr. Res.*, 1992, **232**, 187

2-Amino-2,6-dideoxygalactose, 8CI A-375

Fucosamine
[24724-90-1]



α-D-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [6931-59-5]

[49694-68-0]
Obt. from polysaccharides of *Chromobacterium violaceum, Bacillus licheniformis, Bacillus subtilis, Bacillus cereus* and *Staphylococcus aureus*. Also in swine erysipelas bacteria (*Erysipelothix insidiosa*).
Mp 192-193° (170-175°) dec. (as hydrochloride). $[\alpha]_D^{20}$ +93 (c, 0.4 in H2O) (hydrochloride).

N-*Ac: 2-Acetamido-2,6-dideoxy-D-galactose.* N-*Acetyl-D-fucosamine*
[35233-39-7]
$C_8H_{15}NO_5$ 205.21
Intermed. in biosynth. of bacterial antigens. Cryst. (EtOH).
Mp 201-202°. $[\alpha]_D^{20}$ +87 (c, 0.4 in H_2O).

N-*Me:* [78183-98-9]
$C_7H_{15}NO_4$ 177.2
Mp 158-162° dec. $[\alpha]_D^{25}$ +73.1 (c, 0.1 in H_2O, equilib.).

N-*Me,* N-*Ac: 2,6-Dideoxy-2-(*N-*methylacetamido)-D-galactose.* N-*Acetyl-*N-*methyl-D-fucosamine*
[156780-16-4]
$C_9H_{17}NO_5$ 219.237
Present in some type-specific polysaccharides of *Bordetella pertussis* endotoxins. Hemihydrate. $[\alpha]_D$ +37 (c, 0.5 in H_2O, equilib.). V. sensitive to acid-catalysed glycosidation. The abs. config. of the natural sugar does not yet appear to have been demonstrated (1994).

α-D-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,6-dideoxy-α-D-galactopyranoside*
[53958-43-3]
$C_9H_{17}NO_5$ 219.237
$[\alpha]_D^{24}$ +177 (c, 1.1 in EtOH).

*Me glycoside, 3,4-*O-*isopropylidene,* N-*Ac: Methyl 2-acetamido-2,6-dideoxy-3,4-*O-*isopropylidene-α-D-galactopyranoside*
[116556-66-2]
$C_{12}H_{21}NO_5$ 259.302
$[\alpha]_D^{24}$ +124 (c, 0.6 in EtOH).

L-*form* [7577-62-0]

[7577-63-1] Constit. of type V *Pneumococcus* capsular polysaccharide and the mucopolysaccharide of *Citrobacter freundii*.
Mp 191-193° dec. (as hydrochloride). $[\alpha]_D^{20}$ -95 (c, 1.0 in Py/EtOH 2:3) (hydrochloride).

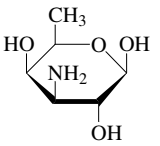
N-*Ac: 2-Acetamido-2,6-dideoxy-L-galactose.* N-*Acetyl-L-fucosamine*
[49694-69-1]
$C_8H_{15}NO_5$ 205.21
Intermed. in biosynth. of bacterial antigens. Cryst. (EtOH).
Mp 195-198°. $[\alpha]_D^{20}$ -83 (c, 0.2 in H_2O).

DL-*form* [22875-25-8]
Constit. of the polysaccharide from *Pseudomonas aeruginosa*.
Monohydrate (as hydrochloride).
Mp 107° dec. (hydrochloride).

Kuhn, R. *et al., Annalen*, 1959, **628**, 186 (*L-form, L-N-Ac*)
Barker, S.A. *et al., Nature (London)*, 1961, **189**, 303 (*L-form, isol*)
Sharon, N. *et al., Biochem. J.*, 1964, **93**, 210 (*D-form, isol*)
Wheat, R. *et al., Nature (London)*, 1964, **202**, 492 (*D-form, isol*)
Suzuki, N. *et al., Biochim. Biophys. Acta*, 1969, **177**, 371 (*DL-form, isol, pmr*)
Perry, M.B. *et al., Can. J. Chem.*, 1973, **51**, 974 (*D-form, D-N-Ac, L-form, L-N-Ac*)
Horton, D. *et al., Carbohydr. Res.*, 1977, **59**, 607; 1978, **63**, 270 (*synth*)
Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1987, **169**, 258 (*L-N-Ac*)
Roy, A. *et al., Indian J. Chem., Sect. B*, 1987, **26**, 1165 (*α-D-Me pyr N-Ac, α-D-Me pyr N-Ac isopropylidene*)
Szabó, P. *et al., Carbohydr. Res.*, 1994, **257**, 145 (*D-N-Me N-Ac*)
Ruiz, M. *et al., Tetrahedron: Asymmetry*, 2002, **13**, 1535-1549 (*D-form, synth, N-Me*)
Samuel, G. *et al., Carbohydr. Res.*, 2003, **338**, 2503-2519 (*N-Ac, biosynth*)

3-Amino-3,6-dideoxygalactose, 8CI A-376

3-Amino-3-deoxyfucose. 3-Aminofucose (incorr.)
[15435-24-2]



β-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*

N-*Formyl: 3-Formamido-3,6-dideoxy-D-galactose*
$C_7H_{13}NO_5$ 191.183
Terminal residue in the *O*-polysaccharide of *Providencia alcalifaciens* O21.

N-*Ac: 3-Acetamido-3,6-dideoxy-D-galactose. 3-Acetamido-3-deoxy-D-fucose*
$C_8H_{15}NO_5$ 205.21
Constit. of a lipopolysaccharide in *Salmonella tranora, Arizona* 24, *Pseudomonas fluorescens, Xanthomonas campestris* and in *Citrobacter* serotypes. Mp 174-176°. $[\alpha]_D^{24}$ +114 (c, 0.8 in H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-β-D-galactopyranoside, 9CI
[53911-08-3]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH). Mp 192-194°. $[\alpha]_D^{20}$ -15.3 (c, 1 in H_2O). Change of crystal form at 150°.

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-D-galactopyranoside*
[53911-18-5]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 230° (subl., sealed tube) Mp 246-248°.

Me glycoside, N,*2-di-Ac: Methyl 3-acetamido-2-*O-*acetyl-3,6-dideoxy-β-D-galactopyranoside*
[59150-41-3]
$C_{11}H_{19}NO_6$ 261.274
Mp 167-168°. $Bp_{0.1}$ 150° subl.. $[\alpha]_D^{20}$ -21 (c, 1.0 in $CHCl_3$).

Me glycoside, N,*4-di-Ac: Methyl 3-acetamido-4-*O-*acetyl-3,6-dideoxy-β-D-galactopyranoside*
[59150-40-2]
$C_{11}H_{19}NO_6$ 261.274
Cryst. (EtOAc). Mp 238-239°. $[\alpha]_D^{20}$ +49 (c, 1.0 in $CHCl_3$).

Me glycoside, N-*Ac, 2,4-di-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-β-D-galactopyranoside*
[53911-22-1]
$C_{13}H_{21}NO_7$ 303.311
Cryst. (EtOH/petrol). Mp 188-189.5° (change of crystal modification at 160°). $[\alpha]_D^{20}$ +22 (c, 1.0 in $CHCl_3$).

Me glycoside, N,*4-di-Ac, 2-mesyl: Methyl 3-acetamido-4-*O*-acetyl-3,6-dideoxy-2-*O*-mesyl-β-D-galactopyranoside*
$C_{12}H_{21}NO_8S$ 339.366
Cryst. (EtOH/petrol). Mp 179-180°. $[\alpha]_D^{20}$ +20.5 (c, 1.0 in $CHCl_3$).

Me glycoside, N-*Ac, 4-mesyl: Methyl 3-acetamido-3,6-dideoxy-4-*O*-mesyl-β-D-galactopyranoside*
[59150-43-5]
$C_{10}H_{19}NO_7S$ 297.329
Cryst. (EtOH). Mp 188-189° dec. $[\alpha]_D^{20}$ +72 (c, 1.0 in MeOH).

Me glycoside, N-*Ac, 2,4-dimesyl: Methyl 3-acetamido-3,6-dideoxy-2,4-di-*O*-mesyl-β-D-galactopyranoside*
[59150-42-4]
$C_{11}H_{21}NO_9S_2$ 375.42
Cryst. (Me_2CO/petrol). Mp 192-194° dec. $[\alpha]_D^{20}$ +8 (c, 1.0 in $CHCl_3$).

α-L-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-L-galactopyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOAc). Mp 202-203°. $[\alpha]_D^{25}$ -238 (c, 0.4 in H_2O).

Me glycoside, N-*Ac, 2-mesyl: Methyl 3-acetamido-3,6-dideoxy-2-*O*-mesyl-α-L-galactopyranoside*
$C_{10}H_{19}NO_7S$ 297.329
Mp 191-192°. $[\alpha]_D^{28}$ -14 (c, 0.5 in MeOH).

Me glycoside, N-*Ac, 2,4-dimesyl: Methyl 3-acetamido-3,6-dideoxy-2,4-di-*O*-mesyl-α-L-galactopyranoside*
$C_{11}H_{21}NO_9S_2$ 375.42
Cryst. (Me_2CO). Mp 199-200°.

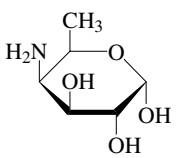
β-L-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-L-galactopyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 245-248°. $[\alpha]_D$ -46.5 (c, 0.5 in H_2O).

Kapek, K. *et al., Coll. Czech. Chem. Comm.*, 1966, **31**, 1854; 1974, **39**, 1462 (*synth, derivs*)
Hickman, J. *et al., J. Biol. Chem.*, 1966, **241**, 1424 (*isol*)
Luederitz, O. *et al., J. Bacteriol.*, 1967, **93**, 1681 (*occur*)
Keleti, J. *et al., Eur. J. Biochem.*, 1971, **20**, 237 (*occur*)
Wilkinson, S.G. *et al., J. Gen. Microbiol.*, 1972, **70**, 365 (*occur*)
Staněk, J. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 3698 (*α-D-pyr Me gly N-Ac mesyl*)
Bystricky, S. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 174 (*cd*)
Adinolfi, M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 913-928 (*Me α-L-pyr N-Ac, Me β-L-pyr N-Ac*)
Kocharova, N.A. *et al., Carbohydr. Res.*, 2003, **338**, 1425-1430 (*N-formyl*)

4-Amino-4,6-dideoxygalactose, 8CI A-377

4-Amino-4-deoxyfucose. Thomosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-Pyranose-*form* [17272-51-4]
Constit. of *E. coli* strain Y-10.
Amorph. powder.

N-*Ac: 4-Acetamido-4,6-dideoxy-D-galactopyranose.* N-*Acetylthomosamine*
$C_8H_{15}NO_5$ 205.21
Present in the endobacterial common antigen. Amorph. powder.
Mp 72-84°. $[\alpha]_D^{25}$ +170.5 (c, 1.86 in H_2O).

α-D-Pyranose-*form*

*Tetra-Ac: 4-Acetamido-1,2,3-tri-*O*-acetyl-4,6-dideoxy-α-D-galactopyranose*
$C_{14}H_{21}NO_8$ 331.322
Mp 207-208°. $[\alpha]_D^{25}$ +95 (c, 1.1 in $CHCl_3$).

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-galactopyranoside
$C_7H_{15}NO_4$ 177.2
Mp 233-234° dec. (as hydrochloride). $[\alpha]_D^{25}$ +209 (c, 1.81 in H_2O).

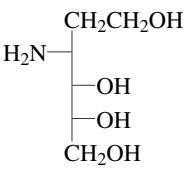
β-D-Pyranose-*form*

*Tetra-Ac: 4-Acetamido-1,2,3-tri-*O*-acetyl-4,6-dideoxy-β-D-galactopyranose*
$C_{14}H_{21}NO_8$ 331.322
Mp 85-87°. $[\alpha]_D^{25}$ +21.3 (c, 1.1 in $CHCl_3$).

Stevens, C.L. *et al., J.A.C.S.*, 1964, **86**, 2937 (*D-form, synth, D-N-Ac, α-D-tetra-Ac, β-D-tetra-Ac, α-D-Me pyr*)
Jann, B. *et al., Eur. J. Biochem.*, 1967, **2**, 26 (*isol*)

3-Amino-2,3-dideoxyglucitol A-378

3-Amino-2,3-dideoxymannitol



$C_6H_{15}NO_4$ 165.189

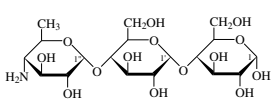
D-*form*

6-Benzyl, 4,5-bis(methoxymethyl):
[112709-31-6]
$C_{17}H_{29}NO_6$ 343.419
Syrup. Named as a deriv. of 4-amino-4,5-dideoxymannitol in the ref.

Iida, H. *et al., Chem. Comm.*, 1987, 746 (*benzyl deriv*)

4-Amino-4,6-dideoxy-α-D-glucopyranosyl-(1→4)-α-D-glucopyranosyl-(1→4)-D-glucose, 9CI A-379

[123941-05-9]



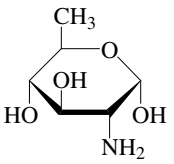
α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457
Formed by degradation of Acarbose, A-3. Exhibits antidiabetic props. Hygroscopic syrup. Deliquesces at 30° in 75% relative humidity.

Takahashi, Y. *et al., CA*, 1990, **112**, 25451s (*synth, ir, pmr, ms, hplc*)
Bock, K. *et al., Carbohydr. Res.*, 1991, **221**, 1 (*synth, pmr, cmr*)

2-Amino-2,6-dideoxyglucose A-380

6-Deoxyglucosamine. Chinovosamine. Isorhodeosamine. Quinovosamine



α-D-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [6018-53-7]

[6189-58-8]
Constit. of the lipopolysaccharide from the cells of *Pseudomonas aeruginosa*. Also present in *Achromobacter georgio politanum Salmonella*, spp. *Proteus vulgaris, Neurospora crassa, Vibrio cholerae*, and *Brucella* spp. The lipopolysaccharide is used as antiviral agent for influenza A/PR8, encephalomyocarditis virus and columbia SK virus.
Cryst. (EtOH/Et_2O).
Mp 172-173° dec. (as hydrochloride). $[\alpha]_D^{22}$ +88 → +53 (c, 1.2 in H_2O) (hydrochloride).

N-*Ac: 2-Acetamido-2,6-dideoxy-D-glucose.* N-*Acetyl-D-quinovosamine*
[40614-71-9]
$C_8H_{15}NO_5$ 205.21
Intermed. in biosynth. of bacterial antigens. Cryst. (EtOH).
Mp 210-211° dec. $[\alpha]_D^{22}$ +66 → +15 (c, 1.08 in H_2O).

α-D-*form*

*Tetra-Ac: 2-Acetamido-1,3,4-tri-*O*-acetyl-2,6-dideoxy-α-D-glucopyranose*
$C_{14}H_{21}NO_8$ 331.322
Cryst. (H_2O). Mp 178°. $[\alpha]_D^{22}$ +114 (c, 1.21 in $CHCl_3$).

Me glycoside, N-*Ac: Methyl 2-acetamido-2,6-dideoxy-α-D-glucopyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (MeOH) or powder (2-propanol). Mp 172-173° (168-170°). $[\alpha]_D^{24}$ +117.4 (c, 1.1 in MeOH).

β-D-*form*

*Tetra-Ac: 2-Acetamido-1,3,4-tri-*O*-acetyl-2,6-dideoxy-β-D-glucopyranose*
$C_{14}H_{21}NO_8$ 331.322
Rods (H_2O). Mp 209-210°. $[\alpha]_D^{23}$ +15 (c, 1.07 in $CHCl_3$).

L-*form*

Mp 173-175° dec. (as hydrochloride). $[\alpha]_D^{22}$ -91 → -53 (c, 1.08 in H_2O) (hydrochloride).

N-*Ac: 2-Acetamido-2,6-dideoxy-L-glucose.* N-*Acetyl-L-quinovosamine*
[42859-69-8]
$C_8H_{15}NO_5$ 205.21
Intermed. in biosynth. of bacterial antigens.
Mp 201-204°. $[\alpha]_D^{24}$ -54 → -14 (c, 1 in H_2O).

N-*Me: 2,6-Dideoxy-2-(*N-*methylamino)-*L*-glucose*
$C_7H_{15}NO_4$ 177.2
A constit. of Streptomycin. Mp 160-163°. $[\alpha]_D$ -103 → -88 (H_2O/HCl).

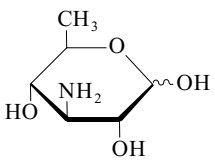
3,4-Di-Me, N-*Ac: 2-Acetamido-2,6-dideoxy-3,4-di-*O-*methyl-*L*-glucose*
$C_{10}H_{19}NO_5$ 233.264
Mp 211-213°. $[\alpha]_D$ -56.3 → +17.2 (c, 0.14 in H_2O).

β-L-*form*

*Tetra-Ac: 2-Acetamido-1,3,4-tri-*O-*acetyl-2,6-dideoxy-β-*L*-glucopyranose*
$C_{14}H_{21}NO_8$ 331.322
Cryst. (H_2O). Mp 208-209°. $[\alpha]_D^{22}$ -14 (c, 1.05 in $CHCl_3$).

Kuhn, R. *et al., Annalen*, 1958, **617**, 115 (*D-form, D-N-Ac, α-D-tetra-Ac, β-D-tetra-Ac, L-form, L-N-Ac, β-L-tetra-Ac*)
Morel, C.J. *et al., Helv. Chim. Acta*, 1958, **41**, 1501 (*D-form, D-N-Ac*)
Perry, M.B. *et al., Can. J. Chem.*, 1974, **52**, 2425 (*L-N-Ac di-Me*)
Barrow, R.O. *et al., CA*, 1975, **82**, 1843g (*biosynth*)
Burger, P.J. *et al., Carbohydr. Res.*, 1983, **119**, 221 (*D-N-Ac, α-D-Me pyr N-Ac*)
Galemmo, R.A. *et al., Carbohydr. Res.*, 1983, **119**, 231 (*synth, α-D-Me pyr N-Ac*)
Roy, A. *et al., Indian J. Chem., Sect. B*, 1987, **26**, 1165 (*α-D-Me pyr N-Ac*)
Ito, M. *et al., Carbohydr. Res.*, 1993, **242**, 173 (*isol*)
Samuel, G. *et al., Carbohydr. Res.*, 2003, **338**, 2503-2519 (*N-Ac, biosynth*)

3-Amino-3,6-dideoxyglucose A-381



D–Pyranose–*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [15435-23-1]
Constit. of the lipopolysaccharides of *E. coli, Citrobacter* and *Salmonella*. $[\alpha]_D^{24}$ +56.3 (c, 6 in H_2O) (as hydrochloride).

N-*Formyl: 3,6-Dideoxy-3-formamido-D-glucose*
$C_7H_{13}NO_5$ 191.183
Occurs in *O*-specific polysaccharide of *Hafnia alvei* strain 1204.

N,N-*Di-Me: 3,6-Dideoxy-3-dimethylamino-D-glucose.* ***Mycaminose***
[519-21-1]
$C_8H_{17}NO_4$ 191.227
Component of the antibiotics Carbomycin, Spiramycin (see Foromacidin A, F-24), Leucomycin (see Leucomycin A_1) and Turimycins. Also obt. by acid hydrol. of antibiotic B 58941 (see Cirramycin A_1). Mp 115-116° (as hydrochloride). $[\alpha]_D^{25}$ +31 (c, 1 in H_2O, equilib.).

N-*(2S,3-Dihydroxypropanoyl): **3,6-Dideoxy-3-(L-glyceroylamino)-D-glucose***
[74240-45-2]
$C_9H_{17}NO_7$ 251.236
Constit. of the antigenic polysaccharide of *Eubacterium saburreum* strain V5. Needles. Mp 190-196°. $[\alpha]_D^{28}$ +60.8 (c, 2.6 in H_2O equilib.).

N-*(3S-Hydroxybutanoyl): 3,6-Dideoxy-3-(3-hydroxybutyramido)-D-glucose*
$C_{10}H_{19}NO_6$ 249.263
Component of the *O*-specific polysaccharide of *Pseudomonas fluorescens* biovar B strain IMV 247.

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-α-D-glucopyranoside
[43138-54-1]
$C_7H_{15}NO_4$ 177.2
Mp 175-177°. $[\alpha]_D^{20}$ +148 (c, 0.57 in H_2O).

Me glycoside, N,N-*di-Me: Methyl 3,6-dideoxy-3-dimethylamino-α-D-glucopyranoside*
[56569-92-7]
$C_9H_{19}NO_4$ 205.253
Mp 81-82°. $Bp_{0.25}$ 80°. $[\alpha]_D$ +123 (c, 0.43 in H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-β-D-glucopyranoside
[53910-77-3]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH). Mp 194-196°. $[\alpha]_D$ -55 (H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-D-glucopyranoside*
[53911-17-4]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 247-249°. $[\alpha]_D$ -43.

Me glycoside, N,*2-di-Ac: Methyl 3-acetamido-2-*O-*acetyl-3,6-dideoxy-β-D-glucopyranoside*
[53829-53-1]
$C_{11}H_{19}NO_6$ 261.274
Mp 189.5°. $[\alpha]_D^{20}$ -8 (c, 0.5 in $CHCl_3$).

Me glycoside, N,*2,4-tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-2,6-dideoxy-β-D-glucopyranoside*
[53911-21-0]
$C_{13}H_{21}NO_7$ 303.311
Mp 210°. $[\alpha]_D^{20}$ -7.4 (c, 0.5 in $CHCl_3$).

N,N-*Di-Me:* [51607-62-6]
Solid + $1H_2O$ (as hydrochloride). Mp 116-118° (hydrochloride). $[\alpha]_D$ +11 → +31 (c, 1.08 in H_2O) (hydrochloride). Appears identical with the mycaminose hydrochloride above.

L-*form* [18118-75-7]
Constit. of the lipopolysaccharide of *Eubacterium coli*.
Hygroscopic syrup (as hydrochloride). $[\alpha]_D^{20}$ -46 (c, 5.25 in H_2O).

N-*Ac: 3-Acetamido-3,6-dideoxy-L-glucose*
Constit. of the core oligosaccharide of *Aeromonas hydrophila* and *Vibrio anguillarum*.
$[\alpha]_D^{23}$ -26 (c, 0.01 in H_2O).

α-L-Pyranose-*form*

*Tetra-Ac: 3-Acetamido-1,2,4-tri-*O-*acetyl-3,6-dideoxy-α-L-glucopyranose*
$C_{14}H_{21}NO_8$ 331.322
$[\alpha]_D^{20}$ -111 (c, 1.1 in $CHCl_3$).

Me glycoside: Methyl 3-amino-3,6-dideoxy-α-L-glucopyranoside
[5817-28-7]
$C_7H_{15}NO_4$ 177.2
Mp 175-176°. $[\alpha]_D^{20}$ -145 (c, 1.9 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-L-glucopyranoside*
[17225-66-0]
$C_9H_{17}NO_5$ 219.237
Mp 223-224°. $[\alpha]_D^{20}$ -145 (c, 1.08 in H_2O).

Me glycoside, N,*2-Di-Ac: Methyl 3-acetamido-2-*O-*acetyl-3,6-dideoxy-α-L-glucopyranoside*
[10350-08-0]
$C_{11}H_{19}NO_6$ 261.274
Mp 204-205°. $[\alpha]_D^{20}$ -110.6 (c, 0.37 in EtOH).

Me glycoside, N,*4-di-Ac: Methyl 3-acetamido-4-*O-*acetyl-3,6-dideoxy-α-L-glucopyranoside*
$C_{11}H_{19}NO_6$ 261.274
Cryst. (EtOAc). Mp 244°. $[\alpha]_D^{21}$ -219 (c, 0.5 in EtOH).

*Me glycoside, 2,4-di-Ac: Methyl 2,4-di-*O-*acetyl-3-amino-3,6-dideoxy-α-L-glucopyranoside*
$C_{11}H_{19}NO_6$ 261.274
Mp 195-197°. $[\alpha]_D^{22}$ -126.4 (c, 0.7 in $CHCl_3$).

*Me glycoside, tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-α-L-glucopyranoside*
[10230-06-5]
$C_{13}H_{21}NO_7$ 303.311
Mp 194-197°. $[\alpha]_D^{20}$ -128 (c, 1.94 in $CHCl_3$).

Me glycoside, N,N-*di-Me: Methyl 3,6-dideoxy-3-dimethylamino-α-L-glucopyranoside*
[55053-27-5]
$C_9H_{19}NO_4$ 205.253
Mp 83.5-86°. $[\alpha]_D^{22}$ -125 (H_2O).

β-L-Pyranose-*form*

*Tetra-Ac: 3-Acetamido-1,2,4-tri-*O-*acetyl-3,6-dideoxy-β-L-glucopyranose*
$C_{14}H_{21}NO_8$ 331.322
Mp 232-234°. $[\alpha]_D^{20}$ -22.5 (c, 1.2 in $CHCl_3$).

Me glycoside: Methyl 3-amino-3,6-dideoxy-β-L-glucopyranoside
$C_7H_{15}NO_4$ 177.2
Mp 194-196°. $[\alpha]_D^{20}$ -55 (c, 1.0 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-L-glucopyranoside*
$C_9H_{17}NO_5$ 219.237
Mp 247-249°. $[\alpha]_D^{20}$ -43 (c, 1.0 in H_2O).

*Me glycoside, tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-β-D-glucopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Mp 208-209°. $[\alpha]_D^{20}$ -11 (c, 1.0 in $CHCl_3$).

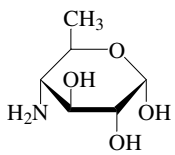
N,N-*Di-Me: L-Mycaminose*
Solid + $1H_2O$ (as hydrochloride). Mp 116-117° (hydrochloride). $[\alpha]_D$ -13 → -30 (c, 1.0 in H_2O) (hydrochloride).

Hochstein, F.A. *et al., J.A.C.S.*, 1955, **77**, 3353-3355 (*Mycaminose, struct*)
Richardson, A.C. *et al., J.C.S.*, 1962, 2499-2506; 2758-2760 (*synth, α-L-derivs*)

Čapek, K. *et al., Coll. Czech. Chem. Comm.*, 1966, **31**, 1854-1867; 1974, **39**, 1462-1478 (*α-L-N-Ac, Ac derivs, β-D-2,4-Di-Ac derivs*)
Jann, B. *et al., Nature (London)*, 1967, **215**, 170 (*isol*)
Suzuki, T. *et al., Chem. Lett.*, 1973, 789 (*Mycaminose*)
Koga, K. *et al., Carbohydr. Res.*, 1974, **36**, C9 (*synth, pmr, DL-mycaminose*)
Omura, S. *et al., J.A.C.S.*, 1975, **97**, 4001 (*cmr*)
Kondo, W. *et al., Carbohydr. Res.*, 1980, **83**, 129-134 (*N-2,3-dihydroxypropanoyl, D-form*)
Redlich, H. *et al., Annalen*, 1981, 1223-1233 (*β-D-N-Ac derivs, pmr*)
Banoub, J.H. *et al., Can. J. Biochem.*, 1981, **59**, 877-879 (*L-form N-Ac, isol*)
Katzenellenbogen, E. *et al., Carbohydr. Res.*, 1995, **273**, 187-195 (*occur, N-formyl*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 1998, **306**, 297-303 (*3-hydroxybutanoyl*)

4-Amino-4,6-dideoxyglucose, 8CI A-382

Viosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [3317-97-3]
Isol. from lipopolysaccharides of *E. coli* strain B and *Chromobacterium violaceum*.
Hydrochloride: Mp 132-138° dec. $[\alpha]_D^{27}$ -9 → +21 (c, 1 in H_2O).

N-*Ac: 4-Acetamido-4,6-dideoxy-D-glucose*
$C_8H_{15}NO_5$ 205.21
Present in *E.coli* O7 polysaccharide. Mp 188-189.5°. $[\alpha]_D^{21}$ +151 (c, 0.43 in H_2O).

N-*Me: 4,6-Dideoxy-4-(*N*-methylamino)-D-glucose. Bamosamine*
$C_7H_{15}NO_4$ 177.2

N,N-*Di-Me: 4,6-Dideoxy-4-dimethylaminoglucose.* ***Amosamine***
[20225-11-0]
$C_8H_{17}NO_4$ 191.227
Constit. of Amicetin, A-119. pK_a 7.2.

N,N-*Di-Me; hydrochloride:* Mp 192-193°. $[\alpha]_D^{25}$ +45.5 (c, 1 in H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-glucopyranoside
$C_7H_{15}NO_4$ 177.2
Cryst. ($CHCl_3$/petrol). Mp 117-118°. $[\alpha]_D^{23}$ +144 (c, 0.85 in H_2O).

Me glycoside, N-*Me: Methyl 4,6-dideoxy-4-methylamino-α-D-glucopyranoside*
$C_8H_{17}NO_4$ 191.227
Cryst. ($CHCl_3$/Et_2O). Mp 64-65°. $[\alpha]_D^{25}$ +175 (c, 1 in $CHCl_3$).

Me glycoside, N-*Me,* N-*Ac: Methyl 4-(acetylmethylamino)-4,6-dideoxy-α-D-glucopyranoside*
$C_{10}H_{19}NO_5$ 233.264
Cryst. (EtOH). Mp 157-158°. $[\alpha]_D^{24}$ +133 (c, 1.9 in $CHCl_3$).

Me glycoside, N-*Me,* N,*2,3-tri-Ac: Methyl 2,3-di-*O*-acetyl-4-(acetylmethylamino)-4,6-dideoxy-α-D-glucopyranoside*
$C_{14}H_{23}NO_7$ 317.338
Cryst. ($CHCl_3$/Et_2O/pentane). Mp 119-120°. $[\alpha]_D^{23}$ +119 (c, 1.1 in $CHCl_3$).

Me glycoside, N,N-*di-Me: Methyl 4,6-dideoxy-4-dimethylamino-α-D-glucopyranoside. Methyl α-amosaminide*
$C_9H_{19}NO_4$ 205.253
Needles (Et_2O/hexane). Mp 93-94°. $[\alpha]_D^{25}$ +138.2 (c, 0.5 in H_2O). pK_a 7.2.

Me glycoside, N,N-*di-Me; hydrochloride:* Needles (EtOH/Et_2O). Mp 195-196° dec. $[\alpha]_D^{25}$ +113.7 (c, 0.7 in H_2O).

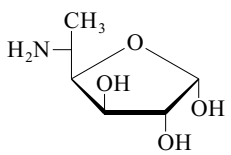
β-D-Pyranose-*form*

Me glycoside, N,N-*di-Me: Methyl 4,6-dideoxy-4-dimethylamino-β-D-glucopyranoside. Methyl β-amosaminide*
$C_9H_{19}NO_4$ 205.253
Cubes (EtOH/Et_2O) (as hydrochloride). Mp 209-210° dec. (as hydrochloride). $[\alpha]_D^{25}$ -32.4 (c, 0.5 in H_2O). pK_a 7.2.

[20225-11-0]

Hinman, J.W. *et al., J.A.C.S.*, 1953, **75**, 5864 (*Amicetin, isol*)
Stevens, C.L. *et al., J.A.C.S.*, 1956, **78**, 6212; 1963, **85**, 1552; 3061; 1964, **86**, 2939 (*D-form, D-N-Ac, α-D-Me pyr, D-N,N-di-Me, struct, synth*)
Stevens, C.L. *et al., J.O.C.*, 1962, **27**, 2991; 1966, **31**, 2822 (*D-N,N-di-Me, struct, α-D-Me pyr N,N-di-Me, β-D-Me pyr N,N-di-Me, D-N-Me derivs*)
Jann, B. *et al., Eur. J. Biochem.*, 1967, **2**, 26 (*D-form, isol*)
Edmundowicz, J.M. *et al., CA*, 1968, **68**, 47304w (*biosynth*)

5-Amino-5,6-dideoxyglucose A-383



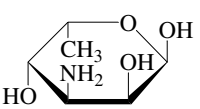
$C_6H_{13}NO_4$ 163.173

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 5-Amino-5,6-dideoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[37073-72-6]
$C_9H_{17}NO_4$ 203.238
Syrup.

Inouye, S. *et al., CA*, 1972, **77**, 48736m (*isopropylidene*)

3-Amino-3,6-dideoxygulose A-384



$C_6H_{13}NO_4$ 163.173

α-L-Pyranose-*form*

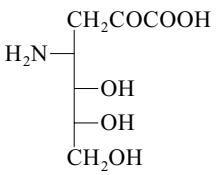
Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-L-gulopyranoside*
[170998-59-1]
$C_9H_{17}NO_5$ 219.237
Cryst. (Me_2CO/hexane). Mp 166-167°. $[\alpha]_D$ -99 (c, 0.8 in H_2O).

β-L-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-L-gulopyranoside*
[170998-62-6]
$C_9H_{17}NO_5$ 219.237
Cryst. + $1H_2O$ (wet EtOAc). Mp 76-78°. $[\alpha]_D$ +45 (c, 0.6 in MeOH).

Adinolfi, M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 913-928 (*Me α-L-pyr N-Ac, Me β-L-pyr N-Ac*)

4-Amino-3,4-dideoxy-*arabino*-2-heptulosonic acid A-385



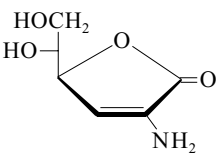
$C_7H_{13}NO_6$ 207.183

D-*form*

6-Phosphate: [156726-69-1]
$C_7H_{14}NO_9P$ 287.163
Thought to be present in bacteria producing ansamycins and mitomycins. Proposed key intermed. in biosynth. of 3-Amino-5-hydroxybenzoic acid residues. Mp 115-120° (dec., gas evolution). $CD\theta_{241}$ -0.9, θ_{220} -0.2, θ_{208} -0.05 (H_2O).

Kirschning, A. *et al., Carbohydr. Res.*, 1994, **256**, 245 (*synth, pmr, cmr, phosphate*)

2-Amino-2,3-dideoxy-*erythro*-hex-2-enono-1,4-lactone A-386



$C_6H_9NO_4$ 159.141

D-*form*

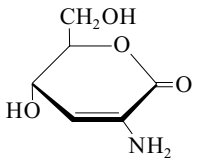
N-*Ac: 2-Acetamido-2,3-dideoxy-D*-erythro-*hex-2-enono-1,4-lactone*
[28876-39-3]
$C_8H_{11}NO_5$ 201.179
Cryst. (MeOH). Mp 186-188°. $[\alpha]_D^{20}$ +41.1 (c, 1.04 in H_2O) (lit. gives a temp. range).

N,*5,6-Tri-Ac: 2-Acetamido-5,6-di-*O*-acetyl-2,3-dideoxy-D*-erythro-*hex-2-enono-1,4-lactone*
[34044-50-3]
$C_{12}H_{15}NO_7$ 285.253
Syrup. $[\alpha]_D^{20}$ +58.1 (c, 0.9 in $CHCl_3$) (lit. gives a temp. range).

5,6-O-*Isopropylidene,* N-*Ac: 2-Acetamido-2,3-dideoxy-5,6*-O-*isopropylidene*-D-erythro-*hex-2-enono-1,4-lactone*
[28876-41-7]
$C_{11}H_{15}NO_5$ 241.243
Mp 124-125°. $[\alpha]_D^{20}$ -29.1 (c, 1.0 in $CHCl_3$) (lit. gives a temp. range).

Pravdić, N. *et al., Carbohydr. Res.*, 1971, **19**, 339 (*D-N-Ac, D-tri-Ac, D-N-Ac isopropylidene*)
Pokorny, M. *et al., Carbohydr. Res.*, 1975, **43**, 345 (*D-N-Ac*)
Ruzic-Toros, Z. *et al., Acta Cryst. B*, 1978, **34**, 854 (*D-N-Ac, cryst struct*)

2-Amino-2,3-dideoxy-*erythro*-hex-2-enono-1,5-lactone A-387



$C_6H_9NO_4$ 159.141

D-*form*

N-*Ac: 2-Acetamido-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
[53685-02-2]
$C_8H_{11}NO_5$ 201.179
Cryst. (Me_2CO). Mp 130-132°. $[\alpha]_D^{20}$ +29.8 (c, 0.7 in Me_2CO) (lit. gives a temp. range).

N*,4,6-tri-Ac: 2-Acetamido-4,6-di*-O-*acetyl-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
[34051-46-2]
$C_{12}H_{15}NO_7$ 285.253
Syrup. $[\alpha]_D$ +144.5 (c, 1.0 in $CHCl_3$).

4,6-O-*Benzylidene,* N-*Ac: 2-Acetamido-4,6*-O-*benzylidene-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
[53684-93-8]
$C_{15}H_{15}NO_5$ 289.287
Cryst. (MeOH). Mp 193-194° (189-190°). $[\alpha]_D$ -32.9 ($CHCl_3$).

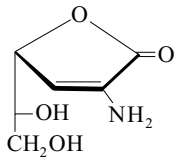
4,6-O-*Isopropylidene,* N-*Ac: 2-Acetamido-2,3-dideoxy-4,6*-O-*isopropylidene-D*-erythro-*hex-2-enono-1,5-lactone*
[53684-95-0]
$C_{11}H_{15}NO_5$ 241.243
Cryst. (Me_2CO/Et_2O). Mp 162-163°. $[\alpha]_D$ -45.6 (c, 0.8 in $CHCl_3$).

N-*Ac, 4-Me: 2-Acetamido-2,3-dideoxy-4*-O-*methyl-D*-erythro-*hex-2-enono-1,5-lactone*
[53684-99-4]
$C_9H_{13}NO_5$ 215.205
Cryst. (Me_2CO/Et_2O). Mp 142-144°. $[\alpha]_D$ +96 (c, 0.9 in Me_2CO).

N-*Benzoyl: 2-Benzamido-4,6*-O-*benzylidene-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
$C_{13}H_{13}NO_5$ 263.249
Cryst. (MeOH). Mp 181°. $[\alpha]_D$ -25 (c, 1.0 in $CHCl_3$).

Kuzuhara, H. *et al., Agric. Biol. Chem.*, 1962, **26**, 334 (*D-N-benzoyl*)
Pravdic, N. *et al., Carbohydr. Res.*, 1971, **19**, 353; 1974, **36**, 167 (*D-tri-Ac, D-benzylidene N-Ac, D-isopropylidene N-Ac, D-N-Ac, D-N-Ac Me*)

2-Amino-2,3-dideoxy-*threo*-hex-2-enono-1,4-lactone A-388



$C_6H_9NO_4$ 159.141

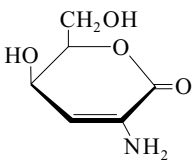
D-*form*

N-*Ac: 2-Acetamido-2,3-dideoxy-D*-threo-*hex-2-enonic acid γ-lactone, 8CI*
[34051-49-5]
$C_8H_{11}NO_5$ 201.179
Cryst. (MeOH). Mp 176-178°. $[\alpha]_D^{20}$ -101.2 (c, 0.6 in H_2O) (lit. gives a temp. range). $[\alpha]_D^{20}$ -112.3 (c, 0.4 in H_2O) (lit. gives a temp. range).

5,6-O-*Isopropylidene,* N-*Ac: 2-Acetamido-2,3-dideoxy-5,6*-O-*isopropylidene-D*-threo-*hex-2-enonic acid γ-lactone, 8CI*
[34044-51-4]
$C_{11}H_{15}NO_5$ 241.243
Mp 156-158°. $[\alpha]_D^{20}$ -46.2 (c, 0.8 in $CHCl_3$) (lit. gives a temp. range).

Pravdić, N. *et al., Carbohydr. Res.*, 1971, **19**, 339 (*D-N-Ac, D-N-Ac isopropylidene*)
Pokorny, M. *et al., Carbohydr. Res.*, 1975, **43**, 345 (*D-N-Ac*)
Ruzic-Torros, Z. *et al., Acta Cryst. B*, 1976, **32**, 2333; 1978, **34**, 1226 (*cryst struct*)

2-Amino-2,3-dideoxy-*threo*-hex-2-enono-1,5-lactone A-389



$C_6H_9NO_4$ 159.141

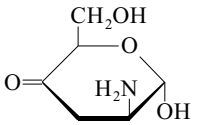
D-*form*

N-*Ac: 2-Acetamido-2,3-dideoxy-D*-threo-*hex-2-enono-1,5-lactone*
[57467-01-3]
$C_8H_{11}NO_5$ 201.179
Cryst. (Me_2CO). Mp 142-143°. $[\alpha]_D$ -15.9 (c, 0.44 in H_2O).

4,6-O-*Isopropylidene,* N-*Ac: 2-Acetamido-2,3-dideoxy-4,6*-O-*isopropylidene-D*-threo-*hex-2-enono-1,5-lactone*
[57467-02-4]
$C_{11}H_{15}NO_5$ 241.243
Cryst. (Me_2CO/Et_2O). Mp 155-156°. $[\alpha]_D$ +47.3 (c, 0.9 in $CHCl_3$).

Pokorny, M. *et al., Carbohydr. Res.*, 1975, **43**, 345

2-Amino-2,3-dideoxy-*threo*-hexopyranos-4-ulose A-390



$C_6H_{11}NO_4$ 161.157

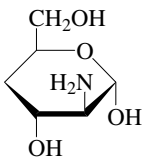
α-D-*form*

Me glycoside, 6-benzoyl, N-*Ac:* [64879-47-6]
$C_{16}H_{19}NO_6$ 321.329
Syrup.

Me glycoside, 6-benzoyl, N-*Ac, 2,4-dinitrophenylhydrazone:*
Cryst. Mp 216-217°. $[\alpha]_D^{20}$ +167 (c, 1.0 in $CHCl_3$).

Sakakibara, T. *et al., Carbohydr. Res.*, 1977, **58**, 39 (*α-D-Me gly N-Ac derivs*)

2-Amino-2,4-dideoxy-*arabino*-hexose A-391



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

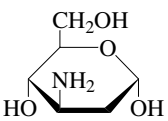
D-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-D*-arabino-*hexopyranose*
$C_8H_{15}NO_5$ 205.21
Viscous oil. $[\alpha]_D^{22}$ -13.5 (c, 1.92 in H_2O, 10 min.). Mixt. of anomers.

[135256-31-4, 135256-46-1]

Mulzer, J. *et al., Annalen*, 1991, 947 (*synth, pmr, cmr, N-Ac*)

3-Amino-2,3-dideoxy-*arabino*-hexose A-392



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-2,3-dideoxy-α-D-arabino-*hexopyranoside*
[16697-56-6]
$C_7H_{15}NO_4$ 177.2
Syrup. $[\alpha]_D$ +136 (c, 0.4 in MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-2,3-dideoxy-α-D*-arabino-*hexopyranoside*
[17016-59-0]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH/hexane). Mp 134-136°. $[\alpha]_D$ +132 (c, 0.7 in $CHCl_3$).

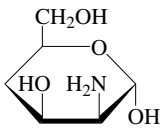
β-D-Pyranose-*form*

*Me glycoside: Methyl 3-amino-2,3-dideoxy-β-D-*arabino-*hexopyranoside*
[116724-60-8]
$C_7H_{15}NO_4$ 177.2
Syrup. $[\alpha]_D$ -51 (c, 0.7 in MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-2,3-dideoxy-β-D-*arabino-*hexopyranoside*
[501091-23-2]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH/hexane). Mp 174-176°. $[\alpha]_D$ -17 (c, 0.5 in $CHCl_3$).

Liberek, B. *et al., Carbohydr. Res.*, 2002, **337**, 1803-1810 (*α-D-Me pyr, β-D-Me pyr, α-D-Me pyr N-Ac, β-D-Me pyr N-Ac, synth, pmr, cmr*)

2-Amino-2,4-dideoxy-*lyxo*-hexose A-393



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*
Cryst. (as hydrochloride). Mp 160-161° dec. (hydrochloride). $[\alpha]_D$ -10.8 (3 min.) → -1.6 (equilib.) (c, 1.66 in H_2O).

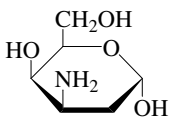
D-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-D-*lyxo-*hexopyranose*
[89157-32-4]
$C_8H_{15}NO_5$ 205.21
Cryst. (MeOH/Et_2O). Mp 112-114°. $[\alpha]_D^{22}$ +11.5 (c, 0.80 in H_2O) (+4.5). Mixt. of anomers.

[88146-23-0, 88146-24-1, 88146-25-2]

Černý, I. *et al., Coll. Czech. Chem. Comm.*, 1983, **48**, 2386 (*synth, pmr*)
Mulzer, J. *et al., Annalen*, 1991, 947; 957 (*synth, ir, pmr, cmr, N-Ac*)
Halcomb, R.L. *et al., Tetrahedron: Asymmetry*, 1994, **5**, 2437 (*synth*)

3-Amino-2,3-dideoxy-*lyxo*-hexose A-394



$C_6H_{13}NO_4$ 163.173

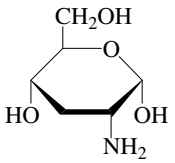
α-D-Pyranose-*form*

*1,3,4,6-*O,N,O,O-*Tetra-Ac: 3-Acetamido-1,4,6-tri-*O-*acetyl-2,3-dideoxy-α-D-*lyxo-*hexopyranose*
[501091-53-8]
$C_{14}H_{21}NO_8$ 331.322
Cryst. (toluene/EtOAc). Mp 159-160°. $[\alpha]_D$ +136 (c, 0.5 in $CHCl_3$).

Liberek, B. *et al., Carbohydr. Res.*, 2002, **237**, 1803-1810 (*α-D-pyr tetra-Ac, synth, pmr*)

2-Amino-2,3-dideoxy-*ribo*-hexose A-395

2-Amino-2,3-dideoxyglucose. Lividosamine



α-D-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [58772-80-8]

[61708-07-4] Component of Lividomycin A, L-46 and Lividomycin B.
Hygroscopic powder (as hydrochloride). $[\alpha]_D^{23}$ +13 (c, 0.7 in H_2O) (hydrochloride).

N-*Ac: 2-Acetamido-2,3-dideoxy-D-*ribo-*hexopyranose.* N-*Acetyllividosamine*
[40555-67-7]
$C_8H_{15}NO_5$ 205.21
Cryst. (EtOH/Et_2O). Mp 150-152°. $[\alpha]_D$ +54 (2h) → +30 (equilib.) (c, 0.6 in H_2O).

α-D-Pyranose-*form*

N,*1,4,6-Tetra-Ac: 2-Acetamido-1,4,6-tri-*O-*acetyl-2,3-dideoxy-α-D-*ribo-*hexopyranose*
[73745-61-6]
$C_{14}H_{21}NO_8$ 331.322
Needles (Et_2O/hexane). Mp 151-152°. $[\alpha]_D^{23}$ +107.4 (c, 0.5 in $CHCl_3$).

*Me glycoside: Methyl 2-amino-2,3-dideoxy-α-D-*ribo-*hexopyranoside, 9CI*
[61348-64-9]
$C_7H_{15}NO_4$ 177.2
$[\alpha]_D^{25}$ +130 (c, 1.0 in H_2O) (hydrochloride).

Me glycoside, N-*Ac: Methyl 2-acetamido-2,3-dideoxy-α-D-*ribo-*hexopyranoside, 8CI*
[25541-56-4]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH/EtOAc). Mp 204-206°. $[\alpha]_D^{22}$ +80 (c, 1.0 in H_2O).

Me glycoside, N,*4,6-tri-Ac: Methyl 2-acetamido-4,6-di-*O-*acetyl-2,3-dideoxy-α-D-*ribo-*hexopyranoside*
[61348-65-0]
$C_{13}H_{21}NO_7$ 303.311
Mp 138°. $[\alpha]_D^{23}$ +112 (c, 0.38 in MeOH).

Me glycoside, 4,6-dimesyl, N-*Ac: Methyl 2-acetamido-2,3-dideoxy-4,6-di-*O-*mesyl-α-D-*ribo-*hexopyranoside*
[52850-86-9]
$C_{11}H_{21}NO_9S_2$ 375.42
Cryst. (EtOH). Mp 159-161°. $[\alpha]_D$ +91.5 (c, 2.0 in $CHCl_3$).

*Me glycoside, 4,6-*O-*benzylidene,* N-*Ac: Methyl 2-acetamido-4,6-*O-*benzylidene-2,3-dideoxy-α-D-*ribo-*hexopyranoside, 8CI*
[22595-95-5]
$C_{16}H_{21}NO_5$ 307.346
Cryst. (Et_2O/EtOAc). Mp 244-245° subl Mp 264°. $[\alpha]_D^{22}$ +52 (c, 1 in $CHCl_3$).

*Me glycoside, 4,6-*O-*cyclohexylidene,* N-*tosyl: Methyl 4,6-*O-*cyclohexylidene-2,3-dideoxy-2-*N-*tosyl-α-D-*ribo-*hexopyranoside*
[78151-16-3]
$C_{20}H_{29}NO_6S$ 411.518
Solid. $[\alpha]_D^{25}$ +44 (c, 0.5 in $CHCl_3$).

Et glycoside, N-*Ac: Ethyl 2-acetamido-2,3-dideoxy-α-D-*ribo-*hexopyranoside*
[58780-54-4]
$C_{10}H_{19}NO_5$ 233.264
Cryst. (EtOAc). Mp 185-187°. $[\alpha]_D$ +149 (c, 1.05 in MeOH).

Et glycoside, 4,6-dibenzoyl, N-*Ac: Ethyl 2-acetamido-4,6-di-*O-*benzoyl-2,3-dideoxy-α-D-*ribo-*hexopyranoside*
[58780-50-0]
$C_{24}H_{27}NO_7$ 441.48
Cryst. ($CHCl_3$/hexane). Mp 176-178°. $[\alpha]_D$ +74 (c, 0.91 in $CHCl_3$).

β-D-Pyranose-*form*

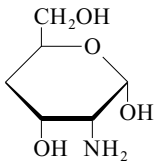
Me glycoside, N-*benzoyl: Methyl 2-benzamido-2,3-dideoxy-β-D-*ribo-*hexopyranoside*
$C_{14}H_{19}NO_5$ 281.308
Prisms (EtOH/Et_2O). Mp 189-190°. $[\alpha]_D^{23}$ -43 (c, 1.2 in EtOH).

*Me glycoside, 4,6-*O-*benzylidene,* N-*benzoyl: Methyl 2-benzamido-4,6-*O-*benzylidene-2,3-dideoxy-β-D-*ribo-*hexopyranoside*
$C_{21}H_{23}NO_5$ 369.416
Cryst. (MeOH). Mp 247° dec. $[\alpha]_D^{23}$ -48.1 (c, 0.9 in DMSO).

L-*form* [58825-09-5]
Solid (MeOH/Me_2CO)(as hydrochloride). $[\alpha]_D^{28}$ -48.6 (c, 1.4 in H_2O) (hydrochloride). CAS no. refers to hydrochloride.

Meyer zu Reckendorf, W. *et al., Tetrahedron*, 1963, **19**, 1711 (*D-form, synth, β-D-Me pyr N-benzoyl, β-D-Me pyr N-benzoyl benzylidene*)
Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 2747 (*α-D-Me pyr N-Ac, α-D-Me pyr N-Ac benzylidene*)
Oda, T. *et al., J. Antibiot.*, 1971, **24**, 503-510 (*D-form, isol*)
Brewer, C.L. *et al., J.C.S. Perkin 1*, 1974, 657 (*α-D-Me pyr N-Ac, α-D-Me pyr N-Ac benzylidene, α-D-Me pyr N-Ac dimesyl*)
Jegou, E. *et al., Carbohydr. Res.*, 1975, **45**, 323 (*D-N-Ac, α-D-Et pyr N-Ac, α-D-Et pyr N-Ac dibenzoyl*)
Sano, H. *et al., Bull. Chem. Soc. Jpn.*, 1976, **49**, 313-316 (*L-form*)
Haskell, T.H. *et al., J.O.C.*, 1977, **42**, 1302 (*α-D-Me pyr, α-D-Me pyr N-Ac, α-D-Me pyr N,4,6-tri-Ac*)
Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **79**, 255 (*α-D-pyr tetra-Ac*)
Miyake, T. *et al., Carbohydr. Res.*, 1981, **89**, 255 (*α-D-Me pyr tosyl cyclohexylidene*)
Calvo-Mateo, A. *et al., J. Carbohydr. Chem.*, 1984, **3**, 461-473 (*synth*)
Ravindran, B. *et al., Tetrahedron*, 2001, **57**, 1093-1098 (*synth*)

2-Amino-2,4-dideoxy-*ribo*-hexose A-396



α–D–Pyranose–*form*

$C_6H_{13}NO_4$ 163.173

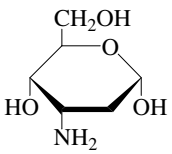
D-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-D*-ribo-*hexopyranose*
$C_8H_{15}NO_5$ 205.21
Cryst. Mp 143°. $[\alpha]_D$ -79 (c, 1.21 in H_2O, 24h). Mixt. of anomers.

[135256-32-5, 135256-47-2]

Mulzer, J. *et al., Annalen*, 1991, 947 (*synth, ir, pmr, cmr*)

3-Amino-2,3-dideoxy-*ribo*-hexose A-397



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-2,3-di-deoxy-α-D-ribo-*hexopyranoside*

[92283-32-4]
$C_7H_{15}NO_4$ 177.2
Syrup. $[\alpha]_D$ +71 (c, 0.6 in MeOH).

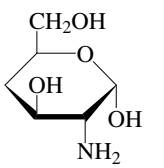
β-D-Pyranose-*form*

1,3,6-O,N,O-*Tri-Ac: 3-Acetamido-1,6-di*-O-*acetyl-2,3-dideoxy-β-D*-ribo-*hexopyranose*
[501090-98-8]
$C_{12}H_{19}NO_7$ 289.285
Syrup. $[\alpha]_D$ -12 (c, 0.5 in $CHCl_3$).

1,3,4,6-O,N,O,O-*Tetra-Ac: 3-Acetamido-1,4,6-tri*-O-*acetyl-2,3-dideoxy-β-D*-ribo-*hexopyranose*
[501091-01-6]
$C_{14}H_{21}NO_8$ 331.322
Syrup. $[\alpha]_D$ -4 (c, 0.5 in $CHCl_3$).

Liberek, B. *et al., Carbohydr. Res.*, 2002, **337**, 1803-1810 (*α-D-Me pyr, β-D-pyr tri-Ac, β-D-pyr tetra-Ac, synth, pmr*)

2-Amino-2,4-dideoxy-*xylo*-hexose A-398



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-D*-xylo-*hexopyranose*
[40555-55-3]
$C_8H_{15}NO_5$ 205.21
Cryst. Mp 146°. $[\alpha]_D^{22}$ +78 (c, 1.58 in H_2O) (+63). Mixt. of anomers. Also descr. as a syrup or glass.

O,O,O,N-*Tetra-Ac: 2-Acetamido-1,3,6-tri*-O-*acetyl-2,4-dideoxy-D*-xylo-*hexopyranoside*
$C_{14}H_{21}NO_8$ 331.322
Oil. $[\alpha]_D$ +77.6 (c, 1 in $CHCl_3$). Mixt. of anomers α:β 2:1.

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-α-D*-xylo-*hexopyranoside*
$C_9H_{17}NO_5$ 219.237
Solid (MeOH/EtOAc). Mp 153-155°. $[\alpha]_D$ +186.7 (c, 0.95 in MeOH).

Me glycoside, O,O,N-*tri-Ac: Methyl 2-acetamido-3,6-di*-O-*acetyl-2,4-dideoxy-α-D*-xylo-*hexopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Tiny needles (hexane/EtOAc). Mp 158-160°. $[\alpha]_D$ +88.8 (c, 1 in $CHCl_3$).

Me glycoside, 3,6-dibenzoyl, N-*Ac: Methyl 2-acetamido-3,6-di*-O-*benzoyl-2,4-di-deoxy-α-D*-xylo-*hexopyranoside*
$C_{23}H_{25}NO_7$ 427.453
Tiny needles (EtOAc). Mp 166-167°. $[\alpha]_D$ +106.8 (c, 1 in $CHCl_3$).

Benzyl glycoside, N-*Ac: Benzyl 2-acetamido-2,4-dideoxy-α-D*-xylo-*hexopyranose*
[40555-54-2]
$C_{15}H_{21}NO_5$ 295.335
Cryst. (EtOH). Mp 176-177° (170.5-171°). $[\alpha]_D^{21}$ +243.9 (c, 1 in MeOH) (+200.6).

Benzyl glycoside, N,*3,6-tri-Ac: Benzyl 2-acetamido-3,6-di*-O-*acetyl-2,4-dideoxy-α-D*-xylo-*hexopyranoside*
[40555-53-1]
$C_{19}H_{25}NO_7$ 379.409
Needles (EtOH). Mp 105-107°. $[\alpha]_D^{20}$ +101 (c, 0.87 in $CHCl_3$).

L-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-L*-xylo-*hexopyranose*
$C_8H_{15}NO_5$ 205.21
Syrup. $[\alpha]_D^{23}$ -63 (c, 0.8 in H_2O) (25h).

β-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-β-D*-xylo-*hexopyranoside*
$C_9H_{17}NO_5$ 219.237
Solid (MeOH/Me_2CO). Mp 200-201°. $[\alpha]_D$ -33.2 (c, 0.16 in MeOH).

Me glycoside, O,O,N-*tri-Ac: Methyl 2-acetamido-3,6-di*-O-*acetyl-2,4-dideoxy-β-D*-xylo-*hexopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Needles (EtOAc). Mp 203-205°. $[\alpha]_D$ -38.7 (c, 1 in $CHCl_3$).

Me glycoside, 3,6-dibenzoyl, N-*Ac: Methyl 2-acetamido-3,6-di*-O-*benzoyl-2,4-di-deoxy-β-D*-xylo-*hexopyranoside*
$C_{23}H_{25}NO_7$ 427.453
Solid. Mp 217-220°. $[\alpha]_D$ +1.2 (c, 1 in $CHCl_3$).

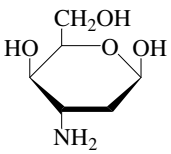
β-L-Pyranose-*form*

Allyl glycoside, N-*Ac: Allyl 2-acetamido-2,4-dideoxy-β-L*-xylo-*hexopyranoside*
[149034-69-5]
$C_{11}H_{19}NO_5$ 245.275
Cryst. (EtOH/Et_2O). Mp 170-171°. $[\alpha]_D^{23}$ +7 (c, 1 in H_2O).

[83085-11-4, 135256-30-3, 135256-45-0, 149034-70-8, 149063-53-6]

Arita, H. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 3614 (*benzyl α-D-pyr N-Ac*)
Černý, I. *et al., Coll. Czech. Chem. Comm.*, 1984, **49**, 433 (*N-Ac*)
Mulzer, J. *et al., Annalen*, 1991, 947 (*synth, ir, pmr, cmr*)
Paulsen, H. *et al., Annalen*, 1992, 735 (*benzyl α-D-pyr-N-Ac, synth, pmr*)
Lehmann, J. *et al., Carbohydr. Res.*, 1993, **239**, 317 (*synth*)
Berkin, A. *et al., Carbohydr. Res.*, 2000, **325**, 30-45 (*α-D-Me gly derivs, β-D-Me gly derivs*)

3-Amino-2,3-dideoxy-*xylo*-hexose A-399



$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

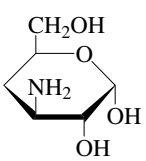
Me glycoside, 3,4,6-N,O,O-*tri-Ac: Methyl 3-acetamido-4,6-di*-O-*acetyl-2,3-di-deoxy-α-D*-xylo-*hexopyranoside*
[501091-56-1]
$C_{13}H_{21}NO_7$ 303.311
Syrup. $[\alpha]_D$ +56 (c, 0.6 in $CHCl_3$).

β-D-Pyranose-*form*

1,3,4,6-O,N,O,O-*Tetra-Ac: 3-Acetamido-1,4,6-tri*-O-*acetyl-2,3-dideoxy-β-D*-xylo-*hexopyranose*
[501091-51-6]
$C_{14}H_{21}NO_8$ 331.322
Cryst. (toluene/EtOAc). $[\alpha]_D$ +4 (c, 0.5 in $CHCl_3$).

Liberek, B. *et al., Carbohydr. Res.*, 2002, **337**, 1803-1810 (*α-D-Me pyr tri-Ac, α-D-pyr-form tetra-Ac, synth, pmr*)

3-Amino-3,4-dideoxy-*xylo*-hexose A-400



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,4-di-deoxy-α-D-xylo-*hexopyranoside*
[120878-57-1]
$C_7H_{15}NO_4$ 177.2

Cryst. Mp 130-134°. $[\alpha]_D$ +163 (c, 0.9 in $CHCl_3$).

β-D-Pyranose-*form*

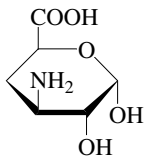
*Me glycoside: Methyl 3-amino-3,4-dideoxy-β-D-*xylo-*hexopyranoside*
[120878-58-2]
$C_7H_{15}NO_4$ 177.2
Cryst. (MeCN). Mp 155-158°. $[\alpha]_D$ -43.5 (c, 0.7 in MeOH).

Me glycoside, 6-benzyl, N-*Ac: Methyl 3-acetamido-6-*O-*benzyl-3,4-dideoxy-β-D-*xylo-*hexopyranoside*
[154919-29-6]
$C_{16}H_{23}NO_5$ 309.361
Mp 169°. $[\alpha]_D^{20}$ -35 (c, 0.8 in $CHCl_3$).

Roger, P. *et al., J. Carbohydr. Chem.*, 1990, **9**, 853-861; 1993, **12**, 1105-1115 (*Me gly, Me gly 6-benzyl N-Ac*)

3-Amino-3,4-dideoxy-*xylo*-hexuronic acid, 9CI A-401

Ezoaminuroic acid



α-D-Pyranose-*form*

$C_6H_{11}NO_5$ 177.157

D-*form* [54230-70-5]
Component of Ezomycin A_1, E-41 and Ezomycin A_2, E-42.

α-D-Pyranose-*form*

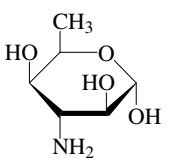
*Me glycoside, 2,3-dibenzoyl, Me ester: Methyl (methyl 3-benzamido-2-*O-*benzoyl-3,4-dideoxy-α-D-*xylo-*hexopyranosid)uronate*
[54230-55-6]
$C_{22}H_{23}NO_7$ 413.426
Amorph. powder. $[\alpha]_D^{18}$ +133 (c, 0.91 in MeOH).

β-D-Pyranose-*form*

*Me glycoside, 2,3-dibenzoyl, Me ester: Methyl (methyl 3-benzamido-2-*O-*benzoyl-3,4-dideoxy-β-D-*xylo-*hexopyranosid)uronate*
[54230-53-4]
$C_{22}H_{23}NO_7$ 413.426
Needles (EtOAc). Mp 241-242° (237-238°). $[\alpha]_D^{25}$ +60.7 (c, 0.44 in MeOH).

Sakata, K. *et al., Tet. Lett.*, 1974, 1533 (*isol, struct, α-D-Me pyr Me ester dibenzoyl, β-D-Me pyr Me ester dibenzoyl*)
Sakata, K. *et al., Agric. Biol. Chem.*, 1975, **39**, 885 (*isol*)
Ogawa, T. *et al., Carbohydr. Res.*, 1975, **44**, C22 (*β-D-Me pyr Me ester dibenzoyl*)

3-Amino-3,6-dideoxyidose A-402



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*

N,N-*Di-Me: 3,6-Dideoxy-3-dimethylamino-D-idose*
[28528-74-7]
$C_8H_{17}NO_4$ 191.227
Cryst. (EtOH/Et_2O). Mp 149-150°. $[\alpha]_D^{25.8}$ +30.94 (c, 0.85 in H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-α-D-idopyranoside
[20881-86-1]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH/Et_2O). Mp 166-167.5°. $[\alpha]_D^{25}$ +91.1 (c, 1.0 in H_2O).

Me glycoside, hydrochloride:
Cryst. (EtOH/Et_2O). Mp 141-143°. $[\alpha]_D^{28}$ +89.4 (c, 1.0 in MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-D-idopyranoside*
[28528-69-0]
$C_9H_{17}NO_5$ 219.237
Cryst. ($CHCl_3$/Et_2O). Mp 164-165°. $[\alpha]_D^{25.8}$ +86.7 (c, 1.0 in H_2O).

*Me glycoside, 2,3*N,*4-tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-α-D-idopyranoside*
[28528-68-9]
$C_{13}H_{21}NO_7$ 303.311
Cryst. ($CHCl_3$/petrol). Mp 134.5°. $[\alpha]_D^{28}$ +61.5 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3*N,*4-tribenzoyl: Methyl 3-benzamido-2,4-di-*O-*benzoyl-3,6-dideoxy-α-D-idopyranoside*
[28528-70-3]
$C_{28}H_{27}NO_7$ 489.524
Cryst. (Et_2O/pentane). Mp 128-130°. $[\alpha]_D^{25.8}$ +68.43 (c, 0.96 in $CHCl_3$).

Me glycoside, N,N-*di-Me: Methyl 3,6-dideoxy-3-dimethylamino-α-D-idopyranoside*
[28528-72-5]
$C_9H_{19}NO_4$ 205.253
Syrup. $Bp_{0.01}$ 135-140° (bath). $[\alpha]_D^{24.8}$ +83.9 (c, 1.05 in H_2O).

Me glycoside, N,N-*di-Me, hydrochloride:*
[28528-71-4]
Cryst. (EtOH/Et_2O). Mp 187-188° (176-178°). $[\alpha]_D^{25.8}$ +65.43 (c, 0.975 in H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-β-D-idopyranoside
[53911-11-8]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH/petrol). Mp 153-155°. $[\alpha]_D^{20}$ -83 (c, 1.0 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-D-idopyranoside*
[53911-20-9]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 201-203°. $[\alpha]_D^{20}$ -66 (c, 1.0 in H_2O).

*Me glycoside, 2,3*N,*4-tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-β-D-idopyranoside*
[53911-25-4]
$C_{13}H_{21}NO_7$ 303.311
Cryst. (EtOAc). Mp 188-190°. $[\alpha]_D^{20}$ -72 (c, 1.0 in $CHCl_3$).

α-L-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-α-L-idopyranoside
$C_7H_{15}NO_4$ 177.2
Mp 168-169°. $[\alpha]_D^{20}$ -93.83 (c, 1.04 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-L-idopyranoside*
[19131-24-9]
$C_9H_{17}NO_5$ 219.237
Cryst. Mp 164.5-165.5°. $[\alpha]_D^{23}$ -83.95 (c, 0.75 in H_2O).

*Me glycoside, 2,3*N,*4-tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-α-L-idopyranoside*
[19131-25-0]
$C_{13}H_{21}NO_7$ 303.311
Cryst. Mp 143.5-144.5°. $[\alpha]_D^{21}$ -61.25 (c, 0.72 in $CHCl_3$).

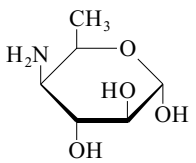
Me glycoside, N,N-*di-Me: Methyl 3,6-dideoxy-3-dimethylamino-α-L-idopyranoside*
Syrup. $[\alpha]_D^{25}$ -82.29 (c, 0.51 in H_2O).

β-L-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-β-L-idopyranoside
[34299-84-8]
$C_7H_{15}NO_4$ 177.2
Cryst. (MeOH/Et_2O). Mp 146-148°. $[\alpha]_D^{21}$ +93 (c, 1.0 in MeOH).

Jary, J. *et al., Coll. Czech. Chem. Comm.*, 1963, **28**, 2171 (*α-L-Me pyr derivs*)
Stevens, C. *et al., J.A.C.S.*, 1970, **92**, 3160 (*α-Me pyr derivs*)
Ikeda, D. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 2529 (*β-L-Me pyr*)
Capek, K. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1462 (*β-D-pyr Me derivs, pmr, ms*)
Elkin, Y.N. *et al., CA*, 1986, **104**, 110052s (*α-L-pyr derivs, ms*)

4-Amino-4,6-dideoxyidose A-403



$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-idopyranoside
[55637-42-8]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH/Et_2O/pentane). Mp 118-119°. $[\alpha]_D^{24}$ +82.2 (c, 0.6 in MeOH). pK_a 7.9 (50% MeOH aq.).

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-α-D-idopyranoside*
[55570-18-8]
$C_9H_{17}NO_5$ 219.237
Cryst. ($CHCl_3$/pentane). Mp 131-133°. $[\alpha]_D^{26}$ +155.8 (c, 1 in EtOH).

*Me glycoside, 2,3,4*N-*tri-Ac: Methyl 4-acetamido-2,3-di-*O-*acetyl-4,6-dideoxy-α-D-idopyranoside*
[55570-19-9]
$C_{13}H_{21}NO_7$ 303.311

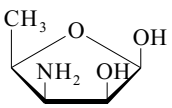
Cryst. (Me_2CO/pentane). Mp 97-98°. $[\alpha]_D^{26}$ +65.2 (c, 0.9 in MeOH).

Me glycoside, 2,3-dibenzyl, N-*Ac: Methyl 4-acetamido-2,3-di*-O-*benzyl-4,6-dideoxy-α-D-idopyranoside*
[55570-17-7]
$C_{23}H_{29}NO_5$ 399.486
Cryst. (EtOH aq.). Mp 102-103°. $[\alpha]_D^{26}$ +20.8 (c, 1.18 in EtOH).

Me glycoside, N,N-*di-Me: Methyl 4,6-dideoxy-4-(*N-*dimethylamino)-α-D-idopyranoside*
[55570-21-3]
$C_9H_{19}NO_4$ 205.253
Cryst. (Me_2CO/pentane). Mp 86-87°. $[\alpha]_D^{29}$ +88.1 (c, 1.2 in $CHCl_3$). pK_a 7.19 (50% MeOH aq.).

Stevens, C.L. *et al., J.O.C.*, 1975, **40**, 2468 (*synth, Me gly derivs, pmr*)

3-Amino-3,5-dideoxylyxose A-404



$C_5H_{11}NO_3$ 133.147

β-D-Furanose-*form*

N-*(3,5-Dinitrobenzoyl):* [39798-39-5]
Cryst. (EtOAc/hexane). Mp 163-164°. $[\alpha]_D^{22}$ +38.8 (c, 0.4 in MeOH).

1,2-O-*Isopropylidene: 3-Amino-3,5-dideoxy-1,2*-O-*isopropylidene-α-D-lyxofuranose*
[28948-07-4]
$C_8H_{15}NO_3$ 173.211
Syrup. $[\alpha]_D^{23}$ -38.6 (c, 2.8 in Me_2CO).

1,2-O-*Isopropylidene, hydrochloride:*
[28948-08-5]
Cryst. Mp 160-165° dec. $[\alpha]_D^{22}$ -9.5 (c, 1.3 in H_2O).

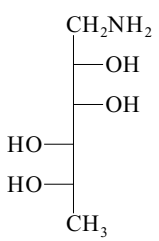
1,2-O-*Isopropylidene,* N-*trifluoroacetyl:*
[28980-72-5]
Syrup. $[\alpha]_D^{19}$ +41.1 (c, 3.6 in $CHCl_3$).

1,2-O-*Isopropylidene,* N-*(3,5-dinitrobenzoyl):* [28948-09-6]
Cryst. (MeOH/Et_2O). Mp 149-150°. $[\alpha]_D^{19}$ -5.8 (c, 0.9 in $CHCl_3$).

Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1972, **55**, 2286 (*dinitrobenzoyl, isopropylidene, ir, pmr*)

1-Amino-1,6-dideoxymannitol, 9CI A-405

6-Amino-1,6-dideoxymannitol. 1-Amino-1-deoxyrhamnitol



$C_6H_{15}NO_4$ 165.189

L-*form*

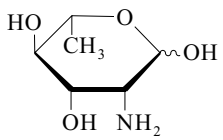
N,N-*Di-Me:*
$C_8H_{19}NO_4$ 193.242
Cryst. (EtOAc). Mp 77-94°. Mp could not be sharpened by recryst.

N-*(α-Methylbenzyl),* N,*2,3,4,5-tetra-Ac:*
[83680-89-1]
$C_{24}H_{33}NO_9$ 479.526
Used to resolve enantiomeric aldoses by hplc. Cryst. Mp 69-70°. $[\alpha]_D^{25}$ -10 ($CHCl_3$).

Oshima, R. *et al., Carbohydr. Res.*, 1982, **107**, 169 (*tetra-Ac deriv, hplc*)
Norrild, J.C. *et al., Carbohydr. Res.*, 1996, **291**, 85-98 (*N,N-di-Me*)

2-Amino-2,6-dideoxymannose A-406

Rhamnosamine



L–*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [4270-87-5]

Hydrochloride: [4270-89-7]
Cryst. (MeOH/2-propanol/Et_2O). Mp 175° dec. $[\alpha]_D$ -23 (c, 0.3 in H_2O).

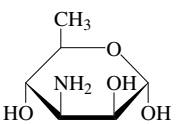
L-*form* [20256-91-1]
Isol. from the lipopolysaccharide of *E. coli* 0.3:K2ab(L):H2.

Hydrochloride: [42859-71-2]
Mp 180° dec. $[\alpha]_D^{22}$ +26 (c, 1.75 in H_2O).

Brimacombe, J.S. *et al., J.C.S.*, 1964, 2663 (*L-form, synth*)
Gross, P.H. *et al., Naturwissenschaften*, 1965, **52**, 185
Gross, P.H. *et al., Annalen*, 1966, **691**, 198 (*D-form, synth*)
Perry, M.B. *et al., Carbohydr. Res.*, 1973, **27**, 460 (*L-form, synth*)

3-Amino-3,6-dideoxymannose, 9CI A-407

[527-38-8]



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*

Mycosamine
[32817-12-2]
Obt. by hydrol. of Amphotericin B, A-473, Flavumycin A, Nystatin, N-86, Pimaricin and Rimocidin.

Hydrochloride: [53989-77-8]
Prismatic rods (EtOH/Et_2O). Mp 162°. $[\alpha]_D^{24}$ -11.5 (c, 1.0 in H_2O).

N-*Ac: 3-Acetamido-3,6-dideoxy-D-mannose*
$C_8H_{15}NO_5$ 205.21
Needles (MeOH/Me_2CO). Mp 195-196°. $[\alpha]_D^{22}$ -46 (c, 1.0 in EtOH).

α-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-α-D-mannopyranoside
$C_7H_{15}NO_4$ 177.2
Needles (EtOH/Et_2O) (as hydrochloride). Mp 188-190° dec. (as hydrochloride). $[\alpha]_D^{23}$ +54 (c, 1.5 in MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-D-mannopyranoside*
$C_9H_{17}NO_5$ 219.237
Prisms (Me_2CO/$CHCl_3$). Mp 168-170°. $[\alpha]_D^{23}$ +47 (c, 0.9 in EtOH).

Me glycoside, N,*2,4-tri-Ac: Methyl 3-acetamido-2,4-di*-O-*acetyl-3,6-dideoxy-α-D-mannopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Cryst. (Me_2CO). Mp 140-141°. $[\alpha]_D^{23}$ +33 (c, 1.0 in EtOH).

Me glycoside, N-*Et: Methyl 3,6-dideoxy-3-ethylamino-α-D-mannopyranoside*
$C_9H_{19}NO_4$ 205.253
Needles ($CHCl_3$/hexane). Mp 90.5°. $[\alpha]_D^{23}$ +25 (c, 3.0 in H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-amino-3,6-dideoxy-β-D-mannopyranoside
$C_7H_{15}NO_4$ 177.2
Mp 149-151°. $[\alpha]_D^{20}$ -91 (c, 1 in H_2O).

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-D-mannopyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 238-240° (sealed tube). $[\alpha]_D^{20}$ -117 (c, 1.0 in H_2O).

Me glycoside, N,*2,4-tri-Ac: Methyl 3-acetamido-2,4-di*-O-*acetyl-3,6-dideoxy-β-D-mannopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Cryst. (EtOAc/petrol). Mp 180-181°. $[\alpha]_D^{20}$ -59 (c, 1.0 in $CHCl_3$).

β-L-Pyranose-*form*

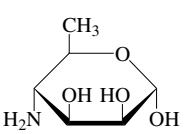
Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-L-mannopyranoside*
$C_9H_{17}NO_5$ 219.237
Mp 169-172°. $[\alpha]_D^{26}$ -50.3 (c, 0.7 in EtOH).

Me glycoside, N,*2,4-tri-Ac: Methyl 3-acetamido-2,4-di*-O-*acetyl-3,6-dideoxy-β-L-mannopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Mp 145-146°. $[\alpha]_D^{21}$ -29 (c, 0.7 in EtOH).

Dutcher, J.D. *et al., J.O.C.*, 1963, **28**, 995 (*isol, struct, D-form, D-N-Ac, α-D-Me pyr, α-D-Me pyr N-Et, α-D-Me pyr N-Ac*)
v. Saltza, M. *et al., J.O.C.*, 1963, **28**, 999 (*stereochem*)
Căpek, K. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1462 (*β-D-Me pyr, β-D-Me pyr N-Ac, β-D-Me pyr N-tri-Ac*)
Kruglikova, L.F. *et al., Antibiotiki (Moscow)*, 1976, **21**, 407; *CA*, **85**, 108914v (*isol*)
Franck-Neumann, M. *et al., Tet. Lett.*, 1999, **40**, 2829-2832 (*synth*)

4-Amino-4,6-dideoxymannose A-408

Perosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [31348-80-8]

Constit. of Perimycin and of lipopolysaccharides of *Vibrio cholerae*. *N*-Acylperosarmine residues are components of the *O*-specific side chains in the lipopolysaccharides from *Vibrio cholerae* 0:1, *Brucella abortus* 1119-3 and *Yersinia enterolditca* serotype 0:9.

Hydrochloride: $[\alpha]_D^{23}$ -20 → -13 (c, 1.3 in H_2O).

N-*Ac: 4-Acetamido-4,6-dideoxy-D-mannose*
$C_8H_{15}NO_5$ 205.21
Amorph. solid. Mp 178-180°. $[\alpha]_D^{23}$ +34 (c, 2.0 in H_2O).

2-Me: 4-Amino-4,6-dideoxy-2-O-*methyl-D-mannose.* ***2-O-Methylperosamine***
$C_7H_{15}NO_4$ 177.2
Component of the liposaccharide of *Vibrio cholerae* O1 serotype Ogawa.

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-mannopyranoside
[20881-87-2]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH/Et_2O). Mp 150-151° (142-143°). $[\alpha]_D^{23}$ +67 (c, 2.0 in H_2O). $[\alpha]_D$ +82.5 (c, 1.0 in MeOH).

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-α-D-mannopyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (toluene/2,2,4-trimethylpentane). Mp 183-185°. $[\alpha]_D^{22}$ +66 (c, 0.3 in H_2O).

Me glycoside, tri-Ac: Methyl 4-acetamido-2,3-di-O-*acetyl-4,6-dideoxy-α-D-mannopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Cryst. (Et_2O/pentane). Mp 159-160°. $[\alpha]_D^{23}$ +95.6 (c, 0.98 in MeOH).

α-L-Pyranose-*form*

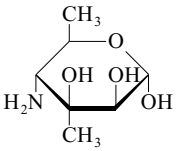
Me glycoside: Methyl 4-amino-4,6-dideoxy-α-L-mannopyranoside
[22594-28-1]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOAc/petrol). Mp 151-152°. $[\alpha]_D$ -82 (c, 1.0 in MeOH).

Me glycoside, tri-Ac: Methyl 4-acetamido-2,3-di-O-*acetyl-4,6-dideoxy-α-L-mannopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Cryst. (Et_2O/pentane). Mp 160-161°. $[\alpha]_D$ -94 (c, 1.0 in MeOH).

[26552-82-9]

Lee, C.H. *et al., Tet. Lett.*, 1966, 5837 (*isol, struct, D-N-Ac, α-D-Me pyr*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1969, 1270 (*α-L-Me pyr, α-L-Me pyr tri-Ac*)
Stevens, C.L. *et al., J.A.C.S.*, 1970, **92**, 3160 (*α-D-Me pyr, α-D-Me pyr N-Ac, α-D-Me pyr tri-Ac*)
Caroff, M. *et al., Eur. J. Biol.*, 1984, **139**, 195 (*occur*)
Eis, M.J. *et al., Carbohydr. Res.*, 1988, **176**, 316 (*D-form, !synth, α-D-Me pyr, pmr*)
Kenne, L. *et al., J.C.S. Perkin 1*, 1988, 1183 (*α-D-Me pyr, α-D-Me pyr N-Ac, pmr*)
Ito, T. *et al., Carbohydr. Res.*, 1994, **256**, 113 (*2-O-Methylperosamine*)

4-Amino-4,6-dideoxy-3-*C*-methylmannose A-409



α-D-Pyranose-*form*

$C_7H_{15}NO_4$ 177.2

D-*form*

N-*Me: 4,6-Dideoxy-3*-C-*methyl-4-(methylamino)-D-mannose.* ***Sibirosamine***
[35665-47-5]
Constit. of Sibiromycin, S-39. Struct. revised in 1982.

α-D-Pyranose-*form*

Me glycoside, N-*Me: Methyl 4,6-dideoxy-3*-C-*methyl-4-(methylamino)-α-D-mannopyranoside*
[49754-58-7]
$C_9H_{19}NO_4$ 205.253
Cryst. (as hydrochloride). Mp 184-187°. $[\alpha]_D^{20}$ -50 (in H_2O).

β-D-Pyranose-*form*

Me glycoside, N-*Me: Methyl 4,6-dideoxy-3*-C-*methyl-4-(methylamino)-β-D-mannopyranoside*
$C_9H_{19}NO_4$ 205.253
Amorph. (as hydrochloride). Mp 178-179°. $[\alpha]_D^{20}$ +75 (H_2O).

Me glycoside, N-*Me,* N-*Ac:* [49754-59-8]
$C_{11}H_{21}NO_5$ 247.291
Mp 125-126°. $[\alpha]_D^{20}$ -121 (c, 0.3 in MeOH).

Me glycoside, N-*Me,* N,*2-di-Ac:* [49812-99-9]
$C_{13}H_{23}NO_6$ 289.328
Mp 135-136°. $[\alpha]_D^{20}$ -70 (c, 0.4 in MeOH).

Me glycoside, N,*2,3-tri-Ac:*
$C_{15}H_{25}NO_7$ 331.365
Mp 127-128°. $[\alpha]_D^{20}$ -25 (c, 0.3 in MeOH).

L-*form*

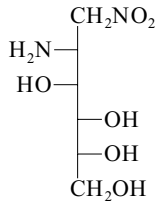
2-Me: 4,6-Dideoxy-3-C-*methyl-2*-O-*methyl-L-mannose.* ***Kansosamine***
[115374-44-2]
$C_8H_{17}NO_4$ 191.227
Residue present in lipooligopolysaccharides of *Mycobacterium kansasii*.

2-Me, N-*(2-methoxypropanoyl):* **N-*Acylkansosamine***
[101978-82-9]

[92355-88-9]
$C_{12}H_{23}NO_6$ 277.317
Isol. from lipooligosaccharides of *Mycobacterium kansasii*. Sol. H_2O. $[\alpha]_D^{24}$ +14.73 (c, 0.019 in H_2O).

Mesentsev, A.S. *et al., Tet. Lett.*, 1973, 2225 (*synth, pmr, derivs*)
Parker, K.A. *et al., Tet. Lett.*, 1982, **23**, 1763 (*struct*)
Hunter, S.W. *et al., J. Biol. Chem.*, 1984, **259**, 9729 (*Kansosamine, N-acylkansosamine*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1987, **166**, 253 (*synth*)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1988, **183**, 277 (*synth*)

2-Amino-1,2-dideoxy-1-nitro-mannitol A-410



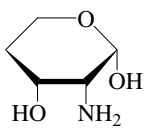
$C_6H_{14}N_2O_6$ 210.186

D-*form*

N-*Ac: 2-Acetamido-1,2-dideoxy-1-nitro-mannitol*
[14199-86-1]
$C_8H_{16}N_2O_7$ 252.224
Cryst. (EtOH). Mp 172-173°. $[\alpha]_D^{25}$ -16.8 (c, 2.4 in H_2O).

Sowden, J.C. *et al., J.A.C.S.*, 1960, **82**, 2303 (*synth*)
Sowden, J.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 235 (*synth*)

2-Amino-2,4-dideoxy-*erythro*-pentose A-411



α-D-Pyranose-*form*

$C_5H_{11}NO_3$ 133.147

α-DL-Pyranose-*form*

*Me glycoside: Methyl 2-amino-2,4-dideoxy-α-DL-*erythro-*pentopyranoside*
[82753-62-6]
$C_6H_{13}NO_3$ 147.174
Cryst. (EtOH) (as hydrochloride). Mp 213° (hydrochloride). CAS no. refers to hydrochloride.

Me glycosides, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-α-DL-*erythro-*pentopyranoside*
[82753-72-8]
$C_8H_{15}NO_4$ 189.211
Cryst. (C_6H_6/cyclohexane). Mp 132°.

Me glycoside, N,O-*di-Ac: Methyl 2-acetamido-3*-O-*acetyl-2,4-dideoxy-α-DL-*erythro-*pentopyranoside*
[82753-74-0]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (cyclohexane). Mp 89°.

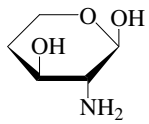
β-DL-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-β-DL-*erythro-*pentapyranoside*
[82753-73-9]
$C_8H_{15}NO_4$ 189.211
Cryst. (C_6H_6/EtOAc). Mp 124°.

Me glycoside, N,O-*di-Ac: Methyl 2-acetamido-3*-O-*acetyl-2,4-dideoxy-β-DL-*erythro-*pentopyranoside*
[82753-75-1]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (cyclohexane). Mp 150°.

Decours, D. *et al., Carbohydr. Res.*, 1982, **105**, 9-17 (*Me glycoside derivs, synth*)

2-Amino-2,4-dideoxy-*threo*-pentose A-412



α-L-Pyranose-*form*

$C_5H_{11}NO_3$ 133.147

L-Pyranose-*form*

N-*Ac: 2-Acetamido-2,4-dideoxy-L*-threo-*pentopyranose*
[269065-51-2]
$C_7H_{13}NO_4$ 175.184
Cryst. (EtOAc). Mp 139-141°. $[\alpha]_D$ +3.19 (5 min) → +5.97 (c, 0.72 in H_2O).

N,O,O-*Tri-Ac: 2-Acetamido-1,3-di*-O-*acetyl-2,4-dideoxy-α,β-L*-threo-*pentopyranose*
[269065-52-3]
$C_{11}H_{17}NO_6$ 259.258
Solid ($CHCl_3$/diisopropyl ether). Mp 143-144°. $[\alpha]_D$ +0.34 (c, 1.19 in $CHCl_3$).

α-L-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-α-L*-threo-*pentopyranoside*
[269065-49-8]
$C_8H_{15}NO_4$ 189.211
Cryst. (MeOH). Mp 134.5-136°. $[\alpha]_D$ -58.6 (c, 0.64 in $CHCl_3$).

Me glycoside, N,O-*di-Ac: Methyl 2-acetamido-3*-O-*acetyl-2,4-dideoxy-α-L*-threo-*pentopyranoside*
[269065-50-1]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (hexane/EtOAc). Mp 146-149°. $[\alpha]_D$ -45.7 (c, 1.06 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-β-L*-threo-*pentopyranoside*
[269065-54-5]
$C_8H_{15}NO_4$ 189.211
Cryst. (EtOAc). Mp 142-142.5°. $[\alpha]_D$ +99.2 (c, 1.33 in $CHCl_3$).

Me glycoside, N,O-*di-Ac: Methyl 2-acetamido-3*-O-*acetyl-2,4-dideoxy-β-L*-threo-*pentopyranoside*
[269065-55-6]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (EtOAc/hexane). Mp 146-147°. $[\alpha]_D$ +95.2 (c, 1.74 in $CHCl_3$).

α-DL-Pyranose-*form*

Me glycoside: Methyl 2-amino-2,4-dideoxy-α-DL-threo-*pentopyranoside*
[86578-83-8]
$C_6H_{13}NO_3$ 147.174
Cryst. (toluene).

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-α-DL*-threo-*pentopyranoside*
[82753-70-6]
$C_8H_{15}NO_4$ 189.211
Cryst. (C_6H_6/EtOAc). Mp 164°.

Me glycoside, N,O-*di-Ac: Methyl 2-acetamido-3*-O-*acetyl-2,4-dideoxy-α-DL*-threo-*pentopyranoside*
[82771-11-7]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (toluene). Mp 160°.

Me glycoside, N,N-*dibenzyl,* O-*Ac: Methyl 3*-O-*acetyl-2,4-dideoxy-2-dibenzylamino-α-DL*-threo-*pentopyranoside*
[82753-65-9]
$C_{22}H_{27}NO_4$ 369.46
Cryst. (pentane/Et_2O). Mp 108°.

β-DL-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-2,4-dideoxy-β-DL*-threo-*pentopyranoside*
[82753-71-7]
$C_8H_{15}NO_4$ 189.211
Cryst. (toluene). Mp 133°.

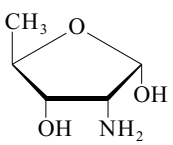
Me glycoside, N,O-*di-Ac: Methyl 2-acetamido-3*-O-*acetyl-2,4-dideoxy-β-DL*-threo-*pentopyranoside*
[82753-69-3]
$C_{10}H_{17}NO_5$ 231.248
Cryst. (toluene). Mp 162°.

Me glycoside, N,N-*dibenzyl,* O-*Ac: Methyl 3*-O-*acetyl-2,4-dideoxy-2-dibenzylamino-β-DL*-threo-*pentopyranoside*
[82753-66-0]
$C_{22}H_{27}NO_4$ 369.46
Cryst. (pentane/Et_2O). Mp 74°.

Descours, D. *et al., Carbohydr. Res.*, 1982, **105**, 9-17 (*DL-pyr derivs*)

Berkin, A. *et al., Carbohydr. Res.*, 2000, **325**, 30-45 (*L-pyr derivs*)

2-Amino-2,5-dideoxyribose A-413



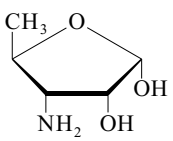
$C_5H_{11}NO_3$ 133.147

α-D-Furanose-*form*

Benzyl glycoside, N-*benzoyl: Benzyl 2-benzamido-2,5-dideoxy-α-D-ribofuranoside*
[119447-75-5]
$C_{19}H_{21}NO_4$ 327.379
Gum.

Shiozaki, M. *et al., Agric. Biol. Chem.*, 1988, **52**, 2027 (*benzyl gly deriv, ir, pmr*)

3-Amino-3,5-dideoxyribose A-414



$C_5H_{11}NO_3$ 133.147

α-D-Furanose-*form*

N-*Trifluoroacetyl, 1,2-di-Ac:* [57032-42-5]
$C_{11}H_{14}F_3NO_6$ 313.23
Cryst. (Et_2O/petrol). Mp 89-90.5°.

1,2-O-*Isopropylidene: 3-Amino-3,5-dideoxy-1,2*-O-*isopropylidene-α-D-ribofuranose*
[39798-26-0]
$C_8H_{15}NO_3$ 173.211
Syrup. $[\alpha]_D^{23}$ +164.8 (c, 1.7 in Me_2CO).

1,2-O-*Isopropylidene, hydrochloride:*
[39798-27-1]
Cryst. Mp 152° dec. $[\alpha]_D^{23}$ +48.1 (c, 1.0 in H_2O).

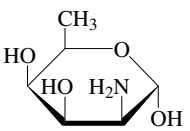
1,2-O-*Isopropylidene,* N-*Ac: 3-Acetamido-3,5-dideoxy-1,2*-O-*isopropylidene-α-D-ribofuranose*
[29873-55-0]
$C_{10}H_{17}NO_4$ 215.249
Cryst. (Et_2O). Mp 106-107°. $[\alpha]_D^{22}$ +169 (c, 2.12 in MeOH).

Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1972, **55**, 2286 (*isopropylidene, ir, pmr*)

Almquist, R.G. *et al., J. Med. Chem.*, 1973, **16**, 1396 (*isopropylidene N-Ac*)

Israel, M. *et al., J. Med. Chem.*, 1982, **25**, 28 (*N-trifluoroacetyl di-Ac*)

2-Amino-2,6-dideoxytalose A-415



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form* [55385-65-4]

Hydrochloride: [49694-66-8]
Mp 164-165°. $[\alpha]_D$ -10 (c, 0.5 in H_2O).

L-*form Pneumosamine*

[5867-12-9]
Prod. by hydrol. of type 5 *Pneumococcus* capsular polysaccharide.

Hydrochloride: [4282-67-1]
Mp 162-163°. $[\alpha]_D$ +10 (c, 1.7 in H_2O).

N-*Ac: 2-Acetamido-2,6-dideoxy-L-talose*
$C_8H_{15}NO_5$ 205.21
Component of the capsular polysaccharide of *Alteromonas nigrifaciens*.

Barker, S.A. *et al., Nature (London)*, 1961, **189**, 303 (*L-form, isol*)

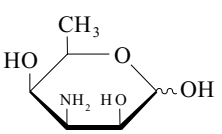
Brimacombe, J.S. *et al., J.C.S.*, 1962, 5037 (*D-form, synth*)

Collins, P.M. *et al., Chem. Ind. (London)*, 1963, 375 (*L-form, synth*)

Perry, M.B. *et al., Can. J. Chem.*, 1973, **51**, 974 (*D-form, L-form, synth*)

Gorshkova, R.P. *et al., Carbohydr. Res.*, 1997, **299**, 69-76 (*N-Ac*)

3-Amino-3,6-dideoxytalose A-416



D–*form*

$C_6H_{13}NO_4$ 163.173

D-*form*

$Bp_{0.1}$ 85-100° subl.. $[\alpha]_D^{20}$ -52 (c, 1.0 in H_2O).

Hydrochloride: Mp 162°. $[\alpha]_D^{20}$ -11.2 (c, 1 in H_2O).

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-D-talopyranoside*
[20595-24-8]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOAc/petrol). Mp 201-202°. $[\alpha]_D^{20}$ +106 (c, 1 in H_2O).

β-D-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-β-D-talopyranoside*
[53911-19-6]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOAc). Mp 146-148° (111-114°). $[\alpha]_D^{20}$ -29 (c, 1.0 in H_2O).

Me glycoside, N,*2,4-tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-β-D-talopyranoside*
[53911-24-3]
$C_{13}H_{21}NO_7$ 303.311
Cryst. (EtOAc/petrol). Mp 204-205°. $[\alpha]_D^{20}$ -28 (c, 1.0 in H_2O).

L-*form*

Hydrochloride: Mp 168-170° dec. $[\alpha]_D$ -30 → -26 (c, 1.07 in H_2O).

α-L-Pyranose-*form*

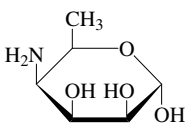
Me glycoside, N-*Ac: Methyl 3-acetamido-3,6-dideoxy-α-L-talopyranoside*
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH/petrol). Mp 195-196°. $[\alpha]_D$ -104 (c, 3.16 in H_2O).

Me glycoside, N,*2,4-tri-Ac: Methyl 3-acetamido-2,4-di-*O-*acetyl-3,6-dideoxy-α-L-talopyranoside*
$C_{13}H_{21}NO_7$ 303.311
Cryst. (Me_2CO/Et_2O/petrol). Mp 166-167°. $[\alpha]_D$ -72 (c, 4.3 in $CHCl_3$).

Richardson, A.C. *et al., J.C.S.*, 1962, 2499 (*L-form, synth, α-L-Me pyr* N-*Ac, α-L-Me pyr tri-Ac*)

Čapek, K. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1750; 1974, **39**, 1462 (*α-D-Me pyr N-Ac, β-D-Me pyr N-Ac, β-D-Me pyr tri-Ac*)

4-Amino-4,6-dideoxytalose A-417



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

N,N-*Di-Me: 4,6-Dideoxy-4-dimethylamino-α-D-talopyranose*
[15830-75-8]
$C_8H_{17}NO_4$ 191.227
Cryst. Mp 180-182° dec. (as hydrochloride) (softens at 155°). $[\alpha]_D^{24}$ +30.8 → +19 (H_2O). pK_a 7.6 (50% MeOH aq.). CAS no. refers to hydrochloride.

Me glycoside: Methyl 4-amino-4,6-dideoxy-α-D-talopyranoside
[15830-69-0]
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH/Et_2O) (as hydrochloride). Mp 177-177.5° dec. (hydrochloride). $[\alpha]_D^{27}$ +99.3 (c, 0.66 in H_2O). pK_a 8.45 (50% MeOH aq.).

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-α-D-talopyranoside*
[15856-46-9]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH/Et_2O/pentane). Mp 182-183° dec. (softens at 168°). $[\alpha]_D^{27}$ +167.5 (c, 0.69 in MeOH). $[\alpha]_D^{27}$ +139.5 (c, 0.38 in H_2O).

*Me glycoside, 2,3,4*N-*tri-Ac: Methyl 4-acetamido-2,3-di-*O-*acetyl-4,6-dideoxy-α-D-talopyranoside*
[15856-47-0]
$C_{13}H_{21}NO_7$ 303.311
Cryst. (Et_2O/pentane). Mp 135-135.5°. $[\alpha]_D^{27}$ +87 (c, 0.49 in $CHCl_3$). $[\alpha]_D^{27}$ +67.8 (c, 0.82 in MeOH).

*Me glycoside, 2,3-*O-*isopropylidene,* N-*Ac: Methyl 4-acetamido-4,6-dideoxy-2,3-*O-*isopropylidene-α-D-talopyranoside*
[15856-43-6]
$C_{12}H_{21}NO_5$ 259.302
Cryst. (EtOAc/hexane). Mp 148.5-150°.

*Me glycoside, 2,3-*O-*isopropylidene,* N-*Me: Methyl 4,6-dideoxy-2,3-*O-*isopropylidene-4-methylamino-α-D-talopyranoside*
[15889-54-0]
$C_{11}H_{21}NO_4$ 231.291
Cryst. (Et_2O/EtOH/pentane) (as hydrochloride). Mp 174-175° dec. (as hydrochloride). $[\alpha]_D^{28}$ +86.2 (c, 0.76 in MeOH). pK_a 7.08 (in 50% MeOH aq.). CAS no. refers to hydrochloride.

Me glycoside, N,N-*di-Me: Methyl 4,6-dideoxy-4-dimethylamino-α-D-talopyranoside*
[15830-70-3]
$C_9H_{19}NO_4$ 205.253
Cryst. (EtOAc) (as picrate). Mp 173-174.5° (picrate). $[\alpha]_D^{27}$ +62.8 (c, 0.88 in MeOH). pK_a 7.7 (50% MeOH aq.). CAS no. refers to picrate.

Me glycoside, N,N-*di-Me, 2,3-di-Ac: Methyl 2,3-di-*O-*acetyl-4,6-dideoxy-4-dimethylamino-α-D-talopyranoside*
[15830-72-5]
$C_{13}H_{23}NO_6$ 289.328
Cryst. (hexane). Mp 84-86°. $[\alpha]_D^{29}$ +107 (c, 6.60 in MeOH). pK_a 5.78 (50% MeOH aq.).

Me glycoside, N,N-*di-Me, 2,3-di-Ac, hydrochloride:* [15830-73-6]
Cryst. Mp 209-210° dec.

β-D-Pyranose-*form*

N,N-*Di-Me: 4,6-Dideoxy-4-dimethylamino-β-D-talopyranose*
[15830-74-7]
$C_8H_{17}NO_4$ 191.227
Cryst. (MeOH/Et_2O) (as hydrochloride). Mp 154-156° (hydrochloride). $[\alpha]_D^{29}$ +7 → +21 (c, 0.5 in H_2O). pK_a 8.22 (50% MeOH aq.).

α-L-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 4-acetamido-4,6-dideoxy-α-L-talopyranoside*
[17495-06-6]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOAc). Mp 169-170.5°. $[\alpha]_D^{18}$ -162 (c, 0.95 in EtOH).

*Me glycoside, 2,3,4*N-*tri-Ac: Methyl 4-acetamido-2,3-di-*O-*acetyl-4,6-dideoxy-α-L-talopyranoside*
[17495-07-7]
$C_{13}H_{21}NO_7$ 303.311
Cryst. (C_6H_6/petrol). Mp 136-137°. $[\alpha]_D^{20}$ -67 (c, 0.73 in EtOH).

*Me glycoside, 2,3-*O-*isopropylidene: Methyl 4-amino-6-dideoxy-2,3-*O-*isopropylidene-α-L-talopyranoside*
[18530-87-5]
$C_{10}H_{19}NO_4$ 217.264
Syrup. $Bp_{0.1}$ 87°. $[\alpha]_D^{20}$ -63 (c, 0.77 in EtOH).

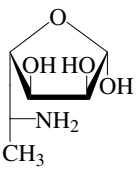
*Me glycoside, 2,3-*O-*isopropylidene,* N-*Ac: Methyl 4-acetamido-4,6-dideoxy-2,3-*O-*isopropylidene-α-L-talopyranoside*
[20595-13-5]
$C_{12}H_{21}NO_5$ 259.302
Cryst. (toluene/petrol). Mp 150-151.5°. $[\alpha]_D^{20}$ -35 (c, 1.4 in EtOH).

Stevens, C.L. *et al., J.O.C.*, 1968, **33**, 1586 (*α-D-Me pyr derivs, pmr, ms*)

Jary, J. *et al., Annalen*, 1970, **740**, 98 (*α-L-Me pyr isopropylidene N-Ac*)

Knapp, S. *et al., J.O.C.*, 1990, **55**, 5700 (*α-D-Me pyr tetra-Ac, pmr*)

5-Amino-5,6-dideoxytalose A-418



α-D-Furanose-*form*

$C_6H_{13}NO_4$ 163.173

α-D-Furanose-*form*

*Me glycoside, 2,3-*O-*isopropylidene: Methyl 5-amino-5,6-dideoxy-2,3-*O-*isopropylidene-α-D-talofuranoside*
[10503-87-4]
$C_{10}H_{19}NO_4$ 217.264
Cryst. (2-propanol/pentane) (as hydrochloride). Mp 183-183.5° dec. (hydrochloride). $[\alpha]_D^{24}$ +29 (c, 1.0 in H_2O). CAS no. refers to hydrochloride.

L-Furanose-*form*

N-*Ac: 5-Acetamido-5,6-dideoxy-L-talofuranose*
[13322-81-1]
$C_8H_{15}NO_5$ 205.21
Syrup. $[\alpha]_D^{20}$ -26 (c, 0.9 in H_2O) (-19.2).

α-L-Furanose-*form*

*Me glycoside, 2,3-*O-*isopropylidene: Methyl 5-amino-5,6-dideoxy-2,3-*O-*isopropylidene-α-L-talofuranoside*
[18530-86-4]
$C_{10}H_{19}NO_4$ 217.264
Liq. $Bp_{0.05}$ 69-73°. $[\alpha]_D^{17}$ -62 (c, 1.4 in EtOH).

*Me glycoside, 2,3-*O-*isopropylidene, hydrochloride:* [30572-32-8]
Cryst. (Me_2CO/Et_2O). Mp 186-187° (183-184°). $[\alpha]_D^{19}$ -24.6 (c, 0.9 in H_2O).

*Me glycoside, 2,3-*O-*isopropylidene,* N-*Ac: Methyl 5-acetamido-5,6-dideoxy-2,3-*O-*isopropylidene-α-L-talofuranoside*
[13322-85-5]
$C_{12}H_{21}NO_5$ 259.302
Syrup. $Bp_{0.1}$ 104°. $[\alpha]_D^{20}$ -87 (c, 0.58 in EtOH).

β-L-Furanose-*form*

*1,2-*O*-Isopropylidene: 5-Amino-5,6-dideoxy-1,2-*O*-isopropylidene-β-L-talofuranose*
[23537-44-2]
$C_9H_{17}NO_4$ 203.238
Cryst. (EtOH). Mp 137-141.5°. $[\alpha]_D^{20}$ +44.3 (c, 1.1 in $CHCl_3$).

*1,2-*O*-Isopropylidene,* N*-Ac: 5-Acetamido-5,6-dideoxy-1,2-*O*-isopropylidene-β-L-talofuranose*
[23537-45-3]
$C_{11}H_{19}NO_5$ 245.275
Cryst. (Et_2O/petrol). Mp 130-131.5°. $[\alpha]_D^{20}$ -1.8 (c, 1.2 in $CHCl_3$).

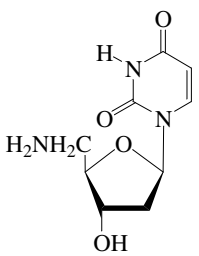
*1,2-*O*-Isopropylidene, 3-benzyl: 5-Amino-3-*O*-benzyl-5,6-dideoxy-1,2-*O*-isopropylidene-β-L-talofuranose*
[19272-44-7]
$C_{16}H_{23}NO_4$ 293.362
Syrup. $[\alpha]_D^{20}$ +108.3 (c, 1.2 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-benzyl,* N*-Ac: 5-Acetamido-3-*O*-benzyl-5,6-dideoxy-1,2-*O*-isopropylidene-β-L-talofuranose*
[19272-08-3]
$C_{18}H_{25}NO_5$ 335.399
Cryst. ($CHCl_3$/petrol). Mp 106-107°. $[\alpha]_D^{20}$ +80.3 (c, 0.9 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 820 (*L-fur Ac, β-L-fur isopropylidene derivs*)
Jary, J. *et al., Annalen*, 1970, **740**, 98 (*α-L-Me fur derivs*)
Stevens, C.L. *et al., J.O.C.*, 1970, **35**, 592 (*α-D-Me fur isopropylidene*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1974, **35**, 55 (*α-L-Me fur derivs, pmr*)

5′-Amino-2′,5′-dideoxyuridine, 9CI A-419

[35959-38-7]

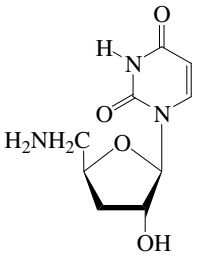


$C_9H_{13}N_3O_4$ 227.219
Solid (Et_2O/EtOH aq.). Mp 230° (210°) dec.

5′-N-*Ac:* [85144-76-9]
$C_{11}H_{15}N_3O_5$ 269.257
Cryst. + H_2O (EtOH aq.). Mp 149°.

Logue, M.W. *et al., J.A.C.S.*, 1972, **94**, 2842-2846 (*synth, pmr*)
Henn, T.F.G. *et al., J. Med. Chem.*, 1993, **36**, 1570-1579 (*synth, uv, ir, pmr*)

5′-Amino-3′,5′-dideoxyuridine, 9CI A-420

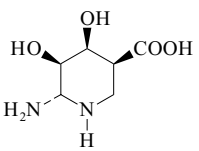


$C_9H_{13}N_3O_4$ 227.219
Potential use in synth of mureidomycin antibiotics. Solid. $[\alpha]_D$ +7.1 (c, 0.6 in 1*M* HCl).

tert-*Butyldimethylsilyl ether:*
$C_{15}H_{27}N_3O_4Si$ 341.482
Cryst. Mp 89-91°. $[\alpha]_D$ -26.3 (c, 0.3 in CH_2Cl_2).

Bender, D.M. *et al., Synthesis*, 2000, 399-402 (*synth, pmr, cmr*)

6-Amino-4,5-dihydroxy-3-piperidinecarboxylic acid A-421



(3*S*,4*S*,5*R*,6*S*)–*form*

$C_6H_{12}N_2O_4$ 176.172

(3*S*,4*S*,5*R*,6*S*)-*form*

N-*Ac:* ***Siastatin B****. A 72363B. Antibiotic A 72363B*
[54795-58-3]
$C_8H_{14}N_2O_5$ 218.209
Isol. from *Streptomyces verticillus* var. *quintum* and *Streptomyces nobilis*. Potent neuraminidase inhibitor. Needles.
Mp 137° dec. $[\alpha]_D^{25}$ +57.2 (c, 1 in H_2O).
▶ TM6125400

(3*R,4*R**,5*R**,6*R**)-*form***

N-*Ac:* ***Antibiotic A 72363A1****. A 72363A-1*
$C_8H_{14}N_2O_5$ 218.209
Prod. by *Streptomyces nobilis*. Heparanase inhibitor. Sol. H_2O; poorly sol. Me_2CO, hexane. $[\alpha]_D^{23}$ +29 (c, 1 in H_2O).

(3*R,4*S**,5*R**,6*R**)-*form***

N-*Ac:* ***Antibiotic A 72363A2****. A 72363A-2*
$C_8H_{14}N_2O_5$ 218.209
Prod. by *Streptomyces nobilis*. Heparanase inhibitor. Sol. H_2O; poorly sol. Me_2CO, hexane. $[\alpha]_D^{23}$ -31 (c, 1 in H_2O).

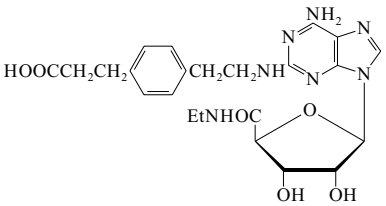
(3*R,4*R**,5*S**,6*S**)-*form***

N-*Ac:* ***Antibiotic A 72363C****. A 72363C*
$C_8H_{14}N_2O_5$ 218.209
Prod. by *Streptomyces nobilis*. Heparanase inhibitor. Sol. H_2O; poorly sol. Me_2CO, hexane. $[\alpha]_D^{27}$ -59 (c, 0.7 in H_2O).

Umezawa, H. *et al., J. Antibiot.*, 1974, **27**, 963 (*isol, ir, props*)
Aoyagi, T. *et al., Experientia*, 1975, **31**, 896 (*struct*)
Nishimura, Y. *et al., J.A.C.S.*, 1988, **110**, 7249 (*synth, abs config*)
Nishimura, Y. *et al., Bull. Chem. Soc. Jpn.*, 1992, **65**, 978 (*synth*)
Nishimura, Y. *et al., Stud. Nat. Prod. Chem.*, 1995, **16**, 75 (*rev, synth*)
Takatsu, T. *et al., J. Antibiot.*, 1996, **49**, 54; 61 (*A 73263, pmr, cmr, activity*)
Knapp, S. *et al., Org. Lett.*, 2000, **2**, 4037-4040 (*Siastatin B, synth*)

4-[2-[[6-Amino-9-(*N*-ethyl-β-D-ribofuranuronamidosyl)-9*H*-purin-2-yl]amino]ethyl]benzenepropanoic acid, 9CI A-422

*2-[*p*-(Carboxyethyl)phenylethylamino]-5′-*N*-ethylcarboxamidoadenosine. CGS 21680*
[120225-54-9]



$C_{23}H_{29}N_7O_6$ 499.525
Adenosine A_{2A}-receptor agonist. Hypotensive agent. Log P -0.1 (calc).

Hydrochloride: [124431-80-7]
Mp 200-203°.

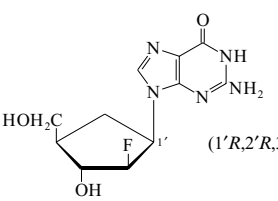
Me ester: [127258-46-2]
$C_{24}H_{31}N_7O_6$ 513.552
Mp 90-95° (as hydrochloride). CAS number refers to hydrochloride.

[120225-59-4, 120225-64-1, 129681-39-6]

Eur. Pat., 1988, 277 917, (*Ciba-Geigy*); *CA*, **110**, 193332f (*synth, pharmacol*)
Hutchinson, A.J. *et al., J. Pharmacol. Exp. Ther.*, 1989, **251**, 47; 888 (*pharmacol*)
Hutchinson, A.J. *et al., J. Med. Chem.*, 1990, **33**, 1919 (*synth*)
Webb, R.L. *et al., Cardiovasc. Drug Rev.*, 1992, **10**, 26 (*rev*)
Irth, H. *et al., J. Chromatogr., B: Biomed. Appl.*, 1994, **658**, 207 (*hplc*)
Kirk, I.P. *et al., Br. J. Pharmacol.*, 1995, **114**, 537 (*pharmacol*)

2-Amino-9-[2-fluoro-3-hydroxy-4-(hydroxymethyl)cyclopentyl]-1,9-dihydro-6*H*-purin-6-one, 9CI A-423

*Carbocyclic 2′-*ara*-fluoroguanosine*



(1′*R*,2′*R*,3′*R*,4′*R*)–*form*

$C_{11}H_{14}FN_5O_3$ 283.262
Carbocyclic nucleoside which shows significant activity against herpes simplex virus. Log P -3.28 (calc).

(1′*R*,2′*R*,3′*R*,4′*R*)-*form* [110312-77-1] Twice as active as racemate against herpes simplex virus.
Solid. Mp 257-258°. $[\alpha]_D^{22}$ +69 (c, 1.0 in H_2O).

(1′*S*,2′*S*,3′*S*,4′*S*)-*form* [110312-78-2]
$[\alpha]_D^{20}$ -68 (c, 1.93 in H_2O).

(1′*RS*,2′*RS*,3′*RS*,4′*RS*)-*form* [110289-24-2]
Fine needles (H_2O). Mp 273-275°.

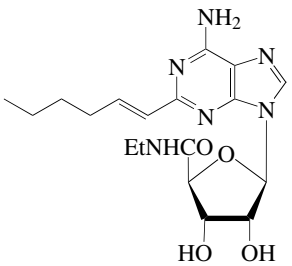
(1′*RS*,2′*SR*,3′*RS*,4′*RS*)-*form* [131101-25-2]
Solid. Mp 236-239°.

[110312-79-3, 110312-81-7]

Borthwick, A.D. *et al., J. Med. Chem.*, 1991, **34**, 907 (*synth, ir, uv, pmr*)

1-[6-Amino-2-(1-hexenyl)-9*H*-purin-9-yl]-1-deoxy-*N*-ethyl-β-D-ribofuranuronamide, 9CI A-424

2-(1-Hexenyl)adenosine-5′-N-*ethyluronamide*



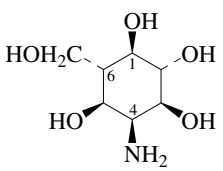
$C_{18}H_{26}N_6O_4$ 390.441
Adenosine A_{2A}-receptor agonist. Relat. to 1-[6-Amino-2-(1-hexynyl)-9*H*-purin-9-yl]-1-deoxy-*N*-ethyl-β-D-ribofuranuronamide.

(*E*)-*form* [181873-15-4]
Mp 180-183°. Pharmacol. active isomer.

(*Z*)-*form* [181873-19-8]
Mp 164-167°.

Vittori, S. *et al., J. Med. Chem.*, 1996, **39**, 4211-4217 (*synth, isomers, pmr, pharmacol*)
Cunha, R.A. *et al., Br. J. Pharmacol.*, 1997, **122**, 1279-1284 (*pharmacol*)
Pinna, A. *et al., Brain Res.*, 1997, **759**, 41-49 (*pharmacol*)

4-Amino-6-hydroxymethyl-1,2,3,5-cyclohexanetetrol A-425

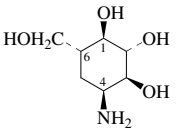


$C_7H_{15}NO_5$ 193.199

(1*R*,2*S*,3*S*,4*S*,5*S*,6*S*)-*form*
*2-Amino-2,6-dideoxy-6-*C-*(hydroxymethyl)-D-*myo-*inositol*. ***Hydroxyvalidamine***
[33034-94-5]
Prod. by *Streptomyces hygroscopicus* var. *limoneus* IFO 12703.
Cryst.
Mp 164-165°. $[\alpha]_D$ +80.7 (H_2O).

Horii, S. *et al., J. Antibiot.*, 1971, **24**, 59-63 (*isol*)
Chen, X. *et al., Chem. Rev.*, 2003, **103**, 1955-1977 (*rev*)

4-Amino-6-hydroxymethyl-1,2,3-cyclohexanetriol A-426



(1*R*,2*S*,3*S*,4*S*,6*R*)-*form*

$C_7H_{15}NO_4$ 177.2
Aminocyclitol antibiotic.

(1*R*,2*S*,3*S*,4*S*,6*R*)-*form*
*1-Amino-1,5,6-trideoxy-5-(hydroxymethyl)-D-*chiro-*inositol, 9CI*. ***Validamine***
[32780-32-8]
Constit. and hydrol. prod. of Validoxylamine G, V-4. Prod. by *Streptomyces hygroscopicus* ssp. *limoneus* (Atcc21431, Ifo12703). Glucosidase inhibitor.
Syrup. Sol. H_2O, DMSO, MeOH; poorly sol. EtOH, hexane. $[\alpha]_D$ +56 (c, 0.38 in H_2O).

Hydrochloride: [32780-31-7]
Mp 229-232° dec. $[\alpha]_D$ +57.4 (1*M* HCl).

(1*R*,2*S*,3*S*,4*S*,6*S*)-*form* *4-Amino-2,3,4-trideoxy-2-(hydroxymethyl)-D-*epi-*inositol, 9CI. Epivalidamine*
[38231-87-7]
Obt. by microbiological degradn. of validamycin B. Mp 210°. $[\alpha]_D^{22}$ +5.8 (H_2O).

(1*S*,2*R*,3*S*,4*R*,6*R*)-*form* *1-Amino-1,2,3-trideoxy-3-(hydroxymethyl)-D-*allo-*inositol, 9CI*
[248273-48-5]
Glassy solid. $[\alpha]_D^{20}$ -82 (c, 0.5 in D_2O).

N,O,O,O,O-*Penta-Ac:*
$C_{17}H_{25}NO_9$ 387.386
Solid. Mp 194-195°. $[\alpha]_D^{20}$ +5 (c, 0.6 in $CHCl_3$). CAS no. not found to 14CI.

(1*S*,2*S*,3*S*,4*S*,6*R*)-*form* *6-Amino-1,2,6-trideoxy-2-(hydroxymethyl)-D-*allo-*inositol, 9CI. Galacto-validamine. 5*a-*Carba-*α*-D-galactopyranosylamine*
[191740-47-3]
Solid. $[\alpha]_D$ +73.8 (c, 1 in H_2O).

(1*RS*,2*RS*,3*RS*,4*RS*,6*SR*)-*form* *5*a-*Carba-*α*-DL-galactopyranosylamine*
Syrup.

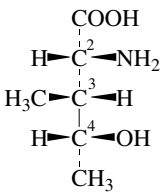
(1*RS*,2*SR*,3*SR*,4*SR*,6*RS*)-*form* *(±)-Validamine*
[112067-62-6]

N,O,O,O,O-*Penta-Ac:* [64589-26-0]
Cryst. (as hydrochloride). Mp 197-198° (hydrochloride).

Horii, S. *et al., J. Antibiot.*, 1971, **24**, 57; 59 (*isol*)
Kamiya, K. *et al., J. Antibiot.*, 1971, **24**, 317 (*cryst struct*)
Kameda, Y. *et al., Chem. Comm.*, 1972, 746-747 (*epivalidamine*)
Suami, T. *et al., Carbohydr. Res.*, 1977, **58**, 240 (*synth, (±)-form*)
Ogawa, S. *et al., CA*, 1984, **100**, 192193 (*synth*)
Kameda, Y. *et al., J. Antibiot.*, 1984, **37**, 1301 (*isol, struct*)
Yoshikawa, M. *et al., Chem. Pharm. Bull.*, 1988, **36**, 4236; 1993, **41**, 1197 (*synth*)
Yoshikawa, M. *et al., Tetrahedron*, 1994, **50**, 9619 (*synth*)
Kameda, Y. *et al., Carbohydr. Res.*, 1997, **300**, 259-264 (*galacto-validamine, synth, pmr, cmr*)
Ogawa, S. *et al., Eur. J. Org. Chem.*, 2000, 2089-2093 (*galacto-validamine, synth, pmr*)
Tatsuka, K. *et al., J. Antibiot.*, 2000, **53**, 430-435 (*synth, pmr*)
Rassu, G. *et al., J.O.C.*, 2000, **65**, 6307-6318 (*1S,2R,3S,4R,6R-form, synth, pmr, cmr*)

2-Amino-4-hydroxy-3-methylpentanoic acid A-427

2-Amino-2,3,5-trideoxy-3-methylpentonic acid. 4-Hydroxyisoleucine
[50764-07-3]



(2*R*,3*R*,4*R*)-*form*

$C_6H_{13}NO_3$ 147.174

(2*R*,3*R*,4*R*)-*form*
D-xylo-*form. 2-Amino-2,3,5-trideoxy-3-methyl-D-xylonic acid*
[60010-78-8]
Cryst. (EtOH aq.). Mp *ca.*° 230. $[\alpha]_D^{20}$ -35.6 (c, 1.2 in D_2O).

*1,4-Lactone: 3-Aminodihydro-4,5-dimethyl-2(3*H*)-furanone*
$C_6H_{11}NO_2$ 129.158
Cryst. (EtOH/petrol) (as hydrochloride). Mp 222° (hydrochloride). $[\alpha]_D^{25}$ +88.7 (c, 1 in MeOH).

1,4-Lactone, N-*Ac:*
Needles (EtOH). Mp 140°. $[\alpha]_D^{25}$ +88 (c, 1 in DMSO).

(2*R*,3*R*,4*S*)-*form* L-arabino-*form. 2-Amino-2,3,5-trideoxy-3-methyl-L-arabinonic acid*
[60010-73-3]
Minor amino acid constit. of *Trigonella foenum-graecum* (fenugreek) seeds. $[\alpha]_D^{20}$ +1 (c, 1 in H_2O). Orginally thought to be the (2*R*,3*R*,4*R*) form.

1,4-Lactone:
Cryst. (as hydrochloride). Mp 170-175° (hydrochloride).

1,4-Lactone, N-*Ac: 3-Acetamidodihydro-4,5-dimethyl-2(3*H*)-furanone.* ***Desmodilactone***
[60010-74-4]
$C_8H_{13}NO_3$ 171.196
Constit. of *Desmodium styracifolium*. Component of Guang Jin Qian Cao. Cryst. Mp 84-85°. $[\alpha]_D^{18}$ -16.4 (c, 0.11 in MeOH).

(2*S*,3*R*,4*R*)-*form* D-lyxo-*form. 2-Amino-2,3,5-trideoxy-3-methyl-D-lyxonic acid*
[55399-92-3]
Cryst. (EtOH aq.). Mp *ca.*° 220. $[\alpha]_D^{20}$ -24.9 (c, 1.17 in D*2*O).

1,4-Lactone:
Needles (EtOH/petrol) (as hydrochloride). Mp 255° (hydrochloride). $[\alpha]_D^{25}$ +24.3 (c, 1 in MeOH).

1,4-Lactone, N-*Ac:*
Needles (EtOH). Mp 141°.

(2*S*,3*R*,4*S*)-*form* L-ribo-*form*. *2-Amino-2,3,5-trideoxy-3-methyl-L-ribonic acid*
[55399-93-4]
Major constit. of *Trigonella foenum-graecum* (fenugreek). Cryst. (EtOH aq.). Mp 224-225°. $[\alpha]_D^{20}$ +31 (c, 1 in H_2O). Stereochem. revised in 1989.

1,4-Lactone:
Needles (EtOH/petrol) (as hydrochloride). Mp 230° (hydrochloride). $[\alpha]_D^{25}$ -15.5 (c, 1 in MeOH).

1,4-Lactone, N-*Ac:*
Needles (EtOH). Mp 94°.

(2*S*,3*S*,4*R*)-*form* D-arabino-*form*. *2-Amino-2,3,5-trideoxy-3-methyl-D-arabinonic acid*
[21704-86-9]
Constit. of the flowers of *Quararibea funebris*.
Mp 205-207°. $[\alpha]_D^{27}$ +2.9 (c, 0.1 in H_2O). λ_{max} 197 (ε 250) (H_2O).

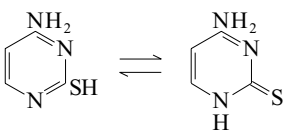
1,4-Lactone: [71392-28-4]

[90693-46-2]
Constit. of the flowers of *Quaribea funebris*. Powder (as hydrochloride). Mp 212-215° (hydrochloride). $[\alpha]_D^{25}$ -14.8 (c, 0.7 in MeOH).

Fowden, L. *et al., Phytochemistry*, 1973, **12**, 1707-1711 (*Trigonella foenum-graecum constits*)
Gieren, A. *et al., Annalen*, 1974, 1561-1569 (*synth*)
Hasan, M. *et al., Annalen*, 1976, 781-787 (*lactone, synth, pmr*)
Raffauf, R.F. *et al., J.O.C.*, 1984, **49**, 2714-2718 (*Quararbea funebris constit*)
Alcock, N.W. *et al., Phytochemistry*, 1989, **28**, 1835-1841 (*struct*)
Inghardt, T. *et al., Tetrahedron*, 1991, **47**, 6469-6482 (*synth, abs config, cryst struct*)
Yang, J. *et al., Yaoxue Xuebao*, 1993, **28**, 197-201; *CA*, **119**, 156209m (*Desmodilactone*)
Wang, Q. *et al., Eur. J. Org. Chem.*, 2002, 834-839 (*synth, pmr, cmr*)
Rolland-Fulcrand, V. *et al., Eur. J. Org. Chem.*, 2004, 873-877 (*synth, pmr, cmr*)

4-Amino-2-mercaptopyrimidine A-428

*4-Amino-2(1*H*)-pyrimidinethione, 9CI. 4-Amino-2-pyrimidinethiol, 8CI. Thiocytosine*
[333-49-3]



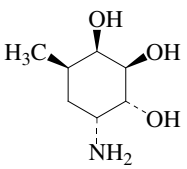
$C_4H_5N_3S$ 127.17
Tautomerism is possible. Long needles (H_2O). Mp 285-290° dec. pK_{a1} 3.32; pK_{a2} 10.63 (20°, H_2O).

NH-form

1-β-D-Ribofuranosyl: 2-Thiocytidine
[13239-97-9]
$C_9H_{13}N_3O_4S$ 259.285
Modified nucleoside present in tRNA's. Cryst. (EtOH).
Mp 208-209°. $[\alpha]_D^{25}$ +64.2 (c, 1.8 in H_2O). λ_{max} 220 (sh) (ε 10300); 248 (ε 22300); 270 (sh) (ε 17100) (H_2O).

[5807-22-7, 28542-33-8, 31983-36-5]
Hitchings, G.H. *et al., J. Biol. Chem.*, 1949, **117**, 357 (*synth*)
Russell, P.B. *et al., J.A.C.S.*, 1949, **71**, 2279 (*synth*)
Brown, D.J. *et al., Aust. J. Chem.*, 1965, **18**, 559 (*uv, tautom*)
Ueda, T. *et al., Chem. Pharm. Bull.*, 1966, **14**, 666 (*2-thiocytidine, synth, ir, uv*)
Lee, H.-J. *et al., Biochemistry*, 1968, **7**, 1427-1431 (*2-thiocytidine, synth*)
Ueda, T. *et al., Chem. Pharm. Bull.*, 1968, **16**, 1788-1794 (*2-thiocytidine, synth*)
Furberg, S. *et al., Acta Cryst. B*, 1970, **26**, 1260 (*cryst struct*)
Sundaralingam, M. *et al., J.A.C.S.*, 1971, **93**, 1235-1241 (*2-thiocytidine, cryst struct*)
Cleve, G. *et al., Chem. Ber.*, 1973, **106**, 3062 (*2-thiocytidine, pmr, cd*)
Yokoyama, S. *et al., Nucleic Acids Res.*, 1979, **6**, 2611-2626 (*2-thiocytidine, isol, pmr, conformn*)
Igarashi-Yamamoto, N. *et al., Biochim. Biophys. Acta*, 1981, **656**, 1-15 (*2-thiocytidine, uv, cd*)
Thomas, G. *et al., Eur. J. Biochem.*, 1981, **119**, 381-387 (*2-thiocytidine, occur*)
Yadav, R.A. *et al., Spectrochim. Acta A*, 1988, **44**, 1201 (*ir*)

4-Amino-6-methyl-1,2,3-cyclohexanetriol A-429



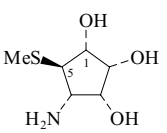
$C_7H_{15}NO_3$ 161.2

(1*R*,2*R*,3*R*,4*R*,6*R*)-*form*
*5-Amino-3,4,5-trideoxy-3-methyl-D-allo-inositol, 9CI. 5*a*-Carba-α-L-fucopyranosylamine*
[333327-02-9]
Potent inhibitor of α-L-fucosidase. Syrup. $[\alpha]_D^{20}$ -38 (c, 0.15 in MeOH).

(1*RS*,2*RS*,3*RS*,4*RS*,6*RS*)-*form* [288846-13-9]
Syrup.

Ogawa, S. *et al., Eur. J. Org. Chem.*, 2000, 2089-2093; 2001, 967-974 (*all-R-form, synth, pmr*)

4-Amino-5-(methylthio)-1,2,3-cyclopentanetriol A-430



(1*R*,2*R*,3*R*,4*S*,5*R*)–*form*

$C_6H_{13}NO_3S$ 179.24

(1*R*,2*R*,3*R*,4*S*,5*R*)-*form*
Mannostatin A
[102822-56-0]
Prod. by *Streptomyces* sp. and *Streptoverticillium verticillus* var. *quintum*. α-D-Mannosidase inhibitor. Sol. H_2O; poorly sol. Me_2CO, hexane.
▶ GY4701040

N,O,O,O-*Tetra-Ac:*
$C_{14}H_{21}NO_7S$ 347.388
Needles. Mp 121° dec.

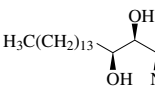
S-*Oxide:* ***Mannostatin B***
[102822-66-2]
$C_6H_{13}NO_4S$ 195.239
From *Streptoverticillium verticillus* var. *quintum*. α-D-Mannosidase inhibitor. Sol. H_2O; poorly sol. Me_2CO, hexane.
▶ GY4701020

S-*Oxide,* N,O,O,O-*tetra-Ac:*
$C_{14}H_{21}NO_8S$ 363.388
Prisms (EtOAc). Mp 146° dec.

Aoyagi, T. *et al., J. Antibiot.*, 1989, **42**, 883; 1008 (*isol, struct, props*)
Ogawa, S. *et al., Chem. Comm.*, 1991, 890 (*synth*)
King, S.B. *et al., J.A.C.S.*, 1991, **113**, 5089 (*synth*)
Trost, B.M. *et al., J.A.C.S.*, 1991, **113**, 6317; 1993, **115**, 444 (*synth*)
Ogawa, S. *et al., Bioorg. Med. Chem.*, 1995, **3**, 939 (*synth*)
Ling, R. *et al., J.O.C.*, 1998, **63**, 6072-6076 (*synth*)
Berecibar, A. *et al., Chem. Rev.*, 1999, **99**, 779-844

2-Amino-1,3,4-octadecanetriol, 8CI A-431

C_{18}-Phytosphingosine. 4-Hydroxysphinganine



(2*R*,3*S*,4*S*)-*form*

$C_{18}H_{39}NO_3$ 317.511

(2*R*,3*S*,4*S*)-*form*
D-xylo-*form*

O,O,O,N-*Tetra-Ac:* [517920-39-7]
$C_{26}H_{47}NO_7$ 485.66
Viscous liq. $[\alpha]_D^{25}$ -6.9 (c, 0.9 in $CHCl_3$).

(2*S*,3*S*,4*R*)-*form* D-ribo-*form*
[554-62-1]
Present in cerebrosides and gangliosides. Isol. from the basidiomycete *Russula cyanoxantha*. Amorph. powder. Mp 103° (95-97°). $[\alpha]_D^{20}$ +10.3 (Py) (+9.4).

1-O-*β-D-Glucopyranoside:* [126374-02-5]
$C_{24}H_{49}NO_8$ 479.653
Isol. from human thyroid.

N-*Benzoyl:*
Cryst. (EtOAc). Mp 137.8-138.8°. $[\alpha]_D$ +5 (c, 5.2 in Py).

O,O,O,N-*Tetra-Ac:* [13018-48-9]
$C_{26}H_{47}NO_7$ 485.66
Isol. from yeast *Hansenula ciferrii*. Cryst. (petrol). Mp 49-50°. $[\alpha]_D^{25}$ +5 (c, 4.8 in DMF).

Tri-O-*Ac,* N-*benzoyl:*
Cryst. (petrol). Mp 78-80°. $[\alpha]_D$ +22 (c, 0.5 in $CHCl_3$).

N-*Hexadecanoyl:* ***Armillaramide***
[111149-09-8]
$C_{34}H_{69}NO_4$ 555.923
Isol. from *Armillaria mellea* (honey mushroom). Amorph. powder.
Mp 113-117°. $[\alpha]_D^{26}$ +14.3 (c, 0.21 in Py).

N-*Octadecanoyl:* N-*Octadecanoylphytosphingosine*
[34354-88-6]
Mp 99-100°.

N-*Octadecanoyl, 1*-O-*β*-D-*galactopyranoside:* N-*Octadecanoylphytogalactocerebroside*
[139973-77-6]
$C_{42}H_{83}NO_9$ 746.119
Cryst. ($CHCl_3$/MeOH). Mp 197-198°. $[\alpha]_D^{20}$ -1.4 (c, 3 in Py). $[\alpha]_D^{20}$ +10.4 (c, 3 in EtOH/$CHCl_3$).

N-*Tetracosanoyl:* [34437-74-6]
$C_{42}H_{85}NO_4$ 668.138
Constit. of various marine sources and *Physalis philadelphica*. Amorph. powder. Mp 114-116°. $[\alpha]_D^{20}$ +19.5 (c, 0.2 in Py).

N-*(2*R*-Hydroxyoctadecanoyl):* [65913-97-5]
$C_{36}H_{73}NO_5$ 599.976
Constit. of the coral *Sinularia leptoclados*. Powder (as tetra-Ac).
Mp 54-57° (tetra-Ac). $[\alpha]_D^{28}$ +8 (c, 0.1 in $CHCl_3$) (tetra-Ac).

N-*(2*R*-Hydroxydocosanoyl):* [305363-08-0]
$C_{40}H_{81}NO_5$ 656.084
Isol. from the mushroom *Grifola frondosa* (maitake). Amorph. powder. $[\alpha]_D^{22}$ +12.9 (c, 0.1 in Py).

N-*(2*R*-Hydroxydocosanoyl), 1*-O-*β*-D-glucopyranoside: ***Reguloside A***
[193412-76-9]
$C_{46}H_{91}NO_{10}$ 818.226
Isol. from the starfish *Pentaceraster regulus*. Amorph. powder.
Mp 218-219°. $[\alpha]_D^{27}$ +10 (c, 0.05 in Py).

N-*(2*R*-Hydroxytricosanoyl):* [305363-09-1]
$C_{41}H_{83}NO_5$ 670.11
Isol. from the mushroom *Grifola frondosa* (maitake) and the truffle *Tuber indicum*. Amorph. powder. $[\alpha]_D^{20}$ +14.9 (c, 0.07 in Py).

N-*(2*R*-Hydroxytricosanoyl), 1*-O-*β*-D-glucopyranoside: ***Reguloside B***
[193412-77-0]
$C_{47}H_{93}NO_{10}$ 832.252
Isol. from the starfish *Pentaceraster regulus*.

N-*(2*R*-Hydroxytetracosanoyl):* ***Russulaceramide***
[154801-30-6]
$C_{42}H_{85}NO_5$ 684.137
Constit. of various marine sources and *Physalis philadelphica*. Also from the basidiomycete *Russula cyanoxantha*. Amorph. powder.
Mp 123-125°. $[\alpha]_D$ +12.6 (c, 0.45 in Py). $[\alpha]_D$ +9.4 (c, 0.21 in Py).

N-*(2*R*-Hydroxytetracosanoyl), 1*-O-*β*-D-glucopyranoside: ***Reguloside C***
[193412-78-1]
$C_{48}H_{95}NO_{10}$ 846.279
Isol. from the starfish *Pentaceraster regulus*.

N-*(2*R*-Hydroxypentacosanoyl):* [305363-10-4]
$C_{43}H_{87}NO_5$ 698.164
Isol. from the mushrooms *Grifola frondosa* (maitake) and *Phellinus ribis*. Also found in the marine sponge *Iotrochota baculifera*. Amorph. powder.
Mp 145°. $[\alpha]_D^{21}$ +13.8 (c, 0.1 in Py).

N-*(2*R*-Hydroxyhexacosanoyl):* [164988-96-9]
$C_{44}H_{89}NO_5$ 712.191
Isol. from the mushroom *Grifola frondosa* (maitake). Amorph. powder. $[\alpha]_D^{22}$ +11.1 (c, 0.1 in Py).

N-*(2-Hydroxynonacosanoyl):* [182007-30-3]
$C_{47}H_{95}NO_5$ 754.271
Prod. by the fungus *Phellinus pini*.

N-*(2-Hydroxytriacontanoyl):* [182007-31-4]
$C_{48}H_{97}NO_5$ 768.298
Prod. by *Phellinus pini*.

N-*(2*R*-Hydroxy-4*E*-tetracosenoyl), 1*-O-*β*-D-glucopyranoside: ***Iotroridoside B***
[639088-52-1]
$C_{48}H_{93}NO_{10}$ 844.263
Isol. from the sponge *Iotrochota baculifera*.
Mp 205°. $[\alpha]_D^{28}$ +12 (c, 0.15 in Py).

N-*(2*R*-Hydroxy-4*Z*-tetracosenoyl), 1*-O-*β*-D-glucopyranoside: ***Iotroridoside A***
[277756-38-4]
$C_{48}H_{93}NO_{10}$ 844.263
Isol. from the sponge *Iotrochota ridley*. Cytotoxic. Amorph. solid. $[\alpha]_D^{25}$ -7.2 (c, 0.003 in Py).

N-*(2*R*-Hydroxy-9*Z*-tetracosenoyl):* ***Hygrophamide***
$C_{42}H_{83}NO_5$ 682.121
Isol. from the basidiomycete *Hygrophorus eburnesis*. Powder.
Mp 121-123°. $[\alpha]_D^{22}$ +7.6 (c, 0.3 in Py). λ_{max} 194 (log ϵ 3.09); 205 (log ϵ 3.43) (MeOH).

N-*(2*R*-Hydroxy-17*Z*-tetracosenoyl), 1*-O-*β*-D-glucopyranoside: ***Catacerebroside B***
[593261-19-9]
$C_{48}H_{93}NO_{10}$ 844.263
Isol. from the fungus *Catathelasma ventricosa*. Amorph. powder. $[\alpha]_D^{20}$ +5 (c, 3.0 in Py).

N-*(2ξ,3ξ-Dihydroxy-17*Z*-tetracosenoyl), 1*-O-*β*-D-glucopyranoside: ***Catacerebroside C***
[593261-20-2]
$C_{48}H_{93}NO_{11}$ 860.263
Isol. from the fungus *Catathelasma ventricosa*. Amorph. powder. $[\alpha]_D^{20}$ +3 (c, 1.0 in Py).

(2ξ,3ξ,4ξ)-*form*

N-*Tricosanoyl, 1*-O-*β*-D-glucopyranoside: ***Cornutaglycolipid***
[119830-12-5]
$C_{47}H_{93}NO_9$ 816.253
Constit. of *Ilex cornuta*. A mixt. of 2 stereoisomers.

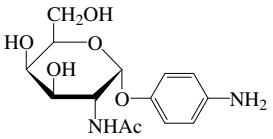
N-*Pentacosanoyl, 1*-O-*β*-D-glucopyranoside:* [193976-45-3]
$C_{49}H_{97}NO_9$ 844.307
Constit. of *Mirabilis himalaica*. Powder. $[\alpha]_D^{25}$ +19 (c, 0.1 in Py). Mp >180° dec. Config. not determined.

N-*Hexacosanoyl, 1*-O-*β*-D-glucopyranoside:* [193976-46-4]
$C_{50}H_{99}NO_9$ 858.333
Constit. of *Mirabilis himalaica*. Powder. $[\alpha]_D^{25}$ -22 (c, 0.1 in Py). Mp >180° dec.

N-*(2ξ,3ξ-Dihydroxy-?-tetracosenoyl):* ***Tuberceramide***
[260545-65-1]
$C_{42}H_{83}NO_6$ 698.121
Constit. of the seeds of *Allium tuberosum* (Chinese chives). Amorpth. powder.
Mp 148-149°. $[\alpha]_D^{21}$ +28 (c, 0.02 in MeOH). Posn. of double bond not determined.

Stodola, F.H. *et al., J. Biol. Chem.*, 1960, **235**, 2584-2585 (*tetra-Ac, isol*)
Prostenik, M. *et al., Tetrahedron*, 1965, **21**, 651-655 (*synth*)
Gigg, J. *et al., J.C.S.(C)*, 1966, 1872-1876; 1876-1879 (*2S,3S,4R, synth*)
Gigg, R. *et al., Chem. Phys. Lipids*, 1969, **3**, 106-107 (*stereochem*)
Hammarström, S. *et al., J. Lipid Res.*, 1971, **12**, 760-765 (*N-acyl derivs, synth*)
Dahlen, B. *et al., Acta Cryst. B*, 1972, **28**, 2396-2404 (*N-tetracosanoyl, cryst struct*)
Pascher, I. *et al., Chem. Phys. Lipids*, 1974, **12**, 303-315 (*Octadecanoylphytogalactocerebroside, synth*)
Schmidt, R.R. *et al., Carbohydr. Res.*, 1988, **174**, 169-179 (*stereoisomers, synth*)
Qin, W. *et al., Zhongcaoyao*, 1988, **19**, 486-488; *CA*, **110**, 147457c (*Cornutaglycolipid*)
Bouchon, B. *et al., Biochim. Biophys. Acta*, 1990, **1051**, 1-5 (*glucoside, isol*)
Wild, R. *et al., Annalen*, 1995, 755-764 (*2S,3S,4R-form, synth*)
Lourenco, A. *et al., Phytochemistry*, 1996, **43**, 617-620 (*Phellinus ceramides*)
Lin, G. *et al., Tetrahedron*, 1996, **52**, 2187-2192 (*synth*)
Venkannababu, U. *et al., Liebigs Ann./Recl.*, 1997, 1245-1247 (*Regulosides*)
Zhang, G.-L. *et al., Phytochemistry*, 1997, **45**, 1213 (*Mirabilis cerebrosides*)
Bala, S.R.G. *et al., Chem. Pharm. Bull.*, 1999, **47**, 1214-1220 (*N-2-hydroxyoctadecanoyl*)
Zou, Z.-M. *et al., J. Asian Nat. Prod. Res.*, 1999, **2**, 55-61 (*Tuberceramide*)
Figueroa-Pérez, S. *et al., Carbohydr. Res.*, 2000, **328**, 95-102 (*galactocerebroside, synth*)
Yaoita, Y. *et al., Chem. Pharm. Bull.*, 2000, **48**, 1356-1358 (*Grifola frondosa ceramides*)
He, L. *et al., J.O.C.*, 2000, **65**, 7618-7626 (*synth*)
Gao, J.M. *et al., Chin. Chem. Lett.*, 2001, **12**, 139-140 (*Armillaramide*)
Deng, S.-Z. *et al., Chin. J. Chem.*, 2001, **19**, 362-364 (*Iotroridoside A*)
Gao, J.M. *et al., Lipids*, 2001, **36**, 175-180 (*Russulaceramide, 2S,3S,4R-form, isol*)
Gao, J.M. *et al., Chin. Chem. Lett.*, 2002, **13**, 325-326 (*Tuber indicum ceramide*)
Su, B.-N. *et al., Tetrahedron*, 2002, **58**, 3453-3466 (*N-tetracosanoyl, N-2-hydroxytetracosanoyl*)
Muralidhar, P. *et al., Chem. Pharm. Bull.*, 2003, **51**, 1193-1195 (*Iotrochota baculifera ceramides*)
Zhan, Z.-J. *et al., J. Nat. Prod.*, 2003, **66**, 1013-1016 (*Catacerebrosides B,C*)
Lin, C.-C. *et al., Tet. Lett.*, 2003, **44**, 5281-5283 (*synth, bibl*)
Raghaven, S. *et al., Tetrahedron: Asymmetry*, 2003, **14**, 2093-2099 (*2R,3S,4S-form, tetra-Ac*)
van den Berg, R.J.B.H.N. *et al., J.O.C.*, 2004, **69**, 5699-5704 (*synth*)
Qu, Y. *et al., Z. Naturforsch., B*, 2004, **59**, 241-244 (*Hygrophamide*)

4-Aminophenyl 2-acetamido-2-deoxygalactopyranoside A-432



α-D-*form*

$C_{14}H_{20}N_2O_6$ 312.322

α-D-*form* [58769-30-5]
Carbohydrate ligand for preparing affinity adsorbents. Comly. available. Mp 246-248°. $[\alpha]_D^{20}$ +274 (c, 0.34 in MeOH aq.).

4′-N-*Ac:* [58707-29-2]
Mp 270-271.5°. $[\alpha]_D^{20}$ +196 (c, 0.43 in DMF).

β-D-*form* [50271-52-8]
Cryst. (EtOH aq.). Mp 211-214°. $[\alpha]_D^{20}$ +47 (c, 1.1 in H_2O).

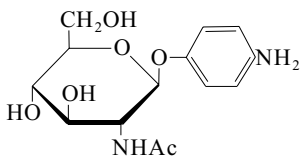
4′-N-*Ac:* [50271-53-9]
Cryst. (MeOH). Mp 243-244°. $[\alpha]_D^{20}$ -3 (c, 0.59 in DMF).

*4′*N*, 3,4,6-tetra-Ac:* [50271-54-0]
Cryst. (EtOAc/Et_2O). Mp 256-257°. $[\alpha]_D^{20}$ +0.6 (c, 0.89 in $CHCl_3$).

Petitou, M. *et al., Carbohydr. Res.*, 1973, **29**, 502; 1975, **42**, 180 (*synth*)

4-Aminophenyl 2-acetamido-2-deoxyglucopyranoside, 8CI A-433

[14419-59-1]



$C_{14}H_{20}N_2O_6$ 312.322

β-D-*form*
Used as a carbohydrate ligand for preparing affinity adsorbents. Commercially available.
Cryst. (EtOH). Mp 225-228°. $[\alpha]_D^{16}$ +7.6 (c, 0.92 in H_2O).

3,4,6-Tri-Ac: [65907-85-9]
$C_{20}H_{26}N_2O_9$ 438.433
Cryst. (EtOH/Et_2O). Mp 168°. $[\alpha]_D^{18}$ -35.5 (Py).

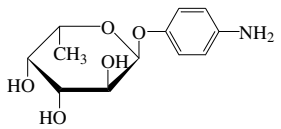
4′-N-*Ac:* [14419-61-5]
$C_{16}H_{22}N_2O_7$ 354.359
Cryst. (MeOH). Mp 244° (236-237°). $[\alpha]_D^{16}$ +6.1 (c, 1.02 in H_2O).

4′-N-*Ac, 4,6*-O-*Benzylidene:* [14419-62-6]
$C_{23}H_{26}N_2O_7$ 442.468
Cryst. (EtOH). Mp 258-262°. $[\alpha]_D^{16}$ -10 (c, 1.83 in DMF).

4′-N*, 3,4,6-Tetra-Ac:* [14419-60-4]
$C_{22}H_{28}N_2O_{10}$ 480.471
Cryst. (EtOH). Mp 252° (245°). $[\alpha]_D^{16}$ -40.3 (c, 0.92 in Py).

Westphal, O. *et al., Annalen*, 1952, **575**, 84 (*synth*)
Isemura, S. *et al., Bull. Chem. Soc. Jpn.*, 1966, **39**, 2553 (*synth*)
Junowicz, E. *et al., Biochim. Biophys. Acta*, 1973, **321**, 234
Shafizadeh, F. *et al., J.O.C.*, 1973, **38**, 1190

4-Aminophenyl fucopyranoside A-434



α-L-*form*

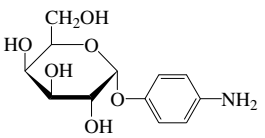
$C_{12}H_{17}NO_5$ 255.27

α-D-*form* [23644-28-2]
Mp 173-175°. $[\alpha]_D^{25}$ +216 (c, 1.6 in MeOH).

α-L-*form* [42935-25-1] Carbohydrate ligand for preparing affinity adsorbents. Comly. available. Cryst. (petrol). Mp 175°. $[\alpha]_D^{26}$ -204 (c, 1 in MeOH).

Westphal, O. *et al., Chem. Ber.*, 1956, **89**, 582 (*synth*)
Siewert, G. *et al., Annalen*, 1969, **720**, 188
Downs, F.J. *et al., Carbohydr. Res.*, 1981, **88**, 323 (*synth*)

4-Aminophenyl galactopyranoside A-435



α-D-*form*

$C_{12}H_{17}NO_6$ 271.269

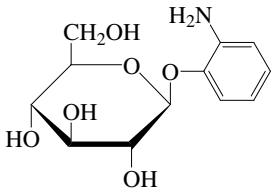
α-D-*form* [3398-86-5]
Needles. Mp 178°. $[\alpha]_D^{20}$ +224 (MeOH).

β-D-*form* [5094-33-7] Used in prepn. of affinity chromatography absorbents. Cryst. Mp 158-159°. $[\alpha]_D^{25}$ -40.5 (MeOH).

Tetra-O-*Ac:* [101685-97-6]
$C_{20}H_{25}NO_{10}$ 439.418
Mp 134-135°. $[\alpha]_D^{22}$ +5.83 (c, 2 in $CHCl_3$).

Goebel, W.F. *et al., J. Exp. Med.*, 1929, **50**, 521; *CA*, **24**, 887 (*synth*)
Westphal, O. *et al., Chem. Ber.*, 1956, **89**, 582-588 (*α-D-form, synth*)
Rüde, E. *et al., Immunochemistry*, 1966, **3**, 137-151 (*use*)
Junowicz, E. *et al., Biochim. Biophys. Acta*, 1973, **321**, 234-245 (*use*)
Delmotte, F.M. *et al., Eur. J. Biochem.*, 1980, **112**, 219-223 (*use*)
Plessas, N.R. *et al., Carbohydr. Res.*, 1981, **89**, 211-220 (*β-D-form*)
Amaike, M. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 2553-2558 (*α-D-form, β-D-form, synth, ir, pmr*)

2-Aminophenyl glucopyranoside, 9CI A-436



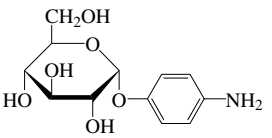
$C_{12}H_{17}NO_6$ 271.269

β-D-*form* [7265-01-2]
Solid (H_2O). Mp 187.5-188° (174-176°). $[\alpha]_D^{20}$ -71.2 (c, 0.55 in H_2O).

O-*Tetra-Ac:* [36874-79-0]
$C_{20}H_{25}NO_{10}$ 439.418
Mp 131-133°. $[\alpha]_D^{21}$ -34.1 (c, 1.1 in MeOH).

Latham, H.G. *et al., J.O.C.*, 1950, **15**, 884-889 (*β-D-form, tetra-Ac*)
Capon, B. *et al., J.C.S.*, 1961, 5172-5176 (*β-D-form, tetra-Ac*)
Amaike, M. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 2553-2558 (*β-D-form, synth, ir, pmr*)

4-Aminophenyl glucopyranoside A-437



α-D-*form*

$C_{12}H_{17}NO_6$ 271.269

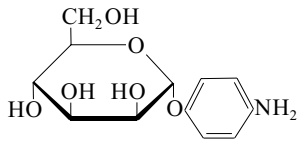
α-D-*form* [31302-52-0]
Isol. from leaves of *Hydrangea macrophylla*. Carbohydrate ligand for preparing affinity absorbents. Comly. available. Mp 189-191° (185-186°). $[\alpha]_D^{24}$ +194.1 (MeOH).

β-D-*form* [20818-25-1] Ligand for prepn. of affinity absorbents. Comly. available. Cryst. Mp 160-161° (156-157°). $[\alpha]_D^{20}$ -55.5 (H_2O). $[\alpha]_D^{26}$ -64.1 (MeOH).

Tetra-Ac: [42011-36-9]
$C_{20}H_{25}NO_{10}$ 439.418
Mp 132-133.5°. $[\alpha]_D^{20}$ -14.7 (c, 1.2 in $CHCl_3$).

Goebel, W.F. *et al., J. Exp. Med.*, 1929, **50**, 521; *CA*, **24**, 887 (*synth*)
Goebel, W.F. *et al., J. Exp. Med.*, 1932, **55**, 761 (*synth*)
Latham, H.G. *et al., J.O.C.*, 1950, **15**, 884-889 (*β-D-form*)
Cogoli, A. *et al., J. Biol. Chem.*, 1975, **250**, 7802-7809 (*props*)
Suzuki, H. *et al., Phytochemistry*, 1976, **15**, 555 (*isol, struct*)
Arita, H. *et al., Carbohydr. Res.*, 1978, **62**, 143-154 (*β-D-form*)
Tokutake, S. *et al., Chem. Pharm. Bull.*, 1990, **38**, 13-18 (*β-D-form, synth, ir, uv, pmr*)
Amaike, M. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 2571-2578 (*α-D-form, β-D-form, synth, ir, pmr*)

4-Aminophenyl mannopyranoside, 8CI A-438



$C_{12}H_{17}NO_6$ 271.269

α-D-*form* [34213-86-0] Used as a carbohydrate ligand for preparing affinity adsorbents. Commercially available.
Cryst. (EtOH). Mp 171°. $[\alpha]_D^{20}$ +128 (c, 1.0 in MeOH).

4,6-O-Benzylidene, 2-benzyl: [79726-87-7]
Cryst. (EtOAc/hexane). Mp 130-131°. $[\alpha]_D$ +77 (c, 0.5 in $CHCl_3$).

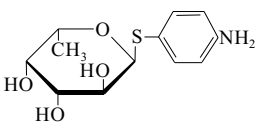
N-*Trifluoroacetyl, 4,6-O-benzylidene, 2-benzyl:*
Cryst. (EtOAc/hexane). Mp 210-212°. $[\alpha]_D$ +79 (c, 0.5 in $CHCl_3$).

N,N-*Di-Me:* [74590-39-9]
$C_{14}H_{21}NO_6$ 299.323
Cryst. (2-propanol). Mp 153-157°. $[\alpha]_D^{27}$ +127 (c, 1.0 in MeOH).

Westphal, O. *et al., Chem. Ber.*, 1956, **89**, 582-588 (*α-D-form, synth*)
Durette, P.L. *et al., Carbohydr. Res.*, 1980, **81**, 261-274 (*α-D-N,N-di-Me*)
Cerovsky, V. *et al., J. Biochem. Biophys. Methods*, 1980, **3**, 163
Downs, F.J. *et al., Carbohydr. Res.*, 1981, **88**, 323-325 (*α-D-form, synth*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1981, **96**, 59-64 (*derivs*)
Amaike, M. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 2553-2558 (*α-D-form, synth, ir, pmr*)

4-Aminophenyl 1-thiofucopyranoside A-439

4-Aminophenyl 6-deoxy-1-thiogalactopyranoside, 9CI



α–L–*form*

$C_{12}H_{17}NO_4S$ 271.337

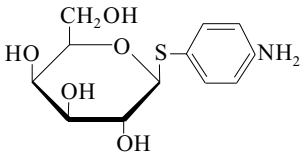
β-D-*form*
4-Aminophenyl 1-thio-β-D-fucopyranoside [51885-04-2]
Light-yellow cryst. (propanol). Mp 75-78°. $[\alpha]_D$ -76.6 (c, 0.75 in MeOH).

α-L-*form*
4-Aminophenyl 1-thio-α-L-fucopyranoside [51885-72-4]
Cryst. (propanol). Mp 138-139°. $[\alpha]_D$ -357 (c, 1.0 in MeOH).

β-L-*form*
4-Aminophenyl 1-thio-β-L-fucopyranoside [51885-73-5] Comly. available carbohydrate ligand for prepn. of affinity absorbents.
Pale-yellow cryst. Mp 65-78°. $[\alpha]_D$ +66 (c, 1.0 in MeOH).

Chawla, M.L. *et al., Carbohydr. Res.*, 1974, **32**, 25 (*synth*)
Shah, R.H. *et al., Carbohydr. Res.*, 1974, **32**, 15 (*synth*)
Jain, R.M. *et al., J. Chromatogr.*, 1977, **139**, 283

4-Aminophenyl 1-thiogalactopyranoside, 9CI A-440



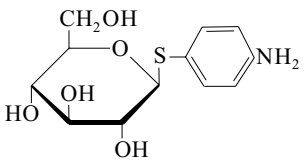
$C_{12}H_{17}NO_5S$ 287.336

β-D-*form* [29558-05-2] Comly. available carbohydrate ligand for prepn. of affinity absorbents.
Cryst. (EtOH). Mp 175-177°. $[\alpha]_D^{23}$ -44.4 (c, 1.0 in MeOH).

N,*2,3,4,6-Penta-Ac:* [62205-45-2]
$C_{22}H_{27}NO_{10}S$ 497.522
Mp 134-135°. $[\alpha]_D^{19}$ -9.2 (c, 0.25 in $CHCl_3$).

Chipowsky, S. *et al., Carbohydr. Res.*, 1973, **31**, 339 (*synth, pmr*)
Iino, N. *et al., Carbohydr. Res.*, 1976, **51**, 223 (*synth*)
Mega, T. *et al., J. Biochem. (Tokyo)*, 1976, **79**, 185
Distler, J.J. *et al., Methods Enzymol.*, 1978, **50**, 514; *CA*, 1979, **90**, 82700y

4-Aminophenyl 1-thioglucopyranoside, 9CI A-441



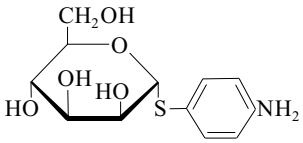
$C_{12}H_{17}NO_5S$ 287.336

β-D-*form* [58737-22-7] Comly. available carbohydrate ligand for prepn. of affinity absorbents.
Cryst. (EtOH). Mp 147-148°. $[\alpha]_D^{22}$ -35.4 (c, 1.0 in MeOH). $[\alpha]_D^{22}$ -63.5 (c, 5.0 inH_2O).

N,*2,3,4,6-Penta-Ac:* [62205-46-3]
$C_{22}H_{27}NO_{10}S$ 497.522
Cryst. (EtOH). Mp 155-156°. $[\alpha]_D^{24}$ -34 (c, 1.0 in $CHCl_3$).

Wagner, G. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1962, **295**, 415 (*synth*)
Hasegawa, Y. *et al., Chem. Pharm. Bull.*, 1972, **20**, 800
Iino, N. *et al., Carbohydr. Res.*, 1976, **51**, 223 (*synth*)
Mega, T. *et al., J. Biochem. (Tokyo)*, 1976, **79**, 185
Iino, N. *et al., Chem. Pharm. Bull.*, 1979, **27**, 2212

4-Aminophenyl 1-thiomannopyranoside A-442



$C_{12}H_{17}NO_5S$ 287.336

α-D-*form* [51885-06-4] Carbohydrate ligand for prepn. of affinity absorbents.
Amorph. $[\alpha]_D^{27}$ +267 (c, 0.9 in H_2O).

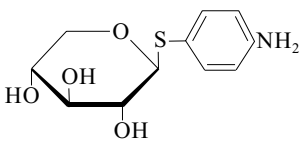
Hydrochloride: [51885-05-3]
Pale-yellow cryst. Mp 175-185° dec. $[\alpha]_D$ +220.2 (c, 1.14 in H_2O).

N-*Ac:* [74590-45-7]
$C_{14}H_{19}NO_6S$ 329.373
Syrup. $[\alpha]_D^{27}$ +162 (c, 0.9 in MeOH).

N*, 2,3,4,6-penta-Ac:* [51885-07-5]
$C_{22}H_{27}NO_{10}S$ 497.522
Cryst. (MeOH aq.). Mp 138-140°. $[\alpha]_D^{27}$ +97.5 (c, 1.0 in $CHCl_3$).

Shah, R.M. *et al., Carbohydr. Res.*, 1974, **32**, 15
Durette, P.L. *et al., Carbohydr. Res.*, 1980, **81**, 261 (*synth*)

4-Aminophenyl 1-thioxylopyranoside A-443



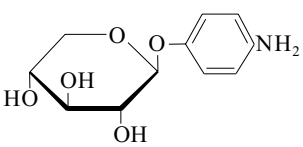
$C_{11}H_{15}NO_4S$ 257.31

β-D-*form*
Comly. available carbohydrate ligand for prepn. of affinity absorbents.
Cryst. (EtOH). Mp 150-151°. $[\alpha]_D^{22}$ -80.6 (c, 1.0 in MeOH).

N,*2,3,4-Tetra-Ac:* [62205-47-4]
$C_{19}H_{23}NO_8S$ 425.459
Cryst. (EtOH aq.). Mp 117-118.5°. $[\alpha]_D^{25}$ -69.2 (c, 1.0 in $CHCl_3$).

Claeyssens, M. *et al., Carbohydr. Res.*, 1972, **22**, 460 (*synth*)
Iino, N. *et al., Carbohydr. Res.*, 1976, **51**, 223 (*synth*)
Claeyssens, M. *et al., Affinity Chromatogr. Proc. Int. Symp.*, 1977, 107; *CA*, **90**, 82708g

4-Aminophenyl xylopyranoside, 8CI A-444



$C_{11}H_{15}NO_5$ 241.243

β-D-*form* [17306-95-5] Used as a carbohydrate ligand for preparing affinity adsorbents. Commercially available.
Cryst. (EtOH). Mp 192-193°. $[\alpha]_D^{22}$ -41.7 (c, 1 in H_2O).

N-*Ac:* [17306-97-7]
$C_{13}H_{17}NO_6$ 283.28
Cryst. (MeOH). Mp 174-175°. $[\alpha]_D^{22}$ -32 (c, 1.0 in H_2O).

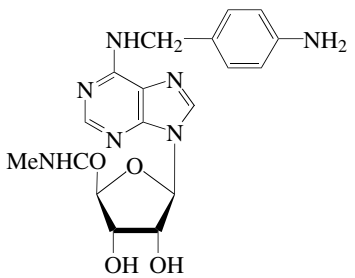
2,3,4-Tri-Ac: [17306-77-3]
$C_{17}H_{21}NO_8$ 367.355
Mp 154-155°. $[\alpha]_D^{22}$ -41.9 (c, 1.0 in $CHCl_3$).

N*,2,3,4-tetra-Ac:* [17453-88-2]
$C_{19}H_{23}NO_9$ 409.392
Mp 173-174°. $[\alpha]_D^{22}$ -41.6 (c, 2.0 in $CHCl_3$).

De Bruyne, C.K. *et al., Carbohydr. Res.*, 1967, **4**, 102 (*synth*)
Shafizadeh, F. *et al., Carbohydr. Res.*, 1974, **33**, 191
Schwabe, K. *et al., Pharmazie*, 1975, **30**, 70

1-[6-[[(4-Aminophenyl)methyl]amino]-9*H*-purin-9-yl]-1-deoxy-*N*-methyl-β-D-ribofuranuronamide, 9CI A-445

N^6-*(4-Aminobenzyl)adenosine-5′*-N-*methyluronamide. AB-MECA*
[152918-26-8]

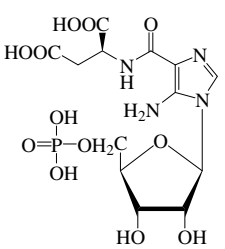


$C_{18}H_{21}N_7O_4$ 399.408
Adenosine A_3 selective receptor agonist. Mp 135° (dec.). Relat. to 1-[6-[[(4-Amino-3-iodophenyl)methyl]amino]-9*H*-purin-9-yl]-1-deoxy-*N*-methyl-β-D-ribofuranuronamide.

Gallo-Rodriguez, C. *et al., J. Med. Chem.*, 1994, **37**, 636-646 (*synth, pharmacol*)

N-(5-Amino-1-β-D-ribofuranosylimidazole-4-carbonyl)-L-aspartic acid 5′-phosphate A-446

N-*[[5-Amino-1-(5*-O*-phosphono-β-D-ribofuranosyl)-1*H*-imidazol-4-yl]carbonyl]aspartic acid, 9CI.* N-*[(5-Amino-1-β-D-ribofuranosylimidazol-4-yl)carbonyl]-5′-(dihydrogen phosphate)-L-aspartic acid, 8CI*
[3031-95-6]



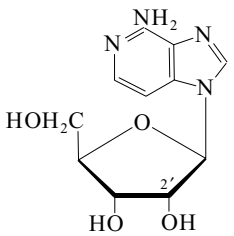
Absolute Configuration

$C_{13}H_{19}N_4O_{12}P$ 454.286
Nucleotide accumulated in mutants of *E. coli* and *Salmonella typhimurium*. Important purine precursor.
λ_{max} 269 (ε 11 850), 244 nm (9 580) (H_2O). Undergoes the enzyme-catalysed interconversion SAICAR ⇔ AICAR + Fumarate. In the presence of the Bratton-Marshall reagents and on cooling produces a purple chromophore with λ_{max} 550 nm.

Di-Ba salt: $[\alpha]_D^{21}$ -26.1 (c, 1.5 in 0.1N HCl).

Bratton, A.C. *et al., J. Biol. Chem.*, 1939, **128**, 537
Lukens, L.N. *et al., J. Biol. Chem.*, 1959, **234**, 1806
Burrows, I.E. *et al., J.C.S.(C)*, 1968, 40 (*synth*)
Brox, L.W. *et al., Can. J. Biochem.*, 1973, **51**, 1072

4-Amino-1-ribofuranosyl-1*H*-imidazo[4,5-*c*]pyridine, 9CI, 8CI A-447



$C_{11}H_{14}N_4O_4$ 266.256

β-D-*form*
3-Deazaadenosine
[6736-58-9]
Mp 229-231°. $[\alpha]_D^{27}$ -48.3 (c, 1.03 in H_2O). λ_{max} 267-80 (ε 9 500), 262 (10 300) (pH 1); 265 nm (10 800) (pH 11).

2′-Deoxy: 3-Deaza-2′-deoxyadenosine
[78582-15-7]
$C_{11}H_{14}N_4O_3$ 250.257
Mp 206° dec. (215°). $[\alpha]_D^{20}$ -25.5 (c, 1 in DMF). pK_a 6.8 (25°, H_2O).

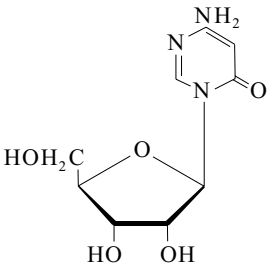
5′-Deoxy: 3-Deaza-5′-deoxyadenosine
[98858-09-4]
$C_{11}H_{14}N_4O_3$ 250.257
Cryst. +1H_2O. Mp 140°. $[\alpha]_D^{20}$ -31.9 (c, 0.5 in DMF).

[78582-17-9]

Rousseau, R.J. *et al., Biochemistry*, 1966, **5**, 756 (*synth*)
Mizuno, Y. *et al., Chem. Pharm. Bull.*, 1968, **16**, 2011 (*β-D-form, synth*)
May, J.A. *et al., Chem. Comm.*, 1973, 64 (*synth*)
Kitano, S. *et al., Biochem. Biophys. Res. Commun.*, 1975, **64**, 996 (*pmr*)
Singh, P. *et al., J.A.C.S.*, 1976, **98**, 825 (*cryst struct*)
Krenitsky, T.A. *et al., J. Med. Chem.*, 1986, **29**, 1386 (*derivs*)
Seela, F. *et al., Helv. Chim. Acta*, 1990, **73**, 1602; 1992, **75**, 1639 (*synth, pmr, cmr, 3-deaza-2′-dexoyadenosine*)
Reddy, A.M. *et al., J. Het. Chem.*, 1990, **27**, 1297 (*ms*)
Seratimouski, P. *et al., Synthesis*, 1990, 757 (*synth, uv, pmr, ms, 3-deaza-2′-deoxyadenosine*)

6-Amino-3-ribofuranosyl-4(3*H*)-pyrimidinone, 9CI, 8CI A-448

4-Amino-1-ribofuranosyl-6-pyrimidone



$C_9H_{13}N_3O_5$ 243.219

β-D-*form* [18645-81-3]
Inhibits bacteriostatic effect of Showdomycin, S-35 in *Escherichia coli*.
Cryst. (H_2O). Mp 237-239° dec. $[\alpha]_D^{26}$ -27.6 (c, 1.0 in DMF). λ_{max} 257 (ε 7 300) (H_2O, pH 1), 257 (6 100) (pH 4), 257 nm (6 300) (pH 14).

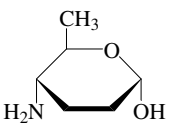
2′,3′,5′-Tribenzoyl:
$C_{30}H_{25}N_3O_8$ 555.543
Mp 137-138°.

*2′,3′,5′-Tribenzoyl, 4*N*-Ac:*
$C_{32}H_{27}N_3O_9$ 597.58
Mp 143-147°. $[\alpha]_D^{25}$ -20.3 (c, 0.5 in $CHCl_3$).

Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1813 (*β-D-form, synth*)
Winkley, M.W. *et al., J.O.C.*, 1969, **34**, 431 (*synth, pmr*)
Doskocil, J. *et al., Nucleic Acids Res.*, 1974, **1**, 491; *CA*, **82**, 165304h (*activity*)

4-Amino-2,3,4,6-tetradeoxy-*erythro*-hexose A-449

Tolyposamine



α-D-Pyranose-*form*

$C_6H_{13}NO_2$ 131.174

D-*form*
N,N-*Di-Me: 2,3,4,6-Tetradeoxy-4-(dimethylamino)-D-*erythro-*hexose, 8CI.* ***Forosamine****. Isomycamine*
[18423-27-3]
$C_8H_{17}NO_2$ 159.228
Constit. of Foromacidin A, F-24 and its derivs.
Mp 60° (75°). Bp_2 94-96°. $[\alpha]_D^{25}$ +86.1 (c, 0.9 in MeOH).

N,N,N-*Tri-Me:* [18423-34-2]
$C_9H_{20}NO_2^{\oplus}$ 174.262
Mp 180-182° (as iodide).

α-D-Pyranose-*form*
Me glycoside, N-*Me: Methyl 2,3,4,6-tetradeoxy-4-(methylamino)-α-D-*erythro-*hexopyranoside*
[79774-56-4]
$C_8H_{17}NO_2$ 159.228
Cryst. (MeOH/Et_2O/petrol). Mp 161°.

Me glycoside, N,N-*di-Me: Methyl 2,3,4,6-tetradeoxy-(4-dimethylamino)-α-D-*erythro-*hexopyranoside. Methyl α-D-forosaminide*
[28369-13-3]
$C_9H_{19}NO_2$ 173.255
Volatile liq.

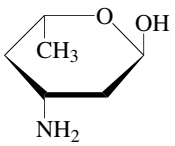
α-L-Pyranose-*form*

N-*(Trifluoroacetyl):*
$C_8H_{12}F_3NO_3$ 227.183
Mp 112-113°. $[\alpha]_D^{25}$ +28.9 (c, 1.5 in $CHCl_3$). $[\alpha]_D^{25}$ +10 (c, 1.3 in H_2O).

Stevens, C.L. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 225 (*synth, rev*)
Dyong, I. *et al., Angew. Chem., Int. Ed.*, 1976, **15**, 302 (*Forosamine, synth*)
Baer, H.H. *et al., Carbohydr. Res.*, 1979, **77**, C12-C15; 1981, **94**, 43-55 (*α-D-Me pyr derivs, α-L-pyr N-trifluoroacetyl*)
Malik, A. *et al., J.C.S. Perkin 1*, 1983, 2103-2109 (*Forosamine, synth*)
Ono, M. *et al., Heterocycles*, 1999, **51**, 1503-1508 (*synth, Forosamine*)

3-Amino-2,3,4,6-tetradeoxy-*threo*-hexose A-450

*3-Aminotetrahydro-6-methyl-2*H*-pyran-2-ol, 9CI. 4-Deoxydaunosamine*



$C_6H_{13}NO_2$ 131.174
Sugar component of, 4′-Deoxy.

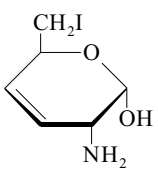
α-L-Pyranose-*form*

N-*(Trifluoroacetyl):* [73174-68-2]
$C_8H_{12}F_3NO_3$ 227.183
Mp 166°. $[\alpha]_D^{25}$ -85 → -47 (20h) (c, 0.18 in $CHCl_3$).

Me glycoside, N-*(trifluoroacetyl):* [73113-99-2]
$C_9H_{14}F_3NO_3$ 241.21
Long needles. Mp 123-123.5°. $[\alpha]_D^{25}$ -128.8 (c, 0.7 in $CHCl_3$).

Baer, H.H. *et al., Carbohydr. Res.*, 1979, **77**, C12-C15

2-Amino-2,3,4,6-tetradeoxy-6-iodo-*erythro*-hex-3-enose A-451



$C_6H_{10}INO_2$ 255.055

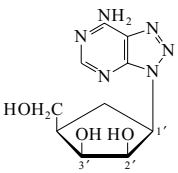
α-D-Pyranose-*form*

Benzyl glycoside, N-*benzyloxycarbonyl: Benzyl 2-benzyloxycarbonylamino-2,3,4,6-tetradeoxy-6-iodo-α-D-*erythro-*hex-3-enopyranoside*
[94795-48-9]
$C_{21}H_{22}INO_4$ 479.314
Multifunctional carbohydrate synthon. Cryst. (EtOH). Mp 139-140° (129-130°). $[\alpha]_D^{23}$ +22 (c, 0.8 in $CHCl_3$). $[\alpha]_D^{22}$ -151 (c, 1 in $CHCl_3$).

Garegg, P.J. *et al., J. Carbohydr. Chem.*, 1984, **3**, 189 (*synth, cmr*)
Pakulski, Z. *et al., Carbohydr. Res.*, 1990, **205**, 410 (*α-D-benzyloxycarbonyl, pmr, cmr*)

3-(7-Amino-3*H*-1,2,3-triazolo[4,5-*d*]pyrimidin-3-yl)-5-(hydroxymethyl)-1,2-cyclopentanediol, 9CI A-452

[41538-35-6]



(1′*RS*,2′*RS*,3′*SR*,4′*RS*)-*form*

$C_{10}H_{14}N_6O_3$ 266.259
Nucleoside-type numbering shown. Carbocyclic nucleoside showing antineoplastic activity.

(1′*RS*,2′*RS*,3′*SR*,4′*RS*)-*form*
all-cis-*form*
[72346-01-1]
Powder (H_2O). Mp 244-246° dec.

(1′*RS*,2′*SR*,3′*RS*,4′*RS*)-*form* [58342-69-1]
Cryst. (H_2O). Mp 278° dec.

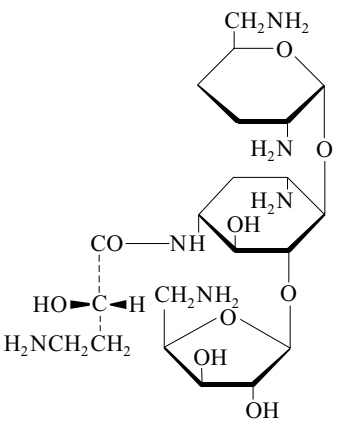
(1′*RS*,2′*SR*,3′*SR*,4′*RS*)-*form*
Carbocyclic 8-azaadenosine
[91382-85-3]
Powder (H_2O). Mp 254-256° dec.

[69979-50-6, 78738-55-3]

Bennett, L.L. *et al., Ann. N.Y. Acad. Sci.*, 1975, **255**, 342; *CA*, **84**, 84274n (*pharmacol*)
Vince, R. *et al., J.O.C.*, 1980, **45**, 531 (*synth, ir, pmr*)
Vince, R. *et al., J. Med. Chem.*, 1984, **27**, 1358 (*synth, ir, pmr, ms*)

5″-Amino-3′,4,5″-trideoxybutirosin A A-453

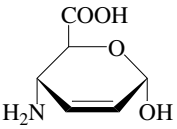
[56182-07-1]



$C_{21}H_{42}N_6O_9$ 522.598
Aminoglycoside antibiotic. Semisynthetic. Powder. Mp 175° (dec.). $[\alpha]_D^{21}$ +12.8 (c, 1.09 in H_2O). Log P -6.51 (uncertain value) (calc).

Woo, P.W.K. *et al., J. Antibiot.*, 1975, **28**, 522 (*synth, props*)
Saeki, H. *et al., J. Antibiot.*, 1975, **28**, 530 (*synth, pmr*)

4-Amino-2,3,4-trideoxy-*erythro*-hex-2-enuronic acid A-454



α-Pyranose-*form*

$C_6H_9NO_4$ 159.141

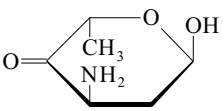
D-*form*
Constit. of the nucleoside antibiotic Blasticidin S.

α-D-Pyranose-*form*

*Me glycoside: Methyl 4-amino-2,3,4-trideoxy-α-D-*erythro-*hex-2-enopyranosiduronic acid, 8CI*
[28153-97-1]
$C_7H_{11}NO_4$ 173.168
Pale yellow cryst. + ½ H_2O (Me_2CO aq.). Mp 270° dec. $[\alpha]_D^{23}$ +30.5 (c, 0.3 in H_2O). Sl. hygroscopic.

Fox, J.J. *et al., Tet. Lett.*, 1966, 897 (*struct*)
Watanabe, K.A. *et al., Tetrahedron*, 1970, **26**, 3883 (*α-D-pyr Me gly*)

3-Amino-2,3,6-trideoxy-*erythro*-hexopyranos-4-ulose A-455



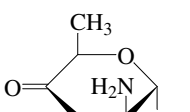
$C_6H_{11}NO_3$ 145.158

α-L-*form*

Me glycoside, N-*(trifluoroacetyl):* [67758-47-8]
$C_9H_{12}F_3NO_4$ 255.193
Cryst. Mp 116-117°. $[\alpha]_D^{24}$ -227 (c, 0.53 in CCl_4).

Sztaricskai, F. *et al., Carbohydr. Res.*, 1978, **65**, 193 (*α-L-Me gly deriv, ir, ms*)

2-Amino-2,3,6-trideoxy-*threo*-hexopyranos-4-ulose A-456



α-D-*form*

$C_6H_{11}NO_3$ 145.158

α-D-*form*

Me glycoside, N-*Ac:* [24905-56-4]
$C_9H_{15}NO_4$ 201.222
Cryst. (EtOAc/hexane). Mp 125-126°. $[\alpha]_D^{32}$ +148 (c, 0.5 in $CHCl_3$).

Me glycoside, N-*Ac, oxime:* [24905-57-5]
$C_9H_{16}N_2O_4$ 216.236
Needles (EtOAc). Mp 155-159°. $[\alpha]_D^{28}$ +67 (c, 1.0 in $CHCl_3$).

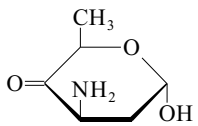
α-L-*form*

Me glycoside, N-*Ac:* [64880-56-4]
Cryst. (Et_2O). Mp 114-116°. $[\alpha]_D^{20}$ -122 (c, 1.44 in $CHCl_3$).

Kitahara, K. *et al., Agric. Biol. Chem.*, 1969, **33**, 748 (α-D-*Me gly derivs, ir*)

Florent, J.C. *et al., Carbohydr. Res.*, 1977, **56**, 301 (α-L-*Me gly deriv, ir, pmr*)

3-Amino-2,3,6-trideoxy-*threo*-hexopyranos-4-ulose A-457



$C_6H_{11}NO_3$ 145.158

D-*form*

Me glycoside, N-*benzyloxycarbonyl:* [83532-11-0]
$C_{15}H_{19}NO_5$ 293.319
Cryst. (Et_2O/hexane). Mp 73-75°. $[\alpha]_D^{25}$ +88.5 ($CHCl_3$).

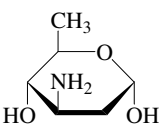
Me glycoside, N-*phthalimide:* [95968-27-7]
$C_{15}H_{15}NO_5$ 289.287
Cryst. (MeOH). Mp 133-135°. $[\alpha]_D^{25}$ +96.4 ($CHCl_3$).

Me glycoside, N-*(trifluoroacetyl):* [56354-07-5]
$C_9H_{12}F_3NO_4$ 255.193
Syrup.

Penco, S. *et al., Process Biochem.*, 1980, **15**, 12; *CA*, **93**, 239831d (α-D-*Me gly N-trifluoroacetyl*)

Kondo, Y. *et al., Carbohydr. Res.*, 1984, **135**, 167 (α-D-*Me gly N-benzyloxycarbonyl,* α-D-*Me gly N-phthalimide, ir, pmr*)

3-Amino-2,3,6-trideoxy-*arabino*-hexose A-458
Acosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_3$ 147.174

D-*form* [23089-59-0]
Isol. from Sporaviridin, S-71.
Cryst. (2-propanol/Et_2O) (as hydrochloride).
Mp 168-170° dec. (hydrochloride). CAS no. refers to hydrochloride.

N-*Ac: 3-Acetamido-2,3,6-trideoxy-*D*-*arabino-*hexopyranose*
[23089-58-9]
$C_8H_{15}NO_4$ 189.211
Cryst. (2-propanol/Et_2O). Mp 199-201° dec. $[\alpha]_D$ +30.4 → +18.3 (c, 0.8 in H_2O).

α-D-Pyranose-*form*

*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-*α*-*D*-*arabino-*hexopyranoside*
$C_7H_{15}NO_3$ 161.2
Cryst. (Et_2O/MeOH). Mp 128.5-129.5°. $[\alpha]_D^{25}$ +142.8 (MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-2,3,6-trideoxy-*α*-*D*-*arabino-*hexopyranoside*
[17016-62-5]
$C_9H_{17}NO_4$ 203.238
Cryst. (MeOH/Et_2O/petrol). Mp 158°. $[\alpha]_D$ +137 (c, 1.55 in MeOH).

β-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-2,3,6-trideoxy-*β*-*D*-*arabino-*hexopyranoside*
[23089-57-8]
$C_9H_{17}NO_4$ 203.238
Cryst. (EtOH/petrol). Mp 224-226°. $[\alpha]_D$ -57.6 (c, 0.95 in H_2O).

L-*form* [41094-24-0]
Component of Actinoidin and Sporaviridin, S-71.
Powder (as hydrochloride). $[\alpha]_D^{21}$ -18.3 (c, 0.43 in H_2O). CAS no. refers to hydrochloride.

N-*Ac: 3-Acetamido-2,3,6-trideoxy-*L*-*arabino-*hexose*
$C_8H_{15}NO_4$ 189.211
Syrup.

*4-Me: 3-Amino-2,3,6-trideoxy-4-*O*-methyl-*L*-*arabino-*hexose, 9CI.* ***Actinosamine***
[41094-25-1]
$C_7H_{15}NO_3$ 161.2
Isol. from Actinoidin.

4-Me, N-*Ac: 3-Acetamido-2,3,6-trideoxy-4-*O*-methyl-*L*-*arabino-*hexose*
$C_9H_{17}NO_4$ 203.238
Cryst. (MeOH/Et_2O). $[\alpha]_D^{20}$ -49 (c, 0.3 in MeOH).

α-L-Pyranose-*form*

*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-*α*-*L*-*arabino-*hexopyranoside*
[54623-23-3]
$C_7H_{15}NO_3$ 161.2
Cryst. (MeOH/Et_2O). Mp 132-133°. $[\alpha]_D^{26}$ -145.1 (c, 0.61 in MeOH).

Me glycoside; hydrochloride: [54623-24-4]
Cryst. (EtOH/Et_2O). Mp 196-198° dec. $[\alpha]_D^{25}$ -115.5 (c, 0.5 in MeOH).

Me glycoside, N-*Ac: Methyl 3-acetamido-2,3,6-trideoxy-*α*-*L*-*arabino-*hexopyranoside. Methyl* N-*acetylacosaminide*
[40879-86-5]
Cryst. (EtOH/Et_2O). Mp 159-160°. $[\alpha]_D^{25}$ -148 (c, 0.4 in MeOH).

Me glycoside, N,O-*di-Ac: Methyl 3-acetamido-4-*O*-acetyl-2,3,6-trideoxy-*α*-*L*-arabino-*hexopyranoside*
[40879-83-2]
$C_{11}H_{19}NO_5$ 245.275
Mp 159°. $[\alpha]_D^{20}$ -191 (c, 0.54 in MeOH).

Me glycoside, N-*benzoyl: Methyl 3-benzamido-2,3,6-trideoxy-*α*-*L*-arabino-*hexopyranoside*
[54656-60-9]
$C_{14}H_{19}NO_4$ 265.308
Cryst. (MeOH/Et_2O). Mp 204-206°. $[\alpha]_D^{25}$ -92 (c, 0.52 in MeOH).

Me glycoside, 4-Me, N-*Ac: Methyl 3-acetamido-2,3,6-trideoxy-4-*O*-methyl-*α*-*L*-arabino-*hexopyranoside. Methyl* N-*acetylactinosaminide*
[40879-81-0]
$C_{10}H_{19}NO_4$ 217.264
Cryst. Mp 188-190°. $[\alpha]_D^{21}$ -150 (c, 0.5 in MeOH).

Richardson, A.C. *et al., Carbohydr. Res.*, 1967, **4**, 422 (α-D-*Me pyr N-Ac*)

Baer, H.H. *et al., Can. J. Chem.*, 1969, **47**, 89 (D-*pyr-form, synth,* D-*pyr-N-Ac,* β-D-*Me pyr N-Ac*)

Lomakina, N.N. *et al., Khim. Prir. Soedin.*, 1973, **9**, 101; *Chem. Nat. Compd. (Engl. Transl.)*, 1973, **9**, 90 (*struct, Acosamine, Actinosamine*)

Gupta, S.K. *et al., Carbohydr. Res.*, 1974, **37**, 381 (α-L-*Me pyr,* α-L-*Me pyr N-Ac,* α-L-*Me pyr N-benzoyl*)

Lee, W.W. *et al., J. Med. Chem.*, 1975, **18**, 768 (L-*form, struct,* α-L-*Me pyr,* α-L-*Me pyr N-Ac,* α-L-*Me pyr N-benzoyl,* α-L-*Me pyr N-Ac Me*)

Harada, K.-L. *et al., Carbohydr. Res.*, 1979, **75**, C17 (α-D-*pyr, isol,* α-D-*Me-pyr N-Ac*)

Pelyvás, I. *et al., Carbohydr. Res.*, 1980, **84**, C5 (*synth*)

Wovkulich, P.M. *et al., J.A.C.S.*, 1981, **103**, 3956 (L-*form, synth, bibl*)

Stewart, A.O. *et al., Carbohydr. Res.*, 1984, **135**, 167 (*synth*)

Suami, T. *et al., J. Carbohydr. Chem.*, 1984, **3**, 429-441 (*synth*)

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1985, **136**, 419 (α-L-*Me pyr N-Ac synth*)

Pelyvás, I. *et al., Carbohydr. Res.*, 1986, **146**, 193 (L-*form, synth*)

Hauser, F.M. *et al., Chem. Rev.*, 1986, **86**, 35 (*rev*)

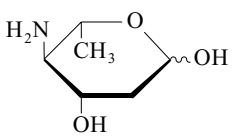
Ha, D.C. *et al., Tet. Lett.*, 1987, **28**, 4489 (α-L-*Me pyr N-benzoyl, synth*)

Menzel, A. *et al., Synthesis*, 1999, 1691-1702 (α-L-*Me pyr,* α-L-*Me pyr di-Ac*)

Renneberg, B. *et al., Carbohydr. Res.*, 2000, **329**, 861-872 (*synth*)

Ginesta, X. *et al., Org. Lett.*, 3004, **2003**, 5-3001 (*synth*)

4-Amino-2,4,6-trideoxy-*arabino*-hexose A-459



$C_6H_{13}NO_3$ 147.174

L-*form*

*3-Me: 4-Amino-2,4,6-trideoxy-3-*O*-methyl-*arabino-*hexose. Holantosamine. 4-Amino-4-deoxyoleandrose*
[68024-70-4]
$C_7H_{15}NO_3$ 161.2
Constit. of Holarosine A, Holantosines C and D (see Holantogenin and Anhydroholantogenin), isol. from the leaves of *Holarrhena antidysenterica*.

α-L-Pyranose-*form*

Me glycoside, 3-Me, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3-*O*-methyl-*α*-*L*-arabino-*hexopyranoside*
[33778-39-1]
$C_{10}H_{19}NO_4$ 217.264
Mp 212°. $[\alpha]_D^{20}$ +41 (c, 1.0 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside, 3-Me, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3-*O-*methyl-β-L-*arabino-*hexopyranoside*
[33778-40-4]
Mp 159-161°. $[\alpha]_D^{20}$ -107 (c, 1.0 in $CHCl_3$).

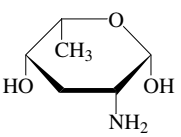
β-DL-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-DL-*arabino-*hexopyranoside. Methyl DL-desmethylholantosaminide*
[103773-71-3]
$C_9H_{17}NO_4$ 203.238
Solid. Mp 175-178°.

Me glycoside, 3-tosyl, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3-*O-*tosyl-β-DL-*arabino-*hexopyranoside*
[103703-26-0]
$C_{16}H_{23}NO_6S$ 357.427
Cryst. (CH_2Cl_2/petrol). Anomeric config. not certain. It is not stated in the paper and is difficult to interpret from the drawing of the crystal struct. determination.

Khuong-Huu, Q. *et al., Bull. Soc. Chim. Fr.*, 1971, 864 (*isol*)
Goutarel, R. *et al., Carbohydr. Res.*, 1972, **24**, 297 (*isol, pmr*)
Fronza, G. *et al., Carbohydr. Res.*, 1985, **136**, 115 (*synth*)
Welch, J.T. *et al., J. Carbohydr. Chem.*, 1985, **4**, 421-427 (*Me DL-gly N-Ac, Me DL-gly tosyl N-Ac, cryst struct*)

2-Amino-2,3,6-trideoxy-*lyxo*-hexose A-460



β-L-Pyranose-*form*

$C_6H_{13}NO_3$ 147.174

β-L-Pyranose-*form*

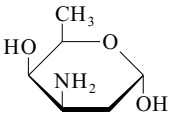
Me glycoside, N-*Ac: Methyl 2-acetamido-2,3,6-trideoxy-β-L-*lyxo-*hexopyranoside*
$C_9H_{17}NO_4$ 203.238
Cryst. (Me_2CO/petrol). Mp 130-132° (prior softening) (107-100°). $[\alpha]_D$ +96 (c, 1 in $CHCl_3$). $[\alpha]_D^{27}$ +31 (c, 0.78 in $CHCl_3$). The two preparations with different phys. props. had identical pmr spectra.

Me glycoside, N,*4-di-Ac: Methyl 2-acetamido-4-*O-*acetyl-2,3,6-trideoxy-β-L-*lyxo-*hexopyranoside*
$C_{11}H_{19}NO_5$ 245.275
Syrup. No phys. props. reported.

Gallagher, T.F. *et al., Carbohydr. Res.*, 1983, **116**, 227 (*synth, β-L-Me pyr N-Ac*)
Abuaan, M.A. *et al., Carbohydr. Res.*, 1984, **132**, 51 (*synth, deriv*)

3-Amino-2,3,6-trideoxy-*lyxo*-hexose A-461

Daunosamine



α–D–Pyranose–*form*

$C_6H_{13}NO_3$ 147.174

D-*form*

Hydrolysis prod. of Daunomycin.

N-*Ac: 3-Acetamido-2,3,6-trideoxy-D-*lyxo-*hexose*
[23089-62-5]
$C_8H_{15}NO_4$ 189.211
Cryst. (EtOAc). Mp 145-146°. $[\alpha]_D^{23}$ +101 → +94.2 (c, 0.5 in H_2O).

N-*Benzoyl: 3-Benzamido-2,3,6-trideoxy-D-*lyxo-*hexose*
$C_{13}H_{17}NO_4$ 251.282
Mp 151°. $[\alpha]_D$ +110.5 (EtOH).

α-D-Pyranose-*form*

*Me glycoside, 3,4-di-Ac: Methyl 3-acetamido-4-*O-*acetyl-2,3,6-trideoxy-α-D-*lyxo-*hexopyranoside*
[6605-26-1]
$C_{11}H_{19}NO_5$ 245.275
Cryst. (EtOAc/petrol). Mp 189-190°. $[\alpha]_D$ +186 ($CHCl_3$).

L-*form* [26548-47-0]
A component of Adriamycin, A-58, Daunomycin, Carminomycin I and Carminomycin II.

Hydrochloride: [19196-51-1]
Mp 168° dec. (156-158°). $[\alpha]_D^{20}$ -54.5 (H_2O). $[\alpha]_D^{21}$ -63.2 (c, 1.0 in H_2O).

N-*Benzoyl: 3-Benzamido-2,3,6-trideoxy-L-*lyxo-*hexose*
[17016-65-8]
$C_{13}H_{17}NO_4$ 251.282
Cryst. (Me_2CO). Mp 154-156°. $[\alpha]_D$ -107.5 (EtOH).

α-L-Pyranose-*form*

N-*Ac:*

[57918-59-9, 129172-05-0]
$C_8H_{15}NO_4$ 189.211
$[\alpha]_D^{20}$ -73.4 (c, 1 in H_2O). Opt. rotn. data refers to 1:1.6 mixt. of α:β anomers.

*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-α-L-*lyxo-*hexopyranoside*
[32385-07-2]
$C_7H_{15}NO_3$ 161.2
Cryst. (Et_2O). Mp 114-115° (109-110°). $[\alpha]_D^{20}$ -197.4 (c, 1.0 in MeOH). $[\alpha]_D$ -210 ($CHCl_3$).

Me glycoside, hydrochloride: Mp 194-197° (188-189°). $[\alpha]_D^{21}$ -135.8 (c, 1.0 in MeOH).

*Me glycoside, 3,4-di-Ac: Methyl 3-acetamido-4-*O-*acetyl-2,3,6-trideoxy-α-L-*lyxo-*hexopyranoside*
[18981-63-0]
$C_{11}H_{19}NO_5$ 245.275
Mp 187-188° Mp 176-178°. $[\alpha]_D$ -204 ($CHCl_3$). $[\alpha]_D$ -130 ($CHCl_3$).

Me glycoside, N-*benzoyl: Methyl 3-benzamido-2,3,6-trideoxy-α-L-*lyxo-*hexopyranoside*
$C_{14}H_{19}NO_4$ 265.308
Mp 160-162° (155-156°). $[\alpha]_D$ -167 (c, 0.4 in MeOH). $[\alpha]_D^{21}$ -189.4 (c, 1.0 in $CHCl_3$).

*Me glycoside, 3,4-dibenzoyl: Methyl 3-benzamido-4-*O-*benzoyl-2,3,6-trideoxy-α-L-*lyxo-*hexopyranoside*
$C_{21}H_{23}NO_5$ 369.416
Mp 143-144°. $[\alpha]_D^{21}$ -222.8 (c, 1.0 in $CHCl_3$).

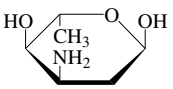
DL-*form*

Hydrochloride: Mp 148-150°.

Arcamone, F. *et al., J.A.C.S.*, 1964, **86**, 5335 (*struct, L-N-benzoyl, α-L-Me pyr di-Ac*)
Richardson, A.C. *et al., Chem. Comm.*, 1965, 627 (*D-N-benzoyl, α-D-Me pyr di-Ac*)
Marsh, J.P. *et al., Chem. Comm.*, 1967, 973 (*L-form, α-L-Me pyr, α-L-Me pyr di-Ac*)
Baer, H.H. *et al., Can. J. Chem.*, 1969, **47**, 89 (*D-N-Ac, α-D-Me pyr di-Ac*)
Vigevani, A. *et al., Carbohydr. Res.*, 1974, **32**, 321 (*ms, α-L-Me pyr N-benzoyl*)
Medgyes, G. *et al., Carbohydr. Res.*, 1981, **92**, 225 (*synth*)
Fronza, G. *et al., J.C.S. Perkin 1*, 1982, 885 (*cmr*)
Grethe, G. *et al., J.O.C.*, 1983, **48**, 5309; 5315 (*L-form, α-L-Me pyr*)
Danishefsky, S.J. *et al., J.A.C.S.*, 1985, **107**, 1246 (*total synth, DL-form*)
Pauls, H.W. *et al., Carbohydr. Res.*, 1986, **150**, 111 (*synth*)
Hauser, F.M. *et al., Chem. Rev.*, 1986, **86**, 35 (*rev*)
Gurjar, M.K. *et al., Tet. Lett.*, 1987, **28**, 1327 (*synth, L-form*)
Kitta, Y. *et al., Tet. Lett.*, 1987, **28**, 1431 (*synth, L-N-benzoyl*)
Sammes, P.G. *et al., J.C.S. Perkin 1*, 1988, 111 (*L-form, α-L-Me pyr N-benzoyl, α-L-Me pyr dibenzoyl, α-L-Me pyr*)
Renneberg, B. *et al., Carbohydr. Res.*, 2000, **329**, 861-872 (*synth*)
Effenberger, F. *et al., Tetrahedron*, 2000, **11**, 1085-1095 (*L-form, N-Ac, pmr, synth*)
Ginesta, X. *et al., Org. Lett.*, 2003, **5**, 3001-3004 (*synth*)

3-Amino-2,3,6-trideoxy-*ribo*-hexose A-462

Ristosamine



α-L-Pyranose-*form*

$C_6H_{13}NO_3$ 147.174

L-*form* [51869-30-8]

[51869-31-9]
Component of Actaplanin, Ristomycin A and other antibiotics.
Mp 118-119° (as picrate).

N-*Benzoyl: 3-Benzamido-2,3,6-trideoxy-L-*ribo-*hexose*
[51869-37-5]
$C_{13}H_{17}NO_4$ 251.282
Cryst. (H_2O). Mp 131-133°. $[\alpha]_D^{23}$ -14 → -11 (c, 0.7 in EtOH).

α-L-*form*

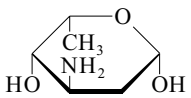
Me glycoside, N-*(trichloroacetyl): Methyl 3-trichloroacetamido-2,3,6-trideoxy-α-L-*ribo-*hexopyranoside*
[83803-07-0]
$C_9H_{14}Cl_3NO_4$ 306.572
Light yellow solid. Mp 94-97°.

[51869-32-0]

Umezawa, S. *et al., Adv. Carbohydr. Chem. Biochem.*, 1974, **30**, 111 (*rev*)
Bognar, R. *et al., J.O.C.*, 1974, **39**, 2971 (*L-form, struct, L-N-benzoyl*)
Sztaricskai, F. *et al., Tet. Lett.*, 1975, 1111 (*L-N-benzoyl*)
Suami, T. *et al., J. Carbohydr. Chem.*, 1984, **3**, 429-441 (*synth*)
Pauls, W. *et al., Carbohydr. Res.*, 1986, **150**, 111 (*synth*)
Hauser, F.M. *et al., J.O.C.*, 1986, **51**, 50 (*synth, α-L-Me pyr N-trichloroacetyl*)
Renneberg, B. *et al., Carbohydr. Res.*, 2000, **329**, 861-872 (*synth*)
Ginesta, X. *et al., Org. Lett.*, 2003, **5**, 3001-3004 (*synth*)

3-Amino-2,3,6-trideoxy-*xylo*-hexose A-463

3-Epidaunosamine



$C_6H_{13}NO_3$ 147.174

L-Pyranose-*form*

N-*Ac: 3-Acetamido-2,3,6-trideoxy-L-*xylo-*hexopyranose*
[94926-08-6]
$C_8H_{15}NO_4$ 189.211
Cryst. Mp 120-122°. $[\alpha]_D^{21}$ -12.4 (c, 0.86 in MeOH) (equilib.).

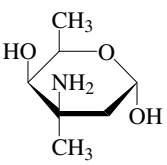
β-L-Pyranose-*form*

Me glycoside, N,N-*di-Me: Methyl 2,3,6-trideoxy-3-dimethylamino-β-L-*xylo-*hexopyranoside*
[85373-11-1]
$C_9H_{19}NO_3$ 189.254
Pale yellow oil. $[\alpha]_{Hg746}^{25}$ +48.1 (c, 1.0 in MeOH).

[100206-45-9, 100206-46-0]

Iyengar, B.S. *et al., Carbohydr. Res.*, 1986, **157**, 95
Hauser, F.M. *et al., Chem. Rev.*, 1986, **86**, 35 (*rev*)
Herczegh, P. *et al., Tet. Lett.*, 1990, **31**, 1195 (*Ac, synth, pmr*)
Renneberg, B. *et al., Carbohydr. Res.*, 2000, **329**, 861-872 (*synth*)

3-Amino-2,3,6-trideoxy-3-*C*-methyl-*lyxo*-hexose, 9CI A-464



α-D-Pyranose-*form*

$C_7H_{15}NO_3$ 161.2

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 3-acetamido-2,3,6-trideoxy-3-*C*-methyl-α-D-*lyxo-*hexopyranoside*
[85687-28-1]
$C_{10}H_{19}NO_4$ 217.264
Cryst. ($Et_2O/CHCl_3$/petrol). Mp 132-133.5°. $[\alpha]_D$ +115 (c, 0.5 in $CHCl_3$).

L-form Vancosamine
[36480-36-1]
Aminosugar from Vancomycin.

α-L-Pyranose-*form*

*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-3-*C*-methyl-α-L-*lyxo-*hexopyranoside. Methyl α-vancosaminide*
[37091-12-6]
$C_8H_{17}NO_3$ 175.227
$[\alpha]_D^{15}$ -118 (c, 0.09 in MeOH).

Me glycoside, N,O-*dibenzoyl: Methyl 3-benzamido-4-*O*-benzoyl-2,3,6-trideoxy-3-*C*-methyl-α-L-*lyxo-*hexopyranoside*
[37091-13-7]
$C_{22}H_{25}NO_5$ 383.443
Needles (Et_2O/petrol). Mp 168-169°. $[\alpha]_D^{22}$ -191 (c, 0.11 in MeOH).

Et glycoside, N-*benzoyl: Ethyl 3-benzamido-2,3,6-trideoxy-3-*C*-methyl-α-L-*lyxo-*hexopyranoside*
[37091-17-1]
$C_{16}H_{23}NO_4$ 293.362
$[\alpha]_D^{25}$ -137 (c, 0.1 in MeOH).

Et glycoside, N,O-*dibenzoyl: Ethyl 3-benzamido-4-*O*-benzoyl-2,3,6-trideoxy-3-*C*-methyl-α-L-*lyxo-*hexopyranoside*
[37091-15-9]
$C_{23}H_{27}NO_5$ 397.47
Needles (Et_2O/petrol). Mp 131-133°. $[\alpha]_D^{25}$ -179 (c, 0.27 in MeOH).

β-L-Pyranose-*form*

*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-3-*C*-methyl-β-L-*lyxo-*hexopyranoside. Methyl β-L-vancosaminide*
[172722-46-2]
$C_8H_{17}NO_3$ 175.227
Viscous gum. $[\alpha]_D^{20}$ +26 (c, 0.7 in $CHCl_3$).

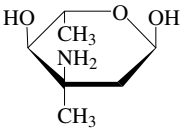
Me glycoside, N,O-*dibenzoyl: Methyl 3-benzamido-4-*O*-benzoyl-2,3,6-trideoxy-3-*C*-methyl-β-L-*lyxo-*hexopyranoside*
[37091-14-8]
$C_{22}H_{25}NO_5$ 383.443
Gum. $[\alpha]_D^{22}$ -64 (c, 0.14 in MeOH).

Et glycoside, N,O-*dibenzoyl: Ethyl 3-benzamido-4-*O*-benzoyl-2,3,6-trideoxy-3-*C*-methyl-β-L-*lyxo-*hexopyranoside*
[37091-16-0]
$C_{23}H_{27}NO_5$ 397.47
Needles (Et_2O/petrol). Mp 97-99°. $[\alpha]_D^{25}$ -82 (c, 0.24 in MeOH).

Lukacs, G. *et al., Bull. Soc. Chim. Fr.*, 1972, 3995 (*cmr*)
Smith, R.M. *et al., Chem. Comm.*, 1972, 361 (*isol, dibenzoyl derivs*)
Weringa, W.D. *et al., J.C.S. Perkin 1*, 1972, 443 (*struct, pmr*)
Johnson, A.W. *et al., J.C.S. Perkin 1*, 1972, 2153 (*isol, struct, α-L-Me pyr, α-L-Et pyr N-benzoyl, dibenzoyl derivs*)
Ahmad, H.I. *et al., Carbohydr. Res.*, 1981, **93**, 288 (*synth, derivs*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1982, **110**, 207 (*α-D-Me pyr N-Ac*)
Greven, R. *et al., Carbohydr. Res.*, 1995, **275**, 83-93 (*β-L-Me pyr, synth*)
Smith, G.R. *et al., Carbohydr. Res.*, 2000, **323**, 208-212 (*α-L-Me pyr, synth, pmr, cmr*)

3-Amino-2,3,6-trideoxy-3-*C*-methyl-*ribo*-hexose, 9CI A-465

Avidinosamine



α-L-Pyranose-*form*

$C_7H_{15}NO_3$ 161.2

L-form
Component of Avidinorubicin.

α-L-Pyranose-*form*

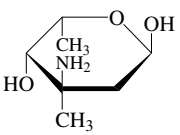
*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-3-*C*-methyl-α-L-*ribo-*hexopyranoside*
[98501-52-1]
$C_8H_{17}NO_3$ 175.227
Cryst. (Et_2O/pentane). Mp 99-101°. $[\alpha]_D^{25}$ -181 (c, 0.97 in $CHCl_3$).

Me glycoside, N-*Ac:*
$C_{10}H_{19}NO_4$ 217.264
Cryst. (EtOAc/hexane). Mp 133-135°. $[\alpha]_D$ -26 (c, 1.7 in $CHCl_3$).

[83158-18-3, 83212-40-2]

Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1983, 2277-2280 (*synth*)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1986, **158**, 249-252 (*synth, pmr*)
Aoki, M. *et al., J. Antibiot.*, 1991, **44**, 635-645 (*isol, ir, cmr, pmr, ms*)
Greven, R. *et al., J.O.C.*, 1993, **58**, 3742-3747 (*synth, ir, pmr, cmr*)

3-Amino-2,3,6-trideoxy-3-*C*-methyl-*xylo*-hexose, 9CI A-466



α-L-Pyranose-*form*

$C_7H_{15}NO_3$ 161.2

L-Pyranose-*form* [74966-73-7]
Obt. by methanolysis of Antibiotic A 35512 with 1.5*M* HCl.
N,*4-Dibenzoyl: 3-Benzamido-4-*O*-benzoyl-2,3,6-trideoxy-3-*C*-methyl-α-L-*xylo-*hexopyranose*
$C_{21}H_{23}NO_5$ 369.416
Cryst. (petrol/EtOAc). Mp 184-186°. $[\alpha]_D^{25}$ -165.2 (c, 1.0 in MeOH).

α-L-Pyranose-*form*

*Me glycoside: Methyl 3-amino-2,3,6-trideoxy-3-*C*-methyl-α-L-*xylo-*hexopyranoside, 9CI*
[74966-74-8]
$C_8H_{17}NO_3$ 175.227
Mp 123-125°. $[\alpha]_D^{25}$ -52.4 (c, 1.0 in MeOH).

Me glycoside, N-*benzoyl: Methyl 3-benzamido-2,3,6-trideoxy-3*-C-*methyl-α-L-*xylo-*hexopyranoside*
[74966-76-0]
$C_{15}H_{21}NO_4$ 279.335
Cryst. (Et_2O/petrol). Mp 112-113°. $[\alpha]_D^{25}$ -150 (c, 2 in MeOH).

Me glycoside, N,*4-dibenzoyl: Methyl 3-benzamido-4*-O-*benzoyl-2,3,6-trideoxy-3*-C-*methyl-α-L-*xylo-*hexopyranoside*
[75044-07-4]
$C_{22}H_{25}NO_5$ 383.443
Cryst. (petrol/Et_2O). Mp 178-179.5°. $[\alpha]_D^{25}$ -191 (c, 1.0 in MeOH).

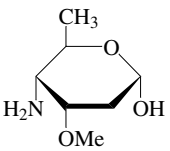
β-L-Pyranose-*form*

Me glycoside, N,*4-dibenzoyl: Methyl 3-benzamido-4*-O-*benzoyl-2,3,6-trideoxy-3*-C-*methyl-β-L-*xylo-*hexopyranoside*
[75044-08-5]
$C_{22}H_{25}NO_5$ 383.443
Cryst. (Et_2O/petrol). Mp 171-174°. $[\alpha]_D^{25}$ -91.5 (c, 1 in MeOH).

Debono, M. *et al., J. Antibiot.*, 1980, **33**, 1407 (*isol*)
Debono, M. *et al., J.O.C.*, 1980, **45**, 4685 (*isol, struct, pmr, cd, derivs*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1982, **105**, C1 (*synth*)

4-Amino-2,4,6-trideoxy-3-*O*-methyl-*ribo*-hexose A-467

Holosamine



α-D-Pyranose-*form*

$C_7H_{15}NO_3$ 161.2

D-*form*
Constit. of the steroidal cardiac glycoside Holantosine B. The 4-methylamino deriv. is a constit. of the steroidal cardiac glycosides Holacurtin and Mitiphylline.

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3*-O-*methyl-α-D-*ribo-*hexopyranoside, 8CI*
[25941-00-8]
$C_{10}H_{19}NO_4$ 217.264
Cryst. (Et_2O). Mp 155-156°. $[\alpha]_D^{20}$ +205 (c, 1.0 in $CHCl_3$).

Me glycoside, N-*Me,* N-*Ac:* [25878-55-1]
$C_{11}H_{21}NO_4$ 231.291
Cryst. (Et_2O). Mp 80-82°. $[\alpha]_D^{20}$ +273 (c, 1.0 in $CHCl_3$).

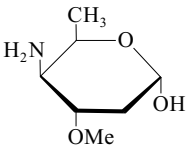
β-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3*-O-*methyl-β-D-*ribo-*hexopyranoside*
[28708-14-7]
$C_{10}H_{19}NO_4$ 217.264
Cryst. (Me_2CO/hexane). Mp 159-163°. $[\alpha]_D^{20}$ +35 (c, 1.0 in $CHCl_3$).

Janot, M.M. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1968, **266**, 388; **267**, 1050 (*β-D-pyr N-Me, struct, pmr*)
Hildesheim, J. *et al., Tet. Lett.*, 1969, 2849 (*α-D-pyr Me gly N-Ac N-Me*)
Janot, M.M. *et al., Tetrahedron*, 1970, **26**, 1695 (*isol, α-D-pyr Me gly N-Ac, β-D-pyr Me gly N-Ac*)

4-Amino-2,4,6-trideoxy-3-*O*-methyl-*xylo*-hexose, 9CI A-468

Holacosamine



α-D-Pyranose-*form*

$C_7H_{15}NO_3$ 161.2

D-*form* [40738-42-9]
Constit. of the steroidal glycoside Holarosine B.

α-D-Pyranose-*form*

Me glycoside: Methyl 4-amino-2,4,6-trideoxy-3-O-*methyl-α-D-*xylo-*hexopyranoside, 9CI*
[40031-79-6]
$C_8H_{17}NO_3$ 175.227
$[\alpha]_D^{20}$ +130 (c, 2.0 in $CHCl_3$).

Me glycoside, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3*-O-*methyl-α-D-*xylo-*hexopyranoside*
[40031-75-2]
$C_{10}H_{19}NO_4$ 217.264
Cryst. Mp 94°. $[\alpha]_D^{20}$ +103 (c, 1.0 in $CHCl_3$).

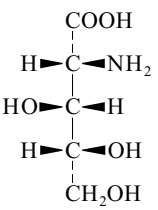
β-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 4-acetamido-2,4,6-trideoxy-3*-O-*methyl-β-D-*xylo-*hexopyranoside, 9CI*
[40031-76-3]
$C_{10}H_{19}NO_4$ 217.264
Cryst. (Et_2O). Mp 119°. $[\alpha]_D^{20}$ -57 (c, 1.0 in $CHCl_3$).

Goutarel, R. *et al., Carbohydr. Res.*, 1972, **24**, 297
Georges, M. *et al., Can. J. Chem.*, 1984, **62**, 1539 (*synth*)

2-Amino-3,4,5-trihydroxypentanoic acid A-469

2-Amino-2-deoxypentonic acid



(2*R*,3*R*,4*R*)-*form*

$C_5H_{11}NO_5$ 165.146

(2*R*,3*R*,4*R*)-*form*
2-Amino-2-deoxy-D-xylonic acid
[41325-39-7]
Mp 160° dec. $[\alpha]_D^{25}$ -3.4 (c, 1.9 in H_2O).

4,5-O-*Isopropylidene:* [41325-32-0]
$C_8H_{15}NO_5$ 205.21
Mp 201-202° dec.

(2*S*,3*S*,4*S*)-*form* *2-Amino-2-deoxy-L-xylonic acid, 9CI, 8CI.* ***Polyoxamic acid***
[19396-04-4]
Constituent of Polyoxin A, P-81, Polyoxin B, P-82, Polyoxin D, P-84, Polyoxin F, P-86, Polyoxin H, P-88, Polyoxin J, P-89, Polyoxin K, P-90, Polyoxin L, P-91 and Polyoxin N, P-93.
Cryst. +1H_2O (EtOH aq.).
Mp 171-173° dec. $[\alpha]_D^{23}$ +2.8 (c, 1.0 in H_2O).

5-Carbamate: 2-Amino-5-O-*carbamoyl-2-deoxy-L-xylonic acid. 5*-O-*Carbamoyl-polyoxamic acid*
[19396-05-5]
$C_6H_{12}N_2O_6$ 208.171
N-Terminal fragment of the polyoxin antibiotics.
Mp 210° dec Mp 226-232° dec.

5-Carbamate, 3,4-benzyl, N-*benzyloxycarbonyl:*
Syrup. $[\alpha]_D^{25}$ +32 (c, 0.94 in $CHCl_3$).

(2*S*,3*S*,4*R*)-*form* *2-Amino-2-deoxy-D-arabinonic acid*
Foam. $[\alpha]_D$ +5 (c, 0.2 in H_2O).

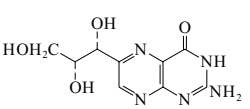
(2*R*,3*S*,4*R*)-*form* *2-Amino-2-deoxy-D-ribonic acid*
Foam. $[\alpha]_{365}$ -2.7 (c, 1.2 in H_2O).

(2*R*,3*R*,4*S*)-*form* *2-Amino-2-deoxy-L-arabinonic acid*
Foam. $[\alpha]_D$ -4.8 (c, 0.1 in H_2O).

Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*2S3S4S-forms, isol, struct*)
Kuzuhara, H. *et al., Agric. Biol. Chem.*, 1973, **37**, 949 (*2S3S4S-form, synth*)
Ohdan, S. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 981 (*2R3R4R-form, synth*)
Kuzuhara, H. *et al., Tet. Lett.*, 1973, 5051 (*2S3S4S carbamate*)
Funayama, S. *et al., Biochemistry*, 1977, **16**, 312; 3121 (*isol, biosynth*)
Uramoto, M. *et al., Nucleic Acids Res., Spec. Publ.*, 1978, **5**, 327 (*isol*)
Garner, P. *et al., J.O.C.*, 1988, **53**, 2979 (*2S3S4S carbamate*)
Savage, I. *et al., Chem. Comm.*, 1989, 717 (*2S3S4S-form, synth*)
Banik, B.K. *et al., J.O.C.*, 1993, **58**, 307 (*2R3R4R-form, synth*)
Rassu, G. *et al., J.C.S. Perkin 1*, 1994, 2431 (*2S3S4R-form, 2R3S4R-form, 2R3R4S-form, synth*)
Trost, B.M. *et al., J.A.C.S.*, 1996, **118**, 6520 (*synth*)
Tarrade, A. *et al., J.O.C.*, 2003, **68**, 9521-9524 (*2R3R4R-form, synth*)
Raghavan, S. *et al., Tet. Lett.*, 2003, **44**, 6713-6715 (*2S3S4S-form, synth, bibl*)

2-Amino-6-(1,2,3-trihydroxypropyl)-4(1*H*)-pteridinone, 9CI A-470

[670-65-5]



(1′*R*,2′*R*)-*form*

$C_9H_{11}N_5O_4$ 253.217

(1′*R*,2′*R*)-*form*
D-threo-*form*. ***D-Monapterin***. *Umanopterin*
[10162-32-0]
Isol. from *Tetrahymena pyriformis* and from the urine of cancer patients.
$[\alpha]_D^{25}$ -92 (c, 0.3 in 0.1*M* HCl).

*5,6*R,*7,8-Tetrahydro:* ***5,6,7,8-Tetrahydro-D-monapterin***
$C_9H_{15}N_5O_4$ 257.249
Isol. from *Tetrahymena pyriformis*.

(1′*S*,2′*S*)-*form*
L-threo-*form*. ***L-Monapterin***
[2277-42-1]
Constit. of human blood and urine. Yellow cryst. $[\alpha]_D^{25}$ +97 (c, 0.3 in 0.1*M* HCl).

*5,6*R,*7,8-Tetrahydro:* ***5,6,7,8-Tetrahydro-L-monapterin***
$C_9H_{15}N_5O_4$ 257.249
Isol. from *Escherichia coli*. Needles ($CHCl_3$) (as hexa-Ac).
Mp 139.5-141.5° (hexa-Ac).

(1′*S*,2′*R*)-*form* D-erythro-*form*. ***Neopterin***
[2009-64-5]
Found in human blood and urine. First isol. from the pupae of bees. Precursor in biosynth. of Biopterin. $[\alpha]_D^{25}$ +45 (c, 0.3 in 0.1*M* HCl).

3′-O-*β*-D-*Glucopyranoside:* ***Solfapterin***. *Neopterin 3*-O-*β*-D-*glucoside*
[114312-02-6]
$C_{15}H_{21}N_5O_9$ 415.359
Isol. from *Sulfolobus solfataricus*.

(1′*R*,2′*S*)-*form* L-erythro-*form*. ***Bufochrome***
[2277-43-2]
Found in human blood and urine. Also isol. from toad skins. Growth factor for the protozoan *Crithidia fasiculata*. $[\alpha]_D^{25}$ -44 (c, 0.3 in 0.1*M* HCl). λ_{max} 275 (ε 14600); 348 (ε 6180) (H_2O). λ_{max} 255 (ε 24000); 365 (ε 7050) (0.1*M* NaOH). λ_{max} 248 (ε 11600); 321 (ε 8020) (0.1*M* HCl).

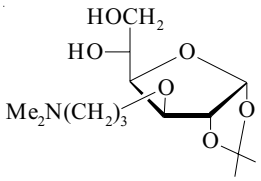
*5,6*R,*7,8-Tetrahydro:* ***5,6,7,8-Tetrahydro-L-monapterin***
$C_9H_{15}N_5O_4$ 257.249

[39923-31-4, 87174-05-8]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 480C (*nmr*)
Rembold, H. *et al., Chem. Ber.*, 1963, **96**, 1406 (*struct, synth*)
Andrews, K.J.M. *et al., Chem. Comm.*, 1968, 120
v. Viscontini, M. *et al., Helv. Chim. Acta*, 1968, **51**, 1495 (*synth, pmr*)
Fukushima, T. *et al., J. Biol. Chem.*, 1972, **247**, 4549 (*isol*)
Schircks, B. *et al., Helv. Chim. Acta*, 1976, **59**, 248 (*cmr*)
Sugimoto, T. *et al., Bull. Chem. Soc. Jpn.*, 1980, **53**, 2344 (*synth*)
Fukushima, T. *et al., Methods Enzymol.*, 1980, **66**, 508 (*rev, isol*)
Sun, J.H. *et al., Diss. Abstr. Int., B*, 1983, **43**, 3990 (*synth*)
Zeitler, H.J. *et al., Methods Enzymol.*, 1986, **122**, 273 (*rev, detn*)
Huber, C. *et al., Dtsch. Med. Wochenschr.*, 1987, **112**, 107 (*rev*)
Lin, X. *et al., J. Bacteriol.*, 1988, **170**, 1396 (*Solfapterin*)
Klein, R. *et al., Biochimie*, 1991, **73**, 1281 (*D-Monapterin*)
Ogiwara, S. *et al., Biol. Chem. Hoppe-Seyler*, 1992, **373**, 1061 (*isol*)
Ogiwara, S. *et al., Tet. Lett.*, 1992, **33**, 1341 (*Umanopterin*)
Sugimoto, T. *et al., Helv. Chim. Acta*, 2001, **84**, 918-927 (*Tetrahydro-D-monapterin*)
Ikemoto, K. *et al., Biol. Chem.*, 2002, **383**, 325-330 (*Tetrahydro-L-monapterin*)

Amiprilose, INN A-471

3-O-*[3-(Dimethylamino)propyl]-1,2*-O-*(1-methylethylidene)-α-D-glucofuranose. Therafectin. SM 1213*
[56824-20-5]



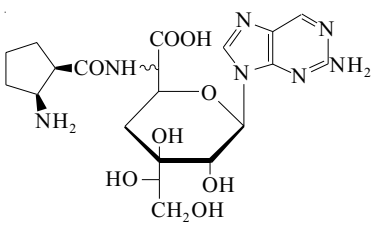
$C_{14}H_{27}NO_6$ 305.37
Immunomodulator. Antiviral and antiinflammatory agent. Exhibits antipsoriatic activity. Also used against other autoimmune diseases such as arthritis, eczema and systemic lupus erythematosus. Viscous oil. $[\alpha]_D$ -12 (neat). n_D^{25} 1.4687. Log P -1.31 (calc). Low toxicity and no serious side effects, but requires large therapeutic dosage.

Hydrochloride: ***Amiprilose hydrochloride, USAN***
[60414-06-4]
Cryst. (MeOH). Mp 181-183°.

U.K. Pat., 1974, 1 497 409, (*Strategic Medical Research Corp*); *CA*, **89**, 117809 (*synth, pharmacol*)
Garrett, E.R. *et al., J. Pharm. Sci.*, 1982, **71**, 387; 1983, **72**, 1045 (*pharmacol, metab*)
Linhardt, R.J. *et al., J. Pharm. Sci.*, 1990, **79**, 158 (*pmr, cmr, abs config*)
Young, M.R. *et al., Prostaglandins*, 1990, **40**, 35 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1336
Vanlemmens, P. *et al., Carbohydr. Res.*, 1996, **289**, 171-178 (*bibl*)

Amipurimycin A-472

[61991-08-0]

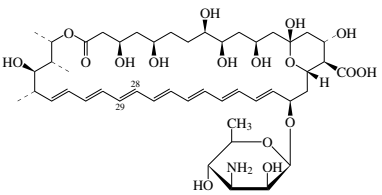


$C_{20}H_{29}N_7O_8$ 495.491
Nucleoside antibiotic. Isol. from *Streptomyces novoguineensis*. Active against some phytopathogenic fungi. Prisms (EtOH aq.). Sol. H_2O; fairly sol. DMSO, Py, AcOH, MeOH; poorly sol. butanol, hexane.
Mp 217° dec. $[\alpha]_D$ -3.2 (c, 0.62 in H_2O). λ_{max} 222 (ε 31400); 244 (sh) (ε 5200); 313 (ε 3860) (0.1*M* HCl) (Derep). λ_{max} 243 (ε 5350); 305 (ε 6730) (0.1*M* NaOH) (Derep). λ_{max} 218 (ε 21200); 243 (ε 5740); 305 (ε 6440) (pH 7 phosphate buffer) (Derep). λ_{max} 216 (ε 21000); 243 (ε 5200); 303 (ε 6500) (H_2O) (Berdy). λ_{max} 217 (E1%/1cm 420); 243 (E1%/1cm 118); 305 (E1%/1cm 126) (pH 7 buffer) (Berdy). λ_{max} 217 (E1%/1cm 425); 243 (E1%/1cm 105); 305 (E1%/1cm 129) (NaOH) (Berdy). λ_{max} 222 (E1%/1cm 634); 312 (E1%/1cm 77) (HCl) (Berdy).
▶ LD_{50} (mus, orl) 10 - 20 mg/kg , LD_{50} (mus, ivn) 0 - 4 mg/kg.

Iwasa, T. *et al., J. Antibiot.*, 1977, **30**, 1 (*isol, props*)
Harada, S. *et al., J. Antibiot.*, 1977, **30**, 11 (*isol, props*)
Goto, T. *et al., Tet. Lett.*, 1982, **23**, 1271 (*struct*)
Hara, K. *et al., Carbohydr. Res.*, 1987, **159**, 65 (*partial synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Amphotericin B, 9CI, 8CI, INN, USAN A-473

Amphotericin, BAN. *Abeicet. Amfostet. Ampho-Moronal. Amphozone. Anfostat. Fungizone. Many other names*
[1397-89-3]



$C_{47}H_{73}NO_{17}$ 924.09
Polyene antibiotic. Prod. by *Streptomyces nodosus*. Antifungal agent. Used in the treatment of candidiasis. Prolongs survival time of scrapie-infected rodents. Approved for clinical use in the Netherlands and Belgium (1999). Deep yellow prisms (DMF). Sol. DMSO, Me_2CO, DMF; fairly sol. MeOH-HCl, butanol aq., AcOH, Py, MeOH; poorly sol. EtOH, H_2O, butanol, hexane.
Mp 170° dec. $[\alpha]_D^{24}$ +333 (DMF). Log P -5.89 (uncertain value) (calc). Contains unusual D-rhamnose residue. λ_{max} 225 (ε 22400); 345 (ε 37900); 363 (ε 80800); 382 (ε 134000); 405 (ε 150000) (MeOH).
▶ Adverse systemic effects reported when used therapeutically incl. gastrointestinal disturbances, cardiotoxic and nephrotoxic effects. LD_{50} (mus, ipr) approx. 28 mg/kg. LD_{50} (mus, ivn) 1.2 mg/kg. Exp. (male) reprod. effects. BU2625000

Meglumine salt (1:1): ***Amphoglucamine***
[58722-78-4]

Me ester: [36148-89-7]
Yellow amorph. solid. $[\alpha]_D^{20}$ +392 (c, 0.33 in DMF).

N,N,N-*Tri-Me, Me ester, methyl sulfate:* ***Methamphocin***
[73280-71-4]
$C_{52}H_{85}NO_{21}S$ 1092.304
Water-sol. deriv. of Amphotericin B.

13-Me ether: ***Amphotericin X***
[136135-57-4]
$C_{48}H_{75}NO_{17}$ 938.117

Prod. by *Streptomyces nodosus*. Antifungal agent. Yellow powder. Sol. DMSO; poorly sol. H_2O, hexane. λ_{max} 356; 363; 382; 406 (MeOH).

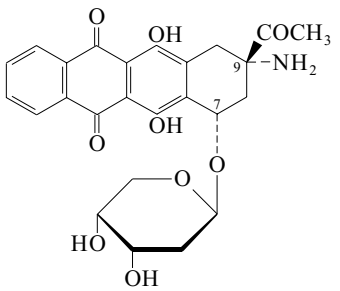
28,29-Dihydro: ***Amphotericin A, 9CI***
[1405-32-9]
$C_{47}H_{75}NO_{17}$ 926.106
From *Streptomyces nodosus*. Antifungal agent. Sol. DMSO, bases, MeOH-$CaCl_2$, DMF, AcOH, Py; fairly sol. MeOH, butanol aq., acids; poorly sol. butanol, hexane. $[\alpha]_D^{24}$ +163 (Py). Log P -5.44 (uncertain value) (calc). λ_{max} 232 (ϵ 27600); 280 (ϵ 25500); 291 (ϵ 50700); 304 (ϵ 76100); 318 (ϵ 69700) (MeOH).
▶ LD_{50} (mus, ipr) 450 mg/kg. BU2614700

[35375-29-2, 69234-88-4]

Vandeputte, J. *et al., Antibiot. Annu.*, 1955, 587 (*isol*)
Mechlinski, W. *et al., Tet. Lett.*, 1970, 3873 (*struct, cryst struct*)
Borowski, E. *et al., Tet. Lett.*, 1970, 3909 (*struct, pmr, ms*)
Ganis, P. *et al., J.A.C.S.*, 1971, **93**, 4560 (*cryst struct*)
Pandey, R.C. *et al., J. Antibiot.*, 1976, **29**, 1035; 1977, **30**, 158 (*ir, uv, nmr, synth, cmr*)
Asher, I.M. *et al., Anal. Profiles Drug Subst.*, 1977, **6**, 1 (*rev*)
Holz, R.W. *et al., Antibiotics (N.Y.)*, 1979, **5**, 313 (*rev*)
Belg. Pat., 1979, 877 661, (*Politechnika Gdanska*); *CA*, **93**, 13076z (*synth, pharmacol, methamphocin*)
Falkowski, L. *et al., J. Antibiot.*, 1979, **32**, 1080 (*synth, methamphocin*)
Brown, J.M. *et al., Tetrahedron*, 1981, **37**, 1421 (*pmr*)
Sowinski, P. *et al., J. Antibiot.*, 1985, **38**, 169; 175 (*Amphotericin A*)
Aszalos, A. *et al., J. Antibiot.*, 1985, **38**, 1699 (*props*)
Nicolaou, K.C. *et al., J.A.C.S.*, 1987, **109**, 2205; 2208; 2821; 1988, **110**, 4660; 4672; 4685; 4696 (*synth*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 8285 (*synonyms*)
Palaniswamy, V.A. *et al., Planta Med.*, 1990, **56**, 560 (*Amphotericin X*)
Warnock, D.W. *et al., J. Antimicrob. Chemother., Suppl. B*, 1991, **28**, 27 (*rev*)
Sowinski, P. *et al., Magn. Reson. Chem.*, 1992, **30**, 275 (*pmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 315
Brittain, H.G. *et al., Chirality*, 1994, **6**, 665 (*cd*)
Nicolaou, K.C. *et al., Classics in Total Synthesis, Targets, Strategies, Methods*, VCH, 1996, 421 (*bibl, synth*)
Sowinski, P. *et al., J. Antibiot.*, 1996, **49**, 1232 (*Amphotericin A, pmr, cmr, abs config*)
Adjou, K.T. *et al., Trends Microbiol.*, 1997, **5**, 27-31 (*pharmacol, rev*)
Coukell, A.J. *et al., Drugs*, 1998, **55**, 585-612; **56**, 365-383 (*rev*)
McNamara, C.M. *et al., J.C.S. Perkin 1*, 1998, 83-87 (*biosynth*)
Goldsmith, D.R. *et al., Drugs*, 2004, **64**, 1905-1911 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AOC500; AOC750

Amrubicin, INN A-474

*9-Amino-4-demethoxy-9-deoxy-7-O-(2-deoxy-β-D-*erythro*-pentopyranosyl)daunomycinone. SM 5887*
[110267-81-7]



$C_{25}H_{25}NO_9$ 483.474
Antineoplastic antibiotic. In Phase I or II clin. trials (Japan, 1994). Mp 172-174°. $[\alpha]_D^{20}$ +119 (c, 0.02 in $CHCl_3$). Log P -1.73 (uncertain value) (calc).

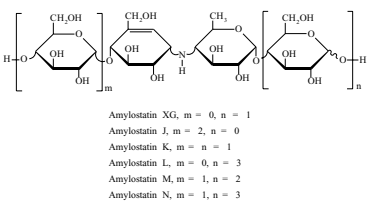
Hydrochloride: [110311-30-3]
Mp 145-151°.
▶ LD_{50} (mus, ivn) 42 mg/kg. QI9297160

[123930-64-3]

Ishizumi, K. *et al., J.O.C.*, 1987, **52**, 4477 (*synth, ir, pmr*)
U.S. Pat., 1987, 4 673 668, (*Sumitomo*); *CA*, **108**, 22206x (*synth, activity*)
Oke, Y. *et al., Cancer Res.*, 1989, **49**, 4098 (*pharmacol*)
Horikoshi, N. *et al., Invest. New Drugs*, 1989, **7**, 213 (*pharmacol*)
Noguchi, T. *et al., Jpn. J. Cancer Res.*, 1998, **89**, 1055-1060; 1061-1066; 1067-1073; 1229-1238; 1999, **90**, 685-690 (*pharmacol*)

Amylostatin A-475

[79305-08-1]



Aminoglycoside antibiotic complex. Structs. of several components not determined. The most important antibiotic is Amylostatin J; see Acarbose, A-3. Isol. from *Streptomyces diastaticus* ssp. *amylostaticus*. Amylase inhibitors.

Amylostatin XG [68128-53-0]
$C_{19}H_{33}NO_{13}$ 483.469
Powder.

Amylostatin K [82642-64-6]
$C_{25}H_{43}NO_{18}$ 645.611
Powder. Sol. H_2O; poorly sol. MeOH, hexane. No def. Mp.

Amylostatin L [82642-66-8]
$C_{31}H_{53}NO_{23}$ 807.753
Powder. Sol. H_2O; poorly sol. MeOH, hexane. No def. Mp.

Amylostatin M [82642-67-9]
$C_{31}H_{53}NO_{23}$ 807.753
Powder. Sol. H_2O; poorly sol. MeOH, hexane. No def. Mp.

Amylostatin N [82642-69-1]
$C_{37}H_{63}NO_{28}$ 969.895
Powder. Sol. H_2O; poorly sol. MeOH, hexane. No def. Mp.

Amylostatin B [75139-32-1]
$[\alpha]_D$ +146. Struct. not determined.

Amylostatin C [75139-33-2]
$[\alpha]_D$ +142. Struct. not determined.

Amylostatin D [75139-34-3]
$[\alpha]_D$ +158. Struct. not determined.

Amylostatin E [75139-35-4]
$[\alpha]_D$ +136. Struct. not determined.

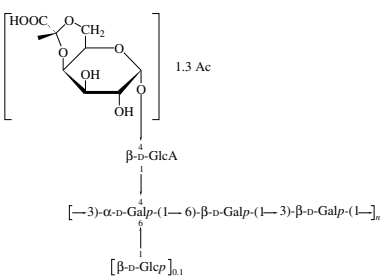
Amylostatin F
$[\alpha]_D$ +139. Struct. not determined.

[83682-81-9]

Netherlands Pat., 1978, 77 14 142; *CA*, **90**, 23602 (*isol*)
Japan. Pat., 1980, 80 71 494; 1981, 81 68 693; 692, 1982, 82 18 692; *CA*, **93**, 184294; **95**, 167127; **97**, 90404 (*isol*)
Trusheit, E. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 744-761 (*rev*)
Fukuhara, K. *et al., Agric. Biol. Chem.*, 1982, **46**, 1941-1945; 2021-2030 (*isol, struct, pmr, cmr*)
Sakairi, N. *et al., Tet. Lett.*, 1982, **23**, 5327-5330 (*synth, pmr*)
Junge, B. *et al., Carbohydr. Res.*, 1984, **128**, 235-268 (*synth*)
Ogawa, S. *et al., Carbohydr. Res.*, 1985, **140**, 325-331 (*Amylostatin XG, synth*)

Amylovoran A-476

Amylovorin
[64475-88-3]



Capsular exopolysaccharide prod. by *Erwinia amylovora*, the cause of apple/pear blight disease.

Nimtz, M. *et al., Carbohydr. Res.*, 1996, **287**, 59-76 (*isol*)
Jumel, K. *et al., Int. J. Biol. Macromol.*, 1997, **20**, 251-258 (*struct*)
Busson, R. *et al., J. Carbohydr. Chem.*, 2001, **20**, 109-120 (*nmr, struct*)

Anemeran A-477

Glycan complex. Isol. from the rhizomes of *Anemarrhena asphodeloides*. Hypoglycaemic.

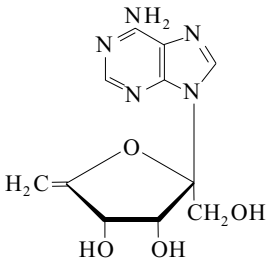
Anemeran A [98112-28-8]
$[\alpha]_D$ +23.5 (c, 0.45 in H_2O).

Anemeran B [98112-29-9]
$[\alpha]_D$ -30.2 (c, 0.53 in H_2O).

Anemeran C [98112-30-2]
$[\alpha]_D$ +100 (c, 0.28 in H_2O).

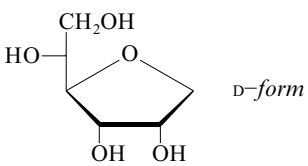
Anemeran D [98112-31-3]
$[\alpha]_D$ +36.4 (c, 0.24 in H_2O).
Takahashi, M. *et al., Planta Med.*, 1985, **51**, 100-102 (*isol, pharmacol*)

Angustmycin A **A-478**
*9-(6-Deoxy-β-D-*erythro*-hex-5-en-2-ulofuranosyl)-9*H*-purin-6-amine, 9CI. Decoyinine*
[2004-04-8]



$C_{11}H_{13}N_5O_4$ 279.255
Nucleoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Shows antibacterial and antitumour activity.
Mp 183.5-185° (156-159° dec.). $[\alpha]_D^{23}$ +46.4 (c, 0.46 in H_2O). λ_{max} 259 (ε 15 500) (H_2O), 259 nm (15 500) (pH 11). λ_{max} (no shifts reported) (Derep). λ_{max} 261 (ε 15500) (MeOH/NaOH) (Derep). λ_{max} 259 (ε 15300) (MeOH) (Derep).
► AU6256000
1′,3′,4′-Tri-Ac: Mp 189-190°.
*1′,3′,4′-*O*-Orthoformyl:* Mp 254-257° dec.
*6*N*-Ac, 1′,3′,4′-tri-Ac:* Mp 65°.
*6,6*N*-Di-Ac, 1′,3′,4′-tri-Ac:* Mp 152-153°.
Hoeksema, H. *et al., Tet. Lett.*, 1964, 1787
McCarthy, J.R. *et al., J.A.C.S.*, 1968, **90**, 4993 (*synth*)
Nichol, C.A. *et al., Handb. Exp. Pharmacol.*, 1975, **38**, 434; *CA*, **83**, 188083v (*pharmacol, rev*)
Prisbe, E.J. *et al., J.O.C.*, 1976, **41**, 1836 (*synth*)

1,4-Anhydroallitol A-479

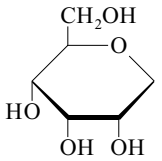


D–*form*

$C_6H_{12}O_5$ 164.158
Capable of enantiomerism although allitol is a *meso*-compd.

(±)-*form* [10334-28-8]
Cryst. (EtOH). Mp 80-83°.
*Tetra-Ac: 2,3,5,6-Tetra-*O*-acetyl-1,4-anhydro-DL-allitol*
$C_{14}H_{20}O_9$ 332.307
Cryst. (EtOH aq.). Mp 62-64°.
*6-Tosyl, 2,3,5-tri-Ac: 2,3,5-Tri-*O*-acetyl-1,4-anhydro-6-*O*-tosyl-DL-allitol*
$C_{19}H_{24}O_{10}S$ 444.459
Cryst. (EtOH). Mp 73-75°.
Ballard, J.M. *et al., Carbohydr. Res.*, 1973, **30**, 83; 91

1,5-Anhydroallitol A-480

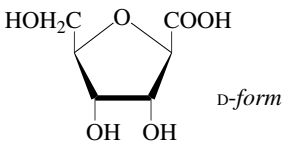


D–*form*

$C_6H_{12}O_5$ 164.158

D-*form* [13035-39-7]
Cryst. (EtOH). Mp 153-154°. $[\alpha]_D^{18}$ +35.5 (c, 1.3 in H_2O).
*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-1,5-anhydro-D-allitol*
[53368-35-7]
$C_{14}H_{20}O_9$ 332.307
Cryst. (EtOH). Mp 128-130°. $[\alpha]_D^{22}$ +20.8 (c, 1.7 in $CHCl_3$).
Haga, M. *et al., Carbohydr. Res.*, 1974, **34**, 214 (*D-form, synth, D-tetra-Ac*)

2,5-Anhydroallonic acid A-481



D-*form*

$C_6H_{10}O_6$ 178.141

D-*form*
Me ester: Methyl 2,5-anhydro-D-allonate
[121725-16-4]
$C_7H_{12}O_6$ 192.168
$[\alpha]_D^{19}$ +18.1 (c, 1.6 in $CHCl_3$).
Nitrile: 2,5-Anhydro-D-allonitrile. Ribofuranosyl cyanide
[26882-26-8]
$C_6H_9NO_4$ 159.141
Characterised as derivs. below.
*Tribenzoyl: 2,5-Anhydro-3,4,5-tri-*O*-benzoyl-D-allonic acid*
[23316-68-9]
$C_{27}H_{22}O_9$ 490.465
Cryst. (MeOH aq.). $[\alpha]_D^{22}$ +39.7 (c, 0.67 in $CHCl_3$).
Tribenzoyl, Me ester: [61407-88-3]
$C_{28}H_{24}O_9$ 504.492
Cryst. (MeOH aq.). $[\alpha]_D^{19}$ +18.1 (c, 1.6 in $CHCl_3$).
*5-Benzoyl, nitrile: 2,5-Anhydro-6-*O*-benzoyl-D-allononitrile*
[30002-87-0]
$C_{13}H_{13}NO_5$ 263.249
Cryst. (C_6H_6/hexane). Mp 117-118°.
*Tribenzoyl, nitrile: 2,5-Anhydro-3,4,6-tri-*O*-benzoyl-D-allononitrile, 9CI, 8CI*
[23316-67-8]
$C_{27}H_{21}NO_7$ 471.465
Reagent used in synth. of *C*-nucleosides. Mp 82-83° (77-78°). $[\alpha]_D^{23}$ +24.2 (c, 1.0 in $CHCl_3$).
*2,3-*O*-Isopropylidene, nitrile: 2,5-Anhydro-3,4-*O*-isopropylidene-D-allononitrile*
[60084-16-4]
$C_9H_{13}NO_4$ 199.206
Cryst. (EtOAc/petrol). Mp 63-65°. $[\alpha]_D^{25}$ -35 (c, 0.7 in $CHCl_3$).
*2,3-*O*-Isopropylidene, 5-benzoyl, nitrile: 2,5-Anhydro-6-*O*-benzoyl-3,4-*O*-isopropylidene-D-allononitrile, 9CI, 8CI*
[29868-36-8]
$C_{16}H_{17}NO_5$ 303.314
Cryst. (Et_2O/hexane). Mp 60-61°.
*3,4,6-Tribenzyl: 2,5-Anhydro-3,4,6-tri-*O*-benzyl-D-allonic acid*
[82267-01-4]
$C_{27}H_{28}O_6$ 448.515
Syrup.

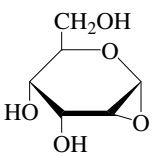
L-*form* [135267-95-7]
$[\alpha]_D^{25}$ -0.24 (c, 4.51 in H_2O).

DL-*form*
*2,3-*O*-Isopropylidene, 5-(4-nitrobenzoyl), nitrile: 2,5-Anhydro-3,4-*O*-isopropylidene-6-*O*-(4-nitrobenzoyl)-DL-allononitrile*
[55610-60-1]
$C_{16}H_{16}N_2O_7$ 348.312
Needles ($CHCl_3$/hexane). Mp 118-120°.

[42889-99-6]

Albrecht, H.P. *et al., J.O.C.*, 1973, **38**, 1836 (*β-D-isopropylidene benzoyl, β-D-benzoyl, β-D-tribenzoyl nitriles*)
Just, G. *et al., Can. J. Chem.*, 1975, **53**, 131 (*DL-isopropylidene, 4-nitrobenzoyl nitrile*)
Arakawa, K. *et al., Chem. Lett.*, 1976, 1119 (*synth*)
Fuertes, M. *et al., J.O.C.*, 1976, **41**, 4074 (*β-D-isopropylidene nitrile*)
Hanomichi, N. *et al., Chem. Pharm. Bull.*, 1978, **26**, 898 (*synth, ir, uv, pmr*)
El Khadem, H.S. *et al., Carbohydr. Res.*, 1983, **115**, 131 (*synth, nitrile*)
Rosowsky, A. *et al., Carbohydr. Res.*, 1988, **176**, 47 (*D-tribenzyl*)
Cunningham, D. *et al., Carbohydr. Res.*, 1988, **177**, 1 (*cryst struct*)
Hultin, P.G. *et al., J.O.C.*, 1991, **56**, 5375 (*synth, ir, pmr, cmr*)
Popsavin, M. *et al., Carbohydr. Res.*, 1994, **260**, 145 (*synth, pmr, cmr, bibl, nitrile tribenzoyl*)

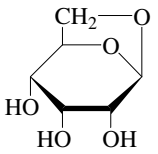
1,2-Anhydroallose A-482



$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*
*Tribenzyl: 1,2-Anhydro-3,4,6-tri-*O*-benzyl-α-D-allopyranose*
[176757-58-7]
$C_{27}H_{28}O_5$ 432.515
Syrup.
Du, Y. *et al., Carbohydr. Res.*, 1996, **282**, 315-323 (*α-D-pyr-tribenzyl*)

1,6-Anhydroallose A-483



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

1,6-Anhydro-β-D-allopyranose. D-Allosan
[14059-68-8] Minor prod. from the pyrolysis of Cellulose, C-48.
Prisms (EtOH). Mp 178.5-180°. $[\alpha]_D^{20}$ -75.8 (c, 0.6 in H_2O).

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-1,6-anhydro-β-D-allopyranose*
[14661-09-7]
$C_{12}H_{16}O_8$ 288.254
Cryst. (Et_2O/$CHCl_3$/petrol). Mp 88-89°. $[\alpha]_D^{20}$ -70.8 (c, 1 in $CHCl_3$).

*2,3,4-Tribenzoyl: 1,6-Anhydro-2,3,4-tri-*O*-benzoyl-β-D-allopyranose*
[57632-03-8]
$C_{27}H_{22}O_8$ 474.466
Cryst. (Et_2O/petrol). Mp 140-141°. $[\alpha]_D$ -37.5 (c, 1 in $CHCl_3$).

*2,4-Ditosyl: 1,6-Anhydro-2,4-di-*O*-tosyl-β-D-allopyranose*
[20183-75-9]
$C_{20}H_{22}O_9S_2$ 470.52
Cryst. ($CHCl_3$/Et_2O). Mp 88-100° Mp 143-144° (dimorph.). $[\alpha]_D$ -32 (c, 1.0 in $CHCl_3$).

*2,4-ditosyl, 3-Ac: 3-*O*-Acetyl-1,6-anhydro-2,4-di-*O*-tosyl-β-D-allopyranose*
[20183-78-2]
$C_{22}H_{24}O_{10}S_2$ 512.558
Cryst. ($CHCl_3$/Et_2O). Mp 184-187°. $[\alpha]_D$ -47 (c, 1.0 in $CHCl_3$).

*Tritosyl: 1,6-Anhydro-2,3,4-tri-*O*-tosyl-β-D-allopyranose*
$C_{27}H_{28}O_{11}S_3$ 624.71
Cryst. (Me_2CO aq.). Mp 157-158°. $[\alpha]_D^{20}$ -35 (c, 0.9 in H_2O).

*2,3-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-β-D-allopyranose*
[41092-32-4]
$C_9H_{14}O_5$ 202.207
Cryst. (petrol). Subl. 88.5. $[\alpha]_D^{20}$ -19.8 (c, 1 in $CHCl_3$).

*3,4-Isopropylidene: 1,6-Anhydro-3,4-*O*-isopropylidene-β-D-allopyranose*
[41092-28-8]
$C_9H_{14}O_5$ 202.207
Cryst. (Et_2O/petrol). Mp 104°. $[\alpha]_D^{20}$ -88.1 (c, 1 in $CHCl_3$).

*3,4-Isopropylidene, 2-Ac: 2-*O*-Acetyl-1,6-anhydro-3,4-*O*-isopropylidene-β-D-allopyranose*
[41092-29-9]
$C_{11}H_{16}O_6$ 244.244
Cryst. (heptane). Mp 123°. $[\alpha]_D^{20}$ -122.4 (c, 1 in $CHCl_3$).

*2,3,4-Tri-Me: 1,6-Anhydro-2,3,4-tri-*O*-methyl-β-D-allopyranose*
[57632-04-9]
$C_9H_{16}O_5$ 204.222
Cryst. (Et_2O/petrol). Mp 81-82°. $[\alpha]_D$ -82.5 (c, 1 in $CHCl_3$).

*4-Benzyl: 1,6-Anhydro-4-*O*-benzyl-β-D-allopyranose*
[20183-84-0]
$C_{13}H_{16}O_5$ 252.266
Cryst. (C_6H_6). Mp 113°. $[\alpha]_D$ -79 (c, 0.8 in $CHCl_3$).

*4-Benzyl, 2-tosyl: 1,6-Anhydro-4-*O*-benzyl-2-*O*-tosyl-β-D-allopyranose*
[20183-83-9]
$C_{20}H_{22}O_7S$ 406.456
Cryst. Mp 136-138°. $[\alpha]_D$ -51 (c, 1.3 in $CHCl_3$).

*4-Benzyl, 2-tosyl, 3-Ac: 3-*O*-Acetyl-1,6-anhydro-4-*O*-benzyl-2-*O*-tosyl-β-D-allopyranose*
[20204-81-3]
$C_{22}H_{24}O_8S$ 448.493
Cryst. ($CHCl_3$/petrol). Mp 95°. $[\alpha]_D$ -25 (c, 0.8 in $CHCl_3$).

β-D-Furanose-*form*

Cryst. Mp 110-111°. $[\alpha]_D^{22}$ -2.5 (c, 1.0 in H_2O).

*2-Ac: 2-*O*-Acetyl-1,6-anhydro-β-D-allofuranose*
[114103-34-3]
$C_8H_{12}O_6$ 204.179
Syrup. $[\alpha]_D^{20}$ -34 (c, 1.2 in H_2O). May have contd. some 3-Ac isomer.

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,6-anhydro-β-D-allofuranose*
[38184-09-7]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ -54 (c, 1 in $CHCl_3$).

*3,5-Dibenzyl: 1,6-Anhydro-3,5-di-*O*-benzyl-β-D-allofuranose*
[51516-29-1]
$C_{20}H_{22}O_5$ 342.391
Cryst. or syrup. Mp 60-62°. $[\alpha]_D$ +17 ($CHCl_3$).

*2,3-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-β-D-allofuranose*
[38184-07-5]
$C_9H_{14}O_5$ 202.207
Cryst. (diisopropylether/heptane). Mp 147°. $[\alpha]_D^{20}$ +14.4 (c, 1 in $CHCl_3$).

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 1906-1908 (*β-D-pyr, β-D-pyr tri-Ac, β-D-pyr tritosyl*)

Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1143-1156 (*β-D-pyr 2,4-ditosyl, β-D-pyr 3-Ac 2,4-ditosyl, β-D-pyr tri-Ac, β-D-pyr benzyl tosyl, β-D-pyr benzyl, β-D-pyr acetyl benzyl tosyl*)

Heyns, K. *et al., Chem. Ber.*, 1972, **105**, 2228-2232 (*β-D-fur-form, β-D-fur tri-Ac, β-D-fur isopropylidene*)

Heyns, K. *et al., Chem. Ber.*, 1973, **106**, 611-622 (*β-D-pyr 3,4-isopropylidene, β-D-pyr 2,3-isopropylidene, β-D-pyr Ac 3,4-isopropylidene*)

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1975, **40**, 387-390 (*β-D-pyr-form, β-D-pyr tri-Ac, β-D-pyr tribenzoyl, β-D-pyr tri-Me*)

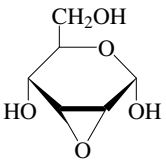
Angyal, S.J. *et al., Aust. J. Chem.*, 1978, **31**, 1151 (*β-D-fur*)

Köll, P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 281-293 (*β-D-fur, β-D-fur Ac, β-D-fur dibenzyl*)

Matsumoto, K. *et al., Heterocycles*, 1991, **32**, 2225-2240 (*β-D-pyr, β-D-pyr tri-Ac*)

Van Rijsbergen, R. *et al., J. Carbohydr. Chem.*, 1992, **11**, 463-470 (*occur*)

2,3-Anhydroallose A-484



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form* [61176-67-8]
Cryst. (Et_2O/petrol). Mp 88-90°. $[\alpha]_D$ +27 (c, 1.0 in H_2O, equilib.).

Me glycoside: Methyl 2,3-anhydro-α-D-allopyranoside
[3257-61-2]
$C_7H_{12}O_5$ 176.169
Cryst. (Me_2CO). Mp 105-107° (103°). $[\alpha]_D$ +153 (MeOH).

*Me glycoside, 4,6-di-Ac: Methyl 4,6-di-*O*-acetyl-2,3-anhydro-α-D-allopyranoside*
[7226-45-1]
$C_{11}H_{16}O_7$ 260.243
$Bp_{0.3}$ 155°. $[\alpha]_D^{20}$ +160 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-dimesyl: Methyl 2,3-anhydro-4,6-di-*O*-mesyl-α-D-allopyranoside*
[26922-78-1]
$C_9H_{16}O_9S_2$ 332.352
Cryst. (MeOH/Me_2CO). Mp 138°. $[\alpha]_D^{23}$ +139.5 (c, 1.7 in $CHCl_3$).

*Me glycoside, 4,6-*O*-ethylidene: Methyl 2,3-anhydro-4,6-*O*-ethylidene-α-D-allopyranoside, 9CI, 8CI*
[6958-77-6]
$C_9H_{14}O_5$ 202.207
Mp 128°. $[\alpha]_D$ +100 ($CHCl_3$).

*Me glycoside, 4,6-*O*-propylidene: Methyl 2,3-anhydro-4,6-*O*-propylidene-α-D-allopyranoside*
$C_{10}H_{16}O_5$ 216.233
Mp 131-132°. $[\alpha]_D$ +120.9 ($CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene:* See Methyl 2,3-anhydro-4,6-*O*-benzylideneallopyranoside, M-151

*Me glycoside, 4-Me: Methyl 2,3-anhydro-4-*O*-methyl-α-D-allopyranoside*
$C_8H_{14}O_5$ 190.196
Solid. $[\alpha]_D$ +197 (c, 1 in $CHCl_3$).

*Me glycoside, 6-Me: Methyl 2,3-anhydro-6-*O*-methyl-α-D-allopyranoside*
$C_8H_{14}O_5$ 190.196
Syrup giving needles on standing. Mp 76-77.5°. $[\alpha]_D^{20}$ +185 (c, 1 in $CHCl_3$).

*Me glycoside, di-Me: Methyl 2,3-anhydro-4,6-di-*O*-methyl-α-D-allopyranoside*
[7226-40-6]
$C_9H_{16}O_5$ 204.222
Mp 63°. $[\alpha]_D$ +189 ($CHCl_3$).

*Me glycoside, 6-benzyl: Methyl 2,3-anhydro-6-*O*-benzyl-α-D-allopyranoside*
$C_{14}H_{18}O_5$ 266.293
Syrup. $Bp_{0.2}$ 190°. $[\alpha]_D$ +91 (c, 1.0 in $CHCl_3$).

*Me glycoside, 6-trityl: Methyl 2,3-anhydro-6-*O*-trityl-α-D-allopyranoside*
$C_{26}H_{26}O_5$ 418.488
Cryst. (EtOH/Me_2CO). Mp 184°. $[\alpha]_D^{20}$ +96.5 (c, 0.4 in $CHCl_3$).

*Me glycoside, 6-trityl, 4-benzyl: Methyl 2,3-anhydro-4-*O*-benzyl-6-*O*-trityl-α-D-allopyranoside*
$C_{33}H_{32}O_5$ 508.613
Cryst. ($MeOH/Me_2CO$). Mp 162°. $[\alpha]_D^{18}$ +91.5 (c, 1.0 in $CHCl_3$).

Benzyl glycoside: Benzyl 2,3-anhydro-α-D-allopyranoside
[61134-18-7]
$C_{13}H_{16}O_5$ 252.266
Cryst. (Et_2O/petrol). Mp 106-108°. $[\alpha]_D$ +123 (c, 1.0 in EtOH).

*Benzyl glycoside, 4,6-*O*-benzylidene: Benzyl 2,3-anhydro-4,6-*O*-benzylidene-α-D-allopyranoside*
[35905-39-6]
$C_{20}H_{20}O_5$ 340.375
Cryst. (EtOH). Mp 182-183°. $[\alpha]_D$ +124 (c, 3.0 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-β-D-allopyranoside
$C_7H_{12}O_5$ 176.169
Cryst. ($EtOAc/Et_2O$/petrol). Mp 60-62°. $[\alpha]_D^{17}$ -6.1 (c, 1.31 in EtOAc).

*Me glycoside, 4,6-*O*-benzylidene:* See Methyl 2,3-anhydro-4,6-*O*-benzylide-neallopyranoside, M-151

*Me glycoside, 4,6-di-Me: Methyl 2,3-anhydro-4,6-di-*O*-methyl-β-D-allopyranoside*
$C_9H_{16}O_5$ 204.222
Mp 51°. $[\alpha]_D$ +35.3 ($CHCl_3$).

*Me glycoside, 6-benzyl: Methyl 2,3-anhydro-6-*O*-benzyl-β-D-allopyranoside*
[63815-21-4]
$C_{14}H_{18}O_5$ 266.293
Syrup. $Bp_{0.05}$ 180°.

α-D-Furanose-*form*

*6-Deoxy, Me glycoside, 5-benzyl: Methyl 2,3-anhydro-5-*O*-benzyl-6-deoxy-α-D-allofuranoside, 9CI*
[76235-02-4]
$C_{14}H_{18}O_4$ 250.294
Syrup. $[\alpha]_D$ -35.5 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

*Tri-Ac: 1,5,6-Tri-*O*-acetyl-2,3-anhydro-β-D-allofuranose*
[61196-18-7]
$C_{12}H_{16}O_8$ 288.254
Cryst. (EtOAc/petrol). Mp 120-121°. $[\alpha]_D$ -62 (c, 0.5 in $CHCl_3$).

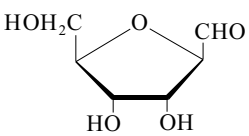
*Me glycoside, 5,6-dibenzoyl: Methyl 2,3-anhydro-5,6-di-*O*-benzoyl-β-D-allofuranoside*
$C_{21}H_{20}O_7$ 384.385
Syrup. $[\alpha]_D^{20}$ -96.2 (c, 3.1 in EtOH).

*Me glycoside, 5,6-ditosyl: Methyl 2,3-anhydro-5,6-di-*O*-tosyl-β-D-allofuranoside*
$C_{21}H_{24}O_9S_2$ 484.547
Cryst. (EtOH). Mp 115.5-116°. $[\alpha]_D^{20}$ -26.3 (c, 3.9 in $CHCl_3$).

*Me glycoside, 6-benzoyl, 5-tosyl: Methyl 2,3-anhydro-6-*O*-benzoyl-5-*O*-tosyl-β-D-allofuranoside*
$C_{21}H_{22}O_8S$ 434.466
Cryst. Mp 111°. $[\alpha]_D^{20}$ -45 (c, 2.9 in $CHCl_3$).

Ohle, H. *et al., Ber.*, 1938, **71**, 2316 (*β-D-Me fur dibenzoyl, β-D-Me fur ditosyl, β-D-Me fur benzoyl tosyl*)
Robertson, G.J. *et al., J.C.S.*, 1938, 472 (*α-D-Me pyr*)
Peat, S. *et al., J.C.S.*, 1938, 1088 (*β-D-Me pyr*)
Dimitrijevich, S. *et al., Carbohydr. Res.*, 1969, **11**, 531 (*α-D-Me pyr, α-D-Me pyr di-Ac, α-D-Me pyr dimesyl, α-D-Me pyr trityl, α-D-Me pyr benzyl trityl*)
Williams, N.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 109 (*rev, derivs*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1976, 1449 (*α-D-pyr, α-D-benzyl pyr, α-D-benzyl pyr benzylidene*)
Achmatowicz, O. *et al., Carbohydr. Res.*, 1977, **55**, 165 (*α-D-Me pyr benzyl, β-D-Me pyr benzyl*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1980, 1800 (*α-D-Me fur benzyl deoxy*)
Umemura, E. *et al., Carbohydr. Res.*, 1992, **224**, 141 (*α-D-Me pyr 4-Me, 6-Me*)

2,5-Anhydroallose, 9CI A-485



$C_6H_{10}O_5$ 162.142
In equilib. with 1 → 6 hemiacetal.

D-*form*

3,4,6-Tri-Ac, oxime:
$C_{12}H_{17}NO_8$ 303.268
$[\alpha]_D^{23}$ +21.7 (c, 1.0 in $CHCl_3$).

*3,4,6-Tribenzoyl: 2,5-Anhydro-3,4,6-tri-*O*-benzoyl-D-allose*
[39037-99-5]
$C_{27}H_{22}O_8$ 474.466
Syrup. $[\alpha]_D^{23}$ +44.7 (c, 0.33 in $CHCl_3$).

3,4,6-Tribenzoyl, oxime: [50720-88-2]
$C_{27}H_{23}NO_8$ 489.481
$[\alpha]_D^{23}$ +12.9 (c, 0.2 in MeOH).

*3,4-*O*-Isopropylidene, 6-benzoyl: 2,5-Anhydro-6-*O*-benzoyl-3,4-*O*-isopropylidene-D-allose*
[39037-13-3]
$C_{16}H_{18}O_6$ 306.315
Oil. $[\alpha]_D^{23}$ +11.9 (c, 0.5 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 6-benzoyl, oxime:*
$C_{16}H_{19}NO_6$ 321.329
Mp 120-125°. $[\alpha]_D^{23}$ -4.5 (c, 0.3 in $CHCl_3$).

*3,4,6-Tribenzyl: 2,5-Anhydro-3,4,6-tri-*O*-benzyl-D-allose*
[37699-02-8]
$C_{27}H_{28}O_5$ 432.515
Oil. $[\alpha]_D^{23}$ +62.5 (c, 0.28 in $CHCl_3$).

DL-*form*

*3,4-*O*-Isopropylidene: 2,5-Anhydro-3,4-*O*-isopropylidene-DL-allose*
[55610-47-4]
$C_9H_{14}O_5$ 202.207
Cryst. Mp 185-186°.

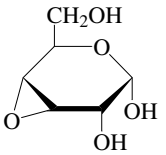
*3,4-*O*-Isopropylidene, thiosemicarbazone:*
Mp 156°.

*3,4-*O*-Isopropylidene, semicarbazone:*
Cubes (Me_2CO/Et_2O). Mp 136-137°.

*3,4-*O*-Isopropylidene, 6-Ac, semicarbazone:*
Cryst. (MeOH/petrol). Mp 146-148°.

Ogawa, T. *et al., Agric. Biol. Chem.*, 1971, **35**, 1825 (*D-tribenzyl*)
Albrecht, H.P. *et al., J.O.C.*, 1973, **38**, 1836; 1975, **40**, 2143 (*D-tribenzoyl, D-tribenzyl, tri-Ac oxime, tribenzoyl oxime*)
Just, G. *et al., Can. J. Chem.*, 1975, **53**, 131 (*DL-derivs*)

3,4-Anhydroallose A-486



α-D-Pyranose-*form*

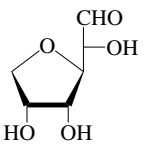
$C_6H_{10}O_5$ 162.142

α-DL-Pyranose-*form*

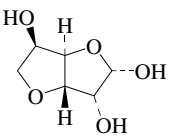
Me glycoside: Methyl 3,4-anhydro-α-DL-allopyranoside
[39598-70-4]
$C_7H_{12}O_5$ 176.169
Mp 103-104°.

Banaszek, A. *et al., Bull. Acad. Pol. Sci., Ser. Sci. Chim.*, 1972, **20**, 935 (*synth*)
Krajewski, J.W. *et al., Carbohydr. Res.*, 1990, **203**, 195 (*cryst struct*)

3,6-Anhydroallose A-487



D-*form*



α-D-Furanose-*form*

$C_6H_{10}O_5$ 162.142

D-*form* [35880-33-2]
Syrup. $[\alpha]_D^{25}$ -33.2 (c, 3.8 in H_2O). Pmr shows presence of 3.6% free aldehyde, 50% dimeric forms and 46% hydrated forms.

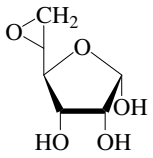
*4,5-*O*-Isopropylidene, di-Me acetal: 3,6-Anhydro-4,5-*O*-isopropylidene-D-allose dimethylacetal*
[35880-35-4]
$C_{11}H_{20}O_6$ 248.275
Syrup. $Bp_{0.05}$ 110°. $[\alpha]_D^{25}$ -18.1 (c, 1.2 in $CHCl_3$). Error in CAS name.

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene, 5-mesyl: 3,6-Anhydro-1,2-*O*-isopropylidene-5-*O*-mesyl-α-D-allofuranose*
[159043-20-6]
$C_{10}H_{16}O_7S$ 280.298
Cryst. (EtOH). Mp 98-99°. $[\alpha]_D^{20}$ +12.1 (c, 1 in CH_2Cl_2).

Randall, M.H. *et al., J.C.S. Perkin 1*, 1972, 346-351 (*D-form, D-form isopropylidene di-Me acetal*)
Meyer zu Reckendorf, W. *et al., Annalen*, 1994, 337-346 (*α-D-fur-isopropylidene mesyl*)

5,6-Anhydroallose A-488



$C_6H_{10}O_5$ 162.142

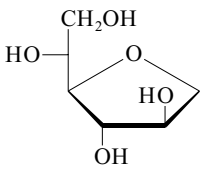
α-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 5,6-Anhydro-1,2-*O*-isopropylidene-α-D-allofuranose*
[72380-41-7]
$C_9H_{14}O_5$ 202.207
Cryst. (C_6H_6/cyclohexane). Mp 68-69°. $[\alpha]_D^{25}$ +57.4 (c, 1.0 in $CHCl_3$).

*3-Benzyl, 1,2-*O*-isopropylidene: 5,6-Anhydro-3-*O*-benzyl-1,2-*O*-isopropylidene-α-D-allofuranose*
[83103-60-0]
$C_{16}H_{20}O_5$ 292.331
Syrup. $Bp_{0.5}$ 140-150° (lit. gives a pressure range). $[\alpha]_D^{25}$ +106.3 (c, 2 in $CHCl_3$).

Uryu, T. *et al., J. Polym. Sci., Part A: Polym. Chem.*, 1982, **20**, 2181-2194 (*α-D-fur isopropylidene, α-D-fur benzyl isopropylidene*)

1,4-Anhydroaltritol A-489



$C_6H_{12}O_5$ 164.158

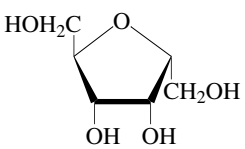
D-*form*

Mp 106.5-107.5°. $[\alpha]_D$ +13.9 (c, 3.7 in H_2O).

Barker, R. *et al., J.O.C.*, 1964, **29**, 869 (*synth*)

2,5-Anhydroaltritol A-490

2,5-Anhydrotalitol



$C_6H_{12}O_5$ 164.158

D-*form* [76945-35-2]
Oil, crystallising on standing. Mp 111-112°. $Bp_{0.005}$ 110-115°. $[\alpha]_D^{24}$ +45.9 (c, 2.02 in H_2O).

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2,5-anhydro-D-altritol*
$C_{14}H_{20}O_9$ 332.307
$Bp_{0.3}$ 160-165°.

*1,6-Dibenzoyl: 2,5-Anhydro-1,6-di-*O*-benzoyl-D-altritol*
$C_{20}H_{20}O_7$ 372.374
Mp 100-101°. $[\alpha]_D^{23}$ +46.5 (c, 1.45 in MeOH).

*3,4-Isopropylidene: 2,5-Anhydro-3,4-*O*-isopropylidene-D-altritol*
[42889-94-1]
$C_9H_{16}O_5$ 204.222
Oil. $[\alpha]_D^{20}$ +4.35 (c, 1.8 in CH_2Cl_2).

*3,4-Isopropylidene, di-Ac: 1,6-Di-*O*-acetyl-2,5-anhydro-3,4-*O*-isopropylidene-D-altritol*
[64023-48-9]
$C_{13}H_{20}O_7$ 288.297
Oil. $[\alpha]_D^{20}$ -3 (c, 2 in CH_2Cl_2).

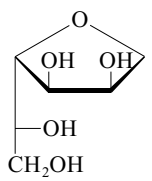
Defaye, J. *et al., Bull. Soc. Chim. Fr.*, 1964, 999 (*synth*)

Otero, D.A. *et al., Carbohydr. Res.*, 1984, **128**, 79 (*synth*)

El Sayed Ahmed, F.M. *et al., Carbohydr. Res.*, 1986, **155**, 19 (*3,4-isopropylidene, 3,4-isopropylidene di-Ac*)

3,6-Anhydroaltritol A-491

1,4-Anhydrotalitol



D–*form*

$C_6H_{12}O_5$ 164.158

3,6-Anhydroaltritol is the preferred IUPAC name.

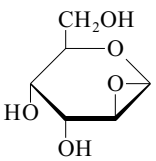
D-*form*

Syrup. $[\alpha]_D$ -57.8 (c, 2.2 in H_2O).

*Diisopropylidene: 3,6-Anhydro-1,2:4,5-di-*O*-isopropylidene-D-altritol. 1,4-Anhydro-2,3:5,6-di-*O*-isopropylidene-D-talitol*
$C_{12}H_{20}O_5$ 244.287
Mp 45°. $[\alpha]_D^{25}$ -19.4 (c, 2.9 in toluene).

Barker, R. *et al., J.O.C.*, 1964, **29**, 869 (*synth, D-form*)

1,2-Anhydroaltrose A-492



$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

*4,6-*O*-Benzylidene, 3-(*tert*-butyldimethylsilyl): 1,2-Anhydro-4,6-*O*-benzylidene-3-*O*-tert-butyldimethylsilyl-β-D-altropyranose*
[121654-02-2]
$C_{19}H_{28}O_5Si$ 364.513
$[\alpha]_D^{25}$ +29 (c, 0.94 in $CHCl_3$).

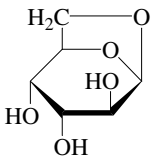
*3,4,6-Tribenzyl: 1,2-Anhydro-3,4,6-tri-*O*-benzyl-β-D-altropyranose*
$C_{27}H_{28}O_5$ 432.515
Mp 83-84°. $[\alpha]_D^{23}$ -23.6 (c, 1.0 in $CHCl_3$).

Wu, E. *et al., Carbohydr. Res.*, 1993, **250**, 327 (*tribenzyl*)

Cavicchidi, M. *et al., Chem. Comm.*, 1995, 901 (*pmr*)

1,6-Anhydroaltrose A-493

Altrosan



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form* [10339-41-0] Minor prod. from the pyrolysis of cellulose.
Powder (2-propanol). Mp 134-135° (129-130°). $[\alpha]_D^{25}$ -219 (c, 1 in H_2O).

*3-Benzyl: 1,6-Anhydro-3-*O*-benzyl-β-D-altropyranose*
[116730-96-2]
$C_{13}H_{16}O_5$ 252.266
Syrup. $[\alpha]_D$ -123 (c, 0.8 in $CHCl_3$).

*3-Benzyl, di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-*O*-benzyl-β-D-altropyranose*
[116730-97-3]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -152 (c, 1 in $CHCl_3$).

*4-Benzyl: 1,6-Anhydro-4-*O*-benzyl-β-D-altropyranose*
[116836-99-8]
$C_{13}H_{16}O_5$ 252.266
Mp 123-126°. $[\alpha]_D$ -137 (c, 0.5 in $CHCl_3$).

*4-Benzyl, 2,3-di-Ac: 2,3-Di-*O*-acetyl-1,6-anhydro-4-*O*-benzyl-β-D-altropyranose*
[116730-98-4]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -129 (c, 0.9 in $CHCl_3$).

*Tribenzyl: 1,6-Anhydro-2,3,4-tri-*O*-benzyl-β-D-altropyranose*
[81126-98-9]
$C_{27}H_{28}O_5$ 432.515
Mp 98-99°. $[\alpha]_D^{25}$ -63.9 ($CHCl_3$).

*2-Benzyl: 1,6-Anhydro-2-*O*-benzyl-β-D-altropyranose*
[118895-82-2]
$C_{13}H_{16}O_5$ 252.266
$[\alpha]_D^{23}$ -130 (c, 0.03 in $CHCl_3$).

β-D-Furanose-*form* [38184-08-6]
Mp 110-111°. $[\alpha]_D^{22}$ -2.5 (c, 1.0 in H_2O).

*2,3-Dibenzyl: 1,6-Anhydro-2,3-di-*O*-benzyl-β-D-altropyranose*
[118895-80-0]
$C_{20}H_{22}O_5$ 342.391
Syrup. $[\alpha]_D^{23}$ -78.9 (c, 0.13 in $CHCl_3$).

β-L-Furanose-*form* [33818-24-5]
Cryst. (AcOH). Mp 143-145°. $[\alpha]_D^{20}$ +19 (c, 1 in H_2O).

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,6-anhydro-β-L-altrofuranose*
[33818-26-7]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +83.7 (c, 0.95 in $CHCl_3$).

Heyns, K. *et al., Chem. Ber.*, 1971, **104**, 2063 (*synth, β-L-fur*)

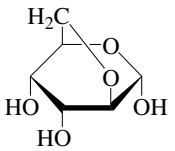
Angyal, S.J. *et al., Aust. J. Chem.*, 1978, **31**, 1151 (*synth, β-D-fur*)

Norrestam, R. *et al., Acta Cryst. C*, 1981, **37**, 1265 (*cryst struct*)

Uryu, T. *et al., J. Polym. Sci., Polym. Chem. Ed.*, 1982, **20**, 343 (*tribenzyl*)

Köll, P. *et al., Carbohydr. Res.*, 1988, **174**, 1,9; **179**, 1; 9 (*pmr, cmr, cryst struct, β-L-fur, β-D-fur*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1988, **175**, 193 (*3-benzyl, 4-benzyl*)
Hori, H. *et al., J.O.C.*, 1989, **54**, 1346-1353 (*2-benzyl, 2,3-dibenzyl, tribenzyl*)
Matsumoto, K. *et al., Bull. Chem. Soc. Jpn.*, 1991, **64**, 2309 (*synth, ir, pmr, cmr, β-D-pyr*)
Van Rijsbergen, R. *et al., J. Carbohydr. Chem.*, 1992, **11**, 463-470 (*occur*)

2,6-Anhydroaltrose A-494



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

D-*form*

Di-Me acetal: 2,6-Anhydro-D-altrose dimethylacetal, 9CI
[80564-43-8]
$C_8H_{16}O_6$ 208.211
Cryst. (2-propanol). Mp 127-128°. $[\alpha]_D^{20}$ -50.1 (c, 0.9 in MeOH).

α-D-Pyranose-*form*

Me glycoside: Methyl 2,6-anhydro-α-D-altropyranoside
[29411-58-3]
$C_7H_{12}O_5$ 176.169
Prisms (EtOAc). Mp 97-98°. $[\alpha]_D^{20}$ +44.6 (c, 2 in H_2O).

Me glycoside, 3,4-di-Ac: Methyl 3,4-di-O-acetyl-2,6-anhydro-α-D-altropyranoside
[76825-33-7]
$C_{11}H_{16}O_7$ 260.243
Prisms ($CHCl_3$/pentane). Mp 100-101°. $[\alpha]_D^{20}$ +32.5 (c, 2 in $CHCl_3$).

Me glycoside, 3,4-O-isopropylidene: Methyl 2,6-anhydro-3,4-O-isopropylidene-α-D-altropyranoside
[76831-94-2]
$C_{10}H_{16}O_5$ 216.233
Cryst. (Et_2O/petrol). Mp 132°. $[\alpha]_D^{20}$ +33.1 (c, 1.2 in $CHCl_3$).

β-D-Pyranose-*form*

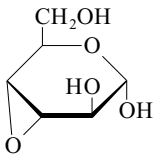
Me glycoside: Methyl 2,6-anhydro-β-D-altropyranoside
[71109-96-1]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{20}$ -67.6 (c, 1 in MeOH).

Me glycoside, 3,4-di-Ac: Methyl 3,4-di-O-acetyl-2,6-anhydro-β-D-altropyranoside
[71109-95-0]
$C_{11}H_{16}O_7$ 260.243
Syrup. $[\alpha]_D^{20}$ -56 (c, 1 in CH_2Cl_2).

Me glycoside, 3,4-O-isopropylidene: Methyl 2,6-anhydro-3,4-O-isopropylidene-β-D-altropyranoside
[71154-76-2]
$C_{10}H_{16}O_5$ 216.233
Solid. Mp 77-79°. $[\alpha]_D^{20}$ -51 (c, 1 in $CHCl_3$).

Rosenfeld, D.A. *et al., J.A.C.S.*, 1948, **70**, 2201-2206 (*α-D-Me pyr, α-D-Me pyr di-Ac*)
Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2296-2304 (*β-D-Me pyr, β-D-Me pyr di-Ac, β-D-Me pyr isopropylidene*)
Köll, P. *et al., Chem. Ber.*, 1980, **113**, 3919-3926 (*α-D-Me pyr isopropylidene*)
Köll, P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 441-449 (*D-di-Me acetal*)

3,4-Anhydroaltrose A-495



$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

Me glycoside: Methyl 3,4-anhydro-α-D-altropyranoside
[24558-64-3]
$C_7H_{12}O_5$ 176.169
$[\alpha]_D^{23}$ +97.3 (c, 3.61 in H_2O).

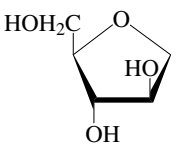
Me glycoside, 6-trityl: Methyl 3,4-anhydro-6-O-trityl-α-D-altropyranoside
[24558-68-7]
$C_{26}H_{26}O_5$ 418.488
Cryst. (Et_2O/petrol). Mp 104°.

Benzyl glycoside, 6-trityl, 2-mesyl: Benzyl 3,4-anhydro-2-O-mesyl-6-O-trityl-α-D-altropyranoside
[140702-38-1]
$C_{33}H_{32}O_7S$ 572.678
Cryst. (Et_2O/Me_2CO). Mp 83-84°. $[\alpha]_D^{22}$ +38 (c, 0.5 in $CHCl_3$).

Krajewski, J.W. *et al., Carbohydr. Res.*, 1992, **225**, 1 (*synth, pmr, cryst struct, deriv*)

1,4-Anhydroarabinitol, 9CI A-496

[41936-38-3]



D-*form*

$C_5H_{10}O_4$ 134.132

D-*form* [3999-31-3]
Hygroscopic cryst. (2-propanol/EtOAc). Mp 53°. $[\alpha]_D^{29}$ +23.7 (c, 1.5 in H_2O).

Tribenzoyl: 1,4-Anhydro-2,3,5-tri-O-benzoyl-D-arabinitol
$C_{26}H_{22}O_7$ 446.456
Syrup. $[\alpha]_D^{25}$ -77.4 (c, 2.14 in CH_2Cl_2). There is considerable confusion concerning the opt. rotn. of this compd., its enantiomer, and the enantiomers of the tris-4-nitrobenzoyl analogue. Two of the papers appear to contain typographical errors.

Tris-4-nitrobenzoyl: Mp 80-81°. $[\alpha]_D^{28}$ -86.2 (c, 1 in $CHCl_3$) (see note above).

L-*form* [106707-70-4]

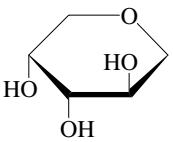
Tribenzoyl: 1,4-Anhydro-2,3,5-tri-O-benzoyl-L-arabinitol
[55018-48-9]
$C_{26}H_{22}O_7$ 446.456
Oil. $[\alpha]_D^{20}$ +77.5 (c, 0.64 in CH_2Cl_2) (see note above).

Tris-4-nitrobenzoyl:
Cryst. (Me_2CO aq.). Mp 80-82°. $[\alpha]_D^{20}$ +85.1 (c, 0.5 in $CHCl_3$) (see note above).

Barker, R. *et al., J.O.C.*, 1961, **26**, 4605-4609 (*L-form tris-4-nitrobenzoyl*)
Bhattacharya, A.K. *et al., J.O.C.*, 1963, **28**, 428-435 (*D-form tribenzoyl, L-form tribenzoyl*)
Hudson, B.G. *et al., J.O.C.*, 1967, **32**, 3650-3658 (*D-form, synth*)
Que, L. *et al., Biochemistry*, 1974, **13**, 146-153 (*cmr*)
Ferrier, R.J. *et al., Carbohydr. Res.*, 1974, **38**, 125-131 (*L-form tribenzoyl*)
Bennek, J.A. *et al., J.O.C.*, 1987, **52**, 892-897 (*D-form, synth, cmr*)

1,5-Anhydroarabinitol A-497

1,5-Anhydrolyxitol



D-*form*

$C_5H_{10}O_4$ 134.132

D-*form* [32742-34-0]
Cryst. (EtOH/EtOAc). Mp 96-97°. $[\alpha]_D^{20}$ -98.7 (c, 1 in H_2O).

Tri-Ac: 2,3,4-Tri-O-acetyl-D-arabinitol
[62445-02-7]
$C_{11}H_{16}O_7$ 260.243
Cryst. (EtOH). Mp 58°. $[\alpha]_D^{20}$ -74.2 (c, 1.018 in $CHCl_3$).

Tribenzoyl: 1,5-Anhydro-2,3,4-tri-O-benzoyl-D-arabinitol
[4145-05-5]
$C_{26}H_{22}O_7$ 446.456
Cryst. (EtOH). Mp 120-121°. $[\alpha]_D^{20}$ -220 ($CHCl_3$).

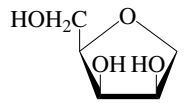
2,3,4-Triphosphate: [151380-04-0]
$C_5H_{13}O_{13}P_3$ 374.071
Cryst. + ½ EtOH (MeOH/EtOH) (as pentakis(cyclohexylammonium) salt). Mp 184-194° (pentakis(cyclohexylammonium) salt). $[\alpha]_D^{23}$ -11 (c, 1 in H_2O).

L-*form*
Cryst. (EtOH). Mp 94-95°. $[\alpha]_D^{25}$ +99.2 (c, 1.01 in H_2O).

Fletcher, H.G. *et al., J.A.C.S.*, 1947, **69**, 1672 (*synth*)
Pitzner, L.J. *et al., Spectrochim. Acta A*, 1975, **31**, 911 (*ir, Raman*)
Kondo, Y. *et al., Carbohydr. Res.*, 1984, **128**, 175; **134**, 167 (*derivs*)
Bertucci, C. *et al., Carbohydr. Res.*, 1986, **149**, 299 (*L-form*)
Regeling, H. *et al., Carbohydr. Res.*, 1993, **244**, 187 (*triphosphate*)
Jeffery, A. *et al., Tet. Lett.*, 1995, **36**, 3627 (*synth*)
Elveback, L.E. *et al., Carbohydr. Res.*, 1998, **313**, 181-187 (*derivs*)

2,5-Anhydroarabinitol, 9CI A-498

1,4-Anhydrolyxitol



D-*form*

$C_5H_{10}O_4$ 134.132

The name 2,5-Anhydroarabinitol is preferred over 1,4-Anhydrolyxitol acc. to IUPAC special rules for carbohydrates.

D-*form* [51607-78-4]
Syrup. $Bp_{0.24}$ 125-135° (bath). $[\alpha]_D^{23}$ -1.4 (c, 0.9 in H_2O).

Tribenzoyl: 2,5-Anhydro-1,3,4-tri-O-*benzoyl-D-arabinitol. 1,4-Anhydro-2,3,5-tri*-O-*benzoyl-D-lyxitol*
$C_{26}H_{22}O_7$ 446.456
Cryst. (EtOAc/pentane). Mp 117-118°. $[\alpha]_D^{20}$ -36.1 (c, 1.73 in $CHCl_3$).

Tritosyl: 2,5-Anhydro-1,3,4-tri-O-*tosyl-D-arabinitol. 1,4-Anhydro-2,3,5-tri*-O-*tosyl-D-lyxitol*
$C_{26}H_{28}O_{10}S_3$ 596.699
Cryst. (EtOH). Mp 128-129°. $[\alpha]_D^{23}$ +27.4 (c, 6.4 in $CHCl_3$).

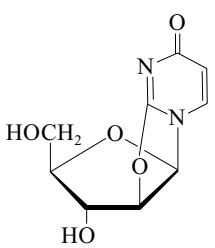
3,4-Isopropylidene: 2,5-Anhydro-3,4-O-*isopropylidene-D-arabinitol. 1,4-Anhydro-2,3*-O-*isopropylidene-D-lyxitol*
$C_8H_{14}O_4$ 174.196
Needles (C_6H_6/petrol). Mp 75-76°. $[\alpha]_D^{23}$ -40.5 (c, 5.4 in H_2O).

L-*form* [106248-68-4]
$Bp_{0.09}$ 115-125° (bath). $[\alpha]_D^{28}$ +0.2 (c, 5.9 in H_2O). n_D^{25} 1.4901.

Tritosyl: 2,5-Anhydro-1,3,4-tri-O-*tosyl-L-arabinitol. 1,4-Anhydro-2,3,5-tri*-O-*tosyl-L-lyxitol*
[30591-86-7]
$C_{26}H_{28}O_{10}S_3$ 596.699
Cryst. (EtOH). Mp 128°. $[\alpha]_D^{23}$ -27.4 (c, 0.59 in $CHCl_3$).

Cifonnelli, M. *et al., J.A.C.S.*, 1955, **77**, 121-125 (*D-form, L-form, synth, tritosyl derivs, 3,4-isopropylidene*)
Battacharya, A.K. *et al., J.O.C.*, 1963, **28**, 428-435 (*D-form, synth, tribenzoyl*)
Que, L. *et al., Biochemistry*, 1974, **13**, 246-253 (*cmr*)

2,2′-Anhydro-1-arabinofuranosyluracil, 8CI A-499



$C_9H_{10}N_2O_5$ 226.188

β-D-*form*
2′-O²-Cyclouridine
[3736-77-4]
Mp 240-245°. $[\alpha]_D^{27}$ -20 (c, 0.4 in H_2O). λ_{max} 270 sh, 249, 223 nm (H_2O).

5′-Ac: [25383-78-2]
$C_{11}H_{12}N_2O_6$ 268.226
Mp 169-170°. λ_{max} 249 (ε 7 700), 225 nm (8 400) (MeOH).

3′,5′-Di-Ac: [28309-53-7]
$C_{13}H_{14}N_2O_7$ 310.263
Mp 178-179°.

5′-Benzoyl: [34308-07-1]
$C_{16}H_{14}N_2O_6$ 330.296
Mp 201-203°. $[\alpha]_D^{25}$ +23.5 (MeOH).

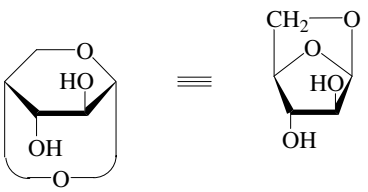
3′,5′-Dibenzoyl: [31616-01-0]
$C_{23}H_{18}N_2O_7$ 434.404
Mp 312°. $[\alpha]_D^{25}$ -38 (c, 0.5 in DMF).

5′-Trityl: [3249-94-3]
Mp 219-221°. $[\alpha]_D^{23}$ -18 (c, 0.4 in MeOH).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 373A (*nmr*)
Codington, J.F. *et al., J.O.C.*, 1964, **29**, 558
Fox, J.J. *et al., Tet. Lett.*, 1965, 643 (*synth*)
Jones, A.J. *et al., J. Phys. Chem.*, 1970, **74**, 2684 (*cmr*)
Verheyden, J.P.H. *et al., J.O.C.*, 1970, **35**, 2868 (*synth*)
Holy, A. *et al., Tet. Lett.*, 1971, 185 (*synth*)
Suck, D. *et al., Acta Cryst. B*, 1973, **29**, 1323 (*cryst struct*)
Miah, A. *et al., J.C.S. Perkin 1*, 1998, 3277-3283 (*synth, pmr, cmr*)

1,4-Anhydroarabinopyranose A-500

1,5-Anhydroarabinofuranose



D-*form*

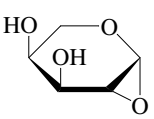
$C_5H_8O_4$ 132.116

D-*form*
2,3-Di-Me: 1,4-Anhydro-2,3-di-O-*methyl-α-D-arabinopyranose. 1,5-Anhydro-2,3-di*-O-*methyl-β-D-arabinofuranose*
$C_7H_{12}O_4$ 160.169
$[\alpha]_D^{29}$ +128.5 (c, 3.5 in $CHCl_3$).

L-*form*
Obt. by vacuum pyrolysis of plant cell wall biomass, e.g. corn bran.
Cryst. (EtOH). Mp 76-78°.

Kops, J. *et al., J.O.C.*, 1965, **30**, 3951
Essig, M.G. *et al., Carbohydr. Res.*, 1988, **181**, 189 (*manuf*)

1,2-Anhydroarabinose, 9CI A-501

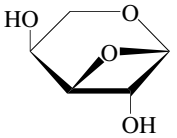


$C_5H_8O_4$ 132.116

β-L-Pyranose-*form*
3,4-Dibenzyl: 1,2-Anhydro-3,4-di-O-*benzyl-β-L-arabinopyranose*
[132884-64-1]
$C_{19}H_{20}O_4$ 312.365
$[\alpha]_D$ -8.3 (c, 1.4 in $CHCl_3$).

Yang, G. *et al., J. Carbohydr. Chem.*, 1994, **13**, 909-921 (*3,4-dibenzyl, synth, pmr*)

1,3-Anhydroarabinose, 9CI A-502

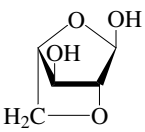


$C_5H_8O_4$ 132.116

α-L-Pyranose-*form*
Dibenzyl: 1,3-Anhydro-2,4-di-O-*benzyl-α-L-arabinopyranose, 9CI*
[172792-00-6]
$C_{19}H_{20}O_4$ 312.365
Syrup, crystallising on standing.
Mp 31°. $[\alpha]_D$ +25 (c, 1 in $CHCl_3$).

Du, Y. *et al., Carbohydr. Res.*, 1995, **275**, 259-273 (*dibenzyl, synth, pmr*)

2,5-Anhydroarabinose A-503



α-L-Furanose-*form*

$C_5H_8O_4$ 132.116

L-*form*
Syrup. $[\alpha]_D^{25}$ +12 (c, 0.5 in H_2O).

Benzylphenylhydrazone:
Needles (EtOH aq.). Mp 129-130°.

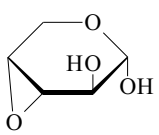
Di-Me acetal: 2,5-Anhydro-L-arabinose dimethylacetal
$C_7H_{14}O_5$ 178.185
Liq. $[\alpha]_D^{25}$ +30.5 (c, 1.2 in MeOH). n_D^{25} 1.4694.

α-L-Furanose-*form*
Me glycoside: Methyl 2,5-anhydro-α-L-arabinofuranoside
[25243-01-0]
$C_6H_{10}O_4$ 146.143
Liq. $Bp_{0.135}$ 65-75°. $[\alpha]_D^{27}$ -167 (H_2O). Hydrolyses at room temp. Also described as a mixture of α- and β-anomers (1976).

Et glycoside: Ethyl 2,5-anhydro-α-L-arabinofuranoside
Liq. $Bp_{0.001}$ 85-100°. $[\alpha]_D^{25}$ -81.7 (c, 1.0 in 0.1 *M* NaOH).

Cifonelli, M. *et al., J.A.C.S.*, 1955, **77**, 121-125 (*L-form, α-L-Me fur, α-L-Et fur*)
Angibeaud, P. *et al., Carbohydr. Res.*, 1976, **49**, 209-223 (*α-L-Me fur, β-L-Me fur*)

3,4-Anhydroarabinose A-504



$C_5H_8O_4$ 132.116

α-D-Pyranose-*form*

Me glycoside: Methyl 3,4-anhydro-α-D-arabinopyranoside
[14200-49-8]
$C_6H_{10}O_4$ 146.143
Cryst. (EtOAc/petrol). Mp 94-96°. $[\alpha]_D$ +66 (c, 0.8 in H_2O).

*Me glycoside, 2-Ac: Methyl 2-*O*-acetyl-3,4-anhydro-α-D-arabinopyranoside*
[14200-52-3]
$C_8H_{12}O_5$ 188.18
Cryst. (petrol). Mp 107-108°. $[\alpha]_D$ +52.1 (c, 0.24 in $CHCl_3$).

α-L-Pyranose-*form*

Me glycoside: Methyl 3,4-anhydro-α-L-arabinopyranoside
[137600-21-6]
$C_6H_{10}O_4$ 146.143
Prisms (C_6H_6/hexane). Mp 64-68°.

β-L-Pyranose-*form*

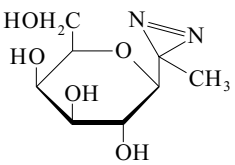
Me glycoside: Methyl 3,4-anhydro-β-L-arabinopyranoside
[14200-53-4]
$C_6H_{10}O_4$ 146.143
Cryst. (EtOAc/petrol). Mp 32-33°. $[\alpha]_D$ +133 (c, 0.45 in H_2O).

*Me glycoside, 2-Ac: Methyl 2-*O*-acetyl-3,4-anhydro-β-L-arabinopyranoside*
[14200-55-6]
$C_8H_{12}O_5$ 188.18
Cryst. (EtOAc/petrol). Mp 49-51°. $[\alpha]_D$ +170 (c, 0.48 in $CHCl_3$).

Buchanan, J.G. *et al., J.C.S.(C)*, 1966, 1926 (*synth*)
Buchanan, J.G. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 135 (*synth*)
Tsuda, Y. *et al., Chem. Pharm. Bull.*, 1991, **39**, 1983 (*synth, pmr, cmr*)

3,7-Anhydro-2-azi-1,2-dideoxy-D-*glycero*-L-*manno*-octitol A-505

[94885-17-3]

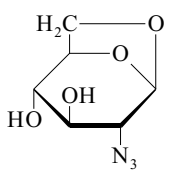


$C_8H_{14}N_2O_5$ 218.209
Photoaffinity label for galactosidase. Solid (EtOH). Mp 135° dec. $[\alpha]_D^{25}$ +9.6 (c, 0.3 in MeOH).

4,5,6,8-Tetra-Ac: Mp 124°. $[\alpha]_D^{25}$ +5 (c, 0.3 in MeOH).

Kurz, G. *et al., Carbohydr. Res.*, 1985, **136**, 125
Kuhn, C. *et al., Carbohydr. Res.*, 1987, **160**, C6 (*synth*)

1,6-Anhydro-2-azido-2-deoxy-glucose A-506



$C_6H_9N_3O_4$ 187.155

β-D-Pyranose-*form* [67546-20-7]
Cryst. (EtOAc). Mp 115-117°. $[\alpha]_D$ -33 (c, 1.0 in EtOH).

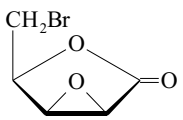
*3-Benzyl: 1,6-Anhydro-2-azido-3-*O*-benzyl-2-deoxy-β-D-glucopyranose*
[55682-57-0]
$C_{13}H_{17}N_3O_4$ 279.295
Mp 48-49.5°. $[\alpha]_D^{23}$ -6.3 (c, 0.2 in $CHCl_3$).

4-Benzyl: [55682-47-8]
$C_{13}H_{17}N_3O_4$ 279.295
Cryst. (toluene). Mp 97-98°. $[\alpha]_D^{20}$ -6 (c, 1.1 in $CHCl_3$).

*3,4-Dibenzyl: 1,6-Anhydro-2-azido-3,4-di-*O*-benzyl-2-deoxy-β-D-glucopyranose*
[67227-89-8]
$C_{20}H_{21}N_3O_4$ 367.404
$[\alpha]_D^{23}$ +37.8.

Paulsen, H. *et al., Chem. Ber.*, 1978, **111**, 2345-2347 (*β-D-pyr, synth, pmr, 4-benzyl*)
Hori, H. *et al., J.O.C.*, 1989, **54**, 1346 (*benzyl, pmr*)
Tailler, D. *et al., J.C.S. Perkin 1*, 1992, 3163 (*synth, pmr*)
Kubasch, N. *et al., Eur. J. Org. Chem.*, 2002, 2710-2726 (*β-D-pyr, 4-benzyl*)

2,3-Anhydro-5-bromo-5-deoxy-1,4-lyxonolactone A-507



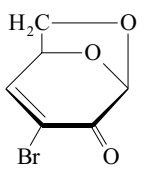
$C_5H_5BrO_3$ 192.997

D-*form* [129870-06-0]
Cryst. (EtOAc/pentane). Mp 77-78°. $[\alpha]_D^{20}$ -116.5 (c, 1.8 in $CHCl_3$).

Bols, M. *et al., Acta Chem. Scand.*, 1990, **44**, 252 (*synth, cmr*)

1,6-Anhydro-3-bromo-3,4-dideoxy-*glycero*-hex-3-enopyranos-2-ulose A-508

3-Bromo-6,8-dioxabicyclo[3.2.1]oct-2-en-4-one. 3-Bromolevoglucosenone

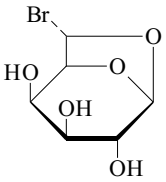


$C_6H_5BrO_3$ 205.008

D-*form* [78910-42-6]
Cryst. (Et_2O/hexane). Mp 47-48°.

Ward, D.D. *et al., Carbohydr. Res.*, 1981, **93**, 284 (*synth, ms*)

1,6-Anhydro-6-bromogalactose A-509



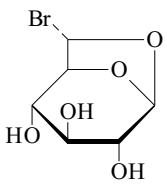
$C_6H_9BrO_5$ 241.038

β-D-Pyranose-(6*S*)-*form*

*Tribenzoyl: 1,6-Anhydro-2,3,4-tri-*O*-benzoyl-6*S*-bromo-β-D-galactopyranose*
[91876-34-5]
$C_{27}H_{21}BrO_8$ 553.362
Cryst. (Et_2O/petrol). Mp 119-122°. $[\alpha]_D^{22}$ -49.9 (c, 0.8 in $CHCl_3$).

Ohrui, H. *et al., Agric. Biol. Chem.*, 1984, **48**, 1049 (*tribenzoyl*)

1,6-Anhydro-6-bromoglucose A-510



$C_6H_9BrO_5$ 241.038

β-D-Pyranose-(6*S*)-*form*

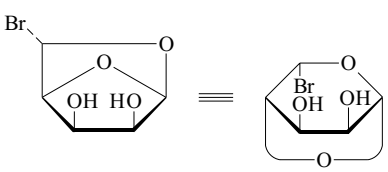
*Tri-Ac: 2,3,4-Tri-*O*-acetyl-1,6-anhydro-6*S*-bromo-β-D-glucopyranose*
[74774-10-0]
$C_{12}H_{15}BrO_8$ 367.15
Cryst. (Et_2O/petrol). Mp 94-96.5°. $[\alpha]_D$ -151 ($CHCl_3$).

*Tribenzoyl: 1,6-Anhydro-2,3,4-tri-*O*-benzoyl-6*S*-bromo-β-D-glucopyranose*
[74774-22-4]
$C_{27}H_{21}BrO_8$ 553.362
Cryst. Mp 188-193°. $[\alpha]_D$ -101 ($CHCl_3$).

Ferrier, R.J. *et al., Aust. J. Chem.*, 1980, **33**, 1025 (*tri-Ac, tribenzoyl*)

1,5-Anhydro-5-bromolyxofuranose A-511

1,4-Anhydro-5-bromolyxopyranose

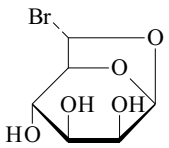


$C_5H_7BrO_4$ 211.012

D-(5*S*)-*form*

*Isopropylidene: 1,5-Anhydro-5*S*-bromo-2,3-*O*-isopropylidene-β-D-lyxofuranose. 1,4-Anhydro-5-bromo-2,3-*O*-isopropylidene-α-D-lyxopyranose*
[110808-40-7]
$C_8H_{11}BrO_4$ 251.076
Mp 94°. $[\alpha]_D^{20}$ -87.3 (c, 0.01 in $CHCl_3$).
Ohrui, H. *et al., Agric. Biol. Chem.*, 1987, **51**, 81 (*synth, pmr*)

1,6-Anhydro-6-bromomannose A-512



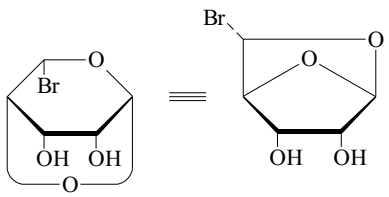
$C_6H_9BrO_5$ 241.038

β-D-Pyranose-(6*S*)-*form*

*Tribenzoyl: 1,6-Anhydro-2,3,4-tri-*O*-benzoyl-6*S*-bromo-β-D-mannopyranose*
[110567-02-7]
$C_{27}H_{21}BrO_8$ 553.362
Cryst. (Et_2O/hexane). Mp 173°. $[\alpha]_D^{21}$ -190 (c, 0.6 in $CHCl_3$).
Hori, H. *et al., J. Carbohydr. Chem.*, 1986, **5**, 585 (*tribenzoyl, pmr*)

1,5-Anhydro-5-bromoribofuranose A-513

1,4-Anhydro-5-bromoribopyranose



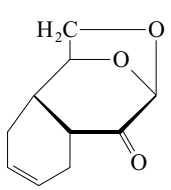
$C_5H_7BrO_4$ 211.012

D-(5*S*)-*form*

*Isopropylidene: 1,5-Anhydro-5*S*-bromo-2,3-*O*-isopropylidene-β-D-ribofuranose. 1,4-Anhydro-5*S*-bromo-2,3-*O*-isopropylidene-α-D-ribopyranose*
[93206-31-6]
$C_8H_{11}BrO_4$ 251.076
Mp 137°. $[\alpha]_D^{20}$ -52 (c, 1.0 in $CHCl_3$).
Ohrui, H. *et al., Agric. Biol. Chem.*, 1984, **48**, 1825 (*isopropylidene, pmr*)

1,6-Anhydro-3,4-(2-butene-1,4-diyl)-3,4-dideoxy-β-D-*ribo*-hexopyranos-2-ulose A-514

*1,2,5*a*,6,9,9*a*-Hexahydro-1,4-epoxy-3-benzoxepin-5(4*H*)-one, 9CI*



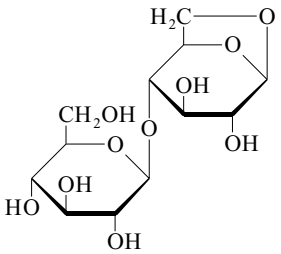
$C_{10}H_{12}O_3$ 180.203

(5*aR*,9*aS*)-*form*

D-allo-*form*
[79849-65-3] Carbohydrate-derived synthon.
Needles (hexane). Mp 62-63°. $[\alpha]_D$ -55.2 (c, 1.0 in $CHCl_3$).
Ward, D.D. *et al., Carbohydr. Res.*, 1981, **95**, 155 (*synth, pmr, cmr, ms*)
Isobe, M. *et al., Heterocycles*, 1987, **25**, 521 (*synth, cmr*)

1,6-Anhydrocellobiose A-515

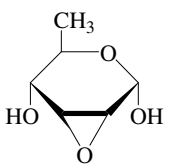
*1,6-Anhydro-4-*O*-β-D-glucopyranosyl-β-D-glucopyranose. β-D-Glucopyranosyl-(1→4)-1,6-anhydro-β-D-glucopyranose. Cellobiosan*
[35405-71-1]



$C_{12}H_{20}O_{10}$ 324.284
Hygroscopic solid. Mp 98-102°. $[\alpha]_D^{25}$ -74 (c, 2.1 in H_2O).

Hexa-Ac: [38631-27-5]
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (EtOH). Mp 142-143°. $[\alpha]_D^{20}$ -54.2 (c, 1.25 in $CHCl_3$).
Montgomery, E.M. *et al., J.A.C.S.*, 1943, **65**, 1848 (*synth*)
Wollwage, P.C. *et al., J. Polym. Sci., Part A*, 1971, **9**, 2877 (*synth*)
Tejima, S. *et al., Chem. Pharm. Bull.*, 1972, **20**, 2036 (*hexa-Ac*)

2,3-Anhydro-6-deoxyallose A-516



α-D-Pyranose-*form*

$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

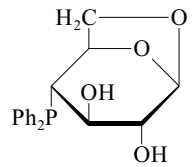
Me glycoside: Methyl 2,3-anhydro-6-deoxy-α-D-allopyranoside
[55533-58-9]
$C_7H_{12}O_4$ 160.169
Needles. Mp 99-100°. $[\alpha]_D^{24}$ +165 (c, 1 in $CHCl_3$).

*Me glycoside, 4-Me: Methyl 2,3-anhydro-6-deoxy-4-*O*-methyl-α-D-allopyranoside*
[58178-83-9]
$C_8H_{14}O_4$ 174.196
Mp 80-80.5°. $[\alpha]_D^{20}$ +210 (c, 1 in $CHCl_3$).

α-L-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-6-deoxy-α-L-allopyranoside
[55053-26-4]
$C_7H_{12}O_4$ 160.169
Syrup. $[\alpha]_D$ -182 (c, 1.0 in $CHCl_3$).
Umemura, E. *et al., Carbohydr. Res.*, 1992, **224**, 141 (*α-D-Me pyr*)
Cossy, J. *et al., Carbohydr. Res.*, 1994, **259**, 141 (*α-L-Me pyr*)

1,6-Anhydro-4-deoxy-4-(diphenylphosphino)glucopyranose, 13CI A-517

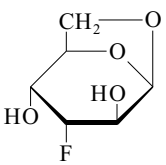


$C_{18}H_{19}O_4P$ 330.319

β-D-*form*

2-(4-Methylbenzenesulfonyl), P-*oxide:*
[136632-36-5]
$C_{25}H_{25}O_7PS$ 500.508
Needles ($CHCl_3$ or $CHCl_3/Et_2O$). Mp 165-168°. $[\alpha]_D^{25}$ -41 (c, 0.1 in $CHCl_3$).
Li, C. *et al., Carbohydr. Res.*, 1991, **216**, 149-170 (*synth, uv, ir, ms*)

1,6-Anhydro-3-deoxy-3-fluoroaltrose A-518



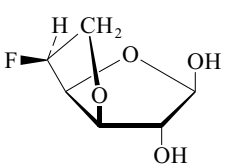
$C_6H_9FO_4$ 164.133

D-Pyranose-*form* [38711-36-3]
Cryst. (Me_2CO/Et_2O). Mp 132-134°. $[\alpha]_D$ -194 (c, 0.18 in H_2O).

*4-Benzyl: 1,6-Anhydro-4-*O*-benzyl-3-deoxy-3-fluoro-D-altropyranose*
[23094-76-0]
$C_{13}H_{15}FO_4$ 254.257
Cryst. Mp 102-103°. $[\alpha]_D$ -95 (c, 0.39 in $CHCl_3$).
Pacak, J. *et al., Chem. Comm.*, 1969, 77 (*deriv*)
Pacak, J. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 2589 (*deriv, pmr, F-19 nmr*)

3,6-Anhydro-5-deoxy-5-fluoroidofuranose A-519

[103357-84-2]



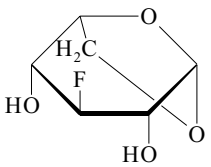
$C_6H_9FO_4$ 164.133

α-L-*form*

*1,2-Isopropylidene: 3,6-Anhydro-5-deoxy-5-fluoro-1,2-*O*-isopropylidene-α-L-idofuranose*
$C_9H_{13}FO_4$ 204.198
Needles. Mp 96.5-97.5°. $[\alpha]_D^{22}$ +15.4 (c, 1.97 in $CHCl_3$).

Hall, L.D. *et al., Can. J. Chem.*, 1970, **48**, 451 (*isopropylidene, pmr, cmr*)

1,6-Anhydro-3-deoxy-3-fluoroidose A-520



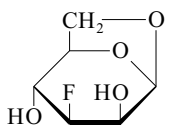
$C_6H_9FO_4$ 164.133

L-Pyranose-*form* [39809-12-6]
Cryst. Mp 106-109°. $[\alpha]_D^{26}$ +106 (Me_2CO).

*Di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-deoxy-3-fluoro-L-idopyranose*
[39809-13-7]
$C_{10}H_{13}FO_6$ 248.207
Cryst. (Et_2O/petrol). Mp 83-84°. $[\alpha]_D$ +80.5 ($CHCl_3$).

Foster, A.B. *et al., Carbohydr. Res.*, 1972, **25**, 217 (*synth, pmr, F-19 nmr*)

1,6-Anhydro-3-deoxy-3-fluoromannose A-521



$C_6H_9FO_4$ 164.133

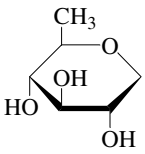
D-Pyranose-*form* [88142-85-2]
Cryst. (MeOH). Mp 158-160° (sinters at 110-134°). $[\alpha]_D$ -118 (c, 0.69 in H_2O).

*Di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-deoxy-3-fluoro-D-mannopyranose*
[88142-86-3]
$C_{10}H_{13}FO_6$ 248.207
Syrup. $Bp_{0.15}$ 185° (bath). $[\alpha]_D$ -106 (c, 0.66 in $CHCl_3$).

*Dibenzoyl: 1,6-Anhydro-2,4-di-*O*-benzoyl-3-deoxy-3-fluoro-D-mannopyranose*
[88142-87-4]
$C_{20}H_{17}FO_6$ 372.349
Cryst. ($EtOH/H_2O$). Mp 141-142°. $[\alpha]_D$ -186 (c, 0.5 in $CHCl_3$).

Cerny, M. *et al., Coll. Czech. Chem. Comm.*, 1983, **48**, 2693 (*D-form, di-Ac, dibenzoyl*)

1,5-Anhydro-6-deoxyglucitol A-522



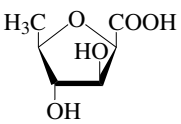
$C_6H_{12}O_4$ 148.158

D-*form*

3,4-Dibenzyl: 1,5-Anhydro-3,4-dibenzyl-6-deoxy-D-glucitol
[135186-18-4]
$C_{20}H_{24}O_4$ 328.407
Oil.

Broxterman, H.J.G. *et al., J. Carbohydr. Chem.*, 1991, **10**, 215-237 (*2,3-dibenzyl*)

2,5-Anhydro-6-deoxygluconic acid A-523



D-*form*

$C_6H_{10}O_5$ 162.142

D-*form*

Me ester:
$C_7H_{12}O_5$ 176.169
Cryst. Mp 81-82°. $[\alpha]_D^{25}$ +10.5 (c, 1.00 in MeCN).

*3-Benzyl, Me ester: Methyl 2,5-anhydro-3-*O*-benzyl-6-deoxy-D-gluconate*
$C_{14}H_{18}O_5$ 266.293
Oil. $[\alpha]_D^{25}$ -27.7 (c, 0.9 in $CHCl_3$).

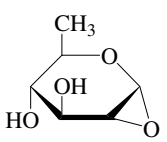
L-*form*

Me ester: [143813-45-0]
Mp 84-85° (81-82°). $[\alpha]_D^{20}$ -12.5 (c, 1.0 in MeCN).

*4-Benzyl, Me ester: Methyl 2,5-anhydro-4-*O*-benzyl-6-deoxy-L-gluconate*
[145372-80-1]
$C_{14}H_{18}O_5$ 266.293
$[\alpha]_D$ -50.1 (c, 1.1 in $CHCl_3$).

Choi, S.S. *et al., Chem. Comm.*, 1992, 1605 (*L-form, 4-benzyl*)
Mantell, S.J. *et al., Tet. Lett.*, 1992, **33**, 4503 (*L-form, Me ester, synth, cmr, cryst struct*)
Frank, H. *et al., Tetrahedron*, 1995, **51**, 5397 (*L-form, synth, pmr, cmr*)
Long, D.D. *et al., J.C.S. Perkin 1*, 2002, 1982-1998 (*D-form, Me ester, 3-benzyl, synth, ir, pmr, cmr*)

1,2-Anhydro-6-deoxyglucose A-524



α-D-Pyranose-*form*

$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

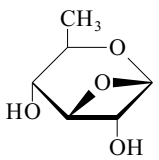
*Dibenzyl: 1,2-Anhydro-3,4-di-*O*-benzyl-6-deoxy-α-D-glucopyranose*
[143771-51-1]
$C_{20}H_{22}O_4$ 326.391
Cryst. (Et_2O/petrol). Mp 51-52°. $[\alpha]_D^{20}$ +5.8 (c, 6.0 in $CHCl_3$). Unstable at r.t.

α-L-Pyranose-*form*

*Dibenzyl: 1,2-Anhydro-3,4-di-*O*-benzyl-6-deoxy-α-L-glucopyranose*
[154779-60-9]
$C_{20}H_{22}O_4$ 326.391
Cryst. (petrol/EtOAc). Mp 53-54°. $[\alpha]_D^{20}$ -9.4 (c, 0.2 in $CHCl_3$).

Yang, G. *et al., J. Carbohydr. Chem.*, 1992, **11**, 595-608 (*α-D-pyr dibenzyl, synth, conformn*)
Wu, E. *et al., Carbohydr. Res.*, 1993, **250**, 327 (*synth, pmr*)

1,3-Anhydro-6-deoxyglucose A-525



$C_6H_{10}O_4$ 146.143

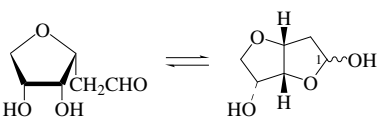
β-D-Pyranose-*form*

*Dibenzyl: 1,3-Anhydro-2,4-di-*O*-benzyl-β-D-glucopyranose*
[141942-25-8]
$C_{20}H_{22}O_4$ 326.391
Syrup. $[\alpha]_D^{20}$ +35.5 (c, 1 in $CHCl_3$).

Wu, X. *et al., Carbohydr. Res.*, 1992, **229**, 75 (*synth, pmr*)

3,6-Anhydro-2-deoxyglucose A-526

Isoglucal



$C_6H_{10}O_4$ 146.143
Exists in soln. as a mixt. of furanose anomers. Incorrect struct. originally assigned (1926).

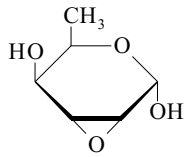
D-*form*
Oil. $[\alpha]_D^{20}$ +37.5.

2,4-Dinitrophenylhydrazone:
Cryst. ($EtOH/C_6H_6$). Mp 157-159° (122-124°). $[\alpha]_D$ +10 (c, 0.35 in Py).

*4,5-Isopropylidene: 3,6-Anhydro-2-deoxy-4,5-*O*-isopropylidene-D-glucose*
$C_9H_{14}O_4$ 186.207
Oil. Mp 125-126° (2,4-dinitrophenylhydrazone). $[\alpha]_D$ -40 (c, 0.5 in $CHCl_3$) (2,4-dinitrophenylhydrazone).

Serrano, J.A. *et al., J. Carbohydr. Chem.*, 1993, **12**, 237-246 (*D-form, !synth, pmr, cmr, bibl, 4,5-isopropylidene*)

2,3-Anhydro-6-deoxygulose A-527



$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-6-deoxy-α-D-gulopyranoside, 9CI, 8CI
[24558-66-5]
$C_7H_{12}O_4$ 160.169
Syrup. $Bp_{0.5}$ 80° (block). $[\alpha]_D$ +17.1 (c, 4.4 in D_2O).

Me glycoside, 4-Ac: Methyl 4-O-acetyl-2,3-anhydro-6-deoxy-α-D-gulopyranoside
[6893-97-6]
$C_9H_{14}O_5$ 202.207
Mp 83.5-84.5°. $[\alpha]_D^{22}$ +20 (c, 1.0 in $CHCl_3$).

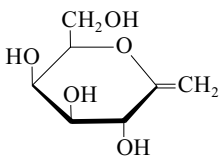
β-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-6-deoxy-β-D-gulopyranoside, 9CI
[53437-41-5]
$C_7H_{12}O_4$ 160.169
Needles (petrol). Mp 93°. $[\alpha]_D$ -101 (c, 0.6 in H_2O).

Me glycoside, 4-Ac: Methyl 4-O-acetyl-2,3-anhydro-6-deoxy-β-D-gulopyranoside
[53437-42-6]
$C_9H_{14}O_5$ 202.207
Syrup. $[\alpha]_D$ -133 (c, 0.6 in $CHCl_3$).

Buchanan, J.G. *et al., J.C.S.(B)*, 1969, 377 (*synth, pmr, Me α-D-Pyr*)
Al Janabi, S.A.S. *et al., Carbohydr. Res.*, 1974, **35**, 151 (*Me β-D-Pyr*)

2,6-Anhydro-1-deoxy-*galacto*-hept-1-enitol, 9CI A-528



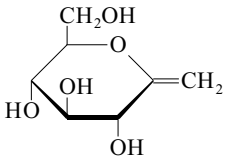
$C_7H_{12}O_5$ 176.169

D-*form* [62771-96-4]
Addn. of water catalysed by β-galactosidase to give 1-deoxy-D-*galacto*-heptulose.
Cryst. Mp 174°. $[\alpha]_D^{25}$ +166 (c, 1 in H_2O).

Tetra-Ac: [62771-95-3]
$C_{15}H_{20}O_9$ 344.318
Cryst. Mp 65°. $[\alpha]_D^{25}$ +69 (c, 1.0 in $CHCl_3$).

Brockhaus, M. *et al., Carbohydr. Res.*, 1977, **53**, 21 (*synth, ir, pmr*)
Fritz, H. *et al., Carbohydr. Res.*, 1983, **113**, 71 (*synth*)

2,6-Anhydro-1-deoxy-*gluco*-hept-1-enitol A-529



$C_7H_{12}O_5$ 176.169

D-*form* [74310-30-8]
Oil. Stored as stock soln. in dry MeOH at -20°.

*Tetra-Ac: 3,4,5,7-Tetra-*O*-acetyl-2,6-anhydro-1-deoxy-D-*gluco*-hept-1-enitol*
[74310-44-4]
$C_{15}H_{20}O_9$ 344.318
Cryst. (Et_2O). Mp 74°. $[\alpha]_D^{22}$ +54 (c, 1.0 in $CHCl_3$).

*3,4,5,7-Tetra-Me: 2,6-Anhydro-1-deoxy-3,4,5,7-tetra-*O*-methyl-D-*gluco*-hept-1-enitol*
[131474-23-2]
$C_{11}H_{20}O_5$ 232.276
$[\alpha]_D$ +67 (c, 1.0 in CH_2Cl_2).

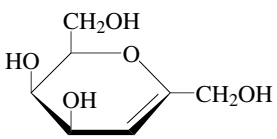
*3,4,5,7-Tetrabenzyl: 2,6-Anhydro-3,4,5,7-tetra-*O*-benzyl-1-deoxy-D-*gluco*-hept-1-enitol*
[97321-70-5]
$C_{35}H_{36}O_5$ 536.666
Mp 68-69°. $[\alpha]_D$ +60 (c, 1 in CH_2Cl_2).

*Tetrakis(*tert*-butyldimethylsilyl):* [169059-40-9]
$C_{31}H_{68}O_5Si_4$ 633.217
Oil. $[\alpha]_D^{25}$ +38.3 (c, 7.83 in $CHCl_3$).

Hehre, E.J. *et al., Biochemistry*, 1980, **19**, 3557 (*synth, tetra-Ac, pmr*)
Rajanbabu, T.V. *et al., J.O.C.*, 1986, **51**, 5458 (*synth, pmr, cmr*)
Ali, M.H. *et al., Carbohydr. Res.*, 1991, **216**, 517 (*Tetrabenzyl; Tetramethyl, pmr*)
Fang, J.-M. *et al., J.C.S. Perkin 1*, 1995, 967 (*Tetrakisbutyldimethylsilyl, pmr, cmr*)

2,6-Anhydro-3-deoxy-*lyxo*-hept-2-enitol A-530

*2,6-Anhydro-5-deoxy-*arabino*-hept-5-enitol, 9CI*

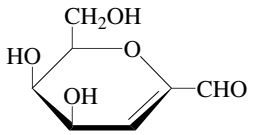


$C_7H_{12}O_5$ 176.169
The *arabino*- name has precedence acc. to the special IUPAC rules for carbohydrates. The compd. is D- according to both names but the direction of numbering is different. It is shown here as a 2-ene sugar.

D-*form*
Cryst. (EtOH). Mp 112.8°. $[\alpha]_D^{22}$ +2 (c, 1.0 in H_2O).

Dettinger, H.M. *et al., Carbohydr. Res.*, 1979, **74**, 301-307 (*synth*)

2,6-Anhydro-3-deoxy-*lyxo*-hept-2-enose, 9CI A-531



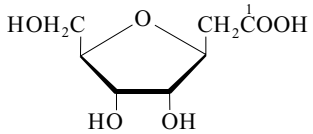
$C_7H_{10}O_5$ 174.153

D-*form* [71420-05-8]
Mp 146° (dec.). $[\alpha]_D^{22}$ -169 (c, 1.0 in $CHCl_3$).

Dettinger, H.M. *et al., Carbohydr. Res.*, 1979, **74**, 301-307 (*synth*)

3,6-Anhydro-2-deoxy-*allo*-heptonic acid A-532

Ribofuranosylacetic acid



$C_7H_{12}O_6$ 192.168

D-*form*

*4,5-Isopropylidene, Me ester: Methyl 3,6-anhydro-2-deoxy-4,5-*O*-isopropylidene-D-*allo*-heptonate*
[55036-19-6]
$C_{11}H_{18}O_6$ 246.26
$[\alpha]_D^{20}$ +5.4 (c, 1.0 in $CHCl_3$).

*4,5-Isopropylidene, Et ester: Ethyl 3,6-anhydro-2-deoxy-4,5-*O*-isopropylidene-D-*allo*-heptonate*
[55797-78-9]
$C_{12}H_{20}O_6$ 260.286
$[\alpha]_D^{25}$ -9.3 (c, 6.4 in MeOH).

*4,5-Isopropylidene, 6-benzoyl, Et ester: Ethyl 3,6-anhydro-7-*O*-benzoyl-2-deoxy-4,5-*O*-isopropylidene-D-*allo*-heptonate*
[55797-80-3]
$C_{19}H_{24}O_7$ 364.394
$[\alpha]_D^{25}$ -5.1 (c, 2.2 in $CHCl_3$).

4,5-Isopropylidene, 6-(4-nitrobenzoyl), Et ester: [55797-79-0]
Mp 58-59°. $[\alpha]_D^{25}$ +1 (c, 1.6 in $CHCl_3$).

*Tribenzyl, Me ester: Methyl 3,6-anhydro-4,5,7-tri-*O*-benzyl-2-deoxy-D-*allo*-heptonate*
[56703-51-6]
$C_{29}H_{32}O_6$ 476.568
$[\alpha]_D^{23}$ -13.1 (c, 1.0 in $CHCl_3$).

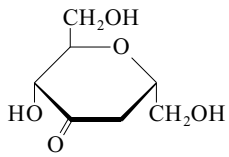
*Tribenzyl, Et ester: Ethyl 3,6-anhydro-4,5,7-tri-*O*-benzyl-2-deoxy-D-*allo*-heptonate*
[50907-78-3]
$C_{30}H_{34}O_6$ 490.595
$[\alpha]_D^{24}$ +22.2 (c, 3.5 in $CHCl_3$).

*6-Trityl, 4,5-isopropylidene, Me ester: Methyl 2-deoxy-4,5-*O*-isopropylidene-7-*O*-trityl-D-*allo*-heptonate*
$C_{30}H_{32}O_6$ 488.579
Cryst. (Et_2O). Mp 121-122°. $[\alpha]_D^{20}$ +5.6 (c, 1.0 in $CHCl_3$).

Hanessian, S. *et al., Carbohydr. Res.*, 1974, **38**, C12 (*β-D-Et ester derivs*)

Buchanan, J.G. *et al., Carbohydr. Res.*, 1974, **38**, C22 (*α/β-D-Et ester tribenzyl*)
Ohrui, H. *et al., J.A.C.S.*, 1975, **97**, 4602 (*β-D-Me ester isopropylidene, β-D-Me ester tribenzyl*)
Cousineau, T.J. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1976, **3**, 185 (*β-D-Me ester isopropylidene trityl*)

2,6-Anhydro-3-deoxy-*arabino*-4-heptulose A-533



$C_7H_{12}O_5$ 176.169

D-*form*

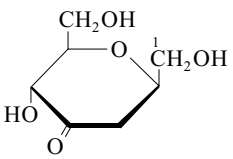
*7-Trityl, 5-Ac: 5-*O*-Acetyl-2,6-anhydro-3-deoxy-7-*O*-trityl-D-*arabino*-4-heptulose*
[54594-51-3]
$C_{28}H_{28}O_6$ 460.526
Mp 175-177°. $[\alpha]_D^{23}$ +293.4 (c, 1.9 in $CHCl_3$).

*7-Trityl, 1,5-di-Ac: 1,5-Di-*O*-acetyl-2,6-anhydro-3-deoxy-7-*O*-trityl-D-*arabino*-4-heptulose*
[66149-63-1]
$C_{30}H_{30}O_7$ 502.563
Mp 171-173°. $[\alpha]_D^{23}$ +168.2 (c, 1.5 in $CHCl_3$).

*1-Deoxy, 5,7-*O*-benzylidene: 2,6-Anhydro-5,7-*O*-benzylidene-1,3-dideoxy-D-*arabino*-4-heptulose*
[66149-65-3]
$C_{14}H_{16}O_4$ 248.278
Mp 243-244° (as dinitrophenylhydrazone). $[\alpha]_D^{23}$ -58 (c, 0.34 in $CHCl_3$) (dinitrophenylhydrazone). CAS no. refers to dinitrophenylhydrazone.

Fraser-Reid, B. *et al., Can. J. Chem.*, 1977, **55**, 3978; 4002

2,6-Anhydro-3-deoxy-*ribo*-4-heptulose A-534



$C_7H_{12}O_5$ 176.169

D-*form*

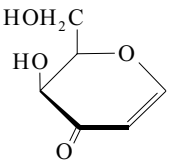
*7-Trityl, 5-Ac: 5-*O*-Acetyl-2,6-anhydro-3-deoxy-7-*O*-trityl-D-*ribo*-4-heptulose*
[54230-64-7]
$C_{28}H_{28}O_6$ 460.526
Cryst. (EtOH). Mp 171-173°. $[\alpha]_D^{23}$ +168.2 (c, 1.5 in $CHCl_3$).

*1-Deoxy, 5,7-*O*-benzylidene: 2,6-Anhydro-5,7-*O*-benzylidene-1,3-dideoxy-D-*ribo*-4-heptulose*
[66322-04-1]
$C_{14}H_{16}O_4$ 248.278
Mp 256-257° (sealed tube) (as dinitrophenylhydrazone). $[\alpha]_D^{23}$ -128 (c, 0.2 in $CHCl_3$) (dinitrophenylhydrazone). CAS no. refers to dinitrophenylhydrazone.

Walker, D.L. *et al., Chem. Comm.*, 1974, 319 (*trityl Ac*)
Fraser-Reid, B. *et al., Can. J. Chem.*, 1977, **55**, 3978; 4002 (*trityl Ac, deoxy benzylidene derivs*)

1,5-Anhydro-2-deoxy-*threo*-hex-1-ene-3-ulose A-535

1,2-Dideoxy-threo-*hex-1-enopyranos-3-ulose*



$C_6H_8O_4$ 144.127

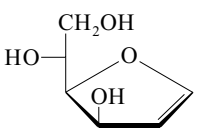
D-*form* [105660-75-1]
Mp 106-107°. $[\alpha]_D^{20}$ +54 (c, 0.9 in H_2O).

*Di-Ac: 4,6-Di-*O*-acetyl-1,5-anhydro-2-deoxy-D-*threo*-hex-1-en-3-ulose*
[105581-69-9]
$C_{10}H_{12}O_6$ 228.201
Oil. $[\alpha]_D^{20}$ +22.7 (c, 0.5 in $CHCl_3$).

*4,6-*O*-Benzylidene: 1,5-Anhydro-2-deoxy-4,6-*O*-(phenylmethylene)-D-*threo*-hex-1-en-3-ulose, 9CI*
[50621-69-7]
$C_{13}H_{12}O_4$ 232.235
Needles (2-propanol). Mp 165-166°. $[\alpha]_D$ +186 ($CHCl_3$).

Collins, P.M. *et al., J.C.S.(C)*, 1966, 1131 (*D-benzylidene*)
Beynon, P.J. *et al., J.C.S.(C)*, 1966, 1131-1136 (*D-benzylidene*)
Czernecki, S. *et al., J.O.C.*, 1986, **51**, 5472-5475 (*D-form, synth, ir, pmr*)
Hayashi, M. *et al., Eur. J. Org. Chem.*, 1999, 1869-1871 (*D-form, synth, ir, pmr, cmr*)

1,4-Anhydro-2-deoxy-*arabino*-hex-1-enitol A-536



$C_6H_{10}O_4$ 146.143

D-*form* [68144-11-6]

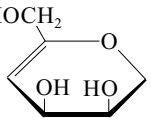
*5,6-Isopropylidene: 1,4-Anhydro-2-deoxy-5,6-*O*-isopropylidene-D-*arabino*-hex-1-enitol*
$C_9H_{14}O_4$ 186.207
$[\alpha]_D^{23}$ -100 (c, 1.0 in $CHCl_3$).

*3-Me, 5,6-isopropylidene: 1,4-Anhydro-2-deoxy-5,6-*O*-isopropylidene-3-*O*-methyl-D-*arabino*-hex-1-enitol*
[68144-16-1]
$C_{10}H_{16}O_4$ 200.234
$[\alpha]_D^{20}$ -70 ($CDCl_3$).

Eitelman, S.J. *et al., J.C.S. Perkin 1*, 1978, 595 (*synth, ir, pmr*)
Ireland, R.E. *et al., J.O.C.*, 1980, **45**, 48 (*synth, ir, pmr*)
Fuerstner, A. *et al., Carbohydr. Res.*, 1988, **7**, 773 (*synth*)

1,5-Anhydro-4-deoxy-*erythro*-hex-4-enitol A-537

2,6-Anhydro-3-deoxy-erythro-*hex-2-enitol. Fructal*



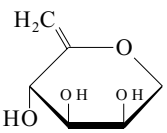
$C_6H_{10}O_4$ 146.143
Numbering according to the IUPAC name is in the opposite direction to the expected carbohydrate.

L-*form*

*Tribenzoyl: 1,5-Anhydro-2,3,6-tri-*O*-benzoyl-4-deoxy-L-*erythro*-hex-4-enitol*
[15080-09-8]
$C_{27}H_{22}O_7$ 458.467
Cryst. (EtOH). Mp 74-76°. $[\alpha]_D^{20}$ +163 (c, 1.09 in $CHCl_3$).

Ness, R.K. *et al., J.O.C.*, 1968, **33**, 181

1,5-Anhydro-6-deoxy-*lyxo*-hex-5-enitol A-538



$C_6H_{10}O_4$ 146.143

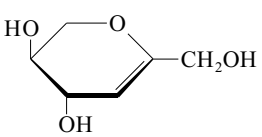
D-*form*
Mp 136-138°. $[\alpha]_D^{22}$ -181 (c, 0.5 in H_2O).

*Tribenzoyl: 1,5-Anhydro-2,3,4-tri-*O*-benzoyl-6-deoxy-D-*lyxo*-hex-5-enitol*
[18524-09-9]
$C_{27}H_{22}O_7$ 458.467
Cryst. (EtOH). Mp 119-120°. $[\alpha]_D^{24}$ -242 (c, 1.4 in $CHCl_3$).

Ishizu, A. *et al., Carbohydr. Res.*, 1967, **5**, 329 (*synth*)

2,6-Anhydro-3-deoxy-*threo*-hex-2-enitol A-539

Sorbal. endo-*Sorbal*



$C_6H_{10}O_4$ 146.143

L-*form* [143697-35-2]
Cryst. (Me_2CO). Mp 93-95°. $[\alpha]_D$ +153 (MeOH).

Tri-Ac: [161388-39-2]
$C_{12}H_{16}O_7$ 272.254
Syrup. $[\alpha]_D$ +191.7.

*1,5-Di-Me: 2,6-Anhydro-3-deoxy-1,5-di-*O*-methyl-L-*threo*-hex-2-enitol*
[161388-43-8]

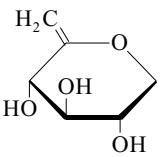
$C_8H_{14}O_4$ 174.196
Syrup.

1,5-Di-Me, Ac: 4-O-*Acetyl-2,6-anhydro-1,5-di*-O-*methyl*-L-threo-*hex-2-enitol*
[161388-44-9]
$C_{10}H_{16}O_5$ 216.233
Syrup. $[\alpha]_D$ +186.6.

1,5-Dibenzyl: 2,6-Anhydro-1,5-di-O-*benzyl-3-deoxy*-L-threo-*hex-2-enitol*
[143697-39-6]
$C_{20}H_{22}O_4$ 326.391
$[\alpha]_D$ +79.

Barili, P.L. *et al., Carbohydr. Res.*, 1991, **212**, C5
Barili, P.L. *et al., Gazz. Chim. Ital.*, 1994, **124**, 57

1,5-Anhydro-6-deoxy-*xylo*-hex-5-enitol A-540



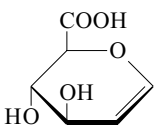
$C_6H_{10}O_4$ 146.143

D-*form*

Tri-Ac: 2,3,4-Tri-O-*acetyl-1,5-anhydro-6-deoxy*-D-xylo-*hex-5-enitol. 2,6-Anhydro-1-deoxy*-L-xylo-*hex-1-enitol triacetate, 8CI. 3,4,5-Tri*-O-*acetyl-1,2-dideoxy*-L-*sorb-1-enopyranose*
[4049-50-7]
$C_{12}H_{16}O_7$ 272.254
Needles (Et_2O/hexane). Mp 80-82°. $[\alpha]_D^{26.5}$ -9.5 (c, 1.1 in $CHCl_3$).

Tokuyama, K. *et al., Bull. Chem. Soc. Jpn.*, 1965, **38**, 1344 (*synth*)
Japan. Pat., 1967, 67 18 622; *CA*, **68**, 59845

2,6-Anhydro-5-deoxy-*lyxo*-hex-5-enonic acid A-541



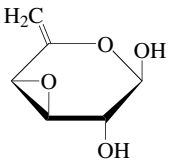
$C_6H_8O_5$ 160.126

D-*form*

Di-Ac, Me ester: Methyl 3,4-di-O-*acetyl-2,6-anhydro-5-deoxy*-D-lyxo-*hex-5-enoate*
[57690-62-7]
$C_{11}H_{14}O_7$ 258.227
Mp 87-90°.

Fehlhaber, H.-W. *et al., Annalen*, 1987, 637 (*synth, pmr*)

3,4-Anhydro-6-deoxy-*arabino*-hex-5-enose A-542



α-L-Pyranose-*form*

$C_6H_8O_4$ 144.127

α-L-Pyranose-*form*

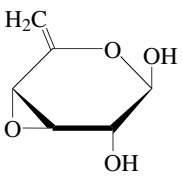
Me glycoside: Methyl 3,4-anhydro-6-deoxy-α-L-arabino-*hex-5-enopyranoside*
[54917-96-3]
$C_7H_{10}O_4$ 158.154
Mp 90-91°. $[\alpha]_D^{25}$ -180 (c, 1 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 3,4-anhydro-6-deoxy-β-L-arabino-*hex-5-enopyranoside*
[58635-67-9]
$C_7H_{10}O_4$ 158.154
Syrup. $Bp_{0.01}$ 75°. $[\alpha]_D^{25}$ +28.2 (c, 1 in $CHCl_3$).

Brockhaus, M. *et al., Annalen*, 1974, 1675; 1976, 89 (*synth, pmr*)

3,4-Anhydro-6-deoxy-*ribo*-hex-5-enose A-543



$C_6H_8O_4$ 144.127

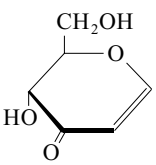
β-D-Pyranose-*form*

Me glycoside: Methyl 3,4-anhydro-6-deoxy-ribo-*hex-5-enopyranoside*
[55003-46-8]
$C_7H_{10}O_4$ 158.154
Mp 63-65°. $[\alpha]_D^{25}$ -112 (c, 1 in $CHCl_3$).

Brockhaus, M. *et al., Annalen*, 1974, 1675-1683 (*synth, pmr*)

1,5-Anhydro-2-deoxy-*erythro*-hex-1-en-3-ulose, 9CI A-544

1,2-Dideoxy-erythro-*hex-1-enopyranos-3-ulose, 8CI*



$C_6H_8O_4$ 144.127

D-*form* [14125-64-5]
Cryst. (EtOAc). Mp 87-88°. $[\alpha]_D^{20}$ +258 (c, 0.6 in H_2O).

4,6-Di-Ac: 4,6-Di-O-*acetyl-1,5-anhydro-2-deoxy*-D-erythro-*hex-1-en-3-ulose*
$C_{10}H_{12}O_6$ 228.201
$[\alpha]_D$ +255 (c, 1.0 in $CHCl_3$).

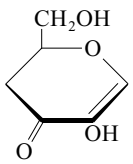
4,6-O-*Isopropylidene: 1,2-Dideoxy-4,6*-O-*isopropylidene*-D-erythro-*hex-1-enopyranos-3-ulose*
$C_9H_{12}O_4$ 184.191
Cryst. (Et_2O). Mp 104-105°. $[\alpha]_D^{23}$ +206.6 (c, 5.0 in $CHCl_3$).

4,6-O-*Benzylidene: 1,5-Anhydro-4,6*-O-*benzylidene-2-deoxy*-D-erythro-*hex-1-en-3-ulose. 4,6*-O-*Benzylidene-1,2-dideoxy*-D-erythro-*hex-1-enopyranos-3-ulose*
[23346-01-2]
$C_{13}H_{12}O_4$ 232.235
Cryst. (2-propanol). Mp 128-129°. $[\alpha]_D$ +189 ($CHCl_3$).

[23346-01-2, 113421-25-3]

Heyns, K. *et al., Chem. Ber.*, 1966, **99**, 3718 (*synth*)
Collins, P.M. *et al., Carbohydr. Res.*, 1969, **11**, 125 (*benzylidene*)
Fraser-Reid, B. *et al., Can. J. Chem.*, 1973, **51**, 3950 (*isopropylidene*)
Czernecki, S. *et al., J.O.C.*, 1986, **51**, 5472 (*di-Ac*)
Hayashi, M. *et al., Synthesis*, 1999, 1869-1871 (D-*form, synth, ir pmr, cmr*)

1,5-Anhydro-4-deoxy-*glycero*-hex-1-en-3-ulose A-545



$C_6H_8O_4$ 144.127
Unisolated enol.

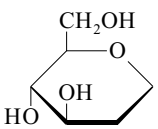
D-*form*

Pyrolysis prod. of cellulose (1.1%). Yellowish cryst. (EtOAc/hexane). Mp 98.5-99° (91-96°). $[\alpha]_D^{25}$ +155 (c, 1.1 in H_2O). Difficult to crystallise.

Shafizadeh, F. *et al., Carbohydr. Res.*, 1978, **67**, 433; 1981, **90**, 319 (*synth, uv, ms, cryst struct*)

1,5-Anhydro-2-deoxy-*arabino*-hexitol A-546

2,6-Anhydro-5-deoxy-lyxo-*hexitol*



$C_6H_{12}O_4$ 148.158

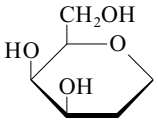
D-*form*

Cryst. (EtOAc). Mp 86-88°. $[\alpha]_D^{25}$ +16.2 (c, 2.24 in H_2O).

Foster, A.B. *et al., Acta Chem. Scand.*, 1958, **12**, 1819 (*synth*)
Bertucci, C. *et al., Carbohydr. Res.*, 1986, **149**, 299 (*synth, cd*)

1,5-Anhydro-2-deoxy-*lyxo*-hexitol A-547

2,6-Anhydro-5-deoxy-arabino-*hexitol*



$C_6H_{12}O_4$ 148.158

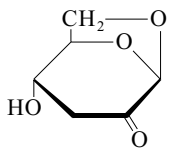
D-*form*

Cryst. (EtOAc). Mp 128-129°. $[\alpha]_D^{25}$ +43.4 (c, 1.35 in $CHCl_3$).

Lemieux, R.U. *et al., Carbohydr. Res.*, 1970, **13**, 139 (*synth*)

Bertucci, C. *et al., Carbohydr. Res.*, 1986, **149**, 299 (*synth, cd*)

1,6-Anhydro-3-deoxy-*erythro*-hexopyranos-2-ulose, 9CI A-548



$C_6H_8O_4$ 144.127

β-D-*form* [58238-45-2]
$[\alpha]_D$ -143 (H_2O). $[\alpha]_D$ -255 (-217) ($CHCl_3$).

*4-Me: 1,6-Anhydro-3-deoxy-4-*O*-methyl-β-D-*erythro-*hexopyranos-2-ulose, 9CI*
[71021-05-1]
$C_7H_{10}O_4$ 158.154
Syrup. $[\alpha]_D$ -214 ($CHCl_3$). $[\alpha]_D$ -130 (H_2O).

*4-Deoxy: 1,6-Anhydro-3,4-dideoxy-β-D-*glycero-*hexopyranos-2-ulose. 6,8-Dioxabicyclo[3.2.1]octan-4-one*
$C_6H_8O_3$ 128.127
Bp_{16} 104°. $[\alpha]_D^{25}$ -246 (c, 0.4 in $CHCl_3$).

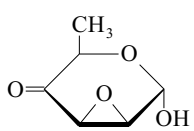
4-Deoxy, 2,4-dinitrophenylhydrazone: Mp 205-206°. $[\alpha]_D^{20}$ -58.4 (c, 5.14 in $CHCl_3$).

Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1192 (*4-deoxy, pmr*)

Rennecke, R.-W. *et al., Chem. Ber.*, 1975, **108**, 3652 (*β-D-form, synth*)

Shafizadeh, F. *et al., Carbohydr. Res.*, 1977, **58**, 79; 1979, **71**, 169 (*β-D-Me*)

2,3-Anhydro-6-deoxy-*lyxo*-hexopyranos-4-ulose A-549



$C_6H_8O_4$ 144.127

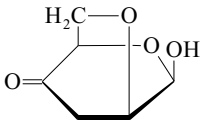
α-D-*form*

*Me glycoside: Methyl 2,3-anhydro-6-deoxy-α-D-*lyxo-*hexopyranosid-4-ulose*
[55533-65-8]
$C_7H_{10}O_4$ 158.154
Mp 41-42°. $[\alpha]_D^{20}$ +245 (c, 1.05 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 3891 (*Me gly, synth, ir, pmr*)

2,6-Anhydro-3-deoxy-*threo*-hexopyranos-4-ulose A-550

3-Hydroxy-2,6-dioxabicyclo[3.2.2]nonan-8-one



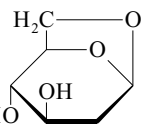
$C_6H_8O_4$ 144.127

β-D-*form*

Me glycoside: [71110-02-6]
$C_7H_{10}O_4$ 158.154
Cryst. Mp 60°. $[\alpha]_D^{20}$ -49 (c, 0.1 in CH_2Cl_2).

Koll, P. *et al., Chem. Ber.*, 1979, **112**, 2305 (*β-D-Me gly, pmr*)

1,6-Anhydro-2-deoxy-*arabino*-hexose A-551

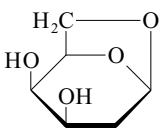


$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form* [26423-93-8]
Cryst. (EtOAc). Mp 159-160°. $[\alpha]_D^{25}$ -127 (c, 1.0 in Me_2CO).

Seib, P.A. *et al., J.C.S.(C)*, 1969, 2552 (*synth, pmr*)

1,6-Anhydro-2-deoxy-*lyxo*-hexose A-552



$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form* [26423-95-0]
Needles (EtOAc/petrol). Mp 181-182°. $[\alpha]_D^{24}$ -78 (c, 1.45 in Me_2CO).

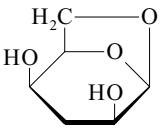
*Isopropylidene: 1,6-Anhydro-2-deoxy-3,4-*O*-isopropylidene-β-D-*lyxo-*hexopyranose*
[57701-02-7]
$C_9H_{14}O_4$ 186.207
Cryst. Mp 38°. $[\alpha]_D^{22}$ -98.3 (c, 0.9 in $CHCl_3$).

Seib, P.A. *et al., J.C.S.(C)*, 1969, 2552 (*synth*)

Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1975, 1574 (*synth, pmr, isopropylidene*)

Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 3707 (*synth, pmr, isopropylidene*)

1,6-Anhydro-3-deoxy-*lyxo*-hexose A-553



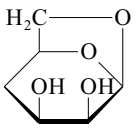
$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form* [29514-11-2]

*Di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-deoxy-β-D-*lyxo-*hexopyranose*
[151864-45-8]
$C_{10}H_{14}O_6$ 230.217
Mp 112-113°. $[\alpha]_D^{23}$ -67.5 (c, 0.16 in $CHCl_3$). Obt. only in low yield.

Matsumoto, K. *et al., Carbohydr. Res.*, 1993, **246**, 345 (*synth, ir, pmr, cmr*)

1,6-Anhydro-4-deoxy-*lyxo*-hexose A-554



$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form* [24707-51-5]
Cryst. (EtOH/hexane). Mp 65° Mp 85-100° subl Mp 91-100° Mp 128-140° Mp 156°. $[\alpha]_D^{26}$ -89.3 (c, 0.68 in H_2O).

*Di-Ac: 2,3-Di-*O*-acetyl-1,6-anhydro-4-deoxy-β-D-*lyxo-*hexopyranose*
[24707-53-7]
$C_{10}H_{14}O_6$ 230.217
Mp 68-69°. $[\alpha]_D^{26}$ -83.1 (c, 0.59 in $CHCl_3$).

*Dibenzoyl: 1,6-Anhydro-2,3-di-*O*-benzoyl-4-deoxy-β-D-*lyxo-*hexopyranose*
[24707-54-8]
$C_{20}H_{18}O_6$ 354.359
Needles (Me_2CO/Et_2O/petrol). Mp 136-138°. $[\alpha]_D^{20}$ -16 (c, 0.88 in $CHCl_3$).

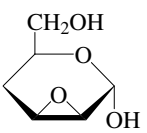
*2,3-Isopropylidene: 1,6-Anhydro-4-deoxy-2,3-*O*-isopropylidene-β-D-*lyxo-*hexopyranose*
[20789-63-3]
$C_9H_{14}O_4$ 186.207
Mp 127-128°. $[\alpha]_D^{20}$ +20.2 (c, 1 in $CHCl_3$).

Cerny, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 1750; 1972, **37**, 2632 (*synth*)

Klausener, A. *et al., Tetrahedron*, 1989, **45**, 4989 (*isopropylidene, synth, pmr, cmr*)

Matsumoto, K. *et al., Carbohydr. Res.*, 1993, **246**, 345 (*synth, ir, pmr, cmr*)

2,3-Anhydro-4-deoxy-*lyxo*-hexose A-555



α-D-*form*

$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

*Me glycoside: Methyl 2,3-anhydro-4-deoxy-α-D-*lyxo-*hexopyranoside*
[95628-54-9]
$C_7H_{12}O_4$ 160.169
Cryst. Mp 68-70°. $[\alpha]_D$ +50.64 (c, 1.02 in $CHCl_3$).

β-D-*form*

*Me glycoside: Methyl 2,3-anhydro-4-deoxy-β-D-*lyxo-*hexopyranoside*
$C_7H_{12}O_4$ 160.169
Mp 55-56°. $[\alpha]_D$ -48.19 (c, 1.06 in $CHCl_3$).

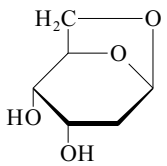
α-DL-*form*

*Me glycoside: Methyl 2,3-anhydro-4-deoxy-α-DL-*lyxo-*hexopyranoside*
[35942-31-5]
$C_7H_{12}O_4$ 160.169
Cryst.

Banaszek, A. *et al., Bull. Pol. Acad. Sci., Chem.*, 1984, **32**, 99 (*α-D-Me pyr, β-D-Me pyr*)
Krajewski, J.W. *et al., Carbohydr. Res.*, 1985, **144**, 13 (*cryst struct*)

1,6-Anhydro-2-deoxy-*ribo*-hexose A-556

[26423-94-9]



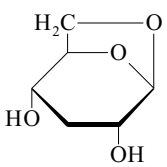
$C_6H_{10}O_4$ 146.143
Cryst. (EtOAc). Mp 98-99°. $[\alpha]_D^{26}$ -165 (c, 0.8 in Me_2CO).

β-D-Pyranose-*form*

*Isopropylidene: 1,6-Anhydro-2-deoxy-3,4-*O-*isopropylidene-β-D-*ribo-*hexopyranose*
[57852-43-4]
$C_9H_{14}O_4$ 186.207
Oil. Bp_4 83°. $[\alpha]_D^{22}$ -123 (c, 5 in $CHCl_3$).

Seib, P.A. *et al., J.C.S.(C)*, 1969, 2552 (*synth*)
Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1975, 1574 (*synth, pmr, isopropylidene*)

1,6-Anhydro-3-deoxy-*ribo*-hexose A-557



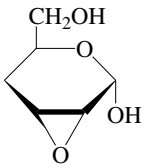
$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form* [29514-08-7]
Hygroscopic cryst. or syrup. $[\alpha]_D^{20}$ -76 (c, 0.9 in EtOH).

*Di-Ac: 2,4-Di-*O-*acetyl-1,6-anhydro-3-deoxy-β-D-*ribo-*hexopyranose*
[29514-16-7]
$C_{10}H_{14}O_6$ 230.217
Cryst. (EtOH). Mp 114-116°. $[\alpha]_D^{20}$ -74 (c, 0.7 in $CHCl_3$).

Pratt, J.W. *et al., J.A.C.S.*, 1957, **79**, 2597 (*synth, di-Ac*)
Trnka, T. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 3632 (*synth*)
Merlis, N.M. *et al., Izv. Akad. Nauk, Ser. Khim.*, 1975, 139; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1975, 128 (*synth*)

2,3-Anhydro-4-deoxy-*ribo*-hexose A-558



α-D-*form*

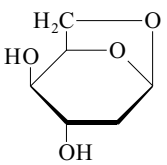
$C_6H_{10}O_4$ 146.143

α-DL-Pyranose-*form*

*Me glycoside: Methyl 2,3-anhydro-4-deoxy-α-DL-*ribo-*hexopyranoside*
[35942-32-6]
$C_7H_{12}O_4$ 160.169
Cryst. (Et_2O/Me_2CO).

Krajewski, J.W. *et al., Carbohydr. Res.*, 1985, **144**, 13 (*cryst struct*)

1,6-Anhydro-2-deoxy-*xylo*-hexose A-559

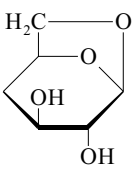


$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form* [29514-06-5]
Needles. Mp 65-80°. Subl.0.01 60-80. $[\alpha]_D^{22}$ -21.4 → -16.9 (16h). Hygroscopic, liquefies rapidly in air. No explanation is given for the observed mutarotation, which would not be expected.

Golab, T. *et al., Helv. Chim. Acta*, 1961, **44**, 616 (*synth*)

1,6-Anhydro-4-deoxy-*xylo*-hexose A-560



$C_6H_{10}O_4$ 146.143

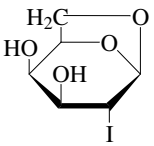
β-D-*form* [29514-14-5]
Mp 156°. $[\alpha]_D$ -37 (c, 0.7 in H_2O).

*2-Tosyl: 1,6-Anhydro-4-deoxy-2-*O-*tosyl-β-D-*xylo-*hexopyranose*
[23643-30-3]
$C_{13}H_{16}O_6S$ 300.332
Cryst. (EtOH aq. or $CHCl_3/Et_2O$/petrol). Mp 92-93°. $[\alpha]_D$ -40 (c, 1.2 in $CHCl_3$).

*2-Tosyl, 3-Ac: 3-*O-*Acetyl-1,6-anhydro-4-deoxy-2-*O-*tosyl-β-D-*xylo-*hexopyranose*
$C_{15}H_{18}O_7S$ 342.369
Mp 108-110°. $[\alpha]_D$ -14 (c, 1.8 in $CHCl_3$).

Cerny, M. *et al., Coll. Czech. Chem. Comm.*, 1962, **27**, 94; 1972, **37**, 3632 (*synth*)
Trnka, T. *et al., Carbohydr. Res.*, 1994, **259**, 131 (*2-tosyl*)

1,6-Anhydro-2-deoxy-2-iodo-galactose A-561

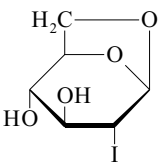


$C_6H_9IO_4$ 272.039

β-D-Pyranose-*form* [161254-77-9]
Cryst. (EtOH). Mp 87-88°. $[\alpha]_D$ +68 (c, 1 in MeOH).

Leteux, C. *et al., J.C.S. Perkin 1*, 1994, 2647-2655 (*synth, pmr*)
Hawley, J. *et al., Eur. J. Org. Chem.*, 2002, 1925-1936 (*synth*)

1,6-Anhydro-2-deoxy-2-iodo-glucose A-562



$C_6H_9IO_4$ 272.039

β-D-Pyranose-*form* [139437-39-1]
Cryst. (EtOH/hexane). Mp 95°. $[\alpha]_D^{20}$ +10 (c, 1 in MeOH).

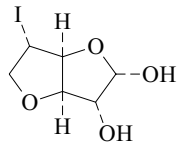
*Di-Ac: 3,4-Di-*O-*acetyl-1,6-anhydro-2-deoxy-2-iodo-β-D-glucopyranose*
$C_{10}H_{13}IO_6$ 356.114
Mp 95°. $[\alpha]_D^{25}$ +38 (c, 1.0 in $CHCl_3$).

*Dibenzoyl: 1,6-Anhydro-3,4-di-*O-*benzoyl-2-deoxy-2-iodo-β-D-glucopyranose*
$C_{20}H_{17}IO_6$ 480.255
Mp 49°. $[\alpha]_D^{25}$ -20 (c, 1.0 in $CHCl_3$).

*Dibenzyl: 1,6-Anhydro-3,6-di-*O-*benzyl-2-deoxy-2-iodo-β-D-glucopyranose*
$C_{20}H_{21}IO_4$ 452.288
$[\alpha]_D^{25}$ +51 (c, 1.0 in $CHCl_3$).

Mercyal, H.B. *et al., J. Chem. Res., Miniprint*, 1990, 1953 (*derivs, pmr*)
Tailler, D. *et al., J.C.S. Perkin 1*, 1992, 3162 (*synth*)
Hawley, J. *et al., Eur. J. Org. Chem.*, 2002, 1925-1936 (*synth*)

3,6-Anhydro-5-deoxy-5-iodoidofuranose A-563



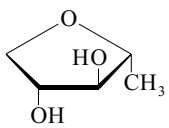
$C_6H_9IO_4$ 272.039

β-L-*form*

1,2-O-*Isopropylidene:* [35810-91-4]
$C_9H_{13}IO_4$ 312.104
Cryst. Mp 67-68°. $[\alpha]_D^{20}$ +64.8 (c, 0.97 in $CHCl_3$).

Dax, K. *et al., Annalen*, 1981, 1768 (*isopropylidene, pmr*)

2,5-Anhydro-1-deoxylyxitol A-564



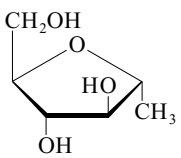
$C_5H_{10}O_3$ 118.132

D-*form*

Syrup. $[\alpha]_D^{20}$ +2.27 (c, 3.53 in MeOH).

Dills, W.L. *et al., Carbohydr. Res.*, 1982, **99**, 23 (*synth, pmr*)

2,5-Anhydro-1-deoxymannitol A-565



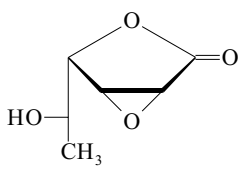
$C_6H_{12}O_4$ 148.158

D-*form*

Cryst. Mp 72-73°. $[\alpha]_D^{20}$ +45 (c, 1.2 in MeOH).

Dills, W.L. *et al., Carbohydr. Res.*, 1982, **99**, 23

2,3-Anhydro-6-deoxy-1,4-mannonolactone A-566



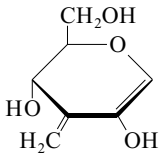
$C_6H_8O_4$ 144.127

L-*form* [139578-41-9]
Syrup. $[\alpha]_D^{20}$ +56 (c, 1 in H_2O).

Bols, M. *et al., Carbohydr. Res.*, 1991, **222**, 141 (*synth, pmr, cmr*)

Lundt, I. *et al., Synthesis*, 1992, 669 (*synth, cmr*)

1,5-Anhydro-3-deoxy-3-methylene-*erythro*-hex-1-enitol A-567



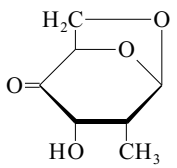
$C_7H_{10}O_4$ 158.154
Unisolated enol.

D-*form*

Tribenzoyl: 1,5-Anhydro-2,4,6-tri-O-*benzoyl-3-deoxy-3-methylene-D*-erythro-*hex-1-enitol*
[122409-63-6]
$C_{28}H_{22}O_7$ 470.478
Syrup. $[\alpha]_D^{21}$ +213 (c, 0.4 in $CHCl_3$).

Lichtenhaler, F.W. *et al., Annalen*, 1989, 1163 (*synth, pmr, tribenzoyl*)

1,6-Anhydro-2-deoxy-2-*C*-methyl-*ribo*-hexopyranos-4-ulose A-568



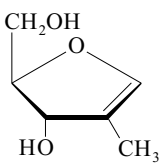
$C_7H_{10}O_4$ 158.154

D-*form*

3-Benzyl: [97321-50-1]
$C_{14}H_{16}O_4$ 248.278
Cryst. (Et_2O/pentane). Mp 67-67.5°.
$[\alpha]_D$ -56 (c, 1.3 in $CHCl_3$).

Sviridov, A.F. *et al., Carbohydr. Res.*, 1985, **136**, 101 (*3-benzyl, pmr*)

1,4-Anhydro-2-deoxy-2-*C*-methyl-*erythro*-pent-1-enitol A-569



$C_6H_{10}O_3$ 130.143

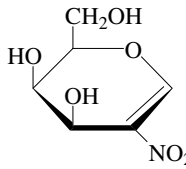
D-*form*

5-(Methoxymethyl): 1,4-Anhydro-2-deoxy-5-O-*(methoxymethyl)-2*-C-*methyl-D*-erythro-*pent-1-enitol*
[73657-45-1]
$C_8H_{14}O_4$ 174.196
Oil. $Bp_{0.005}$ 60-70°. $[\alpha]_D^{23}$ +206.1 (c, 1.11 in $CHCl_3$).

Ireland, R.E. *et al., J.A.C.S.*, 1983, **105**, 1988 (*synth, pmr*)

1,5-Anhydro-2-deoxy-2-nitro-*lyxo*-hex-1-enitol A-570

2,6-Anhydro-5-deoxy-5-nitro-arabino-*hex-5-enitol. 2-Nitrogalactal*



$C_6H_9NO_6$ 191.14
The 5-enitol name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates.

D-*form*

Tri-Ac: 3,4,6-Tri-O-*acetyl-1,5-anhydro-2-deoxy-2-nitro-D*-lyxo-*hex-1-enitol. 1,3,4-Tri*-O-*acetyl-2,6-anhydro-5-deoxy-5-nitro-D*-arabino-*hex-5-enitol, 9CI*
[19128-75-7]
$C_{12}H_{15}NO_9$ 317.252
Hard glass. $[\alpha]_D^{23}$ +68 (c, 3 in $CHCl_3$).

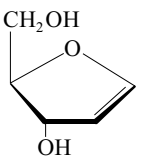
Tribenzyl: 1,5-Anhydro-3,4,6-tri-O-*benzyl-2-deoxy-2-nitro-D*-lyxo-*hex-1-enitol. 2,6-Anhydro-1,3,4-tri*-O-*benzyl-5-deoxy-5-nitro-D*-arabino-*hex-5-enitol*
$C_{27}H_{27}NO_6$ 461.513
Glycosyl donor for synth. of glycopeptides and nucleosides. $[\alpha]_D$ -10.2 (c, 1 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 413-415 (*D-tri-Ac*)

Holzapfel, C.W. *et al., Synth. Commun.*, 1988, **18**, 97-114 (*D-tri-Ac*)

Das, J. *et al., Eur. J. Org. Chem.*, 1998, 1609-1613; 1999, 1167-1171; 2000, 3047-3050 (*D-tribenzyl, synth, use*)

1,4-Anhydro-2-deoxy-*erythro*-pent-1-enitol A-571



$C_5H_8O_3$ 116.116

D-*form*

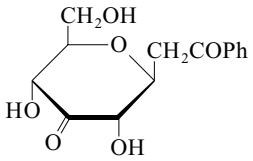
Dibenzoyl: [55734-51-5]
$C_{19}H_{16}O_5$ 324.332
Cryst. (Et_2O/pentane). Mp 88-89°. $[\alpha]_D^{20}$ +294 (c, 0.5 in CH_2Cl_2).

5-Methoxymethyl: 1,4-Anhydro-2-deoxy-5-O-*methoxymethyl-D*-erythro-*pent-1-enitol*
[72050-15-8]
$C_7H_{12}O_4$ 160.169
$[\alpha]_D^{24}$ +259 (c, 0.9 in $CHCl_3$).

Ness, R.K. *et al., J.O.C.*, 1963, **28**, 435 (*dibenzoyl, synth*)

Ireland, R.E. *et al., J.O.C.*, 1980, **45**, 48 (*5-methoxymethyl, synth, pmr*)

3,7-Anhydro-2-deoxy-1-*C*-phenyl-*allo*-octos-5-ulose A-572



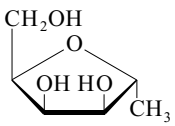
$C_{14}H_{16}O_6$ 280.277

D-*form*

Tribenzoyl: 3,7-Anhydro-4,6,8-tri-O-*benzoyl-2-deoxy-1*-C-*phenyl-D*-allo-*octos-5-ulose*
[122409-64-7]
$C_{35}H_{28}O_9$ 592.601
Cryst. Mp 194-194.5°. $[\alpha]_D^{20}$ +67 (c, 0.9 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Annalen*, 1989, 1163 (*synth, pmr*)

2,5-Anhydro-1-deoxytalitol A-573



$C_6H_{12}O_4$ 148.158

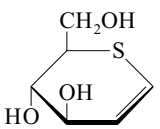
D-*form*

Cryst. Mp 74-76°. $[\alpha]_D^{20}$ +28.35 (c, 0.57 in MeOH).

Dills, W.L. *et al., Carbohydr. Res.*, 1982, **99**, 23

1,5-Anhydro-2-deoxy-5-thio-*arabino*-hex-1-enitol A-574

5-Thioglucal



$C_6H_{10}O_3S$ 162.209

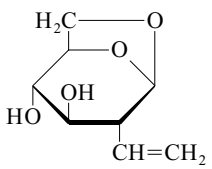
D-*form*

Cryst. (methyl formate). Mp 83-86°. $[\alpha]_D^{22}$ +17.3 (c, 1 in MeOH).

Tri-Ac: 3,4,6-Tri-O-*acetyl-1,5-anhydro-2-deoxy-5-thio-D*-arabino-*hex-1-enitol*
$C_{12}H_{16}O_6S$ 288.321
Cryst. (hexane). Mp 43-44°. $[\alpha]_D^{22}$ -47.1 (c, 1 in $CHCl_3$).

Korytnyk, W. *et al., Carbohydr. Res.*, 1983, **113**, 166 (*synth, cmr*)

1,6-Anhydro-2-deoxy-2-*C*-vinylglucose A-575



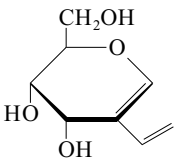
$C_8H_{12}O_4$ 172.18

β-D-Pyranose-*form*

4-Benzyl: 1,6-Anhydro-4-O-*benzyl-2-deoxy-2*-C-*vinyl-β-D-glucopyranose*
[129797-11-1]
$C_{15}H_{18}O_4$ 262.305
Cryst. (EtOH aq.). Mp 91-93°. $[\alpha]_D^{23}$ +1.2 (c, 1.3 in $CHCl_3$).

Inghardt, T. *et al., Synthesis*, 1990, 285 (*synth*)
Jespersen, T.M. *et al., Tetrahedron*, 1994, **50**, 13449 (*synth, pmr, cmr*)

1,5-Anhydro-2-deoxy-2-*C*-vinyl-*ribo*-hex-1-enitol A-576



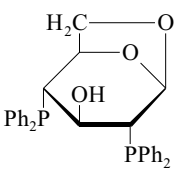
$C_8H_{12}O_4$ 172.18

α-D-Pyranose-*form*

4,6-Benzylidene: 1,5-Anhydro-4,6-O-*benzylidene-2-deoxy-2*-C-*vinyl-D*-ribo-*hex-1-enoitol*
$C_{15}H_{16}O_4$ 260.289
Cryst. Mp 123-125°. $[\alpha]_D$ +148.1 (c, 1.02 in $CHCl_3$).

López, J.C. *et al., Tetrahedron*, 1993, **49**, 7701 (*synth, cmr, pmr*)

1,6-Anhydro-2,4-dideoxy-2,4-bis(diphenylphosphinyl)glucose, 9CI A-577



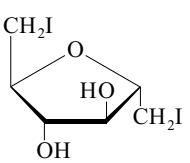
$C_{30}H_{28}O_3P_2$ 498.497

β-D-Pyranose-*form*

P,P′-*Dioxide:* [136632-41-2]
$C_{30}H_{28}O_5P_2$ 530.496
Needles. Mp 236° dec. $[\alpha]_D^{25}$ +27 (c, 1 in $CHCl_3$).

Li, C. *et al., Carbohydr. Res.*, 1991, **216**, 149 (*dioxide, ir, ms, uv*)

2,5-Anhydro-1,6-dideoxy-1,6-diiodomannitol A-578



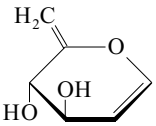
$C_6H_{10}I_2O_3$ 383.952

D-*form*

Di-Ac: 3,4-Di-O-*acetyl-2,5-anhydro-1,6-dideoxy-1,6-diiodo-D-mannitol*
[165131-02-2]
$C_{10}H_{14}I_2O_5$ 468.027
Cryst. (EtOH). Mp 54-55°.

Shalaby, M.A. *et al., Carbohydr. Res.*, 1995, **269**, 191 (*synth, pmr, cmr, cryst struct*)

1,5-Anhydro-2,6-dideoxy-*threo*-hexa-1,5-dienitol A-579



$C_6H_8O_3$ 128.127

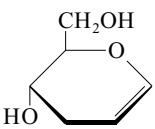
D-*form* [28282-45-3]
Syrup. $[\alpha]_D^{21}$ -153 ($CHCl_3$).

Di-Ac: 3,4-Di-O-*acetyl-1,5-anhydro-2,6-dideoxy-D*-threo-*hexa-1,5-dienitol*
[28414-00-8]
$C_{10}H_{12}O_5$ 212.202
Cryst. Mp 40°. $Bp_{0.02}$ 56-57°. $[\alpha]_D^{25}$ -198 (c, 0.58 in $CHCl_3$).

Dibenzoyl: 1,5-Anhydro-3,4-di-O-*benzoyl-2,6-dideoxy-D*-threo-*hexa-1,5-dienitol*
[58871-02-6]
$C_{20}H_{16}O_5$ 336.343
Needles (2-propanol). Mp 75-76°. $[\alpha]_D^{21}$ -290 (c, 2.7 in $CHCl_3$).

Kiss, J. *et al., Carbohydr. Res.*, 1969, **11**, 579 (*synth, ir, pmr*)
Blackburne, I.D. *et al., Aust. J. Chem.*, 1976, **29**, 381 (*synth, pmr, dibenzoyl*)
Descotes, G. *et al., Carbohydr. Res.*, 1978, **62**, 61 (*synth, pmr, cmr, di-Ac*)

1,5-Anhydro-2,3-dideoxy-*erythro*-hex-1-enitol A-580



$C_6H_{10}O_3$ 130.143

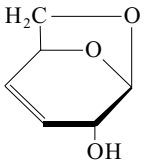
D-*form*

4,6-Di-Ac: 4,6-Di-O-*acetyl-1,5-anhydro-2,3-dideoxy-D*-erythro-*hex-1-enitol*
[52945-57-0]
$C_{10}H_{14}O_5$ 214.218
Oil. Bp_5 105-140° (bath). $[\alpha]_D^{23}$ +116 (c, 4.05 in $CHCl_3$).

4,6-O-*Benzylidene: 1,5-Anhydro-4,6*-O-*benzylidene-2,3-dideoxy-D*-erythro-*hex-1-enitol*
$C_{13}H_{14}O_3$ 218.252
Mp 113-114°. $[\alpha]_D^{23}$ +66 (c, 1.07 in $CHCl_3$).

Fraser-Reid, B. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 219
Okabe, M. *et al., Tet. Lett.*, 1989, **30**, 2203 (*synth, di-Ac*)

1,6-Anhydro-3,4-dideoxy-*erythro*-hex-3-enopyranose, 9CI A-581



D–*form*

$C_6H_8O_3$ 128.127

β-D-*form* [58394-28-8]
Mp 53-54°. $[\alpha]_D^{23}$ -236 (c, 1.0 in $CHCl_3$).

*Tosyl: 1,6-Anhydro-3,4-dideoxy-2-O-tosyl-β-D-*erythro-*hex-3-enopyranose*
[53716-80-6]
$C_{13}H_{14}O_5S$ 282.317
Cryst. (MeOH). Mp 85-86°. $[\alpha]_D$ -161 (c, 0.8 in $CHCl_3$).

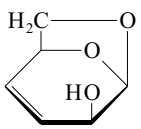
β-DL-*form*

*Ac: 2-O-Acetyl-1,6-anhydro-3,4-dideoxy-β-DL-*erythro-*hex-3-enopyranose*
$C_8H_{10}O_4$ 170.165
$Bp_{0.5}$ 93-95°.

*2-Me: 1,6-Anhydro-3,4-dideoxy-2-O-methyl-β-DL-*erythro-*hex-3-enopyranose*
$C_7H_{10}O_3$ 142.154
$Bp_{0.1}$ 53-55°.

Singh, U.P. *et al., Can. J. Chem.*, 1971, **49**, 1179
Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1192 (*2-tosyl*)
Köll, P. *et al., Chem. Ber.*, 1976, **109**, 337

1,6-Anhydro-3,4-dideoxy-*threo*-hex-3-enopyranose A-582



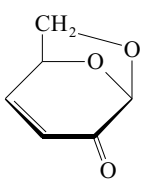
$C_6H_8O_3$ 128.127

β-D-*form* [50705-28-7]
Cryst. (Et_2O/petrol). Mp 67-69°. $[\alpha]_D^{25}$ -34 (c, 1 in $CHCl_3$).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1979, **68**, 231 (*synth*)

1,6-Anhydro-3,4-dideoxy-*glycero*-hex-3-enopyranos-2-ulose A-583

6,8-Dioxabicyclo[3.2.1]oct-2-en-4-one, 9CI. Levoglucosenone



$C_6H_6O_3$ 126.112

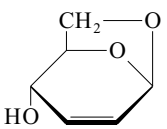
D-*form* [37112-31-5]
Pyrolytic prod. from cellulose, in low yield. Important chiral synthon. The most important carbohydrate used in conjugate additions.
Syrup. $[\alpha]_D^{20}$ -518 (c, 1.0 in $CHCl_3$).

2,4-Dinitrophenylhydrazone: Mp 214-215°. $[\alpha]_D^{26}$ -122 ($CHCl_3$).

Semicarbazone: Mp 223-226° dec. $[\alpha]_D^{26}$ -241 (c, 3.99 in Py/AcOH).

L-*form*
Syrup. $[\alpha]_D$ +518 (c, 1.2 in $CHCl_3$).
Halpern, Y. *et al., J.O.C.*, 1973, **38**, 204-209 (*isol, struct, ir, uv, pmr, cmr, ms*)
Shafidazeh, F. *et al., Carbohydr. Res.*, 1976, **46**, 149-154; 149-154; 1977, **58**, 79-86 (*synth*)
Koel, P. *et al., Chem. Ber.*, 1976, **109**, 337-344 (*synth*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1979, **68**, 231-238 (*synth*)
Bhate, P. *et al., Carbohydr. Res.*, 1983, **122**, 189-199 (*synth*)
Mori, M. *et al., Carbohydr. Res.*, 1984, **129**, 73-86 (*synth, purifn*)
Gelas-Mialhe, Y. *et al., Carbohydr. Res.*, 1990, **199**, 243 (*synth*)
Matsumoto, K. *et al., Bull. Chem. Soc. Jpn.*, 1991, **64**, 2309 (*bibl*)
Witczak, Z.J. *et al., Front. Biomed. Biotechnol.*, 1994, **2**, 3-16 (*rev*)
Witczak, Z.J. *et al., Levoglucosenone and Levoglucosans, Chemistry and Applications*, ATL Press Inc., 1994, (***book***)
Kawai, T. *et al., Aust. J. Chem.*, 1995, **48**, 115 (*use*)
Witczak, Z. *et al., Synlett*, 1996, 108-110 (*L-form, !synth, pmr, cmr*)
Becker, B. *et al., J. Carbohydr. Chem.*, 2000, **19**, 253-284 (*bibl, use*)
Kadota, K. *et al., Adv. Synth. Catal.*, 2001, **343**, 618-623 (*D-form, L-form, synth, ir, pmr*)

1,6-Anhydro-2,3-dideoxy-*erythro*-hex-2-enose A-584



$C_6H_8O_3$ 128.127

β-D-Pyranose-*form* [58394-31-3]
Cryst. Mp 61-62°. $[\alpha]_D$ +318 (c, 1.0 in $CHCl_3$). Formerly descr. as a dark amber oil.

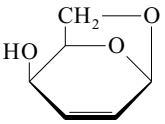
*Ac: 4-O-Acetyl-1,6-anhydro-2,3-dideoxy-β-D-*erythro-*hex-2-enopyranose*
$C_8H_{10}O_4$ 170.165
Syrup. $[\alpha]_D$ +190 (c, 1 in $CHCl_3$).

*Benzoyl: 1,6-Anhydro-4-O-benzoyl-2,3-dideoxy-β-D-*erythro-*hex-2-enopyranose*
[71021-15-3]
$C_{13}H_{12}O_4$ 232.235
Cryst. (EtOH). Mp 88-89°. $[\alpha]_D$ +150.

*Benzyl: 1,6-Anhydro-4-O-benzyl-2,3-dideoxy-β-D-*erythro-*hex-2-enopyranose*
[40838-18-4]
$C_{13}H_{14}O_3$ 218.252
Leaflets (Et_2O/hexane). Mp 56-57°. $[\alpha]_D$ +155 (c, 0.5 in $CHCl_3$).

Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 132 (*benzyl*)
Mereyala, H.B. *et al., Carbohydr. Res.*, 1992, **225**, 151 (***synth, pmr, derivs***)
Rao, B.V. *et al., Bull. Soc. Chim. Fr.*, 1993, **130**, 428 (*benzoyl*)
Haeckel, R. *et al., Synlett*, 1996, 21-23 (*synth*)
Witczak, Z.J. *et al., J. Carbohydr. Chem.*, 2002, **21**, 143-148 (*synth*)

1,6-Anhydro-2,3-dideoxy-*threo*-hex-2-enose A-585



$C_6H_8O_3$ 128.127

β-D-Pyranose-*form* [58394-32-4]
Cryst. (Et_2O). Mp 61.5-64°. $[\alpha]_D^{20}$ -165.4 (c, 1 in $CHCl_3$).

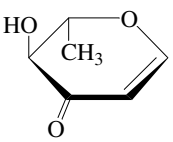
*Ac: 4-O-Acetyl-1,6-anhydro-2,3-dideoxy-β-D-*threo-*hex-2-enopyranose*
[33648-08-7]
$C_8H_{10}O_4$ 170.165
Syrup. $Bp_{0.2}$ 60-64°. $[\alpha]_D$ -13.5 (c, 1 in $CHCl_3$).

*Benzoyl: 1,6-Anhydro-4-O-benzoyl-2,3-dideoxy-β-D-*threo-*hex-2-enopyranose*
[141054-98-0]
$C_{13}H_{12}O_4$ 232.235
Syrup. $[\alpha]_D$ -8.2 (c, 1 in $CHCl_3$).

*Benzyl: 1,6-Anhydro-4-O-benzyl-2,3-dideoxy-β-D-*threo-*hex-2-enopyranose*
$C_{13}H_{14}O_3$ 218.252
Syrup. $[\alpha]_D$ -9.5 (c, 1 in $CHCl_3$).

Achmatowicz, O. *et al., Tetrahedron*, 1971, **27**, 1973 (*Ac, synth, ir, pmr*)
Koell, P. *et al., Chem. Ber.*, 1976, **109**, 337 (*synth, pmr*)
Mereyala, H.B. *et al., Carbohydr. Res.*, 1992, **225**, 151 (*derivs, synth, pmr, bibl*)

1,5-Anhydro-2,6-dideoxy-*erythro*-hex-1-en-3-ulose A-586



$C_6H_8O_3$ 128.127

L-*form* [68673-58-5]
Cryst. (Et_2O or by subl.). Mp 92-93° (86°). $[\alpha]_D^{20}$ -244.6 (c, 1 in MeOH).

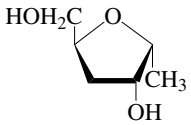
*Ac: 4-O-Acetyl-1,5-anhydro-2,6-dideoxy-L-*erythro-*hex-1-en-3-ulose*
[68673-59-6]
$C_8H_{10}O_4$ 170.165
Cryst. (Et_2O). Mp 62°. $[\alpha]_D^{20}$ -272 (c, 0.95 in CH_2Cl_2).

*Benzoyl: 1,5-Anhydro-4-O-benzoyl-2,6-dideoxy-L-*erythro-*hex-1-en-3-ulose*
[113829-50-8]
$C_{13}H_{12}O_4$ 232.235
Syrup. $[\alpha]_D^{20}$ -266.1 (c, 1.1 in CH_2Cl_2).

Paulsen, H. *et al., Chem. Ber.*, 1978, **111**, 3484-3496 (*L-form, synth, pmr*)
Pelyvas, I. *et al., Carbohydr. Res.*, 1979, **76**, 257-260 (*L-form, synth, pmr*)
Czernecki, S. *et al., J.O.C.*, 1986, **51**, 5472-5475 (*L-form, synth, ir*)
Köpper, S. *et al., J. Carbohydr. Chem.*, 1987, **6**, 57-85 (*L-benzoyl*)
Hayashi, M. *et al., Synthesis*, 1999, 1869-1871 (*L-form, synth, ir, pmr, cmr*)
Langner, M. *et al., Eur. J. Org. Chem.*, 2003, 1494-1499 (*L-form, synth*)

2,5-Anhydro-1,4-dideoxy-*arabino*-hexitol, 9CI A-587

2,5-Anhydro-3,6-dideoxy-lyxo-*hexitol*



D-*form*

$C_6H_{12}O_3$ 132.159

D-*form* [171234-39-2]
Oil. $[\alpha]_D$ -41.5 (c, 0.065 in $CHCl_3$).

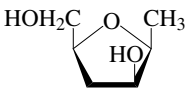
L-*form*

3-Benzoyl: 2,5-Anhydro-3-O-*benzoyl-1,4-dideoxy-L*-arabino-*hexitol. 2,5-Anhydro-4*-O-*benzoyl-3,6-dideoxy-L*-lyxo-*hexitol*
[163955-95-1]
$C_{13}H_{16}O_4$ 236.267
Syrup. $[\alpha]_D$ +20.7 (c, 1.15 in $CHCl_3$).

Popsavin, V. *et al., Carbohydr. Res.*, 1995, **269**, 343 (*L-form, 3-benzoyl*)

Angle, S.R. *et al., J.A.C.S.*, 2002, **124**, 3608-3613 (*D-form, synth, pmr, cmr*)

2,5-Anhydro-1,4-dideoxy-*xylo*-hexitol A-588



$C_6H_{12}O_3$ 132.159

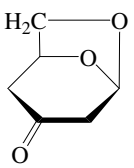
D-*form* [82109-99-7]
Mp 66-67°. $[\alpha]_D$ +45.3 (c, 0.88 in $CHCl_3$).

[75499-86-4]

Angle, S.R. *et al., J.A.C.S.*, 2002, **124**, 3608-3613 (*D-form, synth, pmr, cmr*)

1,6-Anhydro-2,4-dideoxy-*glycero*-hexopyranos-3-ulose A-589

6,8-Dioxabicyclo[3.2.1]octan-3-one, 9CI



$C_6H_8O_3$ 128.127

β-D-*form* [30923-34-3]
Oil. Bp_3 90°. $[\alpha]_D^{20}$ -103 (c, 0.7 in $CHCl_3$).

[153667-43-7]

Cerný, M. *et al., Carbohydr. Res.*, 1970, **15**, 379-389 (*synth*)

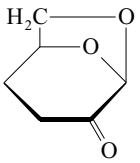
Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1192-1209 (*synth, pmr, ir, uv, cd*)

Delorme, D. *et al., J. Med. Chem.*, 1996, **39**, 3951-3970 (*synth, pmr*)

Belyk, K.M. *et al., J.O.C.*, 2000, **65**, 2588-2590 (*synth, pmr, cmr*)

1,6-Anhydro-3,4-dideoxy-*glycero*-hexopyranos-2-ulose A-590

6,8-Dioxabicyclo[3.2.1]octan-4-one
[53716-82-8]



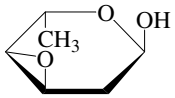
$C_6H_8O_3$ 128.127

β-D-*form*
Oil.

2,4-Dinitrophenylhydrazone: [64721-30-8]
Mp 205-206°. $[\alpha]_D^{26}$ -58.4 (c, 5.1 in $CHCl_3$).

Shafizadeh, F. *et al., Carbohydr. Res.*, 1977, **58**, 79 (*synth*)

3,4-Anhydro-2,6-dideoxy-*ribo*-hexose A-591



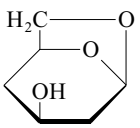
$C_6H_{10}O_3$ 130.143

α-L-Pyranose-*form*

Benzyl glycoside: Benzyl 3,4-anhydro-2,6-dideoxy-α-L-ribo-*hexopyranoside*
[127783-09-9]
$C_{13}H_{16}O_3$ 220.268
Syrup. $[\alpha]_D^{20}$ -128 (c, 0.28 in $CHCl_3$).

Ramiliarison, C. *et al., J. Carbohydr. Chem.*, 1989, **8**, 723-734 (*α-L-benzyl pyr*)

1,6-Anhydro-2,4-dideoxy-*threo*-hexose A-592



$C_6H_{10}O_3$ 130.143

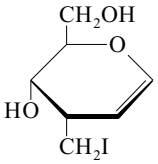
β-D-Pyranose-*form* [14241-58-8]
Cryst. Mp 37-50°. $[\alpha]_D$ -81 (c, 0.7 in H_2O). Solvent for recryst. not found.

Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1192 (*synth*)

Kelly, A.G. *et al., Carbohydr. Res.*, 1979, **77**, 231-233 (***synth, pmr***)

1,5-Anhydro-2,3-dideoxy-3-(iodomethyl)-*ribo*-hex-1-enitol, 9CI A-593

1,2,3-Trideoxy-3-C-*iodomethyl*-ribo-*hex-1-enopyranose, 8CI*



$C_7H_{11}IO_3$ 270.067

D-*form*

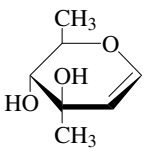
4,6-Benzylidene: 1,5-Anhydro-4,6-O-*benzylidene-2,3-dideoxy-3-(iodomethyl)-D*-ribo-*hex-1-enitol. 4,6*-O-*Benzylidene-1,2,3-trideoxy-3*-C-*iodomethyl-D*-ribo-*hex-1-enopyranose, 8CI*
[26623-24-5]
$C_{14}H_{15}IO_3$ 358.175
Cryst. (MeOH). Mp 130-132°. $[\alpha]_D^{23}$ +129 (c, 2.8 in MeOH).

[58207-05-9]

Fraser-Reid, B. *et al., Can. J. Chem.*, 1969, **47**, 4095; 1972, **50**, 2919 (*synth, pmr*)

1,5-Anhydro-2,6-dideoxy-3-*C*-methyl-*arabino*-hex-1-enitol A-594

Olivomycal



D-*form*

$C_7H_{12}O_3$ 144.17

D-*form* [78086-62-1]
Mp 109-111°. $[\alpha]_D^{20}$ +51.2 (c, 0.8 in THF).

4-Ac: 4-O-*Acetyl-1,5-anhydro-2,6-dideoxy-3*-C-*methyl-D*-arabino-*hex-1-enitol*
[78086-64-3]
$C_9H_{14}O_4$ 186.207
Syrup. $[\alpha]_D^{20}$ +68.5 (c, 0.13 in Et_2O).

L-*form* [70717-87-2]
Mp 104-106°. $[\alpha]_D^{20}$ -61.9 (c, 0.5 in THF).

4-Ac: 4-O-*Acetyl-1,5-anhydro-2,6-dideoxy-3*-C-*methyl-L*-arabino-*hex-1-enitol*
[70717-92-9]
$C_9H_{14}O_4$ 186.207
Oil. $[\alpha]_D^{20}$ -59.6 (c, 1.4 in Et_2O).

Thiem, J. *et al., Chem. Ber.*, 1979, **112**, 818-822; 1981, **114**, 1442-1454 (*L-form, D-form, synth, pmr*)

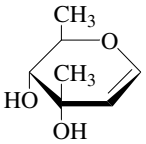
Jung, G. *et al., Chem. Ber.*, 1981, **114**, 740-745 (*L-form, synth*)

Kauffmann, T. *et al., Carbohydr. Res.*, 1990, **207**, 33-38 (*L-form, synth, pmr*)

Langner, M. *et al., Eur. J. Org. Chem.*, 2003, 1494-1497 (*L-form, synth*)

1,5-Anhydro-2,6-dideoxy-3-*C*-methyl-*ribo*-hex-1-enitol A-595

2,6-Anhydro-1,5-dideoxy-4-C-methyl-ribo-hex-5-enitol. Mycaral



D-*form*

$C_7H_{12}O_3$ 144.17

Acc. to strict IUPAC nomenclature, the 1,5-anhydro name refers to the D-enantiomer and the 2,6-anhydro name to the L-enantiomer.

D-*form* [78086-63-2]
Mp 71-73°. $[\alpha]_D^{20}$ +73.8 (c, 0.6 in THF).

4-Ac: 4-O-Acetyl-1,5-anhydro-2,6-dideoxy-3-C-methyl-D-ribo-hex-1-enitol
[78086-65-4]
$C_9H_{14}O_4$ 186.207
Syrup. $[\alpha]_D^{20}$ +56.5 (c, 1.0 in Et_2O).

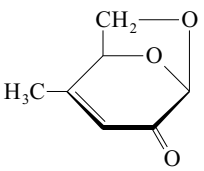
L-*form* [70774-09-3]
Mp 69-71°. $[\alpha]_D^{20}$ -97.8 (c, 1.1 in THF).

Thiem, J. *et al., Chem. Ber.*, 1979, **112**, 818-822; 1981, **114**, 1442-1454 (*D-form, L-form, synth, pmr*)

Jung, G. *et al., Chem. Ber.*, 1981, **114**, 740-745 (*L-form, synth*)

1,6-Anhydro-3,4-dideoxy-4-*C*-methyl-*glycero*-hex-3-enopyranos-2-ulose A-596

2-Methyl-6,8-dioxabicyclo[3.2.1]oct-2-en-4-one

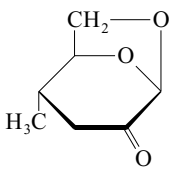


$C_7H_8O_3$ 140.138

β-D-*form* [151982-14-8]
Pale yellow oil. $[\alpha]_D^{26}$ -467 (c, 1.95 in $CHCl_3$).

Okano, K. *et al., Chem. Pharm. Bull.*, 1993, **41**, 861 (*synth, pmr, cmr*)

1,6-Anhydro-3,4-dideoxy-4-*C*-methyl-*erythro*-hexopyranos-2-ulose A-597



$C_7H_{10}O_3$ 142.154

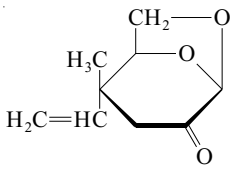
β-D-*form* [63000-65-7]
Oil. Bp_5 63°. $[\alpha]_D^{23}$ -299.4 (c, 0.35 in Et_2O).

2,4-Dinitrophenylhydrazone: [64429-83-0]
Mp 215-216°. $[\alpha]_D^{26}$ -150 (c, 3.5 in $CHCl_3$).

Shafizadeh, F. *et al., Carbohydr. Res.*, 1977, **58**, 79 (*synth*)

Mori, M. *et al., Carbohydr. Res.*, 1984, **129**, 73 (*synth, pmr, ms*)

1,6-Anhydro-3,4-dideoxy-4-*C*-methyl-4-*C*-vinyl-*glycero*-hexopyranos-2-ulose A-598



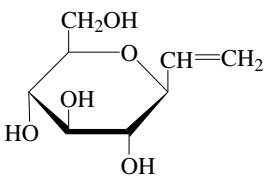
$C_9H_{12}O_3$ 168.192

β-D-*form* [151982-15-9]
Oil. $[\alpha]_D^{24}$ -314.9 (c, 0.43 in $CHCl_3$).

Okano, K. *et al., Chem. Pharm. Bull.*, 1993, **41**, 861 (*ir, pmr, cmr*)

3,7-Anhydro-1,2-dideoxy-D-*glycero*-D-*gulo*-oct-1-enitol, 9CI A-599

β-D-Glucopyranosylethene. 2,6-Anhydro-7,8-dideoxy-L-glycero-L-gulo-oct-7-enitol
[51450-27-2]



$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D^{20}$ +30 (c, 1, MeOH).

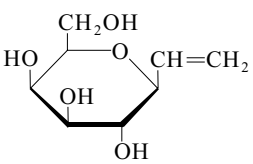
Tetra-Ac: [51450-26-1]
$C_{16}H_{22}O_9$ 358.344
Cryst. (petrol). Mp 102.5-103°. $[\alpha]_D^{26}$ +14 (c, 1 in $CHCl_3$).

Shulman, M.L. *et al., Carbohydr. Res.*, 1974, **33**, 229-235 (*synth, tetra-Ac*)

Brewer, C.F. *et al., Annalen*, 1984, 1078-1087 (*synth, pmr*)

3,7-Anhydro-1,2-dideoxy-D-*glycero*-L-*manno*-1-octenitol A-600

2,6-Anhydro-7,8-dideoxy-L-glycero-L-galacto-7-octenitol. β-D-Galactopyranosylethene



$C_8H_{14}O_5$ 190.196

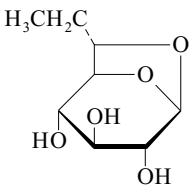
Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-β-D-galactopyranosylethene
[59042-17-0]
$C_{16}H_{22}O_9$ 358.344
Solid (Et_2O/petrol). Mp 85-86°. $[\alpha]_D^{20}$ +31 (c, 1.0 in $CHCl_3$).

5,6,8-Tribenzyl: 3,4,6-Tri-O-benzyl-β-D-galactopyranosylethene
[77737-59-8]
$C_{29}H_{32}O_5$ 460.569
Syrup. $[\alpha]_D$ +6.9 ($CHCl_3$).

Shiyan, S.D. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1976, 197-199; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1976, 188-190 (*tetra-Ac*)

Hanessian, S. *et al., Carbohydr. Res.*, 1981, **88**, C14-C19 (*5,6,8-tribenzyl*)

1,6-Anhydro-7,8-dideoxy-L-*glycero*-β-D-*gluco*-octopyranose A-601



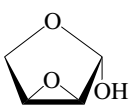
$C_8H_{14}O_5$ 190.196

Tribenzyl: 1,6-Anhydro-2,3,4-tri-O-benzyl-7,8-dideoxy-L-glycero-β-D-gluco-octopyranose
[98853-88-4]
$C_{29}H_{32}O_5$ 460.569
$[\alpha]_D^{28}$ -26.5 (c, 0.9 in $CHCl_3$).

Posner, G.H. *et al., Tet. Lett.*, 1985, **26**, 1823 (*β-D-tribenzyl, cmr*)

2,3-Anhydroerythrofuranose A-602

3,6-Dioxabicyclo[3.1.0]hexan-2-ol. 3,4-Epoxy-2-hydroxytetrahydrofuran. 3,4-Epoxytetrahydro-2-furanol



α-L-*form*

$C_4H_6O_3$ 102.09

Numbering and stereochemical descriptors change according to whether named as a sugar, dioxabicyclohexane or epoxyfuran.

α-L-*form*

Me glycoside: Methyl 2,3-anhydro-α-L-erythrofuranoside. 2-Methoxy-3,6-dioxabicyclo[3.1.0]hexane, 9CI
[148810-13-3]
$C_5H_8O_3$ 116.116
Bp_{25} 105° (bath). $[\alpha]_D$ -55 (c, 3.0 in $CHCl_3$).

β-L-*form*

Me glycoside: Methyl 2,3-anhydro-β-L-erythrofuranoside
[148810-12-2]
$C_5H_8O_3$ 116.116
$[\alpha]_D$ +167 (c, 1.9 in $CHCl_3$).

α-DL-*form*

Me glycoside: Methyl 2,3-anhydro-α-DL-erythrofuranoside
[82342-68-5]
$C_5H_8O_3$ 116.116
Bp_{25} 90°. n_D^{20} 1.4365.

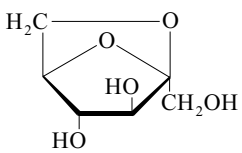
β-DL-*form*

Me glycoside: Methyl 2,3-anhydro-β-DL-erythrofuranoside
[82398-63-8]
$C_5H_8O_3$ 116.116
Bp_{25} 64°. n_D^{20} 1.4455.

Gagnieu, C.H. *et al., J.C.S. Perkin 1*, 1982, 1009 (*synth, DL-forms*)
Jarý, J. *et al., Carbohydr. Res.*, 1993, **242**, 291 (*synth, pmr, ms, cmr, L-forms*)

2,6-Anhydrofructofuranose, 9CI A-603

2,5-Anhydrofructopyranose



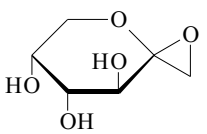
$C_6H_{10}O_5$ 162.142

β-D-*form* [38982-46-6] Thermolysis prod. of sucrose.
Cryst. (Me_2CO). Mp 118-119°. $[\alpha]_D$ -107 (c, 1 in H_2O).

Tri-Ac: 1,3,4-Tri-O-acetyl-2,6-anhydro-β-D-fructofuranose
[67831-76-9]
$C_{12}H_{16}O_8$ 288.254
Syrup. $Bp_{0.05}$ 110-120°. $[\alpha]_D^{25}$ -70 (c, 1.3 in $CHCl_3$). $[\alpha]_D$ -108 ($CHCl_3$).

Goldschmidt, H.R. *et al., Can. J. Chem.*, 1960, **38**, 2178 (*synth, tri-Ac*)
Dreissig, W. *et al., Acta Cryst. B*, 1973, **29**, 1409 (*cryst struct*)
Köll, P. *et al., Chem. Ber.*, 1978, **111**, 2909 (*synth, tri-Ac, pmr*)
Poncini, L. *et al., Carbohydr. Res.*, 1980, **87**, 209 (*synth, cmr*)
Taba, K.M. *et al., Synthesis*, 1983, 1036 (***synth, cmr***)
Goursaud, F. *et al., Tetrahedron*, 2002, **58**, 3629-3637 (*synth*)

1,2-Anhydrofructose A-604



$C_6H_{10}O_5$ 162.142

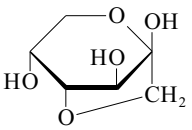
β-D-Pyranose-*form*

Tribenzyl: 1,2-Anhydro-3,4,5-tri-O-benzyl-β-D-fructopyranose
[154779-29-0]
$C_{27}H_{28}O_5$ 432.515
Mp 79°. $[\alpha]_D$ -35.8 (c, 1.39 in $CHCl_3$).

[154779-30-3]

Campbell, M.M. *et al., Carbohydr. Res.*, 1994, **251**, 243 (*pmr, cmr*)

1,4-Anhydrofructose A-605



$C_6H_{10}O_5$ 162.142
A23.

β-D-Pyranose-*form*

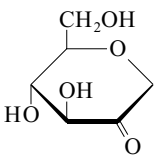
Me glycoside: Methyl 1,4-anhydro-β-D-fructopyranoside
[119645-63-5]
$C_7H_{12}O_5$ 176.169
Mp 141-143°. $[\alpha]_D^{23}$ +34.3 (c, 0.46 in H_2O).

Me glycoside, di-Ac: Methyl 3,5-di-O-acetyl-1,4-anhydro-β-D-fructopyranoside
[119645-64-6]
$C_{11}H_{16}O_7$ 260.243
Cryst. Mp 123-124°. $[\alpha]_D^{22}$ +38.5 (c, 0.135 in $CHCl_3$).

Sinclair, H.B. *et al., Carbohydr. Res.*, 1988, **181**, 115

1,5-Anhydrofructose, 9CI A-606

1,5-Anhydro-arabino-*hex-2-ulose*



$C_6H_{10}O_5$ 162.142
In aq. soln. the oxo form illus. is in equilib. with the 2-enol form, the 2,3-enediol form and the 3,3-diol covalent hydrate, which is the predominating species. In nonaqueous solvs. exists as a mixt. of two dimers. Acetylation gives spiro-dimers.

D-*form* [75414-43-6]
Prod. by the action of α-1,4-glucan lyase on α-glucans such as starch. Exists in rat liver, fungi and algae. Precursor of 2-Hydroxy-2-(hydroxymethyl)-2*H*-pyran-3(6*H*)-one in *Morchella vulgaris* (morel) and of Echinosporin in *Peziza echinospora*. Antioxidant.
Amorph. solid.
Mp 107-112°. $[\alpha]_D^{20}$ -32.9 (c, 0.86 in H_2O).

Oxime: [75414-31-2]
$C_6H_{11}NO_5$ 177.157
Mp 178-180°. $[\alpha]_D^{21}$ -43 (c, 0.3 in H_2O).

*Tri-Ac: 3,4,6-Tri-O-acetyl-1,5-anhydro-D-*arabino-*hex-2-ulose*
$C_{12}H_{16}O_8$ 288.254
Mp 93-94° (86-88°). $[\alpha]_D$ -7.2 (c, 1.5 in $CHCl_3$).

Tri-Ac, oxime: [88851-59-6]

[75414-20-9]
$C_{12}H_{17}NO_8$ 303.268
Mp 89-90°. $[\alpha]_D^{21}$ -52.9 (c, 0.3 in $CHCl_3$).

Tribenzoyl: 1,5-Anhydro-3,4,6-tri-O-benzoyl-D-fructose
[75414-32-3]
$C_{27}H_{22}O_8$ 474.466
Mp 126-127°. $[\alpha]_D^{20}$ -24 (c, 0.8 in $CHCl_3$).

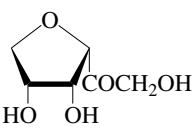
Tribenzoyl, oxime: [82569-81-1]

[75414-21-0]
$C_{27}H_{23}NO_8$ 489.481
Mp 176-177°. $[\alpha]_D^{21}$ -39 (c, 0.4 in $CHCl_3$).

*4,6-Benzylidene, 3-(*tert*-butyldimethylsilyl): 1,5-Anhydro-4,6-O-benzylidene-3-O-(*tert*-butyldimethylsilyl)-D-fructose*
[89872-98-0]
$C_{19}H_{28}O_5Si$ 364.513
Syrup + $1H_2O$. $[\alpha]_D^{20}$ -49.9 (c, 2.7 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Tet. Lett.*, 1980, **21**, 1429-1432 (*synth, tri-Ac, tribenzoyl*)
Tulshian, D.B. *et al., J.O.C.*, 1984, **49**, 2347-2355 (*benzylidene butyldimethylsilyl*)
Deffieux, G. *et al., Phytochemistry*, 1987, **26**, 1391-1393 (*biosynth, isol, oxime, cryst struct*)
Baute, M.A. *et al., Phytochemistry*, 1991, **30**, 1419-1423 (*biosynth*)
Yu, S. *et al., Carbohydr. Res.*, 1998, **305**, 73-82 (*anal, bibl*)
Kopper, S. *et al., Chem. Eur. J.*, 1998, **4**, 2442-2455 (*synth*)
Andersen, S.M. *et al., J. Carbohydr. Chem.*, 1998, **17**, 1027-1035 (*acetyl dimers, cryst struct*)
Andersen, S.M. *et al., J. Carbohydr. Chem.*, 2000, **19**, 717-723; 2002, **21**, 569-578 (*synth, struct, tri-Ac, props*)
Andersen, S.M. *et al., Carbohydr. Res.*, 2002, **337**, 873-890 (***rev***)
Yamaji, K. *et al., Planta Med.*, 2002, **68**, 16-19 (*activity*)
Lichtenthaler, F.W. *et al., Eur. J. Org. Chem.*, 2003, 3094-3104 (*tribenzoyl*)
Yu, S. *et al., Food Chem. Toxicol.*, 2004, **42**, 1677-1686 (*anal, metab, toxicol*)

3,6-Anhydrofructose A-607



$C_6H_{10}O_5$ 162.142

D-*form* [151427-83-7]
Amorph. solid. $[\alpha]_D^{20}$ -49 (c, 1.1 in H_2O).

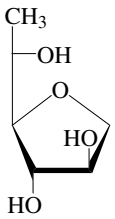
Tri-Ac: 1,4,5-Tri-O-acetyl-3,6-anhydro-D-fructose
[161325-49-1]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +2 (c, 1 in $CHCl_3$). Wrongly named in lit. as 1,2,5-tri-Ac.

4,5-O-Isopropylidene: 3,6-Anhydro-4,5-O-isopropylidene-D-fructose
[103367-08-4]
$C_9H_{14}O_5$ 202.207
Solid. Mp 71°. $[\alpha]_D^{20}$ -142 (c, 0.8 in $CHCl_3$).

Köll, P. *et al., Annalen*, 1986, 1568-1577 (*D-form isopropylidene*)
Defaye, J. *et al., Tetrahedron: Asymmetry*, 1994, **5**, 2241-2250 (*D-form, D-form tri-Ac*)

1,4-Anhydrofucitol A-608

3,6-Anhydro-1-deoxygalactitol, 9CI. 1,4-Anhydro-6-deoxygalactitol



$C_6H_{12}O_4$ 148.158

Care needed with numbering (*cf.* 1-Deoxygalactitol, D-123).

L-*form*

1,4-Anhydro-L-fucitol. 3,6-Anhydro-1-deoxy-D-galactitol, 9CI. 1,4-Anhydro-6-deoxy-L-galactitol

[93697-45-1]

No phys. props. reported.

Gerwig, G.J. *et al., Carbohydr. Res.*, 1984, **129**, 149-157 (*formn, glc*)

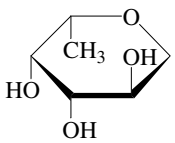
Garegg, P.J. *et al., Carbohydr. Res.*, 1988, **176**, 145-148 (*formn, glc*)

Wang, N. *et al., Carbohydr. Res.*, 1995, **274**, 59-70 (*synth, derivs*)

1,5-Anhydrofucitol A-609

1,5-Anhydro-6-deoxygalactitol. 2,6-Anhydro-1-deoxygalactitol

[120442-64-0]



$C_6H_{12}O_4$ 148.158

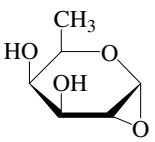
L-*form* [117604-76-9]

Mp 119-121°. $[\alpha]_D$ -61.2 (c, 0.5 in MeOH). This is the D-enantiomer if named as 2,6-anhydro-1-deoxy-D-galactitol.

Carpintero, M. *et al., Eur. J. Org. Chem.*, 2001, 4127-4135 (*synth, pmr, cmr*)

1,2-Anhydrofucose A-610

1,2-Anhyro-6-deoxygalactose, 9CI



$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

3,4-Dibenzyl: 1,2-Anhydro-3,4-di-O-benzyl-α-D-fucopyranose. 1,2-Anhydro-3,4-di-O-benzyl-6-deoxy-α-D-galactopyranose

[132884-63-0]

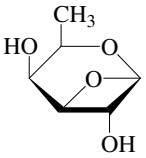
$C_{20}H_{22}O_4$ 326.391

Cryst. Mp 77-79°. $[\alpha]_D$ +82.5 (c, 1.4 in $CHCl_3$).

Du, Y. *et al., Carbohydr. Res.*, 1995, **275**, 413-420 (*3,4-dibenzyl, synth, pmr*)

1,3-Anhydrofucose A-611

1,3-Anhydro-6-deoxygalactose



$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form*

Dibenzyl: 1,3-Anhydro-2,4-di-O-benzyl-β-D-fucopyranose

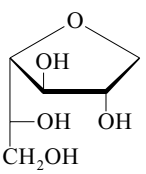
[141942-18-9]

$C_{20}H_{22}O_4$ 326.391

$[\alpha]_D^{20}$ +6.2 (c, 2.2 in $CHCl_3$).

Yang, C. *et al., J. Carbohydr. Chem.*, 1992, **11**, 379-395 (*β-D-pyr dibenzyl*)

1,4-Anhydrogalactitol A-612



D–*form*

$C_6H_{12}O_5$ 164.158

Capable of enantiomerism although galactitol is a *meso*-compd.

D-*form* [32742-35-1]

Plates (EtOAc or dioxan). Mp 95-96°. $[\alpha]_D^{20}$ -35.2 (c, 1.6 in EtOH). $[\alpha]_D^{25}$ -18 (c, 2 in H_2O).

Tetrabenzoyl: 2,3,5,6-Tetra-O-benzoyl-D-galactitol

$C_{34}H_{28}O_9$ 580.59

Mp 99-101°. $[\alpha]_D^{20}$ +41.7 (c, 1.03 in $CHCl_3$).

L-*form* *3,6-Anhydro-D-galactitol, 9CI*

[51196-40-8]

Syrup. $[\alpha]_D^{20}$ +34.5 (c, 1.9 in EtOH).

Tetrabenzoyl: 2,3,5,6-Tetra-O-benzoyl-L-galactitol

$C_{34}H_{28}O_9$ 580.59

Mp 99-100°. $[\alpha]_D^{20}$ -42.9 (c, 1.24 in $CHCl_3$).

DL-*form*

Cryst. (dioxan). Mp 58-62°.

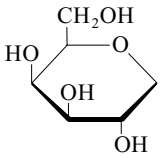
Ness, R.K. *et al., J.A.C.S.*, 1951, **73**, 3742 (*synth, D-form*)

Barker, R. *et al., J.O.C.*, 1964, **29**, 869 (*synth, D-form*)

Lundt, I. *et al., Tetrahedron*, 1994, **50**, 13285 (*cmr*)

Kurszewska, M. *et al., Carbohydr. Res.*, 2002, **337**, 1261-1268 (*DL-form, synth, pmr, cmr*)

1,5-Anhydrogalactitol A-613



$C_6H_{12}O_5$ 164.158

D-*form* [3971-48-0]

Prisms (EtOH aq.). Mp 114-115°. $[\alpha]_D$ +76.6 (c, 1.08 in H_2O).

2,6-Di-Ac: 2,6-Di-O-acetyl-1,5-anhydro-D-galactitol

$C_{10}H_{16}O_7$ 248.232

Solid. Mp 108-110°. $[\alpha]_D$ +30 (c, 1.0 in $CHCl_3$).

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-1,5-anhydro-D-galactitol

[13121-62-5]

$C_{14}H_{20}O_9$ 332.307

Prisms (Et_2O/petrol). Mp 75-77° Mp 105-106° (double Mp). $[\alpha]_D^{17}$ +49 (c, 1 in $CHCl_3$).

6-Tosyl, tribenzoyl: 1,5-Anhydro-2,3,4-tri-O-benzoyl-6-O-tosyl-D-galactitol

$C_{34}H_{30}O_{10}S$ 630.671

Mp 188-189°. $[\alpha]_D^{22}$ +166.3 (c, 1.6 in $CHCl_3$).

3,6-Ditosyl: 1,5-Anhydro-3,6-di-O-tosyl-D-galactitol

$C_{20}H_{24}O_9S_2$ 472.536

Foam. $[\alpha]_D^{26}$ +42 (c, 2.8 in $CHCl_3$).

3,6-Ditosyl, dibenzoyl: 1,5-Anhydro-2,4-di-O-benzoyl-3,6-di-O-tosyl-D-galactitol

$C_{34}H_{32}O_{11}S_2$ 680.752

Cryst. ($CHCl_3$/EtOH). Mp 194-195°. $[\alpha]_D^{21}$ +134 (c, 1 in $CHCl_3$).

2,3,6-Tritosyl: 1,5-Anhydro-2,3,6-tri-O-tosyl-D-galactitol

$C_{27}H_{30}O_{11}S_3$ 626.725

Cryst. (C_6H_6). Mp 170-171°. $[\alpha]_D^{24}$ +28.5 (c, 1.9 in $CHCl_3$).

2,3,6-Tritosyl, benzoyl: 1,5-Anhydro-4-O-benzoyl-2,3,6-tri-O-tosyl-D-galactitol

$C_{34}H_{34}O_{12}S_3$ 730.833

Cryst. (CH_2Cl_2/EtOH). Mp 166-167°. $[\alpha]_D^{24}$ +83.1 (c, 4.4 in $CHCl_3$).

Tetratosyl: 1,5-Anhydro-2,3,4,6-tetra-O-tosyl-D-galactitol

$C_{34}H_{36}O_{13}S_4$ 780.915

Syrup. $[\alpha]_D^{25}$ +35 (c, 2.3 in $CHCl_3$).

3,4-O-Isopropylidene: 1,5-Anhydro-3,4-O-isopropylidene-D-galactitol

[143697-37-4]

$C_9H_{16}O_5$ 204.222

Solid. Mp 99-100°. $[\alpha]_D$ +65 (c, 1.0 in $CHCl_3$).

3,4-O-Isopropylidene, 2,6-di-Ac: 2,6-Di-O-acetyl-1,5-anhydro-3,4-O-isopropylidene-D-galactitol

[143916-22-7]

$C_{13}H_{20}O_7$ 288.297

Solid. Mp 100-102°. $[\alpha]_D$ +63 (c, 1.0 in $CHCl_3$).

*4,6-*O*-Benzylidene: 1,5-Anhydro-4,6-*O*-benzylidene-D-galactitol*
$C_{13}H_{16}O_5$ 252.266
Cryst. (EtOH). Mp 183-185°. $[\alpha]_D^{25}$ +61.2 (c, 0.9 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2-benzoyl: 1,5-Anhydro-2-*O*-benzoyl-4,6-*O*-benzylidene-D-galactitol*
$C_{20}H_{20}O_6$ 356.374
Cryst. (EtOH). Mp 184-186°. $[\alpha]_D^{26}$ +31.5 (c, 0.6 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-benzoyl: 1,5-Anhydro-3-*O*-benzoyl-4,6-*O*-benzylidene-D-galactitol*
$C_{20}H_{20}O_6$ 356.374
Cryst. (EtOH). Mp 195-197°. $[\alpha]_D^{25}$ +184 (c, 1.5 in Py).

*4,6-*O*-Benzylidene, 2,3-dibenzoyl: 1,5-Anhydro-2,3-di-*O*-benzoyl-4,6-*O*-benzylidene-D-galactitol*
$C_{27}H_{24}O_7$ 460.482
Fine needles (EtOH). Mp 182-185°. $[\alpha]_D^{28}$ +160 (c, 0.9 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-tosyl: 1,5-Anhydro-4,6-*O*-benzylidene-3-*O*-tosyl-D-galactitol*
$C_{20}H_{22}O_7S$ 406.456
Syrup. $[\alpha]_D^{22}$ +32.1 (c, 2.6 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2,3-ditosyl: 1,5-Anhydro-4,6-*O*-benzylidene-2,3-di-*O*-tosyl-D-galactitol*
$C_{27}H_{28}O_9S_2$ 560.645
Syrup. $[\alpha]_D^{25}$ +78.9 (c, 0.9 in $CHCl_3$).

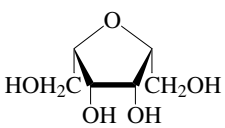
*4,6-*O*-Benzylidene, 2-benzoyl, 3-tosyl: 1,5-Anhydro-2-*O*-benzoyl-4,6-*O*-benzylidene-3-*O*-tosyl-D-galactitol*
$C_{27}H_{26}O_8S$ 510.564
Cryst. ($CHCl_3$/EtOH). Mp 186° dec. $[\alpha]_D^{24}$ +194 (c, 0.7 in Py).

*4,6-*O*-Benzylidene, 3-benzoyl, 2-tosyl: 1,5-Anhydro-3-*O*-benzoyl-4,6-*O*-benzylidene-2-*O*-tosyl-D-galactitol*
$C_{27}H_{26}O_8S$ 510.564
Cryst. ($CHCl_3$/EtOH). Mp 131-132°. $[\alpha]_D^{20}$ +176 (c, 0.8 in $CHCl_3$).

Fletcher, H.G. *et al., J.A.C.S.*, 1948, **70**, 310 (*synth*)
Kocienski, P. *et al., Carbohydr. Res.*, 1982, **110**, 330 (*D-tetra-Ac*)
Kondo, Y. *et al., Carbohydr. Res.*, 1983, **114**, 335; **121**, 324 (*tosyl, benzoyl derivs*)
Kondo, Y. *et al., Carbohydr. Res.*, 1989, **193**, 279 (*benzylidene derivs*)
Elvebak, L.E. *et al., Carbohydr. Res.*, 1995, **269**, 1 (*synth, ms, derivs*)
Cassel, S. *et al., Eur. J. Org. Chem.*, 2001, 875-896 (*synth, pmr, cmr, di-Ac, isopropylidene*)

2,5-Anhydrogalactitol A-614

[74743-81-0]



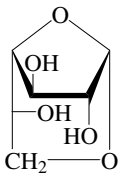
$C_6H_{12}O_5$ 164.158

meso-. Incorr. referred to as 2,5-Anhydroallitol at one place in the paper. Syrup.

Van Delft, F.L. *et al., J. Carbohydr. Chem.*, 1999, **18**, 165-190; 191-207 (*synth, pmr, cmr*)

1,6-Anhydrogalactofuranose A-615

1,6-Anhydro-galacto-*hexofuranose*



$C_6H_{10}O_5$ 162.142

α-D-*form* [33818-21-2] Usually prepd. by pyrol. of D-galactose, also obt. by pyrol. of Lactose, L-13, 6-*O*-α-D-Galactopyranosyl-D-glucose, G-145 and Raffinose, R-1.
Cryst. (EtOH). Mp 183-184°. $[\alpha]_D^{25}$ +56 (c, 1.0 in H_2O).

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,6-anhydro-α-D-galactofuranose*
[5349-08-6]
$C_{12}H_{16}O_8$ 288.254
Cryst. (EtOH). Mp 79-80°. $[\alpha]_D^{20}$ +144.9 (c, 1.0 in $CHCl_3$).

*Trimesyl: 1,6-Anhydro-2,3,5-tri-*O*-mesyl-α-D-galactofuranose*
$C_9H_{16}O_{11}S_3$ 396.417
Cryst. (Me_2CO aq.). Mp 168-169°. $[\alpha]_D$ +67.8 ($CHCl_3$).

*2-Tosyl: 1,6-Anhydro-2-*O*-tosyl-α-D-galactofuranose*
[71109-81-4]
$C_{13}H_{16}O_7S$ 316.331
Mp 122-123°. $[\alpha]_D^{20}$ +56.1 (c, 0.6 in Me_2CO).

*3-Tosyl: 1,6-Anhydro-3-*O*-tosyl-α-D-galactofuranose*
[71109-80-3]
$C_{13}H_{16}O_7S$ 316.331
Cryst. (2-propanol). Mp 138-139°. $[\alpha]_D^{20}$ +37.9 (c, 0.7 in Me_2CO).

*5-Tosyl: 1,6-Anhydro-5-*O*-tosyl-α-D-galactofuranose*
[71109-82-5]
$C_{13}H_{16}O_7S$ 316.331
Mp 119-121°. $[\alpha]_D^{20}$ +48.1 (c, 0.5 in Me_2CO).

*2,3-Ditosyl: 1,6-Anhydro-2,3-di-*O*-tosyl-α-D-galactofuranose*
[71109-79-0]
$C_{20}H_{22}O_9S_2$ 470.52
Syrup. $[\alpha]_D^{20}$ +37.6 (c, 1.0 in $CHCl_3$).

*2,5-Ditosyl: 1,6-Anhydro-2,5-di-*O*-tosyl-α-D-galactofuranose*
[71109-77-8]
$C_{20}H_{22}O_9S_2$ 470.52
Mp 82-84°. $[\alpha]_D^{20}$ +24.6 (c, 0.4 in $CHCl_3$).

*3,5-Ditosyl: 1,6-Anhydro-3,5-di-*O*-tosyl-α-D-galactofuranose*
[71109-78-9]
$C_{20}H_{22}O_9S_2$ 470.52
Mp 155-156°. $[\alpha]_D^{20}$ +19.4 (c, 0.6 in $CHCl_3$).

*Tritosyl: 1,6-Anhydro-2,3,5-tri-*O*-tosyl-α-D-galactofuranose*
[71109-76-7]
$C_{27}H_{28}O_{11}S_3$ 624.71
Cryst. ($CHCl_3$/Et_2O/petrol). Mp 143-144°. $[\alpha]_D^{20}$ +36.2 (c, 2.0 in $CHCl_3$).

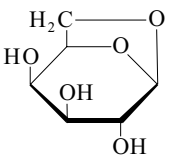
*Tri-Me: 1,6-Anhydro-2,3,5-tri-*O*-methyl-α-D-galactofuranose*
$C_9H_{16}O_5$ 204.222
Syrup. $Bp_{0.5}$ 72-83°. $[\alpha]_D$ +73.6 (MeOH).

*Tribenzoyl: 1,6-Anhydro-2,3,5-tri-*O*-benzoyl-α-D-galactofuranose*
[259826-50-1]
$C_{27}H_{22}O_8$ 474.466
Cryst. (EtOH). Mp 142°. $[\alpha]_D^{25}$ +134.5 (c, 0.9 in $CHCl_3$). Wrongly descr. in the paper as β-.

Alexander, B.H. *et al., J.A.C.S.*, 1951, **73**, 4658 (*synth, α-D-tri-Ac, α-D-tri-Me*)
Dimler, R.J. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 37 (*rev*)
Richtmyer, N.K. *et al., Arch. Biochem. Biophys.*, 1958, **78**, 376 (*synth, α-D-trimesyl, α-D-tritosyl*)
Köll, P. *et al., Chem. Ber.*, 1973, **106**, 3559 (*synth*)
Černý, M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 23 (*rev*)
Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2068 (*α-D-tosyl derivs*)
Kopf, J. *et al., J. Carbohydr. Chem.*, 1986, **5**, 99-113 (*α-D-fur tri-Ac, cryst struct*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **174**, 9 (*cryst struct*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **179**, 1 (*pmr, cmr*)
Sarkar, S.K. *et al., J. Carbohydr. Chem.*, 1999, **18**, 1121-1130 (*synth, tribenzoyl*)

1,6-Anhydrogalactopyranose A-616

Galactosan



$C_6H_{10}O_5$ 162.142

β-D-*form* [644-76-8]
Plates (EtOH). Mp 226° (222-233°). $[\alpha]_D$ -22 (H_2O).

*2,3-Di-Ac: 2,3-Di-*O*-acetyl-1,6-anhydro-β-D-galactopyranose*
[14213-39-9]
$C_{10}H_{14}O_7$ 246.216
Cryst. (2-propanol/petrol). Mp 113-115°. $[\alpha]_D$ -0.8 ($CHCl_3$).

*2,4-Di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-β-D-galactopyranose*
[56933-12-1]
$C_{10}H_{14}O_7$ 246.216
Syrup. $[\alpha]_D$ -8.5 ($CHCl_3$).

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-1,6-anhydro-β-D-galactopyranose*
[4132-24-5]
$C_{12}H_{16}O_8$ 288.254
Cryst. (petrol). Mp 73-74°. $[\alpha]_D^{20}$ -6.2 (c, 1 in $CHCl_3$).

*2-Benzoyl: 1,6-Anhydro-2-*O*-benzoyl-β-D-galactopyranose*
$C_{13}H_{14}O_6$ 266.25
Cryst. (EtOH). Mp 164-165°. $[\alpha]_D$ +47.2 ($CHCl_3$).

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-galactopyranose*
$C_{27}H_{22}O_8$ 474.466
Mp 89-90°. $[\alpha]_D^{20}$ +84.8 (c, 1 in $CHCl_3$).

*2-Mesyl: 1,6-Anhydro-2-*O*-mesyl-β-D-galactopyranose*
[52526-54-2]
$C_7H_{12}O_7S$ 240.234
Cryst. (EtOH). Mp 145°. $[\alpha]_D$ -11 (MeOH).

2-Phenylcarbamoyl: [37086-02-5]
Cryst. (H_2O). Mp 162-163°. $[\alpha]_D$ +24.7 (MeOH).

*2-Tosyl: 1,6-Anhydro-2-*O*-tosyl-β-D-galactopyranose*
[30923-30-9]
$C_{13}H_{16}O_7S$ 316.331
Cryst. (AcOH). Mp 114-115°. $[\alpha]_D$ -20.7 ($CHCl_3$).

*2,4-Ditosyl: 1,6-Anhydro-2,4-di-*O*-tosyl-β-D-galactopyranose*
[30923-31-0]
$C_{20}H_{22}O_9S_2$ 470.52
Mp 115-117°. $[\alpha]_D$ -49 ($CHCl_3$).

*2,3,4-Tritosyl: 1,6-Anhydro-2,3,4-tri-*O*-tosyl-β-D-galactopyranose*
$C_{27}H_{28}O_{11}S_3$ 624.71
Mp 103-104°. $[\alpha]_D^{20}$ -51.1 (c, 1.3 in $CHCl_3$).

*3,4-*O*-Isopropylidene: 1,6-Anhydro-3,4-*O*-isopropylidene-β-D-galactopyranose*
[52579-97-2]
$C_9H_{14}O_5$ 202.207
Cryst. (C_6H_6). Mp 151-152°. $[\alpha]_D$ -73.3 ($CHCl_3$).

*3,4-*O*-Isopropylidene, 2-Ac: 2-*O*-Acetyl-1,6-anhydro-3,4-*O*-isopropylidene-β-D-galactopyranose*
[20787-28-4]
$C_{11}H_{16}O_6$ 244.244
Mp 136-137°. $[\alpha]_D^{20}$ -51.4 (c, 0.9 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 2-benzoyl: 1,6-Anhydro-2-*O*-benzoyl-3,4-*O*-isopropylidene-β-D-galactopyranose*
$C_{16}H_{18}O_6$ 306.315
Mp 119-120°. $[\alpha]_D^{20}$ +6.3 (c, 0.8 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 2-tosyl: 1,6-Anhydro-3,4-*O*-isopropylidene-2-*O*-tosyl-β-D-galactopyranose*
$C_{16}H_{20}O_7S$ 356.396
Mp 118-119°. $[\alpha]_D^{20}$ -63.7 (c, 0.9 in $CHCl_3$).

exo-*3,4-*O*-Benzylidene: 1,6-Anhydro-*exo-*3,4-*O*-benzylidene-β-D-galactopyranose*
[71021-25-5]
$C_{13}H_{14}O_5$ 250.251
Cryst. (EtOH aq.). Mp 119-121°. $[\alpha]_D$ -28.5 (c, 0.6 in $CHCl_3$).

endo-*3,4-*O*-Benzylidene: 1,6-Anhydro-*endo-*3,4-*O*-benzylidene-β-D-galactopyranose*
[71020-27-4]
$C_{13}H_{14}O_5$ 250.251
Cryst. (EtOH). Mp 186-189°. $[\alpha]_D$ +8 (c, 1.6 in $CHCl_3$).

*2-Me: 1,6-Anhydro-2-*O*-methyl-β-D-galactopyranose*
[35405-75-5]
$C_7H_{12}O_5$ 176.169
Mp 115-116°. $[\alpha]_D$ -35 (H_2O).

*4-Me: 1,6-Anhydro-4-*O*-methyl-β-D-galactopyranose*
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D$ -28 ($CHCl_3$).

*2,4-Di-Me: 1,6-Anhydro-2,4-di-*O*-methyl-β-D-galactopyranose*
$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D$ -46 ($CHCl_3$).

*3,4-Di-Me: 1,6-Anhydro-3,4-di-*O*-methyl-β-D-galactopyranose*
$C_8H_{14}O_5$ 190.196
Cryst. (EtOAc/petrol). Mp 81°. $[\alpha]_D$ -41.1 (H_2O).

*2-Benzyl: 1,6-Anhydro-2-*O*-benzyl-β-D-galactopyranose*
[55287-63-3]
$C_{13}H_{16}O_5$ 252.266
Cryst. (Et_2O/CH_2Cl_2 or EtOAc/petrol). Mp 104-105°. $[\alpha]_D$ -76.2 ($CHCl_3$). $[\alpha]_D$ -37 (c, 1 in $CHCl_3$).

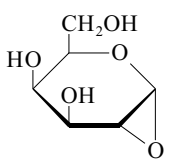
*2-Benzyl, 3,4-*O*-isopropylidene: 1,6-Anhydro-2-*O*-benzyl-3,4-*O*-isopropylidene-β-D-galactopyranose*
$C_{16}H_{20}O_5$ 292.331
Mp 83-85°. $[\alpha]_D$ -78.2 (c, 1 in $CHCl_3$).

*3-Benzyl, di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-*O*-benzyl-β-D-galactopyranose*
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -71 (c, 0.5 in $CHCl_3$).

*4-Benzyl: 1,6-Anhydro-4-*O*-benzyl-β-D-galactopyranose*
[116836-98-7]
$C_{13}H_{16}O_5$ 252.266
Syrup. $[\alpha]_D$ -22 (c, 0.5 in $CHCl_3$).

Hann, R.M. *et al., J.A.C.S.*, 1941, **63**, 1484; 1942, **64**, 2435 (*synth, isopropylidene derivs, benzoyl derivs*)
Micheel, F. *et al., Chem. Ber.*, 1955, **88**, 2020 (*synth*)
Köll, P. *et al., Chem. Ber.*, 1973, **106**, 3559 (*synth*)
Durette, P.L. *et al., Chem. Ber.*, 1974, **107**, 937 (*tri-Ac*)
Paulsen, H. *et al., Carbohydr. Res.*, 1976, **49**, 27 (*cmr*)
Gent, P.A. *et al., J.C.S. Perkin 1*, 1976, 1395 (*isopropylidene benzyl, benzyl*)
Černý, M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 23 (*rev, derivs*)
Buděšínský, M. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 1949 (*pmr, conformn*)
Ceccarelli, C. *et al., Acta Cryst. B*, 1980, **36**, 861 (*cryst struct*)
Subero, C. *et al., Carbohydr. Res.*, 1980, **86**, 27 (*benzylidene derivs*)
Cano, F.H. *et al., Carbohydr. Res.*, 1984, **127**, 338 (*cryst struct, 3,4-isopropylidene*)
Kloosterman, M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1985, **104**, 117 (*synth, tri-Ac*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1988, **175**, 193 (*4-benzyl, 3-benzyl-di-Ac*)

1,2-Anhydrogalactose A-617



$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

*Tri-Ac: 3,4,6-Tri-*O*-acetyl-1,2-anhydro-α-D-galactopyranose*
[166329-00-6]
$C_{12}H_{16}O_8$ 288.254
No phys. props. reported.

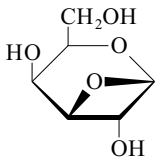
Tris(4-bromobenzoyl):
Cryst. (CH_2Cl_2/petrol). Mp 95°. $[\alpha]_D^{20}$ -7.3 (c, 3 in $CHCl_3$).

*Tribenzyl: 1,2-Anhydro-3,4,6-tri-*O*-benzyl-α-D-galactopyranose*
$C_{27}H_{28}O_5$ 432.515
Cryst. (Et_2O/petrol). Mp 39°. $[\alpha]_D^{20}$ -16.9 (c, 0.62 in $CHCl_3$).

*Tris(*tert*-butyldimethylsilyl): 1,2-Anhydro-3,4,6-tris-*O*-(*tert*-butyldimethylsilyl)-α-D-galactopyranose*
[121654-01-1]
$C_{24}H_{52}O_5Si_3$ 504.928
$[\alpha]_D^{25}$ +25 (c, 1.01 in $CHCl_3$).

Kong, F. *et al., Carbohydr. Res.*, 1987, **162**, 217 (*tribenzyl, tris-p-bromobenzoyl*)
Halcomb, R.L. *et al., J.A.C.S.*, 1989, **111**, 6661 (*tris-tert-butyldimethylsilyl, pmr*)
Cavicchioli, M. *et al., Chem. Comm.*, 1995, 901 (*tri-Ac, pmr*)

1,3-Anhydrogalactose A-618



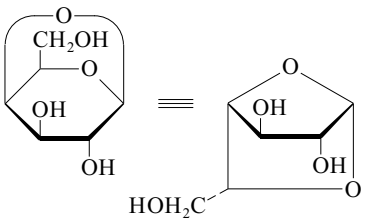
$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

*Tribenzyl: 1,3-Anhydro-2,4,6-tri-*O*-benzyl-β-D-galactopyranose*
[129165-09-9]
$C_{27}H_{28}O_5$ 432.515
$[\alpha]_D$ -2.7 (c, 1.3 in $CHCl_3$).

Kong, F. *et al., Carbohydr. Res.*, 1990, **198**, 141 (*synth, pmr, cmr, tribenzyl*)

1,4-Anhydrogalactose A-619



$C_6H_{10}O_5$ 162.142

D-*form*

*2,3-Dibenzoyl, 6-Ac: 6-*O*-Acetyl-1,4-anhydro-2,3-di-*O*-benzoyl-β-D-galactopyranose*
$C_{22}H_{20}O_8$ 412.395
Cryst. (EtOH). Mp 124.5-126°. $[\alpha]_D$ +214 (c, 1 in $CHCl_3$).

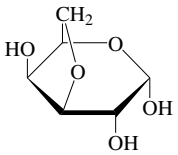
*Tribenzoyl: 1,4-Anhydro-2,3,6-tri-*O*-benzoyl-β-D-galactopyranose*
$C_{27}H_{22}O_8$ 474.466
Long needles (EtOAc/hexane). Mp 141-143° (137-138°). $[\alpha]_D$ +177.5 (c, 0.4 in $CHCl_3$).

*Tri-Me: 1,4-Anhydro-2,3,6-tri-*O*-methyl-β-D-galactopyranose*
$C_9H_{16}O_5$ 204.222

Mp 36-37°. $Bp_{0.18}$ 71-72°. $[\alpha]_D^{28}$ +86.3 (c, 2.1 in $CHCl_3$).

Jorgen, K. *et al., J.O.C.*, 1965, **30**, 3951 (*tri-Me*)
Thiem, J. *et al., Carbohydr. Res.*, 1993, **249**, 197 (*tribenzoyl, 2,3-dibenzoyl-6-Ac*)

3,6-Anhydrogalactose A-620



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

D-*form* [14122-18-0]
Present in carrageenans.
Syrup. $[\alpha]_D$ +38.9 → +28.5 (H_2O).

α-D-Pyranose-*form*

1,2-O-Isopropylidene: 3,6-Anhydro-1,2-O-isopropylidene-α-D-galactopyranose
$C_9H_{14}O_5$ 202.207
Mp 92°. $[\alpha]_D^{14}$ +26.9 (H_2O).

Me glycoside: Methyl 3,6-anhydro-α-D-galactopyranoside
[5540-31-8]
$C_7H_{12}O_5$ 176.169
Cryst. (C_6H_6). Mp 141-142°. $[\alpha]_D$ +82.4 (H_2O).

Me glycoside, 4-Ac: Methyl 4-O-acetyl-3,6-anhydro-α-D-galactopyranoside
$C_9H_{14}O_6$ 218.206
Cryst. (Et_2O). Mp 109-110°. $[\alpha]_D$ +66 (c, 1.2 in $CHCl_3$).

Me glycoside, 2-benzyl: Methyl 3,6-anhydro-2-O-benzyl-α-D-galactopyranoside
$C_{14}H_{18}O_5$ 266.293
Cryst. (H_2O). $[\alpha]_D$ +66 (c, 1.2 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 3,6-anhydro-β-D-galactopyranoside
$C_7H_{12}O_5$ 176.169
Cryst. (EtOAc). Mp 119°. $[\alpha]_D$ -115 (H_2O).

Me glycoside, 2-benzyl: Methyl 3,6-anhydro-2-O-benzyl-β-D-galactopyranoside
[20688-93-1]
$C_{14}H_{18}O_5$ 266.293
Cryst. (Et_2O/petrol). Mp 70-71°. $[\alpha]_D$ -16 (c, 0.9 in $CHCl_3$).

L-*form* [28251-55-0]
Constit. of Agarobiose, A-60 obt. by partial acid hydrol. of agar.

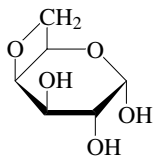
Di-Et dithioacetal:
$C_{10}H_{20}O_4S_2$ 268.398
Obt. efficiently (86% yield) by mercaptolysis of agar. Silky needles (EtOAc/Et_2O/petrol). Mp 109.7°. $[\alpha]_D^{25}$ +10.6.

α-L-Pyranose-*form*

1,2-O-Isopropylidene: 3,6-Anhydro-1,2-O-isopropylidene-α-L-galactopyranose
$C_9H_{14}O_5$ 202.207
Cryst. (Et_2O/hexane). Mp 91-92°. $[\alpha]_D^{20}$ -26.8 (c, 1.17 in H_2O).

Ohle, H. *et al., Ber.*, 1933, **66**, 525 (*D-form, synth, α-D-Me pyr*)
Haworth, W.N. *et al., J.C.S.*, 1940, 620 (*α-D-Me pyr, β-D-Me pyr*)
Lewis, B.A. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 172 (*α-D-Me pyr, β-D-Me pyr*)
Hirase, S. *et al., Bull. Chem. Soc. Jpn.*, 1968, **41**, 626 (*α-D-pyr isopropylidene, α-L-pyr isopropylidene*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 1642 (*β-D-Me pyr, β-D-Me pyr benzyl*)
Campbell, J.W. *et al., J.C.S. Perkin 2*, 1972, 1721 (*α-D-Me pyr, cryst struct*)
Izumi, K. *et al., Carbohydr. Res.*, 1973, **27**, 278 (*pmr*)
Matsuhiro, B. *et al., Carbohydr. Res.*, 1983, **118**, 276 (*anal*)
Parra, E. *et al., Carbohydr. Res.*, 1990, **208**, 83 (*α-D-Me pyr Ac, α-D-Me pyr benzyl*)
Hama, Y. *et al., Carbohydr. Res.*, 1999, **318**, 154-156 (*L-form, di-Et mercaptal*)

4,6-Anhydrogalactose A-621



α-D-*form*

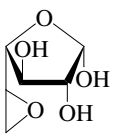
$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

Me glycoside, 2,3-di-Me: Methyl 4,6-anhydro-2,3-di-O-methyl-α-D-galactopyranose
[62847-84-1]
$C_9H_{16}O_5$ 204.222
Syrup. $Bp_{0.1}$ 95° (bath). $[\alpha]_D$ +244 (c, 1.7 in $CHCl_3$).

Hall, C.R. *et al., Carbohydr. Res.*, 1977, **53**, 254 (*synth*)

5,6-Anhydrogalactose A-622



α-D-Furanose-*form*

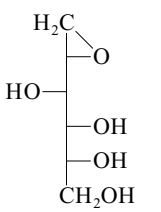
$C_6H_{10}O_5$ 162.142

D-Furanose-*form*

Tri-Ac: 1,2,3-Tri-O-acetyl-5,6-anhydro-D-galactofuranose
[121363-71-1, 121363-72-2]
$C_{12}H_{16}O_8$ 288.254
Syrup. Obt. as anomeric mixt., α/β ratio 2:3.

Lafont, D. *et al., Synthesis*, 1989, 191-194 (*D-fur tri-Ac*)

1,2-Anhydroglucitol A-623



D−*form*

$C_6H_{12}O_5$ 164.158

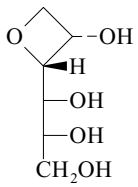
D-*form*

3,4:5,6-Diisopropylidene: 1,2-Anhydro-3,4:5,6-di-O-isopropylidene-D-glucitol
[105454-10-2]
$C_{12}H_{20}O_5$ 244.287
$Bp_{0.5}$ 65°. $[\alpha]_D^{20}$ -16 (c, 1 in $CHCl_3$).

[77519-81-4]

Regeling, H. *et al., Carbohydr. Res.*, 1989, **190**, 313 (*synth, pmr*)

1,3-Anhydroglucitol A-624



$C_6H_{12}O_5$ 164.158

D-*form*
Cryst. (EtOH/Et_2O). Mp 98-99° (86-86.5°). $[\alpha]_D^{20}$ -1 (c, 6.0 in H_2O). $[\alpha]_D^{21}$ -47.9 (c, 1.5 in H_2O).

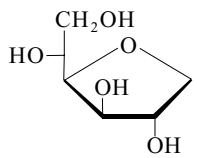
2,4-Benzylidene, di-Ac: 5,6-Di-O-acetyl-1,3-anhydro-2,4-O-benzylidene-D-glucitol
$C_{17}H_{20}O_7$ 336.341
Cryst. (EtOH aq.). Mp 83-84°. $[\alpha]_D^{21}$ +12.2 (c, 1.25 in dioxan).

Haslam, E. *et al., Carbohydr. Res.*, 1966, **2**, 301
Sinclair, H.B. *et al., Carbohydr. Res.*, 1983, **113**, 321 (*synth*)

1,4-Anhydroglucitol, 9CI, 8CI A-625

1,4-Anhydrosorbitol. Arlitan. Sorbitan
[27299-12-3]

[12441-09-7]



$C_6H_{12}O_5$ 164.158

D-*form*
Cryst. (2-propanol). Mp 115-116°. $[\alpha]_D^{27}$ -21.9 (c, 2.5 in H_2O).

*6-O-Dodecanoyl: Sorbitan monolaurate, BAN, USAN. **Sorbitan laurate, INN**. Sorbester P12. Span 20. E493*
[1338-39-2]
$C_{18}H_{34}O_6$ 346.463
Nonionic surface active agent. Used as a 0.1% soln. in toluene for extraction-photometric detn. of $SO_4^{2\ominus}$ (λ_{max} 600 nm, ε 15000, toluene). Sorbitan esters used as emulsifying agents in pharmaceutical and cosmetic preparations. Used in foods, e.g. as emulsifier.
▶ Eye irritant. LD_{50} (rat, orl) 33600 mg/kg.
WG2920000

*6-O-Hexadecanoyl: Sorbitan monopalmitate, BAN, USAN. **Sorbitan palmitate, INN**. Sorbester P16. Span 40. E495*

[26266-57-9]
$C_{22}H_{42}O_6$ 402.57
Nonionic surface active agent. Food emulsifier and stabiliser.

▶ WG2932900

6-O-Octadecanoyl: Sorbitan monostearate, BAN, USAN. ***Sorbitan stearate, INN.*** *Sorbester P18. Span 60. FEMA 3028. E491*
[1338-41-6]
$C_{24}H_{46}O_6$ 430.624
Nonionic surface active agent. Used in foods.

▶ Skin irritant. LD_{50} (rat, orl) 31000 mg/kg. WG2933500

6-O-(9-Octadecenoyl): Sorbitan monooleate, BAN, USAN. ***Sorbitan oleate, INN.*** *Sorbester P17. Span 80. NSC 406239. E494*
[1338-43-8]
$C_{24}H_{44}O_6$ 428.608
Nonionic surface active agent. Emulsifier and clarification agent in foods.

▶ Skin irritant. WG2932400

3,5,6-Trioctadecanoyl: ***Sorbitan tristearate, BAN, USAN.*** *Sorbester P38. Span 65. E492*
[26658-19-5]
$C_{60}H_{114}O_8$ 963.556
Nonionic surface active agent.

3,5,6-Tris(9-octadecenoyl): ***Sorbitan trioleate, BAN, USAN.*** *Sorbester P37. Span 85*
[5960-06-5]

[26266-58-0]
$C_{60}H_{108}O_8$ 957.508
Nonionic surface active agent. Food emulsifier.

5,6-O-Isopropylidene: 1,4-Anhydro-5,6-O-isopropylidene-D-glucitol
[55730-73-9]
$C_9H_{16}O_5$ 204.222
Mp 68-70°. $[\alpha]_D^{20}$ -6 (c, 1 in $CHCl_3$).

5,6-O-Isopropylidene, 2-mesyl: 1,4-Anhydro-5,6-O-isopropylidene-2-O-mesyl-D-glucitol
[55730-74-0]
$C_{10}H_{18}O_7S$ 282.314
Mp 112°.

5,6-O-Isopropylidene, 2,3-dimesyl: 1,4-Anhydro-5,6-O-isopropylidene-2,3-di-O-mesyl-D-glucitol
[55730-75-1]
$C_{11}H_{20}O_9S_2$ 360.406
Mp 163-163.5°.

Tetra-Me: 1,4-Anhydro-2,3,5,6-tetra-O-methyl-D-glucitol
$C_{10}H_{20}O_5$ 220.265
Bp_{14} 170-174°. $[\alpha]_D^{22}$ -43 (c, 4.84 in EtOH).

Mixt. of partial esters, mono- and dianhydrides with oleic acid: ***Sorbitan sesquioleate, BAN, USAN.*** *Arlacel C*
[8007-43-0]

[37318-79-9] Non-ionic surfactant. Oily viscous liq.

▶ Potent allergen.

9-Octadecenoyl (2:3): Crill 43. Sorgen 30. Nikkol SO-15
Emulsifier in foods etc.

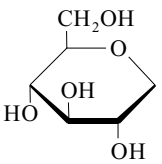
Mixt. of mono- and diesters of oleic acid.

[36521-89-8, 51938-44-4, 54392-26-6]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1055A (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 727B (*ir*)
Goldsmith, H.A. *et al., Chem. Ind. (London)*, 1943, **52**, 326-328 (*sorbitan sesquioleate*)
Soltzberg, S. *et al., J.A.C.S.*, 1946, **68**, 919 (*D-form, synth, D-tetra-Me*)
Sherman, P. *et al., J. Colloid Sci.*, 1953, **8**, 35-37 (*sorbitan sesquioleate*)
Que, L. *et al., Biochemistry*, 1974, **13**, 146 (*cmr*)
Hanessian, S. *et al., Tet. Lett.*, 1974, 3983 (*D-isopropylidene mesyl, D-isopropylidene dimesyl*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **22**, 332 (*esters, use*)
Sato, S. *et al., Anal. Lett.*, 1981, **14**, 531 (*use*)
Sato, S. *et al., Anal. Chim. Acta*, 1982, **142**, 319 (*use*)
Larni, E. *et al., Contact Dermatitis*, 1988, **19**, 368-371 (*sorbitan sesquioleate*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, SKV100; SKU700
Duclos, A. *et al., Synthesis*, 1994, 1087 (*D-isopropylidene*)
Fenaroli's Handbook of Flavor Ingredients, 3rd edn., (ed. Burdock, G.A.), CRC Press, 1995, **2**, 729 (*monooctadecanoate*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2620; 2621-2624 (*monooleate, monostearate, use, props*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2620-2624 (*esters*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 1328
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SKV000; SKV100; SKV150

1,5-Anhydroglucitol, 9CI, 8CI A-626

1,5-Anhydrosorbitol. Polygalitol. Aceritol



$C_6H_{12}O_5$ 164.158
All possible 31 isomers of Me/Ac/benzoylated 1,5-anhydro-D-glucitol were prepd. by Elvebak *et al*.

D-form [154-58-5]
Occurs in *Polygala tenuifolia, Polygala vulgaris, Polygala amara, Polygala senega* and in human cerebrospinal fluid.
Mp 142-143°. $[\alpha]_D^{20}$ +42.3 (c, 0.84 in H_2O).

2,3,4-Tri-Ac: [38982-72-8]
$C_{12}H_{18}O_8$ 290.269
Mp 111-113°. $[\alpha]_D$ +49.9 (c, 3.0 in $CHCl_3$).

Tetra-Ac:
$C_{14}H_{20}O_9$ 332.307
Mp 74-75°. $[\alpha]_D^{20}$ +42.7 (c, 1.4 in $CHCl_3$).

2-O-(3,4,5-Trihydroxybenzoyl): 1,5-Anhydro-2-O-galloyl-D-glucitol. ***Ginnalin C***
[82145-59-3]
$C_{13}H_{16}O_9$ 316.264
Constit. of *Acer ginnala*. Antibacterial agent. Cryst. Sol. Me_2CO, DMSO. Mp 251-252°. $[\alpha]_D^{20}$ +64.8 (c, 2.7 in DMSO). λ_{max} 218 (27200); 277 (10000) (MeOH). λ_{max} 218 (ϵ 27200); 277 (ϵ 10000) (MeOH) (Berdy).

6-O-(3,4,5-Trihydroxybenzoyl): 1,5-Anhydro-6-O-galloyl-D-glucitol. ***Ginnalin B***
[82151-97-1]
$C_{13}H_{16}O_9$ 316.264
Constit. of *Acer ginnala*. Antibacterial agent. Cryst. Sol. Me_2CO, DMSO. Mp 133-134°. $[\alpha]_D^{19}$ +14.8 (c, 2.5 in Me_2CO). λ_{max} 217 (ϵ 23000); 277 (ϵ 8800) (MeOH). λ_{max} 217 (ϵ 23000); 277 (ϵ 8800) (MeOH) (Berdy). λ_{max} 278; 320 (MeOH-NaOH) (Berdy).

2,6-Bis(3,4,5-trihydroxybenzoyl): ***Aceritannin.*** *Ginnalin A. Acertannin*
[76746-56-0]
$C_{20}H_{20}O_{13}$ 468.37
Isol. from *Acer ginnala, Acer spicatum, Acer saccharinum, Acer tartaricum* and *Eleutherine americana*. Needles (H_2O or MeOH aq.). Poorly sol. hexane. Mp 164-166° dec. $[\alpha]_D^{27}$ +17.5 (Me_2CO). Struct. revised in 1980.

2,6-Bis(3,4,5-trihydroxybenzoyl), octa-Ac: Cryst. (MeOH). Mp 154°. $[\alpha]_D^{20}$ +32.4 (c, 1.8 in Me_2CO).

6-O-(3,4,5-Trihydroxybenzoyl), 2-O-(dihydroxy-3,4,5-trihydroxybenzoyloxybenzoyl): 1,5-Anhydro-2-O-digalloyl-6-O-galloyl-D-glucitol. ***Acergallotannin 2B***
[84297-50-7]
$C_{27}H_{34}O_{17}$ 630.555
A gallotannin from the leaf of *Acer ginnala, Acer saccharinum* and *Acer tartaricum*. Amorph. powder (as octamethyl deriv.). $[\alpha]_D^{20}$ +28 (c, 0.1 in Me_2CO) (octa-Me deriv.). Struct. of digalloyl (galloylgalloyl) residue not fully detd.

2-O-(3,4,5-Trihydroxybenzoyl), 6-O-(dihydroxy-3,4,5-trihydroxybenzoyloxybenzoyl): 1,5-Anhydro-2-O-galloyl-6-O-digalloyl-D-glucitol. ***Acergallotannin 2A***
[84297-51-8]
$C_{27}H_{24}O_{17}$ 620.476
Isol. from the leaf of *Acer ginnala, Acer saccharinum* and *Acer tartaricum*. Amorph. powder (octamethyl deriv.). $[\alpha]_D^{20}$ +31 (c, 0.1 in Me_2CO) (octa-Me deriv.). Struct. of digalloyl (galloylgalloyl) residue not fully detd.

2-O-(3,4,5-Trihydroxybenzoyl), 6-O-(galloylgalloylgalloyl): 1,5-Anhydro-2-O-galloyl-6-O-trigalloyl-D-glucitol. ***Acergallotannin 3A***
[130195-17-4]
$C_{34}H_{28}O_{21}$ 772.583
Gallotannin constit. from the leaf of *Acer ginnala*. Amorph. powder (as decamethyl deriv.). $[\alpha]_D^{20}$ +12 (c, 0.1 in Me_2CO) (deca-Me). Struct. of trigalloyl residue not fully defined.

*2,6-Bis(galloylgalloyl): 1,5-Anhydro-2,6-bis-*O*-digalloyl-*D*-glucitol.* ***Acergallotannin 3B***
$C_{34}H_{28}O_{21}$ 772.583
Isol. from the leaf of *Acer ginnala*. Amorph. powder (decamethyl deriv.). $[\alpha]_D^{20}$ +7 (c, 0.4 in Me_2CO) (decamethyl deriv.). Full struct. of digalloyl residues not defined.

*6-*O*-(3,4,5-Trihydroxybenzoyl), 2-*O*-(galloylgalloylgalloyl): 1,5-Anhydro-2-*O*-trigalloyl-6-*O*-galloyl-*D*-glucitol.* ***Acergallotannin 3C***
[130271-90-8]
$C_{34}H_{28}O_{21}$ 772.583
Gallotannin constit. from the leaf of *Acer ginnala*. Amorph. powder (decamethyl deriv.). $[\alpha]_D^{20}$ +8 (c, 0.4 in Me_2CO) (decamethyl deriv.). Struct. of trigalloyl residue not fully defined.

*6-*O*-(3,4,5-Trimethoxycinnamoyl):* ***Tenuifoliside D***
[139726-38-8]
$C_{18}H_{24}O_9$ 384.382
Constit. of the roots of *Polygala tenuifolia*. Amorph. powder. $[\alpha]_D^{24}$ +24.6 (c, 1.66 in MeOH).

*6-Mesyl, tri-Ac: 2,3,4-Tri-*O*-acetyl-1,5-anhydro-6-*O*-mesyl-*D*-glucitol*
$C_{13}H_{20}O_{10}S$ 368.361
Cryst. (EtOH). Mp 131-133°. $[\alpha]_D^{20}$ +41.5 (c, 1 in $CHCl_3$).

*6-Tosyl: 1,5-Anhydro-6-*O*-tosyl-*D*-glucitol*
$C_{13}H_{18}O_7S$ 318.347
Syrup. $[\alpha]_D^{20}$ +52 (c, 1.6 in $CHCl_3$).

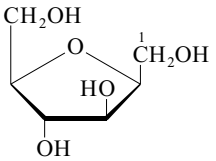
*6-Tosyl, tri-Ac: 2,3,4-Tri-*O*-acetyl-1,5-anhydro-6-*O*-tosyl-*D*-glucitol*
$C_{19}H_{24}O_{10}S$ 444.459
Mp 144-145°. $[\alpha]_D^{20}$ +63 (c, 1.2 in $CHCl_3$).

*6-Trityl: 1,6-Anhydro-6-*O*-trityl-*D*-glucitol*
$C_{25}H_{26}O_5$ 406.477
Cryst. (Et_2O/hexane). Mp 168-170°. $[\alpha]_D^{20}$ +20 (c, 1.5 in $CHCl_3$).

*6-Trityl, tri-Ac: 2,3,4-Tri-*O*-acetyl-1,5-anhydro-6-*O*-trityl-*D*-glucitol*
$C_{31}H_{32}O_8$ 532.589
Cryst. (EtOH). Mp 93-95°. $[\alpha]_D^{20}$ +83 (c, 1.3 in $CHCl_3$).

Powers, J.L. *et al., J. Am. Pharm. Assoc.*, 1940, **29**, 209 (*Acertannin*)
Fletcher, H.G. Jr. *et al., J.A.C.S.*, 1947, **69**, 706 (*synth*)
Wiggins, L.F. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 191 (*rev*)
Mackie, D.M. *et al., Carbohydr. Res.*, 1972, **24**, 67 (*synth*)
Pitkanen, E. *et al., Clin. Chim. Acta*, 1973, **48**, 159 (*occur*)
Que, L. Jr. *et al., Biochemistry*, 1974, **13**, 146 (*cmr*)
Kondo, Y. *et al., Carbohydr. Res.*, 1980, **82**, 398 (*benzoyl, mesyl derivs*)
Bock, K. *et al., Phytochemistry*, 1980, **19**, 2033 (*Aceritannin*)
Kocienski, P. *et al., Carbohydr. Res.*, 1982, **110**, 330 (*synth*)
Song, C *et al., Huaxue Xuebao*, 1982, **40**, 1142-1147; *CA*, **98**, 86267a (*Ginnalins*)
Haddock, E.A. *et al., J.C.S. Perkin 1*, 1982, 2515 (*Aceritannin, Acergallotannins*)
Boeyens, J.C.A. *et al., Phytochemistry*, 1983, **22**, 1959-1960 (*conform, cryst struct*)
Witczak, Z.J. *et al., Carbohydr. Res.*, 1986, **150**, 121 (*6-mesyl, 6-tosyl, 6-trityl derivs*)
Hatano, T. *et al., Chem. Pharm. Bull.*, 1990, **38**, 1902 (*Acergallotannins*)
Ikeya, Y. *et al., Chem. Pharm. Bull.*, 1991, **39**, 2600 (*Tenuifoliside D*)
Elvebak, L.E. *et al., Carbohydr. Res.*, 1995, **274**, 85-97 (*derivs*)

2,5-Anhydroglucitol, 9CI A-627



D–*form*

$C_6H_{12}O_5$ 164.158
Sol. H_2O.

D-*form* [27826-73-9]
Prod. by *Fusarium solani* NRRL 18883. Phytotoxin. Cryst. or syrup. Mp 56°. $[\alpha]_D^{20}$ +23 (c, 2 in H_2O) (+19.5). An earlier claimed synth. (1961) is incorrect.

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2,5-anhydro-D-glucitol*
[65729-86-4]
$C_{14}H_{20}O_9$ 332.307
Syrup. $Bp_{0.8}$ 171-173°. $[\alpha]_D^{20}$ 0 (c, 1 in $CHCl_3$).

*1,6-Dibenzoyl: 2,5-Anhydro-1,6-di-*O*-benzoyl-D-glucitol*
[22144-41-8]
$C_{20}H_{20}O_7$ 372.374
Cryst. (C_6H_6). Mp 139-140°. $[\alpha]_D^{20}$ +0.75 (c, 2.7 in Py).

*1,3-Isopropylidene, 4,6-dibenzoyl: 2,5-Anhydro-4,6-di-*O*-benzoyl-1,3-*O*-isopropylidene-D-glucitol*
[75499-82-0]
$C_{23}H_{24}O_7$ 412.438
Mp 127-129°.

*3,4-Di-Me, di-Ac: 1,6-Di-*O*-acetyl-2,5-anhydro-3,4-di-*O*-methyl-D-glucitol*
[92714-48-2]
$C_{12}H_{20}O_7$ 276.286
$[\alpha]_D^{23}$ +40.1 (c, 2.05 in $CHCl_3$).

*1,3,4-Tri-Me, Ac: 6-*O*-Acetyl-2,5-anhydro-1,3,4-tri-*O*-methyl-D-glucitol*
[92762-35-1]
$C_{11}H_{20}O_6$ 248.275
Characterised spectroscopically.

*3,4,6-Tri-Me, Ac: 1-*O*-Acetyl-2,5-anhydro-3,4,6-tri-*O*-methyl-D-glucitol*
[92762-34-0]
$C_{11}H_{20}O_6$ 248.275
$[\alpha]_D^{23}$ +31 (c, 0.80 in $CHCl_3$).

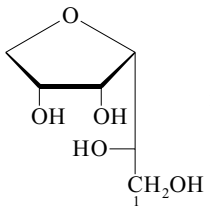
*Tetra-Me: 2,5-Anhydro-1,3,4,6-tetra-*O*-methyl-D-glucitol*
[81847-59-8]
$C_{10}H_{20}O_5$ 220.265
$[\alpha]_D^{23}$ +64 (c, 0.44 in $CHCl_3$).

*3,4,6-Tribenzyl: 2,5-Anhydro-3,4,6-tri-*O*-benzyl-D-glucitol*
[102208-54-8]
$C_{27}H_{30}O_5$ 434.531
$[\alpha]_D^{20}$ -26.4 (c, 1 in $CHCl_3$).

Brigl, P. *et al., Ber.*, 1934, **67**, 1582 (*dibenzoyl*)
Koerner, T.A.W. *et al., Carbohydr. Res.*, 1977, **59**, 403 (*D-form, synth, derivs*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1983, **123**, 209 (*synth, tetra-Ac, dibenzoyl*)
Rolf, D. *et al., Carbohydr. Res.*, 1984, **131**, 17 (*derivs*)
Van Delft, F.L. *et al., J. Carbohydr. Chem.*, 1999, **18**, 165-190 (*3,4,6-tribenzyl*)
Dayan, F.E. *et al., Z. Naturforsch., C*, 2002, **57**, 645-653 (*isol, activity*)

3,6-Anhydroglucitol A-628

1,4-Anhydrogulitol



D–*form*

$C_6H_{12}O_5$ 164.158
According to IUPAC special carbohydrate rules, 3,6-anhydroglucitol is preferred over 1,4-anhydrogulitol.

D-*form*

3,6-Anhydro-D-glucitol. 1,4-Anhydro-L-gulitol
[53648-56-9]
Cryst. (EtOH/EtOAc). Mp 113°. $[\alpha]_D^{20}$ -7.3 (c, 1.7 in H_2O).

*4,5-Isopropylidene: 3,6-Anhydro-4,5-*O*-isopropylidene-D-glucitol. 1,4-Anhydro-2,3-*O*-isopropylidene-L-gulitol*
[53626-11-2]
$C_9H_{16}O_5$ 204.222
Cryst. (EtOAc/petrol). Mp 92°. $[\alpha]_D^{20}$ -43 (c, 1.22 in Me_2CO).

*1,2:4,5-Diisopropylidene: 3,6-Anhydro-1,2:4,5-di-*O*-isopropylidene-D-glucitol. 1,4-Anhydro-2,3:5,6-di-*O*-isopropylidene-L-gulitol*
$C_{12}H_{20}O_5$ 244.287
Cryst. (petrol). Mp 80-81°. $[\alpha]_D^{20}$ -30 (c, 0.5 in toluene).

L-*form* *3,6-Anhydro-L-glucitol. 1,4-Anhydro-D-gulitol*
[96243-58-2]
Mp 110-111°. $[\alpha]_D$ -8 (c, 1 in MeOH). $[\alpha]_D$ +9 (c, 8.6 in H_2O).

*1,2-Isopropylidene: 3,6-Anhydro-1,2-*O*-isopropylidene-L-glucitol. 1,4-Anhydro-5,6-*O*-ispropylidene-D-gulitol*
[162808-75-5]
$C_9H_{16}O_5$ 204.222
Mp 65-66°. $[\alpha]_D$ -38.3 (c, 1 in $CHCl_3$).

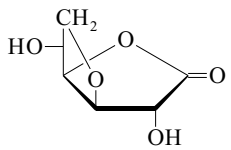
*1,2-Isopropylidene, di-Ac: 4,5-Di-*O*-acetyl-3,6-anhydro-1,2-*O*-isopropylidene-L-glucitol. 2,3-Di-*O*-acetyl-1,4-anhydro-5,6-*O*-isopropylidene-D-gulitol*
[162808-76-6]
$C_{13}H_{20}O_7$ 288.297
$[\alpha]_D$ +21.7 (c, 1 in $CHCl_3$).

*1,2:4,5-Diisopropylidene: 3,6-Anhydro-1,2:4,5-di-*O*-isopropylidene-L-glucitol. 1,4-Anhydro-2,3:5,6-di-*O*-isopropylidene-D-gulitol*
[162808-74-4]
$C_{12}H_{20}O_5$ 244.287
Mp 83-83.5° (79-81°). $[\alpha]_D$ +55 (c, 1 in $CHCl_3$). $[\alpha]_D$ +30.4 (c, 3.34 in toluene).

Barker, R. *et al., J.O.C.*, 1964, **29**, 869 (*D-form, synth*)

Zecchi, V. *et al., Bull. Soc. Chim. Fr.*, 1974, 1389 (*D-form, derivs, synth, pmr, ms*)
Defaye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191 (*D-form, synth*)
Bennis, K. *et al., Carbohydr. Res.*, 1994, **264**, 33 (*D-form, derivs, synth*)
Van Delft, F.L. *et al., J. Carbohydr. Chem.*, 1999, **18**, 191-207 (*synth, pmr, cmr*)

3,6-Anhydro-1,4-gluconolactone A-629

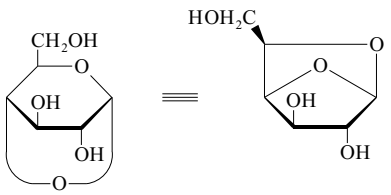


$C_6H_8O_5$ 160.126

D-*form* [90021-48-0]
Cryst. (EtOAc). Mp 114-116°. $[\alpha]_D^{20}$ +82 (c, 6.4 in H_2O).
Defaye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191

1,4-Anhydroglucopyranose, 8CI A-630

1,5-Anhydroglucofuranose



$C_6H_{10}O_5$ 162.142

α-D-*form* [24516-44-7]
Cryst. (MeOH/Me_2CO). Mp 85°. $[\alpha]_D^{20}$ +6.8 (c, 1.2 in H_2O).

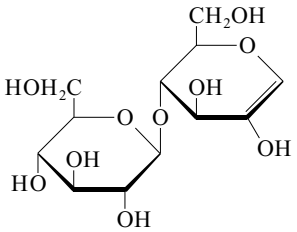
Tribenzoyl: 1,4-Anhydro-2,3,6-tri-O-*benzoyl-α-D-glucopyranose. 1,5-Anhydro-2,3,6-tri*-O-*benzoyl-β-D-glucofuranose*
$C_{27}H_{22}O_8$ 474.466
Mp 136-138°. $[\alpha]_D$ +117.

Tribenzyl: 1,4-Anhydro-2,3,6-tri-O-*benzyl-α-D-glucopyranose. 1,5-Anhydro-2,3,6-tri*-O-*benzyl-α-D-glucofuranose*
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D^{18}$ -10.9 ($CHCl_3$).

Micheel, F. *et al., Annalen*, 1969, **722**, 228 (*synth*)
Micheel, F. *et al., Tet. Lett.*, 1969, 1459 (*synth, tribenzyl*)
Bullock, C. *et al., Carbohydr. Res.*, 1990, **197**, 131 (*tribenzoyl*)
Sato, T. *et al., Carbohydr. Res.*, 1990, **199**, 31 (*synth, tribenzyl*)

1,5-Anhydro-4-*O*-β-D-glucopyranosyl-D-*arabino*-hex-1-enitol A-631

2-Hydroxycellobial

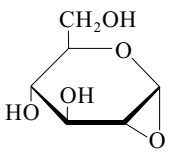


$C_{12}H_{20}O_{10}$ 324.284
Unisolated enol.

Hepta-Ac: 2,3,6-Tri-O-*acetyl-1,5-anhydro-4*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-D*-arabino-*hex-1-enitol*
[35526-17-1]
$C_{26}H_{34}O_{17}$ 618.544
Cryst. (EtOH aq.). Mp 131-132°. $[\alpha]_D^{24}$ -23.2 (c, 2.2 in $CHCl_3$).

Maurer, K. *et al., Ber.*, 1930, **63**, 25 (*synth*)
Rao, D.R. *et al., Carbohydr. Res.*, 1972, **22**, 345 (*synth*)

1,2-Anhydroglucose, 8CI A-632



$C_6H_{10}O_5$ 162.142

D-Pyranose-*form*
Pictet's anhydride
[17673-28-8]
Mp 108-109°. $[\alpha]_D$ +32.3 (H_2O).

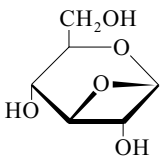
Tri-Ac: 3,4,6-Tri-O-*acetyl-1,2-anhydro-α-D-glucopyranose. Brigl's anhydride*
[3867-86-5]
$C_{12}H_{16}O_8$ 288.254
Mp 58-59°. $Bp_{0.001}$ 85°. $[\alpha]_D^{20}$ +106.5 (c, 1.0 in C_6H_6).

Tribenzyl: 1,2-Anhydro-3,4,6-tri-O-*benzyl-α-D-glucopyranose*
[74372-90-0]
$C_{27}H_{28}O_5$ 432.515
Cryst. (C_6H_6/hexane). Mp 77-78°. $[\alpha]_D^{25}$ +31.1 (c, 0.5 in $CHCl_3$).

*Tris-(*tert*-butyldimethylsilyl): 1,2-Anhydro-3,4,6-tri*-O-*(*tert*-butyldimethylsilyl)-α-D-glucopyranose*
$C_{24}H_{52}O_5Si_3$ 504.928
$[\alpha]_D^{25}$ +23.6 (c, 0.87 in $CHCl_3$).

Pictet, A. *et al., Helv. Chim. Acta*, 1920, **3**, 645 (*synth*)
Brigl, P. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1922, **122**, 245 (*tri-Ac*)
Prey, V. *et al., Monatsh. Chem.*, 1960, **91**, 358 (*synth*)
Lemieux, R.U. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 400 (*tri-Ac*)
Kato, K. *et al., Agric. Biol. Chem.*, 1967, **31**, 657 (*synth*)
Horton, D. *et al., Carbohydr. Res.*, 1975, **43**, 9 (*tri-Ac, pmr*)
Yamaguchi, H. *et al., Carbohydr. Res.*, 1980, **81**, 192 (*tribenzyl, pmr*)
Eby, R. *et al., Carbohydr. Res.*, 1982, **102**, 1 (*tribenzyl, pmr, cmr, conformn*)
Halcomb, R.L. *et al., J.A.C.S.*, 1989, **111**, 6661 (*tribenzyl, tris-(butyldimethylsilyl), pmr*)
Wu, E. *et al., Carbohydr. Res.*, 1993, **250**, 327 (*synth, pmr*)
Cavicchioli, M. *et al., Chem. Comm.*, 1995, 901 (*tri-Ac, pmr*)

1,3-Anhydroglucose A-633



$C_6H_{10}O_5$ 162.142

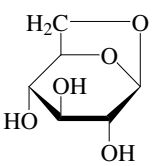
β-D-Pyranose-*form*
Tribenzyl: 1,3-Anhydro-2,4,6-tri-O-*benzyl-β-D-glucopyranose*
[76543-11-8]
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D^{25}$ +59.2 (c, 0.95 in $CHCl_3$). Stable at 100° and to silica gel chromatog. Storage in ethanol at 0° resulted in the formation of ethyl glucoside.

*Tris-*p-*methylbenzyl:* $[\alpha]_D^{25}$ +56.1 (c, 1.2 in $CHCl_3$).

*Tris-*p-*bromobenzyl:*
Cryst. (EtOAc/hexane). Mp 76-77°. $[\alpha]_D^{25}$ +64.7 (c, 1.4 in $CHCl_3$).

Ito, H. *et al., Carbohydr. Res.*, 1980, **86**, 193 (*synth, pmr, cmr*)
Ito, H. *et al., Macromolecules*, 1981, **14**, 246 (*polymer*)
Good, F. *et al., Carbohydr. Res.*, 1984, **125**, 165 (*synth, pmr, cmr*)

1,6-Anhydroglucose A-634



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*
Levoglucosan. β-Glucosan
[498-07-7]
Mp 184° (179-180°). $[\alpha]_D$ -66.3 (H_2O).

2,3-Di-Ac: 2,3-Di-O-*acetyl-1,6-anhydro-β-D-glucopyranose*
$C_{10}H_{14}O_7$ 246.216
Syrup. $[\alpha]_D^{20}$ -44.5 (c, 1.2 in $CHCl_3$).

Tri-Ac: 2,3,4-Tri-O-*acetyl-1,6-anhydro-β-D-glucopyranose*
[13242-55-2]
$C_{12}H_{16}O_8$ 288.254
Mp 109-110°. $[\alpha]_D^{25}$ -50.8 ($CHCl_3$).

Tribenzoyl: 1,6-Anhydro-2,3,4-tri-O-*benzoyl-β-D-glucopyranose*
[23567-05-7]
$C_{27}H_{22}O_8$ 474.466
Mp 202-203°. $[\alpha]_D^{20}$ -36.4 ($CHCl_3$).

2,4-Ditosyl: 1,6-Anhydro-2,4-di-O-*tosyl-β-D-glucopyranose*
[20204-80-2]
$C_{20}H_{22}O_9S_2$ 470.52
Cryst. Mp 116-118°. $[\alpha]_D$ -43 (c, 1 in $CHCl_3$).

3-Me, 2,4-dibenzoyl: 1,6-Anhydro-2,4-di-O-*benzoyl-3*-O-*methyl-β-D-glucopyranose*
$C_{21}H_{20}O_7$ 384.385
Mp 134-136°. $[\alpha]_D^{25}$ -36 ($CHCl_3$).

2,3-Di-Me: 1,6-Anhydro-2,3-di-O-*methyl-β-D-glucopyranose*
[22348-24-9]
$C_8H_{14}O_5$ 190.196
Cryst. Mp 43-45°. $[\alpha]_D^{23}$ -87 (c, 0.9 in $CHCl_3$).

3,4-Di-Me: 1,6-Anhydro-3,4-di-O-*methyl-β-D-glucopyranose*
[34213-06-4]
$C_8H_{14}O_5$ 190.196
Cryst. (Et_2O/hexane). Mp 41-43°. $[\alpha]_D^{28}$ -49.7 (c, 2.1 in Me_2CO).

Tri-Me: 1,6-Anhydro-2,3,4-tri-O-*methyl-β-D-glucopyranose*
$C_9H_{16}O_5$ 204.222
Mp 57.5-58.5°. $[\alpha]_D^{25}$ -63.7 (c, 2.0 in H_2O).

2-Benzyl: 1,6-Anhydro-2-O-*benzyl-β-D-glucopyranose*
$C_{13}H_{16}O_5$ 252.266
Mp 70-73°. $[\alpha]_D$ -67 (c, 0.4 in EtOH).

4-Benzyl: 1,6-Anhydro-4-O-*benzyl-β-D-glucopyranose*
$C_{13}H_{16}O_5$ 252.266
Mp 50-52°. $[\alpha]_D$ -41 (c, 0.7 in EtOH).

2,3-Dibenzyl: 1,6-Anhydro-2,3-di-O-*benzyl-β-D-glucopyranose*
$C_{20}H_{22}O_5$ 342.391
Syrup. $[\alpha]_D^{20}$ -54 (c, 1.6 in $CHCl_3$).

2,3-Dibenzyl, 4-Ac: 4-O-*Acetyl-1,6-anhydro-2,3-di*-O-*benzyl-β-D-glucopyranose*
$C_{22}H_{24}O_6$ 384.428
Syrup. $[\alpha]_D^{20}$ -36 (c, 1.2 in $CHCl_3$).

Tribenzyl: 1,6-Anhydro-2,3,4-tri-O-*benzyl-β-D-glucopyranose*
$C_{27}H_{28}O_5$ 432.515
Mp 89-90°. $[\alpha]_D^{25}$ -30.8 (c, 2.7 in $CHCl_3$).

β-D-Furanose-*form* *1,6-Anhydroglucofuranose. 1,6-Anhydro*-gluco-*hexofuranose*
[7425-74-3] Pyrolysis prod. from cellulose.
Sl. hygroscopic needles (butanol or EtOH). Mp 110.5-111.5°. $[\alpha]_D^{25}$ +43.3 (c, 2 in H_2O).

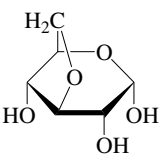
Tri-Ac: 2,3,5-Tri-O-*acetyl-1,6-anhydro-β-D-glucofuranose*
$C_{12}H_{16}O_8$ 288.254
Plates. Mp 82.5-83.5°. $[\alpha]_D^{25}$ -15.3 (c, 2 in $CHCl_3$).

Tritosyl: 1,6-Anhydro-2,3,5-tri-O-*tosyl-β-D-glucofuranose*
$C_{27}H_{28}O_{11}S_3$ 624.71
Needles. Mp 127-128°.

Tri-Me: 1,6-Anhydro-2,3,5-tri-O-*methyl-β-D-glucofuranose*
$C_9H_{16}O_5$ 204.222
Needles. Mp 51-52°. $[\alpha]_D^{25}$ +18.9 (c, 2.4 in Me_2CO).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 313C; 1059C (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 650C (*ir*)
Dimler, R.J. *et al., J.A.C.S.*, 1946, **68**, 1377 (*synth, derivs, β-fur*)
Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1961, **26**, 2542; 1968, **33**, 1143 (*β-pyr ditosyl*)
Ruckel, E.R. *et al., J.O.C.*, 1966, **31**, 2233 (*synth, β-pyr tribenzyl*)
Park, Y.J. *et al., Acta Cryst. B*, 1971, **27**, 220 (*β-D-pyr, cryst struct*)
Wollwage, P.C. *et al., J.C.S.(C)*, 1971, 3143 (*di-Me derivs*)
Paulsen, H. *et al., Carbohydr. Res.*, 1976, **49**, 27 (*cmr, β-pyr*)
Černy, M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 23 (*rev*)
Ward, D.D. *et al., Carbohydr. Res.*, 1982, **108**, 71 (*acyl derivs, bibl*)
Kloosterman, M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1985, **104**, 116 (*synth, β-pyr*)
Rao, M.V. *et al., Carbohydr. Res.*, 1987, **162**, 141 (*β-pyr tri-Ac*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **174**, 9 (*cryst struct, β-fur*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1988, **175**, 193 (*β-pyr benzyl*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **179**, 1 (*pmr, cmr, β-fur*)
Paulsen, H. *et al., Carbohydr. Res.*, 1989, **186**, 189 (*dibenzyl*)
Straathof, A.J.J. *et al., Carbohydr. Res.*, 1989, **194**, 296 (*conformn*)
Kania, O. *et al., J. Carbohydr. Chem.*, 1990, **9**, 159-165 (*2,3-di-Ac*)
Metzger, J.O. *et al., Org. Mass Spectrom.*, 1992, **27**, 508 (*ms, β-fur*)

3,6-Anhydroglucose, 9CI A-635



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

D-*form* [7625-23-2]
Mp 119°. $[\alpha]_D^{20}$ +55.4 (H_2O).

Phenylosazone: Mp 198-200° (187-188°). $[\alpha]_D^{17}$ -150 (MeOH).

4-Bromophenylhydrazone:
Yellow cryst. (Py/Et_2O). Mp 184°. $[\alpha]_D^{16}$ -18.89 → -10.86 (Py).

α-D-Pyranose-*form*

Me glycoside: Methyl 3,6-anhydro-α-D-glucopyranoside
[13407-60-8]
$C_7H_{12}O_5$ 176.169
Cryst. (EtOAc). Mp 108° Mp 116-118°. $[\alpha]_D$ +56 (c, 1.0 in H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 3,6-anhydro-β-D-glucopyranoside
[3056-46-0]
$C_7H_{12}O_5$ 176.169
Hygroscopic cryst. Mp *ca.* 50° (sealed tube). $Bp_{0.02}$ 160-170° (bath). $[\alpha]_D$ -138 (H_2O).

α-D-Furanose-*form*

1,2-O-*Isopropylidene: 3,6-Anhydro-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_9H_{14}O_5$ 202.207
Cryst. (toluene). Mp 56-57°. $[\alpha]_D^{20}$ +29.3 (c, 3.2 in H_2O).

Me glycoside: Methyl 3,6-anhydro-α-D-glucofuranoside
[17184-28-0]
$C_7H_{12}O_5$ 176.169
Cryst. (EtOH/Et_2O/petrol). Mp 70°. $[\alpha]_D$ +164 (c, 0.9 in H_2O).

Me glycoside, dibenzoyl: Methyl 3,6-anhydro-2,5-di-O-*benzoyl-α-D-glucofuranoside*
$C_{21}H_{20}O_7$ 384.385
Cryst. (EtOH). Mp 83-88°. $[\alpha]_D$ +108 (c, 1.3 in $CHCl_3$).

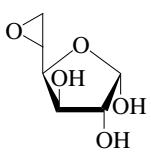
β-D-Furanose-*form*

Me glycoside: Methyl 3,6-anhydro-β-D-glucofuranoside
$C_7H_{12}O_5$ 176.169
Cryst. (EtOH/Et_2O/petrol). Mp 98°. $[\alpha]_D$ -54 (H_2O).

Me glycoside, dibenzoyl: Methyl 3,6-anhydro-2,5-di-O-*benzoyl-β-D-glucofuranoside*
$C_{21}H_{20}O_7$ 384.385
Cryst. (EtOH). Mp 97-99°. $[\alpha]_D$ +4 (c, 3.0 in $CHCl_3$).

Ohle, H. *et al., Ber.*, 1928, **61**, 1211 (*D-form, synth, α-D-fur isopropylidene*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 518
Haworth, W.N. *et al., J.C.S.*, 1941, 88 (*D-form, synth, α-D-Me pyr, β-D-Me pyr, α-D-Me fur, β-D-Me fur*)
Lewis, B.A. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 180 (*D-form, synth, derivs*)
Bukhari, M.A. *et al., Carbohydr. Res.*, 1967, **4**, 105 (*α-D-Me fur dibenzoyl, β-D-Me fur dibenzoyl*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1973, **27**, 373 (*α-D-Me pyr, cryst struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **81**, 35 (*pmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1984, **135**, 29 (*cryst struct, α-D-Me fur, β-D-Me fur*)

5,6-Anhydroglucose A-636



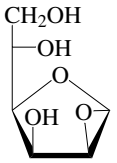
$C_6H_{10}O_5$ 162.142

α-D-Furanose-*form*

1,2-O-*Isopropylidene: 5,6-Anhydro-1,2*-O-*isopropylidene-α-D-glucofuranose*
[15354-69-5]
$C_9H_{14}O_5$ 202.207
Cryst. solid. Mp 133.5°. $[\alpha]_D$ -26.5 (c, 4.0 in H_2O).

Wiggins, L.F. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 188 (*α-D-fur isopropylidene*)
Mereyala, H.B. *et al., J. Carbohydr. Chem.*, 2000, **19**, 1211-1222 (*α-D-fur isopropylidene, pmr*)

1,2-Anhydrogulose A-637



L-*form*

$C_6H_{10}O_5$ 162.142

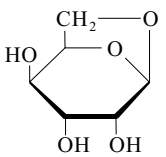
α-L-Furanose:

3,5,6-Tribenzyl: 1,2-Anhydro-3,5,6-tri-O-benzyl-α-L-gulofuranose
[180336-19-0]
$C_{27}H_{28}O_5$ 432.515
Syrup.

Ding, X. *et al., Carbohydr. Res.*, 1996, **286**, 161-166 (*α-L-fur tribenzyl*)

1,6-Anhydrogulose, 9CI, 8CI A-638

Gulosan



β–D–Pyranose–*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form* [14274-90-9]
Mp 154-155°. $[\alpha]_D^{20}$ +50.4 (c, 2.8 in H_2O).

Tri-Ac: 2,3,4-Tri-O-acetyl-1,6-anhydro-β-D-gulopyranose
[14661-13-3]
$C_{12}H_{16}O_8$ 288.254
Mp 114-115°. $[\alpha]_D^{20}$ +22.1 (c, 1.5 in $CHCl_3$).

Tribenzoyl: 1,6-Anhydro-2,3,4-tri-O-benzoyl-β-D-gulopyranose
[33297-50-6]
$C_{27}H_{22}O_8$ 474.466
Mp 158-159°. $[\alpha]_D^{20}$ +214 (c, 2.0 in $CHCl_3$).

Tritosyl: 1,6-Anhydro-2,3,4-tri-O-tosyl-β-D-gulopyranose
$C_{27}H_{28}O_{11}S_3$ 624.71
Mp 141-143°. $[\alpha]_D^{20}$ +36.8 (c, 1.3 in $CHCl_3$).

2,3-Isopropylidene: 1,6-Anhydro-2,3-O-isopropylidene-β-D-gulopyranose
$C_9H_{14}O_5$ 202.207
Mp 93°. $[\alpha]_D^{20}$ +49.8 (c, 1.0 in $CHCl_3$).

2-Benzyl: 1,6-Anhydro-2-O-benzyl-β-D-gulopyranose
$C_{13}H_{16}O_5$ 252.266
Syrup. $[\alpha]_D$ +31 (c, 0.4 in $CHCl_3$).

2-Benzyl, 3,4-di-Ac: 3,4-Di-O-acetyl-1,6-anhydro-2-O-benzyl-β-D-gulopyranose
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ +20 (c, 0.4 in $CHCl_3$).

3-Benzyl: 1,6-Anhydro-3-O-benzyl-β-D-gulopyranose
$C_{13}H_{16}O_5$ 252.266
Mp 137-137.5°. $[\alpha]_D$ +56 (c, 0.6 in $CHCl_3$).

3-Benzyl, di-Ac: 2,4-Di-O-acetyl-1,6-anhydro-3-O-benzyl-β-D-gulopyranose
$C_{17}H_{20}O_7$ 336.341
Mp 73-75°. $[\alpha]_D$ +67 (c, 0.6 in $CHCl_3$).

Tribenzyl: 1,6-Anhydro-2,3,4-tri-O-benzyl-β-D-gulopyranose
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D$ -13 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

3,5-Anhydro: 1,6:3,5-Dianhydro-α-D-gulofuranose
[71154-73-9]
$C_6H_8O_4$ 144.127
Mp 89-90°. $[\alpha]_D^{20}$ -12.7 (c, 0.4 in H_2O).

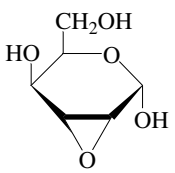
α-L-Furanose-*form* [31880-39-4]
Mp 225-230°. $[\alpha]_D^{20}$ -38.1 (c, 1.0 in H_2O).

Tri-Ac: 2,3,4-Tri-O-acetyl-1,6-anhydro-α-L-gulofuranose
[31880-40-7]
$C_{12}H_{16}O_8$ 288.254
Mp 102.5°. $[\alpha]_D^{20}$ -7.9 (c, 1.0 in $CHCl_3$).

2,3-Isopropylidene: 1,6-Anhydro-2,3-O-isopropylidene-α-L-gulofuranose
[31880-38-3]
$C_9H_{14}O_5$ 202.207
Syrup. $[\alpha]_D^{20}$ -18.4 (c, 1.0 in $CHCl_3$). V. moisture-sensitive.

Stewart, L.C. *et al., J.A.C.S.*, 1955, **77**, 1021 (*synth*)
Heyns, K. *et al., Annalen*, 1968, **718**, 224 (*pmr*)
Heyns, K. *et al., Chem. Ber.*, 1971, **104**, 830 (*synth, pmr*)
Prystas, M. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1487 (*synth*)
Paulsen, H. *et al., Carbohydr. Res.*, 1976, **49**, 27 (*cmr*)
Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2068 (*synth, cryst struct, dianhydride*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1987, **70**, 249; 1988, **175**, 193 (*benzyl derivs*)

2,3-Anhydrogulose A-639



α-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

Me glycoside, 4,6-O-benzylidene: Methyl 2,3-anhydro-4,6-O-benzylidene-α-D-gulopyranoside, 8CI
[3257-59-8]
$C_{14}H_{16}O_5$ 264.277
Mp 178-179°. $[\alpha]_D$ -7.4 ($CHCl_3$).

Me glycoside, 4,6-di-Ac: [23345-59-7]
$C_{11}H_{16}O_7$ 260.243
Syrup. $[\alpha]_D$ +31 (c, 1.0 in $CHCl_3$).

Me glycoside, 4-Ac, 6-benzyl:
$C_{16}H_{20}O_6$ 308.33
Mp 77-78°. $[\alpha]_D$ -0.8 ($CHCl_3$).

Me glycoside, 4-Ac, 6-trityl: Mp 104-105°. $[\alpha]_D$ -28 ($CHCl_3$).

Me glycoside, 6-tosyl: Methyl 2,3-anhydro-6-O-tosyl-α-D-gulopyranoside
Mp 60-62°. $[\alpha]_D$ +24.7 ($CHCl_3$).

Me glycoside, 4,6-ditosyl: Mp 150-151°. $[\alpha]_D$ +24 ($CHCl_3$).

Me glycoside, 6-benzyl: Methyl 2,3-anhydro-6-O-benzyl-α-D-gulopyranoside
$C_{14}H_{18}O_5$ 266.293
Syrup. $[\alpha]_D$ +38.1 ($CHCl_3$).

Me glycoside, 6-trityl: Methyl 2,3-anhydro-6-O-trityl-α-D-gulopyranoside
[5592-12-1]
Mp 174-175°. $[\alpha]_D$ +21.8 ($CHCl_3$).

Me glycoside, 4,6-anhydro: Methyl 2,3:4,6-dianhydro-α-D-gulopyranoside, 9CI
[70941-23-0]
$C_7H_{10}O_4$ 158.154
Cryst. (Et_2O). Mp 58-59°.

β-D-Pyranose-*form*

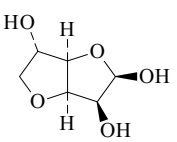
Me glycoside, 4,6-O-benzylidene: Methyl 2,3-anhydro-4,6-O-benzylidene-β-D-gulopyranoside
[52885-37-7]
$C_{14}H_{16}O_5$ 264.277
Mp 147°. $[\alpha]_D$ -119 ($CHCl_3$).

Benzyl glycoside, 4,6-O-benzylidene: Benzyl 2,3-anhydro-4,6-O-benzylidene-β-D-gulopyranoside, 8CI
[26531-97-5]
$C_{20}H_{20}O_5$ 340.375
Needles (2-propanol). Mp 151-152° subl. $[\alpha]_D^{21}$ -124 (c, 0.6 in $CHCl_3$).

1,6-Anhydro, 4-tosyl:
Syrup. $[\alpha]_D$ +26 ($CHCl_3$).

Sorkin, E. *et al., Helv. Chim. Acta*, 1945, **28**, 1 (*Me gly, 4,6-benzylidene*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1969, **11**, 379 (*benzyl glycoside*)
Buchanan, J.G. *et al., J.C.S.(B)*, 1969, 377 (*pmr*)
Ferrier, R.J. *et al., J.C.S.(C)*, 1969, 575 (*Me gly 4,6-benzylidene di-Ac*)
Williams, N.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 109 (*rev*)
Sinclair, H.B. *et al., J.O.C.*, 1979, **44**, 3361 (*synth, pmr, α-Me gly*)
Szeja, W. *et al., Carbohydr. Res.*, 1988, **183**, 135 (***synth, α-Me gly 4,6-benzylidene***)

3,6-Anhydrogulose A-640



α–L–Furanose–*form*

$C_6H_{10}O_5$ 162.142

L-Furanose-*form*
Cryst. (MeOH). Mp 102-105°. $[\alpha]_D^{20}$ +63 (c, 1.3 in MeOH).

α-L-Furanose-*form* [87638-90-2]

Tri-Ac: 1,2,5-Tri-O-acetyl-3,6-anhydro-α-L-gulofuranose
[87596-17-6]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +71.3 (c, 0.7 in $CHCl_3$).

Me glycoside: Methyl 3,6-anhydro-α-L-gulofuranoside
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{20}$ -72.8 (c, 0.6 in $CHCl_3$).

Me glycoside, di-Ac: Methyl 2,5-di-O-acetyl-3,6-anhydro-α-L-gulofuranoside
[87638-94-6]
$C_{11}H_{16}O_7$ 260.243
Syrup. $[\alpha]_D^{20}$ +8.8 (c, 1.8 in $CHCl_3$).

β-L-Furanose-*form* [87678-93-1]

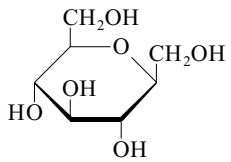
Tri-Ac: 1,2,5-Tri-O-acetyl-3,6-anhydro-β-L-gulofuranose
[87596-16-5]
$C_{12}H_{16}O_8$ 288.254
Mp 77-79°. $[\alpha]_D^{20}$ +173 (c, 1.1 in $CHCl_3$).

Me glycoside, di-Ac: Methyl 2,5-di-O-acetyl-3,6-anhydro-β-L-gulofuranoside
[87638-92-4]
$C_{11}H_{16}O_7$ 260.243
Mp 53-55°. $[\alpha]_D^{20}$ +201.8 (c, 1.8 in $CHCl_3$).

Köll, P. *et al., Annalen*, 1983, 1310; 1332 (*synth, pmr, cmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1987, **168**, 115 (*cryst struct, β-L-Me fur*)

2,6-Anhydro-D-*glycero*-D-*gulo*-heptitol A-641

[13964-83-5]

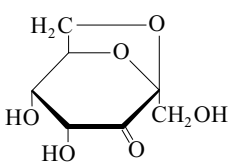


$C_7H_{14}O_6$ 194.184
Plates. Mp 203-205°. Opt. inactive (*meso*-).

Penta-Ac: [13964-14-2]
$C_{17}H_{24}O_{11}$ 404.37
Cryst. Mp 91-92° (89°).

Rosenthal, A. *et al., Carbohydr. Res.*, 1967, **3**, 112 (*synth*)
Rozynov, B.V. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1976, 1157; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1976, **25**, 1126 (*ms, penta-Ac*)

2,7-Anhydro-*ribo*-hepto-2,3-diulo-2,6-pyranose, 9CI A-642



$C_7H_{10}O_6$ 190.152

β-D-*form* [43139-62-4]
$[\alpha]_D^{20}$ -122.4 (c, 1 in H_2O).

4,5-O-exo-Benzylidene, 1-trityl: 2,7-Anhydro-4,5-O-exo-benzylidene-1-O-trityl-β-D-ribo-hepto-2,3-diulo-2,6-pyranose
[77852-72-3]
Mp 91-97°. $[\alpha]_D^{20}$ -48.6 (c, 1.1 in $CHCl_3$).

4,5-O-Isopropylidene: 2,7-Anhydro-4,5-O-isopropylidene-β-D-ribo-hepto-2,3-diulo-2,6-pyranose
[43139-51-1]
$C_{10}H_{14}O_6$ 230.217
Mp 145-146°. $[\alpha]_D^{20}$ -154.2 (c, 1 in $CHCl_3$).

4,5-O-Isopropylidene, 1-Ac: 1-O-Acetyl-2,7-anhydro-4,5-O-isopropylidene-β-D-ribo-hepto-2,3-diulo-2,6-pyranose
[43139-52-2]
$C_{12}H_{16}O_7$ 272.254
$[\alpha]_D^{20}$ -117.4 (c, 1.1 in $CHCl_3$).

4,5-O-Isopropylidene, 1-tosyl: 2,7-Anhydro-4,5-O-isopropylidene-1-O-tosyl-β-D-ribo-hepto-2,3-diulo-2,6-pyranose
[43139-53-3]
Mp 126-127°. $[\alpha]_D^{20}$ -96.2 (c, 1 in $CHCl_3$).

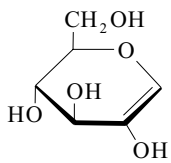
4,5-O-Isopropylidene, 1-trityl: 2,7-Anhydro-4,5-O-isopropylidene-1-O-trityl-β-D-ribo-hepto-2,3-diulo-2,6-pyranose
[43139-50-0]
Mp 155-156°. $[\alpha]_D^{20}$ -68 (c, 1 in $CHCl_3$).

4,5-O-Isopropylidene, 1-deoxy: 2,7-Anhydro-1-deoxy-4,5-O-isopropylidene-β-D-ribo-hepto-2,3-diulo-2,6-pyranose
[77852-74-5]
$C_{10}H_{14}O_5$ 214.218
Mp 142-147°. $[\alpha]_D^{20}$ -173.6 (c, 0.55 in $CHCl_3$).

Heyns, K. *et al., Chem. Ber.*, 1973, **106**, 1668; 1975, **108**, 3619; 1981, **114**, 891

1,5-Anhydro-*arabino*-hex-1-enitol, 9CI A-643

1-Deoxy-arabino-*hex-1-enopyranose, 8CI. 2-Hydroxyglucal*



$C_6H_{10}O_5$ 162.142
Unisolated enol form of 1,5-Anhydro-fructose, A-606.

D-*form* [26242-04-6]

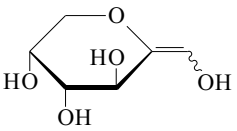
2,3,4,6-Tetra-Ac: Tetra-O-acetyl-2-hydroxy-D-glucal
[3366-47-0]
$C_{14}H_{18}O_9$ 330.291
Mp 65-66° (61-62°). $[\alpha]_D^{25}$ -32 ($CHCl_3$).

2,3,4,6-Tetrabenzoyl: Tetra-O-benzoyl-2-hydroxy-D-glucal
[14125-75-8]
$C_{34}H_{26}O_9$ 578.574
Readily accessible from D-glucose. Mp 123°. $[\alpha]_D$ -77 (c, 2.0 in $CHCl_3$).

Maurer, K. *et al., Ber.*, 1927, **60**, 1316; 1933, **66**, 995 (*D-tetra-Ac, D-tetrabenzoyl*)
Blair, M.G. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 411 (*synth*)
Lemieux, R.U. *et al., J.O.C.*, 1965, **30**, 1092 (*D-tetra-Ac, isom*)
Ferrier, R.J. *et al., J.C.S.(C)*, 1966, 2339 (*D-tetra-Ac, D-tetrabenzoyl*)
Vangehr, K. *et al., Carbohydr. Res.*, 1979, **70**, 1 (*cryst struct, D-tetra-Ac*)
Varela, O. *et al., Carbohydr. Res.*, 1987, **167**, 187 (*synth*)

2,6-Anhydro-*arabino*-hex-1-enitol A-644

1,5-Anhydro-lyxo-*hex-5-enitol*



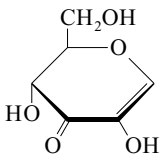
$C_6H_{10}O_5$ 162.142
Unisolated enol.

D-*form*

Tetrabenzoyl: 2,6-Anhydro-1,3,4,5-tetra-O-benzoyl-D-arabino-hex-1-enitol. 1,5-Anhydro-1,3,4,5-tetra-O-benzoyl-D-lyxo-hex-5-enitol
$C_{34}H_{26}O_9$ 578.574
Foam. $[\alpha]_D^{20}$ -39.7 (c, 0.9 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Modern Synthetic Methods*, 1992, **6**, 273

1,5-Anhydro-*erythro*-hex-1-en-3-ulose A-645



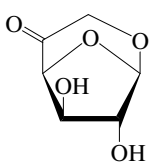
$C_6H_8O_5$ 160.126
Unisolated enol.

D-Pyranose-*form*

Tribenzoyl: 1,5-Anhydro-2,4,6-tri-O-benzoyl-D-erythro-hex-1-en-3-ulose
[72076-13-2]
$C_{27}H_{20}O_8$ 472.45
Cryst. (EtOAc). Mp 162-163°. $[\alpha]_D^{20}$ +229 (c, 0.6 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Annalen*, 1989, 1163 (*synth, pmr, cmr*)

1,6-Anhydro-*xylo*-hexofuranos-5-ulose A-646



β-D-*form*

$C_6H_8O_5$ 160.126
Erroneously called 4-ulose in the 1996 ref.

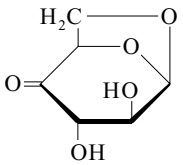
β-D-*form*

Dibenzyl: 1,6-Anhydro-2,3-di-O-benzyl-β-D-xylo-hexofuranos-5-ulose
[81936-96-1]
$C_{20}H_{20}O_5$ 340.375
Syrup. $[\alpha]_D$ +13.4 (c, 0.19 in $CHCl_3$).

3-Benzyl, 2-Ac: 2-O-Acetyl-1,6-anhydro-3-O-benzyl-β-D-xylo-hexofuranos-5-ulose
[81936-95-0]
$C_{15}H_{16}O_6$ 292.288
Cryst. (Et_2O). Mp 55°. $[\alpha]_D^{20}$ -2.5 (c, 1.7 in $CHCl_3$).

*3-Benzyl, 2-tosyl: 1,6-Anhydro-3-*O*-benzyl-2-*O*-tosyl-β-D-*xylo*-hexofuranos-5-ulose*
[81936-97-2]
$C_{20}H_{20}O_7S$ 404.44
Cryst. (Et_2O/pentane). Mp 56°. $[\alpha]_D^{20}$ -31.8 (c, 0.8 in $CHCl_3$).
Köll, P. *et al., Annalen*, 1982, 613 (*synth, pmr*)
Caron, S. *et al., Carbohydr. Res.*, 1996, **281**, 179 (*synth, ir, pmr, cmr*)

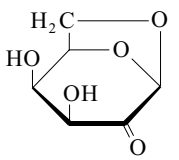
1,6-Anhydro-*arabino*-hexopyranos-4-ulose A-647



$C_6H_8O_5$ 160.126

β-D-*form* [17073-97-1]
Mp 177-178°. $[\alpha]_D^{20}$ -125 (c, 0.4 in H_2O).
Horton, D. *et al., Carbohydr. Res.*, 1966, **2**, 260
Heyns, K. *et al., Chem. Ber.*, 1967, **108**, 3645; 3652; 1981, **114**, 891
Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1192

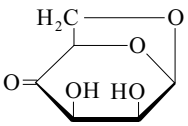
1,6-Anhydro-*lyxo*-hexopyranos-2-ulose A-648



$C_6H_8O_5$ 160.126

β-D-*form* [17073-98-2]
Syrup. $[\alpha]_D^{20}$ -46 (c, 0.5 in H_2O).
*3,4-*O*-Isopropylidene: 1,6-Anhydro-3,4-*O*-isopropylidene-β-D-*lyxo*-hexopyranos-2-ulose*
[17073-94-8]
$C_9H_{12}O_5$ 200.191
Cryst. (CCl_4/petrol). Mp 96-97° (92-93°). $[\alpha]_D^{20}$ -110 (c, 0.5 in $CHCl_3$).
*3,4-*O*-Isopropylidene, oxime:* [20784-58-1]
$C_9H_{13}NO_5$ 215.205
Cryst. ($CHCl_3$/petrol). Mp 139-140°. $[\alpha]_D^{20}$ -29 (c, 1.0 in $CHCl_3$).
*3,4-*O-exo-*Benzylidene: 1,6-Anhydro-3,4-*O-exo-*benzylidene-β-D-*lyxo*-hexopyranos-2-ulose*
[77852-54-1]
$C_{13}H_{12}O_5$ 248.235
Mp 65-76°. $[\alpha]_D^{20}$ -51.6 (c, 0.5 in $CHCl_3$).
*3,4-Anhydro: 1,6:3,4-Dianhydro-β-D-*lyxo*-hexopyranos-2-ulose, 9CI*
[58238-41-8]
$C_6H_6O_4$ 142.111
Cryst. (EtOAc). Mp 110-112° (hydrate). $[\alpha]_D^{20}$ -41 (c, 1.0 in $CHCl_3$).
Horton, D. *et al., Carbohydr. Res.*, 1967, **5**, 149 (*β-D-isopropylidene*)
Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2317 (*β-D-form, synth, β-D-isopropylidene*)
Chatterjee, A.K. *et al., Carbohydr. Res.*, 1968, **7**, 173 (*β-D-isopropylidene oxime*)
Heyns, K. *et al., Chem. Ber.*, 1975, **108**, 3645 (*β-D-anhydro*)
Heyns, K. *et al., Chem. Ber.*, 1981, **114**, 891 (*β-D-benzylidene*)

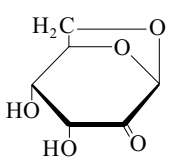
1,6-Anhydro-*lyxo*-hexopyranos-4-ulose A-649



$C_6H_8O_5$ 160.126

β-D-*form* [17073-99-3]
$[\alpha]_D^{20}$ -104 (c, 0.5 in H_2O).
*2,3-*O*-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-β-D-*lyxo*-hexopyranos-4-ulose, 8CI*
[14440-50-7]
$C_9H_{12}O_5$ 200.191
Mp 82-83°. $[\alpha]_D^{20}$ -76 (c, 1 in $CHCl_3$).
*2,3-Benzylidene (*S-*): 1,6-Anhydro-2,3-*O*-benzylidene-β-D-*lyxo*-hexopyranos-4-ulose*
[136758-02-6]
$C_{13}H_{12}O_5$ 248.235
Cryst. (CH_2Cl_2/hexane). Mp 233° dec. Cryst. contd. a mixture of anhydrous compd. and monohydrate.
*2,3-Anhydro: 1,6:2,3-Dianhydro-β-D-*lyxo*-hexopyranos-4-ulose, 9CI*
[58238-38-3]
$C_6H_6O_4$ 142.111
Mp 63° Mp 102° (hydrate). $[\alpha]_D^{20}$ -70.8 (c, 1 in H_2O) (hydrate).
*3-Deoxy: 1,6-Anhydro-3-deoxy-β-D-*threo*-hexopyranos-4-ulose*
$C_6H_8O_4$ 144.127
$[\alpha]_D^{20}$ -48.5 (c, 1 in $CHCl_3$).
2,3-Dideoxy: See 1,6-Anhydro-*ribo*-hexopyranos-4-ulose, A-651
Horton, D. *et al., Carbohydr. Res.*, 1966, **2**, 251 (*β-D-isopropylidene*)
Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2317 (*β-D-form, synth, β-D-isopropylidene*)
Heyns, K. *et al., Chem. Ber.*, 1975, **108**, 3645; 3652 (*β-D-anhydro, β-D-deoxy*)
Broxterman, H.J.G. *et al., J. Carbohydr. Chem.*, 1991, **10**, 287-307 (*2,3-benzylidene*)

1,6-Anhydro-*ribo*-hexopyranos-2-ulose A-650

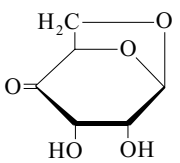


$C_6H_8O_5$ 160.126

β-D-*form*
Isol. as a dimer.
Dimer:
$C_{12}H_{16}O_{10}$ 320.252
Mp 155-178°. $[\alpha]_D$ +101.3 (c, 1 in DMSO).

*3,4-*O-endo-*Benzylidene: 1,6-Anhydro-3,4-*O-endo-*benzylidene-β-D-*ribo*-hexopyranos-2-ulose*
[77852-60-9]
$C_{13}H_{12}O_5$ 248.235
Mp 129-133°. $[\alpha]_D^{20}$ -102.6 (c, 1 in $CHCl_3$).
*3,4-*O-exo-*Benzylidene: 1,6-Anhydro-3,4-*O-exo-*benzylidene-β-D-*ribo*-hexopyranos-2-ulose*
[77852-61-0]
$C_{13}H_{12}O_5$ 248.235
Mp 108-112°. $[\alpha]_D^{20}$ -83.2 (c, 1 in $CHCl_3$).
*3,4-*O*-Isopropylidene: 1,6-Anhydro-3,4-*O*-isopropylidene-β-D-*ribo*-hexopyranos-2-ulose*
[41092-27-7]
$C_9H_{12}O_5$ 200.191
$[\alpha]_D^{20}$ -173.2 (c, 1 in $CHCl_3$).
*3,4-Anhydro: 1,6:3,4-Dianhydro-β-D-*ribo*-hexopyranos-2-ulose, 9CI*
[58238-40-7]
$C_6H_6O_4$ 142.111
Mp 79°. $[\alpha]_D^{20}$ -147.4 (c, 1.0 in $CHCl_3$).
Heyns, K. *et al., Chem. Ber.*, 1973, **106**, 611; 1975, **108**, 3645; 1981, **114**, 891

1,6-Anhydro-*ribo*-hexopyranos-4-ulose A-651

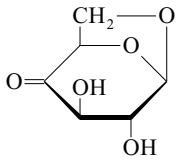


$C_6H_8O_5$ 160.126

β-D-*form* [17073-91-5]
$[\alpha]_D^{20}$ -18 (c, 0.5 in H_2O).
*2,3-*O*-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-β-D-*ribo*-hexopyranos-4-ulose*
[41092-34-6]
$C_9H_{12}O_5$ 200.191
$[\alpha]_D^{20}$ -8 (c, 1 in H_2O).
*2,3-*O-exo-*Benzylidene: 1,6-Anhydro-2,3-*O-*benzylidene-β-D-*ribo*-hexopyranos-4-ulose*
$C_{13}H_{12}O_5$ 248.235
Mp 78-82°. $[\alpha]_D^{20}$ 0 (c, 0.5 in H_2O).
*2,3-Anhydro: 1,6:2,3-Dianhydro-β-D-*ribo*-hexopyranos-4-ulose, 9CI*
[58238-39-4]
$C_6H_6O_4$ 142.111
Mp 65-66°. $[\alpha]_D^{20}$ -4.5 (c, 1.0 in dioxan).
*3-Deoxy: 1,6-Anhydro-3-deoxy-β-D-*erythro*-hexopyranos-4-ulose*
$C_6H_8O_4$ 144.127
Cryst. ($CHCl_3$/petrol). Mp 69-71°. $[\alpha]_D^{20}$ -247 (c, 1 in $CHCl_3$).
*2,3-Dideoxy: 1,6-Anhydro-2,3-dideoxy-β-D-*glycero*-hexopyranos-4-ulose*
$C_6H_8O_3$ 128.127
Bp_{16} 89°. $[\alpha]_D^{25}$ -83 (c, 1 in $CHCl_3$).
Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2317; 1975, **106**, 611; **108**, 3645; 3652; 1981, **114**, 891 (*β-D-form, β-D-benzylidene, β-D-isopropylidene, β-D-anhydro, β-D-deoxy*)

Pecka, J. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 1192 (*β-D-dideoxy*)

1,6-Anhydro-*xylo*-hexopyranos-4-ulose A-652



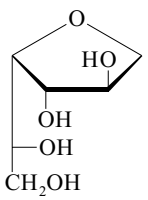
$C_6H_8O_5$ 160.126

β-D-*form*

Dibenzyl: 1,6-Anhydro-2,3-di-O-*benzyl-β-D*-xylo-*hexopyranos-4-ulose*
[138709-45-2]
$C_{20}H_{20}O_5$ 340.375
Cryst. (EtOAc/hexane). Mp 69-70°.
Caron, S. *et al., J.O.C.*, 1995, **60**, 2780 (*synth, dibenzyl, ir, pmr, ms*)
Caron, S. *et al., Carbohydr. Res.*, 1996, **281**, 179 (***synth, dibenzyl***)

1,4-Anhydroiditol A-653

3,6-Anhydroiditol



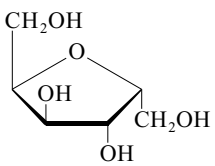
$C_6H_{12}O_5$ 164.158
A23.

D-*form* [161168-88-3]
Cryst. (2-propanol). Mp 96.5-98°. $[\alpha]_D^{20}$ +18.2 (c, 1.9 in H_2O).

[22554-77-4]

Barker, R. *et al., J.O.C.*, 1964, **29**, 869 (*synth*)
Lundt, I. *et al., Tetrahedron*, 1994, **50**, 13285 (*synth, cmr*)

2,5-Anhydroiditol A-654



D–*form*

$C_6H_{12}O_5$ 164.158
Shows twofold rotational symmetry.

D-*form* [51607-79-5]
Cryst. (EtOH/Et_2O). Mp 115-115.5°. $[\alpha]_D^{24}$ -12.9 (c, 2.77 in H_2O).

1,6-Dibenzoyl: 2,5-Anhydro-1,6-di-O-*benzoyl-D-iditol*
[91383-05-0]
$C_{20}H_{20}O_7$ 372.374
Cryst. (Et_2O/pentane). Mp 120-122° (after exhaustive drying). $[\alpha]_D^{24}$ +48.2 (c, 2.97 in MeOH).

3-O-*Benzyl:*
$C_{13}H_{18}O_5$ 254.282
Oil. $[\alpha]_D^{20}$ -25.2 (c, 0.52 in EtOH).

L-*form* [28218-55-5]
Prisms (EtOH/Et_2O). Mp 117-118°. $[\alpha]_D$ +9 (+6.5) (H_2O).

Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2,5-anhydro-L-iditol*
$C_{14}H_{20}O_9$ 332.307
Syrup. $[\alpha]_D^{20}$ -16.8 (c, 3.5 in $CHCl_3$).

1-Tosyl: 2,5-Anhydro-1-O-*tosyl-L-iditol. 2,5-Anhydro-6*-O-*tosyl-D-iditol*
[32445-71-9]
$C_{13}H_{18}O_7S$ 318.347
Cryst. Mp 143-144°. $[\alpha]_D^{24}$ +3.7 (c, 1 in Py).

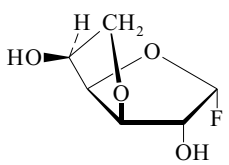
1,6-Ditosyl: 2,5-Anhydro-1,6-di-O-*tosyl-L-iditol*
[32445-72-0]
$C_{20}H_{24}O_9S_2$ 472.536
Cryst. (EtOH aq.). Mp 151°. $[\alpha]_D^{25}$ -9 (c, 1 in Py).

1,3:4,6-Diisopropylidene: 2,5-Anhydro-1,3:4,6-di-O-*isopropylidene-L-iditol*
[80599-64-0]
$C_{12}H_{20}O_5$ 244.287
Cryst. (hexane). Mp 130-131°. $[\alpha]_D$ +20.3 (c, 0.4 in $CHCl_3$).

1,3:4,6-Dibenzylidene: 2,5-Anhydro-1,3:4,6-di-O-*benzylidene-L-iditol*
$C_{20}H_{20}O_5$ 340.375
Cryst. (MeOH/$CHCl_3$). Mp 147-148°. $[\alpha]_D^{20}$ +32.3 (c, 2.0 in $CHCl_3$).

Vargha, L. *et al., Ber.*, 1935, **68**, 1377 (*L-tosyl*)
Vargha, L. *et al., J.A.C.S.*, 1948, **70**, 261 (*L-form*)
Vargha, L. *et al., Chem. Ber.*, 1960, **93**, 1608 (*dibenzylidene*)
Defaye, J. *et al., Carbohydr. Res.*, 1971, **17**, 57 (*L-tosyl*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 441 (*tetra-Ac, synth, pmr*)
Otero, D.A. *et al., Carbohydr. Res.*, 1984, **128**, 79 (*D-form*)
Köll, P. *et al., Carbohydr. Res.*, 1986, **147**, 169 (*cryst struct*)
Rafka, R.J. *et al., Carbohydr. Res.*, 1994, **260**, 155 (***synth***)
Bichard, C.J.F. *et al., J.C.S. Perkin 1*, 1996, 2151 (*synth, pmr, cmr*)
Cassel, S. *et al., Eur. J. Org. Chem.*, 2001, 875-896 (*L-form, synth, pmr, diisopropylidene*)

3,6-Anhydroidofuranosyl fluoride A-655



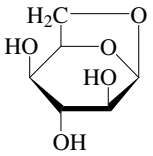
$C_6H_9FO_4$ 164.133

β-L-*form*

5-Benzoyl, 2-Ac: 2-O-*Acetyl-3,6-anhydro-5*-O-*benzoyl-β-L-idofuranosyl fluoride*
[29332-81-8]
$C_{15}H_{15}FO_6$ 310.278
Syrup.
Hall, L.D. *et al., Can. J. Chem.*, 1970, **48**, 2439 (*benzoyl Ac, pmr, F-19 nmr*)

1,6-Anhydroidose A-656

Idosan



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form* [10339-42-1]
Mp 124-126°.

3,4-Di-Ac: 3,4-Di-O-*acetyl-1,6-anhydro-β-D-idopyranose*
[58699-77-7]
$C_{10}H_{14}O_7$ 246.216
Cryst. (Et_2O). Mp 79-83°. $[\alpha]_D^{20}$ -48.9 (c, 1.075 in $CHCl_3$).

Tri-Ac: 2,3,4-Tri-O-*acetyl-1,6-anhydro-β-D-idopyranose*
[14661-14-4]
$C_{12}H_{16}O_8$ 288.254
Mp 70-70.5° (66-67°). $[\alpha]_D^{20}$ -75.7 (c, 1 in $CHCl_3$).

2-Benzyl, di-Ac: 3,4-Di-O-*acetyl-1,6-anhydro-2*-O-*benzyl-β-D-idopyranose*
[116731-07-8]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -20 (c, 0.5 in $CHCl_3$).

3-Benzyl: 1,6-Anhydro-3-O-*benzyl-β-D-idopyranose*
[116731-03-4]
$C_{13}H_{16}O_5$ 252.266
Mp 157-158°. $[\alpha]_D$ -36 (c, 0.5 in $CHCl_3$).

3-Benzyl, di-Ac: 2,4-Di-O-*acetyl-1,6-anhydro-3*-O-*benzyl-β-D-idopyranose*
[116731-05-6]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -35 (c, 1.2 in $CHCl_3$).

4-Benzyl, di-Ac: 2,3-Di-O-*acetyl-1,6-anhydro-4*-O-*benzyl-β-D-idopyranose*
[116731-06-7]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -67 (c, 0.4 in $CHCl_3$).

Tribenzyl: 1,6-Anhydro-2,3,4-tri-O-*benzyl-β-D-idopyranose*
[110567-00-5]
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D^{25}$ -30 (c, 0.5 in $CHCl_3$).

L-Pyranose-*form* [60619-47-8]

3-Me: 1,6-Anhydro-3-O-*methyl-L-idopyranose*
$C_7H_{12}O_5$ 176.169
Plates (Me_2CO/Et_2O). Mp 110-111°. $[\alpha]_D^{18}$ +108 (c, 0.84 in Me_2CO).

2,3,4-Tri-Me: 1,6-Anhydro-2,3,4-tri-O-*methyl-β-L-idopyranose*
$C_9H_{16}O_5$ 204.222
Prisms (Et_2O/pentane). Mp 39-40°. $[\alpha]_D^{14}$ +88 (c, 1.0 in $CHCl_3$).

α-L-Furanose-*form* *1,6-Anhydro-α-L-idofuranose*
[81969-64-4]
Needles (AcOH). Mp 111°. $[\alpha]_D^{20}$ +13.5 (c, 1.4 in H_2O).

Tri-Ac: 2,3,5-Tri-O-*acetyl-1,6-anhydro-α-L-idofuranose*
[81937-00-0]

$C_{12}H_{16}O_8$ 288.254
Cryst. (EtOH). Mp 107.5-108°. $[\alpha]_D^{20}$ +20.8 (c, 1.2 in $CHCl_3$).

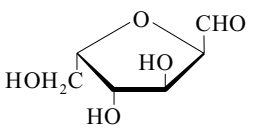
*2-Tosyl, 5-Ac: 5-*O*-Acetyl-1,6-anhydro-2-*O*-tosyl-α-L-idofuranose*
[81937-04-4]
$C_{15}H_{18}O_8S$ 358.368
Cryst. (EtOAc/petrol). Mp 158-159°. $[\alpha]_D^{20}$ -72.5 (c, 1 in $CHCl_3$).

*3-Benzyl, 2-tosyl: 1,6-Anhydro-3-*O*-benzyl-2-*O*-tosyl-α-L-idofuranose*
[81937-02-2]
$C_{20}H_{22}O_7S$ 406.456
Cryst. (AcOH/EtOAc). Mp 109.5-111°. $[\alpha]_D$ -48.2 (c, 1.1 in $CHCl_3$).

*2,3-Dibenzyl: 1,6-Anhydro-2,3-di-*O*-benzyl-α-L-idofuranose*
[81937-01-1]
$C_{20}H_{22}O_5$ 342.391
Syrup. $[\alpha]_D^{20}$ +23.7 (c, 1.1 in $CHCl_3$).

Shorygina, N.N. *et al., Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1961, **140**, 617; *CA*, **56**, 7411d (*D-form, synth*)
Baggett, N. *et al., J.O.C.*, 1963, **28**, 1041; 1845 (*L-form derivs, synth*)
Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 597 (*synth, pmr, di-Ac, tri-Ac*)
Köll, P. *et al., Annalen*, 1982, 613 (*synth, pmr, α-L-fur derivs*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1987, **170**, 249; 1988, **175**, 193 (*benzyl derivs*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **174**, 9; **179**, 1 (*cryst struct, pmr, cmr, α-L-fur*)

2,5-Anhydroidose A-657



$C_6H_{10}O_5$ 162.142

L-*form*
Isol. from baker's yeast (*Saccharomyces cerevisiae*).
Amorph. $[\alpha]_D^{25}$ +11 (c, 1.6 in H_2O).

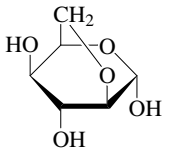
*Di-Me acetal, 6-tosyl: 2,5-Anhydro-6-*O*-tosyl-L-idose dimethyl acetal*
$C_{15}H_{22}O_8S$ 362.4
Syrup. $[\alpha]_D^{24}$ +4.3 (c, 1.0 in $CHCl_3$).

*3,6-Ditosyl, di-Me dithioacetal: 2,5-Anhydro-3,6-di-*O*-tosyl-L-idose dimethyl dithioacetal*
$C_{22}H_{28}O_8S_4$ 548.722
Cryst. Mp 133-135° dec. $[\alpha]_D^{25}$ +28 (c, 0.8 in $CHCl_3$).

*3-Benzyl, 6-tosyl, di-Me dithioacetal: 2,5-Anhydro-3-*O*-benzyl-6-*O*-tosyl-L-idose dithioacetal*
[32445-68-4]
$C_{22}H_{28}O_6S_3$ 484.658
$[\alpha]_D^{32}$ +20 (c, 1.1 in $CHCl_3$).

Dekker, C.A. *et al., Arch. Biochem. Biophys.*, 1958, **78**, 348 (*synth*)
Defaye, J. *et al., C. R. Hebd. Seances Acad. Sci.*, 1959, **249**, 192
Defaye, J. *et al., Carbohydr. Res.*, 1971, **17**, 57 (*tosyl di-Me dithioacetal*)
Ogawa, T. *et al., Agric. Biol. Chem.*, 1972, **36**, 1449 (*synth, pmr*)

2,6-Anhydroidose A-658



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

D-Pyranose-*form*
*3,4-Di-Ac: 3,4-Di-*O*-acetyl-2,6-anhydro-D-idopyranose*
$C_{10}H_{14}O_7$ 246.216
Mp 79-83°. $[\alpha]_D^{20}$ -48.9 (c, 1.075 in $CHCl_3$). Anomeric config. not detd. Crystallised from a mixt. of anomers.

*Tri-Ac: 1,3,4-Tri-*O*-acetyl-2,6-anhydro-D-idopyranose*
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ -68.8 (c, 0.88 in $CHCl_3$). Comprises 30% α- and 70% β-anomer.

α-D-Pyranose-*form*
Me glycoside: Methyl 2,6-anhydro-α-D-idopyranoside
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{20}$ +74.7 (c, 1.1 in MeOH).

*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2,6-anhydro-α-D-idopyranoside*
[71110-12-8]
$C_{11}H_{16}O_7$ 260.243
Syrup. $[\alpha]_D^{20}$ +37.1 (c, 0.7 in $CHCl_3$).

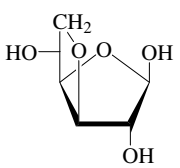
β-D-Pyranose-*form*
Me glycoside: Methyl 2,6-anhydro-β-D-idopyranoside
[71110-10-6]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{20}$ -17 (c, 1.6 in MeOH).

*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2,6-anhydro-β-D-idopyranoside*
[71110-13-9]
$C_{11}H_{16}O_7$ 260.243
Cryst. (Et_2O/hexane). Mp 44-45°. $[\alpha]_D^{20}$ -18.6 (c, 1.9 in $CHCl_3$).

[58699-71-1, 58699-72-2, 58699-73-3, 58699-74-4]

Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 597 (*synth, pmr*)
Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2305 (*glycosides, synth, pmr*)

3,6-Anhydroidose A-659



α-L-Furanose-*form*

$C_6H_{10}O_5$ 162.142

L-Furanose-*form*
Mp 102-105°. $[\alpha]_D^{20}$ +25.4 (c, 3.5 in $CHCl_3$). Mixt. of anomers.

*Tri-Ac: 1,2,5-Tri-*O*-acetyl-3,6-anhydro-L-idofuranose*
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +112.6 (c, 0.9 in $CHCl_3$). 85:15 Mixt. of α- and β-anomers.

α-L-Furanose-*form*
Me glycoside: Methyl 3,6-anhydro-α-L-idofuranoside
[87638-83-3]
$C_7H_{12}O_5$ 176.169
Mp 75-76°. $[\alpha]_D^{20}$ -73.6 (c, 1.6 in $CHCl_3$).

*Me glycoside, di-Ac: Methyl 2,5-di-*O*-acetyl-3,6-anhydro-α-L-idofuranoside*
[87638-86-6]
$C_{11}H_{16}O_7$ 260.243
Syrup. $[\alpha]_D^{20}$ +34.4 (c, 2.5 in $CHCl_3$).

β-L-Furanose-*form*
*1,2-Isopropylidene: 3,6-Anhydro-1,2-*O*-isopropylidene-β-L-idofuranose*
[3257-63-4]
$C_9H_{14}O_5$ 202.207
Cryst. (C_6H_6). Mp 105-107°. $[\alpha]_D^{18}$ +28.2 (c, 0.90 in H_2O).

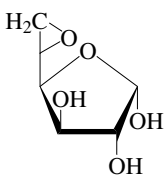
Me glycoside: Methyl 3,6-anhydro-β-L-idofuranoside
[87638-82-2]
$C_7H_{12}O_5$ 176.169
Mp 107-108°. $[\alpha]_D^{20}$ +173.5 (c, 1 in $CHCl_3$).

*Me glycoside, di-Ac: Methyl 2,5-di-*O*-acetyl-3,6-anhydro-β-L-idofuranoside*
[87638-84-4]
$C_{11}H_{16}O_7$ 260.243
Cryst. (Et_2O). Mp 56-57°. $[\alpha]_D^{20}$ +236 (c, 1 in $CHCl_3$).

[71110-18-4, 71110-19-5]

Buchanan, J.G. *et al., J.C.S.*, 1965, 201 (*isopropylidene, synth*)
Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2305 (*tri-Ac, synth, pmr, cmr*)
Köll, P. *et al., Annalen*, 1983, 1310 (*synth, pmr, cmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1984, **135**, 29 (*cryst struct, α-L-Me fur*)

5,6-Anhydroidose A-660



$C_6H_{10}O_5$ 162.142

β-L-Furanose-*form*
*1,2-*O*-Isopropylidene: 5,6-Anhydro-1,2-*O*-isopropylidene-β-L-idofuranose*
[4118-60-9]
$C_9H_{14}O_5$ 202.207
Cryst. Mp 73-75°. $[\alpha]_D^{12}$ -25.2 (c, 2.3 in $CHCl_3$).

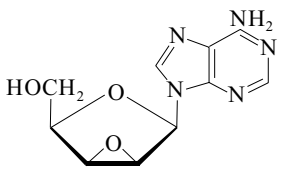
*1,2-*O*-Isopropylidene, 3-mesyl: 5,6-Anhydro-1,2-*O*-isopropylidene-3-*O*-mesyl-β-L-idofuranose*
[19286-05-6]
$C_{10}H_{16}O_7S$ 280.298
Cryst. (EtOH). Mp 96-98°. $[\alpha]_D$ -7.4 (c, 1 in $CHCl_3$). $[\alpha]_D$ -16 (c, 1 in CH_2Cl_2).

1,2-O-Isopropylidene, 3-tosyl: 5,6-Anhydro-1,2-O-isopropylidene-3-O-tosyl-β-L-idofuranose
[34885-60-4]
$C_{16}H_{20}O_7S$ 356.396
Oil. $[\alpha]_D^{27}$ +81 (c, 0.1 in $CHCl_3$).

3-Benzyl, 1,2-O-isopropylidene: 5,6-Anhydro-3-O-benzyl-1,2-O-isopropylidene-β-L-idofuranose, 8CI
[23302-40-1]
$C_{16}H_{20}O_5$ 292.331
Syrup. $Bp_{0.03}$ 137-139°. $[\alpha]_D^{20}$ -78.7 (c, 6.4 in $CHCl_3$).

Meyer, A.S. *et al., Helv. Chim. Acta*, 1946, **29**, 152-162 (*β-L-isopropylidene, β-L-isopropylidene benzyl*)
Kovář, J.S. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 549 (*β-L-isopropylidene mesyl*)
Miljković, M. *et al., J.O.C.*, 1972, **37**, 2536 (*β-L-isopropylidene tosyl*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 286 (*β-L-isopropylidene benzyl*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1977, **57**, 317 (*β-L-isopropylidene mesyl*)

9-(2,3-Anhydrolyxofuranosyl)adenine A-661



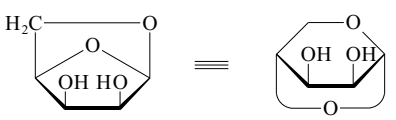
$C_{10}H_{11}N_5O_3$ 249.229

β-D-*form* [40110-98-3]
Mp 208-210° dec. $[\alpha]_D^{25}$ -17.5 (c, 0.2 in H_2O).

Robbins, M.J. *et al., J.O.C.*, 1974, **39**, 1564
Mengel, R. *et al., Angew. Chem., Int. Ed.*, 1978, **17**, 679

1,4-Anhydrolyxopyranose A-662

1,5-Anhydrolyxofuranose



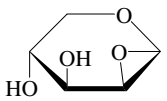
$C_5H_8O_4$ 132.116

D-*form* [51246-93-6]
Mp 101-103° (sealed tube). $[\alpha]_D^{20}$ -113.4 (c, 0.5 in H_2O).

Isopropylidene: 1,5-Anhydro-2,3-O-isopropylidene-β-D-lyxofuranose. 1,4-Anhydro-2,3-O-isopropylidene-α-D-lyxopyranose
[20689-06-9]
$C_8H_{12}O_4$ 172.18
Cryst. (hexane). Mp 69°. $[\alpha]_D^{21}$ -102 (c, 0.5 in Me_2CO).

Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 2701 (*β-D-isopropylidene, pmr*)
Köll, P. *et al., Chem. Ber.*, 1973, **106**, 3565 (*β-D-form*)
Ohrui, H. *et al., Agric. Biol. Chem.*, 1987, **51**, 81 (*β-D-isopropylidene, pmr*)

1,2-Anhydrolyxose A-663



β-D-Pyranose-*form*

$C_5H_8O_4$ 132.116

β-D-Pyranose-*form*

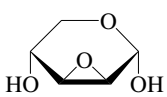
3,4-Dibenzyl: 1,2-Anhydro-3,4-di-O-benzyl-β-D-lyxopyranose
[149625-92-3]
$C_{19}H_{20}O_4$ 312.365
No phys. props. reported.

β-D-Furanose-*form*

3-Benzyl, 5-Ac: 5-O-Acetyl-1,2-anhydro-3-O-benzyl-β-D-lyxofuranose
[213313-51-0]
$C_{14}H_{16}O_5$ 264.277
$[\alpha]_D$ -8.6 (c, 2.4 in $CHCl_3$).

Yang, G. *et al., Carbohydr. Lett.*, 1994, **1**, 137-141 (*3,4-dibenzyl*)
Ning, J. *et al., Carbohydr. Res.*, 2001, **330**, 165-175 (*β-D-fur 3-benzyl 5-Ac*)

2,3-Anhydrolyxose A-664



α-D-Pyranose-*form*

$C_5H_8O_4$ 132.116

α-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-α-D-lyxopyranoside
[14621-31-9]
$C_6H_{10}O_4$ 146.143
Cryst. (EtOAc/petrol). Mp 62°. $[\alpha]_D$ +111 (c, 0.9 in H_2O).

α-D-Furanose-*form*

5-Benzoyl: 2,3-Anhydro-5-O-benzoyl-α-D-lyxofuranose
[636558-64-0]
$C_{12}H_{12}O_5$ 236.224
Solid.

Me glycoside: Methyl 2,3-anhydro-α-D-lyxofuranoside, 9CI, 8CI
[26532-10-5]
$C_6H_{10}O_4$ 146.143
Cryst. (C_6H_6). Mp 80-82°. $[\alpha]_D^{26}$ +67 (c, 2.0 in H_2O). $[\alpha]_D$ +57 (H_2O).

Me glycoside, 5-Ac: Methyl 5-O-acetyl-2,3-anhydro-α-D-lyxofuranoside
[13051-96-2]
$C_8H_{12}O_5$ 188.18
Needles (EtOH). Mp 73-75°. $[\alpha]_D$ +64 (c, 1.8 in $CHCl_3$).

Me glycoside, 5-benzoyl: Methyl 2,3-anhydro-5-O-benzoyl-α-D-lyxofuranoside
[26532-11-6]
$C_{13}H_{14}O_5$ 250.251
Cryst. (EtOH). Mp 88-90°. $[\alpha]_D^{25}$ +42.6 (c, 2.3 in $CHCl_3$).

*Me glycoside, 5-*p*-nitrobenzoyl:* [17230-06-7]
Cryst. (EtOH). Mp 126.5-127.5°. $[\alpha]_D^{24}$ +33 ($CHCl_3$).

Me glycoside, 5-tosyl: Methyl 2,3-anhydro-5-O-tosyl-α-D-lyxofuranoside
[66108-03-0]
$C_{13}H_{16}O_6S$ 300.332
Mp 80-81°. $[\alpha]_D$ +24.5 ($CHCl_3$).

Me glycoside, 5-Me: Methyl 2,3-anhydro-5-O-methyl-α-D-lyxofuranoside
$C_7H_{12}O_4$ 160.169
Mp 43°. $[\alpha]_D^{18}$ +60 (c, 4.5 in MeOH).

Me glycoside, 5-benzyl: Methyl 2,3-anhydro-5-O-benzyl-α-D-lyxofuranoside, 8CI
[14645-49-9]
$C_{13}H_{16}O_4$ 236.267
Syrup. $[\alpha]_D$ +23.4 (c, 1.0 in $CHCl_3$).

Me glycoside, 5-trityl: Methyl 2,3-anhydro-5-O-trityl-α-D-lyxofuranoside
[142890-37-7]
$C_{25}H_{24}O_4$ 388.462
Cryst. (EtOH). Mp 98-100°. $[\alpha]_D^{20}$ +3.2 (c, 1 in $CHCl_3$).

Et glycoside: Ethyl 2,3-anhydro-α-D-lyxofuranoside
$C_7H_{12}O_4$ 160.169
Mp 58-59°. $[\alpha]_D^{29}$ +40.3 (c, 2.1 in H_2O).

Et glycoside, 5-Ac: Ethyl 5-O-acetyl-2,3-anhydro-α-D-lyxofuranoside
$C_9H_{14}O_5$ 202.207
$Bp_{0.0001}$ 75-85° (bath). $[\alpha]_D^{28}$ +44 (c, 6.2 in $CHCl_3$).

Et glycoside, 5-tetrahydropyranyl: $Bp_{0.0005}$ 110-120° (bath). $[\alpha]_D^{29}$ +21 (c, 4.2 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside: Methyl 2,3-anhydro-β-D-lyxofuranoside, 9CI
[43168-73-6]
$C_6H_{10}O_4$ 146.143
Hygroscopic cryst. (Et_2O). Mp 74-75°. $[\alpha]_D^{25}$ -102 (c, 2.0 in H_2O).

Me glycoside, 5-Ac: Methyl 5-O-acetyl-2,3-anhydro-β-D-lyxofuranoside
[13051-97-3]
$C_8H_{12}O_5$ 188.18
$[\alpha]_D$ -80 (c, 1.0 in $CHCl_3$).

*Me glycoside, 5-*p*-nitrobenzoyl:* [17230-03-4]
Cryst. (hexane). Mp 89-91°.

Me glycoside, 5-tosyl: Methyl 2,3-anhydro-5-O-tosyl-β-D-lyxofuranoside
$C_{13}H_{16}O_6S$ 300.332
Mp 76-77°. $[\alpha]_D$ -89 ($CHCl_3$).

Me glycoside, 5-benzyl: Methyl 2,3-anhydro-5-O-benzyl-β-D-lyxofuranoside, 8CI
[29024-87-1]
$C_{13}H_{16}O_4$ 236.267
Oil. $Bp_{0.03}$ 135-140°. $[\alpha]_D^{23}$ -67 (c, 2.0 in EtOH).

Me glycoside, 5-Me: Methyl 2,3-anhydro-5-O-methyl-β-D-lyxofuranoside
$C_7H_{12}O_4$ 160.169
Mp 14-15°. $[\alpha]_D$ -88 (H_2O).

Me glycoside, 5-trityl: Methyl 2,3-anhydro-5-O-trityl-β-D-lyxofuranoside
[17229-98-0]
$C_{25}H_{24}O_4$ 388.462
Cryst. (EtOH). Mp 156-157°. $[\alpha]_D^{24}$ -76 ($CHCl_3$).

Et glycoside: Ethyl 2,3-anhydro-β-D-lyxofuranoside
$C_7H_{12}O_4$ 160.169

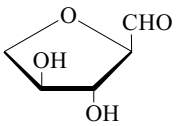
$Bp_{0.06}$ 100-101° (bath). $[\alpha]_D^{32}$ -77 (c, 3.0 in H_2O).

*Et glycoside, 5-Ac: Ethyl 5-*O*-acetyl-2,3-anhydro-β-D-lyxofuranoside*
$C_9H_{14}O_5$ 202.207
$Bp_{0.0003}$ 94-100° (bath). $[\alpha]_D^{27}$ -67 (c, 3.5 in $CHCl_3$).

Et glycoside, 5-tetrahydropyranyl: $Bp_{0.0005}$ 110-120° (bath). $[\alpha]_D^{30}$ -79 (c, 3.4 in $CHCl_3$).

Percival, E.E. *et al., J.C.S.*, 1953, 564 (*α-D-Me fur, α-D-Me Me fur*)
Baker, B.R. *et al., J.A.C.S.*, 1955, **77**, 7 (*α-D-Me fur, β-D-Me fur*)
Iwashige, T. *et al., Chem. Pharm. Bull.*, 1963, **11**, 1569 (*α-D-Et fur, α-D-Et fur Ac, α-D-Et fur tetrahydropyranyl, β-D-Et fur, β-D-Et fur derivs*)
Buchanan, J.G. *et al., J.C.S.(C)*, 1966, 1926 (*α-D-Me pyr*)
Ryan, K.J. *et al., J.O.C.*, 1968, **33**, 3727 (*β-D-Me fur trityl, β-D-Me fur p-nitrobenzoyl, α-D-Me fur p-nitrobenzoyl*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*α-D-Me fur, α-D-Me fur benzoyl*)
Williams, N.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 109 (*α-D-Me fur Ac, α-D-Me fur benzyl, α-D-Me fur tosyl, β-D-Me fur benzyl, rev*)
Buchanan, J.G. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 135 (*α-D-Me pyr*)
Unger, F.M. *et al., Carbohydr. Res.*, 1978, **67**, 257 (*α-D-Me fur, pmr*)
Kim, K.S. *et al., Carbohydr. Res.*, 1979, **72**, 25 (*cmr*)
Martin, M.G. *et al., Carbohydr. Res.*, 1983, **123**, 332 (***synth, α-D-Me fur***)
Thomé, M.A. *et al., J. Carbohydr. Chem.*, 1991, **10**, 923-926 (*Me α-D-fur, Me β-D-fur, !synth*)
Benefice-Malouet, S. *et al., Carbohydr. Res.*, 1992, **229**, 293 (*α-D-Me pyr 5-trityl*)
Callam, C.S. *et al., J.A.C.S.*, 2003, **125**, 13112-13119 (*α-D-fur 5-benzoyl, synth, pmr, cmr*)

2,5-Anhydrolyxose A-665



L–*form*

$C_5H_8O_4$ 132.116

D-*form*

*3,4-Ditosyl, di-Me acetal: 2,5-Anhydro-3,4-di-*O*-tosyl-D-lyxose dimethyl acetal*
Mp 139-140°. $[\alpha]_D^{31}$ +63.5 ($CHCl_3$).

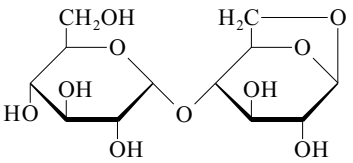
L-*form*

*3,4-Ditosyl, di-Me acetal: 2,5-Anhydro-3,4-di-*O*-tosyl-L-lyxose dimethyl acetal*
Mp 139-140°. $[\alpha]_D^{31}$ -58.5 (c, 1.3 in $CHCl_3$).

Defaye, J. *et al., Carbohydr. Res.*, 1971, **20**, 305

1,6-Anhydromaltose A-666

*1,6-Anhydro-4-*O*-(α-D-glucopyranosyl)-β-D-glucopyranose. Maltosan*
[6983-27-3]



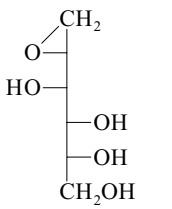
$C_{12}H_{20}O_{10}$ 324.284

Struct. revised in 1952. Cryst. (EtOH aq.). Mp 132-137°. $[\alpha]_D^{20}$ +75.1 (c, 1.1 in H_2O).

Hexa-Ac: [28868-67-9]
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (MeOH). Mp 181-182°. $[\alpha]_D^{20}$ +47 (c, 2 in $CHCl_3$).

Karrer, P. *et al., Helv. Chim. Acta*, 1932, **15**, 739 (*hexa-Ac*)
Asp, L. *et al., Acta Chem. Scand.*, 1952, **6**, 941 (*hexa-Ac*)
Durette, P.L. *et al., J.C.S. Perkin 1*, 1974, 97 (*pmr, conformn*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 75 (*synth, pmr, cmr*)

1,2-Anhydromannitol A-667



D–*form*

$C_6H_{12}O_5$ 164.158

D-*form* [23261-21-4]
Needles. Mp 102-104°. $[\alpha]_D^{25}$ -16 (c, 2.5 in H_2O).

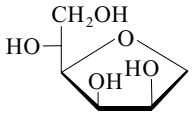
*6-Mesyl: 1,2-Anhydro-6-*O*-mesyl-D-mannitol*
[34213-30-4]
$C_7H_{14}O_7S$ 242.249
Prisms (EtOAc). Mp 80-81°. $[\alpha]_D^{32}$ +67.5 (c, 1 in H_2O). Unstable in solid form and in aq. soln.

*3,4:5,6-Diisopropylidene: 1,2-Anhydro-3,4:5,6-di-*O*-isopropylidene-D-mannitol*
[85325-93-5]
$C_{12}H_{20}O_5$ 244.287
Oil. $Bp_{0.5}$ 70°. $[\alpha]_D^{20}$ +9.1 (c, 1 in $CHCl_3$). n_D^{21} 1.4504.

Jarman, M. *et al., Carbohydr. Res.*, 1969, **9**, 139 (*D-form, synth*)
Tisdale, M.J. *et al., Carbohydr. Res.*, 1971, **19**, 117 (*D-mesyl*)
Regeling, H. *et al., Carbohydr. Res.*, 1989, **190**, 313 (*synth, pmr*)

1,4-Anhydromannitol A-668

Mannitan



$C_6H_{12}O_5$ 164.158

D-*form* [7726-97-8]
Plates (EtOH aq.) or cryst. (MeOH). Mp 145-147°. $[\alpha]_D^{20}$ -26.2 (H_2O).

*2,6-Dibenzoyl: 1,4-Anhydro-2,6-di-*O*-benzoyl-D-mannitol*
$C_{20}H_{20}O_7$ 372.374
Cryst. (EtOAc). Mp 147-148°. $[\alpha]_D^{31}$ -3 (c, 1 in $CHCl_3$).

*5,6-Dibenzoyl: 1,4-Anhydro-5,6-di-*O*-benzoyl-D-mannitol*
$C_{20}H_{20}O_7$ 372.374
Cryst. (C_6H_6/Et_2O/petrol). Mp 74-75°. $[\alpha]_D^{30}$ -13 (c, 1 in $CHCl_3$).

*3,5-Dimesyl, 6-tosyl: 1,4-Anhydro-3,5-di-*O*-mesyl-6-*O*-tosyl-D-mannitol*
[53691-34-2]
$C_{15}H_{22}O_{11}S_3$ 474.53
Syrup. $[\alpha]_D^{20}$ -9.

*2,3-*O*-Isopropylidene: 1,4-Anhydro-2,3-*O*-isopropylidene-D-mannitol*
$C_9H_{16}O_5$ 204.222
Mp 83-84°. $[\alpha]_D$ -59.1 (-57.5) (H_2O).

*2,3-*O*-Isopropylidene, 6-tosyl: 1,4-Anhydro-2,3-*O*-isopropylidene-6-*O*-tosyl-D-mannitol*
$C_{16}H_{22}O_7S$ 358.412
Cryst. (MeOH). Mp 133-134°. $[\alpha]_D^{20}$ -25.

*5,6-*O*-Isopropylidene: 1,4-Anhydro-5,6-O-isopropylidene-D-mannitol*
$C_9H_{16}O_5$ 204.222
Cryst. (Et_2O/petrol). Mp 46-47°. $[\alpha]_D^{28}$ -20 (c, 1 in $CHCl_3$).

*2,3-*O*-Benzylidene (*R*-): 1,4-Anhydro-2,3-O-(R)-benzylidene-D-mannitol*
$C_{13}H_{16}O_5$ 252.266
Mp 94-95°. $[\alpha]_D^{25}$ -88 (H_2O).

*2,3-*O*-Benzylidene (*S*-): 1,4-Anhydro-2,3-O-(S)-benzylidene-D-mannitol*
$C_{13}H_{16}O_5$ 252.266
Cryst. (EtOAc). Mp 111-112°. $[\alpha]_D^{30}$ -40 (c, 0.7 in H_2O).

*5,6-*O*-Benzylidene (*R*-): 1,4-Anhydro-5,6-O-(R)-benzylidene-D-mannitol*
$C_{13}H_{16}O_5$ 252.266
Mp 62°. $[\alpha]_D^{29}$ -28 (c, 1 in $CHCl_3$).

*5,6-*O*-Benzylidene (*S*-): 1,4-Anhydro-5,6-O-(S)-benzylidene-D-mannitol*
$C_{13}H_{16}O_5$ 252.266
Cryst. ($CHCl_3$/petrol). Mp 110-111°. $[\alpha]_D^{29}$ +26 (c, 1 in $CHCl_3$).

*2,3-*O*-Benzylidene (R), dibenzoyl: 1,4-Anhydro-5,6-di-*O*-benzoyl-2,3-*O*-(R)-benzylidene-D-mannitol*
$C_{27}H_{24}O_7$ 460.482
Cryst. (EtOAc/petrol). Mp 96-97°. $[\alpha]_D$ -26 (c, 1 in $CHCl_3$).

*2,3-*O*-Benzylidene (R), 6-tosyl: 1,4-Anhydro-2,3-*O*-(R)-benzylidene-6-*O*-tosyl-D-mannitol*
$C_{20}H_{22}O_7S$ 406.456

Cryst. ($CHCl_3$/petrol). Mp 121°. $[\alpha]_D^{27}$ -24 (c, 1 in $CHCl_3$).

2,3-O-Benzylidene (S), 6-tosyl: 1,4-Anhydro-2,3-O-(S)-benzylidene-6-O-tosyl-D-mannitol
$C_{20}H_{22}O_7S$ 406.456
Mp 115°. $[\alpha]_D^{28}$ 0 (c, 1 in $CHCl_3$).

3,5-O-Benzylidene (R-): 1,4-Anhydro-3,5-O-(R)-benzylidene-D-mannitol
$C_{13}H_{16}O_5$ 252.266
Cryst. (EtOAc/petrol). Mp 96-97°. $[\alpha]_D^{28}$ +32 (c, 1 in $CHCl_3$).

3,5-O-Benzylidene (S-): 1,4-Anhydro-3,5-O-(S)-benzylidene-D-mannitol
$C_{13}H_{16}O_5$ 252.266
Mp 143°. $[\alpha]_D^{28}$ +32 (c, 0.3 in H_2O).

3,5-O-Benzylidene (S-), dibenzoyl: 1,4-Anhydro-2,6-di-O-benzoyl-3,5-O-(S)-benzylidene-D-mannitol
$C_{27}H_{24}O_7$ 460.482
Mp 163-164°. $[\alpha]_D^{31}$ +40 (c, 1 in $CHCl_3$).

3,5-O-Benzylidene (R-), ditosyl: 1,4-Anhydro-3,5-O-(R)-benzylidene-2,6-di-O-tosyl-D-mannitol
$C_{27}H_{28}O_9S_2$ 560.645
Cryst. ($CHCl_3$/petrol). Mp 120-121°. $[\alpha]_D^{32}$ +40 (c, 1 in $CHCl_3$).

3,5-O-Benzylidene (S-), ditosyl: 1,4-Anhydro-3,5-O-(S)-benzylidene-2,6-di-O-tosyl-D-mannitol
$C_{27}H_{28}O_9S_2$ 560.645
Mp 144-145°. $[\alpha]_D^{31}$ +55 (c, 1 in $CHCl_3$).

3,5-O-Benzylidene (R-), dibenzoyl: 1,4-Anhydro-2,6-di-O-benzoyl-3,5-O-(R)-benzylidene-D-mannitol
$C_{27}H_{24}O_7$ 460.482
Cryst. (EtOAc/petrol). Mp 101-102°. $[\alpha]_D^{28}$ -40 (c, 1 in $CHCl_3$).

2,6-Di-Me, 3,5-O-benzylidene (S): 1,4-Anhydro-3,5-O-(S)-benzylidene-2,6-di-O-methyl-D-mannitol
$C_{15}H_{20}O_5$ 280.32
Cryst. (Et_2O/hexane). $[\alpha]_D^{31}$ +93 (c, 1 in $CHCl_3$).

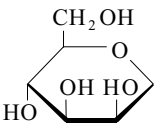
5,6-Di-Me, 2,3-O-benzylidene (R): 1,4-Anhydro-2,3-O-(R)-benzylidene-5,6-di-O-methyl-D-mannitol
$C_{15}H_{20}O_5$ 280.32
Mp 65-66°. $[\alpha]_D^{29}$ -63 (c, 1 in $CHCl_3$).

5,6-Di-Me, 2,3-O-benzylidene (S): 1,4-Anhydro-2,3-O-(S)-benzylidene-5,6-di-O-methyl-D-mannitol
$C_{15}H_{20}O_5$ 280.32
Cryst. (petrol). Mp 35-36°. $[\alpha]_D^{32}$ -32 (c, 1 in $CHCl_3$).

Valentin, F. *et al., Coll. Czech. Chem. Comm.*, 1936, **8**, 35 (*D-form, synth*)
Hockett, R.C. *et al., J.A.C.S.*, 1946, **68**, 930 (*struct*)
Wiggins, L.F. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 191 (*rev, derivs*)
Foster, A.B. *et al., J.C.S.*, 1951, 680 (*D-form, synth*)
Doane, W.M. *et al., J.O.C.*, 1967, **32**, 1080 (*D-form, synth*)
Que, L. *et al., Biochemistry*, 1974, **13**, 146 (*cmr*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1974, **35**, 97 (*D-isopropylidene tosyl, D-dimesyl tosyl*)
Baggett, N. *et al., Carbohydr. Res.*, 1983, **116**, 49 (*D-dibenzoyl, D-isopropylidene, D-benzylidene, D-benzylidene derivs, D-di-Me benzylidene*)
Sinclair, H.B. *et al., Carbohydr. Res.*, 1984, **127**, 146 (*D-form, synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191 (*synth*)
Shalaby, M.A. *et al., Acta Cryst. C*, 1995, **51**, 1921 (*cryst struct, deriv*)

1,5-Anhydromannitol, 9CI, 8CI A-669

Styracitol



$C_6H_{12}O_5$ 164.158
All possible 31 isomers of Me/Ac/benzoylated 1,5-anhydro-D-mannitol were prepd. by Elvebak *et al*.

D-form [492-93-3]
Occurs in fruit of *Styrax obassia*.
Mp 157°. $[\alpha]_D^{23}$ -49.4 (c, 1.6 in H_2O). Bittersweet taste.

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-1,5-anhydro-D-mannitol
[13121-61-4]
$C_{14}H_{20}O_9$ 332.307
Mp 66-67°. $[\alpha]_D^{17}$ -41 (c, 1 in $CHCl_3$).

Tetrabenzoyl: 1,5-Anhydro-2,3,4,6-tetra-O-benzoyl-D-mannitol
[14218-12-3]
$C_{34}H_{28}O_9$ 580.59
Mp 145-146°. $[\alpha]_D^{22}$ -145 (c, 2 in $CHCl_3$).

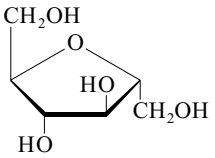
6-Tosyl, 2,3,4-tribenzoyl: 1,5-Anhydro-2,3,4-tri-O-benzoyl-6-O-tosyl-D-mannitol
[119718-15-9]
$C_{34}H_{30}O_{10}S$ 630.671
Cryst. (EtOH). Mp 162° (158-159°). $[\alpha]_D$ -166 (c, 1.0 in $CHCl_3$).

Tetra-Me: 1,5-Anhydro-2,3,4,6-tetra-O-methyl-D-mannitol
$C_{10}H_{20}O_5$ 220.265
Syrup. $Bp_{1.5}$ 110° (bath). $[\alpha]_D$ -40.2 (EtOH).

2,3:4,6-Di-O-isopropylidene: 1,5-Anhydro-2,3:4,5-di-O-isopropylidene-D-mannitol
$C_{12}H_{20}O_5$ 244.287
Needles (petrol). Mp 96-97°. $[\alpha]_D^{17}$ -115.24 (EtOH).

Asahina, Y. *et al., Ber.*, 1931, **64**, 1803 (*D-form, isol, D-diisopropylidene, D-tetra-Me*)
Freudenberg, K. *et al., J.A.C.S.*, 1940, **62**, 558 (*D-tetra-Me*)
Fletcher, H.G. *et al., J.A.C.S.*, 1952, **74**, 3175 (*synth*)
Soltzberg, S. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 229 (*rev*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1973, **27**, 3111 (*D-tetrabenzoyl*)
Que, L. Jr. *et al., Biochemistry*, 1974, **13**, 146 (*cmr*)
Kocienski, P. *et al., Carbohydr. Res.*, 1982, **110**, 330-332 (*D-tetra-Ac*)
Sinclair, H.B. *et al., Carbohydr. Res.*, 1988, **181**, 115 (*6-tosyl 2,3,4-tribenzoyl*)
Elvebak, L.E. *et al., Carbohydr. Res.*, 1995, **274**, 71-83 (*derivs*)

2,5-Anhydromannitol, 9CI A-670



$C_6H_{12}O_5$ 164.158

D-form [41107-82-8] Used in studying the tautomeric and anomeric specificity of a number of glycolytic enzymes acting on β-D-fructofuranose and its phosphates. Prisms (EtOH). Mp 103-104°. $[\alpha]_D^{20}$ +58.2 (c, 1.37 in H_2O).

3,4,6-Tri-Ac: 3,4,6-Tri-O-acetyl-2,5-anhydro-D-mannitol
[84446-97-9]
$C_{12}H_{18}O_8$ 290.269
Syrup. $[\alpha]_D$ +32 (c, 1.0 in $CHCl_3$).

Tetra-Ac: 1,3,4,6-Tetra-O-acetyl-2,5-anhydro-D-mannitol
[65729-88-6]
$C_{14}H_{20}O_9$ 332.307
Oil. $[\alpha]_D$ +26 (c, 1.0 in $CHCl_3$).

1,6-Dibenzoyl: 2,5-Anhydro-1,6-di-O-benzoyl-D-mannitol
$C_{20}H_{20}O_7$ 372.374
Cryst. (CH_2Cl_2/pentane). Mp 102-104°. $[\alpha]_D^{23}$ +31.4 (c, 1.5 in MeOH).

1-Tosyl: 2,5-Anhydro-1-O-tosyl-D-mannitol
[84447-04-1]
$C_{13}H_{18}O_7S$ 318.347
Cryst. (H_2O). Mp 107-109°. $[\alpha]_D$ +36 (c, 1.0 in H_2O).

1-Tosyl, 3,4,6-tri-Ac: 3,4,6-Tri-O-acetyl-2,5-anhydro-1-O-tosyl-D-mannitol
[84447-07-4]
$C_{19}H_{24}O_{10}S$ 444.459
Syrup. $[\alpha]_D$ +40 (c, 1.0 in $CHCl_3$).

1,6-Ditosyl, 3,4-di-Ac: 3,4-Di-O-acetyl-2,5-anhydro-1,6-di-O-tosyl-D-mannitol
[84447-06-3]
$C_{24}H_{28}O_{11}S_2$ 556.611
Cryst. (EtOH). Mp 142-143°. $[\alpha]_D$ +40 (c, 1.0 in $CHCl_3$).

1,6-Dimesyl: 2,5-Anhydro-1,6-di-O-mesyl-D-mannitol
[84447-01-8]
$C_8H_{16}O_9S_2$ 320.341
Cryst. (EtOH). Mp 104-106°. $[\alpha]_D$ +40 (c, 0.5 in H_2O).

3,4-Dimesyl, 1,6-dibenzoyl: 2,5-Anhydro-1,6-di-O-benzoyl-3,4-di-O-mesyl-D-mannitol
$C_{22}H_{24}O_{11}S_2$ 528.557
Cryst. ($MeOH/Et_2O$). Mp 100-101°. $[\alpha]_D^{23}$ +305 ($CHCl_3$).

1-Me, 3,4,6-tri-Ac: 3,4,6-Tri-O-acetyl-2,5-anhydro-1-O-methyl-D-mannitol
[84446-98-0]
$C_{13}H_{20}O_8$ 304.296
Syrup. $[\alpha]_D$ +39 (c, 1.1 in $CHCl_3$).

Tetra-Me: 2,5-Anhydro-1,3,4,6-tetra-O-methyl-D-mannitol
$C_{10}H_{20}O_5$ 220.265
Volatile liq. $[\alpha]_D^{23}$ +32.6 (c, 0.76 in $CHCl_3$).

*1-Trityl, 3,4,6-tri-Ac: 3,4,6-Tri-*O*-acetyl-2,5-anhydro-1-*O*-trityl-D-mannitol*
[84446-96-8]
$C_{31}H_{32}O_8$ 532.589
Cryst. (MeOH). Mp 96-97°. $[\alpha]_D$ +34 (c, 1.0 in $CHCl_3$).

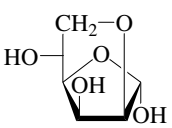
*1,6-Ditrityl, 3,4-ditosyl: 2,5-Anhydro-3,4-di-*O*-tosyl-1,6-di-*O*-trityl-D-mannitol*
[84446-95-7]
$C_{58}H_{52}O_9S_2$ 957.175
Cryst. ($CHCl_3$/MeOH). Mp 183°. $[\alpha]_D$ +39 (c, 1.0 in $CHCl_3$).

1-Phosphate: [52011-52-6]
$C_6H_{13}O_8P$ 244.138
Syrup.

1,6-Diphosphate: [79736-62-2]
$C_6H_{14}O_{11}P_2$ 324.117
Needles (as tris(cyclohexylammonium) salt). Mp 192-196° (tris(cyclohexylammonium) salt). CAS no. refers to salt.

Bera, B.C. *et al., J.C.S.*, 1956, 4531 (*synth*)
Horton, D. *et al., Carbohydr. Res.*, 1973, **30**, 367 (*synth*)
Koerner, T.A.W. *et al., J. Biol. Chem.*, 1974, **249**, 5749 (*synth*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 68 (*synth*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 2169 (*Ac derivs*)
Watkins, S.F. *et al., Carbohydr. Res.*, 1983, **119**, 49 (*cryst struct*)
Rao, V.S. *et al., Can. J. Chem.*, 1984, **62**, 886 (*cmr, pmr*)
Otero, D.A. *et al., Carbohydr. Res.*, 1984, **128**, 79 (***synth***)
Rolf, D. *et al., Carbohydr. Res.*, 1984, **131**, 17 (*tetra-Me*)
Stevens, H.C. *et al., FEBS Lett.*, 1984, **165**, 247 (*phosphate*)
Bennek, J.A. *et al., J.O.C.*, 1987, **52**, 892 (*synth, cmr*)
Whitfield, D.M. *et al., Anal. Biochem.*, 1991, **194**, 259 (*hplc*)
Voll, R.J. *et al., Carbohydr. Res.*, 1993, **241**, 55 (*cryst struct, 1-tosyl*)
Shalaby, M.A. *et al., Acta Cryst. C*, 1995, **51**, 1921 (*1,4-ditosyl-3,5-di-Ac, cryst struct*)
Cassel, S. *et al., Eur. J. Org. Chem.*, 2001, 875-896 (*synth, pmr, cmr, tetra-Ac*)
Laufersweiler, M.J. *et al., J.O.C.*, 2001, **66**, 6440-6452 (*synth, tetra-Ac, pmr*)

2,6-Anhydromannofuranose A-671



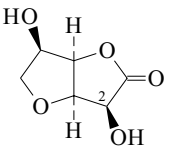
$C_6H_{10}O_5$ 162.142

α-D-*form*

Me glycoside: Methyl 2,6-anhydro-α-D-mannofuranoside
[80564-40-5]
$C_7H_{12}O_5$ 176.169
Cryst. (diisopropyl ether). $[\alpha]_D^{20}$ +118.8 (c, 0.9 in MeOH). First known 2,6-anhydrofuranose.

Köll, P. *et al., J. Carbohydr. Chem.*, 1983, **2**, 189-200 (*Me gly, synth, cryst struct, bibl*)

3,6-Anhydro-1,4-mannonolactone A-672



$C_6H_8O_5$ 160.126

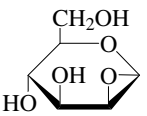
D-*form* [121351-12-0]
Cryst. (EtOH/EtOAc). Mp 113°. $[\alpha]_D^{20}$ +125 (c, 2.8 in H_2O).

*2-Tosyl: 3,6-Anhydro-2-*O*-tosyl-D-manno-no-1,4-lactone*
[166830-22-4]
$C_{13}H_{14}O_7S$ 314.315
Mp 120-121°. $[\alpha]_D^{20}$ +112.8 (c, 1.0 in Me_2CO).

*Di-Me: 3,6-Anhydro-2,5-di-*O*-methyl-D-mannono-1,4-lactone*
$C_8H_{12}O_5$ 188.18
Cryst. (EtOH). Mp 118°. $[\alpha]_D^{20}$ +219 (c, 0.85 in H_2O).

Defaye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191 (*synth*)
Frank, H. *et al., Tetrahedron*, 1995, **51**, 5397 (*synth, pmr*)

1,2-Anhydromannose A-673



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

*3,4,6-Tribenzyl: 1,2-Anhydro-3,4,6-tri-*O*-benzyl-β-D-mannopyranose*
$C_{27}H_{28}O_5$ 432.515
Cryst. (C_6H_6/hexane). Mp 89-90°. $[\alpha]_D^{25}$ +4.5 (c, 1 in $CHCl_3$).

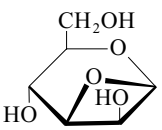
β-D-Furanose-*form*

*3,6-Dibenzyl, 5-Ac: 5-*O*-Acetyl-1,2-anhydro-3,6-di-*O*-benzyl-β-D-mannofuranose*
$C_{22}H_{24}O_6$ 384.428
Syrup. $[\alpha]_D$ +23.7 (c, 2.9 in $CHCl_3$).

*3-*O*-Benzyl, 5,6-dibenzoyl: 1,2-Anhydro-5,6-di-*O*-benzoyl-3-*O*-benzyl-β-D-mannofuranose*
$C_{27}H_{24}O_7$ 460.482
Syrup. $[\alpha]_D$ +23.7 (c, 2.9 in $CHCl_3$).

Sondheimer, S.J. *et al., Carbohydr. Res.*, 1979, **74**, 327 (*β-D-pyr tribenzyl*)
Eby, R. *et al., Carbohydr. Res.*, 1982, **102**, 1 (*pmr*)
Ning, J. *et al., Carbohydr. Res.*, 2001, **330**, 165-175 (*β-D-fur derivs*)

1,3-Anhydromannose A-674



$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

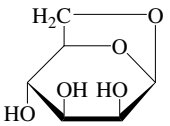
*2,4,6-Tribenzyl: 1,3-Anhydro-2,4,6-tri-*O*-benzyl-β-D-mannopyranose*
[75961-99-8]
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D^{23}$ +53 (c, 1.8 in $CHCl_3$).

2,4,6-Tris(4-bromobenzyl): [75962-03-7]
Mp 91-92°. $[\alpha]_D^{25}$ +31.7 (c, 1.0 in $CHCl_3$).

Varma, A.J. *et al., J.O.C.*, 1981, **46**, 766 (*synth, pmr, cmr*)
Kong, F. *et al., Carbohydr. Res.*, 1983, **112**, 141 (*synth*)

1,6-Anhydromannose A-675

Mannosan



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

Levomannosan
[14168-65-1] Vacuum pyrolysis prod. of Mannose, M-114. Occurs in *Phytelephas macrocarpa*.
Mp 211°. $[\alpha]_D$ -128 (H_2O).

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,6-anhydro-β-D-mannopyranose*
[13242-48-3]
$C_{12}H_{16}O_8$ 288.254
Mp 90-91° (84-86°). $[\alpha]_D^{22}$ -119 (c, 2.0 in $CHCl_3$).

*2,3,4-Tribenzoyl: 1,6-Anhydro-2,3,4-tri-*O*-benzoyl-β-D-mannopyranose*
$C_{27}H_{22}O_8$ 474.466
Prisms (EtOH). Mp 111-112°. $[\alpha]_D^{20}$ -185.2 (c, 1.3 in $CHCl_3$).

*2-Tosyl: 1,6-Anhydro-2-*O*-tosyl-β-D-mannopyranose*
[97292-00-7]
$C_{13}H_{16}O_7S$ 316.331
Cryst. (Me_2CO/Et_2O). Mp 146-147°. $[\alpha]_D^{19}$ -74 (c, 0.5 in Me_2CO).

*2,3-*O*-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-β-D-mannopyranose*
[14440-51-8]
$C_9H_{14}O_5$ 202.207
Cryst. (2-propanol). Mp 161-162°. $[\alpha]_D^{19}$ -57 (c, 1.2 in H_2O).

*2,3-*O*-Isopropylidene, 4-Ac: 4-*O*-Acetyl-1,6-anhydro-2,3-*O*-isopropylidene-β-D-mannopyranose*
$C_{11}H_{16}O_6$ 244.244
Plates (MeOH). Mp 101-102°. $[\alpha]_D^{20}$ -72.2 (c, 1.6 in $CHCl_3$).

*2,3-*O*-Benzylidene: 1,6-Anhydro-2,3-*O*-benzylidene-β-D-mannopyranose*
[5349-10-0]
$C_{13}H_{14}O_5$ 250.251
Cryst. (EtOAc). Mp 188-189°. $[\alpha]_D$ -78.8 (c, 1 in $CHCl_3$).

*2,3-*O*-Benzylidene, 4-Me: 1,6-Anhydro-2,3-*O*-benzylidene-4-*O*-methyl-β-D-mannopyranose*
[23397-64-0]
$C_{14}H_{16}O_5$ 264.277

Cryst. (hexane). Mp 92-93°. $[\alpha]_D$ -92 (c, 1 in EtOH).

*Tri-Me: 1,6-Anhydro-2,3,4-tri-*O*-methyl-β-D-mannopyranose*
$C_9H_{16}O_5$ 204.222
Mp 52°. $[\alpha]_D$ -65.5 (H_2O).

*2-Allyl: 2-*O*-Allyl-1,6-anhydro-β-D-mannopyranose*
[119005-81-1]
$C_9H_{14}O_5$ 202.207
Syrup.

*2-Benzyl: 1,6-Anhydro-2-*O*-benzyl-β-D-mannopyranose*
[116730-88-2]
$C_{13}H_{16}O_5$ 252.266
Syrup. $[\alpha]_D$ -60 (c, 0.6 in $CHCl_3$).

*2-Benzyl, 3,4-di-Ac: 3,4-Di-*O*-acetyl-1,6-anhydro-2-*O*-benzyl-β-D-mannopyranose*
[116730-89-3]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -42 (c, 0.8 in $CHCl_3$).

*3-Benzyl: 1,6-Anhydro-3-*O*-benzyl-β-D-mannopyranose*
[116429-52-8]
$C_{13}H_{16}O_5$ 252.266
Syrup. $[\alpha]_D$ -21 (c, 0.4 in $CHCl_3$).

*3-Benzyl, 2,4-di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-*O*-benzyl-β-D-mannopyranose*
[116730-90-6]
$C_{17}H_{20}O_7$ 336.341
Syrup. $[\alpha]_D$ -31 (c, 0.4 in $CHCl_3$).

*3,4-Dibenzyl: 1,6-Anhydro-3,4-di-*O*-benzyl-β-D-mannopyranose*
$C_{20}H_{22}O_5$ 342.391
Cryst. (Et_2O). Mp 54-56°. $[\alpha]_D^{23}$ -58.5 (c, 0.8 in $CHCl_3$).

β-D-Furanose-*form* [31880-33-8]
Vacuum pyrolysis prod. of Mannose, M-114.
Cryst. (2-propanol). Mp 192-193°. $[\alpha]_D^{20}$ 0 (c, 1.0 in H_2O).

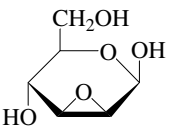
*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,6-anhydro-β-D-mannofuranose*
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ -86.8 (c, 1.0 in $CHCl_3$).

*Tritosyl: 1,6-Anhydro-2,3,5-tri-*O*-tosyl-β-D-mannofuranose*
$C_{27}H_{28}O_{11}S_3$ 624.71
Needles (EtOH). Mp 112-113°. $[\alpha]_D^{20}$ -22.5 (c, 1.0 in $CHCl_3$).

*2,3-*O*-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-β-D-mannofuranose*
$C_9H_{14}O_5$ 202.207
Cryst. (Et_2O/petrol). Mp 93-94°. $[\alpha]_D^{20}$ +14.5 (c, 1.0 in $CHCl_3$).

Knauf, A.E. *et al., J.A.C.S.*, 1941, **63**, 1447 (*β-D-pyr, β-D-pyr isopropylidene, β-D-pyr tri-Ac, β-D-pyr tribenzoyl, β-D-pyr isopropylidene Ac*)
Aspinall, G.O. *et al., J.C.S.*, 1957, 2271 (*β-D-pyr isopropylidene, β-D-pyr tosyl*)
Bhattacharjee, S.S. *et al., Can. J. Chem.*, 1969, **47**, 1207 (*β-D-pyr benzylidene*)
Heyns, K. *et al., Chem. Ber.*, 1971, **104**, 830 (*β-D-fur, β-D-fur isopropylidene, β-D-fur tritosyl, β-D-fur tri-Ac, pmr*)
Lechat, J. *et al., Acta Cryst. B*, 1972, **28**, 3410 (*β-D-fur, cryst struct*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1231 (*pmr*)
Paulsen, H. *et al., Carbohydr. Res.*, 1976, **49**, 27 (*conformn, cmr*)
Furneaux, R.H. *et al., Carbohydr. Res.*, 1979, **74**, 354 (*β-D-pyr*)
Paulsen, H. *et al., Annalen*, 1983, 1047 (*β-D-pyr 3,4-dibenzyl*)
Georges, M. *et al., Carbohydr. Res.*, 1984, **127**, 162 (*β-D-pyr, β-D-pyr isopropylidene, synth*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **174**, 9; **179**, 1 (*pmr, cmr, cryst struct, β-D-fur*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1988, **175**, 193-199 (*β-D-pyr benzyl, β-D-pyr benzyl di-Ac*)
Dasgupta, F. *et al., Synthesis*, 1988, 626 (*2-allyl, synth*)
Hori, H. *et al., J.O.C.*, 1989, **54**, 1346 (*β-D-pyr 3,4-dibenzyl, synth, pmr*)
Maluszynska, H. *et al., Carbohydr. Res.*, 1992, **100**, 17 (*cryst struct*)
Manna, S. *et al., Carbohydr. Res.*, 1993, **243**, 11 (*synth, pmr, β-D-pyr tri-Ac, β-D-pyr 2,3-isopropylidene, β-D-fur 2,3-isopropylidene, β-D-fur tri-Ac*)

2,3-Anhydromannose A-676



β-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-α-D-mannopyranoside, 8CI
[23262-47-7]
$C_7H_{12}O_5$ 176.169
Mp 82-83°. $[\alpha]_D$ +108 ($CHCl_3$).

*Me glycoside, 4,6-ditosyl: Methyl 2,3-anhydro-4,6-di-*O*-tosyl-α-D-mannopyranoside*
$C_{21}H_{24}O_9S_2$ 484.547
Mp 160-161°. $[\alpha]_D$ +71.5 ($CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 2,3-anhydro-4,6-*O*-benzylidene-α-D-mannopyranoside*
[3150-16-1]
$C_{14}H_{16}O_5$ 264.277
Mp 144-146°. $[\alpha]_D^{15}$ +107 (c, 1.6 in $CHCl_3$).

*Me glycoside, 4,6-*O*-ethylidene: Methyl 2,3-anhydro-4,6-*O*-ethylidene-α-D-mannopyranoside*
$C_9H_{14}O_5$ 202.207
Mp 100°. $[\alpha]_D$ +108 ($CHCl_3$).

*Me glycoside, 6-trityl: Methyl 2,3-anhydro-6-*O*-trityl-α-D-mannopyranoside*
[24621-13-4]
$C_{26}H_{26}O_5$ 418.488
Mp 160-161°. $[\alpha]_D$ +15.6 ($CHCl_3$).

*Me glycoside, 6-trityl, 4-Ac: Methyl 4-*O*-acetyl-2,3-anhydro-6-*O*-trityl-α-D-mannopyranoside*
$C_{28}H_{28}O_6$ 460.526
Mp 140-141°. $[\alpha]_D$ +50.4 ($CHCl_3$).

*Me glycoside, 6-trityl, 4-benzyl: Methyl 2,3-anhydro-4-*O*-benzyl-6-*O*-trityl-α-D-mannopyranoside*
$C_{33}H_{32}O_5$ 508.613
Cryst. (MeOH). Mp 127°. $[\alpha]_D^{20}$ +46.9 (c, 0.7 in $CHCl_3$).

Benzyl glycoside: Benzyl 2,3-anhydro-α-D-mannopyranoside
$C_{13}H_{16}O_5$ 252.266
Cryst. (Et_2O/petrol). Mp 71-72°. $[\alpha]_D$ +89 (c, 1.0 in EtOH).

*Benzyl glycoside, 4,6-*O*-benzylidene: Benzyl 2,3-anhydro-4,6-*O*-benzylidene-α-D-mannopyranoside*
$C_{20}H_{20}O_5$ 340.375
Cryst. (EtOH). Mp 128-129° (118°). $[\alpha]_D^{20}$ +45.4 (c, 2.0 in $CHCl_3$). $[\alpha]_D^{20}$ +97 (c, 1.0 in $CHCl_3$).

*Ph glycoside, 4,6-*O*-benzylidene: Phenyl 2,3-anhydro-4,6-*O*-benzylidene-α-D-mannopyranoside, 8CI*
[22893-84-1]
$C_{19}H_{18}O_5$ 326.348
Mp 182-184°. $[\alpha]_D$ +200 ($CHCl_3$).

β-D-Pyranose-*form*

Cryst. (Me_2CO). Mp 95-96°. $[\alpha]_D$ 0 (c, 1.0 in H_2O).

Me glycoside: Methyl 2,3-anhydro-β-D-mannopyranoside
$C_7H_{12}O_5$ 176.169
$[\alpha]_D$ -40 (EtOAc).

*Me glycoside, 4,6-*O*-benzylidene:* See Methyl 4,6-*O*-benzylidenemannopyranoside, M-169

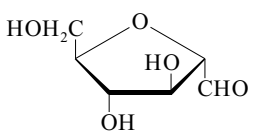
*Me glycoside, 4,6-di-Me: Methyl 2,3-anhydro-4,6-di-*O*-methyl-β-D-mannopyranoside*
$C_9H_{16}O_5$ 204.222
Mp 69°. $[\alpha]_D$ +24 (H_2O). $[\alpha]_D$ +40 (EtOAc).

Benzyl glycoside: Benzyl 2,3-anhydro-β-D-mannopyranoside
$C_{13}H_{16}O_5$ 252.266
Cryst. (Et_2O/petrol). Mp 128-129°. $[\alpha]_D$ -24 (c, 1.0 in EtOH).

Haworth, W.N. *et al., J.C.S.*, 1934, 154 (*β-D-Me pyr*)
Buchanan, J.G. *et al., J.C.S.*, 1962, 4770 (*α-D-Me pyr*)
Buchanan, J.G. *et al., J.C.S.(B)*, 1969, 377 (*pmr, conformn*)
Williams, N.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 109 (*Me gly derivs, rev*)
Pilotti, A.-M. *et al., Acta Cryst. B*, 1972, **28**, 2821 (*cryst struct*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1974, 388 (*β-D-form, β-D-benzyl pyr*)
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1975, **108**, 3397 (*α-D-benzyl pyr benzylidene*)
Kim, K.S. *et al., Carbohydr. Res.*, 1979, **72**, 25 (*cmr*)
Curthy, V.S. *et al., Synth. Commun.*, 1993, **23**, 285 (*α-D-Me pyr benzylidene*)

2,5-Anhydromannose, 9CI A-677

Chitose. Deaminochitosamine
[495-75-0]



$C_6H_{10}O_5$ 162.142

D-*form*

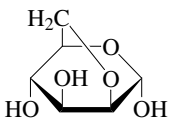
Syrup. $[\alpha]_D^{20}$ +70.8. Normally obt. as a mixt. with its covalent hydrate, $[\alpha]_D$ +33.

Benzylphenylhydrazone: $[\alpha]_D^{17}$ +61.2.

Diphenylhydrazone: Mp 144°. $[\alpha]_D^{20}$ +30.

Oxime:
$C_6H_{11}NO_5$ 177.157
$[\alpha]_D^{25}$ +9.9 (c, 1 in MeOH).
Nagaoka, T. *et al., CA*, 1950, **45**, 9096 (*synth*)
Inoue, Y. *et al., Nippon Nogei Kagaku Kaishi*, 1952, **26**, 45; *CA*, **48**, 2002 (*synth*)
Horton, D. *et al., Carbohydr. Res.*, 1973, **30**, 367 (*synth*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 68 (*synth*)
Claustre, S. *et al., Carbohydr. Res.*, 1999, **315**, 339-344 (*synth, pmr, cmr*)

2,6-Anhydromannose A-678



α-D-Pyranose-*form*

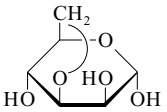
$C_6H_{10}O_5$ 162.142

D-*form* [17368-19-3]
Amorph. solid. $[\alpha]_D^{23}$ -66.6 → -53.8 (c, 0.5 in H_2O).
Di-Me acetal: 2,6-Anhydro-D-mannose dimethylacetal
[17236-45-2]
$C_8H_{16}O_6$ 208.211
Amorph. solid. $[\alpha]_D^{25}$ -45.3 (c, 0.5 in H_2O).

α-D-Pyranose-*form*
Me glycoside: Methyl 2,6-anhydro-α-D-mannopyranoside
[76825-31-5]
$C_7H_{12}O_5$ 176.169
Cryst. (Et_2O). Mp 77-78°. $[\alpha]_D^{20}$ +25.8 (c, 0.9 in $CHCl_3$).
Me glycoside, 3,4-di-Ac: Methyl 3,4-di-O-acetyl-2,6-anhydro-α-D-mannopyranoside
[76825-32-6]
$C_{11}H_{16}O_7$ 260.243
Cryst. (Et_2O). Mp 90-92°. $[\alpha]_D^{20}$ -2.7 (c, 0.9 in $CDCl_3$).

β-D-Pyranose-*form*
Me glycoside, 3,4-di-Ac: Methyl 3,4-di-O-acetyl-2,6-anhydro-β-D-mannopyranoside
[71110-14-0]
$C_{11}H_{16}O_7$ 260.243
Cryst. (Et_2O/hexane). Mp 80°. $[\alpha]_D^{20}$ -67.2 (c, 1.7 in $CHCl_3$).
Me glycoside, 4-Me, 3-Ac: Methyl 3-O-acetyl-2,6-anhydro-4-O-methyl-β-D-mannopyranoside
[71110-16-2]
$C_{10}H_{16}O_6$ 232.233
Cryst. (Et_2O/pentane). Mp 52°. $[\alpha]_D^{20}$ -87.1 (c, 1.2 in CH_2Cl_2).
Micheel, F. *et al., Chem. Ber.*, 1967, **100**, 2401-2409 (*D-form, D-form di-Me-acetal*)
Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2305-2313 (*β-D-Me pyr di-Ac*)
Köll, P. *et al., Chem. Ber.*, 1980, **113**, 3919-3926 (*α-D-Me pyr, α-D-Me pyr di-Ac*)

3,6-Anhydromannose A-679



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

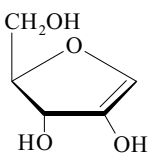
α-D-Pyranose-*form*
Me glycoside: Methyl 3,6-anhydro-α-D-mannopyranoside
[15814-56-9]
$C_7H_{12}O_5$ 176.169
Cryst. (Me_2CO/EtOAc). Mp 131°. $[\alpha]_D^{15}$ +97 (c, 1.4 in H_2O).

β-D-Pyranose-*form*
Me glycoside: Methyl 3,6-anhydro-β-D-mannopyranoside
[151907-81-2]
$C_7H_{12}O_5$ 176.169
Cryst. (EtOAc). Mp 103°. $[\alpha]_D^{18}$ -96 (c, 0.3 in H_2O).

α-D-Furanose-*form*
Tri-Ac: 1,2,5-Tri-O-acetyl-3,6-anhydro-α-D-mannofuranose
[87596-14-3]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +236.2 (c, 1.6 in $CHCl_3$).
Me glycoside: Methyl 3,6-anhydro-α-D-mannofuranoside
[87638-89-9]
$C_7H_{12}O_5$ 176.169
Cryst. (EtOAc). Mp 86°. $[\alpha]_D^{20}$ +161 (c, 2.5 in $CHCl_3$).

β-D-Furanose-*form* [87638-88-8]
Tri-Ac: 1,2,5-Tri-O-acetyl-3,6-anhydro-β-D-mannofuranoside
[87596-15-4]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +110.3 (c, 0.9 in $CHCl_3$).
Foster, A.B. *et al., J.C.S.*, 1954, 3367; 1957, 2833 (*synth*)
Köll, P. *et al., Annalen*, 1983, 1310 (*furanose derivs, synth, pmr, cmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1984, **135**, 29 (*cryst struct, α-D-Me fur, β-D-Me fur*)

1,4-Anhydro-*erythro*-pent-1-enitol A-680

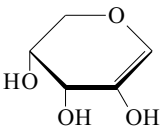


D-*form*

$C_5H_8O_4$ 132.116
Unisolated enol.

D-*form*
Tribenzoyl:
$C_{26}H_{20}O_7$ 444.44
Cryst. (Et_2O). Mp 124-124.5°. $[\alpha]_D^{27}$ +14.2 (c, 1.5 in $CHCl_3$).
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 210 (*tribenzoyl*)
Rao, D.R. *et al., Carbohydr. Res.*, 1972, **22**, 345 (*tribenzoyl*)

1,5-Anhydro-*erythro*-pent-1-enitol, 9CI A-681

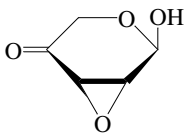


$C_5H_8O_4$ 132.116
Unisolated enol.

D-*form*
Tribenzoyl: 1,5-Anhydro-2,3,4-tri-O-benzoyl-D-erythro-pent-1-enitol, 9CI
[26277-30-5]
$C_{26}H_{20}O_7$ 444.44
Cryst. (Et_2O). Mp 124-124.5°. $[\alpha]_D^{27}$ +14.2 (c, 1.5 in $CHCl_3$).
Rao, D.R. *et al., Carbohydr. Res.*, 1972, **22**, 345 (*synth*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1972, **25**, 242 (*synth*)

2,3-Anhydro-*erythro*-pentos-4-ulose A-682

2,3-Anhydro-erythro-*pentopyranos-4-ulose*



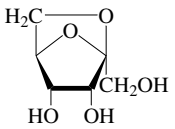
β-D-*form*

$C_5H_6O_4$ 130.1

β-D-*form*
*Me glycoside: Methyl 2,3-anhydro-β-D-*erythro-*pentopyranosid-4-ulose, 9CI*
[55533-72-7]
$C_6H_8O_4$ 144.127
Mp 45-46°. $[\alpha]_D$ -107.4 (c, 0.3 in MeOH). $[\alpha]_D^{20}$ -245 (c, 1.0 in $CHCl_3$).
*Benzyl glycoside: Benzyl 2,3-anhydro-β-D-*erythro-*pentopyranosid-4-ulose*
[104292-70-8]
$C_{12}H_{12}O_4$ 220.224
Mp 53-55°.

β-L-*form*
*Me glycoside: Methyl 2,3-anhydro-β-L-*erythro-*pentopyranosid-4-ulose*
[56153-79-8]
$C_6H_8O_4$ 144.127
Needles by subl. Mp 45-46°. $[\alpha]_D$ +107.5 (c, 0.3 in MeOH).
*Benzyl glycoside: Benzyl 2,3-anhydro-β-L-*erythro-*pentopyranosid-4-ulose*
[79974-79-1]
$C_{12}H_{12}O_4$ 220.224
Cryst. (hexane/EtOAc). Mp 53.5-55.5°. $[\alpha]_D^{23}$ +160 (c, 1.0 in $CDCl_3$).
Paulsen, H. *et al., Tet. Lett.*, 1974, 4377 (*β-D-Me pyr*)
Cooper, D.J. *et al., J.C.S. Perkin 1*, 1975, 785 (*β-L-Me pyr*)
Sundin, A. *et al., J.O.C.*, 1986, **51**, 3927 (*β-D-benzyl pyr, β-L-benzyl pyr*)
Cossy, J. *et al., Carbohydr. Res.*, 1994, **259**, 141 (*β-D-Me pyr, β-L-Me pyr*)

2,6-Anhydropsicose A-683



β-D-Furanose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Furanose-*form*

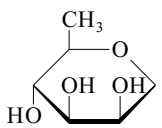
*1-Trityl, 3,4-isopropylidene: 2,6-Anhydro-3,4-*O*-isopropylidene-1-*O*-trityl-β-D-psicofuranose*
[77852-63-2]
$C_{28}H_{28}O_5$ 444.526
Cryst. (Et_2O/hexane). Mp 108-110°. $[\alpha]_D^{20}$ -98.6 (c, 0.55 in $CHCl_3$).

*1-Trityl, 3,4-*O*-benzylidene: 2,6-Anhydro-3,4-*O*-benzylidene-1-*O*-trityl-β-D-psicofuanose*
[77852-73-4]
$C_{32}H_{28}O_5$ 492.57
Cryst. Mp 140-143°. $[\alpha]_D^{20}$ -47.7 (c, 0.4 in $CHCl_3$).

Heyns, K. *et al., Chem. Ber.*, 1981, **114**, 891-908 (*benzylidene trityl, isopropylidene trityl*)

1,5-Anhydrorhamnitol A-684

1,5-Anhydro-6-deoxymannitol. 2,6-Anhydro-1-deoxymannitol



D−*form*

$C_6H_{12}O_4$ 148.158

D-*form*

*Tribenzoyl: 1,5-Anhydro-2,3,4-tri-*O*-benzoyl-D-rhamnitol*
[14218-07-6]
$C_{27}H_{24}O_7$ 460.482
Needles (diisopropyl ether). Mp 142-143°. $[\alpha]_D^{20}$ -280.6 (c, 1.1 in $CHCl_3$).

L-*form* *2,6-Anhydro-1-deoxy-L-mannitol, 9CI*
[117604-78-1]
Large prisms (MeOH). Mp 123-124°. $[\alpha]_D$ +83.8 (c, 0.97 in $CHCl_3$).

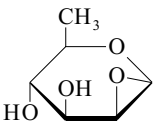
*Tri-Ac: 2,3,4-Tri-*O*-acetyl-1,5-anhydro-L-rhamnitol*
[190316-99-5]
$C_{12}H_{18}O_7$ 274.27
Cryst. (EtOH/pentane). Mp 61-62°. $[\alpha]_D$ +48.1 (c, 1.26 in $CHCl_3$).

*Tribenzoyl: 1,5-Anhydro-2,3,4-tri-*O*-benzoyl-L-rhamnitol*
[190316-32-6]
Prisms (MeOH). Mp 169-170°. $[\alpha]_D$ +279 (c, 0.98 in $CHCl_3$).

Ness, R.K. *et al., J.A.C.S.*, 1950, **72**, 4547-4549 (*L-form, synth*)
Lichtenthaler, F.W. *et al., Annalen*, 1995, 2081-2088 (*D-tribenzoyl, synth, pmr, cmr*)
Elvebak, L.E. *et al., Carbohydr. Res.*, 1997, **299**, 151-158 (*derivs*)

1,2-Anhydrorhamnose A-685

1,2-Anhydro-6-deoxymannose



$C_6H_{10}O_4$ 146.143

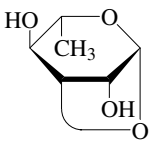
β-D-Pyranose-*form*

*Dibenzyl: 1,2-Anhydro-3,4-di-*O*-benzyl-β-D-rhamnopyranoside*
[148431-62-3]
$C_{20}H_{22}O_4$ 326.391
Cryst. Mp 101°. $[\alpha]_D^{23}$ -5.6 (c, 0.72 in $CHCl_3$).

Wang, X. *et al., Carbohydr. Res.*, 1991, **218**, 15 (*ms*)
Chen, Q. *et al., Carbohydr. Res.*, 1993, **240**, 107 (*synth*)

1,3-Anhydrorhamnose A-686

1,3-Anhydro-6-deoxymannose



β-L-Pyranose-*form*

$C_6H_{10}O_4$ 146.143

β-D-Pyranose-*form*

*Dibenzyl: 1,3-Anhydro-2,4-di-*O*-benzyl-β-D-rhamnopyranose. 1,3-Anhydro-2,4-di-*O*-benzyl-6-deoxy-β-D-mannopyranose*
[112612-49-4]
$C_{20}H_{22}O_4$ 326.391
Syrup. $[\alpha]_D^{16}$ +64.3 (c, 0.7 in $CHCl_3$).

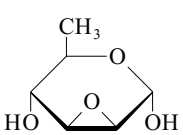
β-L-Pyranose-*form*

*Dibenzyl: 1,3-Anhydro-2,4-di-*O*-benzyl-β-L-rhamnopyranose. 1,3-Anhydro-2,4-di-*O*-benzyl-6-deoxy-β-L-mannopyranose*
[111373-98-9]
$C_{20}H_{22}O_4$ 326.391
$[\alpha]_D^{20}$ -62.7 (c, 0.44 in $CHCl_3$).

Wu, E. *et al., Carbohydr. Res.*, 1987, **161**, 235 (*synth, pmr, cmr, dibenzyl*)
Fang, Y. *et al., J. Carbohydr. Chem.*, 1987, **6**, 169-179 (*β-D-pyr dibenzyl*)
Wang, X. *et al., Carbohydr. Res.*, 1991, **218**, 15 (*ms*)
Xiong, S.Q. *et al., Youji Huaxue*, 1994, **14**, 280; *CA*, **121**, 205804d (*synth*)

2,3-Anhydrorhamnose A-687

2,3-Anhydro-6-deoxymannose



$C_6H_{10}O_4$ 146.143

α-D-*form*

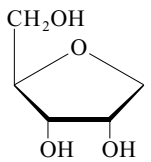
Me glycoside: Methyl 2,3-anhydro-α-D-rhamnopyranoside. Methyl 2,3-anhydro-6-deoxy-α-D-mannopyranoside
$C_7H_{12}O_4$ 160.169
Hygroscopic liq. $Bp_{0.5}$ 100° (bath). $[\alpha]_D$ +102.7 (c, 2.2 in D_2O).

*Me glycoside, Ac: Methyl 4-*O*-acetyl-2,3-anhydro-α-D-rhamnopyranoside. Methyl 4-*O*-acetyl-2,3-anhydro-6-deoxy-α-D-mannopyranoside*
$C_9H_{14}O_5$ 202.207
Cryst. (petrol). Mp 63.5-65.5°. $[\alpha]_D$ +128.5 ($CHCl_3$).

Jarý, J. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 930 (*Me gly Ac*)
Buchanan, J.G. *et al., J.C.S.(B)*, 1969, 377 (*Me gly, synth, pmr*)

1,4-Anhydroribitol A-688

2,5-Anhydroribitol



D−*form*

$C_5H_{10}O_4$ 134.132

D-*form*

1,4-Anhydro-D-ribitol. 2,5-Anhydro-L-ribitol
[51607-76-2]
Mp 102-103° (98-99°). $[\alpha]_D$ +66.5 (c, 0.1 in H_2O).

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,4-anhydro-D-ribitol*
[106707-71-5]
$C_{11}H_{16}O_7$ 260.243
$[\alpha]_D$ +69 (c, 1 in $CHCl_3$).

*5-Trityl: 1,4-Anhydro-5-*O*-trityl-D-ribitol*
[140694-90-2]
$C_{24}H_{24}O_4$ 376.451
Mp 139°. $[\alpha]_D$ +21.8 (c, 1 in $CHCl_3$).

*5-Trityl, di-Ac: 2,3-Di-*O*-acetyl-1,4-anhydro-5-*O*-trityl-D-ribitol*
[162808-73-3]
$C_{28}H_{28}O_6$ 460.526
Mp 149-150°. $[\alpha]_D$ +40.2 (c, 1 in $CHCl_3$).

*2,3-Isopropylidene, 5-trityl: 1,4-Anhydro-2,3-*O*-isopropylidene-5-*O*-trityl-D-ribitol*
[162635-55-4]
$C_{27}H_{28}O_4$ 416.516
Cryst. (EtOAc). Mp 131-133°. $[\alpha]_D$ +28 (c, 1 in $CHCl_3$).

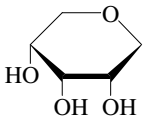
L-*form*

2,5-Anhydro-D-ribitol, 9CI. 1,4-Anhydro-L-ribitol
Cryst. Mp 98-99°. $[\alpha]_D^{21}$ -67.
Kuhn, R. *et al., Chem. Ber.*, 1948, **81**, 553 (*synth*)
Barker, R. *et al., J.O.C.*, 1961, **26**, 4605 (*synth*)
Defaye, J. *et al., Bull. Soc. Chim. Fr.*, 1964, 2686 (*synth, D-form*)
Bennek, J.A. *et al., J.O.C.*, 1987, **52**, 892 (*synth, cmr*)
Bennis, K. *et al., Carbohydr. Res.*, 1994, **264**, 33 (*synth, pmr, cmr, tri-Ac, 5-trityl derivs*)

Duclos, A. *et al., Synthesis*, 1994, 1087 (*synth, cmr*)
Rozanas, C.R. *et al., Carbohydr. Res.*, 1995, **274**, 99-110 (*tri-Ac*)

1,5-Anhydroribitol A-689

[41028-66-4]



$C_5H_{10}O_4$ 134.132

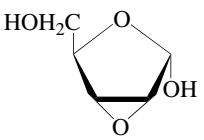
meso-compd. Isol. from *Artemisia selengensis*. Cryst. (Et_2O).
Mp 128-129°.

Tri-Ac: 2,3,4-Tri-O-*acetyl-1,5-anhydribitol*
[14227-82-8]
$C_{11}H_{16}O_7$ 260.243
Cryst. (EtOH). Mp 133°.

Tribenzoyl: 1,5-Anhydro-2,3,4-tri-O-*benzoylribitol*
[14218-06-5]
$C_{26}H_{22}O_7$ 446.456
Cryst. (Et_2O). Mp 156-157°.

Jenloz, R. *et al., J.A.C.S.*, 1948, **70**, 4052-4054 (*synth*)
Tejima, S. *et al., Chem. Pharm. Bull.*, 1964, **12**, 528-532 (*tri-Ac, synth*)
Dokurno, P. *et al., Z. Kristallogr.*, 1995, 676-683 (*cryst struct*)
Cavallaro, C.L. *et al., J.O.C.*, 1996, **61**, 3863-3864 (*tri-Ac, synth, pmr*)
Hu, J.-F. *et al., J. Asian Nat. Prod. Res.*, 1999, **1**, 169-176 (*isol*)
El Hilali, C.M. *et al., Carbohydr. Res.*, 2000, **329**, 189-194 (*many derivs*)

2,3-Anhydroribofuranose A-690



α-D-*form*

$C_5H_8O_4$ 132.116

α-D-*form*

Me glycoside: Methyl 2,3-anhydro-α-D-ribofuranoside, 9CI
[4860-82-6]
$C_6H_{10}O_4$ 146.143
$[\alpha]_D$ +13 (H_2O). $[\alpha]_D^{20}$ +21.6 (c, 2.3 in H_2O).

Me glycoside, 5-Ac: Methyl 5-O-*acetyl-2,3-anhydro-α-D-ribofuranoside*
[23259-87-2]
$C_8H_{12}O_5$ 188.18
$[\alpha]_D$ -2.1 ($CHCl_3$).

Me glycoside, 5-p-*nitrobenzoyl:* [64623-08-1]
Mp 134-136°. $[\alpha]_D$ -26 ($CHCl_3$).

Me glycoside, 5-tosyl: Methyl 2,3-anhydro-5-O-*tosyl-α-D-ribofuranoside*
[66108-06-3]
$C_{13}H_{16}O_6S$ 300.332
Mp 93-95°. $[\alpha]_D$ +7 ($CHCl_3$).

Me glycoside, 5-benzyl: Methyl 2,3-anhydro-5-O-*benzyl-α-D-ribofuranoside, 8CI*
[20187-72-8]
$C_{13}H_{16}O_4$ 236.267
$[\alpha]_D$ -18.1 (EtOH).

Me glycoside, 5-trityl: Methyl 2,3-anhydro-5-O-*trityl-α-D-ribofuranoside*
[40147-69-1]
$C_{25}H_{24}O_4$ 388.462
Mp 131-131.5°. $[\alpha]_D$ +11 (c, 1.0 in $CHCl_3$).

Et glycoside: Ethyl 2,3-anhydro-α-D-ribofuranoside
$C_7H_{12}O_4$ 160.169
Syrup. $Bp_{0.0005}$ 100-105° (bath). $[\alpha]_D^{30}$ +13.1 ($CHCl_3$).

Et glycoside, 5-Ac: Ethyl 5-O-*acetyl-2,3-anhydro-α-D-ribofuranoside*
$C_9H_{14}O_5$ 202.207
$Bp_{0.0001}$ 85-90° (bath). $[\alpha]_D^{27}$ -18.4 ($CHCl_3$).

5-Deoxy, Me glycoside: Methyl 2,3-anhydro-5-deoxy-α-D-ribofuranoside, 9CI
[52630-69-0]
$C_6H_{10}O_3$ 130.143
Mp 21-23°. $[\alpha]_D$ +26 (MeOH).

β-D-*form*

Me glycoside: Methyl 2,3-anhydro-β-D-ribofuranoside, 9CI
[4891-18-3]
$C_6H_{10}O_4$ 146.143
$[\alpha]_D$ -109 (H_2O).

Me glycoside, 5-Ac: Methyl 5-O-*acetyl-2,3-anhydro-β-D-ribofuranoside*
[15354-74-2]
$C_8H_{12}O_5$ 188.18
$[\alpha]_D$ -112 ($CHCl_3$).

Me glycoside, 5-benzoyl: Methyl 2,3-anhydro-5-O-*benzoyl-β-D-ribofuranoside*
[56570-78-6]
$C_{13}H_{14}O_5$ 250.251
Cryst. (petrol). Mp 58°. $[\alpha]_D^{27}$ -112 (c, 1.1 in $CHCl_3$).

Me glycoside, 5-p-*nitrobenzoyl:* [64623-01-4]
Mp 98-99°. $[\alpha]_D$ -95 ($CHCl_3$).

Me glycoside, 5-tosyl: Methyl 2,3-anhydro-5-O-*tosyl-β-D-ribofuranoside*
[74128-49-7]
$C_{13}H_{16}O_6S$ 300.332
Cryst. (heptane). Mp 66.5-67°. $[\alpha]_D$ -80 ($CHCl_3$).

Me glycoside, 5-benzyl: Methyl 2,3-anhydro-5-O-*benzyl-β-D-ribofuranoside, 8CI*
[20535-09-5]
$C_{13}H_{16}O_4$ 236.267
$[\alpha]_D$ -90.8 ($CHCl_3$).

Me glycoside, 5-trityl: Methyl 2,3-anhydro-5-O-*trityl-β-D-ribofuranoside*
[37713-11-4]
$C_{25}H_{24}O_4$ 388.462
Mp 131-133° (127°). $[\alpha]_D$ -62.2 (c, 1.0 in $CHCl_3$).

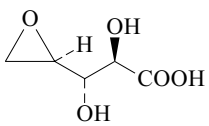
Et glycoside: Ethyl 2,3-anhydro-β-D-ribofuranoside
$C_7H_{12}O_4$ 160.169
$Bp_{0.0005}$ 73-80° (bath). $[\alpha]_D^{29.5}$ -89.5 (c, 3 in H_2O).

Et glycoside, 5-Ac: Ethyl 5-O-*acetyl-2,3-anhydro-β-D-ribofuranoside*
$C_9H_{14}O_5$ 202.207
$Bp_{0.0001}$ 45-55° (bath). $[\alpha]_D^{27}$ -108 (c, 3.0 in $CHCl_3$).

5-Deoxy, Me glycoside: Methyl 2,3-anhydro-5-deoxy-β-D-ribofuranoside, 9CI
[55073-68-2]
$C_6H_{10}O_3$ 130.143
Mp 2-3°. $[\alpha]_D$ -153 (MeOH).

Anderson, C.D. *et al., J.A.C.S.*, 1958, **80**, 5247 (*synth, glycosides*)
Kuzuhara, H. *et al., Agric. Biol. Chem.*, 1963, **27**, 689; 1964, **28**, 184
Iwashige, T. *et al., Chem. Pharm. Bull.*, 1963, **11**, 1569 (*α-D-Et fur, β-D-Et fur*)
Goodman, L. *et al., J.A.C.S.*, 1964, **86**, 4167 (*β-D-Me fur tosyl*)
Williams, N.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 109 (*rev, glycoside derivs*)
Jenkins, S.R. *et al., Carbohydr. Res.*, 1973, **26**, 71 (*α-D-Me fur trityl, β-D-Me fur trityl*)
Hollenberg, D.H. *et al., Carbohydr. Res.*, 1975, **42**, 241 (*β-D-Me fur benzoyl*)
Unger, F.M. *et al., Carbohydr. Res.*, 1978, **67**, 257 (*α-D-Me fur*)
Kim, K.S. *et al., Carbohydr. Res.*, 1979, **72**, 25 (*cmr, glycosides*)
Anderson, C.D. *et al., Carbohydr. Res.*, 1994, **251**, 243 (*α-Me gly*)

4,5-Anhydroribonic acid A-691



$C_5H_8O_5$ 148.115

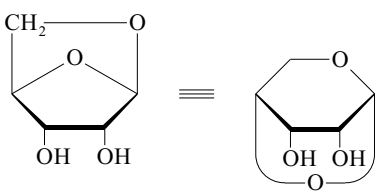
D-*form*

2,3-Isopropylidene, Me ester: Methyl 4,5-anhydro-2,3-O-*isopropylidene-D-ribonate*
[85994-62-3]
$C_9H_{14}O_5$ 202.207
Oil. Bp_{12} 120-124°. $[\alpha]_D^{23}$ -11.7 (c, 5.8 in $CDCl_3$).

Hoffmann, R.W. *et al., Chem. Ber.*, 1983, **116**, 1631 (*synth, pmr, cmr*)

1,4-Anhydroribopyranose A-692

1,5-Anhydroribofuranose



$C_5H_8O_4$ 132.116

β-D-*form*

1,5-Anhydro-β-D-ribofuranose. 1,4-Anhydro-α-D-ribopyranose
[51246-92-5]
Cryst. (dioxan/diisopropyl ether). Mp 109-110°. $[\alpha]_D^{20}$ -78.8 (c, 0.83 in H_2O).

Di-Ac: 2,3-Di-O-*acetyl-1,5-anhydro-β-D-ribofuranose. 2,3-Di*-O-*acetyl-1,4-anhydro-α-D-ribopyranose*
[51246-96-9]
$C_9H_{12}O_6$ 216.19

Cryst. (EtOH). Mp 71-72.5°. $[\alpha]_D^{20}$ -107.2 (c, 1 in $CHCl_3$).

Dibenzoyl: 1,5-Anhydro-2,3-di-O-*benzoyl-β-D-ribofuranose. 1,4-Anhydro-2,3-di*-O-*benzoyl-α-D-ribopyranose*
[111269-83-1]
$C_{19}H_{16}O_6$ 340.332
Cryst. (EtOH). Mp 204-205°. $[\alpha]_D^{25}$ +110 (c, 1 in $CHCl_3$).

Isopropylidene: 1,5-Anhydro-2,3-O-*isopropylidene-β-D-ribofuranose. 1,4-Anhydro-2,3*-O-*isopropylidene-α-D-ribopyranose*
[51246-99-2]
$C_8H_{12}O_4$ 172.18
Cryst. Mp 64-66°. $[\alpha]_D^{20}$ -72.1 (c, 1.1 in $CHCl_3$).

*Benzylidene (*R-*): 1,5-Anhydro-2,3*-O-R-*benzylidene-β-D-ribofuranose. 1,4-Anhydro-2,3*-O-R-*benzylidene-α-D-ribopyranose*
[39809-40-0]
$C_{12}H_{12}O_4$ 220.224
Mp 106-107°. $[\alpha]_D^{23}$ -55.7 (c, 0.7 in $CHCl_3$). $[\alpha]_D^{20}$ -45.4 (c, 0.71 in $CHCl_3$).

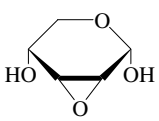
*Benzylidene (*S-*): 1,5-Anhydro-2,3*-O-S-*benzylidene-β-D-ribofuranose. 1,4-Anhydro-2,3*-O-S-*benzylidene-α-D-ribopyranose*
[39809-41-1]
$C_{12}H_{12}O_4$ 220.224
Mp 150-158°. $[\alpha]_D^{20}$ -54.9 (c, 0.47 in $CHCl_3$).

Dibenzyl: 1,5-Anhydro-2,3-di-O-*benzyl-β-D-ribofuranose. 1,4-Anhydro-2,3-di*-O-*benzyl-α-D-ribopyranose*
[87411-97-0]
$C_{19}H_{20}O_4$ 312.365
Cryst. (EtOH). Mp 65-66.5°. $[\alpha]_D^{25}$ -35.9 (c, 1 in $CHCl_3$).

Di-Me: 1,5-Anhydro-2,3-di-O-*methyl-β-D-ribofuranose. 1,4-Anhydro-2,3-di*-O-*methyl-α-D-ribopyranose*
[87582-97-6]
$C_7H_{12}O_4$ 160.169
Syrup. $[\alpha]_D^{25}$ -76 (c, 1 in $CHCl_3$).

Vis, E. *et al., J.A.C.S.*, 1957, **79**, 1182 (*synth, benzylidene, isopropylidene, dibenzoyl*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1972, **25**, 187-195 (*benzylidene, struct*)
Köll, P. *et al., Chem. Ber.*, 1973, **106**, 3565 (*synth*)
Heyns, K. *et al., Chem. Ber.*, 1981, **114**, 891 (*synth, pmr, cmr*)
Uryu, T. *et al., J.A.C.S.*, 1983, **105**, 6865-6871 (*synth, di-Me ether, dibenzyl, pmr, cmr*)
Beigelman, L.N. *et al., Carbohydr. Res.*, 1990, **203**, 324 (*dibenzoyl*)
Fleetwood, A. *et al., Carbohydr. Res.*, 1999, **317**, 204-209 (*isopropylidene*)

2,3-Anhydroribopyranose A-693



α-D-Pyranose-*form*

$C_5H_8O_4$ 132.116

D-Pyranose-*form* [61176-66-7]
Syrup. $[\alpha]_D$ -5 (c, 1.18 in H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-α-D-ribopyranoside, 9CI
[3945-21-9]
$C_6H_{10}O_4$ 146.143
Mp 83°. $[\alpha]_D^{20}$ +143 (c, 2.0 in MeOH).

Me glycoside, 4-tosyl: Methyl 2,3-anhydro-4-O-*tosyl-α-D-ribopyranoside*
[58394-21-1]
$C_{13}H_{16}O_6S$ 300.332
Cryst. ($CHCl_3$/petrol). Mp 84.5-86°. $[\alpha]_D^{20}$ +148 (c, 2.0 in $CHCl_3$).

Me glycoside, 4-Me: Methyl 2,3-anhydro-4-O-*methyl-α-D-ribopyranoside*
[50447-02-4]
$C_7H_{12}O_4$ 160.169
Cryst. (diisopropyl ether). Mp 37-38°. $[\alpha]_D^{25}$ +128 (c, 2.5 in $CHCl_3$).

Benzyl glycoside: Benzyl 2,3-anhydro-α-D-ribopyranoside
[61134-24-5]
$C_{12}H_{14}O_4$ 222.24
Cryst. (petrol). Mp 94-96°. $[\alpha]_D$ +202 (c, 1.0 in EtOAc).

Benzyl glycoside, 4-triflyl: Benzyl 2,3-anhydro-4-O-*triflyl-α-D-ribopyranoside*
[71204-44-9]
$C_{13}H_{13}F_3O_6S$ 354.303
Cryst. (EtOH). Mp 66°. $[\alpha]_D^{20}$ +133 (c, 1.0 in $CHCl_3$).

Allyl glycoside: Allyl 2,3-anhydro-β-D-ribopyranoside
$C_8H_{12}O_4$ 172.18
Cryst. (CH_2Cl_2/Et_2O). Mp 59-61°. $[\alpha]_D^{25}$ -51 (c, 1.2 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 2,3-anhydro-β-D-ribopyranoside, 9CI, 8CI
[3150-13-8]
$C_6H_{10}O_4$ 146.143
Cryst. (Et_2O/petrol). Mp 46°. $[\alpha]_D^{22}$ -35.8 (c, 0.6 in $CHCl_3$).

Me glycoside, 4-Ac: Methyl 4-O-*acetyl-2,3-anhydro-β-D-ribopyranoside*
[63847-12-1]
$C_8H_{12}O_5$ 188.18
Mp 73°. $[\alpha]_D$ +22.4 ($CHCl_3$).

Me glycoside, 4-benzoyl: Methyl 2,3-anhydro-4-O-*benzoyl-β-D-ribopyranoside*
[40147-22-6]
$C_{13}H_{14}O_5$ 250.251
Mp 106°. $[\alpha]_D$ +25.4 ($CHCl_3$).

Me glycoside, 4-tosyl: Methyl 2,3-anhydro-4-O-*tosyl-β-D-ribopyranoside*
[74128-58-8]
$C_{13}H_{16}O_6S$ 300.332
Mp 89°. $[\alpha]_D$ -25.5 ($CHCl_3$).

Me glycoside, 4-Me: Methyl 2,3-anhydro-4-O-*methyl-β-D-ribopyranoside, 9CI*
[5985-63-7]
$C_7H_{12}O_4$ 160.169
Mp 75-77°. $[\alpha]_D$ -7 (H_2O).

Me glycoside, 4-benzyl: Methyl 2,3-anhydro-4-O-*benzyl-β-D-ribopyranoside, 8CI*
[5985-62-6]
$C_{13}H_{16}O_4$ 236.267
Mp 42-43°. $[\alpha]_D$ +9.1 (EtOH).

Benzyl glycoside: Benzyl 2,3-anhydro-β-D-ribopyranoside
$C_{12}H_{14}O_4$ 222.24
Cryst. (diisopropyl ether). Mp 76-77°. $[\alpha]_D^{20}$ -67 (c, 0.8 in $CHCl_3$).

Benzyl glycoside, 4-Me: Benzyl 2,3-anhydro-4-O-*methyl-β-D-ribopyranoside*
$C_{13}H_{16}O_4$ 236.267
Cryst. (petrol). Mp 98-100°. $[\alpha]_D^{20}$ -19 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*

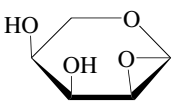
Me glycoside: Methyl 2,3-anhydro-α-D-ribofuranoside
$C_6H_{10}O_4$ 146.143
Oil. $[\alpha]_D^{23}$ +21.6 (c, 2.3 in H_2O) (+13.1).

β-L-Pyranose-*form*

Benzyl glycoside: Benzyl 2,3-anhydro-β-L-ribopyranoside
$C_{12}H_{14}O_4$ 222.24
Cryst. (diisopropyl ether). Mp 73-74°. $[\alpha]_D$ +148 (c, 0.2 in CH_2Cl_2).

Kent, P.W. *et al., J.C.S.*, 1949, 1232 (*β-D-Me pyr*)
Allerton, R. *et al., J.C.S.*, 1951, 1480 (*β-D-Me pyr, β-D-Me pyr derivs*)
Garegg, P.J. *et al., Acta Chem. Scand.*, 1960, **14**, 957 (*β-D-benzyl pyr, β-D-benzyl pyr Me*)
Williams, N.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 109
Chalk, R.C. *et al., Carbohydr. Res.*, 1973, **28**, 313 (*Me α-D-pyr 4-Me*)
Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 90 (*α-D-Me pyr, α-D-Me pyr tosyl*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1976, 1449 (*D-form, α-D-benzyl pyr*)
Kimmich, R. *et al., Annalen*, 1981, 1100 (*α-D-benzyl pyr triflyl*)
Takeo, K. *et al., Carbohydr. Res.*, 1990, **201**, 261 (*α-D-allyl pyr*)
Lugemura, F.N. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1433-1443 (*β-L-pyr benzyl gly*)
Callam, C.S. *et al., Carbohydr. Res.*, 2001, **330**, 267-270 (*Me α-D-fur*)

1,2-Anhydroribose A-694



$C_5H_8O_4$ 132.116

α-L-Pyranose-*form*

3,4-Dibenzyl: 1,2-Anhydro-3,4-di-O-*benzyl-α-L-ribopyranose*
[178681-42-0]
$C_{19}H_{20}O_4$ 312.365
No phys. props. reported.

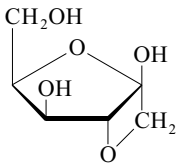
α-D-Furanose-*form*

3-Benzyl, 5-Ac: 5-O-*Acetyl-1,2-anhydro-3*-O-*benzyl-α-D-ribofuranose*
$C_{14}H_{16}O_5$ 264.277
$[\alpha]_D$ +36.1 (c, 1.1 in $CHCl_3$).

3,5-Dibenzyl: 1,2-Anhydro-3,5-di-O-*benzyl-α-D-ribofuranose*
[191543-69-8]
$C_{19}H_{20}O_4$ 312.365
Syrup. $[\alpha]_D$ +58 (c, 0.25 in $CHCl_3$).

Yang, G. *et al., Carbohydr. Lett.*, 1994, **1**, 137-141 (*α-D-pyr deriv*)
Ning, J. *et al., Carbohydr. Res.*, 1997, **300**, 355-360; 2001, **330**, 165-175 (*α-D-fur derivs*)

1,3-Anhydrosorbose A-695



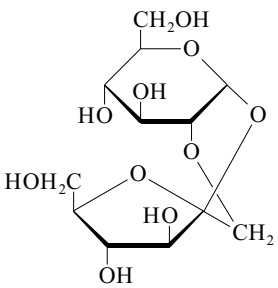
$C_6H_{10}O_5$ 162.142

β-D-Furanose-*form*

Me glycoside: Methyl 1,3-anhydro-β-D-sorbofuranoside
[121686-29-1]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{26}$ -33 (c, 1.03 in MeOH).

Martin, O.R. *et al., Carbohydr. Res.*, 1989, **185**, 77 (*synth, pmr, cmr*)

1′,2-Anhydrosucrose A-696



$C_{12}H_{20}O_{10}$ 324.284

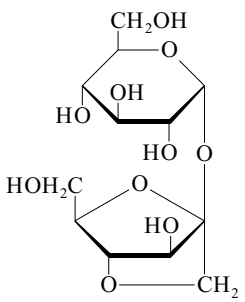
Hexa-Ac:
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (Et_2O). Mp 141°. $[\alpha]_D$ +79 ($CHCl_3$).

3,6-Anhydro: 1′,2:3,6-Dianhydrosucrose
$C_{12}H_{18}O_9$ 306.269
Syrup. $[\alpha]_D$ +16 (c, 1 in MeOH).

Chiu, A.K.B. *et al., Carbohydr. Res.*, 1982, **100**, 247

1′,4′-Anhydrosucrose A-697

1,4-Anhydro-β-D-fructofuranosyl α-D-glucopyranoside
[88238-30-6]

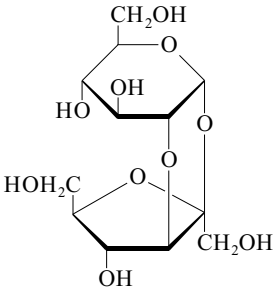


$C_{12}H_{20}O_{10}$ 324.284
Cryst. + $1H_2O$ (2-propanol aq.). Mp 168°. $[\alpha]_D$ +123 (c, 1.2 in MeOH).

Guthrie, R.D. *et al., Carbohydr. Res.*, 1983, **121**, 109 (*synth, pmr, cmr*)

2,3′-Anhydrosucrose A-698

[131158-06-0]



$C_{12}H_{20}O_{10}$ 324.284
Mp 201-203°. $[\alpha]_D$ +72 (H_2O).

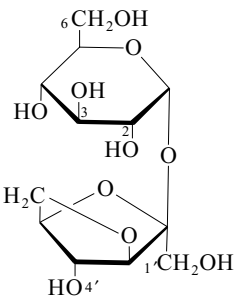
Hexa-Ac: [131158-07-1]
$C_{24}H_{32}O_{16}$ 576.507
Syrup. $[\alpha]_D$ +43 ($CHCl_3$).

Čapek, K. *et al., Carbohydr. Res.*, 1990, **205**, 161 (*synth, pmr, cmr, derivs*)

Novotny, J. *et al., Z. Kristallogr.*, 1991, **197**, 189 (*cryst struct*)

3′,6′-Anhydrosucrose A-699

3,6-Anhydro-β-D-fructofuranosyl α-D-glucopyranoside, 8CI
[35997-21-8]



$C_{12}H_{20}O_{10}$ 324.284
Cryst. (MeOH). Mp 146°. $[\alpha]_D^{20}$ +104 (c, 1.2 in MeOH).

1′,4′-Anhydro: 1′,4′:3′,6′-Dianhydrosucrose
$C_{12}H_{18}O_9$ 306.269
Cryst. (EtOH). Mp 184-185°.

3,6-Anhydro, tetra-Ac: 1′,2,4,4′-Tetra-O-acetyl-3,6:3′,6′-dianhydrosucrose
[35903-06-1]
$C_{20}H_{26}O_{13}$ 474.418
Cryst. (Et_2O/petrol). Mp 69-72°. $[\alpha]_D$ +32.5 ($CHCl_3$).

1′,4′:3,6-Dianhydro: 1′,4′:3,6:3′,6′-Trianhydrosucrose
[28171-51-9]
$C_{12}H_{16}O_8$ 288.254
Mp 163-164.5°. $[\alpha]_D$ +117 ($CHCl_3$). Probable struct. (see Chiu *et al*).

1′,4′:3,6-Dianhydro, di-Ac:
$C_{16}H_{20}O_{10}$ 372.328
Cryst. (EtOH). Mp 181.5-182.5°. $[\alpha]_D$ +128.6 (c, 1 in $CHCl_3$). Revised physical constants (Chiu *et al*).

2,1′:3,6-Dianhydro: 2,1′:3,6:3′,6′-Trianhydrosucrose
$C_{12}H_{16}O_8$ 288.254
Cryst. (EtOH). Mp 189°. $[\alpha]_D$ +54 (MeOH). Probable struct. Revised constants: a compd. formerly assigned this struct. was probably the 1′,4′:3,6:3′,6′-anhydride (see Chiu *et al*).

2,1′:3,6-Dianhydro, di-Ac:
$C_{16}H_{20}O_{10}$ 372.328
Cryst. (EtOH). Mp 297-299° dec. $[\alpha]_D$ +68 ($CHCl_3$). Revised physical constants.

2,1′:3,6-Dianhydro, ditosyl:
$C_{26}H_{28}O_{12}S_2$ 596.632
Mp 164.5-166°.

2,1′:3,6-Dianhydro, di-Me:
$C_{14}H_{20}O_8$ 316.307
Mp 179-181°. $[\alpha]_D$ +140 (c, 1.9 in $CHCl_3$).

Issacs, N.W. *et al., Chem. Comm.*, 1970, 360 (*1,4′:3,6-dianhydro, cryst struct*)

Bolton, C.H. *et al., Carbohydr. Res.*, 1972, **21**, 133 (*3,6-anhydro tetra-Ac, pmr*)

Buchanan, J.G. *et al., Carbohydr. Res.*, 1972, **21**, 283; 293 (*synth*)

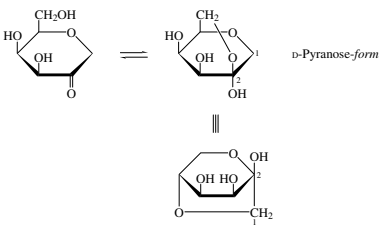
Khan, R. *et al., Carbohydr. Res.*, 1972, **22**, 441 (*1′,4′:3,6-dianhydro di-Ac*)

Khan, R. *et al., Adv. Carbohydr. Chem.*, 1976, **33**, 235 (*rev, derivs*)

Chiu, A.K.B. *et al., Carbohydr. Res.*, 1982, **100**, 247 (*synth, struct, bibl, dianhydrides, trianhydrides*)

Guthrie, R.D. *et al., Carbohydr. Res.*, 1988, **176**, 306 (*synth*)

1,5-Anhydrotagatose, 9CI A-700



$C_6H_{10}O_5$ 162.142

Complex tautomerism, pmr could not be interpreted. Ir showed no carbonyl absorption.

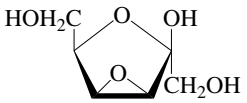
D-form [172342-19-7]
V. hygroscopic semisolid. $[\alpha]_D$ -6.8 (c, 1.1 in MeOH).

Oxime (Z-?): [172342-18-6]
$C_6H_{11}NO_5$ 177.157
Mp 176-179°. $[\alpha]_D$ -9.2 (c, 0.5 in MeOH).

3,4-Isopropylidene: 1,5-Anhydro-3,4-O-isopropylidene-D-tagatose, 9CI
[172291-66-6]
$C_9H_{14}O_5$ 202.207
Mp 119-122°. $[\alpha]_D$ +17.4 (c, 0.9 in $CHCl_3$). Crystallises as the bicyclo tautomer; obt. as a mixt. of monocyclic and bicyclic tautomers as first prep.

Barili, P.L. *et al., Carbohydr. Res.*, 1995, **274**, 197-208

3,4-Anhydrotagatose A-701



β-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-Furanose-*form*

Me glycoside: Methyl 3,4-anhydro-α-D-tagatofuranoside, 9CI
[79184-49-9]
$C_7H_{12}O_5$ 176.169
$[\alpha]_D^{25}$ +49.6 (c, 1.0 in MeOH).

Me glycoside, 1,6-di-Ac: Methyl 1,6-di-O-acetyl-3,4-anhydro-α-D-tagatofuranoside
[79184-48-8]
$C_{11}H_{16}O_7$ 260.243
Oil. $[\alpha]_D$ +47.8 (c, 1.0 in $CHCl_3$).

Me glycoside, 1,6-ditosyl: Methyl 3,4-anhydro-1,6-di-O-tosyl-α-D-tagatofuranoside
[79184-52-4]
$C_{21}H_{24}O_9S_2$ 484.547
Syrup. $[\alpha]_D^{25}$ +10.8 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside: Methyl 3,4-anhydro-β-D-tagatofuranoside, 9CI
[76227-29-7]
$C_7H_{12}O_5$ 176.169
$[\alpha]_D$ -28.2 (c, 1.0 in MeOH).

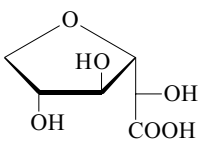
Me glycoside, 1,6-di-Ac: Methyl 1,6-di-O-acetyl-3,4-anhydro-β-D-tagatofuranoside
[79184-46-6]
$C_{11}H_{16}O_7$ 260.243
Oil. $[\alpha]_D$ -34.2 (c, 1.0 in $CHCl_3$).

Me glycoside, 1,6-ditosyl: Methyl 3,4-anhydro-1,6-di-O-tosyl-β-D-tagatofuranoside
[79184-47-7]
$C_{21}H_{24}O_9S_2$ 484.547
Mp 110.5-111°. $[\alpha]_D^{25}$ -13.8 (c, 1.0 in $CHCl_3$).

Guthrie, R.D. *et al., Chem. Comm.*, 1980, 784 (*synth*)

Guthrie, R.D. *et al., J.C.S. Perkin 1*, 1981, 2328 (*synth, pmr, cmr*)

3,6-Anhydrotalonic acid A-702



$C_6H_{10}O_6$ 178.141

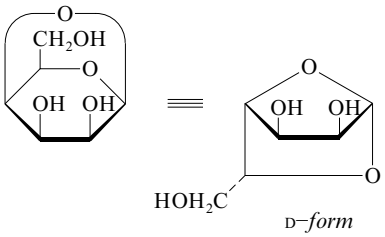
D-*form*

2-Tosyl, Me ester: Methyl 3,6-anhydro-2-O-tosyl-D-talonate
[166830-21-3]
$C_{14}H_{18}O_8S$ 346.357
Syrup. $[\alpha]_D$ +14.2 (c, 1.0 in Me_2CO).

Frank, H. *et al., Tetrahedron*, 1995, **51**, 5397 (*synth, pmr*)

1,4-Anhydrotalopyranose A-703

1,5-Anhydrotalofuranose, 9CI



D–*form*

$C_6H_{10}O_5$ 162.142

D-*form*

$[\alpha]_D^{20}$ -30 (c, 1 in H_2O).

Tri-Ac: 2,3,6-Tri-O-acetyl-1,5-anhydro-α-D-talofuranose. 2,3,6-Tri-O-acetyl-1,4-anhydro-β-D-talopyranose
[50679-51-1]
$C_{12}H_{16}O_8$ 288.254
Cryst. Mp 70-72°. $[\alpha]_D^{20}$ +71 (c, 1.0 in $CHCl_3$).

2,3-Isopropylidene: 1,5-Anhydro-2,3-O-isopropylidene-α-D-talofuranose. 1,4-Anhydro-2,3-O-isopropylidene-β-D-talopyranose
[50831-92-0]
$C_9H_{14}O_5$ 202.207
Cryst. by subl. Mp 75°. $[\alpha]_D^{20}$ +33.9 (c, 1 in $CHCl_3$).

2,3-Isopropylidene, 6-tosyl: 1,5-Anhydro-2,3-O-isopropylidene-6-O-tosyl-α-D-talofuranose. 1,4-Anhydro-2,3-O-isopropylidene-6-O-tosyl-β-D-talopyranose
[50930-34-2]
$C_{16}H_{20}O_7S$ 356.396
Cryst. (Et_2O). Mp 91°. $[\alpha]_D$ +17.4 (c, 1 in $CHCl_3$).

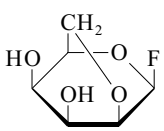
L-*form*

2,3-Isopropylidene: 1,5-Anhydro-2,3-O-isopropylidene-L-talofuranose. 1,4-Anhydro-2,3-O-isopropylidene-L-talopyranose
[123155-62-4]
$C_9H_{14}O_5$ 202.207
Cryst. Mp 67-70°. $[\alpha]_D^{20}$ -39.9 (c, 1 in $CHCl_3$).

Durette, P.L. *et al., Chem. Ber.*, 1973, **106**, 2333 (*synth*)

Auberson, Y. *et al., Helv. Chim. Acta*, 1989, **72**, 278 (*L-form, isopropylidene, synth, ir, pmr, cmr*)

2,6-Anhydrotalopyranosyl fluoride A-704



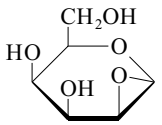
$C_6H_9FO_4$ 164.133

β-D-*form*

3,4-Cyclic sulfite: [108224-16-4]
$C_6H_7FO_5S$ 210.183
Needles (Et_2O). Mp 195-195.6°. $[\alpha]_D$ -35.6 (c, 1.07 in $CHCl_3$).

Baillargeon, D.J. *et al., Carbohydr. Res.*, 1986, **154**, 275 (*synth, pmr, F-19 nmr, ir, cryst struct*)

1,2-Anhydrotalose A-705



$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

3,4-Dibenzyl, 6-Ac: 6-O-Acetyl-1,2-anhydro-3,4-di-O-benzyl-β-D-talopyranose
$C_{22}H_{24}O_6$ 384.428
$[\alpha]_D$ +14.3 (c, 2.5 in $CHCl_3$).

Tribenzyl: 1,2-Anhydro-3,4,6-tri-O-benzyl-β-D-talopyranose
$C_{27}H_{28}O_5$ 432.515
Cryst. (petrol/EtOAc). Mp 83-84° (77°).
$[\alpha]_D^{23}$ -23.6 (c, 0.1 in $CHCl_3$).

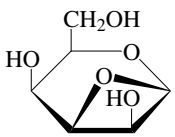
Liu, J. *et al., Carbohydr. Res.*, 1993, **240**, 295 (*synth, pmr, cmr*)

Li, G. *et al., Carbohydr. Res.*, 1993, **247**, 63 (*cryst struct, tribenzyl*)

Wu, E. *et al., Carbohydr. Res.*, 1993, **250**, 327 (*synth, pmr*)

Ning, J. *et al., Carbohydr. Res.*, 2001, **330**, 165-167 (*3,4-dibenzyl 6-Ac*)

1,3-Anhydrotalose A-706



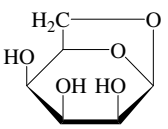
$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form*

Tribenzyl: 1,3-Anhydro-2,4,6-tri-O-benzyl-β-D-talopyranose
[162191-50-6]
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D^{20}$ -7.1 (c, 0.45 in $CHCl_3$).

Gan, Z. *et al., Carbohydr. Lett.*, 1994, **1**, 27-30 (*β-D-pyr tribenzyl*)

1,6-Anhydrotalose A-707



β-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

β-D-Pyranose-*form* [14059-73-5]
Granules (2-propanol). Mp 206-208° (197-199°) Mp 185-186°. $[\alpha]_D$ -83 (c, 1.0 in H_2O).

Tribenzoyl: 1,6-Anhydro-2,3,4-tri-O-benzoyl-β-D-talopyranose
[110566-99-9]
$C_{27}H_{22}O_8$ 474.466
Cryst. (Et_2O/hexane). Mp 178°. $[\alpha]_D^{21}$ -58 (c, 0.1 in $CHCl_3$).

3,4-Isopropylidene: 1,6-Anhydro-3,4-O-isopropylidene-β-D-talopyranose
[17073-95-9]
$C_9H_{14}O_5$ 202.207

Cryst. (C_6H_6). Mp 117-118°. $[\alpha]_D^{20}$ -115 (c, 1 in $CHCl_3$).

*2,4-Dibenzyl: 1,6-Anhydro-2,4-di-*O*-benzyl-β-D-talopyranose*
[114283-79-3]
$C_{20}H_{22}O_5$ 342.391
Syrup. $[\alpha]_D$ -19 (c, 0.6 in $CHCl_3$).

*2,4-Dibenzyl, Ac: 3-*O*-Acetyl-1,6-anhydro-2,4-di-*O*-benzyl-β-D-talopyranose*
[114283-80-6]
$C_{22}H_{24}O_6$ 384.428
Syrup. $[\alpha]_D$ -26 (c, 0.5 in $CHCl_3$).

*Tribenzyl: 1,6-Anhydro-2,3,4-tri-*O*-benzyl-β-D-talopyranose*
[116429-43-7]
$C_{27}H_{28}O_5$ 432.515
Syrup. $[\alpha]_D^{25}$ -18 (c, 0.36 in $CHCl_3$).

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-1,6-anhydro-β-D-talopyranose*
[14661-16-6]
$C_{12}H_{16}O_8$ 288.254
Cryst. (Et_2O). Mp 117-118°. $[\alpha]_D$ -73 (c, 0.5 in $CHCl_3$).

*2,3-Isopropylidene: 1,2-Anhydro-2,3-*O*-isopropylidene-β-D-talopyranose*
[14278-75-2]
$C_9H_{14}O_5$ 202.207
Prisms ($CHCl_3$/petrol). Mp 104-105°. $[\alpha]_D^{20}$ -34 (c, 1.5 in $CHCl_3$).

α-D-Furanose-*form* [50679-50-0]
Cryst. (AcOH). Mp 113-114° (107°). $[\alpha]_D^{20}$ +18.1 (c, 1 in H_2O).

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-1,6-anhydro-α-D-talofuranose*
[50831-91-9]
$C_{12}H_{16}O_8$ 288.254
Mp 120-121°. $[\alpha]_D^{20}$ +92.2 (c, 1 in $CHCl_3$).

α-L-Furanose-*form* [120288-33-7]

*5-Benzoyl: 1,6-Anhydro-5-*O*-benzoyl-α-L-talofuranose*
[120288-31-5]
$C_{13}H_{14}O_6$ 266.25
Cryst. (toluene). Mp 136°. $[\alpha]_D^{20}$ +7 (c, 0.6 in $CHCl_3$).

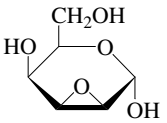
*2,3-Isopropylidene: 1,6-Anhydro-2,3-*O*-isopropylidene-α-L-talofuranose*
$C_9H_{14}O_5$ 202.207
Cryst. (2-propanol). Mp 114°. $[\alpha]_D^{20}$ -14.6 (c, 1.5 in $CHCl_3$).

*2,3-Isopropylidene, 5-benzoyl: 1,6-Anhydro-5-*O*-benzoyl-2,3-*O*-isopropylidene-α-L-talofuranose*
[120288-32-6]
$C_{16}H_{18}O_6$ 306.315
Cryst. (Et_2O). Mp 105-106°. $[\alpha]_D^{20}$ -9.8 (c, 1.1 in $CHCl_3$).

[22224-56-2]

Horton, D. *et al., Carbohydr. Res.*, 1967, **5**, 149-160 (*β-D-pyr-form, β-D-pyr tri-Ac, isopropylidene derivs*)
Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2317 (*β-D-pyr isopropylidene*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1968, **21**, 2747; 1978, **31**, 1151 (*synth, α-D-fur*)
Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1143 (*synth, bibl, β-D-pyr*)
Durette, P.L. *et al., Chem. Ber.*, 1973, **106**, 2333 (*synth, D-fur, α-D-fur derivs*)
Panagiotopoulos, N.C. *et al., Acta Cryst. B*, 1974, **30**, 1402 (*β-D-pyr isopropylidene, cryst struct*)
Ohrui, N. *et al., Can. J. Chem.*, 1987, **65**, 1145 (*β-D-pyr tribenzoyl*)
Carmen Cruzado, M. *et al., Carbohydr. Res.*, 1987, **170**, 249; 1988, **175**, 193 (*β-D-pyr 2,4-dibenzyl*)
Köll, P. *et al., Carbohydr. Res.*, 1988, **174**, 9; **179**, 1 (*pmr, cmr, cryst struct, α-D-fur*)
Köll, P. *et al., J. Carbohydr. Chem.*, 1988, **7**, 757 (*α-L-fur derivs*)

2,3-Anhydrotalose A-708



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

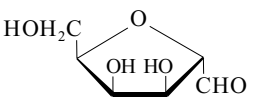
*Me glycoside, 4,6-*O*-benzylidene: Methyl 2,3-anhydro-4,6-*O*-benzylidene-α-D-talopyranoside*
[32976-15-1]
$C_{14}H_{16}O_5$ 264.277
Mp 242°. $[\alpha]_D$ -40.1 ($CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 2,3-anhydro-4,6-*O*-benzylidene-β-D-talopyranoside*
[15384-57-3]
$C_{14}H_{16}O_5$ 264.277
Mp 247-248°. $[\alpha]_D^{20}$ -150 (Py) (lit. gives a temp. range).

Kovář, J. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 854 (*β-D-Me pyr benzylidene*)
Zobáčová, A. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1860 (*α-D-Me pyr benzylidene*)
Abdel-Malik, M.M. *et al., Carbohydr. Res.*, 1987, **159**, 11 (*pmr, cmr*)
Szeja, W. *et al., Carbohydr. Res.*, 1988, **183**, 135 (***synth, α-D-Me pyr benzylidene***)

2,5-Anhydrotalose A-709



D–*form*

$C_6H_{10}O_5$ 162.142

D-*form*
Glass. $[\alpha]_D^{25}$ +33.9 → +27 (c, 0.44 in H_2O).

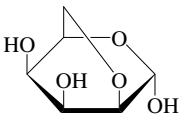
L-*form*

*Di-Me acetal, tribenzoyl: 2,5-Anhydro-3,4,6-tri-*O*-benzoyl-L-talose dimethyl acetal*
[39706-30-4]
$C_{29}H_{28}O_9$ 520.535
Syrup. $[\alpha]_D^{24}$ -16 (c, 2.65 in $CHCl_3$).

*Di-Me acetal, tri-*O*-benzyl: 2,5-Anhydro-3,4,6-tri-*O*-benzyl-L-talose dimethyl acetal*
[39706-31-5]
$C_{29}H_{34}O_6$ 478.584
Syrup. $[\alpha]_D^{24}$ -8 (c, 1.15 in $CHCl_3$).

Defaye, J. *et al., Bull. Soc. Chim. Fr.*, 1964, 999
Ogawa, T. *et al., Agric. Biol. Chem.*, 1972, **36**, 1655 (*synth, pmr*)

2,6-Anhydrotalose A-710



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

D-*form*

Bis(di-Et dithioacetal), S,S,S′,S′-*tetraoxide: 2,6-Anhydro-1,1-bis(ethanesulfonyl)-1-deoxy-D-talitol*
Needles (EtOH). Mp 180-185° (193-195°). $[\alpha]_D$ +14 (c, 5.0 in H_2O). Mp appears variable.

α-D-Pyranose-*form*

Me glycoside: Methyl 2,6-anhydro-α-D-talopyranoside
[71109-85-8]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{20}$ +49.3 (c, 0.7 in MeOH).

*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2,6-anhydro-α-D-talopyranoside*
[71109-86-9]
$C_{11}H_{16}O_7$ 260.243
Syrup. $[\alpha]_D^{20}$ +11 (c, 1.5 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2,6-anhydro-3,4-*O*-isopropylidene-α-D-talopyranoside*
[71154-74-0]

[65143-56-8]
$C_{10}H_{16}O_5$ 216.233
Cryst. (petrol). Mp 85-87°. $[\alpha]_D$ +52.5 (c, 0.73 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 2,6-anhydro-β-D-talopyranoside
[65143-57-9]
$C_7H_{12}O_5$ 176.169
Solid. Mp 123-124°. $[\alpha]_D^{20}$ -61.2 (c, 1 in H_2O).

*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2,6-anhydro-β-D-talopyranoside*
[65143-58-0]
$C_{11}H_{16}O_7$ 260.243
Cryst. (Et_2O/petrol). Mp 90°. $[\alpha]_D^{20}$ -60 (c, 1 in $CHCl_3$).

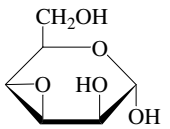
*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2,6-anhydro-3,4-*O*-isopropylidene-β-D-talopyranoside*
[71154-75-1]
$C_{10}H_{16}O_5$ 216.233
Cryst. (petrol). Mp 77-79°. $[\alpha]_D$ -70.1 (c, 0.8 in $CHCl_3$).

*Me glycoside, 3,4-di-Me: Methyl 2,6-anhydro-3,4-di-*O*-methyl-β-D-talopyranoside*
[71109-87-0]
$C_9H_{16}O_5$ 204.222
Syrup. $[\alpha]_D^{20}$ -64 (c, 1.4 in $CHCl_3$).

Hughes, N.A. *et al., J.C.S.(C)*, 1969, 2263-2266 (*α-D-Me pyr isopropylidene, β-D-Me pyr isopropylidene*)
Köll, P. *et al., Chem. Ber.*, 1977, **110**, 3297-3303 (*β-D-Me pyr, β-D-Me pyr di-Ac*)

Köll, P. *et al., Chem. Ber.*, 1979, **112**, 2296-2304 (*α-D-Me pyr, α-D-Me pyr di-Ac, β-D-Me pyr di-Me*)
Norris, P. *et al., Carbohydr. Res.*, 1999, **322**, 147-150 (*dithioacetal, bibl, pmr, cmr, cryst struct*)

3,4-Anhydrotalose A-711



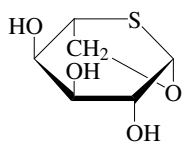
α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

α-DL-Pyranose-*form*

Me glycoside, di-Ac: Methyl 2,6-di-O-acetyl-3,4-anhydro-α-DL-talopyranoside
[39598-75-9]
$C_{11}H_{16}O_7$ 260.243
Cryst. (Et_2O/Me_2CO). Mp 55°. Cryst. struct. detn. was on the 6,6-d_2 deriv.
Banaszek, A. *et al., Bull. Acad. Pol. Sci., Ser. Sci. Chim.*, 1972, **20**, 925; 935 (*synth*)
Krajewski, J.W. *et al., Carbohydr. Res.*, 1988, **173**, 145 (*cryst struct, deriv*)

1,6-Anhydro-5-thioaltrose A-712

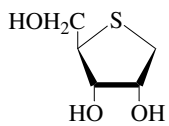


$C_6H_{10}O_4S$ 178.209

β-L-*form* [612051-33-9]
Mp 138-143°. $[\alpha]_D^{24}$ +95 (c, 0.25 in MeOH).
Uenishi, J. *et al., Tetrahedron*, 2003, **59**, 7011-7022 (*β-L-form, synth, pmr, cmr*)

1,4-Anhydro-4-thioribitol A-713

1,4-Dideoxy-1,4-epithioribitol, 9CI



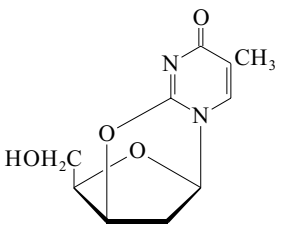
$C_5H_{10}O_3S$ 150.198

D-*form* [190315-43-6]
Oil. $[\alpha]_D^{20}$ +67.4 (c, 0.25 in H_2O).
Tri-Ac: 2,3,5-Tri-O-acetyl-1,4-anhydro-4-thioribitol
[190315-42-5]
$C_{11}H_{16}O_6S$ 276.31
Oil. $[\alpha]_D^{20}$ +64.2 (c, 0.75 in $CHCl_3$).
Tribenzyl: 1,4-Anhydro-2,3,4-tri-O-benzyl-4-thioribitol
[291758-10-6]
$C_{26}H_{28}O_3S$ 420.571
Oil.

L-*form*
Yellow oil. $[\alpha]_D^{20}$ -73.2 (c, 0.25 in H_2O).
Altenbach, H.-J. *et al., Tetrahedron: Asymmetry*, 1996, **7**, 3087-3090 (*L-form, synth, pmr, cmr*)
Altenbach, H.-J. *et al., Tetrahedron*, 1997, **53**, 6019-6026 (*D-form, synth, tri-Ac, pmr, cmr*)
Naka, T. *et al., J.A.C.S.*, 2000, **122**, 7233-7243 (*D-form, synth, pmr, cmr*)
Minakawa, N. *et al., Tetrahedron*, 2003, **59**, 1699-1702 (*D-form, !synth*)

2,3′-Anhydrothymidine A-714

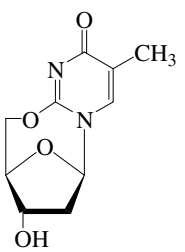
*2,3-Dihydro-3-(hydroxymethyl)-8-methyl-2,5-methano-5*H,*9*H-*pyrimido[2,1-b][1,5,3]dioxazepin-9-one, 9CI. O²,3′-Cyclothymidine*
[15981-92-7]



$C_{10}H_{12}N_2O_4$ 224.216
Intermed. in synth. of Zidovudine, Z-4.
Needles (EtOH aq.). Mp 230°.
Michelson, A.M. *et al., J.C.S.*, 1955, 816-823 (*synth, uv*)
Rao, T.S. *et al., Chem. Comm.*, 1989, 997-998 (*synth, use*)
Larsen, E. *et al., Synthesis*, 1995, 1121-1125 (*synth*)
Balagopala, M.I. *et al., Nucleosides Nucleotides*, 1996, **15**, 899-906 (*synth*)

2,5′-Anhydrothymidine A-715

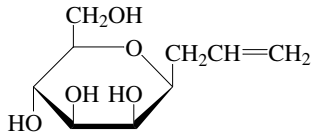
*7,8,9,10-Tetrahydro-8-hydroxy-3-methyl-6,9-epoxy-2*H,*6*H-*pyrimido[2,1-b][1,3]oxazocin-2-one, 9CI. O²,5′-Cyclothymidine*
[15425-09-9]



$C_{10}H_{12}N_2O_4$ 224.216
Long needles.
Jurczyk, S.C *et al., Helv. Chim. Acta*, 1998, **81**, 793-811 (*synth, pmr, cmr*)

4,8-Anhydro-1,2,3-trideoxy-D-*glycero*-D-*galacto*-non-1-enitol, 9CI A-716

*3-β-D-Mannopyranosyl-1-propene. 2,6-Anhydro-7,8,9-trideoxy-L-*glycero-*D*-manno-*non-8-enitol*
[122920-07-4]



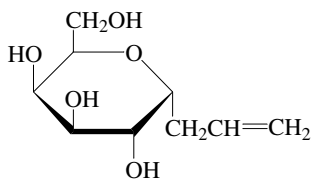
$C_9H_{16}O_5$ 204.222
Prepd. as anomeric mixt. with α-isomer.

Tetra-Ac: [98920-49-1]
$C_{17}H_{24}O_9$ 372.371
Cryst. (Et_2O/petrol). Mp 100-101°. $[\alpha]_D^{20}$ -26 (c, 0.2 in $CHCl_3$).

6,7,9-Tribenzyl: [192929-33-2]
$C_{30}H_{34}O_5$ 474.596
Oil. $[\alpha]_D^{20}$ -10.9 (c, 0.75 in $CHCl_3$).
Broxterman, H.J.G. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1990, **109**, 583-590 (*synth, cmr*)
Cipolla, L. *et al., J.O.C.*, 1997, **62**, 6678-6681 (*tribenzyl*)
Praly, J.-P. *et al., Eur. J. Org. Chem.*, 2000, 2831-2838 (*tetra-Ac*)

4,8-Anhydro-1,2,3-trideoxy-D-*glycero*-L-*gluco*-non-1-enitol A-717

*2,6-Anhydro-7,8,9-trideoxy-D-*glycero-*L-*galacto-*non-8-enitol, 9CI. 3-α-D-Galacto-pyranosyl-1-propene*
[133697-14-0]



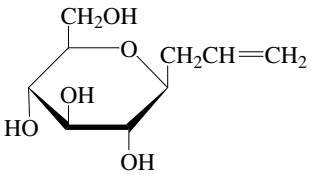
$C_9H_{16}O_5$ 204.222
The 8-enitol name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates. Cryst. (Me_2CO). Mp 134°. $[\alpha]_D$ +104 (c, 1.5 in $CHCl_3$).

Tetra-Ac: [98920-44-6]
$C_{17}H_{24}O_9$ 372.371
Syrup. $[\alpha]_D^{23}$ +84 (c, 0.9 in $CHCl_3$).

1,3,4-Tribenzyl: [271246-08-3]
$C_{30}H_{34}O_5$ 474.596
Oil. $[\alpha]_D$ +63.5 (c, 1 in $CHCl_3$).
Cabaret, D. *et al., J. Carbohydr. Chem.*, 1991, **10**, 55-63 (*synth, cmr*)
Ponten, F. *et al., J.O.C.*, 1996, **61**, 7463-7466 (*tetra-Ac*)
Cipolla, L. *et al., Tetrahedron: Asymmetry*, 2000, **11**, 295-303 (*tribenzyl*)

4,8-Anhydro-1,2,3-trideoxy-D-*glycero*-D-*gulo*-non-1-enitol, 9CI A-718

2,6-Anhydro-7,8,9-trideoxy-L-glycero-*L*-gulo-*non-8-enitol. 3-β-D-Glucopyranosyl-1-propene*



$C_9H_{16}O_5$ 204.222
Needles. $[\alpha]_D^{20}$ -6 (c, 1 in MeOH).

Tetra-Ac: [53263-18-6]
$C_{17}H_{24}O_9$ 372.371
Cryst. (Et_2O/petrol). Mp 77-78°. $[\alpha]_D^{20}$ -8 (c, 1 in $CHCl_3$).

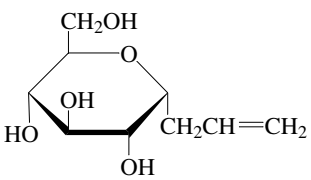
Tetrabenzoyl: [98920-47-9]
$C_{37}H_{32}O_9$ 620.654
Foam. $[\alpha]_D^{25}$ +34 (c, 0.7 in CH_2Cl_2).

Tetrabenzyl: [81972-19-2]
$C_{37}H_{40}O_5$ 564.72
Needles (petrol). Mp 89-90.5°. $[\alpha]_D^{28}$ +18 (c, 1.2 in $CHCl_3$).

Shulman, M.L. *et al., Carbohydr. Res.*, 1974, **33**, 229-235 (*synth, tetra-Ac*)
Araki, Y. *et al., J. Carbohydr. Chem.*, 1985, **4**, 565-585 (*tetrabenzyl*)
Horton, D. *et al., Carbohydr. Res.*, 1988, **184**, 221-229; 1989, **191**, 223-229 (*tetra-Ac, tetrabenzoyl*)
Best, W.M. *et al., Aust. J. Chem.*, 1997, **50**, 463-472 (*tetra-Ac, tetrabenzyl*)
Cipolla, L. *et al., J.O.C.*, 1997, **62**, 6678-6681 (*6,7,9-tribenzyl*)
Fairweather, J.K. *et al., Tetrahedron*, 1999, **55**, 3695-3706 (*synth, pmr, cmr*)
Praly, J.-P. *et al., Eur. J. Org. Chem.*, 2000, 2831-2838 (*tetra-Ac*)
Xie, J. *et al., Eur. J. Org. Chem.*, 2002, 3411-3418 (*5,6,7-tribenzyl*)

4,8-Anhydro-1,2,3-trideoxy-D-*glycero*-D-*ido*-non-1-enitol A-719

2,6-Anhydro-7,8,9-trideoxy-D-glycero-*L*-gulo-*non-8-enitol, 9CI. 3-α-D-Glucopyranosyl-1-propene*
[106756-74-5]



$C_9H_{16}O_5$ 204.222
The 8-enitol name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates. Cryst. (EtOH or 2-propanol). Mp 153-156° (150-151°). $[\alpha]_D^{20}$ +94 (c, 0.7 in H_2O).

Tetra-Ac: [82659-53-8]
$C_{17}H_{24}O_9$ 372.371
Needles ($CHCl_3$/hexane). Mp 108°. $[\alpha]_D^{25}$ +72 (c, 1 in $CHCl_3$).

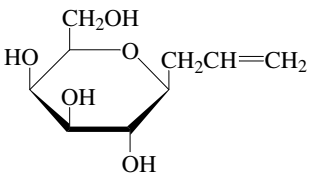
Tetrabenzoyl: [98854-01-4]
$C_{37}H_{32}O_9$ 620.654
Solid (EtOH). Mp 121-122°. $[\alpha]_D^{25}$ +66 (c, 0.65 in CH_2Cl_2).

Tetrabenzyl: [82659-52-7]
$C_{37}H_{40}O_5$ 564.72
Mp 64-64.5°. $[\alpha]_D^{28}$ +38.9 (c, 1.1 in $CHCl_3$).

Araki, Y. *et al., J. Carbohydr. Chem.*, 1985, **4**, 565-585 (*tetrabenzyl*)
Bennek, J.A. *et al., J.O.C.*, 1987, **52**, 892-897 (*synth, cmr*)
Horton, D. *et al., Carbohydr. Res.*, 1988, **184**, 221-229; 1989, **191**, 223-229 (*synth, tetra-Ac, tetrabenzoyl*)
Bombard, S. *et al., Carbohydr. Res.*, 1995, **275**, 433-440 (*tetrabenzyl*)
Xie, J. *et al., Eur. J. Org. Chem.*, 2002, 3411-3418 (*5,6,7-tribenzyl*)

4,8-Anhydro-1,2,3-trideoxy-D-*glycero*-L-*manno*-non-1-enitol A-720

2,6-Anhydro-7,8,9-trideoxy-L-glycero-*L*-galacto-*non-8-enitol, 9CI. 3-β-D-Galactopyranosyl-1-propene*
[129706-77-0]



$C_9H_{16}O_5$ 204.222
The 8-enitol name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates. Cryst. (EtOAc). Mp 120-122°. $[\alpha]_D^{20}$ +1.9 (c, 1.08 in H_2O).

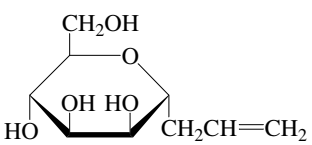
Tetra-Ac: [98920-48-0]
$C_{17}H_{24}O_9$ 372.371
Needles (Et_2O/petrol). Mp 49-52°. $[\alpha]_D^{23}$ +6.6 (c, 0.4 in $CHCl_3$).

1,3,4-Tribenzyl: [77737-63-4]
$C_{30}H_{34}O_5$ 474.596
Syrup. $[\alpha]_D$ +42.3 ($CHCl_3$).

Hanessian, S. *et al., Pure Appl. Chem.*, 1981, **53**, 129-148 (*tribenzyl*)
BeMiller, J.N. *et al., Carbohydr. Res.*, 1990, **200**, 111-126 (*synth*)
Praly, J.-P. *et al., Eur. J. Org. Chem.*, 2000, 2831-2838 (*tetra-Ac*)

4,8-Anhydro-1,2,3-trideoxy-D-*glycero*-D-*talo*-non-1-enitol A-721

2,6-Anhydro-7,8,9-trideoxy-D-glycero-*D*-manno-*non-8-enitol, 9CI. 3-(α-D-Mannopyranosyl)-1-propene*
[122920-03-0]

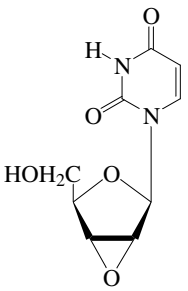


$C_9H_{16}O_5$ 204.222
The 8-enitol name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates. Oil. $[\alpha]_D^{17}$ +24.3 (c, 2.65 in MeOH).

Tetra-Ac: [98920-46-8]
$C_{17}H_{24}O_9$ 372.371
Oil. $[\alpha]_D^{17}$ +6.83 (c, 1.2 in CH_2Cl_2).

Nicolaou, K.C. *et al., J.A.C.S.*, 1989, **111**, 6682-6690 (*synth, tetra-Ac, ir, pmr*)
Howard, S. *et al., Biochemistry*, 1998, **37**, 3858-3864 (*tetra-Ac*)

2′,3′-Anhydrouridine, 9CI A-722



$C_9H_{10}N_2O_5$ 226.188
Isomerises to on heating.

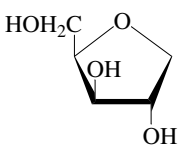
N-*Me:* [85993-11-9]
$C_{10}H_{12}N_2O_5$ 240.215
Cryst. (EtOH). Mp 156-158°. $[\alpha]_D^{20}$ +12.1 (c, 0.6 in MeOH).

*5′,*N-*Di-Me:* [86012-70-6]
$C_{11}H_{14}N_2O_5$ 254.242
Oil. $[\alpha]_D^{20}$ +8.6 (c, 0.5 in MeOH).

Màrton-Merész, M. *et al., Tetrahedron*, 1983, **39**, 275-284 (*N-Me, synth, cryst struct, pmr*)
Miah, A. *et al., Chem. Comm.*, 1997, 407-408 (*synth, cmr*)
Miah, A. *et al., J.C.S. Perkin 1*, 1998, 3277-3283 (*synth*)

1,4-Anhydroxylitol A-723

2,5-Anhydroxylitol
[491-19-0]



D-*form*

$C_5H_{10}O_4$ 134.132
The L-enantiomer is strictly 2,5-anhydro-D-xylitol under IUPAC rules. This changes the numbering. The numbering given here is for 1,4-anhydroxylitol.

D-*form* [53448-53-6]
Hygroscopic syrup. $Bp_{0.2}$ 160-170°. $[\alpha]_D^{20}$ -11.2 (c, 0.9 in H_2O).

Tri-Ac: 2,3,5-Tri-O-*acetyl-1,4-anhydro-D-xylitol*
[151378-67-5]
$C_{11}H_{16}O_7$ 260.243
$Bp_{0.04}$ 90-98°. $[\alpha]_D^{20}$ +31.5 (c, 0.92 in CH_2Cl_2). n_D^{20} 1.4537.

Tribenzoyl: 1,4-Anhydro-2,3,5-tri-O-*benzoyl-D-xylitol*
[172489-90-6]

$C_{26}H_{22}O_7$ 446.456
$[\alpha]_D^{25}$ +72 (c, 4.5 in $CHCl_3$).

L-*form*

*3-Tosyl, 2-benzoyl: 1,4-Anhydro-2-*O*-benzoyl-3-*O*-tosyl-L-xylitol. 2,5-Anhydro-4-*O*-benzoyl-3-*O*-tosyl-D-xylitol*
[125346-65-8]
$C_{19}H_{20}O_7S$ 392.429
Cryst. (diisopropyl ether). Mp 108-109°.

*2,3-Ditosyl: 2,5-Anhydro-3,4-di-*O*-tosyl-D-xylitol. 1,4-Anhydro-2,3-di-*O*-tosyl-L-xylitol*
[16237-39-1]
$C_{19}H_{22}O_8S_2$ 442.51
Solid. Mp 112-113°. $[\alpha]_D^{28}$ +33.8 (c, 1.2 in $CHCl_3$). Wrongly named in CAS.

*3,4-Ditosyl, 5-benzoyl: 2,5-Anhydro-1-*O*-benzoyl-3,4-di-*O*-tosyl-D-xylitol. 1,4-Anhydro-5-*O*-benzoyl-2,3-di-*O*-tosyl-L-xylitol*
[16237-41-5]
$C_{26}H_{26}O_9S_2$ 546.618
Solid. Mp 141-142°. $[\alpha]_D^{28}$ +66 (c, 1.2 in $CHCl_3$). Wrongly named in CAS.

*3,5-Ditosyl, 2-benzoyl: 1,4-Anhydro-2-*O*-benzoyl-3,5-di-*O*-tosyl-L-xylitol. 2,5-Anhydro-4-*O*-benzoyl-1,3-di-*O*-tosyl-D-xylitol*
[125346-66-9]
$C_{26}H_{26}O_9S_2$ 546.618
Cryst. (MeOH). Mp 65°. $[\alpha]_D$ -51.1 (c, 1.29 in $CHCl_3$).

*Tritosyl: 1,4-Anhydro-2,3,5-tri-*O*-tosyl-L-xylitol*
[17593-18-9]
$C_{26}H_{28}O_{10}S_3$ 596.699
Mp 118-120°. $[\alpha]_D^{23}$ +38.5 (c, 1.2 in $CHCl_3$).

DL-*form* [120442-63-9]
Extremely hygroscopic cryst. (3-methyl-1-butanol/Et_2O). Mp 37-38°. $Bp_{0.01}$ 145-165° (bath). Cryst. with difficulty, rapidly reverts to a syrup in moist air.

*Tribenzoyl: 1,4-Anhydro-2,3,5-tri-*O*-benzoyl-DL-xylitol*
$C_{26}H_{22}O_7$ 446.456
Cryst. (EtOH). Mp 79-80°.

*5-Tosyl: 1,4-Anhydro-5-*O*-tosyl-DL-xylitol. 2,5-Anhydro-1-*O*-tosyl-DL-xylitol*
[125411-55-4]
$C_{12}H_{16}O_6S$ 288.321
Cryst. (hexane/CH_2Cl_2). Mp 98°.

*2,5-Ditosyl: 1,4-Anhydro-2,5-di-*O*-tosyl-DL-xylitol. 2,5-Anhydro-1,4-di-*O*-tosyl-DL-xylitol*
[119170-60-4]
$C_{19}H_{22}O_8S_2$ 442.51
Cryst. (C_6H_6/hexane). Mp 107-108°.

*3,5-Ditosyl: 1,4-Anhydro-3,5-di-*O*-tosyl-DL-xylitol. 2,5-Anhydro-1,3-di-*O*-tosyl-DL-xylitol*
[119170-59-1]
$C_{19}H_{22}O_8S_2$ 442.51
Cryst. (C_6H_6). Mp 144°.

*Tritosyl: 1,4-Anhydro-2,3,5-tri-*O*-tosyl-DL-xylitol. 2,5-Anhydro-1,3,4-tri-*O*-tosyl-DL-xylitol*
[119170-67-1]
$C_{26}H_{28}O_{10}S_3$ 596.699
Cryst. (EtOH). Mp 109° (106°).

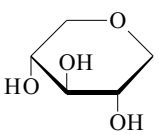
*2,5-Ditosyl, 3-benzoyl: 1,4-Anhydro-3-*O*-benzoyl-2,5-di-*O*-tosyl-DL-xylitol. 2,5-Anhydro-3-*O*-benzoyl-1,4-di-*O*-tosyl-DL-xylitol*
[125346-67-0]
$C_{26}H_{26}O_9S_2$ 546.618
Cryst. + MeOH (MeOH). Mp 92°.

*3,5-Ditosyl, 2-benzoyl: 1,4-Anhydro-2-*O*-benzoyl-3,5-di-*O*-tosyl-DL-xylitol. 2,5-Anhydro-4-*O*-benzoyl-1,3-di-*O*-tosyl-DL-xylitol*
[125411-56-5]
$C_{26}H_{26}O_9S_2$ 546.618
Cryst. + 1MeOH (MeOH). Mp 96°.

Carson, J.F. *et al., J.A.C.S.*, 1945, **67**, 1808-1810 (*synth, tribenzoyl*)
Hedgley, E.J. *et al., J.A.C.S.*, 1964, **86**, 1576-1582 (*D-form, synth, tri-Ac*)
Cleophax, J. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1967, **265**, 257-259; *CA*, **67**, 116767t (*L-form tritosyl, L-form ditosyl, L-form benzoyl ditosyl*)
Que, L. *et al., Biochemistry*, 1974, **52**, 892-897 (*cmr*)
Miljković, D. *et al., J. Carbohydr. Chem.*, 1989, **8**, 457-467 (*tosyl derivs*)
Plavec, J. *et al., J.A.C.S.*, 1993, **115**, 9734-9746 (*D-form, synth, pmr, conformn*)
Wang, N. *et al., Carbohydr. Res.*, 1995, **274**, 45-58 (*D-form, synth, tribenzoyl, tri-Ac*)
Jeffery, A. *et al., Tet. Lett.*, 1995, **36**, 3627-3630 (*D-form tri-Ac*)

1,5-Anhydroxylitol A-724

[39102-78-8]



$C_5H_{10}O_4$ 134.132

A *meso* compd. Prisms (EtOH). Sol. H_2O; insol. EtOAc, petrol. Mp 116-117°.

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-1,5-anhydroxylitol*
[19200-32-9]
$C_{11}H_{16}O_7$ 260.243
Mp 122-123°.

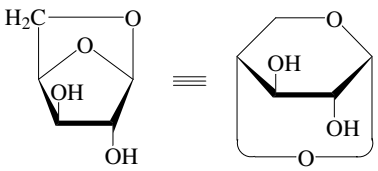
*Tribenzoyl: 1,5-Anhydro-2,3,4-tri-*O*-benzoylxylitol*
[15023-21-9]
$C_{26}H_{22}O_7$ 446.456
Cryst. (EtOH). Mp 146-147°.

2,3,4-Triphosphate:
$C_5H_{13}O_{13}P_3$ 374.071
Cryst. + $1H_2O$ (MeOH/2-propanol) (as pentakis(cyclohexylammonium) salt). Mp 187.5-190° (pentakis(cyclohexylammonium) salt).

Fletcher, H.G. *et al., J.A.C.S.*, 1947, **69**, 921 (*synth*)
Soman, E. *et al., Carbohydr. Res.*, 1972, **24**, 173 (*synth*)
Kondo, Y. *et al., Carbohydr. Res.*, 1982, **103**, 154; 1983, **111**, 325 (*derivs*)
Regeling, H. *et al., Carbohydr. Res.*, 1993, **244**, 187 (*triphosphate*)
Elvebak, L.E. *et al., Carbohydr. Res.*, 1997, **299**, 143-149 (*derivs*)

1,5-Anhydroxylofuranose, 9CI A-725

1,4-Anhydroxylopyranose



$C_5H_8O_4$ 132.116

1,5-Anhydro-β-D-xylofuranose is identical with 1,4-anhydro-α-D-xylopyranose.

D-*form* [51246-91-4]
Cryst. (2-propanol). Mp 95-97° (92-93°). $[\alpha]_D^{20}$ -12.7 (c, 1 in EtOH). $[\alpha]_D^{20}$ -4.2 (c, 1 in H_2O).

*Di-Ac: 1,4-Anhydro-2,3-di-*O*-acetyl-α-D-xylopyranose. 1,5-Anhydro-2,3-di-*O*-acetyl-β-D-xylofuranose*
[51246-95-8]
$C_9H_{12}O_6$ 216.19
Yellow syrup. $[\alpha]_D^{25}$ +13.1 (c, 1 in $CHCl_3$).

*2,3-Dibenzoyl: 1,5-Anhydro-2.3-di-*O*-benzoyl-β-D-xylofuranose. 1,4-Anhydro-2,3-di-*O*-benzoyl-α-D-xylopyranose*
[40682-81-3]
$C_{19}H_{16}O_6$ 340.332
Cryst. (EtOH/Et_2O). Mp 81° (57-60°). $[\alpha]_D^{25}$ +151 (c, 0.5 in $CHCl_3$). $[\alpha]_D$ +128 (c, 1 in $CHCl_3$).

2,3-Bis(4-methylbenzenesulfonyl):
$C_{19}H_{20}O_8S_2$ 440.494
Cryst. (EtOH). Mp 111-113°. $[\alpha]_D^{20}$ -23.1 (c, 1 in $CHCl_3$).

*3-Benzyl: 1,5-Anhydro-3-*O*-benzyl-β-D-xylofuranose, 9CI. 1,4-Anhydro-3-*O*-benzyl-α-D-xylopyranose*
[213963-76-9]
$C_{12}H_{14}O_4$ 222.24
Yellow syrup. $[\alpha]_D^{25}$ -7.64 (c, 1 in $CHCl_3$).

*3-Benzyl, 2-Ac: 2-*O*-Acetyl-1,5-anhydro-3-*O*-benzyl-β-D-xylofuranose, 9CI. 2-*O*-Acetyl-1,4-anhydro-3-*O*-benzyl-α-D-xylopyranose*
[213963-73-6]
$C_{14}H_{16}O_5$ 264.277
Yellow oil. $[\alpha]_D^{21}$ -43.9 (c, 1 in $CHCl_3$).

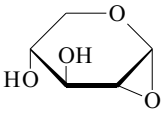
*3-Benzyl, 2-pivaloyl: 1,5-Anhydro-3-*O*-benzyl-2-*O*-pivaloyl-β-D-xylofuranose. 1,4-Anhydro-3-*O*-benzyl-2-*O*-pivaloyl-α-D-xylopyranose*
[213963-72-5]
$C_{17}H_{22}O_5$ 306.358
Oil. $[\alpha]_D^{25}$ -36.3 (c, 1 in $CHCl_3$).

*2,3-Dibenzyl: 1,5-Anhydro-2,3-di-*O*-benzyl-β-D-xylofuranose. 1,4-Anhydro-2,3-di-*O*-benzyl-α-D-xylopyranose*
[84433-33-0]
$C_{19}H_{20}O_4$ 312.365
Syrup. $[\alpha]_D^{25}$ -13 (c, 1 in $CHCl_3$).

Bochkov, A.F. *et al., Zh. Obshch. Khim.*, 1972, **42**, 2766-2776; *J. Gen. Chem. USSR (Engl. Transl.)*, 1972, **42**, 2758-2766 (*dibenzoyl*)
Köll, P. *et al., Chem. Ber.*, 1973, **106**, 3565-3570 (*synth, pmr, di-Ac, ditosyl*)
Uryu, T. *et al., Macromolecules*, 1983, **16**, 320-326 (*synth, di-Ac, dibenzyl*)

Farkas, J. *et al., Coll. Czech. Chem. Comm.*, 1985, **50**, 1291-1299 (*cd*)
Metzger, J.O. *et al., Org. Mass Spectrom.*, 1992, **27**, 508-514 (*ms*)
Hori, M. *et al., Carbohydr. Res.*, 1998, **309**, 281-286 (*3-benzyl derivs*)

1,2-Anhydroxylose A-726

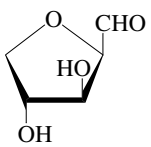


$C_5H_8O_4$ 132.116

α-D-Pyranose-*form*

Dibenzyl: 1,2-Anhydro-3,4-di-O-*benzyl-α-D-xylopyranose*
[149625-86-5]
$C_{19}H_{20}O_4$ 312.365
Cryst. Mp 43-44°. $[\alpha]_D$ -5.6 (c, 0.5 in $CHCl_3$).
Yang, G. *et al., Carbohydr. Res.*, 1994, **258**, 49 (*dibenzyl*)

2,5-Anhydroxylose A-727

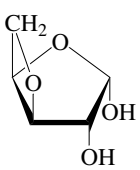


$C_5H_8O_4$ 132.116

D-*form*

Di-Me acetal, 3-tosyl: 2,5-Anhydro-3-O-*tosyl-D-xylose dimethyl acetal*
Mp 76-78°. $[\alpha]_D^{23}$ +53.7 (c, 1.9 in $CHCl_3$).
Di-Me acetal, 3,4-ditosyl: Mp 86-87°. $[\alpha]_D^{25}$ +64.7.
Diisobutyl dithioacetal: 2,5-Anhydro-D-xylose diisobutyldithioacetal
[29325-30-2]
$C_{13}H_{26}O_3S_2$ 294.479
Cryst. (hexane/$CHCl_3$). Mp 93-94°. $[\alpha]_D^{20}$ +6.22 (c, 0.74 in $CHCl_3$).
Defaye, J. *et al., Tet. Lett.*, 1968, 313-317 (*dimethyl acetal tosyl derivs*)
Defaye, J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 181 (*rev*)
Crotti, P. *et al., Tetrahedron: Asymmetry*, 1997, **8**, 1611-1621 (*D-form diisobutyldithioacetal*)

3,5-Anhydroxylose A-728



α-D-Furanose-*form*

$C_5H_8O_4$ 132.116

α-D-Furanose-*form*

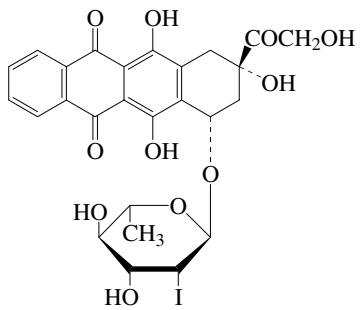
1,2-Isopropylidene: 3,5-Anhydro-1,2-O-*isopropylidene-α-D-xylofuranose*
[4118-63-2]
$C_8H_{12}O_4$ 172.18
Liq. $[\alpha]_D^{24}$ +11.9 (c, 0.75 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside: Methyl 3,5-anhydro-β-D-xylofuranoside
[37098-54-7]
$C_6H_{10}O_4$ 146.143
Cryst. (C_6H_6/petrol). Mp 63-64°. $[\alpha]_D^{25}$ -143 (c, 0.7 in $CHCl_3$).
Buchanan, J.G. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 135 (*β-D-Me fur*)
Cooke, N.G. *et al., Tetrahedron*, 1992, **48**, 9553 (*isopropylidene, synth, pmr, cmr*)

Annamycin A-729

7-[(2,6-Dideoxy-2-iodo-α-L-mannopyranosyl)oxy]-7,8,9,10-tetrahydro-6,9,11-trihydroxy-9-(hydroxyacetyl)-5,12-naphthacenedione, 9CI
[92689-49-1]



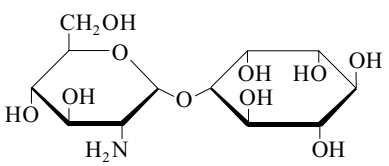
$C_{26}H_{25}IO_{11}$ 640.381
Antineoplastic agent. Red solid (CH_2Cl_2/Me_2CO/hexane). Mp 173-175° dec.

[92761-46-1]

Horton, D. *et al., Carbohydr. Res.*, 1984, **130**, C1-C3 (*synth, pharmacol*)
U.S. Pat., 1985, 4 537 882, (*Ohio State University*); *CA*, **104**, 6140h (*synth, pharmacol*)
Ling, Y.H. *et al., Cancer Res.*, 1993, **53**, 1583-1589; 1994, **54**, 1479-1484 (*pharmacol*)
Zou, Y. *et al., Clin. Cancer Res.*, 1995, **1**, 1369-1374 (*pharmacol*)

Antibiotic X 14847 A-730

X 14847. 2-Amino-2-deoxy-α-D-glucopyranosyl-1-O-*D*-myo-*inositol*
[75802-23-2]

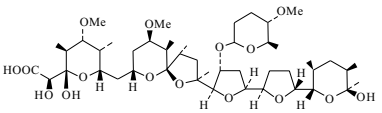


$C_{12}H_{23}NO_{10}$ 341.314
Cyclitol antibiotic. Isol. from *Micromonospora echinospora*. Weakly active against gram-positive bacteria. Sol. H_2O; poorly sol. butanol, hexane.

Hydrate: $[\alpha]_D$ +88.5 (c, 0.24 in H_2O).
Maehr, H. *et al., J. Antibiot.*, 1980, **33**, 1431 (*isol*)
Maehr, H. *et al., J.O.C.*, 1981, **46**, 378 (*struct*)

Antibiotic 6016 A-731

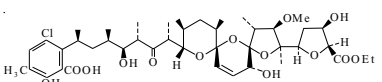
[69421-39-2]



$C_{46}H_{78}O_{16}$ 887.113
Polyether-type antibiotic. Isol. from *Streptomyces albus*. Strongly ionophoric with Mg. Active against gram-positive bacteria, mycobacteria, fungi and yeast. Sol. MeOH, C_6H_6; poorly sol. H_2O. Related to Antibiotic K41.
▶ LD_{50} (mus, ipr) 23 mg/kg , LD_{50} (mus, orl) 63 mg/kg. CB9459900
Na salt: [69460-98-6]
Mp 195° (dec.). $[\alpha]_D^{20}$ -42.5 (c, 1 in MeOH).
Otake, N. *et al., Chem. Comm.*, 1978, 875 (*cryst struct*)
Haruo, S. *et al., J. Antibiot.*, 1979, **32**, 244 (*cmr*)
Ogita, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 1537; 1543 (*cryst struct, props*)
Kusakabe, Y. *et al., J. Antibiot.*, 1980, **33**, 1437 (*isol, ir, pmr, props*)

Antibiotic X 14766A A-732

X 14766A. 6-Chloronoboritomycin A
[75217-55-9]

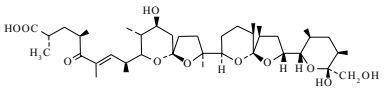


$C_{43}H_{63}ClO_{14}$ 839.415
Polyether antibiotic. Isol. from *Streptomyces malachitofuscus* ssp. *downeyi*. Active against gram-positive bacteria and protozoa, shows growth-promoting activity. Acidic solid. Sol. MeOH, Et_2O; fairly sol. hexane; poorly sol. H_2O. pK_{a1} 4.03; pK_{a2} 12.82 (phenol, 50% EtOH aq.). λ_{max} 210 (ε 30400); 307 (ε 3410) (EtOH) (Derep). λ_{max} 210 (ε 30400); 307 (ε 3410) (EtOH) (Berdy).
▶ LD_{50} (mus, ipr) 5.75 mg/kg , LD_{50} (mus, orl) 350 mg/kg. CB9930000
Hydrate:
Cryst. (CH_2Cl_2/hexane). Mp 160°. $[\alpha]_D$ -11.3 (c, 1 in $CHCl_3$). $[\alpha]_D$ -15 (c, 1 in MeOH).
Na salt: [75283-06-6]
Cryst. Insol. H_2O. Mp 219°. $[\alpha]_D$ -4.7 (c, 1 in $CHCl_3$).
Eur. Pat., 1980, 9 636; *CA*, **93**, 219313
Liu, C. *et al., J. Antibiot.*, 1981, **34**, 133 (*isol*)
Westley, J.W. *et al., J. Antibiot.*, 1981, **34**, 139 (*nmr*)

Antibiotic X 14931A A-733

19-De[(tetrahydro-5-methoxy-6-methyl-2H-pyran-2-yl)oxy]dianemycin, 9CI. CP 53607. X 14931A. Antibiotic CP 53607. Antibiotic 53607

[84680-56-8]



$C_{40}H_{66}O_{11}$ 722.955

Polyether antibiotic. Prod. by *Streptomyces halstedii* and *Streptomyces* sp. X14931. Active against gram-positive bacteria, fungi, protozoa and coccidia. Cryst. (4-Methyl-2-pentanone). Mp 84-91°. $[\alpha]_D^{25}$ +50.4 (c, 1 in $CHCl_3$).

Na salt:
Cryst. Mp 199-204°. $[\alpha]_D$ +44 (c, 1 in $CHCl_3$).

Na salt, monohydrate:
Cryst. Mp 163-164°. $[\alpha]_D^{25}$ +52.2 (c, 1 in $CHCl_3$).

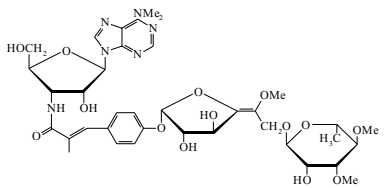
Ag salt: [92218-72-9]
Cryst. + H_2O (CH_2Cl_2/hexane). Mp 152-155° dec. $[\alpha]_D^{25}$ +66.2 (c, 1 in $CHCl_3$).

U.S. Pat., 1982, 4 361 649; *CA*, **98**, 87623
Westley, J.W. *et al., J. Antibiot.*, 1984, **37**, 813 (*isol, struct, nmr*)

Antibiotic A 201A A-734

A 201A

[37305-78-5]



$C_{37}H_{50}N_6O_{14}$ 802.834

Nucleoside antibiotic. Isol. from *Streptomyces capreolus*. Active against gram-positive bacteria and acne. Sol. MeOH, acids, bases, THF, $CHCl_3$; poorly sol. H_2O, Et_2O, hexane. Mp 170-172°. $[\alpha]_D^{25}$ -129.6 (c, 1 in MeOH). λ_{max} 212 (ϵ 41600); 279 (ϵ 37700) (EtOH) (Derep). λ_{max} 208 (E1%/1cm 535); 275 (E1%/1cm 490) (MeOH) (Berdy). λ_{max} 268; 325 (EtOH-NaOH) (Berdy). λ_{max} 212 (ϵ 41600); 279 (ϵ 37700) (EtOH) (Berdy).

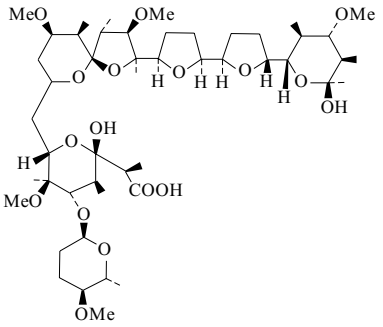
▶ LD_{50} (mus, ivn) 400 mg/kg. CB9376310

Kirst, H.A. *et al., J. Antibiot.*, 1985, **38**, 575 (*isol, uv, ir, pmr, cmr, struct*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Antibiotic A 204A A-735

A 204A. Antibiotic A 204I

[43110-10-7]



$C_{49}H_{84}O_{17}$ 945.192

Polyether antibiotic. Isol. from *Streptomyces albus*. Ionophoric. Sol. Me_2CO, Et_2O; fairly sol. MeOH, EtOH, butanol; poorly sol. H_2O, hexane. Mp 96-98°. $[\alpha]_D^{25}$ +68.1 (c, 2 in MeOH).

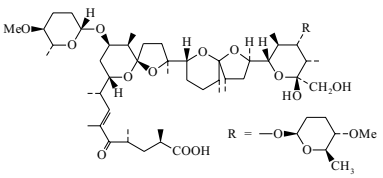
▶ LD_{50} (mus, orl) 8 mg/kg. CB9376320

Jones, N.D. *et al., J.A.C.S.*, 1973, **95**, 3399 (*struct, cryst struct*)
Smith, A.G. *et al., Acta Cryst. B*, 1978, **34**, 3436 (*cryst struct*)
Seto, H. *et al., J. Antibiot.*, 1979, **32**, 239; 1980, **33**, 979 (*struct, cmr*)
Pangborn, W. *et al., Acta Cryst. C*, 1987, **43**, 890 (*cryst struct*)

Antibiotic A 130B A-736

A 130B

[73492-07-6]



$C_{54}H_{90}O_{16}$ 995.295

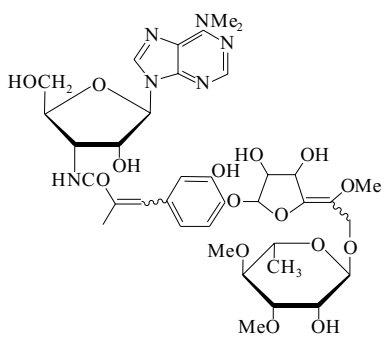
Polyether antibiotic. Isol. from *Streptomyces hygroscopicus*. Antibacterial agent. Cryst. powder. Related to Lenoremycin. λ_{max} 235 (MeOH) (Berdy).

Tsuji, N. *et al., J. Antibiot.*, 1980, **33**, 94 (*isol, struct, ir, pmr, cmr*)

Antibiotic A 201C A-737

A 201C

[74918-37-9]



$C_{37}H_{50}N_6O_{15}$ 818.833

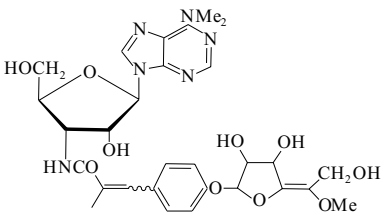
Nucleoside antibiotic. Isol. from *Streptomyces capreolus*. Active against gram-positive bacteria. Cryst. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane, CCl_4, Et_2O. Mp 135-137°. $[\alpha]_D^{25}$ -114 (c, 1 in MeOH). pK_a 11.4 (66% DMF aq.). λ_{max} 268 (ϵ 44600); 325 (ϵ 14200) (EtOH/NaOH) (Derep). λ_{max} 217 (ϵ 41500); 279 (ϵ 33200) (EtOH) (Derep). λ_{max} 217 (ϵ 41500); 279 (ϵ 32200) (EtOH) (Berdy). λ_{max} 268 (ϵ 44600); 325 (ϵ 40300) (EtOH/NaOH) (Berdy).

U.S. Pat., 1980, 4 205 164; *CA*, **93**, 184267s

Antibiotic A 201D A-738

A 201D

[75076-80-1]



$C_{29}H_{36}N_6O_{10}$ 628.638

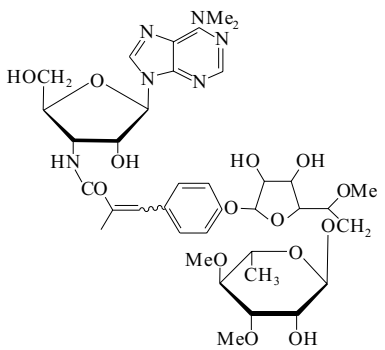
Nucleoside antibiotic. Isol. from *Streptomyces capreolus* NRRL3817. Active against gram-positive bacteria. Cryst. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane, Et_2O. Mp 128-130°. λ_{max} 212 (ϵ 37300); 277 (ϵ 37000) (EtOH) (Derep). λ_{max} 213 (ϵ 40300); 279 (ϵ 39700) (EtOH) (Berdy). λ_{max} 213; 279 (95%EtOH).

U.S. Pat., 1980, 4 205 164; *CA*, **93**, 184267

Antibiotic A 201E A-739

A 201E

[74918-38-0]



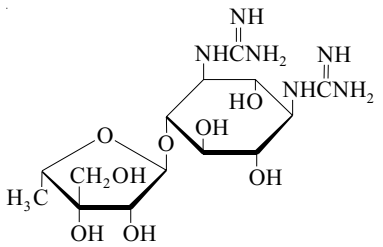
$C_{37}H_{52}N_6O_{14}$ 804.85

Nucleoside antibiotic. Isol. from *Streptomyces capreolus* NRRL3817. Active against gram-positive bacteria. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. λ_{max} 212 (ϵ 41600); 279 (ϵ 37700) (EtOH) (Derep). λ_{max} 215 (ϵ 27800); 278 (ϵ 37400) (EtOH) (Berdy).

U.S. Pat., 1980, 4 205 164; *CA*, **93**, 184267

Antibiotic AC4437 A-740

AC4437
[99890-21-8]



$C_{14}H_{28}N_6O_8$ 408.411

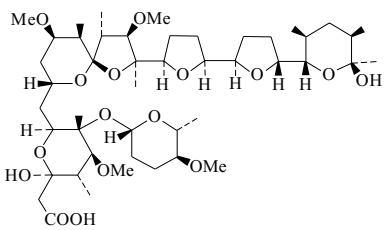
Streptomycin-type antibiotic. Prod. by *Streptomyces* sp. AC4437. Active against gram-positive and -negative bacteria. Powder + 1½ H_2O. Sol. H_2O; fairly sol. MeOH; poorly sol. EtOAc, Me_2CO.
Mp 168-172°. $[\alpha]_D^{23}$ -32.4 (c, 1 in H_2O).

▶WK2199000

Japan. Pat., 1985, 85 112 799; *CA*, **104**, 49833 (*isol*)
Awata, M. *et al., J. Antibiot.*, 1986, **39**, 724 (*isol, struct, pmr, props*)

Antibiotic BL 580 A-741

BL 580
[76363-43-4]



Polyether antibiotic complex. Struct. of BL 580δ shown. Prod. by *Streptomyces hygroscopicus*. Shows antimalarial and anticoccidial activity. Active against *Streptococcus* sp. Mp 105-107°. $[\alpha]_D^{20}$ +7 (c, 0.09 in MeOH).

Antibiotic BL 580α

BL 580α
[53414-80-5]
Cryst. $[\alpha]_D^{25}$ +15.55 (c, 1.08 in MeOH).

Antibiotic BL 580β

BL 580β
[53414-72-5]
Amorph. $[\alpha]_D^{25}$ +1.06 (c, 0.942 in $CHCl_3$).

Antibiotic BL 580δ

2-Demethylseptamycin, 9CI
[66389-75-1]
$C_{47}H_{80}O_{16}$ 901.139
$[\alpha]_D^{25}$ +21.1 (c, 0.9 in MeOH).

Na salt:
Cryst. Mp 157-161°. $[\alpha]_D^{25}$ +6.1 (c, 1.153 in MeOH).

Antibiotic BL 580ζ *BL 580ζ*

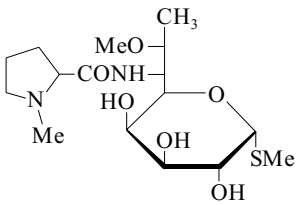
Cryst. Mp 105-107°. $[\alpha]_D^{20}$ +7 (c, 0.9 in MeOH).

Na salt: [69522-23-2]
Cryst. Mp 162°. $[\alpha]_D^{20}$ -3 (c, 0.94 in MeOH).

U.S. Pat., 1974, 3 812 249; *CA*, **81**, 150297
Ger. Pat., 1978, 2 728 596; *CA*, **88**, 188131 (*isol*)
Ger. Pat., 1979, 2 824 860; *CA*, **90**, 136236x (*isol*)
U.S. Pat., 1979, 4 132 779; *CA*, **90**, 136239a (*isol*)
U.S. Pat., 1979, 4 161 520; *CA*, **91**, 163066u (*props*)

Antibiotic BU 2545 A-742

BU 2545
[75007-09-9]



$C_{16}H_{30}N_2O_6S$ 378.489

Glycoside antibiotic (lincomycin type). Isol. from *Streptomyces* sp. H2305. Active against anaerobic and gram-positive bacteria. Powder. Sol. MeOH, CH_2Cl_2, acids; poorly sol. bases, H_2O, hexane. $[\alpha]_D^{24}$ +140 (c, 0.5 in $CHCl_3$). pK_a 8.1 (H_2O).

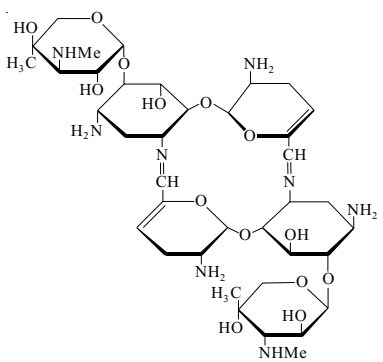
▶RH6312000

Oxalate:
Cryst. Mp 201-202°.

Hanada, S. *et al., J. Antibiot.*, 1980, **33**, 751 (*isol*)
Toda, S. *et al., J. Antibiot.*, 1981, **34**, 596 (*struct*)

Antibiotic 66-40C A-743

[60870-21-5]



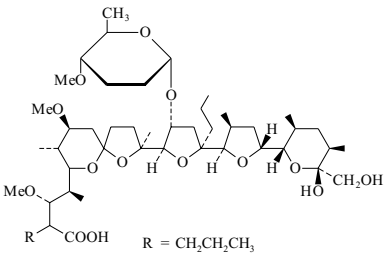
$C_{38}H_{64}N_8O_{14}$ 856.969

Dimeric aminoglycoside antibiotic. Isol. from *Micromonospora inyoensis*. Lacks potent antibacterial activity. Amorph. solid. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.
Mp 185-205° dec. $[\alpha]_D$ +112.5 (H_2O).
λ_{max} 248 (ε 22000) (MeOH) (Berdy).
λ_{max} 281 (MeOH-HCl) (Berdy).

Davies, D.H. *et al., J.C.S. Perkin 1*, 1977, 1407; *J. Med. Chem.*, 1978, **21**, 189 (*isol, uv, ir, pmr, cmr, ms*)

Antibiotic CP 47433 A-744

CP 47433
[74758-62-6]



$C_{47}H_{82}O_{14}$ 871.156

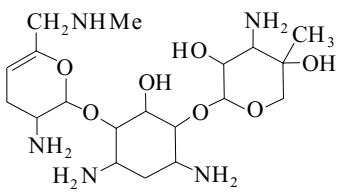
Polyether antibiotic. Isol. from *Actinomadura macra* ATCC31286. Active against gram-positive bacteria. Shows anticoccidial activity. Cryst. Sol. MeOH, $CHCl_3$; poorly sol. H_2O.
Mp 89-99°. $[\alpha]_D$ +16 (c, 1 in MeOH).
Obt. as a 15:1 mixt. with CP 47434.

Na salt: [74806-73-8]
Mp 226-232°. $[\alpha]_D$ -0.2 (c, 1 in MeOH).

Japan. Pat., 1979, 79 12 302; *CA*, **90**, 184897 (*isol*)
Tone, J. *et al., CA*, 1980, **93**, 130480n (*struct*)

Antibiotic D 53 A-745

D 53
[75217-40-2]



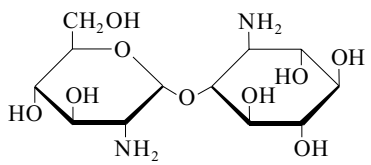
$C_{19}H_{37}N_5O_7$ 447.531

Aminoglycoside antibiotic. Isol. from *Micromonospora sagamiensis* NRRL11290. Active against gram-positive and -negative bacteria. Basic powder. Sol. H_2O.

Japan. Pat., 1980, 80 69 594; *CA*, **93**, 219314

Antibiotic FU 10 A-746

FU 10
[72614-87-0]



$C_{12}H_{24}N_2O_9$ 340.33

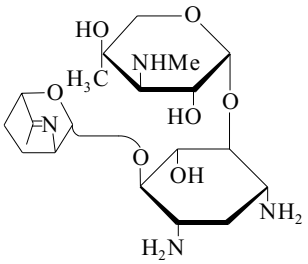
Aminocyclitol antibiotic. Prod. by *Micromonospora olivoasterospora*. Weakly active against gram-positive and -negative bacteria. Powder. Sol. H_2O.
Mp 167-169°. $[\alpha]_D^{20}$ +89 (c, 0.46 in H_2O).
Intermediate in the biosynthesis of Fortimicin A, F-26.

Japan. Pat., 1979, 79 128 547; *CA*, **92**, 92701 (*isol, struct, nmr*)

Odakura, Y. *et al., J. Antibiot.*, 1984, **37**, 1670 (*isol, biosynth*)

Antibiotic I1 A-747

[66277-08-5]



$C_{20}H_{36}N_4O_7$ 444.527

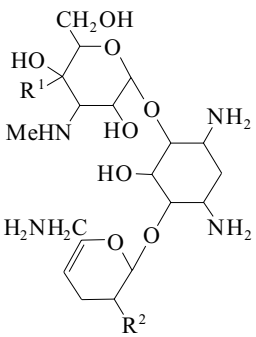
Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea*. Active against gram-positive and -negative bacteria and mycobacteria. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane. $[\alpha]_D^{20}$ +144 (H_2O).

▶ LD_{50} (mus, ivn) 80 mg/kg.

Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Berdy, J. *et al., CA*, 1981, **95**, 78387 (*isol*)

Antibiotic I-SKA$_1$ A-748

I-SKA$_1$
[76045-27-7]



R^1 = Me, R^2 = OH

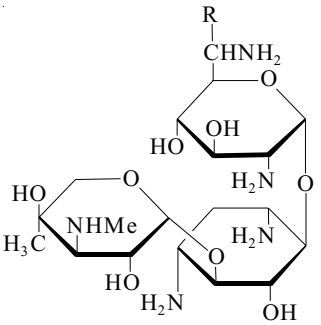
$C_{20}H_{38}N_4O_9$ 478.542

Aminocyclitol antibiotic. Prod. by *Micromonospora inyoensis* (NRRL3292; ATCC31454) in the presence of Kanamycin A. Active against gram-positive and -negative bacteria. Powder +1.5 H_2O. Sol. H_2O. Mp 127-129°. $[\alpha]_D^{25}$ +151.5 (c, 1 in H_2O).

Japan. Pat., 1980, 55 115 896; *CA*, **94**, 63774 (*isol*)

Antibiotic JI 20A A-749

JI 20A
[51846-97-0]



R = H

$C_{19}H_{39}N_5O_9$ 481.545

Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea*. Active against gram-positive and gram-negative bacteria. Sol. H_2O; poorly sol. EtOH, hexane. $[\alpha]_D$ +149.8 (H_2O). Related to the Gentamicins.

▶ LD_{50} (mus, ivn) 115 mg/kg. WK2281000

U.S. Pat., 1972, 3 903 072; *CA*, **86**, 15207x (*isol*)
Kugelman, M. *et al., J.C.S. Perkin 1*, 1976, 1126 (*synth*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Lee, B.K. *et al., Antimicrob. Agents Chemother.*, 1979, **16**, 589 (*biosynth*)

Antibiotic JI 20B A-750

JI 20B
[51846-98-1]

As Antibiotic JI 20A, A-749 with R = CH_3

$C_{20}H_{41}N_5O_9$ 495.572

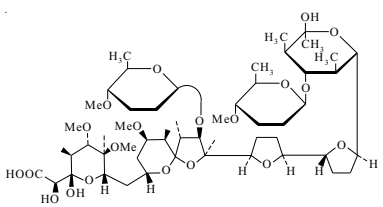
Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea* and *Streptomyces flavovirens*. Antimicrobial. Active against gram-positive and -negative bacteria. Sol. H_2O; poorly sol. EtOH, hexane. $[\alpha]_D^{20}$ +150 (c, 1 in H_2O).

▶ LD_{50} (mus, ivn) 115 mg/kg. WK2291000

U.S. Pat., 1972, 261 753; *CA*, **81**, 36489c (*isol*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Ivanatskaya, L.P. *et al., Antibiotiki (Moscow)*, 1982, **27**, 724 (*isol*)

Antibiotic K 41B A-751

15-O-*Demethyl-15*-O-*tetrahydro-5-methoxy-6-methyl-2*H-*pyran-2-yl antibiotic*
K41, 9CI. K 41B
[72017-85-7]



$C_{54}H_{92}O_{20}$ 1061.309

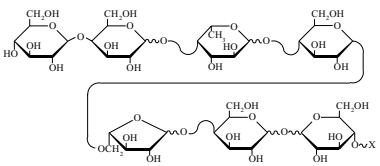
Polyether antibiotic. Isol. from *Streptomyces hygroscopicus*. Active against gram-positive bacteria. Sol. MeOH, Et_2O; fairly sol. hexane; poorly sol. H_2O.

Na salt: [72059-65-5]
Mp 185-186° dec. $[\alpha]_D^{26}$ +4.3 (MeOH).

Tsuji, N. *et al., J. Antibiot.*, 1979, **32**, 169 (*cmr, struct*)

Antibiotic K 52B A-752

K 52B
[65424-53-5]



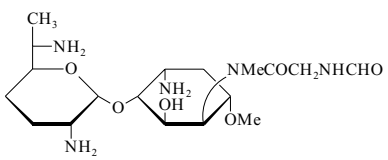
X = Unknown diaminohexose

Oligosaccharide antibiotic. Prod. by *Streptoverticillium roseoverticillatum* subsp. *albosporum*. Active against gram-positive and -negative bacteria. Activity is reversed by addn. of amino acids. Powder. Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane. Mp 190° dec. Strain also prod. Antibiotic K 52A of unknown struct.

Shibata, M. *et al., Agric. Biol. Chem.*, 1976, **40**, 1587; 1977, **41**, 1407; 1980, **44**, 1863 (*isol*)
Kido, Y. *et al., Agric. Biol. Chem.*, 1980, **44**, 2073; 1981, **45**, 635; 641 (*struct*)

Antibiotic KA 6606IV A-753

KA 6606IV. Sporaricin D. 4-N-*Formylglycylsporaricin B*
[68743-81-7]



$C_{18}H_{35}N_5O_6$ 417.504

Aminoglycoside antibiotic. Isol. from *Saccharopolyspora hirsuta*. Active against gram-positive and -negative bacteria. Basic solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. EtOAc, hexane. $[\alpha]_D^{27}$ +101 (c, 1.0 in H_2O).

▶ LD_{50} (mus, ivn) 200 - 600 mg/kg. NM7522550

Carbonate (2:1):
Solid + 1H_2O. $[\alpha]_D^{23}$ +125 (c, 1 in H_2O).

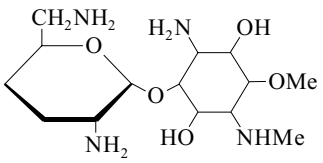
Tri-N-*Ac:* $[\alpha]_D^{23}$ +108 (c, 0.5 in H_2O).

Ger. Pat., 1978, 2 813 021; *CA*, **90**, 53128n (*isol*)
Deushi, T. *et al., J. Antibiot.*, 1981, **34**, 811

Antibiotic KA 7038IV A-754

KA 7038IV. Sannamycin D

[73491-60-8]



$C_{14}H_{30}N_4O_5$ 334.415

Aminoglycoside antibiotic. Prod. by *Streptomyces* sp. 7038. Active against gram-positive bacteria and weakly active against gram-negative bacteria. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane. Mp 78-82°. $[\alpha]_D^{25}$ +115 (c, 0.1 in H_2O). This strain also produces Istamycin A, I-81, Istamycin X_0, I-84, Sannamycin C, S-9, Sannamycin E, S-10 and Sannamycin K, S-11.

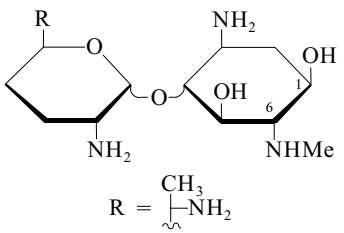
▶ LD_{50} (mus, ivn) 300 - 700 mg/kg. CB9411000

Ger. Pat., 1980, 2 928 373; *CA*, **92**, 196387

Antibiotic KA 6606IX A-755

KA 6606IX. Sporaricin IX

[81768-57-2]



$C_{14}H_{30}N_4O_4$ 318.415

Aminoglycoside antibiotic. Isol. from *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria. Powder (as carbonate salt). Sol. H_2O, MeOH; poorly sol. EtOAc, $CHCl_3$, hexane. $[\alpha]_D^{25}$ +86 (c, 1 in H_2O).

1-Me: ***Antibiotic KA 6606VII****. KA 6606VII. Sporaricin VII*
[81800-11-5]
$C_{15}H_{32}N_4O_4$ 332.442
Isol. from *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria and fungi. Powder. Sol. H_2O, MeOH; poorly sol. EtOAc, hexane, $CHCl_3$. $[\alpha]_D^{21}$ +78 (c, 0.4 in H_2O).

1-Epimer: ***Antibiotic KA 6606X****. KA 6606X. Sporaricin X*
[81768-58-3]
$C_{14}H_{30}N_4O_4$ 318.415
From *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria. Powder + $1H_2O$. Sol. H_2O, MeOH; poorly sol. EtOAc, hexane, $CHCl_3$. $[\alpha]_D^{25}$ +35 (c, 0.3 in H_2O).

1-Epimer, 1-Me: ***Antibiotic KA 6606V****. KA 606V*
[75829-53-7]
$C_{15}H_{32}N_4O_4$ 332.442
Isol. from *Saccharopolyspora hirsuta*. Aminocyclitol antibiotic. Active against gram-positive and negative bacteria. Powder. Sol. H_2O. $[\alpha]_D^{25}$ +103 (c, 1 in H_2O).

1-Epimer, 1-Me, 4′,5′-dehydro: ***Antibiotic KA 6606XIII****. KA 6606XIII. Sporaricin XIII*
[81749-23-7]
$C_{15}H_{30}N_4O_4$ 330.426
Isol. from *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria. Powder (as carbonate salt). Poorly sol. hexane. $[\alpha]_D^{23}$ +138 (c, 1 in H_2O).

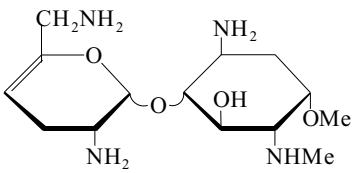
6-Epimer, 1-Me: ***Antibiotic KA 6606VIII****. KA 6606VIII. Sporaricin VIII*
[81768-56-1]
$C_{15}H_{32}N_4O_4$ 332.442
Isol. from *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria. Powder. Sol. H_2O, MeOH; poorly sol. EtOAc, hexane, $CHCl_3$. $[\alpha]_D^{21}$ +88 (c, 0.2 in H_2O).

Japan. Pat., 1980, 80 111 497; *CA*, **94**, 14023 (*KA 6606V*)
Eur. Pat., 1982, 44 477; *CA*, **96**, 216048 (*isol*)
Japan. Pat., 1982, 82 99 582; *CA*, **97**, 216625 (*KA 6606VII*)

Antibiotic KA 6606XV A-756

KA 6606XV. Sporaricin XV

[81749-22-6]



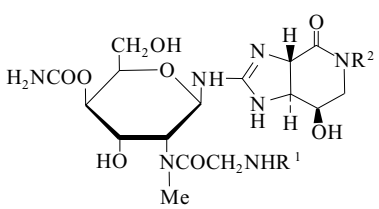
$C_{14}H_{28}N_4O_4$ 316.4
Isol. from *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria. Powder (as carbonate salt). Poorly sol. hexane. $[\alpha]_D^{24}$ +126 (c, 1 in H_2O).

Ger. Pat., 1982, 44 477; *CA*, **96**, 216048 (*isol*)

Antibiotic LL-AB 664 A-757

Neoenactin A_1. LL-AB 664. BD 12. O 837A. Antibiotic BD 12. Antibiotic O 837A

[29266-98-6]



$C_{18}H_{30}N_8O_8$ 486.484

Nucleoside antibiotic. Member of Streptothricin group. Isol. from a strain of *Streptomyces candidus* NRRL3083, *Streptoverticillium olivoreticuli*, *Streptomyces luteocolor* MCRL0357 and *Streptomyces* sp. 0837. Shows antibiotic props. Active against gram-positive and -negative bacteria and fungi. Sol. H_2O; poorly sol. butanol, hexane. $[\alpha]_D^{25}$ -59 (c, 2.004 in H_2O). Indefinite Mp. *S. olivoreticuli* also prod. Neoenactins B and C, which are Bleomycins. Not related to Neoenactin A (see Neoenactin) isol. by Nishio, M. *et al*.

▶ LD_{50} (mus, ivn) 75 mg/kg. OJ7407000

Hydrochloride (1:2): Mp 210° Mp 200.5-201.5°. $[\alpha]_D^{22}$ -62.2 (c, 1 in H_2O). $[\alpha]_D^{25}$ -75 (C, 1.0 in H_2O).

De(iminomethyl): See Antibiotic LL-AB664β in *The Combined Chemical Dictionary.*

Picrate: Mp 160-165.5° dec.

[71950-48-6]

Sax, K.J. *et al., Antimicrob. Agents Chemother.*, (Interscience conference)(pub 1968), 1967, 442-448; *CA*, **70**, 2413f (*isol, props, activity*)
Ito, Y. *et al., J. Antibiot.*, 1968, **21**, 283-289; 307-313 (*isol*)
Borders, D.B. *et al., Tetrahedron*, 1970, **26**, 3123-3133 (*struct*)
U.S. Pat., 1970, 3 495 003; *CA*, **72**, 109822 (*isol*)
Otani, T. *et al., Jpn. J. Antibiot.*, 1979, **32**, 720-728 (*isol, struct*)
Kawakami, Y. *et al., J. Antibiot.*, 1981, **34**, 921-922 (*isol, struct, pmr, cmr*)

Antibiotic LL-AC 541 A-758

Citromycin†. Neoenactin A_2. Antibiotic E 749C. BY 81. E 749C. LL-AC 541. Antibiotic 1483A. Antibiotic BY 81

[29266-97-5]

As Antibiotic LL-AB 664, A-757 with R^1 = CH=NH, R^2 = H

$C_{17}H_{28}N_8O_8$ 472.457

Nucleoside antibiotic. Isol. from *Streptomyces hygroscopicus* and *Streptoverticillium olivoreticuli*. Active against gram-positive and -negative bacteria. Anthelmintic.
Mp 210-240°. Acid hydrol. → *inter alia* Glycine and Streptolidine. Not the same as Citromycin from *Citromyces* sp. (see Citromycetin).

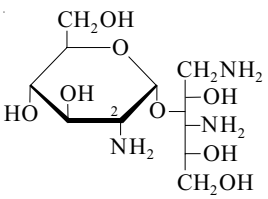
Hydrochloride (1:2): Mp 200-215°. $[\alpha]_D$ -58 (c, 1.09 in H_2O).

Ito, Y. *et al., J. Antibiot.*, 1968, **21**, 289 (*isol*)
Borders, D.B. *et al., Tetrahedron*, 1970, **26**, 3123 (*struct*)
U.S. Pat., 1970, 3 495 003; *CA*, **72**, 109882 (*isol*)
Taniyama, H. *et al., J. Antibiot.*, 1971, **24**, 1708
Kondo, H. *et al., J. Antibiot.*, 1979, **32**, 13 (*Neoenactins*)
Kawakami, Y. *et al., J. Antibiot.*, 1979, **32**, 720; 1981, **34**, 921 (*isol, struct, pmr, cmr*)

Antibiotic LL-AM 31α A-759

1,4-Diamino-3-O-(2-amino-2-deoxy-α-D-glucopyranosyl)-1,4-dideoxy-D-glucitol, 9CI. LL-AM 31α. AM31α. Antibiotic AM31α

[61371-31-1]



$C_{12}H_{27}N_3O_8$ 341.361

Aminoglycoside antibiotic. Isol. from *Streptoverticillium netropsis*. Active against gram-positive and -negative bacteria. Similar to Sorbistins.

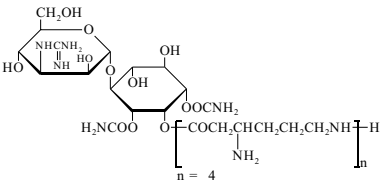
N^2-*Ac:* ***Antibiotic LL-AM 31γ***. *LL-AM 31γ*. *AM31γ*. *Antibiotic AM31γ*
[61371-33-3]
$C_{14}H_{29}N_3O_9$ 383.398
From *Streptoverticillium netropsis*.

N^4-*Propanoyl:* ***Antibiotic LL-AM 31β***. *LL-AM 31β*. *AM31β*. *Antibiotic AM31β*
[61371-32-2]
$C_{15}H_{31}N_3O_9$ 397.425
From *Streptoverticillium netropsis*.

U.S. Pat., 1976, 3 987 029; *CA*, **86**, 53915j (*isol*)
Kirby, J.P. *et al., J. Antibiot.*, 1977, **30**, 344 (*isol*)

Antibiotic LL-BM 782α_1 A-760

BM 782α_1. *LL-BM 782α_1*. *Antibiotic BM 782α_1*
[72380-11-1]



$C_{39}H_{75}N_{13}O_{16}$ 982.099

Aminoglycoside antibiotic. Isol. from *Nocardia* sp. NRRL11239. Active against gram-positive and -positive bacteria and mycobacteria esp. *Mycobacterium tuberculosis*. Sol. H_2O; poorly sol. hexane, Me_2CO.

Sulfate (1:3):
Solid + $6H_2O$. $[\alpha]_D^{25}$ 0 (c, 0.4 in H_2O).

U.S. Pat., 1979, 4 234 717; *CA*, **94**, 119469
McGahren, W.J. *et al., J.O.C.*, 1981, **46**, 792
Nakanishi, K. *et al., Chem. Comm.*, 1981, 1134 (*struct*)
Ellestad, G.A. *et al., J. Antibiot.*, 1982, **35**, 1418 (*cmr*)

Antibiotic LL-BM 782α_{1a} A-761

BM 782α_{1a}. *LL-BM 782α_{1a}*. *Antibiotic BM 782α_{1a}*
[72380-10-0]
As Antibiotic LL-BM 782α_1, A-760 with n = 5

$C_{45}H_{87}N_{15}O_{17}$ 1110.273

Aminoglycoside antibiotic. Isol. from *Nocardia* sp. BM 782. Weakly active against gram-negative and -positive bacteria. Sol. H_2O; poorly sol. hexane, Me_2CO.

Sulfate (1:3.5): Solid + $7H_2O$. $[\alpha]_D^{25}$ +4 (c, 0.635 in H_2O).

U.S. Pat., 1979, 4 234 717; *CA*, **94**, 119469
Nakanishi, K. *et al., Chem. Comm.*, 1981, 1134 (*struct*)
McGahren, W.J. *et al., J.O.C.*, 1981, **46**, 792
Ellestad, G.A. *et al., J. Antibiot.*, 1982, **35**, 1418 (*cmr*)

Antibiotic LL-BM 782α_2 A-762

BM 782α_2. *LL-BM 782α_2*. *Antibiotic BM 782α_2*
[72380-09-7]
As Antibiotic LL-BM 782α_1, A-760 with n = 3

$C_{33}H_{63}N_{11}O_{15}$ 853.925

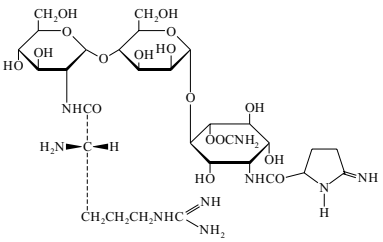
Aminoglycoside antibiotic. Isol. from *Nocardia* sp. NRRL11239. Active against gram-negative and -positive bacteria and mycobacteria. Sol. H_2O; poorly sol. hexane, Me_2CO.

Sulfate (1:2.5):
Solid + $5H_2O$. $[\alpha]_D^{25}$ 0 (c, 0.68 in H_2O).

U.S. Pat., 1979, 4 234 717; *CA*, **94**, 119469
Nakanishi, K. *et al., Chem. Comm.*, 1981, 1134 (*struct*)
McGahren, W.J. *et al., J.O.C.*, 1981, **46**, 792 (*struct*)
Ellestad, G.A. *et al., J. Antibiot.*, 1982, **35**, 1418 (*cmr*)

Antibiotic LL-BM 123α A-763

BM 123α. *LL-BM 123α*. *Antibiotic BM 123α*
[52932-62-4]



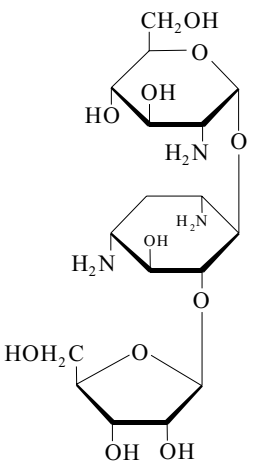
$C_{30}H_{53}N_9O_{17}$ 811.799

Aminoglycoside antibiotic. Isol. from *Nocardia* sp. Mod. active against gram-negative bacteria. Amorph. basic powder. $[\alpha]_D$ +52 (H_2O).

Ellestad, G.A. *et al., J. Antibiot.*, 1977, **30**, 678 (*isol*)
Nakanishi, K. *et al., Chem. Comm.*, 1981, 1134 (*struct*)

Antibiotic LL-BM 408 A-764

Ribosylparomamine. BM 408α. *LL-BM 408*. *Antibiotic BM 408α*
[55781-25-4]



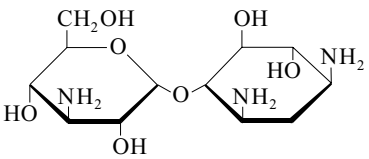
$C_{17}H_{33}N_3O_{11}$ 455.461

Aminoglycoside antibiotic. Isol. from *Streptomyces canus*. Active against gram-positive and -negative bacteria. Powder. Mp 160-175°. $[\alpha]_D^{25}$ +47 (c, 0.256 in H_2O). Dec. at *ca*. 200°. Related to the Paromomycins.

Tsukiura, T. *et al., J. Antibiot.*, 1973, **26**, 386 (*synth*)
Kirby, J.P. *et al., J. Antibiot.*, 1977, **30**, 175 (*isol, struct, pmr*)
Hanessian, S. *et al., Can. J. Chem.*, 1978, **56**, 1482 (*synth*)

Antibiotic NK 1012-2 A-765

6-O-(3-Amino-3-deoxy-α-D-glucopyranosyl)-2-deoxy-D-streptamine, 9CI. NK 1012-2
[20744-51-8]



$C_{12}H_{25}N_3O_7$ 323.345

Aminoglycoside antibiotic. Isol. from *Streptomyces kanamyceticus*.

▶ WK1970500

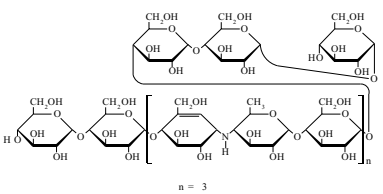
Hydrochloride (1:3): Mp 235-236° dec. $[\alpha]_D^{13}$ +75.1 (c, 1.3 in H_2O).

N,N′,N″-*Tri-Ac:* Mp 238-242° dec. $[\alpha]_D^{12}$ +80 (c, 0.45 in H_2O).

Maeda, K. *et al., J. Antibiot., Ser. A*, 1958, **11**, 163 (*synth*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1966, **39**, 1244 (*synth*)
Japan. Pat., 1970, 70 06 077; *CA*, **73**, 2660 (*isol*)

Antibiotic Ro 09-0766 A-766

Ro 09-0766
[89498-90-8]



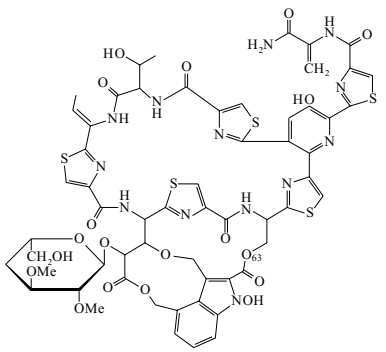
$C_{87}H_{145}N_3O_{62}$ 2225.085

Polysaccharide antibiotic. Isol. from *Streptomyces dimorphogenes*. Potent α-amylase inhibitor. Powder + $12H_2O$. Sol. H_2O, DMSO; poorly sol. MeOH, hexane. Mp 232-239° dec. $[\alpha]_D^{24}$ +168 (c, 1 in H_2O).

Yokose, K. *et al., J. Antibiot.*, 1983, **36**, 1157; 1166; 1984, **37**, 182

Antibiotic S 54832A A-767

S 54832A



Cyclic depsipeptide antibiotics. Struct. shown is S 54832A-I. Isol. from *Micromonospora globosa*. Active against gram-positive bacteria, mycoplasms and *Neisseriae* sp.

Antibiotic S 54832A-I

*49-*O*-(4-Deoxy-2,3-di-*O*-methyl-α-L-*arabino*-hexopyranosyl)-48,70-epoxy-58-hydroxy-63-oxanosiheptide, 9CI. S 54832A-I*

[73666-05-4]

$C_{59}H_{55}N_{13}O_{19}S_5$ 1410.489

Yellow powder. Mp 310° dec. $[\alpha]_D^{20}$ +118.7 (c, 1.140 in Py). pK_{a1} 7.65; pK_{a2} 10.7 (84% 2-methoxyethanol).

Dihydro: ***Antibiotic S 54832A-IV****. 49-*O*-(4-Deoxy-2,3-di-*O*-methyl-α-L-*arabino*-hexopyranosyl)-63-dethia-48,70-epoxy-dihydro-58-hydroxy-63-oxanosiheptide, 9CI. S 54832A-IV*

[73666-08-7]

$C_{59}H_{57}N_{13}O_{19}S_5$ 1412.505

Pale-yellow powder. Mp 310° dec. $[\alpha]_D^{20}$ +153.2 (c, 0.752 in Py).

Antibiotic S 54832A-II *S 54832A-II*

[73666-06-5]

Pale-yellow powder. Mp 310° dec. Struct. unknown.

Antibiotic S 54832A-III *S 54832A-III*

[73666-07-6]

Pale-yellow powder. Mp 310° dec. Struct. unknown.

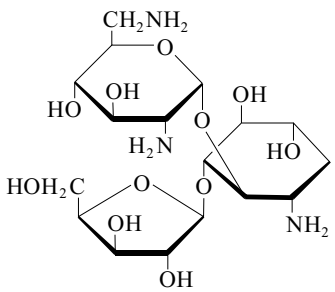
[94588-48-4, 94588-49-5]

Ger. Pat., 1979, 2 921 148; *CA*, **93**, 6124 (*isol, props, nmr*)
U.S. Pat., 1984, 4 478 831; *CA*, **102**, 77266 (*isol*)

Antibiotic S-11-A A-768

S-11-A. 1-Deamino-1-hydroxyxylostasin

[75303-50-3]



$C_{17}H_{33}N_3O_{11}$ 455.461

Aminocyclitol antibiotic. Isol. from *Bacillus circulans* mutant. Active against gram-negative and -positive bacteria. Sol. H_2O.

Sulfate (1:1.5):
Cryst. + $4H_2O$. Mp 140-170° dec. $[\alpha]_D^{24.5}$ +38.2 (c, 1 in H_2O).

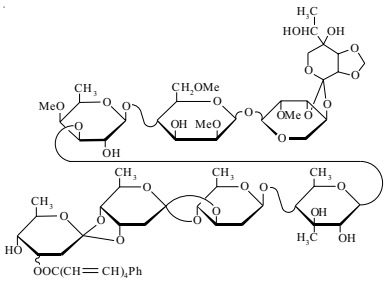
N-*Ac:*
Powder. Mp 160°. $[\alpha]_D^{26}$ +5.8 (c, 1 in H_2O).

Fujiwara, T. *et al., J. Antibiot.*, 1980, **33**, 836
Japan. Pat., 1981, 81 68 699; *CA*, **95**, 185552

Antibiotic SE 73-74D A-769

SE 73-74D

[74440-75-8]



$C_{69}H_{98}O_{33}$ 1455.513

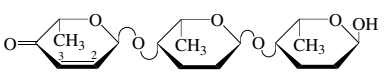
Oligosaccharide/polyene antibiotic. Isol. from *Actinoplanes* sp. Active against gram-positive and -negative bacteria and mycoplasmas. Animal growth promotor. Light-yellow amorph. solid. Sol. MeOH, MeCN, $CHCl_3$, DMSO, DMF; fairly sol. Et_2O; poorly sol. H_2O, hexane. Mp 164-172° dec. λ_{max} 277 (E1%/1cm 60); 365 (E1%/1cm 406) (MeOH) (Berdy).

Ger. Pat., 1980, 2 848 793; *CA*, **93**, 184263 (*isol, uv, ir, pmr, cmr*)

Antibiotic SEN 366D$_1$ A-770

SEN 366D$_1$

[105344-95-4]



$C_{18}H_{28}O_7$ 356.415

Prod. by *Streptomyces* sp. SEN366-BP577. Platelet aggregation inhibitor.

2,3-Dihydro: ***Antibiotic SEN 366D$_2$****. SEN 366D$_2$*

[105344-96-5]

$C_{18}H_{30}O_7$ 358.431

Prod. by *Streptomyces* sp. SEN366-BP577. Platelet aggregation inhibitor.

2,3-Dihydro, 2-hydroxy: ***Antibiotic SEN 366P****. SEN 366P*

$C_{18}H_{30}O_8$ 374.43

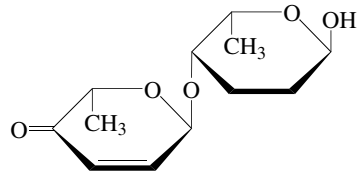
Prod. by *Streptomyces* sp. SEN366-BP577. Platelet aggregation inhibitor. Powder. Sol. H_2O, $CHCl_3$, MeOH; poorly sol. hexane. λ_{max} 200 (MeOH).

Fr. Pat., 1986, 2 571 964; *CA*, **106**, 100840z

Antibiotic SEN 366F A-771

SEN 366F

[105344-94-3]



$C_{12}H_{18}O_5$ 242.271

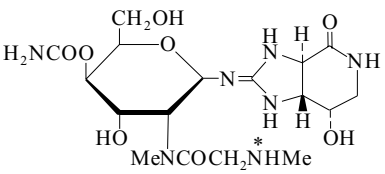
Prod. by *Streptomyces* sp. SEN366-BP577. Platelet aggregation inhibitor. Powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane. λ_{max} 200 (MeOH).

Fr. Pat., 1986, 2 571 964; *CA*, **106**, 100840z

Antibiotic SF 701 A-772

Antibiotic 6241-B. SF 701. A 269A. LL-BL 136. Antibiotic A 269A. Antibiotic LL-BL 136

[38621-52-2]



$C_{17}H_{29}N_7O_8$ 459.458

Streptothricin-type antibiotic. Isol. from *Streptomyces griseochromogenes* and *Streptomyces* sp. No. 6241. Possesses weak antimicrobial activity and shows herbicidal props. Powder. Mp 192-194° dec. $[\alpha]_D^{25}$ -65.7 (c, 1 in H_2O). Similar to Antibiotic LL-AB 664, A-757.

▶ CB9753800

Hydrochloride (1:2): Mp 210-213° dec. $[\alpha]_D^{24}$ -68 (H_2O).

Carbonate (1:1.5): Mp 225° dec. $[\alpha]_D^{26}$ -115 (c, 0.2 in H_2O). Data is for A 269A.

N-*Me:* ***Antibiotic 6241 A***

[97816-59-6]

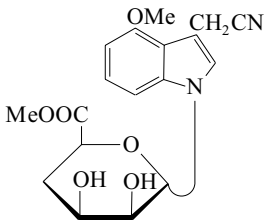
$C_{18}H_{31}N_7O_8$ 473.485

From *Streptomyces* No. 6241. Similar biol. activity as SF 701. Powder. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. Me_2CO, hexane, EtOAc. Mp 179-181° dec. $[\alpha]_D^{25}$ -82 (c, 0.1 in H_2O).

Tsuruoka, T. *et al., J. Antibiot., Ser. A*, 1968, **21**, 237 (*isol*)
Borders, D.B. *et al., Antimicrob. Agents Chemother.*, 1972, **1**, 403 (*LL-BL 136*)
Kida, T. *et al., Agric. Biol. Chem.*, 1985, **49**, 1839 (*isol, props*)
Kido, Y. *et al., J. Antibiot.*, 1987, **40**, 1698 (*A 269A*)

Antibiotic SF 2140 A-773

SF 2140
[91284-30-9]



$C_{18}H_{20}N_2O_6$ 360.366

Nucleoside antibiotic. Prod. by *Actinomadura albolutea*. Antiviral agent. Shows weak broad spectrum of antibacterial activity. Cryst. ($CHCl_3$/MeOH). Sol. MeOH, EtOAc, EtOH, Me_2CO, $CHCl_3$; fairly sol. C_6H_6; poorly sol. H_2O, hexane.
Mp 174-176°. $[\alpha]_D^{20}$ +59 (c, 1.0 in MeOH). Similar to Neosidomycin, N-27. λ_{max} 222 (ϵ 34600); 258 (sh) (ϵ 7630); 265 (ϵ 8210); 284 (ϵ 6260); 294 (ϵ 6910) (MeOH) (Derep).

▶ LD_{50} (mus, ipr) 2000-4000 mg/kg.
MQ3160000

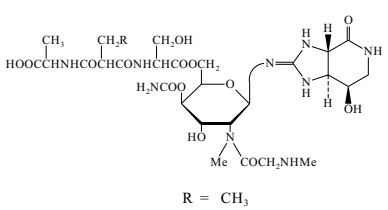
Di-Ac:
Cryst. Mp 114°.

[83652-17-9, 93207-27-3]

Japan. Pat., 1982, 82 85 397; *CA*, **97**, 214253 (*isol*)
Ito, T. *et al., J. Antibiot.*, 1984, **37**, 931 (*isol, cryst struct*)
Tohyama, H. *et al., J. Antibiot.*, 1984, **37**, 1145 (*isol*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1994, 1417 (*synth*)

Antibiotic SF 2111A A-774

SF 2111A
[107724-22-1]



R = CH_3

$C_{28}H_{45}N_9O_{14}$ 731.715

Nucleoside antibiotic. Isol. from *Streptomyces* sp. Active against phytopathogenic fungi, and weakly against gram-positive and -negative bacteria. Similar to Streptothricins.

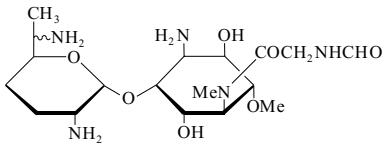
Hydrochloride:
Amorph. powder + $1H_2O$. Mp 189-193° dec. $[\alpha]_D^{23}$ -55.5 (c, 1 in H_2O).

[80701-12-8]

Japan. Pat., 1981, 81 118 094; *CA*, **96**, 99410 (*isol, props*)
Japan. Pat., 1982, 82 158 797; *CA*, **98**, 124166 (*isol, props*)

Antibiotic SF 2052B A-775

SF 2052B. Dactimicin B
[79172-06-8]



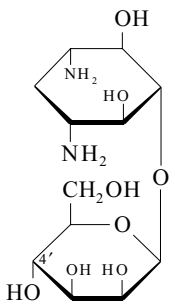
$C_{18}H_{35}N_5O_7$ 433.504

Aminocyclitol antibiotic. Prod. by *Dactylosporangium mutsuzakiense*. Weakly active against gram-positive and -negative bacteria. Basic powder. Sol. H_2O; poorly sol. hexane.
Mp 128° dec.

Japan. Pat., 1981, 81 40 697; *CA*, **95**, 167125

Antibiotic SS 56A, 9CI A-776

SS 56A. 2-Deoxy-5-O-β-D-mannopyranosylstreptamine
[39471-53-9]



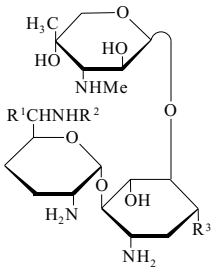
$C_{12}H_{24}N_2O_8$ 324.33

Aminoglycoside antibiotic. Isol. from *Streptomyces eurocidicus*. Antifungal antibiotic. Active against gram-positive and gram-negative bacteria. Cryst. Sol. H_2O.
Mp 252-254° dec. $[\alpha]_D^{25}$ -30 (c, 0.62 in H_2O).

4′-Epimer: ***Antibiotic SS-56B, 9CI****. SS 56B*
[39471-54-0]
$C_{12}H_{24}N_2O_8$ 324.33
From *Streptomyces eurocidicus*. Shows similar activity to SS-56A. Cryst.
Mp 229-231° dec. $[\alpha]_D^{25}$ -11.5 (c, 0.93 in H_2O).

Inouye, S. *et al., J. Antibiot.*, 1973, **26**, 374 (*isol, struct*)

Antibiotic SU A-777



SU−1, R^1 = Me, R^2 = H, R^3 = OH
SU−2, R^1 = R^2 = H, R^3 = OH
SU−3, R^1 = H, R^2 = CH_3, R^3 = OH
SU−4, R^1 = R^2 = R^3 = H (probable structure)

Aminocyclitol antibiotic complex. Prod. by *Micromonospora sagamiensis* idiotrophic mutant. Shows potent broad spectrum antibacterial activity. Consists of a mixt. of 4 components.

Antibiotic SU1

SU1
[72854-56-9]

$C_{20}H_{40}N_4O_8$ 464.558

Powder. Sol. H_2O; poorly sol. butanol, $CHCl_3$.

Antibiotic SU2

SU2
[66065-96-1]

$C_{19}H_{38}N_4O_8$ 450.531

Shows broad spectrum antibacterial activity against gentamicin resistant strains. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOH, hexane. Mp 102-112°. $[\alpha]_D$ +172 (c, 0.3 in H_2O). Major component of complex.

Antibiotic SU3

SU3. SUM3. 1-Deamino-1-hydroxysagamicin
[72614-86-9]

$C_{20}H_{40}N_4O_8$ 464.558

Also prepd. from Antibiotic XK 62-2. Shows broad spectrum antibacterial activity. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, $CHCl_3$.

Antibiotic SU4

SU4. SUM4
[72854-57-0]

$C_{19}H_{38}N_4O_7$ 434.532

Shows broad spectrum antibiotic activity. Powder. Sol. H_2O; poorly sol. butanol, $CHCl_3$. Mol. formula given does not agree with probable struct.

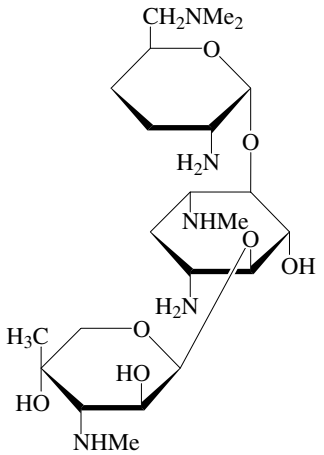
[71751-76-3]

Japan. Pat., 1978, 79 135 704; 79 135 705; *CA*, **92**, 109109; 109110
Japan. Pat., 1979, 79 59 202; 79 117 47; *CA*, **91**, 191354; **92**, 92700
Kase, H. *et al., J. Antibiot.*, 1982, **35**, 385 (*isol*)
Shirahata, K. *et al., J. Antibiot.*, 1982, **35**, 520 (*struct*)
Kase, H. *et al., CA*, 1984, **100**, 99492 (*rev*)

Antibiotic XK 62-4 **A-778**

XK 62-4

[69375-06-0]



$C_{22}H_{45}N_5O_7$ 491.627

Aminoglycoside antibiotic. From *Micromonospora sagamiensis nonreducans* (KY11504; NRRL11101; P3962). Active against gram-positive and -negative bacteria. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. butanol, hexane. Mp 101-112°. $[\alpha]_D^{25}$ +143 (c, 0.5 in H_2O). Related to the Gentamicin family.

▶ LD_{50} (mus, ivn) 25.9 mg/kg. CB9949500

6′,6′-Di-N-*De-Me:* ***Antibiotic XK 62-3***. *XK 62-3*

[69375-05-9]

$C_{20}H_{41}N_5O_7$ 463.573

Isol. from *Micromonospora sagamiensis nonreducans* (KY11504; NRRL11101; P3962). Active against gram-positive and -negative bacteria. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. butanol, hexane. Mp 95-103°. $[\alpha]_D^{25}$ +182 (c, 0.5 in H_2O).

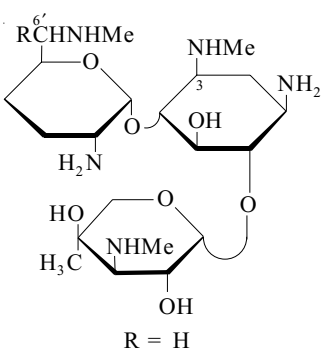
▶ LD_{50} (mus, ivn) 106 mg/kg. CB9949000

Ger. Pat., 1978, 2 821 948; *CA*, **90**, 119753w (*isol*)

Antibiotic XK 62-6 **A-779**

XK 62-6. *3*-N-*Methylsagamicin*

[74758-67-1]



R = H

$C_{21}H_{43}N_5O_7$ 477.6

Aminocyclitol antibiotic. Isol. from *Micromonospora sagamiensis nonreducans*. Active against gram-positive and -negative bacteria. Powder + H_2O. Sol. H_2O. Mp 103-118°. $[\alpha]_D^{25}$ +165 (c, 0.5 in H_2O).

N$^{6'}$-*Me:* ***Antibiotic XK 62-7***. *3,6′*-N,N-*Dimethylsagamicin*. *XK 62-7*

[74758-66-0]

$C_{22}H_{45}N_5O_7$ 491.627

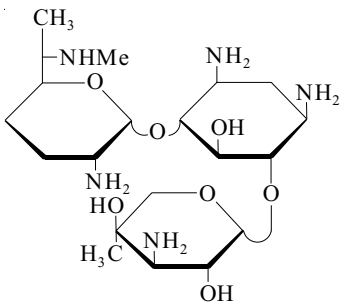
Isol. from *Micromonospora sagamiensis nonreducans*. Active against gram-positive and -negative bacteria. Powder + $1H_2O$. Sol. H_2O. Mp 102-114°.

Japan. Pat., 1980, 80 51 098; *CA*, **93**, 130563s

Antibiotic Y 02077Hγ **A-780**

Y 02077Hγ. *Y 02077H2*. *3″*-N-*Demethylgentamicin* C_1

[60352-77-4]



$C_{20}H_{41}N_5O_7$ 463.573

Aminoglycoside antibiotic. Prod. by *Micromonospora* sp. Y-02077H. Sol. H_2O.

N-*De-Me:* ***Antibiotic Y 02077Hδ***. *3″*-N-*Demethylgentamicin* C_2. *Y 02077Hδ*. *Y 02077H8*

[60352-78-5]

$C_{19}H_{39}N_5O_7$ 449.546

From *Micromonospora purpurea* and *Micromonospora* sp. Y-02077H. Active against gram-positive and -negative bacteria and mycobacteria. $[\alpha]_D^{20}$ +156 (H_2O).

▶ WK2131500

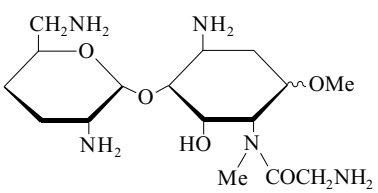
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol, pmr*)

Japan. Pat., 1984, 84 95 897; *CA*, **101**, 189715 (*isol*)

Antibiotic Y 03873J **A-781**

Y 03873J

[103528-05-8]



$C_{16}H_{33}N_5O_5$ 375.467

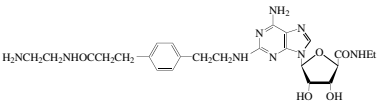
Aminocyclitol antibiotic. Prod. by *Streptomyces hirsuta*. Powder. Sol. H_2O.

Japan. Pat., 1985, 85 215 696; *CA*, **105**, 59446 (*isol, struct*)

APEC **A-782**

*1-[6-Amino-2-[[2-[4-[3-[(2-aminoethyl)amino]-3-oxopropyl]phenyl]ethyl]amino]-9*H*-purin-9-yl]-1-deoxy*-N-*ethyl-β-D-ribofuranuronamide, 9CI*. *2-[(2-Aminoethylamino)carbonylethylphenylethylamino]-5′*-N-*ethylcarboxamidoadenosine*

[126828-50-0]



$C_{25}H_{35}N_9O_5$ 541.609

Adenosine A_{2a} selective receptor agonist. Amorph. solid. Mp 113-117°. Analogue of PAPA-APEC.

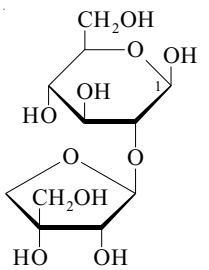
[185386-40-7]

Nikodijevic, O. *et al., FEBS Lett.*, 1990, **261**, 67-70 (*pharmacol*)

Jacobson, K.A. *et al., Mol. Pharmacol.*, 1992, **41**, 352-359; **42**, 123-133 (*use*)

U.S. Pat., 1994, 5 280 015, (*NIH*); *CA*, **115**, 41969j (*synth, pharmacol*)

2-*O*-β-D-Apiofuranosyl-D-glucose **A-783**



$C_{11}H_{20}O_{10}$ 312.273

β-Pyranose-*form*

1,5′-Dibenzoyl: ***Daviesine***

[15356-43-1]

$C_{25}H_{28}O_{12}$ 520.489

Constit. of the leaves of *Daviesia latifolia*. Needles (EtOAc aq.).

Mp 152-154° Mp 160-165° (double Mp).

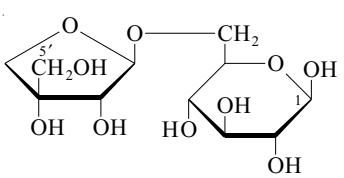
$[\alpha]_D^{22}$ -106 (c, 1 in MeOH).

1,5′-Dibenzoyl, penta-Ac: [15356-44-2] Cryst. (EtOH). Mp 203-204°.

Hansson, B. *et al., Acta Chem. Scand.*, 1966, **20**, 2358 (*isol*)

Bowden, B.F. *et al., J. Nat. Prod.*, 1988, **51**, 311 (*isol, pmr, cmr*)

6-*O*-β-D-Apiofuranosyl-D-glucose **A-784**



$C_{11}H_{20}O_{10}$ 312.273

β-D-Pyranose-*form*

1-O-*(3-Methylbutanoyl):* [467242-31-5]
$C_{16}H_{28}O_{11}$ 396.391
Constit. of green coffee beans (*Coffea arabica*).

1-O-*(3-Methyl-2-butenoyl):* [467242-32-6]
$C_{16}H_{26}O_{11}$ 394.375
Constit. of green coffee beans (*Coffea arabica*).

1-O-*Benzoyl, 5′*-O-*(3,4-dihydroxycinnamoyl)* (E-*):* ***Psydroside***
[166990-09-6]
$C_{27}H_{30}O_{14}$ 578.526
Constit. of the leaves of *Psydrax livida*. $[\alpha]_D^{25}$ -45 (c, 0.5 in MeOH).

Me glycoside: Methyl β-D-apiofuranosyl-(1→6)-β-D-glucopyranoside
$C_{12}H_{22}O_{10}$ 326.3
Constit. of cumin (*Cuminum cyminum*). Syrup. $[\alpha]_D^{21}$ -81 (c, 0.4 in MeOH).

Nahrstedt, A. *et al., Phytochemistry*, 1995, **39**, 375 (*Psydroside*)

Weckerle, B. *et al., Phytochemistry*, 2002, **60**, 409-414 (*coffee constits*)

Takayanagi, T. *et al., Phytochemistry*, 2003, **63**, 479-484 (*Me glycoside, isol*)

Apiose, 9CI, 8CI A-785

2,3,4-Trihydroxy-3-(hydroxymethyl)butanal. 3-C-*(Hydroxymethyl)*-glycero-*tetrose. Tetrahydroxyisovaleraldehyde*

D-*form* β-D-erythro-Tetrofuranose-*form*

$C_5H_{10}O_5$ 150.131

Care needed with naming and numbering of derivs. C-3 is not a chiral centre in the acyclic sugar. In L-Apio-α-D-furanose for example, L- defines the config. at C-2 (L-apiose), while D-defines the config. at C-3 (D-furanosyl stereoisomeric form of L-apiose).

D-*form*

*(*R*)-form*
[639-97-4]
First found in parsley as the glycoside Apiin, also present in celery, *Dalbergia lanceolaria, Posidonia australis*, *Hevea brasiliensis*, *Taraxacum kok-saghyz*, *Zostera marina*, *Lemna* spp., and *Platycodon grandiflorum*. Syrup. $[\alpha]_D$ +7.6 (c, 0.7 in H_2O).

Benzylphenylhydrazone:
Cryst. ($CHCl_3$). Mp 138-139°. $[\alpha]_D^{20}$ -94 (c, 4.6 in Py). $[\alpha]_D$ -29 (c, 1.1 in MeOH).

2,3-O-*Isopropylidene: 2,3*-O-*Isopropylidene-D-apiose*
$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D$ -35 (c, 0.87 in MeOH).

α-D-*erythro*-Tetrofuranose-*form* *D-Apio-α-D-furanose, 9CI. 3*-C-*Hydroxymethyl-α-D-*erythro-*tetrofuranose*
[30738-01-3]

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-D-apio-α-D-furanose. 1,2*-O-*Isopropylidene-α-D-*erythro-*tetrofuranose*
[25018-74-0]
$C_8H_{14}O_5$ 190.196
Needles (Et_2O/hexane). Mp 118-120°. $[\alpha]_D^{29}$ +54.5 (c, 0.8 in EtOH).

1,2-O-*Isopropylidene, di-Ac: 1′,3-Di*-O-*acetyl-1,2*-O-*isopropylidene-D-apio-α-D-furanoside. 1′,3-Di*-O-*acetyl-1,2*-O-*isopropylidene-α-D-*erythro-*tetrofuranose*
[33962-41-3]
$C_{12}H_{18}O_7$ 274.27
Needles (hexane). Mp 110-111°. $[\alpha]_D$ +64 (c, 1.4 in $CHCl_3$).

1,2:1′,3-Di-O-*isopropylidene: 1,2:1′,3-Di*-O-*isopropylidene-D-apio-α-D-furanoside. 1,2:1′,3-Di*-O-*isopropylidene-α-D-*erythro-*tetrofuranose*
[25904-06-7]
$C_{11}H_{18}O_5$ 230.26
Cryst. (Et_2O/hexane). Mp 46-49° Mp 52-54°. $[\alpha]_D$ +62.4 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{28}$ +76.5 (c, 3.0 in EtOH).

Me glycoside, 1′,2,3-tri-Me: Methyl 1′,2,3-tri-O-*methyl-D-*apio-*α-D-furanoside. Methyl 3*-C-*(methoxymethyl)-2,3-di*-O-*methyl-α-D-*erythro-*tetrofuranoside*
$C_9H_{18}O_5$ 206.238
$[\alpha]_D^{26}$ +116 ($CHCl_3$).

β-D-*erythro*-Tetrofuranose-*form* *D-Apio-β-D-furanose, 9CI. 3*-C-*Hydroxymethyl-β-D-*erythro-*tetrofuranose*
[36465-64-2]
Syrup.

2,3-O-*Isopropylidene: 2,3*-O-*Isopropylidene-D-apio-β-D-furanose. 3*-C-*Hydroxymethyl-2,3*-O-*isopropylidene-β-D-*erythro-*tetrofuranose*
[70147-50-1]
$C_8H_{14}O_5$ 190.196
Cryst. (Et_2O/hexane). Mp 72°. $[\alpha]_D$ -40 (c, 1.5 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, 3′-tosyl: Methyl 2,3*-O-*isopropylidene-1′-tosyl-D-apio-β-D-furanoside*
[32445-78-6]
$C_{16}H_{22}O_7S$ 358.412
Cryst. (Et_2O/hexane). Mp 90-91°. $[\alpha]_D^{28}$ -82.1 (c, 4.0 in $CHCl_3$).

Me glycoside, 3′-Me, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-3′-methyl-D-apio-β-D-furanoside. 2,3*-O-*Isopropylidene-3*-C-*(methoxymethyl)-3*-O-*methyl-β-D-*erythro-*tetrofuranose*
[4098-02-6]
$C_{10}H_{18}O_5$ 218.249
Bp_2 70°. $[\alpha]_D^{25}$ -106 (c, 2.4 in $CHCl_3$).

Me glycoside, 1′,2,3-tri-Me: Methyl 1′,2,3-tri-O-*methyl-D-apio-β-D-furanoside. Methyl 3*-C-*(methoxymethyl)-2,3-di*-O-*methyl-β-D-*erythro-*tetrofuranoside*
$C_9H_{18}O_5$ 206.238
Syrup. $[\alpha]_D$ -79 ($CHCl_3$).

β-L-*threo*-Tetrofuranose-*form*

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-L-apio-β-L-furanose. 1,2*-O-*Isopropylidene-3*-C-*hydroxymethyl-β-L-*threo-*tetrofuranose*
[14048-35-2]
$C_8H_{14}O_5$ 190.196
Needles (CH_2Cl_2/hexane). Mp 124-125°. $[\alpha]_D^{29}$ +46 (c, 1.0 in EtOH).

1,2-O-*Isopropylidene, di-Ac: 1′,3-Di*-O-*acetyl-1,2*-O-*isopropylidene-D-apio-β-L-furanose. 1′,3-Di*-O-*acetyl-1,2*-O-*isopropylidene-β-L-*threo-*tetrofuranose*
[14048-36-3]
$C_{12}H_{18}O_7$ 274.27
Cubes (cyclohexane). Mp 88-89.5°. $[\alpha]_D^{29}$ +75 (c, 1.4 in $CHCl_3$).

1,2-O-*Isopropylidene, 1′-tosyl: 1,2*-O-*Isopropylidene-1′*-O-*tosyl-β-D-apio-β-L-furanose. 1,2*-O-*Isopropylidene-1′*-O-*tosyl-β-L-*threo-*tetrofuranose*
$C_{15}H_{20}O_7S$ 344.385
Cryst. (Et_2O). Mp 137-138°. $[\alpha]_D$ +43.2 (c, 4.4 in $CHCl_3$).

1,2:1′,3-Di-O-*isopropylidene: 1,2:1′,3-Di*-O-*isopropylidene-D-apio-β-L-furanose. 1,2:1′,3-Di*-O-*isopropylidene-3*-C-*(hydroxymethyl)-β-L-*threo-*tetrofuranose*
[14854-36-5]

[34724-16-8]
$C_{11}H_{18}O_5$ 230.26
Needles (H_2O/NH_3). Mp 80-82°. $[\alpha]_D^{29}$ +59 (c, 1.0 in EtOH).

1′,3-Di-Me, 1,2-O-*isopropylidene: 1,2*-O-*Isopropylidene-1′,3′-di*-O-*methyl-D-apio-β-L-furanose. 1,2*-O-*Isopropylidene-1′,3′-di*-O-*methyl-β-L-*threo-*tetrofuranose*
[32445-76-4]
$C_{10}H_{18}O_5$ 218.249
Oil. $Bp_{0.1}$ 60°.

1′,3-Dibenzyl, 1,2-O-*isopropylidene: 1′,3-Di*-O-*benzyl-1,2*-O-*isopropylidene-L-apio-β-L-furanose. 1′,3-Di*-O-*benzyl-1,2*-O-*isopropylidene-β-L-*threo-*tetrofuranose*
[34339-65-6]
$C_{22}H_{26}O_5$ 370.444
Mp 38-39°. $[\alpha]_D^{22}$ +54.5 (c, 1.2 in $CHCl_3$).

L-*form* [6477-44-7]
Syrup. $[\alpha]_D^{20}$ -5 (c, 8.0 in H_2O).

Benzylphenylhydrazone:
Cryst. Mp 136-137°. $[\alpha]_D^{20}$ +94 (c, 1.0 in Py).

α-L-*erythro*-Tetrofuranose-*form* *L-Apio-α-L-furanose, 9CI. 3*-C-*Hydroxymethyl-α-L-*erythro-*tetrofuranose*

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-L-apio-α-L-furanose*
[22403-90-3]
$C_8H_{14}O_5$ 190.196
Cryst. (EtOAc/hexane). Mp 116-118°. $[\alpha]_D^{20}$ -43.8 (c, 1.5 in EtOH).

1′,3-Dibenzyl, 1,2-O-*isopropylidene: 1′,3-Di*-O-*benzyl-1,2*-O-*isopropylidene-L-apio-α-L-furanose. 1′,3-Di*-O-*benzyl-1,2*-O-*isopropylidene-α-L-*erythro-*tetrofuranose*
$C_{22}H_{26}O_5$ 370.444
Cryst. (Et_2O/petrol). Mp 60-61°. $[\alpha]_D^{19}$ -58 (c, 1.5 in $CHCl_3$).

DL-*form* [42927-70-8]
Syrup.

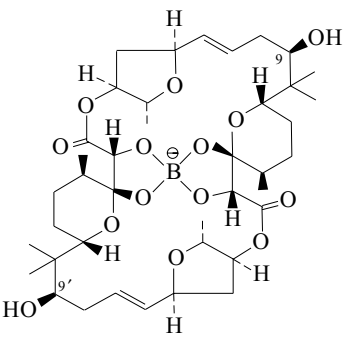
[6477-44-7, 30912-14-2, 41546-43-4, 41546-44-5, 41546-46-7, 41546-47-8, 41546-49-0, 94943-41-6]

Bell, D.J. *et al., J.C.S.*, 1954, 3702 (*isol*)

Weygand, F. *et al., Chem. Ber.*, 1959, **92**, 535 (*L-form*)
Schaffer, R. *et al., J.A.C.S.*, 1959, **81**, 5452 (*L-form*)
Bell, D.J. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 260 (*isol*)
Williams, D.T. *et al., Can. J. Chem.*, 1964, **42**, 69 (*D-form, isol, synth, D-isopropylidene*)
Carey, F.A. *et al., Carbohydr. Res.*, 1966, **2**, 205 (*α-L-fur derivs*)
Ball, D.H. *et al., Carbohydr. Res.*, 1969, **10**, 121; 1971, **17**, 165; 1975, **45**, 91 (*α-D-Me gly tri-Me, β-D-Me gly tri-Me, β-D-Me gly derivs, 1,2;3,3′-diisopropylidene*)
Ezekiel, A.D. *et al., Tet. Lett.*, 1969, 1635 (*α-D-isopropylidene, α-D-isopropylidene di-Ac*)
Overend, W.G. *et al., Carbohydr. Res.*, 1970, **15**, 185 (*L-form*)
Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1971, **54**, 1466 (*1,2-O-isopropylidene*)
Ezekiel, A.D. *et al., J.C.S.(C)*, 1971, 2907 (*β-L-dibenzyl isopropylidene*)
Kinoshita, T. *et al., Carbohydr. Res.*, 1973, **28**, 175 (*β-L-threo-isopropylidene, β-L-threo diisopropylidene*)
Tronchet, J.M.T. *et al., Carbohydr. Res.*, 1974, **33**, 237 (*β-L-threo isopropylidene*)
Watson, R.R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1975, **31**, 135 (***rev***)
Vyas, D.M. *et al., Can. J. Chem.*, 1975, **53**, 2748 (*cmr*)
Ho, P.-T. *et al., Can. J. Chem.*, 1979, **57**, 381 (*D-form, L-form, synth, β-D-isopropylidene*)
Koos, M. *et al., Carbohydr. Res.*, 1986, **146**, 335 (***synth***)
Snyder, J.R. *et al., Carbohydr. Res.*, 1987, **166**, 85 (*DL-form*)

Aplasmomycin A-786

Aplasmomycin A
[61230-25-9]



$C_{40}H_{60}BO_{14}^{\ominus}$ 775.717
Isol. from *Streptomyces griseus*. Active against gram-positive bacteria and shows insecticidal and acaricidal props. Sol. MeOH, Et_2O; fairly sol. hexane; poorly sol. H_2O. Belongs to small group of boron-containing antibiotics. Closely related to Boromycin.

▶ LD_{50} (mus, ipr) 125 mg/kg. CD8835000

Na salt:
Needles (MeOH aq.). Mp 283-285° dec. $[\alpha]_D^{22}$ +225 (c, 1.24 in $CHCl_3$).

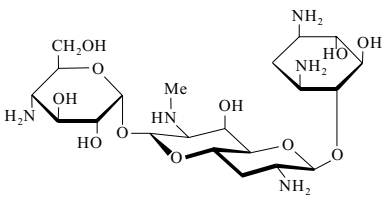
9-Ac: ***Aplasmomycin B***
[68193-20-4]
$C_{42}H_{62}BO_{15}^{\ominus}$ 817.754
From *Streptomyces griseus*. Active against gram-positive bacteria. Sol. MeOH, EtOAc; poorly sol. H_2O. $[\alpha]_D$ +188 (MeOH) (as Na salt).

9,9′-Di-Ac: ***Aplasmomycin C***
[68193-21-5]
$C_{44}H_{64}BO_{16}^{\ominus}$ 859.791
From *Streptomyces griseus*. Weakly active against gram-positive bacteria. Sol. MeOH, EtOAc; poorly sol. H_2O. $[\alpha]_D$ +134 (MeOH) (as Na salt).

Okami, Y. *et al., J. Antibiot.*, 1976, **29**, 1019 (*isol, ir, uv, ms, pmr, cmr, struct*)
Nakamura, H. *et al., J. Antibiot.*, 1977, **30**, 714 (*struct*)
Sato, K. *et al., J. Antibiot.*, 1978, **31**, 632 (*deriv*)
Chen, T.S.S. *et al., J. Antibiot.*, 1980, **33**, 1316 (*biosynth, pmr, cmr*)
Floss, H.G. *et al., Antibiotics (N.Y.)*, 1981, **4**, 193 (*biosynth, rev*)
Corey, E.J. *et al., J.A.C.S.*, 1982, **104**, 6816; 6818 (*synth*)
White, J.D. *et al., Tet. Lett.*, 1984, **25**, 3671 (*synth*)
Lee, J.J. *et al., Diss. Abstr. Int., B*, 1985, **45**, 3233 (*biosynth*)
White, J.D. *et al., J.A.C.S.*, 1986, **108**, 8105 (*synth*)
Matsuda, F. *et al., Tetrahedron*, 1990, **46**, 3469 (*synth*)
Stout, T.J. *et al., Tetrahedron*, 1991, **47**, 3511 (*cryst struct, bibl*)
Norcross, R.D. *et al., Chem. Rev.*, 1995, **95**, 2041 (*rev, synth*)

Apramycin, BAN, INN, USAN A-787

Nebramycin II. Ambylan. Apralan. Magnimix. EL 857l820. Lilly 47657
[37321-09-8]



$C_{21}H_{41}N_5O_{11}$ 539.582
Isol. from *Streptomyces tenebrarius* and *Saccharomyces porispora hiltus*. Veterinary drug shows antibiotic activity against gram-positive and -negative organisms. Cryst. + $1H_2O$ (EtOH aq.). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 245-247°. $[\alpha]_D^{25}$ -164 (c, 1 in H_2O). Log P -8.11 (uncertain value) (calc).

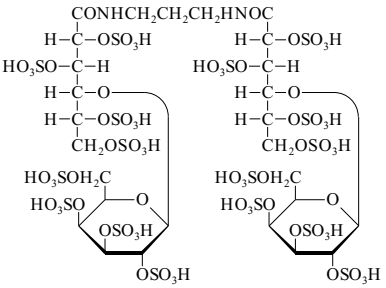
▶ LD_{50} (mus, ivn) 280 mg/kg; LD_{50} (mus, ivn) 385 mg/kg. WK1970000

[41194-16-5]

O'Connor, S. *et al., J.O.C.*, 1976, **41**, 2087 (*isol, ir, ms, pmr, cryst struct*)
Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430 (*cmr, N-15 nmr, ms*)
Japan. Pat., 1980, 80 102 397; *CA*, **93**, 236935 (*manuf*)
Tatsuta, K. *et al., Bull. Chem. Soc. Jpn.*, 1984, **57**, 529 (*synth, pmr*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, AQP885
Szilagyi, L. *et al., Magn. Reson. Chem.*, 1992, **30**, 107 (*pmr, cmr*)
Eneva, G.I. *et al., Magn. Reson. Chem.*, 1992, **30**, 841 (*pmr, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 118
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AQP885

Aprosulate A-788

N,N′-*1,3-Propanediylbis[4-O-(2,3,4,6-tetra-O-sulfo-β-D-galactopyranosyl)-D-gluconamide], 9CI*



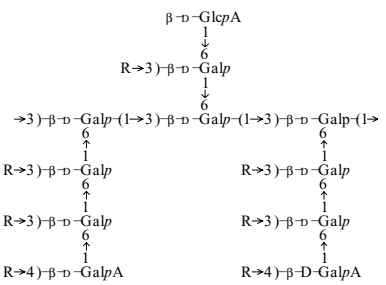
$C_{27}H_{50}N_2O_{70}S_{16}$ 2035.719

Hexadeca-Na salt: ***Aprosulate sodium, INN***. *LW 10082*
[123072-45-7] Anticoagulant and antithrombotic agent.

Raake, W. *et al., Thromb. Res.*, 1989, **56**, 719 (*synth, pharmacol*)
Ofosu, F.A. *et al., Eur. J. Biochem.*, 1992, **203**, 121 (*pharmacol*)
Raake, W. *et al., Semin. Thromb. Hemostasis, Suppl.* 1, 1993, **19**, 183 (*pharmacol*)
Sugidachi, A. *et al., Thromb. Res.*, 1993, **69**, 71 (*pharmacol*)
Papoulias, U.E. *et al., Thromb. Res.*, 1993, **72**, 99 (*clin trial*)
Raake, W. *et al., Semin. Thromb. Hemostasis*, 1994, **20**, 176 (*sar*)

Arabic acid, 9CI, 8CI A-789

[32609-14-6]



Most common components

A highly branched polysaccharide composed of L-Arabinose, D-Galactose, L-Rhamnose and D-Gluconic acid in an approximate 3:3:1:1 ratio. Salt-free polysaccharide formed by precipitation from an acidified soln. of gum arabic.

Mixed salts: Gum arabic. Australian gum. Acacia gum. Wattle gum. E414. FEMA 2001
[9000-01-5]
The dried gummy exudate from the stems and branches of *Acacia senegal* and other *A.* species. Used as protective colloid to prevent settling of ppts. in some photometric and turbidimetric detns. Yellowish-amber lumps. Dissolves slowly in H_2O.

▶ CE5945000

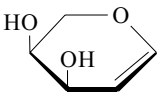
Me ester: $[\alpha]_D^{19}$ -47 (c, 1.0 in $CHCl_3$).

Per-Ac: $[\alpha]_D$ -21 (c, 0.94 in $CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 202A (*ir*)
Smith, F. *et al., J.C.S.*, 1939, 1724; 1940, 1035
Welcher, F.J. *et al., Organic Analytical Reagents*, Van Nostrand, NY, 1948, **4**, 303 (*use*)
Aspinal, G.O. *et al., J.C.S.*, 1963, 1696
Aspinal, G.O. *et al., The Carbohydrates*, (Pigman, W. *et al*, Ed.), Academic Press, 1970, **2B**, 523
Churms, S.C. *et al., Carbohydr. Res.*, 1983, **123**, 267 (*struct*)
Defaye, J. *et al., Carbohydr. Res.*, 1986, **150**, 221 (*cmr, struct, bibl*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1-5 (*Gum arabic*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AQQ500

Arabinal A-790

1,5-Anhydro-2-deoxy-erythro-*pent-1-enitol. Ribal*



L-*form*

$C_5H_8O_3$ 116.116

D-*form*

1,5-Anhydro-2-deoxy-D-erythro-*pent-1-enitol, 9CI*
[496-61-7]
Mp 81°. $[\alpha]_D$ +196 (H_2O).

3,4-Di-Ac: 3,4-Di-O-*acetyl-D-arabinal*
[3945-17-3]
$C_9H_{12}O_5$ 200.191
Mp 99-100°. $[\alpha]_D^{20}$ +263 ($CHCl_3$).

3,4-Dibenzoyl: 3,4-Di-O-*benzoyl-D-arabinal*
[25874-16-2]
$C_{19}H_{16}O_5$ 324.332
Cryst. (Et_2O/pentane). Mp 47-48°. $[\alpha]_D^{23}$ +260 (c, 2.6 in $CHCl_3$).

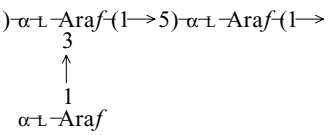
L-*form* *1,5-Anhydro-4-deoxy-D*-erythro-*pent-4-enitol, 9CI*
[152202-52-3]
Cryst. (C_6H_6). Mp 78-81°. $[\alpha]_D$ -196 (H_2O).

3,4-Di-Ac: 3,4-Di-O-*acetyl-L-arabinal*
[3945-18-4]
$C_9H_{12}O_5$ 200.191
$Bp_{0.01}$ 110-140°. $[\alpha]_D$ -267 ($CHCl_3$).

Gehrke, M. *et al., Ber.*, 1927, **60**, 918-922 (*D-form, L-form*)
Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1945, **15**, 539-549 (*synth*)
Deriaz, R.E. *et al., J.C.S.*, 1949, 1879-1883 (*L-form, synth*)
Humoller, F.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 83-88 (*L-form, synth*)
Bock, K. *et al., Acta Chem. Scand.*, 1969, **23**, 2083-2094 (*D-dibenzoyl*)
Pollen, J.H.P. *et al., Synthesis*, 1989, 758-759 (*D-di-Ac, synth, pmr, cmr*)
Cavallaro, C.L. *et al., J.O.C.*, 1995, **60**, 7055-7057 (*D-di-Ac*)
Shull, B.K. *et al., J. Carbohydr. Chem.*, 1996, **15**, 955-964 (*L-di-Ac*)
Capozzi, G. *et al., Chem. Eur. J.*, 1999, **5**, 1748-1754 (*D-form, pmr, cmr*)

Arabinan, 9CI, 8CI A-791

Araban
[11078-27-6]



Portion of idealised structure

$C_5H_8O_4$ 132.116

A polymer of linearly α-(1→5)-linked L-arabinofuranose units with single L-arabinofuranose α-(1→3)-linked to the main chain at intervals. Polymeric. Minimum formula given. Arabinans devoid of other sugars have been isol. from mustard seeds and maritime pine. Heteroarabinans have been found in sugar beet and apples.
$[\alpha]_D$ -157. $[\alpha]_D$ -114. $[\alpha]_D$ -129 (H_2O).

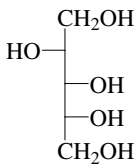
Ac: $[\alpha]_D^{20}$ -90 (Me_2CO).

[9060-75-7]

Hirst, E.L. *et al., J.C.S.*, 1939, 452; 454; 1865
Hirst, E.L. *et al., Adv. Carbohydr. Chem.*, 1947, **2**, 235 (*rev*)
Hirst, E.L. *et al., Biochem. J.*, 1965, **95**, 453 (*isol*)
Roudier, A.J. *et al., Bull. Soc. Chim. Fr.*, 1965, 460
Jones, J.K.N. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 74 (*synth*)
Aspinal, G.O. *et al., The Carbohydrates*, (Pigman W. etal, Ed.), Academic Press, 1970, **2B**, 517
Radha, A. *et al., Carbohydr. Res.*, 1997, **298**, 105-115 (*cryst struct, conformn*)

Arabinitol, 9CI A-792

Lyxitol, 9CI. Arabitol, 8CI
[2152-56-9]



D-*form*

$C_5H_{12}O_5$ 152.147

D-*form* [488-82-4]
Found in lichens and fungi.
Mp 103°. $[\alpha]_D^{20}$ +7.7 (borax).

1-Phosphate:

[220715-55-9]
$C_5H_{13}O_8P$ 232.127
Present in the repeating unit of the capsular polysaccharide of *Streptococcus pneumoniae* type 17F.

Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-D-arabinitol*
[5401-55-8]
$C_{15}H_{22}O_{10}$ 362.333
Mp 74-75°. $[\alpha]_D^{20}$ +37.2 ($CHCl_3$).

1,5-Dibenzoyl: 1,5-Di-O-*benzoyl-D-arabinitol*
$C_{19}H_{20}O_7$ 360.363
Prisms (EtOH). Mp 131-132°. $[\alpha]_D^{20}$ +8.4 (c, 0.81 in Py).

1,3:2,4-Di-O-*methylene: 1,3:2,4-Di*-O-*methylene-D-arabinitol*
$C_7H_{12}O_5$ 176.169
Mp 124-125°. $[\alpha]_D^{20}$ +32.4.

2,3:4,5-Di-O-*isopropylidene: 2,3:4,5-Di*-O-*isopropylidene-D-arabinitol*
[19139-74-3]
$C_{11}H_{20}O_5$ 232.276
Bp_{11} 129-130°. n_D^{20} 1.4515.

1,3-O-*Benzylidene: 1,3*-O-*Benzylidene-D-arabinitol*
[70831-50-4]
$C_{12}H_{16}O_5$ 240.255
Cryst. (EtOH). Mp 151-152°. $[\alpha]_D$ -7.6 (c, 2.0 in Py).

2,3-O-*Benzylidene: 2,3*-O-*Benzylidene-D-arabinitol*
$C_{12}H_{16}O_5$ 240.255
Cryst. ($CHCl_3$). Mp 81-83°. $[\alpha]_D^{20}$ +10.8 (c, 0.8 in EtOH).

2,3:4,5-Di-O-*benzylidene: 2,3:4,5-Di*-O-*benzylidene-D-arabinitol*
[20603-47-8]
$C_{19}H_{20}O_5$ 328.364
Prisms (Me_2CO/petrol). Mp 101-105°. $[\alpha]_D$ +2.5 (c, 2.63 in Py).

2,3:4,5-Di-O-*benzylidene, 1-Ac: 1*-O-*Acetyl-2,3:4,5-di*-O-*benzylidene-D-arabinitol*
[20769-98-6]
$C_{21}H_{22}O_6$ 370.401
Needles (EtOH aq.). Mp 49-51°. $[\alpha]_D$ -4.4 (c, 2.27 in $CHCl_3$).

1-Benzyl: 1-O-*Benzyl-D-arabinitol*
$C_{12}H_{18}O_5$ 242.271
Cryst. (EtOH). Mp 129-130°.

1-Benzyl, 2,3:4,5-di-O-*isopropylidene: 1*-O-*Benzyl-2,3:4,5-di*-O-*isopropylidene-D-arabinitol*
[19139-73-2]
$C_{18}H_{26}O_5$ 322.4
Bp_{11} 185-188°. n_D^{20} 1.4989.

2,3,5-Tribenzyl: 2,3,5-Tri-O-*benzyl-D-arabinitol*
[14233-53-5]
$C_{26}H_{30}O_5$ 422.52
Cryst. (Et_2O/pentane). Mp 54-55°. $[\alpha]_D$ +1.3 (c, 4.1 in $CHCl_3$).

1-Trityl, 2,3,5-tribenzyl: 2,3,5-Tri-O-*benzyl-1*-O-*trityl-D-arabinitol*
[14233-55-7]
$C_{45}H_{44}O_5$ 664.84
Mp 103-104° Mp 150.5-152°. $[\alpha]_D$ -7.3 (c, 1.37 in Py).

5-O-*(6*-O-*3,4-Dihydroxy*-E-*cinnamoyl-β-D-glucopyranoside):*
$C_{20}H_{28}O_{13}$ 476.433
Constit. of the leaves of *Lonicera gracilipes* var. *glandulosa*. Amorph. powder. $[\alpha]_D^{30}$ -11.1 (c, 0.2 in MeOH).

L-*form* [7643-75-6]
Occurs in urine of pentosuric subjects.
Mp 102°. $[\alpha]_D$ -5 (borax).

Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-L-arabinitol*
[5346-78-1]
$C_{15}H_{22}O_{10}$ 362.333
Mp 76°.

1,5-Ditosyl, 2,3,4-tribenzoyl: 2,3,4-Tri-O-*benzoyl-1,5-di*-O-*tosyl-L-arabinitol*
[20703-97-3]
Mp 116-117°. $[\alpha]_D$ -22.6 (c, 3.2 in $CHCl_3$).

2,3:4,5-Di-O-*isopropylidene: 2,3:4,5-Di*-O-*isopropylidene-L-arabinitol*
[84709-35-3]
$C_{11}H_{20}O_5$ 232.276
Syrup. Bp_{20} 145-149°.

3,5-O-*Benzylidene: 3,5*-O-*Benzylidene-L-arabinitol*
[53131-06-9]
$C_{12}H_{16}O_5$ 240.255
Mp 148-149°. $[\alpha]_D^{25}$ -11.1 (c, 1.0 in EtOH).

2,3,4-Tri-Me: 2,3,4-Tri-O-*methyl-L-arabinitol*
[14550-95-9]
$C_8H_{18}O_5$ 194.227
Cryst. Mp 61-62°. $[\alpha]_D$ -2 (c, 0.56 in CH_2Cl_2).

2,3,4-Tri-Me, 1,5-ditosyl: 2,3,4-Tri-O-*methyl-1,5-di*-O-*tosyl-L-arabinitol*
[362512-97-8]
$C_{22}H_{30}O_9S_2$ 502.606
Syrup. $[\alpha]_D$ -10 (c, 0.5 in CH_2Cl_2).
1,5-Dimesyl compd. also prepd.

2,3,4-Tribenzyl: 2,3,4-Tri-O-*benzyl-L-arabinitol*
[138515-44-3]
$C_{26}H_{30}O_5$ 422.52
Cryst. (Et_2O). Mp 76-78°. $[\alpha]_D$ +18 (c, 1.3 in $CHCl_3$).

2,3,4-Tribenzyl, 1,5-ditosyl: 2,3,4-Tri-O-*benzyl-1,5-ditosyl-L-arabinitol*
[158931-69-2]
$C_{40}H_{42}O_9S_2$ 730.898
Mp 98-100°.

1,5-Dityityl: 1,5-Di-O-*trityl-L-arabinitol*
[158931-67-0]
$C_{43}H_{40}O_5$ 636.786
Cryst. + 1EtOH (EtOH). Mp 68-70° (EtOH solvate). $[\alpha]_D$ +5.3 (c, 1.1 in $CHCl_3$).

1,5-Ditrityl, 2,3,4-tribenzoyl: 2,3,4-Tri-O-*benzoyl-1,5-di*-O-*trityl-L-arabinitol*
[35179-21-6]
$C_{64}H_{52}O_8$ 949.11
Mp 172-173°. $[\alpha]_D$ -0.5 (c, 1.9 in $CHCl_3$).

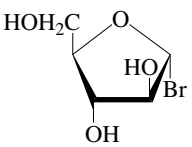
1,5-Ditrityl, 2,3,4-tribenzyl: 2,3,4-Tri-O-*benzyl-1,5-ditrityl-L-arabinitol*
[158931-68-1]
$C_{64}H_{58}O_5$ 907.159
Cryst. (Me_2CO/EtOH). Mp 142-145°. $[\alpha]_D$ +7.4 (c, 0.9 in $CHCl_3$).

DL-*form* [6018-27-5]

Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-DL-arabinitol*
[85761-13-3]
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (MeOH). Mp 93-96°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 185C; 185D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 288B; 288C (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 25A (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 127 (*L-form, derivs, rev*)
Haskins, W.T. *et al., J.A.C.S.*, 1943, **65**, 1663 (*D-1,3-benzylidene, D-2,3-benzylidene, D-1,5-dibenzoyl*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1953, **7**, 591 (*occur*)
Nakagawa, T. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 2150 (*D-diisopropylidene, D-diisopropylidene benzyl, D-benzyl*)
Rabinsohn, Y. *et al., J.O.C.*, 1967, **32**, 3452 (*D-tribenzyl, D-tribenzyl trityl*)
Zinner, H. *et al., Carbohydr. Res.*, 1968, **7**, 38 (*D-dibenzylidene, D-dibenzylidene Ac*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1972, **23**, 121 (*pmr*)
Harness, J. *et al., J.C.S. Perkin 1*, 1972, **7**, 38 (*L-tribenzoyl ditosyl, L-tribenzoyl ditrityl*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 147 (*occur*)
Rabinsohn, Y. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 326 (*D-tribenzyl, D-tribenzyl trityl*)
Gent, P.A. *et al., Carbohydr. Res.*, 1976, **49**, 325 (*D-tribenzyl*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
Minami, N. *et al., J.A.C.S.*, 1982, **104**, 1109 (*total synth, D-penta-Ac*)
Holland, D. *et al., J.C.S. Perkin 1*, 1983, 1553 (*DL-penta-Ac*)
Kopf, J. *et al., Carbohydr. Res.*, 1991, **218**, 9; 1992, **233**, 35 (*cryst struct, penta-Ac*)
McCaig, A.E. *et al., J. Carbohydr. Chem.*, 1994, **13**, 397-407 (*L-1,5-ditrityl, 2,3,4-tribenzyl, 1,5-ditrityl-2,3,4-tribenzyl*)
Matsuda, N. *et al., Chem. Pharm. Bull.*, 1995, **43**, 1049 (*5-caffeoylglucoside*)
Rozenberg, M. *et al., Carbohydr. Res.*, 2000, **328**, 307-319 (*ir*)
Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 2001, **333**, 95-103 (*L-form 2,3,4-tri-Me, 2,3,4-tri-Me ditosy*)
Jones, C. *et al., Carbohydr. Res.*, 2002, **337**, 2354 (*D-form 1-phosphate*)

Arabinofuranosyl bromide A-793



α-D-*form*

$C_5H_9BrO_4$ 213.028

α-D-*form*

Tribenzoyl: 2,3,5-Tri-O-*benzoyl-α-D-arabinofuranosyl bromide*
[4348-68-9]
$C_{26}H_{21}BrO_7$ 525.352
Prisms (Et_2O/pentane). Mp 103-104°. $[\alpha]_D^{20}$ +85 (c, 1.2 in CH_2Cl_2).

3,5-Bis-4-nitrobenzoyl, 2-Ac:
Cryst. (Et_2O/pentane/CH_2Cl_2). Mp 128-129°. $[\alpha]_D^{20}$ +105 (c, 0.4 in CH_2Cl_2).

Tris-4-nitrobenzoyl:
Cryst. (CH_2Cl_2/Et_2O). Mp 171-173° dec. $[\alpha]_D^{20}$ +46 (c, 2.0 in CH_2Cl_2).

β-D-*form*

Tribenzoyl: 2,3,5-Tri-O-*benzoyl-β-D-arabinofuranosyl bromide*
[70051-90-0]
$C_{26}H_{21}BrO_7$ 525.352
Needles (Et_2O). Mp 130-132°. $[\alpha]_D^{20}$ -138 (c, 0.9 in CH_2Cl_2).

α-L-*form*

3,5-Dibenzoyl: 3,5-Di-O-*benzoyl-α-L-arabinofuranosyl bromide*
$C_{19}H_{17}BrO_6$ 421.244
Syrup. $[\alpha]_D$ -103 (CH_2Cl_2).

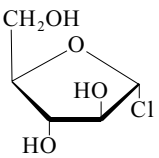
3,5-Dibenzoyl, 2-Ac: 2-O-*Acetyl-3,5-di*-O-*benzoyl-α-L-arabinofuranosyl bromide*
$C_{21}H_{19}BrO_7$ 463.281
Syrup. $[\alpha]_D$ -112 (CH_2Cl_2).

*2,3-Dibenzoyl, 5-*p-*nitrobenzoyl:* [55018-40-1]
Cryst. (EtOH). Mp 113°. $[\alpha]_D$ +17 (c, 1.0 in CH_2Cl_2).

2,3-Dibenzoyl, 5-tosyl: 2,3-Di-O-*benzoyl-5-*O-*tosyl-α-L-arabinofuranosyl bromide*
[55018-41-2]
$C_{26}H_{23}BrO_8S$ 575.433
Cryst. (Me_2CO/Et_2O). Mp 138°. $[\alpha]_D$ -65 (c, 2.0 in CH_2Cl_2).

Ness, R.K. *et al., J.A.C.S.*, 1958, **80**, 2007 (*α-D-tribenzoyl, β-D-tribenzoyl*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1962, **40**, 275 (*α-L-dibenzoyl, α-L-dibenzoyl Ac*)
Fletcher, H.G. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 228 (*α-D-tribenzoyl, β-D-tribenzoyl*)
Glaudemans, C.P.J. *et al., J.O.C.*, 1964, **29**, 3286 (*α-D-bisnitrobenzoyl Ac, α-D-trisnitrobenzoyl*)
Ferrier, R.J. *et al., Carbohydr. Res.*, 1974, **38**, 125 (*α-L-dibenzoyl nitrobenzoyl, α-L-dibenzoyl tosyl*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 185 (*α-D-tribenzoyl, pmr*)

Arabinofuranosyl chloride A-794



$C_5H_9ClO_4$ 168.576

α-D-*form*

Tris(4-nitrobenzoyl):
Cryst. (CH_2Cl_2/Et_2O). Mp 182-184°. $[\alpha]_D^{20}$ +0.5 (c, 1.4 in CH_2Cl_2).

2-Benzyl, 3,5-bis-4-nitrobenzoyl: 2-O-*Benzyl-3,5-bis*-O-*(4-nitrobenzoyl)-α-D-arabinofuranosyl chloride*
Mp 113-115° (sinters at 55°). $[\alpha]_D^{20}$ +73.1 (c, 2.1 in CH_2Cl_2).

2,3-Dibenzyl, 5-(4-nitrobenzoyl): 2,3-Di-O-*benzyl-5*-O-*(4-nitrobenzoyl)-α-D-arabinofuranosyl chloride*
Syrup. $[\alpha]_D^{20}$ +74.9 (c, 1.3 in CH_2Cl_2).

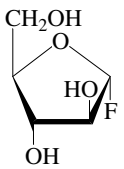
Tribenzyl: 2,3,5-Tri-O-*benzyl-α-D-arabinofuranosyl chloride*
[4060-34-8]
$C_{26}H_{27}ClO_4$ 438.95
Syrup. $[\alpha]_D^{20}$ +90.4 (c, 1.1 in CH_2Cl_2). $[\alpha]_D^{20}$ +79.8 (c, 1.3 in $CHCl_3$).

2-Nitro, 3,5-bis-4-nitrobenzoyl: 2-O-*Nitro-3,5-bis*-O-*(4-nitrobenzoyl)-α-D-arabinofuranosyl chloride*
Mp 122-124°. $[\alpha]_D^{20}$ +68 (c, 1.0 in CH_2Cl_2).

β-D-*form*

*2-Nitro, 3,5-bis(4-nitrobenzoyl): 2-*O*-Nitro-3,5-bis-*O*-(4-nitrobenzoyl)-β-D-arabinofuranosyl chloride*
$C_{19}H_{14}ClN_3O_{12}$ 511.785
Cryst. (CH_2Cl_2/Et_2O). Mp 193-194°. $[\alpha]_D^{20}$ -88.5 (c, 0.6 in CH_2Cl_2).
Glaudemans, C.P.J. *et al., J.O.C.*, 1963, **28**, 3004; 1971, **36**, 3598 (*α-D-tribenzyl*)
Glaudemans, C.P.J. *et al., J.A.C.S.*, 1964, **29**, 3286; 1965, **87**, 4636 (*tris-4-nitrobenzoyl, tribenzyl*)
Glaudemans, C.P.J. *et al., J.O.C.*, 1964, **29**, 3286 (*α-D-bisnitrobenzoyl nitro, β-D-bisnitrobenzoyl nitro*)
Zissis, E. *et al., Carbohydr. Res.*, 1976, **50**, 292 (*tribenzyl*)

Arabinofuranosyl fluoride A-795



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form*

*Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-α-D-arabinofuranosyl fluoride*
[3862-86-0]
$C_{26}H_{21}FO_7$ 464.446
Cryst. (Et_2O). Mp 129-130°. $[\alpha]_D^{20}$ -54 (c, 0.6 in $CHCl_3$).

*2-Me, 3,5-dibenzoyl: 3,5-Di-*O*-benzoyl-2-O-methyl-α-D-arabinofuranosyl fluoride*
[38791-42-3]
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D^{21}$ +49.3 (c, 0.5 in $CHCl_3$).

β-D-*form*

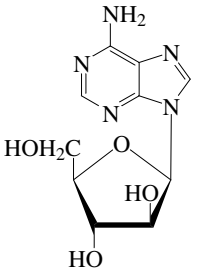
*2-Me, 3,5-dibenzoyl: 3,5-Di-*O*-benzoyl-2-O-methyl-β-D-arabinofuranosyl fluoride*
[38791-43-4]
$C_{20}H_{19}FO_6$ 374.365
Cryst. (Et_2O/pentane). Mp 115-116°. $[\alpha]_D^{21}$ +13.2 (c, 1.0 in $CHCl_3$).

α-L-*form*

*Tribenzyl: 2,3,5-Tri-*O*-benzyl-α-L-arabinofuranosyl fluoride*
[86883-51-4]
$C_{26}H_{27}FO_4$ 422.495
Oil. $[\alpha]_D^{18}$ -22.3 (c, 1.5 in $CHCl_3$).
Bhattacharya, A.K. *et al., J.O.C.*, 1963, **28**, 428 (*tribenzoyl*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1972, **26**, 1561 (*α-Me dibenzoyl, β-Me dibenzoyl, pmr, F-19 nmr*)
Mukaiyama, T. *et al., Chem. Lett.*, 1983, 935 (*tribenzyl, pmr*)

9-Arabinofuranosyladenine, 8CI A-796

*9-Arabinofuranosyl-9*H*-purin-6-amine, 9CI*
[2006-02-2]



β-D-*form*

$C_{10}H_{13}N_5O_4$ 267.244

α-D-*form* [3228-71-5] Sol. DMF, acids, bases, DMSO; fairly sol. H_2O, MeOH, butanol; poorly sol. Me_2CO, hexane. Mp 208°. $[\alpha]_D^{17}$ +69 (c, 1.1 in H_2O). λ_{max} 262 (H_2O) (Berdy). λ_{max} 257 (ϵ 12700) (HCl) (Berdy). λ_{max} 257 (ϵ 12700) (pH 1 buffer) (Berdy). λ_{max} 259 (ϵ 14000) (pH 13 buffer) (Berdy).
► LD_{50} (mus, ipr) 4677 mg/kg.

β-D-*form*

Vidarabine, BAN, INN, JAN, USAN. *Spongoadenosine. Adena-A. Ara-A. Arasena-A. Panavirin. Plosarabine forte. Vira-A. CI 673. NSC 404241. Araadenosine*
[5536-17-4]
Isol. from the marine gorgonian *Eunicella cavolini* and *Streptomyces* spp. Antiviral agent; shows significant activity against Herpes simplex and vaccinia viruses in cell cultures and in experimental animals. Nucleoside transporter substrate. Needles + ½ H_2O (H_2O). Mp 257-257.5°. $[\alpha]_D^{40}$ +12 (c, 0.25 in H_2O). $[\alpha]_D^{27}$ -5 (c, 0.25 in H_2O). Log P -2.88 (calc). λ_{max} 260 (ϵ 12000) (H_2O) (Derep).
► Human systemic effects when used therapeutically. Adverse ocular effects following topical administration. Exp. reprod. and teratogenic effects (large doses). LD_{50} (mus, orl) 7.8 mg/kg. Eye irritant. AU6200000

5′-Phosphate: ***Vidarabine phosphate, USAN.*** *CI 808*
[29984-33-6]
$C_{10}H_{14}N_5O_7P$ 347.224
Antiviral agent. Also used as di-Na salt (Vidarabine sodium phosphate, USAN).
► AU6204000

5′-Triphosphate: [3714-60-1]
$C_{10}H_{16}N_5O_{13}P_3$ 507.184
No phys. props. reported.

3′-Ac: [65286-65-9]
$C_{12}H_{15}N_5O_5$ 309.281
Isol. from *Eunicella cavolini*. Antiviral agent. Cryst. (MeOH). Sol. MeOH, butanol, H_2O; poorly sol. $CHCl_3$, hexane. Mp 214-215°. λ_{max} 258 (ϵ 14000) (MeOH) (Berdy).

2′,3′-Di-Ac: [65174-96-1]
$C_{14}H_{17}N_5O_6$ 351.318
Cryst. (Me_2CO). Mp 138-139°. $[\alpha]_D^{23}$ -4.1 (c, 1 in MeOH).

3′,5′-Di-Ac: [64993-35-7]
$C_{14}H_{17}N_5O_6$ 351.318
Cryst. (Me_2CO). Mp 167.5-169°. $[\alpha]_D^{23}$ +9 (c, 1 in MeOH).

2′,3′,5′-Tri-Ac: [15830-52-1]
$C_{16}H_{19}N_5O_7$ 393.355
Cryst. (EtOH). Mp 128.5-129°. $[\alpha]_D^{22}$ -13 (c, 0.74 in $CHCl_3$). λ_{max} 259 (ϵ 14200) (EtOH).

5′-Benzoyl: [42782-57-0]
$C_{17}H_{17}N_5O_5$ 371.352
Cryst. (EtOH). Mp 220-222°.

N^6*-Me:* [60209-41-8]
$C_{11}H_{15}N_5O_4$ 281.271
Cryst. (H_2O). Mp 201-202.5°. $[\alpha]_D^{25}$ +10 (c, 1.0 in MeOH). λ_{max} 266 (ϵ 13800) (pH 7). λ_{max} 263 (ϵ 15500) (pH 1). λ_{max} 266 (ϵ 14400) (pH 13).

N^6,N^6*-Di-Me:*
$C_{12}H_{17}N_5O_4$ 295.297
Cryst. (H_2O). Mp 210-211°. $[\alpha]_D^{19}$ -7 (c, 1.0 in MeOH). λ_{max} 275 (ϵ 15700) (pH 7). λ_{max} 268 (ϵ 16000) (pH 1). λ_{max} 276 (ϵ 15200) (pH 13).

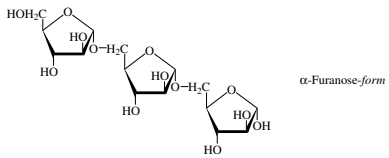
N-*Hydroxy: 9-(Arabinofuranosyl)-*N*-hydroxyadenine, 8CI. 9-Arabinofuranosyl-6-hydroxyaminopurine*
[24822-51-3]
Mp 206° dec. $[\alpha]_D^{25}$ +6 (c, 0.5 in H_2O). pK_a 3.7. λ_{max} 265 (ϵ 14700) (pH 1). λ_{max} 267 (ϵ 10400) (pH 6.7).

[24356-66-9, 71002-10-3]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 719B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 221C (*nmr*)
Lee, W.W. *et al., J.A.C.S.*, 1960, **82**, 2648 (*β-D-form, synth*)
Reist, E.J. *et al., J.O.C.*, 1962, **27**, 3274; 1968, **33**, 1600 (*β-D-form, synth, β-D-N-Me, β-D-N-di-Me, β-D-tri-Ac, β-D-bromo tri-Ac, β-D-NH2*)
York, J.L. *et al., Can. J. Biochem.*, 1966, **44**, 19-26 (*triphosphate*)
Giner-Sorolla, A. *et al., J. Het. Chem.*, 1969, **6**, 405 (*N-hydroxy*)
Follman, H. *et al., Biochemistry*, 1971, **10**, 186-192 (*synth, triphosphate*)
Han, J. *et al., Life Sci.*, 1971, **10**, 637 (*phosphate*)
Farmer, P.B. *et al., Biochemistry*, 1972, **11**, 911 (*biosynth*)
Wenkert, B. *et al., Biochem. Biophys. Res. Commun.*, 1973, **51**, 318 (*cmr*)
Farmer, P.B. *et al., J. Biol. Chem.*, 1973, **248**, 1844 (*biosynth*)
Renis, H.E. *et al., J. Med. Chem.*, 1973, **16**, 754 (*β-D-benzoyl*)
Chwang, A.K. *et al., Acta Cryst. B*, 1974, **30**, 2273 (*cryst struct*)
Ranganathan, R. *et al., Tet. Lett.*, 1975, 1185 (*β-D-form, synth*)
Remin, M. *et al., Biochim. Biophys. Acta*, 1976, **435**, 405 (*pmr, conformn*)
Cass, C.E. *et al., Antibiotics (N.Y.)*, 1979, **5**, 85 (*rev*)
Cline, S.J. *et al., Biochim. Biophys. Acta*, 1979, **563**, 540 (*α-D-form, cryst struct*)
Baker, D.C. *et al., J. Med. Chem.*, 1979, **22**, 273 (*β-D-O-acyl derivs*)
Buchanan, R.A. *et al., Pharmacol. Ther.*, 1980, **8**, 143 (*pharmacol, rev*)
Cimino, G. *et al., Experientia*, 1984, **40**, 339 (*β-D-Ac, isol*)
Hong, W.H. *et al., Anal. Profiles Drug Subst.*, 1986, **15**, 647 (*rev*)

Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Vijayalakshmi, D. *et al., J. Biol. Chem.*, 1992, **267**, 16951-16956 (*vidarabine*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 557; 558
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AEH100; AQQ900; AQQ905

α-D-Arabinofuranosyl-(1 →5)-α-D-arabinofuranosyl-(1 →5)-D-arabinose A-797



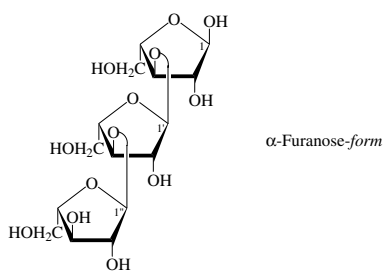
$C_{15}H_{26}O_{13}$ 414.363
D-Arabino-D-galactan polysaccharides have been isol. from cell walls of *Mycobacterium* sp; α-(1 →5)-D-arabinofuran oligomers exist as the terminals of the polysaccharide chains. The terminal chains in the bacteria are responsible for the serological activity.

α-Furanose-*form*

Benzyl glycoside, heptabenzoyl: [103702-83-6]
$C_{71}H_{60}O_{20}$ 1233.243
$[\alpha]_D^{25}$ +11.3 (c, 0.29 in $CHCl_3$).

Misaki, A. *et al., J. Biochem. (Tokyo)*, 1974, **76**, 15
Hatanaka, K. *et al., J. Carbohydr. Chem.*, 1985, **4**, 333

α-L-Arabinofuranosyl-(1 →3)-α-L-arabinofuranosyl-(1 →3)-L-arabinose, 9CI A-798



$C_{15}H_{26}O_{13}$ 414.363

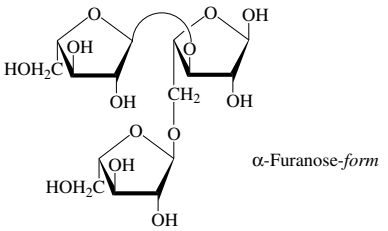
α-Furanose-*form*

Me glycoside: [108200-13-1]
$C_{16}H_{28}O_{13}$ 428.389
Syrup. $[\alpha]_D$ -171 (c, 1.2 in H_2O).

Me glycoside, 2′′,3′′,5′′-tribenzoyl, 2,2′,5,5′-tetra-Ac: [108200-12-0]
$C_{45}H_{48}O_{20}$ 908.862
Syrup. $[\alpha]_D$ -67 (c, 0.8 in $CHCl_3$).

Nepodod'ev, S.A. *et al., Bioorg. Khim.*, 1986, **12**, 940; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1986, **12**, 492 (α-*Me fur derivs, cmr*)

α-L-Arabinofuranosyl-(1 →3)-[α-L-arabinofuranosyl-(1 →5)]-L-arabinose A-799

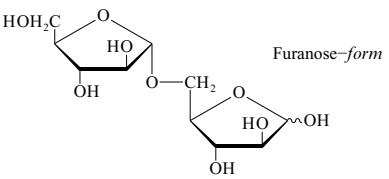


$C_{15}H_{26}O_{13}$ 414.363
Constit. of the anti-complementary arabinogalactan (AG IIb-1), isol. from the roots of *Angelica acutiloba* (Dong Dang Gui).

α-Furanose-*form* [114226-47-0]
Syrup.

Kiyohara, H. *et al., Carbohydr. Res.*, 1987, **167**, 221 (*isol, glc, ms, chromatog*)

5-*O*-α-D-Arabinofuranosyl-D-arabinose A-800



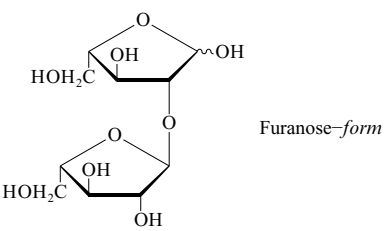
$C_{10}H_{18}O_9$ 282.247

α-Furanose-*form* [103773-70-2]

Benzyl glycoside, pentabenzoyl: Benzyl 2,3-di-O-benzoyl-5-O-(2,3,5-tri-O-benzoyl-α-D-arabinofuranosyl)-α-D-arabinofuranoside, 9CI
[103702-78-9]
$C_{52}H_{44}O_{14}$ 892.911
Syrup. $[\alpha]_D^{25}$ +11 (c, 0.84 in $CHCl_3$).

Hatanaka, K. *et al., J. Carbohydr. Chem.*, 1985, **4**, 333-345

2-*O*-α-L-Arabinofuranosyl-L-arabinose A-801



$C_{10}H_{18}O_9$ 282.247
$[\alpha]_D$ -8.5 (c, 1.4 in H_2O).

α-Furanose-*form*

Me glycoside, penta-Ac: Methyl 3,5-di-O-acetyl-2-O-(2,3,5-tri-O-acetyl-α-L-arabinofuranosyl)-α-L-arabinofuranoside, 9CI
[97321-44-3]
$C_{21}H_{30}O_{14}$ 506.46
Syrup. $[\alpha]_D$ -34 (c, 0.9 in $CHCl_3$).

β-Pyranose-*form*

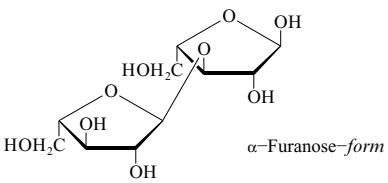
Benzyl glycoside: Benzyl 2-O-α-L-arabinofuranosyl-β-L-arabinopyranoside, 8CI
[20703-82-6]
$C_{17}H_{24}O_9$ 372.371
Cryst. (EtOAc). Mp 144-145°. $[\alpha]_D$ +91 (c, 1.0 in H_2O).

Benzyl glycoside, 3,4-O-isopropylidene, tribenzoyl: Benzyl 3,4-O-isopropylidene-2-O-(2,3,5-tri-O-benzoyl-α-L-arabinofuranosyl)-β-L-arabinopyranoside, 8CI
[20703-81-5]
$C_{41}H_{40}O_{12}$ 724.76
Cryst. (Et_2O/petrol). Mp 95°. $[\alpha]_D^{21}$ +28 (c, 0.5 in $CHCl_3$).

Chalk, R.C. *et al., Can. J. Chem.*, 1968, **46**, 2311
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1985, **138**, 41 (*synth*)

3-*O*-α-L-Arabinofuranosyl-L-arabinose, 9CI A-802

[7268-79-3]



$C_{10}H_{18}O_9$ 282.247
Isol. from partial acid hydrolysates of *Anogeissus schimperi, Opuntia fulgida* (Cholla) and *Virgilia oroboides* gums. $[\alpha]_D$ 0 (H_2O). $[\alpha]_D$ -13.9 (H_2O). $[\alpha]_D^{23}$ -4 (c, 0.5 in H_2O).

α-Furanose-*form*

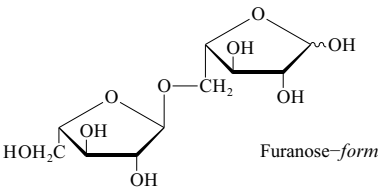
Me glycoside, penta-Ac: Methyl 2,5-di-O-acetyl-3-O-(2,3,5-tri-O-acetyl-α-L-arabinofuranosyl)-α-L-arabinofuranoside, 9CI
[97321-46-5]
$C_{21}H_{30}O_{14}$ 506.46
Mp 83.5-85°. $[\alpha]_D^{22}$ -132 (c, 1.2 in $CHCl_3$).

Me glycoside, 2,5-di-Ac, tri-O-benzoyl: Methyl 2,5-di-O-acetyl-3-O-(2,3,5-tri-O-benzoyl-α-L-arabinofuranosyl)-α-L-arabinofuranoside, 9CI
$C_{36}H_{36}O_{14}$ 692.672
Syrup. $[\alpha]_D^{20}$ -45 (c, 1.6 in $CHCl_3$).

[97321-47-6]

Aspinall, G.O. *et al., J.C.S.*, 1961, 3461
Smith, F. *et al., J.C.S.*, 1961, 4892 (*isol*)
Parikh, V.M. *et al., Can. J. Chem.*, 1966, **44**, 1531 (*isol*)
Tanaka, M. *et al., Biochim. Biophys. Acta*, 1981, **658**, 377
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1985, **138**, 41 (*synth, Me gly*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*Me gly, cmr*)

5-*O*-α-L-Arabinofuranosyl-L-arabinose A-803



Furanose–*form*

$C_{10}H_{18}O_9$ 282.247
Isol. from partial acid hydrolysates of *Virgilia oroboides* gum, from stem mucilage of *Opuntia ficus-indica* (Indian fig) and of sugar beet araban.
$[\alpha]_D^{18}$ -87 (c, 0.5 in H_2O). $[\alpha]_D$ -98.4 (H_2O).

Phenylosazone: Mp 184-186° (177°).

α-Furanose-*form*

Me glycoside, penta-Ac: Methyl 2,3-di-O-acetyl-5-O-(2,3,5-tri-O-acetyl-α-L-arabinofuranosyl)-α-L-arabinofuranoside, 9CI
[76690-33-0]
$C_{21}H_{30}O_{14}$ 506.46
Syrup. $[\alpha]_D^{22}$ -86 (c, 1.0 in $CHCl_3$).

Me glycoside, pentabenzoyl: Methyl 2,3-di-O-benzoyl-5-O-(2,3,5-tri-O-benzoyl-α-L-arabinofuranosyl)-α-L-arabinofuranoside, 9CI
[76690-34-1]
$C_{46}H_{40}O_{14}$ 816.814
Syrup. $[\alpha]_D^{22}$ -24 (c, 1.3 in $CHCl_3$).

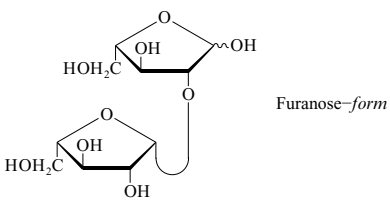
4-Nitrophenyl glycoside:
Oil. $[\alpha]_D^{20}$ -163 (c, 1.2 in MeOH).

4-Nitrophenyl glycoside, 2,3,5-tribenzoyl:
Plates. Mp 60-65°. $[\alpha]_D^{20}$ -62 (c, 1.2 in $CHCl_3$).

Andrews, P. *et al., Chem. Ind. (London)*, 1956, 658 (*isol, sugarbeet*)
Smith, F. *et al., J.C.S.*, 1961, 4892 (*isol*)
Arndt, D. *et al., Carbohydr. Res.*, 1976, **48**, 128 (*derivs*)
Tanaka, M. *et al., Biochim. Biophys. Acta*, 1981, **658**, 377
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol, synth*)
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1985, **138**, 41 (*synth, Me gly*)

2-*O*-β-L-Arabinofuranosyl-L-arabinose, 8CI A-804

[20701-66-0]



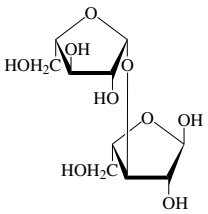
Furanose–*form*

$C_{10}H_{18}O_9$ 282.247
Isol. from the hydrolysates of *Acacia nilotica* gum. Hemihydrate.
Mp 103°. $[\alpha]_D$ +148 (c, 1.0 in H_2O).

Chalk, R.C. *et al., Can. J. Chem.*, 1968, **46**, 2311 (*isol*)

3-*O*-β-L-Arabinofuranosyl-L-arabinose, 9CI A-805

Arabinofuranobiose
[52287-00-0]



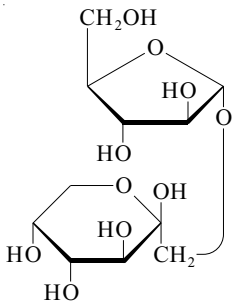
β-Furanose-*form*

$C_{10}H_{18}O_9$ 282.247
Formed on partial acid hydrolysis of sugar beet araban and certain plant gums, e.g. *Acacia pycnantha* gum and *Rhizophora mangle* gum. $[\alpha]_D$ +94 (H_2O).

Phenylosazone: Mp 200°.

Andrews, P. *et al., Chem. Ind. (London)*, 1956, 658 (*isol*)
Aspinall, G.O. *et al., J.C.S.*, 1959, 1697 (*isol*)
Sarkar, M. *et al., Indian J. Chem.*, 1974, **11**, 1129
Sarkar, M. *et al., Indian J. Chem., Sect. B*, 1978, **16**, 369 (*isol, pmr*)

1-*O*-α-D-Arabinofuranosyl-D-fructose A-806



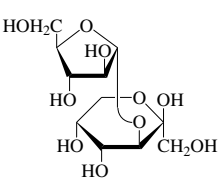
$C_{11}H_{20}O_{10}$ 312.273

β-Pyranose-*form*

2,3:4,5-Di-O-isopropylidene, tribenzyl:
[88999-57-9]
$C_{38}H_{46}O_{10}$ 662.775
$[\alpha]_D^{20}$ +13.3 (c, 1.3 in $CHCl_3$).

Dourtoglou, V. *et al., J. Carbohydr. Chem.*, 1983, **2**, 57

3-*O*-α-D-Arabinofuranosyl-D-fructose A-807



β-Pyranose-*form*

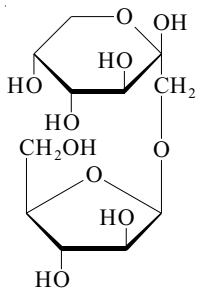
$C_{11}H_{20}O_{10}$ 312.273

β-Pyranose-*form*

1,2:4,5-Di-O-isopropylidene, tribenzyl:
[88999-49-9]
$C_{38}H_{46}O_{10}$ 662.775
$[\alpha]_D$ -91.6 (c, 1.7 in $CHCl_3$).

Dourtoglou, V. *et al., J. Carbohydr. Chem.*, 1983, **2**, 57

1-*O*-β-D-Arabinofuranosyl-D-fructose A-808



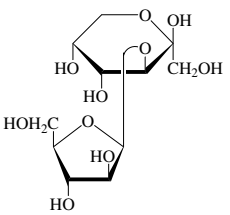
$C_{11}H_{20}O_{10}$ 312.273

β-Pyranose-*form*

2,3:4,5-Di-O-isopropylidene, tribenzyl:
[88999-58-0]
$C_{38}H_{46}O_{10}$ 662.775
Syrup. $[\alpha]_D^{20}$ -51.4 (c, 9.3 in $CHCl_3$).

Dourtoglou, V. *et al., J. Carbohydr. Chem.*, 1983, **2**, 57

3-*O*-β-D-Arabinofuranosyl-D-fructose A-809



β-Pyranose-*form*

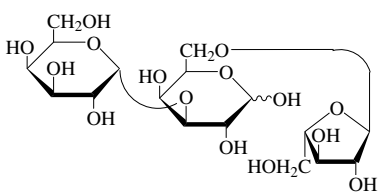
$C_{11}H_{20}O_{10}$ 312.273

β-Pyranose-*form*

1,2:4,5-Di-O-isopropylidene, tribenzyl:
[88999-50-2]
$C_{38}H_{46}O_{10}$ 662.775
Syrup. $[\alpha]_D$ -36 (c, 2.5 in $CHCl_3$).

Dourtoglou, V. *et al., J. Carbohydr. Chem.*, 1983, **2**, 57

α-L-Arabinofuranosyl-(1→6)-[β-D-galactopyranosyl-(1→3)]-D-galactose A-810



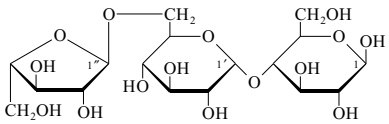
$C_{17}H_{30}O_{15}$ 474.415

Principal oligosaccharide of sanqi (*Panax notoginseng*).

Me α-glycoside:
Solid. $[\alpha]_D$ +23 (c, 1 in MeOH).

Yang, F. *et al., Carbohydr. Res.*, 2002, **337**, 485-491 (*synth, pmr, cmr, ms*)

α-L-Arabinofuranosyl-(1 →6)-α-D-glucopyranosyl-(1 →4)-D-glucose, 9CI A-811



$C_{17}H_{30}O_{15}$ 474.415

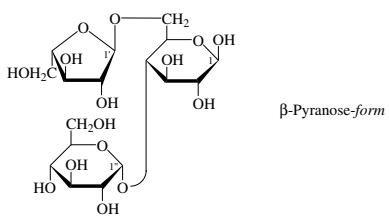
β-Pyranose-*form*

Me glycoside: [99322-25-5]
$C_{18}H_{32}O_{15}$ 488.442
Powder. $[\alpha]_D^{22}$ +4 (c, 3.0 in H_2O).

Me glycoside, 2′′,3′′,5′′-tribenzoyl, 2,2′,3,3′,6-penta-Ac: [99322-24-4]
$C_{49}H_{54}O_{23}$ 1010.952
Powder. Mp 85-86°. $[\alpha]_D^{22}$ +20.1 (c, 1.62 in $CHCl_3$).

Fujiwara, T. *et al., Carbohydr. Res.*, 1985, **141**, 168 (*β-Me pyr derivs, cmr*)

α-L-Arabinofuranosyl-(1 →6)-[α-D-glucopyranosyl-(1 →4)]-D-glucose, 9CI A-812



β-Pyranose-*form*

$C_{17}H_{30}O_{15}$ 474.415
Constit. of GIa, a polysaccaride isol. from bark of *Melia azadirachta* (Meliaceae). Exhibits a strong antitumour effect against sarcoma-180.

β-Pyranose-*form*

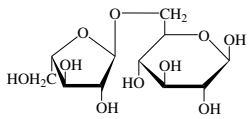
Me glycoside: [99322-23-3]
$C_{18}H_{32}O_{15}$ 488.442
Cryst. (EtOH). Mp 102-104°. $[\alpha]_D^{22}$ +5.1 (c, 1.0 in H_2O).

Me glycoside, 2′,3′,5′-tribenzoyl, 2,2′′,3,3′′,6′′-penta-Ac: [99322-22-2]
$C_{49}H_{54}O_{23}$ 1010.952
Cryst. (EtOH). Mp 86-87°. $[\alpha]_D^{22}$ +16.8 (c, 1.0 in $CHCl_3$).

Fujiwara, T. *et al., Carbohydr. Res.*, 1985, **141**, 168 (*β-Me pyr derivs, cmr*)

6-*O*-α-L-Arabinofuranosyl-D-glucose, 8CI A-813

[14297-98-4]



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Reducing disaccharide. Mp 153-155°. $[\alpha]_D$ -37 (H_2O).

β-Pyranose-*form* [119364-31-7]

Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Mp 108°. $[\alpha]_D$ -20 ($CHCl_3$).

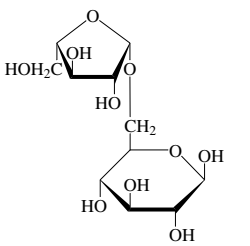
1,2,3,4-Tetra-Ac, tribenzoyl:
$C_{40}H_{40}O_{17}$ 792.746
Mp 163-165°. $[\alpha]_D$ -40 ($CHCl_3$).

[21858-46-8]

Gorin, P.A.J. *et al., Can. J. Chem.*, 1962, **40**, 275 (*synth*)
Kochetkov, N.K. *et al., CA*, 1967, **67**, 108856f
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1976, **48**, 171 (*pmr, cmr*)
Voirin, S. *et al., Carbohydr. Res.*, 1990, **207**, 39 (*synth, pmr, cmr*)

6-*O*-β-L-Arabinofuranosyl-D-glucose A-814

[60738-10-5]



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Reducing disaccharide. $[\alpha]_D$ +73 (H_2O).

β-Pyranose-*form*

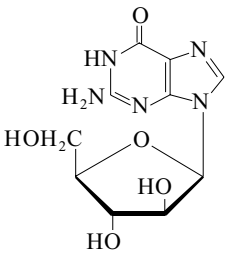
1,2,3,4-Tetra-Ac, 3′,5′-dibenzoyl, 2′-O-nitro: Mp 152-153°. $[\alpha]_D$ +83 ($CHCl_3$).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1962, **40**, 275 (*synth*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1976, **48**, 171 (*pmr, cmr*)

9-Arabinofuranosylguanine, 8CI A-815

2-Amino-9-arabinofuranosyl-1,9-dihydro-6H-purin-6-one, 9CI. Araguanosine. Guanine arabinoside

[7013-16-3]



$C_{10}H_{13}N_5O_5$ 283.243
Antineoplastic agent.

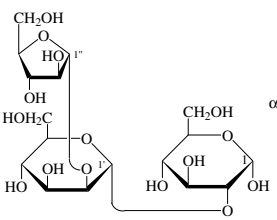
β-D-*form* [38819-10-2]
Mp 300°. $[\alpha]_D^{24}$ +28 (c, 0.25 in H_2O). λ_{max} 252 (ϵ 14 000) (H_2O), 256 (12 600) (pH 1), 265 nm (11 800) (pH 13).
▶ MF8301000

Reist, E.J. *et al., Biochemistry*, 1964, **3**, 15 (*synth*)
Guschlbauer, W. *et al., Bull. Soc. Chim. Biol.*, 1969, **51**, 1511 (*ord, cd, uv*)
Ikehara, M. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1976, **3**, 149 (*synth*)
Kurtzberg, J. *et al., Ann. N.Y. Acad. Sci.*, 1993, **685**, 225-236 (*rev, pharmacol*)

α-D-Arabinofuranosyl-(1 →2)-α-D-mannopyranosyl-(1 →2)-D-glucose, 9CI A-816

Ristriose

[130983-49-2]



α-Pyranose-*form*

$C_{17}H_{30}O_{15}$ 474.415
Component of Ristomycin A. Amorph. $[\alpha]_D$ +46 → +46.6 (c, 1.0 in H_2O).

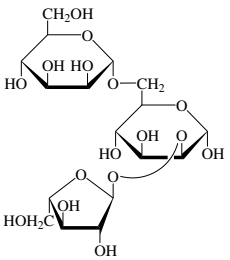
α-Pyranose-*form*

Allyl glycoside, 3,3′,4′,6′-tetrabenzyl, 2′′,3′′,5′′-tribenzoyl: [126990-54-3]
$C_{69}H_{70}O_{18}$ 1187.301
Syrup. $[\alpha]_D$ +44.3 (c, 0.4 in $CHCl_3$).

Allyl glycoside, 4,6-O-benzylidene(R), 3,3′,4′,6′-tetrabenzyl, 2′′,3′′,5′′-tribenzoyl: [126990-53-2]
$C_{76}H_{74}O_{18}$ 1275.41
Syrup. $[\alpha]_D$ +24.8 (c, 0.8 in $CHCl_3$).

Sztaricskai, F. *et al., Acta Chim. Acad. Sci. Hung.*, 1975, **84**, 75 (*isol*)
Medakovic, D. *et al., J. Carbohydr. Chem.*, 1990, **9**, 631 (*synth, α-allyl pyr derivs, pmr, cmr*)

α-L-Arabinofuranosyl-(1 →2)-[α-D-mannopyranosyl-(1 →6)]-D-mannose A-817



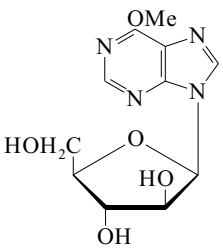
α-Pyranose-*form*

$C_{17}H_{30}O_{15}$ 474.415
Residue present in tomato oligosaccharides.

α-*form*

Allyl glycoside:
Amorph. solid. $[\alpha]_D$ +8 (c, 1 in H_2O).
Utille, J.P. *et al., Carbohydr. Res.*, 2000, **329**, 431-439 (*occur, synth*)

9-β-D-Arabinofuranosyl-6-methoxy-9*H*-purine, 9CI A-818
6-Methoxypurine arabinoside. Ara-M
[91969-06-1]



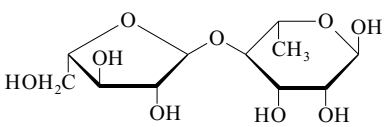
$C_{11}H_{14}N_4O_5$ 282.255
Antiviral agent.

2′,3′-Di-Ac: [137057-55-7]
$C_{15}H_{18}N_4O_7$ 366.33
Mp 138-139°.

Tri-Ac: [121032-46-0]
$C_{17}H_{20}N_4O_8$ 408.367
Viscous oil.

Eur. Pat., 1988, 294 114, (*Wellcome*); *CA*, **111**, 7760 (*synth, pharmacol*)
Averett, D.R. *et al., Antimicrob. Agents Chemother.*, 1991, **35**, 851; 1165 (*synth, metab, pharmacol*)
Jones, L.A. *et al., J. Med. Chem.*, 1992, **35**, 56 (*derivs*)

4-*O*-α-L-Arabinofuranosyl-L-rhamnose A-819
4-O-α-L-Arabinofuranosyl-6-deoxy-L-mannose

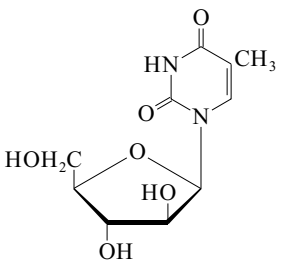


$C_{11}H_{20}O_9$ 296.274

α-Pyranose-*form*

Me glycoside, 2,3-O-isopropylidene, tri-Ac: [76690-37-4]
$C_{21}H_{32}O_{12}$ 476.477
Syrup. $[\alpha]_D$ -78 (c, 1 in $CHCl_3$).
Me glycoside, 2,3-O-isopropylidene, tribenzoyl: [76690-38-5]
$C_{36}H_{38}O_{12}$ 662.689
Cryst. (toluene/hexane). Mp 112-114°. $[\alpha]_D$ -20 (c, 1.75 in $CHCl_3$).
Bakinovskii, L.V. *et al., Carbohydr. Res.*, 1985, **138**, 41

1-Arabinofuranosylthymine A-820
1-Arabinofuranosyl-5-methyl-2,4(1H,3H)-pyrimidinedione, 9CI. 1-(Arabinofuranosyl)-5-methyluracil
[605-23-2]

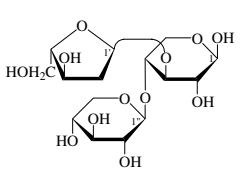


$C_{10}H_{14}N_2O_6$ 258.23Log P -2.33 (calc).

β-D-*form*

Spongothymidine. *Ara-T*
Isol. from Caribbean sponge, *Cryptotethia crypta*. Antiviral agent. HIV reverse transcriptase (HIV-rt) inhibitor.
Mp 194-195° Mp 242°. $[\alpha]_D^{28}$ +90 (c, 0.8 in Py). Low acute toxicity. λ_{max} 267 (ϵ) (pH 12) (Derep). λ_{max} 267 (ϵ 9600) (pH 7.2) (Derep). λ_{max} 269 (ϵ 9250) (H_2O) (Berdy).
▶ XP2100200
[2946-29-4]
Bergmann, W. *et al., J.O.C.*, 1955, **20**, 1501-1507 (*isol, struct*)
Fr. Pat., 1965, 1 396 003, (*Upjohn*); *CA*, **63**, 13392d (*synth*)
Tougard, P. *et al., Acta Cryst. B*, 1973, **29**, 2227-2232 (*cryst struct*)
Mueller, W.E.G. *et al., FEBS-Symp.*, 1979, **57**, 327-341 (*rev*)
Ooka, T. *et al., Virology*, 1980, **104**, 219-223 (*activity*)
Soike, K.F. *et al., Antiviral Res.*, 1984, **4**, 245-257 (*pharmacol*)
Soike, K.F. *et al., Antiviral Res.*, 1984, **4**, 245-257 (*activity*)
Gosselin, G. *et al., Nucleosides Nucleotides*, 1984, **3**, 265-275 (*synth*)
Machida, H. *et al., Microbiol. Immunol.*, 1991, **35**, 963-973 (*pharmacol*)
Hirota, K. *et al., Synthesis*, 1993, 213-215 (*synth, bibl, pmr, ms*)

α-L-Arabinofuranosyl-(1 →3)-[β-D-xylopyranosyl-(1 →4)]-D-xylose, 9CI A-821



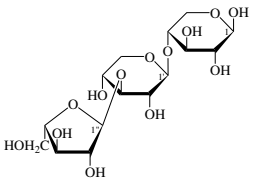
β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363

β-Pyranose-*form*

Me glycoside: [93130-19-9]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 206-209°. $[\alpha]_D$ -110 (H_2O).
Me glycoside, 2′,3′,5′-tribenzoyl, 2,2″,3″,4″-tetra-Ac:
$C_{45}H_{48}O_{20}$ 908.862
Cryst. (Me_2CO). Mp 89-92°.
Hirsch, J. *et al., Carbohydr. Res.*, 1984, **131**, 219 (*synth, pmr, cmr*)

α-L-Arabinofuranosyl-(1 →3)-β-D-xylopyranosyl-(1 →4)-D-xylose A-822
[66186-04-7]



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363
Isol. from partial enzymic hydrol. of wheat-straw xylan, rye-flour, and cocksfoot (*Dactylis glomerata*) xylans and corn-cob xylan; constit. of spear grass (*Heteropogon contortous*) hemicellulose B. Arabinoxylans of low molecular weight are found as hemicelluloses of animal, plant and softwoods. Their backbone is slightly branched and some of the 1 →4 linked β-D-xylosyl residues bear an α-L-arabinofuranosyl group at C-3. Pentahydrate. $[\alpha]_D^{20}$ -72 (c, 0.5 in H_2O). $[\alpha]_D$ -15 (H_2O).

Pyranose-*form*

*5″-(4-Hydroxy-*E*-cinnamoyl):* [102254-69-3]
$C_{24}H_{32}O_{15}$ 560.508
Enzym. hydrol. product of bamboo shoot (*Phyllostachys edulis*) cell wall and of barley straw cell walls. Syrup.

α-Pyranose-*form*

Benzyl glycoside, heptabenzyl: [99388-77-9]
$C_{71}H_{74}O_{13}$ 1135.358
$[\alpha]_D^{20}$ +14 (c, 1.5 in $CHCl_3$).

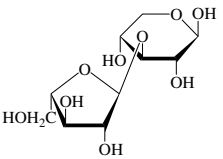
β-Pyranose-*form*

Me glycoside: Methyl α-L-arabinofuranosyl-(1 →3)-β-D-xylopyranosyl-(1 →4)-β-D-xylopyranoside
[93130-20-2]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH/Me_2CO). Mp 146-147°. $[\alpha]_D^{22}$ -121 (c, 1.0 in H_2O).
Me glycoside, 2″,3″,4″-tribenzoyl, 2,2′,3,4′-tetra-Ac:
$C_{45}H_{48}O_{20}$ 908.862
Amorph. $[\alpha]_D^{22}$ -48 (c, 1.0 in $CHCl_3$).
Bishop, C.T. *et al., J.A.C.S.*, 1956, **78**, 2840 (*isol*)
Aspinall, G.O. *et al., J.C.S.*, 1960, 3881 (*isol*)
Kusakabe, I. *et al., Agric. Biol. Chem.*, 1983, **47**, 2713
Shambe, T. *et al., Carbohydr. Res.*, 1983, **113**, 125

Hirsch, J. *et al., Carbohydr. Res.*, 1984, **131**, 219 (*β-Me gly synth, cmr*)
Schraml, J. *et al., Coll. Czech. Chem. Comm.*, 1984, **49**, 1605 (*pmr, cmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 1464 (*enzymic synth, α-deriv synth*)
Mueller-Harvey, I. *et al., Carbohydr. Res.*, 1986, **148**, 71 (*coumaroyl, isol, pmr, cmr, ms*)
Ishii, T. *et al., Carbohydr. Res.*, 1990, **206**, 297 (*coumaroyl, isol, cmr, pmr*)

3-*O*-α-L-Arabinofuranosyl-D-xylose, 9CI A-823

[66186-03-6]



β-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Isol. from the hydrolysate of corn-cob arabinoxylan.

β-Pyranose-*form*

Me glycoside: Methyl 3-O-α-L-*arabinofuranosyl-β-*D-*xylopyranoside*
[93130-21-3]
$C_{11}H_{20}O_9$ 296.274
Sesquihydrate. $[\alpha]_D^{20}$ -113 (c, 1.2 in H_2O).

Me glycoside, pentabenzyl: Methyl 2,4-di-O-*benzyl-3*-O-*(2,3,5-tri*-O-*benzyl-α-*L-*arabinofuranosyl)-β-*D-*xylopyranoside*
[99388-70-2]
$C_{46}H_{50}O_9$ 746.896
$[\alpha]_D^{20}$ -7 (c, 1.1 in $CHCl_3$).

2′-O-*(4-Hydroxy-3-methoxycinnamoyl)(*E-*):*
$C_{20}H_{26}O_{12}$ 458.418
Isol. from corn hulls. Powder. λ_{max} 230; 279 (MeOH).

2′-Me ether, 5′-O-*(4-hydroxy-3-methoxycinnamoyl)(*E*):*
$C_{21}H_{28}O_{12}$ 472.445
Isol. from corn hulls. Powder. λ_{max} 228; 284 (MeOH).

2′-Me ether, 5′-O-*(4-hydroxy-3-methoxycinnamoyl)(*Z-*):*
$C_{21}H_{28}O_{12}$ 472.445
Isol. from corn hulls. Powder. λ_{max} 215; 272 (MeOH).

Kusakabe, I. *et al., Nippon Nogei Kagaku Kaishi*, 1977, **51**, 669; *CA*, **88**, 147669a (*isol*)
Kusakabe, I. *et al., Agric. Biol. Chem.*, 1983, **47**, 2713
Sahrami, J. *et al., Coll. Czech. Chem. Comm.*, 1984, **49**, 1605 (*nmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 1464 (*Me gly*)
Hosny, M. *et al., J. Nat. Prod.*, 1997, **60**, 219 (*feruloyl derivs*)

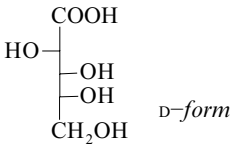
Arabinogalactan A-824

*D-Galacto-*L*-arabinan. Larch gum. FEMA 3254*
[9036-66-2]
A complex polymer of arabinose and galactose in a 1:6 ratio. Also contains a small proportion of uronic acid units. Obt. by water extraction of larch trees, e.g. *Larix occidentalis*. Emulsifier and stabiliser in food manuf. Commercialisation has been inhibited by high cost of extraction.

Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 194-195
Ponder, G.R. *et al., J. Carbohydr. Chem.*, 1997, **16**, 181-193; 195-211 (*struct, bibl*)

Arabinonic acid A-825

Arabonic acid



D–*form*

$C_5H_{10}O_6$ 166.13

D-*form* [488-30-2] Readily obt. by oxidn. of Arabinose, A-850. Mp 114-116°. $[\alpha]_D$ +18.6 → +48.6 (H_2O).
► CE6000000

Ca salt: [22373-09-7]
$[\alpha]_D^{20}$ -171 (ammonium molybdate soln.).

Et ester: Ethyl D-*arabinonate*
$C_7H_{14}O_6$ 194.184
Mp 132-133°. $[\alpha]_D^{25}$ 0 (c, 2.0 in $CHCl_3$).

Butyl ester: Butyl D-*arabinonate*
$C_9H_{18}O_6$ 222.238
Mp 104-105°. $[\alpha]_D^{25}$ -3 (c, 2.0 in $CHCl_3$).

2,3,4,5-Tetra-Ac, Et ester: Ethyl 2,3,4,5-tetra-O-*acetyl-*D-*arabinonate*
$C_{15}H_{22}O_{10}$ 362.333
Mp 111°. $[\alpha]_D^{25}$ +34 (c, 2.0 in $CHCl_3$).

2,3,4,5-Tetra-Ac, butyl ester: Butyl 2,3,4,5-tetra-O-*acetyl-*D-*arabinonate*
$C_{17}H_{26}O_{10}$ 390.386
$Bp_{0.004}$ 111°. $[\alpha]_D^{25}$ +29.3 (c, 2.0 in $CHCl_3$).

2,3:4,5-Di-O-*methylene, Me ester: Methyl 2,3:4,5-di*-O-*methylene-*D-*arabinonate*
$C_8H_{12}O_6$ 204.179
Bp_2 150-160°. $[\alpha]_D$ +3.7 (c, 1.5 in $CHCl_3$).

2,4:3,5-Di-O-*methylene, Me ester: Methyl 2,4:3,5-di*-O-*methylene-*D-*arabinonate*
$C_8H_{12}O_6$ 204.179
Mp 200-202°. $[\alpha]_D^{20}$ -33.8 (c, 1.58 in $CHCl_3$).

2,5:3,4-Di-O-*methylene, Me ester: Methyl 2,5:3,4-di*-O-*methylene-*D-*arabinonate*
$C_8H_{12}O_6$ 204.179
Mp 100-103°. $[\alpha]_D$ -73.5 (c, 1.56 in $CHCl_3$).

*Amide, 1*N*,2,3,5-tetrabenzyl:* N*,2,3,5-Tetra*-O-*benzyl-*D-*arabinonamide*
$C_{33}H_{35}NO_5$ 525.643
Cryst. (EtOAc/pentane). Mp 95-96°. $[\alpha]_D^{20}$ +37.6 (c, 1.8 in $CHCl_3$).

Lactone: See 1,5-Arabinonolactone, A-827

L-*form* [608-53-7] Readily obt. by oxidn. of Arabinose, A-850. Mp 119°. $[\alpha]_D$ -9.5 → -41.7 (H_2O).

Phenylhydrazide: Mp 215°.

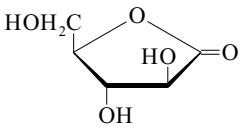
Amide: L-*Arabinonamide*
$C_5H_{11}NO_5$ 165.146
Mp 135-136°. $[\alpha]_D$ +37.2.

2,3,4,5-Tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-*L-*arabinonic acid*
[17430-73-8]
$C_{13}H_{18}O_{10}$ 334.279
Mp 135-136°. $[\alpha]_D$ +32.1 ($CHCl_3$).

Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, 656 (*rev*)
Humphlett, W.J. *et al., Carbohydr. Res.*, 1967, **4**, 157 (D-*Et ester,* D-*Et ester tetra-Ac,* D-*butyl ester,* D-*butyl ester tetra-Ac*)
Rabinsohn, Y. *et al., J.O.C.*, 1967, **32**, 3452 (D-*amide tetrabenzyl*)
Zhadanov, Y.A. *et al., Zh. Obshch. Khim.*, 1969, **39**, 1128; *CA*, **71**, 70861w
Handb. Biochem. Mol. Biol., (Fasman, G.D., Ed.), CRC Press, 1975, 155 (L-*form,* L-*amide*)
Burden, I.J. *et al., J.C.S. Perkin 1*, 1975, 675 (D-*Me ester dimethylene derivs*)
Groszkiewicz, A. *et al., Przem. Chem.*, 1975, **54**, 281; *CA*, **83**, 97762z (*Ca salt, epimerisation*)

1,4-Arabinonolactone A-826

arabino-*1,4-Pentonolactone*



$C_5H_8O_5$ 148.115

D-*form* [42417-44-7]
Mp 96°. $[\alpha]_D$ +73.7 (H_2O).

2-Benzyl: 2-O-*Benzyl-*D-*arabinono-1,4-lactone*
[34685-51-3]
$C_{12}H_{14}O_5$ 238.24
Cryst (H_2O). Mp 119-120°. $[\alpha]_{Hg^{546}}$ -20.9 (c, 2.2 in EtOH).

2,3,5-Tribenzyl: 2,3,5-Tri-O-*benzyl-*D-*arabinono-1,4-lactone*
[14233-64-8]
$C_{26}H_{26}O_5$ 418.488
Mp 67-68°. $[\alpha]_D^{22}$ +6.8 (c, 1.1 in $CHCl_3$).

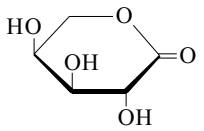
Tris(methoxymethyl): [158419-42-2]
$C_{11}H_{20}O_8$ 280.274
Synthetically useful intermed. Syrup. $[\alpha]_D^{20}$ +21.1 (c, 1.4 in $CHCl_3$).

5-Phosphate:
$C_5H_9O_8P$ 228.095
Syrup. $[\alpha]_D^{28}$ +28.6 (c, 3.2 in H_2O).

L-*form*
Mp 101°. $[\alpha]_D$ -73.9 (H_2O).

Böddener, K.H. *et al., Ber.*, 1910, **43**, 1645 (L-*form*)
Jensen, F.W. *et al., J.A.C.S.*, 1925, **47**, 3019 (D-*form*)
Gray, G.R. *et al., Carbohydr. Res.*, 1971, **20**, 31 (D-*form benzyl*)
Pravdić, N. *et al., Carbohydr. Res.*, 1974, **36**, 167 (D-*form tribenzyl*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 111 (*pmr, cmr, conformn*)
Bols, M. *et al., Carbohydr. Res.*, 1994, **253**, 195 (*trismethoxymethyl*)
Hardré, R. *et al., Carbohydr. Res.*, 1999, **318**, 110-115 (*5-phosphate*)

1,5-Arabinonolactone A-827



$C_5H_8O_5$ 148.115

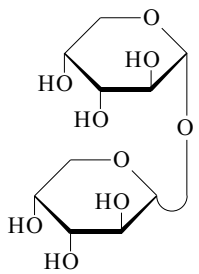
L-*form*

Mp 118°. $[\alpha]_D$ -9.1 → -36.1 (H_2O).

*3,4-*O*-Isopropylidene: 3,4-*O*-Isopropylidene-L-arabinono-1,5-lactone*
[40031-40-1]
$C_8H_{12}O_5$ 188.18
Mp 95-97°. $[\alpha]_D^{21}$ -29.2 (c, 1.01 in $CHCl_3$).

Staněk, J. *et al., The Monosaccharides*, Academic Press., N.Y., 1963, 656 (*rev*)
Stewart, A.J. *et al., Tetrahedron: Asymmetry*, 2002, **13**, 2667-2672 (*3,4-isopropylidene*)

α-D-Arabinopyranosyl α-D-arabinopyranoside A-828

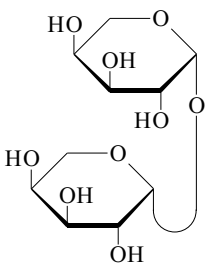


$C_{10}H_{18}O_9$ 282.247
Acid reversion product of D-arabinose. Mp 112-113°. $[\alpha]_D$ -22 (H_2O).

*Hexa-Ac: 2,3,4-Tri-*O*-acetyl-α-D-arabinopyranosyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside*
$C_{22}H_{30}O_{15}$ 534.47
Mp 116-117°. $[\alpha]_D$ +21 ($CHCl_3$).

Rice, F.A.H. *et al., J.A.C.S.*, 1956, **78**, 6167 (*synth*)

β-L-Arabinopyranosyl β-L-arabinopyranoside A-829



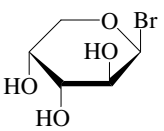
$C_{10}H_{18}O_9$ 282.247
Acid reversion product of L-arabinose. Mp 153.5°. $[\alpha]_D$ +18.9 (H_2O). Physical data given for a compd. whose struct. is only provisionally assigned as the ββ-isomer (Vogel).

*Hexa-Ac: 2,3,4-Tri-*O*-acetyl-β-L-arabinopyranosyl 2,3,4-tri-*O*-acetyl-β-L-arabinopyranoside*
$C_{22}H_{30}O_{15}$ 534.47
Cryst. (EtOH). Mp 232°. $[\alpha]_D$ +232 (c, 0.15 in $CHCl_3$).

*Hexabenzyl: 2,3,4-Tri-*O*-benzyl-β-L-arabinopyranosyl 2,3,4-tri-*O*-benzyl-β-L-arabinopyranoside*
[77875-55-9]
$C_{52}H_{54}O_9$ 822.993
Mp 134-135°. $[\alpha]_D^{22}$ +142 (c, 1.15 in $CHCl_3$).

Vogel, H. *et al., Helv. Chim. Acta*, 1928, **11**, 1210
Jones, J.K.N. *et al., J.C.S.*, 1958, 27 (*synth*)
Pavia, A. *et al., Can. J. Chem.*, 1981, **59**, 482 (*synth, cmr*)

Arabinopyranosyl bromide A-830



β-D-*form*

$C_5H_9BrO_4$ 213.028

β-D-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-arabinopyranosyl bromide. Acetobromoarabinose*
[3068-29-9]
$C_{11}H_{15}BrO_7$ 339.139
Cryst. (Et_2O/pentane). Mp 137-139°. $[\alpha]_D^{21}$ -285 (c, 1.4 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-arabinopyranosyl bromide*
[40010-17-1]
$C_{26}H_{21}BrO_7$ 525.352
Mp 147-148°. $[\alpha]_D$ -353 (c, 1.4 in $CHCl_3$).

2,3,4-Tris(4-nitrobenzoyl): [18039-23-1]
Mp 150-151°.

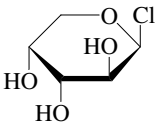
β-L-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-L-arabinopyranosyl bromide*
[14227-90-8]
$C_{11}H_{15}BrO_7$ 339.139
Mp 139°. $[\alpha]_D^{20}$ +283.6 ($CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-L-arabinopyranosyl bromide*
[14206-56-5]
$C_{26}H_{21}BrO_7$ 525.352
Needles (MeOH). Mp 144-145°. $[\alpha]_D$ +201.8 (c, 1.8 in $CHCl_3$).

Gehrke, M. *et al., Ber.*, 1927, **60**, 918 (*tri-Ac*)
Fletcher, H.G. *et al., J.A.C.S.*, 1950, **72**, 4173; 1947, **69**, 1145 (*tribenzoyl*)
Capon, B. *et al., J.C.S.*, 1964, 3242 (*L-tri-Ac*)
Abelardo, P.M. *et al., J.O.C.*, 1969, **34**, 92
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 57 (*D-tri-Ac, conformn, pmr*)
Corfield, P.W.R. *et al., Carbohydr. Res.*, 1972, **23**, 158 (*cryst struct, D-tri-Ac*)
Duffy, M.J. *et al., J.C.S. Perkin 2*, 1974, 1466 (*L-tribenzoyl*)
Kartha, K.P.R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 777-781 (*tri-Ac, !synth*)

Arabinopyranosyl chloride A-831



β-D-*form*

$C_5H_9ClO_4$ 168.576

β-D-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-arabinopyranosyl chloride*
[32445-41-3]
$C_{11}H_{15}ClO_7$ 294.688
Mp 151-152°. $[\alpha]_D^{20}$ -244 ($CHCl_3$).

α-L-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-L-arabinopyranosyl chloride*
[69308-56-1]
$C_{11}H_{15}ClO_7$ 294.688
Cryst. (Et_2O). Mp 150-153°.

2-(Trichloroacetyl), 3,4-di-Ac: [51295-74-0]
$[\alpha]_D$ +36 (c, 1.0 in $CHCl_3$).

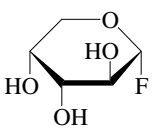
β-L-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-L-arabinopyranosyl chloride*
[14227-78-2]
$C_{11}H_{15}ClO_7$ 294.688
Mp 146-147°. $[\alpha]_D^{20}$ +244.4 ($CHCl_3$).

2-Trichloroacetyl, 3,4-di-Ac: [51295-75-1]
$[\alpha]_D$ +166 (c, 1.0 in $CHCl_3$).

Brauns, D.H. *et al., J.A.C.S.*, 1924, **46**, 1484
Hudson, C.S. *et al., J.A.C.S.*, 1924, **46**, 2591 (*β-D-tri-Ac*)
Ohle, H. *et al., Ber.*, 1929, **62**, 833 (*β-L-tri-Ac*)
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 57 (*β-D-tri-Ac, pmr, conformn*)
Collins, P.M. *et al., Carbohydr. Res.*, 1973, **31**, 1 (*trichloro-Ac, synth, pmr*)
Szarek, W.A. *et al., Tetrahedron*, 1978, **34**, 1427 (*α-L-tri-Ac*)

Arabinopyranosyl fluoride A-832



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-arabinopyranosyl fluoride*
[10369-23-0]
$C_{11}H_{15}FO_7$ 278.234
Cryst. Mp 51-53°. $[\alpha]_D^{25}$ +20.2 (c, 1.4 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-arabinopyranosyl fluoride*
[4337-05-7]
$C_{26}H_{21}FO_7$ 464.446
Cryst. (CH_2Cl_2/pentane). Mp 161-163°. $[\alpha]_D^{24}$ -103 (c, 0.8 in $CHCl_3$).

*2-Me, 3,4-dibenzoyl: 3,4-Di-*O*-benzoyl-2-O-methyl-α-D-arabinopyranosyl fluoride*
[38791-41-2]
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D^{21}$ +20.7 (c, 0.4 in $CHCl_3$).

β-D-*form*

Tri-Ac: 2,3,4-Tri-O-*acetyl-β-D-arabinopyranosyl fluoride*
[483-93-2]
$C_{11}H_{15}FO_7$ 278.234
Cryst. (Et_2O/pentane). Mp 116-117°. $[\alpha]_D^{24}$ -136 (c, 1.0 in $CHCl_3$).

2-Me, 3,4-Di-Ac: 3,4-Di-O-*acetyl-2*-O-*methyl-β-D-arabinopyranosyl fluoride*
[38791-44-5]
$C_{10}H_{15}FO_6$ 250.223
Cryst. (Et_2O/pentane). Mp 77-79°. $[\alpha]_D^{22}$ -171 (c, 0.64 in $CHCl_3$).

Tribenzoyl: 2,3,4-Tri-O-*benzoyl-β-D-arabinopyranosyl fluoride*
[2924-38-1]
$C_{26}H_{21}FO_7$ 464.446
Cryst. Mp 155-157°.

2-Me, 3,4-dibenzoyl: 3,4-Di-O-*benzoyl-2*-O-*methyl-β-D-arabinopyranosyl fluoride*
[38791-40-1]
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D^{22}$ -248 (c, 2.0 in $CHCl_3$).

α-L-*form*

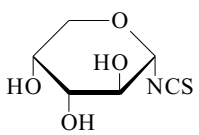
Tri-Ac: 2,3,4-Tri-O-*acetyl-α-L-arabinopyranosyl fluoride*
[78295-78-0]
$C_{11}H_{15}FO_7$ 278.234
Cryst. Mp 50-51°. $[\alpha]_D^{20}$ -18 (c, 1.0 in $CHCl_3$).

β-L-*form*

Tri-Ac: 2,3,4-Tri-O-*acetyl-β-L-arabinopyranosyl fluoride*
[14227-77-1]
$C_{11}H_{15}FO_7$ 278.234
Needles. Mp 117-118°. $[\alpha]_D^{20}$ +138.1 (c, 1.0 in $CHCl_3$).

Brauns, D.H. *et al., J.A.C.S.*, 1924, **46**, 1484 (*β-L-tri-Ac*)
Lundt, K. *et al., Mikrochim. Acta*, 1966, 126 (*triesters*)
Hall, L.D. *et al., Can. J. Chem.*, 1970, **48**, 1155 (*pmr, F-19 nmr*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1972, **26**, 1561 (*α-D-Me dibenzoyl, β-D-Me derivs, pmr, F-19 nmr*)
Miethchen, R. *et al., Z. Chem.*, 1990, **30**, 56 (*α-L-tri-Ac*)

Arabinopyranosyl isothiocyanate A-833



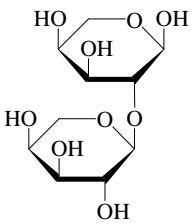
$C_6H_9NO_4S$ 191.207

α-D-*form*

2,3,4-Tri-Ac: 2,3,4-Tri-O-*acetyl-α-D-arabinopyranosyl isothiocyanate*
[62414-75-9]
$C_{12}H_{15}NO_7S$ 317.319
Reagent used for the hplc resoln. of amino acids. Syrup.

Kinoshita, T. *et al., J. Chromatogr.*, 1981, **210**, 77 (*use*)
Ogura, H. *et al., Heterocycles*, 1982, **17**, 87 (*synth*)
Miller, K.J. *et al., J. Chromatogr.*, 1984, **307**, 335 (*use*)

2-*O*-α-L-Arabinopyranosyl-L-arabinose A-834



α-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247

α-Pyranose-*form*

Me glycoside: Methyl 2-O-*α-L-arabinopyranosyl-α-L-arabinopyranoside, 9CI*
[89734-28-1]
$C_{11}H_{20}O_9$ 296.274
Powder (MeOH/EtOAc). $[\alpha]_D^{20}$ -5.4 (c, 0.93 in H_2O).

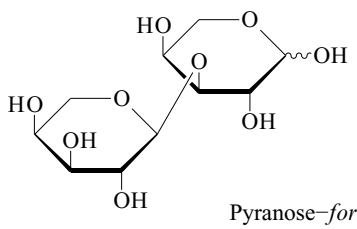
β-Pyranose-*form*

Me glycoside: Methyl 2-O-*α-L-arabinopyranosyl-β-L-arabinopyranoside, 9CI*
[89734-32-7]
$C_{11}H_{20}O_9$ 296.274
Needles (EtOH). Mp 228-230°. $[\alpha]_D^{20}$ +122.1 (c, 0.61 in H_2O).

Mizutani, K. *et al., Carbohydr. Res.*, 1984, **126**, 177 (*synth, pmr*)
Yamaguchi, H. *et al., Chem. Pharm. Bull.*, 1986, **34**, 2859 (*hplc*)

3-*O*-α-L-Arabinopyranosyl-L-arabinose, 9CI A-835

[79435-28-2]



Pyranose–*form*

$C_{10}H_{18}O_9$ 282.247
Hydrolytic product of the mucilage from the stems of *Opuntia ficus-indica* (Indian fig). Syrup. $[\alpha]_D$ +76 (c, 0.63 in H_2O).

α-Pyranose-*form*

Me glycoside: Methyl 3-O-*α-L-arabinopyranosyl-α-L-arabinopyranoside, 9CI*
[105261-00-5]
$C_{11}H_{20}O_9$ 296.274
Mp 211°. $[\alpha]_D$ +34.4 (c, 3.9 in H_2O).

Me glycoside, penta-Ac: Methyl 2,4-di-O-*acetyl-3*-O-*(2,3,4-tri*-O-*acetyl-α-L-arabinopyranosyl)-α-L-arabinopyranoside, 9CI*
[105453-49-4]
$C_{21}H_{30}O_{14}$ 506.46
Mp 70°. $[\alpha]_D$ +1.78 (c, 4.8 in $CHCl_3$).

β-Pyranose-*form*

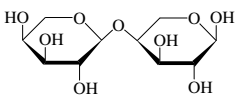
Me glycoside: Methyl 3-O-*α-L-arabinopyranosyl-β-L-arabinopyranoside, 9CI*
[105260-96-6]
$C_{11}H_{20}O_9$ 296.274
Mp 194°. $[\alpha]_D$ +156 (c, 0.8 in H_2O).

Me glycoside, penta-Ac: [105260-90-0]
$C_{21}H_{30}O_{14}$ 506.46
Mp 154°. $[\alpha]_D$ +89.3 (c, 2.0 in $CHCl_3$).

McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol, pmr*)
Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1986, 200 (*Me gly, pmr, cmr*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*cmr*)

4-*O*-α-L-Arabinopyranosyl-L-arabinose, 9CI A-836

[119690-34-5]



α-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247

α-Pyranose-*form*

Me glycoside: Methyl 4-O-*α-L-arabinopyranosyl-α-L-arabinopyranoside*
[105260-98-8]
$C_{11}H_{20}O_9$ 296.274
Cryst. (EtOH). Mp 185°. $[\alpha]_D$ +37.8 (c, 5.2 in H_2O).

Me glycoside, penta-Ac: Methyl 2,3-di-O-*acetyl-4*-O-*(2,3,4-tri*-O-*acetyl-α-L-arabinopyranosyl)-α-L-arabinopyranoside*
[105283-44-1]
$C_{21}H_{30}O_{14}$ 506.46
Mp 176.5°. $[\alpha]_D$ +13.8 (c, 1.4 in $CHCl_3$).

β-Pyranose-*form*

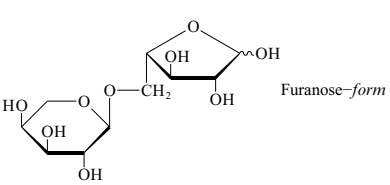
Me glycoside: Methyl 4-O-*α-L-arabinopyranosyl-β-L-arabinopyranoside*
[105260-94-4]
$C_{11}H_{20}O_9$ 296.274
Cryst. (MeOH). Mp 290°. $[\alpha]_D$ +168 (c, 2.8 in H_2O).

Me glycoside, penta-Ac: Methyl 2,3-di-O-*acetyl-4*-O-*(2,3,4-tri*-O-*acetyl-α-L-arabinopyranosyl)-β-L-arabinopyranoside*
[105260-88-6]
$C_{21}H_{30}O_{14}$ 506.46
$[\alpha]_D$ +78.5 (c, 1.0 in $CHCl_3$).

Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1986, 200 (*Me gly, synth, pmr, cmr*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*cmr*)

5-*O*-α-L-Arabinopyranosyl-L-arabinose, 9CI A-837

[78088-22-9]



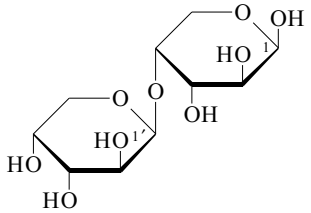
Furanose–*form*

$C_{10}H_{18}O_9$ 282.247

From the hydrolysates of *Virgilia oroboides* gum.
Mp 143°. $[\alpha]_D^{18}$ -18 (c, 1.7 in H_2O). $[\alpha]_D$ 0 (H_2O).

Smith, F. *et al., J.C.S.*, 1961, 4892 (*isol*)
Balan, N.F. *et al., Bioorg. Khim.*, 1980, **6**, 1657; *CA*, **94**, 103719m
Tanaka, M. *et al., Biochim. Biophys. Acta*, 1981, **658**, 377

4-*O*-β-D-Arabinopyranosyl-D-arabinose A-838



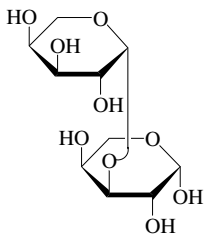
$C_{10}H_{18}O_9$ 282.247

2,2′,3-Tri-Ac, 1-O-*(3,7,11-trimethyl-2,6,10-dodecatrienyl):* [143838-79-3]
$C_{31}H_{48}O_{12}$ 612.713
Isol. from the coral *Sinularia* sp. Enhances glucose transport in rat adipocytes. Oil.
$[\alpha]_D$ -196 (c, 0.7 in $CHCl_3$).

Shindo, T. *et al., Experientia*, 1992, **48**, 688 (*isol, pmr, cmr, ms*)

3-*O*-β-L-Arabinopyranosyl-L-arabinose, 9CI, 8CI A-839

Arabinopyranobiose
[20546-04-7]



β-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Isol. from partial acid hydrolysates of golden apple (*Spondias cytherea*), lemon, peach, cherry, *Acacia mearnsii, Acacia nilotica, Acacia karroo* and *Anogeissus schimperi* gums; also from hydrolysates of larch (*Larix laricina*) arabogalactans. Also major disaccharide product from the acid reversion of L-arabinose. $[\alpha]_D$ +210 (c, 1.0 in H_2O). $[\alpha]_D$ +164 (c, 1.0 in H_2O). $[\alpha]_D$ +193 (c, 3.8 in H_2O).

Phenylosazone: Mp 235° (221°).

α-Pyranose-*form*

Me glycoside: Methyl 3-O-*β-L-arabinopyranosyl-α-L-arabinopyranoside, 9CI*
[105260-99-9]
$C_{11}H_{20}O_9$ 296.274
$[\alpha]_D$ +140 (c, 2.6 in MeOH).

Me glycoside, penta-Ac: [105260-92-2]
$C_{21}H_{30}O_{14}$ 506.46
$[\alpha]_D$ +115 (c, 2.3 in $CHCl_3$).

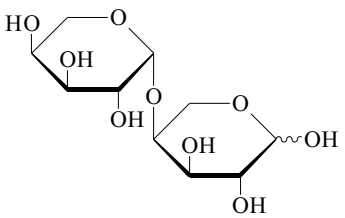
β-Pyranose-*form*

Me glycoside, penta-Ac: [105260-89-7]
Mp 211°. $[\alpha]_D$ +148 (c, 0.3 in $CHCl_3$).

Jones, J.K.N. *et al., J.C.S.*, 1953, 1672; 1958, 27 (*isol, synth*)
Andrews, P.A. *et al., J.C.S.*, 1953, 4090
Aspinall, G.O. *et al., J.C.S.*, 1955, 1106; 1965, 2685 (*isol*)
Smith, F. *et al., Chemistry of Plant Gums and Mucilages*, Reinhold, New York, 1959,
Haq, S. *et al., Can. J. Chem.*, 1961, **39**, 1563 (*isol*)
Chalk, R.C. *et al., Can. J. Chem.*, 1968, **46**, 2311 (*isol*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1968, **7**, 421 (*isol*)
Kubala, J. *et al., Coll. Czech. Chem. Comm.*, 1977, **42**, 2809 (*isol*)
Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1986, 200 (*deriv, synth, pmr, cmr*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*cmr*)
Verkerk, R. *et al., Natural Toxicants in Food*, (ed. Watson, R.), Sheffield Academic Press, 1998, 29-53 (*rev*)

4-*O*-β-L-Arabinopyranosyl-L-arabinose, 9CI A-840

[52492-16-7]



Pyranose–*form*

$C_{10}H_{18}O_9$ 282.247
A minor product in the acid reversion of L-arabinose. Syrup. $[\alpha]_D$ +193 (H_2O).

α-Pyranose-*form*

Me glycoside: Methyl 4-O-*β-L-arabinopyranosyl-α-L-arabinopyranoside, 9CI*
[105260-97-7]
$C_{11}H_{20}O_9$ 296.274
$[\alpha]_D$ +111 (c, 3.2 in MeOH).

Me glycoside, penta-Ac: Methyl 2,3-di-O-*acetyl-4*-O-*(2,3,4-tri*-O-*acetyl-β-L-arabinopyranosyl)-α-L-arabinopyranoside*
[105260-91-1]
$C_{21}H_{30}O_{14}$ 506.46
$[\alpha]_D$ +147.5 (c, 3.9 in $CHCl_3$).

β-Pyranose-*form*

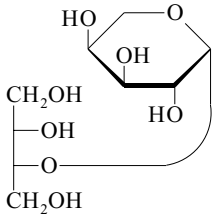
Me glycoside: Methyl 4-O-*β-L-arabinopyranosyl-β-L-arabinopyranoside, 9CI*
[105260-93-3]
$C_{11}H_{20}O_9$ 296.274
$[\alpha]_D$ +225 (c, 0.8 in MeOH).

Me glycoside, penta-Ac: Methyl 2,3-di-O-*acetyl-4*-O-*(2,3,4-tri*-O-*acetyl-β-L-arabinopyranosyl)-β-L-arabinopyranoside, 9CI*
[105283-43-0]
$C_{21}H_{30}O_{14}$ 506.46
MeOH. Mp 193.5°. $[\alpha]_D$ +302.5 (c, 5.0 in $CHCl_3$).

Jones, J.K.N. *et al., J.C.S.*, 1958, 27
Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1986, 200 (*Me gly, synth, pmr, cmr*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*cmr*)

3-*O*-β-L-Arabinopyranosyl-D-erythritol A-841

2-O-*β-L-Arabinopyranosyl-L-erythritol*

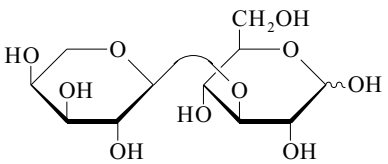


$C_9H_{18}O_8$ 254.236
$[\alpha]_D$ +135 (H_2O).

Hexabenzoyl:
$C_{51}H_{42}O_{14}$ 878.884
Mp 131-134°. $[\alpha]_D$ +114 ($CHCl_3$).

Charlson, J. *et al., Can. J. Chem.*, 1957, **35**, 365 (*synth*)

3-*O*-α-L-Arabinopyranosyl-D-glucose A-842

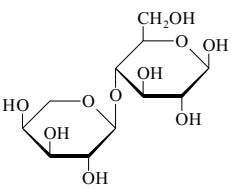


Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Synth. by the transferase action of *E. coli* β-galactosidase on *o*-nitrophenyl α-L-arabinoside and Glucose, G-514. Mp 176-178°. $[\alpha]_D$ +54.4 (H_2O).

Wallenfels, K. *et al., Annalen*, 1960, **630**, 46

4-*O*-α-L-Arabinopyranosyl-D-glucose A-843



β-D–Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273

β-D-Pyranose-*form*

Synth. by the transferase action of *E. coli* β-galactosidase on *o*-nitrophenyl α-L-arabinoside and Glucose, G-514. $[\alpha]_D$ +41.9 (H_2O).

2,3-Dibenzoyl, benzyl glycoside: ***Homaloside A****. Benzyl 4*-O-*α-L-arabinopyranosyl-2,3-di*-O-*benzoyl-β-D-glucopyranoside*
[149155-18-0]
Constit. of *Homalium ceylanicum* (Flacourtiaceae). Powder.
Mp 181-183°. $[\alpha]_D$ -12.1 (c, 0.2 in MeOH).

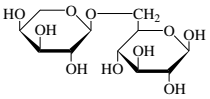
λ_{max} 209 (ϵ 10230); 216 (ϵ 9120); 229 (ϵ 11480) (MeOH).

Wallenfels, K. *et al., Annalen*, 1960, **630**, 46
Ekabo, O. *et al., J. Nat. Prod.*, 1993, **56**, 699 (*Homaloside A, isol, uv, ir, pmr, cmr*)

6-*O*-α-L-Arabinopyranosyl-D-glucose, 9CI, 8CI A-844

Vicianose

[14116-69-9]



α-D-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Occurs in Gein.
Mp 210° dec. $[\alpha]_D^{20}$ +56.5 → +39.7 (H_2O).

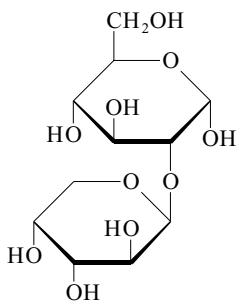
β-Pyranose-*form*

Hepta-Ac: [14260-08-3]
$C_{25}H_{34}O_{17}$ 606.533
Mp 158.5-160.5°. $[\alpha]_D$ +15 ($CHCl_3$).

Benzyl glycoside: ***Benzyl β-vicianoside***
[148031-67-8]
$C_{18}H_{26}O_{10}$ 402.397
Constit. of the fruit of *Passiflora edulis* (passion fruit).

Helferich, B. *et al., Annalen*, 1928, **465**, 166 (*synth*)
Kochetkov, N.K. *et al., Zh. Obshch. Khim.*, 1967, **37**, 338; *CA*, **67**, 108856f (*synth*)
Psenak, M. *et al., Planta Med.*, 1972, **22**, 93; *CA*, **77**, 149673u (*isol*)
Balan, N.F. *et al., Bioorg. Khim.*, 1980, **5**, 1657; *CA*, **94**, 103719m (*hepta-Ac*)
Bartlett, P.A. *et al., J.A.C.S.*, 1980, **102**, 337 (*synth*)
Paterson, I. *et al., Tetrahedron*, 1985, **41**, 3569 (*rev*)
Pearson, A.J. *et al., Chem. Comm.*, 1988, 442 (*synth, bibl*)
Chassagne, D. *et al., Phytochemistry*, 1996, **41**, 1497-1500 (*benzyl glycoside*)

2-*O*-β-D-Arabinopyranosyl-D-glucose A-845



$C_{11}H_{20}O_{10}$ 312.273

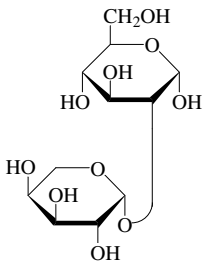
α-Pyranose-*form*

Hepta-Ac: [61284-31-9]
$C_{25}H_{34}O_{17}$ 606.533
Cryst. ($CHCl_3$/Et_2O). Mp 140-145°.
$[\alpha]_D^{20}$ +58 (c, 1 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 1731

2-*O*-β-L-Arabinopyranosyl-D-glucose, 9CI A-846

[53735-85-6]



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Reducing disaccharide. Cryst. (EtOH/H_2O). Mp 235-236° (210-220°). $[\alpha]_D$ +189 → +224 (24h) (c, 1.1 in H_2O). $[\alpha]_D$ +151 (H_2O).

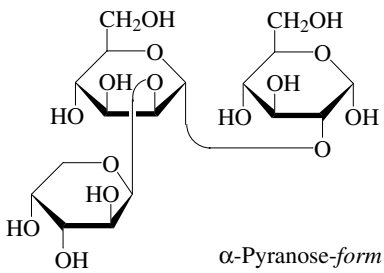
α-Pyranose-*form*

Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Cryst. (Et_2O). Mp 100-102°. $[\alpha]_D$ +203.6 (c, 1 in $CHCl_3$).

Lehmann, J. *et al., Annalen*, 1960, **630**, 56 (*synth*)
Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*synth, pmr*)

β-D-Arabinopyranosyl-(1→2)-α-D-mannopyranosyl-(1→2)-D-glucose A-847

Ristriose



α-Pyranose-*form*

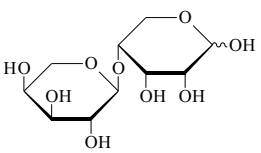
$C_{17}H_{30}O_{15}$ 474.415
Formed by the acetolysis of Ristomycin A.

α-Pyranose-*form*

Deca-Ac: [68787-45-1]
$C_{37}H_{50}O_{25}$ 894.787
Mp 84-87°.

Neszmelyi, A. *et al., J. Antibiot.*, 1978, **31**, 974 (*cmr*)
Sztaricskai, F. *et al., J.A.C.S.*, 1980, **102**, 7093 (*isol, pmr*)

4-*O*-α-L-Arabinopyranosyl-D-ribose A-848



Pyranose–*form*

$C_{10}H_{18}O_9$ 282.247

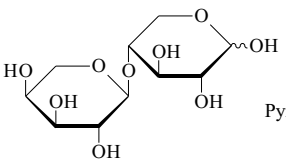
β-Pyranose-*form*

2,3-Anhydro, benzyl glycoside: Benzyl 2,3-anhydro-4-O-α-L-arabinopyranosyl-β-D-ribopyranoside, 9CI, 8CI
[16907-85-0]
$C_{17}H_{22}O_8$ 354.356
Cryst. (MeOH or EtOAc). Mp 143-145°. $[\alpha]_D^{20}$ +18 (c, 0.6 in H_2O). $[\alpha]_D$ -6 (c, 1.1 in MeOH).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1967, **45**, 1543 (*synth*)
De Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1978, **87**, 783 (*synth*)

4-*O*-α-L-Arabinopyranosyl-D-xylose, 8CI A-849

[16907-86-1]



Pyranose–*form*

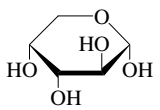
$C_{10}H_{18}O_9$ 282.247
Constit. of the polysaccharide produced by yeast *Trichosporon cutaneum* when grown on agar plates.
$[\alpha]_D$ +9 (0.8 in H_2O).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1967, **45**, 1543

Arabinose A-850

Aloinose. Aloe sugar. Pectinose

[147-81-9]



α-D-Pyranose-*form*

$C_5H_{10}O_5$ 150.131

D-form [10323-20-3]
An aq. soln. at 31° contains 60% α-pyr, 35.5% β-pyr, 2.5% α-fur, 2% β-fur, and 0.03% aldehyde. Found in the polysaccharide of tubercle bacilli and as the constit. sugar of Homonataloin and Nataloin. Isol. from plants of the genus *Aloe*. Prod. comly. from glucose. Inexpensive starting material for chiral synthesis. Mp 159-160°. $[\alpha]_D$ -175 → -105 (H_2O). pK_a 12.34 (25°).

p-*Bromophenylhydrazone:* Mp 163°.

Di-Et dithioacetal: See Arabinose diethyl dithioacetal, A-852

Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-D-arabinose
[3891-58-5]
$C_{13}H_{18}O_9$ 318.28
Cryst. (Me_2CO/Et_2O/petrol). Mp 113-115°. $[\alpha]_D^{23}$ +65 (c, 4.1 in $CHCl_3$).

2,3:4,5-Di-O-isopropylidene: 2,3:4,5-Di-O-isopropylidene-D-arabinose
[13039-93-5]
$C_{11}H_{18}O_5$ 230.26
$Bp_{0.04}$ 85-90°. $[\alpha]_D$ -16.1 ($CHCl_3$).

2,3:4,5-Di-O-*isopropylidene, diphenyl dithioacetal:*
$C_{23}H_{28}O_4S_2$ 432.604
$[\alpha]_D^{27}$ -35.7 (c, 1.0 in $CHCl_3$).

α-D-Pyranose-*form* [608-45-7]
Prod. industrially from plant gums. Inexpensive starting material for chiral synthesis.

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-α-D-arabinopyranose*
[19186-37-9]
$C_{13}H_{18}O_9$ 318.28
Mp 95-97°. $[\alpha]_D^{20}$ -43 (c, 1.1 in $CHCl_3$).

1,2,3-Tribenzoyl, 4-Ac: 4-O-*Acetyl-1,2,3-tri*-O-*benzoyl-α-D-arabinopyranose*
[43225-71-4]
$C_{28}H_{24}O_9$ 504.492
Cryst. (MeOH). Mp 118-119°. $[\alpha]_D^{23}$ -51.3 (c, 1.2 in $CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-α-D-arabinopyranose*
$C_{33}H_{26}O_9$ 566.563
Mp 164-165°. $[\alpha]_D$ -114 ($CHCl_3$).

Me glycoside: See Methyl arabinopyranoside, M-153

Benzyl glycoside: See Benzyl arabinopyranoside, B-14

β-D-Pyranose-*form* [6748-95-4]

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-β-D-arabinopyranose*
[25243-38-3]
$C_{13}H_{18}O_9$ 318.28
Cryst. (EtOH). Mp 98-100°. $[\alpha]_D^{20}$ -147.8 (c, 2.0 in $CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-β-D-arabinopyranose*
[22434-99-7]
$C_{33}H_{26}O_9$ 566.563
Mp 160-161°. $[\alpha]_D$ -323 ($CHCl_3$).

3,4-O-*Isopropylidene:* See 3,4-*O*-Isopropylidenearabinose, I-61

Me glycoside: See Methyl arabinopyranoside, M-153

Benzyl glycoside: See Benzyl arabinopyranoside, B-14

α-D-Furanose-*form* [37388-49-1]

Tetra-Ac: 1,2,3,5-Tetra-O-*acetyl-α-D-arabinofuranose*
[43225-70-3]
$C_{13}H_{18}O_9$ 318.28
$[\alpha]_D^{23}$ +51.9 (c, 1.6 in $CHCl_3$).

1,2,3-Tribenzoyl, 5-Ac: 5-O-*Acetyl-1,2,3-tri*-O-*benzoyl-α-D-arabinofuranose*
[43179-71-1]
$C_{28}H_{24}O_9$ 504.492
Syrup. $[\alpha]_D^{21}$ +23.4 (c, 1.6 in $CHCl_3$).

2,3,5-Tribenzyl, 1-(4-nitrobenzoyl):
[31598-79-5]
$C_{33}H_{31}NO_8$ 569.61
Cryst. (Et_2O/hexane). Mp 92-94°. $[\alpha]_D^{20}$ +57 (c, 1.22 in CH_2Cl_2).

Me glycoside: See Methyl arabinofuranoside, M-152

β-D-Furanose-*form*

1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenearabinose, I-60

2-Me, tribenzoyl: 1,3,5-Tri-O-*benzoyl-2*-O-*methyl-β-D-arabinofuranose*
[38791-39-8]
$C_{27}H_{24}O_8$ 476.482
Mp 109-110°. $[\alpha]_D^{21}$ -19 (c, 1.4 in $CHCl_3$).

3,5-Di-Me, 1,2-O-*benzylidene: 1,2*-O-*Benzylidene-3,5-di*-O-*methyl-β-D-arabinofuranose*
[26922-66-7]
$C_{14}H_{18}O_5$ 266.293
$[\alpha]_D$ +7 (EtOH).

2,3,5-Tribenzyl, 1-(4-nitrobenzoyl):
[31598-80-8]
Cryst. (Et_2O/hexane). Mp 76-77°. $[\alpha]_D^{20}$ -44 (c, 1.3 in CH_2Cl_2).

Me glycoside: See Methyl arabinofuranoside, M-152

L-*form* *FEMA 3255*
[5328-37-0]

[87-72-9] Widespread in plants. It occurs free in the heartwood of many coniferous trees, and combined with other sugars in gums, hemicelluloses, pectic substances, and also in mycobacteria. Usually prepared from mesquite gum. Flavouring agent.
Mp 160°. $[\alpha]_D^{20}$ +190.6 → +104.5 (c, 4 in H_2O). Sweetness = 0.37 × sucrose.

Phenylhydrazone: Mp 153°.

α-L-Pyranose-*form* [7296-55-1]

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-α-L-arabinopyranose*
[17080-99-8]
$C_{13}H_{18}O_9$ 318.28
Mp 96-97°. $[\alpha]_D$ +44.1 ($CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-α-L-arabinopyranose*
$C_{33}H_{26}O_9$ 566.563
Mp 164-165°. $[\alpha]_D$ +114 ($CHCl_3$).

Me glycoside: See Methyl arabinopyranoside, M-153

Benzyl glycoside: See Benzyl arabinopyranoside, B-14

β-L-Pyranose-*form* [7296-56-2]

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-β-L-arabinopyranose*
[4258-00-8]
$C_{13}H_{18}O_9$ 318.28
Mp 86°. $[\alpha]_D$ +147.2 ($CHCl_3$).

1,2,3-Tribenzoyl: 1,2,3-Tri-O-*benzoyl-β-L-arabinopyranose*
[56933-03-0]
$C_{26}H_{22}O_8$ 462.455
Syrup. $[\alpha]_D$ +211 ($CHCl_3$).

1,2,4-Tribenzoyl: 1,2,4-Tri-O-*benzoyl-β-L-arabinopyranose*
[56933-02-9]
$C_{26}H_{22}O_8$ 462.455
Cryst. (Et_2O). Mp 231-233°. $[\alpha]_D$ +200 ($CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-β-L-arabinopyranose*
[7473-44-1]
$C_{33}H_{26}O_9$ 566.563
Cryst. (EtOH). Mp 157-158°. $[\alpha]_D$ +298 ($CHCl_3$).

3,4-O-*Isopropylidene:* See 3,4-*O*-Isopropylidenearabinose, I-61

Me glycoside: See Methyl arabinopyranoside, M-153

Benzyl glycoside: See Benzyl arabinopyranoside, B-14

α-L-Furanose-*form*

2,3,5-Tribenzyl: 2,3,5-Tri-O-*benzyl-α-L-arabinofuranose*
[60933-69-9]
$C_{26}H_{28}O_5$ 420.504
Microcryst. powder. Mp 78-80°. $[\alpha]_D^{20}$ -4.5 (c, 3.5 in CH_2Cl_2).

Me glycoside: See Methyl arabinofuranoside, M-152

β-L-Furanose-*form*

2,3,5-Tribenzyl: 2,3,5-Tri-O-*benzyl-β-L-arabinofuranose*
[60733-68-8]
$C_{26}H_{28}O_5$ 420.504
Needles (EtOAc/petrol). Mp 88-89° (84-85°). $[\alpha]_D^{20}$ +6.5 (CH_2Cl_2) (+4.4). $[\alpha]_D^{20}$ +27.1 → -11.6 (c, 2.0 in dioxan aq.).

1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenearabinose, I-60

Me glycoside: See Methyl arabinofuranoside, M-152

DL-*form* [20235-19-2]
Mp 164°.

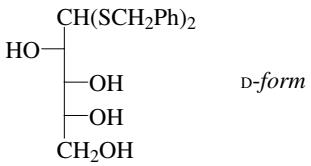
[1768-95-2, 28697-53-2]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 188D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 293B (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 120 (*rev*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1941, **63**, 201 (*2,3,4,5-tetra-Ac*)
Fletcher, H.G. *et al., J.A.C.S.*, 1947, **69**, 1145 (*α-D-tetrabenzoyl, β-D-tetrabenzoyl, α-L-tetrabenzoyl, β-L-tetrabenzoyl*)
Barker, R. *et al., J.O.C.*, 1961, **26**, 4065 (*α-L-fur derivs, β-L-fur derivs*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 71 (*synth, D-form*)
MacDonald, D.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 73 (*synth, D-form*)
White, E.V. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 76 (*synth, L-form*)
Tejima, S. *et al., J.O.C.*, 1963, **28**, 2999 (*α-L-fur 2,3,5-tribenzyl*)
Fletcher, H.G. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 234 (*α-D-tetrabenzoyl, β-D-tetrabenzoyl*)
Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, (*rev*)
Kuszmann, J. *et al., CA*, 1964, **61**, 5737g (*α-D-pyr-tetra-Ac, β-D-pyr-tetra-Ac*)
Horton, D. *et al., Carbohydr. Res.*, 1970, **13**, 33 (*diisopropylidene diphenyl dithioacetal*)
Durette, P.L. *et al., J.O.C.*, 1971, **36**, 2658 (*α-D-tetra-Ac, α-D-tetrabenzoyl, β-D-tetrabenzoyl*)
Glaudemans, C.P.J. *et al., J.O.C.*, 1971, **36**, 3598 (*α-D-fur tribenzyl nitrobenzoyl, β-D-fur tribenzyl nitrobenzoyl*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, nos. 583; 584 (*occur*)
Schaffer, R. *et al., The Carbohydrates*, 1972, **1A**, 69 (*occur*)
Horton, D. *et al., Carbohydr. Res.*, 1973, **28**, 201 (*D-diisopropylidene, 2,3,4,5-tetra-Ac*)

Bock, K. *et al., Carbohydr. Res.*, 1973, **29**, 331 (*α-D-pyr Ac tribenzoyl, α-D-fur Ac tribenzoyl*)
Batey, J.F. *et al., Carbohydr. Res.*, 1975, **43**, 43 (*β-L-pyr-1,2,3-tribenzoyl, β-L-pyr-1,2,4-tribenzoyl, β-L-pyr-tetrabenzoyl*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1976, **48**, 171 (*cmr*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A., ed.), Acad. Press, London and New York, 1982, **13**, 38 (*pmr, cmr*)
Tajmir-Riahi, H.A. *et al., Carbohydr. Res.*, 1984, **127**, 1 (*ir*)
Regeling, H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1987, **106**, 461 (*2,3:4,5-diisopropylidene*)
Finch, P. *et al., Carbohydr. Res.*, 1991, **210**, 319 (*β-L-fur 2,3,5-tribenzyl*)
Benesi, A.J. *et al., Carbohydr. Res.*, 1994, **258**, 27 (*pmr, cmr*)
Fenaroli's Handbook of Flavor Ingredients, 3rd edn., (ed. Burdock, G.A.), CRC Press, 1995, **2**, 48
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 196

Arabinose dibenzyl dithioacetal A-851

Arabinose dibenzyl meracaptal.
5,5-Bis(benzylthio)-1,2,3,4-pentanetetrol†



D-*form*

$C_{19}H_{24}O_4S_2$ 380.528

D-*form* [34685-26-2]
Needles (MeOH). Mp 149°. $[\alpha]_D^{24}$ +18.6 (c, 3.88 in Py).

4,5-O-Isopropylidene: 4,5-O-Isopropylidene-D-arabinose dibenzyl dithioacetal
[126694-15-3]
$C_{22}H_{28}O_4S_2$ 420.593
Cryst. (petrol). Mp 100-105°. $[\alpha]_D^{24}$ -56.5 (c, 1.7 in $CHCl_3$).

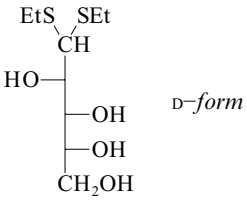
L-*form* [40733-11-7]
Cryst. (EtOH). Mp 144°. $[\alpha]_D$ -18.74 (c, 2.62 in Py).

4,5-O-Isopropylidene: 4,5-O-Isopropylidene-L-arabinose dibenzyl dithioacetal
[97776-79-9]
$C_{22}H_{28}O_4S_2$ 420.593
Solid ($CHCl_3$/hexane). $[\alpha]_D$ +50.22 (c, 1.80 in $CHCl_3$).

Pacsu, E. *et al., Ber.*, 1929, **62**, 3008-3012 (*L-form, synth*)
Baker, S.B. *et al., J.A.C.S.*, 1952, **74**, 827-828 (*D-form, synth, D-4,5-isopropylidene*)
Zinner, H. *et al., Chem. Ber.*, 1956, **89**, 800-813 (*D-form, synth*)
MaloneyHuss, K.E. *et al., Synth. Commun.*, 1985, **15**, 273-277 (*L-form, synth, L-4,5-isopropylidene*)

Arabinose diethyl dithioacetal, 9CI, 8CI A-852

Arabinose diethyl mercaptal



D-*form*

$C_9H_{20}O_4S_2$ 256.387

D-*form* [1941-50-0]
Needles. Mp 125-126°. $[\alpha]_D^{23}$ 0 (c, 3.0 in Py). $[\alpha]_D^{24}$ -11 (c, 3.7 in MeOH).

Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-D-arabinose diethyl dithioacetal
[5329-45-3]
$C_{17}H_{28}O_8S_2$ 424.535
Mp 80°. $[\alpha]_D^{23}$ +30 (c, 4.2 in $CHCl_3$).

5-Benzoyl: 5-O-Benzoyl-D-arabinose diethyl dithioacetal
$C_{16}H_{24}O_5S_2$ 360.495
Mp 119°. $[\alpha]_D^{22}$ -52.8 (c, 1.0 in $CHCl_3$).

5-Tosyl, 2,3,4-tri-Ac: 2,3,4-Tri-O-acetyl-5-O-tosyl-D-arabinose diethyl dithioacetal
$C_{22}H_{32}O_9S_3$ 536.687
Syrup. $[\alpha]_D$ +21 (c, 6.6 in $CHCl_3$).

2,3-Isopropylidene: 2,3-O-Isopropylidene-D-arabinose diethyl dithioacetal
[78010-00-1]
$C_{12}H_{24}O_4S_2$ 296.451
Oil. $Bp_{0.001}$ 130-140° (bath). $[\alpha]_D^{19}$ +93.8 (c, 4.2 in MeOH). n_D^{20} 1.5172.

4,5-Isopropylidene: 4,5-O-Isopropylidene-D-arabinose diethyl dithioacetal
$C_{12}H_{24}O_4S_2$ 296.451
Cryst. (CH_2Cl_2/petrol). Mp 75-75.5° (70-72°). $[\alpha]_D^{24}$ -58.5 (c, 1.03 in $CHCl_3$) (-68.9).

2,3:4,5-Diisopropylidene: 2,3:4,5-Di-O-isopropylidene-D-arabinose diethyl dithioacetal
$C_{15}H_{28}O_4S_2$ 336.516
Syrup. $Bp_{0.001}$ 95-105° (bath). $[\alpha]_D$ +86 (c, 3.5 in MeOH) (+82). n_D^{23} 1.4902.

3,5-Cyclohexylidene: 3,5-O-Cyclohexylidene-D-arabinose diethyl dithioacetal
$C_{15}H_{28}O_4S_2$ 336.516
Syrup. $[\alpha]_D^{25}$ -24 (c, 1.30 in $CHCl_3$).

4,5-Cyclohexylidene: 4,5-O-Cyclohexylidene-D-arabinose diethyl dithioacetal
$C_{15}H_{28}O_4S_2$ 336.516
Cryst. (petrol). Mp 75°. $[\alpha]_D^{24}$ -60 (c, 2.4 in $CHCl_3$).

2,3:4,5-Dibenzylidene: 2,3:4,5-Di-O-benzylidene-D-arabinose diethyl dithioacetal
[10504-14-0]
$C_{23}H_{28}O_4S_2$ 432.604
Cryst. (MeOH). Mp 103-105°. $[\alpha]_D^{20}$ +12.4 (c, 1.9 in $CHCl_3$).

2,4:3,5-Dibenzylidene: 2,4:3.5-Di-O-benzylidene-D-arabinose diethyl dithioacetal
$C_{23}H_{28}O_4S_2$ 432.604
Cryst. (CH_2Cl_2/petrol). Mp 173-174°. $[\alpha]_D^{23}$ +78 (c, 1.4 in $CHCl_3$).

L-*form*
Mp 124-126°.

Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-L-arabinose diethyl dithioacetal
[5115-88-8]
$C_{17}H_{28}O_8S_2$ 424.535
Prisms (MeOH). Mp 79-80°. $[\alpha]_D^{27}$ -30.8 ($CHCl_3$).

5-Benzoyl: 5-O-Benzoyl-L-arabinose diethyl dithioacetal
$C_{16}H_{24}O_5S_2$ 360.495
Mp 119°. $[\alpha]_D^{22}$ +49.5 (c, 2.0 in $CHCl_3$).

4,5-Isopropylidene: 4,5-O-Isopropylidene-L-arabinose diethyl dithioacetal
$C_{12}H_{24}O_4S_2$ 296.451
Cryst. (Et_2O/hexane). Mp 76°. $[\alpha]_D^{25}$ +70.2 (c, 1.0 in $CHCl_3$).

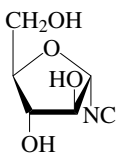
2,3:4,5-Diisopropylidene: 2,3:4,5-Di-O-isopropylidene-L-arabinose diethyl dithioacetal
$C_{15}H_{28}O_4S_2$ 336.516
Oil. $[\alpha]_D$ -81 (c, 1.0 in MeOH).

DL-*form*

2,3:4,5-Diisopropylidene: 2,3:4,5-Di-O-isopropylidene-DL-arabinose diethyl dithioacetal
$C_{15}H_{28}O_4S_2$ 336.516
Large prisms (pentane). Mp 43-45°.

Wolfrom, M.L. *et al., J.A.C.S.*, 1930, **52**, 3619 (*L-tetra-Ac*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 132 (*L-form*)
Zinner, H. *et al., Chem. Ber.*, 1956, **89**, 800 (*D-form, D-tetra-Ac*)
Zinner, H. *et al., Chem. Ber.*, 1957, **90**, 2688 (*2,3-isopropylidene, 2,3:4,5-diisopropylidene*)
Horton, D. *et al., Carbohydr. Res.*, 1969, **10**, 279 (*pmr*)
Horton, D. *et al., Carbohydr. Res.*, 1984, **134**, 205 (*isopropylidene derivs*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1985, **140**, 215 (*4,5-isopropylidene, 4,5-cyclohexylidene, 3,5-cyclohexylidene*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1987, **159**, 171; 1991, **218**, 83 (*2,4:3,5-dibenzylidene*)
Miljković, D. *et al., Carbohydr. Res.*, 1989, **194**, 300 (*tri-Ac tosyl*)

Arabinosyl isocyanide A-853



$C_6H_9NO_4$ 159.141

α-D-Furanose-*form*

Tri-Me: 2,3,5-Tri-O-methyl-α-D-arabinofuranosyl isocyanide
[71074-71-0]

[71074-72-1]
$C_9H_{15}NO_4$ 201.222
Syrup. $[\alpha]_D^{20}$ +73 (c, 0.5 in $CHCl_3$). Contd. approx. 5% β-anomer.

Tribenzyl: 2,3,5-Tri-O-benzyl-α-D-arabinofuranosyl isocyanide
[71074-69-6]

[71074-70-9]
$C_{27}H_{27}NO_4$ 429.515

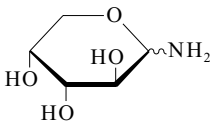
$[\alpha]_D$ +49 (c, 0.1 in $CHCl_3$). Contd. approx. 5% β-anomer.

Boullanger, P. *et al., Tetrahedron*, 1979, **35**, 163-167 (*tri-Me, tribenzyl*)

Witczak, Z.J. *et al., J. Carbohydr. Chem.*, 1984, **3**, 359-380 (*tri-Me, tribenzyl, rev, bibl*)

Arabinosylamine A-854

Arabinosimine



D–Pyranose–*form*

$C_5H_{11}NO_4$ 149.146

D-*form* [55781-69-6]
Mp 122-124°. $[\alpha]_D^{25}$ -82.5 (c, 2.0 in H_2O) (2 min).

N,N-*Di-Ac:* N,N-*Diacetyl-D-arabinosylamine*
$C_9H_{15}NO_6$ 233.221
Mp 187°. $[\alpha]_D$ -9.5 (c, 10.0 in H_2O).

N-*Ph:* N-*Phenyl-D-arabinosylamine*
$C_{11}H_{15}NO_4$ 225.244
Mp 130°. $[\alpha]_D$ +27 → -8 (MeOH).

2,3,4-Tri-Ac: 2,3,4-Tri-O-*acetyl-D-arabinosylamine*
$C_{11}H_{17}NO_7$ 275.258
Mp 137-138°. $[\alpha]_D$ -18 ($CHCl_3$).

N,O,O,O-*Tetra-Ac:*
$C_{13}H_{19}NO_8$ 317.295
Mp 175°. $[\alpha]_D^{25}$ -87 (c, 2.0 in $CHCl_3$).

3,4-O-*Isopropylidene: 3,4*-O-*Isopropylidene-D-arabinopyranosylamine*
$C_8H_{15}NO_4$ 189.211
Cryst. (as tosylate salt). Mp 123° (tosylate salt). $[\alpha]_D^{20}$ -44 (c, 2 in DMSO , 5 min.).

L-*form*
Mp 124° dec. $[\alpha]_D^{20}$ +83 (c, 10 in H_2O).

N-*Ac:* N-*Acetyl-L-arabinosylamine*
$C_7H_{13}NO_5$ 191.183
Mp 224°. $[\alpha]_D$ +69.1 (H_2O).

N,N-*Di-Ac:* N,N-*Diacetyl-L-arabinosylamine*
Mp 191°. $[\alpha]_D$ +9.8 (c, 2.0 in H_2O).

Tetra-Ac: N,*2,3,4-Tetraacetyl-L-arabinosylamine*
$C_{13}H_{19}NO_8$ 317.295
Mp 178°. $[\alpha]_D$ +89.6 ($CHCl_3$).

N-*Me:* N-*Methyl-L-arabinosylamine*
$C_6H_{13}NO_4$ 163.173
Mp 118-120° (101°). $[\alpha]_D^{29}$ +43 → +51 (c, 3.9 in H_2O).

N-*Ph:* N-*Phenyl-L-arabinosylamine*
$C_{11}H_{15}NO_4$ 225.244
Mp 103-106° dec. $[\alpha]_D$ -37 → +2.5 (MeOH).

Isbell, H.S. *et al., J.A.C.S.*, 1949, **71**, 1579 (*D-N,N-Di-Ac, L-N,N-di-Ac*)

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1951, **46**, 132 (*L-form, synth, L-N-Ac, L-tetra-Ac*)

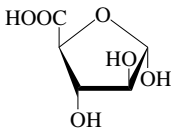
Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*rev, derivs*)

Mackenzie, G. *et al., J.C.S. Perkin 1*, 1977, 1094 (*D-3,4-isopropylidene*)

Linek, K. *et al., Carbohydr. Res.*, 1993, **247**, 329 (*synth, D-form*)

Arabinuronic acid A-855

Araburonic acid. Arabopenturonic acid.
arabo-*Pentonic acid*
[30923-39-8]



α-D-Furanose-*form*

$C_5H_8O_6$ 164.115

D-*form*
Syrup. $[\alpha]_D$ +22 (c, 2.6 in H_2O).

D-Furanose-*form*

D-Arabinofuranuronic acid
[134679-14-4]

Me glycoside, Me ester: Methyl (methyl-D-arabinofuranosid)uronate
$C_7H_{12}O_6$ 192.168
Syrup. $[\alpha]_D$ +19 (c, 2.9 in EtOH). Anomer not specified.

β-D-Furanose-*form*

*1,2-Isopropylidene, Me ester: Methyl 1,2-*O-*isopropylidene-D-arabinofuranuronate*
$C_9H_{14}O_6$ 218.206
Cryst. (Et_2O/pentane). Mp 133-134°. $[\alpha]_D$ +67 (c, 1 in EtOH).

β-L-Furanose-*form* *L-Arabinofuranuronic acid*

1,2-Isopropylidene, Me ester:
Solid. Mp 132-133°. $[\alpha]_D$ -45 (c, 1 in MeOH). Sublimes.

[134616-27-6, 134616-31-2, 134616-33-4, 134679-10-0, 134679-18-8]

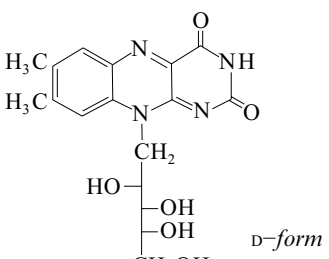
Gorin, P.A.J. *et al., Can. J. Chem.*, 1956, **34**, 693-700 (*D-form, D-Me fur Me ester, D-ispropylidene Me ester*)

Morgenlie, S. *et al., Carbohydr. Res.*, 1977, **59**, 73-80 (*β-L-isopropylidene Me ester*)

Wu, J. *et al., Carbohydr. Res.*, 1991, **210**, 51-70 (*pmr, cmr*)

Araboflavin A-856

*1-Deoxy-1-(3,4-dihydro-7,8-dimethyl-2,4-dioxobenzo[g]pteridin-10(2H)-yl)arabinitol, 9CI. 7,8-Dimethyl-10-(*arabino-*2,3,4,5-tetrahydroxypentyl)isoalloxazine, 8CI*
[482-11-1]



D–*form*

$C_{17}H_{20}N_4O_6$ 376.368

D-*form* [5978-87-0] Riboflavine antagonist. Orange-yellow needles. Mp 298° , (303°). $[\alpha]_D^{20}$ +78.6 (c, 0.51 in 0.1N NaOH). Bitter taste.

2,3,4-Tri-Ac: Mp 209-210°.

2,3,4,5-Tetra-Ac: [5978-88-1]
Mp 260°.

L-*form* [33210-89-8]
Mp 296-299°. $[\alpha]_D$ -108 (0.05N NaOH) (H_2O).

2,3,4,5-Tetra-Ac: Mp 260°.

DL-*form*
Mp 296°.

2,3,4,5-Tetra-Ac: Mp 274°.

Kuhn, R. *et al., Ber.*, 1935, **68**, 1001; 1286

Sahashi, Y. *et al., Proc. Imp. Acad. (Tokyo)*, 1945, **21**, 1; 44; *CA*, **49**, 305

Sahashi, K. *et al., Rikagaku Kenkyusho Iho*, 1948, **24**, 72 (*synth*)

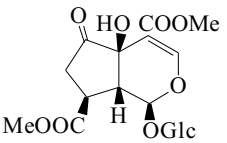
Japan. Pat., 1952, 52 3 236; *CA*, **48**, 2786g (*synth*)

Penzer, G.R. *et al., Methods Enzymol.*, 1971, **18**, 479

Harders, H. *et al., Biochemistry*, 1974, **13**, 3360 (*cd*)

Aralidioside A-857

[78693-92-2]



$C_{18}H_{24}O_{13}$ 448.38
Constit. of *Aralidium pinnatifidum*. Foam. $[\alpha]_D^{24}$ -211 (c, 0.3 in MeOH).

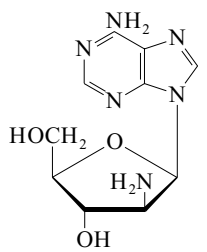
Penta-Ac:
Cryst. Mp 188-190°. $[\alpha]_D^{25}$ -232 (c, 0.5 in MeOH).

Jensen, S.R. *et al., Phytochemistry*, 1980, **19**, 2685

Damtoft, S. *et al., Phytochemistry*, 1981, **20**, 2436 (*cmr*)

Aramine A-858

9-(2-Amino-2-deoxy-β-D-arabinofuranosyl)-9H-purin-6-amine, 9CI. (2-Amino-2-deoxy-β-D-arabinofuranosyl)adenine. 2′-Amino-araA
[69427-80-1]



$C_{10}H_{14}N_6O_3$ 266.259
Antiherpes agent. Cryst. (EtOH). Mp 215-218° dec. $[\alpha]_D^{28}$ -5.8 (c, 0.95 in H_2O).

Robins, M.J. *et al., Tet. Lett.*, 1978, 3653 (*synth, uv, pmr*)

Ranganathan, R. *et al., Tet. Lett.*, 1978, 4341 (*synth*)

Cermak-Morth, C.M. *et al., Biochem. Pharmacol.*, 1979, **28**, 2105 (*pharmacol*)

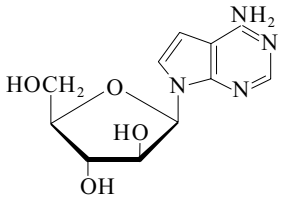
Bobek, M. *et al., Carbohydr. Res.*, 1979, **70**, 263 (*synth*)

Sato, A. *et al., Chem. Pharm. Bull.*, 1979, **27**, 821 (*synth, pmr, uv*)

Aratubercidin A-859

*7-β-D-Arabinofuranosyl-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-amine, 9CI. 4-Amino-7-(β-D-arabinofuranosyl)pyrrolo[2,3-*d*]pyrimidine. Ara Tb*

[64526-34-7]



$C_{11}H_{14}N_4O_4$ 266.256

Shows antiviral props. Mp 125-126°. $[\alpha]_D^{24}$ +6.9 (c, 0.5 in DMF).

► UY8820000

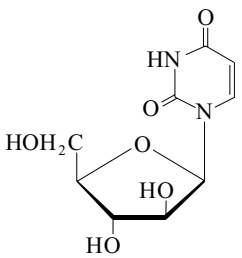
Robbins, M.J. *et al., Can. J. Chem.*, 1977, **55**, 1260

Seela, F. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 97

Arauridine A-860

*1-β-D-Arabinofuranosyl-2,4(1*H*,3*H*)-pyrimidinedione, 9CI. 1-β-D-Arabinofuranosyluracil. **Spongouridine**. Ara-U*

[3083-77-0]



$C_9H_{12}N_2O_6$ 244.204

Isol. from the Caribbean sponge *Cryptotethia crypta* and the gorgonian *Eunicella cavolini*. Drug intermed. Cryst. (MeOH). Sol. H_2O. Mp 220-221° (226-228°). $[\alpha]_D$ +131.1 (c, 0.63 in H_2O).

► Exp. reprod. effects. YQ8818000

2′,3′-Di-Ac: [21016-88-6]
$C_{13}H_{16}N_2O_8$ 328.278
Mp 168-169°.

3′,5′-Di-Ac: [25383-79-3]
$C_{13}H_{16}N_2O_8$ 328.278
Cryst. (C_6H_6/hexane). Mp 78-79°. λ_{max} 258 (ε 10000) (MeOH).

2′,3′,5′-Tri-Ac: [14057-18-2]
$C_{15}H_{18}N_2O_9$ 370.315
Cryst. (EtOH). Mp 131-132°. $[\alpha]_D^{20}$ +83.9 (c, 0.5 in MeOH). λ_{max} 259 (EtOH).

2′-Methylphosphonate, Na salt: λ_{max} 262 nm (ε 9 900) (H_2O).

5′-Phosphate:
$C_9H_{13}N_2O_9P$ 324.183
$[\alpha]_D^{20}$ +48.15 (H_2O, as Ba salt).

5′-Trityl:
$C_{28}H_{26}N_2O_6$ 486.523
Mp 113-114°.

5′-Trityl, 2′,3′-di-Ac:
$C_{32}H_{30}N_2O_8$ 570.598
Mp 153-154°.

Bergmann, W. *et al., J.O.C.*, 1955, **20**, 1501 (*isol, struct*)

Brown, D.M. *et al., J.C.S.*, 1956, 2388 (*synth*)

Privat de Garilhe, M. *et al., Bull. Soc. Chim. Fr.*, 1968, 1485 (*2′,3′-di-Ac, phosphate, trityl, trityl di-Ac*)

Verheyden, J.P.H. *et al., J.O.C.*, 1970, **35**, 2868 (*3′,5′-di-Ac, 2′-methylphosphonate salt*)

Sherfinski, J. *et al., Acta Cryst. B*, 1974, 873 (*cryst struct*)

Zemlicka, J. *et al., J.A.C.S.*, 1975, **97**, 4089 (*pmr*)

Hruska, F.E. *et al., Can. J. Chem.*, 1982, **60**, 3026 (*pmr, cmr*)

Divakar, K.J. *et al., J.C.S. Perkin 1*, 1982, 1171 (*tri-Ac, synth*)

Cech, D. *et al., J. Prakt. Chem.*, 1983, 325 (*synth*)

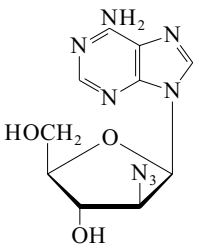
Cimino, G. *et al., Experientia*, 1984, **40**, 339-340 (*isol*)

Alder, L. *et al., Z. Chem.*, 1986, **26**, 136 (*ms*)

Arazide A-861

*9-(2-Azido-2-deoxy-β-D-arabinofuranosyl)-9*H*-purin-6-amine, 9CI. 2′-Azido-2′-deoxy-β-D-arabinofuranosyladenine. 2′-Azido-araA*

[69370-82-7]



$C_{10}H_{12}N_8O_3$ 292.257

Antiherpes agent. Needles (EtOH). Mp 204-205°. $[\alpha]_D^{28}$ -17 (c, 0.6 in H_2O).

Ranganathan, R. *et al., Tet. Lett.*, 1978, 4341 (*synth*)

Cermak-Morth, C.M. *et al., Biochem. Pharmacol.*, 1979, **28**, 2105 (*pharmacol*)

Bobek, M. *et al., Carbohydr. Res.*, 1979, **70**, 263 (*synth*)

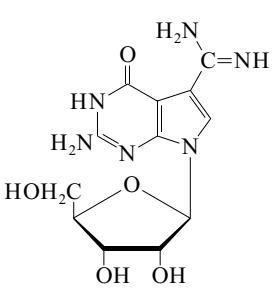
Sato, A. *et al., Chem. Pharm. Bull.*, 1979, **27**, 821 (*synth, pmr*)

Fukukawa, K. *et al., Chem. Pharm. Bull.*, 1983, **31**, 1582 (*synth, pmr, ms*)

Archaeosine A-862

*2-Amino-4,7-dihydro-4-oxo-7-β-D-ribofuranosyl-1*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboximidamide. 7-Formamidino-7-deazaguanosine*

[148608-52-0]



$C_{12}H_{16}N_6O_5$ 324.296

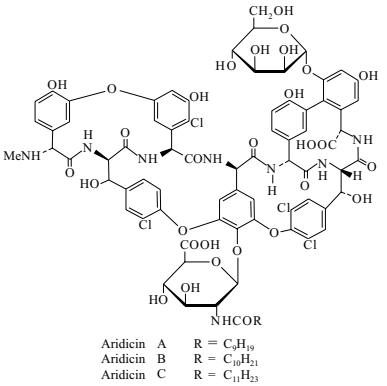
Constit. of archaeal transfer RNA.

Gregson, J.M. *et al., J. Biol. Chem.*, 1993, **268**, 10076 (*isol, synth*)

Aridicin A-863

***Ardacin, BAN, INN**. SKF 100814*

[117742-13-9]



Aridicin A R = C_9H_{19}
Aridicin B R = $C_{10}H_{21}$
Aridicin C R = $C_{11}H_{23}$

Glycopeptide antibiotic complex. Isol. from *Kibdelosporangium aridium*. Active against gram-positive bacteria. Related to Vancomycin.

Aridicin A

Ardacin A

[95935-21-0]

$C_{81}H_{82}Cl_4N_8O_{30}$ 1789.385

Yellow-white powder. Sol. H_2O, DMF, MeOH, DMSO; poorly sol. EtOH, hexane. $[\alpha]_D^{25}$ -66 (c, 0.3 in H_2O). λ_{max} 280 (ε 9640) (pH 2) (Derep). λ_{max} 301 (ε 12100) (MeOH aq./NaOH) (Derep). λ_{max} 280 (E1%/1cm 51) (H_2O-MeCN) (Berdy). λ_{max} 280 (H_2O-MeCN-HCl) (Berdy). λ_{max} 301 (E1%/1cm 75) (H_2O-MeCN-NaOH) (Berdy).

Aridicin B

Ardacin B

[95935-22-1]

$C_{82}H_{84}Cl_4N_8O_{30}$ 1803.412

Sol. H_2O, DMF, MeOH, DMSO; poorly sol. EtOH, hexane. $[\alpha]_D^{25}$ -59 (c, 0.3 in H_2O). λ_{max} 280 (ε 9640) (pH 2) (Derep). λ_{max} 301 (ε 12100) (MeOH aq./NaOH) (Derep). λ_{max} 280 (E1%/1cm 55) (H_2O-MeCN) (Berdy). λ_{max} 280 (H_2O-MeCN-HCl) (Berdy). λ_{max} 301 (E1%/1cm 72.5) (H_2O-MeCN-NaOH) (Berdy).

Aridicin C

Ardacin C

[95935-23-2]

$C_{83}H_{86}Cl_4N_8O_{30}$ 1817.439

Sol. H_2O, DMF, DMSO, MeOH; poorly sol. EtOH, hexane. $[\alpha]_D^{25}$ -51 (c, 0.3 in H_2O). λ_{max} 280 (ε 9640) (pH 2) (Derep). λ_{max} 301 (ε 12100) (MeOH aq./NaOH) (Derep). λ_{max} 280 (E1%/1cm 51) (H_2O-MeCN) (Berdy). λ_{max} 280 (H_2O-MeCN-HCl) (Berdy). λ_{max} 301 (E1%/1cm 75) (H_2O-MeCN-NaOH) (Berdy).

Grappel, S.F. *et al., Antimicrob. Agents Chemother.*, 1985, **28**, 660 (*activity*)

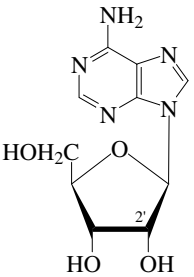
Shearer, M.C. *et al., J. Antibiot.*, 1985, **38**, 555 (*isol*)

Sitrin, R.D. *et al., J. Antibiot.*, 1985, **38**, 561; 1986, **39**, 68 (*isol, ir, ms, struct*)

Roberts, G.D. *et al., J. Antibiot.*, 1985, **38**, 713 (*ms, struct*)
Jeffs, P.W. *et al., J.O.C.*, 1985, **50**, 1726 (*struct*)
Chung, S.K. *et al., J. Antibiot.*, 1986, **39**, 642; 653 (*struct, biosynth*)
Jeffs, P.W. *et al., J.A.C.S.*, 1986, **108**, 3063 (*struct, nmr, config*)
Folena-Wasserman, G. *et al., J. Chromatogr.*, 1987, **392**, 225 (*isol*)
Chung, S.K. *et al., J.O.C.*, 1987, **52**, 1606 (*derivs*)

Aristeromycin A-864

3-(6-Amino-9H-purin-9-yl)-5-(hydroxymethyl)-1,2-cyclopentanediol, 9CI. 9-[2,3-Dihydroxy-4-(hydroxymethyl)cyclopentyl]adenine, 8CI
[19186-33-5]



(−)-*form*

$C_{11}H_{15}N_5O_3$ 265.271

Nucleoside antibiotic. Sol. H_2O, Me_2CO-H_2O, DMF, DMSO, MeOH-H_2O, AcOH; poorly sol. MeOH, hexane. Log P -3.2 (calc). λ_{max} 260 (ϵ 15100) (H_2O at pH 2) (Derep). λ_{max} 262 (ϵ 15800) (H_2O) (Derep). λ_{max} 262 (ϵ 14490) (pH 12 buffer) (Berdy). λ_{max} 262 (E1%/1cm 555) (H_2O) (Berdy). λ_{max} 212 (ϵ 20060); 258 (ϵ 14500) (HCl) (Berdy).

▶ LD_{50} (mus, ivn) 50 - 150 mg/kg.

(-)-*form*

Isol. from the culture broth of *Streptomyces citricolor* and *Actinoplanes* sp. Inhibits growth of *Pyricularia oryzae* and *Xanthomonas oryzae*. Tumour growth inhibitor, shows antiviral props.
Mp 213-215° (238-242°) dec. $[\alpha]_D^{25}$ -52.5 (c, 1.0 in DMF). λ_{max} 260 (ϵ 14260) (pH 2). λ_{max} 262 (ϵ 14690) (pH 6). λ_{max} 262 (ϵ 14490) (pH 12).

Hydrobromide: [19186-34-6]
Mp 229° dec. (browns at 221.5°).

Penta-Ac:
Syrup. λ_{max} 272 (EtOH).

2′-Epimer: ***Cyclaradine****. Sch 31172. Antibiotic Sch 31172*
[69979-46-0]
$C_{11}H_{15}N_5O_3$ 265.271
Antiviral agent. Active against herpes simplex virus. Powder. Mp 235-245° dec. $[\alpha]_D^{22}$ +50.9 (c, 1.0 in MeOH) (+48). $[\alpha]_D^{22}$ +48 (c, 1.5 in MeOH). Log P -3.2 (calc).

(±)-*form* [13190-75-5]
Solid (EtOH/EtOAc). Mp 255-256° (240-241°).

Hydrochloride: [24587-85-7]
Solid (HCl aq./EtOH/Et_2O). Mp 218-221° dec.

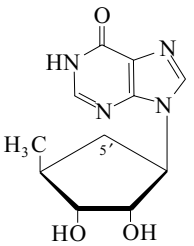
Tri-Me ether:
Solid (EtOH). Mp 168-169°.

[62357-70-4, 69056-45-7, 69979-46-0, 72346-00-0, 78738-56-4, 78738-57-5, 86287-92-5, 86333-62-2, 91382-84-2, 99395-42-3, 121470-41-5, 127454-17-5, 129706-30-5]

Shealy, Y.F. *et al., J.A.C.S.*, 1966, **88**, 3885 (*synth*)
Kishi, T. *et al., Chem. Comm.*, 1967, 852 (*abs config*)
Kusaka, T. *et al., J. Antibiot., Ser. A*, 1968, **21**, 255 (*isol*)
Hill, D.L. *et al., Mol. Pharmacol.*, 1971, **7**, 375
Kishi, T. *et al., Chem. Pharm. Bull.*, 1972, **20**, 940 (*struct, penta-Ac, pmr*)
Shealy, Y.F. *et al., J. Pharm. Sci.*, 1973, **62**, 1252; *CA*, **79**, 92531f (*synth*)
Follmann, H. *et al., Eur. J. Biochem.*, 1975, **58**, 31 (*conformn, cd*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 2096 (*synth, ms, uv, pmr, cd*)
Daluge, S. *et al., J. Med. Chem.*, 1977, **20**, 162 (*Cyclaradine*)
U.S. Pat., 1979, 4 138 562; *CA*, **90**, 168938u (*Cyclaradine*)
Saksena, A.K. *et al., Tet. Lett.*, 1980, **21**, 133 (*synth*)
Japan. Pat., 1982, 82 94 288; *CA*, **97**, 90424 (*isol*)
Arita, M. *et al., J.A.C.S.*, 1983, **105**, 4049 (*synth*)
Herdewijn, P. *et al., J. Med. Chem.*, 1985, **28**, 1385 (*synth, resoln*)
Parry, R.J. *et al., J.A.C.S.*, 1985, **107**, 6402; 1989, **111**, 5819 (*biosynth*)
Ohno, M. *et al., Nucleosides Nucleotides*, 1985, **4**, 21 (*synth*)
Madharan, G.V.B. *et al., J.O.C.*, 1986, **51**, 1287 (*synth*)
Schwartz, J. *et al., Antimicrob. Agents Chemother.*, 1987, **31**, 21 (*pharmacol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Arai, Y. *et al., J.C.S. Perkin 1*, 1988, 3133 (*synth, bibl*)
Tadano, K. *et al., Bull. Chem. Soc. Jpn.*, 1989, **62**, 1355 (*Cyclaradine*)
Yoshikawa, M. *et al., Chem. Pharm. Bull.*, 1989, **37**, 545; 2555 (*synth, ir, uv, ms, pmr, cmr, Cyclaradine*)
Wolfe, M.S. *et al., Tet. Lett.*, 1989, **30**, 1453 (*synth*)
Deardoff, D.R. *et al., Tet. Lett.*, 1989, **30**, 6625 (*synth*)
Wolfe, M.S. *et al., J.O.C.*, 1990, **55**, 4712 (*synth, bibl*)
Parry, R.J. *et al., Environ. Sci. Res.*, 1992, **44**, 89 (*rev, biosynth*)
Borthwick, A.D. *et al., Tetrahedron*, 1992, **48**, 571 (*rev, synth*)
Helmchen, G. *et al., Annalen*, 1993, 1313 (*synth, bibl*)
Hanrahan, J. *et al., J.C.S. Perkin 1*, 1994, 3533 (*biosynth*)
Yoshikawa, M. *et al., Tetrahedron*, 1994, **50**, 9961-9974 (*Cyclaradine, synth, pmr*)
Hill, J.M. *et al., J.A.C.S.*, 1995, **117**, 5391 (*biosynth*)
Csuk, R. *et al., Tetrahedron*, 1995, **51**, 5789 (*synth*)
Burlina, F. *et al., Bioorg. Med. Chem. Lett.*, 1997, **7**, 247 (*synth*)
Thibaudeau, C. *et al., J.O.C.*, 1998, **63**, 5447-5462 (*pmr, conformn*)

Aristeromycin M A-865

9-(2,3-Dihydroxy-4-methylcyclopentyl)-1,9-dihydro-6H-purin-6-one, 9CI
[98873-79-1]



$C_{11}H_{14}N_4O_3$ 250.257

Nucleoside antibiotic. Isol. from *Streptomyces citricolor*. Prisms (EtOH). Sol. H_2O.
Mp 260-261°. λ_{max} 251 (ϵ 11400) (pH 1) (Derep). λ_{max} 256 (ϵ 12900) (pH 12) (Derep). λ_{max} 250 (ϵ 11800) (pH 7) (Derep). λ_{max} 251 (ϵ 11400) (pH 1 buffer) (Berdy). λ_{max} 255 (ϵ 12900) (pH 11 buffer) (Berdy).

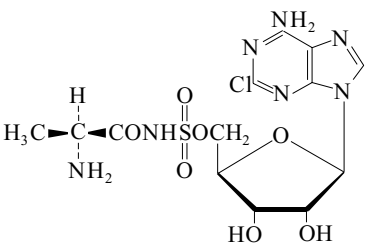
▶ LD_{50} (mus, ipr) 400 mg/kg. UP0799900

5′-Hydroxy: ***Coaristeromycin***
[16975-94-3]
$C_{11}H_{14}N_4O_4$ 266.256
Prod. by *Streptomyces* sp. A6308. Phytotoxic. Cryst. (EtOH aq.). Sol. H_2O, MeOH. Mp 235° (synthetic). λ_{max} 256 (ϵ 12900) (pH 12) (Derep). λ_{max} 250 (ϵ 11800) (pH 7) (Derep). λ_{max} 251 (ϵ 11400) (pH 1) (Derep). λ_{max} 250 (H_2O) (Berdy).

Marumoto, R. *et al., Chem. Pharm. Bull.*, 1976, **24**, 2624 (*Coaristeromycin*)
Miyashita, O. *et al., J. Antibiot.*, 1985, **38**, 981 (*isol, pmr, synth*)
Isaac, B.G. *et al., J. Antibiot.*, 1991, **44**, 729 (*Coaristeromycin*)

Ascamycin A-866

2-Chloroadenosine 5′-(2-amino-1-oxopropyl)sulfamate, 9CI. RK 647A
[91432-48-3]



$C_{13}H_{18}ClN_7O_7S$ 451.847

Nucleoside antibiotic. Isol. from *Streptomyces alboniger*. Antineoplastic agent. Active against *Xanthomonas citri, X. oryzae* and *Mycobacterium phlei*. Needles (EtOH aq.). Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane. Mp 270° dec. $[\alpha]_D^{20}$ +2.34 (c, 1 in H_2O). pK_a 8.9 (H_2O). λ_{max} 263 (ϵ 12300) (H_2O) (Derep). λ_{max} 260 (ϵ 12270) (H_2O) (Berdy). λ_{max} 263 (E1%/1cm 253) (HCl) (Berdy). λ_{max} 263 (E1%/1cm 257) (NaOH) (Berdy).

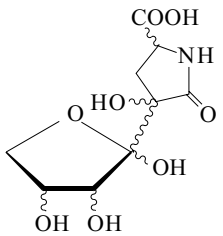
▶ LD_{50} (mus, ipr) 3.2 mg/kg.

Dealanyl: See 2-Chloroadenosine, C-66

Isono, K. *et al., J. Antibiot.*, 1984, **37**, 670; 1988, **41**, 1711 (*isol, uv, ir, pmr, cmr, rev*)
Isono, K. *et al., Nucleic Acids Res., Symp. Ser.*, 1984, **15**, 65 (*isol, ms*)
Osada, H. *et al., Antimicrob. Agents Chemother.*, 1985, **27**, 230 (*activity*)
Osada, H. *et al., J. Antibiot.*, 1986, **39**, 286 (*props*)
Ubukata, M. *et al., Tet. Lett.*, 1986, **27**, 3907 (*synth*)

Ascorbalamic acid, 9CI A-867

[41679-87-2]

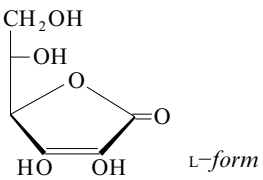


$C_9H_{13}NO_8$ 263.204
Constit. of cabbage (*Brassica oleracea*).
$[\alpha]_D^{26}$ +24 (c, 1.25 in H_2O). pK_a 1.

Couchman, R. *et al., Phytochemistry*, 1973, **12**, 707 (*isol*)

Ascorbic acid, BAN, INN, USAN A-868

threo-*Hex-2-enonic acid γ-lactone, 9CI, 8CI*. threo-*Hexulosono-1,4-lactone-2,3-enediol*. *Hexuronic acid*. *Lyxoascorbic acid*. *Xyloascorbic acid*



L–*form*

$C_6H_8O_6$ 176.126Log P -2.21 (calc).

D-*form* [10504-35-5]
Mp 190° dec. $[\alpha]_D^{18}$ -23 (c, 2 in H_2O). $[\alpha]_D^{18}$ -48 (MeOH). Shows little antiscorbutic action.

L-*form*
Vitamin C. *Vitamin C*[3]. *Ascorbicap*. *Cebione*. *Celaskon*. *Cenolate*. *Cevalin*. *Cevital*. *Citrovit*. *Roscorbic*. *Vitacimin*. *Vitascorbol*. *E300*
[50-81-7] Prod. industrially on a large scale from glucose. Occurs widely in animals and plants. Good sources are citrus fruits and hip berries. Isol. from ox adrenal cortex, lemons and paprika. Used as a reducing agent, masking agent in photometric detn. of Ti, Nb. Antioxidant, nutrient, preservative. Valuable inexpensive starting material for chiral synthesis. Enzymic browning inhibitor. Vitamin (antiscorbutic); urinary acidifier.
Mp 190-192°. $[\alpha]_D^{25}$ +24 (c, 1 in H_2O). $[\alpha]_D^{18}$ +49 (MeOH). pK_{a1} 4.04; pK_{a2} 11.34 (25°, 0.1*M* KNO_3). Component of numerous preparations.
▶ Human systemic effects when administered intravenously. Exp. reprod. and teratogenic effects (v. large doses). LD_{50} (rat, orl) 11900 mg/kg. CI7650000

Na salt: ***Sodium ascorbate, INN***. *E301*
[134-03-2]
$[\alpha]_D$ +24 (c, 3 in H_2O).
▶ CI7671000

Ca salt (2:1): Calcium ascorbate. E302
[5743-27-1]
$[\alpha]_D^{10}$ +91 (c, 0.3 in H_2O).

*Fe(*II*) salt: Ferrous ascorbate*
[24808-52-4]

Phenylhydrazone: Mp 216°.

2-Phosphate: Ascorbic acid 2-phosphate
[23313-12-4]

[82134-96-1]
$C_6H_9O_9P$ 256.105
Cryst. (EtOH/EtOAc) (as tris(cyclohexylammonium) salt). Mp 173-176° (tris(cyclohexylammonium) salt). CAS no. refers to salt.

2-Sulfate: [37627-95-5]

[52174-99-9, 53910-28-4]
$C_6H_8O_9S$ 256.19
Vitamin C substitute. No phys. props. reported. Comly. available as salts.

2-O-α-D-Glucopyranoside: Ascorbic acid 2-α-D-glucoside. AA-2G
[129499-78-1]
Isol. from baechu kimchi. Stable hydrophilic vitamin C deriv. Skin antioxidant used as a medical additive in commercial cosmetics. $[\alpha]_D^{20}$ +189.6 (c, 5.0 in H_2O).

2-O-β-D-Glucopyranoside: Ascorbic acid 2-β-D-glucoside
$C_{12}H_{18}O_{11}$ 338.268
Constit. of the fruit of *Lycium barbarum* (box thorn). Amorph. cryst.

6-Hexadecanoyl: ***Ascorbyl palmitate, USAN***. *E304*
[137-66-6]
$C_{22}H_{38}O_7$ 414.538
Antioxidant. Pharmaceutical excipient. Mp 107-117°. $[\alpha]_D^{20}$ +22.9 (c, 2 in MeOH).
▶ CI7671040

6-Octadecanoyl: ***Ascorbyl stearate***
[10605-09-1]

[25395-66-8]
$C_{24}H_{42}O_7$ 442.592
Preservative for margarine.

6-(6,9,12-Octadecatrienoyl)(Z,Z,Z-): ***Ascorbyl gamolenate, BAN, INN***. *SC 103*
[109791-32-4]
$C_{24}H_{36}O_7$ 436.544
Used for the treatment of diabetic neuropathy. Pale yellow wax.

2,6-Dihexadecanoyl: [4218-81-9]
$C_{38}H_{68}O_8$ 652.95
Cryst. (EtOH/MeOH). Mp 114-115°.

5,6-O-Isopropylidene: 5,6-O-Isopropylidene-L-threo-hex-2-enono-1,4-lactone
[15042-01-0]
$C_9H_{12}O_6$ 216.19
Mp 220-222°. $[\alpha]_D^{25}$ -25.2 (c, 1.0 in H_2O).

5,6-O-Cyclohexylidene: 5,6-O-Cyclohexylidene-L-threo-hex-2-enono-1,4-lactone
[6614-52-4]
$C_{12}H_{16}O_6$ 256.255
Mp 183-185°. $[\alpha]_D^{25}$ +12.7 (c, 1.0 in Me_2CO). Props. acc. to Carlsen *et al* (1995), who state that it is obt. as a 1:1 mixt. of diastereoisomers.

5,6-O-Benzylidene: 5,6-O-Benzylidene-L-threo-hex-2-enono-1,4-lactone
[20664-60-2]
$C_{13}H_{12}O_6$ 264.234
Cryst. (C_6H_6). Mp 167-168°.

5,6-O-Benzylidene (deutero analogue): ***Zilascorb 2H, INN***. *P1015*
[122431-96-3]
$C_{13}H_{11}DO_6$ 265.24
Antineoplastic agent. Log P 0.91 (calc).

2,3-Di-Me: 2,3-Di-O-methyl-L-threo-hex-2-enono-1,4-lactone
$C_8H_{12}O_6$ 204.179
Mp 59° (hydrate). $[\alpha]_D$ +32 (MeOH).

2-O-Octadecyl: ***2-O-Octadecylascorbic acid, 9CI***. *CV 3611*
[98829-12-0]
$C_{24}H_{44}O_6$ 428.608
Prod. by *Streptomyces* sp. Free radical scavenger.
Mp 127-128°. $[\alpha]_D^{24}$ +29.8 (c, 0.7 in EtOH).

Compd. with 3-pyridinecarboxamide: ***Nicotinamide ascorbate***. *Merpress*. *Nicoscorbine*. *Nicastubin*
[1987-71-9]
$C_{12}H_{14}N_2O_7$ 298.252
Vitamin. Yellow cryst. Mp 141-145°. $[\alpha]_D^{20}$ +27.5 (c, 8.0 in H_2O).

Phosphate, compd. with phytostanol: Phytostanol phosphoryl ascorbate. FM-VP4
[396080-03-8]
Phase II trials (2002).
Deriv. from plant sterols. Inhibitor of cholesterol absorption. Shows lipid lowering and body weight reducing props. Used as the di-Na salt.

[299-36-5, 5743-28-2, 6485-44-5, 6730-29-6, 25395-66-8, 124928-57-0]

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Hvoslef, J. *et al., Acta Cryst. B*, 1969, **25**, 2214-2223 (*cryst struct*)

Atchley, R.W. *et al., Org. Prep. Proced. Int.*, 1971, **3**, 299-302 (*Zilascorb, synth*)
Bond, A.D. *et al., Arch. Biochem. Biophys.*, 1972, **153**, 207-214 (*sulfate, synth, ir, uv*)
Berger, S. *et al., Tetrahedron*, 1977, **33**, 1587-1589 (*cmr*)
Muccino, R.R. *et al., Methods Enzymol.*, 1979, **62**, 39-42 (*2-sulfate*)
Jernow, J. *et al., Tetrahedron*, 1979, **35**, 1483-1486 (*L-2-phosphate, L-2-phosphate salt*)
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Sekine, M. *et al., J.O.C.*, 1982, **47**, 3453-3456 (*L-2-phosphate*)
Eur. Pat., 1985, 146 121, (*Takeda*); *CA*, **104**, 33286s (*CV 3611, synth*)
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Canadian Pat., 1995, 2 143 603, (*Scotia*); 2 152 321; *CA*, **124**, 156000q; 220535x (*ascorbyl gamolenate*)
Defeudis, F.V. *et al., Gen. Pharmacol.*, 1995, **26**, 667-680 (*CV 3611, rev*)
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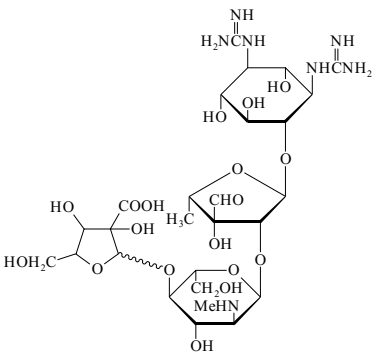
Ashimycin A A-869

[123482-11-1]



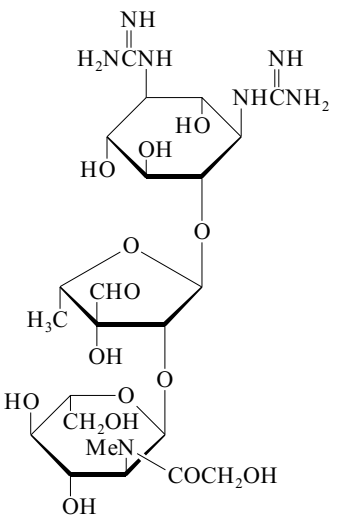
$C_{27}H_{47}N_7O_{18}$ 757.704

Aminoglycoside antibiotic. Prod. by *Streptomyces griseus*. Powder + $2H_2O$ (as sesquisulfate salt). Sol. H_2O; poorly sol. MeOH, $CHCl_3$, hexane.
Mp 150° (sulfate). $[\alpha]_D^{23}$ -37 (c, 1 in H_2O).

Tohma, S. *et al., J. Antibiot.*, 1989, **42**, 1205 (*isol, pmr, cmr, ir, struct*)

Ashimycin B A-870

[123482-12-2]



$C_{23}H_{41}N_7O_{14}$ 639.615

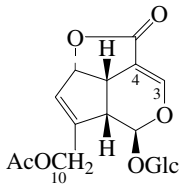
Aminoglycoside antibiotic. Prod. by *Streptomyces griseus*. Powder + $1H_2O$ (as sulfate salt). Sol. H_2O; poorly sol. MeOH, $CHCl_3$, hexane.
Mp 205° (sulfate). $[\alpha]_D^{23}$ -85.3 (c, 0.04 in H_2O).

Tohma, S. *et al., J. Antibiot.*, 1989, **42**, 1205 (*isol, pmr, cmr, ir, struct*)

Asperuloside A-872

Rubichloric acid. Asperulin

[14259-45-1]



$C_{18}H_{22}O_{11}$ 414.365

Isol. from *Asperula, Galium, Crucianella, Coprosma, Escallonia, Daphniphyllum* spp. and other plants. Antiinflammatory agent.
Sol. MeOH, EtOH; poorly sol. hexane.
Mp 131-132° (125-127°). $[\alpha]_D^{18}$ -204 (H_2O).
Log P -4.73 (uncertain value) (calc). λ_{max} 234 (ϵ 6800) (EtOH) (Berdy).

6′-Ac: ***6′-Acetylasperuloside***
$C_{20}H_{24}O_{12}$ 456.402
Constit. of *Hedyotis chrysotricha*. Powder. $[\alpha]_D$ -52.3 (c, 0.17 in MeOH).

Tetra-Ac: Mp 154.5-155°. $[\alpha]_D^{17}$ -128.6 (EtOH).

2′-O-[3-(4-Hydroxyphenyl)propanoyl]: ***V_2 Iridoid***
[82462-55-3]
$C_{27}H_{30}O_{13}$ 562.526
Constit. of *Galium verum*. Cryst. (Me_2CO).
Mp 145-150°.

2′-O-[3-(4-Hydroxyphenyl)propanoyl], 10-de-Ac: ***V_1 Iridoid***
[87441-71-2]
$C_{25}H_{28}O_{12}$ 520.489
Constit. of *Galium verum*. Cryst. (MeOH).
Mp 118-120°. λ_{max} 226 (log ϵ 4.14); 280 (log ϵ 3.17) (EtOH).

3ξ,4ξ-Dihydro, 3-methoxy: ***V_3 Iridoid****. 3,4-Dihydro-3-methoxyasperuloside*
[82649-56-7]
$C_{19}H_{26}O_{12}$ 446.407
Constit. of *Galium verum*. Amorph. solid.

O-*De-Ac, 6′-Ac:* ***6′-Acetyldeacetylasperuloside***
[224156-09-6]
$C_{18}H_{22}O_{11}$ 414.365
Constit. of *Hedyotis chrysotricha*. Powder. $[\alpha]_D^{25}$ -157 (c, 0.06 in MeOH). λ_{max} 233 (MeOH).

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Swiatek, L. *et al., Herba Pol.*, 1972, **18**, 168 (*occur*)
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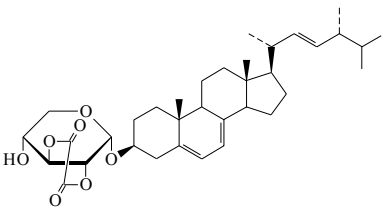
Damtoft, S. *et al., Phytochemistry*, 1981, **20**, 2717 (*cmr*)
Boithe-Horvath, K. *et al., Phytochemistry*, 1982, **21**, 2917-2919 (*V_3 Iridoid*)
Bojthe-Horváth, K. *et al., Tet. Lett.*, 1982, **23**, 965 (*V_2 Iridoid*)
Uesato, S. *et al., Phytochemistry*, 1986, **25**, 2515 (*biosynth*)
Nakatani, K. *et al., Bull. Chem. Soc. Jpn.*, 1993, **66**, 2646 (*synth*)
Peng, J.N. *et al., Chin. Chem. Lett.*, 1995, **6**, 965 (*6′-Ac*)
Peng, J.N. *et al., Yaoxue Xuebao*, 1997, **32**, 908-913 (*6′-Ac*)

Peng, J.-N. *et al., J. Nat. Prod.*, 1999, **62**, 611-612 (*6′-Acetyldeacetylasperuloside*)
Linden, A. *et al., Acta Cryst. C*, 2000, **56**, 616-618 (*cryst struct*)

Astasin A-873

3-O-(2,3-Oxalyl-α-D-xylopyranosyl)ergosterol
[162559-39-9]



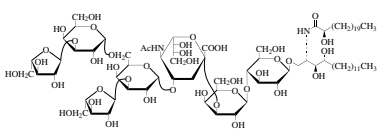
$C_{35}H_{50}O_7$ 582.776

Glycoside of Ergosta-5,7,22-trien-3-ol contg. unusual oxaloylglycoside residue. Isol. from the euglenoid *Astasia longa*. Cytotoxic agent. $[\alpha]_D^{25}$ -15 (c, 1 in $CHCl_3$). λ_{max} 271 (ϵ 10000); 282 (ϵ 10600); 293 (ϵ 6060) (EtOH).

Kaya, K. *et al., Biochim. Biophys. Acta*, 1995, **1255**, 201 (*isol, pmr, cmr, uv, ir, ms*)

Asterinaganglioside A A-874

[131489-38-8]



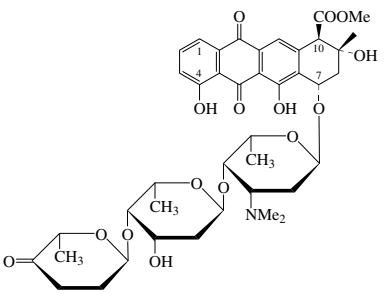
$C_{83}H_{150}N_2O_{41}$ 1832.087

Constit. of the starfish *Asteria pectinifera*. Amorph. powder. Mp 163-165°. $[\alpha]_D^{24}$ +19.9 (c, 0.1 in H_2O).

Higuchi, R. *et al., Annalen*, 1991, 1 (*isol, ir, struct*)

Auramycin A A-875

[78173-92-9]



$C_{41}H_{51}NO_{15}$ 797.852

Anthracycline antibiotic. Numbering systems vary. Isol. from *Streptomyces galilaeus* (OBB-111). Active against gram-positive bacteria, mycobacteria and tumours. Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane. Mp 141°. $[\alpha]_D^{20}$ -8 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 620); 258 (E1%/1cm 375); 288 (E1%/1cm 135); 433 (E1%/1cm 200) (MeOH) (Berdy).
λ_{max} 239 (E1%/1cm 575); 288 (E1%/1cm 165); 315 (E1%/1cm 90); 525 (E1%/1cm 180) (MeOH/NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 100 mg/kg. QI9290700

1-Hydroxy: ***1-Hydroxyauramycin A***. *10-Hydroxyauramycin A*
[79217-17-7]
$C_{41}H_{51}NO_{16}$ 813.851
Prod. by *Streptomyces melanogenes* and *Streptomyces galilaeus*. Active against gram-positive bacteria and tumours. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane. Mp 108.5°. $[\alpha]_D^{20}$ +93.1 (c, 0.1 in $CHCl_3$). λ_{max} 234 (E1%/1cm 500); 292 (E1%/1cm 103); 493 (E1%/1cm 150); 511 (E1%/1cm 130); 526 (E1%/1cm 140); 570 (E1%/1cm 80) (MeOH) (Berdy). λ_{max} 241 (E1%/1cm 535); 565 (E1%/1cm 210); 602 (E1%/1cm 170) (MeOH/NaOH) (Berdy).

Aglycone: Auramycinone
[78173-89-4]
Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane. Mp 153.5°. $[\alpha]_D^{20}$ +198 (c, 0.1 in $CHCl_3$).

Aglycone, 7-deoxy: ***7-Deoxyauramycinone***. *4-Deoxyauramycinone*
[78173-93-0]
$C_{21}H_{18}O_7$ 382.369
Prod. by *Streptomyces galilaeus* (OBB-111).
Mp 200°. $[\alpha]_D^{20}$ +81.2 (c, 0.1 in $CHCl_3$).

Aglycone, 1-hydroxy: 1-Hydroxyauramycinone. 10-Hydroxyauramycinone
[76023-81-9]
Red powder. Mp 180.5°. Shows same gross structure as ϵ_1-Pyrromycinone.

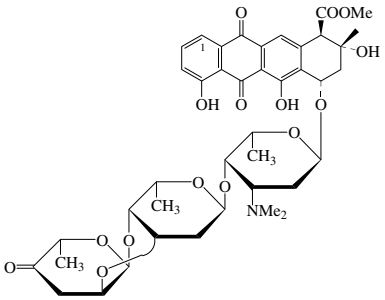
Aglycone, 10-epimer, 7-deoxy: ***Resomycin A***
$C_{21}H_{18}O_7$ 382.369
Prod. by *Streptomyces* sp. (GW71/2497). Orange solid. $[\alpha]_D^{20}$ -63 (c, 0.1 in $CHCl_3$). λ_{max} 261 (log ϵ 4.23); 292 (log ϵ 3.83); 435 (log ϵ 3.88) ($CHCl_3$).

Aglycone, 11-hydroxy: ***11-Hydroxyauramycinone***
[88458-06-4]
$C_{21}H_{18}O_9$ 414.368
Prod. by *Streptomyces* sp. (MST-77755). Red solid.
Mp 177°. $[\alpha]_D$ +60 (c, 0.1 in $CHCl_3$). λ_{max} 234 (E1%/1cm 950); 252 (E1%/1cm 605); 295 (E1%/1cm 193); 494 (E1%/1cm 300); 528 (E1%/1cm 276); 576 (E1%/1cm 136) (no solvent reported).

Fujiwara, A. *et al., J. Antibiot.*, 1981, **34**, 912-915; 1982, **35**, 164-175 (*isol, ir, pmr, cmr*)
Rao, A.V.R. *et al., Tet. Lett.*, 1982, **23**, 775-778 (*synth, deriv*)
Hoshino, T. *et al., J. Antibiot.*, 1983, **36**, 1463-1467; 1984, **37**, 1469-1472 (*derivs*)
Krohn, K. *et al., Tetrahedron*, 1984, **40**, 3677-3694 (*synth*)
Jones, D.W. *et al., J.C.S. Perkin 1*, 1995, 2747-2755 (*synth, aglycone*)
Maskey, R.P. *et al., J. Antibiot.*, 2003, **56**, 795-800 (*7-Deoxyauramycinone, Resomycin A*)
Clark, B. *et al., J. Nat. Prod.*, 2004, **67**, 1729-1731 (*11-Hydroxyauramycinone*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ARS130

Auramycin B A-876

[78173-91-8]



$C_{41}H_{49}NO_{15}$ 795.836

Anthracycline antibiotic. Numbering systems vary. Isol. from *Streptomyces galilaeus* (OB111; ATCC31533; P4780). Active against gram-positive bacteria mycobacteria and tumours. Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 161°. $[\alpha]_D^{20}$ -8 (c, 0.1 in $CHCl_3$).

▶ LD_{50} (mus, ipr) 100 mg/kg. QI9278500

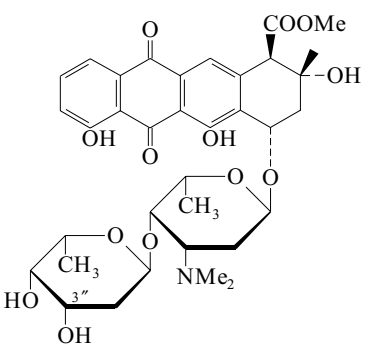
Aglycone: See Auramycin A, A-875

1-Hydroxy: ***1-Hydroxyauramycin B***. *10-Hydroxyauramycin B*
[79206-72-7]
$C_{41}H_{49}NO_{16}$ 811.835
Prod. by *Streptomyces galilaeus* (AC628) and *Streptomyces melanogenes* (AC180). Active against gram-positive bacteria and tumours. Red powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 151.5°. $[\alpha]_D^{20}$ +89.4 (c, 0.1 in $CHCl_3$). λ_{max} 234 (E1%/1cm 555); 256 (E1%/1cm 325); 292 (E1%/1cm 105); 493 (E1%/1cm 185); 526 (E1%/1cm 150); 570 (E1%/1cm 80) (MeOH) (Berdy). λ_{max} 242 (E1%/1cm 595); 565 (E1%/1cm 240); 602 (E1%/1cm 200) (MeOH/NaOH) (Berdy).

Fujiwara, A. *et al., J. Antibiot.*, 1981, **34**, 912-915; 1982, **35**, 164-175 (*isol, ir, pmr, cmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ARS135

Auramycin C A-877

[83753-71-3]



$C_{35}H_{43}NO_{13}$ 685.724

Anthracycline antibiotic. Isol. from *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and tumours. Yellow powder. Sol.

MeOH, $CHCl_3$, C_6H_6, DMSO, acids; poorly sol. H_2O, hexane.
Mp 151°. $[\alpha]_D^{20}$ +78.8 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 640); 258 (E1%/1cm 405); 288 (E1%/1cm 155); 433 (E1%/1cm 190) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 590); 288 (E1%/1cm 155); 315 (E1%/1cm 85); 525 (E1%/1cm 190) (MeOH-NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 90 mg/kg. QI9288982

3″-Deoxy: ***Auramycin H****. 3″-Deoxyauramycin C*
[83753-70-2]
$C_{35}H_{43}NO_{12}$ 669.724
Prod. by hydrol. of Auramycin G. Isol. from *Streptomyces galilaeus* ATCC31534. Yellow powder. Sol. MeOH, DMSO, $CHCl_3$, acids, C_6H_6; poorly sol. H_2O, hexane.
Mp 119.5°. λ_{max} 228; 258; 288; 433 (MeOH) (Berdy).

4′-Deglycosyl: ***Auramycin D***
[82002-76-4]
$C_{29}H_{33}NO_{10}$ 555.58
Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and tumours. Yellow powder. Sol. MeOH, DMSO, C_6H_6, acids, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 139.5°. $[\alpha]_D^{20}$ +189 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 715); 258 (E1%/1cm 450); 288 (E1%/1cm 170); 433 (E1%/1cm 225) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 675); 288 (E1%/1cm 170); 315 (E1%/1cm 65); 525 (E1%/1cm 210) (MeOH/NaOH) (Berdy).

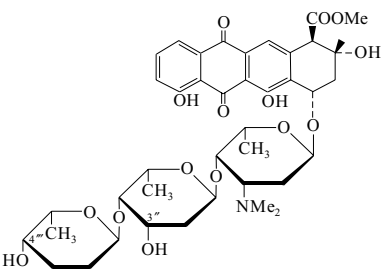
▶ LD_{50} (mus, ipr) 90 mg/kg. QI9288986

De(dimethylamino): [178213-70-2]
$C_{33}H_{38}O_{13}$ 642.655
Prod. by *Streptomyces galilaeus* and *Streptomyces nogalater*. Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.

Fr. Pat., 1982, 2 492 386; *CA*, **98**, 3537 (*isol*)
Hoshino, T. *et al., J. Antibiot.*, 1982, **35**, 1271 (*isol, uv, ir, cmr*)

Auramycin F A-878

[83829-32-7]



$C_{41}H_{53}NO_{15}$ 799.867
Anthracycline antibiotic. Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and P388 leukemia cells. Yellow powder. Sol. MeOH, C_6H_6, acids, DMSO, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 160°. $[\alpha]_D^{20}$ +26.7 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 615); 258 (E1%/1cm 390); 288 (E1%/1cm 150); 433 (E1%/1cm 175) (MeOH) (Berdy). λ_{max} 239 (E1%/1cm 640); 288 (E1%/1cm 195); 315 (E1%/1cm 115); 525 (E1%/1cm 120) (MeOH-NaOH) (Berdy).

4‴-Epimer: ***Auramycin E***
[83753-72-4]
$C_{41}H_{53}NO_{15}$ 799.867
Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and P388 leukaemia cells. Yellow powder. Sol. MeOH, acids, C_6H_6, DMSO, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 157°. $[\alpha]_D^{20}$ +32.3 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 515); 258 (E1%/1cm 330); 288 (E1%/1cm 125); 433 (E1%/1cm 155) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 500); 288 (E1%/1cm 125); 315 (E1%/1cm 95); 525 (ϵ 155) (MeOH/NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 20 - 40 mg/kg. QI9288984

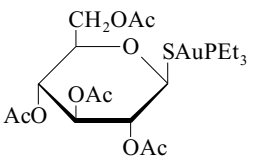
3″-Deoxy: ***Auramycin G***
[83753-73-5]
$C_{41}H_{53}NO_{14}$ 783.868
Prod. by *Streptomyces galilaeus*. Active against gram-positive bacteria and P388 leukaemia cells. Yellow powder.
Mp 148.5°. $[\alpha]_D^{20}$ +38.5 (c, 0.1 in $CHCl_3$).

▶ QI9288988

Fr. Pat., 1982, 2 492 386; *CA*, **98**, 3537 (*isol*)
Hoshino, T. *et al., J. Antibiot.*, 1982, **35**, 1271 (*isol, uv, ir, cmr*)

Auranofin, BAN, INN, JAN, USAN A-879

S-*2,3,4,5-Tetraacetyl-1-thioglucopyranosato(triethylphosphine)gold. [1-Thioglucopyranose-2,3,4,6-tetrakis(methylcarbamato)-S]triethylphosphinegold, 10CI. Aktil. Auropan. Crisinor. Crisofin. Ridaura. Ridaurin. AF. SKF D-39162*



$C_{20}H_{34}AuO_9PS$ 678.489
Antiarthritic, antirheumatic drug; also possesses antineoplastic activity. Launched 1983

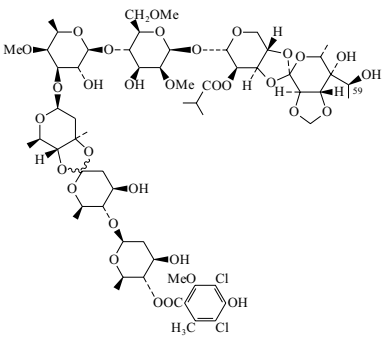
β-D-*form* [34031-32-8]
Cryst. Mp 110-111°. $[\alpha]_D^{25}$ -55.3 (c, 1 in MeOH).

▶ Adverse gastrointestinal effects. LD_{50} (rat, orl) 265 mg/kg. Exp. reprod. and teratogenic effects. MD6500000

Sutton, B.M. *et al., J. Med. Chem.*, 1972, **15**, 1095 (*synth, pharmacol, tox*)
Walz, D.T. *et al., J. Pharmacol. Exp. Ther.*, 1976, **197**, 145
Sadler, P.J. *et al., Struct. Bonding (Berlin)*, 1976, **29**, 171 (*rev*)
U.S. Pat., 1979, 4 124 759, (*SmithKline*); *CA*, **90**, 104297b (*synth*)
Brown, D.H. *et al., Chem. Soc. Rev.*, 1980, **9**, 217 (*rev*)
Hill, D.T. *et al., Cryst. Struct. Commun.*, 1980, **9**, 676 (*cryst struct*)
Brown, K. *et al., J.A.C.S.*, 1981, **103**, 4943 (*Mössbauer*)
U.K. Pat., 1981, 1 586 996, (*SmithKline*); *CA*, **95**, 169697e (*synth*)
Curr. Clin. Pract. Ser., (Eds. Capell, H.A. *et al*), Vol. 7: Auranofin, Excerpta Medica, Amsterdam, 1983, (*book*)
Razi, M.T. *et al., J.C.S. Dalton*, 1983, 1331 (*pmr, cmr, P-31 nmr*)
Chaffman, M.D. *et al., Drugs*, 1984, **27**, 378 (*rev, pharmacol*)
Snyder, R.M. *et al., Semin. Arthritis Rheum.*, 1987, **17**, 71 (*rev, pharmacol*)
Smith, W.E. *et al., Perspect. Bioinorg. Chem.*, 1991, **1**, 183 (*rev*)
James, M.J. *et al., Biochem. Pharmacol.*, 1992, **43**, 695 (*pharmacol*)
Lemmel, E.M. *et al., Br. J. Rheumatol.*, 1993, **32**, 375 (*clin trial*)
Kizu, R. *et al., Chem. Pharm. Bull.*, 1993, **41**, 1261 (*uv, hplc*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 7
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ARS150

Avilamycin C A-880

[69787-80-0]



$C_{61}H_{90}Cl_2O_{32}$ 1406.268
Major component of polyether-type antibiotic complex which consists of 16 components. Isol. from *Streptomyces viridochromogenes*. Active against gram-positive bacteria. Fine plates + $2H_2O$. Sol. MeOH, $CHCl_3$. Mp 188-189°. $[\alpha]_D$ -4.8 (c, 1.44 in $CHCl_3$). Log P -0.24 (uncertain value) (calc). λ_{max} 292 (ϵ 8270) (0.1*N* NaOH) (Derep). λ_{max} 228 (ϵ 13200); 286 (ϵ 2000); 300 (sh) (ϵ 1320) (MeOH) (Derep). λ_{max} 218 (ϵ 13200); 284 (ϵ 2140) (MeOH) (Berdy).

59-Ketone: ***Avilamycin A****. Dehydroavilamycin C*
[69787-79-7]
$C_{61}H_{88}Cl_2O_{32}$ 1404.252
From *Streptomyces viridochromogenes*. Active against gram-positive bacteria. Needles ($CHCl_3$/petrol). Sol. MeOH, $CHCl_3$; poorly sol. Et_2O, hexane.
Mp 181-182°. $[\alpha]_D$ -8 (EtOH). Log P -1.35 (uncertain value) (calc). Medical prod. known as Avilamycin, BAN, INN, USAN contains small amounts of other components. λ_{max} 292 (ϵ 8270) (0.1*N* NaOH) (Derep). λ_{max} 228 (ϵ 13200); 286 (ϵ 2000); 300 (sh) (ϵ 1320) (MeOH) (Derep). λ_{max} 216 (ϵ 14120); 281 (ϵ 851); 288 (ϵ 812) (MeOH) (Berdy). λ_{max} 227 (ϵ 14200); 286 (ϵ 2140); 300 (ϵ 1260) (EtOH) (Berdy).

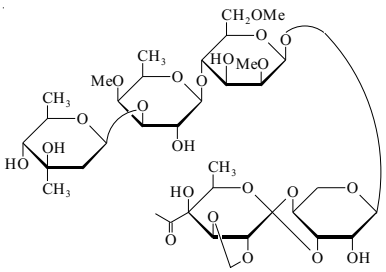
▶ LD_{50} (mus, scu) 200 mg/kg; LD_{50} (mus, scu) 200 mg/kg. OP4090000

[11051-71-1]

Heilman, W. *et al., Helv. Chim. Acta*, 1979, **62**, 1 (*isol*)
Keller-Schierlein, W. *et al., Helv. Chim. Acta*, 1979, **62**, 7 (*struct*)
Kupfer, E. *et al., Helv. Chim. Acta*, 1982, **65**, 3
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1982, 2583 (*struct*)
Mertz, J.L. *et al., J. Antibiot.*, 1986, **39**, 877 (*isol, struct, components*)
Zagar, C. *et al., Carbohydr. Res.*, 1993, **248**, 107 (*partial synth*)

Avileurekanose A A-881

[82278-46-4]

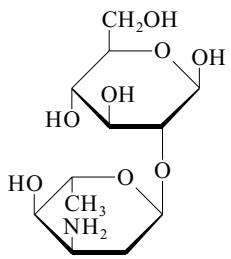


$C_{36}H_{58}O_{22}$ 842.841
Metab. product of microorganisms. Needles (Me_2CO/Et_2O). Mp 180°.

Kupfer, E. *et al., Helv. Chim. Acta*, 1982, **65**, 3

Avobiose A-882

*2-O-(3-Amino-2,3,6-trideoxy-α-L-*ribo*-hexopyranosyl)-D-glucopyranoside*



$C_{12}H_{23}NO_8$ 309.316
Component of avoparcins and helvecardins.

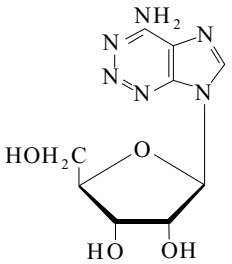
β-*form*

Ph glycoside, N-*trifluoroacetyl,* O-*tetra-Ac:*
$C_{28}H_{34}F_3NO_{13}$ 649.571
$[\alpha]_D^{20}$ -261 (c, 0.13 in $CHCl_3$).

Dong, X. *et al., Carbohydr. Res.*, 1992, **232**, 107 (*synth, struct*)

2-Azaadenosine, 9CI, 8CI A-883

*7-β-D-Ribofuranosyl-7*H-*imidazo[4,5-*d*]-1,2,3-triazin-4-amine, 9CI*
[146-94-1]

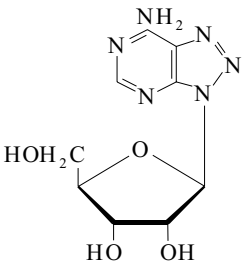


$C_9H_{12}N_6O_4$ 268.232
Cytotoxic to human epidermoid carcinoma cells. Mp 260°.

Montgomery, J.A. *et al., J. Med. Chem.*, 1975, **18**, 564
Montgomery, J.A. *et al., Nucleic Acid Chem.*, 1978, **2**, 681 (*synth*)
Singh, P. *et al., Acta Cryst. B*, 1979, **35**, 973 (*cryst struct*)
Bennett, L.L. *et al., Biochem. Pharmacol.*, 1985, **34**, 1293 (*pharmacol, metab*)

8-Azaadenosine A-884

*3-β-D-Ribofuranosyl-3*H-*1,2,3-triazolo[4,5-*d*]pyrimidin-7-amine, 9CI*
[10299-44-2]



$C_9H_{12}N_6O_4$ 268.232
Shows significant carcinostatic props. Mp 218-219°. $[\alpha]_D^{22}$ -79 (c, 0.46 in H_2O). λ_{max} 279 (ε 12 000), 260 (12 400) (0.1*N* HCl); 278 nm (12 400) (0.1*N* NaOH).

▶ XZ5718000

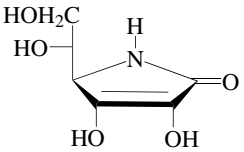
Picrate: Mp 184° dec.

N,N-*Di-Me:* [38874-44-1]
$C_{11}H_{16}N_6O_4$ 296.285
Shows antineoplastic activity. Mp 216°.

Davoll, J. *et al., J.C.S.*, 1958, 1593-1599 (*synth*)
Andrews, K.J.M. *et al., J.C.S.*, 1958, 2768-2771 (*N-di-Me*)
Ger. Pat., 1972, 2 209 078; *CA*, **78**, 27908z (*synth*)
Hutzenlaub, W. *et al., J. Med. Chem.*, 1972, **15**, 879-893 (*N-di-Me*)
Singh, P. *et al., J.A.C.S.*, 1974, **96**, 5276-5278 (*cryst struct*)
Dea, P. *et al., J.O.C.*, 1974, **39**, 3226-3231 (*cmr*)
Lee, C. *et al., J. Biol. Chem.*, 1975, **250**, 1290-1296 (*conformn, pmr*)
Singh, P. *et al., Acta Cryst. C*, 1989, **45**, 1586-1589 (*cryst struct*)
Seela, F. *et al., Helv. Chim. Acta*, 1998, **81**, 1139-1155 (*synth, uv, pmr, cmr*)

Azaascorbic acid A-885

*1,5-Dihydro-3,4-dihydroxy-5-(1,2-dihydroxyethyl)-2*H-*pyrrol-2-one*

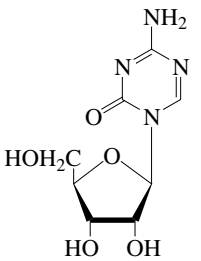


$C_6H_9NO_5$ 175.141
Powder (MeOH). Mp 184° (dec.).

Stachel, H.-D. *et al., Annalen*, 1996, 103 (*synth, ir, pmr, cmr, ms*)

5-Azacytidine A-886

*4-Amino-1-β-D-ribofuranosyl-1,3,5-triazin-2(1*H*)-one, 9CI. 1-β-D-Ribofuranosyl-5-azacytosine. Azacitidine, INN, USAN.* ***Ladakamycin****. Mylosar. Vidaza. NSC 102816. Antibiotic U 18496. U 18496*
[320-67-2]



$C_8H_{12}N_4O_5$ 244.207
Nucleoside antibiotic. Isol. from *Streptoverticillium ladakanus, Actinoplanes awajinensis* and *Actinoplanes missouriensis*. Inhibits pyrimidine biosynthesis; antineoplastic agent. Used to treat acute non-lymphoblastic leukaemia. Approved by FDA (2004) for treatment of myelodysplastic syndrome. Sol. H_2O; poorly sol. MeOH, hexane, DMSO. Mp 232-234° dec. $[\alpha]_D^{25}$ +39 (c, 1 in H_2O). Log P -4 (calc).

▶ Human systemic effects when used therapeutically. Exp. neoplastic agent. Exp. reprod. and teratogenic effects. LD_{50} (mus, orl) 572 mg/kg, LD_{50} (mus, ipr) 115 mg/kg. Probable human carcinogen (IARC 2A). XZ3017500

*4-*N-*Me:*
$C_9H_{14}N_4O_5$ 258.233
Mp 148-150°.

*4-*N-*Di-Me:*
$C_{10}H_{16}N_4O_5$ 272.26
Mp 128-130°.

2′,3′,5′-Tribenzoyl: [28998-36-9]
$C_{29}H_{24}N_4O_8$ 556.531
Mp 186-187°. $[\alpha]_D^{20}$ -33.1 (c, 1 in $CHCl_3$).

[52934-49-3]

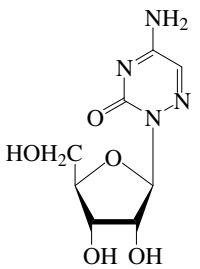
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 831D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 418B (*nmr*)
Piskala, A. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 2060 (*synth*)
Bergy, M.E. *et al., Antimicrob. Agents Chemother.*, 1966, 619; 625 (*isol, struct*)

Ger. Pat., 1969, 1 922 702; *CA*, **72**, 79427n
Jones, A.J. *et al., J. Phys. Chem.*, 1970, **74**, 2684; *CA*, **73**, 50542f (*cmr*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497 (*pmr*)
Niedballa, U. *et al., J.O.C.*, 1974, **39**, 3672 (*synth*)
Japan. Pat., 1978, 78 104 795; *CA*, **90**, 101950 (*isol*)
Piskala, A. *et al., Nucleic Acid Chem.*, 1978, **1**, 435 (*synth*)
Torikata, A. *et al., CA*, 1979, **90**, 150248 (*isol*)
Roberts, J.D. *et al., J.O.C.*, 1981, **46**, 1014 (*N-15 nmr, bibl*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 457
Gryn, J. *et al., Leuk. Res.*, 2002, **26**, 893-897 (*pharmacol, tox*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ARY000

6-Azacytidine A-887

5-Amino-2-β-D-ribofuranosyl-1,2,4-triazin-3(2H)-one, 9CI
[3131-60-0]

[4724-20-3]



$C_8H_{12}N_4O_5$ 244.207
Cryst. (H_2O). Mp 220-222°.

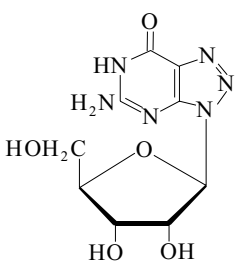
2′,3′,5′-Tri-Ac: [20757-62-4]
$C_{14}H_{18}N_4O_8$ 370.318
Mp 162-164°.

2′,3′,5′-Tribenzoyl: [4336-35-0]
$C_{29}H_{24}N_4O_8$ 556.531
Cryst. (EtOH). Mp 218-220°.

Sorm, F. *et al., Experientia*, 1961, **17**, 64-65 (*synth*)
Zemlicka, J. *et al., Tet. Lett.*, 1962, 397-399 (*synth*)
Chernetski, V.P. *et al., Khim. Geterotsikl. Soedin.*, 1967, 1109-1113; *CA*, **69**, 77670a (*synth*)
Singh, P. *et al., Biochemistry*, 1974, **13**, 5445-5452 (*cryst struct*)

8-Azaguanosine A-888

5-Amino-3,4-dihydro-3-β-D-ribofuranosyl-7H-1,2,3-triazolo[4,5-d]pyrimidin-7-one, 9CI
[2133-80-4]



$C_9H_{12}N_6O_5$ 284.231
Purine antagonist. Mp 250-252° dec. λ_{max} 269 (ε 10 300), 255 (13 600) (0.01N HCl); 279 (11 600), 221 nm (23 000)(0.03N NaOH).

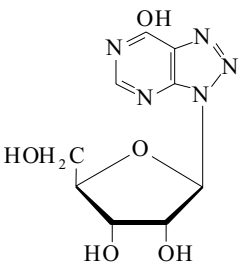
▶XZ6157200

5′-Phosphate:
$C_9H_{13}N_6O_8P$ 364.211
Appears to be the key intermed. in the conversion of the anticancer drug, 8-Azaguanine, into its active form. λ_{max} 256 nm (ε 12 900) (pH 2).

Friedkin, M. *et al., J. Biol. Chem.*, 1954, **209**, 295 (*synth*)
Davoll, J. *et al., J.C.S.*, 1958, 1593 (*synth*)
Elliott, R.D. *et al., J. Med. Chem.*, 1976, **19**, 1186
Luedemann, H.D. *et al., Z. Naturforsch., C*, 1976, **31**, 135; *CA*, **84**, 146335u (*conformn, pmr*)

8-Azainosine, 9CI, 8CI A-889

3,4-Dihydro-3-β-D-ribofuranosyl-7H-1,2,3-triazolo[4,5-d]pyrimidin-7-one, 9CI
[4968-68-7]

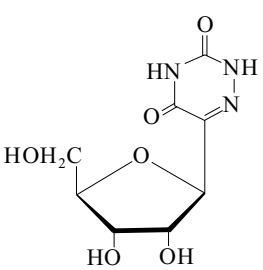


$C_9H_{11}N_5O_5$ 269.216
Prod. by *Brevibacterium ammoniagenes*. Purine antagonist. Cryst. (MeOH aq.). Mp 220°. $[\alpha]_D^{25}$ -80.9 (c, 1 in DMF). λ_{max} 255 (ε 9 400) (0.1N HCl); 277 nm (10 500) (0.1N NaOH).

Davoll, J. *et al., J.C.S.*, 1958, 1593 (*synth*)
Montgomery, J.A. *et al., J.O.C.*, 1971, **36**, 1962 (*synth*)
Ger. Pat., 1972, 2 209 078; *CA*, **78**, 27908z (*synth*)
Luedemann, H.D. *et al., Z. Naturforsch., C*, 1976, **31**, 135; *CA*, **84**, 146335u (*conformn, pmr*)
Chretien, F. *et al., Tetrahedron*, 1982, **38**, 103 (*synth*)

6-Azapseudouridine A-890

*6-β-D-Ribofuranosyl-*as*-triazine-3,5(2H,4H)-dione, 8CI. 5-(D-Ribofuranosyl)-6-azauracil*
[13455-42-0]

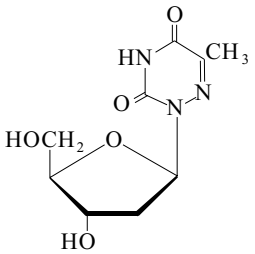


$C_8H_{11}N_3O_6$ 245.191
Mp 139-141°. $[\alpha]_D^{25}$ -24.9 (c, 0.5 in H_2O). λ_{max} 263 nm (ε 6 918) (H_2O).

Bobek, M. *et al., Tet. Lett.*, 1968, 1543 (*synth, pmr*)
Bobek, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 1690 (*synth*)

6-Azathymidine, 9CI, 8CI A-891

*2-(2-Deoxy-β-D-*erythro*-pentofuranosyl)-1,2,4-triazine-3,5(2H,4H)-dione, 9CI*
[13410-30-5]



$C_9H_{13}N_3O_5$ 243.219
Growth inhibitor and thymine antagonist.

▶XY7880000

3′,5′-Ditoluoyl: [23701-73-7]
Cryst. (EtOH). Mp 173-175°.

3′-Phosphate:
$C_9H_{14}N_3O_8P$ 323.199
Mp 226-227°.

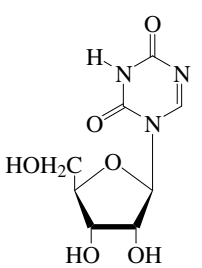
5′-Phosphate:
$C_9H_{14}N_3O_8P$ 323.199
Mp 142-143°.

3′,5′-Diphosphate:
$C_9H_{15}N_3O_{11}P_2$ 403.178
Mp 201-203°.

Prusoff, W.H. *et al., J. Biol. Chem.*, 1957, **226**, 901 (*biosynth*)
Hall, R.H. *et al., J.A.C.S.*, 1958, **80**, 1138 (*synth*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 1104 (*ditoluoyl*)
Banerjee, A. *et al., Acta Cryst. B*, 1978, **34**, 1294 (*cryst struct*)

6-Azauridine A-892

*2-β-D-Ribofuranosyl-1,2,4-triazine-3,5(2H,4H)-dione, 9CI. 2-β-D-Ribofuranosyl-*as*-triazine-3,5(2H,4H)-dione, 8CI. 1-(β-D-Ribofuranosyl)-6-azauracil. Riboazauracil. NSC 32074*
[54-25-1]



$C_8H_{11}N_3O_6$ 245.191
Pyrimidine antagonist and bacteriostat. Antiviral agent active against human smallpox and viral eye infections. Antineoplastic. Needles ($EtOH/Et_2O$).

Mp 160-161°. $[\alpha]_D$ -132 (Py). pK_{a1} 6.7 (25°). λ_{max} 225 nm (ϵ 5 754) (50% EtOH aq.).

▶ Human teratogen. Exp. reprod. and teratogenic effects. LD_{50} (rat, ipr) 9400 mg/kg. XY8575000

*2′,3′,5′-Tri-Ac: 2′,3′,5′-Tri-*O*-acetyl-6-azauridine. **Azaribine, BAN, INN, USAN**. Triazure. NSC 67239. CB 304*
[2169-64-4]
$C_{14}H_{17}N_3O_9$ 371.303
Currently withdrawn; causes thromboembolism in some patients. Antiviral agent, also used in treatment of psoriasis. Antineoplastic agent. Mp 102-103°.

▶ Human systemic effects when used therapeutically. LD_{50} (rat, orl) 12000 mg/kg. XY8577000

5′-Benzoyl: [23477-49-8]
$C_{15}H_{15}N_3O_7$ 349.299
Cryst. (EtOAc). Mp 156-157°. $[\alpha]_D^{24}$ -90.5 (c, 0.5 in EtOAc).

2′,3′,5′-Tribenzoyl:
$C_{29}H_{23}N_3O_9$ 557.515
Mp 191°. $[\alpha]_D^{24}$ -51 (Py).

2′,3′-Dimesyl: [23470-78-2]
$C_{10}H_{15}N_3O_{10}S_2$ 401.375
Cryst. (EtOAc). Mp 167-169°. $[\alpha]_D^{25}$ -51 (c, 0.43 in 50% EtOH aq.).

2′,3′-Dimesyl, 5′-benzoyl: [23393-65-9]
$C_{17}H_{19}N_3O_{11}S_2$ 505.483
Cryst. (2-propanol). Mp 162-164°. $[\alpha]_D^{25}$ -52.8 (c, 0.5 in EtOAc).

5′-Trityl, 2′,3′-dimesyl:
$C_{29}H_{29}N_3O_{10}S_2$ 643.694
Cryst. (2-propanol). Mp 105-108°. $[\alpha]_D^{25}$ -44.2 (c, 0.4 in $CHCl_3$).

*2′,3′-*O*-Isopropylidene:*
$C_{11}H_{15}N_3O_6$ 285.256
Cryst. (Me_2CO/cyclohexane). Mp 142-143°.

2′,3′,5′-Trimesyl: [23407-74-1]
$C_{11}H_{17}N_3O_{12}S_3$ 479.466
Cryst. (EtOH aq.). Mp 104-106°. $[\alpha]_D^{25}$ -17.1 (c, 0.21 in Me_2CO).

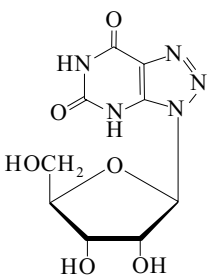
*5′-Phosphate: 2-[5-*O*-(Phosphonooxy)-β-*D*-ribofuranosyl]-1,2,4-triazine-3,5(2*H*,4*H*)-dione, 9CI. 6-Azauridylic acid. AzaUMP*
[2018-19-1]
$C_8H_{12}N_3O_9P$ 325.171
Formed by the action of *Sphaerotheca fuliginea* on Azauracil. Biologically active intermediate, essential for antitumour activity of Azauridine. Cryst. $+\frac{1}{2}H_2O$ (EtOH/Et_2O). Mp 139-141° (147° dec.). λ_{max} 261 nm (ϵ 6100) (pH 2).

5′-Phosphate; dicyclohexylammonium salt:
Mp 189-190°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1323A; **3**, 412C (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 814B; **2**, 846B (*ir*)
Smrt, J. *et al., Coll. Czech. Chem. Comm.*, 1960, **25**, 130 (*isopropylidene, 5′-phosphate, 5′-phosphate dicyclohexylammonium salt, synth*)
Prystas, M. *et al., Chem. Ind. (London)*, 1961, 947 (*synth, tribenzoyl*)
Mizuno, Y. *et al., Chem. Pharm. Bull.*, 1963, **11**, 293 (*synth, tribenzoyl*)
Chládek, S. *et al., Coll. Czech. Chem. Comm.*, 1963, **28**, 1301 (*isopropylidene*)
Beránek, J. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 618 (*5′-benzoyl, 5′-benzoyl dimesyl, dimesyl, dimesyl trityl, trimesyl, synth*)
Smahel, O. *et al., Neoplasma*, 1971, **18**, 435 (*pharmacol*)
Nishimura, T. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 436 (*rev, synth*)
Van't Land, B.G. *et al., Neth. J. Plant Pathol.*, 1972, **78**, 242; *CA*, **79**, 112267e (*synth*)
Wood, D.J. *et al., Can. J. Chem.*, 1973, **51**, 2571 (*conformn, pmr*)
Schwalbe, C.H. *et al., J. Mol. Biol.*, 1973, **75**, 129 (*cryst struct*)
Schweizer, M.P. *et al., J.A.C.S.*, 1973, **95**, 3770 (*pmr, cmr*)
Saenger, W. *et al., Nature (London)*, 1973, **242**, 610 (*cryst struct*)
Beranek, J. *et al., Nucleic Acids Res.*, 1976, **3**, 1387 (*synth*)
Mewade, G.S. *et al., Sci. Cult.*, 1978, **44**, 291 (*rev, Azaribine*)
Saenger, W. *et al., Biopolymers*, 1979, **18**, 2015 (*cryst struct*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 1810; 1813
Masojidkova, M. *et al., Coll. Czech. Chem. Comm.*, 1985, **50**, 1899 (*pmr, conformn*)
Drell, W. *et al., Chem. Eng. News*, April 28, 1986, 2 (*bibl, use*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RJA000; THM750

8-Azaxanthosine A-893

*3-β-*D*-Ribofuranosyl-3*H*-1,2,3-triazolo[4,5-*d*]pyrimidine-5,7(4*H*,6*H*)-dione, 9CI. 5,7-Dihydroxy-3-β-*D*-ribofuranosyl-*v*-triazolo[*d*]pyrimidine*
[4730-45-4]

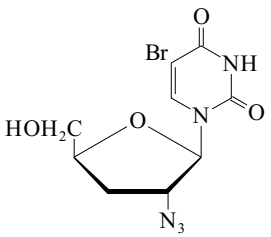


$C_9H_{11}N_5O_6$ 285.216
Purine antagonist in biological systems. Mp 198-199° dec. $[\alpha]_D^{24}$ -103 (c, 1.02 in 0.1N NaOH). λ_{max} 256 (ϵ 9 500), 240 (5 900) (0.1N HCl); 277 (8 800), 252 (9 700) (pH 6.8); 280 (9 500), 251 nm (7 100) (0.1N NaOH).

Davoll, J. *et al., J.C.S.*, 1958, 1593 (*synth*)
Spector, T. *et al., J. Biol. Chem.*, 1975, **250**, 7372

2′-Azido-5-bromo-2′,3′-dideoxyuridine A-894

[126543-49-5]

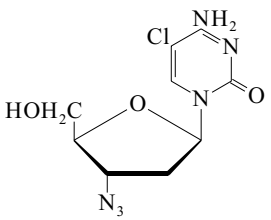


$C_9H_{10}BrN_5O_4$ 332.113
Solid. Mp 148-150°.

Warshaw, J.A. *et al., J. Med. Chem.*, 1990, **33**, 1663 (*synth, pmr, ir, uv*)

3′-Azido-5-chloro-2′,3′-dideoxycytidine, 9CI A-895

[127492-31-3]

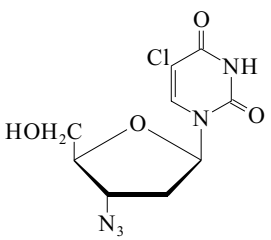


$C_9H_{11}ClN_6O_3$ 286.677
Cryst. (MeOH/Et_2O). Mp 173-175° dec.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, ms, pmr, cmr*)

3′-Azido-5-chloro-2′,3′-dideoxyuridine, 9CI A-896

[108441-51-6]

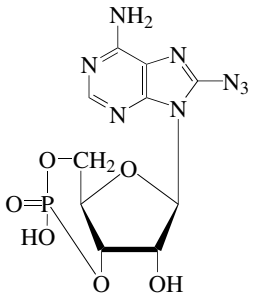


$C_9H_{10}ClN_5O_4$ 287.662
Cryst. (EtOAc). Mp 170°.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, ir, ms, pmr, cmr*)

8-Azidocyclic AMP A-897

8-Azidoadenosine cyclic 3′,5′-(hydrogen phosphate), 9CI
[31966-52-6]

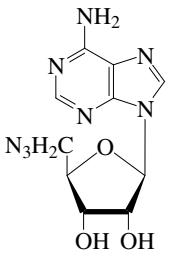


$C_{10}H_{11}N_8O_6P$ 370.221
Photoaffinity reagent used to study cyclic AMP binding sites. Cryst. λ_{max} 280 (ϵ 17700) (pH 1). λ_{max} 281 (ϵ 13300) (pH 11).

Muneyama, K. *et al., Biochemistry*, 1971, **10**, 2390-2395 (*synth*)
Haley, B.E. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1974, **71**, 3367-3371 (*synth, use*)
Haley, B.E. *et al., Methods Enzymol.*, 1977, **46**, 339-346 (*use*)

5′-Azido-5′-deoxyadenosine A-898

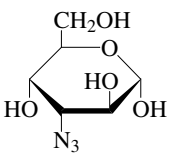
[737-76-8]



$C_{10}H_{12}N_8O_3$ 292.257
Cryst. (H_2O). No sharp Mp, sinters at 100°.

Jahn, W. *et al., Chem. Ber.*, 1965, **98**, 1705-1708 (*synth*)
Ciuffreda, P. *et al., Eur. J. Org. Chem.*, 2003, 4748-4751 (*synth, pmr*)

3-Azido-3-deoxyaltrose A-899



$C_6H_{11}N_3O_5$ 205.17

D-*form*

*2,4,6-Tri-Me: 3-Azido-3-deoxy-2,4,6-tri-*O*-methyl-D-altrose*
[312714-53-7]
$C_9H_{17}N_3O_5$ 247.25
Oil. $[\alpha]_D$ +60 (c, 1.65 in CH_2Cl_2). Isol. as a mixt. of pyranose anomers, α:β 44:56.

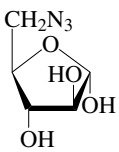
α-D-Pyranose-*form*

Me glycoside: Methyl 3-azido-3-deoxy-α-D-altropyranoside
[20379-58-2]
$C_7H_{13}N_3O_5$ 219.197
Oil. $[\alpha]_D$ +97 (c, 1.98 in MeOH).

*Me glycoside, 2,4,6-tri-Me: Methyl 3-azido-3-deoxy-2,4,6-tri-*O*-methyl-α-D-altropyranoside*
[312714-52-6]
$C_{10}H_{19}N_3O_5$ 261.277
Oil. $[\alpha]_D$ +114 (c, 1.23 in CH_2Cl_2).

de García-Martín, M. *et al., J. Carbohydr. Chem.*, 2000, **19**, 805-815 (*D-form tri-Me, α-D-Me pyr, α-D-Me pyr tri-Me, synth, pmr, cmr*)

5-Azido-5-deoxyarabinose A-900



$C_5H_9N_3O_4$ 175.144

D-*form* [161418-69-5]
Syrup. $[\alpha]_D^{20}$ +159.2 (c, 1.0 in H_2O). Mixt. of anomers.

α-D-Furanose-*form*

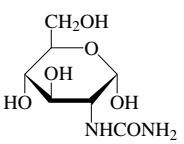
Benzyl glycoside: Benzyl 5-azido-5-deoxy-α-D-arabinofuranoside
[154919-49-0]
$C_{12}H_{15}N_3O_4$ 265.268
$[\alpha]_D^{20}$ +132 (c, 0.2 in dioxan).

β-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 5-Azido-5-deoxy-1,2-*O*-isopropylidene-β-D-arabinofuranose*
[7687-65-2]
$C_8H_{13}N_3O_4$ 215.208
Syrup. $[\alpha]_D^{20}$ +56.6 (c, 1.0 in $CHCl_3$).

Wessel, H.P. *et al., J. Carbohydr. Chem.*, 1993, **12**, 1173-1186 (*benzyl α-D-gly*)
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1996, **61**, 1027-1036 (*D-form, β-D-fur isopropylidene*)

6-Azido-6-deoxyfructose A-901



α-D-Pyranose-*form*

$C_6H_{11}N_3O_5$ 205.17
β-D-Furanose-form predominates (83%) in D_2O (17% α-D-furanose-form).

D-*form* [115827-10-6]
$[\alpha]_D^{20}$ +52.5 (c, 2.1 in H_2O). $[\alpha]_D^{26}$ +22.2 (c, 2.9 in H_2O).

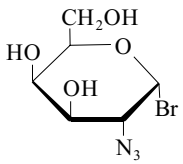
β-D-Furanose-*form*

*3,4-Dibenzyl: 6-Azido-3,4-di-*O*-benzyl-6-deoxy-β-D-fructofuranose*
[155696-78-9]
$C_{20}H_{23}N_3O_5$ 385.419
Needles (EtOAc/hexane). Mp 76-77°. $[\alpha]_D$ +44.3 (c, 1.4 in MeOH).

[114395-12-9, 127733-60-2]

Durrwachter, J.R. *et al., J.O.C.*, 1988, **53**, 4175 (*D-form, synth*)
Straub, A. *et al., J.O.C.*, 1990, **55**, 3926 (*D-form, synth*)
Zou, W. *et al., Carbohydr. Res.*, 1994, **254**, 25 (*β-D-fur dibenzyl, pmr, cmr*)
Page, P. *et al., Tetrahedron*, 1996, **52**, 1557 (*D-form, synth*)

2-Azido-2-deoxygalactopyranosyl bromide A-902



$C_6H_{10}BrN_3O_4$ 268.067

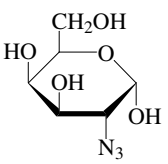
α-D-*form*

*Tri-Ac: 3,4,6-Tri-*O*-acetyl-2-azido-2-deoxy-α-D-galactopyranosyl bromide*
[67673-39-6]
$C_{12}H_{16}BrN_3O_7$ 394.178
Cryst. (Et_2O/pentane). Mp 101-102° (97-98°). $[\alpha]_D^{20}$ +188.6 (c, 2.0 in $CHCl_3$). $[\alpha]_D^{20}$ +172.6 (c, 1.0 in MeCN).

*3,4-Dibenzyl, 6-Ac: 6-*O*-Acetyl-2-azido-3,4-di-*O*-benzyl-2-deoxy-α-D-galactopyranosyl bromide*
[59464-24-3]
$C_{22}H_{24}BrN_3O_5$ 490.353
Syrup. $[\alpha]_D^{20}$ +141.

Paulsen, H. *et al., Angew. Chem., Int. Ed.*, 1976, **15**, 440 (*α-D-dibenzyl Ac*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1979, **57**, 1244 (*α-D-tri-Ac, pmr*)
Broddefalk, J. *et al., J. Carbohydr. Chem.*, 1994, **13**, 129-132 (*α-D-tri-Ac, !synth*)

2-Azido-2-deoxygalactose A-903



α-D-Pyranose-*form*

$C_6H_{11}N_3O_5$ 205.17

α-D-Pyranose-*form* [71142-03-5]

*1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-azido-2-deoxy-α-D-galactopyranose*
[67817-30-5]
$C_{14}H_{19}N_3O_9$ 373.319
Cryst. (Et_2O). Mp 114-115°. $[\alpha]_D^{25}$ +91.7 (c, 1.05 in $CHCl_3$).

Me glycoside: Methyl 2-azido-2-deoxy-α-D-galactopyranoside
[109914-53-6]
$C_7H_{13}N_3O_5$ 219.197
Cryst. (EtOAc/hexane). Mp 132-133°. $[\alpha]_D$ +189 (c, 1 in MeOH).

β-D-Pyranose-*form*
Cryst. (EtOH). Mp 161.5-163° dec. $[\alpha]_D^{25}$ +76.9 (c, 0.98 in H_2O) (equilib.).

Me glycoside: Methyl 2-azido-2-deoxy-β-D-galactopyranoside
[87376-50-9]
$C_7H_{13}N_3O_5$ 219.197
Cryst. (EtOAc/hexane). Mp 114-115°. $[\alpha]_D$ +11 (c, 1 in MeOH). Prev. descr. as a syrup having $[\alpha]_D^{24}$ -72 (prob. erroneous).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-azido-2-deoxy-β-D-galactopyranoside*
$C_{13}H_{19}N_3O_8$ 345.308
Syrup. $[\alpha]_D^{24}$ -18 (c, 6.3 in MeOH).

*Me glycoside, 4,6-isopropylidene: Methyl 2-azido-2-deoxy-4,6-*O*-isopropylidene-β-D-galactopyranoside*
$C_{10}H_{17}N_3O_5$ 259.261
Syrup. $[\alpha]_D^{24}$ -8 (c, 1.0 in MeOH).

*Me glycoside, 4,6-isopropylidene, Ac: Methyl 3-*O*-acetyl-2-azido-2-deoxy-4,6-*O*-isopropylidene-β-D-galactopyranoside*
$C_{12}H_{19}N_3O_6$ 301.299
Syrup. $[\alpha]_D^{24}$ -12 (c, 0.3 in MeOH).

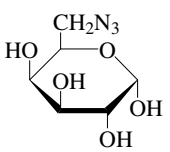
*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-azido-4,6-*O*-benzylidene-2-deoxy-β-D-galactopyranoside*
[52885-40-2]
$C_{14}H_{17}N_3O_5$ 307.305
Mp 170-171°. $[\alpha]_D^{20}$ -10 (c, 0.1 in $CHCl_3$). Prev. descr. as a syrup.

*Me glycoside, 6-benzyl: Methyl 2-azido-6-*O*-benzyl-2-deoxy-β-D-galactopyranoside*
[109914-57-0]
$C_{14}H_{19}N_3O_5$ 309.321
Mp 70-71°. $[\alpha]_D^{20}$ +7 (c, 1.0 in $CHCl_3$).

*Me glycoside, 6-benzyl, 3,4-isopropylidene: Methyl 2-azido-6-*O*-benzyl-2-deoxy-3,4-*O*-isopropylidene-β-D-galactopyranoside*
[128716-59-6]
$C_{17}H_{23}N_3O_5$ 349.386
$[\alpha]_D^{20}$ +14 (c, 1.4 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1979, **57**, 1244 (*synth, ir, pmr, cmr*)
Paulsen, H. *et al., Carbohydr. Res.*, 1984, **135**, 53 (*β-D-Me pyr derivs*)
Darbon, N. *et al., Acta Cryst. C*, 1985, **41**, 1100 (*cryst struct, β-D-Me pyr*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1987, **159**, 229 (*α-D-Me pyr, β-D-Me pyr*)
Marra, A. *et al., Carbohydr. Res.*, 1989, **195**, 39 (*derivs*)

6-Azido-6-deoxygalactose A-904



α-D-Pyranose-*form*

$C_6H_{11}N_3O_5$ 205.17

D-*form* [66927-03-5]
*2,3,4-Tri-Me: 6-Azido-6-deoxy-2,3,4-tri-*O*-methyl-D-galactopyranose*
$C_9H_{17}N_3O_5$ 247.25
Cryst. Mp 45-47°. Mixt. of anomers.

α-D-Pyranose-*form* [73174-38-6]
Cryst. (EtOH). Mp 133-134°. $[\alpha]_D$ +110 → +55 (c, 1 in H_2O).

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-azido-6-deoxy-α-D-galactopyranose*
[73108-24-4]
$C_{14}H_{19}N_3O_5$ 309.321
Plates (EtOH). Mp 92-93°. $[\alpha]_D$ +110 (c, 1 in $CHCl_3$).

*1,2:3,4-Diisopropylidene: 6-Azido-6-deoxy-1,2:3,4-di-*O*-isopropylidene-α-D-galactopyranose*
[4711-00-6]
$C_{12}H_{19}N_3O_5$ 285.299
Syrup. $Bp_{0.06}$ 99°. $[\alpha]_D$ -107 (c, 1.2 in $CHCl_3$) (-96.9).

Me glycoside: Methyl 6-azido-6-deoxy-α-D-galactopyranoside
[18908-43-5]
$C_7H_{13}N_3O_5$ 219.197
Solid (Me_2CO/Et_2O). Mp 172-173° dec. $[\alpha]_D$ +154 (c, 0.8 in H_2O).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-azido-6-deoxy-α-D-galactopyranoside*
$C_{13}H_{19}N_3O_8$ 345.308
Cryst. Mp 79-80°. $[\alpha]_D$ +126 (c, 1.0 in $CHCl_3$).

*Me glycoside, tri-Me: Methyl 6-azido-6-deoxy 2,3,4-tri-*O*-methyl-α-D-galactopyranoside*
$C_{10}H_{19}N_3O_5$ 261.277
Mp 30-31°. $[\alpha]_D$ +92 (c, 1.1 in $CHCl_3$).

β-D-Pyranose-*form* [18908-44-6]
Cryst. (EtOH). Mp 145-147° (141°). $[\alpha]_D^{25}$ +53 (c, 1 in H_2O). The reported opt. rotn. corresponds to a fully mutarotated equilib. mixt. of anomers and not to the β-anomer.

Me glycoside: Methyl 6-azido-6-deoxy-β-D-galactopyranoside
$C_7H_{13}N_3O_5$ 219.197
Mp 173°. $[\alpha]_D$ +154 (c, 0.8 in H_2O). Although claimed as the β-anomer, the phys. props. coincide with those reported for the α-anomer above.

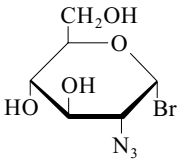
α-L-Pyranose-*form*
*1,2:3,4-Diisopropylidene: 6-Azido-6-deoxy-1,2:3,4-di-*O*-isopropylidene-α-L-galactopyranose*
[70932-44-4]
$C_{12}H_{19}N_3O_5$ 285.299
Syrup. $[\alpha]_D^{25}$ +103.4 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*
Me glycoside: Methyl 6-azido-6-deoxy-β-D-galactofuranoside
$C_7H_{13}N_3O_5$ 219.197
$[\alpha]_D$ -112 (c, 1.3 in $CHCl_3$). Anal. sample contd. $0.3H_2O$.

*Me glycoside, tri-Me: Methyl 6-azido-6-deoxy-2,3,5-tri-*O*-methyl-β-D-galactofuranoside*
$C_{10}H_{19}N_3O_5$ 261.277
Oil. $[\alpha]_D$ -101 (c, 0.8 in $CHCl_3$).

Szarek, W.A. *et al., Can. J. Chem.*, 1965, **43**, 2345-2356 (*α-D-pyr diisopropylidene*)
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 675-681 (*β-D-pyr, α-D-Me-gly*)
Kovács, J. *et al., Acta Chim. Acad. Sci. Hung.*, 1979, **101**, 7-16 (*α-D-pyr, α-D-pyr tetra-Ac*)
Ježo, I. *et al., Chem. Zvesti*, 1979, **33**, 533-541; *CA*, **92**, 147091 (*β-D-pyr*)
May, J.A. *et al., J. Med. Chem.*, 1979, **22**, 971-976 (*α-L-pyr diisopropylidene*)
Bundle, D.R. *et al., J.C.S. Perkin 1*, 1979, 2751-2755 (*α-D-pyr diisopropylidene*)
Srivastava, G. *et al., J. Biol. Chem.*, 1992, **267**, 22356-22361 (*α-L-pyr diisopropylidene*)
Zaliz, C.L.R. *et al., J. Carbohydr. Chem.*, 2001, **20**, 689-701 (*α-D-pyr diisopropylidene, α-D-Me gly*)

2-Azido-2-deoxyglucopyranosyl bromide A-905



$C_6H_{10}BrN_3O_4$ 268.067

α-D-*form*
*3,4,6-Tri-Ac: 3,4,6-Tri-*O*-acetyl-2-azido-2-deoxy-α-D-glucopyranosyl bromide*
$C_{12}H_{16}BrN_3O_7$ 394.178
$[\alpha]_D^{20}$ +155 (c, 0.7 in MeCN).

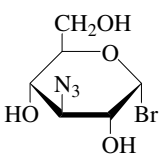
*4-Benzyl, 3,6-di-Ac: 3,6-Di-*O*-acetyl-2-azido-4-O-benzyl-2-deoxy-α-D-glucopyranosyl bromide*
$C_{17}H_{20}BrN_3O_6$ 442.265
$[\alpha]_D^{20}$ +122 (c, 0.8 in MeCN).

*3-Benzyl, 4,6-di-Ac: 4,6-Di-*O*-acetyl-2-azido-3-O-benzyl-2-deoxy-α-D-glucopyranosyl bromide*
$C_{17}H_{20}BrN_3O_6$ 442.265
$[\alpha]_D^{20}$ +67.5 (c, 0.95 in MeCN).

*3,4-Dibenzyl, 6-Ac: 6-O-Acetyl-2-azido-3,4-di-*O*-benzyl-2-deoxy-α-D-glucopyranosyl bromide*
[55682-50-3]
$C_{22}H_{24}BrN_3O_5$ 490.353
Mp 84°. $[\alpha]_D^{20}$ +101 (MeCN).

Paulsen, H. *et al., Angew. Chem., Int. Ed.*, 1975, **14**, 558 (*α-D-Ac dibenzyl*)
Paulsen, H. *et al., Carbohydr. Res.*, 1978, **64**, 339 (*α-D-tri-Ac, α-D-di-Ac 4-benzyl, α-D-di-Ac 3-benzyl*)

3-Azido-3-deoxyglucopyranosyl bromide A-906

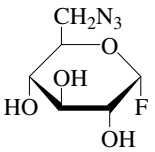


$C_6H_{10}BrN_3O_4$ 268.067

α-D-Pyranose-*form*
*Tri-Ac: 2,4,6-Tri-*O*-acetyl-3-azido-3-deoxy-α-D-glucopyranosyl bromide*
[132470-43-0]
$C_{12}H_{16}BrN_3O_7$ 394.178
Syrup. $[\alpha]_D$ +164.5 (c, 1.66 in $CHCl_3$).

Martin, A. *et al., J. Carbohydr. Chem.*, 1990, **9**, 853-861 (*α-D-pyr tri-Ac*)

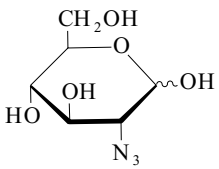
6-Azido-6-deoxyglucopyranosyl fluoride A-907



$C_6H_{10}FN_3O_4$ 207.161

α-D-*form* [161925-18-4]
Cryst. (EtOAc/hexane). Mp 103-104°. $[\alpha]_D^{20}$ +115.3 (c, 1.0 in H_2O).
Horneman, A.M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1-8 (*α-D-form, synth, pmr, cmr*)

2-Azido-2-deoxyglucose, 9CI A-908

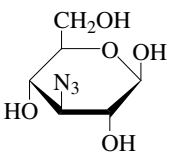


$C_6H_{11}N_3O_5$ 205.17

D-*form* [56883-39-7]
$[\alpha]_D^{20}$ +48.

α-D-*Pyranose-form*
Tetra-Ac:
$C_{14}H_{19}N_3O_9$ 373.319
Mp 120°. $[\alpha]_D^{20}$ +125.
Paulsen, H. *et al., Tet. Lett.*, 1975, 1493 (*synth*)

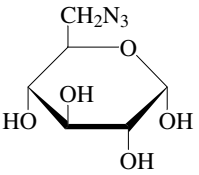
3-Azido-3-deoxyglucose A-909



$C_6H_{11}N_3O_5$ 205.17

β-D-Pyranose-*form*
Me glycoside: Methyl 3-azido-3-deoxy-β-D-glucopyranoside
[65784-76-1]
$C_7H_{13}N_3O_5$ 219.197
Syrup. $[\alpha]_D$ -13 (c, 2.4 in MeOH).
*Me glycoside, tri-Ac: Methyl 2,4,6-tri-*O*-acetyl-3-azido-3-deoxy-β-D-glucopyranoside*
[132470-44-1]
$C_{13}H_{19}N_3O_8$ 345.308
Syrup. $[\alpha]_D$ -18.5 (c, 1.2 in $CHCl_3$).
Martin, A. *et al., J. Carbohydr. Chem.*, 1990, **9**, 853-861 (*β-D-pyr, Me gly, Me gly tri-Ac*)

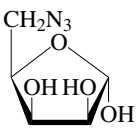
6-Azido-6-deoxyglucose A-910



$C_6H_{11}N_3O_5$ 205.17

α-D-Pyranose-*form*
Me glycoside: Methyl 6-azido-6-deoxy-α-D-glucopyranoside
[23701-87-3]
$C_7H_{13}N_3O_5$ 219.197
Cryst. (EtOH). Mp 103°. $[\alpha]_D^{21}$ +126 (c, 1.0 in MeOH). $[\alpha]_D^{25}$ +155.4 (c, 1.3 in MeOH).
*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-azido-6-deoxy-α-D-glucopyranoside*
[21893-05-0]
$C_{13}H_{19}N_3O_8$ 345.308
Cryst. (Et_2O). Mp 103°. $[\alpha]_D^{21}$ +133 (+155.4) (c, 1.0 in H_2O).
Hanessian, S. *et al., Carbohydr. Res.*, 1978, **63**, 265-269 (*synth*)
Maunier, V. *et al., Carbohydr. Res.*, 1997, **299**, 49-57 (*synth, pmr, cmr*)

5-Azido-5-deoxylyxose A-911



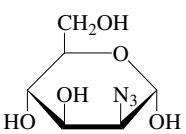
α-D-Furanose-*form*

$C_5H_9N_3O_4$ 175.144

D-*form* [182575-46-8]
Syrup. $[\alpha]_D^{20}$ +13 (c, 0.4 in H_2O). Mixt. of α- and β-fur anomers.

β-D-Furanose-*form*
*1,2-*O*-Isopropylidene: 5-Azido-5-deoxy-1,2-*O*-isopropylidene-β-D-lyxofuranose*
[182575-44-6]
$C_8H_{13}N_3O_4$ 215.208
Cryst. (Et_2O/petrol). Mp 48-49°. $[\alpha]_D^{20}$ +45 (c, 1.3 in $CHCl_3$).
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1996, **61**, 1027-1036 (*D-form, β-D-fur isopropylidene*)

2-Azido-2-deoxymannose A-912



α-D-Pyranose-*form*

$C_6H_{11}N_3O_5$ 205.17

D-*form* [97604-58-5]
Syrup. $[\alpha]_D^{20}$ -36.4 (c, 1.1 in MeOH).
*4,6-Dibenzyl, 1,3-di-Ac: 1,3-Di-*O*-Acetyl-2-azido-4,6-di-*O*-benzyl-2-deoxy-D-mannopyranose*
[219313-15-2]
$C_{24}H_{27}N_3O_7$ 469.493
Syrup. $[\alpha]_D$ +8.8 (c, 0.1 in $CHCl_3$). Mixt. of α and β-anomers, 5:1.

α-D-Pyranose-*form*
*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-azido-2-deoxy-α-D-mannopyranose*
[68733-20-0]
$C_{14}H_{19}N_3O_9$ 373.319
Mp 134°. $[\alpha]_D^{20}$ +81.4 (c, 1.0 in $CHCl_3$).
tert-*Butyldimethylsilyl glycoside, 3,4,6-tri-Ac:* tert-*Butyldimethylsilyl 3,4,6-tri-*O*-acetyl-2-azido-2-deoxy-α-D-mannopyranoside*
[99049-66-8]
$C_{18}H_{31}N_3O_8Si$ 445.544
Cryst. (petrol). Mp 75°.
*3-Benzyl, 1,4,6-tri-Ac: 1,4,9-Tri-*O*-acetyl-2-azido-3-*O*-benzyl-2-deoxy-α-D-mannopyranose*
[115945-98-7]
$C_{19}H_{23}N_3O_8$ 421.406
Syrup. $[\alpha]_D^{21}$ +41.8 (c, 1.032 in $CHCl_3$).
*Me glycoside, 3-benzyl: Methyl 2-azido-3-*O*-benzyl-2-deoxy-α-D-mannopyranoside*
[94119-09-2]
$C_{14}H_{19}N_3O_5$ 309.321
Syrup. $[\alpha]_D^{23.5}$ +32.9 (c, 1.055 in $CHCl_3$).
*Me glycoside, 3,4-dibenzyl: Methyl 2-azido-3,4-*O*-dibenzyl-2-deoxy-α-D-mannopyranoside*
[162406-79-3]
$C_{21}H_{25}N_3O_5$ 399.446
$[\alpha]_D^{20}$ +33.1 (c, 7.14 in $CHCl_3$).
*Me glycoside, 4,6-dibenzyl: Methyl 2-azido-4,6-di-*O*-benzyl-2-deoxy-α-D-mannopyranoside*
[219313-12-9]
$C_{21}H_{25}N_3O_5$ 399.446
Syrup. $[\alpha]_D$ +94.6 (c, 0.3 in $CHCl_3$).
*Me glycoside, 4,6-dibenzyl, 3-Ac: Methyl 3-*O*-acetyl-2-azido-4,6-di-*O*-benzyl-2-deoxy-α-D-mannopyranoside*
[219313-13-0]
$C_{23}H_{27}N_3O_6$ 441.483
Syrup. $[\alpha]_D$ +72 (c, 0.5 in $CHCl_3$).
*Me glycoside, 4,6-dibenzyl, 3-benzoyl: Methyl 2-azido-3-*O*-benzoyl-4,6-di-*O*-benzyl-2-deoxy-α-D-mannopyranoside*
[219313-11-8]
$C_{28}H_{29}N_3O_6$ 503.554
Syrup. $[\alpha]_D$ +72 (c, 2.9 in $CHCl_3$).
*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-azido-4,6-*O*-benzylidene-2-deoxy-α-D-mannopyranoside*
[116003-78-2]
$C_{14}H_{17}N_3O_5$ 307.305
Syrup. $[\alpha]_D^{25}$ +69.5 (c, 1.06 in $CHCl_3$).
*Me glycoside, 4,6-*O*-benzylidene, 3-Ac: Methyl 3-*O*-acetyl-2-azido-4,6-*O*-benzylidene-2-deoxy-α-D-mannopyranoside*
[115945-97-6]
$C_{16}H_{19}N_3O_6$ 349.343
Syrup. $[\alpha]_D^{25.5}$ +39.1 (c, 1.005 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 3-benzyl: Methyl 2-azido-3-*O*-benzyl-4,6-*O*-benzylidene-2-deoxy-α-D-mannopyranoside*
[94160-78-8]
$C_{21}H_{23}N_3O_5$ 397.43
Syrup. $[\alpha]_D^{23.5}$ +47.8 (c, 1.056 in $CHCl_3$).

*Allyl glycoside, 3,4,6-tri-Ac: Allyl 3,4,6-tri-*O*-acetyl-2-azido-2-deoxy-α-D-mannopyranoside*
[95451-94-8]
$C_{15}H_{21}N_3O_8$ 371.346
Syrup. $[\alpha]_D^{20}$ +90.2 (c, 0.7 in $CHCl_3$).

*Benzyl glycoside, 3-benzyl: Benzyl 2-azido-3-*O*-benzyl-2-deoxy-α-D-mannopyranoside*
[106837-21-2]
$C_{20}H_{23}N_3O_5$ 385.419
Syrup. $[\alpha]_D^{20}$ +49 (c, 1.3 in $CHCl_3$).

*Benzyl glycoside, 3-benzyl, 4,6-*O*-benzylidene: Benzyl 2-azido-3-*O*-benzyl-4,6-benzylidene-2-deoxy-α-D-mannopyranoside*
[106837-20-1]
$C_{27}H_{27}N_3O_5$ 473.527
Syrup. $[\alpha]_D^{20}$ +51 (c, 2.0 in $CHCl_3$).

β-D-Pyranose-*form* [124314-44-9]

Me glycoside: Methyl 2-azido-2-deoxy-β-D-mannopyranoside
[97604-60-9]
$C_7H_{13}N_3O_5$ 219.197
Syrup. $[\alpha]_D^{20}$ -134.7 (c, 0.6 in MeOH).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-methyl-2-azido-2-deoxy-β-D-mannopyranoside*
[97604-59-6]
$C_{13}H_{19}N_3O_8$ 345.308
Cryst. (toluene/hexane). Mp 132°. $[\alpha]_D^{20}$ -88.4 (c, 1.7 in MeOH).

*Allyl glycoside, tri-Ac: Allyl 3,4,6-tri-*O*-acetyl-2-azido-2-deoxy-β-D-mannopyranoside*
[97604-61-0]
$C_{15}H_{21}N_3O_8$ 371.346
Mp 137°. $[\alpha]_D^{20}$ -83.2 (c, 1.1 in $CHCl_3$).

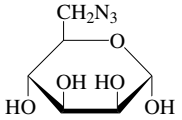
*Me glycoside, 3-benzyl, 4,6-*O*-benzylidene: Methyl 2-azido-3-*O*-benzyl-4,6-*O*-benzylidene-2-deoxy-β-D-mannopyranoside*
$C_{21}H_{23}N_3O_5$ 397.43
Cryst. (EtOH). Mp 70-74°. $[\alpha]_D$ -73 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-di-*O*-benzylidene, 3-Ac: Methyl 3-*O*-acetyl-2-azido-4,6-*O*-benzylidene-2-deoxy-β-D-mannopyranoside*
$C_{16}H_{19}N_3O_6$ 349.343
Cryst. (EtOH). Mp 131-134°. $[\alpha]_D$ -122 (c, 0.31 in $CHCl_3$).

Kinzy, W. *et al., Annalen*, 1985, 1537-1545 (*silyl glycoside 3,4,6-tri-Ac*)
Paulsen, H. *et al., Carbohydr. Res.*, 1985, **136**, 153-157 (*synth, Me glycosides, allyl glycosides*)
Paulsen, H. *et al., Annalen*, 1987, 431-437 (*benzyl glycosides*)
Sugawara, T. *et al., Carbohydr. Res.*, 1988, **172**, 195-207 (*Me gly 3-benzyl, 3-benzyl 4,6-benzylidene, 4,6-benzylidene*)
Auge, C. *et al., Carbohydr. Res.*, 1989, **188**, 201-205 (*synth*)
Yang, G. *et al., Carbohydr. Res.*, 1998, **312**, 77-83 (*4,6-dibenzyl derivs*)

6-Azido-6-deoxymannose A-913

[316379-15-4]



α-D-Pyranose-*form*

$C_6H_{11}N_3O_5$ 205.17

D-*form* [316379-15-4]
Hygroscopic foam. $[\alpha]_D^{28}$ +30.5 (c, 1.54 in H_2O). Anomeric mixt. α:β 60:40.

α-D-Pyranose-*form* [120202-54-2]

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-azido-6-deoxy-α-D-mannopyranose*
[210170-40-4]
$C_{14}H_{19}N_3O_9$ 373.319
Syrup. $[\alpha]_D^{25}$ +70.6 (c, 0.68 in $CHCl_3$). Opt. rotn. for sample containing 16% β-anomer.

Me glycoside: Methyl 6-azido-6-deoxy-α-D-mannopyranoside
[66224-56-4]
$C_7H_{13}N_3O_5$ 219.197
Syrup. $[\alpha]_D$ +70 (c, 1 in $CHCl_3$).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-azido-6-deoxy-α-D-mannopyranoside*
[18439-61-7]
$C_{13}H_{19}N_3O_8$ 345.308
Mp 99-100°. $[\alpha]_D^{20}$ +80.5 (c, 1.50 in $CHCl_3$).

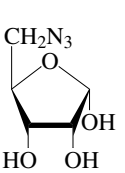
*Me glycoside, 2,3-isopropylidene: Methyl 6-azido-6-deoxy-2,3-*O*-isopropylidene-α-D-mannopyranoside*
[120138-99-0]
$C_{10}H_{17}N_3O_5$ 259.261
Syrup. $[\alpha]_D^{28}$ +10.6 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*

*Me glycoside, 2,3-isopropylidene: Methyl 6-azido-6-deoxy-2,3-*O*-isopropylidene-α-D-mannofuranoside*
[210170-42-6]
$C_{10}H_{17}N_3O_5$ 259.261
Syrup. $[\alpha]_D^{25}$ +52.2 (c, 2.4 in $CHCl_3$).

Florent, J.-C. *et al., Tetrahedron*, 1978, **34**, 909-914 (*α-D-Me pyr*)
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1988, **53**, 1795-1805 (*D-form, synth*)
Cottaz, S. *et al., Carbohydr. Res.*, 1993, **247**, 341-345 (*α-D-Me pyr tri-Ac*)
Kong, D.C.M. *et al., Carbohydr. Res.*, 1998, **305**, 323-329 (*α-D-pyr-form, synth, ir, pmr, cmr, ms, α-D-pyr tetra-Ac, α-D-Me-fur isopropylidene*)
Kötter, S. *et al., J.C.S. Perkin 1*, 1998, 2193-2200 (*α-D-Me-pyr tri-Ac*)
Ichikawa, Y. *et al., Eur. J. Org. Chem.*, 2004, 468-473 (*α-D-Me-pyr isopropylidene*)

5-Azido-5-deoxyribose A-914



α-D-Furanose-*form*

$C_5H_9N_3O_4$ 175.144

D-*form* [182575-45-7]

[144993-83-9]
Syrup. $[\alpha]_D^{20}$ +105 (c, 1.2 in H_2O). Mixt. of α- and β-anomers.

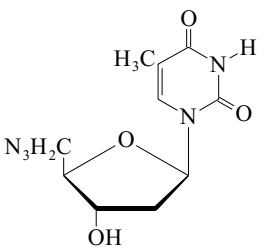
α-D-Furanose-*form* [144993-82-8]

*1,2-*O*-Isopropylidene: 5-Azido-5-deoxy-1,2-*O*-isopropylidene-α-D-ribofuranose*
[182575-42-4]
$C_8H_{13}N_3O_4$ 215.208
Cryst. (Et_2O/petrol). Mp 50.5-51.5°. $[\alpha]_D^{20}$ +65.5 (c, 0.5 in $CHCl_3$).

Eur. Pat., 1992, 496 617, (*Gensia*); *CA*, **118**, 234420 (*D-fur-form*)
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1996, **61**, 1027-1036 (*D-form, α-D-fur isopropylidene*)

5′-Azido-5′-deoxythymidine A-915

[19316-85-9]

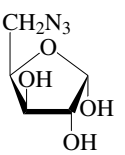


$C_{10}H_{13}N_5O_4$ 267.244
Cryst. (MeOH). Mp 164-166.5°. $[\alpha]_D^{25}$ +98 (c, 1 in MeOH).

3′-Ac:
$C_{12}H_{15}N_5O_5$ 309.281
Cryst. Mp 113-114°.

Horwitz, J.P. *et al., J.O.C.*, 1962, **27**, 3045 (*synth, uv*)
Mullica, D.F. *et al., J. Appl. Crystallogr.*, 1980, **13**, 611 (*cryst struct, Ac*)
Yamamoto, I. *et al., J.C.S. Perkin 1*, 1980, 306 (*synth, pmr*)
Schaible, H.G. *et al., Acta Cryst. C*, 1995, **51**, 2410 (*cryst struct*)

5-Azido-5-deoxyxylose A-916



α-D-Furanose-*form*

$C_5H_9N_3O_4$ 175.144

D-*form* [162089-89-6]
Syrup. $[\alpha]_D^{20}$ +52 (c, 1.0 in H_2O). Mixt. of fur-anomers.

α-D-Furanose-*form*

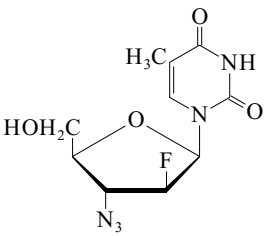
*1,2-*O*-Isopropylidene: 5-Azido-5-deoxy-1,2-*O*-isopropylidene-α-D-xylofuranose*
[4711-03-9]
$C_8H_{13}N_3O_4$ 215.208
Cryst. ($CHCl_3$/hexane). Mp 60°. $[\alpha]_D^{20}$ -42 (c, 1.0 in MeOH). $[\alpha]_D^{21}$ +44 (c, 1.55 in MeOH). $[\alpha]_D^{20}$ -39 (c, 1.2 in $CHCl_3$).

Szarek, W.A. *et al., Can. J. Chem.*, 1965, **43**, 2345-2356 (*α-D-fur isopropylidene*)

de Raadt, A. *et al., Catal. Today*, 1994, **22**, 549-561 (*D-form, α-D-fur isopropylidene*)
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1996, **61**, 1027-1036 (*D-form, α-D-fur isopropylidene*)

1-(3-Azido-2,3-dideoxy-2-fluoro-β-D-arabinofuranosyl)thymine A-917

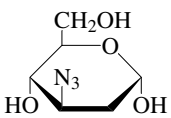
1-(3-Azido-2,3-dideoxy-2-fluoro-β-D-arabinofuranosyl)-5-methyl-2,4-(1H,3H)-pyrimidinedione, 9CI. F-AZT
[124424-26-6]



$C_{10}H_{12}FN_5O_4$ 285.234
Does not show significant antiviral activity. Cryst. (Me_2CO/petrol). Mp 45-50°.

Watanabe, K.A. *et al., J. Med. Chem.*, 1990, **33**, 2145 (*synth, ir, pmr*)
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr*)

3-Azido-2,3-dideoxy-*arabino*-hexose A-918



$C_6H_{11}N_3O_4$ 189.171

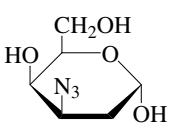
α-D-Pyranose-*form*

*Me glycoside: Methyl 3-azido-2,3-dideoxy-α-D-*arabino-*hexopyranoside*
$C_7H_{13}N_3O_4$ 203.197
Cryst. (EtOAc/hexane). Mp 117-119°.
$[\alpha]_D^{20}$ +175 (c, 1.0 in MeOH).

*Me glycoside, 4,6-di-Ac: Methyl 4,6-di-O-acetyl-3-azido-2,3-dideoxy-α-D-*arabino-*hexopyranoside*
$C_{11}H_{17}N_3O_6$ 287.272
Syrup. $[\alpha]_D^{20}$ +81 (c, 1.0 in $CHCl_3$).

Dabrowska, A. *et al., Carbohydr. Res.*, 2000, **323**, 230-234 (*synth, pmr, cmr, cryst struct*)

3-Azido-2,3-dideoxy-*lyxo*-hexose A-919



$C_6H_{11}N_3O_4$ 189.171

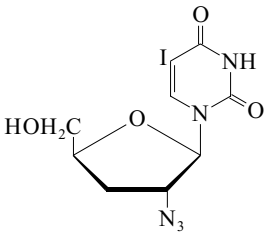
α-D-Pyranose-*form*

*Me glycoside: Methyl 3-azido-2,3-dideoxy-α-D-*lyxo-*hexopyranoside*
[562791-51-9]
$C_7H_{13}N_3O_4$ 203.197
Mp 80-81°. $[\alpha]_D^{20}$ +138 (c, 1.0 in $CHCl_3$).

Liberek, B. *et al., Carbohydr. Res.*, 2003, **338**, 795-799 (*Me α-D-gly, synth, ir, pmr, cmr, cryst struct*)

2′-Azido-2′,3′-dideoxy-5-iodouridine A-920

[126543-50-8]

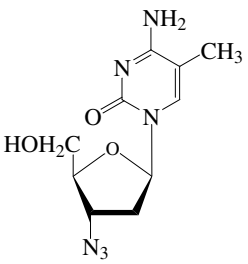


$C_9H_{10}IN_5O_4$ 379.114
Solid. Mp 152-154°.

Warshaw, J.A. *et al., J. Med. Chem.*, 1990, **33**, 1663 (*synth, ir, pmr, uv*)

3′-Azido-2′,3′-dideoxy-5-methylcytidine, 9CI A-921

CS 92
[87190-79-2]



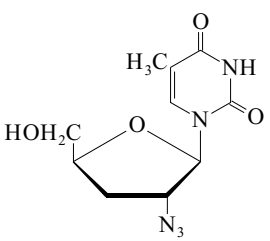
$C_{10}H_{14}N_6O_3$ 266.259
Anti-HIV agent.

Hydrochloride: [108895-45-0]
Cryst. Mp 176° dec.

Eur. Pat., 1986, 217 580, (*Wellcome*); *CA*, **107**, 40276d (*synth, pharmacol*)
Herdewijn, P. *et al., J. Med. Chem.*, 1987, **30**, 1270-1278 (*synth, pmr, pharmacol*)
Boudinot, F.D. *et al., Drug Metab. Dispos.*, 1993, **21**, 855-860 (*pharmacokinet*)

2′-Azido-2′,3′-dideoxy-5-methyluridine A-922

[126543-51-9]

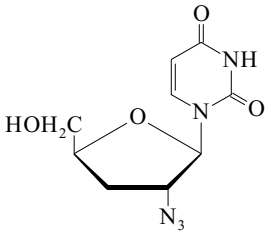


$C_{10}H_{13}N_5O_4$ 267.244
Solid. Mp 167-169°. Regioisomer of Zidovudine, Z-4.

Warshaw, J.A. *et al., J. Med. Chem.*, 1990, **33**, 1663 (*synth, ir, pmr, uv*)

2′-Azido-2′,3′-dideoxyuridine A-923

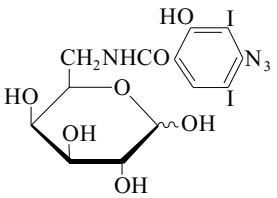
[126543-45-1]



$C_9H_{11}N_5O_4$ 253.217
Cryst. (EtOH). Mp 167-169°.

Warshaw, J.A. *et al., J. Med. Chem.*, 1990, **33**, 1663 (*synth, pmr, ir, uv*)

6-(4-Azido-2-hydroxy-3,5-diiodobenzamido)-6-deoxygalactose A-924



$C_{13}H_{14}I_2N_4O_7$ 592.085

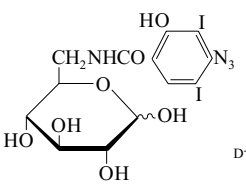
D-*form*
Photoaffinity reagent.
Cryst. (MeOH). Mp 165-167° dec.

α-D-Pyranose-*form*

*1,2:3,4-Di-*O*-isopropylidene:*
$C_{19}H_{22}I_2N_4O_7$ 672.214
Needles (MeOH aq.). Mp 90-92°.

Husain, S.N. *et al., Carbohydr. Res.*, 1983, **118**, 57 (*synth, pmr*)

6-(4-Azido-2-hydroxy-3,5-diiodobenzamido)-6-deoxyglucose A-925



D–Pyranose–*form*

$C_{13}H_{14}I_2N_4O_7$ 592.085

D-*form*
Photoaffinity reagent.
Cryst. (MeOH). Mp 197-200°.

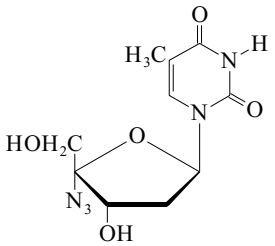
α-D-Furanose-*form*

*1,2:3,5-Di-*O*-isopropylidene: 6-(4-Azido-3,5-diiodo-2-hydroxybenzamido)-6-deoxy-1,2:3,5-di-*O*-isopropylidene-α-D-glucofuranose*
$C_{19}H_{22}I_2N_4O_7$ 672.214
Needles (MeOH aq.). Mp 95-97°.

Husain, S.N. *et al., Carbohydr. Res.*, 1983, **118**, 57 (*synth, pmr*)

4′-Azidothymidine, 9CI A-926

[130108-72-4]



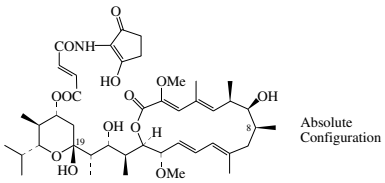
$C_{10}H_{13}N_5O_5$ 283.243
Potent and selective inhibitor of HIV.
Cryst. (EtOH). Mp 175-176°.

Chen, M.S. *et al., J. Biol. Chem.*, 1992, **267**, 257 (*biochem*)
Maag, H. *et al., J. Med. Chem.*, 1992, **35**, 1440; 1994, **37**, 431 (*synth, uv, pmr, ir, cryst struct, conformn, bibl*)

Bafilomycin B_1 B-1

37-Decarboxy-2-demethyl-37-[[(2-hydroxy-5-oxo-1-cyclopenten-1-yl)amino] carbonyl]-2-methoxy-24-methylhygrolidin. Setamycin

[88899-56-3]



$C_{44}H_{65}NO_{13}$ 815.996

Macrolide antibiotic. Prod. by *Streptomyces griseus* sp. *sulphurus*. Also isol. from actinomycete strain KM-6054 and *Kitasatosporia setae*. Active against gram-positive bacteria, trichomonads, fungi and yeasts. Potential antiosteoporotic agent. Yellow amorph. powder. Mp 134-135° (Setamycin) Mp 89-96° dec. $[\alpha]_D^{28}$ +18.3 (c, 1 in MeOH). C-8 stereochem. incorrectly shown in refs. λ_{max} 248 (ϵ 35000); 285 (sh) (ϵ 21600); 355 (ϵ 12500) (MeOH) (Derep).

▶ NG8841000

O^{19}-*Me: Bafilomycin* B_2

[88907-48-6]

$C_{45}H_{67}NO_{13}$ 830.023

Formed during isolation procedure. Inactive. Sol. MeOH, Me_2CO; poorly sol. H_2O, hexane. λ_{max} 209 (ϵ 24170); 246 (ϵ 32870); 283 (ϵ 14120) (MeOH) (Berdy).

[80112-34-1]

Omura, S. *et al., J. Antibiot.*, 1981, **34**, 1253; 1633 (*Setamycin, isol, uv, ir, pmr*)

Werner, G. *et al., Tet. Lett.*, 1983, **24**, 5193 (*Bafilomycin*)

Ger. Pat., 1984, 3 310 533; *CA*, **102**, 22799 (*Bafilomycin*)

Werner, G. *et al., J. Antibiot.*, 1984, **37**, 110 (*Bafilomycin*)

Otogura, K. *et al., J. Antibiot.*, 1988, **41**, 250 (*Setamycin, struct, props*)

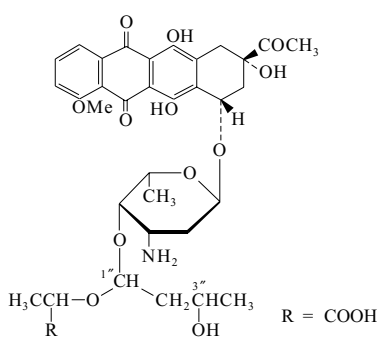
Woo, J.-T. *et al., Biol. Pharm. Bull.*, 1996, **19**, 297-298 (*activity*)

O'Shea, M.G. *et al., J. Antibiot.*, 1997, **50**, 1073-1077 (*abs config*)

Schuhmann, T. *et al., J. Antibiot.*, 2004, **57**, 655-661 (*biosynth*)

Baumycin B1 B-2

[64253-72-1]



$C_{34}H_{41}NO_{14}$ 687.696

Anthracycline antibiotic. Prod. by *Streptomyces coeruleorubidus* ATCC31276. Shows antitumour activity. Red needles. Sol. MeOH, DMSO, acids, $CHCl_3$; poorly sol. H_2O, hexane. Mp 181-185°. $[\alpha]_D^{23}$ +170 (c, 0.1 in $CHCl_3$/MeOH). λ_{max} 234 (E1%/1cm 552); 253 (E1%/1cm 385); 290 (E1%/1cm 132); 476 (E1%/1cm 179); 495 (E1%/1cm 181); 530 (E1%/1cm 101) (MeOH) (Berdy). λ_{max} 251 (E1%/1cm 453); 380 (E1%/1cm 65); 556 (E1%/1cm 206); 594 (E1%/1cm 195) (MeOH/NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 40 - 60 mg/kg. QI9297100

Stereoisomer: ***Baumycin B2***

[64312-53-4]

$C_{34}H_{41}NO_{14}$ 687.696

Prod. by *Streptomyces coeruleorubidus* ATCC31276. Antitumour agent. Red needles. Sol. MeOH, $CHCl_3$, acids, DMSO; poorly sol. H_2O, hexane. Mp 197-201°. $[\alpha]_D^{23}$ +170 (c, 0.1 in $CHCl_3$/MeOH). Stereoisomeric at C-1″ or C-3″. λ_{max} 234 (E1%/1cm 575); 252 (E1%/1cm 414); 290 (E1%/1cm 130); 478 (E1%/1cm 176); 495 (E1%/1cm 183); 530 (E1%/1cm 120); 577 (E1%/1cm 40) (MeOH) (Berdy). λ_{max} 251 (E1%/1cm 499); 350 (E1%/1cm 74); 556 (E1%/1cm 231); 594 (E1%/1cm 218) (MeOH/NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 75 - 100 mg/kg.

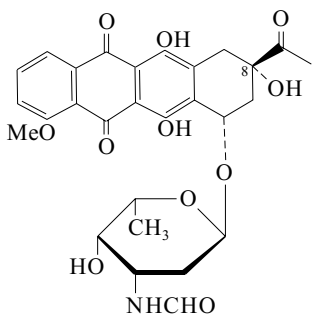
Belg. Pat., 1977, 855 098 (*Baumycins* B_1 *and* B_2)

Komiyama, T. *et al., J. Antibiot.*, 1977, **30**, 619 (*isol, ir, uv, ms, pmr, struct*)

Takahashi, Y. *et al., J. Antibiot.*, 1977, **30**, 622 (*struct*)

Baumycin C1 B-3

[63084-42-4]



$C_{28}H_{29}NO_{11}$ 555.537

Anthracycline antibiotic. Isol. from *Streptomyces coeruleorubidus*. Shows antitumour activity. Orange-red cryst. Mp 154-157°. $[\alpha]_D^{23}$ +260 (c, 0.1 in $CHCl_3$). λ_{max} 234 (E1%/1cm 663); 252 (E1%/1cm 480); 290 (E1%/1cm 145); 478 (E1%/1cm 195); 496 (E1%/1cm 204); 531 (E1%/1cm 137); 575 (E1%/1cm 44) (MeOH) (Berdy). λ_{max} 251 (E1%/1cm 570); 360 (E1%/1cm 85); 557 (E1%/1cm 254); 596 (E1%/1cm 244) (MeOH-NAOH) (Berdy).

▶ QI9295600

8-De-Ac, 8-(1-hydroxyethyl): Baumycin C2

[64479-55-6]

$C_{28}H_{31}NO_{11}$ 557.553

Isol. from *Streptomyces coeruleorubidus*. Shows antitumour activity. Red needles. Mp 213-215°. $[\alpha]_D^{23}$ +240 (c, 0.1 in MeOH). λ_{max} 235 (E1%/1cm 510); 252 (E1%/1cm 422); 291 (E1%/1cm 125); 478 (E1%/1cm 161); 496 (E1%/1cm 172); 531 (E1%/1cm 124); 575 (E1%/1cm 44) (MeOH) (Berdy).

▶ QI9445000

Komiyama, T. *et al., J. Antibiot.*, 1977, **30**, 619 (*isol, ir, uv, ms, nmr, struct*)

Takahashi, Y. *et al., J. Antibiot.*, 1977, **30**, 622 (*struct*)

Beijeran B-4

[→3)-α-D-GalA-(1→3)-β-L-Rha-(1→3)-α-D-Glc-6-Ac-(1→]Exopolysaccharide prod. by *Azotobacter beijerinckii* YNM1. Proposed for use in cosmetics and food industries.

Ogawa, K. *et al., Carbohydr. Res.*, 1997, **300**, 41-45 (*conform*)

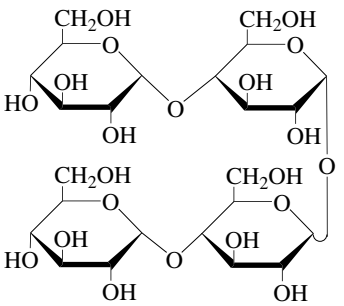
Yui, T. *et al., Carbohydr. Res.*, 1997, **304**, 341-345 (*struct*)

Bian, W. *et al., Carbohydr. Res.*, 2002, **337**, 305-314 (*Na salt, cryst struct*)

Bemisiotetrose B-5

α-D-Glucopyranosyl-(1→4)-α-D-glucopyranosyl α-D-glucopyranosyl-(1→4)-α-D-glucopyranoside, 9CI. α-D-Maltopyranosyl α-D-maltopyranoside. Maltosyl maltoside

[181489-17-8]



$C_{24}H_{42}O_{21}$ 666.583

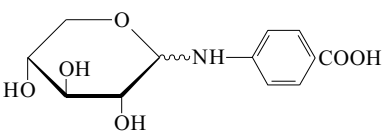
Isol. from the honeydew secreted by the whitefly *Bemisia argentifolii* feeding on cotton. No phys. props. reported.

Wei, Y.-A. *et al., J. Agric. Food Chem.*, 1996, **44**, 3214-3218 (*isol, struct, pmr, cmr*)

Benaxibine, INN B-6

4-(Xylosylamino)benzoic acid, 8CI. N-(4-Carboxyphenyl)xylosamine. Chevalizon

[27661-27-4]



$C_{12}H_{15}NO_6$ 269.254

Antineoplastic agent (cyclophosphamide synergiser); antidiabetic, antihypertensive agent. Immunopotentiator. Cryst. (EtOH aq.). Mp 172°. $[\alpha]_D^{20}$ +61.6 (EtOH). Log P −0.81 (calc).

Na salt: K-247

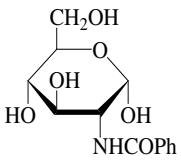
[72782-43-5]

Cryst. (Me_2CO aq.). Mp 149-158°.
► LD_{50} (rat, orl) 25400 mg/kg. DI1055000

Inoue, Y. *et al., Nippon Nogei Kagaku Kaishi*, 1951, **25**, 59; *CA*, **48**, 2001c (*synth*)
Shcherbukhin, V.D. *et al., Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1967, **174**, 725; **177**, 607 (*ir*)
Stepanenko, B.N. *et al., Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1967, **177**, 607
U.S. Pat., 1982, 4 315 921, (*Kureha*); *CA*, **96**, 168753d (*synth, pharmacol*)
Toge, T. *et al., Int. J. Immunopharmacol.*, 1984, **6**, 55 (*pharmacol*)

2-Benzamido-2-deoxyglucose B-7

2-(Benzoylamino)-2-deoxyglucose, 9CI.
N-*Benzoylglucosamine*



α-D-Pyranose-*form*

$C_{13}H_{17}NO_6$ 283.28

D-*form* [655-42-5]
Mp 196-200°.

*3,4,6-Tri-Me: 2-Benzamido-2-deoxy-3,4,6-tri-*O*-methyl-D-glucopyranose*
$C_{16}H_{23}NO_6$ 325.361
Mp 213°. $[\alpha]_D$ +124 → +105 (Py aq.).

*3,4,6-Tribenzyl: 2-Benzamido-3,4,6-tri-*O*-benzyl-2-deoxy-D-glucopyranose*
[37111-93-6]
$C_{34}H_{35}NO_6$ 553.654
Needles (EtOH). Mp 221-222°. $[\alpha]_D^{20}$ +89 (c, 0.5 in $CHCl_3$).

α-D-*form*

*1,3,6-Tri-Ac: 1,3,6-Tri-*O*-acetyl-2-benzamido-2-deoxy-α-D-glucopyranose*
$C_{19}H_{23}NO_9$ 409.392
Mp 128-129°. $[\alpha]_D^{20}$ +95 (c, 0.43 in $CHCl_3$).

*1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-benzamido-2-deoxy-α-D-glucopyranose*
$C_{21}H_{25}NO_{10}$ 451.429
Cryst. (MeOH/Et_2O). Mp 178-179°. $[\alpha]_D^{20}$ +111 (c, 0.5 in $CHCl_3$).

*1,2*N*,3,4,6-Penta-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-(*N*-acetylbenzamido)-2-deoxy-α-D-glucopyranose*
$C_{23}H_{27}NO_{11}$ 493.466
Mp 115-117°. $[\alpha]_D^{20}$ +88 (c, 0.88 in $CHCl_3$).

β-D-*form*

*1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-benzamido-2-deoxy-β-D-glucopyranose*
[10385-49-6]
$C_{21}H_{25}NO_{10}$ 451.429
Cryst. (EtOH). Mp 230° Mp 240°. $[\alpha]_D^{21}$ +41.9 ($CHCl_3$).

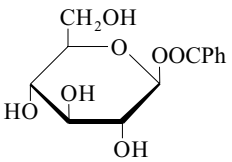
*1,2*N*-3,4,6-Penta-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-(*N*-acetylbenzamido)-2-deoxy-β-D-glucopyranose*
$C_{23}H_{27}NO_{11}$ 493.466
Mp 118-119°. $[\alpha]_D^{20}$ -22 (c, 0.85 in $CHCl_3$).

tert-*Butyl glycoside, 3,4,6-tribenzyl:*
$C_{38}H_{43}NO_6$ 609.761
Needles (EtOH). Mp 177-178°. $[\alpha]_D^{20}$ +25 (c, 1.2 in $CHCl_3$).

Bergmann, M. *et al., Ber.*, 1931, **64**, 975, (*tetra-Ac*)
Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247 (*rev*)
Micheel, F. *et al., Chem. Ber.*, 1958, **91**, 673 (*tetra-Ac*)
Harrison, R. *et al., J.O.C.*, 1965, **30**, 2317, (*D-tribenzyl, β-D-tert-butyl pyr tribenzyl*)
Inch, T.D. *et al., J.O.C.*, 1966, **31**, 1815; 1821, (*α-D-pyr tetra-Ac, α-D-pyr penta-Ac, β-D-pyr penta-Ac, β-D-pyr tetra-Ac*)

1-*O*-Benzoylglucose B-8

Glucosyl benzoate



$C_{13}H_{16}O_7$ 284.265

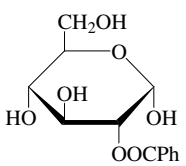
β-D-Pyranose-*form*
Periplanetin
[21056-52-0]
Constit. of *Nauclea*, *Pinus* and *Vaccinium* spp. Also isol. from the cockroaches *Blatta orientalis* and *Periplaneta americana*.
Mp 193° (187-188°). $[\alpha]_D^{20}$ -27 (c, 0.4 in H_2O).

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-1-O-benzoyl-β-D-glucopyranoside*
[38430-69-2]
$C_{21}H_{24}O_{11}$ 452.414
Mp 145-146° (140-141°). $[\alpha]_D$ -28.6 (c, 0.7 in $CHCl_3$).

[123632-51-9]

Quilico, A. *et al., Tetrahedron*, 1959, **5**, 10–14 (*isol, ir, struct*)
Higuchi, R. *et al., Phytochemistry*, 1977, **16**, 1587-1590 (*isol*)
Horsley, S.B. *et al., Phytochemistry*, 1981, **20**, 1127 (*isol, ir, pmr, cmr, ms*)
Pfander, H. *et al., Carbohydr. Res.*, 1982, **99**, 175-179 (*synth*)
Jansson, K. *et al., J.O.C.*, 1988, **53**, 5629 (*synth*)
Bols, M. *et al., Acta Chem. Scand.*, 1993, **47**, 818-822 (*synth*)
Kaneko, T. *et al., Phytochemistry*, 1998, **47**, 259–263 (*isol, pmr, cmr*)

2-*O*-Benzoylglucose B-9



α-D-Pyranose-*form*

$C_{13}H_{16}O_7$ 284.265

D-*form* [63029-01-6]
Constit. of *Vaccinium vitis-idaea* (cowberry) and *Vaccinium macrocarpon* (cranberry).

α-D-Pyranose-*form* [80358-04-9]
Constit. of *Globularia nudicaulis*.

Chaudhuri, R.K. *et al., Helv. Chim. Acta*, 1981, **64**, 2401–2404 (*isol, pmr, cmr*)
Heimhuber, B. *et al., Phytochemistry*, 1990, **29**, 2726–2727 (*isol, synth, nmr*)

3-*O*-Benzoylglucose B-10

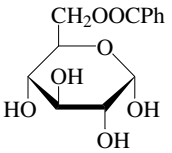
$C_{13}H_{16}O_7$ 284.265

β-D-Pyranose-*form* [80358-05-0]
Constit. of *Globularia nudicaulis*.
Amorph. powder. $[\alpha]_D^{25}$ -13.1 (c, 0.7 in MeOH).

Chaudhuri, R.K. *et al., Helv. Chim. Acta*, 1981, **64**, 2401-2404 (*isol, ir, pmr, cmr*)

6-*O*-Benzoylglucose B-11

Glucose 6-benzoate, 9CI. ***Vacciniin***



α-D-Pyranose-*form*

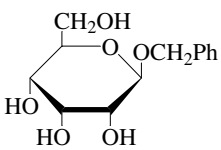
$C_{13}H_{16}O_7$ 284.265

D-*form* [14200-76-1]
Isol. from *Vaccinium* sp. (red whortleberries and cranberries).
Amorph., cryst. hydrate (Me_2CO).
Mp 104-106°. $[\alpha]_D$ +48 (EtOH).

[90-75-5, 130323-07-8]

Brigl, P. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1934, **229**, 117 (*isol, struct*)
Heimhuber, B. *et al., Phytochemistry*, 1990, **29**, 2726 (*isol, synth, pmr*)

Benzyl alloside B-12



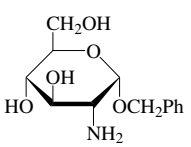
$C_{13}H_{18}O_6$ 270.282

β-D-Pyranose-*form* [354807-69-5]
Constit. of the leaves and stems of *Passiflora edulis*.
Characterised spectroscopically.

Christensen, J. *et al., Org. Lett.*, 2001, **3**, 2193-2195 (*isol, pmr, cmr*)
Siegler, D.S. *et al., Phytochemistry*, 2002, **60**, 873-882 (*isol*)

Benzyl 2-amino-2-deoxyglucopyranoside B-13

Phenylmethyl 2-amino-2-deoxyglucopyranoside, 9CI. Benzylglucosaminide
[50692-69-8]



α-D-Pyranose-*form*

$C_{13}H_{19}NO_5$ 269.297

α-D-*form*

Hydrochloride:
Granules (2-propanol). Mp 233-234°. $[\alpha]_D^{20}$ +124 (c, 1 in H_2O).

N-*Ac: Benzyl 2-acetamido-2-deoxy-α-D-glucopyranoside*
[13343-62-9]
$C_{15}H_{21}NO_6$ 311.334
Mp 185-186°. $[\alpha]_D^{20}$ +168 (c, 0.2 in H_2O).

*4,6-*O*-Benzylidene,* N*-Ac: Benzyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside*
[13343-63-0]
$C_{22}H_{25}NO_6$ 399.443
Prisms (dioxan/2-propanol). Mp 263−264°. $[\alpha]_D^{26}$ +120 (c, 1 in Py).

*4,6-*O*-Benzylidene, 3-benzoyl,* N*-Ac: Benzyl 2-acetamido-3-*O*-benzoyl-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside*
$C_{29}H_{29}NO_7$ 503.551
Cryst. (C_6H_6). Mp 218-220°. $[\alpha]_D^{21}$ +44 (c, 1 in Py).

3,6-Dibenzyl, N*-Ac: Benzyl 2-acetamido-3,6-di-*O*-benzyl-2-deoxy-α-D-glucopyranoside*
[55287-49-5]
$C_{29}H_{33}NO_6$ 491.583
Cryst. (EtOAc/Et_2O). Mp 145°. $[\alpha]_D^{20}$ +114 (c, 1 in $CHCl_3$).

3,4,6-Tri-Me, N*-Ac: Benzyl 2-acetamido-2-deoxy-3,4,6-tri-*O*-methyl-α-D-glucopyranoside*
$C_{18}H_{27}NO_6$ 353.414
Mp 138°. $[\alpha]_D$ +118.2 (MeOH).

3,4,6-Tri-Me, N*-benzoyl: Benzyl 2-benzamido-2-deoxy-3,4,6-tri-*O*-methyl-α-D-glucopyranoside*
$C_{23}H_{29}NO_6$ 415.485
Mp 184°. $[\alpha]_D$ +123.2 ($CHCl_3$).

3-Benzyl, N*-benzyloxycarbonyl, 6-Ac: Benzyl 6-*O*-acetyl-3-*O*-benzyl-2*N*-(benzyloxycarbonylamino)-2-deoxy-α-D-glucopyranoside*
$C_{30}H_{33}NO_8$ 535.593
Mp 114-115°. $[\alpha]_D^{23}$ +88 (c, 1.0 in $CHCl_3$).

β-D-*form* [22314-39-2]

Hydrochloride: Mp 176°. $[\alpha]_D$ +51.5 (H_2O).

N-*Ac: Benzyl 2-acetamido-2-deoxy-β-D-glucopyranoside*
[13343-67-4]
$C_{15}H_{21}NO_6$ 311.334
Prisms (EtOH). Mp 207-208°. $[\alpha]_D^{26}$ -48 (c, 1 in H_2O).

*3,4,6-Tri-Ac: Benzyl 3,4,6-tri-*O*-acetyl-2-amino-2-deoxy-β-D-glucopyranoside*
$C_{19}H_{25}NO_8$ 395.408
Mp 237-240° (as hydrobromide). $[\alpha]_D$ +24.2 ($CHCl_3$).

*2*N*,3,4,6-Tetra-Ac: Benzyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-β-D-glucopyranoside*
$C_{21}H_{27}NO_9$ 437.446
Mp 163°. $[\alpha]_D$ -38.3 ($CHCl_3$).

N*-Benzoyl, 3,4,6-tri-Ac: Benzyl 3,4,6-tri-*O*-acetyl-2-benzamido-2-deoxy-β-D-glucopyranoside*
$C_{26}H_{29}NO_9$ 499.516
Mp 216°. $[\alpha]_D$ -6.4 ($CHCl_3$).

*4,6-*O*-Isopropylidene,* N*-Ac: Benzyl 2-acetamido-2-deoxy-4,6-*O*-isopropylidene-β-D-glucopyranoside*
$C_{18}H_{25}NO_6$ 351.399
Needles (EtOH/hexane). Mp 174-176°. $[\alpha]_D^{20}$ -60 (c, 0.6 in $CHCl_3$).

*4,6-*O*-Isopropylidene,* N*-benzoyl: Benzyl 2-benzamido-2-deoxy-4,6-*O*-isopropylidene-β-D-glucopyranoside*
$C_{23}H_{27}NO_6$ 413.469
Needles (EtOH). Mp 203-204°. $[\alpha]_D^{20}$ −71.6 (c, 1.6 in $CHCl_3$).

*4,6-*O*-Benzylidene,* N*-Ac: Benzyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-β-D-glucopyranoside*
[13343-61-8]
$C_{22}H_{25}NO_6$ 399.443
Prismatic needles (dioxan). Mp 270-271°. $[\alpha]_D^{25}$ -89 (c, 0.8 in Py).

3,4,6-Tri-Me, N*-Ac: Benzyl 2-acetamido-2-deoxy-3,4,6-tri-*O*-methyl-β-D-glucopyranoside*
$C_{18}H_{27}NO_6$ 353.414
Mp 174°. $[\alpha]_D$ -36.2 ($CHCl_3$).

3,4,6-Tri-Me, N*-benzoyl: Benzyl 2-benzamido-2-deoxy-3,4,6-tri-*O*-methyl-β-D-glucopyranoside*
$C_{23}H_{29}NO_6$ 415.485
Mp 180°. $[\alpha]_D$ -21.8 ($CHCl_3$).

*3-Benzyl, 4,6-*O*-isopropylidene,* N*-Ac: Benzyl 2-acetamido-3-*O*-benzyl-2-deoxy-4,6-*O*-isopropylidene-β-D-glucopyranoside*
$C_{25}H_{31}NO_6$ 441.523
Needles (EtOH/hexane). Mp 152-153°. $[\alpha]_D^{20}$ -21 (c, 1 in $CHCl_3$).

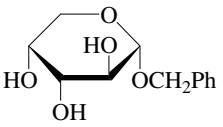
3,4,6-Tribenzyl, N*-Ac: Benzyl 2-acetamido-3,4,6-tri-*O*-benzyl-2-deoxy-β-D-glucopyranoside*
$C_{36}H_{39}NO_6$ 581.707
Cryst. (MeOH). Mp 160-161° Mp 170-172°. $[\alpha]_D^{20}$ -12.1 (c, 1.3 in $CHCl_3$).

3,4,6-Tribenzyl, N*-benzoyl: Benzyl 2-benzamido-3,4,6-tri-*O*-benzyl-2-deoxy-β-D-glucopyranoside*
$C_{41}H_{41}NO_6$ 643.778
Cryst. (EtOH). Mp 154-158°. $[\alpha]_D^{20}$ +28 (c, 1.38 in $CHCl_3$).

3,4,6-Tribenzyl, N*-benzoyl,* N*-Ac: Benzyl 2-(*N*-acetylbenzamido)-3,4,6-tri-*O*-benzyl-2-deoxy-β-D-glucopyranoside*
$C_{43}H_{43}NO_7$ 685.815
$[\alpha]_D^{20}$ -14.3 (c, 4.13 in $CHCl_3$).

Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247 (*rev, derivs*)
Kuhn, R. *et al., Annalen*, 1958, **611**, 236, (*α-D-N-Ac benzoyl benzylidene*)
Harrison, R. *et al., J.O.C.*, 1965, **30**, 2317, (*β-D-N-Ac tribenzyl, β-D-N-benzoyl tribenzyl*)
Gross, P.H. *et al., J.O.C.*, 1967, **32**, 2759, (*β-N-Ac, β-4,6-benzylidene N-Ac*)
Miyai, K. *et al., Carbohydr. Res.*, 1972, **21**, 45 (*α-D-form, synth, α-D-N-Ac*)
Shulman, M.L. *et al., Carbohydr. Res.*, 1973, **27**, 141 (*α-D-N-Ac*)
Hasegawa, A. *et al., Carbohydr. Res.*, 1973, **29**, 209 (*β-D-N-Ac isopropylidene, β-D-N-Ac benzyl isopropylidene, β-D-N-benzoyl isopropylidene*)
Rhoads, W.O. *et al., Z. Naturforsch., B*, 1973, **28**, 647 (*α/β-D-N-Ac*)
Jacquinet, J.-C. *et al., Carbohydr. Res.*, 1974, **38**, 305 (*α-D-N-Ac dibenzyl*)
Arendt, A. *et al., Rocz. Chem.*, 1974, **48**, 1707 (*synth, N-Ac*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1981, **93**, C10 (*α-D-N-Ac dibenzyl*)
Jacquinet, J.-C. *et al., Carbohydr. Res.*, 1984, **130**, 221 (*3-benzyl-N-benzyloxycarbonyl-6-Ac*)

Benzyl arabinopyranoside, 9CI, 8CI B-14



α-D-*form*

$C_{12}H_{16}O_5$ 240.255

α-D-*form* [61134-26-7]
Cryst. (H_2O). Mp 140-141°. $[\alpha]_D$ +12.3 (H_2O). $[\alpha]_D$ +49.8 (EtOH).

*Tri-Ac: Benzyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside*
$C_{18}H_{22}O_8$ 366.367
Cryst. (EtOH aq.). Mp 80-81°. $[\alpha]_D^{25}$ +25.7 (c, 3 in $CHCl_3$).

*2-Tosyl: Benzyl 2-*O*-tosyl-α-D-arabinopyranoside*
[61134-28-9]
$C_{19}H_{22}O_7S$ 394.445
Cryst. (MeOH aq.). Mp 110-112°. $[\alpha]_D$ +22 (c, 1.0 in $CHCl_3$).

*3,4-*O*-Isopropylidene: Benzyl 3,4-*O*-isopropylidene-α-D-arabinopyranoside*
[76825-34-8]
$C_{15}H_{20}O_5$ 280.32
Mp 55-58°. $[\alpha]_D$ -209 (c, 2.0 in EtOH).

*3,4-*O*-Isopropylidene, 2-tosyl: Benzyl 3,4-*O*-isopropylidene-2-*O*-tosyl-α-D-arabinopyranoside*
[61134-27-8]
$C_{22}H_{26}O_7S$ 434.509
Cryst. (EtOH aq.). Mp 80-82°. $[\alpha]_D$ -12 (c, 1.0 in $CHCl_3$).

*3,4-*O*-Benzylidene (*R*-): Benzyl 3,4-*O*-(*R*)-benzylidene-α-D-arabinopyranoside*
[38099-78-4]
$C_{19}H_{20}O_5$ 328.364
Mp 148-149°. $[\alpha]_D$ +10 ($CHCl_3$).

*3,4-*O*-Benzylidene (*S*-): Benzyl 3,4-*O*-(*S*)-benzylidene-α-D-arabinopyranoside*
[38099-79-5]
$C_{19}H_{20}O_5$ 328.364
Mp 116-117°. $[\alpha]_D$ +8 ($CHCl_3$).

β-D-*form* [5329-50-0]
Cryst. (EtOH). Mp 172-173°. $[\alpha]_D$ -209 (c, 0.41 in H_2O).

*Tri-Ac: Benzyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside*
$C_{18}H_{22}O_8$ 366.367
Cryst. (EtOH aq.). Mp 98-100°. $[\alpha]_D$ -200.5 (c, 3 in $CHCl_3$).

*2-Tosyl: Benzyl 2-*O*-tosyl-β-D-arabinopyranoside*
[31079-87-5]
$C_{19}H_{22}O_7S$ 394.445
Cryst. ($CHCl_3$/petrol). Mp 121° (46-48°). $[\alpha]_D^{25}$ -165.1 (c, 0.5 in $CHCl_3$).

*2,4-Ditosyl: Benzyl 2,4-di-*O*-tosyl-β-D-arabinopyranoside*
[31079-88-6]

$C_{26}H_{28}O_9S_2$ 548.634
Cryst. Mp 126°. $[\alpha]_D^{25}$ -126.8 (c, 0.5 in $CHCl_3$).

α-L-*form*
Cryst. (MeOH). Mp 138-140°. $[\alpha]_D$ -44.6 (c, 1 in EtOH).

Tri-Ac: Benzyl 2,3,4-tri-O-*acetyl-α-L-arabinopyranoside*
$C_{18}H_{22}O_8$ 366.367
Cryst. (EtOH). Mp 79.5-81°. $[\alpha]_D$ -24.4 ($CHCl_3$).

β-L-*form* [7473-38-3]
Mp 172-173°. $[\alpha]_D$ +215.2 (H_2O).

Tri-Ac: Benzyl 2,3,4-tri-O-*acetyl-β-L-arabinopyranoside*
Cryst. (EtOH aq.). Mp 98-100°. $[\alpha]_D$ +200.5 ($CHCl_3$).

2,3-Dibenzoyl: Benzyl 2,3-di-O-*benzoyl-β-L-arabinopyranoside*
[18403-13-9]
$C_{26}H_{24}O_7$ 448.471
Cryst. (EtOAc/petrol). Mp 122-123°. $[\alpha]_D^{22}$ +204 (c, 0.55 in $CHCl_3$).

2,3-Dibenzoyl, 4-mesyl: Benzyl 2,3-di-O-*benzoyl-4*-O-*mesyl-β-L-arabinopyranoside*
[18403-16-2]
$C_{27}H_{26}O_9S$ 526.563
Glass. $[\alpha]_D^{22}$ +194 (c, 0.96 in $CHCl_3$).

Tribenzoyl: Benzyl 2,3,4-tri-O-*benzoyl-β-L-arabinopyranoside*
[18403-14-0]
$C_{33}H_{28}O_8$ 552.579
Syrup. $[\alpha]_D^{22}$ +277 (c, 1.0 in $CHCl_3$).

2-Tosyl: Benzyl 2-O-*tosyl-β-L-arabinopyranoside*
[26524-58-3]
$C_{19}H_{22}O_7S$ 394.445
Cryst. (EtOH aq.). Mp 122-123°. $[\alpha]_D^{23}$ +133.6 (c, 0.5 in DMF).

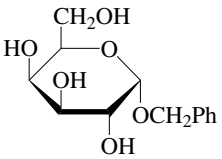
3,4-O-*Isopropylidene: Benzyl 3,4*-O-*isopropylidene-β-L-arabinopyranoside*
[18403-22-0]
$C_{15}H_{20}O_5$ 280.32
Mp 54-56°. $[\alpha]_D$ +220 ($CHCl_3$).

3,4-O-*Isopropylidene, 2-benzoyl: Benzyl 2*-O-*benzoyl-3,4*-O-*isopropylidene-β-L-arabinopyranoside*
[18403-23-1]
$C_{22}H_{24}O_6$ 384.428
Cryst. (Me_2CO aq.). Mp 110-112°. $[\alpha]_D$ +212 ($CHCl_3$).

3,4-O-*Isopropylidene, 2-tosyl: Benzyl 3,4*-O-*isopropylidene-2-tosyl-β-L-arabinopyranoside*
[68753-33-3]
$C_{22}H_{26}O_7S$ 434.509
Cryst. (EtOAc/hexane). Mp 92-93°. $[\alpha]_D$ +160 (c, 0.25 in CH_2Cl_2).

Fletcher, H.G. *et al., J.A.C.S.*, 1950, **72**, 4173, (*α-D-form, β-D-form*)
Ballou, C.E. *et al., J.A.C.S.*, 1951, **73**, 1140, (*α-D-form, β-D-form, α-L-form, β-L-form, α-D-tri-Ac, β-D-tri-Ac, α-L-tri-Ac, β-L-tri-Ac*)
Ballou, C.E. *et al., J.A.C.S.*, 1957, **79**, 165, (*α-D-3,4-isopropylidene*)
Wold, F. *et al., J.O.C.*, 1961, **26**, 197, (*β-L-isopropylidene*)
Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, 255
Cohen, S. *et al., Chem. Ind. (London)*, 1964, 1802 (*2-tosyl*)
Sivakumaran, T. *et al., Can. J. Chem.*, 1967, **45**, 2493 (*β-L-dibenzoyl, β-L-dibenzoyl mesyl, β-L-tribenzoyl, β-L-isopropylidene, β-L-isopropylidene benzoyl*)
Holý, A. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 3383 (*β-L-form, synth, β-L-tosyl*)
Friedman, N. *et al., Isr. J. Chem.*, 1970, **8**, 663 (*β-D-tosyl derivs*)
Garegg, P.J. *et al., Acta Chem. Scand.*, 1972, **26**, 518 (*α-D-benzylidene*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1976, 1449 (*α-D-isopropylidene tosyl, α-D-tosyl*)
Popek, T. *et al., Acta Cryst. C*, 1996, **52**, 1558 (*cryst struct, β-L-form, β-L-isopropylidene*)
Lugemwa, F.N. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1433-1443 (*β-L-form, β-L-isopropylidene, β-L-isopropylidene 2-tosyl, β-L-2-tosyl*)

Benzyl galactopyranoside B-15



α-D-*form*

$C_{13}H_{18}O_6$ 270.282

α-D-*form* [86196-36-3]
$[\alpha]_D^{25}$ +158 (c, 0.7 in MeOH).

4,6-O-*Benzylidene: Benzyl 4,6*-O-*benzylidene-α-D-galactopyranoside*
[57783-86-5]
$C_{20}H_{22}O_6$ 358.39
Cryst. (EtOH). Mp 108-109°. $[\alpha]_D$ +117 (c, 0.2 in $CHCl_3$).

6-Benzyl: Benzyl 6-O-*benzyl-α-D-galactopyranoside*
[72550-81-3]
$C_{20}H_{24}O_6$ 360.406
Cryst. (Et_2O). Mp 126-127°. $[\alpha]_D^{20}$ +176 (c, 1 in MeOH).

2,3-Dibenzyl: Benzyl 2,3-di-O-*benzyl-α-D-galactopyranoside*
[53929-37-6]
$C_{27}H_{30}O_6$ 450.53
Cryst. (EtOAc/petrol). Mp 116-118°. $[\alpha]_D$ +87.3 (c, 1 in $CHCl_3$).

2,3-Dibenzyl, 4,6-O-*benzylidene: Benzyl 2,3-di*-O-*benzyl-4,6*-O-*benzylidene-α-D-galactopyranoside*
$C_{34}H_{34}O_6$ 538.639
Cryst. (EtOH). Mp 140°. $[\alpha]_D$ +111 (c, 0.5 in $CHCl_3$).

2,6-Dibenzyl: Benzyl 2,6-di-O-*benzyl-α-D-galactopyranoside*
[72045-27-3]
$C_{27}H_{30}O_6$ 450.53
Cryst. (EtOH). Mp 107.5°. $[\alpha]_D^{26}$ +113 (c, 1 in MeOH).

2,3,4-Tribenzyl: Benzyl 2,3,4-tri-O-*benzyl-α-D-galactopyranoside*
[53765-90-5]
$C_{34}H_{36}O_6$ 540.655
Mp 91-91.5°. $[\alpha]_D$ +58 ($CHCl_3$).

2,3,4-Tribenzyl, 6-Me: Benzyl 2,3,4-tri-O-*benzyl-6*-O-*methyl-α-D-galactopyranoside*
$C_{35}H_{38}O_6$ 554.682
Syrup. $[\alpha]_D$ +70 (c, 0.71 in $CHCl_3$).

2,3,6-Tribenzyl: Benzyl 2,3,6-tri-O-*benzyl-α-D-galactopyranoside*
[53929-38-7]
$C_{34}H_{36}O_6$ 540.655
Syrup. $[\alpha]_D^{22}$ +72 (c, 1.0 in $CHCl_3$).

2-Allyl, 6-benzyl:
$C_{23}H_{28}O_6$ 400.471
$Bp_{0.01}$ 210°. $[\alpha]_D^{20}$ +116 (c, 2 in $CHCl_3$).

β-D-*form* [14897-46-2]
Mp 125°. $[\alpha]_D^{27}$ -25.3 (c, 2.59 in $CHCl_3$).

2,6-Di-Ac: Benzyl 2,6-di-O-*acetyl-β-D-galactopyranoside*
[16741-11-0]
$C_{17}H_{22}O_8$ 354.356
Cryst. (C_6H_6). Mp 115-116°. $[\alpha]_D^{25}$ -36 (c, 1.00 in $CHCl_3$).

2,3,6-Tri-Ac: Benzyl 2,3,6-tri-O-*acetyl-β-D-galactopyranoside*
[53691-40-0]
$C_{19}H_{24}O_9$ 396.393
Prisms (diisopropyl ether). Mp 94-95°. $[\alpha]_D$ -38 (c, 0.86 in $CHCl_3$).

2,4,6-Tri-Ac: Benzyl 2,4,6-tri-O-*acetyl-β-D-galactopyranoside*
[53691-41-1]
$C_{19}H_{24}O_9$ 396.393
Needles (diisopropyl ether). Mp 133°. $[\alpha]_D$ -40 (c, 1.0 in $CHCl_3$).

3,4,6-Tri-Ac: Benzyl 3,4,6-tri-O-*acetyl-β-D-galactopyranoside*
[53691-39-7]
$C_{19}H_{24}O_9$ 396.393
Mp 121°. $[\alpha]_D$ -29 (c, 1.14 in $CHCl_3$).

Tetra-Ac: Benzyl 2,3,4,6-tetra-O-*acetyl-β-D-galactopyranoside*
[83113-54-6]
$C_{21}H_{26}O_{10}$ 438.43
Syrup. $[\alpha]_D$ -34 (c, 1.12 in $CHCl_3$).

2-Benzoyl: Benzyl 2-O-*benzoyl-β-D-galactopyranoside*
[16741-15-4]
$C_{20}H_{22}O_7$ 374.39
Cryst. (Me_2CO/petrol). Mp 175.5-176.5°. $[\alpha]_D^{25}$ -41 (c, 0.95 in MeOH).

6-Benzoyl: Benzyl 6-O-*benzoyl-β-D-galactopyranoside*
[16741-14-3]
$C_{20}H_{22}O_7$ 374.39
Cryst. (EtOH). Mp 92-94°. $[\alpha]_D^{25}$ -22.5 (c, 0.87 in MeOH).

3,4-O-*Isopropylidene: Benzyl 3,4*-O-*isopropylidene-β-D-galactopyranoside*
[14897-51-9]
$C_{16}H_{22}O_6$ 310.346
Cryst. (Me_2CO/petrol). Mp 123-124° (118-119°). $[\alpha]_D^{25}$ -2.8 (c, 1.6 in $CHCl_3$) (-6.0).

3,4-O-*Isopropylidene, 2,6-di-Ac: Benzyl 2,6-di*-O-*acetyl-3,4*-O-*isopropylidene-β-D-galactopyranoside*
[16741-10-9]
$C_{20}H_{26}O_8$ 394.421
Needles (Me_2CO/petrol). Mp 123-124° (118-119°). $[\alpha]_D^{25}$ -4.4 (c, 1.07 in $CHCl_3$).

3,4-O-*Isopropylidene, 6-benzoyl: Benzyl 6*-O-*benzoyl-3,4*-O-*isopropylidene-β-D-galactopyranoside*
[16741-12-1]
$C_{23}H_{26}O_7$ 414.454

Cryst. (Me_2CO/petrol). Mp 114-114.5°. $[\alpha]_D$ -9.9 (c, 2.59 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 2,6-dibenzoyl: Benzyl 2,6-di-*O*-benzoyl-3,4-*O*-isopropylidene-β-D-galactopyranoside*
[16741-13-2]
$C_{30}H_{30}O_8$ 518.562
Rosettes (C_6H_6/petrol). Mp 118-118.5°. $[\alpha]_D^{25}$ -18.5 (c, 1.92 in $CHCl_3$).

*6-Trityl, 3,4-*O*-isopropylidene: Benzyl 3,4-*O*-isopropylidene-6-*O*-trityl-β-D-galactopyranoside*
[15038-68-3]
$C_{35}H_{36}O_6$ 552.666
$[\alpha]_D^{26}$ -27 (c, 0.74 in $CHCl_3$).

*4,6-*O*-Isopropylidene: Benzyl 4,6-*O*-isopropylidene-β-D-galactopyranoside*
[85194-36-1]
$C_{16}H_{22}O_6$ 310.346
Cryst. (Me_2CO/petrol). Mp 124-125°. $[\alpha]_D^{25}$ -66 (1.03 in $CHCl_3$).

*4,6-*O*-Benzylidene: Benzyl 4,6-*O*-benzylidene-β-D-galactopyranoside*
[56341-65-2]
$C_{20}H_{22}O_6$ 358.39
Mp 207-209°. $[\alpha]_D$ -62.4 (c, 1 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2-benzoyl: Benzyl 2-*O*-benzoyl-4,6-*O*-benzylidene-β-D-galactopyranoside*
[26531-95-3]
$C_{27}H_{26}O_7$ 462.498
Cryst. (EtOH). Mp 188-189°. $[\alpha]_D^{21}$ +24 (c, 1.0 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-benzoyl: Benzyl 3-*O*-benzoyl-4,6-*O*-benzylidene-β-D-galactopyranoside*
[26531-92-0]
$C_{27}H_{26}O_7$ 462.498
Cryst. (2-propanol). Mp 179-180°. $[\alpha]_D^{22}$ +64.6 (c, 1.6 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2-tosyl, 3-benzoyl: Benzyl 3-*O*-benzoyl-4,6-*O*-benzylidene-2-*O*-tosyl-β-D-galactopyranoside*
[26531-93-1]
$C_{34}H_{32}O_9S$ 616.687
Cryst. (EtOH). Mp 171-172°. $[\alpha]_D^{21}$ +89.5 (c, 0.95 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2,3-dibenzoyl: Benzyl 2,3-di-*O*-benzoyl-4,6-*O*-benzylidene-β-D-galactopyranoside*
[26531-91-9]
$C_{34}H_{30}O_8$ 566.606
Cryst. (EtOH). Mp 177-178°. $[\alpha]_D^{21}$ +118 (c, 1.2 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-tosyl, 2-benzoyl: Benzyl 2-*O*-benzoyl-4,6-*O*-benzylidene-3-*O*-tosyl-β-D-galactopyranoside*
[26531-96-4]
$C_{34}H_{32}O_9S$ 616.687
Cryst. (2-propanol). Mp 184-185°. $[\alpha]_D^{22}$ +63 (c, 2.0 in $CHCl_3$).

2-Me, 3,4,6-tri-Ac: Benzyl 3,4,6-tri-O-acetyl-2-O-methyl-β-D-galactopyranoside
[53691-42-2]
$C_{20}H_{26}O_9$ 410.42
Cryst. ($CHCl_3$). Mp 102-106°. $[\alpha]_D$ -10.5 (c, 0.8 in EtOH).

3-Me, 2,4,6-tri-Ac: Benzyl 2,4,6-tri-O-acetyl-3-O-methyl-β-D-galactopyranoside
[53691-44-4]
$C_{20}H_{26}O_9$ 410.42
Cryst. (diisopropyl ether). Mp 88-89°. $[\alpha]_D$ -38 (c, 0.63 in $CHCl_3$).

4-Me, 2,3,6-tri-Ac: Benzyl 2,3,6-tri-O-acetyl-4-O-methyl-β-D-galactopyranoside
[53691-43-3]
$C_{20}H_{26}O_9$ 410.42
Cryst. (diisopropyl ether). Mp 94-96°. $[\alpha]_D$ -30 (c, 0.32 in $CHCl_3$).

2-Benzyl: Benzyl 2-O-benzyl-β-D-galactopyranoside
[15038-70-7]
$C_{20}H_{24}O_6$ 360.406
Syrup. $[\alpha]_D^{26}$ -3.5 (c, 0.79 in $CHCl_3$).

2,3-Dibenzyl: Benzyl 2,3-di-O-benzyl-β-D-galactopyranoside
[74801-06-2]
$C_{27}H_{30}O_6$ 450.53
Cryst. (Me_2CO/petrol). Mp 116-117°. $[\alpha]_D^{20}$ -17 (c, 0.6 in $CHCl_3$).

*2-Benzyl, 4,6-*O*-benzylidene: Benzyl 2-*O*-benzyl-4,6-*O*-benzylidene-β-D-galactopyranoside*
[14897-54-2]
$C_{27}H_{28}O_6$ 448.515
Needles (MeOH). Mp 143.5-144°. $[\alpha]_D^{25}$ -10.4 (c, 0.68 in $CHCl_3$).

2,6-Dibenzyl: Benzyl 2,6-di-O-benzyl-β-D-galactopyranoside
[73108-30-2]
$C_{27}H_{30}O_6$ 450.53
Mp 107-108°. $[\alpha]_D$ -17.1 ($CHCl_3$) (-15.1).

2,6-Dibenzyl, 3,4-isopropylidene: Benzyl 2,6-di-O-benzyl-3,4-O-isopropylidene-β-D-galactopyranoside
[73108-28-8]
$C_{30}H_{34}O_6$ 490.595
$[\alpha]_D^{25}$ +7.3 (c, 1.0 in $CHCl_3$).

2,3,4-Tribenzyl: Benzyl 2,3,4-tri-O-benzyl-β-D-galactopyranoside
[35017-04-0]
$C_{34}H_{36}O_6$ 540.655
Cryst. (cyclohexane). Mp 96°. $[\alpha]_D$ -49 (c, 1.3 in $CHCl_3$).

2,3,4-Tribenzyl, 6-Me: Benzyl 2,3,4-tri-O-benzyl-6-O-methyl-β-D-galactopyranoside
$C_{35}H_{38}O_6$ 554.682
Cryst. (cyclohexane). Mp 80-81°. $[\alpha]_D$ -30 (c, 0.80 in $CHCl_3$).

2,3,6-Tribenzyl: Benzyl 2,3,6-tri-O-benzyl-β-D-galactopyranoside
[57783-81-0]
$C_{34}H_{36}O_6$ 540.655
Syrup. $[\alpha]_D^{24}$ -24 (c, 1.1 in $CHCl_3$).

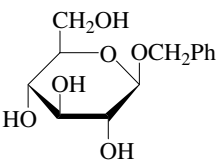
2,3,6-Tribenzyl, 4-Me: Benzyl 2,3,6-tri-O-benzyl-4-O-methyl-β-D-galactopyranoside
[57783-83-2]
$C_{35}H_{38}O_6$ 554.682
Cryst. (cyclohexane/hexane). Mp 79-81°. $[\alpha]_D$ -43 (c, 0.50 in $CHCl_3$).

2,4,6-Tribenzyl: Benzyl 2,4,6-tri-O-benzyl-β-D-galactopyranoside
[62447-55-6]
$C_{34}H_{36}O_6$ 540.655
Syrup. $[\alpha]_D$ -14.22 (c, 0.9 in $CHCl_3$).

Turvey, J.R. *et al., J.C.S.*, 1962, 2119, (*β-D-2,3-dibenzyl*)
Levy, A. *et al., Carbohydr. Res.*, 1967, **4**, 305, (*β-D-4,6-isopropylidene, β-D-3,4-isopropylidene, β-D-isopropylidene di-Ac, β-D-isopropylidene benzoyl, β-D-acyl derivs*)
Stoffyn, A. *et al., J.O.C.*, 1967, **32**, 4001, (*β-D-form, synth, β-D-3,4-isopropylidene, β-D-isopropylidene trityl, β-D-benzyl, β-D-benzylidene benzyl*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1969, **11**, 379 (*β-D-benzylidene esters*)
Lee, E.E. *et al., Carbohydr. Res.*, 1974, **35**, 103 (*β-D-tri-Ac, β-D-tri-Ac Me*)
Gent, P.A. *et al., J.C.S. Perkin 1*, 1974, 1446; 1447 (*α-D-dibenzyl, α-D-2,3-dibenzyl, α-D-2,3,4-tribenzyl*)
Lipták, A. *et al., Carbohydr. Res.*, 1975, **44**, 1, (*α-D-benzylidene, α-D-benzylidene dibenzyl, α-D-2,3,4-tribenzyl, β-D-2,3,4-tribenzyl derivs*)
Augé, C. *et al., J.C.S. Perkin 1*, 1979, 1825, (*α-D-6-benzyl, α-D-dibenzyl, α-D-allyl benzyl*)
David, S. *et al., J.C.S. Perkin 1*, 1981, 1796, (*β-D-benzyl dervis*)
Numata, M. *et al., Carbohydr. Res.*, 1987, **163**, 209 (*β-D-2,6-dibenzyl, β-D-2,6-dibenzyl isopropylidene*)
Catelani, G. *et al., Carbohydr. Res.*, 1988, **182**, 297 (*synth, β-D-3,4-isopropylidene*)
Chowdhury, U.S. *et al., Synth. Commun.*, 2000, **30**, 3785-3792 (*β-D-2,4,6-tribenzyl*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1603-1615 (*α-D-form, α-D-2,3,6-tribenzyl*)
Joseph, C.C. *et al., Synth. Commun.*, 2003, **33**, 493-497 (*β-D-4,6-benzylidene*)

Benzyl glucopyranoside, 8CI B-16

Phenylmethyl glucopyranoside
[34246-23-6]



α-D-*form*

$C_{13}H_{18}O_6$ 270.282

α-D-*form* [25320-99-4]
Cryst. (Et_2O). Mp 121-122°. $[\alpha]_D^{23}$ +133 (c, 1.5 in H_2O).

Tetra-Ac: Benzyl 2,3,4,6-tetra-O-acetyl-α-D-glucopyranoside
[31281-76-2]
$C_{21}H_{26}O_{10}$ 438.43
Mp 109°.

*2,3,6-Tri-*O*-benzoyl: Benzyl 2,3,6-tri-O-benzoyl-α-D-glucopyranoside*
$C_{34}H_{30}O_9$ 582.606
Cryst. (Et_2O/hexane). Mp 100-101°. $[\alpha]_D$ +144.1 (c, 0.5 in $CHCl_3$).

*4,6-*O*-Benzylidene: Benzyl 4,6-*O*-benzylidene-α-D-glucopyranoside*
[35905-28-3]
$C_{20}H_{22}O_6$ 358.39
Mp 161-162°. $[\alpha]_D^{20}$ +107 (c, 1 in $CHCl_3$). Values from Lubineau *et al* (1976). This compd. and its Ac and tosyl derivs. were also prepd. by Inch *et al* (1972) but the props. do not agree.

*4,6-*O*-Benzylidene, di-Ac: Benzyl 2,3-di-O-acetyl-4,6-*O*-benzylidene-α-D-glucopyranoside*
[35905-29-4]
$C_{24}H_{26}O_8$ 442.465

Mp 107-108°. $[\alpha]_D^{20}$ +114 (c, 1.4 in CH_2Cl_2).

*4,6-*O*-Benzylidene, 2-tosyl: Benzyl 4,6-*O*-benzylidene-2-*O*-tosyl-α-D-glucopyranoside*
[35905-30-7]
$C_{27}H_{28}O_8S$ 512.579
Mp 154-155°. $[\alpha]_D^{20}$ +87.5 (c, 1 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2,3-ditosyl: Benzyl 4,6-*O*-benzylidene-2,3-di-*O*-tosyl-α-D-glucopyranoside*
[35905-38-5]
$C_{34}H_{34}O_{10}S_2$ 666.769
$[\alpha]_D^{20}$ +27 (c, 1 in $CHCl_3$).

*2,3-Dibenzyl: Benzyl 2,3-di-*O*-benzyl-α-D-glucopyranoside*
[58527-86-9]
$C_{27}H_{30}O_6$ 450.53
Mp 111.5°. $[\alpha]_D^{20}$ +65 (c, 1 in $CHCl_3$).

*2,3-Dibenzyl, 4,6-*O*-benzylidene: Benzyl 2,3-di-*O*-benzyl-4,6-*O*-benzylidene-α-D-glucopyranoside*
[58527-85-8]
$C_{34}H_{34}O_6$ 538.639
Mp 137-138°. $[\alpha]_D^{20}$ +25 (c, 1 in $CHCl_3$).

*2,3-Dibenzyl, 6-trityl: Benzyl 2,3-di-*O*-benzyl-6-*O*-trityl-α-D-glucopyranoside*
[58527-87-0]
$C_{46}H_{44}O_6$ 692.85
$[\alpha]_D^{20}$ +45 (c, 1 in $CHCl_3$).

*2,3,6-Tribenzyl: Benzyl 2,3,6-tri-*O*-benzyl-α-D-glucopyranoside*
[58527-89-2]
$C_{34}H_{36}O_6$ 540.655
$Bp_{0.01}$ 280°. $[\alpha]_D^{20}$ +43 (c, 1 in $CHCl_3$).

β-D-*form* [4304-12-5]
Constit. of *Epimedium grandiflorum* var. *thunbergianum*.
Needles (EtOAc/MeOH).
Mp 123-125°. $[\alpha]_D^{25}$ -59.2 (c, 0.67 in MeOH).

*2-*O*-Sulfate:* ***Salvadoside***
[143522-29-6]
$C_{13}H_{18}O_9S$ 350.346
Constit. of *Salvadora persica*. Needles (MeOH) (as Na salt).
Mp 162-164° (Na salt). $[\alpha]_D$ -36 (c, 0.025 in MeOH).

*Tetra-Ac: Benzyl 2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranoside*
[10343-13-2]
$C_{21}H_{26}O_{10}$ 438.43
Mp 101-104°.

*Trimesyl: Benzyl 3,4,6-tri-*O*-mesyl-β-D-glucopyranoside*
[172845-76-0]
$C_{16}H_{24}O_{12}S_3$ 504.556
Needles. Mp 137-139°. CAS no. refers to d_6-DMSO complex.

2,4,6-Tribenzoyl: [195063-73-1]
$C_{34}H_{30}O_9$ 582.606
$[\alpha]_D$ -38.2 (c, 1.1 in $CHCl_3$).

6-O-(3,4,5-Trihydroxybenzoyl): Benzyl 6-galloyl-β-D-glucopyranoside
$C_{20}H_{22}O_{10}$ 422.388
Constit. of *Monochaetum multiflorum*. Amorph. powder. $[\alpha]_D$ -29.4 (c, 1.7 in MeOH). λ_{max} 272 (log ϵ 3.68) (MeOH).

*4,6-*O*-Benzylidene: Benzyl 4,6-*O*-benzylidene-β-D-glucopyranoside*
[58006-32-9]
$C_{20}H_{22}O_6$ 358.39
Mp 159-160°. $[\alpha]_D^{22}$ -80 (c, 1 in dioxan).

*4,6-*O*-Benzylidene, 2-Ac: Benzyl 2-*O*-acetyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[20853-38-7]
$C_{22}H_{24}O_7$ 400.427
Mp 167-168°. $[\alpha]_D^{20}$ -98.4 (c, 1.1 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-Ac: Benzyl 3-*O*-acetyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[20853-39-8]
$C_{22}H_{24}O_7$ 400.427
Mp 145-146°. $[\alpha]_D^{20}$ -80.6 (c, 1.6 in $CHCl_3$).

*2,3,4-Tri-Me: Benzyl 2,3,4-tri-*O*-methyl-β-D-glucopyranoside*
[42400-54-4]
$C_{16}H_{24}O_6$ 312.362
Mp 53-54°. $[\alpha]_D$ -46.5 (c, 1 in CH_2Cl_2).

*2,3-Dibenzyl: Benzyl 2,3-di-*O*-benzyl-β-D-glucopyranoside*
[67831-41-8]
$C_{27}H_{30}O_6$ 450.53
Mp 112-113°. $[\alpha]_D^{23}$ -6.5 (c, 2 in Me_2CO).

*2,3-Dibenzyl, 4,6-*O*-benzylidene: Benzyl 2,3-di-*O*-benzyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[57783-66-1]
$C_{34}H_{34}O_6$ 538.639
Mp 135-136°. $[\alpha]_D^{23}$ -53 (c, 2.2 in $CHCl_3$).

*2,3,4-Tribenzyl: Benzyl 2,3,4-tri-*O*-benzyl-β-D-glucopyranoside*
[27851-29-2]
$C_{34}H_{36}O_6$ 540.655
Mp 105-106°. $[\alpha]_D^{20}$ -9.1 (c, 1.5 in $CHCl_3$).

*2,3,6-Tribenzyl: Benzyl 2,3,6-tri-*O*-benzyl-β-D-glucopyranoside*
[67831-42-9]
$C_{34}H_{36}O_6$ 540.655
Mp 66-67°. $[\alpha]_D$ -44.2 (c, 1.8 in $CHCl_3$).

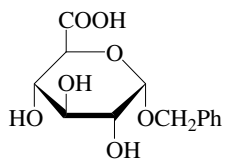
*3,4,6-Tribenzyl: Benzyl 3,4,6-tri-*O*-benzyl-β-D-glucopyranoside*
[90302-50-4]
$C_{34}H_{36}O_6$ 540.655
Mp 70-71° (89-90°). $[\alpha]_D^{25}$ -26.5 (c, 0.7 in $CHCl_3$).

*3,4,6-Tribenzyl, 2-Ac: Benzyl 2-*O*-acetyl-3,4,6-tri-*O*-benzyl-β-D-glucopyranoside*
[93179-89-6]
$C_{36}H_{38}O_7$ 582.692
Mp 68-70°. $[\alpha]_D^{25}$ -24 (c, 0.8 in $CHCl_3$) (-16).

*6-Trityl, 2,3,4-tri-Me: Benzyl 2,3,4-tri-O-methyl-6-*O*-trityl-β-D-glucopyranoside*
[42400-53-3]
$C_{35}H_{38}O_6$ 554.682
Mp 134-135°. $[\alpha]_D$ -3.2 (c, 1 in $CHCl_3$).

Slotta, K.H. *et al., Ber.*, 1930, **63**, 1024, (*β-D-form*)
Piel, E.V. *et al., J.A.C.S.*, 1939, **61**, 2978 (*α-D-form, α-D-tetra-Ac, β-D-form, β-D-tetra-Ac*)
Klemer, A. *et al., Chem. Ber.*, 1959, **92**, 218, (*β-D-benzylidene, β-D-benzylidene dibenzyl, β-D-dibenzyl*)
Glaudemans, C.P.J. *et al., Carbohydr. Res.*, 1968, **7**, 480 (*β-D-benzylidene 2-Ac, β-D-benzylidene 3-Ac*)
Wing, R.E. *et al., Carbohydr. Res.*, 1969, **10**, 441 (*α-D-form, synth*)
Inch, T.D. *et al., Carbohydr. Res.*, 1972, **22**, 91 (*α-D-benzylidene, α-D-benzylidene di-Ac, α-D-benzylidene tosyl*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1973, **51**, 1359 (*β-D-tri-Me, β-D-tri-Me trityl*)
Bemiller, J.N. *et al., Carbohydr. Res.*, 1973, **28**, 253 (*α-D-tetra-Ac*)
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1975, **108**, 3397 (*α-D-benzylidene tosyl, α-D-benzylidene ditosyl*)
Lubineau, A. *et al., Carbohydr. Res.*, 1976, **46**, 143 (*α-D-benzylidene, α-D-benzylidene di-Ac, α-D-benzylidene dibenzyl, α-D-dibenzyl, α-D-tribenzyl*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **121**, 163 (*β-D-2,3,4-tribenzyl, β-D-2,3,6-tribenzyl*)
Miyase, T. *et al., Chem. Pharm. Bull.*, 1987, **35**, 1109 (*β-D-form, occur*)
Nepogodev, S.A. *et al., Carbohydr. Res.*, 1992, **232**, 33 (*3,4,6-tribenzyl, 3,4,6-tribenzyl 2-Ac*)
Kamel, M.S. *et al., Phytochemistry*, 1992, **31**, 2469 (*Salvadoside*)
Carvalho, C.F. *et al., Aust. J. Chem.*, 1995, **48**, 1767 (*synth, cryst struct, trimesyl*)
Li, K. *et al., Carbohydr. Res.*, 1995, **273**, 249-253 (*2,3,6-tribenzoyl*)
Coen, M. *et al., Phytochemistry*, 1995, **40**, 149 (*isol, synth, pmr, cmr*)
De Rosa, S. *et al., Phytochemistry*, 1996, **42**, 1031 (*isol, ir, pmr, cmr*)
Ziegler, T. *et al., J. Prakt. Chem.*, 1997, **339**, 534-540 (*β-D-2,4,6-tribenzoyl*)
Isaza, J.H. *et al., Phytochemistry*, 2001, **58**, 321-327 (*Benzyl 6-galloylglucoside*)

Benzyl glucopyranosiduronic acid B-17



α-D-*form*

$C_{13}H_{16}O_7$ 284.265

α-D-*form*

*2,3-Dibenzyl, Me ester: Methyl (benzyl 2,3-di-*O*-benzyl-α-D-glucopyranosid)uronate*
[42926-99-8]
$C_{28}H_{30}O_7$ 478.541
Cryst. Mp 56-57°. $[\alpha]_D^{25}$ +68.1 (c, 0.21 in $CHCl_3$).

*2,3-Dibenzyl, 4-mesyl, Me ester: Methyl (benzyl 2,3-di-*O*-benzyl-4-*O*-mesyl-α-D-glucopyranosid)uronate*
$C_{29}H_{32}O_9S$ 556.632
Mp 79°. $[\alpha]_D$ +147 (MeOH).

β-D-*form* [5285-02-9]
$[\alpha]_D$ -74 (c, 0.5 in H_2O).

Me ester: Methyl (benzyl β-D-glucopyranosid)uronate
$C_{14}H_{18}O_7$ 298.292
Mp 131-132°. $[\alpha]_D^{18}$ -73.8 (MeOH).

*Tri-Ac, Me ester: Methyl (benzyl 2,3,4-tri-*O*-acetyl-β-D-glucopyranosid)uronate*
$C_{20}H_{24}O_{10}$ 424.404
Cryst. (Et_2O). Mp 137-138°. $[\alpha]_D$ -67 (c, 1.0 in $CHCl_3$).

*2,3-Dibenzyl, Me ester: Methyl (benzyl 2,3-di-*O*-benzyl-β-D-glucopyranosid) uronate*
[42927-00-4]
$C_{28}H_{30}O_7$ 478.541
Mp 82-83°. $[\alpha]_D^{25}$ -46.3 (c, 0.22 in $CHCl_3$).

*2,3,4-Tribenzyl: Benzyl 2,3,4-tri-*O*-benzyl-β-D-glucopyranosiduronic acid*
[27851-26-9]
$C_{34}H_{34}O_7$ 554.638
Cryst. (Me_2CO/cyclohexane). Mp 115-125°. $[\alpha]_D^{20}$ -34.1 (c, 1.0 in $CHCl_3$).

*2,3,4-Tribenzyl, Me ester: Methyl (benzyl 2,3,4-tri-*O*-benzyl-β-D-glucopyranosid)uronate*
[27851-32-7]
$C_{35}H_{36}O_7$ 568.665
Cryst. (MeOH). Mp 109-110°. $[\alpha]_D^{20}$ -26 (c, 1.0 in $CHCl_3$).

Kiss, J. *et al., Carbohydr. Res.*, 1969, **10**, 328; 1973, **27**, 282 (*α-D-Me ester mesyl dibenzyl, α-D-Me ester dibenzyl, β-D-Me ester dibenzyl*)
Zissis, E. *et al., Carbohydr. Res.*, 1970, **12**, 361 (*β-D-tribenzyl, β-D-Me ester tribenzyl*)
Keglević, D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1979, **36**, 57 (*rev*)
Compernolle, F. *et al., Carbohydr. Res.*, 1980, **83**, 135 (*β-D-benzyl tri-Ac*)

Benzyl glucosinolate B-18

*1-Thio-β-D-glucopyranose 1-[*N*-(sulfooxy)-benzenethanimidate], 9CI.* ***Glucotropaeolin****. Phenylmethyl glucosinolate*
[499-26-3]
$PhCH_2C(SGlc){=}NOSO_3H$
$C_{14}H_{19}NO_9S_2$ 409.437
Isol. from seeds of *Tropaeolum majus* (garden nasturtium), *Lepidium sativum* (garden cress) and other crucifers. Present in maca tubers (*Lepidium meyenii*). Possesses antibiotic props.

K salt: [5115-71-9]
Amorph. powder.

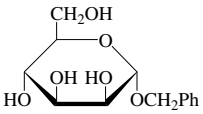
Me_4N salt:
Cryst. Mp 188-189°. $[\alpha]_D^{28}$ -16.7 (H_2O).

Tetra-Ac:
Cryst. +1H_2O (EtOH aq.) (as K salt). Mp 197-199° dec. (K salt). $[\alpha]_D^{25}$ -19 (c, 0.5 in H_2O).

[92761-40-5, 117489-68-6]

Schultz, O.E. *et al., Z. Naturforsch., B*, 1952, **7**, 500; 1953, **8**, 151 (*isol*)
Schultz, O.E. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1955, **288**, 525 (*isol*)
Ettlinger, M.G. *et al., J.A.C.S.*, 1957, **79**, 1764 (*synth*)
Benn, M.H. *et al., Can. J. Chem.*, 1963, **41**, 2836 (*synth*)
Underhill, E.W. *et al., Biochem. Biophys. Res. Commun.*, 1964, **14**, 425 (*biosynth*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Hanley, A.B. *et al., J. Sci. Food Agric.*, 1983, **34**, 869 (*isol*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*pmr, cmr*)
Piacente, S. *et al., J. Agric. Food Chem.*, 2002, **50**, 5621-5625 (*isol, maca*)

Benzyl mannoside B-19



α-D-Pyranose-*form*

$C_{13}H_{18}O_6$ 270.282

α-D-Pyranose-*form* [15548-45-5]
Cryst. (EtOAc/Et_2O). Mp 132-133°. $[\alpha]_D^{25}$ +73.5 (c, 1.5 in H_2O).

*2,3,6-Tri-Ac: Benzyl 2,3,6-tri-*O*-acetyl-α-D-mannopyranoside*
[53691-35-3]
$C_{19}H_{24}O_9$ 396.393
Cryst. (diisopropyl ether). Mp 108°. $[\alpha]_D$ +48 (c, 0.98 in $CHCl_3$).

*Tetra-Ac: Benzyl 2,3,4,6-tetra-*O*-acetyl-α-D-mannopyranoside*
[53729-76-3]
$C_{21}H_{26}O_{10}$ 438.43
Syrup. $[\alpha]_D$ +53 (c, 1.42 in $CHCl_3$).

*Tetrabenzoyl: Benzyl 2,3,4,6-tetra-*O*-benzoyl-α-D-mannopyranoside*
$C_{41}H_{34}O_{10}$ 686.714
Amorph. glass. $[\alpha]_D^{20}$ -37.2 (c, 0.49 in $CHCl_3$).

*2,3-*O*-Isopropylidene: Benzyl 2,3-*O*-isopropylidene-α-D-mannopyranoside*
$C_{16}H_{22}O_6$ 310.346
Glass. $[\alpha]_D^{25}$ +42 (c, 1 in $CHCl_3$).

*2,3:4,6-Di-*O*-isopropylidene: Benzyl 2,3:4,6-di-*O*-isopropylidene-α-D-mannopyranoside*
$C_{19}H_{26}O_6$ 350.411
Cryst. (EtOH). Mp 81-82°. $[\alpha]_D^{25}$ +34 (c, 1 in $CHCl_3$).

*4,6-*O*-Benzylidene: Benzyl 4,6-*O*-benzylidene-α-D-mannopyranoside*
[40983-94-6]
$C_{20}H_{22}O_6$ 358.39
Prismatic needles (CH_2Cl_2/C_6H_6). Mp 147-148°. $[\alpha]_D^{25}$ +79 (c, 1.2 in $CHCl_3$).

*2,3:4,6-Di-*O*-benzylidene: Benzyl 2,3:4,6-di-*O*-benzylidene-α-D-mannopyranoside*
[58650-53-6]
$C_{27}H_{26}O_6$ 446.499
Cryst. (CH_2Cl_2/pentane). Mp 174-176°. $[\alpha]_D^{25}$ +34 (c, 1.0 in $CHCl_3$).

*4-Me, 2,3,6-tri-Ac: Benzyl 2,3,6-tri-*O*-acetyl-4-*O*-methyl-α-D-mannopyranoside*
[53691-36-4]
$C_{20}H_{26}O_9$ 410.42
Mp 79-81°. $[\alpha]_D$ +66 (c, 0.66 in $CHCl_3$).

*4-Me: Benzyl 4-*O*-methyl-α-D-mannopyranoside*
[53691-37-5]
$C_{14}H_{20}O_6$ 284.308
Syrup. $[\alpha]_D$ +75 (c, 0.85 in EtOH).

*2-Benzyl, 4,6-*O*-benzylidene: Benzyl 2-*O*-benzyl-4,6-*O*-benzylidene-α-D-mannopyranoside*
[40983-95-7]
$C_{27}H_{28}O_6$ 448.515
Mp 97-99°. $[\alpha]_D$ +39 (c, 0.3 in $CHCl_3$).

*2,3-Dibenzyl, 4,6-*O*-benzylidene: Benzyl 2,3-di-*O*-benzyl-4,6-*O*-benzylidene-α-D-mannopyranoside*
[57783-75-2]
$C_{34}H_{34}O_6$ 538.639
Syrup. $[\alpha]_D$ +69 (c, 0.77 in Py).

*2,3,4-Tribenzyl: Benzyl 2,3,4-tri-*O*-benzyl-α-D-mannopyranoside*
[57783-76-3]
$C_{34}H_{36}O_6$ 540.655
$[\alpha]_D$ +54 (c, 0.3 in $CHCl_3$).

*2,3,4-Tribenzyl, 6-Me: Benzyl 2,3,4-tri-*O*-benzyl-6-*O*-methyl-α-D-mannopyranoside*
$C_{35}H_{38}O_6$ 554.682
Syrup. $[\alpha]_D$ +57 (c, 0.7 in $CHCl_3$).

*3,4,6-Tribenzyl: Benzyl 3,4,6-tri-*O*-benzyl-α-D-mannopyranoside*
[61134-30-3]
$C_{34}H_{36}O_6$ 540.655
Syrup. $[\alpha]_D$ +35 (c, 1.0 in $CHCl_3$).

*3,4,6-Tribenzyl, 2-Ac: Benzyl 2-*O*-acetyl-3,4,6-tri-*O*-benzyl-α-D-mannopyranoside*
[61134-29-0]
$C_{36}H_{38}O_7$ 582.692
Syrup. $[\alpha]_D$ +38.2 (c, 1.0 in $CHCl_3$).

*3,4,6-Tribenzyl, 2-mesyl: Benzyl 3,4,6-tri-*O*-benzyl-2-*O*-mesyl-α-D-mannopyranoside*
[61134-25-6]
$C_{35}H_{38}O_8S$ 618.746
Syrup. $[\alpha]_D$ +32 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*
Mp 54-55°. $[\alpha]_D^{25}$ +78.3 (c, 1.18 in Me_2CO).

*2,3-*O*-Isopropylidene: Benzyl 2,3-*O*-isopropylidene-α-D-mannofuranoside*
[20689-03-6]
$C_{16}H_{22}O_6$ 310.346
Cryst. (EtOAc/petrol). Mp 60-61°. $[\alpha]_D^{30}$ +90 (c, 1.0 in Me_2CO).

*2,3-*O*-Isopropylidene, 6-mesyl: Benzyl 2,3-*O*-isopropylidene-6-*O*-mesyl-α-D-mannofuranoside*
[30572-25-9]
$C_{17}H_{24}O_8S$ 388.438
Cryst. (Et_2O/petrol). Mp 92-93°. $[\alpha]_D$ +69 (c, 1.0 in $CHCl_3$).

*2,3-*O*-Isopropylidene, 5,6-dimesyl: Benzyl 2,3-*O*-isopropylidene-5,6-di-*O*-mesyl-α-D-mannofuranoside*
[28978-37-2]
$C_{18}H_{26}O_{10}S_2$ 466.529
Cryst. (MeOH aq.). Mp 107-108°. $[\alpha]_D$ +48 (c, 1.0 in $CHCl_3$).

*2,3:5,6-Di-*O*-isopropylidene: Benzyl 2,3:5,6-di-*O*-isopropylidene-α-D-mannofuranoside*
[20689-02-5]
$C_{19}H_{26}O_6$ 350.411
Cryst. (MeOH aq.). Mp 54-55°. $[\alpha]_D^{30}$ +76.5 (c, 1.1 in Me_2CO).

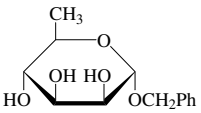
β-D-Furanose-*form* [79981-90-1]
Gum. $[\alpha]_D^{25}$ -35.9 (c, 0.85 in $CHCl_3$).

Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 1381 (*α-D-fur isopropylidene, α-D-fur diisopropylidene*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1970, **13**, 447 (*α-D-fur isopropylidene derivs, pmr*)
Lee, E.E. *et al., Carbohydr. Res.*, 1974, **35**, 103 (*α-D-pyr tri-Ac, α-D-pyr tri-Ac 4-Me, α-D-pyr tetra-Ac, α-D-pyr 4-Me*)
Lipták, A. *et al., Carbohydr. Res.*, 1974, **44**, 1 (*α-D-pyr benzylidene dibenzyl, α-D-pyr 2,3,4-tribenzyl, α-D-pyr 2,3,4-tribenzyl 6-Me*)
Shabana, M.A.E. *et al., Carbohydr. Res.*, 1975, **45**, 105 (*α-D-pyr, synth, α-D-pyr benzylidene, α-D-pyr dibenzylidene*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1976, 1449 (*α-D-pyr 3,4,6-tribenzyl, α-D-pyr 3,4,6-tribenzyl derivs*)

Jurczak, J. *et al., Carbohydr. Res.*, 1982, **104**, C18 (*diisopropylidene*)
Chung, S.K. *et al., Carbohydr. Res.*, 1994, **260**, 39 (*2,3-isopropylidene, 2,3:4,6-diisopropylidene*)
Pakulski, Z. *et al., Synthesis*, 2003, 2074-2078 (*α-D-pyr tetrabenzoyl*)

Benzyl rhamnoside B-20

Benzyl 6-deoxymannoside



α-D-Pyranose-*form*

$C_{13}H_{18}O_5$ 254.282

α-D-Pyranose-*form* [191546-20-0]
Cryst. (diisopropyl ether). Mp 74-75°. $[\alpha]_D$ +85.2 (c, 0.5 in MeOH).

*2,4-Dibenzyl: Benzyl 2,4-di-*O*-benzyl-α-D-rhamnopyranoside*
[86342-18-9]
$C_{27}H_{30}O_5$ 434.531
Syrup. $[\alpha]_D$ +43 (c, 1.62 in $CHCl_3$).

*3,4-Dibenzyl: Benzyl 3,4-di-*O*-benzyl-α-D-rhamnopyranoside*
[86342-17-8]
$C_{27}H_{30}O_5$ 434.531
Syrup. $[\alpha]_D$ +60 (c, 1.25 in $CHCl_3$).

α-L-Pyranose-*form* [3359-35-1]
Cryst. (2-propanol). Mp 76-78°. $[\alpha]_D^{22}$ -58.3 (c, 0.8 in H_2O).

*2,3,4-Tri-Ac: Benzyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside*
[3359-36-2]
$C_{19}H_{24}O_8$ 380.394
Cryst. (EtOH). Mp 110°. $[\alpha]_D^{20}$ -73 (c, 1.0 in $CHCl_3$).

*2,3-*O*-Isopropylidene: Benzyl 2,3-*O*-isopropylidene-α-L-rhamnopyranoside*
[68124-06-1]
$C_{16}H_{22}O_5$ 294.347
Cryst. (petrol). Mp 73-75°. $[\alpha]_D$ -55 (c, 1.0 in $CHCl_3$).

*2,3-*O*-Isopropylidene, 4-mesyl: Benzyl 2,3-*O*-isopropylidene-4-*O*-mesyl-α-L-rhamnopyranoside*
[18422-80-5]
$C_{17}H_{24}O_7S$ 372.438
Cryst. (Et_2O/petrol). Mp 87-88°. $[\alpha]_D$ -28 (c, 2.0 in MeOH).

exo-*2,3-*O*-Benzylidene: Benzyl 2,3-*O*-exo-benzylidene-α-L-rhamnopyranoside*
[62777-91-7]
$C_{20}H_{22}O_5$ 342.391
Mp 132-133°. $[\alpha]_D$ -67 (c, 0.42 in $CHCl_3$).

endo-*2,3-*O*-Benzylidene: Benzyl 2,3-*O*-endo-benzylidene-α-L-rhamnopyranoside*
[62774-08-7]
$C_{20}H_{22}O_5$ 342.391
Syrup. $[\alpha]_D$ -68 (c, 1.2 in $CHCl_3$).

*2-Benzyl: Benzyl 2-*O*-benzyl-α-L-rhamnopyranoside*
[62774-07-6]
$C_{20}H_{24}O_5$ 344.407
Mp 73-74°. $[\alpha]_D$ -39 (c, 0.88 in $CHCl_3$).

*3-Benzyl: Benzyl 3-*O*-benzyl-α-L-rhamnopyranoside*
[62774-06-5]
$C_{20}H_{24}O_5$ 344.407
$[\alpha]_D$ -48 (c, 0.5 in $CHCl_3$).

*4-Benzyl: Benzyl 4-*O*-benzyl-α-L-rhamnopyranoside*
[4613-15-4]
$C_{20}H_{24}O_5$ 344.407
Cryst. (EtOAc/petrol). Mp 86-88°. $[\alpha]_D^{25}$ -88.8 (c, 3.5 in Me_2CO).

4-Benzyl, exo-*2,3-*O*-benzylidene: Benzyl 4-*O*-benzyl-2,3-*O*-exo-benzylidene-α-L-rhamnopyranoside*
[62774-09-8]
$C_{27}H_{28}O_5$ 432.515
Mp 124-125°. $[\alpha]_D$ -81 (c, 0.96 in $CHCl_3$).

4-Benzyl, endo-*2,3-*O*-benzylidene: Benzyl 4-*O*-benzyl-2,3-*O*-endo-benzylidene-α-L-rhamnopyranoside*
[62774-12-3]
$C_{27}H_{28}O_5$ 432.515
Mp 53-54°. $[\alpha]_D$ -57 (c, 0.88 in $CHCl_3$).

*4-Benzyl, 2,3-*O*-isopropylidene: Benzyl 4-*O*-benzyl-2,3-*O*-isopropylidene-α-L-rhamnopyranoside*
[4613-13-2]
$C_{23}H_{28}O_5$ 384.471
Mp 95-97°. $[\alpha]_D^{23}$ -67.6 (c, 2.1 in Me_2CO).

*2,4-Dibenzyl: Benzyl 2,4-di-*O*-benzyl-α-L-rhamnopyranoside*
[62774-11-2]
$C_{27}H_{30}O_5$ 434.531
Syrup. $[\alpha]_D$ -42 (c, 0.64 in $CHCl_3$).

*3,4-Dibenzyl: Benzyl 3,4-di-*O*-benzyl-α-L-rhamnopyranoside*
[62774-10-1]
$C_{27}H_{30}O_5$ 434.531
$[\alpha]_D$ -58 (c, 0.6 in $CHCl_3$).

β-L-Pyranose-*form*

*4-Benzyl: Benzyl 4-*O*-benzyl-β-L-rhamnopyranoside*
$C_{20}H_{24}O_5$ 344.407
Mp 76-78°. $[\alpha]_D^{20}$ +47 (Me_2CO).

*4-Benzyl, 2,3-*O*-isopropylidene: Benzyl 4-*O*-benzyl-2,3-*O*-isopropylidene-β-L-rhamnopyranoside*
[4613-14-3]
$C_{23}H_{28}O_5$ 384.471
Mp 102-104°.

*4-Benzyl, 2,3-carbonate: Benzyl 4-*O*-benzyl-β-L-rhamnopyranoside 2,3-carbonate*
$C_{21}H_{22}O_6$ 370.401
Mp 92-93°. $[\alpha]_D^{25}$ +31.7 (c, 1.9 in $CHCl_3$).

*4-Benzyl, 2,3-thiocarbonate: Benzyl 4-*O*-benzyl-6-deoxy-β-L-mannopyranoside cyclic thiocarbonate, 8CI. Benzyl 4-*O*-benzyl-β-L-rhamnopyranoside 2,3-thiocarbonate*
[4613-17-6]
$C_{21}H_{22}O_5S$ 386.468
Mp 141-142°. $[\alpha]_D^{28}$ +49.7 (c, 1.4 in $CHCl_3$).

α-L-Furanose-*form*

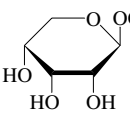
*5-Benzyl: Benzyl 5-*O*-benzyl-α-L-rhamnofuranoside*
$C_{20}H_{24}O_5$ 344.407
Mp 77.5°. $[\alpha]_D$ +48.2 (Me_2CO).

*5-Benzyl, 2,3-*O*-isopropylidene: Benzyl 5-*O*-benzyl-2,3-*O*-isopropylidene-α-L-rhamnofuranoside*
$C_{23}H_{28}O_5$ 384.471
Mp 84° Mp 104°. $Bp_{0.01}$ 180°. $[\alpha]_D$ +30.3 (Me_2CO).

*5-Benzyl, 2,3-di-Me: Benzyl 5-*O*-benzyl-2,3-di-*O*-methyl-α-L-rhamnofuranoside*
$C_{22}H_{28}O_5$ 372.46
Mp 119°. $Bp_{0.1}$ 160-170°. $[\alpha]_D$ +71.7 (Me_2CO).

McCloskey, C.M. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 137 (*α-L-fur benzyl ethers, rev*)
Haines, A.H. *et al., Carbohydr. Res.*, 1965, **1**, 214 (*α-L-pyr isopropylidene benzyl, α-L-pyr benzyl, β-L-pyr benzyl, derivs, β-L-pyr isopropylidene benzyl*)
Brimacombe, J.S. *et al., J.C.S.*, 1965, 2292, (*α-L-pyr, synth, α-L-pyr tri-Ac*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1967, **5**, 36 (*α-L-isopropylidene, α-L-isopropylidene mesyl*)
Ferguson, A.C. *et al., J.C.S.(C)*, 1969, 2372, (*α-L-pyr isopropylidene benzyl*)
Lipták, A. *et al., Carbohydr. Res.*, 1976, **51**, C19-C21; 1978, **65**, 209-217 (*α-L-benzylidene derivs, α-L-benzyl ethers*)
Lipták, A. *et al., Tetrahedron*, 1979, **35**, 1111-1119; 1982, **38**, 3721-3727 (*α-D-pyr 2,4-dibenzyl, α-D-pyr 3,4-dibenzyl, cmr*)
Danieli, B. *et al., Tetrahedron*, 1999, **55**, 2045-2060 (*α-D-pyr-form, α-L-pyr-form, synth, ir, pmr, cmr*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2001, **74**, 1679-1694 (*α-L-pyr form, α-L-fur form*)

Benzyl riboside, 9CI, 8CI B-21



β-D-Pyranose-*form*

$C_{12}H_{16}O_5$ 240.255

β-D-Pyranose-*form* [70797-93-2]
Cryst. (H_2O). Mp 103-104°. $[\alpha]_D$ -109 (c, 1.32 in H_2O).

*Tribenzoyl: Benzyl 2,3,4-tri-*O*-benzoyl-β-D-ribopyranoside*
[13035-46-6]
$C_{33}H_{28}O_8$ 552.579
Plates (EtOH). Mp 143-144°. $[\alpha]_D$ -108 (c, 1.28 in $CHCl_3$).

*3,4-*O*-Isopropylidene: Benzyl 3,4-*O*-isopropylidene-β-D-ribopyranoside*
[32953-58-5]
$C_{15}H_{20}O_5$ 280.32
Mp 95-96°. $[\alpha]_D^{21}$ -129 (c, 0.3 in $CHCl_3$). $[\alpha]_D$ -148 (c, 0.3 in EtOH).

*2-Me: Benzyl 2-*O*-methyl-β-D-ribopyranoside*
[51468-38-3]
$C_{13}H_{18}O_5$ 254.282
Mp 92-94°. $[\alpha]_D^{20}$ -135 (c, 0.4 in $CHCl_3$).

*2-Me, 3,4-*O*-isopropylidene: Benzyl 3,4-*O*-isopropylidene-2-*O*-methyl-β-D-ribopyranoside*
[51468-37-2]
$C_{16}H_{22}O_5$ 294.347
$Bp_{0.5}$ 160-162°. $[\alpha]_D^{20}$ -121 (c, 1.4 in $CHCl_3$).

β-D-Furanose-*form* [54946-48-4]
Cryst. (EtOAc). Mp 95-96°. $[\alpha]_D$ -60.5 (c, 0.7 in H_2O).

*5-Tosyl: Benzyl 5-*O*-tosyl-β-D-ribofuranoside*
$C_{19}H_{22}O_7S$ 394.445
Mp 78-79°. $[\alpha]_D^{16}$ -37.6 (c, 0.78 in EtOH).

*2,3,5-Tritosyl: Benzyl 2,3,5-tri-*O*-tosyl-β-D-ribofuranoside*
$C_{33}H_{34}O_{11}S_3$ 702.823
Mp 118°. $[\alpha]_D^{25}$ +11 (c, 2.7 in dioxan).

*5-Benzyl, 2,3-*O*-isopropylidene: Benzyl 5-*O*-benzyl-2,3-*O*-isopropylidene-β-D-ribofuranoside*
$C_{22}H_{26}O_5$ 370.444
$Bp_{0.01}$ 156-162°. $[\alpha]_D$ -75 ($CHCl_3$).

*3,5-Dibenzyl: Benzyl 3,5-di-*O*-benzyl-β-D-ribofuranoside*
$C_{26}H_{28}O_5$ 420.504
Syrup. $[\alpha]_D^{23}$ +72.4 (c, 1.0 in $CHCl_3$).

3,5-Dibenzyl, 2-triflyl:
Cryst. (petrol/Et_2O). Mp 33-34°.

β-L-Pyranose-*form* [26685-75-6]
Cryst. (petrol/$CHCl_3$). Mp 105-106°. $[\alpha]_D^{25}$ +116 (c, 1.3 in H_2O).

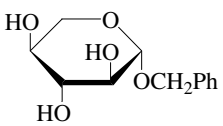
*3,4-*O*-Isopropylidene: Benzyl 3,4-*O*-isopropylidene-β-L-ribopyranoside*
[26685-74-5]
$C_{15}H_{20}O_5$ 280.32
Cryst. (EtOAc/petrol). Mp 96-97°. $[\alpha]_D^{25}$ +130 (c, 6.07 in $CHCl_3$).

*2-Me: Benzyl 2-*O*-methyl-β-L-ribopyranoside*
$C_{13}H_{18}O_5$ 254.282
Cryst. (petrol/EtOAc). Mp 92-94°. $[\alpha]_D^{25}$ +134 (c, 1.67 in $CHCl_3$).

*2-Me, 3,4-*O*-isopropylidene: Benzyl 3,4-*O*-isopropylidene-2-*O*-methyl-β-L-ribopyranoside*
[26685-76-7]
$C_{16}H_{22}O_5$ 294.347
$Bp_{0.7}$ 165° (bath). $[\alpha]_D^{25}$ +130 (c, 1.2 in $CHCl_3$).

Fletcher, H.G. *et al., J.A.C.S.*, 1954, **76**, 760; 763 (*β-D-pyr, β-D-pyr tribenzoyl, β-D-fur*)
Haines, A.H. *et al., J.C.S.(C)*, 1970, 1691, (*β-L-pyr, β-L-pyr-isopropylidene, β-L-pyr-isopropylidene Me, β-L-pyr Me*)
Haines, A.H. *et al., Tetrahedron*, 1973, **29**, 2807 (*β-D-pyr-isopropylidene, β-D-pyr-isopropylidene-Me, β-D-pyr-Me, pmr*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 179 (*cyclic acetals, rev*)
Su, T.-L. *et al., J.O.C.*, 1982, **47**, 1506, (*β-D-fur dibenzyl, β-D-fur dibenzyl triflyl*)

Benzyl xyloside B-22



$C_{12}H_{16}O_5$ 240.255

β-L-Pyranose-*form*

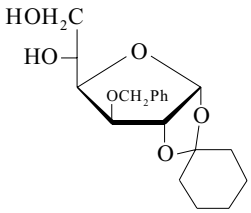
*3-Ac: Benzyl 3-*O*-acetyl-β-L-xylopyranoside*
[200483-06-3]
$C_{14}H_{18}O_6$ 282.293
Mp 64-65°.

*3-Me: Benzyl 3-*O*-methyl-β-L-xylopyranoside*
[200483-07-4]
$C_{13}H_{18}O_5$ 254.282
Cryst. (diisopropyl ether). Mp 122-123°. $[\alpha]_D$ +120 (c, 0.01 in CH_2Cl_2).

Lugemura, F.N. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1433-1443 (*β-L-pyr 3-Ac, β-L-pyr 3-Me*)

3-*O*-Benzyl-1,2-*O*-cyclohexylideneglucofuranose, 8CI B-23

*1,2-*O*-Cyclohexylidene-3-*O*-(phenylmethyl)glucofuranose, 9CI*



$C_{19}H_{26}O_6$ 350.411

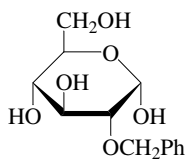
α-D-*form* [13322-89-9]
Forms an asymmetric reducing agent when complexed with $LiAlH_4$. Syrup. $Bp_{0.05}$ 200°. $[\alpha]_D^{20}$ -34.8 (c, 4.3 in $CHCl_3$).

*5,6-*O*-Cyclohexylidene: 3-*O*-Benzyl-1,2:5,6-di-*O*-cyclohexylidene-α-D-glucofuranose*
[13322-88-8]
$C_{25}H_{34}O_6$ 430.54
Syrup. $Bp_{0.03}$ 200°. $[\alpha]_D^{20}$ -17.4 (c, 4.3 in $CHCl_3$).

Landor, S.R. *et al., J.C.S.(C)*, 1966, 1822; 2280 (*synth, use*)
Landor, S.R. *et al., J.C.S. Perkin 1*, 1974, 1902 (*use*)

2-*O*-Benzylglucose B-24

*2-*O*-(Phenylmethyl)glucose, 9CI*



α-D-Pyranose-*form*

$C_{13}H_{18}O_6$ 270.282

D-*form* [41897-85-2]
Cryst. (EtOH). Mp 176-177°. $[\alpha]_D^{23}$ +56 → +47 (c, 1.0 in MeOH).

*3,4,6-Tri-Ac: 3,4,6-Tri-*O*-acetyl-2-*O*-benzyl-D-glucopyranose*
$C_{19}H_{24}O_9$ 396.393
Needles. Mp 41°. $[\alpha]_D^{23}$ +67 (c, 1 in $CHCl_3$).

α-D-*form*

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-*O*-benzyl-α-D-glucopyranose*
$C_{21}H_{26}O_{10}$ 438.43
Needles (petrol). Mp 75°. $[\alpha]_D^{23}$ +82 (c, 1.0 in $CHCl_3$).

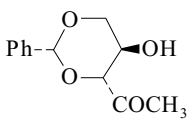
β-D-*form*

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-*O*-benzyl-β-D-glucopyranose*
$C_{21}H_{26}O_{10}$ 438.43
Needles (petrol). Mp 88°. $[\alpha]_D^{23}$ +44 (c, 1.0 in $CHCl_3$).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-*O*-benzyl-β-D-glucopyranoside*
$C_{20}H_{26}O_9$ 410.42
Needles (petrol). Mp 70°. $[\alpha]_D^{23}$ +38 (c, 1.0 in $CHCl_3$).

Klemer, A. *et al., Chem. Ber.*, 1963, **96**, 634 (*synth*)
Brennan, S. *et al., J.C.S.(C)*, 1970, 1742 (*synth, α-D-tetra-Ac, β-D-tetra-Ac, β-D-Me pyr tri-Ac*)

3,5-*O*-Benzylidene-1-deoxy-*erythro*-pentulose B-25



$C_{12}H_{14}O_4$ 222.24

D-*form*
Mp 82-83°. $[\alpha]_D^{23}$ +40.5 (c, 1.0 in $CHCl_3$).

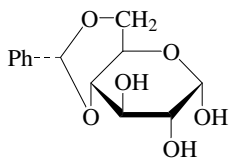
2,4-Dinitrophenylhydrazone: Mp 180°. $[\alpha]_D^{21}$ +13.1 (c, 0.4 in $CHCl_3$).

4-Ac:
$C_{14}H_{16}O_5$ 264.277
$[\alpha]_D^{23}$ +26.6 (c, 1.0 in $CHCl_3$).

4-Benzoyl:
$C_{19}H_{18}O_5$ 326.348
Mp 95-96°. $[\alpha]_D^{22}$ -23.1 (c, 1.0 in $CHCl_3$).

Collins, P.M. *et al., Carbohydr. Res.*, 1974, **32**, 203
Fischer, J.-C. *et al., Can. J. Chem.*, 1977, **55**, 4078

4,6-*O*-Benzylideneglucopyranose B-26



α-D-*form*

$C_{13}H_{16}O_6$ 268.266
The benzylidene config. appears to be (*R*-) as illus. but this does not appear to be very explicit in the lit.

α-D-*form* [25152-90-3]
Mp 188° (172°). $[\alpha]_D$ +39.6 → +4.3 (EtOH). $[\alpha]_D$ -4 (MeOH).

*2,3-Di-Ac: 2,3-Di-*O*-acetyl-4,6-*O*-benzylidene-α-D-glucopyranose*
[104186-84-7]
$C_{17}H_{20}O_8$ 352.34
Needles (Et_2O). Mp 185-187°. $[\alpha]_D^{23}$ +96.5 (c, 0.8 in $CHCl_3$).

*Tribenzoyl: 1,2,3-Tri-*O*-benzoyl-4,6-*O*-benzylidene-α-D-glucopyranose*
$C_{34}H_{28}O_9$ 580.59
Mp 166-167°. $[\alpha]_D$ +47.4 ($CHCl_3$).

1,2-O-*Isopropylidene: 4,6*-O-*Benzylidene-1,2*-O-*isopropylidene-α-D-glucopyranose*
[38081-50-4]
$C_{16}H_{20}O_6$ 308.33
Cryst. (2-propanol). Mp 152-153° (144-145°). $[\alpha]_D$ +25.8 ($CHCl_3$). $[\alpha]_D^{20}$ +85 (c, 1 in $CHCl_3$). The earlier report of this derivative may be wrong.

1,2-O-*Benzylidene: 1,2:4,6-Di*-O-*benzylidene-α-D-glucopyranose*
$C_{20}H_{20}O_6$ 356.374
Mp 161-162°. $[\alpha]_D$ +107 ($CHCl_3$).

1,2-O-*Benzylidene, 3-Ac: 3*-O-*Acetyl-1,2:4,6-di*-O-*benzylidene-α-D-glucopyranose*
$C_{22}H_{22}O_7$ 398.412
Mp 178°. $[\alpha]_D$ +81 ($CHCl_3$).

1,2-O-*Benzylidene, 3-benzoyl: 3*-O-*Benzoyl-1,2:4,6-di*-O-*benzylidene-α-D-glucopyranose*
$C_{27}H_{24}O_7$ 460.482
Mp 181-182°. $[\alpha]_D$ +41.8 ($CHCl_3$).

1,2-O-*Benzylidene, 3-mesyl: 1,2:4,6-Di*-O-*benzylidene-3*-O-*mesyl-α-D-glucopyranose*
$C_{21}H_{22}O_8S$ 434.466
Mp 177°. $[\alpha]_D$ +79.2 ($CHCl_3$).

1,2-O-*Benzylidene, 3-Me: 1,2:4,6-Di*-O-*benzylidene-3*-O-*methyl-α-D-glucopyranose*
$C_{21}H_{22}O_6$ 370.401
Mp 117-119°. $[\alpha]_D$ +81.1 ($CHCl_3$).

β-D-*form*
$[\alpha]_D$ -17.5 (c, 1.0 in H_2O) (as Na salt). Na salt obt. contaminated with 30% α-anomer.

2,3-Di-Ac: 2,3-Di-O-*acetyl-4,6*-O-*benzylidene-β-D-glucopyranose*
[22893-78-3]
$C_{17}H_{20}O_8$ 352.34
Needles (Et_2O). Mp 162-163°. $[\alpha]_D^{25}$ -7 (c, 1.0 in Me_2CO).

Tri-Ac: 1,2,3-Tri-O-*acetyl-4,6*-O-*benzylidene-β-D-glucopyranose*
$C_{19}H_{22}O_9$ 394.377
Mp 201°. $[\alpha]_D$ -51.7 ($CHCl_3$).

1-Benzoyl: 1-O-*Benzoyl-4,6*-O-*benzylidene-β-D-glucopyranose*
$C_{20}H_{20}O_7$ 372.374
Mp 212-214°. $[\alpha]_D^{20}$ -31.8 (c, 0.9 in Me_2CO).

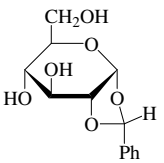
Tribenzoyl: 1,2,3-Tri-O-*benzoyl-4,6*-O-*benzylidene-β-D-glucopyranose*
$C_{34}H_{28}O_9$ 580.59
Mp 193°. $[\alpha]_D$ -10.6 ($CHCl_3$).

Me glycoside: See Methyl 4,6-*O*-benzylidene-β-D-glucopyranoside, M-165

[113566-67-9]

Zervas, L. *et al., Ber.*, 1931, **64**, 2289 (*α-D-form, synth, β-D-tri-Ac*)
Brigl, P. *et al., Ber.*, 1932, **65**, 1428, (*β-D-tribenzoyl*)
Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1946, **16**, 1923, (*α-D-isopropylidene*)
Sowden, J.C. *et al., J.A.C.S.*, 1952, **74**, 686, (*α-D-form, synth, α-D-tribenzoyl, β-D-tribenzoyl*)
Wood, H.B. *et al., J.A.C.S.*, 1957, **79**, 1986 (*dibenzylidene derivs*)
Korytnyk, W. *et al., J.C.S.*, 1959, 636, (*α-D-di-Ac, β-D-tri-Ac, α-2,3-di-Ac*)
Fletcher, H.G. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 307 (*α-D-form, synth*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, derivs*)
Fink, A.L. *et al., Can. J. Chem.*, 1969, **47**, 841 (*β-2,3-di-Ac*)
Dick, W.E. *et al., Carbohydr. Res.*, 1972, **23**, 229 (*α-D-isopropylidene*)

1,2-*O*-Benzylideneglucose B-27



α-D-Pyranose(1′*R*)-*form*

$C_{13}H_{16}O_6$ 268.266

α-D-Pyranose-(1′*R*)-*form*
Mp 173-174°. $[\alpha]_D$ +90.6 (MeOH).

Tri-Ac: 3,4,6-Tri-O-*acetyl-1,2*-O-*(R)-benzylidene-α-D-glucopyranose*
[38081-39-9]
$C_{19}H_{22}O_9$ 394.377
Syrup. $Bp_{0.1}$ 210°. $[\alpha]_D^{20}$ +56 (c, 1.0 in $CHCl_3$).

α-D-Pyranose-(1′*S*)-*form*

Tri-Ac: 3,4,6-Tri-O-*acetyl-1,2*-O-*(S)-benzylidene-α-D-glucopyranose*
[38081-40-2]
$C_{19}H_{22}O_9$ 394.377
Mp 112-113°. $[\alpha]_D^{20}$ +48 (c, 0.9 in $CHCl_3$).

α-D-Furanose-*form* [22154-74-1]
Needles (EtOAc). Mp 176-177°. $[\alpha]_D^{20}$ +11.9 (c, 0.8 in MeOH).

Tri-Ac: 3,5,6-Tri-O-*acetyl-1,2*-O-*benzylidene-α-D-glucofuranose*
$C_{19}H_{22}O_9$ 394.377
Mp 126-127°. $[\alpha]_D^{27}$ +39 ($CHCl_3$).

Tribenzoyl: 3,5,6-Tri-O-*benzoyl-1,2*-O-*benzylidene-α-D-glucofuranose*
[22154-75-2]
$C_{34}H_{28}O_9$ 580.59
Needles (EtOH). Mp 112-114°. $[\alpha]_D^{25}$ -62.7 ($CHCl_3$).

5,6-O-*Isopropylidene: 1,2*-O-*Benzylidene-5,6*-O-*isopropylidene-α-D-glucofuranose*
$C_{16}H_{20}O_6$ 308.33
Mp 120-121°. $[\alpha]_D$ +3.5 ($CHCl_3$).

3,5-O-*Benzylidene: 1,2:3,5-Di*-O-*benzylidene-α-D-glucofuranose*
$C_{20}H_{20}O_6$ 356.374
Mp 163-165°. $[\alpha]_D^{20}$ +35 (c, 1.1 in Py).

3,5-O-*Benzylidene, 6-Ac: 6*-O-*Acetyl-1,2:3,5-di*-O-*benzylidene-α-D-glucofuranose*
[22154-72-9]
$C_{22}H_{22}O_7$ 398.412
Needles (EtOH). Mp 144-145°. $[\alpha]_D$ +28.6 ($CHCl_3$).

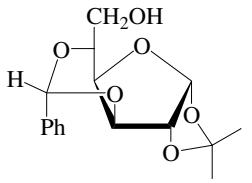
3,5-O-*Benzylidene, 6-benzoyl: 6*-O-*Benzoyl-1,2:3,5-di*-O-*benzylidene-α-D-glucofuranose*
[22154-73-0]
$C_{27}H_{24}O_7$ 460.482
Cryst. (EtOH). Mp 157-158°. $[\alpha]_D$ +12.9 ($CHCl_3$).

3-Me, 5,6-O-*isopropylidene: 1,2*-O-*Benzylidene-5,6*-O-*isopropylidene-3*-O-*methyl-α-D-glucofuranose*
$C_{17}H_{22}O_6$ 322.357
Mp 101-102°. $[\alpha]_D$ -22.9 ($CHCl_3$).

6-Me, 3,5-O-*benzylidene: 1,2:3,5-Di*-O-*benzylidene-6*-O-*methyl-α-D-glucofuranose*
[22154-71-8]
$C_{21}H_{22}O_6$ 370.401
Cryst. (Et_2O). Mp 98-100°. $[\alpha]_D$ +25.2 ($CHCl_3$).

Helferich, B. *et al., Annalen*, 1953, **582**, 233, (*α-D-fur synth, α-D-fur tri-Ac*)
Wood, H.B. *et al., J.A.C.S.*, 1957, **79**, 3862, (*α-D-fur benzylidene derivs, α-D-fur*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, acetals*)
Coxon, B. *et al., Carbohydr. Res.*, 1968, **8**, 125 (*α-D-fur conformn, pmr*)
Dick, W.E. *et al., Carbohydr. Res.*, 1972, **23**, 229 (*α-D-pyr-tri-Ac, config, pmr*)

3,5-*O*-Benzylidene-1,2-*O*-isopropylideneglucofuranose, 8CI B-28



α-D-*form*

$C_{16}H_{20}O_6$ 308.33

α-D-*form* [22164-09-6]
Mp 149°. $[\alpha]_D^{20}$ +23.4 ($CHCl_3$).

6-Ac: 6-O-*Acetyl-3,5*-O-*benzylidene-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{18}H_{22}O_7$ 350.368
Mp 126-127°. $[\alpha]_D$ +11.8 ($CHCl_3$).

6-Benzoyl: 6-O-*Benzoyl-3,5*-O-*benzylidene-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{23}H_{24}O_7$ 412.438
Mp 124°. $[\alpha]_D$ +3.5 ($CHCl_3$).

6-Mesyl: 3,5-O-*Benzylidene-1,2*-O-*isopropylidene-6*-O-*mesyl-α-D-glucofuranose*
$C_{17}H_{22}O_8S$ 386.422
Mp 132-133°. $[\alpha]_D$ +12.8 (Py).

6-Tosyl: 3,5-O-*Benzylidene-1,2*-O-*isopropylidene-6*-O-*tosyl-α-D-glucofuranose*
$C_{23}H_{26}O_8S$ 462.52
Mp 121-121.5°. $[\alpha]_D$ +13.5 ($CHCl_3$).

6-Me: 3,5-O-*Benzylidene-1,2*-O-*isopropylidene-6*-O-*methyl-α-D-glucofuranose*
$C_{17}H_{22}O_6$ 322.357
Cryst. (EtOH aq.). Mp 95-96°. $[\alpha]_D^{20}$ +3.8 (c, 7.0 in $CHCl_3$).

6-Benzyl: 6-O-*Benzyl-3,5*-O-*benzylidene-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{23}H_{26}O_6$ 398.455
Cryst. (petrol). Mp 83.5-84°. $[\alpha]_D$ -1.3 ($CHCl_3$).

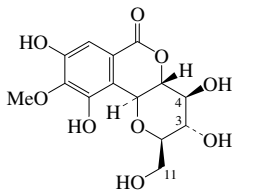
6-Trimethylsilyl: 3,5-O-*Benzylidene-1,2*-O-*isopropylidene-6*-O-*trimethylsilyl-α-D-glucofuranose*
$C_{19}H_{28}O_6Si$ 380.512
Cryst. (petrol). Mp 92°. $[\alpha]_D^{25}$ +9.47 (c, 0.8 in $CHCl_3$).

Brigl, P. *et al., Ber.*, 1932, **65**, 1428 (*α-D-form, synth, α-D-Ac, α-D-benzoyl*)

Bell, D.J. *et al., J.C.S.*, 1936, 859 (*α-D-Me*)
Coleman, G.H. *et al., J.O.C.*, 1957, **22**, 1336, (*α-D-form, synth, α-D-Ac, α-D-benzyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, acetals*)
Prey, V. *et al., Annalen*, 1965, **682**, 228 (*trimethylsilyl*)

Bergenin B-29

*3,4,4*a,*10*b-*Tetrahydro-3,4,8,10-tetrahydroxy-2-(hydroxymethyl)-9-methoxypyrano[3,2-c][2]benzopyran-6(2*H*)-one, 9CI. Ardisic acid B. Ardisinic acid. Bergenitol. Corylopsin. Cuscutin. Peltophorin. Vakerin*
[477-90-7]



Absolute Configuration

$C_{14}H_{16}O_9$ 328.275
Constit. of *Astilbe, Rodgersia, Peltoboykinia* and *Bergenia* spp. Also *Corylopsis, Mallotus, Caesalpinia, Shorea, Ardisia, Cuscuta, Connarus* and others. Antitussive agent. Prisms + $1H_2O$ (H_2O).
Mp 138-139° Mp 230° (double Mp).
$[\alpha]_D$ -47.3 (H_2O). $[\alpha]_D$ -37.3 (EtOH). Log P -2.03 (calc). λ_{max} 220 (ϵ 26300); 275 (ϵ 8320) (MeOH) (Berdy).

Penta-Ac: Mp 199-203° (192.5-193.5°).

11-O-*(4-Hydroxybenzoyl):* ***11*-O-*(4-Hydroxybenzoyl)bergenin***
[189691-23-4]
$C_{21}H_{20}O_{11}$ 448.382
Constit. of *Bergenia ciliata*.

11-O-*(3,4-Dihydroxybenzoyl):* ***11*-O-*(3,4-Dihydroxybenzoyl)bergenin***
[189691-24-5]
$C_{21}H_{20}O_{12}$ 464.382
Constit. of *Bergenia ciliata*.

11-O-*(4-Hydroxy-3-methoxybenzoyl):* ***11*-O-*Vanilloylbergenin***
[167962-93-8]
$C_{22}H_{22}O_{12}$ 478.409
Constit. of the root of *Ardisia crenata*.

4-O-*(3,4,5-Trihydroxybenzoyl):* ***4*-O-*Galloylbergenin***
[82958-45-0]
$C_{21}H_{20}O_{13}$ 480.381
Isol. from the bark of *Mallotus japonicus* and from the root of *Bergenia purpurascens*. Light brown amorph. powder + $1H_2O$. $[\alpha]_D^{15}$ -51 (c, 1.0 in MeOH).

11-O-*(3,4,5-Trihydroxybenzoyl):* ***11*-O-*Galloylbergenin***
[82958-44-9]
$C_{21}H_{20}O_{13}$ 480.381
Isol. from the bark of *Mallotus japonicus* and from the root of *Bergenia purpurascens* and heartwood of *Peltophorum africanum*. Fine needles (EtOH aq.).
Mp 188-190° (179° dec.). $[\alpha]_D^{15}$ +37.6 (c, 1.2 in EtOH).

11-O-*(3-Hydroxy-4,5-dimethoxybenzoyl):* ***11*-O-*(3,4-Di*-O-*methylgalloyl)bergenin***
[167962-94-9]
$C_{23}H_{24}O_{13}$ 508.435
Constit. of the root of *Ardisia crenata*.

11-O-*(4-Hydroxy-3,5-dimethoxybenzoyl):* ***11*-O-*Syringoylbergenin***
[126485-47-0]
$C_{23}H_{24}O_{13}$ 508.435
Constit. of the root of *Ardisia crenata*.

3,4-Bis-O-*(3,4,5-trihydroxybenzoyl):* ***3,4-Di*-O-*galloylbergenin***
[128308-97-4]
$C_{28}H_{24}O_{17}$ 632.487
Isol. from the bark and leaf of *Mallotus japonicus*. Amorph. powder + $^1/_2H_2O$. $[\alpha]_D^{23}$ -137.7 (c, 0.5 in MeOH).

4,11-Bis-O-*(3,4,5-trihydroxybenzoyl):* ***4,11-Di*-O-*galloylbergenin***
[128332-18-3]
$C_{28}H_{24}O_{17}$ 632.487
Isol. from the bark and leaf of *Mallotus japonicus*. Amorph. powder + $^1/_2H_2O$. $[\alpha]_D^{23}$ -12.5 (c, 0.5 in MeOH).

3,4,11-Tris-O-*(3,4,5-trihydroxybenzoyl):* ***3,4,11-Tri*-O-*galloylbergenin***
[128308-98-5]
$C_{35}H_{28}O_{21}$ 784.594
Isol. from the bark and leaf of *Mallotus japonicus*. Amorph. powder + $1H_2O$. $[\alpha]_D^{23}$ -10.2 (c, 0.5 in MeOH).

11-O-*(E-4-Hydroxycinnamoyl):* ***11*-O-*(E-p-Coumaroyl)bergenin***
[145204-85-9]
$C_{23}H_{22}O_{11}$ 474.42
Isol. from the bark of *Peltophorum africanum*. Amorph. powder.
Mp 206-208°.

8,10-Di-Me ether: ***Di*-O-*methylbergenin***
[33815-57-5]
$C_{16}H_{20}O_9$ 356.329
Constit. of *Ardisia japonica* and *Macaranga peltata*. Cryst. (MeOH).
Mp 196°. $[\alpha]_D^{25}$ -62.7 (c, 1 in MeOH).

Penta-Me ether:
Needles (H_2O). Mp 106°.

O-*De-Me:* ***Norbergenin***. *Desmethylbergenin. Demethylbergenin*
[79595-97-4]
$C_{13}H_{14}O_9$ 314.248
Constit. of *Woodfordia fruticosa*, *Saxifraga stolonifera* and *Mallotus japonicus*.
Prisms or needles (H_2O) (dimorph.).
Mp 277-278° (275-277° dec.) (prisms) Mp 178-180° (needles). $[\alpha]_D^{17}$ -22.9 (c, 0.393 in H_2O). Incorrect (enantiomeric) abs. config. shown in the paper descr. this compd.

O-*De-Me, 4*-O-*(3,4,5-trihydroxybenzoyl):* ***4*-O-*Galloylnorbergenin***
[126105-49-5]
$C_{20}H_{18}O_{13}$ 466.354
Isol. from the bark and leaf of *Mallotus japonicus*. Cryst. powder (H_2O).
Mp 219-220°. $[\alpha]_D^{23}$ -46.5 (c, 0.8 in MeOH).

O-*De-Me, 11*-O-*(3,4,5-trihydroxybenzoyl):* ***11*-O-*Galloylnorbergenin***
[82958-46-1]
$C_{20}H_{18}O_{13}$ 466.354
Isol. from the bark of *Mallotus japonicus*. Cryst. + $2H_2O$ (MeOH aq.).
Mp 217° dec. $[\alpha]_D^{15}$ +63 (c, 0.7 in EtOH).

*4*a,*10*b-*Didehydro: 4*a,*10*b-*Didehydrobergenin*. ***Saxin***
[40197-57-7]
$C_{14}H_{14}O_9$ 326.259
Constit. of the roots of *Saxifraga ciliata*.

7-Hydroxy, O-*de-Me, 10-Me ether:*
[438568-27-5]
$C_{14}H_{16}O_{10}$ 344.274
Constit. of *Tridax procumbens*. Powder.
Mp 194-198°. $[\alpha]_D^{25}$ -36.4 (c, 0.59 in MeOH). λ_{max} 220 (log ϵ 3.18); 272 (log ϵ 4.45) (MeOH).

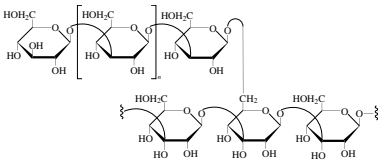
7-Methoxy, 10-deoxy: [438568-25-3]
$C_{15}H_{18}O_9$ 342.302
Constit. of *Tridax procumbens*. Powder.
Mp 198-203°. $[\alpha]_D^{25}$ -41 (c, 0.62 in MeOH). λ_{max} 220 (log ϵ 3.27); 270 (log ϵ 4.31) (MeOH).

Demethoxy: ***Demethoxybergenin***
[497161-95-2]
$C_{13}H_{14}O_8$ 298.249
Constit. of the fruit of *Ardisia colorata*.
Needles (MeOH).
Mp 305° dec. $[\alpha]_D^{20}$ -22.7 (c, 0.08 in MeOH). λ_{max} 263 (3.47); 321 (3.16) (MeOH).

Posternak, T. *et al., Helv. Chim. Acta*, 1958, **41**, 1159-1162 (*struct*)
Hay, J.E. *et al., J.C.S.*, 1958, 2231-2238 (*isol, struct, synth*)
Barry, R.D. *et al., Chem. Rev.*, 1964, **64**, 247-248 (*rev*)
Joshi, D.S. *et al., Naturwissenschaften*, 1969, **56**, 89-90 (*isol*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 1395 (*occur*)
Manzoor-I-Khuda, M. *et al., Pak. J. Sci. Ind. Res.*, 1972, **15**, 87 (*Saxin*)
Taneyama, M. *et al., Bot. Mag.*, 1979, **92**, 69-73 (*biosynth*)
Kalidhar, S.B. *et al., Indian J. Chem., Sect. B*, 1981, **20**, 720-721 (*Norbergenin*)
Yoshida, T. *et al., Phytochemistry*, 1982, **21**, 1180-1182 (*gallates*)
Taneyama, M. *et al., Phytochemistry*, 1983, **22**, 1053-1054 (*Norbergenin*)
Chen, X.-M. *et al., Phytochemistry*, 1987, **26**, 515-517 (*gallates*)
Bam, M. *et al., Phytochemistry*, 1988, **27**, 3704-3705 (*11-gallate*)
Saijo, R. *et al., Phytochemistry*, 1990, **29**, 267-270 (*gallates*)
Frick, W. *et al., Carbohydr. Res.*, 1991, **209**, 101-107; **210**, ; 71-77 (*synth, cryst struct*)
Jahodar, L. *et al., Fitoterapia*, 1992, **63**, 260-261 (*pmr*)
Mebe, P.P. *et al., Phytochemistry*, 1992, **31**, 3286-3287 (*11-Coumaroylbergenin*)
Hoffmann-Bohm, K. *et al., Planta Med.*, 1992, **58**, 544-548 (*isol*)
Jia, Z. *et al., Nat. Med. (Tokyo)*, 1995, **49**, 187-189; *CA*, **123**, 193682 (*11-benzoyl derivs*)
Piacente, S. *et al., J. Nat. Prod.*, 1996, **59**, 565-569 (*isol*)6
Fujii, M. *et al., Nat. Med. (Tokyo)*, 1996, **50**, 404-407; *CA*, **126**, 347184 (*4-hydroxybenzoyl, 3,4-dihydroxybenzoyl*)
Sumino, M. *et al., Chem. Pharm. Bull.*, 2002, **50**, 1484-1487 (*Demethyloxybergenin*)
Akbar, E. *et al., Heterocycles*, 2002, **57**, 733-739 (*Tridax procumbens derivs*)
Ye, Y.-P. *et al., Acta Cryst. C*, 2004, **60**, o397-o398 (*cryst struct*)

Betafectin B-30

Poly-(1 →6)-β-D-glucopyranosyl-(1 →3)-β-D-glucopyranose. PGG-glucan



Glucose polymer. Isol. from a proprietary, non-recombinant yeast strain of *Saccharomyces cerevisiae*. Macrophage-specific immunomodulator. Possible prophylactic agent for treating surgical infections. Phase I/II clinical trials (1994)

Jamas, S. *et al., Carbohydr. Polym.*, 1990, **13**, 207-209 (*isol*)

Babineau, T.J. *et al., Ann. Surg.*, 1994, **220**, 601-609 (*pharmacol*)

U.S. Pat., 1994, 5 322 841, (*Alpha-Beta Technology*); *CA*, **114**, 209485d (*isol*)

Kernodle, D.S. *et al., Antimicrob. Agents Chemother.*, 1998, **42**, 545-549 (*pharmacol*)

Patchen, M.L. *et al., Stem Cells (Miamisburg, Ohio)*, 1998, **16**, 208-217 (*pharmacol*)

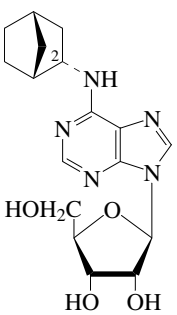
Adams, D.S. *et al., J. Cell Biochem.*, 2000, **77**, 221-233 (*pharmacol*)

N-Bicyclo[2.2.1]hept-2-yladenosine, 9CI B-31

N^6-*(2*-endo-*Norbornyl)adenosine. (S)-ENBA*

[121055-05-8]

[117773-72-5]



$C_{17}H_{23}N_5O_4$ 361.4

Adenosine A_1 receptor agonist. Stereochem. is (1*R*,2*S*,4*S*).

[97826-51-2, 97905-57-2, 117773-73-6, 117773-74-7, 121055-06-9]

Kusachi, S. *et al., J. Med. Chem.*, 1985, **28**, 1636-1643 (*synth, exo, endo, pharmacol*)

Eur. Pat., 1988, 291 051, (*Warner-Lambert*); *CA*, **111**, 7756v (*synth, isomers, pharmacol*)

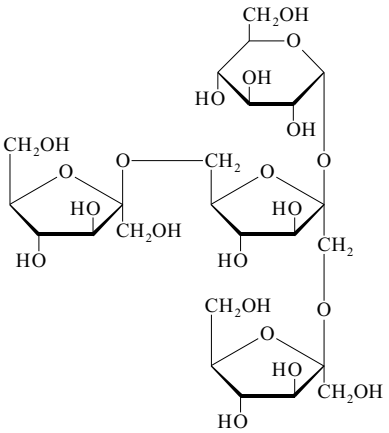
Trivedi, B.K. *et al., J. Med. Chem.*, 1989, **32**, 8-11 (*synth, pharmacol*)

Tomaru, A. *et al., Jpn. J. Pharmacol.*, 1994, **65**, 361-365 (*pharmacol*)

Bifurcose B-32

1-β-D-Fructofuranosyl-(2 →1)-[β-D-fructofuranosyl-(2 →6)]-β-D-fructofuranosyl α-D-glucopyranoside. 1,6-Kestotetraose

[3568-31-8]



$C_{24}H_{42}O_{21}$ 666.583

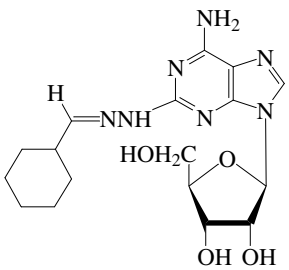
A fructan. See Fructans, F-43. Isol. from barley (*Hordeum vulgare*) and *Panicum miliaceum* (proso millet). Cryst. Mp 156°. $[\alpha]_D^{20}$ +8.8 (H_2O).

Schlubach, H.H. *et al., Annalen*, 1958, **614**, 126; 1963, **665**, 191; 1964, **677**, 165 (*isol*)

Binodenoson, INN, USAN B-33

2-[(Cyclohexylmethylene)hydrazino]adenosine, 9CI. MRE 0470. SHA 174

[144348-08-3]



$C_{17}H_{25}N_7O_4$ 391.429

Adenosine A_{2A} receptor agonist. Coronary vasodilator used in the diagnosis of coronary heart disease. Mp 154-157°. Binodenosan relates to the (*E*)-form.

Niiya, K. *et al., J. Med. Chem.*, 1992, **35**, 4557-4561 (*synth, pharmacol*)

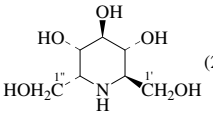
Eur. Pat., 1993, 567 094, (*Whitby Research*); *CA*, **121**, 9930c (*synth, pharmacol*)

Ijzerman, A.P. *et al., Eur. J. Pharmacol.*, 1994, **268**, 95-104 (*pharmacol*)

Petruzella, F.D. *et al., J. Nucl. Cardiol.*, 2000, **7**, 123-131 (*activity*)

2,6-Bis(hydroxymethyl)-3,4,5-piperidinetriol, 9CI B-34

2,6-Dideoxy-2,6-iminoheptitol



(2*R*,3*R*,4*R*,5*S*,6*R*)-*form*

$C_7H_{15}NO_5$ 193.199

(2*R*,3*R*,4*R*,5*S*,6*R*)-*form*

D-glycero-L-gulo-*form*.

α-Homonojirimycin

[119557-99-2]

Alkaloid from *Aglaonema treubii*, *Adenophera* spp. *Hyacinthus orientalis* and *Omphalea diandra*. Inhibitor of several α-glucosidases.

Mp 206-207°. $[\alpha]_D^{20}$ +88.2 (c, 0.54 in H_2O).

7-O-β-D-Glucopyranoside: ***1''-O-β-D-Glucopyranosyl-α-homonojirimycin***. *MDL 25637. 2,6-Dideoxy-7-O-β-D-glucopyranosyl-2,6-imino-D-glycero-L-gulo-heptitol, 9CI*

[104343-33-1]

[104419-80-9]

$C_{13}H_{25}NO_{10}$ 355.341

Alkaloid from *Commelina communis*, *Aglaonema treubii*, *Hyacinthus orientalis* and *Lobelia sessilifolia*. Potent α-glucosidase inhibitor, competitive inhibitor for intestinal sucrase. Also inhibits maltase, trehalase, glucoamylase and α-amylase. Antidiabetic agent.

Amorph. powder + $1H_2O$.

Mp 84-86° Mp 131-134° (as hydrochloride) Mp 216-219° synthetic. $[\alpha]_D^{20}$ +20 (c, 0.5 in H_2O). $[\alpha]_D$ +24.7 (c, 0.7 in H_2O). $[\alpha]_D$ +27.5 (c, 1 in H_2O).

*1,3,4,5-Tetra-*O*-benzoyl:* [110205-71-5]

Needles (Et_2O/petrol). Mp 76-78°.

5-O-α-D-Galactopyranoside: ***5-O-α-D-Galactopyranosyl-α-homonojirimycin***

[185826-28-2]

$C_{13}H_{25}NO_{10}$ 355.341

Alkaloid from *Aglaonemi treubii*.

$[\alpha]_D$ +168.8 (c, 0.54 in H_2O).

(2*R*,3*R*,4*R*,5*R*,6*S*)-*form* *β-Homomannojirimycin*

[154349-07-2]

Alkaloid from *Aglaonema treubii* and *Hyacinthus orientalis*. β-Mannosidase inhibitor.

Hygroscopic solid. $[\alpha]_D$ +12.1 (c, 0.27 in H_2O).

(2*R*,3*R*,4*S*,5*R*,6*S*)-*form* *6-Epi-α-homomannojirimycin*

[127995-31-7]

[127995-28-2] Potent inhibitor of α-fucosidase.

Hygroscopic solid; cryst. ($MeOH/CHCl_3$) (as hydrochloride). Mp 203-205° (hydrochloride). $[\alpha]_D^{20}$ +26.4 (c, 0.5 in H_2O).

(2*R*,3*S*,5*S*,6*R*)-*form* D-glycero-L-galacto-*form*. ***α-Homogalactostatin. 3,4-Diepi-α-homonojirimycin***

[169872-51-9]

Alkaloid from *Aglaonema treubii*.

$[\alpha]_D$ +39.1 (c, 0.51 in H_2O). Existence of this isomer as a natural product is in doubt. C-4 is achiral.

(2*R*,3*R*,5*R*,6*R*)-*form* α-*Homomannonojirimycin*

[127995-29-3]

Alkaloid from *Hyacinthus orientalis* and *Aglaonema treubii*. Nonselective α-glucosidase inhibitor.

Hygroscopic solid. $[\alpha]_D$ +4.4 (c, 0.55 in H_2O) (natural). $[\alpha]_D^{20}$ +7.4 (c, 0.55 in H_2O) (synthetic). C-4 is achiral.

(2*RS*,3*RS*,4*RS*,5*SR*,6*SR*)-*form* β-*Homonojirimycin*

[157544-15-5]

Alkaloid from *Aglaonema treubii and Hyacinthus orientalis*.

No phys. props. reported. *Meso*-stereoisomer.

(2*R*,3*R*,4*S*,5*S*,6*R*)-*form* D-glycero-L-allo-*form*. α-*Homoallonojirimycin*. *4-Epi-α-homonojirimycin*

[253785-13-6]

Alkaloid from *Aglaonema treubii*. $[\alpha]_D$ +39.1 (c, 0.51 in H_2O). Meso-stereoisomer. Stereochem. of natural product revised in 1999.

Rhinehart, B.L. *et al., J. Pharmacol. Exp. Ther.*, 1987, **24**, 915; *CA*, **107**, 109172m

Liu, P.S. *et al., J.O.C.*, 1987, **52**, 4717-4721, (α-*Homonojirimycin, pmr, ms, derivs, synth*)

Kite, G.C. *et al., Tet. Lett.*, 1988, **29**, 6483-6486 (*isol, cmr*)

Anzeveno, P.B. *et al., J.O.C.*, 1989, **54**, 2539-2542 (*MDL 25637, synth*)

Bruce, T. *et al., Tetrahedron*, 1992, **48**, 10191-10120 (*α-Homomannojirimycin, 6-Epi-α-homomannojirimycin, synth, pmr, cmr, biochem*)

Holt, K.E. *et al., J.C.S. Perkin 1*, 1994, 231-234 (*α-Homomannojirimycin, β-Homonojirimycin, synth, pmr, biochem*)

Asano, N. *et al., J. Nat. Prod.*, 1997, **60**, 98-101; 1998, **61**, 625-628 (*isol, pmr, cmr*)

Asano, N. *et al., J. Med. Chem.*, 1998, **41**, 2565-2571 (*synth, cryst struct, pmr, cmr, activity*)

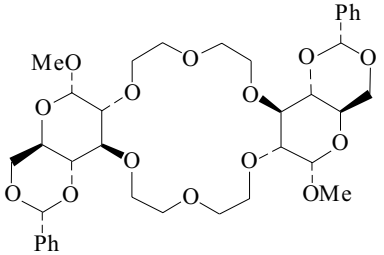
Shilvlock, J.P. *et al., Tetrahedron: Asymmetry*, 1998, **9**, 3505-3516 (*α-Homomannojirimycin, β-Homomannojirimycin, synth, pmr*)

Martin, O.R. *et al., Bioorg. Med. Chem. Lett.*, 1999, **9**, 3171-3174 (*stereochem*)

Kim, H.S. *et al., Planta Med.*, 1999, **65**, 437-439 (*isol*)

Watson, A.A. *et al., Phytochemistry*, 2000, **56**, 265-295 (*rev*)

Bis(methyl-4,6-*O*-benzylidene[2,3-*b*][2′,3′-*k*])-1,4,7,10,13,16-hexaoxacyclooctadecane B-35



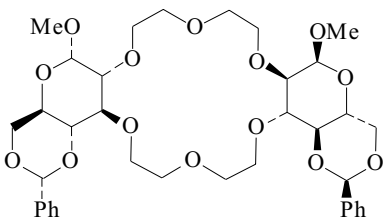
$C_{36}H_{48}O_{14}$ 704.767

Chiral complexing agent. Mp 258-261°. $[\alpha]_D^{25}$ +59.3 (c, 1 in $CHCl_3$).

Stoddart, J.F. *et al., Chem. Soc. Rev.*, 1979, **8**, 85

Bakó, P. *et al., Annalen*, 1981, 1163

Bis(methyl-4,6-*O*-benzylidene[2,3-*b*][3′,2′-*k*])-1,4,7,10,13,16-hexaoxacyclooctadecane B-36



$C_{36}H_{48}O_{14}$ 704.767

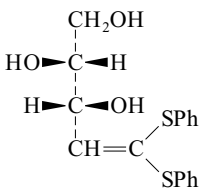
Chiral complexing agent. Mp 227-230°. $[\alpha]_D^{25}$ +34.2 (c, 1 in $CHCl_3$).

Stoddart, J.F. *et al., Chem. Soc. Rev.*, 1979, **8**, 85

Bakó, P. *et al., Annalen*, 1981, 1163

5,5-Bis(phenylthio)-4-pentene-1,2,3-triol B-37

1,2-Dideoxy-1,1-bis(phenylthio)-pent-1-enitol. 2-Deoxypent-1-enose diphenyl dithioacetal



(2*R*,3*R*)–*form*

$C_{17}H_{18}O_3S_2$ 334.459

(2*R*,3*R*)-*form*

D-threo-*form*

*1,2-Isopropylidene: 2-Deoxy-4,5-*O-*isopropylidene-*D-threo-*pent-1-enose diphenyl dithioacetal*

[37107-88-3]

$C_{20}H_{22}O_3S_2$ 374.524

Synthon. Pale yellow syrup. $[\alpha]_D^{24}$ -61 (c, 1.1 in $CHCl_3$).

1,2-Isopropylidene, 3-(4-nitrobenzoyl):

[37107-90-7]

Cryst. (MeOH). Mp 90-92°. $[\alpha]_D^{22}$ -47 (c, 1.2 in $CHCl_3$).

(2*R*,3*S*)-*form* D-erythro-*form*

*1,2-Isopropylidene: 1,2-Dideoxy-4,5-*O-*isopropylidene-1,1-bis(phenylthio)-D-*erythro-*pent-1-enitol. 2-Deoxy-4,5-*O-*isopropylidene-D-*erythro-*pent-1-enose diphenyl dithioacetal*

[28097-89-4] Carbohydrate synthon. Syrup.

*1,2-Isopropylidene, 3-*O*-(4-nitrobenzoyl):*

[28697-90-7]

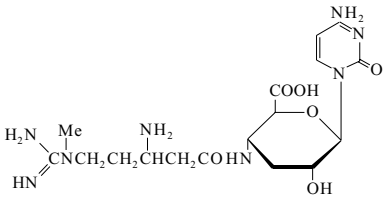
Needles (EtOH). Mp 102-103°. $[\alpha]_D^{23}$ +38 (c, 1 in $CHCl_3$).

Horton, D. *et al., Carbohydr. Res.*, 1970, **13**, 33 (*synth, pmr*)

Berrang, B. *et al., J.O.C.*, 1973, **38**, 187 (*deriv*)

Blasticidin H B-38

[61461-71-0]



$C_{17}H_{28}N_8O_6$ 440.458

Nucleoside antibiotic. Isol. from *Streptomyces griseochromogenes*. Shows moderate antibiotic activity. Sol. H_2O. λ_{max} 231 (ϵ 8900); 268 (ϵ 7000) (H_2O) (Derep). λ_{max} 275 (ϵ 14800) (0.1*N* HCl) (Derep). λ_{max} 266 (ϵ 11400) (0.1*N* NaOH) (Derep). λ_{max} 270 (ϵ 9600) (MeOH) (Berdy). λ_{max} 277 (ϵ 13500) (H_2O) (Berdy).

*Hydrochloride (1:2):*Mp 230-235° dec.

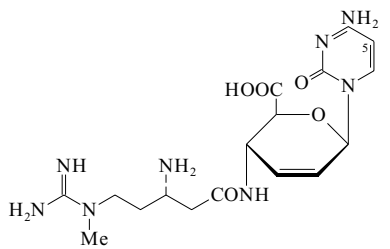
Watanabe, K.A. *et al., Tetrahedron*, 1976, **32**, 1493 (*synth*)

Seto, H. *et al., J. Antibiot.*, 1977, **30**, 1019 (*isol, props*)

Blasticidin S B-39

Cytovirin. NSC 91770. A 83094C. Antibiotic 21544. Antibiotic A 83094C. Bla-S

[2079-00-7]



$C_{17}H_{26}N_8O_5$ 422.443

Nucleoside-type antibiotic. Isol. from *Streptomyces griseochromogenes, Streptomyces globifer, Streptomyces olivochromogenes-citovirensis* and *Streptomyces setonii*. Antimicrobial and antifungal agent. Contact fungicide used against rice blast disease in Japan. Needles (H_2O).

Mp 235° (252-253°) dec. $[\alpha]_D^{11}$ +108.4 (c, 1 in H_2O). pK_{a1} 2.4; pK_{a2} 4.6; pK_{a3} 8; pK_{a4} 0. Hydrol. → Cytosinine. λ_{max} 275 (ϵ 14800) (0.1*N* HCl) (Derep). λ_{max} 266 (ϵ 11400) (0.1*N* NaOH) (Derep). λ_{max} 231 (ϵ 8900); 268 (ϵ 7000) (H_2O) (Derep).

▶ LD_{50} (rat, orl) 16 mg/kg. LD_{50} (rat, skn) 3100 mg/kg. EC4900000

*Hydrochloride:*Mp 229° dec.

*Hydrochloride (1:2):*Mp 195° dec.

*Me ester; hydrochloride (1:3):*Mp 206-208.5° dec.

N-*De-Me:* ***Demethylblasticidin S***

[63257-29-4]

$C_{16}H_{24}N_8O_5$ 408.416

From *Streptomyces griseochromogenes* IFO13413. Active against rice blast. Sol.

H_2O. λ_{max} 274 (H_2O) (Berdy). λ_{max} 274 (ϵ 12900) (HCl) (Berdy). λ_{max} 267 (ϵ 9200) (NaOH) (Berdy).

▶ LD_{50} (mus, orl) 35 mg/kg. MP8930000

*3″-*N*-Leucyl:* ***Leucylblasticidin S****. Sch 36606. Antibiotic Sch 36606*
[19018-47-4]
$C_{23}H_{37}N_9O_6$ 535.602
Prod. by *Nocardioides albus* and *Streptomyces griseochromogenes*. Phytotoxin. Shows acaricidal, insecticidal and antiinflammatory props. Needles (H_2O). Sol. H_2O; fairly sol. MeOH, DMSO; poorly sol. $CHCl_3$, hexane.
Mp 252° dec. λ_{max} 269 (ϵ 8000) (H_2O). λ_{max} 276 (ϵ 11000) (HCl) (Berdy).

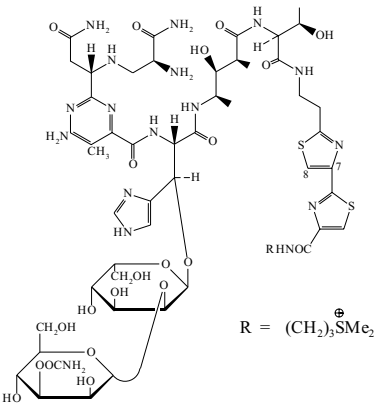
5-Fluoro: Fluoroblasticidin S
[102865-76-9]
$C_{17}H_{25}FN_8O_5$ 440.433
Prod. by *Streptomyces griseochromogenes* IFO13413 in presence of fluorocytosine. Antimicrobial agent. Powder. Sol. H_2O; poorly sol. butanol, hexane.
Mp 225-227°. λ_{max} 280 (ϵ 13500); 282 (ϵ 8020) (HCl) (Berdy). λ_{max} 275 (ϵ 5500) (NaOH) (Berdy). λ_{max} 276 (ϵ 12000) (H_2O) (Berdy).

5-Hydroxymethyl: ***5-Hydroxymethylblasticidin S****. A 83094B. Antibiotic A 83094B*
[123067-52-7]
$C_{18}H_{28}N_8O_6$ 452.469
From *Streptomyces setonii*. Phytotoxin. Herbicide.
Mp 225° dec. λ_{max} 279 (ϵ 11000) (0.01*M* HCl) (Derep). λ_{max} 272 (ϵ 8000) (H_2O) (Derep). λ_{max} 272 (pH 7 buffer) (Berdy).

Yonehara, H. *et al., J. Antibiot., Ser. A*, 1963, **16**, 195
Otake, N. *et al., Tet. Lett.*, 1965, 1411 (*struct*)
Fox, J.J. *et al., Tet. Lett.*, 1966, 897 (*struct*)
Yonehara, H. *et al., Tet. Lett.*, 1966, 3785 (*abs config*)
Seto, H. *et al., Tet. Lett.*, 1966, 3793 (*biosynth*)
Misato, T. *et al., Antibiotics*, (Gottlieb, D. *et al*, Ed.), Springer, N.Y., 1967, **1**, 434 (*rev*)
Seto, H. *et al., Agric. Biol. Chem.*, 1968, **32**, 1299-1305 (*Leucylblasticidin S*)
Seto, H. *et al., J. Antibiot.*, 1977, **30**, 1022 (*isol, deriv*)
Swaminathan, V. *et al., Biochim. Biophys. Acta*, 1981, **655**, 335 (*cryst struct*)
Yonehara, H. *et al., Drugs Pharm. Sci.*, 1984, **22**, 651 (*rev*)
Japan. Pat., 1985, 60 123 486; *CA*, **105**, 23093 (*Fluoroblasticidin S*)
Probhakaran, P.C. *et al., Tet. Lett.*, 1986, **27**, 3815 (*biosynth*)
Kawashima, A. *et al., Agric. Biol. Chem.*, 1987, **51**, 1183 (*Fluoroblasticidin S*)
Dallwag, H. *et al., J. Antibiot.*, 1988, **41**, 1145-1147 (*Leucylblasticidin S*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Larsen, S.H. *et al., J. Antibiot.*, 1989, **42**, 470 (*isol, deriv*)
Zhang, Q. *et al., Tetrahedron*, 2000, **56**, 693-701 (*biosynth*)
Ichikawa, Y. *et al., Chem. Eur. J.*, 2004, **10**, 3241-3251 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BLX500

Bleomycin A_2 B-40

N^1-*[3-(Dimethylsulfonio)propyl]bleomycinamide, 9CI. Zhengguangmycin* A_2*. NSC 125066*
[11116-31-7]



$C_{55}H_{84}N_{17}O_{21}S_3^{\oplus}$ 1415.568

Major component of the large Bleomycin complex of glycopeptide antibiotics. Bleomycin complex isol. from *Streptomyces verticillus*. Semisynthetic members are prod. by directed biosynth. or semisynth. Important antitumour agent claimed for clinical use against specific tumours. Active against gram-positive and -negative bacteria. Sol. MeOH, H_2O; fairly sol. EtOH; poorly sol. Me_2CO, hexane. Mol. formula incorrect in CA (N_{16}). λ_{max} 245 (ϵ 23600); 296 (ϵ 19600) (H_2O) (Derep). λ_{max} 243; 290; 595 (MeOH) (Berdy). λ_{max} 243 (E1%/1cm 86); 290 (E1%/1cm 120) (H_2O) (Berdy).

▶ Skin, eye and respiratory tract irritant. Possible human carcinogen (applies to Bleomycin complex). Pulmonary toxicity reported when used therapeutically. LD_{50} (mus, ipr) 130 mg/kg ; LD_{50} (mus, ivn) 120 mg/kg. EC5988500

7,8-Dihydro: ***Phleomycin*** A_2
[52198-87-5]
$C_{55}H_{86}N_{17}O_{21}S_3^{\oplus}$ 1417.584
From *Streptomyces verticillus*.

▶ EC5991560

[9041-93-4]

Takita, T. *et al., J. Antibiot.*, 1972, **25**, 755-758 (*struct*)
Umezawa, H. *et al., Biomedicine*, 1973, **18**, 459-475 (*rev, synth, props*)
Ger. Pat., 1973, 2 310 462; *CA*, **80**, 69145 (*deriv*)
Umezawa, H. *et al., Antibiotics (N.Y.)*, 1975, **3**, 21-33 (*rev*)
Japan. Pat., 1975, 75 123 884; *CA*, **84**, 41981 (*isol*)
Takita, T. *et al., J. Antibiot.*, 1978, **31**, 801-804 (*struct*)
Minster, D.K. *et al., J.O.C.*, 1978, **43**, 1624-1626 (*synth*)
Oppenheimer, N.J. *et al., Biochemistry*, 1979, **18**, 3439-3445 (*pmr, struct*)
Roy, S.M. *et al., Cancer Res.*, 1981, **41**, 4471
IARC Monog., 1981, **26**, 97; *Suppl.*, **7**, 134 (*rev, tox*)
Aoyagi, Y. *et al., J.A.C.S.*, 1982, **104**, 5537-5538; 1998, **120**, 11285-11296 (*synth*)
Saito, S. *et al., J. Antibiot.*, 1983, **36**, 92-95 (*synth*)
Takita, T. *et al., Drugs Pharm. Sci.*, 1984, **22**, 594 (*rev*)
Grigg, G.W. *et al., J. Antibiot.*, 1985, **38**, 99-110 (*props*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **3**, 290 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 458
Boger, D.L. *et al., J.A.C.S.*, 1994, **116**, 5607-5618; 5619-5630; 5631-5646; 5647-5656 (*synth*)
Katano, K. *et al., J.A.C.S.*, 1998, **120**, 11285-11296 (*synth*)
Boger, D.L. *et al., Angew. Chem., Int. Ed.*, 1999, **38**, 448-476 (*rev*)
Hecht, S.M. *et al., J. Nat. Prod.*, 2000, **63**, 158-168 (*rev, props*)
Zou, Y. *et al., J.A.C.S.*, 2002, **124**, 9476-9488 (*Deamidobleomycin, synth*)
Galm, U. *et al., Chem. Rev.*, 2005, **105**, 739-758 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BLY250

Bleomycin B_2 B-41

N^1-*[4-[(Aminoiminomethyl)amino]butyl]bleomycinamide, 9CI. Phleomycin* D_2*. Zhengguangmycin* B_2
[9060-10-0]
As Bleomycin A_2, B-40 with
R = $-(CH_2)_4NHC(NH_2)=NH$
$C_{55}H_{84}N_{20}O_{21}S_2$ 1425.522

See also Bleomycin A_2, B-40 for props. and general references. Major component of the antibiotic complex Bleomycin, BAN isol. from *Streptomyces verticillus*. Antineoplastic antibiotic. Log P -13.1 (uncertain value) (calc).

▶ Possible human carcinogen (IARC 2B). EC5991200

7,8-Dihydro: ***Phleomycin*** D_1
[11031-11-1]
$C_{55}H_{86}N_{20}O_{21}S_2$ 1427.538
From *Streptomyces verticillus*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. λ_{max} 244 (E1%/1cm 128); 301 (E1%/1cm 46.8) (MeOH) (Berdy).

▶ LD_{50} (mus, ivn) 25 mg/kg ; LD_{50} (mus, ivn) 25 - 50 mg/kg. SY0550000

[11031-12-2, 11056-06-7]

Ger. Pat., 1970, 2 006 446, (*Microbiological Research Foundation*); *CA*, **74**, 11890u (*synth*)
Takita, T. *et al., J. Antibiot.*, 1972, **25**, 197 (*synth*)
Umezawa, H. *et al., Biomedicine*, 1973, **18**, 459 (*synth*)
Fujii, A. *et al., J. Antibiot.*, 1974, **27**, 73 (*biosynth*)
Chen, D.M. *et al., Biochemistry*, 1977, **16**, 2731 (*nmr*)
Takita, T. *et al., J. Antibiot.*, 1978, **31**, 801 (*struct*)
Dell, A. *et al., Biochem. Biophys. Res. Commun.*, 1981, **102**, 730 (*ms*)
Templin, J. *et al., Biochem. Pharmacol.*, 1992, **43**, 615 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 458
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BLY760

Bleomycin B_4 B-42

Phleomycin F

[9060-11-1]

As Bleomycin A_2, B-40 with R = $-(CH_2)_4NHC(=NH)NH(CH_2)_4NHC(NH_2)=NH$

$C_{60}H_{95}N_{23}O_{21}S_2$ 1538.684

See also Bleomycin A_2, B-40 for props. and general references. Minor component of the antibiotic complex Bleomycin, BAN isol. from *Streptomyces verticillus*. Antineoplastic agent. Log P -11.1 (uncertain value) (calc).

▶ Possible human carcinogen (IARC 2B).

7,8-Dihydro: ***Phleomycin E***

[11031-13-3]

$C_{60}H_{97}N_{23}O_{21}S_2$ 1540.7

From *Streptomyces verticillus*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. λ_{max} 244 (E1%/1cm 128); 301 (E1%/1cm 41.8) (MeOH) (Berdy).

▶ LD_{50} (mus, ivn) 25 mg/kg ; LD_{50} (mus, ivn) 25 - 50 mg/kg. SY0560000

[11031-14-4, 11056-06-7]

Takita, T. *et al., J. Antibiot.*, 1972, **25**, 197 (*struct*)

Umezawa, H. *et al., Biomedicine*, 1973, **18**, 459 (*struct*)

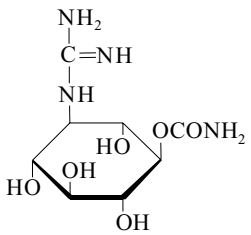
Fujii, A. *et al., J. Antibiot.*, 1974, **27**, 73 (*biosynth*)

Dell, A. *et al., Biochem. Biophys. Res. Commun.*, 1980, **97**, 987 (*ms*)

Bluensidine B-43

*1-O-Carbamoyl-3-deoxy-3-guanidino-*scyllo*-inositol*

[4939-64-4]



$C_8H_{16}N_4O_6$ 264.238

Present in Bluensomycin, B-44.

Hydrochloride: Mp 190-194° dec. $[\alpha]_D$ +1 (H_2O).

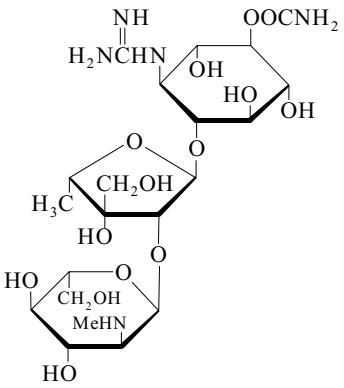
N,N,O,O,O,O-Hexa-Ac: $C_{20}H_{28}N_4O_{12}$ 516.461 Mp 250-251° dec. $[\alpha]_D$ +5 (c, 0.9 in $CHCl_3$).

Bannister, B. *et al., J.A.C.S.*, 1963, **85**, 119

Bluensomycin, INN B-44

Bluensin. Glebomycin. S 438. U 12898. Antibiotic S 438. Antibiotic U 12898

[11011-72-6]



$C_{21}H_{39}N_5O_{14}$ 585.564

Aminoglycoside antibiotic. Isol. from *Streptomyces bluensis* var. *bluensis* and *Streptomyces hygroscopicus* forma *glebosus*. Shows broad-spectrum activity.

▶ LD_{50} (mus, ipr) 1250 mg/kg. EC7600000

Hydrochloride: Mp 190-194° dec. $[\alpha]_D^{24}$ +0.52 (c, 1 in H_2O).

Hydrochloride (1:2): $[\alpha]_D^{25}$ -92 (c, 1 in H_2O).

Sulfate: $[\alpha]_D^{25}$ -87 (c, 1 in H_2O).

Mason, D.J. *et al., Antimicrob. Agents Chemother.*, 1962, 607 (*isol*)

Bergy, M.E. *et al., Antimicrob. Agents Chemother.*, 1962, 614 (*isol, props*)

Kawaguchi, H. *et al., J. Antibiot., Ser. A*, 1962, **15**, 7; 15; 21 (*Glebomycin*)

Bannister, B. *et al., J.A.C.S.*, 1963, **85**, 119; 234 (*struct*)

Barlow, C.B. *et al., J. Antibiot.*, 1972, **25**, 281 (*struct*)

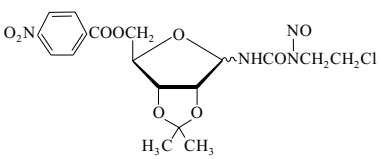
Ochab, S. *et al., Pol. J. Pharmacol. Pharm.*, 1973, **25**, 105 (*purifn*)

Munro, M.H.G. *et al., J. Antibiot.*, 1982, **35**, 1331 (*pmr, cmr, struct*)

Bofumustine, INN B-45

N-*(2-Chloroethyl)*-N′-*[2,3-*O-*(1-methylethylidene)-5-*O-*(4-nitrobenzoyl)-*D*-ribofuranosyl]-*N*-nitrosourea, 9CI. 1-(2-Chloroethyl)-3-(2,3-*O*-isopropylidene-*D*-ribofuranosyl)-1-nitrosourea 5′-p-nitrobenzoate. ICIG 1105. RFCNU*

[55102-44-8]



$C_{18}H_{21}ClN_4O_9$ 472.838

Antineoplastic, immunosuppressive agent. Mp 100-103°. Log P 2.76 (calc).

▶ LD_{50} (mus, ipr) 90 mg/kg. Mutagenic props. YS5079000

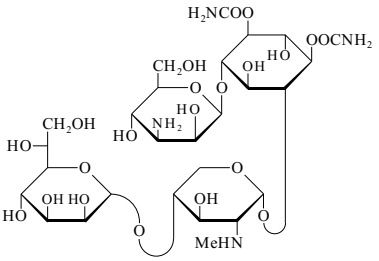
Montero, J.L. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1974, **279**, 809 (*synth, pharmacol*)

Montero, J.L. *et al., Eur. J. Med. Chem. (Chim. Ther.)*, 1977, **12**, 408 (*synth, props*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RFU600

Boholmycin B-46

[117192-99-1]



$C_{27}H_{48}N_4O_{21}$ 764.69

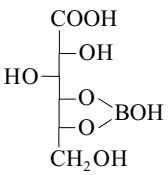
Aminoglycoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Active against gram-positive and -negative bacteria. Amorph. powder + $4H_2O$ (as dihydrochloride). Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane. Mp 214-219° dec. (dihydrochloride). $[\alpha]_D^{28}$ +52 (c, 0.5 in H_2O).

▶ LD_{50} (mus, ivn) 1000-2000 mg/kg. NM7521920

Saitoh, K. *et al., J. Antibiot.*, 1988, **41**, 855 (*isol, pmr, ir, props*)

Borogluconic acid B-47

D-Gluconic acid cyclic 4,5-ester with boric acid (H_3BO_3), 10CI, 9CI



$C_6H_{11}BO_8$ 221.959

Na salt: [62185-81-3] Corrosion inhibitor.

Ca salt (2:1): Calcium borogluconate [5743-34-0] Used to treat hypocalcaemia in cattle (bovine milk fever). Sol. H_2O. Dec. on heating.

Dryerre, H. *et al., Vet. Rec.*, 1935, **15**, 456; *CA*, **29**, 7472 (*synth*)

Macpherson, H.T. *et al., Biochem. J.*, 1938, **32**, 76 (*struct*)

Mullen, P.A. *et al., Vet. Rec.*, 1975, **97**, 87 (*use*)

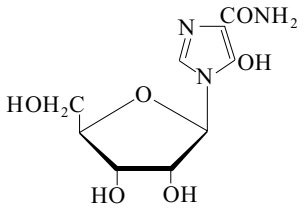
Gyrd-Hansen, N. *et al., J. Vet. Pharmacol. Ther.*, 1981, **4**, 15 (*use*)

Merck Index, 13th edn., 2001, No. 1653 (*Ca salt*)

Bredinin B-48

*5-Hydroxy-1-β-D-ribofuranosyl-1*H*-imidazole-4-carboxamide, 9CI.* ***Mizoribine, INN, JAN***

[50924-49-7]



$C_9H_{13}N_3O_6$ 259.218

Nucleoside antibiotic. Isol. from *Eupenicillium brefeldianum* and *Streptomyces brefeldianum*. Possesses antiviral, antitumour and immunosuppressant activity. Launched 1984. Cryst. (MeOH). Sol. H_2O; fairly sol. MeOH, butanol-H_2O, EtOH; poorly sol. butanol, hexane.
Mp 200° dec. $[\alpha]_D^{27}$ -35 (c, 0.8 in H_2O). Log P -2 (calc). λ_{max} 245 and 279 nm. λ_{max} 245 (ϵ 6350); 281 (ϵ 12800) (0.1*M* HCl) (Derep). λ_{max} 277 (ϵ 17100) (0.1*M* NaOH) (Derep). λ_{max} 245 (ϵ 6480); 279 (ϵ 15000) (H_2O) (Derep). λ_{max} 245 (E1%/1cm 250); 279 (E1%/1cm 580) (H_2O) (Berdy). λ_{max} 245 (E1%/1cm 260); 281 (E1%/1cm 495) (HCl) (Berdy). λ_{max} 277 (E1%/1cm 660) (NAOH) (Berdy).

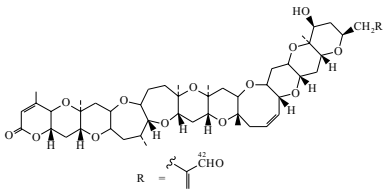
▶ LD_{50} (rat, orl) 3100 mg/kg. Exp. reprod. and teratogenic effects ; LD_{50} (mus, ivn) 1500 - 2500 mg/kg , LD_{50} (mus, ipr) 5000 mg/kg , LD_{50} (mus, ivn) 1500 - 3500 mg/kg. NI3980000

Mizuno, K. *et al., J. Antibiot.*, 1974, **27**, 775 (*isol, struct, props*)
Mizuno, K. *et al., Chem. Pharm. Bull.*, 1975, **23**, 245 (*synth*)
Mizuno, K. *et al., Tet. Lett.*, 1975, 4031 (*struct*)
Miles, D.W. *et al., J. Phys. Chem.*, 1983, **87**, 2444 (*cd, conformn*)
Fukukawa, K. *et al., Chem. Pharm. Bull.*, 1984, **32**, 1644 (*synth*)
Tarumi, Y. *et al., J. Het. Chem.*, 1984, **21**, 529; 849 (*synth, bibl*)
Tsukagoshi, S. *et al., Drugs of Today (Barcelona)*, 1985, **21**, 173 (*rev, pharmacol*)
Gu, R. *et al., CA*, 1986, **105**, 191521 (*synth*)
Fukukawa, K. *et al., Chem. Pharm. Bull.*, 1986, **34**, 3653 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 495
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BMM000

Brevetoxin B B-49

Brevetoxin 2. T34 toxin. T47 toxin. Brevetoxin PbTx2. GB2 Toxin. PbTx2. Toxin GB2

[79580-28-2]



$C_{50}H_{70}O_{14}$ 895.095

Constit. of Florida red tide organism *Gymnodinium breve* (*Ptychodiscus brevis*). Ichthyotoxin. Cryst. Sol. $CHCl_3$, hexane; poorly sol. H_2O.
Mp 295-297°. λ_{max} 208 (ϵ 16000) (MeOH) (Derep). λ_{max} 213 (EtOH) (Berdy).

▶ XW5886000

42-Alcohol: ***Dihydrobrevetoxin B****. Brevetoxin PbTx3. Toxin GB3. GB3. Brevetoxin 3. PbTx3*

[85079-48-7]

$C_{50}H_{72}O_{14}$ 897.11

From *Gymnodinium breve*. Ichthyotoxin and neurotoxin. Needles (MeCN).
Mp 291-293°. Has R = -CH(CH_2OH)=CH_2. λ_{max} 208 (ϵ 16000) (MeOH) (Derep).

▶ XW5885000

37-Ac: GB5 toxin. Toxin GB5. Brevetoxin PbTx5. PbTx5

[97958-42-4]

$C_{52}H_{72}O_{15}$ 937.132

Prod. by *Gymnodinium breve*. Toxin. Amorph.

27S,28R-epoxide: ***GB6 toxin****. Toxin GB6. Brevetoxin PbTx6. PbTx6*

[97938-23-3]

$C_{50}H_{70}O_{15}$ 911.094

Prod. by *Gymnodinium breve*. Toxin. Cryst. (MeOH).
Mp 295-297°. Sinters at 255°.

Lin, Y. *et al., J.A.C.S.*, 1981, **103**, 6773 (*cryst struct*)
Chou, H.-N. *et al., Tet. Lett.*, 1982, **23**, 5521; 1985, **26**, 2865 (*deriv, isol, cryst struct*)
Shimizu, Y. *et al., J.A.C.S.*, 1986, **108**, 514 (*struct, bibl*)
Rein, K.S. *et al., J.O.C.*, 1994, **59**, 2101; 2107 (*conformn, props*)
Nicolaou, K.C. *et al., J.A.C.S.*, 1995, **117**, 1171; 1173; 10227; 10239; 10252 (*synth*)
Crouch, R.C. *et al., Tetrahedron*, 1995, **51**, 8409 (*pmr, cmr, deriv*)
Nicolaou, K.C. *et al., Angew. Chem., Int. Ed.*, 1996, **35**, 589 (*rev, synth*)
Nicolaou, K.C. *et al., Classics in Total Synthesis, Targets, Strategies, Methods*, VCH, 1996, 731 (*bibl, synth*)
Matsuo, G. *et al., J.A.C.S.*, 2004, **126**, 14374-14376 (*synth*)

Brevetoxin C B-50

[82983-92-4]

As Brevetoxin B, B-49 with

R = –$COCH_2Cl$

$C_{49}H_{69}ClO_{14}$ 917.528

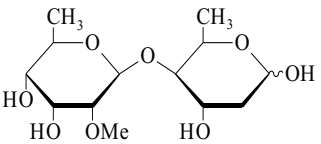
Constit. of Florida red tide organism *Gymnodinium breve*. Ichthyotoxin and neurotoxin. Sol. $CHCl_3$, hexane; poorly sol. H_2O. λ_{max} 208 (ϵ 16000) (MeOH) (Derep). λ_{max} 208 (ϵ 11300) (MeOH) (Berdy).

Golik, J. *et al., Tet. Lett.*, 1982, **23**, 2535
Shimizu, Y. *et al., J.A.C.S.*, 1986, **108**, 514 (*struct, bibl*)

Brevobiose B-51

*2,6-Dideoxy-4-*O*-(6-deoxy-2-*O*-methyl-β-D-allopyranosyl)-D-*xylo*-hexose, 9CI. 4-*O*-(6-Deoxy-2-*O*-methyl-β-D-allopyranosyl)-D-boivinose*

[73491-09-5]



$C_{13}H_{24}O_8$ 308.328

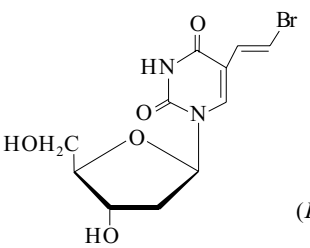
Isol. from twigs of *Sarcostemma brevistigma*. Cryst. + H_2O (Me_2CO/Et_2O). Mp 80-84°. $[\alpha]_D^{26}$ +45 (c, 0.8 in MeOH).

Khare, D.P. *et al., Carbohydr. Res.*, 1980, **79**, 279 (*isol, pmr*)

Brivudine, INN B-52

5-(2-Bromovinyl)-2′-deoxyuridine. 5-(2-Bromoethenyl)-2′-deoxyuridine, 9CI. 2′-Deoxy-5-(2-bromovinyl)uridine. Bromovinyl deoxyuridine. BVDU

[82768-44-3]



(*E*)–*form*

$C_{11}H_{13}BrN_2O_5$ 333.138

Antiviral agent highly active against *Herpes simplex* virus type 1 and *Varicella zoster* virus type 2. Log P -1.27 (uncertain value) (calc).

(E)-form [69304-47-8]

Mp 123-125° dec. (141°). λ_{max} 253 (13100); 295 (10300) (no solvent reported).

▶ LD_{50} (mus, ipr) 1420 mg/kg. YU7355000

3′,5′-Di-Ac:
$C_{15}H_{17}BrN_2O_7$ 417.212
Antiviral active against HSV-1. Needles (2-propanol). Mp 156°.

3-Me:
$C_{12}H_{15}BrN_2O_5$ 347.165
Cryst. (H_2O).

3′-Me ether:
$C_{12}H_{15}BrN_2O_5$ 347.165
Solid.

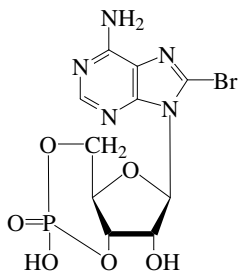
(Z)-form [77530-02-0]

Hemihydrate. λ_{max} 234 (11904); 295 (8040) (no solvent reported).

Jones, A.S. *et al., J. Med. Chem.*, 1981, **24**, 759 (*synth*)
Barr, P.J. *et al., J.C.S. Perkin 1*, 1981, 1665 (*synth*)
Sim, T.S. *et al., CA*, 1982, **97**, 207422n (*rev*)
Goodchild, J. *et al., J. Med. Chem.*, 1983, **26**, 1252 (*synth, Z and E-forms*)
Robins, M.J. *et al., J.O.C.*, 1983, **48**, 1854 (*synth*)
De Clercq, E. *et al., J. Antimicrob. Chemother.*, 1984, **14**, 85 (*rev, pharmacol*)
De Clercq, E. *et al., Pharmacol. Ther.*, 1984, **26**, 1 (*rev, synth, pharmacol*)
Parkanyi, L. *et al., Nucleic Acids Res.*, 1987, **15**, 4111 (*cryst struct, conformn*)
Reefschlaeger, J. *et al., Pharmazie*, 1987, **42**, 407 (*rev*)
Ashwell, M. *et al., Tetrahedron*, 1987, **43**, 4601 (*synth, props, uv, pmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 543
Keam, S.J. *et al., Drugs*, 2004, **64**, 2091-2097 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BOL300

8-Bromocyclic AMP B-53

8-Bromoadenosine cyclic 3′,5′-(hydrogen phosphate), 9CI
[23583-48-4]

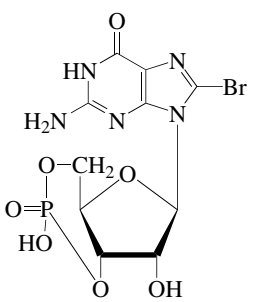


$C_{10}H_{11}BrN_5O_6P$ 408.105
Powder.

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1969, **17**, 348-354 (*synth*)
Muneyama, K. *et al., Biochemistry*, 1971, **10**, 2390-2395 (*synth*)
Lavallee, D.K. *et al., J.A.C.S.*, 1974, **96**, 5552-5556 (*synth*)
Myasoedov, N.F. *et al., Khim. Prir. Soedin.*, 1979, **15**, 208-213; *Chem. Nat. Compd. (Engl. Transl.)*, 1979, **15**, 176-179 (*synth*)

8-Bromocyclic GMP B-54

8-Bromoguanosine cyclic 3′,5′-(hydrogen phosphate), 9CI
[31356-94-2]

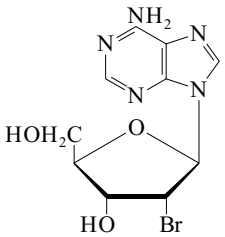


$C_{10}H_{11}BrN_5O_7P$ 424.104
λ_{max} 263 (ϵ 15940); 271 (sh) (ϵ 13230) (pH 1). λ_{max} 274 (ϵ 13200) (pH 11).

Miller, J.P. *et al., Biochemistry*, 1973, **12**, 5310-5319 (*synth*)
Mian, A.M. *et al., J. Med. Chem.*, 1974, **17**, 259-263 (*synth*)
Chu, S.-H. *et al., J. Med. Chem.*, 1975, **18**, 559-564 (*synth*)
Myasoedov, N.F. *et al., Khim. Prir. Soedin.*, 1979, **15**, 208-213; *Chem. Nat. Compd. (Engl. Transl.)*, 1979, **15**, 176-179 (*synth*)

2′-Bromo-2′-deoxyadenosine, 9CI B-55

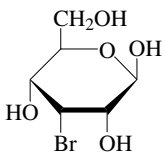
[65446-56-2]



$C_{10}H_{12}BrN_5O_3$ 330.14
Cryst. ($CHCl_3$). Mp 225-226.5°.

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2449 (*synth, uv, cmr, pmr*)

3-Bromo-3-deoxyallose B-56



β-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

β-D-Pyranose-*form*

*Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-bromo-3-deoxy-β-D-allopyranose*
[106023-35-2]
$C_{14}H_{19}BrO_9$ 411.203
Syrup. $[\alpha]_D^{20}$ -14.1 (c, 1.6 in $CHCl_3$).

Me glycoside: Methyl 3-bromo-3-deoxy-β-D-allopyranoside
[127236-54-8]
$C_7H_{13}BrO_5$ 257.081
Syrup.

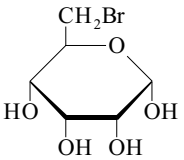
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-bromo-3-deoxy-β-D-allopyranoside*
[77842-63-8]
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (EtOAc/petrol). Mp 120-122° (97-99°). $[\alpha]_D^{22}$ -9 (c, 1.5 in $CHCl_3$). $[\alpha]_D^{22}$ -23 ($CHCl_3$).

α-D-Furanose-*form*

*1,2:5,6-Di-*O*-isopropylidene: 3-Bromo-3-deoxy-1,2:5,6-di-*O*-isopropylidene-α-D-allofuranose*
[74958-56-8]
$C_{12}H_{19}BrO_5$ 323.183
Cryst. (pentane). Mp 45°. $[\alpha]_D^{22}$ +55 (c, 1.5 in $CHCl_3$).

Bundle, D. *et al., J.C.S. Perkin 1*, 1979, 2751, (*β-Me pyr benzylidene, pmr*)
Classon, B. *et al., Can. J. Chem.*, 1981, **59**, 339 (*β-Me pyr benzylidene*)
Kunz, H.Y. *et al., Annalen*, 1982, 1245 (*α-diisopropylidene*)
Korth, H.G. *et al., J.C.S. Perkin 2*, 1986, 1461 (*β-tetra-Ac, pmr*)
Krylova, R.G. *et al., Bioorg. Khim.*, 1990, **16**, 105; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1990, **16**, 56 (*β-Me pyr derivs, pmr*)

6-Bromo-6-deoxyallose B-57



$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

Me glycoside, 4-benzoyl: [52572-05-1]
$C_{14}H_{17}BrO_6$ 361.189
Syrup.

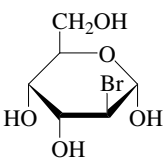
Me glycoside, 4-benzoyl, 2,3-di-Ac:
[116013-31-1]
$C_{18}H_{21}BrO_8$ 445.263
Syrup. $[\alpha]_D$ +42 ($CHCl_3$).

Me glycoside, 4-benzoyl, 2,3-di-Me:
[22893-89-6]
$C_{16}H_{21}BrO_6$ 389.242
Syrup. $[\alpha]_D$ +95 (c, 0.5 in $CHCl_3$).

Me glycoside, 4-benzoyl, 2,3-anhydro:
[18933-59-0]
$C_{14}H_{15}BrO_5$ 343.173
Cryst. (EtOAc/hexane). Mp 60-61° (55°). $[\alpha]_D$ +177 ($CHCl_3$).

Brimacombe, J.S. *et al., Chem. Comm.*, 1969, 197 (*di-Me, ir*)
Baer, H.H. *et al., Carbohydr. Res.*, 1973, **28**, 390 (*anhydro*)
Collins, P.M. *et al., Carbohydr. Res.*, 1974, **33**, 25 (*4-benzoyl, ir*)
Chana, J.S. *et al., Chem. Comm.*, 1988, 94, (*di-Ac, pmr*)
Chretien, F. *et al., Synth. Commun.*, 1990, **20**, 1589 (*anhydro*)

2-Bromo-2-deoxyaltrose B-58



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

Me glycoside: Methyl 2-bromo-2-deoxy-α-D-altropyranoside
$C_7H_{13}BrO_5$ 257.081
Cryst. (EtOH). Mp 153°. $[\alpha]_D$ +86.2 (c, 0.5 in EtOH).

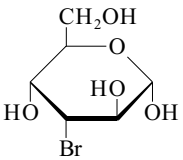
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-bromo-2-deoxy-α-D-altropyranoside*
[19465-09-9]
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (Me_2CO/hexane). Mp 117-118°. $[\alpha]_D^{25}$ +59.2 (c, 1.0 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2-bromo-2-deoxy-3,4-*O*-isopropylidene-α-D-altropyranoside*
$C_{10}H_{17}BrO_5$ 297.145
Mp 64-66°. $[\alpha]_D$ +43.1 ($CHCl_3$).

β-D-Pyranose-*form*

*1,6-Anhydro, 3,4-di-Ac: 3,4-Di-*O*-acetyl-1,6-anhydro-2-bromo-2-deoxy-β-D-altropyranose*
$C_{10}H_{13}BrO_6$ 309.113
Syrup. $Bp_{0.01}$ 160-190° (bath). $[\alpha]_D^{20}$ -68 (in $CHCl_3$).
Newth, F.H. *et al., J.C.S.*, 1947, 10 (*anhydro, di-Ac*)
Richards, G.N. *et al., J.C.S.*, 1953, 2442, (*Me gly, benzylidene*)
Sharma, M. *et al., Can. J. Chem.*, 1968, **46**, 757 (*benzylidene, ir, pmr*)
Guindon, Y. *et al., J.O.C.*, 1987, **52**, 1680 (*benzylidene*)

3-Bromo-3-deoxyaltrose B-59



$C_6H_{11}BrO_5$ 243.054

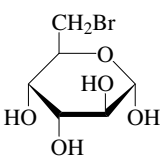
α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-bromo-3-deoxy-α-D-altropyranoside*
$C_{14}H_{17}BrO_5$ 345.189
Cryst. Mp 123-124°. $[\alpha]_D$ +120 ($CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-3-bromo-3-deoxy-α-D-altropyranoside*
[20853-48-9]
$C_{16}H_{19}BrO_6$ 387.226
Cryst. ($CHCl_3$/petrol). Mp 101-103°. $[\alpha]_D^{20}$ +80.5 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 2-benzoyl: Methyl 2-*O*-benzoyl-4,6-*O*-benzylidene-3-bromo-3-deoxy-α-D-altropyranoside*
[55169-78-3]
$C_{21}H_{21}BrO_6$ 449.297
Cryst. (EtOAc/pentane). Mp 136.5-138°. $[\alpha]_D^{21}$ +1.6 (c, 1.5 in $CHCl_3$).
Lee, J.B. *et al., Tetrahedron*, 1961, **12**, 226, (*Me gly benzylidene*)
Albano, E.L. *et al., Chem. Comm.*, 1968, 357 (*2-Ac, pmr*)
Albano, E.L. *et al., Carbohydr. Res.*, 1969, **9**, 149 (*2-Ac, ir*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1024 (*2-benzoyl*)

6-Bromo-6-deoxyaltrose B-60



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-*form*

*3,4-Di-Me, 2,5-dibenzyl: 2,5-Di-*O*-benzyl-6-bromo-6-deoxy-3,4-di-*O*-methyl-D-altrose*
[126215-06-3]
$C_{22}H_{27}BrO_5$ 451.356
Syrup.

α-D-Pyranose-*form*

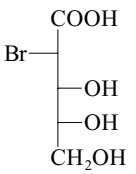
Me glycoside: Methyl 6-bromo-6-deoxy-α-D-altropyranoside
$C_7H_{13}BrO_5$ 257.081
Syrup. $[\alpha]_D$ +80 (H_2O).

*Me glycoside, 2,4-dibenzoyl, 3-Ac: Methyl 3-*O*-acetyl-2,4-dibenzoyl-6-bromo-6-deoxy-α-D-altropyranoside*
[120123-45-7]
$C_{23}H_{23}BrO_8$ 507.334
Syrup. $[\alpha]_D$ -24.2 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4-benzoyl, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-benzoyl-6-bromo-6-deoxy-α-D-altropyranoside*
[73139-31-8]
$C_{18}H_{21}BrO_8$ 445.263
Cryst. Mp 112-114°. $[\alpha]_D$ +48 ($CHCl_3$).

*Me glycoside, 2,3,4-tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-6-bromo-6-deoxy-α-D-altropyranoside*
[76752-92-6]
$C_{28}H_{25}BrO_8$ 569.405
Cryst. Mp 146-147°. $[\alpha]_D$ 0 ($CHCl_3$).
Rosenfeld, D.A. *et al., J.A.C.S.*, 1948, **70**, 2204 (*Me gly*)
Chana, J.S. *et al., Chem. Comm.*, 1988, 94, (*di-Ac, pmr*)
Aqeel, A. *et al., J. Carbohydr. Chem.*, 1989, **8**, 405 (*Me gly dibenzoyl 3-Ac*)

2-Bromo-2-deoxyarabinonic acid B-61

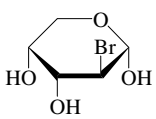


$C_5H_9BrO_5$ 229.027

D-*form*

1,4-Lactone: 2-Bromo-2-deoxy-D-arabinono-1,4-lactone
[78138-89-3]
$C_5H_7BrO_4$ 211.012
Cryst. (Et_2O). Mp 79-81°. $[\alpha]_D^{21}$ +72 (c, 4.1 in EtOAc).
[71671-95-9]
Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 17 (*synth, pmr, cmr*)
Chen, S.Y. *et al., J.O.C.*, 1984, **49**, 2168 (*synth, ir, pmr*)

2-Bromo-2-deoxyarabinose B-62



α-D-Pyranose-*form*

$C_5H_9BrO_4$ 213.028

D-*form*

Cryst. Mp 125°. $[\alpha]_D$ -121 (H_2O).

α-D-Pyranose-*form*

*1-Benzoyl, 3,4-di-Ac: 3,4-Di-*O*-acetyl-1-*O*-benzoyl-2-bromo-2-deoxy-α-D-arabino-pyranose*
[50271-27-7]
$C_{16}H_{17}BrO_7$ 401.21
Cryst. (Et_2O/pentane). Mp 144-145°. $[\alpha]_D^{20}$ -5.57 (c, 2.3 in $CHCl_3$).

Me glycoside: Methyl 2-bromo-2-deoxy-α-D-arabinopyranoside
$C_6H_{11}BrO_4$ 227.054
Cryst. Mp 91-92°. $[\alpha]_D$ -68 (MeOH).

α-D-Furanose-*form*

*Me glycoside, 3,5-di-Ac: Methyl 3,5-di-*O*-acetyl-2-bromo-2-deoxy-α-D-arabino-furanoside*
[23259-82-7]
$C_{10}H_{15}BrO_6$ 311.129
Oil.

β-D-Furanose-*form*

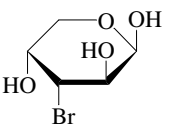
*Me glycoside, 3,5-di-Ac: Methyl 3,5-di-*O*-acetyl-2-bromo-2-deoxy-β-D-arabino-furanoside*
[55734-55-9]
$C_{10}H_{15}BrO_6$ 311.129
Cryst. (Et_2O/pentane). Mp 80-81°. $[\alpha]_D^{21}$ -107 (c, 2.5 in $CHCl_3$).

*Me glycoside, 3,5-dibenzoyl: Methyl 3, 5-di-*O*-benzoyl-2-bromo-2-deoxy-β-D-arabinofuranoside*
[55734-50-4]
$C_{20}H_{19}BrO_6$ 435.27
Cryst. (Et_2O/pentane). Mp 109-109.5°. $[\alpha]_D^{20}$ -98.6 (c, 2.7 in $CHCl_3$).

L-*form*

Cryst. Mp 122°. $[\alpha]_D$ +116 (H_2O).
Kent, P.W. *et al., J.C.S.*, 1964, 6196 (*synth, D-form, L-form, α-Me pyr*)
Reist, E.J. *et al., Carbohydr. Res.*, 1969, **9**, 71, (*α-D-fur di-Ac, ir, pmr*)
Bock, K. *et al., J.C.S. Perkin 1*, 1973, 1456, (*α-Me pyr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 185 (*β-D-fur derivs, pmr*)

3-Bromo-3-deoxyarabinose B-63



β-D-Pyranose-*form*

$C_5H_9BrO_4$ 213.028

β-D-Pyranose-*form*

Me glycoside: Methyl 3-bromo-3-deoxy-β-D-arabinopyranoside
$C_6H_{11}BrO_4$ 227.054
Syrup.

*Me glycoside, 2,4-dibenzoyl: Methyl 2, 4-di-*O*-benzoyl-3-bromo-3-deoxy-β-D-arabinopyranoside*
[54621-51-1]
$C_{20}H_{19}BrO_6$ 435.27
Cryst. (cyclohexane). Mp 82-86°. $[\alpha]_D^{25}$ -267.8 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside, 5-Ac: Methyl 5-O-acetyl-3-bromo-3-deoxy-α-D-arabinofuranoside
[13052-00-1]
$C_8H_{13}BrO_5$ 269.092
Syrup.

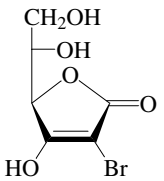
β-D-Furanose-*form*

Me glycoside, 5-Ac: Methyl 5-O-acetyl-3-bromo-3-deoxy-β-D-arabinofuranoside
[13051-99-5]
$C_8H_{13}BrO_5$ 269.092
Oil. $[\alpha]_D^{22}$ -89 (c, 0.91 in $CHCl_3$).

Me glycoside, 5-benzoyl: Methyl 5-O-benzoyl-3-bromo-3-deoxy-β-D-arabinofuranoside
[43168-74-7]
$C_{13}H_{15}BrO_5$ 331.162
Syrup. $[\alpha]_D$ -73 (c, 1.1 in $CHCl_3$).

Reist, E.J. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 179 (*5-Ac, pmr*)
Ritchie, R.G.S. *et al., Chem. Ind. (London)*, 1973, 530 (*5-benzoyl*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 866 (*β-Me pyr deriv, pmr*)

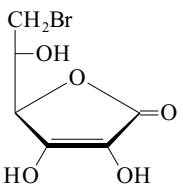
2-Bromo-2-deoxyascorbic acid, 9CI B-64



$C_6H_7BrO_5$ 239.022

L-*form* [189262-87-1]
Cryst. Mp 177-179°. $[\alpha]_D^{25}$ +76.8 (c, 0.25 in MeOH).
Ge, P. *et al., J.O.C.*, 1997, **62**, 3340-3343, (*synth, pmr*)

6-Bromo-6-deoxyascorbic acid B-65

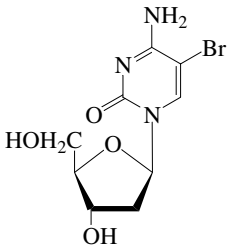


$C_6H_7BrO_5$ 239.022

L-*form* [62983-44-2]
Cryst. (EtOAc). Mp 176-177° (170-172°). $[\alpha]_D^{20}$ -6.3 (c, 1.2 in H_2O).
Bock, K. *et al., Carbohydr. Res.*, 1979, **68**, 313 (*synth, pmr, cmr*)
Suskovic, B. *et al., Croat. Chem. Acta*, 1985, **58**, 231 (*synth*)
Ruzic-Torus, Z. *et al., Acta Cryst. C*, 1989, **45**, 269 (*cryst struct*)

5-Bromo-2′-deoxycytidine, 9CI, 8CI B-66

[1022-79-3]



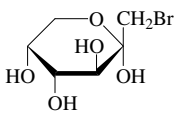
$C_9H_{12}BrN_3O_4$ 306.116
Cryst. (MeOH/EtOAc). Mp 175-179°.
λ_{max} 289 (ε 7131) (no solvent reported).

Picrate: Mp 190.5-191.5°.

Tri-Ac:
Cryst. (H_2O). Mp 162-163°.

Fukuhara, T.K. *et al., J.A.C.S.*, 1955, **77**, 2393-2398 (*synth, tri-Ac*)
Frisch, D.M. *et al., J.A.C.S.*, 1959, **81**, 1756-1758 (*synth, uv*)
Chang, P.K. *et al., Biochem. Pharmacol.*, 1961, **6**, 50-52 (*synth*)
Fritzsche, H. *et al., Z. Chem.*, 1971, **11**, 69-71 (*ir, pmr*)
Low, J.N. *et al., Cryst. Struct. Commun.*, 1981, **10**, 931-936; 1369-1373 (*cryst struct*)

1-Bromo-1-deoxyfructose B-67



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-*form*

Phenylosazone:
Cryst. (EtOH). Mp 202-205°.

Tetra-Ac: 3,4,5,6-Tetra-O-acetyl-1-bromo-1-deoxy-D-fructose
$C_{14}H_{19}BrO_9$ 411.203
Cryst. Mp 68°. $[\alpha]_D$ +62.5 ($CHCl_3$).

α-D-Pyranose-*form*

Me glycoside: Methyl 1-bromo-1-deoxy-α-D-fructopyranoside
[119645-60-2]
$C_7H_{13}BrO_5$ 257.081
Cryst. Mp 84-85°. $[\alpha]_D^{25}$ -4.3 (c, 0.16 in H_2O).

β-D-Pyranose-*form*

2,3:4,5-Di-O-isopropylidene: 1-Bromo-1-deoxy-2,3:4,5-di-O-isopropylidene-β-D-fructopyranose
[10225-89-5]
$C_{12}H_{19}BrO_5$ 323.183
Cryst. (Et_2O/petrol). Mp 46-47°.
$[\alpha]_D^{23}$ -34.4 (c, 0.48 in $CHCl_3$).

Me glycoside: Methyl 1-bromo-1-deoxy-β-D-fructopyranoside
[119645-61-3]
$C_7H_{13}BrO_5$ 257.081
Cryst. Mp 86-87°. $[\alpha]_D^{25}$ -126.9 (c, 0.13 in H_2O).

β-D-Furanose-*form*

2,3-O-Isopropylidene, 6-benzoyl: 6-O-Benzoyl-1-bromo-1-deoxy-2,3-O-isopropylidene-β-D-fructofuranose
[83032-01-3]
$C_{16}H_{19}BrO_6$ 387.226
Cryst. (MeOH). Mp 89-90°. $[\alpha]_D^{25}$ +13.9 ($CHCl_3$).

L-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-acetyl-1-bromo-1-deoxy-L-fructose
[23261-11-2]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (Et_2O/petrol). Mp 66-67°.
$[\alpha]_D^{23}$ -65 (c, 4.0 in $CHCl_3$).

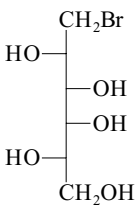
DL-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-acetyl-1-bromo-1-deoxy-DL-fructose
[23261-12-3]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (Et_2O/petrol). Mp 92°. $[\alpha]_D^{23}$ 0 (c, 0.4 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1942, **64**, 1701 (*D-tetra-Ac*)
Humphlett, W.J. *et al., Carbohydr. Res.*, 1968, **7**, 431 (*L-tetra-Ac, DL-tetra-Ac*)
Barnett, J.E.G. *et al., Carbohydr. Res.*, 1972, **25**, 511 (*diisopropylidene*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 1003 (*β-D-fur deriv, pmr*)
Sinclair, H.B. *et al., Carbohydr. Res.*, 1988, **181**, 115 (*α-Me pyr, β-Me pyr, cmr*)

1-Bromo-1-deoxygalactitol B-68

6-Bromo-6-deoxygalactitol



L–*form*

$C_6H_{13}BrO_5$ 245.07

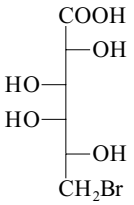
L-*form*

1-Bromo-1-deoxy-L-galactitol.
6-Bromo-6-deoxy-D-galactitol
[161168-85-0]
Mp 145-146°. $[\alpha]_D^{20}$ +1.1 (c, 0.95 in H_2O). Acc. to IUPAC rules for carbohydrate numenclature, the name 6-bromo-6-deoxy-D-galictitol is preferred to 1-bromo-1-deoxy-L-galactitol.

Penta-Ac: 1,2,3,4,5-Penta-O-acetyl-6-bromo-6-deoxy-D-galactitol. 2,3,4,5,6-Penta-O-acetyl-1-bromo-1-deoxy-L-galactitol
[69617-70-5]
$C_{16}H_{23}BrO_{10}$ 455.256
Plates (EtOH). Mp 137-138°.
$[\alpha]_D^{20}$ -10.1 (c, 1.0 in $CHCl_3$).

Bock, K. *et al., Carbohydr. Res.*, 1979, **68**, 313 (*synth, penta-Ac*)
Lundt, I. *et al., Tetrahedron*, 1994, **50**, 13285 (*synth, cmr*)

6-Bromo-6-deoxygalactonic acid B-69



$C_6H_{11}BrO_6$ 259.053

D-*form* [161085-34-3]
Cryst. Mp 130-131°. $[\alpha]_D^{20}$ -5.2 (c, 1 in H_2O).

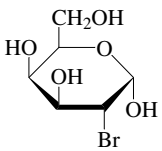
1,4-Lactone: 6-Bromo-6-deoxy-1, 4-galactonolactone
$C_6H_9BrO_5$ 241.038
Syrup.

*1,4-Lactone, tri-Ac: 2,3,5-Tri-*O*-acetyl-6-bromo-6-deoxy-1,4-galactonolactone*
[69617-68-1]
$C_{12}H_{15}BrO_8$ 367.15
Cryst. (EtOH). Mp 100-101°. $[\alpha]_D^{20}$ -10.1 (c, 2.5 in $CHCl_3$).

[161085-34-3]

Bock, K. *et al., Carbohydr. Res.*, 1979, **68**, 313 (*lactone*)
Lundt, I. *et al., Tetrahedron*, 1994, **50**, 13285 (*synth, cmr*)

2-Bromo-2-deoxygalactose B-70



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-*form* [149675-57-0]
Cryst. (EtOH). Mp 140°. $[\alpha]_D^{20}$ +64.7 → +81.3 (c, 0.33 in H_2O).

α-D-Pyranose-*form* [141554-06-5]

Me glycoside: Methyl 2-bromo-2-deoxy-α-D-galactopyranoside
[76222-08-7]
$C_7H_{13}BrO_5$ 257.081
Cryst. (EtOH). Mp 167°. $[\alpha]_D^{20}$ +183 (c, 1.8 in H_2O).

*Me glycoside, 3,4,6-tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-bromo-2-deoxy-α-D-galactopyranoside*
[76222-07-6]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (Et_2O). Mp 90-91°. $[\alpha]_D^{20}$ +146 (c, 1 in CH_2Cl_2).

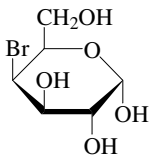
β-D-Pyranose-*form*

Me glycoside: Methyl 2-Bromo-2-deoxy-β-D-galactopyranoside
[10226-86-5]
$C_7H_{13}BrO_5$ 257.081
Cryst. (EtOH). Mp 152-153°. $[\alpha]_D^{22}$ +47.2 (c, 1.2 in H_2O).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-bromo-2-deoxy-β-D-galactopyranoside*
[76222-06-5]
$C_{13}H_{19}BrO_8$ 383.192

Lemieux, R.U. *et al., Can. J. Chem.*, 1965, **43**, 1460-1475 (*β-D-Me pyr tri-Ac*)
Kent, P.W. *et al., J.C.S.(C)*, 1966, 910-912, (*D-form, β-D-Me pyr*)
Augé, J. *et al., Nouv. J. Chim.*, 1980, **4**, 481-486 (*α-D-Me-pyr, α-D-Me pyr tri-Ac, β-D-Me pyr, β-D-Me pyr tri-Ac*)
Haeckel, R. *et al., Synlett*, 1996, 21-23 (*D-form*)

4-Bromo-4-deoxygalactose B-71



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

*Me glycoside, tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-bromo-4-deoxy-α-D-galacto-pyranoside*
[106023-36-3]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (Et_2O/pentane). Mp 89°. $[\alpha]_D^{22}$ +170 (c, 0.73 in $CHCl_3$).

*Me glycoside, tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-4-bromo-4-deoxy-α-D-galacto-pyranoside*
[219313-38-9]
$C_{28}H_{31}BrO_5$ 527.454
Syrup. $[\alpha]_D$ +116 (c, 0.5 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 4-bromo-4-deoxy-β-D-galactopyranoside
[51385-58-1]
$C_7H_{13}BrO_5$ 257.081
Cryst. (MeOH/Et_2O). Mp 184-185°. $[\alpha]_D$ +15.2 (c, 1 in H_2O).

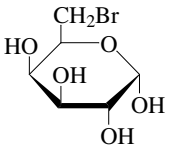
*Me glycoside, tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-bromo-4-deoxy-β-D-galactopyranoside*
[51996-30-6]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (MeOH/Et_2O). Mp 99-100°. $[\alpha]_D$ +39.2 (c, 1.55 in $CHCl_3$).

*Me glycoside, tribenzoyl: Methyl 2,3, 6-tri-*O*-benzoyl-4-bromo-4-deoxy-β-D-galactopyranoside*
[51996-28-2]
$C_{28}H_{25}BrO_8$ 569.405
Cryst. (MeOH). Mp 151-153°. $[\alpha]_D$ +52.7 (c, 2 in $CHCl_3$).

Maradufu, A. *et al., Carbohydr. Res.*, 1974, **32**, 261-267 (*β-D-Me pyr, β-D-Me pyr tri-Ac, β-D-Me pyr tribenzoyl*)
Korth, H.-G. *et al., J.C.S. Perkin 2*, 1986, 1461-1464 (*α-D-Me pyr tri-Ac*)
Limousin, C. *et al., Carbohydr. Res.*, 1998, **312**, 23-31 (*α-D-Me pyr tribenzyl*)

6-Bromo-6-deoxygalactose B-72

6-Bromofucose



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-Pyranose-*form* [18981-83-4]
Cryst. (EtOAc or $CHCl_3$/MeOH). Mp 95-97° (115-116°). $[\alpha]_D$ +74 (+65, +56) (H_2O).

α-D-Pyranose-*form*

*Di-*O*-isopropylidene: 6-Bromo-6-deoxy-1,2:3,4-di-*O*-isopropylidene-α-D-galactopyranose*
[38838-08-3]
$C_{12}H_{19}BrO_5$ 323.183
Cryst. (hexane). Mp 56° (48-49°). $Bp_{0.1}$ 107-108°. $[\alpha]_D^{25}$ -66 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 6-bromo-6-deoxy-α-D-galactopyranoside, 9CI, 8CI
[24921-00-4]
$C_7H_{13}BrO_5$ 257.081
Cryst. (Et_2O). Mp 174-175°. $[\alpha]_D^{26}$ +157 (c, 0.5 in H_2O).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 6-bromo-6-deoxy-3,4-*O*-isopropylidene-α-D-galactopyranoside*
[73111-77-0]
$C_{10}H_{17}BrO_5$ 297.145
Cryst. (Et_2O/hexane). Mp 66°. $[\alpha]_D$ +114.9 (c, 1.7 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene, 2-(dimethyl-*tert*-butylsilyl):* [73111-78-1]
$[\alpha]_D$ +100.2 (c, 0.9 in $CHCl_3$).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-bromo-6-deoxy-α-D-galacto-pyranoside*
[52290-47-8]
$C_{13}H_{19}BrO_8$ 383.192
Gum. $[\alpha]_D^{25}$ +130 (c, 0.3 in $CHCl_3$).

*Me glycoside, 4-benzoyl: Methyl 4-*O*-benzoyl-6-bromo-6-deoxy-α-D-galactopyranoside*
[10368-78-2]
$C_{14}H_{17}BrO_6$ 361.189
Syrup. $[\alpha]_D^{25}$ +156 (c, 0.6 in MeOH).

*Me glycoside, tribenzoyl: Methyl 2,3, 4-tri-*O*-benzoyl-6-bromo-6-deoxy-α-D-galactopyranoside*
[18929-69-6]
$C_{28}H_{25}BrO_8$ 569.405
Mp 122-123°. $[\alpha]_D$ +229 (c, 1.06 in $CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 6-bromo-6-deoxy-3,4-*O*-isopropylidene-β-D-galactopyranoside*
[73111-71-4]
$C_{10}H_{17}BrO_5$ 297.145
Cryst. (Et_2O/hexane). Mp 88°. $[\alpha]_D$ +24.7 (c, 0.8 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene, 2-benzyl:* [73135-47-4]
$C_{17}H_{23}BrO_5$ 387.27

Cryst. (CH_2Cl_2/hexane). Subl. 103. $[\alpha]_D$ +50.3 (c, 0.6 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene, 2-(dimethyl-*tert*-butylsilyl):* [73111-73-6]
Subl. 77. $[\alpha]_D$ +11.8 (c, 0.9 in CCl_4).

*Me glycoside, 3,4-*O*-isopropylidene, 2-mesyl:* [73111-74-7]
Cryst. (CH_2Cl_2/hexane). Mp 124°. Subl. 130. $[\alpha]_D$ +24.1 (c, 0.9 in $CHCl_3$).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-bromo-6-deoxy-β-D-galactopyranoside*
[39946-30-0]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (Et_2O/hexane). Mp 93-93.5°. $[\alpha]_D^{20}$ -5.3 (c, 1.2 in $CHCl_3$). $[\alpha]_D^{20}$ -0.96 (c, 1.0 in MeOH).

*Me glycoside, tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-6-bromo-6-deoxy-β-D-galactopyranoside*
[18929-73-2]
$C_{28}H_{25}BrO_8$ 569.405
Mp 158-159°. $[\alpha]_D$ +179 (c, 0.91 in $CHCl_3$).

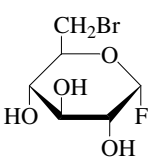
α-L-Pyranose-*form*

*Di-*O*-isopropylidene: 6-Bromo-6-deoxy-1,2:3,4-di-*O*-isopropylidene-α-L-galactopyranose*
[70981-52-1]
$C_{12}H_{19}BrO_5$ 323.183
Syrup. $[\alpha]_D^{25}$ +95.5 (c, 1 in $CHCl_3$).

[18465-33-3, 70932-62-6]

Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1035, (*α-Me pyr, benzoyl derivs*)
Bessell, E.M. *et al., Carbohydr. Res.*, 1971, **19**, 39 (*synth*)
Hanessian, S. *et al., Carbohydr. Res.*, 1972, **24**, 45 (*D-isopropylidene*)
Castro, B. *et al., Bull. Soc. Chim. Fr.*, 1973, 3034 (*α-Me pyr-tri-Ac*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 2992 (*β-Me pyr-tri-Ac*)
Bernet, B. *et al., Helv. Chim. Acta*, 1979, **62**, 2411 (*isopropylidene, pmr, cmr*)
Newcomer, M.E. *et al., J. Biol. Chem.*, 1979, **254**, 7529 (*synth*)
May, J.A. *et al., J. Med. Chem.*, 1979, **22**, 971 (*L-isopropylidene*)
Paulsen, H. *et al., Annalen*, 1980, 825, (*D-isopropylidene*)
Gelas, J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **39**, 71 (*rev, derivs*)
Romero Zaliz, C.L. *et al., J. Carbohydr. Chem.*, 2001, **20**, 689-701 (*α-D-Pyr diisopropylidene*)

6-Bromo-6-deoxyglucopyranosyl fluoride B-73



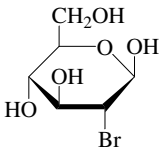
$C_6H_{10}BrFO_4$ 245.045

α-D-*form* [3108-98-3]
Cryst. (EtOAc/hexane). Mp 131° (101°) dec. $[\alpha]_D^{20}$ +84.7 (c, 1.0 in H_2O).

Horneman, A.M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1-8 (*α-D-form, synth, pmr, cmr*)

2-Bromo-2-deoxyglucose B-74

[83378-12-5, 141554-02-1]



β-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

β-D-Pyranose-*form* [141554-03-2]

*1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-bromo-2-deoxy-β-D-glucopyranose*
[2946-11-4]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (EtOH). Mp 95-96°. $[\alpha]_D^{21}$ +63 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 2-bromo-2-deoxy-β-D-glucopyranoside
[2880-98-0]
$C_7H_{13}BrO_5$ 257.081
Cryst. Mp 181-182°. $[\alpha]_D^{20}$ +2.7 (c, 0.75 in H_2O).

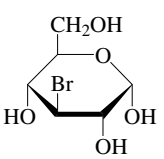
*Me glycoside, 4,6-*O*-benzylidene: Methyl 2-bromo-2-deoxy-4,6-*O*-benzylidene-β-D-glucopyranoside*
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (MeOH). Mp 208-209°. $[\alpha]_D^{20}$ -20 (c, 0.6 in $CHCl_3$).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-bromo-2-deoxy-β-D-glucopyranoside*
[2873-28-1]
$C_{13}H_{19}BrO_8$ 383.192
Needles (EtOH). Mp 138-139°. $[\alpha]_D^{23}$ +39 (c, 1.0 in Me_2CO).

*Isopropyl glycoside, tri-Ac: Isopropyl 3,4,6-tri-*O*-acetyl-2-bromo-2-deoxy-β-D-glucopyranoside*
[63069-59-0]
$C_{15}H_{23}BrO_8$ 411.246
Needles (Et_2O/hexane). Mp 112-112.5°. $[\alpha]_D^{16}$ +42.5 (c, 1.0 in $CHCl_3$).

Fischer, E. *et al., Ber.*, 1920, **53**, 509-547, (*β-D-Me pyr tri-Ac*)
Nakamura, H. *et al., Chem. Pharm. Bull.*, 1964, **12**, 1302-1307 (*β-D-Me pyr, β-D-Me pyr tri-Ac, β-D-Me pyr benzylidene, β-D-pyr tetra-Ac*)
Tatsuta, K. *et al., Carbohydr. Res.*, 1977, **54**, 85-104 (*β-D-2-propyl pyr tri-Ac*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1987, **6**, 203-219 (*β-D-pyr tetra-Ac*)

3-Bromo-3-deoxyglucose B-75



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-*form* [22926-12-1]
Prisms (EtOH). Mp 151°. $[\alpha]_D^{20}$ +60.9 (c, 2.53 in H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl 3-bromo-3-deoxy-α-D-glucopyranoside
[78489-44-8]
$C_7H_{13}BrO_5$ 257.081
Cryst. (Me_2CO/Et_2O). Mp 133°. $[\alpha]_D^{15}$ +109.8 (c, 0.437 in EtOH).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-bromo-3-deoxy-α-D-glucopyranoside*
[30571-48-3]
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (EtOH). Mp 177°. $[\alpha]_D^{16}$ +12.8 (c, 2.336 in $CHCl_3$).

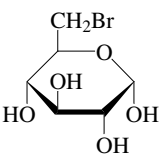
*Me glycoside, 4,6-*O*-ethylidene: Methyl 3-bromo-3-deoxy-4,6-*O*-ethylidene-α-D-glucopyranoside*
[78489-45-9]
$C_9H_{15}BrO_5$ 283.119
Cryst. (EtOH). Mp 158°.

β-D-Pyranose-*form*

*Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-bromo-3-deoxy-β-D-glucopyranose*
[71107-11-4]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. Mp 112°. $[\alpha]_D^{25}$ +10 (c, 0.5 in $CHCl_3$).

Newth, F.H. *et al., J.C.S.*, 1947, 10-18 (*D-form, α-D-Me pyr*)
Barnett, J.E.G. *et al., Biochem. J.*, 1969, **114**, 569-573 (*D-form*)
Kiburis, J. *et al., Chim. Chron.*, 1979, **8**, 77-82 (*β-D-pyr tetra-Ac*)
Dwivedi, S.K. *et al., Carbohydr. Res.*, 1981, **91**, 159-164 (*D-form, α-D-Me-pyr, α-D-Me pyr benzylidene*)

6-Bromo-6-deoxyglucose, 9CI B-76



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-*form* [40486-92-8]
Cryst. (EtOAc). Mp 129-130° dec. $[\alpha]_D^{30}$ +82 → +42 (c, 1 in H_2O).

α-D-Pyranose-*form*

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-bromo-6-deoxy-α-D-glucopyranose*
$C_{14}H_{19}BrO_9$ 411.203
Mp 117-118°. $[\alpha]_D^{20}$ +58 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 6-bromo-6-deoxy-α-D-glucopyranoside, 9CI, 8CI
[7465-44-3]
$C_7H_{13}BrO_5$ 257.081
Cryst. (Et_2O). Mp 126-127° Mp 136-137°. $[\alpha]_D^{25}$ +137 (c, 0.5 in MeOH).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-bromo-6-deoxy-α-D-glucopyranoside*
[7404-32-2]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (EtOH). Mp 125° (117°). $[\alpha]_D^{20}$ +121 (c, 1 in $CHCl_3$). $[\alpha]_D^{22}$ +128 (c, 2 in $CHCl_3$) (lit. gives a temp. range).

*Me glycoside, 4-benzoyl, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-benzoyl-6-bromo-6-deoxy-α-D-glucopyranoside*
[56543-19-2]
$C_{18}H_{21}BrO_8$ 445.263
Mp 90°. $[\alpha]_D$ +61 ($CHCl_3$). Also descr. as a syrup.

*Me glycoside, tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-6-bromo-6-deoxy-α-D-glucopyranoside*
[14169-22-3]
$C_{28}H_{25}BrO_8$ 569.405
Mp 125-126°. $[\alpha]_D^{22}$ +51.

*Me glycoside, 2-mesyl, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-6-bromo-6-deoxy-2-*O*-mesyl-α-D-glucopyranoside*
[34340-11-9]
$C_{12}H_{19}BrO_9S$ 419.247
Mp 174°. $[\alpha]_D^{22}$ +130 (c, 2 in $CHCl_3$) (lit. gives a temp. range).

*Me glycoside, 2,3-dibenzoyl, 4-mesyl: Methyl 2,3-di-*O*-benzoyl-6-bromo-6-deoxy-4-*O*-mesyl-α-D-glucopyranoside*
[30571-99-4]
$C_{22}H_{23}BrO_9S$ 543.388
Mp 180°. $[\alpha]_D^{22}$ +155 (c, 2 in $CHCl_3$) (lit. gives a temp. range).

*Me glycoside, tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-6-bromo-6-deoxy-α-D-glucopyranoside*
[73111-14-5]
$C_{28}H_{31}BrO_5$ 527.454
Cryst. (hexane). Mp 62°. $[\alpha]_D$ +29.3 (c, 1 in $CHCl_3$).

*Benzyl glycoside, tribenzyl: Benzyl 2,3,4-tri-*O*-benzyl-6-bromo-6-deoxy-α-D-glucopyranoside*
[79774-73-5]
$C_{34}H_{35}BrO_5$ 603.551
$[\alpha]_D^{20}$ +69 (c, 1 in $CHCl_3$).

*Me glycoside, 4-benzoyl: Methyl 4-*O*-benzoyl-6-bromo-6-deoxy-α-D-glucopyranoside*
[10368-81-7]
$C_{14}H_{17}BrO_6$ 361.189
Cryst. (Me_2CO/Et_2O/pentane). Mp 130-131°. $[\alpha]_D^{25}$ +118 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form*

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-bromo-6-deoxy-β-D-glucopyranoside*
[10225-48-6]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (EtOH). Mp 124-125°.
$[\alpha]_D$ +13 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 6-bromo-6-deoxy-β-D-glucopyranoside, 8CI
[7404-26-4]
$C_7H_{13}BrO_5$ 257.081
Cryst. (EtOAc). Mp 154°.
$[\alpha]_D^{25}$ -15.9 (c, 0.7 in MeOH).

*Me glycoside, 4-benzoyl: Methyl 4-*O*-benzoyl-6-bromo-6-deoxy-β-D-glucopyranoside*
[18929-88-9]
$C_{14}H_{17}BrO_6$ 361.189
Cryst. (Me_2CO/Et_2O/pentane).
Mp 120-121°. $[\alpha]_D^{25}$ -9 (c, 1 in $CHCl_3$).

*Me glycoside, 4-benzoyl, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-benzoyl-6-bromo-6-deoxy-β-D-glucopyranoside*
$C_{18}H_{21}BrO_8$ 445.263
Mp 161-163°. $[\alpha]_D$ -75 ($CHCl_3$).

*Me glycoside, tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-6-bromo-6-deoxy-β-D-glucopyranoside*
[73111-12-3]
$C_{28}H_{31}BrO_5$ 527.454
Cryst. (Et_2O/hexane). Mp 86°.
$[\alpha]_D$ +15.3 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

*1,2:3,5-Di-*O*-methylene: 6-Bromo-6-deoxy-1,2:3,5-di-*O*-methylene-α-D-glucofuranose*
[65533-33-7]
$C_8H_{11}BrO_5$ 267.076
Cryst. Mp 100-101°. $[\alpha]_D$ +32 (c, 1 in $CHCl_3$).

*1,2-*O*-Isopropylidene: 6-Bromo-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[66756-62-5]
$C_9H_{15}BrO_5$ 283.118
Cryst. (Et_2O/hexane). Mp 89°.
$[\alpha]_D^{25}$ -10.9 (c, 2 in $CHCl_3$).

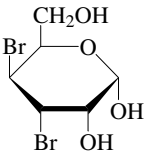
*1,2-*O*-Isopropylidene, 3,5-dibenzoyl: 3,5-Di-*O*-benzoyl-6-bromo-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[55169-79-4]
$C_{23}H_{23}BrO_7$ 491.334
Syrup. $[\alpha]_D^{21}$ -114.5 (c, 1.2 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3,5-*O*-benzylidene: 3,5-*O*-Benzylidene-6-bromo-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{16}H_{19}BrO_5$ 371.227
Mp 114-115°. $[\alpha]_D^{30}$ +16 (c, 1 in $CHCl_3$).

*1,2:3,5-Di-*O*-isopropylidene: 6-Bromo-6-deoxy-1,2:3,5-di-*O*-isopropylidene-α-D-glucofuranose*
[38838-11-8]
$C_{12}H_{19}BrO_5$ 323.183
$Bp_{0.1}$ 106°. $[\alpha]_D$ +19.2 (c, 1.8 in $CHCl_3$).

Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1035, (*α-D-Me pyr, α-D-Me pyr benzoyl, α-D-Me pyr tribenzoyl, β-D-Me pyr, β-D-Me pyr benzoyl*)
Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 2450 (*α Tetra-Ac*)
Schüep, W. *et al., Helv. Chim. Acta*, 1970, **53**, 1336 (*β-D-pyr tetra-Ac*)
Ikeda, D. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 2529 (*α-D-Me pyr, α-D-Me pyr tri-Ac*)
Bessel, E.M. *et al., Carbohydr. Res.*, 1971, **19**, 39 (*D-form synth, α-D-fur isopropylidene benzylidene*)
Sinclair, H.B. *et al., Carbohydr. Res.*, 1971, **19**, 402 (*α-D-Me pyr di-Ac mesyl, α-D-Me pyr tri-Ac, α-D-Me pyr dibenzoyl mesyl, α-D-Me pyr tribenzoyl, pmr*)
Hanessian, S. *et al., Carbohydr. Res.*, 1972, **24**, 45 (*α-D-Me pyr tri-Ac, α-D-fur diisopropylidene*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1024 (*α-D-fur isopropylidene dibenzoyl*)
Deslongchamps, P. *et al., Can. J. Chem.*, 1975, **53**, 1204 (*α-D-Me pyr benzoyl di-Ac*)
Srivastava, H.C. *et al., Carbohydr. Res.*, 1978, **60**, 210 (*D-form, synth, α-D-fur-dimethylidene*)
Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1978, **61**, 511 (*α-D-1,2-isopropylidene*)
von Bernet, B. *et al., Helv. Chim. Acta*, 1979, **62**, 1990 (*α-D-Me pyr tribenzyl, β-D-Me pyr tribenzyl*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 227 (*α-D-Me pyr, α-D-fur isopropylidene*)
Gelas, J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **39**, 71 (*rev, derivs*)
Le Marechal, P. *et al., Carbohydr. Res.*, 1981, **94**, 1 (*α-D-benzyl pyr tribenzyl*)

3-Bromo-3-deoxygulose B-77



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

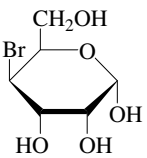
*Me glycoside, 4,6-*O*-benzylidene, 2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-3-bromo-3-deoxy-α-D-gulopyranoside*
$C_{16}H_{19}BrO_6$ 387.226
Cryst. Mp 128-129°. $[\alpha]_D$ +67.5 ($CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, 6-benzoyl: Methyl 6-*O*-benzoyl-3-bromo-3-deoxy-β-D-gulopyranoside*
[24921-01-5]
$C_{14}H_{17}BrO_6$ 361.189
Syrup. $[\alpha]_D^{25}$ -6 (c, 1.65 in $CHCl_3$).

Hedgley, E.J. *et al., J.C.S.*, 1963, 4701 (*α-Me pyr deriv*)
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1035, (*β-Me pyr deriv*)

4-Bromo-4-deoxygulose B-78



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

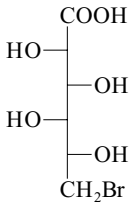
α-D-Pyranose-*form*

Me glycoside, 2,3-bis(3,5-dinitrobenzoyl), 6-[dimethyl(1,1,2-trimethylpropyl) silyl]: [128843-93-6]
Mp 110-114°. $[\alpha]_D^{25}$ +75.4 (c, 0.8 in $CHCl_3$).

*Me glycoside, 2,3-anhydro, 6-trityl: Methyl 2,3-anhydro-4-bromo-4-deoxy-6-*O*-trityl-α-D-gulopyranoside*
[118360-83-1]
$C_{26}H_{25}BrO_4$ 481.385
$[\alpha]_D^{31}$ -31 (c, 0.99 in $CHCl_3$).

Tatsuta, H. *et al., Bull. Chem. Soc. Jpn.*, 1988, **61**, 2525 (*anhydro, pmr*)
Rehnberg, N. *et al., J.O.C.*, 1990, **55**, 5467 (*silyl, pmr, cmr*)

6-Bromo-6-deoxyidonic acid B-79

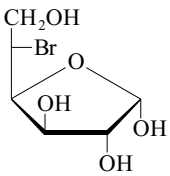


$C_6H_{11}BrO_6$ 259.053

D-*form*

1,4-Lactone: 6-Bromo-6-deoxy-D-idono-1,4-lactone
[161085-46-7]
$C_6H_9BrO_5$ 241.038
Syrup. $[\alpha]_D^{20}$ -31.4 (c, 1.0 in H_2O).
Lundt, I. *et al., Tetrahedron*, 1994, **50**, 13285 (*synth, cmr*)

5-Bromo-5-deoxyidose B-80

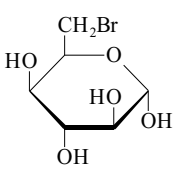


$C_6H_{11}BrO_5$ 243.054

β-L-Furanose-*form*

1,2-O-Isopropylidene: [130619-43-1]
$C_9H_{15}BrO_5$ 283.118
Syrup. $[\alpha]_D^{20}$ -6.1 (c, 3.0 in $CHCl_3$).
1,2-O-Isopropylidene, 6-Me, 3-benzoyl:
[18930-14-8]
$C_{17}H_{21}BrO_6$ 401.253
Syrup. $[\alpha]_D^{25}$ +4.7 (c, 4.15 in $CHCl_3$).
1,2-O-Isopropylidene, 6-(tetrahydro-2H-pyran-2-yl): [130619-45-3]
$C_{14}H_{23}BrO_6$ 367.236
Syrup.
1,2;3,6-Di-O-isopropylidene: [82893-16-1]
$C_{12}H_{19}BrO_5$ 323.183
Syrup. $[\alpha]_D^{22}$ +51.6 (c, 1.4 in $CHCl_3$).
[130619-54-4]
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1053, (*6-Me, ir*)
Kunz, H. *et al., Annalen*, 1982, 1245 (*diisopropylidene*)
Dax, R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 479 (*tetrahydropyranyl, pmr, cmr*)

6-Bromo-6-deoxyidose B-81



α–D–Pyranose–*form*

$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

Tetra-Ac: [29884-71-7]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (EtOH). Mp 117-118°.
$[\alpha]_D^{20}$ +58 (c, 2.5 in $CHCl_3$).
Me glycoside: [125280-08-2]
$C_7H_{13}BrO_5$ 257.081
Cryst. (CH_2Cl_2/hexane). Mp 68.5-70°.
$[\alpha]_D^{25}$ +85.1 ($CHCl_3$).
Me glycoside, 4-benzoyl: [125237-71-0]
$C_{14}H_{17}BrO_6$ 361.189
Cryst. (CH_2Cl_2/hexane).
Mp 106.5-107.5°. $[\alpha]_D^{28}$ +104.1 ($CHCl_3$).
Me glycoside, tribenzoyl: [79635-97-5]
Cryst. (EtOH). Mp 165-166°.

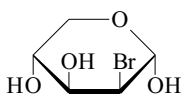
β-D-Furanose-*form*

1,2-O-Isopropylidene, 3,5-dibenzoyl:
[108802-08-0]
$C_{23}H_{23}BrO_7$ 491.334
Syrup. $[\alpha]_D$ -6 (c, 0.45 in $CHCl_3$).

β-L-Furanose-*form*

1,2-O-Isopropylidene, 5-benzoyl:
[33999-40-5]
$C_{16}H_{19}BrO_6$ 387.226
Syrup. Attempted crystallisation led to dec.
1,2-O-Isopropylidene, 5-benzoyl, 3-Ac:
[34010-38-3]
$C_{18}H_{21}BrO_7$ 429.264
Syrup. $[\alpha]_D^{25}$ -8 (c, 4 in $CHCl_3$).
1,2-O-Isopropylidene, 3,5-dibenzyl:
[87357-55-9]
$C_{23}H_{27}BrO_5$ 463.367
Cryst. Mp 131-134°. $[\alpha]_D^{22}$ -20.73 (c, 0.5 in $CHCl_3$).
Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 2450 (*tetra-Ac*)
Chalk, R.C. *et al., Carbohydr. Res.*, 1971, **20**, 151 (*β-L-fur deriv, pmr*)
Neeser, J.R. *et al., Helv. Chim. Acta*, 1983, **66**, 1018 (*β-L-fur deriv, pmr*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 157 (*Me pyr tribenzoyl*)
Guiliano, R.M. *et al., Carbohydr. Res.*, 1989, **191**, 1 (*Me α-D-pyr deriv*)
Lee, C.K. *et al., Carbohydr. Res.*, 1990, **205**, 203 (*β-D-fur deriv*)

2-Bromo-2-deoxylyxose B-82

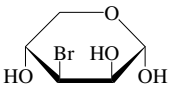


$C_5H_9BrO_4$ 213.028

α-D-Pyranose-*form*

Me glycoside, di-Ac: Methyl 3,4-di-O-acetyl-2-bromo-2-deoxy-α-D-lyxopyranoside
[51385-05-8]
$C_{10}H_{15}BrO_6$ 311.129
Mp 56-57°. $[\alpha]_D^{25}$ -7 (c, 1.49 in $CHCl_3$).
Van Es, T. *et al., J. S. Afr. Chem. Inst.*, 1973, **26**, 152 (*di-Ac, pmr*)

3-Bromo-3-deoxylyxose B-83



α-D-Pyranose-*form*

$C_5H_9BrO_4$ 213.028

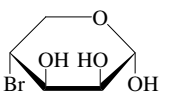
α-D-Pyranose-*form*

Me glycoside, dibenzoyl: Methyl 2,4-di-O-benzoyl-3-bromo-3-deoxy-α-D-lyxopyranoside
[54621-50-0]
$C_{20}H_{19}BrO_6$ 435.27
Cryst. (Et_2O/pentane). Mp 103-105°.
$[\alpha]_D^{25}$ -125.4 (c, 1.3 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside, 4-benzoyl, 2-Me: Methyl 4-O-benzoyl-3-bromo-3-deoxy-2-O-methyl-β-D-lyxopyranoside
[54621-61-3]
$C_{14}H_{17}BrO_5$ 345.189
Syrup. $[\alpha]_D^{21}$ -33.7 (c, 1.3 in $CHCl_3$).
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 866 (*Me gly deriv, pmr*)

4-Bromo-4-deoxylyxose B-84



α-D-Pyranose-*form*

$C_5H_9BrO_4$ 213.028

D-Pyranose-*form*

Me glycoside: Methyl 4-bromo-4-deoxy-D-lyxopyranoside
$C_6H_{11}BrO_4$ 227.054
Cryst. Mp 134-135°. $[\alpha]_D$ +14.6 (MeOH).

α-D-Pyranose-*form*

Benzyl glycoside: Benzyl 4-bromo-4-deoxy-α-D-lyxopyranoside
[104292-63-9]
$C_{12}H_{15}BrO_4$ 303.152
Cryst. (toluene). Mp 139-142°.
$[\alpha]_D^{23}$ -62 (c, 0.8 in $CDCl_3$).

α-L-Pyranose-*form*

1-Benzoyl, 2,3-di-Ac: 2,3-Di-O-acetyl-1-O-benzoyl-4-bromo-4-deoxy-α-L-lyxopyranose
$C_{16}H_{17}BrO_7$ 401.21
Cryst. (Et_2O/pentane). Mp 149-150°.
$[\alpha]_D^{20}$ -60.5 (c, 1.0 in $CHCl_3$).
Benzyl glycoside: Benzyl 4-bromo-4-deoxy-α-L-lyxopyranoside
[104292-62-8]
$C_{12}H_{15}BrO_4$ 303.152
Cryst. (toluene). Mp 139-141°.
$[\alpha]_D^{23}$ -61 (c, 0.9 in $CDCl_3$).
Benzyl glycoside, 2,3-O-isopropylidene: Benzyl 4-bromo-4-deoxy-2,3-O-isopropylidene-α-L-lyxopyranoside
[123836-17-9]
$C_{15}H_{19}BrO_4$ 343.217
Syrup.

Me glycoside, 2,3-anhydro: Methyl 2, 3-anhydro-4-bromo-4-deoxy-α-L-lyxopyranoside
[106966-39-6]
$C_6H_9BrO_3$ 209.039
Syrup. Bp_1 85°. $[\alpha]_D^{20}$ -68 (c, 0.37 in $CHCl_3$).

β-L-Pyranose-*form*

Benzyl glycoside: Benzyl 4-bromo-4-deoxy-β-L-lyxopyranoside
[112348-36-4]
$C_{12}H_{15}BrO_4$ 303.152
Cryst. (EtOH). Mp 55-56°. $[\alpha]_D^{25}$ -72 (c, 0.47 in $CHCl_3$).

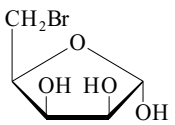
Benzyl glycoside, 2-benzoyl: Benzyl 2-O-benzoyl-4-bromo-4-deoxy-β-L-lyxopyranoside
[112348-34-2]
$C_{19}H_{19}BrO_5$ 407.26
Syrup. $[\alpha]_D^{25}$ +103 (c, 0.68 in $CHCl_3$).

Benzyl glycoside, dibenzoyl: Benzyl 2,3-di-O-benzoyl-4-bromo-4-deoxy-β-L-lyxopyranoside
[112348-35-3]
$C_{26}H_{23}BrO_6$ 511.368
Solid. $[\alpha]_D$ +118 (c, 0.94 in $CHCl_3$).

Benzyl glycoside, 2,3-O-isopropylidene: Benzyl 4-bromo-4-deoxy-2,3-O-isopropylidene-β-L-lyxopyranoside
[123836-23-7]
Syrup.

Kent, P.W. *et al., J.C.S.*, 1953, 416 (*Me pyr*)
Bock, K. *et al., J.C.S. Perkin 1*, 1973, 1456, (*α-L-pyr deriv, ir, pmr*)
Canet, G. *et al., Carbohydr. Res.*, 1986, **152**, 292 (*α-L-Me gly, ir, pmr*)
Sundin, A. *et al., J.O.C.*, 1986, **51**, 3927, (*α-L-benzyl gly, α-D-benzyl gly, pmr, cmr*)
Rao, M.V. *et al., J.O.C.*, 1988, **53**, 1432; 1184 (*β-L-benzyl gly*)
Keck, G.E. *et al., J.O.C.*, 1990, **54**, 5845 (*benzyl gly isopropylidene*)

5-Bromo-5-deoxylyxose B-85



α–D–Furanose–*form*

$C_5H_9BrO_4$ 213.028

D-*form* [42854-92-2]
Syrup.

2,3-O-Isopropylidene: [121668-05-1]
$C_8H_{13}BrO_4$ 253.092
Syrup.

α-D-furanose-*form*

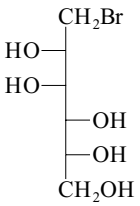
Benzyl glycoside, 2,3-O-isopropylidene:
[42854-91-1]
$C_{15}H_{19}BrO_4$ 343.217
Liq. $Bp_{0.03}$ 130°. $[\alpha]_D^{20}$ +91.6 (c, 1.31 in MeOH).

DL-*form* [36663-35-1]
Syrup.

Tamura, T. *et al., J.O.C.*, 1974, **39**, 38 (*D-form, α-D-fur deriv, pmr*)
Webb, T.H. *et al., Tet. Lett.*, 1988, **29**, 6823, (*D-isopropylidene*)

1-Bromo-1-deoxymannitol B-86

6-Bromo-6-deoxymannitol

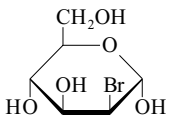


$C_6H_{13}BrO_5$ 245.07

D-*form* [15430-94-1]
Cryst. ($MeOH/CHCl_3$). Mp 115-116°. $[\alpha]_D^{20}$ +2.5 (c, 1.0 in H_2O).

Lundt, I. *et al., Tetrahedron*, 1994, **50**, 13285 (*synth, pmr, cmr*)

2-Bromo-2-deoxymannose B-87



α–D–Pyranose–*form*

$C_6H_{11}BrO_5$ 243.054

D-*form*
Solid. Mp 120°. $[\alpha]_D^{18}$ +2.72 (H_2O).

α-D-Pyranose-*form*

Tetra-Ac: 1,3,4,6-Tetra-O-acetyl-2-bromo-2-deoxy-α-D-mannopyranose
[79733-39-4]
$C_{14}H_{19}BrO_9$ 411.203
Syrup.

1-Benzoyl, 3,4,6-tri-Ac: 3,4,6-Tri-O-acetyl-1-O-benzoyl-2-bromo-2-deoxy-α-D-mannopyranose
[19237-69-5]
$C_{19}H_{21}BrO_9$ 473.273
Cryst. Mp 168-169°. $[\alpha]_D^{28}$ +62.3 (c, 1.54 in $CHCl_3$).

Me glycoside: Methyl 2-bromo-2-deoxy-α-D-mannopyranoside
$C_7H_{13}BrO_5$ 257.081
Syrup. $[\alpha]_D$ +47.5 ($CHCl_3$).

Me glycoside, tri-Ac: Methyl 3,4,6-tri-O-acetyl-2-bromo-2-deoxy-α-D-mannopyranoside
[63069-63-6]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. Mp 115-116°. $[\alpha]_D$ -92 (CCl_4).

Me glycoside, 4,6-O-benzylidene (R-): Methyl 4,6-O-benzylidene-2-bromo-2-deoxy-α-D-mannopyranoside
[131564-60-8]
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (Et_2O/petrol). Mp 83-85° (77-78°). $[\alpha]_D$ +18 (c, 1.0 in $CHCl_3$).

Me glycoside, 4,6-O-benzylidene (R-), 3-Ac: Methyl 3-O-acetyl-4,6-O-benzylidene-2-bromo-2-deoxy-α-D-mannopyranoside
[131564-61-9]
$C_{16}H_{19}BrO_6$ 387.226
Cryst. $[\alpha]_D$ +7.4 (c, 1.0 in CH_2Cl_2).

Me glycoside, tribenzyl: Methyl 3,4, 6-tri-O-benzyl-2-bromo-2-deoxy-α-D-mannopyranoside
[77770-58-2]
$C_{28}H_{31}BrO_5$ 527.454
Syrup. $[\alpha]_D^{22}$ +21 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

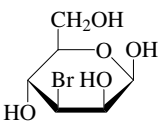
Me glycoside: Methyl 2-bromo-2-deoxy-β-D-mannopyranoside
$C_7H_{13}BrO_5$ 257.081
Cryst. Mp 181-182°. $[\alpha]_D$ -64 (H_2O).

Me glycoside, tri-Ac: Methyl 3,4,6-tri-O-acetyl-2-bromo-2-deoxy-β-D-mannopyranoside
$C_{13}H_{19}BrO_8$ 383.192
Cryst. Mp 115-116°. $[\alpha]_D$ -92 (CCl_4).

Me glycoside, tribenzyl: Methyl 3,4,6-tri-O-benzyl-2-bromo-2-deoxy-β-D-mannopyranoside
$C_{28}H_{31}BrO_5$ 527.454
Syrup. $[\alpha]_D^{22}$ -43 (c, 1.25 in $CHCl_3$).

Manolopoulos, P.T. *et al., J.A.C.S.*, 1962, **84**, 2203 (*β-Me gly*)
Kent, P.W. *et al., J.C.S.*, 1963, 3273; 1964, 6196 (*D-form, α-Me gly, α-Me gly benzylidene*)
Gross, P.H. *et al., Annalen*, 1965, **681**, 225, (*α-Me gly*)
Hall, L.D. *et al., Chem. Comm.*, 1968, 35 (*benzoyl, tri-Ac*)
Classen, B. *et al., Can. J. Chem.*, 1981, **59**, 339 (*α-Me gly tribenzyl, β-Me gly tribenzyl*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1987, **6**, 203 (*tetra-Ac, pmr, cmr*)
Khan, R. *et al., Carbohydr. Res.*, 1990, **205**, 211 (*α-Me gly benzylidene, pmr, cmr, ms*)

3-Bromo-3-deoxymannose B-88



β-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

D-*form* [167033-46-7]
Syrup. Obt. as anomeric mixt., ratio α:β 7:3.

β-D-Pyranose-*form*

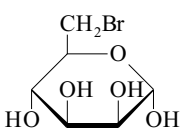
4,6-O-Benzylidene, 2-benzoyl: Methyl 2-benzoyl-4,6-O-benzylidene-3-bromo-3-deoxy-β-D-mannopyranoside
[167033-53-6]

[167033-42-3]
$C_{21}H_{21}BrO_6$ 449.297
Characterised by pmr and ms.

Fitz, W. *et al., J.O.C.*, 1995, **60**, 3663-3670, (*D-form, β-D-Me pyr benzoyl benzylidene*)

6-Bromo-6-deoxymannose B-89

6-Bromorhamnose



$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

Me glycoside: [52340-56-4]
$C_7H_{13}BrO_5$ 257.081
Cryst. Mp 97-99°. $[\alpha]_D^{20}$ +57 (c, 1.5 in H_2O).

Me glycoside, tri-Ac: [30589-67-4]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (cyclohexane). Mp 78-81°. $[\alpha]_D^{20}$ +53 (c, 0.1 in $CHCl_3$).

Me glycoside, 4-benzoyl: [18929-78-7]
$C_{14}H_{17}BrO_6$ 361.189
Amorph. solid (Et_2O/pentane). $[\alpha]_D^{25}$ -124 (c, 2.39 in $CHCl_3$).

Me glycoside, 4-benzoyl, 2,3-di-Ac: [18929-80-1]
$C_{18}H_{21}BrO_8$ 445.263
Cryst. (Et_2O/petrol). Mp 120-121°. $[\alpha]_D^{25}$ +21 (c, 1.09 in $CHCl_3$).

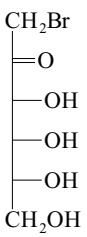
Me glycoside, 2,3-dibenzoyl: [135216-49-8]
$C_{21}H_{21}BrO_7$ 465.297
Cryst. (EtOH). Mp 182-184°. $[\alpha]_D^{20}$ -120 ($CHCl_3$).

Me glycoside, 2,3-dibenzoyl, 4-tosyl: [135216-50-1]
$C_{28}H_{27}BrO_9S$ 619.486
Cryst. (EtOH). Mp 109-110°. $[\alpha]_D^{20}$ -116 ($CHCl_3$).

Me glycoside, tribenzoyl: [18929-79-8]
$C_{28}H_{25}BrO_8$ 569.405
Cryst. Mp 180-181°. $[\alpha]_D^{25}$ -115 (c, 0.4 in $CHCl_3$).

Levene, P.A. *et al., Coll. Czech. Chem. Comm.*, 1934, **6**, 354 (*Me gly*)
Horton, D. *et al., Carbohydr. Res.*, 1968, **7**, 101 (*tri-Ac*)
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1035, (*Me gly deriv*)
Shulman, M.L. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1973, 414; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1973, 394 (*tri-Ac*)
Cicero, D. *et al., Carbohydr. Res.*, 1991, **211**, 295 (*Me gly deriv*)

1-Bromo-1-deoxypsicose B-90



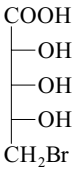
$C_6H_{11}BrO_5$ 243.054

D-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-*acetyl-1-bromo-1-deoxy-D-psicose*
[51296-43-6]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. Mp 77-79°. $[\alpha]_D$ -15.1 ($CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1945, **67**, 1793 (*tetra-Ac*)
Vanek, T. *et al., Nucleic Acids Res., Spec. Publ.*, 1978, **4**, 173; *CA*, **90**, 87812w (*tetra-Ac*)

5-Bromo-5-deoxyribonic acid B-91



$C_5H_9BrO_5$ 229.027

D-*form*

1,4-Lactone: 5-Bromo-5-deoxy-D-1,4-ribonolactone
[160456-85-9]
$C_5H_7BrO_4$ 211.012
Cryst. (EtOAc/pentane). Mp 106-107°. $[\alpha]_D^{20}$ +24.6 (c, 1.1 in EtOAc).

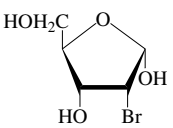
*1,4-Lactone, 2,3-isopropylidene: 5-Bromo-5-deoxy-2,3-*O*-isopropylidene-D-ribono-1,4-lactone*
[94324-23-9]
$C_8H_{11}BrO_4$ 251.076
Cryst. Mp 88.5-89.5°. $[\alpha]_D^{22}$ -43.55 (c, 2.37 in $CHCl_3$).

*1,4-Lactone, 2,3-benzylidene: 2,3-*O*-Benzylidene-5-bromo-5-deoxy-D-1,4-ribonolactone*
[90108-48-8]
$C_{12}H_{11}BrO_4$ 299.12
Cryst. (Et_2O/petrol). Mp 84-85° (isomer A) Mp 158-159° (isomer B). $[\alpha]_D$ -11.5 (c, 2.0 in $CHCl_3$) (isomer A). $[\alpha]_D$ -26.5 (c, 2.0 in Me_2CO) (isomer B). Two diastereoisomers characterised.

[90108-48-8, 90108-49-9]

Chen, S.-Y. *et al., J.O.C.*, 1984, **49**, 2168 (*benzylidene, synth, pmr, ir*)
Jaeger, V. *et al., Synthesis*, 1987, 801 (*isopropylidene, synth, pmr*)
Kold, H. *et al., Acta Chem. Scand.*, 1994, **48**, 675 (*synth, pmr*)

2-Bromo-2-deoxyribose B-92



α-D-Furanose-*form*

$C_5H_9BrO_4$ 213.028

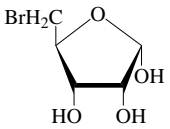
α-D-Furanose-*form*

*Me glycoside, dibenzoyl: Methyl 3,5-di-*O*-benzoyl-2-bromo-2-deoxy-α-D-ribofuranoside*
[55734-54-8]
$C_{20}H_{19}BrO_6$ 435.27
Syrup.

β-D-Furanose-*form* [125155-49-9]
Syrup.

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 185 (*α-fur deriv, pmr*)
Ilicheva, I.A. *et al., Bioorg. Khim.*, 1989, **15**, 800; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 428 (*β-fur*)

5-Bromo-5-deoxyribose B-93



α-D-Furanose-*form*

$C_5H_9BrO_4$ 213.028

α-D-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-bromo-5-deoxy-2,3-*O*-isopropylidene-α-D-ribofuranoside*
[120142-51-0]
$C_9H_{15}BrO_4$ 267.119
Syrup.

β-D-Furanose-*form*

*2,3-Dibenzoyl, 1-Ac: 1-*O*-Acetyl-2,3-di-*O*-benzoyl-5-bromo-5-deoxy-β-D-ribofuranose*
[120033-32-1]
$C_{21}H_{19}BrO_7$ 463.281
Cryst. (hexane). Mp 68.6-69°.

*Me glycoside, 2,3-dibenzoyl: Methyl 2,3-di-*O*-benzoyl-5-bromo-5-deoxy-β-D-ribofuranoside*
[120033-28-5]
$C_{20}H_{19}BrO_6$ 435.27
Cryst. (hexane). Mp 60-61°.

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-bromo-5-deoxy-2,3-*O*-isopropylidene-β-D-ribofuranoside*
[38838-05-0]
$C_9H_{15}BrO_4$ 267.119
Syrup. $Bp_{0.1}$ 72°. $[\alpha]_D^{25}$ -80 (c, 2.61 in $CHCl_3$).

β-L-Furanose-*form*

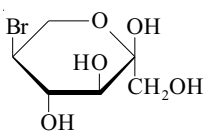
*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-bromo-5-deoxy-2,3-*O*-isopropylidene-β-L-ribofuranoside*
[118244-91-0]
$C_9H_{15}BrO_4$ 267.119
Liq. $[\alpha]_D^{25}$ +65 (c, 1.0 in $CHCl_3$).

β-DL-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-bromo-5-deoxy-2,3-*O*-isopropylidene-β-DL-ribofuranoside*
[118244-92-1]
$C_9H_{15}BrO_4$ 267.119
Liq.

Hanessian, S. *et al., Carbohydr. Res.*, 1972, **24**, 45 (*β-Me gly deriv*)
Kiss, J. *et al., Helv. Chim. Acta*, 1982, **65**, 1522 (*Me gly deriv*)
Wagner, J. *et al., Helv. Chim. Acta*, 1988, **71**, 624 (*β-L-fur deriv, β-DL-fur deriv*)
Raju, N. *et al., J. Med. Chem.*, 1989, **32**, 1307, (*α-fur deriv, β-fur deriv*)

5-Bromo-5-deoxysorbose B-94

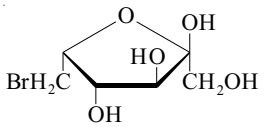


$C_6H_{11}BrO_5$ 243.054

α-L-Pyranose-*form*

1,2-O-Isopropylidene, 3-Me, 4-(dimethylcarbamyl): [100350-42-3]
$C_{13}H_{22}BrNO_6$ 368.224
Syrup. $[\alpha]_D^{20}$ -24.8 (c, 0.2 in CH_2Cl_2).
Klemer, A. *et al., Annalen*, 1986, 932 (*isopropylidene deriv*)

6-Bromo-6-deoxysorbose B-95

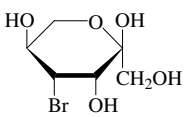


$C_6H_{11}BrO_5$ 243.054

α-L-Furanose-*form*

2,3-O-Isopropylidene: 6-Bromo-6-deoxy-2,3-O-isopropylidene-α-L-sorbofuranose
[121564-08-7]
$C_9H_{15}BrO_5$ 283.118
Mp 109-110°. $[\alpha]_D^{20}$ +13.6 (c, 1.0 in MeOH).
Beaupere, D. *et al., J. Carbohydr. Chem.*, 1989, **8**, 159 (*isopropylidene, pmr, cmr*)

4-Bromo-4-deoxytagatose B-96



α-L-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

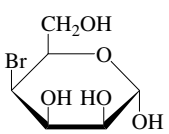
α-L-Pyranose-*form*

Me glycoside, tri-Ac: Methyl 2,3,5-tri-O-acetyl-4-bromo-4-deoxy-α-L-tagatopyranoside
[19877-24-8]
$C_{13}H_{19}BrO_8$ 383.192
Cryst. (Et_2O/petrol). Mp 136-138°.
$[\alpha]_D^{22}$ -30.9 (c, 1.05 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside, tri-Ac: Methyl 2,3,5-tri-O-acetyl-4-bromo-4-deoxy-β-tagatopyranoside
[19877-75-9]
Syrup. $[\alpha]_D^{23}$ +51.3 (c, 0.83 in $CHCl_3$).
Katsuhara, M. *et al., Bull. Chem. Soc. Jpn.*, 1968, **41**, 1208 (*tri-Ac, pmr*)

4-Bromo-4-deoxytalose B-97



α-D-Pyranose-*form*

$C_6H_{11}BrO_5$ 243.054

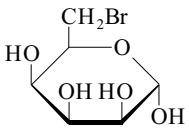
α-D-Pyranose-*form*

Me glycoside: Methyl 4-bromo-4-deoxy-α-D-talopyranoside
[77770-63-9]
$C_7H_{13}BrO_5$ 257.081
Cryst. (EtOAc/petrol). Mp 105°.
$[\alpha]_D^{22}$ +102 (c, 1.0 in H_2O).

Me glycoside, tri-Ac: Methyl 2,3,6-tri-O-acetyl-4-bromo-4-deoxy-α-D-talopyranoside
[77770-65-1]
$C_{13}H_{19}BrO_8$ 383.192
Syrup.

Me glycoside, 6-trityl: Methyl 4-bromo-4-deoxy-6-O-trityl-α-D-talopyranoside
[77770-64-0]
$C_{26}H_{27}BrO_5$ 499.4
Syrup.
Classon, B. *et al., Can. J. Chem.*, 1981, **59**, 339 (*α-Me gly deriv*)

6-Bromo-6-deoxytalose B-98



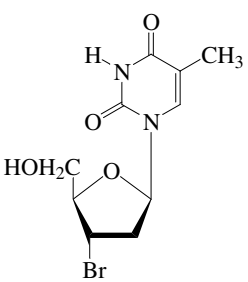
$C_6H_{11}BrO_5$ 243.054

α-D-Pyranose-*form*

Me glycoside, 2,3-anhydro, 4-benzoyl: [18929-81-2]
$C_{14}H_{15}BrO_5$ 343.173
Cryst. (Et_2O/pentane). Mp 134-135°.
$[\alpha]_D^{25}$ -64 (c, 0.3 in $CHCl_3$).
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1035, (*Me gly deriv, ir*)
Hanessian, S. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 183 (*Me gly deriv*)

3′-Bromo-3′-deoxythymidine, 9CI B-99

[99785-51-0]

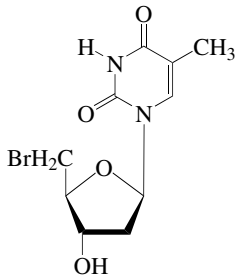


$C_{10}H_{13}BrN_2O_4$ 305.128
Needles (H_2O). Mp 150° (dec.).

5′-Trityl:
$C_{29}H_{27}BrN_2O_4$ 547.447
Cubes (Me_2CO/MeOH). Mp 144°.
Michelson, A.M. *et al., J.C.S.*, 1955, 816-823 (*5′-trityl*)
Moss, G.P. *et al., J.C.S.*, 1963, 1149-1154 (*synth*)

5′-Bromo-5′-deoxythymidine, 9CI B-100

[20905-51-5]

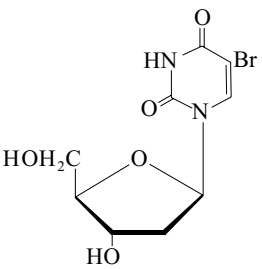


$C_{10}H_{13}BrN_2O_4$ 305.128
Cryst. (MeOH/EtOAc or H_2O). Mp 129° (dec.) Mp 157-158° (dec.). The lower Mp is for material crystallised from H_2O.

3′-Ac: [34647-05-7]
$C_{12}H_{15}BrN_2O_5$ 347.165
Cryst. ($CHCl_3$/hexane).
Mp 158.5-159.5°.
Michelson, A.M. *et al., J.C.S.*, 1955, 816-821 (*synth*)
Verheyden, J.P.M. *et al., J.O.C.*, 1972, **37**, 2289-2299 (*synth, 3′-Ac, uv*)
Baeschlin, D.K. *et al., J.O.C.*, 1996, **61**, 7620-7626 (*synth, pmr, cmr, uv*)

5-Bromo-2′-deoxyuridine, 9CI, 8CI B-101

Broxuridine, INN, JAN. *Bromouridine. Radibud. BRDU. NSC 38297*
[59-14-3]



$C_9H_{11}BrN_2O_5$ 307.1
Antineoplastic agent, used to label DNA of tumour cells *in vivo*. Cryst. (EtOH). Mp 187-189°. $[\alpha]_D^{20}$ +39.4 (c, 2.0 in *N* NaOH). Log P -1.24 (calc). λ_{max} 280 (ε 9 900) (HCl), 277 nm (7 200) (NaOH).

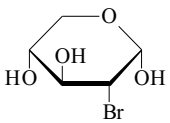
▶ Exp. reprod. and teratogenic effects. LD_{50} (rat, orl) 8400 mg/kg. YU7350000

3′-Ac: [15414-62-7]
$C_{11}H_{13}BrN_2O_6$ 349.137
Mp 188-190°. λ_{max} 278 (ε 9 520) (0.1*M* HCl), 276 nm (6 840) (0.1*M* NaOH).

5′-Trityl: [15414-60-5]
$C_{28}H_{25}BrN_2O_5$ 549.42
Mp 144-146°. λ_{max} 279 (ε 9 400) (0.1*M* HCl), 275 nm (6 800) (0.1*M* NaOH).
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 375A (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 816C (*ir*)
Beltz, R.E. *et al., J.A.C.S.*, 1955, **77**, 736 (*synth*)
Iball, J. *et al., Nature (London)*, 1966, **209**, 1230 (*cryst struct*)

Montgomery, J.A. *et al., J. Med. Chem.*, 1967, **10**, 1163 (*Ac, trityl*)
Wigler, P.W. *et al., J. Med. Chem.*, 1972, **15**, 1020 (*trityl*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497 (*pmr*)
Davies, D.B. *et al., Stud. Biophys.*, 1976, **55**, 29; *CA*, **85**, 59065h (*cmr*)
Du Frain, R.J. *et al., Basic Life Sci.*, 1984, **29A**, 41; 59; 83 (*revs*)
Aoyama, H. *et al., Bull. Chem. Soc. Jpn.*, 1987, **60**, 2073 (*synth*)
Asakura, J. *et al., J.O.C.*, 1990, **55**, 4928 (*synth, pmr, uv*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 460
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BNC750

2-Bromo-2-deoxyxylose B-102



α–D–Pyranose–*form*

$C_5H_9BrO_4$ 213.028

D-*form*

3,4-Dibenzoyl: [50271-31-3]
$C_{19}H_{17}BrO_6$ 421.244
Cryst. (Et_2O/pentane). Mp 145-146°. $[\alpha]_D^{20}$ -64.5 → -30.8 (equilib.) (c, 2.5 in $CHCl_3$).

α-D-Pyranose-*form*

Tribenzoyl: [50271-36-8]
$C_{26}H_{21}BrO_7$ 525.352
Syrup.

β-D-Pyranose-*form*

1-Benzoyl, 3,4-di-Ac: [50271-22-2]
$C_{16}H_{17}BrO_7$ 401.21
Cryst. (Et_2O/pentane). Mp 120-121°. $[\alpha]_D^{20}$ -25 (c, 1.8 in $CHCl_3$).

1,3-Dibenzoyl, 4-Ac: [50271-41-5]
$C_{21}H_{19}BrO_7$ 463.281
Cryst. (Et_2O/pentane). Mp 65-68°. $[\alpha]_D^{21}$ +20.5 (c, 0.66 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside, di-Ac: [55734-58-2]
$C_{10}H_{15}BrO_6$ 311.129
Syrup.

Me glycoside, dibenzoyl: [55734-56-0]
$C_{20}H_{19}BrO_6$ 435.27
Syrup. $[\alpha]_D^{21}$ +163.1 (c, 5.9 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside, 5-Ac: [13051-98-4]
$C_8H_{13}BrO_5$ 269.092
Oil. $[\alpha]_D^{22}$ -35 (c, 0.97 in $CHCl_3$).

Me glycoside, di-Ac: [55734-59-3]
Syrup.

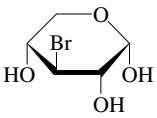
Me glycoside, 3-benzoyl: [43168-70-3]
$C_{13}H_{15}BrO_5$ 331.162
Syrup. $[\alpha]_D$ +29 (c, 3.3 in CCl_4).

Me glycoside, 5-benzoyl: [43168-69-0]
$C_{13}H_{15}BrO_5$ 331.162
Syrup. $[\alpha]_D$ -16.6 (c, 4.7 in CCl_4).

Me glycoside, dibenzoyl: [43168-71-4]
Cryst. (MeOH). Mp 67.5-68°. $[\alpha]_D$ -6 (c, 1.06 in $CHCl_3$).

Reist, E.J. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 179 (*β-Me fur Ac, uv, pmr*)
Ritchie, R.G.S. *et al., Chem. Ind. (London)*, 1973, 530 (*β-Me fur*)
Bock, K. *et al., J.C.S. Perkin 1*, 1973, 1456, (*α-pyr, β-pyr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 185 (*D-form, α-Me fur*)

3-Bromo-3-deoxyxylose B-103



α-D-Pyranose-*form*

$C_5H_9BrO_4$ 213.028

α-D-Pyranose-*form*

Benzyl glycoside, dibenzoyl: Benzyl 2, 4-di-O-benzoyl-3-bromo-3-deoxy-α-D-xylopyranoside
[112483-00-8]
$C_{26}H_{23}BrO_6$ 511.368
Syrup.

β-D-Pyranose-*form*

Me glycoside: Methyl 3-bromo-3-deoxy-β-D-xylopyranoside
$C_6H_{11}BrO_4$ 227.054
Cryst. Mp 101-102°. $[\alpha]_D$ -16.4 (MeOH).

Benzyl glycoside, 2-Me: Benzyl 3-bromo-3-deoxy-2-O-methyl-β-D-xylopyranoside
[128843-90-3]
$C_{13}H_{17}BrO_4$ 317.179
Syrup.

Benzyl glycoside, 4-Me: Benzyl 3-bromo-3-deoxy-4-O-methyl-β-D-xylopyranoside
[128843-91-4]
$C_{13}H_{17}BrO_4$ 317.179
Cryst. (EtOAc/heptane). Mp 103-104°. $[\alpha]_D^{25}$ -39 (c, 1.7 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside, di-Ac: Methyl 2,5-di-O-acetyl-3-bromo-3-deoxy-α-D-xylofuranoside
[23259-83-8]
$C_{10}H_{15}BrO_6$ 311.129
Oil.

Me glycoside, dibenzoyl: Methyl 2,5-di-O-benzoyl-3-bromo-3-deoxy-α-D-xylofuranoside
[54621-63-5]
$C_{20}H_{19}BrO_6$ 435.27
Syrup.

β-D-Furanose-*form*

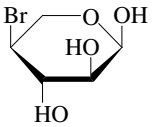
Me glycoside, di-Ac: Methyl 2,5-di-O-acetyl-3-bromo-3-deoxy-β-D-xylofuranoside
[23259-86-1]
$C_{10}H_{15}BrO_6$ 311.129
Oil.

Me glycoside, dibenzoyl: Methyl 2,5-di-O-benzoyl-3-bromo-3-deoxy-β-D-xylofuranoside
[54621-64-6]
Syrup. $[\alpha]_D^{21}$ +31.8 (c, 3.0 in $CHCl_3$).

[112483-17-7]

Kent, P.W. *et al., J.C.S.*, 1949, 1232 (*β-Me pyr*)
Reist, E.J. *et al., Carbohydr. Res.*, 1969, **9**, 71 (*Me gly di-Ac, pmr, ir*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 866 (*Me gly dibenzoyl*)
Rao, M.V. *et al., J.O.C.*, 1988, **53**, 1184, (*α-benzyl gly*)
Rehnberg, N. *et al., J.O.C.*, 1990, **55**, 5467, (*β-benzyl gly, pmr*)

4-Bromo-4-deoxyxylose B-104



α-L-Pyranose-*form*

$C_5H_9BrO_4$ 213.028

α-L-Pyranose-*form*

1,2-O-Benzylidene: 1,2-O-Benzylidene-4-bromo-4-deoxy-α-L-xylopyranose
[55169-80-7]
$C_{12}H_{13}BrO_4$ 301.136
Mp 125-126°. $[\alpha]_D^{21}$ -43.3 (c, 1.7 in $CHCl_3$).

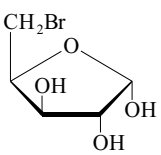
Me glycoside, dibenzoyl: Methyl 2,3-di-O-benzoyl-4-bromo-4-deoxy-α-L-xylopyranoside
[18930-05-7]
$C_{20}H_{19}BrO_6$ 435.27
Cryst. (cyclohexane). Mp 109-110°. $[\alpha]_D^{25}$ -129.7 (c, 1.1 in $CHCl_3$).

Me glycoside, 3-benzoyl, 2-Me: Methyl 3-O-benzoyl-4-bromo-4-deoxy-2-O-methyl-α-L-xylopyranoside
[54621-62-4]
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (Et_2O/pentane). Mp 73-74°. $[\alpha]_D^{21}$ -76.2 (c, 1.3 in $CHCl_3$).

[55169-81-8]

Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 866; 1024 (*benzylidene, α-Me gly deriv, pmr*)
Chana, J.S. *et al., Chem. Comm.*, 1988, 94, (*α-Me gly deriv*)

5-Bromo-5-deoxyxylose B-105



α–D–Furanose–*form*

$C_5H_9BrO_4$ 213.028

D-*form* [42854-95-5]
Syrup.

α-D-Furanose-*form*

1,2-O-Isopropylidene: [42854-94-4]
$C_8H_{13}BrO_4$ 253.092
Needles (hexane). Mp 93-94°. $[\alpha]_D^{20}$ -22.2 (c, 1.58 in MeOH).

1,2-O-Isopropylidene, 3-benzoyl: [41164-25-4]
$C_{15}H_{17}BrO_5$ 357.2
Glass. $[\alpha]_D^{25}$ -46.6 (c, 1.0 in $CHCl_3$).

1,2-O-Isopropylidene, 3-Me: [17954-93-7]
$C_9H_{15}BrO_4$ 267.119

Syrup. $Bp_{0.2}$ 67°. $[\alpha]_D^{18}$ -77.6 (c, 1.0 in $CHCl_3$).

Me glycoside, di-Ac: [56570-73-1]
$C_{10}H_{15}BrO_6$ 311.129
Syrup.

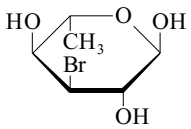
β-D-Furanose-*form*

Me glycoside, di-Ac: [56587-55-4]
Cryst.

DL-*form* [36663-36-2]
Syrup.

Inokawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1968, **41**, 1472; 1973, **46**, 3301 (*3-Me*)
Culbertson, T.P. *et al., J.O.C.*, 1973, **38**, 3624, (*3-benzoyl, pmr*)
Tamura, T. *et al., J.O.C.*, 1974, **39**, 38 (*synth, D-form, DL-form, isopropylidene, pmr, ir*)
Hollenberg, D.H. *et al., Carbohydr. Res.*, 1975, **42**, 241 (*3-benzoyl, α-Me gly di-Ac, β-Me gly di-Ac, pmr*)
Pan, C. *et al., CA*, 1989, **110**, 8765p (*isopropylidene*)

3-Bromo-3,6-dideoxyaltrose B-106



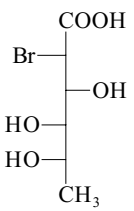
$C_6H_{11}BrO_4$ 227.054

α-L-Pyranose-*form*

Me glycoside, 2-benzoyl: Methyl 2-O-benzoyl-3-bromo-2,6-dideoxy-α-L-altropyranoside
[64880-43-9]
$C_{14}H_{17}BrO_5$ 345.189
Cryst. (hexane/Et_2O). Mp 52-53°.
$[\alpha]_D^{20}$ +12 (c, 1.54 in $CHCl_3$).

Florent, J.-C. *et al., Carbohydr. Res.*, 1977, **56**, 301 (*synth, ms*)

2-Bromo-2,6-dideoxygluconoic acid B-107



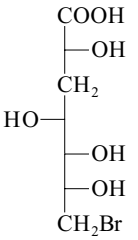
$C_6H_{11}BrO_5$ 243.054

L-*form*

1,4-Lactone: 2-Bromo-2,6-dideoxy-L-glucono-1,4-lactone
[78138-24-6]
$C_6H_9BrO_4$ 225.039
Cryst. (EtOAc/pentane). Mp 111-113°.
$[\alpha]_D^{20}$ -19 (c, 2.2 in EtOAc).

Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 7 (*synth, pmr, cmr*)

7-Bromo-3,7-dideoxy-*gluco*-heptonic acid B-108



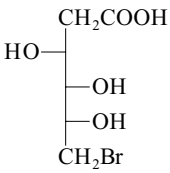
$C_7H_{13}BrO_6$ 273.08

D-*form*

1,4-Lactone: 7-Bromo-3,7-dideoxy-D-gluco-heptono-1,4-lactone
[116386-11-9]
$C_7H_{11}BrO_5$ 255.065
Cryst. (EtOAc/Et_2O). Mp 131-133°.
$[\alpha]_D^{20}$ -33 (c, 2.2 in H_2O).

Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 331 (*synth, cmr*)

6-Bromo-2,6-dideoxy-*arabino*-hexonic acid B-109



$C_6H_{11}BrO_5$ 243.054

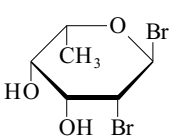
D-*form*

1,4-Lactone: 6-Bromo-2,6-dideoxy-D-arabino-hexono-1,4-lactone
[71672-01-0]
$C_6H_9BrO_4$ 225.039
Cryst. (EtOAc). Mp 71-73°. $[\alpha]_D^{20}$ +65.6 (c, 2.9 in H_2O).

1,4-Lactone, 3,5-di-Ac: 3,5-Di-O-acetyl-6-bromo-2,6-dideoxy-D-arabino-hexono-1,4-lactone
[69617-73-8]
$C_{10}H_{13}BrO_6$ 309.113
Cryst. (Et_2O/pentane). Mp 99-100°.
$[\alpha]_D^{20}$ -2.9 (c, 1.3 in $CHCl_3$).

Bock, K. *et al., Carbohydr. Res.*, 1979, **68**, 313; 1981, **90**, 7 (*synth, cmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 555 (*synth*)

2-Bromo-2,6-dideoxytalopyranosyl bromide B-110



$C_6H_{10}Br_2O_3$ 289.951

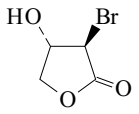
α-L-*form*

Di-Ac: 3,4-Di-O-acetyl-2-bromo-2,6-dideoxy-α-L-talopyranosyl bromide
[103321-25-1]
$C_{10}H_{14}Br_2O_5$ 374.026
Syrup. $[\alpha]_D^{22}$ -77 (c, 1.4 in CH_2Cl_2).

Horton, D. *et al., J.O.C.*, 1986, **51**, 3479 (*di-Ac, ms, cmr, pmr*)

3-Bromodihydro-4-hydroxy-2(3*H*)-furanone B-111

2-Bromo-2-deoxy-1,4-tetronolactone



(3*R*,4*S*)–*form*

$C_4H_5BrO_3$ 180.986

(3*R*,4*S*)-*form*

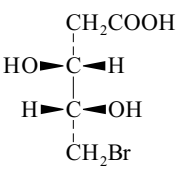
L-threo-form. 2-Bromo-2-deoxy-L-threono-1,4-lactone
[117859-49-1]
Syrup. Bp_2 150-160°. $[\alpha]_D^{20}$ +14 (c, 5.0 in $CHCl_3$).

(3*S*,4*S*)-*form*

L-erythro-form. 2-Bromo-2-deoxy-L-erythrono-1,4-lactone
[117858-88-5]
Syrup. $Bp_{1.5}$ 135-145° (lit. gives pressure range). $[\alpha]_D^{20}$ +5 (c, 4 in $CHCl_3$).

Bols, M. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 67 (*synth, cmr*)

5-Bromo-3,4-dihydroxypentanoic acid B-112



(3*R*,4*S*)–*form*

$C_5H_9BrO_4$ 213.028

(3*R*,4*S*)-*form*

D-threo-*form*

1,4-Lactone: 5-Bromo-2,5-dideoxy-D-threo-pentono-1,4-lactone
[38996-09-7]
$C_5H_7BrO_3$ 195.012
$[\alpha]_D^{25}$ +59 (c, 2.6 in H_2O).

(3*S*,4*S*)-*form* D-erythro-*form*

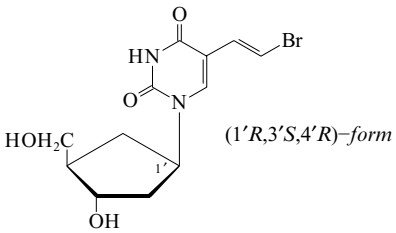
1,4-Lactone: 5-Bromo-2,5-dideoxy-D-erythro-pentono-1,4-lactone
[78139-03-4]
$C_5H_7BrO_3$ 195.012
Syrup. $[\alpha]_D$ +13.8 (c, 1.7 in Me_2CO).

1,4-Lactone, Ac: 3-O-Acetyl-5-bromo-2,5-dideoxy-D-erythro-pentono-1,4-lactone
[78139-02-3]
$C_7H_9BrO_4$ 237.05
Cryst. (EtOAc/pentane). Mp 63.5-64°.
$[\alpha]_D^{25}$ -4 (c, 3.5 in EtOAc).

Nakaminami, G. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2624 (*synth, ir*)
Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 17 (*D-form, synth, D-Ac, pmr, cmr*)

Chen, S.Y. *et al., J.O.C.*, 1984, **49**, 2168 (*D-form, synth, pmr*)

5-(2-Bromoethenyl)-1-[3-hydroxy-4-(hydroxymethyl)cyclopentyl]-2,4(1*H*,3*H*)-pyrimidinedione, 9CI B-113



(1′*R*,3′*S*,4′*R*)–*form*

$C_{12}H_{15}BrN_2O_4$ 331.165
Shows significant activity against herpes simplex virus. Carbocyclic analogue of Brivudine, B-52. Log P -2.12 (uncertain value) (calc).

(1′*R*,3′*S*,4′*R*)-*form* [95463-56-2]
Cryst. (MeOH). Mp 184-185° dec.
$[\alpha]_D^{20}$ +4.9 (c, 1.58 in MeOH).

(1′*S*,3′*R*,4′*S*)-*form* [120963-50-0]
Cryst. (MeOH). Mp 184-185° dec.
$[\alpha]_D^{20}$ -4.9 (c, 1.73 in MeOH).

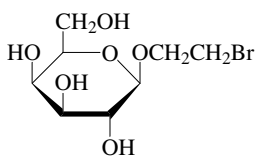
(1′*RS*,3′*SR*,4′*RS*)-*form* [91661-22-2]
Cryst. (MeOH). Mp 185° dec. (181-183° dec.).

(1′*RS*,3′*RS*,4′*SR*)-*form* [103476-38-6]
Solid. Mp 157-160° dec.

[103302-21-2, 103302-22-3]

Heredewijn, P. *et al., J. Med. Chem.*, 1985, **28**, 550 (*synth, uv, ms, pmr, cmr*)
Balzanini, J. *et al., J. Med. Chem.*, 1989, **32**, 1861 (*synth, pmr, cmr, uv, resoln*)

2-Bromoethyl galactopyranoside B-114



β-D-*form*

$C_8H_{15}BrO_6$ 287.107

α-D-*form*

Tetra-Ac:
$C_{16}H_{23}BrO_{10}$ 455.256
Mp 114-116°. $[\alpha]_D^{23}$ -5 (c, 1.4 in $CDCl_3$).

Tetrabenzyl:
$C_{36}H_{39}BrO_6$ 647.605
Syrup. $[\alpha]_D^{23}$ +30.5 (c, 1.4 in $CHCl_3$).

β-D-*form*

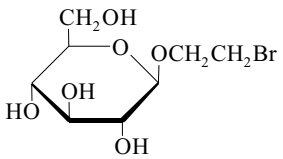
4,6-O-Benzylidene:
$C_{15}H_{19}BrO_6$ 375.215
Mp 138-139°. $[\alpha]_D^{24}$ -30 (c, 1.2 in $CHCl_3$).

2,3,6-Tri-Ac, 4-(tetra-O-acetyl-α-D-galactopyranosyl): 2-Bromoethyl 4-O-(2,3,4,6-tetra-O-acetyl-α-D-galactopyranosyl)-2,3,6-tri-O-acetyl-β-D-galactopyranoside
Mp 174-177°. $[\alpha]_D^{23}$ +75
(c, 2.0 in $CHCl_3$).

2,3,6-Tri-Ac, 4-(tetra-O-acetyl-β-D-galactopyranosyl): 2-Bromoethyl 4-O-(2,3,4,6-tetra-O-acetyl-β-D-galactopyranosyl)-2,3,6-tri-O-acetyl-β-D-galactopyranoside
Amorph. $[\alpha]_D^{23}$ +6 (c, 2.4 in $CDCl_3$).

Dahmen, J. *et al., Carbohydr. Res.*, 1982, **111**, C1; 1983, **116**, 303; 1984, **125**, 237 (*synth, pmr*)

2-Bromoethyl glucopyranoside B-115



$C_8H_{15}BrO_6$ 287.107

β-D-*form*

Tetra-Ac:
$C_{16}H_{23}BrO_{10}$ 455.256
Mp 119-120°. $[\alpha]_D^{23}$ -11 (c, 1.2 in $CDCl_3$).

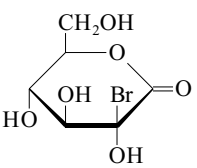
2,3,6-Tri-Ac, 4-(tetra-O-acetyl-β-D-galactopyranosyl): 2-Bromoethyl 2,3,6-tri-O-acetyl-4-O-(2,3,4,6-tetra-O-acetyl-β-D-galactopyranosyl)-β-D-glucopyranoside
Amorph. $[\alpha]_D^{23}$ -11 (c, 1.3 in $CHCl_3$).

2,3,6-Tribenzyl: 2-Bromoethyl 2,3,6-tri-O-benzyl-β-D-glucopyranoside
$C_{29}H_{33}BrO_6$ 557.48
Mp 63-64°. $[\alpha]_D^{21}$ -18 (c, 1 in $CHCl_3$).

4,6-O-Benzylidene: 2-Bromoethyl 4,6-O-benzylidene-β-D-glucopyranoside
$C_{15}H_{19}BrO_6$ 375.215
Mp 157-159°. $[\alpha]_D^{21}$ -43 (c, 2 in $CHCl_3$).

Dahmen, J. *et al., Carbohydr. Res.*, 1982, **111**, C1; 1983, **116**, 303; 1984, **127**, 15 (*synth, pmr*)

2-*C*-Bromo-1,5-gluconolactone B-116



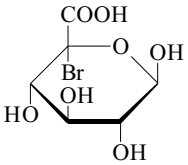
$C_6H_9BrO_6$ 257.037

D-*form*

Tetrabenzoyl: 2-C-Bromo-2,3,4,6-tetra-O-benzoyl-D-glucono-1,5-lactone
[76514-09-5]
$C_{34}H_{25}BrO_{10}$ 673.469
Mp 96-98°. $[\alpha]_D$ +97 ($CHCl_3$).

Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1980, 2762 (*synth, pmr*)

5-*C*-Bromoglucopyranuronic acid B-117



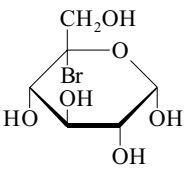
$C_6H_9BrO_7$ 273.037

β-D-Pyranose-*form*

Tetra-Ac, Me ester: Methyl 1,2,3,4-tetra-O-acetyl-5-bromo-β-D-glucopyranuronate
[65615-69-2]
$C_{15}H_{19}BrO_{11}$ 455.212
Cryst. (EtOH). Mp 160-162°.
$[\alpha]_D$ -107 ($CHCl_3$).

Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1977, 1996 (*synth, pmr*)

5-Bromoglucose B-118



$C_6H_{11}BrO_6$ 259.053

α-D-Pyranose-*form*

Pentabenzoyl: 1,2,3,4,6-Penta-O-benzoyl-5-bromo-α-D-glucopyranose
[75860-53-6]
$C_{41}H_{31}BrO_{11}$ 779.593
Cryst. (EtOH). Mp 126-128°.
$[\alpha]_D$ +46 ($CHCl_3$).

β-D-Pyranose-*form*

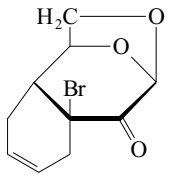
Penta-Ac: 1,2,3,4,6-Penta-O-acetyl-5-bromo-β-D-glucopyranose
[69534-61-8]
$C_{16}H_{21}BrO_{11}$ 469.239
Cryst. (Et_2O). Mp 119-120°.
$[\alpha]_D$ -90 ($CHCl_3$).

Pentabenzoyl: 1,2,3,4,6-Penta-O-benzoyl-5-bromo-β-D-glucopyranose
[69534-63-0]
$C_{41}H_{31}BrO_{11}$ 779.593
Cryst. (EtOH/CCl_4). Mp 171-172°.
$[\alpha]_D$ -12 ($CHCl_3$).

Blattner, R. *et al., J.C.S. Perkin 1*, 1980, 1523 (*synth, pmr*)
Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1980, 1528 (*synth, pmr*)

5*a*-Bromo-1,2,5*a*,6,9,9*a*-hexahydro-1,4-epoxy-3-benzoxepin-5(4*H*)-one B-119

1,6-Anhydro-3-bromo-3,4-(2-butene-1,4-diyl)-3,4-dideoxy-arabino-*hexopyranos-2-ulose*
[79849-66-4]

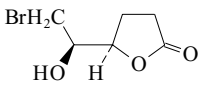


$C_{10}H_{11}BrO_3$ 259.099

D-*form*
Carbohydrate synthon.
Oil.
Ward, D.D. *et al., Carbohydr. Res.*, 1981, **95**, 155 (*synth, pmr, cmr*)
Isobe, M. *et al., Tet. Lett.*, 1990, **31**, 3327 (*synth*)

5-(2-Bromo-1-hydroxyethyl)-dihydro-2(3*H*)-furanone, 9CI B-120

6-Bromo-2,3,6-trideoxy-1,4-hexonolactone



(1′*R*,5*R*)–*form*

$C_6H_9BrO_3$ 209.039

(1′*R*,5*R*)-*form*
L-erythro-*form*
[137584-85-1]
Cryst. (H_2O). Mp 77-78°. $[\alpha]_D^{20}$ -21.6 (c, 1.6 in H_2O).

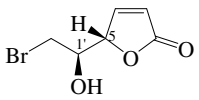
(1′*R*,5*S*)-*form*
L-threo-*form*
[129151-35-5]
Cryst. ($CHCl_3$). Mp 72-74°. $[\alpha]_D^{20}$ +31 (c, 1.96 in H_2O).

(1′*S*,5*R*)-*form*
D-threo-*form*
[152501-77-4]
Cryst. (EtOAc/pentane). Mp 72-74°. $[\alpha]_D^{20}$ -32.6 (c, 1.8 in H_2O).

(1′*S*,5*S*)-*form*
D-erythro-*form*
[107855-21-0]
Cryst. (Et_2O). Mp 76-78°. $[\alpha]_D^{20}$ +20.3 (c, 5 in $CHCl_3$).
Lundt, I. *et al., Synthesis*, 1986, 1052 (*synth, cmr*)
Vekemans, J. *et al., J.O.C.*, 1990, **55**, 5336 (*synth, pmr*)
Pedersen, C. *et al., Acta Chem. Scand.*, 1993, **47**, 885 (*synth, pmr*)

5-(2-Bromo-1-hydroxyethyl)-2(5*H*)-furanone B-121

6-Bromo-2,3,6-trideoxyhex-2-enono-1,4-lactone



(1′*R*,5*S*)-*form*

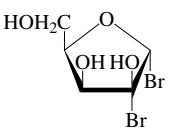
$C_6H_7BrO_3$ 207.023

(1′*R*,5*S*)-*form*
L-threo-*form*
[111975-47-4]
Needles ($CHCl_3$). Mp 105.5-106°. $[\alpha]_D^{20}$ -107 (c, 1.5 in H_2O).

(1′*S*,5*R*)-*form*
D-threo-*form*
[129151-49-1]
Cryst. Mp 104-106°. $[\alpha]_D^{20}$ +108 (c, 1.05 in H_2O).

(1′*S*,5*S*)-*form*
D-erythro-*form*
[111975-51-0]
Oil. $[\alpha]_D^{20}$ -111 (c, 1.3 in H_2O).
Dehydrates on attempted purification.
Vekemans, J.A.J.M. *et al., J.O.C.*, 1988, **53**, 627; 1990, **55**, 5336 (*synth, pmr*)

2-*C*-Bromolyxosyl bromide B-122



α-D-Furanose-*form*

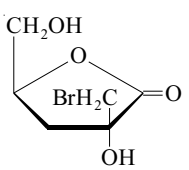
$C_5H_8Br_2O_4$ 291.924

α-D-Pyranose-*form*
Tribenzoyl: 2,3,5-Tri-O-*benzoyl-2*-C-*bromo-α-D-lyxopyranosyl bromide*
[73322-31-3]
$C_{26}H_{20}Br_2O_7$ 604.248
Syrup. $[\alpha]_D^{23}$ +4.6 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*
Tribenzoyl: 2,3,5-Tri-O-*benzoyl-2*-C-*bromo-β-D-lyxopyranosyl bromide*
[73322-34-6]
$C_{26}H_{20}Br_2O_7$ 604.248
Syrup. $[\alpha]_D^{24}$ -99.8 (c, 0.5 in $CHCl_3$).
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1980, **113**, 471

2-*C*-(Bromomethyl)-3-deoxy-*erythro*-1,4-pentonolactone B-123

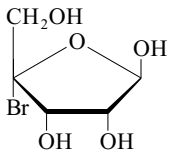
2-Bromo-2-deoxy-α-isosaccharino-1,4-lactone



$C_6H_9BrO_4$ 225.039

D-*form*
Di-Ac: 2,5-Di-O-*acetyl-2*-C-*(bromomethyl)-3-deoxy-D*-erythro-*1,4-pentonolactone*
[111507-10-9]
$C_{10}H_{13}BrO_6$ 309.113
Syrup. $[\alpha]_D^{20}$ +86.1 (c, 1 in $CHCl_3$).
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1987, **41**, 13 (*synth, pmr, cmr*)

4-Bromoribose B-124

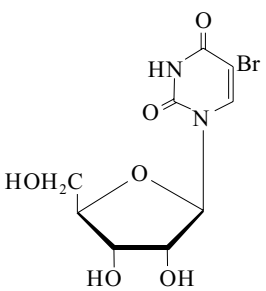


$C_5H_9BrO_5$ 229.027

β-D-Furanose-*form*
2,3,5-Tribenzoyl, 1-Ac: 1-O-*Acetyl-2,3,5-tri*-O-*benzoyl-4-bromo-β-D-ribofuranose*
[94396-44-8]
$C_{28}H_{23}BrO_9$ 583.388
$[\alpha]_D$ +20.5 ($CHCl_3$).
Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1984, 1675; 1683 (*synth, pmr, cmr*)

5-Bromouridine, 9CI, 8CI B-125

[957-75-5]



$C_9H_{11}BrN_2O_6$ 323.1
Mp 181-184° dec. $[\alpha]_D^{21}$ -15.4 (c, 1.0 in H_2O).

▶ YU7300000

2′,3′-O-*Anisylidene:*
Cryst. (EtOH/Me_2CO). Mp 224-226°.

2′,3′-O-*Anisylidene, 5′-benzoyl:*
Needles (MeOH/EtOAc). Mp 221-223°.

2′,3′-O-*Isopropylidene, 5′-benzoyl:*
$C_{19}H_{19}BrN_2O_7$ 467.272
Needles (MeOH). Mp 206-208°. λ_{max} 225 and 274 nm (ε 13 500, 8 300) (MeOH).

2′,3′-O-*Isopropylidene, 5′-tosyl:*
$C_{19}H_{21}BrN_2O_8S$ 517.353
Prisms (C_6H_6). Mp 125-127°.

2′-Me:
$C_{10}H_{13}BrN_2O_6$ 337.126
Cryst. (EtOH). Mp 235-237°. $[\alpha]_D^{25}$ +4.36 (c, 1.0 in MeOH).

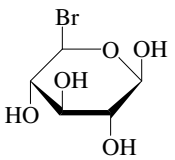
5′-Deoxy: 5-Bromo-5′-deoxyuridine
$C_9H_{11}BrN_2O_5$ 307.1
Cryst. (EtOAc/petrol). Mp 172-173° dec.

*5′-Deoxy, 2′,3′-*O*-isopropylidene:*
$C_{12}H_{15}BrN_2O_5$ 347.165
Cryst. (EtOH aq.). Mp 108-110°.

[93882-11-2]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 817B (*ir*)
Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 694D (*nmr*)
Levene, P.A. *et al., Ber.*, 1912, **45**, 608 (*synth*)
Otter, B.A. *et al., J.O.C.*, 1969, **34**, 1390 (*deoxy, deoxy isopropylidene, pmr*)
Robins, M.J. *et al., Biochemistry*, 1971, **10**, 3591 (*2-Me*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497 (*pmr*)
Sasaki, T. *et al., J.O.C.*, 1976, **41**, 1100 (*synth, anisylidene, anisylidene benzoyl, isopropylidene benzoyl, isopropylidene tosyl*)
Asakura, J. *et al., J.O.C.*, 1990, **55**, 4928 (*synth, pmr, uv*)
Cervi, A.R. *et al., Acta Cryst. C*, 1991, **47**, 1334 (*cryst struct*)

5-Bromoxylose B-126



β-D-(5*R*)-*form*

$C_5H_9BrO_5$ 229.027

β-D-Pyranose-(5*R*)-*form*

*Tetra-Ac: (5*R*)-1,2,3,4-Tetra-*O*-acetyl-5-bromo-β-D-xylopyranose*
[94396-56-2]
$C_{13}H_{17}BrO_9$ 397.176
$[\alpha]_D$ -92 ($CHCl_3$).

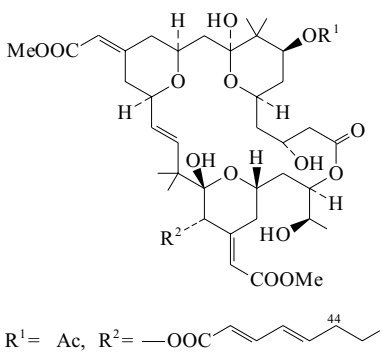
β-D-Pyranose-(5*S*)-*form*

*Tetra-Ac: (5*S*)-1,2,3,4-Tetra-*O*-acetyl-5-bromo-β-D-xylopyranose*
[69534-64-1]
$C_{13}H_{17}BrO_9$ 397.176
Cryst. (MeOH). Mp 135-140°. $[\alpha]_D$ -117 ($CHCl_3$).

Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1980, 2767; 1984, 1683 (*synth, pmr, cmr*)

Bryostatin 1 B-127

NSC 339555
[83314-01-6]



$C_{47}H_{68}O_{17}$ 905.044
Macrolide antibiotic. Prod. by *Bugula neritina*. Active against M531 murine ovary sarcoma. Protein kinase C modulator. Phase II clin. trials (2002) for a variety of cancer indications, including oesophageal cancer. Cryst. (CH_2Cl_2/MeOH). Insol. H_2O; sol. EtOH; Sol. MeOH, $CHCl_3$, CCl_4; poorly sol. H_2O.
Mp 230-235°. $[\alpha]_D^{25}$ +34.1 (c, 0.044 in MeOH). Log P 1.7 (calc). λ_{max} 232 (ϵ 25700); 263 (ϵ 28700) (MeOH) (Derep). λ_{max} 233 (ϵ 25700); 263 (ϵ 28700) (MeOH) (Berdy).
▶ Mutagenic props. EH9455000

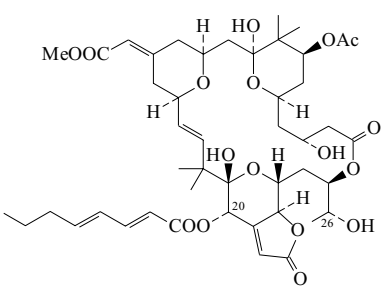
O-*De-Ac:* ***Bryostatin 2***
[87745-28-6]
$C_{45}H_{66}O_{16}$ 863.007
Prod. by *Bugula neritina*. Shows potent antineoplastic props. Fine cryst. (CH_2Cl_2/MeOH). Sol. MeOH, $CHCl_3$, CCl_4; poorly sol. H_2O.
Mp 201-203°. $[\alpha]_D^{25}$ +50 (c, 0.05 in MeOH). Log P 0.75 (calc). λ_{max} 230 (ϵ 36250); 261 (ϵ 35600) (MeOH) (Derep). λ_{max} 230 (ϵ 36280); 261 (ϵ 35600) (MeOH) (Berdy).

44-Hydroxy: ***Bryostatin 15***
[136448-58-3]
$C_{47}H_{68}O_{18}$ 921.043
From *Bugula neritina*. Cytotoxic agent. $[\alpha]_D^{25}$ +26 (c, 0.3 in MeOH). λ_{max} 227 (ϵ 25995) (MeOH) (Berdy).

Pettit, G.R. *et al., J.A.C.S.*, 1982, **104**, 6846 (*isol, cryst struct, ms, uv, ir*)
Pettit, G.R. *et al., J. Nat. Prod.*, 1983, **46**, 528 (*deriv, pmr*)
Pettit, G.R. *et al., Tetrahedron*, 1985, **41**, 985 (*rev*)
Gschwendt, M. *et al., Carcinogenesis (London)*, 1988, **9**, 555 (*pharmacol*)
Curtis, R.D. *et al., Can. J. Chem.*, 1991, **69**, 834 (*N-15 nmr*)
Mackanos, E.A. *et al., J. Biol. Chem.*, 1991, **266**, 11205 (*pharmacol*)
Pettit, G.R. *et al., J.O.C.*, 1991, **56**, 1337 (*abs config*)
Schaufelberger, D.E. *et al., Magn. Reson. Chem.*, 1991, **29**, 366 (*pmr, cmr*)
Pettit, G.R. *et al., Tetrahedron*, 1991, **47**, 3601 (*Bryostatin 15*)
Prendiville, J. *et al., Br. J. Cancer*, 1993, **68**, 418 (*clin trial*)
Szallasi, Z. *et al., Mol. Pharmacol.*, 1994, **46**, 840 (*pharmacol*)
Zonder, J.A. *et al., Expert Opin. Invest. Drugs*, 1999, **8**, 2189 (*rev*)
Evans, D.A. *et al., J.A.C.S.*, 1999, **121**, 7540-7552 (*Bryostatin 2, synth*)
Mutter, R. *et al., Bioorg. Med. Chem.*, 2000, **8**, 1841-1860 (*rev*)

Bryostatin 3 B-128

[87370-86-3]



$C_{46}H_{64}O_{17}$ 889.001
Macrolide antibiotic. The original isolate called Bryostatin 3 was assigned the incorrect C-20 config. Later the 20-epimer was isolated and called Bryostatin 3- the original compd. was renamed 20-Epibryostatin 3. Isol. from the marine Bryozoan, *Bugula neritina*. Antineoplastic agent. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane. Log P 0.09 (uncertain value) (calc). λ_{max} 230 (ϵ 36000); 263 (ϵ 35000) (MeOH) (Derep). λ_{max} 230 (ϵ 36000); 261 (ϵ 35000) (MeOH) (Berdy). λ_{max} 229 (ϵ 31700); 264 (ϵ 30600) (EtOH) (Berdy).

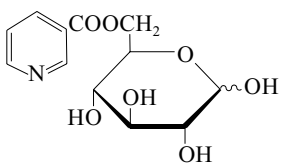
20-Epimer: ***20-Epibryostatin 3***
$C_{46}H_{64}O_{17}$ 889.001
Isol. from *Bugula neritina*. Antineoplastic agent. Amorph. solid. $[\alpha]_D^{25}$ +61 (c, 0.26 in MeOH). Formerly known as Bryostatin 3. λ_{max} 228 ; 266 (MeOH) (Berdy).

26-Ketone: ***Bryostatin 3 26-ketone***
[132564-78-4]
$C_{46}H_{62}O_{17}$ 886.986
Isol. from *Bugula neritina*. The C-20 config. should presumably be reversed (ie. to correspond with that of Bryostatin 3). λ_{max} 228 ; 266 (MeCN) (Berdy).

Pettit, G.R. *et al., J.O.C.*, 1983, **48**, 5354 (*isol, ms, uv, ir, pmr, cmr*)
Mackanos, E.A. *et al., J. Biol. Chem.*, 1991, **266**, 11205 (*pharmacol*)
Schaufelberger, D.E. *et al., J.O.C.*, 1991, **56**, 2895 (*cmr, struct*)
Chmurny, G.N. *et al., J.O.C.*, 1992, **57**, 5260 (*struct*)
Ohmori, K. *et al., Bull. Chem. Soc. Jpn.*, 2004, **77**, 875-885 (*synth*)

Buchananine B-129

*6-*O*-Nicotinoyl-α-D-glucopyranose*
[70802-12-9]



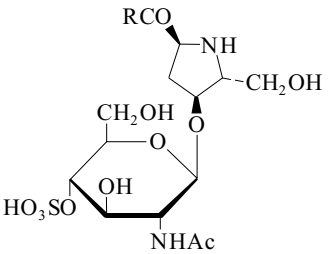
$C_{12}H_{15}NO_7$ 285.253
Alkaloid from the stems of *Cryptolepis buchanani* (Periplocaceae). *C. buchanani* has been used in Indian medicine for treatment of rickets. Cryst. (MeOH aq.). Mp 137-138°. $[\alpha]_D^{20}$ +38.4 (c, 3.08 in H_2O). λ_{max} 221 (ϵ 8510); 258 (sh) (ϵ 2690); 262 (ϵ 2820); 271 (sh) (ϵ 2340) (EtOH) (Derep).

Dutta, S.K. *et al., Phytochemistry*, 1978, **17**, 2047 (*uv, ir, pmr, ms, isol, struct*)

Bulgecin A B-130

β-Lactam activator F2

[92953-54-3]



R = $NHCH_2CH_2SO_3H$

$C_{16}H_{29}N_3O_{14}S_2$ 551.549

Aminoglycoside antibiotic. Isol. from *Pseudomonas acidophila* and *Pseudomonas mesoacidophila*. Induces formn. of bulges in bacterial cell walls by cooperation with β-lactam antibiotics. Sol. H_2O; fairly sol. MeOH, DMSO; poorly sol. EtOAc, phenol, hexane. Major component of Bulgecin complex.

▶ LD_{50} (mus, ivn) 1000-3000 mg/kg.

Mono-Na salt:

Needles (MeOH aq.). Mp 211-212°. $[\alpha]_D^{20}$ +6.5 (c, 0.5 in 1*M* AcOH).

Imada, A. *et al., J. Antibiot.*, 1982, **35**, 1400; 1985, **38**, 17 (*isol, ir, pmr, cmr, struct*)

Shinagawa, S. *et al., Tetrahedron*, 1984, **40**, 3465 (*isol, struct*)

Cintas, P. *et al., Tetrahedron*, 1991, **47**, 6079 (*synth*)

Bulgecin B B-131

F6. Antibiotic F6

[95863-86-8]

As Bulgecin A, B-130 with R = $-NHCH_2CH_2COOH$

$C_{17}H_{29}N_3O_{13}S$ 515.494

Aminoglycoside antibiotic. From *Pseudomonas acidophila* and *Pseudomonas mesoacidophila*. Induces the formation of bulges in bacterial cell walls by cooperation with β-lactam antibiotics. Powder + $1H_2O$ (MeOH aq.) (as Na salt). $[\alpha]_D^{20}$ -2.6 (c, 0.5 in 1*M* AcOH) (Na salt). Minor component of Bulgecin complex.

Imada, A. *et al., J. Antibiot.*, 1982, **35**, 1400; 1985, **38**, 17 (*isol, ir, pmr, cmr, struct*)

Shinagawa, S. *et al., Tetrahedron*, 1984, **40**, 3465 (*isol, struct*)

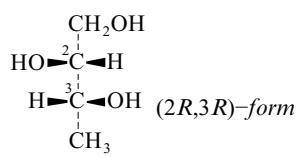
Cintas, P. *et al., Tetrahedron*, 1991, **47**, 6079 (*synth*)

1,2,3-Butanetriol, 9CI B-132

1-Methylglycerol

[4435-50-1]

[41167-49-1, 61913-75-5, 61913-76-6, 122920-28-9, 138257-33-7]



(2*R*,3*R*)–*form*

$C_4H_{10}O_3$ 106.121

Liq. with sweet taste. $Bp_{0.4}$ 145°. All reported racemic samples appear to be diastereoisomeric mixts.

(2*R*,3*R*)-*form*

1-Deoxy-D-threitol

[33818-52-9]

Hygroscopic syrup. $Bp_{0.15}$ 98-99°. n_D^{26} 1.4604.

Tris(4-nitrobenzoyl): [34290-51-2]

Cryst. ($CHCl_3$/MeOH). Mp 129-131°. $[\alpha]_D^{23}$ -9.05 (c, 2.19 in $CHCl_3$).

(2*R*,3*S*)-*form* *1-Deoxy-L-erythritol*

Constit. of the fruit of *Carum ajowan* (ajowan).

Amorph. powder. $[\alpha]_D^{23}$ -30 (c, 0.3 in H_2O).

2-O-β-D-Glucopyranoside:

$C_{10}H_{20}O_8$ 268.263

Constit. of the fruit of *Pimpinella anisum* (anise). Amorph. powder. $[\alpha]_D^{21}$ -29 (c, 0.1 in MeOH).

(2*S*,3*R*)-*form* *1-Deoxy-D-erythritol*

[4144-94-9] $Bp_{0.05}$ 94°. $[\alpha]_D$ +5.6 (c, 0.033 in MeOH). n_D^{20} 1.4568.

1,3-Dibenzoyl: [195512-74-4]

$C_{18}H_{18}O_5$ 314.337

Oil. $[\alpha]_D$ +51 (c, 0.875 in $CHCl_3$).

Tris(4-nitrobenzoyl): [4233-69-6]

Cryst. + 1/3 $CHCl_3$ ($CHCl_3$/MeOH). Mp 86-88° (loses solv., resolidifies) Mp 159-160° (double Mp).

1,3-Dibenzyl: [114185-05-6]

$C_{18}H_{22}O_3$ 286.37

Oil. $[\alpha]_D$ +28.8 (c, 1.25 in $CHCl_3$).

(2*R*,3*R*)-*form*

Constit. of the fruit of *Foeniculum vulgare* (fennel).

Amorph. powder. $[\alpha]_D^{23}$ +3 (c, 0.1 in MeOH).

Chaby, R. *et al., Tetrahedron*, 1971, **27**, 3197-3205 (*synth*)

Bebault, G.M. *et al., Can. J. Chem.*, 1972, **50**, 3373-3378 (*synth*)

Garson, M.J. *et al., J.C.S. Perkin 1*, 1984, 1021-1026 (*synth, ir*)

Andrews, M.A. *et al., J.O.C.*, 1989, **54**, 5257-5264 (*synth, pmr, cmr, ms*)

Peng, L. *et al., Helv. Chim. Acta*, 1997, **80**, 1494-1512 (*synth, ir, pmr, cmr, ms, 2S,3R-form, dibenzoyl, dibenzyl*)

Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)

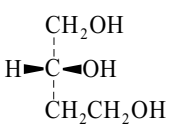
Ishikawa, T. *et al., Chem. Pharm. Bull.*, 2001, **49**, 840-844 (*1-Deoxy-L-erythritol, isol*)

Fujimatu, E. *et al., Phytochemistry*, 2003, **63**, 609-616 (*2-glucoside*)

1,2,4-Butanetriol, 9CI B-133

2-Deoxytetritol

[3068-00-6]



(*R*)–*form*

$C_4H_{10}O_3$ 106.121

▶ EK7176000

(*R*)-*form*

L-glycero-form

[70005-88-8]

Constit. of the fruit of *Foeniculum vulgare* (fennel).

Oil. $[\alpha]_D^{25}$ +27 (c, 1.365 in MeOH).

4-Benzyl ether: [86990-91-2]

$C_{11}H_{16}O_3$ 196.246

Syrup. $[\alpha]_D^{23}$ -4.81 (c, 1.33 in $CHCl_3$).

(*S*)-*form* *D-glycero-form*

[42890-76-6]

Oil. $Bp_{0.15}$ 130° (bath). $[\alpha]_D^{22}$ -28.2 (c, 2.8 in EtOH).

Tri-Ac: [52067-45-5]

$C_{10}H_{16}O_6$ 232.233

$[\alpha]_D^{25}$ -20.9 (c, 1.84 in $CHCl_3$).

2-Me ether: 2-Methoxy-1,4-butanediol

$C_5H_{12}O_3$ 120.148

$Bp_{0.03}$ 85-95°. $[\alpha]_D^{18}$ -23.5 (c, 14 in Me_2CO).

1,2-O-Isopropylidene: [32233-43-5]

$C_7H_{14}O_3$ 146.186

Oil. $Bp_{0.05}$ 55-61°. $[\alpha]_D^{24}$ -2.23 (c, 9.8 in MeOH).

(±)-*form* [6810-31-7]

Hygroscopic syrup with sweet, burning taste. Misc. H_2O, EtOH. d^{20} 1.18. Bp_{18} 190-191°. n_D^{20} 1.4750.

1,4-Di-Ac:

$C_8H_{14}O_5$ 190.196

Bp_{18} 161-163°.

Tri-Ac: [14835-47-3] Bp_{11} 150°.

2-Me ether: [13942-68-2] $Bp_{0.02}$ 83°.

4-Me ether: 4-Methoxy-1,2-butanediol

$C_5H_{12}O_3$ 120.148

Bp_{12} 116°.

Trisphenylurethane:

Needles (C_6H_6). Mp 149-152°.

[57314-07-5]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 183C (*ir*)

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 284B; 284C (*nmr*)

Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 262B; 262C (*ir*)

Lardon, A. *et al., Helv. Chim. Acta*, 1949, **32**, 2003-2009 (*2-Me ether*)

Olsen, S. *et al., Acta Chem. Scand.*, 1950, **4**, 462-472 (*tri-Ac, synth*)

Hayashi, H. *et al., J.A.C.S.*, 1973, **95**, 8749 (*synth, ir, pmr*)

Hungerbühler, E. *et al., Helv. Chim. Acta*, 1981, **64**, 1467 (*synth*)

Hanessian, S. *et al., Can. J. Chem.*, 1984, **62**, 2146 (*synth*)

Meyers, A.I. *et al., J.O.C.*, 1986, **51**, 5111 (*deriv, synth, pmr, bibl*)

Kocieński, P.J. *et al., J.C.S. Perkin 1*, 1987, 2183 (*synth, ir*)

Van der Eycken, E. *et al., Tet. Lett.*, 1987, **28**, 4759 (*synth*)

Lubineau, A. *et al., J.C.S. Perkin 1*, 1992, 1631 (*synth*)

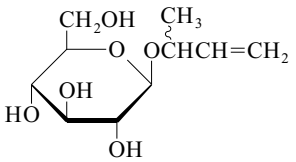
Yamada, O. *et al., Synthesis*, 1995, 1291, (*R-form, synth*)

Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)

Seki, M. *et al., Synthesis*, 1999, 745-747, (*S-form, synth, pmr, cmr*)

Nakamura, S. *et al., Tetrahedron*, 2002, **58**, 10353-10374 (*R-form, benzyl ether*)

3-Buten-2-yl glucopyranoside B-134



$C_{10}H_{18}O_6$ 234.249

β-D-*form*

Building block for oligosaccharide syntheses. Potential use in carbohydrate combinatorial chemistry.
Hygroscopic cryst.

Tetra-Ac: 3-Buten-2-yl 2,3,4,6-tetra-O-acetyl-β-D-glucopyranoside
$C_{18}H_{26}O_{10}$ 402.397
Cryst. Characterised spectroscopically.

2,3,4-Tribenzyl: 3-Buten-2-yl 2,3,4-tri-O-benzyl-β-D-glucopyranoside
$C_{31}H_{36}O_6$ 504.622
Characterised spectroscopically.

Tetrabenzyl: 3-Buten-2-yl 2,3,4,6-tetra-O-benzyl-β-D-glucopyranoside
$C_{38}H_{42}O_6$ 594.746
Characterised spectroscopically.

Boons, G.-J. *et al., Angew. Chem., Int. Ed.*, 1996, **35**, 2845 (*synth, pmr, cmr, ms*)
Boons, G.-J. *et al., J.O.C.*, 1996, **61**, 4262

3-Butenyl glucosinolate B-135

1-Thio-β-D-glucopyranose 1-[N-(sulfooxy)-4-pentenimidate], 9CI. ***Gluconapin***
[19041-09-9]
$H_3C{=}CHCH_2CH_2C(SGlc){=}NOSO_3H$
$C_{11}H_{19}NO_9S_2$ 373.404
Isol. from rape seeds and many other *Brassica* spp. Highly hygroscopic, amorph. solid (as K salt).
Mp 125° (K salt). $[\alpha]_D^{25}$ -23.5 (c, 1.8 in H_2O).

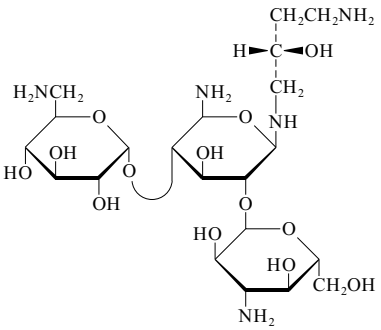
Tetra-Ac:
Cryst. (EtOH) (as K salt). Mp 189° (K salt). $[\alpha]_D^{27}$ -17.1 (c, 1.3 in H_2O).

Salt with Sinapine: ***Boreavan A****. Sinapinyl gluconapate*
[169272-87-1]
$C_{27}H_{42}N_2O_{14}S_2$ 682.766
Constit. of the fruit of *Boreava orientalis*. Amorph. powder. $[\alpha]_D^{24}$ -8.5 (c, 0.01 in MeOH).

Kjaer, A. *et al., Acta Chem. Scand.*, 1953, **7**, 1271; 1968, **22**, 3324 (*isol, synth*)
Ettlinger, M.G. *et al., J.A.C.S.*, 1955, **77**, 1831 (*occur*)
Hanley, A.B. *et al., J. Sci. Food Agric.*, 1983, **34**, 869 (*isol*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*cmr*)
Sakushima, A. *et al., Phytochemistry*, 1995, **40**, 483-485 (*Boreavan A*)

Butikacin, BAN, INN, USAN B-136

1-N-(4-Amino-2-hydroxybutyl)kanamycin A. UK 18892. Antibiotic UK 18892
[59733-86-7]



$C_{22}H_{45}N_5O_{12}$ 571.624

Aminoglycoside antibiotic. Semisynthetic. Active against a wide range of pathogenic bacteria, including many gentimicin-resistant strains. Log P -8.99 (uncertain value) (calc).

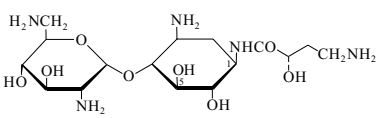
Sulfate salt: [68779-22-6] Highly active against aminoglycoside resistant bacteria.

▶ WK1951000

Ger. Pat., 1976, 2 547 738; *CA*, **85**, 33368 (*synth*)
Richardson, K. *et al., J. Antibiot.*, 1977, **30**, 843 (*synth, props*)
Wise, R. *et al., Antimicrob. Agents Chemother.*, 1978, **14**, 228 (*use*)
Jevons, S. *et al., Antimicrob. Agents Chemother.*, 1978, **14**, 277 (*use*)
Kendall, M.J. *et al., J. Antimicrob. Chemother.*, 1978, **4**, 459 (*pharmacol*)
Coleman, M.W. *et al., J. Antibiot.*, 1979, **32**, 355 (*cmr*)

Butirosamine B-137

1-N-(4-Amino-2-hydroxybutanoyl) neamine
[50474-68-5]



$C_{16}H_{33}N_5O_8$ 423.465
Sol. H_2O; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ivn) 500 - 900 mg/kg. WK2160000

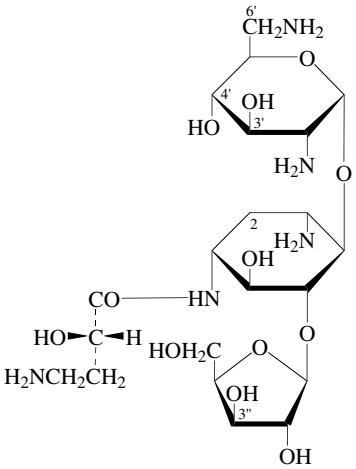
Hydrochloride (1:4): [52152-50-8]
Dihydrate. Mp 200-217°. $[\alpha]_D^{20}$ +52.4 (c, 1 in H_2O).

5-Deoxy: [59867-74-2]
$C_{16}H_{33}N_5O_7$ 407.466
Semisynthetic. Shows similar activity to butirosamine. Sol. H_2O; poorly sol. butanol, hexane.

Yung, N. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 109
Woo P.W.K., *et al., Carbohydr. Res.*, 1973, **31**, 27 (*cmr*)
Tsukiura, H. *et al., J. Antibiot.*, 1973, **26**, 351 (*synth*)
Saeki, H. *et al., Chem. Pharm. Bull.*, 1974, **22**, 1151 (*synth*)
Taylor, H.D. *et al., J. Antibiot.*, 1976, **29**, 532 (*synth, props*)

Butirosin A B-138

Ambutyrosin A, 8CI. ***Butirosin, INN.*** *Ambutyrosin. CI 642*
[34291-02-6]



$C_{21}H_{41}N_5O_{12}$ 555.581

Major component (80-85%) of the aminoglycoside antibiotic complex Butirosin INN . The pharmaceutical prod. is a mixt. of Butirosins A and B. The H_2SO_4 salt of the complex has Mp =225° dec., $[\alpha]_D^{25}$ + 29° (c, 2 in H_2O). Isol. from strains of *Bacillus circulans* (NRRL B-3312 and B-3313). Broad spectrum antibiotic. Amorph. solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.
Mp 149° (broad Mp). $[\alpha]_D^{25}$ +26 (c, 1.46 in H_2O). Log P -8.28 (uncertain value) (calc). Melts over wide range beginning at *ca.* 149°.

▶ LD_{50} (mus, scu) 3050 mg/kg; LD_{50} (mus, ivn) 457 mg/kg , LD_{50} (mus, ipr) 2198 mg/kg. WK2302000

3″-Epimer: ***Butirosin B****. Ambutyrosin B, 8CI*
[34291-03-7]
$C_{21}H_{41}N_5O_{12}$ 555.581
Minor component of the Butirosin complex from *Bacillus circulans* NRRL B3312. Broad-spectrum antibiotic.
Amorph. solid + $2H_2O$. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.
Mp 146° (broad range). $[\alpha]_D^{25}$ +33 (c, 1.5 in H_2O).

▶ LD_{50} (mus, ivn) 450 mg/kg. BE0186000

4′-Deoxy: ***Butirosin BU 1975C$_1$****. BU 1975C$_1$. Antibiotic BU 1975C$_1$*
[52760-38-0]
$C_{21}H_{41}N_5O_{11}$ 539.582
Isol. from *Bacillus circulans*. Has antibiotic props. Amorph. solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.
Mp 245-247° dec. (as sulfate salt). $[\alpha]_D^{21}$ +24.5 (c, 1 in H_2O).

▶ LD_{50} (mus, ivn) 520 mg/kg; LD_{50} (mus, ivn) 720 mg/kg. WK2400000

3′,4′-Dideoxy: 3′,4′-Dideoxybutirosin A
[53318-76-6]
$C_{21}H_{41}N_5O_{10}$ 523.582
Isol. from *Bacillus circulans* incubated

with 3,4-dideoxyneamine. Active against both butirosin-sensitive and butirosin-resistant bacterial strains. Monohydrate (as carbonate salt). Sol. H_2O.
Mp 195-200° dec. (carbonate salt). $[\alpha]_D^{25}$ +25 (c, 0.4 in H_2O).

4′-Deoxy, 3′′-epimer: ***Butirosin BU 1975C₂***. *4′-Deoxybutirosin B. BU 1975C₂. Antibiotic BU 1975C₂*
[53185-10-7]
$C_{21}H_{41}N_5O_{11}$ 539.582
Isol. from *Bacillus circulans*. Has antibiotic props. Amorph. solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.

3′-Deoxy, 3′-chloro: ***3′-Chloro-3′-deoxybutirosin A***
[57322-54-0]
$C_{21}H_{40}ClN_5O_{11}$ 574.027
Isol. from *Bacillus circulans* incubated with 3′-chloroneamine. Sol. H_2O.

3′,4′-Dideoxy, 3′′-epimer: 3′,4′-Dideoxybutirosin B
[42242-66-0]
$C_{21}H_{41}N_5O_{10}$ 523.582
Isol. from *Bacillus circulans* in the presence of 3,4-dideoxyneamine. Shows antibiotic activity comparable with that of Butirosin B. Monohydrate (as carbonate salt). Sol. H_2O.
Mp 190-195° dec. (carbonate). $[\alpha]_D^{25}$ +32 (c, 0.4 in H_2O). $[\alpha]_D^{16}$ +25 (c, 1.8 in H_2O).

6′-Deamino, 6′-hydroxy: ***Butirosin BU 1709E₁***. *BU 1709E₁. Antibiotic BU 1709E₁*
[54333-82-3]
$C_{21}H_{40}N_4O_{13}$ 556.566
Isol. from *Bacillus circulans*. Shows broad-spectrum antibiotic activity. Amorph. powder. $[\alpha]_D$ +28 (c, 1.47 in H_2O). Indefinite Mp.

► LD_{50} (mus, ivn) 890 mg/kg. WK2125000

6′-Deamino, 6′-hydroxy, 3′′-epimer: ***Butirosin 1709E₂***. *BU 1709E₂. Antibiotic BU 1709E₂*
[66749-41-5]
$C_{21}H_{40}N_4O_{13}$ 556.566
Isol. from *Bacillus circulans*. Shows broad-spectrum antibacterial activity. Amorph. powder. Sol. H_2O; poorly sol. butanol, hexane. $[\alpha]_D$ +33 (c, 1.30 in H_2O).

*3′,4′-Dideoxy, 6′-*N*-Me: 3′,4′-Dideoxy-6′-*N*-methylbutirosin A*
[64981-62-0]
$C_{22}H_{43}N_5O_{10}$ 537.609
Isol. from *Bacillus circulans* in presence of 3′,4′-dideoxy-6′-*N*-methylneamine. Active against gram-positive and -negative bacteria. Dihydrate (as carbonate salt). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol-hexane.
Mp 175-178° dec. (carbonate). $[\alpha]_D^{25}$ +20.7 (c, 0.3 in H_2O).

► LD_{50} (mus, ivn) 720 mg/kg.

*3′,4′-Dideoxy, 6′-*N*-methyl, 3′′-epimer: 3′,4′-Dideoxy-6′-*N*-methylbutirosin B*
[65025-70-9]
$C_{22}H_{43}N_5O_{10}$ 537.609
Isol. from *Bacillus circulans* in presence of 3,4-dideoxy-6-*N*-methylneamine. Shows broad-spectrum activity, slightly less than Butirosin A. Amorph. powder + $2H_2O$ (as carbonate salt). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.
Mp 190-195° dec. (carbonate). $[\alpha]_D^{25}$ +25.2 (c, 0.5 in H_2O).

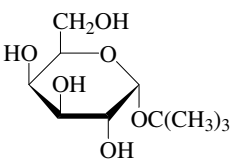
► LD_{50} (mus, ivn) 720 mg/kg.

2S-Hydroxy: ***2-Hydroxybutirosin***
[59867-75-3]
$C_{21}H_{41}N_5O_{13}$ 571.581
Aminoglycoside antibiotic. Isol. from *Bacillus circulans* with Streptamine. Sol. H_2O; poorly sol. butanol, hexane.

[12772-35-9]

Woo, P.W.K. *et al., Tet. Lett.*, 1971, 2617; 2621; 2625 (*ms, ir, struct*)
Dion, H.W. *et al., Antimicrob. Agents Chemother.*, 1972, **2**, 84 (*isol, struct*)
Akita, E. *et al., J. Antibiot.*, 1973, **26**, 365 (*synth, ir, pmr*)
Tsukiura, H. *et al., J. Antibiot.*, 1973, **26**, 386; 1979, **32**, 18 (*derivs*)
Ikeda, D. *et al., Bull. Chem. Soc. Jpn.*, 1974, **47**, 3136 (*synth, nmr, derivs*)
Saeki, H. *et al., Chem. Pharm. Bull.*, 1974, **22**, 1145; 1975, **25**, 2089 (*synth, pmr, derivs*)
Kawaguchi, H. *et al., J. Antibiot.*, 1974, **27**, 460 (*derivs*)
Kanishi, M. *et al., J. Antibiot.*, 1974, **27**, 471 (*struct, derivs*)
Taylor, H.D. *et al., J. Antibiot.*, 1976, **29**, 532, (*2-Hydroxybutirosin*)
Japan. Pat., 1976, 76 01 694; 76 80 839; *CA*, **85**, 3876; 16913 (*deriv*)
Takeda, K. *et al., J. Antibiot.*, 1978, **31**, 247; 250; 1023; 1031 (*derivs, biosynth*)
Cox, J.R. *et al., Carbohydr. Res.*, 1995, **271**, 55 (*pmr, conformn*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BSX325

tert-Butyl galactopyranoside B-139



α-D-*form*

$C_{10}H_{20}O_6$ 236.264

α-D-*form*
Noncryst. $[\alpha]_D^{20}$ +131.3 (c, 1.0 in $CHCl_3$).

2,3,6-Tribenzoyl: tert-*Butyl 2,3,6-tri*-O-*benzoyl-α-D-galactopyranoside*
$C_{31}H_{32}O_9$ 548.588
Oil. $[\alpha]_D^{20}$ +131.5 (c, 1.0 in $CHCl_3$).

β-D-*form*

Tetra-Ac: tert-*Butyl 2,3,4,6-tetra*-O-*acetyl-β-D-galactopyranoside*
$C_{18}H_{28}O_{10}$ 404.413
Cryst. (Et_2O/hexane). Mp 70°.
$[\alpha]_D^{20}$ -20.8 (c, 1.0 in $CHCl_3$).

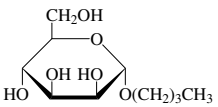
Risbood, P.A. *et al., Carbohydr. Res.*, 1981, **88**, 245 (*synth*)

Butyl glucosinolate B-140

*1-Thio-β-D-glucopyranose 1[*N-*(sulfooxy)pentanimidate], 9CI*
[35535-42-3]
$H_3C(CH_2)_3C(SGlc)=NOSO_3H$
$C_{11}H_{21}NO_9S_2$ 375.42
Present in leaves of *Capparis flexuosa* and in seeds of *Brassica oleracea* (cabbage).

Kjaer, A. *et al., Phytochemistry*, 1971, **10**, 3155 (*occur*)
Macleod, A.J. *et al., Phytochemistry*, 1989, **28**, 1405 (*occur*)

Butyl mannoside B-141



α-D-Pyranose-*form*

$C_{10}H_{20}O_6$ 236.264

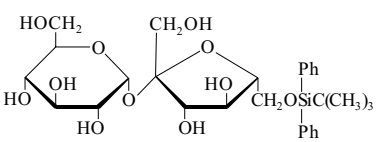
α-D-Pyranose-*form* [146453-36-3]
Constit. of the rhizomes of *Acanthopanax obovatus*.
$[\alpha]_D^{20}$ -128.4 (c, 1.6 in MeOH).

2,3,4,6-Tetrabenzoyl: Butyl 2,3,4,6-tetra-O-*benzoyl-α-D-mannopyranoside*
[146399-93-1]
$C_{38}H_{36}O_{10}$ 652.696
Syrup. $[\alpha]_D^{20}$ -16.7 (c, 0.6 in CH_2Cl_2).

β-D-Pyranose-*form* [143289-25-2]
Syrup. $[\alpha]_D^{20}$ -26.2 (c, 0.7 in H_2O).

Meldal, M. *et al., Carbohydr. Res.*, 1992, **235**, 115 (*α-D-pyr, tetrabenzoyl, pmr, cmr*)
Taubken, N. *et al., Synthesis*, 1992, 517, (*β-D-pyr, pmr, cmr*)
Taubken, N. *et al., J. Carbohydr. Chem.*, 1993, **12**, 651; 1994, **13**, 343 (*β-D-pyr, pmr, cmr*)
Si, J. *et al.*, , 1993, **35**, 483 (*isol*)

6′-*O*-(*tert*-Butyldiphenylsilyl)-sucrose B-142

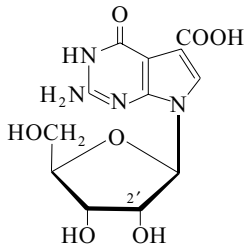


$C_{28}H_{40}O_{11}Si$ 580.703
Mp 192-195°. $[\alpha]_D$ +44 (c, 1 in MeOH).

Karl, H. *et al., Carbohydr. Res.*, 1982, **101**, 31

Cadeguomycin C-1

*2-Amino-4,7-dihydro-4-oxo-7-β-D-ribofuranosyl-1*H*-pyrrolo[2,3-*d*]pyrimidine-5-carboxylic acid. 7-Carboxy-7-deazaguanosine*
[81645-08-1]



$C_{12}H_{14}N_4O_7$ 326.265

Nucleoside antibiotic. Isol. from *Streptomyces hygroscopicus*. Shows antineoplastic activity and immunostimulatory effects. Needles. Sol. MeOH, DMSO; fairly sol. H_2O; poorly sol. EtOH, hexane.
Mp 231-239° dec. Log P -2.94 (calc). λ_{max} 231 (ϵ 14100); 272 (ϵ 6310); 297 (ϵ 6920) (0.1*N* HCl) (Derep). λ_{max} 225 (sh) (ϵ 9175); 268 (ϵ 9175); 282 (sh) (ϵ) (H_2O at pH 11) (Derep). λ_{max} 232 (ϵ 19680); 272 (ϵ 6881); 298 (ϵ 7610) (H_2O) (Derep). λ_{max} 232 (ϵ 19677); 272 (ϵ 6881); 298 (ϵ 7607) (H_2O) (Berdy). λ_{max} 232 ; 272 ; 298 (HCl) (Berdy). λ_{max} 268 (ϵ 9175) (NaOH) (Berdy). λ_{max} 232 (ϵ 19710); 272 (ϵ 6890); 299 (ϵ 7630) (H_2O) (Berdy).

▶ LD_{50} (mus, ipr) 200 - 600 mg/kg.
UY9358980

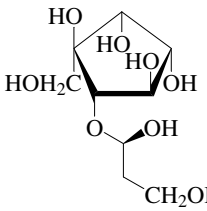
*Nitrile: 2-Amino-4,7-dihydro-4-oxo-7-β-D-ribofuranosyl-1*H*-pyrrolo[2,3-*d*]pyrimidine-5-carbonitrile, 9CI. 5-Cyano-7-deazaguanosine*
$C_{12}H_{13}N_5O_5$ 307.265
Isol. from $tRNA^{tyr}$ of an *E. coli* mutant. Pale yellow cryst.
Mp 260-270° dec. $[\alpha]_D^{15}$ -59.1 (c, 0.1 in DMSO).

2′-Deoxy: 2′-Deoxycadeguomycin
$C_{12}H_{14}N_4O_6$ 310.266
Cryst. (H_2O). Mp 310° dec.

Noguchi, S. *et al., Nucleic Acids Res.*, 1978, **5**, 4215 (*isol, nitrile*)
Tanake, H. *et al., J. Antibiot.*, 1982, **35**, 272 (*isol*)
Wu, R.T. *et al., J. Antibiot.*, 1982, **35**, 279 (*struct*)
Beylin, V.G. *et al., Tet. Lett.*, 1983, **24**, 4793 (*synth*)
Yuan, B.D. *et al., J. Antibiot.*, 1985, **38**, 642 (*props*)
Kondo, T. *et al., Tetrahedron*, 1986, **42**, 199; 207 (*synth, pmr, uv, ir, acid, nitrile*)
Kim, S.H. *et al., J. Antibiot.*, 1987, **40**, 1776 (*pharmacol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Ramasamy, K. *et al., J.C.S. Perkin 1*, 1989, 2375 (*synth, ir, pmr, uv*)

Calditol C-2

5-(2,3-Dihydroxypropoxy)-1-(hydroxymethyl)-1,2,3,4-cyclohexanetetrol, 9CI
[164300-76-9]



$C_9H_{18}O_8$ 254.236

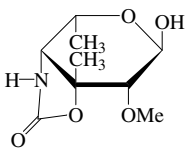
Originally assigned a branched chain nonitol struct. Correct struct established by synthesis in 1999. Degradation prod. of a complex of macrocyclic tetraether lipids isol. from membranes of thermoacidophilic archaebacteria of the *Caldariella* group and *Methanospirillum* species, e.g. *Sulfolobus solfataricus*. Also found in *Methanobacteria* spp.
$[\alpha]_D$ -8.72 (c, 1.3 in H_2O).

[74554-26-0, 74578-16-8, 248263-78-7]

De Rosa, M. *et al., Phytochemistry*, 1980, **19**, 249-254; 827-831 (*isol, cmr*)
Nicolaus, B. *et al., Biochem. J.*, 1990, **266**, 785-791 (*biosynth*)
Jeganathan, S. *et al., Tet. Lett.*, 1990, **31**, 1717-1720
Sugai, A. *et al., Lipids*, 1995, **30**, 339-344 (*isol, struct, cmr, pmr*)
Fairbanks, A.J. *et al., Tet. Lett.*, 1995, **36**, 893-896 (*bibl*)
Blériot, Y. *et al., Chem. Eur. J.*, 2002, **8**, 240-246; 1512 (*synth, struct*)
Gambacorta, A. *et al., Tet. Lett.*, 2002, **43**, 451-453 (*biosynth*)
Yamauchi, N. *et al., Bull. Chem. Soc. Jpn.*, 2004, **77**, 771-778 (*biosynth*)

Callipeltose C-3

*4-Amino-4,6-dideoxy-2*O*,3*C*-dimethyltalopyranosyl-3,4-urethane. 4-Amino-3*O*,4*N*-carbonyl-4,6-dideoxy-3*C*,2*O*-dimethyltalose*



α-L-Pyranose-*form*

$C_9H_{15}NO_5$ 217.221

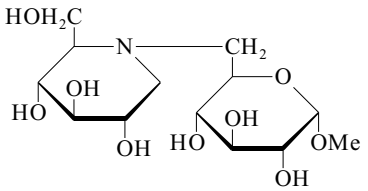
L-*form*
Sugar component of Callipeltoside A.

α-L-Pyranose-*form*
*Me glycoside: Tetrahydro-6,7-dimethoxy-4,7a-dimethyl-4*H*-pyrano[3,4-*d*]oxazol-2(3*H*)-one, 9CI*
[211804-32-9]
$C_{10}H_{17}NO_5$ 231.248
Solid. Mp 147-148°. $[\alpha]_D$ -88.5 (c, 0.76 in MeOH).

Smith, G.R. *et al., Carbohydr. Res.*, 1998, **308**, 223-227 (*Me gly, pmr, cmr*)

Camiglibose, INN, USAN C-4

*Methyl 6-deoxy-6-[3,4,5-trihydroxy-2-(hydroxymethyl)-1-piperidinyl]-α-D-glucopyranoside, 9CI. MDL 73945. 1, 5-Dideoxy-1,5-[(6-deoxy-1-*O*-methyl-6-α-D-glucopyranosyl)imino]-D-glucitol. 1, 5-Anhydro-5-aza-5-deoxyglucitol($N^5 \rightarrow 6$)-methyl-α-D-glucopyranoside*
[127214-23-7]



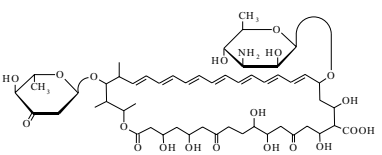
$C_{13}H_{25}NO_9$ 339.342
α-Glucosidase inhibitor. Potential antidiabetic agent. Foam. Log P -4.46 (uncertain value) (calc).

[132438-21-2]

Eur. Pat., 1989, 344 383, (*Merrell Dow*); *CA*, **112**, 235769c (*synth*)
Robinson, K.M. *et al., Diabetes*, 1991, **40**, 825 (*rev*)

Candidoin C-5

[65776-69-4]



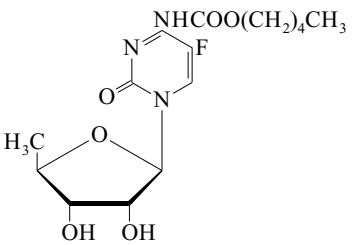
$C_{53}H_{79}NO_{20}$ 1050.202

Cyclic polyene. Candidin deriv. Prod. by *Streptomyces viridoflavus*. Antifungal agent. Sol. AcOH; fairly sol. MeOH; poorly sol. H_2O, Me_2CO, hexane. λ_{max} 347 (ϵ); 362 (ϵ); 382 (ϵ 115000); 406 (ϵ) (MeOH) (Derep).

Synak, R. *et al., J. Antibiot.*, 1983, **36**, 1415 (*isol*)

Capecitabine, BAN, INN, USAN C-6

Pentyl [1-(5-deoxy-β-D-ribofuranosyl)-5-fluoro-1,2-dihydro-2-oxo-4-pyrimidinyl]-carbamate. Xeloda. Ro 09-1978/000
[154361-50-9]

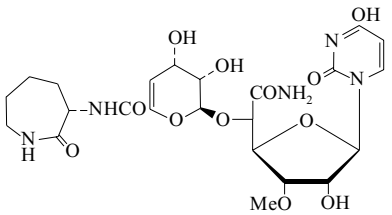


$C_{15}H_{22}FN_3O_6$ 359.354
Antineoplastic agent. Launched in Switzerland (1998). Cryst. (EtOAc). Mp 110-121°. The Mp is prob. a misprint.

Eur. Pat., 1994, 602 454, (*Hoffmann-La Roche*); *CA*, **122**, 240352 (*synth, pharmacol*)
Hoshi, A. *et al., Drugs of the Future*, 1996, **21**, 358
Ishikawa, T. *et al., Biochem. Pharmacol.*, 1998, **55**, 1091
Kaye, S.B. *et al., Br. J. Cancer*, Suppl. 3, 1998, **78**, 1
Dooley, M. *et al., Drugs*, 1999, **58**, 69-76
Wagstaff, A.J. *et al., Drugs*, 2003, **63**, 217-236 (*rev*)

Capuramycin C-7

Antibiotic 446-S3-1. Antibiotic A 500359B. A 500359B
[102135-48-8]



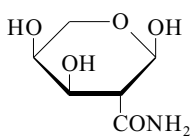
$C_{23}H_{31}N_5O_{12}$ 569.524

Nucleoside antibiotic. Prod. by *Streptomyces griseus*. Active against *Streptococcus pneumoniae* and *Mycobacterium smegmatis*. Amorph. Mp 173-176°. $[\alpha]_D^{25}$ +99 (c, 0.5 in H_2O). λ_{max} 214 (ε 16200); 257 (MeOH) (Derep).

O-*De-Me:* ***Antibiotic A 500359G.*** *A 500359G*
$C_{22}H_{29}N_5O_{12}$ 555.497
Prod. by *Streptomyces griseus* SANK 60196. Powder. $[\alpha]_D^{20}$ +110 (c, 0.72 in H_2O). λ_{max} 257 (ε 10000) (H_2O).

Yamagushi, H. *et al., J. Antibiot.*, 1986, **39**, 1047 (*isol, struct, props, nmr, uv*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Seto, H. *et al., Tet. Lett.*, 1988, **29**, 2343 (*struct*)
Knapp, S. *et al., J.O.C.*, 1994, **59**, 281 (*synth*)
Muramatsu, Y. *et al., J. Antibiot.*, 2003, **56**, 243-252; 253-258; 259-267; 268-279 (*isol, pmr, cmr, biosynth*)

2-*C*-Carbamoyl-2-deoxyarabinose C-8



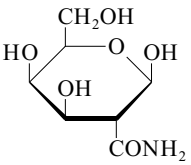
$C_6H_{11}NO_5$ 177.157

α-L-Pyranose-*form*

Me glycoside, 3,4-dibenzyl, N-*tosyl: Methyl 3,4-di-*O-*benzyl-2-deoxy-2-*C-*(tosylcarbamoyl)-α-L-arabinopyranoside. Methyl 3,4-di-*O-*benzyl-2-deoxy-2-*C-*[(tosylamino)carbonyl]-α-L-arabinopyranoside*
[135735-83-0]
$C_{28}H_{31}NO_7S$ 525.621
Mp 69-70°. $[\alpha]_D$ +68 (c, 1 in CH_2Cl_2).

Mostowicz, D. *et al., Carbohydr. Res.*, 1991, **212**, 283 (*synth, pmr*)

2-*C*-Carbamoyl-2-deoxygalactose C-9



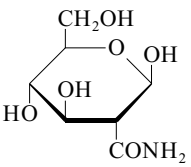
$C_7H_{13}NO_6$ 207.183

β-D-Pyranose-*form*

Me glycoside, 3,4,6-tribenzyl, N-*tosyl: Methyl 3,4,6-tri-*O-*benzyl-2-deoxy-2-*C-*(tosylcarbamoyl)-β-D-galactopyranoside*
[135735-82-9]
$C_{36}H_{39}NO_8S$ 645.772
Mp 175-176°. $[\alpha]_D$ +32 (c, 1 in CH_2Cl_2).

Mostowicz, D. *et al., Carbohydr. Res.*, 1991, **212**, 283 (*synth, pmr*)

2-*C*-Carbamoyl-2-deoxyglucose C-10



$C_7H_{13}NO_6$ 207.183

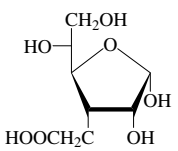
β-D-Pyranose-*form*

Me glycoside, 3,4,6-tribenzyl, N-*tosyl: Methyl 3,4,6-tri-*O-*benzyl-2-deoxy-2-*C-*(tosylcarbamoyl)-β-D-glucopyranoside. Methyl 3,4,6-tri-*O-*benzyl-2-deoxy-2-*C-*[(tosylamino)carbonyl]-β-D-glucopyranoside*
[135735-81-8]
$C_{36}H_{39}NO_8S$ 645.772
Mp 170-171°. $[\alpha]_D$ +30 (c, 1 in CH_2Cl_2).

Mostowicz, D. *et al., Carbohydr. Res.*, 1991, **212**, 283 (*synth, pmr*)

N-Carbamoylglucosamine C-11

SF 1993. Antibiotic SF 1993
[71868-25-2]



α-D-Furanose-*form*

$C_7H_{14}N_2O_6$ 222.197

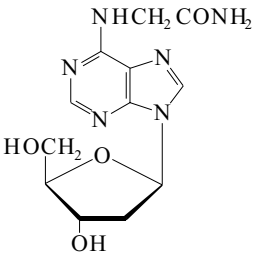
Aminoglycoside antibiotic.
► LZ6656000

D-*form*

[73376-47-3, 73376-48-4] Prod. by *Streptomyces halstedii* and *Streptomyces aburaviensis rufus*. Active against gram-negative bacteria and fungi. Needles.
Mp 158-159°. $[\alpha]_D^{20}$ +73.6 (c, 0.98 in H_2O). Related to Antibiotic CV 1. The separate isolation of α- and β-anomers, without details, is descr., but these presumably equilibrate.

Michael, F. *et al., Chem. Ber.*, 1956, **89**, 1246 (*synth*)
Shomura, T. *et al., J. Antibiot.*, 1979, **32**, 427; 436 (*isol, struct, props*)
Japan. Pat., 1979, 79 154 713; *CA*, **92**, 196384v (*isol*)
Yasuzawa, T. *et al., J. Antibiot.*, 1987, **40**, 727 (*synth*)

N^6-(Carbamoylmethyl)-2′-deoxyadenosine C-12

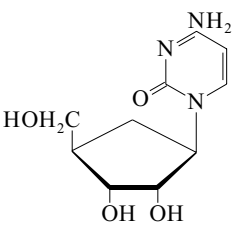


$C_{12}H_{16}N_6O_4$ 308.296
Modified nucleoside found in *E. coli* bacteriophage Mu. Needles (MeOH). Mp 215-216° (211°).

Seela, F. *et al., Helv. Chim. Acta*, 1987, **70**, 1649 (*synth, uv, pmr, bibl*)

Carbodine C-13

*4-Amino-1-[2,3-dihydroxy-4-(hydroxymethyl)cyclopentyl]-2(1*H*)-pyrimidinone. Carbocyclic cytidine*
[62805-43-0]



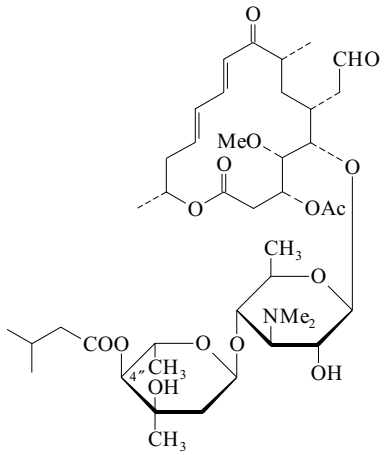
$C_{10}H_{15}N_3O_4$ 241.246

Carbocyclic analogue of Cytidine, C-201. Antineoplastic, antiviral agent. Cryst. (H_2O). Mp 253-255°. Log P -3.82 (calc).

Shealy, Y.F. *et al., J. Het. Chem.*, 1976, **13**, 1353; 1980, **17**, 353 (*synth, ms, uv, pmr, cmr*)
Shealy, Y.F. *et al., J. Med. Chem.*, 1986, **29**, 1720 (*biochem, bibl*)
De Clercq, E. *et al., Biochem. Pharmacol.*, 1990, **39**, 319 (*pharmacol*)

Carbomycin B C-14

9-Deoxy-9-oxoleucomycin V 3-acetate 4^B-(3-methylbutanoate), 9CI
[21238-30-2]



$C_{42}H_{67}NO_{15}$ 825.989

Macrolide antibiotic. Isol. from *Streptomyces halstedii*. Shows antibiotic props. Antibacterial agent. Prolyl endopeptidase inhibitor. Cryst. Sol. MeOH, Et_2O; poorly sol. H_2O, hexane.
Mp 141-144° dec. λ_{max} 279 (ϵ 23000) (MeOH) (Berdy). λ_{max} 278 (E1%/1cm 309) (EtOH) (Berdy).

▶ LD_{50} (mus, ivn) 300 mg/kg. FF5075000

Hydrochloride: Mp 164-166° dec. $[\alpha]_D^{25}$ -35 (c, 2 in $CHCl_3$).

O-*De-Ac:* ***Niddamycin B***
[20283-69-6]
$C_{40}H_{65}NO_{14}$ 783.952
From *Streptomyces djakartensis*. Active against gram-positive bacteria. Sol. MeOH, Et_2O; poorly sol. H_2O, hexane.
Mp 132-134°. $[\alpha]_D$ -68 (MeOH). λ_{max} 280 (E1%/1cm 222) (MeOH) (Berdy). λ_{max} 279 (E1%/1cm 275) (EtOH) (Berdy).

▶ LD_{50} (mus, scu) 350 mg/kg. QT4910000

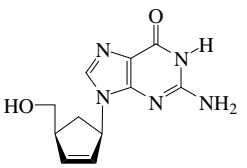
10,11-Dihydro, O-*de-Ac:* ***Niddamycin A$_1$***
[115178-49-9]
$C_{40}H_{67}NO_{14}$ 785.968
From *Streptomyces* sp.

4″-O-*De(3-methylbutanoyl), 4″*-O-*butanoyl,* O-*de-Ac:* ***Niddamycin F***
[81014-77-9]
$C_{39}H_{63}NO_{14}$ 769.925
From *Streptomyces* sp.

Hochstein, F.A. *et al., J.A.C.S.*, 1954, **76**, 5080 (*isol*)
Woodward, R.B. *et al., Angew. Chem.*, 1957, **69**, 50 (*struct*)
Huber, G. *et al., Arzneim.-Forsch.*, 1962, **12**, 1191 (*Niddamycin*)
Mitscher, L.A. *et al., J. Antibiot.*, 1973, **26**, 55 (*Niddamycin*)
Rakhit, S. *et al., J. Antibiot.*, 1974, **27**, 221 (*Niddamycin*)
Omura, S. *et al., J.A.C.S.*, 1975, **97**, 4001 (*cmr*)
Tatsuta, K. *et al., J.A.C.S.*, 1977, **99**, 5826 (*synth*)
Omura, S. *et al., Tet. Lett.*, 1977, 1045 (*synth*)
Tatsuta, K. *et al., Tet. Lett.*, 1980, 2837 (*synth*)
Nicolaou, K.C. *et al., J.A.C.S.*, 1981, **103**, 1222 (*synth*)
Seitz, S.P. *et al., Diss. Abstr. Int., B*, 1982, **43**, 732 (*synth*)
Nakajima, N. *et al., Heterocycles*, 1990, **31**, 5 (*synth*)
Keck, G.E. *et al., J.O.C.*, 1994, **59**, 3113 (*synth*)
Christner, C. *et al., J. Antibiot.*, 1998, **51**, 368-371 (*activity*)

Carbovir C-15

*2-Amino-1,9-dihydro-9-[4-(hydroxymethyl)-2-cyclopenten-1-yl]-6*H*-purin-6-one, 9CI. Carbocyclic 2′,3′-didehydro-2′,3′-dideoxyguanosine. GR 90352. NSC 614846*
[118353-05-2]



(-)-*form*

$C_{11}H_{13}N_5O_2$ 247.256
Antiviral agent; inhibits HIV-I replication *in vitro*. Log P -1.97 (calc).

(+)-*form* [124915-24-8]
Off-white solid. $[\alpha]_D^{26}$ +59.5 (c, 0.4 in MeOH).

(-)-*form* [120443-30-3]
Cryst. (H_2O). Mp 210-220° dec Mp 278-281° dec. $[\alpha]_D^{24}$ -66 (c, 0.4 in MeOH). Pharmacol. active isomer.

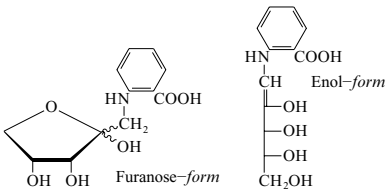
(±)-*form*
Cryst. (MeOH aq.). Mp 254-256° dec.

[124915-20-4, 124915-24-8, 133319-45-6]

Vince, R. *et al., Biochem. Biophys. Res. Commun.*, 1988, **156**, 1046; 1990, **168**, 912 (*pharmacol, resoln*)
Ger. Pat., 1989, 3 901 502; *CA*, **112**, 56589x (*synth*)
Bundoc, L.L. *et al., Biochemistry*, 1990, **29**, 9839 (*metab*)
Brouwer, K.R. *et al., Drug Metab. Dispos.*, 1990, **18**, 842; 1078; 1084 (*metab*)
Kurtzberg, J. *et al., Exp. Hematol. (Charlottesville, Va.)*, 1990, **18**, 1094 (*tox*)
Remmel, R.P. *et al., J. Chromatogr.*, 1990, **534**, 109 (*hplc*)
Vince, R. *et al., J. Med. Chem.*, 1990, **33**, 17 (*synth, ms, ir, uv, pmr, pharmacol*)
Coates, J.A. *et al., Antiviral Res.*, 1991, **15**, 161 (*activity*)
Exall, A.M. *et al., J.C.S. Perkin 1*, 1991, 2467 (*synth, ir, uv, pmr, cryst struct*)
Jones, M.F. *et al., J.C.S. Perkin 1*, 1991, 2479 (*synth, pmr, uv, ir*)
Mahony, W.B. *et al., J. Biol. Chem.*, 1992, **267**, 19792; 21220 (*pharmacol*)
Trost, B.M. *et al., J.A.C.S.*, 1992, **114**, 8745 (*synth, bibl*)
Evans, C.T. *et al., J.C.S. Perkin 1*, 1992, 589 (*synth, pmr, uv*)
Parker, W.B. *et al., Antimicrob. Agents Chemother.*, 1993, **37**, 1004 (*metab*)
MacKeith, R.A. *et al., J.C.S. Perkin 1*, 1993, 313 (*synth*)
MacKeith, R.A. *et al., Bioorg. Med. Chem.*, 1994, **2**, 387 (*synth*)
Hildbrand, S. *et al., Helv. Chim. Acta*, 1994, **77**, 1236 (***synth***)
Olivo, H.F. *et al., J.C.S. Perkin 1*, 1998, 391-392 (*synth*)
Trost, B.M. *et al., J.A.C.S.*, 2000, **122**, 5947-5956 (*(-)-form, synth, pmr, cmr*)

1-(2-Carboxyanilino)-1-deoxyribulose C-16

*1-[*N*-(2-Carboxylphenyl)amino]-1-deoxy*-erythro-*pentulose. Anthranilic deoxyribuloside*



$C_{12}H_{15}NO_6$ 269.254

D-*form* [5962-30-1] Intermediate in the biosynthesis of tryptophan in cultures of *Schizophyllum commune* and mutants of *E. coli, Aerobacter aerogenes* and *Salmonella typhimurium*.

2,4-Dinitrophenylhydrazone: Mp 214°.

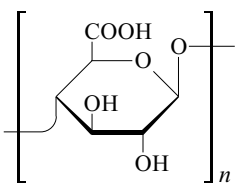
5-Phosphate: Anthranilic deoxyribulotide
$C_{12}H_{16}NO_9P$ 349.233
Intermed. in Tryptophan biosynth.

5-Phosphate, Di-Na salt: Mp 177-181°. Hygroscopic.

Doy, C.H. *et al., Biochem. J.*, 1959, **72**, 586
Doy, C.H. *et al., Nature (London)*, 1961, **189**, 461; 1966, **211**, 736
Doy, C.H. *et al., Methods Enzymol.*, 1963, **6**, 591
Epstein, E. *et al., Nature (London)*, 1966, **211**, 855
Bode, R. *et al., Cell. Mol. Biol.*, 1980, **26**, 615 (*isol*)

6-Carboxycellulose, 9CI C-17

Cellulosic acid, 8CI. Celluronic acid. Oxidized cellulose. Monocarboxycellulose. Polyanhydroglucuronic acid
[9032-53-5]

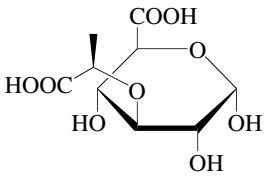


Formed by oxidn. of cellulose by nitrogen dioxide; side reactions forming non-uronic carboxyl groups, aldehyde groups, and ketone groups also occur.
Fluffy fibrous solid. Sol. alkali solns.; insol. H_2O, acid solns.

[9069-12-9]

Yackel, E.C. *et al., J.A.C.S.*, 1942, **64**, 121 (*synth*)
Nevell, T.P. *et al., Methods Carbohydr. Chem.*, 1963, **3**, 164 (*synth*)
Encyclopaedia of Polymer Science and Engineering, 2nd edn., Wiley-Interscience, New York, 1985, **3**, 134 (*rev*)

3-*O*-(1-Carboxyethyl)glucuronic acid C-18



$C_9H_{14}O_9$ 266.204

D-(1′*R*)-*form*
Component of the exopolysaccharide of bacterium *Alteromonas* sp. from a deep sea hydrothermal vent.

Dubureucq, G. *et al., Carbohydr. Res.*, 1996, **290**, 175-181 (*isol, struct*)

4-*O*-(1-Carboxyethyl)glucuronic acid C-19

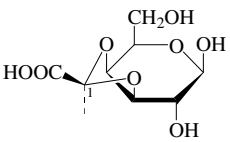
$C_9H_{14}O_9$ 266.204

D-(1′*S*)-*form*
Isol. from *Klebsiella* type 37 polysaccharide.

Lindberg, B. *et al., Carbohydr. Res.*, 1976, **49**, 411-417

3,4-*O*-(1-Carboxyethylidene)-galactose, 9CI C-20

[87391-96-6]



(β-D-1′*R*)-*form*

$C_9H_{14}O_8$ 250.205

(β-D,1′*R*)-*form* [84315-02-6]
*Me pyranoside: Methyl 3,4-*O*-(1-carboxyethylidene)-β-D-galactopyranoside*
$C_{10}H_{16}O_8$ 264.232
$[\alpha]_D^{25}$ -5 (c, 0.3 in H_2O).

Me pyranoside, Ba salt: [81672-42-6]
$[\alpha]_D^{25}$ -6 (c, 0.3 in H_2O).

Me pyranoside, Me ester: [78886-27-8]
$C_{11}H_{18}O_8$ 278.258
Mp 152-153°. $[\alpha]_D^{25}$ -8 (c, 1.0 in MeOH).

(β-D,1′*S*)-*form* [84315-03-7]
Me pyranoside: [78886-24-5]
$[\alpha]_D^{25}$ -10 (c, 0.2 in H_2O).

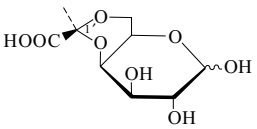
Me pyranoside, Ba salt: [81689-28-3]
$[\alpha]_D^{25}$ -6 (c, 0.3 in H_2O).

Me pyranoside, Me ester: [78886-26-7]
$C_{11}H_{18}O_8$ 278.258
Mp 147-149°. $[\alpha]_D^{25}$ -13 (c, 0.5 in MeOH).

Gorin, P.A.J. *et al., Carbohydr. Res.*, 1981, **92**, C1; 1982, **100**, 1

4,6-*O*-(1-Carboxyethylidene)-galactose C-21

[50692-52-9]



(D,1′*R*)-*form*

$C_9H_{14}O_8$ 250.205

(β-D-*Pyranose*, 1′*R*)-*form* [75247-35-7]
$[\alpha]_D^{25}$ +42 (c, 0.2 in H_2O).

Me glycoside:
$C_{10}H_{16}O_8$ 264.232
$[\alpha]_D$ -24 (c, 1.5 in H_2O).

Me glycoside, Me ester:
$C_{11}H_{18}O_8$ 278.258
$[\alpha]_D$ -36 (c, 1.6 in $CHCl_3$).

Benzyl glycoside, Me ester:
$C_{17}H_{22}O_8$ 354.356
$[\alpha]_D^{25}$ -25 (c, 0.8 in EtOH).

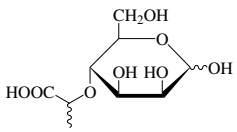
(β-D-*Pyranose*, 1′*S*)-*form*
$[\alpha]_D^{25}$ +53 (c, 0.2 in H_2O).

Benzyl glycoside, Me ester: $[\alpha]_D^{25}$ -25 (c, 0.7 in EtOH).

Garegg, P.J. *et al., Carbohydr. Res.*, 1979, **77**, 71
Fontana, J.D. *et al., Carbohydr. Res.*, 1982, **108**, 221

4-*O*-(1-Carboxyethyl)mannose C-22

4-Lactylmannose. O-*4-Mannosyllactic acid*



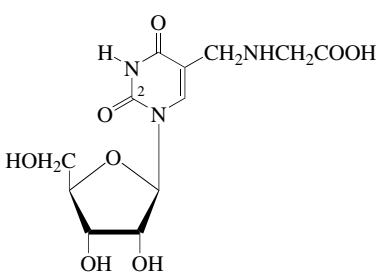
D-Pyranose-*form*

$C_9H_{16}O_8$ 252.221
Isol. from exopolysaccharides of the blue-green alga *Cyanospira capsulata*. Both epimers have been synthesised but the cmr spectra were too similar to allow assignment of config. to the nat. prod.

Kochetkov, N.K. *et al., Carbohydr. Res.*, 1979, **71**, 193-203 (*isol, synth, cmr*)
Garozzo, D. *et al., Carbohydr. Res.*, 1995, **270**, 97-106 (*isol*)

5-(Carboxymethylaminomethyl)uridine C-23

N-*[(1,2,3,4-Tetrahydro-2,4-dioxo-1-β-D-ribofuranosyl-5-pyrimidinyl)methyl] glycine, 9CI*
[69181-26-6]



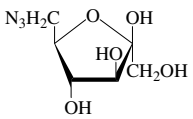
$C_{12}H_{17}N_3O_8$ 331.282
Modified nucleoside found in tRNA's. Prisms (EtOH aq.).
Mp 197° (dec.). $[\alpha]_D^{20}$ -5.4 (c, 1 in H_2O) (as hydrochloride). λ_{max} 267 (ε 9100) (H_2O).

2-Thio analogue: 5-(Carboxymethylaminomethyl)-2-thiouridine
[78173-95-2]
$C_{12}H_{17}N_3O_7S$ 347.348
Modified nucleoside found in tRNA's. Cryst.
Mp 211-212° (dec.). $[\alpha]_D^{20}$ -7.4 (c, 1 in H_2O) (as hydrochloride). λ_{max} 277 (ε 12900) (EtOH aq.).

[89129-02-2, 89129-03-3, 137405-04-0]

Malkiewicz, A. *et al., Tet. Lett.*, 1983, **24**, 5395 (*synth, pmr*)
Reese, C.B. *et al., Chem. Comm.*, 1984, 62 (*synth*)
Sierzputowska-Gracz, H. *et al., J.A.C.S.*, 1987, **109**, 7171 (*occur, uv, pmr, cmr*)
Galdecki, Z. *et al., Monatsh. Chem.*, 1991, **122**, 487 (*cryst struct*)

3-*C*-Carboxymethyl-3-deoxyallose C-24



β-D-Furanose-*form*

$C_8H_{14}O_7$ 222.194

α-D-Furanose-*form*
*1,2-Isopropylidene, Me ester: 3-Deoxy-1,2-*O*-isopropylidene-3-*C*-(methoxycarbonylmethyl)-α-D-allofuranose*
[19029-63-1]
$C_{12}H_{20}O_7$ 276.286
Intermed. in 11-oxaprostaglandin synth. Cryst. Mp 89-90°. $[\alpha]_D^{22}$ +63 (c, 1 in $CHCl_3$).

*1,2:5,6-Diisopropylidene, Me ester: 3-Deoxy-1,2:5,6-di-*O*-isopropylidene-3-*C*-(methoxycarbonylmethyl)-α-D-allofuranose*
[18427-18-4]
$C_{15}H_{24}O_7$ 316.35
Cryst. (petrol or MeOH aq.).
Mp 57-58°. $[\alpha]_D^{22}$ +65 (c, 2 in EtOH).

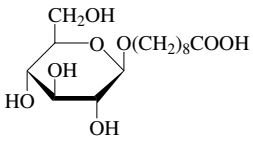
*1,2:5,6-Diisopropylidene, Et ester: 3-Deoxy-3-*C*-(ethoxycarbonylmethyl)-1,2:5,6-di-*O*-isopropylidene-α-D-allofuranose*
$C_{16}H_{26}O_7$ 330.377
Mp 90-91°. $[\alpha]_D^{23}$ +67 (c, 1.1 in $CHCl_3$).

β-D-Furanose-*form*
3^2,5-Lactone, 1,5,6-tri-Ac: [58399-73-8]
$C_{14}H_{18}O_9$ 330.291
Cryst. Mp 106-107°. $[\alpha]_D^{23}$ -69 (c, 1.7 in $CHCl_3$).

[58399-55-6]

Rosenthal, A. *et al., J.O.C.*, 1969, **34**, 1029 (*synth, pmr*)
Lourens, G.J. *et al., Tet. Lett.*, 1975, 3719 (*synth, pmr*)

8-Carboxyoctyl glucopyranose C-25



β-D-*form*

$C_{15}H_{28}O_8$ 336.381

α-D-*form*

Me ester, 4-O-α-D-glucopyranosyl: 8-Methoxycarbonyloctyl α-D-maltopyranoside
[71721-51-2]
$C_{22}H_{40}O_{13}$ 512.55
Syrup. $[\alpha]_D^{20}$ +106.7 (c, 1.2 in MeOH) (lit. gives a temp. range).

Me ester, 4-O-β-D-glucopyranosyl: 8-Methoxycarbonyloctyl α-D-cellobiopyranoside
[71721-48-7]
$C_{22}H_{40}O_{13}$ 512.55
Mp 104-106°. $[\alpha]_D^{20}$ +63.4 (c, 0.8 in H_2O) (lit. gives a temp. range).

Me ester, 4-O-β-D-galactopyranosyl: 8-Methoxycarbonyloctyl α-D-lactopyranoside
[71721-49-8]
$C_{22}H_{40}O_{13}$ 512.55
Mp 99-100°. $[\alpha]_D^{20}$ +68.8 (c, 1.6 in MeOH) (lit. gives a temp. range).

Et ester, 4-O-α-D-glucopyranosyl, hepta-Ac: 8-Ethoxycarbonyloctyl hepta-O-acetyl-α-D-maltopyranoside
[71715-62-3]
Syrup. $[\alpha]_D^{20}$ +102.8 (c, 1.9 in $CHCl_3$) (lit. gives a temp. range).

Et ester, 4-O-β-D-glucopyranosyl, hepta-Ac: 8-Ethoxycarbonyloctyl hepta-O-acetyl-α-D-cellobiopyranoside
[71721-57-8]
Mp 76-77°. $[\alpha]_D^{20}$ +39.6 (c, 1.5 in $CHCl_3$) (lit. gives a temp. range).

β-D-*form*

Me ester, 4-O-α-D-glucopyranosyl: 8-Methoxycarbonyloctyl β-D-maltopyranoside
[71721-50-1]
$C_{22}H_{40}O_{13}$ 512.55
Syrup. $[\alpha]_D^{20}$ +43.3 (c, 2.0 in H_2O) (lit. gives a temp. range).

Me ester, 4-O-β-D-glucopyranosyl: 8-Methoxycarbonyloctyl β-D-cellobiopyranoside
[64448-43-7]
$C_{22}H_{40}O_{13}$ 512.55
Mp 139-140°. $[\alpha]_D^{20}$ -18.7 (c, 1.0 in H_2O) (lit. gives a temp. range).

Me ester, 4-O-β-D-galactopyranosyl: 8-Methoxycarbonyloctyl β-D-lactopyranoside
[70761-83-0]
$C_{22}H_{40}O_{13}$ 512.55
Mp 158-159°. $[\alpha]_D^{20}$ +3.1 (c, 1.1 in $CHCl_3$) (lit. gives a temp. range).

Et ester, 4-O-α-D-glucopyranosyl, hepta-Ac: 8-Ethoxycarbonyloctyl hepta-O-acetyl-β-D-maltopyranoside
Syrup. $[\alpha]_D^{20}$ +40.1 (c, 1.2 in $CHCl_3$) (lit. gives a temp. range).

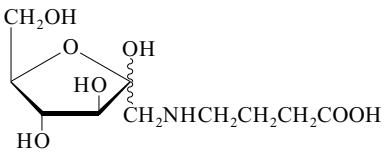
Et ester, 4-O-β-D-glycopyranosyl, hepta-Ac: 8-Ethoxycarbonyloctyl hepta-O-acetyl-β-D-cellobiopyranoside
[71715-54-3]
Mp 91-92°. $[\alpha]_D^{20}$ -15 (c, 1.0 in $CHCl_3$) (lit. gives a temp. range).

Et ester, 4-O-β-D-galactopyranosyl, hepta-Ac: 8-Ethoxycarbonyloctyl hepta-O-acetyl-β-D-lactopyranoside
[70761-82-9]
Syrup. $[\alpha]_D^{20}$ -11.2 (c, 2.0 in $CHCl_3$) (lit. gives a temp. range).

Banoub, J. *et al., Can. J. Chem.*, 1979, **57**, 2085; 2091 (*synth, pmr, cmr*)
Bundle, D.R. *et al., Can. J. Biochem.*, 1979, **57**, 367

1-[(3-Carboxypropyl)amino]-1-deoxyfructose, 9CI C-26

1-Deoxy-1-(N-γ-aminobutyric acid) fructose

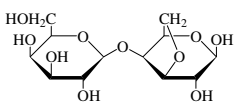


$C_{10}H_{19}NO_7$ 265.263

D-*form* [10003-63-1]
Isol. from cured tobacco leaves and from stored apricots and peaches.
Amorph.
Anet, E.F.L.J. *et al., Aust. J. Chem.*, 1957, **10**, 182 (*isol*)
Tomita, H. *et al., Agric. Biol. Chem.*, 1965, **29**, 959 (*isol, synth*)

Carrabiose C-27

3,6-Anhydro-4-O-β-D-galactopyranosyl-D-galactose, 9CI. Carrobiose
[19253-99-7]



β-Pyranose-*form*

$C_{12}H_{20}O_{10}$ 324.284
Produced by partial methanolysis of the polysaccharide from marine alga *Chondrus crispus* (κ-carrageenan) and the red alga *Furcellaria fastigiata*. Amorph. solid. $[\alpha]_D^{17}$ +15.2 (c, 1.25 in H_2O).

Phenylosazone: Mp 214-215°. $[\alpha]_D^{10}$ +68.2 → +45 (c, 0.6 in EtOH/Py).

Phenylhydrazone:
Yellow cryst. (EtOH/Et_2O). Mp 211-213°. $[\alpha]_D^{21}$ +110 (c, 0.4 in MeOH).

Di-Et dithioacetal:
$C_{16}H_{30}O_9S_2$ 430.54
Cryst. (EtOH/Et_2O). Mp 116-117°. $[\alpha]_D^{25}$ +4 (c, 1.8 in H_2O).

Di-Et dithioacetal, hexa-Ac:
$C_{28}H_{42}O_{15}S_2$ 682.763
Cryst. (EtOH aq.). Mp 118-119°. $[\alpha]_D$ -4 (c, 1.2 in $CHCl_3$).

α-Pyranose-*form*

Me glycoside: Methyl α-carrabioside
$C_{13}H_{22}O_{10}$ 338.311
Cryst. (MeOH/EtOH). Mp 203-204°. $[\alpha]_D^{17}$ +36 (c, 1.0 in H_2O).

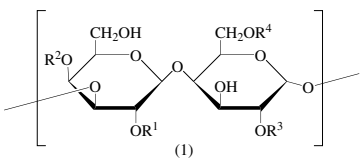
β-Pyranose-*form*

Me glycoside: Methyl β-carrabioside
$C_{13}H_{22}O_{10}$ 338.311
Needles (EtOH/Me_2CO). Mp 136-138° (as monohydrate). $[\alpha]_D$ -78.6 (c, 0.70 in H_2O).

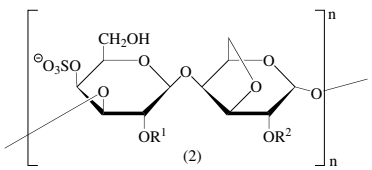
O'Neill, A.N. *et al., J.A.C.S.*, 1955, **77**, 6324 (*occur, struct, di-Et dithioacetal, di-Et dithioacetal hexa Ac*)
Araki, C. *et al., Bull. Chem. Soc. Jpn.*, 1956, **29**, 770 (*β-D-Me pyr*)
Painter, T.J. *et al., J.C.S.*, 1964, 1396 (*struct*)
Hirase, S. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 2627 (*synth, α-D-Me pyr*)
Lambda, D. *et al., Carbohydr. Res.*, 1986, **155**, 11 (*cryst struct, deriv*)
Parra, E. *et al., Carbohydr. Res.*, 1990, **208**, 83 (*synth, α-D-Me pyr*)
Storz, C.A. *et al., Carbohydr. Res.*, 2002, **337**, 2311-2323 (*conformn*)

Carrageenan C-28

Carrageenin. Carragheen. Genuvisco J. FEMA 2596. E407
[9000-07-1]



(1)



(2)

A complex mixt. of polysaccharides composed of galactans, the proportions of which vary with spp., season and environment. The major structural feature is β(1→3) and α(1→4) linked galactose units with various degrees and sites of sulfation (sulfate ester content 15-40%). The Greek prefixes denote the idealised constitution of different disaccharide units although native carrageenans show variation from these idealised structs. The struct. also varies during life-cycle of the alga. Obt. from red seaweeds in the families Furcellariaceae, Gigartinacaceae, Phyllophorraceae and Solieraceae. Used for gelling, thickening and emulsion stabilisation of foods (salts may also be used). Sol. H_2O; fairly sol. DMSO; poorly sol. oils, MeOH, hexane. ν component also referred to in the lit. alongside those descr. below.

▶ FI0700000

Ethyldimethyl(1-methyl-3,3-diphenylpropyl)ammonium salt: ***Emepronium carrageenate, BAN.*** *Cetiprin novum*
Anticholinergic agent. Muscarinic antagonist. Consists mainly of κ and λ fractions.

μ-*form* [51311-96-7]
Isol. from *Furcellaria fastigiata*. Structure (1) with $R^1 = R^3 = H$, $R^2 = R^4 = SO_3^{\ominus}$. Minor fraction of carrageenan samples.

λ-*form*
Picnin A
[9064-57-7]
Isol. from *Chondrus crispus*. Present particularly in algal tetrasporophytes. Structure (1) with $R^1 = R^3 = R^4 = SO_3^{\ominus}$, $R^2 = H$. Major fraction.
▶FI0704000

ϵ-*form* [51311-95-6]
Isol. from *Furcellaria fastigiata*. Structure (1) with $R^1 = R^3 = SO_3^{\ominus}$, $R^2 = R^4 = H$.

ι-*form* [9062-07-1]
Isol. from *Eucheuma spinosum* and *Agardhiella tenera* red seaweeds. Structure (2) with $R^1 = H$, $R^2 = SO_3^{\ominus}$. Major fraction.

κ-*form* [11114-20-8]
Isol. from *Chondrus crispus*. Present particularly in algal gametophytes. Structure (2) with $R^1 = R^2 = H$. Major fraction.
▶FI0703000

ξ-*form* [70431-33-3]
Isol. from *Gigartina* spp. tetrasporophytes. Structure (1) with $R^1 = R^3 = SO_3^{\ominus}$, $R^2 = R^4 = H$.

π-*form* [71078-00-7] Structure (1) with $R^1 = R^3 = SO_3^{\ominus}$, $R^4 = H$, C_4-C_6 pyruvate bridge in left-hand residue.

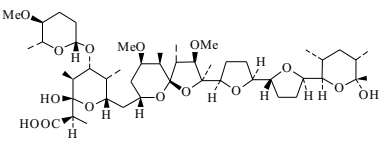
u-*form* Structure (2) with $R^1 = R^2 = SO_3^{\ominus}$.

[8015-95-0, 8036-85-9, 60063-90-3, 64366-24-1]

O'Neill, A.N. *et al., J.A.C.S.*, 1955, **77**, 2837-2839; 6324-6326 (*κ-form, isol, struct*)
Dolan, T.C.S. *et al., J.C.S.*, 1965, 3534-3539, (*λ-form, struct*)
Painter, T.J. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 98-100 (*κ-form, isol*)
Rees, D.A. *et al., Adv. Carbohydr. Chem.*, 1969, **24**, 267-332 (*rev*)
Penman, A. *et al., J.C.S. Perkin 1*, 1973, 2191-2196 (*κ-form, struct*)
Massey, J.A. *et al., Br. J. Urol.*, 1986, **58**, 125-128 (*emepronium carrageenan*)
Hallen, B. *et al., Arzneim.-Forsch.*, 1988, 1482-1485 (*emepronium carrageenan*)
Millane, R.P. *et al., Carbohydr. Res.*, 1988, **182**, 1-17 (*κ-form, struct, bibl*)
Falshaw, R. *et al., Carbohydr. Res.*, 1995, **276**, 155-165 (*ξ-form, isol, bibl*)
Chiovitti, A. *et al., Carbohydr. Res.*, 1997, **299**, 229-243 (*isol*)
Arndt, E.R. *et al., Carbohydr. Res.*, 1997, **303**, 73-78 (*cd, struct*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 500-516 (*props, use*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 461 (*emepronium carrageenan*)
Janaswamy, S. *et al., Carbohydr. Res.*, 2001, **335**, 181-194 (*ι-form, struct*)
Yu, G. *et al., Carbohydr. Res.*, 2002, **337**, 433-440 (*κ-form, purifn, struct*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CCL250; CCL350

Carriomycin C-29

6,27-Didemethoxyantibiotic A 204A. T 42082. Antibiotic T 42082
[65978-43-0]

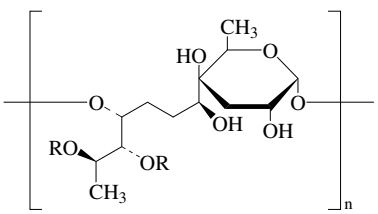


$C_{47}H_{80}O_{15}$ 885.14
Polyether antibiotic. Isol. from *Streptomyces hygroscopicus*. Ionophore. Needles.
Mp 120-122°. Structurally related to Septamycin.
▶CB9376436
Na salt: Mp 180-182°. $[\alpha]_D^{25}$ -4.5 (c, 1 in $CHCl_3$).

[59979-84-9]

Imada, A. *et al., J. Antibiot.*, 1978, **31**, 7
Radios, N.A. *et al., Bull. Soc. Chim. Belg.*, 1978, **87**, 437 (*conformn*)
Nakayama, H. *et al., J.C.S. Perkin 2*, 1979, 293 (*cryst struct*)
Canadian Pat., 1980, 1 091 175; *CA*, **94**, 154981 (*isol*)

Caryophyllan C-30



R = H, Ac

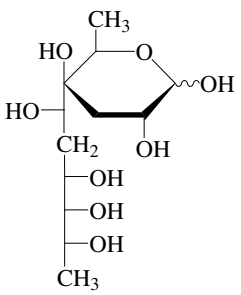
Partially acetylated homopolymer of Caryophyllose, C-31. *O*-Specific polysaccharide from the lipopolysaccharide fraction of *Pseudomonas caryophylli* (*Burkholderia caryophylli*).

De Castro, C. *et al., Carbohydr. Res.*, 2001, **335**, 205-211 (*isol, pmr, cmr, struct*)

Caryophyllose C-31

*3,6-Dideoxy-4-*C*-(2,6-dideoxyhexitol-1-*C*-yl)-β-D-*xylo*-hexopyranoside, 9CI.*
*3,6,10-Trideoxy-4-*C*-(1-hydroxyethyl)-D-*erythro*-D-*gulo*-decose*
[172291-92-8]

[163438-33-3]

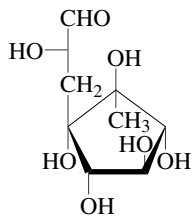


$C_{12}H_{24}O_8$ 296.317
Obt. from the lipopolysaccharide fraction of *Pseudomonas caryophylli*.
$[\alpha]_D$ -15 (c, 3 in H_2O).

Adinolfi, M. *et al., Carbohydr. Res.*, 1995, **267**, 307-311; **274**, 223-232 (*isol, pmr, cmr, struct*)
Prandi, J. *et al., Carbohydr. Res.*, 2001, **332**, 241-247 (*Me glycoside, synth*)

Caryose C-32

*α,1,2,3,4,5-Hexahydroxy-2-methylcyclopentanepropanal, 9CI. 4,8-Cyclo-3, 9-dideoxy-L-*erythro*-D-*ido*-nonose*
[176952-07-1]

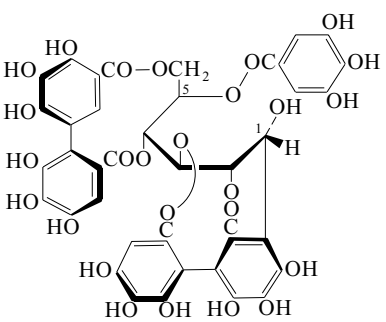


$C_9H_{16}O_7$ 236.221
Isol. from the cell wall lipopolysaccharide fraction of *Pseudomonas caryophylli*.
Syrup. $[\alpha]_D$ +81 (c, 1.75 in H_2O). The first known naturally occurring carbocyclic sugar.

Adinolfi, M. *et al., Carbohydr. Res.*, 1996, **284**, 111-118 (*isol, pmr, cmr, struct, abs config*)
Adinolfi, M. *et al., Tetrahedron*, 1997, **53**, 11767 (*synth, cmr*)

Casuarinin C-33

[79786-01-9]



$C_{41}H_{28}O_{26}$ 936.657
Isol. from *Casuaria stricta*, *Quercus stenophylla*, *Stachyurus praecox* and *Corylus heterophylla* (Siberian filbert). Pale yellow amorph. powder + $7H_2O$. $[\alpha]_D$ +43.6 (c, 1 in MeOH). λ_{max} 221 (ϵ 74130); 267 (ϵ 32360) (MeOH) (Berdy).

5-Degalloyl: Casuariin. Casauriin (incorr.)
[79786-04-2]
$C_{34}H_{24}O_{22}$ 784.55
Tannin from *Corylus stricta* and *Stachyurus praecox*. Pale yellow amorph. powder + $4H_2O$. $[\alpha]_D$ +162 (c, 0.5 in MeOH).

1-Epimer: ***Stachyurin***
[81739-27-7]
$C_{41}H_{28}O_{26}$ 936.657
Tannin from *Corylus stricta* and *Stachyurus praecox*. Off-white amorph.

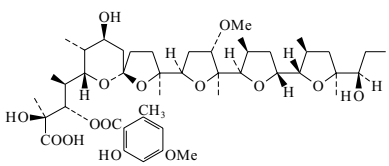
powder + $5H_2O$. $[\alpha]_D$ +39 (c, 0.4 in MeOH).

1-Epimer, 5-O-degalloyl: ***Castanin***†. *Tomentosin*†. *5-Desgalloylstachyurin*
[115406-24-1]
$C_{34}H_{24}O_{22}$ 784.55
Isol. from *Euphorbia thymifolia*, *Castanea mollissima* (Chinese chestnut) and *Rhodomyrtus tomentosa* (hill gooseberry). Pale brown amorph. powder. $[\alpha]_D^{20}$ -26.5 (c, 0.8 in MeOH).

Okuda, T. *et al., Chem. Pharm. Bull.*, 1982, **30**, 766 (*struct, uv, pmr*)
Okuda, T. *et al., J.C.S. Perkin 1*, 1983, 1765, (*ir, uv, cd, pmr*)
Feng, H. *et al., Phytochemistry*, 1988, **27**, 1185 (*Castanin*)
Nonaka, G. *et al., Chem. Pharm. Bull.*, 1990, **38**, 2151 (*struct, abs config*)
Lee, S.H. *et al., Phytochemistry*, 1990, **29**, 3621 (*5-Desgalloylstachyurin*)
Liu, Y.Z. *et al., Chin. Chem. Lett.*, 1997, **8**, 39-40 (*Tomentosin*)

Cationomycin, 10CI C-34

Antibiotic 76-11
[80394-65-6]



$C_{45}H_{70}O_{15}$ 851.039
Polyether antibiotic. Isol. from *Actinomadura azurea*. Active against gram-positive bacteria and mycobacteria. Coccidiostat. Sol. MeOH, C_6H_6; fairly sol. H_2O; poorly sol. hexane. Mp 108-112°. $[\alpha]_D^{25}$ +366 (c, 0.382 in $CHCl_3$). pK_{a1} 4.6; pK_{a2} 11.1 (67% dioxan). λ_{max} 260 (ϵ 7800); 308 (ϵ 4480) (dil. NaOH) (Derep). λ_{max} 217 (ϵ 27300); 262 (ϵ 16400); 301 (ϵ 6100) (H_2O) (Derep). λ_{max} 217 (ϵ 27300); 262 (ϵ 16400); 301 (ϵ 6100) (MeOH) (Berdy). λ_{max} 217 ; 262 ; 301 (MeOH-HCl) (Berdy). λ_{max} 260 (ϵ 7800); 308 (ϵ 4480) (MeOH-NaOH) (Berdy).
► LD_{50} (mus, ipr) 1000 mg/kg, LD_{50} (mus, orl) 3000 mg/kg. FI5983000

Na salt:
Cryst. (MeOH). Mp 184-188°. $[\alpha]_D^{25}$ +36.6 (c, 0.38 in $CHCl_3$).

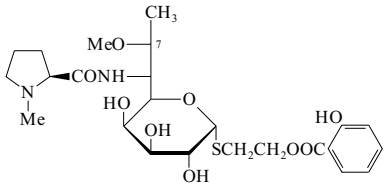
Tl salt: Mp 205-208°.

[82987-42-6]

Nakamura, G. *et al., J. Antibiot.*, 1981, **34**, 1513; 1983, **36**, 1468 (*isol, props*)
Ubukata, M. *et al., J.A.C.S.*, 1984, **106**, 2213 (*biosynth*)
Ubukata, M. *et al., Agric. Biol. Chem.*, 1986, **50**, 1153 (*props*)
Dauphin, G. *et al., J.C.S. Perkin 2*, 1993, 399 (*pmr, conformn*)

Celesticetin C-35

[2520-21-0]



$C_{24}H_{36}N_2O_9S$ 528.622
Isol. from *Streptomyces caelestis* NRRL2418. Active against gram-positive organisms and plant pathogens. Sol. MeOH, butanol, $CHCl_3$, EtOAc, Me_2CO; poorly sol. H_2O, hexane, Et_2O. $[\alpha]_D^{24}$ +126.6 (c, 0.5 in $CHCl_3$). Amphoteric base related structurally to Lincomycin, L-41. λ_{max} 240 (ϵ 10200); 310 (ϵ 4490) (EtOH/HCl) (Derep). λ_{max} 245 (ϵ 6880); 338 (ϵ 4860) (EtOH/KOH) (Derep). λ_{max} 239 (ϵ 10100); 307 (ϵ 4440) (95% EtOH) (Derep). λ_{max} 239 (E1%/1cm 184); 307 (E1%/1cm 80.6) (EtOH) (Berdy). λ_{max} 248 (E1%/1cm 180); 341 (E1%/1cm 104) (EtOH-NaOH) (Berdy).
► LD_{50} (mus, ipr) 167 mg/kg. RH6125000

Oxalate: Mp 147-152°. $[\alpha]_D^{24}$ +106.6 (c, 0.5 in H_2O).

N-*De-Me:* **N-*Demethylcelesticetin***
[40736-31-0]
$C_{23}H_{34}N_2O_9S$ 514.596
Prod. by *Streptomyces caelestis* mutant (NRRL5481; NRRL2418). Active against gram-positive bacteria. Cryst. Sol. MeOH. $[\alpha]_D^{25}$ +112.5 (c, 1 in H_2O) (as hydrochloride). λ_{max} 238 ; 304 (MeOH) (Berdy). λ_{max} 241 ; 332 (NaOH) (Berdy).

O^7-*De-Me:* **O-*Demethylcelesticetin***
[39032-05-8]
$C_{23}H_{34}N_2O_9S$ 514.596
Produced by mutant *Streptomyces caelestis* NRRL5520. Shows antibiotic props. Sol. H_2O, MeOH, EtOH. $[\alpha]_D^{25}$ +115 (c, 0.85 in H_2O) (as hydrochloride). λ_{max} 240 (ϵ 10200); 310 (ϵ 4490) (EtOH/HCl) (Derep). λ_{max} 245 (ϵ 6880); 338 (ϵ 4860) (EtOH/KOH) (Derep). λ_{max} 239 (ϵ 10100); 307 (ϵ 4440) (95% EtOH) (Derep). λ_{max} 238 ; 304 (MeOH) (Berdy). λ_{max} 242 ; 352 (MeOH/NaOH) (Berdy).

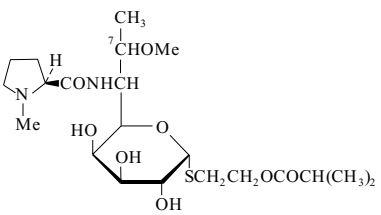
N,O^7-*Di-de-Me:* **N,O-*Didemethylcelesticetin***
[40736-32-1]
$C_{22}H_{32}N_2O_9S$ 500.569
Prod. by *Streptomyces caelestis* mutant (NRRL5481). Active against gram-positive bacteria. Needles (as hydrochloride). Sol. H_2O, MeOH. $[\alpha]_D^{25}$ +122 (c, 1 in H_2O) (as hydrochloride). λ_{max} 238 (ϵ 8830); 303 (ϵ 3600) (MeOH/HCl) (Derep). λ_{max} 241 (ϵ 5710); 332 (ϵ 4250) (MeOH/NaOH) (Derep). λ_{max} 238 (ϵ 8830); 303 (ϵ 3600) (MeOH as hydrogen halide salt) (Derep).

ar-*Deoxy,* ar-*amino:* ***Celesticetin C***
[42715-02-6]
$C_{24}H_{37}N_3O_8S$ 527.638
Prod. by *Streptomyces caelestis* NRRL5320. Shows antibiotic props. Cryst. (as hydrochloride). Sol. H_2O, MeOH. $[\alpha]_D^{25}$ +123 (c, 1 in H_2O) (as hydrochloride). Contains a 2-aminobenzoyl residue in place of 2-hydroxybenzoyl. λ_{max} 228 (ϵ 9910); 270 (ϵ 843); 280 (sh) (ϵ 632) (0.5*N* HCl) (Derep). λ_{max} 242 (ϵ 6320); 321 (ϵ 2850) (0.5*N* NaOH) (Derep). λ_{max} 247 (ϵ 6480); 338 (ϵ 4480) (EtOH/acid salt) (Derep). λ_{max} 247 ; 338 (EtOH) (Berdy). λ_{max} 243 ; 328 (H_2O) (Berdy). λ_{max} 228 ; 270 (HCl) (Berdy).

De Boer, C. *et al., Antibiot. Annu.*, 1954, 831 (*isol*)
Hoecksema, H. *et al., Antibiot. Annu.*, 1954, 837 (*isol*)
Hoecksema, H. *et al., J.A.C.S.*, 1964, **86**, 4224; 1968, **90**, 755 (*struct*)
Argoudelis, A.D. *et al., J. Antibiot.*, 1972, **25**, 445; 1973, **26**, 7; 131; 1974, **27**, 642 (*isol, ms, deriv*)

Celesticetin B C-36

[42715-01-5]



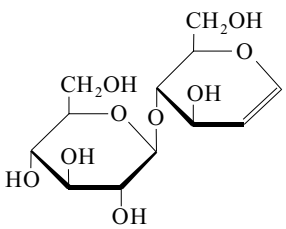
$C_{21}H_{38}N_2O_8S$ 478.606
Isol. from *Streptomyces caelestis*. Shows antibiotic props.

Hydrochloride:
Cryst. $[\alpha]_D^{25}$ +146 (c, 1 in H_2O).

Argoudelis, A.D. *et al., J. Antibiot.*, 1972, **25**, 194; 1973, **26**, 131; 1974, **27**, 642 (*isol, struct, ms*)

Cellobial C-37

*1,5-Anhydro-2-deoxy-4-(*O-*β*-D-*glucopyranosyl)*-D-arabino-*hex-1-enitol*



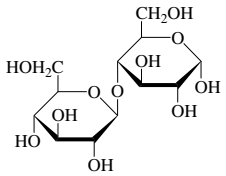
$C_{12}H_{20}O_9$ 308.285
Mp 177°. $[\alpha]_D^{17}$ +1 (c, 1.6 in H_2O).

Hexa-Ac:
$C_{24}H_{32}O_{15}$ 560.508
Mp 137°. $[\alpha]_D^{18}$ -20 (c, 1.2 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1930, 2636

Cellobiose C-38

4-O-β-D-Glucopyranosyl-D-glucose, 9CI. Cellose. Cellodextrin 2
[528-50-7]


α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Unit of cellulose and lichenin. Microcryst. powder.
Mp 225° dec. (unsharp). $[\alpha]_D$ +24.4 → +35.2 (H_2O).

α-Pyranose-*form* [13299-27-9]
Mp 214°. $[\alpha]_D^{20}$ +68.7 → +34.9 (c, 1.0 in H_2O). Anomerises in humid atmosphere.

Me glycoside: Methyl 4-O-β-D-glucopyranosyl-α-D-glucopyranoside
$C_{13}H_{24}O_{11}$ 356.326
Mp 144-145°. $[\alpha]_D^{20}$ +96.8 ($CHCl_3$).

Me glycoside, hepta-Ac:
$C_{27}H_{38}O_{18}$ 650.586
Mp 185°. $[\alpha]_D^{25}$ +55.7 ($CHCl_3$).

Octa-Ac: Octa-O-acetyl-α-cellobiose
[5346-90-7]
$C_{28}H_{38}O_{19}$ 678.597
Mp 229.5°. $[\alpha]_D^{20}$ +42 ($CHCl_3$).

1-Bromo-1-deoxy, hepta-Ac: Acetobromocellobiose
[14227-66-8]
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 183°. $[\alpha]_D^{20}$ +95.8 ($CHCl_3$).

1-Chloro-1-deoxy, hepta-Ac: Acetochlorocellobiose
$C_{26}H_{35}ClO_{17}$ 655.005
Mp 200-201°. $[\alpha]_D^{20}$ +73 ($CHCl_3$).

β-Pyranose-*form* [13360-52-6]
Cryst. Mp 224-225°. $[\alpha]_D^{20}$ +16.2 → +34.9 (c, 1.0 in H_2O).

Octa-Ac: Octa-O-acetyl-β-cellobiose
$C_{28}H_{38}O_{19}$ 678.597
Mp 202° (192°). $[\alpha]_D^{20}$ -14.5 ($CHCl_3$).

Me glycoside: Methyl 4-O-β-D-glucopyranosyl-β-D-glucopyranoside
$C_{13}H_{24}O_{11}$ 356.326
Mp 193°. $[\alpha]_D^{17}$ -19.1 (H_2O).

Me glycoside, 4′-Me: Methyl 4-O-methyl-β-D-glucopyranosyl-(1→4)-β-D-glucopyranoside
[112988-85-9]
$C_{14}H_{26}O_{11}$ 370.353
Cellulose model compd. Cryst. (MeOH). Mp 219-221° (196-198°). $[\alpha]_D^{20}$ -11 (c, 0.4 in H_2O).

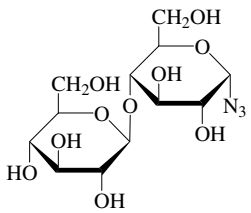
Me glycoside, hepta-Ac:
$C_{27}H_{38}O_{18}$ 650.586
Mp 187°. $[\alpha]_D^{25}$ -25.7 ($CHCl_3$).

Benzyl glycoside, 2,3,6-tribenzyl:
$C_{40}H_{46}O_{11}$ 702.797
Amorph. powder. $[\alpha]_D^{20}$ +10.4 (c, 0.8 in $CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 195B; 626A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 308B (*nmr*)
Brauns, D.H. *et al., J.A.C.S.*, 1923, **45**, 2388 (*Acetobromocellobiose*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 436 (*rev, gly derivs, Ac derivs*)
Org. Synth., Coll. Vol., 2, 1943, 122 (*isol*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*Acetobromocellobiose*)
Van der Veen, J.M. *et al., J.O.C.*, 1963, **28**, 564 (*pmr*)
Brown, C.J. *et al., J.C.S.(A)*, 1966, 927 (*struct*)
Moncrief, J.W. *et al., Chem. Comm.*, 1969, 914 (*abs config*)
Pazur, J.H. *et al., The Carbohydrates*, Academic Press, 2nd Ed., 1970, 109 (*rev*)
Rendleman, J.A. *et al., Carbohydr. Res.*, 1972, **21**, 235 (*NaI complexes, equilib, nmr*)
Gi, C.T. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1570 (*α-Me-pyr, α-Me-pyr hepta-Ac, β-Me-pyr hepta-Ac, pmr*)
Pfeffer, P.E. *et al., J.A.C.S.*, 1979, **101**, 1265 (*cmr*)
Edwards, R.G. *et al., Dev. Food Carbohydr.*, Applied Science Publ., 1980, 229 (*rev*)
Hall, L.D. *et al., J.A.C.S.*, 1980, **102**, 1745 (*nmr*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **121**, 163 (*synth, β-pyr-form, β-benzyl-pyr tribenzyl, α-Me-pyr*)
Mackie, I.D. *et al., Carbohydr. Res.*, 2002, **337**, 161-166; 1065 (*Me glycoside 4′-Me, synth, pmr, cmr, cryst struct*)

Cellobiosyl azide C-39

4-O-β-D-Glucopyranosyl-D-glucopyranosyl azide, 9CI


α-D-*form*

$C_{12}H_{21}N_3O_{10}$ 367.312

α-D-*form*

Hepta-Ac: [133321-47-8]
$C_{26}H_{35}N_3O_{17}$ 661.572
Cryst. Mp 196-198°. $[\alpha]_D^{20}$ +69 (c, 0.32 in $CHCl_3$).

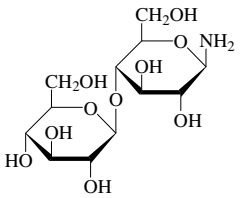
β-D-*form* [69194-62-3]
Glass. $[\alpha]_D^{20}$ -24 (c, 1 in H_2O).

Hepta-Ac: [33012-50-9]
Cryst. ($CHCl_3$/Et_2O). Mp 184-186°. $[\alpha]_D^{24}$ -31 (c, 1 in $CHCl_3$).

Dunstan, D. *et al., Carbohydr. Res.*, 1972, **23**, 17 (*hepta-Ac*)
Szarek, W.A. *et al., Tetrahedron*, 1978, **34**, 1427 (*synth*)
Peto, C. *et al., Annalen*, 1991, 505 (*hepta-Ac, synth, ir, pmr, cmr*)

Cellobiosylamine C-40

4-O-β-D-Glucopyranosyl-β-D-glucopyranosylamine, 9CI. 1-Aminocellobiose
[71075-35-9]

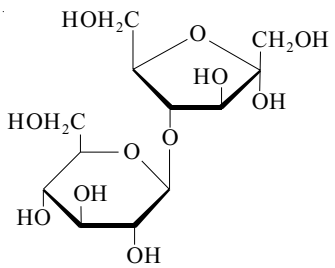

β-Pyranose-*form*

$C_{12}H_{23}NO_{10}$ 341.314
Mp 159° (dec.). $[\alpha]_D^{24}$ +20 (c, 1 in H_2O).

Tamura, M. *et al., Carbohydr. Res.*, 1984, **133**, 207-218 (*synth, ir*)
Likhosherstov, L.M. *et al., Carbohydr. Res.*, 1986, **146**, C1-C5 (*synth*)
Urge, L. *et al., Carbohydr. Res.*, 1992, **235**, 83-93 (*synth*)
Lubineau, A. *et al., Carbohydr. Res.*, 1995, **266**, 211-219 (***synth***)

Cellobiulose, 8CI C-41

4-O-β-D-Glucopyranosyl-D-fructofuranose, 8CI
[26391-66-2]

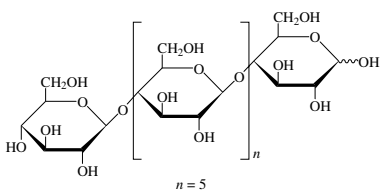


$C_{12}H_{22}O_{11}$ 342.299
An aq. soln. at 25° contains 61% β-pyr, 10% α-fur, and 29% β-fur. Amorph. hygroscopic powder. $[\alpha]_D^{23}$ -60.1 (c, 2.4 in H_2O).

Corbett, W.M. *et al., J.C.S.*, 1955, 1431 (*isol*)
MacLaurin, D.J. *et al., Can. J. Chem.*, 1969, **47**, 3957 (*isol*)
Schanbacher, F.L. *et al., J. Biol. Chem.*, 1970, **245**, 5057 (*pharmacol*)
Pfeffer, P.E. *et al., Carbohydr. Res.*, 1982, **102**, 11 (*cmr*)
Hicks, K.B. *et al., Carbohydr. Res.*, 1983, **112**, 37 (***synth, hplc***)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)

Celloheptaose C-42

O-β-D-Glucopyranosyl-[(1→4)-O-β-D-glucopyranosyl]$_5$-(1→4)-D-glucose, 8CI
[52646-27-2]



$C_{42}H_{72}O_{36}$ 1153.009
Formed by hydrol. of cellulose or as its acetate by acetolysis.
Mp 283-286° dec. $[\alpha]_D^{30}$ +7 (c, 0.1 in H_2O).

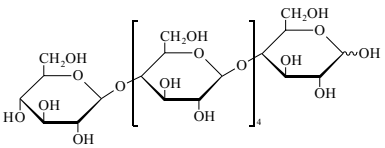
α-form

Tricosa-Ac: Mp 263-266°. $[\alpha]_D^{21}$ -4.4 (c, 1.7 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5331 (*struct, isol*)
Whitaker, D.R. *et al., Arch. Biochem. Biophys.*, 1954, **53**, 439

Cellohexaose C-43

O-β-D-Glucopyranosyl-[(1→4)-O-β-D-glucopyranosyl]$_4$-(1→4)-D-glucose, 8CI. Cellodextrin 6
[2478-35-5]



$C_{36}H_{62}O_{31}$ 990.867
Formed by hydrol. of cellulose or as its acetate by acetolysis.
Mp 275-278° dec. $[\alpha]_D^{30}$ +10 (c, 1.2 in H_2O).

α-form

Eicosa-Ac: Mp 252-254°. $[\alpha]_D^{30}$ -0.23 (c, 2.4 in $CHCl_3$).

β-form

Eicosa-Ac: Mp 241-243°. $[\alpha]_D$ -18.9 ($CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5331 (*struct, isol*)
Whitaker, D.R. *et al., Arch. Biochem. Biophys.*, 1954, **53**, 439

Cellooctaose C-44

O-β-D-Glucopyranosyl-[(1→4)-O-β-D-glucopyranosyl]$_6$-(1→4)-D-glucose
[120434-20-0]
As Celloheptaose, C-42 with n = 6

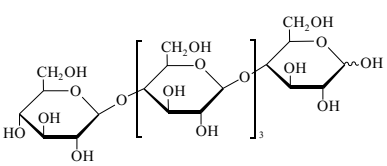
$C_{48}H_{82}O_{41}$ 1315.151

Hexacosa-Ac: [185515-64-4]
Syrup. $[\alpha]_D^{25}$ -2.25 (c, 0.4 in $CHCl_3$).

Nishimura, T. *et al., Carbohydr. Res.*, 1996, **294**, 53-64 (*hexacosa-Ac*)

Cellopentaose C-45

O-β-D-Glucopyranosyl-[(1→4)-O-β-D-glucopyranosyl]$_3$-(1→4)-D-glucopyranose, 8CI. Cellodextrin 5
[2240-27-9]



$C_{30}H_{52}O_{26}$ 828.725
Formed by hydrol. of cellulose or as its acetate by acetolysis. Sol. H_2O; poorly sol. Me_2CO. λ_{max} 267 (pH 2 buffer) (Berdy). λ_{max} 271 (H_2O) (Berdy). λ_{max} 271 (pH 12 buffer) (Berdy).

► LD_{50} (mus, ipr) 50 mg/kg.

α-form

Heptadeca-Ac: [26469-36-3]
Mp 240-243°. $[\alpha]_D^{28}$ +4.7 (c, 2.4 in $CHCl_3$).

β-form

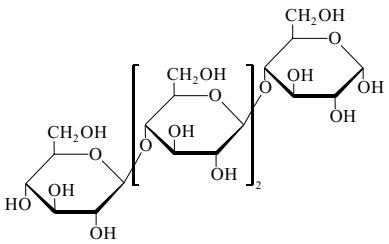
Mp 266-268° dec. $[\alpha]_D^{30}$ +8 → +11 (c, 4.1 in H_2O).

Heptadeca-Ac: Mp 238-239°. $[\alpha]_D$ +18.5 ($CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5331 (*isol, synth*)
Michell, A.J. *et al., Carbohydr. Res.*, 1970, **12**, 453 (*conformn, pmr*)

Cellotetraose C-46

O-β-D-Glucopyranosyl-(1→4)-O-β-D-glucopyranosyl-(1→4)-O-β-D-glucopyranosyl-(1→4)-D-glucose. Cellodextrin 4
[38819-01-1]



$C_{24}H_{42}O_{21}$ 666.583
Mp 252° dec. $[\alpha]_D^{23}$ +8.4 → +16.5 (c, 3.4 in H_2O).

α-form

Tetradeca-Ac: Mp 230-234°. $[\alpha]_D$ +13.4 ($CHCl_3$).

β-form

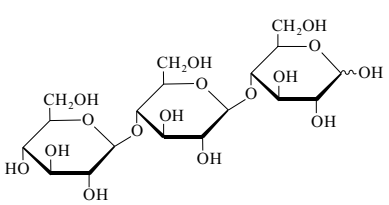
Tetra-Ac: Mp 224-225°. $[\alpha]_D$ -18.2 ($CHCl_3$).

Benzyl pyranoside, 2,2′,3,3′,6,6′-hexabenzyl: $[\alpha]_D^{20}$ +5.2 (c, 1.9 in $CHCl_3$).

Wolfrom, D. *et al., J.A.C.S.*, 1952, **74**, 5331
Inhat, M. *et al., Can. J. Chem.*, 1967, **45**, 2353
Poppleton, B.J. *et al., Nature (London)*, 1968, **219**, 1046 (*cryst struct*)
Luchsinger, W.W. *et al., Carbohydr. Res.*, 1976, **46**, 1
Takeo, K. *et al., Carbohydr. Res.*, 1983, **121**, 163 (*synth*)

Cellotriose C-47

O-β-D-Glucopyranosyl-(1→4)-O-β-D-glucopyranosyl-(1→4)-D-glucose, 9CI. Cellodextrin 3
[33404-34-1]



$C_{18}H_{32}O_{16}$ 504.441
Formed by hydrol. of cellulose or as its acetate by acetolysis.
Mp 206-209° Mp 238°.

Phenylosazone: Mp 208°.

α-form

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 223-224°. $[\alpha]_D^{23}$ +22.6 (c, 0.5 in $CHCl_3$).

β-form

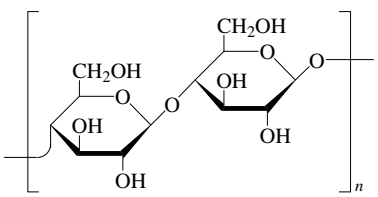
Undeca-Ac: Mp 210-211°. $[\alpha]_D$ -17.9 ($CHCl_3$).

Benzyl pyranoside, 2,3,6-tribenzyl:
Mp 193-194°. $[\alpha]_D^{20}$ +4.9 (c, 2.0 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5331
Whitaker, D.R. *et al., Arch. Biochem. Biophys.*, 1954, **53**, 439
Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 3037 (*config, pmr*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **121**, 163 (*synth*)
Raymond, S. *et al., Carbohydr. Res.*, 1995, **277**, 209-229 (*cryst struct, Me β-gly*)
Storz, C.A. *et al., Carbohydr. Res.*, 2003, **338**, 95-107 (*conformn*)

Cellulose, 9CI, 8CI C-48

E460
[9004-34-6]



$C_6H_{10}O_5$ 162.142
An unbranched polymer composed of 1,4 β-linked glucopyranose units. Polymeric. Minimum formula given. Native cellulose consists of two different crystal structures, a two-chain monoclinic phase and a single chain triclinic phase. The most abundant organic material found in plants forming the principal constit. of their cell walls giving them structural strength. Cotton is almost pure cellulose. Wood is the most important industrial source. Basic material for textile and paper manuf. Used in the isol. of heavy metals. Anticaking agent, binding agent and other uses in food. Capsule and tablet diluent. Insol. H_2O, most solvs., but forms sol. complexes in conc. aq. $ZnCl_2$, copper-amine solutions and with Fe sodium tartrate solution.

► OES: long-term 10 mg m^{-3} for total inhalable dust; 5 mg m^{-3} for respirable dust. OES: short-term 20 mg m^{-3} for total inhalable dust. Reacts vigorously with oxidants. FJ5691460

Poly-O-sulfate: Cellulose sulfate. Ushercell [9032-43-3] Used in food thickeners, textile sizes and viscosity modifiers for oil-drilling muds. Excipient. Microbicidal gel for prevention of HIV and sexually transmitted diseases. Contraceptive. Sol. H_2O.

Poly-O-*phosphate, Na salt: Cellulose sodium phosphate, USAN. Calcisorb. Calcibind*
[9038-41-9]

[9015-14-9] Flameproofing treatment for cotton. Ion-exchange material. Used for the treatment of kidney stones.
Cream powder.

Poly-O-*nitro: Nitrocellulose. Collodion cotton. Collodion wool. Colloxylin. Celloidin. Cellulose nitrate. Guncotton. Nitron. Parlodion*
[9004-70-0] Used in explosives (propellants), lacquers, adhesives, plastics (e.g. Celluloid).
Propellant grade nitrocellulose consists mostly of 2,3,6-trinitro residues with smaller amts. of di- and mononitro residues.
▶ Highly flammable, fl. p. 13°, autoignition temp. 160-170°. Subject to degradation on storage leading to fire and explosion.
QW0975180

Xanthate: Cellulose xanthate
[9032-37-5] Used in manuf. of viscose rayon.

Per-Ac: Cellulose acetate, 9CI
[9004-35-7]

[9012-09-3, 9035-69-2] Prepared by acetylation of cellulose with acetic anhydride/acetic acid in the presence of sulfuric acid. Acetylation is normally carried out fully to produce a product known as primary acetate, which approaches the triacetate stoichiometry, and which may then be partially hydrolysed to secondary acetate (DS value 2.2-2.5). Used in manuf. of textile fibres, cigarete filters and lacquers, including photographic films. World production 740000 t in 1987.
Flake or powder. Mp 306° (triacetate form). $[\alpha]_D^{25}$ -20.9 ($CHCl_3$) (as triacetate).

Perpropanoyl: [9004-48-2]
Mp 234° (shrinks at 229°). $[\alpha]_D^{25}$ -19 (c, 1 in $CHCl_3$).

Polybutanoyl: Cellulose butyrate
[9015-12-7] Used in manufacture of lacquers, films and fibres. Mp 183° (shrinks at 178°). $[\alpha]_D^{25}$ -15.7 (c, 1 in $CHCl_3$). Phys. props. are for the fully esterified form.

Poly(Ac, propanoyl): Cellulose acetate propionate. Tenite propionate™. Cellidor CP™
[9004-39-1] Produced by esterification of cellulose with mixed anhydrides of acetic and propionic acid in the presence of H_2SO_4. Available commercially in a wide variety of forms varying from 3 to 8% acetic acid content and 55 to 65% propanoic acid content. Thermoplastic moulding material.
Flakes or powder.

Poly(Ac, butanoyl): ***Cellaburate, INN, USAN****. Cellulose acetate butyrate. Cabufocon. CAB*
[9004-36-8] Thermoplastic. Used in extrusion and injection moulding, and in lacquers for protective coatings.

Poly(Ac, phthaloyl): ***Cellacefate, INN****. Cellulose acetate phthalate*
[9004-38-0] Used as film coating for tablets and capsules. Prac. insol. H_2O, EtOH; sol. Me_2CO.

Per(phenylcarbamoyl): [9047-07-8] Chiral stationary phase for resoln. of enantiomers by hplc.
Yellowish solid. Sol. Me_2CO. $[\alpha]_D^{25}$ -100 ($CHCl_3$).

Per(3,5-dimethylphenylcarbamoyl):
[103938-44-9] Synth. from cellulose and 3,5-dimethylphenyl isocyanate. Chiral stationary phase for resoln. of enantiomers by hplc. $[\alpha]_D^{25}$ -45.4 (c, 1 in dioxan).

Per-Me ether: Methyl cellulose. FEMA 2696. E461
[9004-67-5] Defoamer, adhesive, thickener and nontoxic food additive. Used as sensitising surfactant in photometric detn. of transition metal ions (with Bromopyrogallol Red). Tablet binder and disintegrant. Veterinary laxative.
▶ FJ5959000

Poly-Et ether: Ethyl cellulose. Ethocel. ***Ethylcellulose, INN***
[9004-57-3] Prepared by etherification of alkaline cellulose with ethyl chloride. Commercial samples have DS values of 2.2 - 2.7. Annual worldwide production ca. 5000t. Used in hot-melt adhesives and electrically insulating layers and coatings. Binder and coating for pharmaceutical tablets. Binder and coating for pharmaceutical tablets.
Powder or granules. Sol. most org. solvs. Only low DS products (1.3) show significant H_2O solubility.

Poly-O-*benzyl: Phenylmethyl cellulose ether*
[9015-11-6] Prepared by etherification of alkaline cellulose with benzyl chloride to give a DS value of ca. 2. Developed as a replacement for celluloid in photographic films; has had minor uses as a plastic moulding material. No longer used due to poor thermal and light stability and physical props.

Poly(carboxymethyl) ether: ***Croscarmellose, BAN, INN****. Carboxymethyl cellulose. Carmellose, BAN. Carmellose gum. Cepol. FEMA 2239. E466*
[9000-11-7]

[9045-95-8, 9050-04-8] Surfactant. Used as Na salt (Croscarmellose sodium, USAN) to increase the sensitivity of the photometric detn. of Cd, Cu, Mn, Zn with Bromogallol Red. Pharmaceutical aid (tablet disintegrant). Pharmaceutical aid (tablet disintegrant).
Amorph. powder. Sol. H_2O. Mp 300°.
▶ Exp. reprod. effects. LD_{50} (rat, orl) 27000 mg/kg. FJ5950000

Poly(carboxymethyl, Et) ether: [37205-99-5] Polymer.

Poly-O-*(carboxymethyl, 2-hydroxyethyl):* [9004-30-2] Used in drilling fluids for oil and gas production. Sol. H_2O.

Poly-O-*(2-carboxyethyl):* [9004-42-6]

[9032-39-7] Prepared by alkylation of alkaline cellulose with acrylonitrile or acrylamide followed by hydrolysis. Not produced industrially.

Poly-O-*(hydroxymethyl): Methylol cellulose*
[37353-59-6] Synth. from cellulose and.

Poly-O-*(2-hydroxyethyl): HEC Natrasol®. Tylose H®. Cellozise. Cellobond®*
[9004-62-0] Prepared by etherification of alkaline cellulose with ethylene oxide. Commercial samples have MS values of 1.8 - 3.5. Worldwide production in 1987 38,500 t. Thickener, binder, stabiliser and suspending agent with widespread uses in the paint, oil and polymer industries.
White-tan powder. Sol. H_2O; insol. org. solvs. High MS products partially sol. in MeOH.

Poly(2-hydroxyethyl, Me) ether: Hydroxyethyl methyl cellulose. HEMC
[9032-42-2] Prepared by etherification of alkaline cellulose with chloromethane and oxirane. Commercial samples have methyl DS values of 1.3 - 2.2 and hydroxyethyl MS values of 0.06 - 0.5. Thickening and binding agent with widespread industrial uses in adhesives, building products, films, wetting agents. Pharmaceutical adjuvant. Better water solubility and electrolyte tolerance than methyl cellulose. Thermally gellable in hot water. Soly. in org. solvs. varies with DS value.

Poly(2-hydroxyethyl, Et) ether: Ethyl hydroxyethyl cellulose. Etulos. EMEC
[9004-58-4] Useful in solvent coating applications, inks, paints and as an additive to cement and gypsum based plasters and mortars. Laxative.
Powder. Sol. hydrocarbons. Insol. EtOH, boiling H_2O.

Poly(2-hydroxypropyl, Me) ether: Hydroxypropyl methyl cellulose. HPMC. E463. ***Hypromellose, USAN****. Hydroxypropylmethylcellulose, JAN. Cellulose hydroxypropyl methyl ether, BAN, INN*
[9004-65-3] Prepared by etherification of alkaline cellulose with methyl chloride and propylene oxide. Commercial samples have methyl DS values of 1.1-2.0 and hydroxypropyl MS values of 0.1 - 1.0. Thickening and binding agent with widespread industrial uses in adhesives, building products, films, protective creams and colloids. Approved for food use in US and EU. Used in deep fried batters. Shows better water solubility and electrolyte tolerance than methylcellulose. Component of artificial tears.
Powder. Sol. H_2O. Thermally gellable in hot water. Sol. in aq. solns. varies with DS value.

Poly(2-hydroxybutyl, Me) ether: HBMC. Methocel HB®
[37228-15-2]

[9041-56-9] Made from alkaline cellulose by etherification with methyl chloride and butylene oxide either stepwise or

simultaneously. Surfactant, gelling agent. Antiredepositioning agent for textile washing.
Powder. Sol. H_2O, alcohols, glycols. Mp 278-281°.

Poly(2-methoxypropyl, phthaloyl):
[9050-31-1] Coating for controlled release of pharmaceutical formulations.

Poly-O-*(2-aminoethyl): 2-Aminoethylcellulose. AE-cellulose*
[9032-36-4] Substrate for immobilised enzymes in affinity chromatography.

Poly-O-*(2-diethylaminoethyl): DEAE-cellulose*
[9013-34-7] Prepared by etherification of alkaline cellulose with 2-chloroethyl-*N*,*N*-diethylamine.
Weakly basic ion-exchange material. Widely used as a stationary phase in displacement chromatography of proteins.

Poly-O-*(2-cyanoethyl):* [9004-41-5] Little commercial significance as such, but low levels of cyanoethylation are used to improve the strength and electrical resistance of speciality cellulose polymers.

[9004-32-4, 9004-57-3, 9004-64-2, 9013-34-7, 55841-00-4, 71138-97-1, 81859-24-7]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1180B (*ir*)
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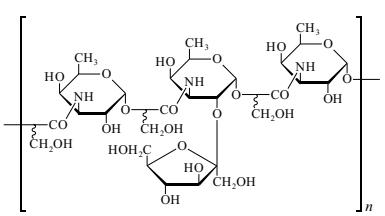
Malm, C.J. *et al., Ind. Eng. Chem.*, 1951, **43**, 684-688 (*triesters, synth, props*)
Ott, E. *et al., Cellulose and Cellulose Derivatives*, Wiley Interscience, 1954,
Ger. Pat., 1957, 1000367; *CA*, **54**, 5088f (*ethyl 2-hydroxyethyl ether*)
U.S. Pat., 1958, 2835666; *CA*, **52**, 211016, (*2-hydroxybutyl methyl ether*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1963, **3**, 3-395 (*rev*)
Timell, T.E. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 100-103 (*purifn*)
U.S. Pat., 1967, 3342805; *CA*, **67**, 101205j, (*2-hydroxypropyl methyl ether*)
Ward, K. *et al., The Carbohydrates*, (eds. Pigman, W. *et al*), Academic Press, 1970, **2A**, 413
Baker, R.H. *et al., High Polym.*, 1971, **5**, 181-212 (*pmr*)
Munro, P.A. *et al., Biotechnol. Bioeng.*, 1977, **19**, 101-124 (*2-aminoethyl ether, use*)
Sandell, E.B. *et al., Photometric Determination of Traces of Metals, General Aspects*, Wiley, New York, 1978,
Cellulose and other Natural Polymer Systems: Biogenesis, Structure and Degradation, (ed. Brown, R.M.), Plenum Press, 1982,
Delmer, D.P. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 105-153 (*rev, biosynth*)
Cellulose Chemistry and its Applications, (ed. Nevell, T.P.), Ellis Horwood, 1985,
Encyclopaedia of Polymer Science and Engineering, 1985, **1**, 615; **3**, 68; 158; 239 (*rev*)
Xu, Q. *et al., Fenxi Huaxue*, 1985, **13**, 170; *CA*, **103**, 204989j (*carboxymethyl ether*)
Cellulose: Structure, Modification and Hydrolysis, (eds. Young, R.A. *et al*), Wiley, 1986,
Ger. Pat., 1986, 3446361; *CA*, 135797x (*carboxymethyl 2-hydroxyethyl ether*)
Okamoto, Y. *et al., J. Chromatogr.*, 1986, **363**, 173-186 (*phenylcarbamates*)
Samil, R.K. *et al., J. Macromol. Sci., Part C: Rev. Macromol. Chem. Phys.*, 1986, **26**, 81 (*rev, graft copolymers*)
Eur. Pat., 1987, 219426; *CA*, **77**, 7578t (*hydrogen 1,2-benzendicarboxylate, 2-hydroxypropyl methyl ether*)
RosellK.G. *et al., J. Carbohydr. Chem.*, 1988, **7**, 525-536 (*Methylcellulose, struct*)
Okamoto, Y. *et al., Chirality*, 1989, **1**, 239-242 (*3,5-dimethylphenylcarbamate*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, CCU150; CCU250; SFO500; MIF760
Buchanan, C.M. *et al., J.A.C.S.*, 1989, **111**, 7312-7319 (*triesters, cmr*)
Braun, D. *et al., Papier (Darmstadt)*, 1989, **43**, 688-694 (*benzyl ether*)
Boeden, H.F. *et al., J. Chromatogr.*, 1991, **552**, 389-414 (*2-diethylaminoethyl ether*)
Japan. Pat., 1991, 03 260 193; *CA*, **116**, 86123r (*2-cyanoethyl ether*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **5**, 476; 545; **6**, 1023; **7**, 292; **8**, 451 (*rev, esters, ethers, phosphate*)
Curtis, N.J. *et al., Aust. J. Chem.*, 1992, **45**, 627-634 (*pmr, cmr, nitrate*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 84-87; 88-90; 91-93; 141-142; 306-309
Heiner, A.P. *et al., Carbohydr. Res.*, 1995, **273**, 207-223 (*bibl, struct*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 995; 1536; 1537
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 482; 551; 552; 554; 556; 1385 (*use, derivs*)
Christensen, N.D. *et al., Antimicrob. Agents Chemother.*, 2001, **45**, 3427-3432; 2002, **46**, 2692-2695; 2004, **48**, 2025-2036 (*cellulose sulfate, pharmacol*)
Ullmann's Encycl. Ind. Chem., 5th end., **A5**, 375-418; 419-459; 461-488 (*rev, esters, ethers*)
Bretherick, L. *et al., Handbook of Reactive Chemical Hazards, 2nd edn., Butterworths*, 1979, 33
Luxon, S.G. *et al., Hazards in the Chemical Laboratory, 5th edn., Royal Society of Chemistry*, 1992, 282; 283
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CCU150; CNH000; CCU250; SFO500; MIF760

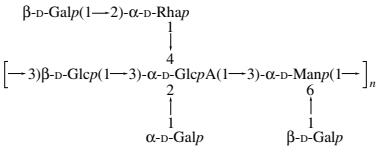
Eubacterium saburreum Cell-wall antigen C-49



New type of biopolymer, not strictly a polysaccharide. Isol. from *Eubacterium saburreum* strain L13.

Jansson, P.E. *et al., Carbohydr. Res.*, 1985, **137**, 197 (*isol, pmr, cmr, struct*)

Cepacian C-50

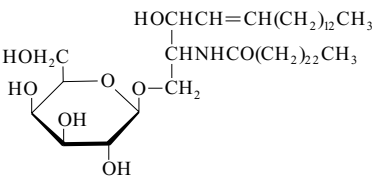


MW 781000±55000. The structure includes one Ac group per repeating unit, the position of which is currently unknown. Exopolysaccharide prod. by strains of *Burkholderia cepacia*, a multi-drug resistant bacterium causing chronic infections in cystic fibrosis patients.

Sist, P. *et al., Carbohydr. Res.*, 2003, **338**, 1861-1867 (*bibl*)

Cerasine C-51

N-*[1-[(β-D-Galactopyranosyloxy)-methyl]-2-hydroxy-3-heptadecenyl]tetracosanamide, 9CI. 1*-O-*β*-D-*Galactopyranosyl-2-tetracosanoylamino-4-octadecene-1, 3-diol*. N-*Tetracosanoylgalactocerebroside. Kerasin*
[536-13-0]



$C_{48}H_{93}NO_8$ 812.265
Cerebroside isol. from brain tissue.
Mp 182°. $[\alpha]_D^{26}$ -3.4 (Py).

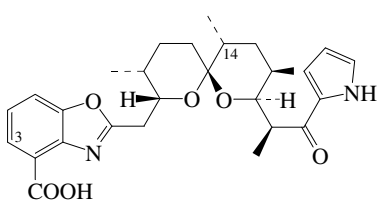
*Penta-Ac:*Mp 57-58°. $[\alpha]_D^{25}$ -18 (c, 1.0 in $CHCl_3$/MeOH).

*Dihydro:*Mp 180°. $[\alpha]_D^{26}$ +5.5 (Py).

Shapiro, D. *et al., J.A.C.S.*, 1961, **83**, 3327 (*isol*)
Klenk, E. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1967, **348**, 1061 (*isol*)
Martin-Lomas, M. *et al., Chem. Phys. Lipids*, 1973, **10**, 152 (*pmr*)
Oldani, D. *et al., Biochim. Biophys. Acta*, 1975, **382**, 1 (*struct*)
Wood, G.W. *et al., Chem. Phys. Lipids*, 1977, **18**, 316 (*ms*)
Gigg, R. *et al., Chem. Phys. Lipids*, 1980, **26**, 287 (*rev*)

Cezomycin C-52

De(methylamino)calcimycin
[83874-22-0]



$C_{28}H_{34}N_2O_6$ 494.586
Polyether antibiotic. Prod. by *Streptomyces chartreusis* NRRL3882 with added tryptophan. Assists in transportation of calcium across a chloroformic membrane. Shows similar

antibiotic activity to Calcimycin. Poorly sol. hexane.
Mp 75-77°. $[\alpha]_D^{25}$ +151 (c, 0.012 in $CHCl_3$).

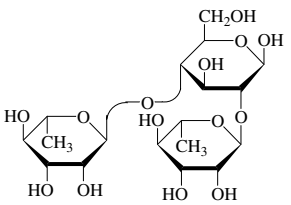
3-Hydroxy: ***3-Hydroxycezomycin***. *AC 7230. Antibiotic AC 7230*
$C_{28}H_{34}N_2O_7$ 510.586
From *Dactylosporangium* sp. AC 7320. Active against gram-positive bacteria. Needles (as Na salt). Sol. MeOH, DMSO, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 300° (Na salt). $[\alpha]_D^{26}$ +328 (c, 0.6 in $CHCl_3$). Stereochem. not confirmed. λ_{max} 204 (ϵ 30700); 257 (ϵ 15100); 306 (ϵ 21800) (EtOH) (Derep). λ_{max} 203 (E1%/1cm 599); 258 (E1%/1cm 304); 306 (E1%/1cm 442) (MeOH) (Berdy).
▶ LD_{50} (mus, ipr) 50 mg/kg.

14-Demethyl: 11-Demethylcezomycin. ***Frankiamide***
[726188-57-4]
$C_{27}H_{32}N_2O_6$ 480.56
Prod. by *Frankia* sp. strain AiPs1. Powder. $[\alpha]_D^{22}$ +192.4 (c, 0.008 in $CHCl_3$). Struct. of Frankiamide revised in 2003.

David, L. *et al., J. Antibiot.*, 1982, **35**, 1409; 1616 (*isol, nmr, ms, biosynth*)
Prudhomme, M. *et al., Experientia*, 1983, **39**, 256 (*synth*)
Yaginuma, S. *et al., J. Antibiot.*, 1987, **40**, 239 (*isol, struct*)
Klika, K.D. *et al., Z. Naturforsch. B*, 2003, **58**, 1210-1215 (*Frankiamide*)

Chacotriose C-53

6-Deoxy-α-L-mannopyranosyl-(1→2)-[6-deoxy-α-L-mannopyranosyl-(1→4)]-D-glucopyranose, 8CI. α-L-Rhamnopyranosyl-(1→2)-[α-L-rhamnopyranosyl-(1→4)]-D-glucose
[550-72-1]



β-*form*

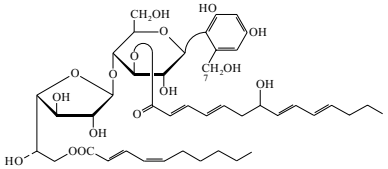
$C_{18}H_{32}O_{14}$ 472.442
Constit. of numerous glycosides, e.g. α-solanine (see in *The Combined Chemical Dictionary*).

[58846-56-3]

Kuhn, R. *et al., Ber.*, 1955, **88**, 1690 (*occur, struct*)
Briggs, L.H. *et al., J.C.S. Perkin 1*, 1975, 2455 (*occur, struct*)
Morillo, M. *et al., Carbohydr. Res.*, 2001, **334**, 281-287 (*per-Ac, synth*)
Lehmann, M. *et al., Carbohydr. Res.*, 2002, **337**, 2153-2159 (*glycosides, synth*)
Lequart, V. *et al., Chem. Lett.*, 2004, 444-445 (*synth*)

Chaetiacandin C-54

[96989-32-1]



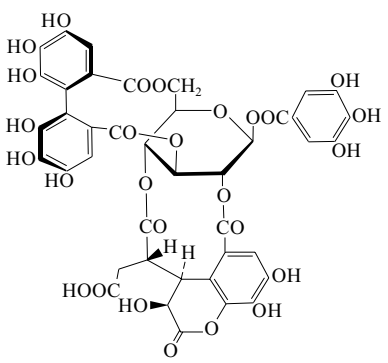
$C_{43}H_{60}O_{16}$ 832.937
Glycolipid antibiotic. Struct. revised in 1995. Isol. from *Monochaetia dimorphospora*. Shows strong activity against yeasts and weak activity against filamentous fungi. Sol. MeOH, EtOAc; poorly sol. H_2O.
Mp 128-132° dec. $[\alpha]_D^{22}$ -1.5 (c, 1 in MeOH). Related to the Papulacandins (see Papulacandin A, P-6. λ_{max} (no shifts reported) (Derep). λ_{max} 230 (sh) (ϵ 38300); 261 (ϵ 43300) (MeOH/NaOH) (Derep). λ_{max} 225 (ϵ 32600); 230 (sh) (ϵ 32500); 263 (ϵ 39500) (MeOH) (Derep). λ_{max} 225 (E1%/1cm 392); 263 (E1%/1cm 475) (MeOH) (Berdy). λ_{max} 225 (E1%/1cm 401); 263 (E1%/1cm 480) (MeOH-HCl) (Berdy). λ_{max} 261 (E1%/1cm 520) (MeOH-NaOH) (Berdy).
▶ LD_{50} (mus, ipr) 1000 - 3000 mg/kg.
LZ4293000

7-O-Sulfate: ***Lecythophorin***
$C_{43}H_{60}O_{19}S$ 913.002
Prod. by *Lecythophora hoffmannii*. Inhibitor of the fungus *Ophiostoma crassivaginatum*. Amorph. powder. Sol. MeOH. $[\alpha]_D$ +8.4 (c, 0.6 in MeOH). λ_{max} 263 (MeOH) (Berdy).

Komori, T. *et al., J. Antibiot.*, 1985, **38**, 455; 544 (*isol, uv, ir, pmr, cmr*)
Dubois, E. *et al., Carbohydr. Res.*, 1992, **223**, 157
Ayer, W.A. *et al., Tet. Lett.*, 1995, **36**, 7953 (*struct, Lecythophorin*)

Chebulagic acid C-55

[23094-71-5]



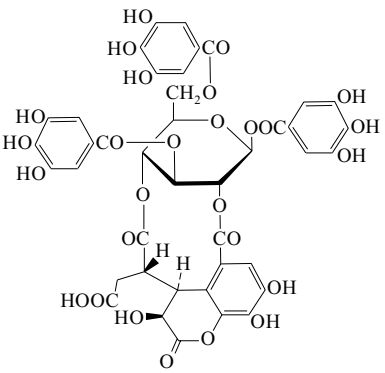
$C_{41}H_{30}O_{27}$ 954.672
Tannin derived from divi-divi (fruit of *Caesalpinia coriaria*) and myrobalans (fruit of *Terminalia chebula*). Present in *Geranium* spp. Shows anti-HIV activity. Potent DNA topoisomerase inhibitor. Rhombic cryst. + $10H_2O$.
Mp 240° dec. $[\alpha]_D^{20}$ -57 (H_2O). Log P -1.2 (uncertain value) (calc).

Dodeca-Me:
Cryst. (butanol). Mp 258°. $[\alpha]_D$ -30 ($CHCl_3$).

Haslam, E. *et al., J.C.S.(C)*, 1967, 2381 (*isol*)
Yoshida, T. *et al., Chem. Pharm. Bull.*, 1980, **28**, 3713; 1982, **30**, 2655 (*struct, abs config*)
Haddock, E.A. *et al., J.C.S. Perkin 1*, 1982, 2535 (*pmr, cmr*)
Nonaka, G. *et al., J. Nat. Prod.*, 1990, **53**, 587 (*anti-HIV activity*)
Hecht, S.M. *et al., J. Nat. Prod.*, 1992, **55**, 401 (*pharmacol*)

Chebulinic acid C-56

Eutannin
[18942-26-2]



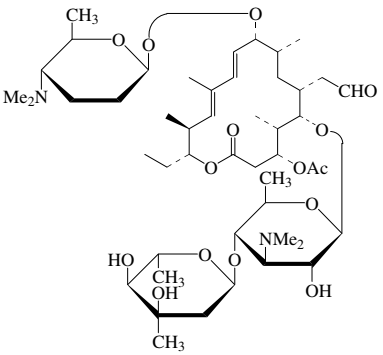
$C_{41}H_{32}O_{27}$ 956.688
Tannin derived from divi-divi (fruit of *Caesalpinia coriaria*) and myrobalans (fruit of *Terminalia chebula*). Also obtainable from *Geranium thunbergii* and the seeds of sal (*Shorea robusta*). Shows anti-HIV activity. Needles (H_2O).
Mp 234°. $[\alpha]_D^{20}$ -65.1 (c, 1.0 in Me_2CO). Log P -0.61 (uncertain value) (calc).

*3,6-Bis-*O*-degalloyl:* ***Chebulanin***. *Terminalic acid*†
[166833-80-3]
$C_{27}H_{24}O_{19}$ 652.475
Constit. of *Terminalia chebula*. Topoisomerase I inhibitor. Powder. $[\alpha]_D$ +9.1 (MeOH). λ_{max} 221 (ϵ 42660) (no solvent reported).

Haslam, E. *et al., J.C.S.(C)*, 1967, 2381 (*isol, ms*)
Yoshida, T. *et al., Chem. Pharm. Bull.*, 1980, **28**, 3713; 1982, **30**, 2655 (*struct, abs config*)
Haddock, E.A. *et al., J.C.S. Perkin 1*, 1982, 2535 (*pmr, cmr*)
Nonaka, G. *et al., J. Nat. Prod.*, 1990, **53**, 587 (*anti-HIV activity*)
Weaver, J.L. *et al., Biochem. Pharmacol.*, 1992, **43**, 2479 (*pharmacol*)
Japan. Pat., 1995, 95 138 165; *CA*, **123**, 152874j (*Chebulanin*)
Liu, Y.Z. *et al., Chin. Chem. Lett.*, 1998, **9**, 827-828 (*Terminalic acid*)

Chimeramycin A C-57

[87084-47-7]



$C_{48}H_{82}N_2O_{14}$ 911.181

Macrolide antibiotic. Prod. by *Streptomyces ambofaciens* in the presence of protylonide. Shows broad-spectrum antibacterial activity. Powder. Sol. MeOH, C_6H_6, $CHCl_3$; fairly sol.Et_2O; poorly sol. H_2O, hexane.
Mp 108-110°. $[\alpha]_D^{22}$ +40 (c, 1 in $CHCl_3$). λ_{max} 232 (MeOH). Related to Foromacidin. λ_{max} 232 (ϵ 26200) (MeOH) (Derep). λ_{max} 232 (E1%/1cm 288) (MeOH) (Berdy).

O-*De-Ac:* ***Chimeramycin B***
[87092-83-9]
$C_{46}H_{80}N_2O_{13}$ 869.144
Prod. by *Streptomyces ambofaciens* in the presence of protylonide. Shows broad-spectrum activity. Powder. Sol. MeOH, $CHCl_3$, C_6H_6; fairly sol.Et_2O; poorly sol. H_2O, hexane.
Mp 114-115°. $[\alpha]_D^{22}$ +14.4 (c, 1 in $CHCl_3$). λ_{max} 232 nm (MeOH). λ_{max} 232 (ϵ 26500) (MeOH) (Derep). λ_{max} 232 (E1%/1cm 305) (MeOH) (Berdy).

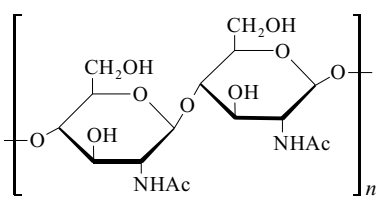
O-*De(2,6-dideoxy-3*-C-*methyl*-ribo-*hexosyl):*
$C_{41}H_{70}N_2O_{11}$ 767.011
Shows stronger activity than the parent compd. Mp 91-93°. $[\alpha]_D^{22}$ -15.9 (c, 0.5 in $CHCl_3$).

O-*De(2,6-dideoxy-3*-C-*methyl*-ribo-*hexosyl),* O-*de-Ac:*
$C_{39}H_{68}N_2O_{10}$ 724.974
Shows greater activity than the parent compd. Mp 98-100°. $[\alpha]_D^{22}$ +23.2 (c, 0.5 in $CHCl_3$).

Omura, S. *et al., J. Antibiot.*, 1983, **36**, 927 (*biosynth, uv, cmr*)

Chitin, 9CI, 8CI C-58

[1398-61-4]



$C_8H_{13}NO_5$ 203.194

A linear polymer of 2-Acetamido-2-deoxyglucose, A-8. Minimum formula given. Occurs in shells of crustacea, most fungi, mycelial yeast, green algae and some brown and red algae. Antihaemorrhagic. Used as a wound healant. $[\alpha]_D^{20}$ -14 → +56 (HCl). The fully *N*-deacetylated prod. is called Chitan.

▶ LD_{50} (rat, ivn) 50 mg/kg. FM6125000

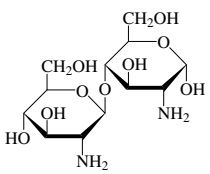
Partially deacylated deriv.: See Chitosan in *The Combined Chemical Dictionary.*

[39280-86-9, 87582-10-3, 88650-88-8]

Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 371 (*rev*)
BeMiller, J.N. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 103 (*synth*)
Jeuniaux, C. *et al., Compr. Biochem.*, (eds. Florkin, M. et al), 1971, **26C**, 595
Pervaiz, S.M. *et al., Z. Naturforsch. C*, 1975, **30**, 571 (*struct*)
Muzzarelli, R.A.A. *et al., Chitin*, Pergamon, N.Y., 1977,
Austin, P.R. *et al., Science (Washington, D.C.)*, 1981, **212**, 749 (*rev*)
Encyclopaedia of Polymer Science and Engineering, 1985, **3**, 430 (*rev*)
Chitin Nat. Technol. Proc. Int. Conf. Chitin Chitosan, 3rd, 1985, (Eds. Muzzarelli, R.A.A. *et al*), Plenum Press, 1986, (*book*)
Chitin and Chitosan: Biochem. Phys. Props., Applications, (Eds. Skjåk-Braek, G. *et al*), Elsevier, Amsterdam, 1989, (*book*)
Brine, C.J. *et al., Adv. Chitin Chitosan*, Elsevier Applied Science, 1992,
Nishimura, Y. *et al., Hoshasen Kagaku (Tokyo)*, 1992, **35**, 13 (*rev*)
Perfect, J.R. *et al., Clin. Dermatol.*, 1993, **7**, 365 (*pharmacol*)
Tanioka, S.-I. *et al., Front. Biomed. Biotechnol.*, 1993, **1**, 153 (*rev, use*)
Winterowd, J.G. *et al., Food Sci. Technol.*, 1995, **67**, 441 (*rev, use, activity*)
Chang, K.L.B. *et al., Carbohydr. Res.*, 1997, **303**, 327-332 (*synth, Chitosan*)
Muzzarelli, R. *et al., Carbohydrates in Europe*, 1997, **19**, 10-17 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CDM750

Chitobiose, 9CI, 8CI C-59

2-Amino-2-deoxy-4-O-*(2-amino-2-deoxy-β-D-glucopyranosyl)-D-glucose. 4-β-Glucosaminylglucosamine*
[577-76-4]



α-Pyranose-*form*

$C_{12}H_{24}N_2O_9$ 340.33

Isol. from the partial acid hydrolysate of chitosan. Chitinases are of widespread occurrence, particularly in moulds and many of them e.g. *Streptomyces griseus* and *Streptomyces albus* degrade chitin or *N*-acetylchitodextrins to N,N′-diacetylchitobiose. This is subsequently hydrolysed by a separate chitobiase to chitobiose.

Pyranose-*form*

N,N′-*Di-Ac: 2-Acetamido-2-deoxy-4*-O-*(2-acetamido-2-deoxy-β-D-glucopyranosyl)-D-glucose*
[35061-50-8]
$C_{16}H_{28}N_2O_{11}$ 424.404
Intermed. in breakdown of chitin (see Chitin, C-58).
Mp 260-267° (245-247°). $[\alpha]_D$ +25 (+18) (H_2O).

Octa Ac: 2-Acetamido-3,4,6-tri-O-*acetyl-2-deoxy-β-D-glucopyranosyl-(1→4)-2-acetamido-1,3,6-tri*-O-*acetyl-2-deoxyglucopyranose*
$[\alpha]_D$ +30.8 (c, 0.52 in DMSO).

α-Pyranose-*form*

Octa-Ac: 2-Acetamido-3,4,6-tri-O-*acetyl-2-deoxy-β-D-glucopyranosyl-(1→4)-2-acetamido-1,3,6-tri*-O-*acetyl-2-deoxy-α-D-glucopyranose*
[7284-18-6]
$C_{28}H_{40}N_2O_{17}$ 676.627
Cryst. Mp 303-304° dec. $[\alpha]_D^{20}$ +56 (c, 0.50 in AcOH).

β-Pyranose-*form*

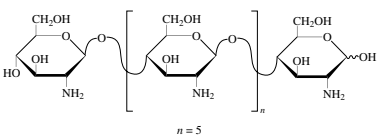
Octa-Ac: 2-Acetamido-3,4,6-tri-O-*acetyl-2-deoxy-β-D-glucopyranosyl-(1→4)-2-acetamido-1,3,6-tri*-O-*acetyl-2-deoxy-β-D-glucopyranose*
[117467-63-7]
$C_{28}H_{40}N_2O_{17}$ 676.627
Mp 226-228° dec. $[\alpha]_D^{19}$ -29 (c, 1.0 in $CHCl_3$).

[2706-64-1, 34147-27-8]

Zilliken, F. *et al., J.A.C.S.*, 1955, **77**, 1296 (*isol*)
Horowitz, S.T. *et al., J.A.C.S.*, 1957, **79**, 5046
Barker, S.A. *et al., J.C.S.*, 1958, 2218 (*isol*)
Dierickx, L. *et al., Biochim. Biophys. Acta*, 1962, **58**, 7
Izume, M. *et al., Agric. Biol. Chem.*, 1987, **51**, 1189 (*synth*)
Nanjo, F. *et al., J. Carbohydr. Chem.*, 1988, **7**, 67-82 (*octa-Ac*)
Domrad, M.A. *et al., Int. J. Biol. Macromol.*, 1989, **11**, 297 (*synth*)
Terayama, H. *et al., J. Carbohydr. Chem.*, 1993, **12**, 81-93 (*di-Ac, octa-Ac, !enzymic synth*)

Chitoheptaose C-60

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→4)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1→4)]$_5$-D-glucose
[68232-35-9]



$C_{42}H_{79}N_7O_{29}$ 1146.116

Obt. by acid or enzymic hydrol. of, Partially deacylated deriv.

N,N′,N″,N‴,N⁗,N⁗′,N⁗″-*Hepta-Ac:*
[79127-58-5]
$C_{56}H_{93}N_7O_{36}$ 1440.376
Not. obt. cryst. $[\alpha]_D$ -12.6 (c, 0.3 in H_2O) (equilib.).

Barker, S.A. *et al., J.C.S.*, 1958, 2218-2227 (*synth, ir*)

Lopatin, S.A. *et al., Anal. Biochem.*, 1995, **227**, 285-288 (*synth, ms*)
Aiba, S. *et al., Adv. Chitin Sci.*, 1996, **1**, 192-197 (*synth*)

Chitohexaose C-61

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→4)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1→4)]$_4$-D-glucose
[41708-95-6]
As Chitoheptaose, C-60 with n = 4

$C_{36}H_{68}N_6O_{25}$ 984.958
Obt. by acid or enzymic hydrol. of, Partially deacylated deriv.

N,N′,N″,N‴,N⁗,N⁗′-Hexa-Ac:
[38854-46-5]
$C_{48}H_{80}N_6O_{31}$ 1237.182
Not. obt. cryst. $[\alpha]_D$ -11.4 (c, 0.8 in H_2O) (equilib.).
Barker, S.A. *et al., J.C.S.*, 1958, 2218-2227 (*synth, ir*)
Coduti, P.L. *et al., Anal. Biochem.*, 1977, **78**, 9-20 (*cd*)
Nanjo, F. *et al., Agric. Biol. Chem.*, 1989, **53**, 2189-2195 (*synth*)
Lopatin, S.A. *et al., Anal. Biochem.*, 1995, **227**, 285-288 (*synth, ms*)
Aiba, S. *et al., Adv. Chitin Sci.*, 1996, **1**, 192-197 (*synth*)
Aly, M.R.E. *et al., Carbohydr. Res.*, 2001, **331**, 129-142 (*synth*)

Chitopentaose C-62

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→4)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1→4)]$_3$-D-glucose
[41708-94-5]
As Chitoheptaose, C-60 with n = 3

$C_{30}H_{57}N_5O_{21}$ 823.801
Obt. by acid or enzymic hydrol. of, Partially deacylated deriv.

N,N′,N″,N‴,N⁗-Penta-Ac: [36467-68-2]
$C_{40}H_{67}N_5O_{26}$ 1033.987
Needles. Mp 285-295° dec. $[\alpha]_D^{20}$ -9.1 (c, 1.0 in H_2O) (equilib.).

Heptadeca-Ac:
[65887-29-8]
$C_{64}H_{91}N_5O_{38}$ 1538.434
Dihydrate. $[\alpha]_D^{20}$ +15.3 (c, 0.59 in DMSO).
Barker, S.A. *et al., J.C.S.*, 1958, 2218-2227 (*synth, ir*)
Zehavi, U. *et al., Biochem. Prep.*, 1971, **13**, 14-18 (*synth*)
Coduti, P.L. *et al., Anal. Biochem.*, 1977, **78**, 9-20 (*cd*)
Izume, M. *et al., Agric. Biol. Chem.*, 1987, **51**, 1189-1191 (*synth*)
Nanjo, F. *et al., J. Carbohydr. Chem.*, 1988, **7**, 67-82 (*heptadeca-Ac*)
Lopatin, S.A. *et al., Anal. Biochem.*, 1995, **227**, 285-288 (*synth, ms*)
Aiba, S. *et al., Adv. Chitin Sci.*, 1996, **1**, 192-197 (*synth*)

Chitotetraose C-63

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→4)-[2-amino-2-deoxy-β-D-glucopyranosyl-(1→4)]$_2$-D-glucose, 9CI
[5567-52-2]
As Chitoheptaose, C-60 with n = 2

$C_{24}H_{46}N_4O_{17}$ 662.644
Obt. by acid or enzymic hydrol. of, Partially deacylated deriv. Component of Chitin, C-58. Cryst. (MeOH aq.).

N,N′,N″,N‴-Tetra-Ac: [2706-65-2]
$C_{32}H_{54}N_4O_{21}$ 830.793
Needles. Mp 290-300° dec. $[\alpha]_D^{20}$ -4.1 (c, 1.0 in H_2O) (equilib.).

Tetradeca-Ac:
[53942-46-4, 117399-51-6]
$C_{52}H_{74}N_4O_{31}$ 1251.165
Sesquihydrate. $[\alpha]_D^{20}$ +16.6 (c, 0.66 in DMSO).

[55601-98-4]
Barker, S.A. *et al., J.C.S.*, 1958, 2218-2227 (*synth, ir*)
Zehavi, U. *et al., Biochem. Prep.*, 1971, **13**, 14-18 (*synth*)
Teichberg, V.I. *et al., Biochim. Biophys. Acta*, 1972, **278**, 250-257 (*uv*)
Cornelius, D.A. *et al., Methods Enzymol., Part B*, 1974, **34**, 639-645 (*synth*)
Coduti, P.L. *et al., Anal. Biochem.*, 1977, **78**, 9-20 (*cd*)
Izume, M. *et al., Agric. Biol. Chem.*, 1987, **51**, 1189-1191 (*synth*)
Nanjo, F. *et al., J. Carbohydr. Chem.*, 1988, **7**, 67-82 (*tetradeca-Ac*)
Bosso, C. *et al., Org. Mass Spectrom.*, 1992, **27**, 799-806 (*ms*)
Lopatin, S.A. *et al., Anal. Biochem.*, 1995, **227**, 285-288 (*synth, ms*)
Singh, S. *et al., Carbohydr. Res.*, 1995, **279**, 293-305 (*synth, pmr*)
Aly, M.R.E. *et al., Carbohydr. Res.*, 2001, **331**, 129-142 (*synth*)

Chitotriose C-64

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1→4)-2-amino-2-deoxy-D-glucose. 4^2-β-Glucosaminyl-4-β-glucosaminylglucosamine
[41708-93-4]
As Chitoheptaose, C-60 with n = 1

$C_{18}H_{35}N_3O_{13}$ 501.487

N,N′,N″-Tri-Ac: 2-Acetamido-2-deoxy-β-D-glucopyranosyl-(1→4)-2-acetamido-2-deoxy-β-D-glucopyranosyl-(1→4)-2-acetamido-2-deoxy-D-glucose. 4^2-β-N-Acetylglucosaminyl-4-β-N-acetylglucosaminyl-N-acetylglucosamine
[38864-21-0]
$C_{24}H_{41}N_3O_{16}$ 627.598
The simplest member of the *N*-acetylchitodextrins obt. as intermeds. in the degradn. of chitin by endochitinases.
Mp 309-311°. $[\alpha]_D$ +2.5 (H_2O).

Undeca-Ac:
[53942-45-3, 117399-49-2]
$C_{40}H_{57}N_3O_{24}$ 963.896
Monohydrate. $[\alpha]_D^{20}$ +23.1 (c, 0.52 in DMSO).

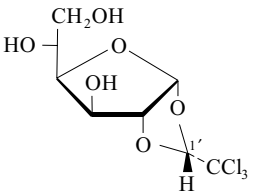
Pyranose-*form*

Octa-Ac:
$C_{34}H_{51}N_3O_{21}$ 837.784
Mp 304-305°. $[\alpha]_D$ +30 ($CHCl_3$).

[2624-24-0]
Berger, L.R. *et al., Biochim. Biophys. Acta*, 1958, **29**, 522 (*isol*)
Dierickx, L. *et al., Biochim. Biophys. Acta*, 1962, **58**, 7 (*isol*)
Boyd, J. *et al., Carbohydr. Res.*, 1985, **139**, 35 (*pmr, cmr*)
Nanjo, F. *et al., J. Carbohydr. Chem.*, 1988, **7**, 67-82 (*undeca-Ac*)

Chloralose, 8CI, BSI, INN, ISO C-65

1,2-O-(2,2,2-Trichloroethylidene)glucofuranose, 9CI. Glucochloralose. Glucochloral. Anhydroglucochloral. Chloralosane. Somio. Aphosal. Dulcidor. Alphakil



(1′*R*)–*form*

$C_8H_{11}Cl_3O_6$ 309.529Log P -0.3 (calc).

(1′*R*)-*form*

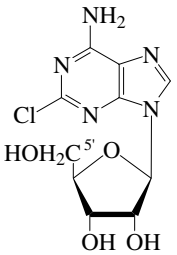
α-form. Alphachloralose
[15879-93-3] Bird repellant in grain seeds, photographic developer and rodenticide. Hypnotic.
Needles (EtOH or Et_2O). Mp 187°.
$[\alpha]_D^{22}$ +19 (c, 5.00 in EtOH).
▶ Produces a coma (usually non-fatal) in cases of acute human poisoning. LD_{50} (rat, orl) 400 mg/kg. FM9450000

(1′*S*)-*form*

β-form
[16376-36-6] Photographic developer. Less sol. than α-form. Mp 227-230°.
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 315C (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 201A (*ir*)
Pictet, A. *et al., Helv. Chim. Acta*, 1923, **6**, 621 (*synth, struct*)
Freudenburg, W. *et al., J.A.C.S.*, 1937, **59**, 1955 (*synth, struct*)
Lees, P. *et al., Vet. Rec.*, 1972, **91**, 330 (*pharmacol, tox*)
Belg. Pat., 1979, 875 250; *CA*, **91**, 36002r (*use*)
Sapru, H.N. *et al., Eur. J. Pharmacol.*, 1979, **53**, 151; *CA*, 1979, **90**, 14579f (*use*)
Ger. Pat., 1979, 2 729 739; *CA*, **90**, 153589g (*synth, use*)
Taga, T. *et al., Acta Cryst. B*, 1982, **38**, 1874 (*cryst struct*)
Pesticide Manual, 9th edn., 1991, No. 2130
Agrochemicals Handbook, 3rd edn., Royal Society of Chemistry, 1992, A12
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 570
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GFA000
Handbook of Pesticide Toxicology, (Eds. Hayes, W.J. *et al*), Academic Press, 1991, 1306

2-Chloroadenosine, 9CI C-66

AT 265B. Antibiotic AT 265B
[146-77-0]



$C_{10}H_{12}ClN_5O_4$ 301.689

Nucleoside antibiotic. Isol. from *Streptomyces rishiriensis*. Blood platelet aggregation inhibitor. Weakly active against gram-positive and -negative bacteria. Nucleoside transporter substrate. Cryst. + ½ H_2O. Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane.
Mp 133-136° dec. $[\alpha]_D^{22}$ -49.5 (c, 0.1 in H_2O). Log P -2.16 (calc). λ_{max} 263 (ε 12270) (H_2O) (Berdy).

▶ Exp. teratogen ; LD_{50} (mus, ipr) .2 mg/kg. AU7357550

5′-O-Sulfamoyl: ***2-Chloro-5′-sulfamoyladenosine.*** *AT 265. Antibiotic AT 265. Dealanylascamycin. CP54951. Antibiotic CP 54951*
[66522-52-9]
$C_{10}H_{13}ClN_6O_6S$ 380.768
From *Streptomyces rishiriensis*. Blood platelet aggregation inhibitor. Active against gram-positive and -negative bacteria. Herbicide. Needles.
Mp 210-213° dec. $[\alpha]_D^{22}$ -17.5 (c, 0.2 in MeOH). λ_{max} 264 (ε 13100) (0.05*N* HCl) (Derep). λ_{max} 264 (ε 14000) (0.05*N* NaOH) (Derep). λ_{max} 264 (ε 14000) (H_2O) (Derep). Launched 1993 (US)

2′-Deoxy: 2-Chloro-2′-deoxyadenosine. ***Cladribine, BAN, INN.*** *Leustat. Leustatin. RWJ 26251. NSC 105014*
[4291-63-8]
$C_{10}H_{12}ClN_5O_3$ 285.689
Antileukaemic agent. Nucleoside transporter substrate. Cryst. (EtOH). Mp 220° softens. Log P -1.57 (calc). Resolidifies and browns on further heating.

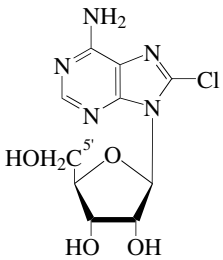
▶ AU7357560

[81012-94-4]

Montgomery, J.A. *et al., J. Het. Chem.*, 1964, **1**, 213 (*synth, bibl*)
Gough, G.R. *et al., J. Med. Chem.*, 1978, **21**, 520 (*synth*)
Takahashi, E. *et al., J. Antibiot.*, 1982, **35**, 939 (*isol, struct*)
Japan. Pat., 1982, 82 206 397; *CA*, **98**, 177496 (*isol, struct*)
Kazimierczuk, Z. *et al., J.A.C.S.*, 1984, **106**, 6379 (*deriv*)
Jarvis, S.M. *et al., Biochem. Pharmacol.*, 1985, **34**, 3237-3241 (*pharmacol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Bryson, H.M. *et al., Drugs*, 1993, **46**, 872 (*Cladribine, rev*)
Drugs of Today (Barcelona), 1993, **29**, 379 (*Cladribine, rev*)
Kristinsson, H. *et al., Tetrahedron*, 1994, **50**, 6825-6838 (*synth*)
Petersen, A.J. *et al., Eur. J. Haematol.*, 1996, **56**, 213-220 (*Cladribine*)
Lioux, T. *et al., Eur. J. Org. Chem.*, 2003, 3997-4002 (*pmr, cmr*)
Janeba, Z. *et al., J.O.C.*, 2003, **68**, 989-992 (*Cladribine, synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CEF100

8-Chloroadenosine, 9CI, 8CI C-67

[34408-14-5]



$C_{10}H_{12}ClN_5O_4$ 301.689
Cryst. (EtOH). Mp 205° (188-190°). λ_{max} 262 (ε 13900) (0.1*M* HCl). λ_{max} 263 (ε 11700) (0.1*M* NaOH).

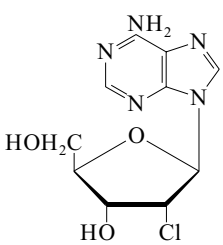
3′,4′,5′-Tribenzoyl: [34388-77-7]
$C_{31}H_{24}ClN_5O_7$ 614.013
Foam. λ_{max} 233 (ε 41300); 261 (ε 18700) (pH 1).

3′,5′-Cyclic phosphate: ***Tocladesine, INN, USAN***
[41941-56-4]
$C_{10}H_{11}ClN_5O_6P$ 363.653
Immunomodulator. Cryst. (H_2O). Mp 232-234°. λ_{max} 259 (pH 1).

Schmidt, C.L. *et al., J.O.C.*, 1972, **37**, 2300-2302 (*synth, tribenzoyl*)
Brentnall, H.J. *et al., Tet. Lett.*, 1972, 2595-2596 (*synth, ms, pmr*)
Muneyama, K. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1974, **1**, 55-60 (*tocladesine*)
Ryu, E.K. *et al., J.O.C.*, 1981, **46**, 2819-2823 (*synth, pmr*)
Pat. Coop. Treaty (WIPO), 1989, 89 05 648, (*Nucleic Acid Research Institute*); *CA*, **112**, 210975d (*synth, pharmacol*)
Borsellino, N. *et al., Pharmacol. Res.*, 1994, **30**, 81-90 (*pharmacol*)
Boee, R. *et al., Br. J. Cancer*, 1995, **72**, 1151-1159 (*pharmacol*)
Tortora, G. *et al., Clin. Cancer Res.*, 1995, **1**, 377-384 (*phase 1 clin study*)

2′-Chloro-2′-deoxyadenosine, 9CI C-68

[2627-62-5]

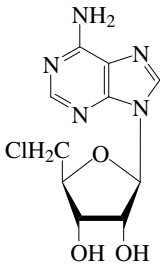


$C_{10}H_{12}ClN_5O_3$ 285.689
Cryst. (H_2O). Mp 221-222°.

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2449 (*synth, uv, cmr, pmr*)

5′-Chloro-5′-deoxyadenosine, 9CI C-69

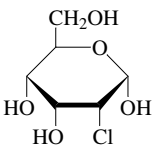
[892-48-8]



$C_{10}H_{12}ClN_5O_3$ 285.689
Cryst. Mp 104-105° (hydrate) Mp 190° (dec.) (anhyd.). $[\alpha]_D^{25}$ -27.7 (c, 0.5 in H_2O).

Kiwagiwa, K. *et al., Tet. Lett.*, 1971, 87-90 (*synth, uv*)
Verheyden, J.P.H. *et al., J.O.C.*, 1972, **37**, 2289-2299 (*synth, uv*)
Gibbs, D.E. *et al., Synth. Commun.*, 1976, **6**, 563-573 (*synth*)
Looze, Y. *et al., Anal. Lett.*, 1980, **13**, 871-879 (*cmr*)
Francesconi, K.A. *et al., J.C.S. Perkin 1*, 1992, 1349-1357 (*synth*)

2-Chloro-2-deoxyallose C-70



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

Me glycoside: Methyl 2-chloro-2-deoxy-α-D-allopyranoside
$C_7H_{13}ClO_5$ 212.629
Cryst. Mp 160-161°. $[\alpha]_D$ +111 (MeOH).

*Me glycoside, 3,4-*O*-benzylidene (*R*-): Methyl 3,4-*O*-(*R*)-benzylidene-2-chloro-2-deoxy-α-D-allopyranoside*
[35775-03-2]
$C_{14}H_{17}ClO_5$ 300.738
Syrup. $[\alpha]_D^{20}$ +20 (c, 3.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-chloro-2-deoxy-α-D-allopyranoside*
[35775-02-1]
$C_{14}H_{17}ClO_5$ 300.738
Cryst. Mp 102-103.5°. $[\alpha]_D$ +88.4 ($CHCl_3$).

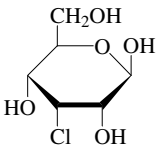
*Me glycoside, 4,6-*O*-benzylidene, 3-Me: Methyl 4,6-*O*-benzylidene-2-chloro-2-deoxy-3-*O*-methyl-α-D-allopyranoside*
[19685-18-8]
$C_{15}H_{19}ClO_5$ 314.765
Cryst. (Me_2CO/Et_2O/petrol). Mp 121-122°. $[\alpha]_D$ +68 (c, 0.82 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2-chloro-2-deoxy-3,4-*O*-isopropylidene-α-D-allopyranoside*
$C_{10}H_{17}ClO_5$ 252.694
Mp 60°. $[\alpha]_D$ +75.9 ($CHCl_3$).

β-D-Pyranose-*form*

*1,6-Anhydro, 3,4-di-Ac: 3,4-Di-*O*-acetyl-1,6-anhydro-2-chloro-2-deoxy-α-D-allopyranose*
$C_{10}H_{13}ClO_6$ 264.662
Cryst. Mp 90-91°. $[\alpha]_D$ -212 ($CHCl_3$).
Newth, F.H. *et al., J.C.S.*, 1947, 10 (*isopropylidene, β-D-deriv*)
Richards, G.N. *et al., J.C.S.*, 1956, 496, (*4,6-benzylidene*)
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 2163, (*3-Me, pmr*)
Inch, T.D. *et al., Carbohydr. Res.*, 1972, **21**, 37 (*benzylidene*)

3-Chloro-3-deoxyallose C-71



β-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

β-D-Pyranose-*form*

Me glycoside: Methyl 3-chloro-3-deoxy-β-D-allopyranoside
[4991-00-8]
$C_7H_{13}ClO_5$ 212.629
Syrup. $[\alpha]_D^{23}$ -49 (c, 1.0 in H_2O). $[\alpha]_D$ +51 (c, 1.0 in MeOH). Widely varying $[\alpha]_D$ values in the literature.

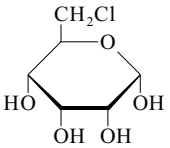
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-chloro-3-deoxy-β-D-allopyranoside*
[4990-99-2]
$C_{14}H_{17}ClO_5$ 300.738
Cryst. (Et_2O). Mp 132-133° (125.5-127°). $[\alpha]_D$ +50.5 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{25}$ -47 (c, 1.02 in $CHCl_3$). Widely varying $[\alpha]_D$ values in the literature.

*Me glycoside, 4,6-*O*-benzylidene (*R*-), 2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-(*R*)-benzylidene-3-chloro-3-deoxy-β-D-allopyranoside*
[131474-43-6]
$C_{16}H_{19}ClO_6$ 342.775
$[\alpha]_D$ -94 (c, 1.0 in CH_2Cl_2).

α-D-Furanose-*form*

*1,2:5,6-Di-*O*-isopropylidene: 3-Chloro-3-deoxy-1,2:5,6-di-*O*-isopropylidene-α-D-allofuranose*
[74925-18-1]
$C_{12}H_{19}ClO_5$ 278.732
Cryst. Mp 52°. $[\alpha]_D^{22}$ +41 (c, 1.0 in $CHCl_3$).
Williams, E.H. *et al., Can. J. Chem.*, 1971, **49**, 796 (*β-Me gly, benzylidene*)
Arita, H. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 567 (*benzylidene*)
Szarek, W.A. *et al., Can. J. Chem.*, 1974, **52**, 3394 (*benzylidene, cmr*)
Kunz, H. *et al., Annalen*, 1982, 1245 (*diisopropylidene*)
Khan, R. *et al., Carbohydr. Res.*, 1990, **205**, 211 (*β-Me gly deriv, pmr, cmr, ms*)

6-Chloro-6-deoxyallose C-72



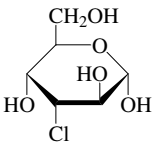
α−D−Pyranose−*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

Me glycoside, 2,3-anhydro: [19685-17-7]
$C_7H_{11}ClO_4$ 194.614
Cryst. (Et_2O/petrol). Mp 93-94°. $[\alpha]_D$ +155 (c, 0.59 in $CHCl_3$).
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 2163 (*anhydro, pmr*)

3-Chloro-3-deoxyaltrose C-73



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

Me glycoside: Methyl 3-chloro-3-deoxy-α-D-altropyranoside
$C_7H_{13}ClO_5$ 212.629
Syrup. $[\alpha]_D^{20}$ +103.5 (c, 1.0 in EtOH).

*Me glycoside, tri-Ac: Methyl 2,4,6-tri-*O*-acetyl-3-chloro-3-deoxy-α-D-altropyranoside*
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (EtOH). Mp 98-99°. $[\alpha]_D^{20}$ +70.3 ($CHCl_3$). $[\alpha]_D^{20}$ +73 (c, 1.61 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene (*R*-): Methyl 4,6-O-(*R*)-benzylidene-3-chloro-3-deoxy-α-D-altropyranoside*
[131613-80-4]
$C_{14}H_{17}ClO_5$ 300.738
Syrup.

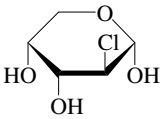
*Me glycoside, 4,6-*O*-benzylidene, 2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-3-chloro-3-deoxy-α-D-altropyranoside*
$C_{16}H_{19}ClO_6$ 342.775
Cryst. (EtOH). Mp 126°. $[\alpha]_D^{17}$ +90 (c, 1.89 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-chloro-3-deoxy-β-D-altropyranoside
$C_7H_{13}ClO_5$ 212.629
Cryst. (EtOAc). Mp 128-129°.
$[\alpha]_D^{20}$ -111.8 (c, 0.33 in EtOH).

*1,6-Anhydro, 2,4-di-Ac: 2,4-Di-*O*-acetyl-1,6-anhydro-3-chloro-3-deoxy-β-D-altropyranose*
$C_{10}H_{13}ClO_6$ 264.662
Cryst. (EtOH). Mp 114-115°. $[\alpha]_D^{19}$ -202 (c, 0.91 in $CHCl_3$).
Newth, F.H. *et al., J.C.S.*, 1953, 989 (*α-Me gly, β-Me gly, anhydro*)
Hughes, A.B. *et al., Aust. J. Chem.*, 1990, **43**, 1681 (*benzylidene, pmr*)

2-Chloro-2-deoxyarabinose C-74



α-D-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

D-*form*

Mp 135°. $[\alpha]_D$ -126 (H_2O).

Di-Et dithioacetal:
$C_9H_{19}ClO_3S_2$ 274.832
Mp 83° dec. $[\alpha]_D^{20}$ +67 (c, 2.0 in dioxan).

α-D-Pyranose-*form*

*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-chloro-2-deoxy-α-D-arabino-pyranoside*
$C_{10}H_{15}ClO_6$ 266.678
Cryst. Mp 99-100°. $[\alpha]_D$ -59.6 ($CHCl_3$).

α-D-Furanose-*form*

*Tri-Ac: 1,3,5-Tri-*O*-acetyl-2-chloro-2-deoxy-α-D-arabinofuranoside*
[30589-74-3]
$C_{11}H_{15}ClO_7$ 294.688
$Bp_{0.2}$ 135°. $[\alpha]_D^{20}$ +28.1 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 2-chloro-2-deoxy-α-D-arabinofuranoside
[55735-87-0]
$C_6H_{11}ClO_4$ 182.603
Syrup.

*Me glycoside, 3,5-di-Ac: Methyl 3,5-di-*O*-acetyl-2-chloro-2-deoxy-α-D-arabino-furanoside*
[55735-88-1]
$C_{10}H_{15}ClO_6$ 266.678
Syrup. $Bp_{0.08}$ 100°. $[\alpha]_D^{20}$ +45.2 (c, 2.0 in $CHCl_3$).

*Me glycoside, 3,5-dibenzyl: Methyl 3, 5-di-*O*-benzyl-2-chloro-2-deoxy-α-D-arabinofuranoside*
[55740-54-0]
$C_{20}H_{23}ClO_4$ 362.852
Syrup.

*Et glycoside, 3,5-di-Ac: Ethyl 3,5-di-*O*-acetyl-2-chloro-2-deoxy-α-D-arabinofuranoside*
$C_{11}H_{17}ClO_6$ 280.704
$Bp_{0.02}$ 87°. $[\alpha]_D^{20}$ +25 (c, 2.0 in $CHCl_3$).

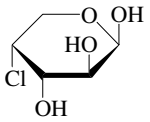
β-D-Furanose-*form*

Me glycoside: Methyl 2-chloro-2-deoxy-β-D-arabinofuranoside
$C_6H_{11}ClO_4$ 182.603
Syrup. $[\alpha]_D^{20}$ -95.1 (c, 2.0 in H_2O).

*Me glycoside, 3,5-di-Ac: Methyl 3,5-di-*O*-acetyl-2-chloro-2-deoxy-β-D-arabinofuranoside*
$C_{10}H_{15}ClO_6$ 266.678
Cryst. (C_6H_6/petrol). Mp 74-76°. $Bp_{0.2}$ 115-117°. $[\alpha]_D^{20}$ -122 (c, 2.0 in $CHCl_3$).
Vargha, L. *et al., Chem. Ber.*, 1963, **96**, 411, (*D-form, α-Me pyr*)
Kuszmann, J. *et al., Chem. Ber.*, 1963, **96**, 2327 (*D-form deriv, Me β-D-fur, α-Et fur*)
Ritzmann, G. *et al., Carbohydr. Res.*, 1975, **39**, 227 (*Me α-D-fur*)

Kuszmann, J. *et al., Carbohydr. Res.*, 1979, **14**, 415 (*tri-Ac*)
Ilicheva, I.A. *et al., Bioorg. Khim.*, 1989, **15**, 800; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 428 (*conformn*)

4-Chloro-4-deoxyarabinose C-75



β-D-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

β-D-Pyranose-*form*

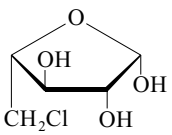
Me glycoside: Methyl 4-chloro-4-deoxy-β-D-arabinopyranoside
$C_6H_{11}ClO_4$ 182.603
Needles (EtOAc). Mp 152°. $[\alpha]_D$ +237 (c, 0.96 in MeOH).

L-*form*
Cryst. (EtOH). Mp 150°. $[\alpha]_D$ +155 → +119 (equilib.) (c, 0.4 in H_2O).

Phenylosazone:
Yellow cryst. (MeOH aq.). Mp 123° dec.

Jennings, H.J. *et al., Can. J. Chem.*, 1962, **40**, 1408 (*synth, L-form, Me gly*)
Barnett, J.E.G. *et al., Adv. Carbohydr. Chem.*, 1967, **22**, 177 (*rev*)

5-Chloro-5-deoxyarabinose C-76



$C_5H_9ClO_4$ 168.576

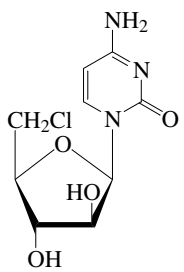
β-L-Furanose-*form*

1,2-O-Isopropylidene, 3-mesyl: 5-Chloro-5-deoxy-1,2-O-isopropylidene-3-O-mesyl-β-L-arabinofuranose
[105953-27-3]
$C_9H_{15}ClO_6S$ 286.733
Cryst. (diisopropyl ether). Mp 58-59°. $[\alpha]_D$ -4 (c, 0.50 in $CHCl_3$).

Hughes, N.A. *et al., J.C.S. Perkin 1*, 1986, 695 (*isopropylidene deriv, pmr*)

5′-Chloro-5′-deoxyarabinosyl-cytosine C-77

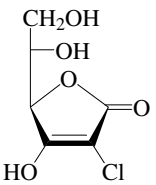
4-Amino-1-(5-chloro-5-deoxy-β-D-arabinofuranosyl)-2(1H)-pyrimidinone
[32659-31-7]



$C_9H_{12}ClN_3O_4$ 261.664
Potent and specific inhibitor of DNA synthesis in tumour cells. Cryst. (H_2O). Mp 206-208.5° (202-204.5°). $[\alpha]_D^{25}$ +163.8 (c, 0.5 in H_2O). Log P -1.7 (calc).
▶ Mutagen. UW7352000

Kikugawa, K. *et al., J.O.C.*, 1972, **37**, 284 (*synth, uv*)
Hřebabecký, H. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 599 (*synth*)
Birnbaum, G.I. *et al., Can. J. Chem.*, 1988, **66**, 1203 (*cryst struct, pmr, cmr, bibl*)
Novotný, L. *et al., Anti-Cancer Drugs*, 1991, **2**, 495 (*pharmacol*)

2-Chloro-2-deoxyascorbic acid, 9CI C-78

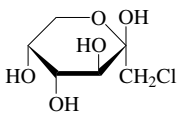


$C_6H_7ClO_5$ 194.571

L-*form* [189262-94-0]
Light yellow hygroscopic powder.

Ge, P. *et al., J.O.C.*, 1997, **62**, 3340-3343 (*synth, pmr*)

1-Chloro-1-deoxyfructose C-79



β-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [32785-93-6]
Syrup. $[\alpha]_D^{22}$ -63 (c, 0.25 in H_2O)
$[\alpha]_D$ -53.3 (c, 1.38 in H_2O).

Tetra-Ac: 3,4,5,6-Tetra-O-acetyl-1-chloro-1-deoxy-D-fructose
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (Et_2O/petrol). Mp 77.5-78°.
$[\alpha]_D$ +68 (c, 0.4 in $CHCl_3$).

β-D-Pyranose-*form*

2,3:4,5-Di-O-isopropylidene: 1-Chloro-1-deoxy-2,3:4,5-di-O-isopropylidene-β-D-fructopyranose
[32785-90-3]
$C_{12}H_{19}ClO_5$ 278.732
Cryst. (Et_2O/petrol). Mp 53-53.5°. $[\alpha]_D^{22}$ -29.5 (c, 0.19 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside: Methyl 1-chloro-1-deoxy-α-D-fructofuranoside
[82877-67-6]
$C_7H_{13}ClO_5$ 212.629
Syrup. $[\alpha]_D^{25}$ +63.7 (MeOH).

Me glycoside, tri-Ac: Methyl 3,4,6-tri-O-acetyl-1-chloro-1-deoxy-α-D-fructofuranoside
[82877-49-4]
$C_{13}H_{19}ClO_8$ 338.741
Cryst. ($CHCl_3$/hexane). Mp 73.5-74.5°. $[\alpha]_D^{25}$ 0 ($CHCl_3$).

β-D-Furanose-*form*

2,3-O-Isopropylidene: 1-Chloro-1-deoxy-2,3-O-isopropylidene-β-D-fructofuranose
[83032-07-9]
$C_9H_{15}ClO_5$ 238.667
Cryst. ($CHCl_3$/hexane). Mp 94.5-95.5°. $[\alpha]_D^{25}$ +12.4 ($CHCl_3$).

Me glycoside: Methyl 1-chloro-1-deoxy-β-D-fructofuranoside
[82877-68-7]
$C_7H_{13}ClO_5$ 212.629
Hygroscopic syrup. $[\alpha]_D^{25}$ -46.7 (MeOH).

Me glycoside, tri-Ac: Methyl 3,4,6-tri-O-acetyl-1-chloro-1-deoxy-β-D-fructofuranoside
[82877-56-3]
$C_{13}H_{19}ClO_8$ 338.741
Syrup. $[\alpha]_D^{25}$ -30.7 ($CHCl_3$).

L-*form*

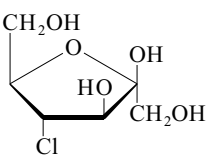
Tetra-Ac: 3,4,5,6-Tetra-O-acetyl-1-chloro-1-deoxy-L-fructose
[23261-13-4]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (Et_2O/petrol). Mp 76-77°.
$[\alpha]_D^{23}$ -68 (c, 4.0 in $CHCl_3$).

DL-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-acetyl-1-chloro-1-deoxy-DL-fructose
[23261-14-5]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. Mp 101°.

Wolfrom, M.L. *et al., J.A.C.S.*, 1942, **64**, 1701 (*D-tetra-Ac*)
Humphlett, W.J. *et al., Carbohydr. Res.*, 1968, **7**, 43 (*L-tetra-Ac, DL-tetra-Ac*)
Haylock, C.R. *et al., Carbohydr. Res.*, 1971, **16**, 375 (*synth, D-form, diisopropylidene*)
Barnett, J.E.G. *et al., Carbohydr. Res.*, 1972, **25**, 511 (*synth, D-form, diisopropylidene*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 1003 (*isopropylidene, α-Me fur deriv, β-Me fur deriv, pmr*)
Caldwell, G.W. *et al., Org. Mass Spectrom.*, 1989, **24**, 1051 (*ms*)

4-Chloro-4-deoxyfructose C-80



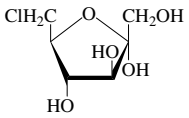
$C_6H_{11}ClO_5$ 198.603

β-D-Furanose-*form*

2,3-O-Isopropylidene, 1,6-ditosyl: 4-Chloro-4-deoxy-2,3-O-isopropylidene-1,6-di-O-tosyl-β-D-fructofuranose
[82064-04-8]
$C_{23}H_{27}ClO_9S_2$ 547.046
Mp 99-99.5°. $[\alpha]_D$ +20 (c, 1.0 in $CHCl_3$).

Guthrie, R.D. *et al., Carbohydr. Res.*, 1982, **103**, 1 (*isopropylidene, cmr*)

6-Chloro-6-deoxyfructose C-81



α-D-Furanose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [66451-66-9] Potential use as a male contraceptive. Exhibits antifertility activity in male rats.

Tetra-Ac: 1,3,4,5-Tetra-O-*acetyl-6-chloro-6-deoxy-D-fructose*
$C_{14}H_{19}ClO_9$ 366.751
Cryst. Mp 108°. $[\alpha]_D$ +45.3 ($CHCl_3$).

α-D-Furanose-*form*

Me glycoside: Methyl 6-chloro-6-deoxy-α-D-fructofuranoside
[70836-64-5]
$C_7H_{13}ClO_5$ 212.629
Cryst. (MeOH). Mp 71-73° (70.6-71.5°). $[\alpha]_D$ +40 (c, 0.5 in MeOH). $[\alpha]_D^{25}$ +47 (MeOH).

*Me glycoside, 1-tosyl: Methyl 6-chloro-6-deoxy-1-*O*-tosyl-α-D-fructofuranoside*
[83031-91-8]
$C_{14}H_{19}ClO_7S$ 366.819
Syrup. $[\alpha]_D^{25}$ +23.1 ($CHCl_3$).

β-D-Furanose-*form*

2,3-O-*Isopropylidene: 6-Chloro-6-deoxy-2,3-*O*-isopropylidene-β-D-fructofuranose*
[83032-10-4]
$C_9H_{15}ClO_5$ 238.667
Mp 73-74°. $[\alpha]_D^{25}$ +4.9 ($CHCl_3$).

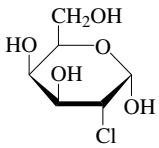
2,3-O-*Isopropylidene, 1-tosyl: 6-Chloro-6-deoxy-2,3-*O*-isopropylidene-1-*O*-tosyl-β-D-fructofuranose*
[82064-02-6]
$C_{16}H_{21}ClO_7S$ 392.856
Cryst. (MeOH). Mp 76°. $[\alpha]_D$ +17 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 6-chloro-6-deoxy-β-D-fructofuranoside
[70836-65-6]
$C_7H_{13}ClO_5$ 212.629
Cryst. (MeOH). Mp 98-99°. $[\alpha]_D^{25}$ -35 ($CHCl_3$).

*Me glycoside, 1-tosyl: Methyl 6-chloro-6-deoxy-1-*O*-tosyl-β-D-fructofuranoside*
[83031-82-7]
$C_{14}H_{19}ClO_7S$ 366.819
Syrup. $[\alpha]_D^{25}$ -23.6 ($CHCl_3$).

Pacsu, E. *et al., J.A.C.S.*, 1933, **55**, 3018, (*D-tetra-Ac*)
Ford, W.C.L. *et al., Clin. Androl.*, 1980, **5**, 123; *CA*, **96**, 174597x (*pharmacol*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 1003; 1019 (*α-Me fur, α-Me fur derivs, β-Me fur, β-Me fur derivs, pmr*)
Guthrie, R.D. *et al., Carbohydr. Res.*, 1982, **103**, 1 (*β-Me fur tosyl, pmr, cmr, ms*)
Page, P. *et al., Tetrahedron*, 1996, **52**, 1557-1572 (*synth*)

2-Chloro-2-deoxygalactose C-82



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [149675-54-7]

Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-chloro-2-deoxy-β-D-galactopyranose*
[141510-63-6]

[141510-62-5]
$C_{14}H_{19}ClO_9$ 366.751
Characterised spectroscopically.

α-D-Pyranose-*form* [141554-09-8]

Me glycoside: Methyl 2-chloro-2-deoxy-α-D-galactopyranoside
[25817-54-3]
$C_7H_{13}ClO_5$ 212.629
Cryst. Mp 145-147°. $[\alpha]_D$ +75.4 (c, 0.52 in MeOH).

Me glycoside, tri-Ac: Methyl 3,4,6-tri-O-*acetyl-2-chloro-2-deoxy-α-D-galactopyranoside*
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (Et_2O/petrol). Mp 86-88°. $[\alpha]_D$ +73.8 (c, 1.5 in $CHCl_3$).

β-D-Pyranose-*form*

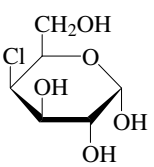
Me glycoside: Methyl 2-chloro-2-deoxy-β-D-galactopyranoside
[25817-55-4]
$C_7H_{13}ClO_5$ 212.629
Mp 143.5-144.5°. $[\alpha]_D^{20}$ +11 (c, 1 in MeOH).

Me glycoside, tri-Ac: Methyl 3,4,6-tri-O-*acetyl-2-chloro-2-deoxy-β-D-galactopyranoside*
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (EtOH). Mp 127-129°. $[\alpha]_D$ +33.3 (c, 1.5 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1965, **43**, 1460-1475 (*α-D-Me pyr, α-D-Me pyr tri-Ac, β-D-Me pyr, β-D-Me pyr tri-Ac*)
Hoge, R. *et al., J.C.S.(A)*, 1969, 2170-2174, (*α-D-Me pyr, β-D-Me pyr, cryst struct*)
Lemieux, R.U. *et al., Nouv. J. Chim.*, 1978, **2**, 321-329 (*β-D-Me pyr*)
Liu, K.K.-C. *et al., J.O.C.*, 1992, **57**, 3748-3750 (*β-D-pyr tetra-Ac*)

4-Chloro-4-deoxygalactose C-83

[61489-30-3]



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

Me glycoside, 2,3,6-Tribenzyl: Methyl 2,3,6-tri-O-*benzyl-4-chloro-4-deoxy-α-D-galactopyranoside*
[219313-37-8]
$C_{28}H_{31}ClO_5$ 483.003
Syrup. $[\alpha]_D$ +48 (c, 1.1 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 4-chloro-4-deoxy-β-D-galactopyranoside
[51385-56-9]
$C_7H_{13}ClO_5$ 212.629
Needles (MeOH/Et_2O). Mp 158-159°. $[\alpha]_D$ +8.7 (c, 1 in H_2O).

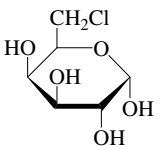
Me glycoside, tri-Ac: Methyl 2,3,6-tri-O-*acetyl-4-chloro-4-deoxy-β-D-galactopyranoside*
[51996-32-8]
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (EtOH). Mp 96-97°. $[\alpha]_D$ +30.9 (c, 1 in $CHCl_3$).

Me glycoside, tribenzoyl: Methyl 2,3,6-tri-O-*benzoyl-4-chloro-4-deoxy-β-D-galactopyranoside*
[51996-31-7]
$C_{28}H_{25}ClO_8$ 524.953
Cryst. (MeOH). Mp 131-132°. $[\alpha]_D$ +60.7 (c, 3 in $CHCl_3$).

Maradufu, A. *et al., Carbohydr. Res.*, 1974, **32**, 261-277 (*β-D-Me pyr, β-D-Me pyr tri-Ac, β-D-Me pyr tribenzoyl*)
Limousin, C. *et al., Carbohydr. Res.*, 1998, **312**, 23-31 (*α-D-Me pyr tribenzyl*)

6-Chloro-6-deoxygalactose C-84

6-Chlorofucose



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

1,2:3,4-Diisopropylidene: 6-Chloro-6-deoxy-1,2:3,4-di-O-*isopropylidene-α-D-galactopyranose*
[13454-63-2]
$C_{12}H_{19}ClO_5$ 278.732
Syrup. $Bp_{0.1}$ 95-100° (bath). $[\alpha]_D^{25}$ -66 (c, 0.78 in $CHCl_3$).

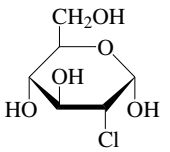
Me glycoside: Methyl 6-chloro-6-deoxy-α-D-galactopyranoside
[21307-62-0]
$C_7H_{13}ClO_5$ 212.629
Cryst. (EtOH). Mp 157°. $[\alpha]_D$ +165 (c, 1.4 in MeOH).

β-D-Pyranose-*form*

Me glycoside: Methyl 6-chloro-6-deoxy-β-D-galactopyranoside
[58178-94-2]
$C_7H_{13}ClO_5$ 212.629
Cryst. Mp 100-103°. $[\alpha]_D^{20}$ -4.5 (c, 1 in MeOH).

Hanessian, S. *et al., J.O.C.*, 1969, **34**, 2163 (*synth, pmr, diisopropylidene*)
Hanessian, S. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 190 (*diisopropylidene*)
Spinelli, D. *et al., J.C.S. Perkin 2*, 1975, 1388 (*β-Me gly, synth*)
Garegg, P.G. *et al., Synthesis*, 1984, 168 (*synth*)
Toufeili, I.A. *et al., Aust. J. Chem.*, 1985, **38**, 1425 (*α-Me gly, synth, cmr*)

2-Chloro-2-deoxyglucose C-85



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [14685-79-1]

[25581-35-5]
Solid. Mp 149°. $[\alpha]_D^{25}$ +56 → +71 (equilib., c, 1.1 in H_2O).

α-D-Pyranose-*form* [154569-00-3]

Me glycoside: Methyl 2-chloro-2-deoxy-α-D-glucopyranoside
[20513-89-7]

[29702-45-2]
$C_7H_{13}ClO_5$ 212.629
Cryst. (EtOAc). Mp 143-143.5°. $[\alpha]_D^{24}$ +182.6 (c, 1.1 in MeOH).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-chloro-2-deoxy-α-D-glucopyranoside*
[20513-90-0]
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (Et_2O/hexane). Mp 81.5-82.5°. $[\alpha]_D^{20}$ +18.2 (c, 3.3 in CH_2Cl_2).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-chloro-2-deoxy-α-D-glucopyranoside*
[76221-99-3]
$C_{14}H_{17}ClO_5$ 300.738
Cryst. (EtOH). Mp 180°. $[\alpha]_D^{20}$ +113 (c, 0.5 in CH_2Cl_2).

*Me glycoside, 3-benzyl, 4,6-*O*-benzylidene: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-2-chloro-2-deoxy-α-D-glucopyranoside*
[76222-01-0]
$C_{21}H_{23}ClO_5$ 390.862
Cryst. Mp 110-111°. $[\alpha]_D^{20}$ +52 (c, 0.5 in CH_2Cl_2).

β-D-Pyranose-*form* [154569-01-4]

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-chloro-2-deoxy-β-D-glucopyranose*
[25581-36-6]
$C_{14}H_{19}ClO_9$ 366.751
Solid. Mp 110-111°. $[\alpha]_D^{25}$ +52.8 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 2-chloro-2-deoxy-β-D-glucopyranoside
[14685-78-0]
$C_7H_{13}ClO_5$ 212.629
Solid. Mp 168-169°. $[\alpha]_D^{24}$ -11.9 (c, 1.27 in H_2O).

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-chloro-2-deoxy-β-D-glucopyranoside*
[23025-29-8]
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (Me_2CO/hexane). Mp 154-155°. $[\alpha]_D^{23}$ +48.6 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-chloro-2-deoxy-β-D-glucopyranoside*
[76221-98-2]
$C_{14}H_{17}ClO_5$ 300.738
Cryst. (EtOH). Mp 192-193°. $[\alpha]_D^{20}$ -18 (c, 1 in CH_2Cl_2).

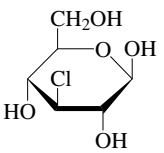
*Me glycoside, 3-benzyl, 4,6-*O*-benzylidene: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-2-chloro-2-deoxy-β-D-glucopyranoside*
[76222-00-9]
$C_{21}H_{23}ClO_5$ 390.862
Cryst. (MeOH). Mp 175-176°. $[\alpha]_D^{20}$ -41 (c, 0.9 in CH_2Cl_2).

β-D-Furanose-*form*

Me glycoside: Methyl 2-chloro-2-deoxy-β-D-glucofuranoside
[69617-77-2]
$C_7H_{13}ClO_5$ 212.629
Syrup.

Lemieux, R.U. *et al., Can. J. Chem.*, 1964, **42**, 532-538 (*α-D-Me pyr, β-D-Me pyr*)
Buncel, E. *et al., Can. J. Chem.*, 1967, **45**, 515-519 (*D-form, β-D-pyr tetra-Ac*)
Igarashi, K. *et al., Tet. Lett.*, 1968, 755-760, (*α-D-Me pyr, β-D-Me pyr*)
Adamson, J. *et al., Carbohydr. Res.*, 1969, **10**, 517 (*D-form, β-D-pyr tetra-Ac*)
Igarashi, K. *et al., J.O.C.*, 1970, **35**, 610-616, (*α-D-Me-pyr, α-D-Me pyr tri-Ac, β-D-Me pyr, β-D-Me pyr tri-Ac*)
Lönnberg, H. *et al., Finn. Chem. Lett.*, 1978, 244 (*β-D-Me fur*)
Augé, J. *et al., Nouv. J. Chim.*, 1980, **4**, 481-486 (*α-D-Me pyr tri-Ac, β-D-Me pyr tri-Ac, α-D-Me pyr benzylidene, β-D-Me pyr benzylidene*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1987, **6**, 203-219 (*β-D-pyr tetra-Ac*)

3-Chloro-3-deoxyglucose C-86



β-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [22933-89-7]

[29702-44-1]
Cryst. (EtOH aq.). Mp 150-152°. $[\alpha]_D^{22}$ +66 (c, 0.18 in H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl 3-chloro-3-deoxy-α-D-glucopyranoside
[87668-71-1]
$C_7H_{13}ClO_5$ 212.629
Needles (EtOAc). Mp 136-138°. $[\alpha]_D^{20}$ +158.5 ($CHCl_3$).

β-D-Pyranose-*form*

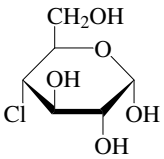
*Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-chloro-3-deoxy-β-D-glucopyranose*
[71107-10-3]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (petrol). Mp 119-120°. $[\alpha]_D^{25}$ +1 (c, 0.5 in $CHCl_3$).

α-D-Furanose-*form*

*1,2:5,6-Di-*O*-isopropylidene: 3-Chloro-3-deoxy-1,2:5,6-di-*O*-isopropylidene-α-D-glucofuranose*
[32785-94-7]
$C_{12}H_{19}ClO_5$ 278.732
Syrup. $Bp_{0.05}$ 84-88°.

Newth, F.H. *et al., J.C.S.*, 1947, 10-18 (*D-form*)
Barnett, J.E.G. *et al., Biochem. J.*, 1969, **114**, 569-573 (*D-form, α-D-fur diisopropylidene*)
Kiburis, J. *et al., Chim. Chron.*, 1978, **8**, 77-82 (*β-D-pyr tetra-Ac*)
Afza, N. *et al., J.C.S. Perkin 1*, 1983, 1349-1351 (*α-D-Me pyr*)
Toufeili, I.A. *et al., Aust. J. Chem.*, 1985, **38**, 1425-1427 (*cmr*)

4-Chloro-4-deoxyglucose C-87



$C_6H_{11}ClO_5$ 198.603
Work reported in 1953 was later revised.

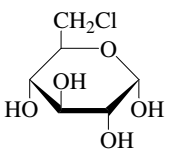
α-D-Pyranose-*form*

Me glycoside: Methyl 4-chloro-4-deoxy-α-D-glucopyranoside
[97892-15-4]
$C_7H_{13}ClO_5$ 212.629
Cryst. (EtOAc). Mp 114-115°. $[\alpha]_D^{21}$ +130.9 (c, 1.03 in H_2O).

Buchanan, J.G. *et al., J.C.S.*, 1958, 995-1000, (*α-D-Me pyr*)
Toufeili, I.A. *et al., Aust. J. Chem.*, 1985, **38**, 1425-1427 (*cmr*)

6-Chloro-6-deoxyglucose C-88

6-Chloroquinovose



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [40656-44-8] Shows male antifertility props. *in vivo*.
Cryst. (EtOAc/EtOH). Mp 137°. $[\alpha]_D$ +97.8 (2 min) → +43 (c, 2, equilib. in H_2O).

α-D-Pyranose-*form* [28528-86-1]

Me glycoside: Methyl 6-chloro-6-deoxy-α-D-glucopyranoside
[4144-87-0]
$C_7H_{13}ClO_5$ 212.629
Cryst. (1-propanol). Mp 113-114°. $[\alpha]_D^{30}$ +139 (c, 2.4 in H_2O). $[\alpha]_D^{25}$ +152.8 (c, 1 in MeOH).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-chloro-6-deoxy-α-D-glucopyranoside*
[6087-46-3]
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (MeOH). Mp 96-97°. $[\alpha]_D$ +175.7 (c, 1 in $CHCl_3$).

*Me glycoside, 2-benzoyl: Methyl 2-*O*-benzoyl-6-chloro-6-deoxy-α-D-glucopyranoside*
[91595-54-9]
$C_{14}H_{17}ClO_6$ 316.737

Cryst. (EtOAc/C_6H_6). Mp 170-172°. $[\alpha]_D^{21}$ +117 (c, 0.53 in $CHCl_3$).

*Me glycoside, 2,3-dibenzoyl: Methyl 2, 3-di-*O*-benzoyl-6-chloro-6-deoxy-α-D-glucopyranoside*
[91595-55-0]
$C_{21}H_{21}ClO_7$ 420.845
Cryst. ($CHCl_3$/hexane). Mp 119-121°. $[\alpha]_D^{19}$ +163 (c, 3.5 in $CHCl_3$).

*Me glycoside, tri-Me: Methyl 6-chloro-6-deoxy-2,3,4-tri-*O*-methyl-α-D-glucopyranoside*
[32934-02-4]
$C_{10}H_{19}ClO_5$ 254.71
Solid. Mp 64°. $[\alpha]_D^{20}$ +163 (c, 2.28 in $CHCl_3$).

*Me glycoside, 2,3-dibenzyl: Methyl 2, 3-di-*O*-benzyl-6-chloro-6-deoxy-α-D-glucopyranoside*
[67776-12-9]
$C_{21}H_{25}ClO_5$ 392.878
Solid. Mp 50-51° (43-45°). $[\alpha]_D$ +89 (c, 1.1 in MeOH). $[\alpha]_D^{25}$ +81.5 (c, 1.2 in MeOH).

*Me glycoside, tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-6-chloro-6-deoxy-α-D-glucopyranoside*
[142543-88-2]
$C_{28}H_{31}ClO_5$ 483.003
$[\alpha]_D$ +56 (c, 0.93 in CH_2Cl_2).

β-D-Pyranose-*form* [56688-73-4]

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-chloro-6-deoxy-β-D-glucopyranose*
[35905-21-6]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (C_6H_6). Mp 115-117°. $[\alpha]_D^{22}$ +18.4 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 6-chloro-6-deoxy-β-D-glucopyranoside
[4990-84-5]
$C_7H_{13}ClO_5$ 212.629
Cryst. (propanol). Mp 157-159°. $[\alpha]_D^{30}$ -49 (c, 1.0 in H_2O).

*Me glycoside, tri-Ac: Methyl 2,3,5-tri-*O*-acetyl-6-chloro-6-deoxy-β-D-glucopyranoside*
[53691-80-8]
$C_{13}H_{19}ClO_8$ 338.741
Cryst. (EtOAc). Mp 141°. $[\alpha]_D^{19}$ -9.8 (c, 0.25 in Py).

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 6-Chloro-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[57569-50-3]
$C_9H_{15}ClO_5$ 238.667
Cryst. (Et_2O/hexane). Mp 80°. $[\alpha]_D^{25}$ -11 (c, 2 in $CHCl_3$).

*1,2-*O*-Isopropylidene, di-Ac: 3,5-Di-*O*-acetyl-6-chloro-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[51533-09-6]
$C_{13}H_{19}ClO_7$ 322.742
Cryst. (Et_2O/petrol). Mp 117-118°. $[\alpha]_D$ 0 (c, 2.8 in $CHCl_3$) (approx.).

*1,2-*O*-Isopropylidene, dibenzoyl: 3, 5-Di-*O*-benzoyl-6-chloro-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[85386-40-9]
$C_{23}H_{23}ClO_7$ 446.883
Cryst. (MeOH). Mp 86-88°. $[\alpha]_D$ -129 (c, 2.1 in $CHCl_3$).

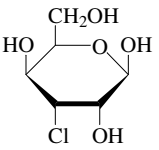
*1,2-*O*-Isopropylidene, 3-tosyl, 5-Ac: 5-*O*-Acetyl-6-chloro-6-deoxy-1,2-*O*-isopropylidene-3-*O*-tosyl-α-D-glucofuranose*
[28251-89-0]
$C_{18}H_{23}ClO_8S$ 434.894
Mp 75-76°. $[\alpha]_D^{20}$ -43 (c, 0.56 in $CHCl_3$).

*1,2:5,6-Di-*O*-methylidene: 6-Chloro-6-deoxy-1,2:3,5-di-*O*-methylidene-α-D-glucofuranose*
[65533-34-8]
$C_8H_{11}ClO_5$ 222.625
Cryst. (MeOH). Mp 70-71°. $[\alpha]_D$ +40 (c, 1 in $CHCl_3$).

*1,2:3,5-Diisopropylidene: 6-Chloro-6-deoxy-1,2:3,5-di-*O*-isopropylidene-α-D-glucofuranose*
[19685-14-4]
$C_{12}H_{19}ClO_5$ 278.732
Syrup. $Bp_{0.05}$ 84-85°. $[\alpha]_D^{25}$ +36 (c, 2.6 in $CHCl_3$).

Helferich, B. *et al., Ber.*, 1926, **59**, 79-85; 1927, **60**, 1995-2001; 2002-2005 (*D-form, α-D-Me pyr, α-D-Me pyr tri-Ac, β-D-Me pyr, β-D-Me pyr tri-Ac*)
Jennings, H.J. *et al., Can. J. Chem.*, 1965, **43**, 2372-2386 (*α-D-Me pyr, β-D-Me pyr*)
Sinclair, H.B. *et al., J.O.C.*, 1965, **30**, 1283-1284 (*α-D-Me pyr*)
Evans, M.E. *et al., J.O.C.*, 1968, **33**, 1074-1076 (*α-D-Me pyr, β-D-Me pyr*)
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 2163, (*D-form, α-D-fur diisopropylidene, pmr*)
Mogel, L.G. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1970, **40**, 682 (*α-D-pyr*)
Haylock, C.R. *et al., Carbohydr. Res.*, 1971, **16**, 375-382 (*α-D-fur diisopropylidene*)
Klemer, A. *et al., Carbohydr. Res.*, 1972, **22**, 425-431 (*α-D-Me pyr tri-Me, β-D-pyr tetra-Ac*)
Evans, M.E. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 177; 193 (*α-D-Me pyr*)
Hanessian, S. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 190 (*D-form, α-D-fur diisopropylidene*)
Cocker, D. *et al., J.C.S. Perkin 2*, 1975, 1391-1395 (*β-D-Me pyr tri-Ac*)
Baer, H.H. *et al., Can. J. Chem.*, 1977, **55**, 1100-1103 (*α-D-Me pyr, α-D-Me pyr tri-Ac*)
Srivastava, H.C. *et al., Carbohydr. Res.*, 1978, **60**, 210-218 (*D-form, α-D-fur dimethylidene*)
Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1978, **61**, 511-518 (*D-form, α-D-Me pyr, α-D-fur isopropylidene*)
Simon, P. *et al., Carbohydr. Res.*, 1978, **64**, 257-262 (*α-D-Me pyr dibenzyl*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 227-231 (*D-form, α-D-Me pyr, α-D-fur isopropylidene*)
Parolis, H. *et al., Carbohydr. Res.*, 1983, **114**, 21-33 (*D-form, α-D-fur isopropylidene derivs*)
Holzapfel, C.W. *et al., S. Afr. J. Chem.*, 1984, **37**, 19-21 (*α-D-Me pyr benzoyl, α-D-Me pyr dibenzoyl*)
Garegg, P.J. *et al., Synthesis*, 168-170 (*α-D-Me pyr tri-Ac*)
Jones, A.R. *et al., Contraception*, 1991, **44**, 649-655 (*pharmacol*)
Dubreuil, D. *et al., Carbohydr. Res.*, 1994, **252**, 149-157 (*α-D-Me pyr tribenzyl*)
Limousin, C. *et al., Carbohydr. Res.*, 1998, **312**, 23-31 (*α-D-Me pyr dibenzyl, α-D-Me pyr tribenzyl*)
Olsson, R. *et al., J.C.S. Perkin 1*, 1998, 785-790 (*α-D-Me pyr tri-Me*)

3-Chloro-3-deoxygulose C-89



β-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

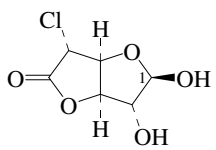
Me glycoside: Methyl 3-chloro-3-deoxy-α-D-gulopyranoside
[101947-68-6]
$C_7H_{13}ClO_5$ 212.629
Prisms. Mp 142° dec. $[\alpha]_D^{24}$ +114.5 (c, 1.2 in H_2O).

β-D-Pyranose-*form*

*Me glycoside, 4-(*N,N*-dimethylcarbamoyl), 2,6-di-Me:* [84730-46-1]
$C_{12}H_{22}ClNO_6$ 311.762
Prisms (diisopropyl ether/pentane). Mp 58-60°. $[\alpha]_D^{22}$ -65 ($CHCl_3$).

Buchanan, J.G. *et al., J.C.S.*, 1958, 2511, (*α-Me pyr*)
Copeland, C. *et al., Aust. J. Chem.*, 1982, **35**, 2257 (*β-Me pyr deriv*)
Toufeili, I.A. *et al., Aust. J. Chem.*, 1985, **38**, 1425 (*α-Me pyr, cmr*)

5-Chloro-5-deoxyidofuranurono-6,3-lactone C-90



α-L-*form*

$C_6H_7ClO_5$ 194.571

α-L-*form*

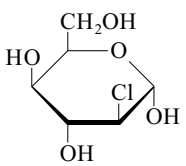
Me glycoside: Methyl 5-chloro-5-deoxy-α-L-idofuranosidurono-6,3-lactone
[57569-49-0]
$C_7H_9ClO_5$ 208.598
Needles ($CHCl_3$/petrol). Mp 137-139°. $[\alpha]_D$ -87 (c, 1.5 in $CHCl_3$).

β-L-*form*

1,2-Isopropylidene: [57569-46-7]
$C_9H_{11}ClO_5$ 234.636
Cryst. Mp 136-137°. $[\alpha]_D^{20}$ +49.2 (c, 1.02 in $CHCl_3$).

Dax, K. *et al., Annalen*, 1981, 1768 (*isopropylidene, synth*)
Parolis, H. *et al., Carbohydr. Res.*, 1983, **114**, 21 (*glycoside, synth, ms*)

2-Chloro-2-deoxyidose C-91



$C_6H_{11}ClO_5$ 198.603

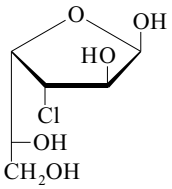
α-D-Pyranose-*form*

Me glycoside: Methyl 2-chloro-2-deoxy-α-D-idopyranoside
$C_7H_{13}ClO_5$ 212.629
Cryst. Mp 124-126°. $[\alpha]_D$ +86.6 (H_2O).

Me glycoside, 4,6-O-benzylidene: Methyl 4,6-O-benzylidene-2-chloro-2-deoxy-α-D-idopyranoside
$C_{14}H_{17}ClO_5$ 300.738
Cryst. Mp 166°. $[\alpha]_D$ +64.8 ($CHCl_3$).

Buchanan, J.G. *et al., J.C.S.*, 1958, 995 (*α-D-Me pyr, benzylidene*)

3-Chloro-3-deoxyidose C-92



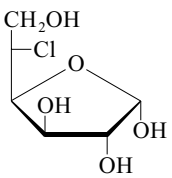
$C_6H_{11}ClO_5$ 198.603

β-D-Furanose-*form*

1,2:5,6-Di-O-isopropylidene: 3-Chloro-3-deoxy-1,2:5,6-di-O-isopropylidene-β-D-idofuranose
[32785-97-0]
$C_{12}H_{19}ClO_5$ 278.732
Cryst. (petrol). Mp 108.5-110°. $[\alpha]_D$ +24.7 (c, 0.65 in cyclohexane).

Haylock, C.R. *et al., Carbohydr. Res.*, 1971, **16**, 375 (*diisopropylidene, pmr*)

5-Chloro-5-deoxyidose C-93



$C_6H_{11}ClO_5$ 198.603

β-L-Furanose-*form*

1,2-O-Isopropylidene: [69465-26-5]
$C_9H_{15}ClO_5$ 238.667
Cryst. (Et_2O/petrol). Mp 106-107°. $[\alpha]_D$ -31 (c, 0.5 in MeOH).

1,2-O-Isopropylidene, 6-benzoyl, 3-Ac:
[118176-22-0]
$C_{18}H_{21}ClO_7$ 384.812
Cryst. (Et_2O). Mp 143-144°. $[\alpha]_D$ -12 (c, 0.5 in CH_2Cl_2).

1,2-O-Isopropylidene, 3,6-dibenzoyl:
[118176-23-1]
$C_{23}H_{23}ClO_7$ 446.883
Cryst. (Et_2O/petrol). Mp 103-104°. $[\alpha]_D$ -43 (c, 0.3 in CH_2Cl_2).

1,2-O-Isopropylidene, 6-(methoxymethyl):
[130619-46-4]
$C_{11}H_{19}ClO_6$ 282.72
Syrup. $[\alpha]_D^{20}$ +1.6 (c, 3.1 in $CHCl_3$).

1,2:3,6-Di-O-isopropylidene: [82893-17-2]
$C_{12}H_{19}ClO_5$ 278.732
Syrup. $[\alpha]_D^{22}$ +48.8 (c, 2.5 in $CHCl_3$).

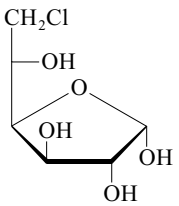
Klemer, A. *et al., Carbohydr. Res.*, 1979, **68**, 391 (*isopropylidene*)

Kunz, H. *et al., Annalen*, 1982, 1245 (*diisopropylidene*)

Lee, C.K. *et al., Carbohydr. Res.*, 1988, **177**, 247 (*isopropylidene, pmr*)

Dax, R. *et al., J. Carbohydr. Chem.*, 1990, **2**, 479 (*methoxymethyl*)

6-Chloro-6-deoxyidose C-94



$C_6H_{11}ClO_5$ 198.603

β-L-Furanose-*form*

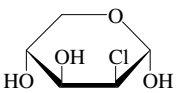
1,2-O-Isopropylidene: [118176-24-2]
$C_9H_{15}ClO_5$ 238.667
Cryst. (Et_2O/petrol). Mp 106-107°. $[\alpha]_D$ -31 (c, 0.5 in MeOH).

1,2-O-Isopropylidene, 5-benzoyl, 3-tosyl:
[28642-60-6]
$C_{23}H_{25}ClO_8S$ 496.964
Syrup. $[\alpha]_D^{25}$ +9 (c, 1.1 in $CHCl_3$).

Chalk, R.C. *et al., Carbohydr. Res.*, 1971, **20**, 151 (*isopropylidene, pmr, cmr*)

Lee, C.K. *et al., Carbohydr. Res.*, 1988, **177**, 247 (*isopropylidene deriv*)

2-Chloro-2-deoxylyxose C-95



α-D-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

α-D-Pyranose-*form* [29217-61-6]
Cryst. (Me_2CO/Et_2O). Mp 157-159°. $[\alpha]_D$ -0.5 → -15.5 (equilib.) (c, 1.03 in MeOH).

Me glycoside, di-Ac: Methyl 3,4-di-O-acetyl-2-chloro-2-deoxy-α-D-lyxopyranoside
[51385-06-9]
$C_{10}H_{15}ClO_6$ 266.678
Syrup. $[\alpha]_D^{25}$ +8 (c, 1.71 in $CHCl_3$).

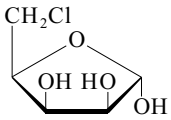
β-D-Pyranose-*form*

Me glycoside: Methyl 2-chloro-2-deoxy-β-D-lyxopyranoside
[29217-60-5]
$C_6H_{11}ClO_4$ 182.603
Syrup. $[\alpha]_D^{21}$ -96 (c, 1.3 in $CHCl_3$).

Jennings, H.J. *et al., Can. J. Chem.*, 1970, **48**, 1834 (*synth, β-Me pyr*)

Van Es, T. *et al., J. S. Afr. Chem. Inst.*, 1973, **26**, 152 (*α-Me pyr deriv, pmr*)

5-Chloro-5-deoxylyxose C-96



$C_5H_9ClO_4$ 168.576

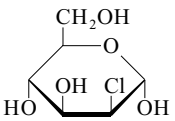
α-D-Furanose-*form*

Me glycoside: Methyl 5-chloro-5-deoxy-α-D-lyxofuranoside
$C_6H_{11}ClO_4$ 182.603
Known as a cyclic phosphonate deriv.

[90213-32-4]

Koroteev, M.P. *et al., Zh. Obshch. Khim.*, 1984, **54**, 279; *J. Gen. Chem. USSR (Engl. Transl.)*, 1983, **54**, 245 (*Me gly deriv, pmr*)

2-Chloro-2-deoxymannose C-97



α−D−Pyranose−*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

3,4,6-Tri-Ac: [50603-56-0]
$C_{12}H_{17}ClO_8$ 324.714
Amorph. $[\alpha]_D^{20}$ +19 (c, 2.5 in $CHCl_3$).

Tetra-Ac: [50603-57-1]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (Et_2O/petrol). Mp 97°. $[\alpha]_D^{20}$ +6.8 (c, 0.9 in $CHCl_3$).

1-Benzoyl, tri-Ac: [23259-30-5]
$C_{19}H_{21}ClO_9$ 428.822
Cryst. (EtOH). Mp 169-170°. $[\alpha]_D^{28}$ +79.3 (c, 0.52 in $CHCl_3$).

Me glycoside: Methyl 2-chloro-2-deoxy-α-D-mannopyranoside
[20512-21-4]
$C_7H_{13}ClO_5$ 212.629
Syrup. $[\alpha]_D^{24}$ +81.1 (c, 0.95 in MeOH).

Me glycoside, tri-Ac: [22931-82-4]
$C_{13}H_{19}ClO_8$ 338.741
Syrup. $[\alpha]_D^{24}$ +45.1 (c, 1.02 in $CHCl_3$). $[\alpha]_D^{23}$ +37.4 ($CHCl_3$).

Me glycoside, 4,6-O-benzylidene (R-):
[131564-58-4]
$C_{14}H_{17}ClO_5$ 300.738
Cryst. (Et_2O/petrol). Mp 89°. $[\alpha]_D$ +39 (c, 1.0 in CH_2Cl_2).

Me glycoside, 4,6-O-benzylidene (R-), 3-benzoyl: [131564-59-5]
$C_{21}H_{21}ClO_6$ 404.846
Syrup. $[\alpha]_D$ +99.5 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

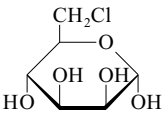
Me glycoside: Methyl 2-chloro-2-deoxy-β-D-mannopyranoside
[20513-88-6]
$C_7H_{13}ClO_5$ 212.629
Plates (EtOAc). Mp 134-134.5°. $[\alpha]_D^{24}$ -78.6 (c, 1.05 in MeOH).

Me glycoside, tri-Ac: [20512-22-5]
Cryst. Mp 120.5-121°. $[\alpha]_D^{22.5}$ -86.9 ($CHCl_3$).

Igarashi, K. *et al., Tet. Lett.*, 1968, 755 (*α-Me gly, β-Me gly*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 379 (*1-benzoyl*)
Igarashi, K. *et al., J.O.C.*, 1970, **35**, 610 (*α-Me gly, β-Me gly*)
Boullanger, P. *et al., Bull. Soc. Chim. Fr.*, 1973, 2149 (*Ac derivs, pmr*)
Khan, R. *et al., Carbohydr. Res.*, 1990, **205**, 211 (*benzylidene deriv, pmr, cmr*)

6-Chloro-6-deoxymannose C-98

6-Chlororhamnose



α−D−Pyranose−*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [4990-81-2]
Syrup.

α-D-Pyranose-*form*

Me glycoside: [4990-80-1]
$C_7H_{13}ClO_5$ 212.629
Cryst. (propanol). Mp 75°. $[\alpha]_D^{30}$ +60 (c, 1.0 in H_2O).

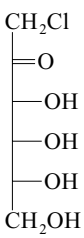
Me glycoside, 4-benzoyl, 2,3-di-Ac:
[52290-42-3]
$C_{18}H_{21}ClO_8$ 400.812
Cryst. Mp 120-121°. $[\alpha]_D^{25}$ +21 (c, 1.09 in $CHCl_3$).

Me glycoside, tribenzoyl:
$C_{28}H_{25}ClO_8$ 524.953
Cryst. (MeOH). Mp 181-182°. $[\alpha]_D$ -115 (c, 0.4 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-*O*-(*p*-bromobenzenesulfonyl):*
[22932-32-7]
Cryst. (EtOH). Mp 121-122°. $[\alpha]_D^{24}$ -8.6 (c, 1.38 in MeOH).

Evans, M.E. *et al., J.O.C.*, 1968, **33**, 1074, (*α-Me pyr*)
Stevens, C.L. *et al., J.O.C.*, 1970, **35**, 592 (*brosyl, ms*)
Castro, B. *et al., Bull. Soc. Chim. Fr.*, 1973, 3034 (*α-Me pyr*)
Mathlouthi, M. *et al., Carbohydr. Res.*, 1986, **152**, 47 (*D-form*)

1-Chloro-1-deoxypsicose C-99



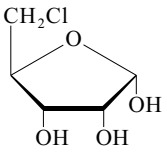
$C_6H_{11}ClO_5$ 198.603

D-*form*

*Tetra-Ac: 3,4,5,6-Tetra-*O*-acetyl-1-chloro-1-deoxy-D-psicose*
$C_{14}H_{19}ClO_9$ 366.751
Cryst. Mp 89-91°. $[\alpha]_D$ -26 ($CHCl_3$).

Wolfrom, D. *et al., J.A.C.S.*, 1945, **67**, 1793 (*tetra-Ac*)

5-Chloro-5-deoxyribose C-100



α−D−Furanose−*form*

$C_5H_9ClO_4$ 168.576

α-D-Furanose-*form*

Me glycoside: Methyl 5-chloro-5-deoxy-α-D-ribofuranoside
$C_6H_{11}ClO_4$ 182.603
Liq. $Bp_{0.3}$ 99-112°. $[\alpha]_D$ -19 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-bis(chlorosulfate):
[55053-19-5]
Cryst. Mp 115-116°. $[\alpha]_D$ +88 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

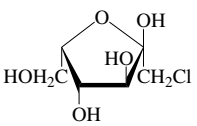
Me glycoside: Methyl 5-chloro-5-deoxy-β-D-ribofuranoside
$C_6H_{11}ClO_4$ 182.603
Cryst. Mp 69.5-70.5°. $[\alpha]_D$ -65 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-bis(chlorosulfate):
[55053-21-9]
Cryst. Mp 78.5-79.5°. $[\alpha]_D$ +36 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-chloro-5-deoxy-2,3-*O*-isopropylidene-β-D-ribofuranoside*
[38838-07-2]
$C_9H_{15}ClO_4$ 222.668
Liq. $[\alpha]_D^{25}$ -93 (c, 2.04 in $CHCl_3$).

Hanessian, S. *et al., Carbohydr. Res.*, 1972, **24**, 45 (*β-Me gly deriv*)
Rabello, J.J. *et al., Carbohydr. Res.*, 1973, **30**, 381 (*β-Me gly deriv*)
Achmatowicz, B. *et al., Carbohydr. Res.*, 1974, **36**, C14 (*α-Me gly, β-Me gly*)

1-Chloro-1-deoxysorbose C-101



α-L-Furanose-*form*

$C_6H_{11}ClO_5$ 198.603

L-*form* [32785-89-0]
Syrup. Mp 95.5-97°. $[\alpha]_D$ -34.5 (c, 1.2 in H_2O).

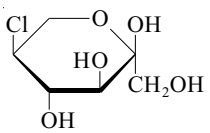
α-L-Furanose-*form*

*2,3-*O*-Isopropylidene: 1-Chloro-1-deoxy-2,3-*O*-isopropylidene-α-L-sorbofuranose*
[32785-88-9]
$C_9H_{15}ClO_5$ 238.667
Cryst. (EtOAc/petrol). Mp 71-72°. $[\alpha]_D$ +1.9 (c, 1.56 in H_2O).

*2,3:4,6-Di-*O*-Isopropylidene: 1-Chloro-1-deoxy-2,3:4,6-di-*O*-isopropylidene-α-L-sorbofuranose*
[32785-87-8]
$C_{12}H_{19}ClO_5$ 278.732
Cryst. (petrol). Mp 56-58°. $Bp_{0.05}$ 83-86°. $[\alpha]_D$ -22.3 (c, 0.71 in $CHCl_3$).

Haylock, C.R. *et al., Carbohydr. Res.*, 1971, **16**, 375 (*synth, L-form, α-L-fur derivs, pmr*)
Beaupere, D. *et al., J. Carbohydr. Chem.*, 1989, **8**, 159 (*synth, L-form*)

5-Chloro-5-deoxysorbose C-102



$C_6H_{11}ClO_5$ 198.603

α-L-Pyranose-*form*

*2,3-Isopropylidene: 5-Chloro-5-deoxy-2,3-*O*-isopropylidene-α-L-sorbopyranose*
[82944-97-6]
$C_9H_{15}ClO_5$ 238.667
Liq.

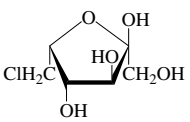
2-Chloroethyl glycoside: 2-Chloroethyl 5-chloro-5-deoxy-α-L-sorbopyranoside
[99042-78-1]
$C_8H_{14}Cl_2O_5$ 261.101
Cryst. (EtOH). Mp 100-102° dec. $[\alpha]_D$ -66 (c, 1.0 in $CHCl_3$).

*2-Chloroethyl glycoside, tri-Ac: 2-Chloroethyl 1,3,4-tri-*O*-acetyl-5-chloro-5-deoxy-α-L-sorbopyranoside*
[99042-77-0]
$C_{14}H_{20}Cl_2O_8$ 387.213
Cryst. (EtOH). Mp 98-99°. $[\alpha]_D$ -21 (c, 1.0 in $CHCl_3$).

*2-Chloroethyl glycoside, 1,3-*O*-isopropylidene: 2-Chloroethyl 5-chloro-5-deoxy-1,3-*O*-isopropylidene-α-L-sorbopyranoside*
[99042-79-2]
$C_{11}H_{18}Cl_2O_5$ 301.166
Cryst. Mp 148-150° dec. $[\alpha]_D$ -58 (c, 1.0 in $CHCl_3$).

Martin, O.R. *et al., Can. J. Chem.*, 1982, **60**, 1857 (*isopropylidene, pmr*)
Chan, J.Y.C. *et al., J.C.S. Perkin 1*, 1985, 1447 (*2-chloroethyl gly derivs, pmr, ms*)

6-Chloro-6-deoxysorbose C-103



α-L-Furanose-*form*

$C_6H_{11}ClO_5$ 198.603

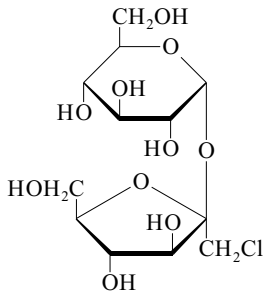
L-*form*
Syrup.

α-L-Furanose-*form* [121564-10-1]

*2,3-*O*-Isopropylidene:* [121564-07-6]
$C_9H_{15}ClO_5$ 238.667
Mp 107-108°. $[\alpha]_D^{20}$ +4 (c, 1.0 in MeOH).

Beaupere, D. *et al., J. Carbohydr. Chem.*, 1989, **8**, 159 (*synth, L-form, α-L-fur isopropylidene, pmr, cmr*)

1′-Chloro-1′-deoxysucrose C-104

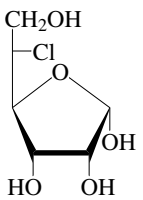


$C_{12}H_{21}ClO_{10}$ 360.745
$[\alpha]_D$ +57.8 (c, 0.7 in H_2O).

Hepta-Ac:
$C_{26}H_{35}ClO_{17}$ 655.005
Syrup. $[\alpha]_D$ +55 (c, 1.2 in $CHCl_3$).

Khan, R. *et al., Carbohydr. Res.*, 1980, **78**, 173 (*synth, pmr, ms*)

5-Chloro-5-deoxytalose C-105



β-L-Furanose-*form*

$C_6H_{11}ClO_5$ 198.603

D-*form* [124729-12-0]
Syrup.

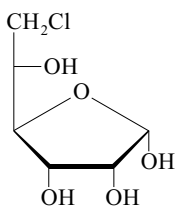
β-L-Furanose-*form*

1,2-O-Isopropylidene, 3-benzoyl, 6-Ac: 6-O-Acetyl-3-O-benzoyl-5-chloro-5-deoxy-1,2-O-isopropylidene-β-L-talofuranose
[131289-38-8]
$C_{18}H_{21}ClO_7$ 384.812
Syrup. $[\alpha]_D$ +66 (c, 0.8 in Me_2CO).

Pat. Coop. Treaty (WIPO), 1989, 89 07 602; *CA*, **112**, 99132k (*D-form*)

Lee, C.K. *et al., Carbohydr. Res.*, 1990, **205**, 203 (*β-L-fur deriv*)

6-Chloro-6-deoxytalose C-106



$C_6H_{11}ClO_5$ 198.603

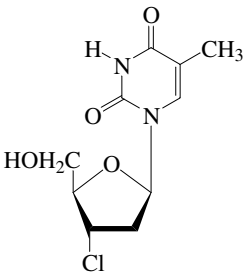
β-L-Furanose-*form*

1,2-O-Isopropylidene: [131289-41-3]
$C_9H_{15}ClO_5$ 238.667
Cryst. Mp 146-148°. $[\alpha]_D$ +74 (c, 0.15 in EtOH).

Lee, C.K. *et al., Carbohydr. Res.*, 1990, **205**, 203 (*isopropylidene, pmr*)

3′-Chloro-3′-deoxythymidine, 9CI C-107

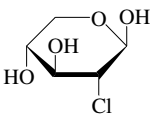
[25526-94-7]



$C_{10}H_{13}ClN_2O_4$ 260.676
Cryst. (Me_2CO/hexane). Mp 181-182°.

Verheyden, J.P.H. *et al., J.O.C.*, 1972, **27**, 2289-2299 (*synth, uv*)

2-Chloro-2-deoxyxylose C-108



β-D-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

D-Pyranose-*form* [29217-64-9]
Syrup. $[\alpha]_D$ +103.5 → 0 (equilib.) (c, 1.0 in MeOH).

3,4-Di-Ac: 3,4-Di-O-acetyl-2-chloro-2-deoxy-D-xylopyranose
$C_9H_{13}ClO_6$ 252.651
Mp 126°. $[\alpha]_D$ +49.9 ($CHCl_3$).

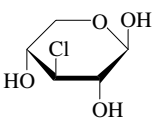
β-D-Pyranose-*form*

Me glycoside: Methyl 2-chloro-2-deoxy-β-D-xylopyranoside
[29217-63-8]
$C_6H_{11}ClO_4$ 182.603
Cryst. ($CHCl_3$/petrol). Mp 136-137°. $[\alpha]_D^{21}$ -21 (c, 1.5 in MeOH).

Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1945, **15**, 530; *CA*, **40**, 4673 (*di-Ac*)

Jennings, H.J. *et al., Can. J. Chem.*, 1970, **48**, 1834 (*β-Me gly*)

3-Chloro-3-deoxyxylose C-109



β-D-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

β-D-Pyranose-*form*

Me glycoside: Methyl 3-chloro-3-deoxy-β-D-xylopyranoside
[18417-47-5]
$C_6H_{11}ClO_4$ 182.603
Syrup. $Bp_{0.008}$ 135-140°. $[\alpha]_D$ -24.3 ($CHCl_3$).

Me glycoside, di-Ac: Methyl 2,4-di-O-acetyl-3-chloro-3-deoxy-β-D-xylopyranoside
[18417-48-6]
$C_{10}H_{15}ClO_6$ 266.678
Cryst. (EtOH aq.). Mp 116-117°. $[\alpha]_D$ -50 (c, 1.2 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside, 5-trityl: Methyl 3-chloro-3-deoxy-5-O-trityl-β-D-xylopyranoside
[40147-76-0]
$C_{25}H_{25}ClO_4$ 424.923
Oil.

Me glycoside, 5-trityl, 2-(4-nitrobenzoyl):
[40147-77-1]
Cryst. Mp 169-171°. $[\alpha]_D^{25}$ +90 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside, 5-trityl: Methyl 3-chloro-3-deoxy-5-O-trityl-β-D-xylofuranoside
[40147-71-5]
$C_{25}H_{25}ClO_4$ 424.923
Glass.

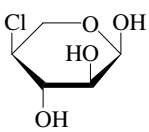
Me glycoside, 5-trityl, 2-benzoyl: Methyl 2-O-benzoyl-3-chloro-3-deoxy-5-O-trityl-β-D-xylofuranoside
[40147-72-6]
$C_{32}H_{29}ClO_5$ 529.031
Cryst. (C_6H_6/Et_2O/petrol). Mp 163-165°. $[\alpha]_D$ -10 (c, 1.0 in $CHCl_3$).

Allerton, R. *et al., J.C.S.*, 1951, 1480 (*Me pyr*)

Ali, S.S. *et al., Carbohydr. Res.*, 1967, **5**, 118 (*Me pyr*)

Jenkins, S.R. *et al., Carbohydr. Res.*, 1973, **26**, 71 (*Me fur, pmr*)

4-Chloro-4-deoxyxylose C-110



α-L-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

α-L-Pyranose-*form*

Me glycoside, 2-mesyl: Methyl 4-chloro-4-deoxy-2-O-mesyl-α-L-xylopyranoside
[18417-51-1]
$C_7H_{13}ClO_6S$ 260.695
Cryst. (MeOH). Mp 119-120°. $[\alpha]_D$ -74 (c, 3.25 in $CHCl_3$).

Me glycoside, 2-mesyl, 3-chlorosulfate:
[18417-50-0]
$C_7H_{12}Cl_2O_8S_2$ 359.204
Cryst. (MeOH). Mp 99-100°. $[\alpha]_D^{20}$ -38 (c, 5.4 in $CHCl_3$).

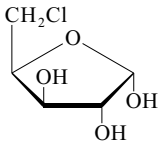
Me glycoside, 2,3-anhydro: Methyl 2,3-anhydro-4-chloro-4-deoxy-α-L-xylopyranoside
$C_6H_9ClO_3$ 164.588
Syrup. Bp_{15} 40°. $[\alpha]_D$ -84 (c, 4.2 in $CHCl_3$).

β-L-Pyranose-*form*
Mp 128-131°. $[\alpha]_D$ +57 → 0 (MeOH).

Jones, J.K.N. *et al., Can. J. Chem.*, 1959, **37**, 1412; 1960, **38**, 1122 (*β-L-pyr*)

Ali, S.S. *et al., Carbohydr. Res.*, 1967, **5**, 118, (*α-L-pyr derivs, ir*)

5-Chloro-5-deoxyxylose C-111



α–D–Furanose–*form*

$C_5H_9ClO_4$ 168.576

α-D-Furanose-*form*

1,2-O-*Isopropylidene:* [105953-29-5]
$C_8H_{13}ClO_4$ 208.641
Cryst. (diisopropyl ether/petrol). Mp 93-94° (91-92°).

1,2-O-*Isopropylidene, 3-Ac:* [61207-43-0]
$C_{10}H_{15}ClO_5$ 250.678
Syrup.

1,2-O-*Isopropylidene, 3-mesyl:* [105953-28-4]
$C_9H_{15}ClO_6S$ 286.733
Cryst. (diisopropyl ether). Mp 68-69°. $[\alpha]_D$ -77 (c, 1.0 in $CHCl_3$).

1,2-O-*Isopropylidene, 3-chlorosulfate:*
$C_8H_{12}Cl_2O_6S$ 307.151
Cryst. Mp 96.5-97.5° (Et_2O/petrol). $[\alpha]_D$ -76 (c, 1.76 in $CHCl_3$).

Me glycoside: Methyl 5-chloro-5-deoxy-α-D-xylofuranoside
$C_6H_{11}ClO_4$ 182.603
Cryst. Mp 73.5-74°. $[\alpha]_D$ +24 (c, 1.0 in MeOH).

Me glycoside, di-Ac: [56570-74-2]
$C_{10}H_{15}ClO_6$ 266.678
Oil.

Me glycoside, dichlorosulfate:
$C_6H_9Cl_3O_8S_2$ 379.622
Cryst. Mp 73.5-74.5°. $[\alpha]_D$ -15 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

1,2-Di-Ac, 3-chlorosulfate:
$C_9H_{12}Cl_2O_8S$ 351.16
Cryst. (Et_2O/petrol). Mp 81.5-82°. $[\alpha]_D$ -105 (c, 1.2 in $CHCl_3$).

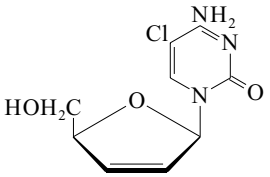
Me glycoside: Methyl 5-chloro-5-deoxy-β-D-xylofuranoside
$C_6H_{11}ClO_4$ 182.603
Syrup. $[\alpha]_D$ -102 (c, 1.0 in MeOH).

Me glycoside, di-Ac: [56570-75-3]
$C_{10}H_{15}ClO_6$ 266.678
Oil.

Achmatowicz, B. *et al., Carbohydr. Res.*, 1974, **36**, C14 (*α-Me fur, β-Me fur, dichlorosulfate*)
Hollenberg, D.H. *et al., Carbohydr. Res.*, 1975, **42**, 241 (*di-Ac, pmr*)
Hughes, N.A. *et al., J.C.S. Perkin 1*, 1986, 695 (*isopropylidene*)
Naidoo, N.T. *et al., S. Afr. J. Chem.*, 1986, **39**, 208; 1987, **40**, 100 (*3-chlorosulfate, ir, pmr, ms*)

5-Chloro-2′,3′-didehydro-2′,3′-dideoxycytidine, 9CI C-112

[124743-30-2]

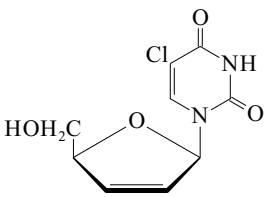


$C_9H_{10}ClN_3O_3$ 243.649
Cryst. (MeOH/Et_2O). Mp 144-145°.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, pmr, cmr, ms*)

5-Chloro-2′,3′-didehydro-2′,3′-dideoxyuridine, 9CI C-113

[120815-05-6]

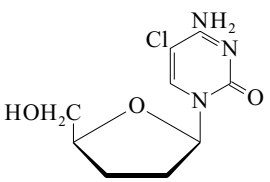


$C_9H_9ClN_2O_4$ 244.634
Cryst. (MeOH/Et_2O). Mp 140-142° dec.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, ms, pmr, cmr*)

5-Chloro-2′,3′-dideoxycytidine, 9CI C-114

[124743-31-3]

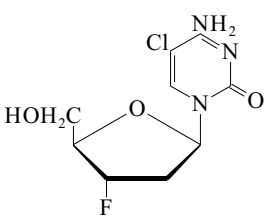


$C_9H_{12}ClN_3O_3$ 245.665
Cryst. Mp 172°.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, pmr, ms, cmr*)

5-Chloro-2′,3′-dideoxy-3′-fluorocytidine, 9CI C-115

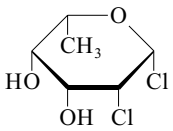
[127492-32-4]



$C_9H_{11}ClFN_3O_3$ 263.655
Cryst. (MeOH/Me_2CO). Mp 184-185°.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, pmr, cmr, ms*)

2-Chloro-2,6-dideoxytalopyranosyl chloride C-116



$C_6H_{10}Cl_2O_3$ 201.049

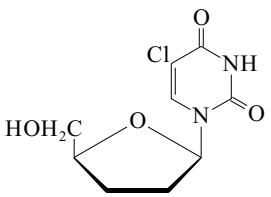
β-L-*form*

*Di-Ac: 3,4-Di-*O*-acetyl-2-chloro-2,6-dideoxy-β-L-talopyranosyl chloride*
[103321-23-9]
$C_{10}H_{14}Cl_2O_5$ 285.123
Syrup. $[\alpha]_D^{23}$ +4 (c, 0.4 in CH_2Cl_2).

Horton, D. *et al., J.O.C.*, 1986, **51**, 3479, (*di-Ac, ir, ms, pmr, cmr*)

5-Chloro-2′,3′-dideoxyuridine, 9CI C-117

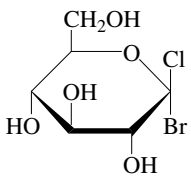
[127592-40-9]



$C_9H_{11}ClN_2O_4$ 246.65
Cryst. Mp 154-155° dec.

Van Aerschot, A. *et al., J. Med. Chem.*, 1990, **33**, 1833 (*synth, uv, ms, pmr, cmr*)

1-*C*-Chloroglucopyranosyl bromide, 9CI C-118



$C_6H_{10}BrClO_5$ 277.499

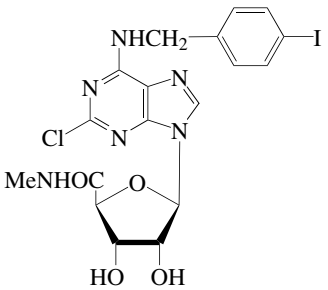
α-D-Pyranose-*form*

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-1-C-chloro-α-D-glucopyranosyl bromide*
[112290-59-2]
$C_{14}H_{18}BrClO_9$ 445.648
$[\alpha]_D^{20}$ +136 (c, 1.4 in Me_2CO).

Praly, J.P. *et al., Tetrahedron*, 1989, **45**, 4141

1-[2-Chloro-6-[[(3-iodophenyl)methyl]amino]-9*H*-purin-9-yl]-1-deoxy-*N*-methyl-β-D-ribofuranuronamide, 9CI C-119

2-Chloro-N^6-(3-iodobenzyl)adenosine-5′-N-methyluronamide. 2-Chloro-1B-MECA
[163042-96-4]

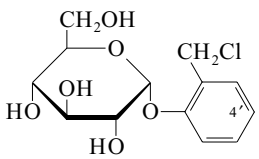


$C_{18}H_{18}ClIN_6O_4$ 544.735
Adenosine A_3-receptor agonist. Solid. Mp 206-207°.

Dibenzoyl: [163042-90-8]
Foam.

Kim, H.O. *et al., J. Med. Chem.*, 1994, **37**, 3614-3621 (*synth, pmr, pharmacol, sar*)
Jacobson, K.A. *et al., J. Med. Chem.*, 1995, **38**, 1720-1735 (*pharmacol*)
Pat. Coop. Treaty (WIPO), 1995, 95 02 604, (*US Dept Health and Human Services*); *CA*, **123**, 257265q (*synth, pharmacol*)

[2-(Chloromethyl)phenyl] glucopyranoside C-120



$C_{13}H_{17}ClO_6$ 304.726

α-D-*form* [143836-15-1]
Mp 104-106° dec. $[\alpha]_D$ +192 (c, 1.0 in MeOH).

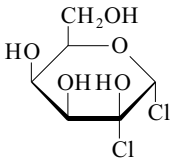
4′-Nitro: (2-Chloromethyl-4-nitrophenyl) α-D-glucopyranoside
[143836-10-6]
$C_{13}H_{16}ClNO_8$ 349.724
Inhibitor of yeast α-glucosidase. Mp 133-135°. $[\alpha]_D$ +220 (c, 0.3 in MeOH).

6′-Nitro: (2-Chloromethyl-6-nitrophenyl) α-D-glucopyranoside
[161767-43-7]
$C_{13}H_{16}ClNO_8$ 349.724
$[\alpha]_D$ -5.3 (c, 3.6 in H_2O).

6′-Nitro, tetra-Ac: [161767-45-9]
$C_{21}H_{24}ClNO_{12}$ 517.873
Mp 100-101°.

Briggs, J.C. *et al., J.C.S. Perkin 1*, 1995, 27 (*synth, pmr*)

2-*C*-Chlorotalopyranosyl chloride C-121



$C_6H_{10}Cl_2O_5$ 233.047

α-D-*form*

Tetrabenzoyl: 2,3,4,6-Tetra-O-benzoyl-2-C-chloro-α-D-talopyranosyl chloride
[55628-80-3]
$C_{34}H_{26}Cl_2O_9$ 649.479
Syrup. $[\alpha]_D^{25}$ +85.5 (c, 8.5 in $CHCl_3$).

Lundt, I. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 70 (*tetrabenzoyl, cmr, pmr*)

2-Chloro-9*H*-thioxanthen-9-one, 9CI C-122

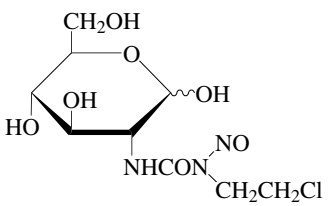
2-Chlorothioxanthone
[86-39-5]
$C_{13}H_7ClOS$ 246.716
Yellow solid, pale yellow needles (AcOH or EtOH). Mp 152-153° (142°).

S,S-*Dioxide:*
$C_{13}H_7ClO_3S$ 278.715
Mp 230° (222°).

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 96D (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 92C (*ir*)
Ullman, F. *et al., Ber.*, 1905, **38**, 740 (*synth*)
Gilman, H. *et al., J.O.C.*, 1959, **24**, 1914 (*synth, ir, dioxide*)
Okabashi, I. *et al., Yakugaku Zasshi*, 1969, **89**, 112 (*synth*)
Chu, S.S.C. *et al., Acta Cryst. B*, 1976, **32**, 2248 (*cryst struct*)
Terney, A.L. *et al., J. Het. Chem.*, 1986, **23**, 1879 (*pmr, cmr*)
Carmichael, I. *et al., J. Phys. Chem., Ref. Data*, 1986, **15**, 1 (*rev, uv*)
Harwood, J.S. *et al., J.C.S. Perkin 2*, 1989, 325 (*cmr*)

Chlorozotocin C-123

2-[[[(2-Chloroethyl)nitrosoamino]carbonyl]amino]-2-deoxyglucose, 9CI.
2-[3-(2-Chloroethyl)-3-nitrosoureido]-2-deoxyglucopyranose
[54749-90-5]



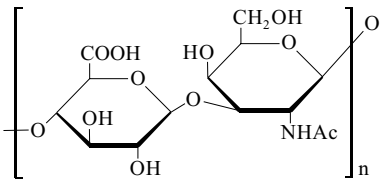
$C_9H_{16}ClN_3O_7$ 313.694
Antineoplastic agent. Cryst. (EtOH). Mp 140-141° dec.

▶ Probable human carcinogen (IARC 2A).

Burns, H. *et al., Org. Prep. Proced. Int.*, 1974, **6**, 259-263 (*synth*)
Anderson, T. *et al., Cancer Res.*, 1975, **35**, 761-765 (*pharmacol*)
Johnston, T.P. *et al., J. Med. Chem.*, 1975, **18**, 104-106 (*synth, ir, pmr, pharmacol*)
Wong, K.H. *et al., Cancer Res.*, 1989, **49**, 6169-6173 (*pharmacol*)

Chondroitin C-124

[9007-27-6]



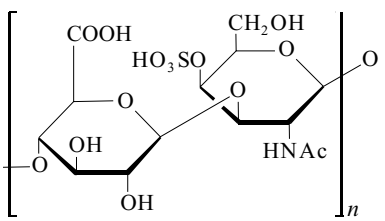
Some sulfate ester groups are present. Found in amniotic fluid, aorta, leucocytes, cornea, placenta (but decreasing with term) and urine. A good source is bovine cornea.
$[\alpha]_D$ -37 (H_2O).

[9007-28-7]

Hoffman, P. *et al., Biochim. Biophys. Acta*, 1958, **30**, 184
Schubert, M. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 109 (*isol*)
Jeanloz, R.W. *et al., The Carbohydrates*, 1970, **2**, 597 (*isol*)
Kobayashi, S. *et al., J.A.C.S.*, 2003, **125**, 14357-14369 (*synth*)

Chondroitin sulfate C-125

Chondroitinsulfuric acid



$C_{14}H_{21}NO_{14}S$ 459.384
Mucopolysaccharides containing D-Glucuronic acid and sulphated *N*-Acetyl-D-galactosamine. MW = 20,000-50,000. Polymeric. Minimum formula given. Type A (illus.) is the 4-sulfate and type C is the 6-sulfate. Main source human cartilage and aorta (type A), heart valves (type C). Component of the heparinoid danaparoid. Used in the treatment of ischaemic heart disease, osteoporosis and hyperlipidaemias. Also used as an adjunct to ocular surgery. Shows antiviral activity against tobacco mosaic virus. $[\alpha]_D$ -26 (H_2O) (type A). $[\alpha]_D$ -12 (H_2O) (type B).

▶ Exp. teratogen.

Na salt: ***Chondroitin sulfate sodium, JAN***
[39455-18-0]

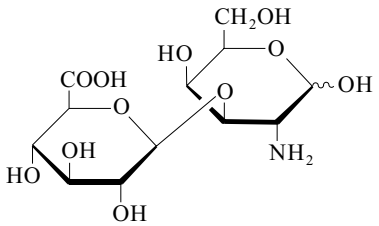
[9082-07-9, 12678-07-8, 24967-93-9, 25322-46-7]

Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1972, **5**, 110 (*prep*)
Brewer, C.F. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1975, **72**, 3421 (*cmr*)
Hamer, G. *et al., Carbohydr. Res.*, 1976, **49**, 37 (*pmr*)

Lindahl, U. *et al., Annu. Rev. Biochem.*, 1978, **47**, 385
Carr, S.A. *et al., J. Carbohydr. Chem.*, 1984, **3**, 381-401 (*ms*)
Probst, L.E. *et al., J. Cataract. Refract. Surgery*, 1994, **20**, 145 (*use*)
Sano, Y. *et al., Carbohydr. Polym.*, 1997, **33**, 125-129 (*activity*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 1562
Yeung, B.K.S. *et al., J. Carbohydr. Chem.*, 2002, **21**, 799-865 (*rev, synth*)

Chondrosine C-126

2-Amino-2-deoxy-3-O-β-D-glucopyranuronosyl-D-galactose, 9CI
[499-14-9]



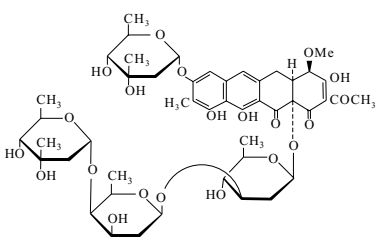
$C_{12}H_{21}NO_{11}$ 355.298
Disaccharide unit of chondroitin 4-sulphate and 6-sulphate. Cryst. (EtOH). $[\alpha]_D^{20}$ +39 (c, 1.0 in H_2O). Darkens at 185° but does not melt.

Me ester:
$C_{13}H_{23}NO_{11}$ 369.325
Cryst. (EtOH) as hydrochloride. Mp 159-161°. $[\alpha]_D^{23}$ +42 (c, 2.0 in H_2O).

Davidson, E.A. *et al., J.A.C.S.*, 1954, **76**, 5686 (*isol*)
Takanashi, S. *et al., J.A.C.S.*, 1962, **84**, 3029 (*synth*)
Senma, M. *et al., Chem. Lett.*, 1974, 1415 (*abs config*)

Chromocyclomycin C-127

[21509-80-8]



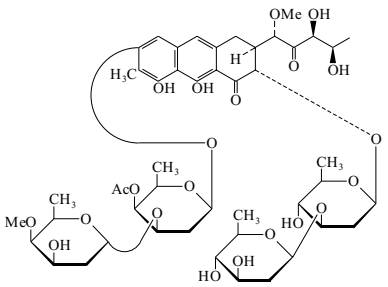
$C_{48}H_{64}O_{21}$ 977.021
Belongs to Chromomycin family of antibiotics. Metab. of a *Streptomyces* sp. LA-7017 and *Streptomyces atrooliva-ceus*. Shows antitumour activity. Cryst. (Me_2CO). Sol. EtOAc, $CHCl_3$, MeOH; poorly sol. hexane, H_2O.
Mp 196-198°. $[\alpha]_D^{27}$ -209 (1.5 min) → +21 (8h) (c, 0.3 in Py). λ_{max} 229 (ε 34670); 283 (ε 55000); 322 (ε 16200); 335 (ε 13500); 420 (ε 10500) (EtOH) (Berdy).

Aglycone: Chromocycline
[25312-41-8]
$C_{22}H_{20}O_9$ 428.395
Shows weak antibacterial activity. Cryst. (MeCN). Mp 226-228°. $[\alpha]_D^{27}$ -350 (1.5 min) → -109 (1h) (c, 0.3 in Py).

Berlin, Yu.A. *et al., Khim. Prir. Soedin.*, 1973, **9**, 532; 504; *Chem. Nat. Compd. (Engl. Transl.)*, 1973, **9**, 498; 504 (*struct, pmr, ord*)
Stajner, K. *et al., Folia Microbiol. (Prague)*, 1974, **19**, 498 (*isol*)

Chromomycin A_4 C-128

7-Methylolivomycin D, 9CI. Aburamycin D
[7198-11-0]

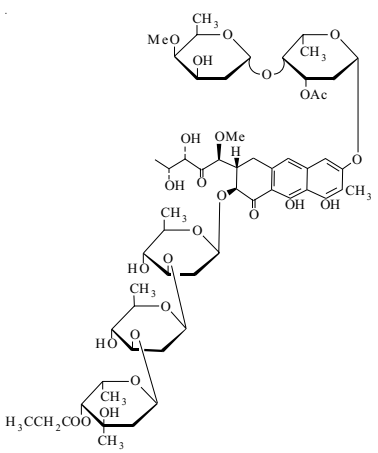


$C_{48}H_{68}O_{22}$ 997.052
Prod. by *Streptomyces griseus* ATCC13273 and by part. hydrol. of Chromomycin A_3. Antineoplastic antibiotic. Yellow powder + H_2O. Sol. MeOH, Me_2CO, EtOAc; poorly sol. hexane. $[\alpha]_D^{21}$ -47 (c, 1.0 in EtOH). λ_{max} 230 (ε 18600); 279 (ε 46770); 318 (ε 7080); 332 (ε 5890); 415 (ε 8510) (EtOH) (Berdy).
▶ LD_{50} (mus, ivn) 1.5 mg/kg. GB7876000

Miyamoto, M. *et al., Tet. Lett.*, 1966, 545 (*struct*)
Berlin, Yu.A. *et al., Tet. Lett.*, 1966, 1643 (*struct*)
Berlin, Yu.A. *et al., Nature (London)*, 1968, **218**, 193

Chromomycin A_p C-129

[64967-61-9]

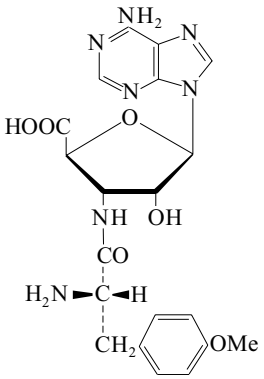


$C_{58}H_{84}O_{26}$ 1197.286
Chromomycin-type antibiotic. Isol. from *Streptomyces griseus*. Antibacterial and anticancer agent. Sol. MeOH, $CHCl_3$, THF, dioxan; fairly sol. Et_2O, phenol; poorly sol. hexane, CS_2, CCl_4. λ_{max} 230 (ε 24600); 279 (ε 51300); 318 (ε 8100); 332 (ε 6920); 413 (ε 9780) (EtOH) (Berdy).
▶ LD_{50} (mus, ipr) 1 - 1.5 mg/kg. RK4385100

Japan. Pat., 1977, 77 102 202; *CA*, **88**, 49002h (*isol*)

Chryscandin C-130

Antibiotic FR 48736. Antibiotic WF 4629. FR 48736. WF 4629
[86936-90-5]

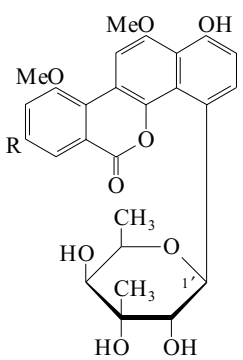


$C_{20}H_{23}N_7O_6$ 457.445
Nucleoside antibiotic. Isol. from *Chrysosporium pannorum*. Antifungal, antibacterial agent. Sol. H_2O, MeOH; poorly sol. Me_2CO, $CHCl_3$. Log P -3.66 (calc). λ_{max} 258 (ε 30600) (0.1*M* HCl) (Derep). λ_{max} 260 (ε 33400) (0.1*M* NaOH) (Derep). λ_{max} 260 (ε 32500) (H_2O) (Derep). λ_{max} 260 (E1%/1cm 730) (MeOH) (Berdy). λ_{max} (H_2O) (Berdy). λ_{max} (HCl) (Berdy). λ_{max} 260 (ε 34300) (NaOH) (Berdy).
▶ LD_{50} (mus, ipr) 1000 - 3000 mg/kg.
Hydrochloride (1:2): [86936-92-7]
Needles + $1H_2O$ (0.1*M* HCl). Mp 215-233° dec. $[\alpha]_D^{22}$ +34 (c, 1 in 1*M* HCl).
▶ VJ2247250

Yamashita, M. *et al., J. Antibiot.*, 1984, **37**, 1279; 1284 (*isol, ir, pmr, props, synth*)
Yamashita, M. *et al., Tet. Lett.*, 1984, **25**, 4689
Komori, T. *et al., J. Antibiot.*, 1985, **38**, 1182 (*synth, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Chrysomycin A C-131

Chrysomycin V. Virenomycin V
[82196-88-1]



R = CH=CH$_2$

$C_{28}H_{28}O_9$ 508.524

C-Glycoside antibiotic. Identity of Chrysomycin A and Virenomycin V not conclusively establ. (sugar stereochem. not fully clear). Props. are similar. From *Streptomyces* sp. A-419 and *Streptomyces virens*. Active against gram-positive bacteria and bacterophages. Weakly active against gram-negative bacteria and some fungi. Greenish-yellow needles or yellow cryst. Mp 240° subl Mp 255-260° dec. $[\alpha]_D^{22}$ +16 (c, 1 in AcOH). $[\alpha]_D^{20}$ +12.5 (c, 0.24 in AcOH).

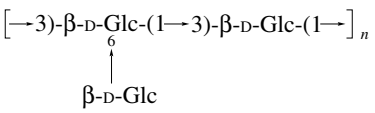
Tri-Ac: Mp 311-312°. λ_{max} 217 ; 251 ; 265 ; 307 ; 325 ; 337 ; 392 ($CHCl_3$).

1′-Epimer: ***Albacarcin V***
[92841-46-8]
$C_{28}H_{28}O_9$ 508.524
Isol. from *Streptomyces albaduncas*. Antitumour and antibacterial substance. Sol. MeOH, EtOAc; poorly sol. H_2O, hexane. λ_{max} 246 (ε 33259); 286 (ε 33970); 392 (ε 7272) (MeOH) (Berdy).

[1403-38-9, 83138-95-8]

Asheshov, I.N. *et al., Antibiot. Chemother. (Washington, D.C.)*, 1954, **4**, 380
Strelitz, F. *et al., J. Bacteriol.*, 1955, **69**, 280 (*isol*)
Gauze, G.F. *et al., Antibiotiki (Moscow)*, 1977, **22**, 963 (*isol*)
Brazhnikova, M.G. *et al., Antibiotiki (Moscow)*, 1977, **22**, 967 (*props*)
Kudinova, M.K. *et al., Antibiotiki (Moscow)*, 1982, **27**, 507 (*isol*)
Weiss, U. *et al., J. Antibiot.*, 1982, **35**, 1194 (*struct*)
U.S. Pat., 1984, 4 461 831; *CA*, **102**, 4456 (*Albacarcin V*)

Cinerean C-132

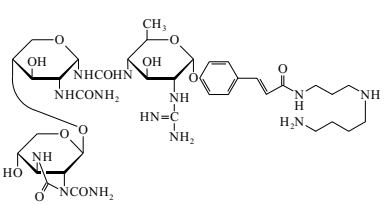


MW 50,000-200,000. Extracellular glucan prod. by *Botyritis cinerea*.

Stahmann, K.P. *et al., Carbohydr. Res.*, 1995, **266**, 115-128 (*isol, struct*)

Cinodine I, 9CI C-133

Glycocinnaspermicidin B. Antibiotic BM 123$_{\gamma 1}$. BM 123$_{\gamma 1}$. Antibiotic LL-BM 123$_{\gamma 1}$. LL-BM 123$_{\gamma 1}$
[60830-76-4]



$C_{37}H_{59}N_{13}O_{13}$ 893.952

Glycolipid antibiotic. Isol. from *Nocardia* spp. Active against gram-positive and -negative bacteria and exp. infections in mice. DNA gyrase inhibitor. Sol. H_2O; fairly sol. MeOH; poorly sol. Et_2O, hexane, butanol. λ_{max} 286 (ε 22500) (H_2O) (Derep). λ_{max} 286 (E1%/1cm 225) (MeOH) (Berdy).

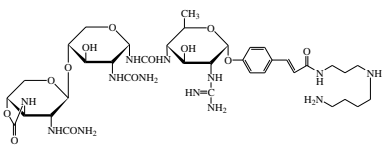
▶ LD_{50} (mus, scu) 88 mg/kg. GE3753000

Hydrochloride: Cinodine hydrochloride. CL 98984
[68782-58-1]
Amorph. powder. $[\alpha]_D^{25}$ +55 (c, 0.8 in H_2O). Dec. at *ca.* 200°.

Tresner, H. *et al., J. Antibiot.*, 1978, **31**, 394-397 (*isol*)
Martín, J.H. *et al., J. Antibiot.*, 1978, **31**, 398-404 (*isol, props*)
Ellestad, G.A. *et al., J.A.C.S.*, 1978, **100**, 2515-2524 (*struct*)
Chiu, S.H.L. *et al., J. Antibiot.*, 1984, **37**, 1000-1006; 1079-1081 (*biosynth, cmr*)
Osburne, M.S. *et al., Antimicrob. Agents Chemother.*, 1990, **34**, 1450-1452 (*activity*)

Cinodine II, 9CI C-134

LL-BM 123$_{\gamma 2}$. Antibiotic LL-BM 123$_{\gamma 2}$. BM 123γ_2. Antibiotic BM 123γ_2. Glycocinnaspermicidin C
[60830-75-3]



$C_{37}H_{59}N_{13}O_{13}$ 893.952

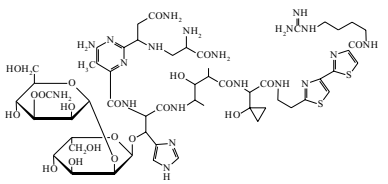
Glycolipid antibiotic. Isol. from *Nocardia* sp. Active against gram-positive and -negative bacteria and exp. infections in mice. Amorph. powder (as hydrochloride). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 200° dec. (hydrochloride). $[\alpha]_D^{25}$ +60 (c, 0.85 in H_2O). λ_{max} 286 (ε 22500) (H_2O) (Derep). λ_{max} 286 (E1%/1cm 220) (MeOH) (Berdy). λ_{max} 286 (E1%/1cm 220) (HCl) (Berdy). λ_{max} 286 (E1%/1cm 220) (NaOH) (Berdy).

▶ CB9626010

Ellestad, G.A. *et al., J.A.C.S.*, 1978, **100**, 2515 (*struct*)
U.S. Pat., 1979, 4 154 925; *CA*, **91**, 138848t (*manuf*)
Chiu, S.H.L. *et al., J. Antibiot.*, 1984, **37**, 1000; 1079 (*biosynth*)

Cleomycin B_2 C-135

[76741-88-3]



Peptide antibiotic. Isol. from *Streptomyces verticillus*. Active against gram-positive and -negative bacteria and tumours. Sol. H_2O. Occurs complexed with Cu. λ_{max} 244 ; 294 (MeOH) (Berdy).

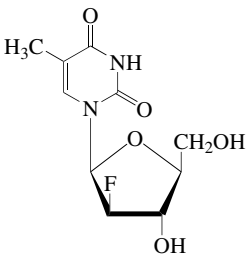
Hydrochloride:
Pale-yellow amorph. powder. Mp 185-188° dec.

Cu complex; hydrochloride:
Blue powder. Mp 197-201°.

Umezawa, H. *et al., J. Antibiot.*, 1980, **33**, 1079 (*struct, nmr*)

Clevudine, INN, USAN C-136

1-(2-Deoxy-2-fluoroarabinofuranosyl)-5-methyl-2,4(1H,3H)-pyrimidinedione, 9CI. 1-(2-Deoxy-2-fluoroarabinofuranosyl)thymine. 2′-Fluoro-5-methylarabinofuranosyluracil. FMAU



β-L-*form*

$C_{10}H_{13}FN_2O_5$ 260.222

Strictly, the name Clevudine refers to the β-L-form. Antiviral agent for hepatitis B virus and Epstein-Barr virus.
Clin. trial discontinued due to neurotoxic effects

β-D-*form*
β-FMAU. D-FMAU
[69256-17-3] Antiviral agent with antineoplastic activity *in vitro*.
Cryst. (H_2O). Mp 187-188°.

β-L-*form*
L-FMAU
[163252-36-6]
Cryst. (MeOH/$CHCl_3$). Mp 184-185°. $[\alpha]_D^{25}$ -111.77 (c, 0.23 in MeOH).

▶ Lacks toxicity profile associated with β-D-form.

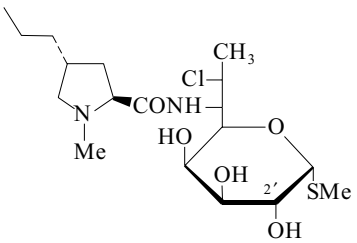
[97672-34-9, 172494-45-0]

Watanabe, K.A. *et al., J. Med. Chem.*, 1979, **22**, 21-24; 1983, **26**, 152-156 (*β-D-form, synth, biochem*)
Philips, F.S. *et al., Cancer Res.*, 1983, **43**, 3619-3627 (*β-D-form, pharmacol*)
Feinberg, A. *et al., Drug Metab. Dispos.*, 1984, **12**, 784-786 (*β-D-form, metab*)
Tann, C.H. *et al., J.O.C.*, 1986, **50**, 3644-3647 (*β-D-form, synth, ir, pmr*)
Chou, T.C. *et al., Antimicrob. Agents Chemother.*, 1987, **31**, 1355-1358 (*β-D-form, biochem*)
Abbruzzese, J.L. *et al., Invest. New Drugs*, 1989, **7**, 195-201 (*β-D-form, use, tox*)
Watanabe, K.A. *et al., Carbohydr. Res.*, 1991, **216**, 1-9 (*β-D-form, pmr*)
Chu, C.K. *et al., Antimicrob. Agents Chemother.*, 1995, **39**, 979-981 (*synth, activity, clevudine*)
Pat. Coop. Treaty (WIPO), 1995, 95 20 595, (*Univ. of Georgia Res. Found.*); *CA*, **124**, 56575n (*synth, pharmacol*)
Yao, G.-Q. *et al., Biochem. Pharmacol.*, 1996, **51**, 941-947 (*pharmacol*)
Wright, J.D. *et al., Biopharm. Drug Dispos.*, 1996, **17**, 197-207 (*pharmacokinet*)
Ma, T. *et al., J. Med. Chem.*, 1996, **39**, 2835-2843 (*synth, pmr, uv, pharmacol*)
Aguesse-Germon, S. *et al., Antimicrob. Agents Chemother.*, 1998, **42**, 369-376 (*activity*)
Liu, S.-H. *et al., Antimicrob. Agents Chemother.*, 1998, **42**, 833-839 (*pharmacol*)

Chu, C.K. *et al., Drugs of the Future*, 1998, **23**, 821-826 (*rev*)

Clindamycin, BAN, INN, JAN, USAN C-137

7-Chloro-7-deoxylincomycin. Aclinda. Basocin. Cleocin. Cleocin T. Clinda. ClindaDerm. Clindahexal. Clindatech. Clinimycin†. C/T/S. Dalacin C. Dalacin T. Klindamycin. Klinicin. Lanacine. Sobelin. Turimycin. U 21251. Antibiotic U 21251. Many other names
[18323-44-9]



$C_{18}H_{33}ClN_2O_5S$ 424.988
Semisynthetic. Broad spectrum antibiotic. Used in the treatment of acne. Marketed drug. Approved for pharmaceutical use 1992$[\alpha]_D$ +214 ($CHCl_3$). Log P 1.02 (uncertain value) (calc).

▶ Gastrointestinal disturbances, hypersensitivity reactions and hepatic effects reported when used therapeutically. LD_{50} (rat, scu) 2618 mg/kg. RH6300000

Hydrochloride: ***Clindamycin hydrochloride, USAN****. Dalactine*
[21462-39-5]
Cryst. (EtOH/EtOAc). Mp 141-143°. $[\alpha]_D$ +144 (H_2O).

▶ LD_{50} (rat, orl) 2193 mg/kg. GF2275000

$O^{2'}$-Phosphate: ***Clindamycin phosphate, USAN****. U 28508*
[24729-96-2]
$C_{18}H_{34}ClN_2O_8PS$ 504.968
Mp 109-114°.

▶ Cardiotoxic effects reported when used intravenously. LD_{50} (rat, scu) 3861 mg/kg; LD_{50} (rat, orl) 1832 mg/kg. Exp. reprod. and teratogenic effects. GF2625000

2′-Hexadecanoate; hydrochloride: ***Clindamycin palmitate hydrochloride, USAN***
[25507-04-4]

▶ LD_{50} (rat, scu) 2000 mg/kg.

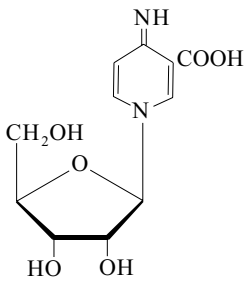
4-Depropyl, 4-ethyl: Clindamycin B
[18323-43-8]
$C_{17}H_{31}ClN_2O_5S$ 410.961
Semisynthetic.

[36688-78-5]

South African Pat., 1968, 67 06 645; *CA*, **71**, 13337 (*phosphate*)
Birkenmeyer, R.D. *et al., J. Med. Chem.*, 1970, **13**, 616 (*synth*)
Ger. Pat., 1971, 2 125 112; *CA*, **76**, 46464 (*synth*)
Ninomiya, M. *et al., J. Antibiot.*, 1973, **26**, 157
Yamanaka, Y. *et al., Jpn. J. Antibiot.*, 1974, **27**, 32 (*pharmacol, phosphate*)
Brown, L.W. *et al., Anal. Profiles Drug Subst.*, 1981, **10**, 75 (*rev*)
LeFrock, J.L. *et al., Med. Clin. North Am.*, 1982, **66**, 103 (*rev, pharmacol*)
Polyak, M.S. *et al., Antibiotiki (Moscow)*, 1984, **29**, 628 (*rev*)
Zambrano, D. *et al., Clin. Ther.*, 1991, **13**, 58 (*rev*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **3**, 162 (*rev*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 191
Bowden, K. *et al., J. Serb. Chem. Soc.*, 2000, **65**, 691-694 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CMV675; CMV690

Clitidine C-138

1,4-Dihydro-4-imino-1-β-D-ribofuranosyl-3-pyridinecarboxylic acid. Chrytidine
[63592-84-7]



$C_{11}H_{14}N_2O_6$ 270.241
Constit. of the toxic mushroom *Clitocybe acromelalga*.
Mp 189-191° (monohydrate). $[\alpha]_D^{24}$ -50.6 (c, 1.0 in H_2O). λ_{max} 267 (ϵ 14500) (H_2O at pH 2) (Derep). λ_{max} 271 (ϵ 15100) (H_2O at pH 12) (Derep). λ_{max} 271 (ϵ 12590) (H_2O) (Derep).

▶ Toxic.

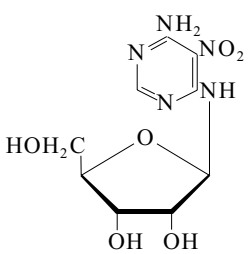
5′-Phosphate: ***Clitidine 5′-monophosphate****. Clitidine 5′-mononucleotide*
[65411-71-4]
$C_{11}H_{15}N_2O_9P$ 350.221
Constit. of *Clitocybe acromelalga*.
$[\alpha]_D^{18}$ -43.5 (c, 0.4 in H_2O). λ_{max} 268 (log ϵ 4.31) (H_2O).

3′,5′-Dibenzoyl: Mp 160-161°.

Konno, K. *et al., Tet. Lett.*, 1977, 481 (*synth, struct, pmr, ms*)
Tono-oka, S. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 212-216 (*synth*)
Konno, K. *et al., Tetrahedron*, 1982, **38**, 3281 (*abs config*)
Yamano, K. *et al., Phytochemistry*, 1994, **35**, 897-899 (*5′-phosphate*)
Shirahama, H. *et al., Heterocycles*, 1998, **47**, 661-664 (*tautom, cryst struct*)

Clitocine C-139

N-*(6-Amino-5-nitro-4-pyrimidinyl)-β-D-ribofuranosylamine, 9CI. 6-Amino-5-nitro-4-imino-β-D-ribofuranosylpyrimidine*
[105798-74-1]

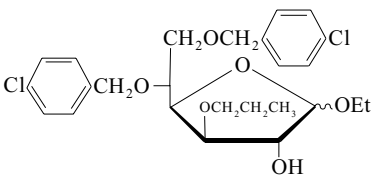


$C_9H_{13}N_5O_6$ 287.232
Nucleoside isol. from the mushroom *Clitocybe inversa*. Insecticidal agent. Sol. MeOH, EtOAc; poorly sol. cyclohexane. Mp 228-230°. λ_{max} 255 (ϵ 7950); 330 (ϵ 2190) (EtOH) (Derep). λ_{max} 255 (ϵ 7450); 330 (ϵ 2190) (EtOH) (Berdy).

Kubo, I. *et al., Tet. Lett.*, 1986, **27**, 4277 (*isol, uv, ir, pmr, cmr, ms*)
Larson, S.B. *et al., Acta Cryst. C*, 1988, **44**, 1076 (*cryst struct*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Kamikawa, T. *et al., Chem. Comm.*, 1988, 195 (*synth*)
Palmer, C.F. *et al., Tet. Lett.*, 1990, **31**, 279 (*synth*)

Clobenoside, INN C-140

Ethyl 5,6-bis-O-(4-chlorobenzyl)-3-O-propyl β-D-glucofuranoside. Ciba 43853
[29899-95-4]

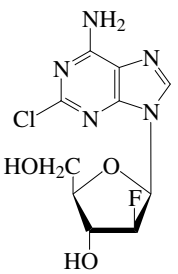


$C_{25}H_{32}Cl_2O_6$ 499.43
Antiinflammatory agent. Launched 1988. Yellowish oil. $Bp_{0.03}$ 220°. $[\alpha]_D^{20}$ -24 (c, 1.0 in $CHCl_3$). Log P 5.71 (calc).

U.K. Pat., 1971, 1 246 117; *CA*, **76**, 34536p (*synth, pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1355

Clofarabine C-141

2-Chloro-9-(2-deoxy-2-fluoro-β-D-arabinofuranosyl)-9H-purin-6-amine, 9CI. 2-Chloro-9-(2-deoxy-2-fluoro-β-D-arabinofuranosyl)adenine
[123318-82-1]

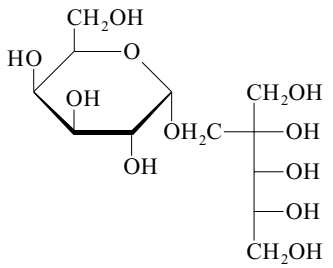


$C_{10}H_{11}ClFN_5O_3$ 303.68
Antineoplastic agent. Phase II trials (2003). Cryst. (H_2O). Mp 225-226°.

Parker, W.B. *et al., Cancer Res.*, 1991, **51**, 2386-2394 (*pharmacol*)
Pat. Coop. Treaty (WIPO), 1992, 92 20 347, (*Southern Res. Instit.*); *CA*, **118**, 192189t (*synth, pharmacol*)
Carson, D.A. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1992, **89**, 2970-2974 (*pharmacol*)
Kantarjian, H. *et al., Blood*, 2003, **102**, 2379-2386; 2004, **103**, 784-789 (*pharmacol*)
Sternberg, A. *et al., Curr. Opin. Invest. Drugs*, 2003, **4**, 1479-1487 (*rev*)

Clusianose C-142

1-O-α-D-Galactopyranosyl-2-C-(hydroxymethyl)-D-ribitol, 9CI. 1-O-α-D-Galactopyranosylhamamelitol
[24570-20-5]

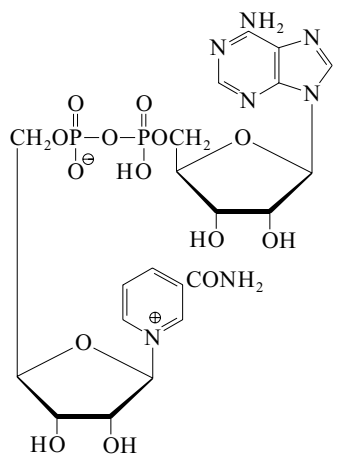


$C_{12}H_{24}O_{11}$ 344.315
Isol. from several species of *Primula* e.g. *Primula clusiana, Primula glaucescens, Primula spectabilis, Primula deorum* and *Primula integrifolia*. Hygroscopic cryst. (EtOH).
Mp 180-190°. $[\alpha]_D^{20}$ +131 (H_2O).

Sellmair, J. *et al., Z. Pflanzenphysiol*, 1969, **61**, 360 (*isol*)
Sellmair, J. *et al., Phytochemistry*, 1977, **16**, 1201

Coenzyme I, 8CI C-143

Adenosine 5′-(trihydrogen diphosphate) (5′→5′) ester with 3-(aminocarbonyl)-1-β-D-ribofuranosylpyridinium hydroxide inner salt, 9CI. Nicotinamide adenine dinucleotide. ***Nadide, BAN, INN, JAN, USAN****. Codehydrase I. Codehydrogenase I. Cozymase. Diphosphopyridine nucleotide. Enzopride. DPN. NAD†. NSC 20272. Co I. NAD^+*
[53-84-9]



$C_{21}H_{27}N_7O_{14}P_2$ 663.43
Isol. from bakers' yeast. Antagonist to alcohol and narcotic analgesics. Biological hydrogen acceptor. Hygroscopic powder. Sol. H_2O. λ_{max} 260 (ε 17.6 × 10^6) (H_2O), 340 nm (6.2 × 10^6)(reduced form). Forms a complex with alkaline cyanide which may be used for its estimation. Stable for weeks in cold neutral soln. Less stable in acid soln., rapidly dec. by alkali.
▶ LD_{50} (mus, ipr) 4333 mg/kg. UU3450000
Dihydro: Adenosine 5′-(trihydrogen diphosphate) (5′→5′) ester with 1,4-dihydro-1-β-D-ribofuranosyl-3-pyridinecarboxamide, 9CI. ***NADH****. Reduced codehydrogenase. DPNH*
[58-68-4]
$C_{21}H_{29}N_7O_{14}P_2$ 665.446
Reduced form of Coenzyme I in biological systems.
λ_{max} 259, 338 nm.

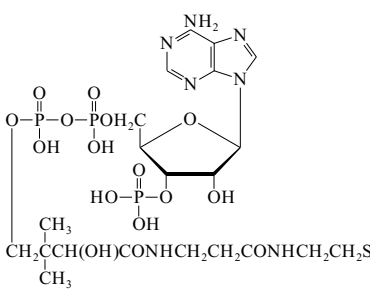
[606-68-8]

Biochem. Prep., 1949, **1**, 28 (*isol*)
Biochem. Prep., 1953, **3**, 20 (*isol, synth*)
Hughes, N.A. *et al., J.C.S.*, 1957, 3733 (*synth*)
Shifrini, S. *et al., Nature (London)*, 1959, **183**, 1529 (*NADH, struct*)
Dalziel, K. *et al., Biochem. J.*, 1962, **84**, 240 (*NADH, synth, props*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1963, **41**, 889 (*stereochem*)
Biochem. Prep., 1966, **11**, 84 (*purifn*)
Sarma, R.H. *et al., J. Biol. Chem.*, 1969, **244**, 771 (*pmr*)
Sarma, R.H. *et al., Biochemistry*, 1970, **9**, 557 (*conformn, pmr*)
Birdsall, B. *et al., J.C.S. Perkin 2*, 1972, 1643 (*NADH, cmr*)
Sarma, R.H. *et al., Org. Magn. Reson.*, 1972, **4**, 577 (*NADH, P-31 nmr*)
Blumenstein, M. *et al., Biochemistry*, 1973, **12**, 3585 (*cmr*)
Nishizuka, Y. *et al., Method. Chim.*, 1977, **11**, 84 (*rev*)
Walsh, C. *et al., Annu. Rev. Biochem.*, 1978, **47**, 881 (*rev*)
Loesche, W. *et al., Methods Enzymol.*, 1980, **66**, 11 (*purifn, rev*)
Whitesides, G.M. *et al., ACS Symp. Ser.*, 1982, **185**, 205 (*enzymic synth, rev*)
Kemal, C. *et al., Compr. Heterocycl. Chem.*, Katritzky A.R. and Rees C.W., Eds., Pergamon, 1984, **1**, 247 (*rev, bibl*)
Walt, D.R. *et al., J.A.C.S.*, 1984, **106**, 234 (*synth*)
Yue, K.T. *et al., Biochemistry*, 1986, **25**, 4941 (*Raman*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 685
Lee, J. *et al., Chem. Comm.*, 1999, 729-730 (*synth*)

Coenzyme A, 9CI C-144

Adenosine 5′-(trihydrogen diphosphate) 3′-(dihydrogen phosphate) 5′-[3-hydroxy-4-[[3-[(2-mercaptoethyl)amino]-3-oxopropyl]amino]-2,2-dimethyl-4-oxobutyl] ester. Aluzime. CoA. Coalip. Lucina
[85-61-0]

[31416-98-5]



$C_{21}H_{36}N_7O_{16}P_3S$ 767.54
Constit. of many microorganisms. A cofactor in enzymatic acetyl transfer reactions. *S*-Acyl derivs (see below) are biochemically important in acyl transfer reactions. They are powerful inhibitors of *de novo* fatty acid biosynthesis. Powder. Sol. H_2O. Inactivated by phosphatase. Oxid. by air to inactive disulfide. λ_{max} 260 (ε 16800) (H_2O).

S-*Ac: Acetylcoenzyme A*
[72-89-9]

[75520-41-1]
$C_{23}H_{38}N_7O_{17}P_3S$ 809.577
The most important metabolic acyl transfer agent. In aerobic organisms the Ac group is formed by degradn. of carbohydrates, aminoacids and fats; in anaerobic organisms by carbonylation of Me groups attached to tetrahydrofolic acid.

S-*Propanoyl:* [317-66-8]
$C_{24}H_{40}N_7O_{17}P_3S$ 823.604

S-*Butanoyl:* [2140-48-9]
$C_{25}H_{42}N_7O_{17}P_3S$ 837.631

S-*(2E-Butenoyl): Crotonylcoenzyme A*
[992-67-6]
$C_{25}H_{40}N_7O_{17}P_3S$ 835.615

S-*Hexanoyl:* [5060-32-2]
$C_{27}H_{46}N_7O_{17}P_3S$ 865.685

S-*Octanoyl:* [1264-52-4]
$C_{29}H_{50}N_7O_{17}P_3S$ 893.738

S-*Decanoyl:* [1264-57-9]
$C_{31}H_{54}N_7O_{17}P_3S$ 921.792

S-*Dodecanoyl:* [6244-92-4]
$C_{33}H_{58}N_7O_{17}P_3S$ 949.845

S-*Tetradecanoyl:* [3130-72-1]
$C_{35}H_{62}N_7O_{17}P_3S$ 977.899

S-*Hexadecanoyl: Palmitoylcoenzyme A*
[1763-10-6]
$C_{37}H_{66}N_7O_{17}P_3S$ 1005.953

S-*Octadecanoyl: Stearoylcoenzyme A*
[362-66-3]
$C_{39}H_{70}N_7O_{17}P_3S$ 1034.006

S-*(9Z-Octadecenoyl): Oleylcoenzyme A*
[1716-06-9]
$C_{39}H_{68}N_7O_{17}P_3S$ 1031.99

S-*(9Z,12Z-Octadecadienoyl):* [6709-57-5]
$C_{39}H_{66}N_7O_{17}P_3S$ 1029.975

S-*(5Z,8Z,11Z,14Z-Eicosatetraenoyl):*
[17046-56-9]
$C_{41}H_{66}N_7O_{17}P_3S$ 1053.997

S-*(3-Methyl-2-butenoyl): β-Methylcrotonylcoenzyme A*
[6712-03-4]
$C_{26}H_{42}N_7O_{17}P_3S$ 849.642

S-*(3-Oxobutanoyl): Acetoacetylcoenzyme A*
[1420-36-6]
$C_{25}H_{40}N_7O_{18}P_3S$ 851.615

S-*(Carboxyacetyl): Malonylcoenzyme A. 5-(Hydrogen propanedioate)coenzyme A, 9CI*
[524-14-1]
$C_{24}H_{38}N_7O_{19}P_3S$ 853.587
Involved in control of hepatic fatty acid synthesis and oxidation. Acts as a metabolic coupling factor in pancreatic β-cell signal transduction mechanisms linking insulin secretion and fatty acid metabolism. λ_{max} 236 (H_2O).

S-*(Methoxycarbonylacetyl): Methylmalonylcoenzyme A*
[1264-45-5]
$C_{25}H_{40}N_7O_{19}P_3S$ 867.614

S-*(3-Carboxypropanoyl): Succinylcoenzyme A*
[604-98-8]
$C_{25}H_{40}N_7O_{19}P_3S$ 867.614

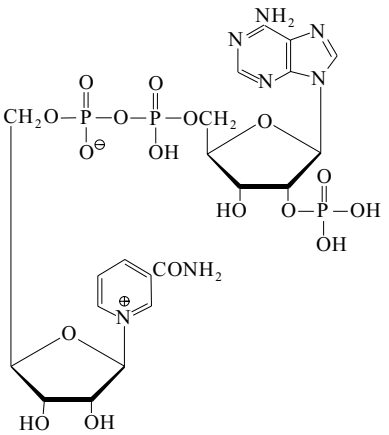
S-*(4-Carboxy-3-hydroxy-3-methylbutanoyl): β-Hydroxy-β-methylglutarylcoenzyme A. HMG-CoA*
[1553-55-5]
$C_{27}H_{44}N_7O_{20}P_3S$ 911.667
Biochemical precursor of mevalonic acid.

[18439-24-2, 55672-92-9, 59042-85-2, 116928-84-8]

Lipmann, F. *et al., J. Biol. Chem.*, 1950, **186**, 235 (*isol*)
Wilson, I.B. *et al., J.A.C.S.*, 1952, **74**, 3205-3206 (*synth*)
Lipmann, F. *et al., Bacteriol. Rev.*, 1953, **17**, 1 (*rev*)
Kaufman, S. *et al., J. Biol. Chem.*, 1953, **203**, 869-888 (*synth*)
Simon, E.J. *et al., J.A.C.S.*, 1953, **75**, 2520-2520 (*Succinylcoenzyme A*)
Baddiley, J. *et al., Adv. Enzymol. Relat. Subj. Biochem.*, 1955, **16**, 1 (*rev*)
Hilz, H. *et al., Biochem. Z.*, 1958, **329**, 476-489 (*synth, acyl derivs*)
Lynen, F. *et al., Biochem. Z.*, 1958, **330**, 269-295 (*synth, acyl derivs*)
Goldman, P. *et al., J. Biol. Chem.*, 1961, **236**, 2620-2623 (*Palmitoylcoenzyme A, Oleylcoenzyme A*)
Moffatt, J.G. *et al., J.A.C.S.*, 1961, **83**, 663 (*synth*)
Eggerer, H. *et al., Biochem. Z.*, 1962, **335**, 540-547 (*Maleoylcoenzyme A, synth*)
Kloss, R.A. *et al., Biochim. Biophys. Acta*, 1963, **70**, 90-91 (*Maleoylcoenzyme A, synth*)
Bonner, W.M. *et al., J. Biol. Chem.*, 1972, **247**, 3123-3133 (*Stearoylcoenzyme A*)
Pullman, M.E. *et al., Anal. Biochem.*, 1973, **54**, 188-198 (*chromatog*)
Lee, C. *et al., J.A.C.S.*, 1975, **97**, 1225 (*conformn*)
Wilson, A. *et al., J.A.C.S.*, 1975, **97**, 2907 (*pmr*)
Pucci, P. *et al., Clin. Ter. (Rome)*, 1977, **82**, 161; 269 (*revs*)
Baker, F.C. *et al., Anal. Biochem.*, 1979, **94**, 417-424 (*anal, purifn, esters*)
Kawaguchi, A. *et al., J. Biochem. (Tokyo)*, 1981, **89**, 337-339 (*synth, hplc, acyl derivs*)
Shimizu, S. *et al., FEBS Lett.*, 1983, **151**, 303 (*synth*)
Robishaw, J.D. *et al., Am. J. Physiol.*, 1985, **248**, E1 (*metab, rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1357
Prentki, M. *et al., Diabetes*, 1996, **45**, 273-283 (*Maleoylcoenzyme A, rev, biol*)

Coenzyme II, 9CI, 8CI C-145

Adenosine 5′-(trihydrogen diphosphate)-2′-(dihydrogen phosphate) (5′→5′) ester with 3-(aminocarbonyl)-1-β-D-ribofuranosylpyridinium hydroxide inner salt, 9CI. Nicotinamide adenine dinucleotide phosphate. Codehydrase II. Codehydrogenase II. Nadifosfate. Phosphocozymase. Triphosphopyridine nucleotide. NADP. TPN†. $NADP^+$
[53-59-8]



$C_{21}H_{28}N_7O_{17}P_3$ 743.41
Wide occurrence in living matter, particularly in the liver and in red blood corpuscles, mainly in the reduced form. A component of vitamin B_2 complex. Hydrogen carrier in biochemical redox systems. In the hexose monophosphoric acid system it is reduced to Dihydrocoenzyme II and reoxid. in the presence of flavoproteins. Greyish-white powder. Sol. H_2O. pK_{a1} 3.9; pK_{a2} 6.1. λ_{max} 260 (ϵ 18 × 10^6)(H_2O), 340 nm (ϵ 6.2 × 10^6) (reduced form).

▶ UU3440000

Mono-Na salt: [1184-16-3]
Cryst. + H_2O. Mp 175-178° dec.

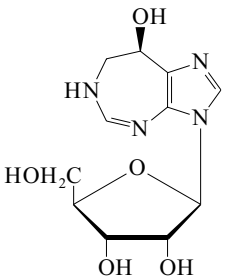
Dihydro: NADPH. TPNH. $NADPH_2$
[53-57-6]
$C_{21}H_{30}N_7O_{17}P_3$ 745.426
Reduced form of Coenzyme II in biological systems.
λ_{max} 259, 340 nm. Contains a 1,4-dihydropyridine ring.

[2646-71-1]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 608B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 815D (*ir*)
Todd, A.R. *et al., J.C.S.*, 1941, 427 (*rev*)
Lepage, G.A. *et al., J. Biol. Chem.*, 1949, **180**, 975 (*isol*)
Biochem. Prep., 1953, **3**, 24 (*isol, synth*)
Silverstein, E. *et al., Anal. Biochem.*, 1965, **12**, 199 (*purifn*)
Jardetzky, O. *et al., J. Biol. Chem.*, 1966, **241**, 85 (*pmr*)
Sund, R. *et al., The Pyridine Nucleotide Coenzymes*, in *Biological Oxidations*, (Singer, T.,Ed.), Interscience, N.Y., 1968, 603 (*rev*)
Blumenstein, M. *et al., Biochemistry*, 1972, **11**, 1643; 1973, **12**, 3585 (*cmr, P-31 nmr*)
Sarma, R.H. *et al., Can. J. Chem.*, 1973, **51**, 1843 (*nmr*)
Nishizuka, Y. *et al., Method. Chim.*, 1977, **11**, 84 (*rev*)
Wood, H.C.S. *et al., Compr. Org. Chem.*, Eds., Barton D.H.R. and Ollis, W.D., Pergamon, 1979, **5**, 490 (*rev, bibl*)
Whitesides, G.M. *et al., ACS Symp. Ser.*, 1982, **185**, 205 (*synth, rev*)
Walt, D.R. *et al., J.A.C.S.*, 1984, **106**, 234 (*synth*)

Coformycin C-146

3,4,7,8-Tetrahydro-3-β-D-ribofuranosylimidazo[4,5-d][1,3]diazepin-8-ol, 9CI
[11033-22-0]



$C_{11}H_{16}N_4O_5$ 284.271
Nucleoside antibiotic. Isol. from *Nocardia interforma*, *Streptomyces lavendulae* and *Streptomyces kaniharaensis*. Shows antibiotic props. AMP deaminase inhibitor. Sol. H_2O, MeOH, DMSO; poorly sol. EtOH, hexane.
Mp 182-184°. $[\alpha]_D^{24}$ +34 (c, 1 in H_2O).
Log P -3.68 (uncertain value) (calc).
λ_{max} 273 (ϵ 7500) (H_2O at pH 2) (Derep). λ_{max} 282 (ϵ 8000) (H_2O at pH 11) (Derep). λ_{max} 282 (ϵ 8100) (pH 7 H_2O) (Derep). λ_{max} 282 (E1%/1cm 290) (H_2O) (Berdy). λ_{max} 284 (E1%/1cm 292) (NaOH) (Berdy). λ_{max} 264 (E1%/1cm 257) (HCl) (Berdy).

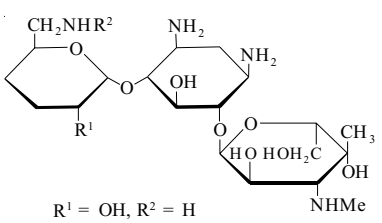
▶ LD_{50} (mus, ivn) 35 mg/kg ; LD_{50} (mus, ivn) 35 mg/kg. NI2931500

[90494-44-3]

Japan. Pat., 1970, 7 012 278, (*Meiji Confectionary*); *CA*, **73**, 65025p (*isol*)
Ohno, M. *et al., J.A.C.S.*, 1974, **96**, 4326; 4327 (*synth, struct*)
Nakamura, H. *et al., Acta Cryst. B*, 1976, **32**, 1206 (*cryst struct*)
Fr. Pat., 1978, 2 383 966, (*Microbiochemical Research Foundation*); *CA*, **91**, 57420v (*purifn*)
Hawkins, L.D. *et al., Nucleosides Nucleotides*, 1983, **2**, 479 (*synth, props*)
Lukey, T. *et al., Adv. Exp. Med. Biol.*, 1984, **165B**, 189 (*pharmacol*)
Thomas, H.J. *et al., Nucleosides Nucleotides*, 1986, **5**, 431 (*synth*)
Kline, P.C. *et al., J. Biol. Chem.*, 1994, **269**, 22385

Combimicin A_2 C-147

[72300-83-5]



R^1 = OH, R^2 = H

$C_{20}H_{40}N_4O_9$ 480.557

Aminoglycoside antibiotic. Isol. from *Micromonospora echinospora*, grown in the presence of kanamycin. Active against gram-negative and -positive bacteria. Cryst. + $1H_2O$. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane.
Mp 129-131°. $[\alpha]_D^{25}$ +147.5 (c, 1 in H_2O).
λ_{max} (H_2O) (Berdy).

Oka, Y. *et al., J. Antibiot.*, 1981, **34**, 777

Combimicin B_1 C-148

[72265-93-1]
As Combimicin A_2, C-147 with
$R^1 = NH_2$ $R^2 = H$

$C_{20}H_{41}N_5O_8$ 479.573

Glycoside antibiotic. Isol. from *Micromonospora echinospora* grown in the presence of kannamycin B. Active against gram-negative and -positive bacteria. Monohydrate. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane.
Mp 108-111°. $[\alpha]_D^{25}$ +120 (c, 1 in H_2O).
λ_{max} (H_2O) (Berdy).

Oka, Y. *et al., J. Antibiot.*, 1981, **34**, 777

Combimicin B_2 C-149

[72265-90-8]
As Combimicin A_2, C-147 with
$R^1 = NH_2$ $R^2 = CH_3$

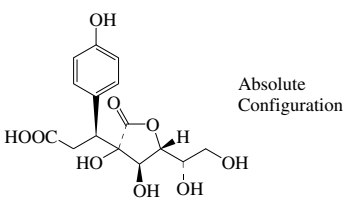
$C_{21}H_{43}N_5O_8$ 493.599

Glycoside antibiotic. Isol. from *Micromonospora echinospora* grown in the presence of kannamycin B. Active against gram-negative and -positive bacteria. Hydrate. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane.
Mp 143-146°. $[\alpha]_D^{25}$ +142 (c, 1 in H_2O).
λ_{max} (H_2O) (Berdy).
► WK2291600

Oka, Y. *et al., J. Antibiot.*, 1981, **34**, 777

Conocarpic acid C-150

5-(1,2-Dihydroxyethyl)tetrahydro-3,4-dihydroxy-β-(4-hydroxyphenyl)-2-oxo-3-furanpropanoic acid, 9CI
[39236-59-4]



Absolute Configuration

$C_{15}H_{18}O_9$ 342.302
Constit. of the leaves of *Leucospermum reflexum* and *Leucospermum conocarpodendron*. Needles (H_2O).
Mp 126-136°. $[\alpha]_D$ -117 (c, 0.95 in EtOH).

Me ester: ***Reflexin***†
[38971-88-9]
$C_{16}H_{20}O_9$ 356.329
Isol. from leaves of *Leucospermum reflexum*.
Mp 110-114°. $[\alpha]_D$ +36 (EtOH).

Me ester, penta-Ac: [38971-89-0]
Cryst. (AcOH aq.). Mp 118-119°.

Lactone: See Leucodrin in *The Combined Chemical Dictionary.*

Kruger, P.E.J. *et al., J.C.S.(C)*, 1970, 2127 (*isol*)
Perold, G.W. *et al., J.C.S. Perkin 1*, 1972, 2450; 2457
Highet, R.J. *et al., J.O.C.*, 1976, **41**, 3860 (*nmr, struct*)

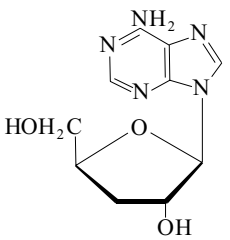
Corallan C-151

Sulfated glycoprotein containing D-Glc, D-Gal, L-Gal, D-Ara, L-Fuc and D-Glucuronic acid residues. Struct. has been partially determined. Isol. from the Caribbean soft coral *Pseudopterogorgia americana*. Sol. H_2O; poorly sol. MeOH, hexane.

Molchanova, V.I. *et al., Carbohydr. Res.*, 1985, **141**, 289

Cordycepin, 9CI, 8CI C-152

3′-Deoxyadenosine, 9CI, 8CI. 9-Cordyceposidoadenosine. Adenine cordyceposide
[73-03-0]



$C_{10}H_{13}N_5O_3$ 251.244
Metab. of *Cordyceps militaris* and *Aspergillus nidulans*. Strong inhibitor of RNA synthesis showing cytostatic activity. Sol. MeOH, EtOH, butanol, Me_2CO, acids; fairly sol. H_2O; poorly sol. $CHCl_3$, hexane.
Mp 222-224°, (230-231°). $[\alpha]_D^{25}$ -44 (c, 0.5 in H_2O) (c, 9.4 in H_2O). Log P -2.31 (calc).
λ_{max} 260 (ε 12000) (H_2O) (Derep). λ_{max} 260 (HCl) (Berdy). λ_{max} 260 (NaOH) (Berdy). λ_{max} 259 (ε 13100) (pH 4 buffer) (Berdy). λ_{max} 250 (ε 13100) (pH 4 buffer). λ_{max} 260 (ε 13700) (pH 11 buffer).
► Exp. reprod. effects. AU7358610

Picrate:
Yellow needles. Mp 195° dec.

5′-Triphosphate: [73-04-1]

[71997-32-5]
$C_{10}H_{15}N_5O_{12}P_3$ 490.176
No phys. props. reported.

2′-Ac: [9643-88-3]
$C_{12}H_{15}N_5O_4$ 293.282
Cryst. (MeOH). Mp 231-232°.
$[\alpha]_D^{25}$ -16.4 (c, 1 in MeOH).

5′-Ac: 5′-Acetyl-3′-deoxyadenosine. ***5′-Acetylcordycepin***
[137530-37-1]
$C_{12}H_{15}N_5O_4$ 293.282
Isol. from *Emericella nidulans* var. *lata*. Needles ($CHCl_3$). Sol. MeOH.
Mp 166-168°. $[\alpha]_D^{25}$ -21.2 (c, 0.5 in MeOH).
λ_{max} 258 (ε 17000) (MeOH) (Berdy).

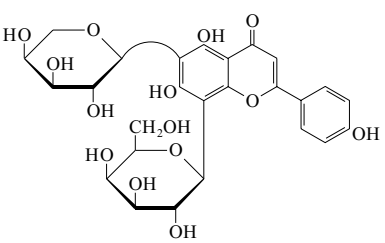
6N,6N,2′,5′-Tetrabenzoyl: [66884-45-5]
Mp 179-180°.

2-Deoxy, 2-fluoro: [15386-69-3]
$C_{10}H_{12}FN_5O_3$ 269.235
Potential cytotoxic agent. Mp 259-260°.
$[\alpha]_D$ -65 (c, 0.165 in EtOH).

Kredich, N.M. *et al., Biochim. Biophys. Acta*, 1960, **41**, 363-365 (*isol*)
Suhadolnik, R.J. *et al., J.A.C.S.*, 1964, **86**, 948-949 (*biosynth*)
Walton, E. *et al., J.A.C.S.*, 1964, **86**, 2952 (*synth*)
Hanessian, S. *et al., Biochim. Biophys. Acta*, 1966, **117**, 480-482 (*ms*)
Guarino, A.J. *et al., Antibiotics*, (Gottlieb, D. *et al*, Ed.), Springer-Verlag, 1967, **1**, 468 (*rev*)
Dickinson, M.J. *et al., J. Med. Chem.*, 1967, **10**, 1165-1166 (*2-deoxy 2-fluoro deriv, synth, biochem*)
Nagpal, K.L. *et al., J.O.C.*, 1971, **36**, 3743-3745 (*synth, pmr*)
Jain, T.C. *et al., J.O.C.*, 1974, **39**, 30-38 (*synth*)
Frederiksen, S. *et al., Handb. Exp. Pharmacol.*, 1975, **38**, 657-669 (*rev, pharmacol*)
Barton, D.H.R. *et al., Chem. Comm.*, 1976, 867-868 (*synth*)
Robins, M.J. *et al., J.A.C.S.*, 1976, **98**, 8204-8213 (*synth*)
Etaix, E. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1978, **5**, 91-110 (*5′-triphosphate*)
Radwan, M.M. *et al., Acta Cryst. B*, 1980, **36**, 2185-2187 (*cryst struct*)
Norman, D.G. *et al., Synthesis*, 1983, 304-306 (*synth*)
Hansske, F. *et al., Tet. Lett.*, 1985, **26**, 4295-4298 (*synth, rev*)
Kawahara, N. *et al., Phytochemistry*, 1992, **31**, 1409-1410 (*5′-Ac, isol, pmr, cmr*)
Karthe, P. *et al., Acta Cryst. C*, 1997, **53**, 1694-1696 (*cryst struct*)
Aman, S. *et al., Org. Process Res. Dev.*, 2000, **4**, 601-605 (*synth, pmr*)
Ciuffreda, P. *et al., Tetrahedron*, 2000, **56**, 3239-3243 (*2′-Ac, 5′-Ac, synth, pmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAQ225

Corymboside C-153

6-α-L-Arabinopyranosyl-8-β-D-galactopyranosyl-5,7-dihydroxy-2-(4-hydroxyphenyl)-4H-1-benzopyran-4-one, 9CI. 6-Arabinopyranosyl-8-galactopyranosyl-4′,5,7-trihydroxyflavone. 6-Arabinopyranosyl-8-galactopyranosylapigenin. 6-Arabinosyl-8-galactosylapigenin
[73543-87-0]

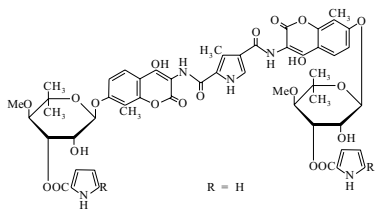


$C_{26}H_{28}O_{14}$ 564.499
Glycosylflavone from *Carlina corymbosa*. Also isol. from *Triticum aestivum* (wheat) (as acyl derivs.). Yellow powder. $[\alpha]_D$ +79 (c, 0.67 in H_2O).

Besson, E. *et al., Phytochemistry*, 1979, **18**, 1899
Wagner, H. *et al., J. Nat. Prod.*, 1980, **43**, 583 (*isol, derivs*)
Gaffield, W. *et al., Phytochemistry*, 1984, **22**, 1317 (*cd*)

Coumermycin A_2 C-154

Notomycin A_2. Sugordomycin D_{1d}
[3130-60-7]

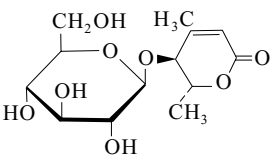


$C_{53}H_{55}N_5O_{20}$ 1082.039
Isol. from *Streptomyces rishiriensis* and other *Streptomyces* spp. Sol. MeOH, bases, EtOAc; fairly sol. $CHCl_3$, C_6H_6; poorly sol. hexane, H_2O. λ_{max} 267 (ϵ 50000); 340 (ϵ 42000) (EtOH) (Derep).

Berger, J. *et al., Antimicrob. Agents Chemother.*, 1965, 778 (*isol*)
Kawaguchi, H. *et al., J. Antibiot., Ser. A*, 1965, **18**, 220 (*struct*)
Berger, J. *et al., J. Chromatogr. Libr.*, 1978, **15**, 101 (*rev*)
Claridge, C.A. *et al., Drugs Pharm. Sci.*, 1984, **22**, 413 (*rev*)

Crassinodin C-155

*5-(β-D-Glucopyranosyloxy)-5,6-dihydro-4,6-dimethyl-2*H*-pyran-2-one. 4-β-D-Glucopyranosyloxy-3-methyl-2-hexen-5-olide*



trans–form

$C_{13}H_{20}O_8$ 304.296
Constit. of *Dendrobium crassinode*.

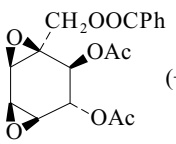
cis-form [59870-77-8]
Tetra-Ac: Mp 162-163°. $[\alpha]_D^{21}$ -101 (c, 0.2 in MeOH).

trans-form [59905-82-7]
Mp 94.5° Mp 177.5-182°. $[\alpha]_D^{25}$ +39 (c, 0.7 in MeOH).
Tetra-Ac: Mp 171-173°. $[\alpha]_D^{25}$ +28 (c, 0.3 in MeOH).

Dahmen, J. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 297 (*isol, pmr*)

Crotepoxide C-156

*2,3:4,5-Dianhydro-2-*C*-[(benzoyloxy)-methyl]-D-*epi*-inositol diacetate, 11CI. 4-[(Benzoyloxy)methyl]-3,8-dioxatricyclo[5.1.0.0^{2,4}]octane-5,6-diol diacetate, 9CI. Futoxide*
[20421-13-0]



(+)–*form*

$C_{18}H_{18}O_8$ 362.335
Antineoplastic agent. Sol. MeOH, $CHCl_3$. Log P 1.3 (calc). λ_{max} 229 (ϵ 12600); 274 (ϵ 1320); 281 (ϵ 1100) (MeOH) (Derep). λ_{max} 274 (ϵ 1050); 281 (ϵ 800) (MeOH) (Berdy). λ_{max} 229 (ϵ 12531); 274 (ϵ 1313); 282 (ϵ 1085) (EtOH) (Berdy).

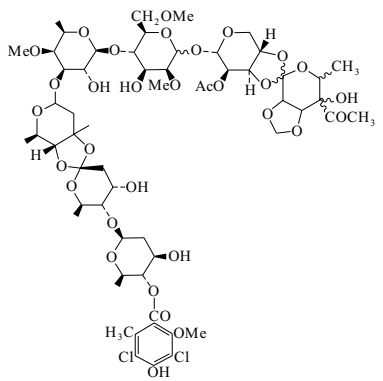
(+)-form
Constit. of *Croton macrostachys*, a *Boesenbergia* sp. and *Monoanthotaxis caffra*. Mp 152-153°. $[\alpha]_D^{25}$ +75 (c, 1.70 in $CHCl_3$) (+64). Pharmacol. active isomer.

(±)-form [58072-91-6]
Needles (MeOH). Mp 110-111°.

Kupchan, S.M. *et al., J.A.C.S.*, 1968, **90**, 2982 (*isol, cryst struct, config, pharmacol*)
Coggon, P. *et al., J.C.S.(B)*, 1969, 534 (*cryst struct*)
Kupchan, S.M. *et al., J.O.C.*, 1969, **34**, 3898 (*isol, uv*)
Oda, K. *et al., Tet. Lett.*, 1975, 3187 (*synth*)
Demuth, M.R. *et al., J.A.C.S.*, 1976, **98**, 634 (*synth*)
Matsumoto, M. *et al., Tet. Lett.*, 1977, 3361 (*synth*)
Schlessinger, R.H. *et al., J.O.C.*, 1981, **46**, 5252 (*synth*)
Pancharven, O. *et al., Aust. J. Chem.*, 1984, **37**, 221 (*cryst struct*)
Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1987, **60**, 800 (*synth*)
Shing, T.K.M. *et al., J.O.C.*, 1998, **63**, 1547-1554 (*synth*)
Mulholland, D. *et al., Biochem. Syst. Ecol.*, 2000, **28**, 595-597 (*isol, pmr, cmr*)

Curamycin A C-157

Avilamycin B
[73240-30-9]

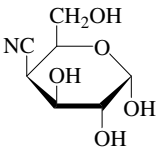


$C_{59}H_{84}Cl_2O_{32}$ 1376.199
Oligosaccharide-type antibiotic. Prod. by *Streptomyces curacoi*. Active against gram-pos. bacteria and some viruses. Cryst. (2-propanol/EtOAc). Mp 192-194°. $[\alpha]_D$ -5.3 (c, 1 in $CHCl_3$). pK_a 7.48 (2-methoxyethanol). λ_{max} 294 (ϵ 7800) (0.1*N* NaOH) (Derep). λ_{max} 284 (ϵ 1360) (95% EtOH) (Derep).

Me ether:
Needles. Mp 224°. $[\alpha]_D$ +6.6 (c, 1.21 in Py).

Galmarini, D.L. *et al., Tetrahedron*, 1961, **15**, 76 (*isol*)
Ganguly, A.K. *et al., J. Antibiot.*, 1979, **32**, 1213 (*uv, ir, cmr, struct*)
Ganguly, A.K. *et al., Heterocycles*, 1981, **15**, 1621 (*cmr, struct*)

4-Cyano-4-deoxygalactose C-158



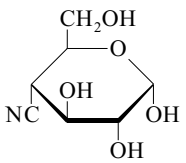
α-D-Pyranose-*form*

$C_7H_{11}NO_5$ 189.168

α-D-Pyranose-*form*
*Me glycoside, 2,3,6-tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-4-cyano-4-deoxy-α-D-galactopyranoside*
[155726-53-7]
$C_{29}H_{31}NO_5$ 473.568
Cryst. (EtOH). Mp 93-94°. $[\alpha]_D^{23.5}$ +89.7 (c, 2.8 in CH_2Cl_2).

Reed, L.A. *et al., Carbohydr. Res.*, 1994, **254**, 133 (*synth, pmr, cmr*)

4-Cyano-4-deoxyglucose C-159



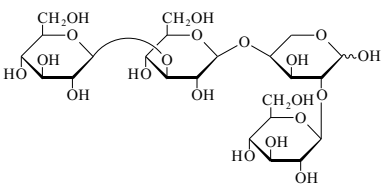
$C_7H_{11}NO_5$ 189.168

α-D-Pyranose-*form*
*Me glycoside, tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-4-cyano-4-deoxy-α-D-glucopyranoside*
[127214-50-0]
$C_{29}H_{31}NO_5$ 473.568
Oil. $[\alpha]_D^{23.5}$ +57.4 (c, 7.0 in CH_2Cl_2).

Reed, L.A. *et al., Carbohydr. Res.*, 1994, **254**, 133 (*synth, pmr, cmr*)

Cyclamotetraose C-160

β-D-Glucopyranosyl-(1→3)-β-D-glucopyranosyl-(1→4)-[β-D-glucopyranosyl-(1→2)]-L-arabinose
[23643-62-1]



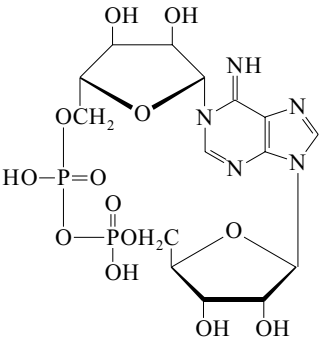
Pyranose–*form*

$C_{23}H_{40}O_{20}$ 636.557
Sugar present in Cyclamin (see 13, 28-Epoxy-3,16-dihydroxy-30-oleananal in the Combined Chemical Dictionary).
$[\alpha]_D^{20}$ +12.2 (c, 0.96 in H_2O).

Tschesche, R. *et al., Annalen*, 1969, **721**, 194

Cyclic ADP-ribose C-161

[119340-53-3]



$C_{15}H_{21}N_5O_{13}P_2$ 541.304

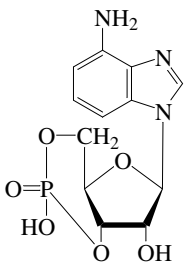
Found in mammalian tissues. Biochemical calcium regulator.

Gu, Q.M. *et al., J.A.C.S.*, 1994, **116**, 7481 (*struct, synth, pmr, bibl*)

Cyclic AMP C-162

Adenosine cyclic 3′,5′-(hydrogenphosphate), 9CI, 8CI. Acrasin. cAMP

[60-92-4]



$C_{10}H_{12}N_5O_6P$ 329.208

Found in several higher plants, bacteria and most animal cells. Excreted in human urine. Formed by action of adenate cyclase on ATP *in vivo*. Intracellular regulator of several cellular processes. Involved in hormone-mediated biological systems as a "second messenger". Cryst. + $1H_2O$. Sol. H_2O.

Mp 219-220°. $[\alpha]_D$ -43 (H_2O). λ_{max} 256 (ε 14500) (pH 2 buffer) (Berdy). λ_{max} 258 (ε 14650) (pH 7 buffer) (Berdy). λ_{max} 258 (H_2O) (Berdy).

► LD_{50} (mus, orl) 14000 mg/kg. AU7357600

Na salt: [37839-81-9]
Dihydrate.

► AU7357900

N-*Butanoyl:* [13117-60-7]
$C_{14}H_{18}N_5O_7P$ 399.299
Possesses cyclic AMP-like activity but with greater resistance to *in vivo* inactivation by phosphodiesterase. No phys. props. reported. Launched 1984

N,O^2-*Dibutanoyl:* ***Bucladesine, INN.*** *Dibutyrylcyclic AMP. Actosin. Aztosin*
[362-74-3]
$C_{18}H_{24}N_5O_8P$ 469.39
Cardiostimulant.

► ES5055000

N,O^2-*Dibutanoyl, Na salt:* ***Bucladesine sodium, JAN***
[16980-89-5]

[123334-06-5] Mp 240-245° dec. (as monohydrate). CAS no. refers to monohydrate.

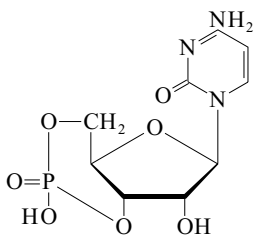
2′-Deoxy: [1157-33-1]
$C_{10}H_{12}N_5O_5P$ 313.209
Cryst. (EtOH aq.) (as Na salt).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 725A; 725C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 229A; 229C (*nmr*)
Sutherland, E.W. *et al., J. Biol. Chem.*, 1958, **232**, 1077 (*isol*)
Lipkin, D. *et al., J.A.C.S.*, 1959, **81**, 6075; 6198
Posternak, T. *et al., Biochim. Biophys. Acta*, 1962, **65**, 558-560 (*N-butanoyl, N,O-dibutanoyl*)
Borden, R.K. *et al., J.O.C.*, 1966, **31**, 3247 (*synth*)
Jost, J.P. *et al., Annu. Rev. Biochem.*, 1971, **40**, 741 (*biochem*)
Robison, G.A. *et al., Cyclic AMP, Cell Growth Immune Response, Proc. Symp.*, Academic Press, New York, 1971,
Lapper, R.D. *et al., J.A.C.S.*, 1972, **94**, 6243 (*pmr, nmr, Bucladesine*)
Meyer, R.B. *et al., Biochemistry*, 1975, **14**, 3315
Kainosho, M. *et al., J.A.C.S.*, 1975, **97**, 6839 (*pmr*)
Miller, J.P. *et al., Biochemistry*, 1976, **15**, 217-223 (*2′-deoxy*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711 (*synth*)
Kainosho, M. *et al., Org. Magn. Reson.*, 1979, **12**, 548 (*cmr*)
Brown, E.G. *et al., Phytochemistry*, 1981, **20**, 2453 (*rev, occur, props*)
Kingston, E.E. *et al., Biomed. Mass Spectrom.*, 1984, **11**, 367 (*ms*)
Koch, H. *et al., Pharm. Int.*, 1986, **7**, 81 (*rev, Bucladesine*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 664
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AOA130; COV625

Cyclic CMP C-163

Cytidine cyclic 3′,5′-(hydrogen phosphate), 9CI. Cyclic 3′,5′-cytidylic acid

[3616-08-8]



$C_9H_{12}N_3O_7P$ 305.183

λ_{max} 279 (ε 12430) (pH 2), 272 nm (9340) (H_2O, pH 7).

Na salt: [54925-33-6]
Solid + H_2O. λ_{max} 280 (ε 13650) (H_2O, pH 2), 272 nm (9550) (pH 7).

Ammonium salt: [55727-00-9]
Solid.

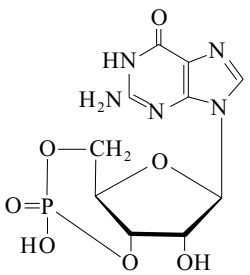
[108464-51-3]

Smith, M.S. *et al., J.A.C.S.*, 1961, **83**, 698 (*synth, uv*)
Ito, M. *et al., Agric. Biol. Chem.*, 1974, **38**, 2081 (*synth*)
Kainosho, M. *et al., J.A.C.S.*, 1975, **97**, 6839 (*conformn, pmr*)
Wierenga, W. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1977, **4**, 189 (*synth, uv, deriv*)
Baraniak, J. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1982, **56**, 441 (*synth, pmr*)
Beres, J. *et al., J. Med. Chem.*, 1985, **28**, 418 (*synth*)
Baraniak, J. *et al., J.C.S. Perkin 1*, 1987, 1645 (*synth*)
Newton, R.P. *et al., Nucleosides Nucleotides*, 1990, **9**, 365 (*ms*)

Cyclic GMP C-164

Guanosine cyclic 3′,5′-(hydrogen phosphate), 9CI, 8CI. cGMP

[7665-99-8]



$C_{10}H_{12}N_5O_7P$ 345.208

Found in animal and bacterial cells. Excreted in human urine. Formed *in vivo* by action of guanylate cyclase on GTP. Has also been isol. from Evodiae fructus. Intracellular regulator of cellular processes. Involved in hormone mediated biological systems as a "second messenger.". Decahydrate (as Ca salt). λ_{max} 254 (ε 12 950) (pH 7), 256.5 (11 350) (pH 1), 262 nm (12 400) (pH 12).

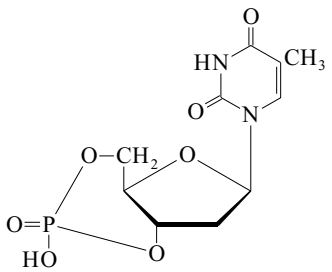
2′-Ac: [56879-79-9]
$C_{12}H_{14}N_5O_8P$ 387.245
λ_{max} 252 (ε 16 000), 274 sh (10 600) (pH 7), 256 (14 200) (pH 1), 257 nm (14 400) (pH 11).

N,O-*Dibutanoyl:* [32266-35-6]
$C_{18}H_{24}N_5O_9P$ 485.39
Analogue of bucladesine (see under C-162). λ_{max} 256 (No solvent reported).

Borden, R.K. *et al., J.O.C.*, 1966, **31**, 3247 (*synth*)
Adv. Cyclic Nucleotide Res., (Greengard, P. *etal*, Eds.), Raven Press, N.Y., Vol. 3, 1973, 155 (*rev*)
Nature (London), 1973, **246**, 186 (*rev*)
Chwang, A.K. *et al., Acta Cryst. B*, 1974, **30**, 1233 (*cryst struct*)
Michal, G. *et al., Pharmacol. Res. Commun.*, 1974, **6**, 203-252 (*dibutanoyl*)
Kainosho, M. *et al., J.A.C.S.*, 1975, **97**, 6839 (*pmr*)
Miller, J.P. *et al., Biochemistry*, 1976, **15**, 217 (*synth*)
Kainosho, M. *et al., Org. Magn. Reson.*, 1979, **12**, 548 (*cmr*)
Cyong, J.C. *et al., Chem. Pharm. Bull.*, 1982, **30**, 2463 (*isol*)

Cyclic TMP C-165

Thymidine cyclic 3′,5′-(hydrogen phosphate), 9CI. Cyclic 3′,5′-thymidylic acid
[6453-60-7]



$C_{10}H_{13}N_2O_7P$ 304.196
λ_{max} 260 nm (ϵ 10000) (H_2O, pH 7).

Na salt: [76567-90-3]
Solid.

Ammonium salt: [119999-00-7]
Solid.

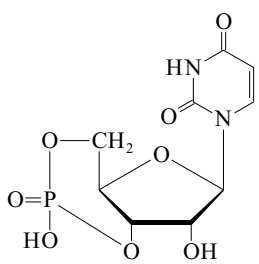
Me ester: Thymidine cyclic 3′,5′-(methyl-phosphate)
[120056-31-7]
$C_{11}H_{15}N_2O_7P$ 318.222
Solid. Mp 92-102°.

[120056-30-6]

Tener, G.M. *et al., J.A.C.S.*, 1958, **80**, 6223 (*synth, uv*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711 (*synth, uv*)
Kainosho, M. *et al., Org. Magn. Reson.*, 1979, **12**, 548 (*cmr*)
Japan. Pat., 1980, 80 120 793; *CA*, **94**, 137816f (*manuf*)
Ramos, D.L. *et al., J. Chromatogr.*, 1983, **261**, 83 (*hplc*)
Bentrude, W.G. *et al., J.A.C.S.*, 1989, **111**, 3981 (*synth*)
Broeders, N.L.H.L. *et al., J.A.C.S.*, 1990, **112**, 7475 (*synth, P-31 nmr, deriv*)
Newton, R.P. *et al., Nucleosides Nucleotides*, 1990, **9**, 365 (*ms*)

Cyclic UMP C-166

Uridine cyclic 3′,5′-(hydrogen phosphate), 9CI. Cyclic-3′,5′-uridylic acid
[4004-57-3]



$C_9H_{11}N_2O_8P$ 306.168
λ_{max} 260 nm (ϵ 10000) (H_2O, pH 7).

Ammonium salt:
Solid + $2H_2O$.

Triethylammonium salt:
Cryst. (EtOH/Et_2O or MeOH). Mp 220-223° dec. λ_{max} 261 (ϵ 9940) (pH 7), 260 nm (7740) (H_2O, pH 12).

Me ester: [56883-43-3]
$C_{10}H_{13}N_2O_8P$ 320.195
Powder (dioxan).

Benzyl ester: [56942-15-5]
$C_{16}H_{17}N_2O_8P$ 396.293
Powder.

2′-Ac: [7390-55-8]
$C_{11}H_{13}N_2O_9P$ 348.205
Cryst. (EtOH) (as triethylammonium salt). Mp 245° dec. (triethylammonium salt).

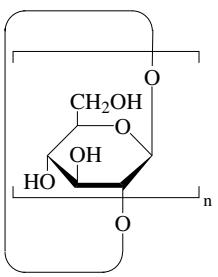
2′-Benzoyl: [52301-27-6]
$C_{16}H_{15}N_2O_9P$ 410.276
λ_{max} 262 nm (MeOH).

[56942-13-3]

Smith, J. *et al., J.A.C.S.*, 1961, **83**, 698; 1959, **81**, 2911 (*synth, uv, deriv*)
Borden, R.K. *et al., J.O.C.*, 1966, **31**, 3247 (*synth*)
Blackburn, B.J. *et al., J.A.C.S.*, 1973, **95**, 2873 (*pmr*)
Lapper, R.D. *et al., J.A.C.S.*, 1973, **95**, 2878 (*cmr*)
Cozzone, P.J. *et al., Biochemistry*, 1976, **15**, 4853 (*P-31 nmr*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711 (*synth, uv*)
Engels, J. *et al., Chem. Ber.*, 1977, **110**, 2 (*synth, pmr, deriv*)
Uesugi, S. *et al., Org. Magn. Reson.*, 1979, **12**, 143 (*cmr*)
Wang, X. *et al., CA*, 1980, **94**, 140088a (*synth*)
Zheng, Q. *et al., CA*, 1981, **30**, 1369 (*cryst struct*)
Lerner, D.B. *et al., Biopolymers*, 1984, **23**, 2157 (*ir, P-31 nmr*)
Baraniak, J. *et al., J.C.S. Perkin 1*, 1987, 1645 (*benzoyl*)
Newton, R.P. *et al., Nucleosides Nucleotides*, 1990, **9**, 365 (*ms*)
Perrett, D. *et al., Biomed. Chromatogr.*, 1991, **5**, 207; *CA*, **115**, 251308u (*hplc*)

Cyclic-(1 →2)-β-D-glucans C-167

Cyclosophoraoses

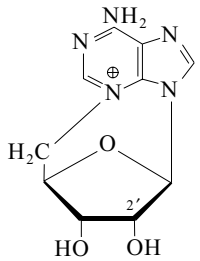


n = ~17-40

A family of unbranched cyclic β(1 →2) glucans. Prod. as *exo*- or *endo*-oligosaccharides by gram-negative bacteria *Agrobacterium* and *Rhizobium* spp. Complexing agent for solubility enhancement of poorly soluble guest molecules. Chiral complexing agent. Play an important role in osmoregulation and in root-nodule formation by *R*. spp.

Choi, Y.H. *et al., Carbohydr. Res.*, 2000, **326**, 227-234 (*struct, bibl*)
Lee, S. *et al., Carbohydr. Res.*, 2003, **338**, 1143-1146 (*use, bibl*)

3,5′-Cycloadenosine C-168



$C_{10}H_{12}N_5O_3^{\oplus}$ 250.236

2′,3′-O-Isopropylidene, 4-methylbenzenesulfonate: Mp 296° dec.

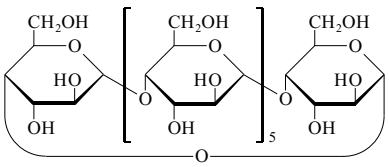
2′,3′-O-Isopropylidene, iodide:
$C_{13}H_{16}IN_5O_3$ 417.206
Mp 277° dec.

2′-Deoxy: 3,5′-Cyclodeoxyadenosine
$C_{10}H_{12}N_5O_2^{\oplus}$ 234.237
Mp 195.5° (as 4-methylbenzenesulfonate).

Clark, V.M. *et al., J.C.S.*, 1951, 2953 (*synth*)
Zussman, J. *et al., Acta Cryst.*, 1953, **6**, 504 (*cryst struct*)
Anderson, W. *et al., J.C.S.*, 1954, 1882 (*deoxy*)

β-Cycloaltrin C-169

Cycloheptakis-(1 →4)-(α-D-altropyranose)
[171482-55-6]

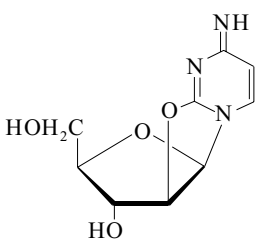


$C_{42}H_{70}O_{35}$ 1134.994
Mp 227° dec. $[\alpha]_D^{16}$ +63.4 (c, 0.41 in H_2O).

Fujita, K. *et al., Angew. Chem., Int. Ed.*, 1995, **34**, 1621 (*synth, pmr, cmr*)

Cyclocytidine C-170

2,3,3a,9a-Tetrahydro-3-hydroxy-6-imino-6H-furo[2′,3′:4,5]oxazolo[3,2-a]pyrimidine-2-methanol, 9CI. 2,2′-Anhydro-1-arabinofuranosylcytosine, 8CI. ***Ancitabine, INN****. Ancytabine. NSC 129220. Cyclo-C*
[31698-14-3]



$C_9H_{11}N_3O_4$ 225.204
Antineoplastic agent with antiviral activity.

▶ Exp. teratogen. LD_{50} (mus, orl) 3400 mg/kg. LV2610000

Hydrochloride: Ancitabine hydrochloride, JAN. KJ 101. NSC 145668

[10212-25-6]
Needles (MeOH/Me_2CO). Mp 266-267° dec. $[\alpha]_D^{23}$ -22.6 (c, 0.2 in H_2O).

▶ LV2615000

Hydrobromide:
Needles (MeOH). Mp 263-265° dec.

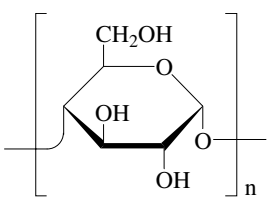
Acetate:
Cream needles (MeOH/Et_2O). Mp 190-192° dec.

Picrate:
Yellow needles (EtOH). Mp 218-221°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 388B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 832A (*ir*)
Walwick, E.R. *et al., Proc. Chem. Soc., London*, 1959, 84 (*synth*)
Doerr, I.L. *et al., J.O.C.*, 1967, **32**, 1462
Brennan, T. *et al., Biochem. Biophys. Res. Commun.*, 1973, **52**, 1348 (*cryst struct*)
Russell, A.F. *et al., J.O.C.*, 1974, **39**, 2182 (*synth, pmr, uv*)
Tsueno, W. *et al., Bull. Chem. Soc. Jpn.*, 1975, **48**, 505 (*synth*)
Ho, D.H.W. *et al., Clin. Pharmacol. Ther. (St. Louis)*, 1975, **17**, 66 (*pharmacol*)
Neumann, M. *et al., Drugs of Today (Barcelona)*, 1976, **12**, 303 (*rev*)
Hamamura, E.K. *et al., J. Med. Chem.*, 1976, **19**, 654 (*synth*)
Finklestein, J.Z. *et al., Cancer Treat. Rep.*, 1979, **63**, 1331 (*props*)
Hoshi, A. *et al., Gann*, 1979, **24**, 143 (*rev*)
Venkatasubramanian, K. *et al., Indian J. Phys., A*, 1982, **56**, 213 (*cryst struct*)
Davies, D.B. *et al., Magn. Reson. Chem.*, 1985, **23**, 72 (*cmr*)
Nakamura, K. *et al., J. Med. Virol.*, 1990, **31**, 141 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 542
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, COW875; COW900

α-Cyclodextrin, 9CI C-171

Cyclohexakis-(1→4)-(α-D-glucopyranose). Cyclohexaamylose. Cyclomaltohexaose. ***Alfadex, BAN, INN***
[10016-20-3]



n = 6

$C_{36}H_{60}O_{30}$ 972.852
Obt. from the breakdown of starch by the action of *Bacillus macerans*. Pharmaceutical aid (sequestering agent). Used as carrier molecules for drug delivery systems. Shows anomalous soly. props.: v. sol. cold H_2O (15g per 100cm^3 at 25°); almost insol. hot H_2O. $[\alpha]_D$ +150.5 (c, 1.0 in H_2O). Forms cryst. complexes with propanol and iodine.

▶ LD_{50} (rat, ipr) 1000 mg/kg. GU2292000

6-O-α-D-Glucopyranosyl: [10058-19-2]
$C_{42}H_{70}O_{35}$ 1134.994
Cryst. (H_2O).

Octadeca-Ac:
$C_{72}H_{96}O_{48}$ 1729.522
$[\alpha]_D$ +105.5 (c, 1.0 in $CHCl_3$).

6,6′,6″,6‴,6⁗,6⁗′-Hexabenzoyl:
[204259-38-1]
$C_{78}H_{84}O_{36}$ 1597.5
Mp 275-280°. $[\alpha]_D^{25}$ +77.75 (c, 1.04 in $CHCl_3$).

3″,6-Di-Me ether, 6⁗′-carbamoyl, 6‴-butanoyl, 6′-Ac: [105694-29-9]
$C_{45}H_{73}NO_{33}$ 1156.059
Isol. from a blue-green alga *Tolypothrix byssoidea*.
$[\alpha]_D$ +112 (c, 1.1 in $CHCl_3$) (as trideca-Ac). Two regioisomers also isol.

Hexakis(2,6-di-O-Me): [51166-72-4]
$C_{48}H_{84}O_{30}$ 1141.174
Mp 301-307° dec. $[\alpha]_D^{25}$ +154.2 (c, 1 in H_2O).

Octadeca-O-Me: Hexakis(2,3,6-tri-O-methyl)cyclomaltohexaose. Permethyl-α-cyclodextrin
[68715-56-0]
$C_{54}H_{96}O_{30}$ 1225.334
Rod-shaped cryst. Shows anomalous soly. props.: more sol. in H_2O than the parent OH compd.; more sol. in cold H_2O (20g per 100 cm^3 at 25°) than hot H_2O.

Octadeca-O-benzyl: [110237-97-3]
$C_{162}H_{168}O_{30}$ 2595.091
$[\alpha]_D^{25}$ +34.1 (c, 0.7 in $CHCl_3$).

2,2′,2″,2‴,2⁗,2⁗′-Hexaepimer: α-Cyclomannin. Cyclohexakis-(1→4)-(α-D-mannopyranose). Cyclomannohexaose
[123880-20-6]
$C_{36}H_{60}O_{30}$ 972.852
Hemihydrate. $[\alpha]_D^{25}$ +26.5 (c, 0.2 in H_2O).

6,6′,6″,6‴,6⁗,6⁗′-Hexadeoxy: Hexakis(6-deoxy)cyclomaltohexaose
[53784-89-7]
$C_{36}H_{60}O_{24}$ 876.856
Hexahydrate. Mp 245°. $[\alpha]_D$ +107 (c, 1.1 in Py).

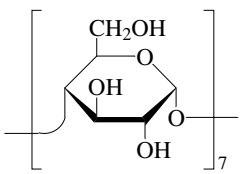
[12619-70-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 197D (*ir*)
French, D. *et al., J.A.C.S.*, 1949, **71**, 353-356 (*isol*)
French, D. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 189-260 (*rev*)
Manor, P.C. *et al., J.A.C.S.*, 1974, **96**, 3630-3639 (*cryst struct*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081-8094 (*conformn, cmr*)
Bender, M.L. *et al., Cyclodextrin Chemistry*, Springer-Verlag, 1978,
Klar, B. *et al., Acta Cryst. B*, 1980, **36**, 1154-1165 (*cryst struct*)
Saenger, W. *et al., Angew. Chem., Int. Ed.*, 1980, **19**, 344-362 (*rev, use*)
Szejtli, J. *et al., Cyclodextrins and Their Inclusion Complexes*, Akadémiai, Kiado, Budapest, 1982,
Kobayashi, S. *et al., Carbohydr. Res.*, 1984, **126**, 215-224 (*glucopyranosyl*)
Entzeroth, M. *et al., J.O.C.*, 1986, **51**, 5307-5310 (*Tolypothrix byssoidea carbamates*)
Takahashi, Y. *et al., Carbohydr. Res.*, 1987, **164**, 277-296 (*synth, cmr*)
Le Bas, G. *et al., Cyclodextrins Their Ind. Uses*, 1987, 105-130 (*rev, cryst struct*)
Clarke, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1988, **46**, 205-249 (*rev, complexes*)
Takahashi, Y. *et al., ACS Symp. Ser.*, 1989, **386**, 150-158 (*synth*)
Mori, M. *et al., Tet. Lett.*, 1989, **30**, 1273-1276 (*α-Cyclomannin*)
Tanimoto, T. *et al., Chem. Pharm. Bull.*, 1990, **38**, 318-322 (*dodeca-Me*)
Szejtli, J. *et al., Cyclodextrins: Properties and Applications, Drug Invest., Suppl. 4*, 1990, **2**, 11
Baer, H.H. *et al., Carbohydr. Res.*, 1992, **228**, 307-314 (*hexadeoxy*)
Li, S. *et al., Chem. Rev.*, 1992, **92**, 1457-1470 (*rev, anal*)
Steiner, T. *et al., Carbohydr. Res.*, 1996, **282**, 53-63; **296**, 69-82 (*cryst struct, octadeca-Me, dodeca-Me*)
Shieh, W.J. *et al., J. Macromol. Sci., Part A: Pure Appl. Chem.*, 1996, **33**, 673-683 (*rev*)
Irie, T. *et al., J. Pharm. Sci.*, 1997, **86**, 147-162 (*rev, toxicol, safety*)
D'Souza, V.T. *et al., Chem. Rev.*, 1998, **98**, 1743-1753(*rev*)
Schneider, H.J. *et al., Chem. Rev.*, 1998, **98**, 1755-1785 (*pmr, cmr*)
Cuzzola, A. *et al., Synth. Commun.*, 1998, **28**, 813-821 (*hexabenzoyl*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 1569

β-Cyclodextrin, 9CI C-172

Cycloheptakis-(1→4)-(α-D-glucopyranose). Cycloheptaamylose. Cyclomaltoheptaose. ***Betadex, BAN, INN, USAN.*** *Beta cyclodextrin, USAN. Cycloheptaglucan. Cycloheptamaltose. β-Schardinger dextran. E459*
[7585-39-9]

[68168-23-0]



$C_{42}H_{70}O_{35}$ 1134.994
Obt. from the breakdown of starch by the action of *Bacillus macerans*. Forms inclusion complexes which have been used to induce stereoselectivity in reactions. Many complexes studied structurally. Pharmaceutical aid (sequestering agent). Monoclinic cryst. + H_2O (H_2O). Mp 260° dec. $[\alpha]_D$ +162.5 (c, 1.0 in H_2O). Forms cryst. complexes with propanol and iodine.

▶ GU2293000

Heneicosa-Ac: [23739-88-0]
$C_{84}H_{112}O_{56}$ 2017.775
Cryst. (toluene). Mp 200°. $[\alpha]_D$ +122 (c, 1.0 in $CHCl_3$).

6^A-(4-Methylbenzenesulfonyl):
[67217-55-4]
$C_{49}H_{76}O_{37}S$ 1289.183
Cryst. (H_2O). Mp 172-174° dec. $[\alpha]_D^{20}$ +131 (c, 4 in DMSO).

2,2′,2″,2‴,2⁗,2⁗′,2⁗″,6,6′,6″,6‴,6⁗,6⁗′,6⁗″-Tetradeca-O-Me: Heptakis(2,6-dimethyl)cyclomaltoheptaose. Dimethyl-β-cyclodextrin. DIMEB
[51166-71-3]
$C_{56}H_{98}O_{35}$ 1331.369
Shows anomalous soly. props.: sol. in H_2O approx. 60g per 100 cm^3 at r.t., but

<1g per 100cm^3 at temps. >70°. Mp 312°. $[\alpha]_D^{20}$ +122 ($CHCl_3$).

Heneicosa-O-*Me: Heptakis(2,3,6-trmethyl)cyclomaltoheptaose. Trimeb*
[55216-11-0]
$C_{63}H_{112}O_{35}$ 1429.557
Enantioselective stationary phase for hplc and glc resolutions. Cryst. (cyclohexane or H_2O). Mp 88-89° Mp 156-158°. $[\alpha]_D$ +157 ($CHCl_3$).

Poly-O-*(2-hydroxypropyl): Hydroxypropyl-β-cyclodextrin*
[94035-02-6] Improves solubility of drugs in plasma by clathrate formation. Powder. V. sol. H_2O, EtOH; spar. sol. Me_2CO. $[\alpha]_D^{23}$ +130 (c, 1 in H_2O). Props. refer to a typical prepn. contg. 8-12 $CH_2CH(OH)CH_3$ groups per cyclodextrin molecule. A higher degree of substn. can apparently be obt.

6,6′,6″,6‴,6⁗,6⁗′,6⁗″-Heptadeoxy: Heptakis(6-deoxy)cyclomaltoheptaose
[51515-89-0]
$C_{42}H_{70}O_{28}$ 1022.998
Mp 269.5-271.5°. $[\alpha]_D$ +112 (c, 0.9 in Py).

6-O-*α-D-Glucopyranosyl:* O-*α-D-Glucopyranosyl-(1→6^A)-β-cyclodextrin, 9CI*
[92517-02-7]
$C_{48}H_{80}O_{40}$ 1297.136
Isol. from commercial starch syrup Celdex™. Amorph. $[\alpha]_D^{25}$ +178 (c, 0.3 in H_2O). $[\alpha]_D$ +172 (c, 0.6 in H_2O).

2,2′,2″,2‴,2⁗,2⁗′,2⁗″-Heptaepimer: β-Cyclomannin. Cycloheptakis-(1→4)-(α-D-mannopyranose)
[130322-66-6]
$C_{42}H_{70}O_{35}$ 1134.994
$[\alpha]_D^{23}$ +47.4 (c, 0.3 in H_2O).

French, D, *et al., J.A.C.S.*, 1942, **64**, 1651-1653 (*cryst struct*)
French, D. *et al., J.A.C.S.*, 1949, **71**, 353-356 (*isol*)
Barker, S.A. *et al., J.C.S.*, 1954, 171-176 (*ir*)
French, D. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 189-260 (*rev*)
Casu, B. *et al., Tetrahedron*, 1968, **24**, 803-821 (*heneicosa-O-Me, conf, pmr*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081-8094 (*conformn, cmr*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1977, **6**, 151 (*use*)
Bender, M.L. *et al., Cyclodextrin Chemistry*, Springer-Verlag, 1978,
Casu, B. *et al., Carbohydr. Res.*, 1979, **76**, 59-66 (*heneicosa-O-Me*)
Lindner, K. *et al., Carbohydr. Res.*, 1982, **99**, 103-115 (*cryst struct*)
Szejtli, J. *et al., Cyclodextrins and Their Inclusion Complexes*, Budapest, 1982,
Ueno, A. *et al., Tet. Lett.*, 1982, **23**, 3451-3454 (*6^A-4-methylbenzenesulfonyl*)
Abe, J. *et al., Carbohydr. Res.*, 1984, **131**, 175-179 (*α-glucopyranosyl*)
Pitha, J. *et al., Int. J. Pharm.*, 1986, **29**, 73-82 (*Hydroxypropyl-β-cyclodextrin*)
Clarke, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1988, **46**, 205-249 (*rev, complexes*)
Fugedi, P. *et al., Carbohydr. Res.*, 1988, **175**, 173-181 (*synth, cmr*)
Gidley, M.J. *et al., J.A.C.S.*, 1988, **110**, 3820-3829 (*cmr*)
Mori, M. *et al., Tet. Lett.*, 1990, **31**, 3191-3194 (*β-Cyclomannin*)
Sophianopoulos, A.J. *et al., Anal. Chem.*, 1992, **64**, 2652-2654 (*purifn*)
Baer, H.H. *et al., Carbohydr. Res.*, 1992, **228**, 307-314 (*hexadeoxy*)
Meier-Angenstein, W. *et al., Z. Naturforsch. B*, 1992, **47**, 877-885 (*heneicosa-Me, synth, cmr, conformn*)
Tokutakes, S. *et al., Carbohydr. Res.*, 1993, **238**, 192-213 (*6^A-tosyl, synth, ir, pmr*)
Steiner, T *et al., Carbohydr. Res.*, 1995, **275**, 77-82 (*cryst struct, tetradeca-Me*)
Shieh, W.J. *et al., J. Macromol. Sci., Part A: Pure Appl. Chem.*, 1996, **33**, 673-683 (*rev*)
Irie, T. *et al., J. Pharm. Sci.*, 1997, **86**, 147-162 (*rev, tox*)
D'Souza, V.T. *et al., Chem. Rev.*, 1998, **98**, 1743-1753 (*rev*)
Schneider, H.J. *et al., Chem. Rev.*, 1998, **98**, 1755-1785 (*pmr, cmr*)
Reibenspies, J.H. *et al., Carbohydr. Res.*, 2000, **328**, 217-227 (*cryst struct, derivs*)
Org. Synth., 2000, **77**, 220-224; 225-230, (*4-methylbenzenesulfonyl, synth, pmr, cmr*)
Osvath, R. *et al., Food Chem. News*, 2001, **43(16)**, 6 (*use*)
Food Chem. News, 2001, **43(40)**, 8-9 (*use*)
Añibarro, M. *et al., J.A.C.S.*, 2001, **123**, 11854-11862 (*heneicosa-Ac, cryst struct*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, COW925

δ-Cyclodextrin C-173

Cyclononaamylose. Cyclomaltononaose. Cyclononakis-(1→4)-(α-D-glucopyranose)
[85220-53-7]
As α-Cyclodextrin, C-171 with n = 9
$C_{54}H_{90}O_{45}$ 1459.278

Endo, T. *et al., Carbohydr. Res.*, 1995, **269**, 369-373 (*isol, cmr*)
Miyazawa, I. *et al., Eur. J. Pharm. Sci.*, 1995, **3**, 153-162 (*isol, pmr, cmr*)
Endo, T. *et al., Chem. Pharm. Bull.*, 1997, **45**, 532-536 (*cmr*)

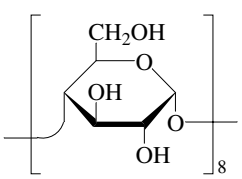
ε-Cyclodextrin C-174

Cyclodecaamylose. Cyclomaltodecaose. Cyclodecakis-(1→4)-(α-D-glucopyranose)
[156510-98-4]
As α-Cyclodextrin, C-171 with n = 10
$C_{60}H_{100}O_{50}$ 1621.42
Separated from commercial cyclodextrin. Some confusion in the lit. between ε- and ι-cyclodextrin.

Endo, T. *et al., Chem. Pharm. Bull.*, 1997, **45**, 532-536 (*isol, cmr*)
Jacob, J. *et al., Angew. Chem., Int. Ed.*, 1998, **37**, 606-609 (*cryst struct*)

γ-Cyclodextrin, 9CI, 8CI C-175

Cyclooctakis-(1→4)-(α-D-glucopyranose). Cyclooctaamylose. Cyclomaltooctaose
[17465-86-0]



$C_{48}H_{80}O_{40}$ 1297.136
Obt. from the breakdown of starch by the action of *Bacillus macerans*.
$[\alpha]_D$ +177.4 (c, 1.0 in H_2O). Forms cryst. complexes with propanol and iodine.

Hexadeca-Ac: [123155-10-2]
$C_{80}H_{112}O_{56}$ 1969.731
$[\alpha]_D$ +138.5 (c, 1.0 in $CHCl_3$).

Tetracosa-O-*Me:* [110934-22-0]
$C_{72}H_{128}O_{40}$ 1633.779
Rod-shaped cryst. +2 or 4.5 H_2O. Sol. cold H_2O, spar. sol. hot H_2O. Cryst. with difficulty.

2,2′,2″,2‴,2⁗,2⁗′,2⁗″,2⁗‴-Octaepimer: γ-Cyclomannin. Cyclooctakis-(1→4)-(α-D-mannopyranose)
[130322-69-9]
$C_{48}H_{80}O_{40}$ 1297.136
$[\alpha]_D^{23}$ +27.2 (c, 0.3 in H_2O).

Per(2,6-di-O-*pentyl), octakis-3*-O-*butanoyl: Lipodex E*
$C_{160}H_{288}O_{48}$ 2980.006
Lipophilic chiral selector.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 198B (*ir*)
French, D. *et al., J.A.C.S.*, 1949, **71**, 353-356 (*isol*)
French, D. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 189-260 (*rev*)
Takeo, K. *et al., Chem. Lett.*, 1973, 1233-1236 (*conformn, cmr*)
Bender, M.L. *et al., Cyclodextrin Chemistry*, Springer-Verlag, 1978,
Bender, H. *et al., Carbohydr. Res.*, 1983, **124**, 225-233 (*synth*)
Takahashi, Y. *et al., Carbohydr. Res.*, 1987, **169**, 127-149 (*synth*)
Clarke, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1988, **46**, 205-249 (*rev, complexes*)
Mori, M. *et al., Tet. Lett.*, 1990, **31**, 3191-3194 (*γ-Cyclomannin*)
Shieh, W.J. *et al., J. Macromol. Sci., Part A: Pure Appl. Chem.*, 1996, **33**, 673-683 (*rev*)
Irie, T. *et al., J. Pharm. Sci.*, 1997, **86**, 147-162 (*rev, toxicol, safety*)
D'Souza, V.T. *et al., Chem. Rev.*, 1998, **98**, 1743-1753 (*rev*)
Schneider, H.J. *et al., Chem. Rev.*, 1998, **98**, 1755-1785 (*pmr, cmr*)
Aree, T. *et al., Carbohydr. Res.*, 2000, **328**, 399-407 (*tetracosa-Me, cryst struct*)
Osvath, R. *et al., Food Chem. News*, 2000, **42**, 7-8 (*use*)
Mele, A. *et al., Carbohydr. Res.*, 2003, **338**, 625-635 (*Lipodex E*)

η-Cyclodextrin C-176

Cyclododecaamylose. Cyclomaltododecaose. Cyclododecakis-(1→4)-(α-D-glucopyranose)
[156510-96-2]
As α-Cyclodextrin, C-171 with n = 12
$C_{72}H_{120}O_{60}$ 1945.704
Separated from commercial cyclodextrin.

Endo, T. *et al., Carbohydr. Res.*, 1995, **269**, 369-373 (*isol, cmr*)
Endo, T. *et al., Chem. Pharm. Bull.*, 1997, **45**, 532-536 (*cmr*)

ι-Cyclodextrin C-177

Cyclotetradecaamylose. Cyclomaltotetradecaose. Cyclotetradecakis-(1→4)-(α-D-glucopyranose)
[156510-94-0]
As α-Cyclodextrin, C-171 with n = 14
$C_{84}H_{140}O_{70}$ 2269.988
Obt. in a mixt. with other higher

cycloamyloses by action of cyclodextrin glucanotransferase on synthetic amylose, followed by chromatographic separation. Cryst. + 29.7 H_2O. Some confusion in the lit. between ϵ- and ι-cyclodextrin.

Endo, T. *et al., Chem. Pharm. Bull.*, 1997, **45**, 532-536 (*isol, cmr, struct*)
Jacob, J. *et al., Angew. Chem., Int. Ed.*, 1998, **37**, 604-609 (*synth, purifn, cryst struct*)
Jacob, J. *et al., Carbohydr. Res.*, 1999, **322**, 228-246 (*cryst struct*)

u-Cyclodextrin C-178

Cyclotridecaamylose. Cyclomaltotridecaose. Cyclotridecakis-(1→4)-(α-D-glucopyranose)
[156510-95-1]
As α-Cyclodextrin, C-171 with n = 13

$C_{78}H_{130}O_{65}$ 2107.846
Separated from commercial cyclodextrin.

Endo, T. *et al., Chem. Pharm. Bull.*, 1997, **45**, 532-536 (*isol, cmr*)

ζ-Cyclodextrin C-179

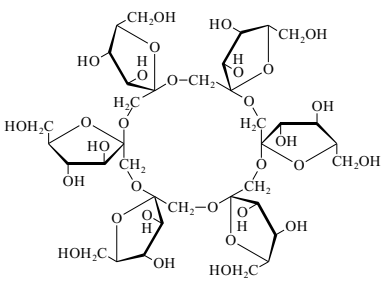
Cycloundecaamylose. Cyclomaltoundecaose. Cycloundecakis-(1→4)-(α-D-glucopyranose)
[156510-97-3]
As α-Cyclodextrin, C-171 with n = 11

$C_{66}H_{110}O_{55}$ 1783.562
Separated from commercial cyclodextrin.

Endo, T. *et al., Chem. Pharm. Bull.*, 1997, **45**, 532-536 (*isol, ms, cmr*)

Cyclofructan 6 C-180

Cycloinulohexaose. Cyclohexakis-(2→1)-β-D-fructofuranose
[124277-48-1]

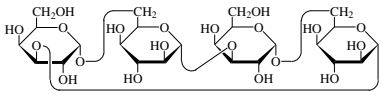


$C_{36}H_{60}O_{30}$ 972.852
Prod. from Inulin, I-38 by the extracellular cycloinulo-oligosaccharide fructotransferase of *Bacillus circulans*. Dendritic cryst. (MeOH) + 3H_2O. Mp 231-233° dec. $[\alpha]_D^{20}$ -64.6 (c, 1.08 in H_2O).

Kawamura, M. *et al., Carbohydr. Res.*, 1989, **192**, 83 (*isol, struct, cmr, ms*)
Sawada, M. *et al., Carbohydr. Res.*, 1991, **217**, 7 (*cryst struct*)
Kushibe, S. *et al., Biosci., Biotechnol., Biochem.*, 1994, **58**, 1136 (*isol*)

Cyclo[(1→6)-α-D-glucopyranosyl-(1→3)-α-D-glucopyranosyl-(→6)-α-D-glucopyranosyl-(1→3)-α-D-glucopyranosyl-(1→)] C-181

CTS
[159640-28-5]

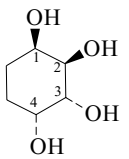


$C_{24}H_{40}O_{20}$ 648.568
Prod. by the action of alternanase on alternan or by action of novel glycosyltransferases from *Bacillus globisporus* on starch or maltooligosaccharides. Characterised spectroscopically.

Biely, P. *et al., Eur. J. Biochem.*, 1994, **226**, 641-648 (*synth*)
Bradbrook, G.M. *et al., Carbohydr. Res.*, 2000, **329**, 655-665 (*cryst struct*)
Côté, G.L. *et al., Carbohydr. Res.*, 2001, **332**, 373-379 (*synth*)
Aga, H. *et al., J. Biosci. Bioeng.*, 2002, **94**, 336-342 (*isol*)

1,2,3,4-Cyclohexanetetrol, 9CI C-182

Dihydroconduritol. Cyclohexaneerythritol
[3877-34-7]



(1*R*,2*R*,3*R*,4*R*)–*form*

$C_6H_{12}O_4$ 148.158
All possible stereoisomers known.

(1*R*,2*R*,3*R*,4*R*)-*form*
(-)-(1α,2α,3β,4β)-form
[2975-92-0]
Cryst. (EtOH). Mp 218°. $[\alpha]_D$ -73.7 (c, 11.4 in H_2O).

(1*R*,2*R*,3*R*,4*S*)-*form*
(-)-(1α,2α,3β,4α)-form
[18422-12-3]
Cryst. (EtOH). Mp 161°. $[\alpha]_D^{21}$ -38.5 (c, 7.7 in H_2O).

(1*R*,2*R*,3*S*,4*R*)-*form*
(-)-(1α,2α,3α,4β)-form
[18424-51-6]
Cryst. (EtOH). Mp 158-160°. $[\alpha]_D^{20}$ -35.8 (c, 4.7 in H_2O).

(1*R*,2*S*,3*S*,4*R*)-*form*
(-)-(1α,2β,3α,4β)-form
[78147-99-6]
Plates (EtOH). Mp 146-148°. $[\alpha]_D^{17}$ -28.8 (c, 1.11 in H_2O).
Tetrabenzoyl:
Fine needles (AcOH). Mp 244-246°. $[\alpha]_D^{21}$ -26.3 (c, 0.95 in $CHCl_3$).

(1*S*,2*R*,3*R*,4*S*)-*form* *(+)-(1α,2β,3α,4β)-form*
Tetra-Ac:
Cryst. (EtOH). Mp 125.5-127°.

(1*S*,2*S*,3*S*,4*R*)-*form* *(+)-(1α,2α,3β,4α)-form*
[129938-05-2]
Cryst. (EtOH). Mp 158-160°. $[\alpha]_D^{18}$ +38 (c, 0.46 in H_2O).

(1*S*,2*S*,3*S*,4*S*)-*form* *(+)-(1α,2α,3β,4β)-form*
Prisms (MeOH). Mp 215°. $[\alpha]_D^{26}$ +72 (c, 1.14 in H_2O).

(1*RS*,2*RS*,3*RS*,4*RS*)-*form* *(±)-(1α,2α,3β,4β)-form. Dihydroconduritol E*
[160081-34-5]
Cryst. (EtOH). Mp 216° Mp 208-209°. Forms a dihydrate. Sublimes.
Tetra-Ac:
$C_{14}H_{20}O_8$ 316.307
Mp 110°.

(1*RS*,2*RS*,3*RS*,4*SR*)-*form* *(±)-(1α,2α,3β,4α)-form. Dihydroconduritol F*
[129829-52-3]
Small prisms (EtOH). Mp 142° Mp 135-136°. Sublimes.
Tetrabenzoyl:
$C_{34}H_{28}O_8$ 564.59
Mp 154-155°.

(1*RS*,2*RS*,3*SR*,4*RS*)-*form* *(±)-(1α,2α,3α,4β)-form. Dihydroconduritol C*
[18424-68-5]
Fine needles (EtOH). Mp 157° Mp 152-153°. Sublimes.
Tetrabenzoyl: Mp 154°.

(1*RS*,2*RS*,3*SR*,4*SR*)-*form* *(±)-(1α,2α,3α,4α)-form. Dihydroconduritol D*
[199013-92-8]
Noncryst.
Tetra-Ac:
Noncryst.

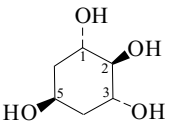
(1*RS*,2*SR*,3*RS*,4*SR*)-*form* *(±)-(1α,2β,3β,4α)-form. Dihydroconduritol A. Toxocarol*
[20089-18-3]
Isol. from *Toxocarus himalensis* and *Marsdenia tomentosa*.
Needles (EtOH).
Mp 210° Mp 205-207°. *meso*-form.
Sublimes.
Tetrabenzoyl: Mp 146°.

(1*RS*,2*SR*,3*SR*,4*RS*)-*form* *(±)-(1α,2β,3α,4β)-form. Dihydroconduritol B*
[129829-63-6]
Needles (EtOH). Mp 187°.
Tetrabenzoyl:
Cryst. (AcOH). Mp 260°.

Posternak, T. *et al., Helv. Chim. Acta*, 1953, **36**, 251; 1955, **38**, 195; 1961, **44**, 257; 267 (*synth*)
Angyal, S.J. *et al., J.C.S.*, 1958, 375 (*synth*)
Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 2804 (*synth*)
Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1978, **51**, 2957 (*synth*)
Chastrette, M. *et al., Can. J. Chem.*, 1981, **59**, 907 (*cd*)
Zhang, Z. *et al., Jiegou Huaxue*, 1987, **6**, 128 (*isol, cryst struct, Toxocarol*)
Akbulut, N. *et al., J.O.C.*, 1988, **53**, 3338 (*synth*)
Le Drian, C. *et al., Helv. Chim. Acta*, 1990, **73**, 161 (*synth*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052 (*synth*)

Anslyn, E.V. *et al., Synth. Commun.*, 1994, **24**, 2757 (*synth, pmr, cmr*)
Phillipson, N. *et al., J.C.S. Perkin 1*, 1997, 2821-2829 (*synth, pmr, cmr*)
Abe, F. *et al., Phytochemistry*, 1998, **47**, 1297-1301 (*isol, pmr, cmr*)

1,2,3,5-Cyclohexanetetrol, 9CI, 8CI C-183



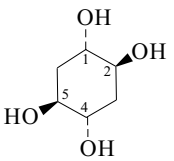
(1α,2β,3α,5β)–*form*

$C_6H_{12}O_4$ 148.158

(1α,2β,3α,5β)-*form* [53585-08-3]
Cryst. (C_6H_6/MeOH). Mp 181.5-182.5°. *Meso*-.
Tetrabenzoyl:
$C_{34}H_{28}O_8$ 564.59
Mp 207-208°.
Tetra-Ac:
$C_{14}H_{20}O_8$ 316.307
Mp 88-89°.

(1α,2α,3α,5β)-*form*
Mp 193°. *Meso*-.
Dangschat, G. *et al., Naturwissenschaften*, 1939, **27**, 756 (*synth*)
McCasland, G.E. *et al., J.A.C.S.*, 1954, **76**, 2373 (*synth*)
McCasland, G.E. *et al., J.O.C.*, 1964, **29**, 2354 (*synth, nmr*)
Fr. Pat., 1977, 2 318 864; *CA*, **87**, 167614 (*synth*)

1,2,4,5-Cyclohexanetetrol, 9CI C-184



(1*S*,2*S*,4*S*,5*S*)–*form*

$C_6H_{12}O_4$ 148.158
5 Stereoisomeric forms possible, 3 *meso* and 2 (±). All are known.

(1*S*,2*S*,4*S*,5*S*)-*form*
(1α,2β,4α,5β)-(+)-form. D-*form (obsol.)*
Constit. of the alga *Monochrysis lutheri*.
Prisms (EtOH).
Mp 205-207° dec. (after sintering at 131-132°). $[\alpha]_D^{21}$ +22.5 (c, 1.06 in H_2O).
Tetra-Ac:
$C_{14}H_{20}O_8$ 316.307
Viscous oil. $[\alpha]_D^{21}$ +10.1 (c, 1.53 in $CHCl_3$).
Tetrabenzoyl:
$C_{34}H_{28}O_8$ 564.59
Viscous oil. $[\alpha]_D^{21}$ -28.3 (c, 1.06 in $CHCl_3$).
Tetrakis-O-*trifluoroacetyl:*
$C_{14}H_8F_{12}O_8$ 532.193
Mp 104-106°.
Tetrakis-O-*trimethylsilyl:*
$C_{18}H_{44}O_4Si_4$ 436.885
Mp 57-59°.

(1*RS*,2*RS*,4*RS*,5*RS*)-*form* *(1α,2β,4α,5β)-(±)-form.* D,L-*form (obsol.)*
Cryst. (EtOH). Mp 208° .
Tetra-Ac:
Cryst. (EtOH). Mp 148°.
Tetrabenzoyl: Mp 181°.

(1*RS*,2*SR*,4*RS*,5*SR*)-*form*
(1α,2α,2α,3α,4α)-form. all-cis-*form*
Cryst. (EtOH). Mp 224-225°. Opt. inactive (*meso*-).
Tetra-Ac:
Cryst. (EtOH). Mp 127-128° .

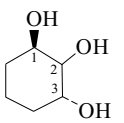
(1*RS*,2*SR*,4*SR*,5*RS*)-*form* *(1α,2α,4β,5β)-form*
[45775-30-2]
Cryst. (EtOH). Mp 240-241°. Opt. inactive (*meso*-).
Tetra-Ac:
Cryst. (EtOH). Mp 169-170°.

(1*RS*,2*RS*,4*SR*,5*SR*)-*form* *(1α,2β,4β,5α)-form*
Cryst. (EtOH). Mp 284-285° dec. Opt. inactive (*meso*-).
Tetrabenzoyl:
Cryst. ($CHCl_3$/EtOH). Mp 266-267°.

(1*RS*,2*SR*,4*RS*,5*RS*)-*form* *(1α,2α,4α,5β)-(±)-form*
Cryst. (EtOH). Mp 208-209°.
Tetrabenzoyl:
Cryst. (EtOH/C_6H_6). Mp 172-173°.
McCasland, G.E. *et al., J.A.C.S.*, 1954, **76**, 1654; 2373 (*synth*)
Shoolery, J.N. *et al., J.O.C.*, 1963, **28**, 894 (*synth, pmr*)
Ramanathan, J.D. *et al., Tet. Lett.*, 1966, 1527 (*isol, abs config*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052 (*synth*)
Maras, A. *et al., Carbohydr. Res.*, 1998, **308**, 435-437 (*1RS,2RS,4RS,5RS-form, !synth*)

1,2,3-Cyclohexanetriol, 9CI C-185

Pyrogallitol. Hexahydropyrogallol
[6286-43-7]



(1*R*,3*R*)–*form*

$C_6H_{12}O_3$ 132.159
All three possible stereoisomeric forms known, two *meso*- and one (±)-. The latter is also known in opt. active form.

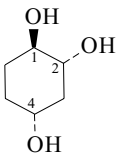
(1*R*,3*R*)-*form*
L-*form. (+)-β-form*
Cryst. (petrol). Mp 129-131°. $[\alpha]_D^{20}$ +72.8 (c, 1.02 in H_2O).
Tri-Ac:
$C_{12}H_{18}O_6$ 258.271
Syrup. $[\alpha]_D^{20}$ -51.5 (c, 0.05 in $MeNO_2$).
Tribenzoyl:
$C_{27}H_{24}O_6$ 444.483
Mp 141-142°. $[\alpha]_D^{20}$ -190.5 (c, 0.98 in $CHCl_3$).

(1*RS*,3*RS*)-*form* *(±)-β-form*
Cryst. (EtOAc). Mp 124-125°.
Tribenzoyl:
Cryst. (AcOH). Mp 184°.

(1α,2β,3α)-*form* α-(meso-)-*form*
Needles (EtOAc or Me_2CO). Mp 108°.
Tribenzoyl: [13302-89-1]
Needles (EtOH). Mp 142°.

(1α,2α,3α)-*form* γ-(meso)-*form*
Cryst. (AcOH). Mp 148°.
Tribenzoyl:
Cryst. (EtOH). Mp 142°.
Lindemann, H. *et al., Annalen*, 1930, **483**, 31 (*synth*)
Posternak, T. *et al., Helv. Chim. Acta*, 1947, **30**, 441 (*config*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 331 (*synth, abs config*)

1,2,4-Cyclohexanetriol, 9CI C-186



(1*RS*,2*RS*,4*RS*)–*form*

$C_6H_{12}O_3$ 132.159
All four (±)-forms known.

(1*RS*,2*RS*,4*RS*)-*form*
(1α,2β,4β)-(±)-form
Tribenzoyl:
$C_{27}H_{24}O_6$ 444.483
Mp 116°.

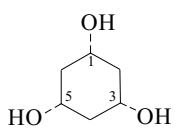
(1*RS*,2*SR*,4*SR*)-*form* *(1α,2α,4α)-(±)-form*
Mp 138°.
Tris-(4-methylbenzenesulfonyl):
$C_{27}H_{30}O_9S_3$ 594.727
Mp 140°.

(1*RS*,2*SR*,4*RS*)-*form* *(1α,2α,4β)-(±)-form*
Mp 161°.
Tris-(4-methylbenzenesulfonyl): Mp 110°.

(1*RS*,2*RS*,4*SR*)-*form* *(1α,2β,4α)-(±)-form*
Tribenzoyl: Mp 154°.
Zelinsky, N. *et al., Ber.*, 1931, **64**, 140 (*synth*)
McCasland, G.E. *et al., J.O.C.*, 1966, **31**, 3079 (*synth, config, nmr*)

1,3,5-Cyclohexanetriol, 9CI C-187

Phloroglucitol. Phloroglucite. Hexahydrophloroglucinol
[2041-15-8]



(1α,3α,5α)–*form*

$C_6H_{12}O_3$ 132.159
2 possible stereoisomers.

(1α,3α,5α)-*form*
cis-*form.* α-*form*
[50409-12-6]
Cryst. + $2H_2O$ (H_2O). Spar. sol. C_6H_6, Me_2CO. Mp 110-112° (anhyd. 185°).
Tri-Ac:
$C_{12}H_{18}O_6$ 258.271
Mp 79°.
Trisphenylurethane: Mp 245°.

(1α,3α,5β)-*form* trans-*form*. *β-form*
[13314-30-2]
Cryst. (EtOH). Sol. H_2O, spar. sol. C_6H_6, Me_2CO. Mp 145°.

Trisphenylurethane: Mp 160°.

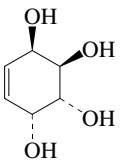
Tri-Ac: [58006-28-3]
Mp 60-61°.

[38551-69-8]

Lindemann, H. *et al., Annalen*, 1930, **477**, 78 (*synth*)
Strong, P.N. *et al., J.O.C.*, 1975, **40**, 956 (*synth, pmr*)
Stetter, H. *et al., Annalen*, 1984, 1577 (*synth*)

5-Cyclohexene-1,2,3,4-tetrol C-188

3,4,5,6-Tetrahydroxycyclohexene.
Conduritol



(1*R*S,2*R*S,3*R*S,4*R*S)-*form*

$C_6H_{10}O_4$ 146.143

(1*RS*,2*RS*,3*RS*,4*RS*)-*form*
(1α,2α,3β,4β)-form. Conduritol E
[4942-62-5]
Mp 179-180°. A racemate. Known also in opt. active forms ((+)-form, Mp 193°, $[\alpha]_D$ +332 (H_2O)).

Tetra-Ac: Tetra-O-*acetylconduritol E*
[143615-78-5]
$C_{14}H_{18}O_8$ 314.291
Cryst. (EtOAc/hexane). Mp 156° (153°). $Bp_{0.6}$ 165°.

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylideneconduritol E*
[142129-09-7]
$C_{12}H_{18}O_4$ 226.272
Mp 60-61°.

(1*RS*,2*RS*,3*RS*,4*SR*)-*form* *(1α,2α,3β,4α)-form*. ***Conduritol F***. *Leucanthemitol*
[4782-76-7]

[6090-98-8] Constit. of *Chrysanthemum leucanthemum, Chrysanthemum maximum, Hoya carnosa, Thuja occidentalis*, and *Chlorella fusca*. Found in opt. active form in nearly all green plants in small amts. Mp 103-104°. A racemate, to which the Mp given refers. The naturally occurring isomer is the (+)-form having Mp 134°, $[\alpha]_D$+101.5 (H_2O).

Tetra-Ac: Tetra-O-*acetylconduritol F*
[6216-24-6]
$C_{14}H_{18}O_8$ 314.291
Mp 92°.

2-O-*β-D-Glucopyranoside:* [209542-57-4]
$C_{12}H_{20}O_9$ 308.285
Constit. of *Marsdenia tomentosa*. Solid. $[\alpha]_D^{25}$ -22.5 (c, 1.2 in H_2O).

3-O-*β-D-Glucopyranoside:*
$C_{12}H_{20}O_9$ 308.285
Constit. of *Asclepias curassavica* and *Cynanchum liukiuense*. Amorph solid. $[\alpha]_D^{25}$ -30 (c, 0.25 in H_2O).

4-O-*β-D-Glucopyranoside:*
$C_{12}H_{20}O_9$ 308.285
Constit. of *Cynanchum liukiuense*. Amorph. solid. $[\alpha]_D^{26}$ -4.6 (c, 0.34 in MeOH).

(1*RS*,2*RS*,3*SR*,4*RS*)-*form* *(1α,2α,3α,4β)-form. Conduritol C*
[4942-61-4]
Mp 150-152° (146-148°). A racemate. Known also in opt. active forms. ((-)-form, Mp 146-148°, $[\alpha]_D^{25}$ -209 (H_2O)).

Tetra-Ac: Tetra-O-*acetylconduritol C*
[143615-79-6]
$C_{14}H_{18}O_8$ 314.291
Mp 92°.

(1*RS*,2*RS*,3*SR*,4*SR*)-*form* *(1α,2α,3α,4α)-form. Conduritol D*
[4782-75-6] Opt. inactive (*meso*-).

Tetra-Ac: Tetra-O-*acetylconduritol D*
[123354-99-4]
$C_{14}H_{18}O_8$ 314.291
Mp 102-104°.

Tetrabenzoyl: Tetra-O-*benzoylconduritol D*
$C_{34}H_{26}O_8$ 562.575
Mp 184°.

1,2:3,4-Di-O-*isopropylidene:*
$C_{12}H_{18}O_4$ 226.272
Mp 67-68°. Cryst. with difficulty.

(1*RS*,2*SR*,3*RS*,4*SR*)-*form* *(1α,2β,3β,4α)-form*. ***Conduritol A***
[526-87-4]
Constit. of condurango bark (*Mardenia condurango*), four genera of Aselepiadaceae, and six families of Dicotyledons. Large tetragonal prisms.
Mp 118° Mp 142-143°. Opt. inactive (*meso*-).

1-O-*α-D-Galactopyranoside:* [209542-55-2]
$C_{12}H_{20}O_9$ 308.285
Constit. of *Marsdenia tomentosa*. Solid. $[\alpha]_D^{24}$ +106.5 (c, 0.8 in MeOH).

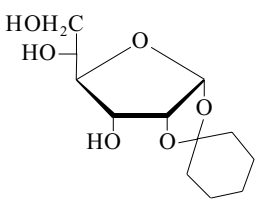
2- or 3-O-*β-D-Glucopyranoside:*
$C_{12}H_{20}O_9$ 308.285
Constit. of *Marsdenia tomentosa*. Solid. $[\alpha]_D^{26}$ +21.3 (c, 0.5 in H_2O).

(1*RS*,2*SR*,3*SR*,4*RS*)-*form* *(1α,2β,3α,4β)-form. Conduritol B*
[25348-64-5]
Mp 205°. A racemate. Known also in opt. active forms. ((-)-form, Mp 179.2°, $[\alpha]_D^{20}$ -156.0 (MeOH)).

Tetra-Ac: Tetra-O-*acetylconduritol B*
[25348-63-4]
$C_{14}H_{18}O_8$ 314.291
Mp 92-93° (85-85.5°).

Nakajima, M. *et al., Chem. Ber.*, 1957, **90**, 246-250 (*Conduritol A, Conduritol B, Conduritol C, Conduritol E, synth*)
Angyal, S.J. *et al., J.C.S.*, 1958, 375-379 (*Conduritol D, synth*)
Posternak, Th. *et al., The Cyclitols*, Holden-Day, San Francisco, 1965, 145
Kindl, H. *et al., Monatsh. Chem.*, 1966, **97**, 1783-1786 (*Leucanthemitol, isol*)
Sütbeyaz, Y. *et al., Chem. Comm.*, 1988, 1330-1331 (*Conduritol A, synth*)
Le Drian, C. *et al., Helv. Chim. Acta*, 1989, **72**, 338; 1990, **73**, 161-168 (*Conduritol C, Conduritol B, Conduritol F, synth, bibl, abs config*)
Cambie, R.C. *et al., Synth. Commun.*, 1989, **19**, 537-546 (*Conduritol A, synth*)
Balci, M. *et al., Tetrahedron*, 1990, **46**, 3715-3742 (*rev*)
Carless, H.A.J. *et al., Chem. Comm.*, 1992, 234-235 (*Conduritol C, synth*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052-1060 (*Conduritol C, Conduritol D, Conduritol E, synth, pmr*)
Dumortier, L. *et al., Synlett*, 1992, 243-245 (*Conduritol C, Conduritol E, Conduritol F, synth*)
Secen, H. *et al., Synth. Commun.*, 1992, **22**, 2613-2619 (*Conduritol C, Conduritol E, synth*)
Akiyama, T. *et al., Bull. Chem. Soc. Jpn.*, 1993, **66**, 3760-3767 (*Conduritol B, Conduritol F, synth*)
Chretien, F. *et al., Nat. Prod. Lett.*, 1993, **2**, 69-75 (*Conduritol E, Conduritol F, synth*)
Guo, Z.X. *et al., Carbohydr. Res.*, 1994, **264**, 147-153 (*Conduritol B, !synth*)
Mereyala, H.B. *et al., J.C.S. Perkin 1*, 1994, 2187-2190 (*Conduritol A, Conduritol C, synth*)
Takano, S. *et al., J.O.C.*, 1994, **59**, 54-57 (*Conduritol E, synth*)
Secen, H. *et al., Synth. Commun.*, 1994, **24**, 2103-2108 (*Conduritol F, synth, cmr*)
Patti, A. *et al., J.O.C.*, 1996, **61**, 6458-6461 (*Conduritol F, synth*)
Balci, M. *et al., Pure Appl. Chem.*, 1997, **69**, 97-104 (*rev, synth*)
Yoshizaki, H. *et al., J.O.C.*, 1998, **63**, 9339-9341 (*Conduritol C, synth, pmr, cmr*)
Abe, F. *et al., Phytochemistry*, 1998, **47**, 1297-1301 (*isol, glycosides*)
Angelaud, R. *et al., J.O.C.*, 1999, **64**, 9613-9624 (*Conduritol E, synth, pmr*)
Abe, F. *et al., Chem. Pharm. Bull.*, 2000, **48**, 1090-1092 (*glucosides*)
Mehta, G. *et al., Tet. Lett.*, 2000, **41**, 3509-3512 (*Conduritol E, synth*)
Cere, V. *et al., Tetrahedron*, 2000, **56**, 1225-1231 (*synth*)
Kwon, Y.-U. *et al., J.O.C.*, 2002, **67**, 3327-3338 (*synth*)
de Souza, S.E. *et al., Tetrahedron*, 2002, **58**, 4643-4654 (*Conduritol F, synth, tetra-Ac*)
Gultekin, M.S. *et al., Curr. Org. Chem.*, 2004, **8**, 1159-1186 (*rev*)

1,2-*O*-Cyclohexylideneallofuranose, 9CI, 8CI C-189



$C_{12}H_{20}O_6$ 260.286

α-D-*form* [22250-02-8]
Cryst. (petrol/EtOAc). Mp 111-112°. $[\alpha]_D^{25}$ +46.1 (c, 0.56 in EtOH).

5,6-O-*Cyclohexylidene: 1,2:5,6-Di*-O-*cyclohexylidene-α-D-allofuranose*
$C_{18}H_{28}O_6$ 340.416
Mp 123-125.5°. $[\alpha]_D^{14}$ +12.4 (c, 0.93 in $CHCl_3$).

5,6-O-*Cyclohexylidene, 3-mesyl: 1,2:5,6-Di*-O-*cyclohexylidene-3*-O-*mesyl-α-D-allofuranose*
[58109-18-5]
$C_{19}H_{30}O_8S$ 418.507
Mp 119.5-121.5°. $[\alpha]_D^{23}$ +82.2 (c, 1.3 in $CHCl_3$).

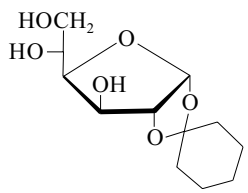
5,6-O-*Cyclohexylidene, 3*-C-*Me: 1,2:5,6-Di*-O-*cyclohexylidene-3*-C-*methyl-α-D-allofuranose*
[22384-94-7]
$C_{19}H_{30}O_6$ 354.442
Cryst. (petrol). Mp 119-121°. $[\alpha]_D^{20}$ +28.4 (c, 1.0 in $CHCl_3$).

5,6-O-*Cyclohexylidene, 3*-C-*Et: 1,2:5,6-Di*-O-*cyclohexylidene-3*-C-*ethyl-α-D-allofuranose*
$C_{20}H_{32}O_6$ 368.469
Cryst. (petrol). Mp 98-100°. $[\alpha]_D^{20}$ +27 (c, 1.0 in $CHCl_3$).

5,6-O-*Cyclohexylidene, 3*-C-*vinyl: 1,2:5,6-Di*-O-*cyclohexylidene-3*-C-*vinyl-α-D-allofuranose*
$C_{20}H_{30}O_6$ 366.453
Cryst. (petrol). Mp 91-92°. $[\alpha]_D^{20}$ +32.3 (c, 2.0 in $CHCl_3$).

James, K. *et al., J.C.S.(C)*, 1967, 2681, (*α-D-cyclohexylidene*)
Kawana, M. *et al., Bull. Chem. Soc. Jpn.*, 1968, **41**, 2199 (*α-D-form, α-D-cyclohexylidene*)
Rees, R.D. *et al., J.C.S.(C)*, 1968, 2716, (*α-D-cyclohexylidene Me, α-D-cyclohexylidene Et, α-D-cyclohexylidene vinyl*)
Ogawa, T. *et al., Agric. Biol. Chem.*, 1971, **35**, 1825 (*α-D-cyclohexylidene*)
Kawana, M. *et al., Tet. Lett.*, 1975, 3395, (*α-D-cyclohexylidene mesyl*)

1,2-*O*-Cyclohexylidenegluco-furanose, 9CI, 8CI C-190



$C_{12}H_{20}O_6$ 260.286

α-D-*form* [16832-21-6]
Mp 151-153°. $[\alpha]_D$ +4 (Me_2CO).

3,5,6-Tribenzoyl: 3,5,6-Tri-O-*benzoyl-1,2*-O-*cyclohexylidene-α-D-glucofuranose*
$C_{33}H_{32}O_9$ 572.61
Mp 124-126°. $[\alpha]_D$ -90.4 ($CHCl_3$).

3,5-O-*Methylene: 1,2*-O-*Cyclohexylidene-3,5*-O-*methylene-α-D-glucofuranose*
[23397-82-2]
$C_{13}H_{20}O_6$ 272.297
Mp 68-70°. $[\alpha]_D$ +22 (c, 1.0 in EtOH).

5,6-O-*Cyclohexylidene: 1,2:5,6-Di*-O-*cyclohexylidene-α-D-glucofuranose*
[23397-76-4]
$C_{18}H_{28}O_6$ 340.416
Mp 131-133°. $[\alpha]_D$ +1.6 ($CHCl_3$).

5,6-O-*Cyclohexylidene, 3-benzoyl: 3*-O-*Benzoyl-1,2:5,6-di*-O-*cyclohexylidene-α-D-glucofuranose*
$C_{25}H_{32}O_7$ 444.524
Mp 111-112.5°. $[\alpha]_D$ -37 ($CHCl_3$).

5,6-O-*Cyclohexylidene, 3-tosyl: 1,2:5,6-Di*-O-*cyclohexylidene-3*-O-*tosyl-α-D-glucofuranose*
$C_{25}H_{34}O_8S$ 494.605
Mp 89-91°. $[\alpha]_D$ -67.6 ($CHCl_3$).

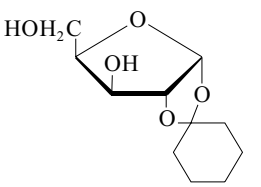
3,5-O-*Benzylidene: 3,5*-O-*Benzylidene-1,2*-O-*cyclohexylidene-α-D-glucofuranose*
$C_{19}H_{24}O_6$ 348.395
Mp 140-141°. $[\alpha]_D$ +31.

6-Benzyl, 3,5-O-*benzylidene: 6*-O-*Benzyl-3,5*-O-*benzylidene-1,2*-O-*cyclohexylidene-α-D-glucofuranose*
$C_{26}H_{30}O_6$ 438.519
Mp 139-140°.

3,5,6-Orthoformate:
$C_{13}H_{18}O_6$ 270.282
Cryst. (C_6H_6). Mp 191°. $[\alpha]_D$ -30 (c, 1.0 in $CHCl_3$).

Hockett, R.C. *et al., J.A.C.S.*, 1949, **71**, 3072 (*α-D-form, synth, α-D-cyclohexylidene, α-D-cyclohexylidene acetals, α-D-tribenzoyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, derivs*)
Bhattacharjee, S.S. *et al., Can. J. Chem.*, 1969, **47**, 1195 (*α-D-methylene, α-D-orthoformate*)

1,2-*O*-Cyclohexylidenexylo-furanose C-191



α–D–*form*

$C_{11}H_{18}O_5$ 230.26

α-D-*form* [22250-06-2]
Mp 91-92°. $[\alpha]_D$ -12.4 (c, 0.89 in H_2O).

5-Mesyl: 1,2-O-*Cyclohexylidene-5*-O-*mesyl-α-D-xylofuranose*
$C_{12}H_{20}O_7S$ 308.352
Mp 159-162°. $[\alpha]_D$ -13 (MeOH).

3,5-Dimesyl: 1,2-O-*Cyclohexylidene-3,5-di*-O-*mesyl-α-D-xylofuranose*
$C_{13}H_{22}O_9S_2$ 386.443
Mp 135°.

5-Tosyl: 1,2-O-*Cyclohexylidene-5*-O-*tosyl-α-D-xylofuranose*
[22170-03-2]
$C_{18}H_{24}O_7S$ 384.449
Mp 123-125°. $[\alpha]_D$ -10 ($CHCl_3$).

3,5-Ditosyl: 1,2-O-*Cyclohexylidene-3,5-di*-O-*tosyl-α-D-xylofuranose*
$C_{25}H_{30}O_9S_2$ 538.639
Mp 134°.

3,5-O-*Cyclohexylidene: 1,2:3,5-Di*-O-*cyclohexylidene-α-D-xylofuranose*
$C_{17}H_{26}O_5$ 310.389
Cryst. (EtOH). Mp 105°. $[\alpha]_D$ -2.9 (EtOH).

5-Trityl: 1,2-O-*Cyclohexylidene-5*-O-*trityl-α-D-xylofuranose*
[40773-82-8]
$C_{30}H_{32}O_5$ 472.58
Mp 145-147°. $[\alpha]_D^{25}$ -28.3 (c, 1.0 in EtOH).

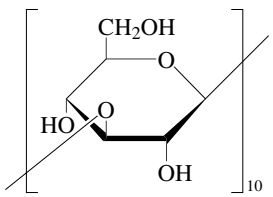
α-L-*form*
Mp 83-84°. $[\alpha]_D$ +0.41 (Me_2CO).

5-Tosyl: 1,2-O-*Cyclohexylidene-5*-O-*tosyl-α-L-xylofuranose*
$C_{18}H_{24}O_7S$ 384.449
Mp 124°.

3,5-O-*Cyclohexylidene: 1,2:3,5-Di*-O-*cyclohexylidene-α-L-xylofuranose*
$C_{17}H_{26}O_5$ 310.389
Cryst. (EtOH). Mp 103-104°. $[\alpha]_D^{20}$ -2.88 (c, 9.1 in Me_2CO).

Kazimirova, V.F. *et al., Zh. Obshch. Khim.*, 1960, **30**, 732
Heyns, K. *et al., Chem. Ber.*, 1961, **94**, 348, (*D-form, D-cyclohexylidene*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev*)
v. Schuching, S. *et al., J.O.C.*, 1965, **30**, 1288, (*L-form, L-cyclohexylidene*)
Veksler, V.I. *et al., Zh. Obshch. Khim.*, 1968, **38**, 1649

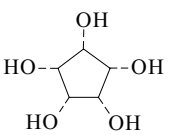
Cyclolaminariose C-192



$C_{60}H_{100}O_{50}$ 1621.42
Isol. from a recombinant strain of *Rhizobium meliloti* TY7. The cyclooligosaccharide isol. from *Rhizobium meliloti* was substituted at one of the 6-positions by a β-laminarabiosyl residue.

Pfeffer, P.E. *et al., Carbohydr. Res.*, 1996, **296**, 23-37

1,2,3,4,5-Cyclopentanepentol C-193



(1α,2α,3α,4α,5α)–*form*

$C_5H_{10}O_5$ 150.131
Four stereoisomers known, all *meso*-.

(1α,2α,3α,4α,5α)-*form*
1,2,3,4,5/0-form. cis-*1,2,*cis-*1,3,* cis-*1,4,*cis-*1,5-form*
[34322-89-9]
Long needles. Mp 283° (darkens at 220°).

(1α,2α,3α,4α,5β)-*form*
1,2,3,4/5-form. cis-*1,2,*cis-*1,3,* cis-*1,4,*trans-*1,5-form*
[18939-02-1]
Mp 199-200°.

Pentabenzoyl:
$C_{40}H_{30}O_{10}$ 670.671
Mp 119°.

(1α,2α,3α,4β,5β)-*form* *1,2,3/4,5-form.* cis-*1,2,*cis-*1,3,*trans-*1,4,*trans-*1,5-form*
[18939-07-6]
Mp 176°.

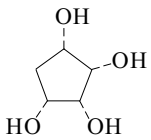
*Pentabenzoyl:*Mp 241°.

(1α,2α,3β,4α,5β)-form *1,2,4/3,5-form.* cis-*1,2,*trans-*1,3,*cis-*1,4,*trans-*1,5-form*
[57784-52-8]
Cryst. (EtOH aq.). Mp 149-150°.

Pentabenzoyl:
Small prisms (EtOH). Mp 172-173°.

Posternak, T. *et al., Naturwissenschaften*, 1968, **55**, 82
Angyal, S.J. *et al., Aust. J. Chem.*, 1970, **23**, 1831 (*synth*)
Cocu, F.G. *et al., Helv. Chim. Acta*, 1971, **54**, 1676 (*synth*)

1,2,3,4-Cyclopentanetetrol, 9CI, 8CI C-194



(1α,2α,3α,4α)−*form*

$C_5H_{10}O_4$ 134.132

(1α,2α,3α,4α)-*form* [34361-77-8]
Mp 196-197°. *Meso*-.

Tetra-Ac:
$C_{13}H_{18}O_8$ 302.28
Oil.

Tetrabenzoyl:
$C_{33}H_{26}O_8$ 550.564
Mp 119°.

(1α,2β,3α,4β)-*form*
Mp 91-92°. Racemate.

Tetrabenzoyl: Mp 63-66°.

(1α,2α,3α,4β)-*form*
Mp 73-74°. Racemate.

Tetrabenzoyl: Mp 135-136°.

(1α,2α,3β,4α)-*form*
Syrup. Racemate.

Tetrabenzoyl:
Cryst. in two forms. Mp 107-108° Mp 113°.

(1α,2β,3β,4α)-*form* [14003-71-5]
Mp 135-136°. *Meso*-.

Tetrabenzoyl: Mp 126-128° (resolidifies and remelts at 144-146°).

(1α,2α,3β,4β)-*form*
Mp 127-128°. Racemate.

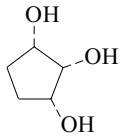
Tetra-Ac:
Oil.

Tetrabenzoyl:
Long needles. Mp 146-147°.

Sable, H.Z. *et al., Helv. Chim. Acta*, 1963, **46**, 1157 (*synth*)
Cocu, F.G. *et al., Helv. Chim. Acta*, 1971, **54**, 1676 (*synth*)
Ritchie, R. *et al., Can. J. Chem.*, 1975, **53**, 1424 (*nmr*)
Singy, G.A. *et al., Helv. Chim. Acta*, 1975, **58**, 2164 (*ms*)
Zuckerman-Schpector, J. *et al., Acta Cryst. C*, 1996, **52**, 1298 (*cryst struct, mono-Ac*)
Donohoe, T.J. *et al., J.O.C.*, 2002, **67**, 7946-7956 (*tetra-Ac, synth, pmr, cmr, ir*)

1,2,3-Cyclopentanetriol, 9CI, 8CI C-195

[56772-27-1]



(1α,2α,3α)−*form*

$C_5H_{10}O_3$ 118.132

(1α,2α,3α)-*form* [34361-69-8] $Bp_{0.1}$ 60°. *Meso*-.

Tribenzoyl:
$C_{26}H_{22}O_6$ 430.456
Cryst. (petrol). Mp 77-78°.

(1α,2α,3β)-*form*
Cryst. (Me_2CO/petrol). Mp 73-75°. Racemate. Known also in enantiomeric forms.

Tribenzoyl: Mp 96-97°.

1-O-(3,4-Dihydroxycinnamoyl)(E-):
$C_{14}H_{16}O_6$ 280.277
Constit. of the fruit of *Prunus cerasus*. Antioxidant. Oil. λ_{max} 203 (log ε 3.95); 215 (log ε 3.94); 243 (log ε 3.76); 299 (log ε 3.81); 327 (log ε 3.9) (MeOH).

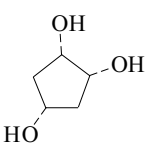
(1α,2β,3α)-*form* [56570-86-6] *Meso*-.

Tribenzoyl: Mp 95.5-96°.

2-O-(3,4-Dihydroxycinnamoyl)(E-):
$C_{14}H_{16}O_6$ 280.277
Constit. of the fruit of *Prunus cerasus*. Antioxidant. Pale yellow oil. λ_{max} 206 (log ε 3.99); 215 (log ε 4); 243 (log ε 3.83); 299 (log ε 3.86); 325 (log ε 3.89) (MeOH).

Posternak, Th. *et al., Naturwissenschaften*, 1968, **55**, 82 (*synth, nmr*)
Wolczunowicz, G. *et al., Helv. Chim. Acta*, 1970, **53**, 2275 (*synth*)
Cocu, F.G. *et al., Helv. Chim. Acta*, 1971, **54**, 1676 (*synth*)
Steyn, R. *et al., Tetrahedron*, 1971, **27**, 4429 (*synth*)
Ritchie, R. *et al., Can. J. Chem.*, 1975, **53**, 1424 (*nmr*)
Singy, G.A. *et al., Helv. Chim. Acta*, 1975, **58**, 2164 (*ms*)
Hancock, A.J. *et al., J. Lipid Res.*, 1975, **16**, 300 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 331 (*synth, abs config*)
Wang, H. *et al., J. Nat. Prod.*, 1999, **62**, 86-88 (*isol, dihydroxycinnamates*)
Donohoe, T.J. *et al., J.O.C.*, 2002, **67**, 7946-7956 (*α,α,α-form, synth, pmr, cmr, ir*)

1,2,4-Cyclopentanetriol, 9CI, 8CI C-196



(1α,2α,4α)−*form*

$C_5H_{10}O_3$ 118.132

(1α,2α,4α)-*form* [34311-02-9]
Oil. *Meso*-.

Tribenzoyl:
$C_{26}H_{22}O_6$ 430.456
Cryst. (EtOH). Mp 71-72° (68-69.5°).

(1α,2α,4β)-*form* [58022-52-9]
Oil. *Meso*-.

Tribenzoyl:
Cryst. (EtOH). Mp 110-112°.

(1α,2β,4α)-*form* [42142-32-5]
Oil. Racemate.

Tri-Ac: [42142-31-4]
$C_{11}H_{16}O_6$ 244.244
$Bp_{0.4}$ 112-114°.

Tribenzoyl:
Cryst. (EtOH). Mp 111.5-112.5°.

(1β,2α,4α)-*form*
Oil. Racemate.

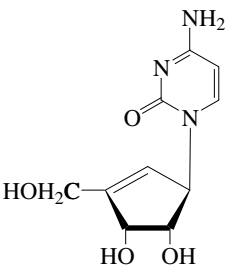
Tri-Ac:
Oil.

Steyn, R. *et al., Tetrahedron*, 1969, **25**, 3579 (*synth*)
Cocu, F.G. *et al., Helv. Chim. Acta*, 1971, **54**, 1676 (*synth*)
Hornback, J.M. *et al., J.O.C.*, 1973, **38**, 4122 (*synth*)
Ritchie, R. *et al., Can. J. Chem.*, 1975, **53**, 1424
Singy, G.A. *et al., Org. Mass Spectrom.*, 1975, **10**, 702 (*ms*)
Bloodworth, A.J. *et al., J.C.S. Perkin 1*, 1981, 3272 (*synth, pmr*)
Drake, A.F. *et al., J.C.S. Perkin 1*, 1996, 2739 (*β,α,α-form, synth, ir, pmr, cmr, ms*)

Cyclopentenylcytosine C-197

4-Amino-1-[4,5-dihydroxy-3-(hydroxymethyl)-2-cyclopenten-1-yl]-2(1H)-pyrimidinone, 9CI. NSC 375575
[90597-22-1]

[115224-32-3, 123165-20-8]



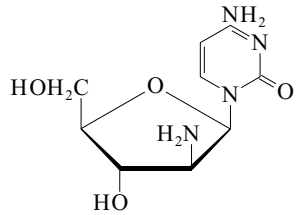
$C_{10}H_{13}N_3O_4$ 239.23
Antineoplastic and antiviral agent. Mp 138-141°. $[\alpha]_D^{23}$ -104.5 (c, 0.13 in H_2O).

Lim, M.I. *et al., J. Med. Chem.*, 1984, **27**, 1536-1538 (*synth, pharmacol, uv, pmr*)
Moyer, J.D. *et al., Cancer Res.*, 1986, **46**, 3325-3329 (*pharmacol*)
Marquez, V.E. *et al., J. Med. Chem.*, 1988, **31**, 1687-1694; 1991, **34**, 208-212 (*synth, pmr, pharmacol*)
U.S. Pat., 1989, 307 115, (*US Dept Health and Human Services*); *CA*, **112**, 36390x (*synth, pharmacol*)
Blaney, S.M. *et al., Cancer Res.*, 1990, **50**, 7915-7919 (*metab, pharmacol*)
Ford, H. *et al., Cancer Res.*, 1991, **51**, 3733-3740 (*pharmacol*)
Politi, P.M. *et al., Cancer Chemother. Pharmacol.*, 1995, **36**, 513-523 (*clin trial*)
Viola, J.J. *et al., Cancer Res.*, 1995, **55**, 1306-1309 (*pharmacol*)

Hegedus, L. *et al., J. Chromatogr., B: Biomed. Appl.*, 1997, **692**, 169-179 (*hplc*)
Agbaria, R. *et al., Oncol. Res.*, 1997, **9**, 111-118 (*pharmacol*)

Cytaramin C-198

4-Amino-1-(2-amino-2-deoxy-β-D-arabinofuranosyl)-2(1H)-pyrimidinone, 9CI.
1-(2-Amino-2-deoxy-β-D-arabinofuranosyl)cytosine
[67013-99-4]



$C_9H_{14}N_4O_4$ 242.234
Antineoplastic nucleoside. Shows significant activity against mouse leukaemia L1210, human T-cell acute lymphoblastic leukaemia Molt 4F and HeLa cells *in vitro*. Log P -3.03 (calc). Resistant to cytidine deaminase.

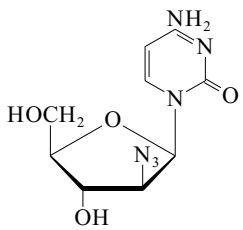
Hydrochloride (1:2):
Cryst. (MeOH aq.). Mp 192°.

[135304-45-9]

Bobek, M. *et al., J. Med. Chem.*, 1978, **21**, 597
Matsuda, A. *et al., Chem. Pharm. Bull.*, 1989, **37**, 1659 (*synth, pmr*)
Japan. Pat., 1991, 03 48 693, (*Yamasa Shoyu*); *CA*, **115**, 92836w

Cytarazid C-199

4-Amino-1-(2-azido-2-deoxy-β-D-arabinofuranosyl)-2(1H)-pyrimidinone, 9CI.
2′-Azido-2′-deoxy-β-D-arabinofuranosylcytosine. 2′-Azido-2′-deoxy-2-epicytidine
[67013-98-3]



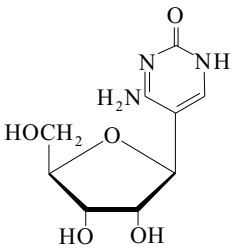
$C_9H_{12}N_6O_4$ 268.232
Antineoplastic nucleoside.

Hydrochloride: [135304-44-8]
Cryst. (MeOH). Mp 165°.

Bobek, M. *et al., J. Med. Chem.*, 1978, **21**, 597 (*synth, pharmacol*)
Pat. Coop. Treaty (WIPO), 1979, 79 01 068, (*Research Corp*); *CA*, **93**, 26736q (*synth, pharmacol*)
Cheng, Y.C. *et al., Cancer Res.*, 1981, **41**, 3144 (*pharmacol*)
Matsuda, A. *et al., Chem. Pharm. Bull.*, 1989, **37**, 1659 (*synth, pmr*)
Matsuda, A. *et al., J. Med. Chem.*, 1991, **34**, 999 (*synth, pmr, pharmacol*)

ψ-Cytidine C-200

Pseudocytidine. 5-β-D-Ribofuranosylcytosine



$C_9H_{13}N_3O_5$ 243.219
Mp 191-192° (161°). $[\alpha]_D^{25}$ -64.1 (c, 0.7 in H_2O).

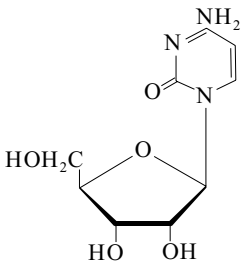
2′,3′-O-Isopropylidene:
$C_{12}H_{17}N_3O_5$ 283.283
Mp 259-260°.

2′,3′-O-Isopropylidene, 5′-tosyl: Mp 180-182°.

David, S. *et al., Carbohydr. Res.*, 1973, **29**, 15
Pankiewicz, K.W. *et al., Carbohydr. Res.*, 1984, **127**, 227

Cytidine, 9CI, 8CI C-201

1-β-D-Ribofuranosylcytosine, 9CI.
4-Amino-1-β-D-ribofuranosyl-2(1H)-pyrimidinone
[65-46-3]



$C_9H_{13}N_3O_5$ 243.219
Constit. of nucleic acids. Isol. from yeast nucleic acid. Needles.
Mp 230° dec. $[\alpha]_D^{21}$ +29.6 (H_2O). λ_{max} 280 (ε 13400) (pH 2.2). λ_{max} 271 (ε 9100) (pH 8.2).
► LD_{50} (mus, ipr) 2700 mg/kg. UW7370000

Sulfate: [32747-18-5]

[6018-48-0]
Prismatic needles. Mp 224-225° dec. $[\alpha]_D^{24}$ +34 (H_2O).

Picrate: Mp 185-187°.

4N-Ac: N^4*-Acetylcytidine*
[3768-18-1]
$C_{11}H_{15}N_3O_6$ 285.256
Modified nucleoside present in t-RNAs. Mp 208-209°. λ_{max} 212 (ε 18200); 245 (ε 15100); 294 (ε 8600) (H_2O).

4N,5′-Di-Ac:
$C_{13}H_{17}N_3O_7$ 327.293
Mp 172-176°. λ_{max} 247 (ε 15140); 297 (ε 7413) (MeOH).

4N, 2′,5′-Tri-Ac:
$C_{15}H_{19}N_3O_8$ 369.33
Mp 182-185°. λ_{max} 248 (ε 16600); 297 (ε 7244) (MeOH).

2′,3′,5′-Tri-Ac: [56787-28-1]
$C_{15}H_{19}N_3O_8$ 369.33
Mp 165-168°.

4N-Benzoyl: [13089-48-0]
$C_{16}H_{17}N_3O_6$ 347.327
Mp 237-238°. $[\alpha]_D^{27}$ +55 (c, 0.1 in MeOH). λ_{max} 257 (ε 18000); 302 (ε 9900) (H_2O).

4N,5′-Dibenzoyl:
$C_{23}H_{21}N_3O_7$ 451.435
Mp 186-190°. λ_{max} 229 (ε 21880); 261 (ε 23990); 305 (ε 10470) (95% EtOH).

4N,3′,5′-Tribenzoyl:
$C_{30}H_{25}N_3O_8$ 555.543
Mp 198-202°. λ_{max} 232 (ε 34670); 262 (ε 26920); 304 (ε 10000) (95% EtOH).

2′,3′,5′-Tribenzoyl: [31652-74-1]
$C_{30}H_{25}N_3O_8$ 555.543
Mp 226-227° (as hydrochloride). CAS no. refers to hydrochloride. λ_{max} 230 (ε 29700); 280 (ε 9650) (EtOH).

3′-Mesyl:
$C_{10}H_{15}N_3O_7S$ 321.31
Mp 170-176° (as hydrochloride). λ_{max} 277 (ε 13490) (0.01*M* HCl).

5′-Trityl: [22596-01-6]
$C_{28}H_{27}N_3O_5$ 485.538
Mp 244-245°.

3N-Me: ***3-Methylcytidine***
[2140-64-9]
$C_{10}H_{15}N_3O_5$ 257.246
Found in yeast soluble RNA. Isol. from the marine sponge *Geodia baretti*.
Mp 193-194° (as methanesulfonate). pK_a 8.7. λ_{max} 254 (H_2O) (Berdy). λ_{max} 278 (ε 11800) (pH 4). λ_{max} 266 (ε 900) (pH 12).

2′-Phosphate: See Cytidine 2′-(dihydrogen phosphate), C-203

3′-Phosphate: See Cytidine 3′-(dihydrogen phosphate), C-204

5′-Phosphate: See Cytidine 5′-(dihydrogen phosphate), C-205

2′,3′-Diphosphate: See Cytidine cyclic 2′,3′-(hydrogen phosphate), C-202

2′-Me: 2′-O-Methylcytidine, 9CI, 8CI
[2140-72-9]
$C_{10}H_{15}N_3O_5$ 257.246
Located in the primary sequence of a number of specific tRNAs usually at the 5′-OH end of the anticodon loop. Bipyramidal cryst. (EtOH aq.).
Mp 256-257° (252-253°). $[\alpha]_D^{21}$ +54 (c, 1.1 in H_2O). pK_a 4.2. λ_{max} 273 (ε 8200) (EtOH) (pH7). λ_{max} 281 (ε 12900) (pH1). λ_{max} 272 (ε 8900) (pH11).

4N-Me: [10578-79-7]
$C_{10}H_{15}N_3O_5$ 257.246
Cryst. (EtOAc). Mp 61-63°.

4N-Et: [22342-50-3]
$C_{11}H_{17}N_3O_5$ 271.272
Cryst. (EtOAc). Mp 48-50°.

2′O,4N-Di-Me: 4N, 2′-O-Dimethylcytidine
$C_{11}H_{17}N_3O_5$ 271.272
pK_a 3.9. λ_{max} 238 . λ_{max} 281 (pH 1).

2′,3′-Di-Me: 2′,3′-Di-O-methylcytidine
$C_{11}H_{17}N_3O_5$ 271.272
Needles (EtOH) (as hydrochloride). Mp 195-197°. λ_{max} 280 (ε 12900) (pH 2). λ_{max} 271 (ε 8700) (pH 12).

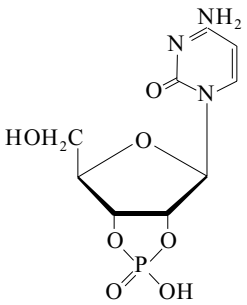
2′,3′,5′-Tri-Me: 2′,3′,5′-Tri-O-*methylcytidine*
$C_{12}H_{19}N_3O_5$ 285.299
Mp 239-241°. λ_{max} 280 (ϵ 13200) (pH 2). λ_{max} 271 (ϵ 9000) (pH 12).

[7607-04-7, 21028-20-6, 26524-60-7]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 831A; 832C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 387A; 389B; 389C (*nmr*)
Fox, J.J. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 283 (*rev, derivs*)
Brookes, P. *et al., J.O.C.*, 1962, 1348 (*N-methyl*)
Hall, R.H. *et al., Biochem. Biophys. Res. Commun.*, 1963, **12**, 361 (*isol*)
Ulbricht, T.L.V. *et al., Tet. Lett.*, 1963, 1027; 1964, 695 (*tautom, ord*)
Anteunis, M. *et al., Bull. Soc. Chim. Belg.*, 1965, **74**, 481 (*pmr*)
Furukawa, J. *et al., Chem. Pharm. Bull.*, 1965, **13**, 1273 (*synth, derivs*)
Watanabe, K.A. *et al., Angew. Chem., Int. Ed.*, 1966, **5**, 579 (*4N-Ac, 4N-benzoyl*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1967, **23**, 2315 (*synth*)
Martin, D.M.G. *et al., Biochemistry*, 1968, **7**, 1406 (*synth, derivs*)
Hancock, R.L. *et al., J. Chromatogr. Sci.*, 1969, **7**, 366 (*N-methyl*)
Choi, Y.C. *et al., J. Biol. Chem.*, 1970, **245**, 1954 (*occur, 2-Me*)
Jones, A.J. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 27; *CA*, **72**, 96682j (*cmr*)
Lee, G.C.Y. *et al., Biochem. Biophys. Res. Commun.*, 1971, **43**, 435 (*N-methyl*)
Goody, R.S. *et al., Tetrahedron*, 1971, **27**, 65 (*2′,3′,5′-tribenzoyl*)
Kusmierek, J.T. *et al., Biochemistry*, 1973, **12**, 194 (*synth, derivs*)
Remin, M. *et al., J.A.C.S.*, 1973, **95**, 8146 (*pmr, derivs*)
Basic Princ. Nucleic Acid Chem., (Ts'O, P.O.P., Ed.), Academic Press, 1974, **1**, (*rev*)
Liehr, J.G. *et al., Biomed. Mass Spectrom.*, 1974, **1**, 281 (*ms, derivs*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497 (*cmr*)
Ueda, T. *et al., Chem. Pharm. Bull.*, 1974, **22**, 2377 (*N-methyl*)
Hingerty, B.E. *et al., CA*, 1975, **83**, 54807a (*cryst struct, 2-Me*)
Guy, J.J. *et al., Acta Cryst. B*, 1976, **32**, 2909 (*cryst struct*)
PostM.L. *et al., Biochim. Biophys. Acta*, 1977, **479**, 133 (*cryst struct*)
Mosset, P.A. *et al., Acta Cryst. B*, 1979, **35**, 1908 (*cryst struct*)
Kaito, A. *et al., Bull. Chem. Soc. Jpn.*, 1980, **53**, 3073 (*N-methyl*)
Mathlouth, M. *et al., Carbohydr. Res.*, 1986, **146**, 1 (*ir, Raman*)
Lidgren, G. *et al., J. Nat. Prod.*, 1988, **51**, 1277 (*isol*)
Yamauchi, K. *et al., J.C.S. Perkin 1*, 1989, 13 (*N-methyl*)
Ward, D.L. *et al., Acta Cryst. C*, 1993, **49**, 1789 (*cryst struct*)
Saladino, R. *et al., Tetrahedron*, 1996, **52**, 6759-6780 (*synth, N^4-alkyl derivs*)
Moyroud, E. *et al., Tetrahedron*, 1999, **55**, 1277-1284 (*synth, L-form, pmr, cmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CQM500

Cytidine cyclic 2′,3′-(hydrogen phosphate), 9CI, 8CI C-202

Cytidine 2′,3′-phosphate. 2′,3′-CMP. ***Cifostodine, INN.*** *Cytipos*
[633-90-9]



$C_9H_{12}N_3O_7P$ 305.183
Synthesised from Cytidine 2′-(dihydrogen phosphate), C-203 or Cytidine 3′-(dihydrogen phosphate), C-204. Intermed. formed during digestion of ribonucleic acid by ribonuclease. Ophthalmologic agent. Substrate for RNAase.

Na salt: [41161-51-7]

[15718-51-1]
Solid + $2H_2O$. Mp 245° (dec.) (dihydrate). CAS no. refers to dihydrate.

K salt: [20486-23-1]
Hygroscopic cryst. + $1H_2O$. λ_{max} 268 nm (ϵ 8 650) (pH 7.5).

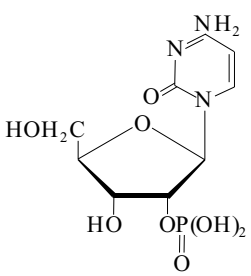
Ba salt:
Amorph. powder. λ_{max} 268 (ϵ 8 400), 232 nm (ϵ 8 500) (H_2O).

[35094-85-0]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 718A (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 838C (*ir*)
Brown, D.M. *et al., J.C.S.*, 1952, 2708
Biochem. Prep., 1968, **12**, 107 (*synth*)
Coulter, C.L. *et al., J.A.C.S.*, 1973, **95**, 570 (*cryst struct*)
Lapper, R.D. *et al., J.A.C.S.*, 1973, **95**, 2880 (*pmr*)
Davies, D.B. *et al., Stud. Biophys.*, 1976, **55**, 29; *CA*, **85**, 59065h (*cmr*)
Reddy, B.S. *et al., Acta Cryst. B*, 1978, **34**, 1520 (*cryst struct*)

Cytidine 2′-(dihydrogen phosphate), 9CI, 8CI C-203

2′-Cytidylic acid, 9CI, 8CI. Cytidylic acid a. Cytosylic acid a
[85-94-9]



$C_9H_{14}N_3O_8P$ 323.199

Hydrol. product of yeast ribonucleic acid. Ribonuclease inhibitor.
Mp 238-240° dec. $[\alpha]_D^{20}$ +20.7 (H_2O). pK_{a1} 0.8; pK_{a2} 4.4; pK_{a3} 6.2 (25°). λ_{max} 278 (ϵ 12 700) (pH 2), 272 nm (8 600) (pH 12).

Na salt: $[\alpha]_D^{19}$ -4 (H_2O).

Di-Na salt: $[\alpha]_D^{24.5}$ -8 (H_2O).

Ba salt: $[\alpha]_D^{26}$ +5.5 (H_2O).

Harris, R.J.C. *et al., J.C.S.*, 1953, 489 (*isol*)
Baron, F. *et al., J.C.S.*, 1955, 2855 (*struct*)
Rammler, D.H. *et al., J.A.C.S.*, 1962, **84**, 3112 (*synth*)
Saffhill, R. *et al., J.O.C.*, 1970, **35**, 2881 (*synth*)
Davies, D.B. *et al., Biochemistry*, 1975, **14**, 543 (*pmr*)

Cytidine 3′-(dihydrogen phosphate), 9CI, 8CI C-204

3′-Cytidylic acid, 9CI, 8CI. Cytidylic acid b. Cytosylic acid b
[84-52-6]

$C_9H_{14}N_3O_8P$ 323.199
Hydrolytic product of yeast ribonucleic acid. Ribonuclease inhibitor. Sol. H_2O. Mp 232-234° dec. $[\alpha]_D^{20}$ +49.4 (c, 1.0 in H_2O). pK_{a1} 0.8; pK_{a2} 4.3; pK_{a3} 6. λ_{max} 279 (ϵ 13 000) (pH 2), 272 nm (8 900) (pH 12).

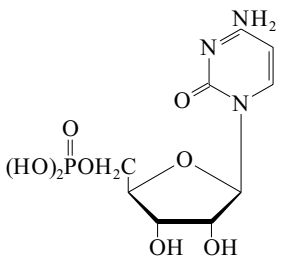
Na salt: $[\alpha]_D^{19}$ +47 (H_2O).

Di-Na salt: [81487-29-8]
$[\alpha]_D^{24.5}$ +46 (H_2O).

Harris, R.J.C. *et al., J.C.S.*, 1953, 489 (*isol*)
Baron, F. *et al., J.C.S.*, 1955, 2855 (*struct*)
Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188 (*synth*)
Bugg, C.E. *et al., J. Mol. Biol.*, 1967, **25**, 67; *CA*, **67**, 15833f (*cryst struct*)
Ts'O, P.O.P. *et al., Biochemistry*, 1969, **8**, 997 (*pmr*)
Saffhill, R. *et al., J.O.C.*, 1970, **35**, 2881 (*synth*)

Cytidine 5′-(dihydrogen phosphate), 9CI, 8CI C-205

5′-Cytidylic acid, 9CI, 8CI. Cytidine 5′-phosphoric acid
[63-37-6]



$C_9H_{14}N_3O_8P$ 323.199
Isol. from biol. sources, e.g. *Phaseolus aureus* (mung bean) seedlings.
Mp 233° dec. (monohydrate).

▶ HA3980000

Ba salt: [13435-44-4]
$[\alpha]_D^{16}$ +11.4 (c, 0.33 in H_2O).

Dibrucine salt: Mp 215° dec.

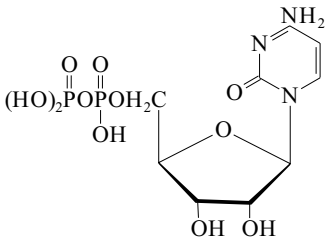
[6757-06-8, 25249-24-5, 30811-80-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 838A (*ir*)
Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 717C (*nmr*)

Michelson, A.M. *et al., J.C.S.*, 1949, 2476 (*synth*)
Beaucamp, K. *et al., Biochem. Z.*, 1966, **344**, 121 (*cryst struct*)
Dorman, D.E. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 19; *CA*, **72**, 107074r (*cmr*)
Ohtsuka, E. *et al., Nucleic Acids Res.*, 1974, **1**, 323
Takaku, O. *et al., Agric. Biol. Chem.*, 1975, **39**, 2373 (*pmr*)

Cytidine 5′-diphosphate C-206

Cytidine 5′-(trihydrogen diphosphate), 9CI. Cytidine pyrophosphate
[63-38-7]



$C_9H_{15}N_3O_{11}P_2$ 403.178

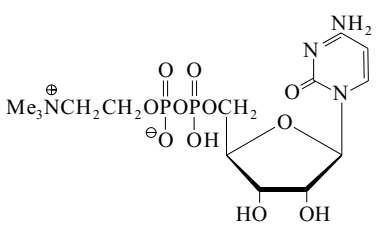
Exists as zwitterion. Prod. by *Plasmodium berghei* and *Bacillus brevis*. Found in heart, liver, leukaemia cells. Affects bladder contraction. Powder.

▶ HA3917000

Kimura, A. *et al., Agric. Biol. Chem.*, 1975, **39**, 1469 (*manuf*)
Viswamitra, M.A. *et al., Nature (London)*, 1975, **258**, 497 (*cryst struct*)
Labotka, R.J. *et al., J.A.C.S.*, 1976, **98**, 3699 (*nmr*)
Iio, M. *et al., Agric. Biol. Chem.*, 1977, **41**, 155 (*synth*)
Kim, C.H. *et al., J.A.C.S.*, 1978, **100**, 1571 (*conformn*)
Scheller, K.H. *et al., J.A.C.S.*, 1983, **105**, 5891 (*pmr*)
Veda, T. *et al., J. Chromatogr.*, 1987, **386**, 273 (*hplc*)
Davisson, V.J. *et al., J.O.C.*, 1987, **52**, 1794 (*synth, cmr, nmr, pmr*)

Cytidine diphosphate choline C-207

Cytidine 5′-(trihydrogen diphosphate) hydroxide mono[2-(trimethylammonio)ethyl] ester. Choline hydroxide 5′-ester with cytidine 5′-(trihydrogen pyrophosphate) inner salt. CDP-Choline. Cytidine diphosphocholine. ***Citicoline, INN, JAN****. Cereb. Citidoline. Colite. Cyscholin. Nicholin*
[987-78-0]



$C_{14}H_{26}N_4O_{11}P_2$ 488.327

Used to treat cerebrovascular disorders. Involved in the biosynth. of lecithin and sphingomyelin and in the formation of plasmologen in the liver and brain. Hygroscopic powder + $3H_2O$. λ_{max} 271 (ε 9 100), 280 nm (13 700) (0.1*M* HCl).

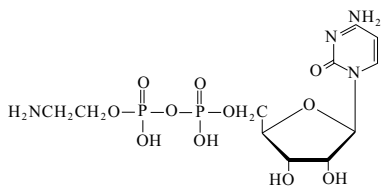
▶ Exp. reprod. effects. LD_{50} (rat, orl) 18000 mg/kg. GA4027000

[1256-10-6]

Kennedy, E.P. *et al., J. Biol. Chem.*, 1956, **222**, 193
Makishima, K. *et al., Arzneim.-Forsch.*, 1971, **21**, 1343 (*pharmacol*)
Viswamitra, M.A. *et al., Nature (London)*, 1975, **258**, 497 (*cryst struct*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711 (*synth, uv*)
Al-Shammary, F.J. *et al., Anal. Profiles Drug Subst.*, 1990, **19**, 429 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1354
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CMF350

Cytidine diphosphate ethanolamine C-208

Cytidine 5′-(trihydrogen diphosphate) mono(2-aminoethyl) ester, 9CI. Cytidine 5′-(trihydrogen pyrophosphate) mono(2-aminoethyl) ester, 8CI. CDP-ethanolamine
[3036-18-8]



$C_{11}H_{20}N_4O_{11}P_2$ 446.247

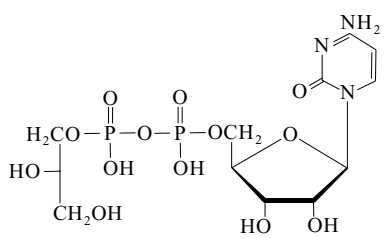
Isol. from *Fusarium* sp. Biogenetic precursor of cephalins and lecithins in yeast. Amorph. λ_{max} 272 nm, λ_{min} 249 nm (H_2O); λ_{max} 280 nm, λ_{min} 242 nm ($H_3O^{\oplus}$).

N-*Tri-Me:* See Cytidine diphosphate choline, C-207

Kennedy, E.P. *et al., J.A.C.S.*, 1955, **77**, 250
Kennedy, E.P. *et al., J. Biol. Chem.*, 1956, **22**, 193
Sanno, Y. *et al., Chem. Pharm. Bull.*, 1960, **8**, 753; 1962, **10**, 231 (*synth*)
Ballio, A. *et al., Gazz. Chim. Ital.*, 1964, **94**, 156
Chojnacki, T. *et al., Nature (London)*, 1966, **210**, 947 (*synth*)
Ger. Pat., 1972, 2 059 429; *CA*, **77**, 102141d (*synth*)

Cytidine diphosphate glycerol C-209

Cytidine 5′-(trihydrogen diphosphate) mono(2,3-dihydroxypropyl) ester(S), 9CI. CDP-glycerol
[6665-99-2]



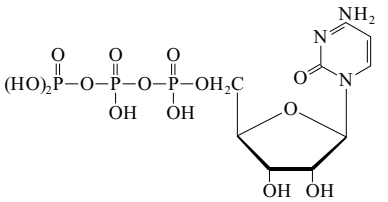
$C_{12}H_{21}N_3O_{13}P_2$ 477.258

The biosynthetic precursor of the tri (glycerol phosphate) which links teichoic acid to the peptidoglycan in *Staphylococcus aureus, Bacillus* and *Micrococcus* spp.

Baddiley, J. *et al., J.C.S.*, 1958, 3107
Roseman, S. *et al., J.A.C.S.*, 1961, **83**, 659 (*synth*)
Baddiley, J. *et al., Biochem. J.*, 1968, **110**, 565
Hancock, I. *et al., J. Bacteriol.*, 1976, **125**, 880

Cytidine 5′-triphosphate C-210

Cytidine 5′-(tetrahydrogen triphosphate), 9CI. Cytidine 5′-triphosphoric acid
[65-47-4]



$C_9H_{16}N_3O_{14}P_3$ 483.158

Prod. by *Leishmania* and *Streptomyces griseus*; found in erythrocytes and lymphocytes. Enzyme inhibitor. Implicated in purine and pyrimidine metabolism disorders. Contracts arteries. Cryst. powder (as Na salt).

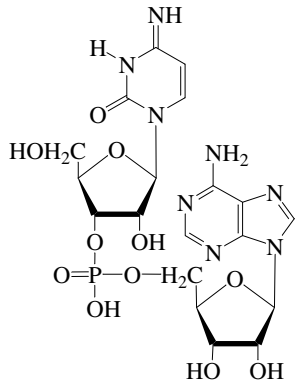
▶ HA3914000

[1637-76-9, 7358-19-2, 18609-48-8, 20764-52-7, 24951-83-5, 27908-30-1, 34973-27-8, 34973-28-9, 36051-68-0, 36792-26-4, 40147-56-6, 50694-74-1, 54619-78-2, 61994-39-6, 69113-64-0, 75898-70-3, 75898-71-4, 75898-74-7, 81012-87-5, 84495-58-9, 86527-73-3, 87015-26-7, 90290-70-3, 90290-71-4, 90290-72-5, 90290-73-6, 90290-80-5, 91999-08-5, 123334-07-6]

Bergkvist, R. *et al., Acta Cryst.*, 1956, **10**, 1303; 1957, **11**, 1457 (*isol*)
Tanaka, K. *et al., Chem. Pharm. Bull.*, 1962, **10**, 220 (*synth*)
Moffat, J.G. *et al., Can. J. Chem.*, 1964, **42**, 599-604 (*synth*)
Lee, G.C.Y. *et al., J.A.C.S.*, 1972, **94**, 951 (*tautom, pmr*)
Labotka, R.J. *et al., J.A.C.S.*, 1976, **98**, 3699, (*P-31 nmr*)
Iio, M. *et al., Agric. Biol. Chem.*, 1977, **41**, 155-160 (*synth*)
Takaku, H. *et al., Chem. Lett.*, 1977, 655 (*synth*)
Jost, W. *et al., Anal. Biochem.*, 1983, **135**, 120 (*chromatog*)
Scheller, K.H. *et al., J.A.C.S.*, 1983, **105**, 5891 (*pmr*)
Kehr, J. *et al., Fresenius' Z. Anal. Chem.*, 1986, **325**, 466 (*hplc*)
Veda, T. *et al., J. Chromatogr.*, 1987, **386**, 273 (*hplc*)
Hammer, D.F. *et al., Anal. Biochem.*, 1988, **169**, 300 (*hplc*)
Simon, E.S. *et al., Tet. Lett.*, 1988, **29**, 1123 (*synth*)
Lim, C.K. *et al., J. Chromatogr.*, 1989, **461**, 259 (*hplc*)
Simon, E.S. *et al., J.A.C.S.*, 1989, **111**, 8920-8921 (*synth*)

Cytidylyl-(3′ →5′)-adenosine, 9CI C-211

CpA
[2382-66-3]

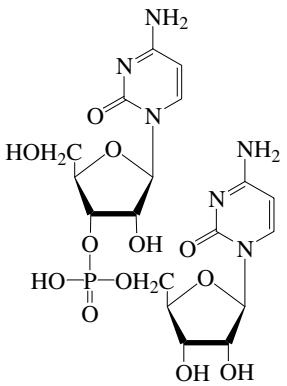


$C_{19}H_{25}N_8O_{11}P$ 572.427
No phys. props. reported.

Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 829-833 (*synth*)
Akashi, M. *et al., Chem. Lett.*, 1988, 1093-1096 (*hplc*)
Orban, J. *et al., J. Biomol. Struct. Dyn.*, 1990, **7**, 837-848 (*pmr, conformn*)
Yashima, E. *et al., J. Chromatogr.*, 1992, **603**, 111-119 (*hplc*)

Cytidylyl-(3′ →5′)-cytidine, 9CI C-212

[2536-99-4]

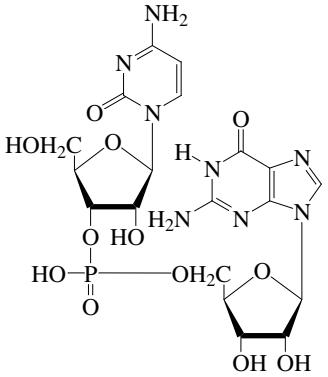


$C_{18}H_{25}N_6O_{12}P$ 548.402

Dimroth, K. *et al., Annalen*, 1959, **620**, 109-122 (***synth***)
Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 819-829; 829-833 (*synth*)
Hunt, D.F. *et al., Biochem. Biophys. Res. Commun.*, 1968, **33**, 378-383 (*ms*)
Lee, C.H. *et al., Biochemistry*, 1976, **15**, 3627-3639 (*pmr*)
Causley, G.C. *et al., Biopolymers*, 1983, **22**, 945-967 (*cd, conformn*)

Cytidylyl-(3′ →5′)-guanosine, 9CI C-213

CpG
[2382-65-2]

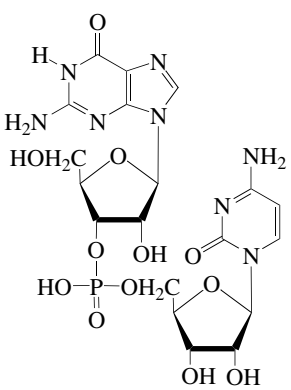


$C_{19}H_{25}N_8O_{12}P$ 588.427

Chladek, S. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 214-233; 1966, **31**, 3198-3212 (*synth*)
Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 829-833 (*synth, uv*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Buchanan, G.W. *et al., Can. J. Chem.*, 1986, **64**, 2038-2041 (*cmr*)

Cytidylyl-(5′ →3′)-guanosine, 9CI C-214

Guanylyl-(3′ →5′)-cytosine. GpC
[4785-04-0]

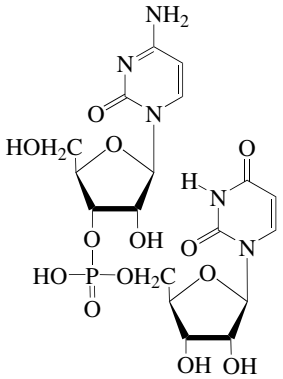


$C_{19}H_{25}N_8O_{12}P$ 588.427

Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 829-833 (*synth, uv*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Neilson, T. *et al., Can. J. Chem.*, 1973, **51**, 1068-1074 (*synth*)
Day, R.O. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1973, **70**, 849-853 (*cryst struct*)
Ohtsuka, E. *et al., Nucleic Acids Res.*, 1974, **1**, 323-329 (*synth*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)

Cytidylyl-(3′ →5′)-uridine, 9CI C-215

CpU
[2382-64-1]

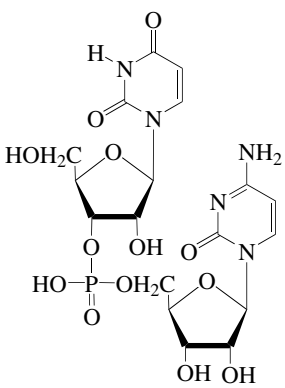


$C_{18}H_{24}N_5O_{13}P$ 549.387

Smrt, J. *et al., Coll. Czech. Chem. Comm.*, 1963, **28**, 61-71; 1966, **31**, 3800-3816 (*synth*)
Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 829-833 (*synth, uv*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1968, **24**, 3533-3540 (*synth, uv*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Warshaw, M.M. *et al., Biopolymers*, 1970, **9**, 1079-1103 (*cd*)

Cytidylyl-(5′ →3′)-uridine, 9CI C-216

Uridylyl-(3′ →5′)-cytidine. UpC
[3013-97-6]



$C_{18}H_{24}N_5O_{13}P$ 549.387

Rammler, D.H. *et al., J.A.C.S.*, 1962, **84**, 3112-3122 (*synth*)
Griffin, B.E. *et al., Tetrahedron*, 1967, **24**, 639-662 (*synth*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Warshaw, M.M. *et al., Biopolymers*, 1970, **9**, 1079-1103 (*cd*)

Cytolipin H C-217

N-*[1-[[(4-O-β-D-Galactopyranosyl-β-D-glucopyranosyl)oxy]methyl]-2-hydroxy-3-heptadecenyl]tetracosanamide. Cerebronylsphingosylglucosidogalactoside. Ganglioside G_{A3}. Lactosylceramide. 1-O-(4-O-β-D-Galactopyranosyl-β-D-glucopyranosyl)ceramide*

[4682-48-8]

$C_{54}H_{103}NO_{13}$ 974.407

Isol. from human epidermoid cells. Major neutrophil glycolipid serving as a differentiation marker.

▶ FK1000000

[71965-57-6]

Rapport, M.M. *et al., Cancer (Philadelphia)*, 1959, **12**, 438 (*isol*)

Rapport, M.M. *et al., J. Biol. Chem.*, 1962, **237**, 1056 (*struct*)

Graf, L. *et al., Chem. Phys. Lipids*, 1974, **13**, 367

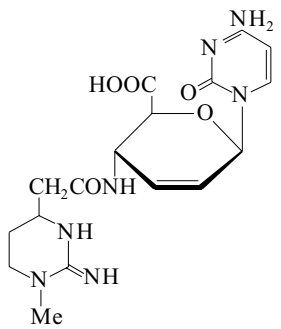
Symington, F.W. *et al., J. Biol. Chem.*, 1987, **262**, 11356

Nicolaou, K.C. *et al., J.A.C.S.*, 1988, **110**, 7910 (*synth*)

Cytomycin C-218

Saitomycin

[2005-98-3]



$C_{17}H_{23}N_7O_5$ 405.413

Nucleoside-type antibiotic. Degradn. prod. of Blasticidin *S* by microbes such as *Pseudomonas marginalis, Pseudomonas ovalis* and *Fusarium oxysporum*. Possesses antitumour activity. Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane.

Mp 237-239° dec. λ_{max} 274 (ϵ 13600) (pH 3) (Derep). λ_{max} 266 (ϵ 7450) (pH 9) (Derep). λ_{max} 274 (ϵ 13600) (pH 3 H_2O) (Derep). λ_{max} 274 (ϵ 13380) (HCl) (Berdy). λ_{max} 266 (ϵ 7750) (NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 2000 mg/kg. HA5375000

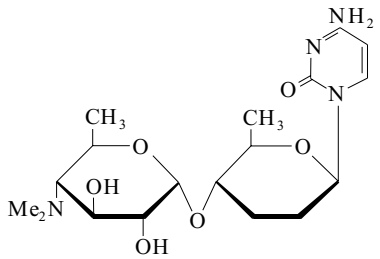
Otake, N. *et al., Tet. Lett.*, 1965, 1411; *Agric. Biol. Chem.*, 1966, **30**, 132

Yamaguchi, I. *et al., Agric. Biol. Chem.*, 1972, **36**, 1719 (*isol*)

Cytosamine, 9CI, 8CI C-219

*4-Amino-1-[2,3,6-trideoxy-4-O-[4,6-dideoxy-4-(dimethylamino)-α-D-glucopyranosyl]-β-D-*erythro*-hexopyranosyl]-2(1H)-pyrimidinone, 9CI*

[26758-91-8]



$C_{18}H_{30}N_4O_6$ 398.458

Alkaline degrad. prod. of the antibiotic Amicetin. Aminoacyl cytosamine derivs. are used as bactericides.

Mp 160-165° (hydrate) Mp 254-256° dec. (anhyd.). pK_{a1} 3.9; pK_{a2} 7.

*4*N-*Benzoyl:*
$C_{25}H_{34}N_4O_7$ 502.566
Mp 130-135°.

*4*N-*(4-Nitrobenzoyl):* Mp 147-149°.

*4*N-*(3,5-Dinitrobenzoyl):* Mp 140-143°.

$N^4,O^{2'},O^{3'}$-*Tri-Ac:*
$C_{24}H_{36}N_4O_9$ 524.57
Mp 220-222°.

Flynn, E.H. *et al., J.A.C.S.*, 1953, **75**, 5867 (*isol*)

Haskell, T.H. *et al., J.A.C.S.*, 1958, **80**, 747

Kindl, H. *et al., Monatsh. Chem.*, 1966, **97**, 1778 (*biosynth*)

U.S. Pat., 1967, 3 308 117; *CA*, **67**, 100416s

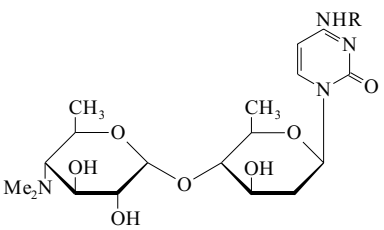
Stevens, C.L. *et al., J.A.C.S.*, 1972, **94**, 3280 (*synth*)

Sygusch, J. *et al., Acta Cryst. B*, 1974, **30**, 40 (*cryst struct*)

Cytosaminomycin A C-220

Antibiotic KO 8119A. KO 8119A

[157878-02-9]



R = COCH=CHSMe

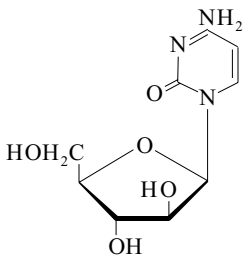
$C_{22}H_{34}N_4O_8S$ 514.599

Nucleoside antibiotic. Prod. by *Streptomyces* sp. KO-8119. Anticoccidial agent. Pale yellow powder. Sol. MeOH, EtOAc; poorly sol. H_2O. $[\alpha]_D^{24}$ +144 (c, 0.1 in MeOH). λ_{max} 204 (ϵ 14200); 256 (ϵ 9300); 309 (ϵ 30600) (MeOH) (Berdy).

Haneda, K. *et al., J. Antibiot.*, 1994, **47**, 774; 782

Cytosine arabinoside C-221

4-Amino-1-arabinofuranosyl-2(1H)-pyrimidinone, 9CI. Arabinosylcytosine. 4-Amino-1-arabinofuranosyl-2-oxo-1,2-dihydropyrimidine. Arabinofuranosylcytosine. Cyclocide



$C_9H_{13}N_3O_5$ 243.219

β-D-Furanose-*form*

Cytarabine, BAN, INN, JAN, USAN. *Alexan. Aracytidine. Ara-C. Aracytin. Cytosar-U. Tarabine. NSC 63878. U 19920*

[147-94-4]

Isol. from the mushroom *Xerocomus nigromaculatus* of unknown palatability. Antineoplastic and antiviral agent, inhibits synth. of DNA, antileukaemic agent. Nucleoside transporter substrate.

Prisms (EtOH aq.). Sol. H_2O, MeOH. Mp 212-213° Mp 223-224°. $[\alpha]_D^{25}$ +155.2 (c, 0.7 in H_2O). Log P -3.08 (calc). λ_{max} 197 (ϵ 24550); 272 (ϵ 12020) (H_2O) (Berdy).

▶ Skin and eye irritant. Adverse systemic effects when used therapeutically. Exp. reprod. and teratogenic effects. LD_{50} (mus, orl) 3150 mg/kg ; LD_{50} (mus, orl) 3150 mg/kg. HA5425000

Hydrochloride: ***Cytarabine hydrochloride, USAN***

[69-74-9]

Cryst. (EtOH aq.). Mp 188-193°. $[\alpha]_D^{25}$ +131 (c, 0.7 in H_2O).

▶ Eye irritant. LD_{50} (mus, orl) 826 mg/kg. HA5500000

1-Adamantanecarboxylate: Adamantoylcytarabine. Adam CA. AdoAra C. AdOCA. NSC 117614. U 26516

[23113-01-1] Immunosuppressive agent.

5′-Phosphate: [7075-11-8]
$C_9H_{14}N_3O_8P$ 323.199
$[\alpha]_D^{25}$ +100.1 (c, 1 in 2:1 $CHCl_3$/MeOH) (as di-Na salt). Dec. with frothing at 200°.

5′-Triphosphate: [13191-15-6]
$C_9H_{16}N_3O_{14}P_3$ 483.159
No phys. props. reported. Launched 1993 (Japan)

5′-(Octadecyl hydrogen phosphate), Na salt: Cytarabine ocfosfate sodium. Starasid

[65093-40-5]
$C_{27}H_{49}N_3NaO_8P$ 597.663Launched 1983

N-*Docosanoyl:* ***Enocitabine, INN, JAN.*** *N^4-Behenoyl-1-β-D-arabinofuranosylcytosine. Behenoylcytarabine. BH-Ac. NSC 239336. Sunrabine*

[55726-47-1]
$C_{31}H_{55}N_3O_6$ 565.792

Antineoplastic, antileukaemic agent, metab. *in vivo* to Cytarabine. Cryst. (DMSO). Mp 141-142°. $[\alpha]_D^{22}$ +70 (c, 1 in THF). Log P 7.68 (uncertain value) (calc).

▶ JR1230400

N^4-*Hexadecyl:* [103426-87-5]
$C_{25}H_{45}N_3O_5$ 467.648
Antineoplastic3 agent. Powder (MeOH aq.). Mp 162-164°.

N^4-*Octadecyl: Alkasar-18*
[158233-67-1]
$C_{27}H_{49}N_3O_5$ 495.701
Antineoplastic agent. Lipophilic deriv. of ara-C.

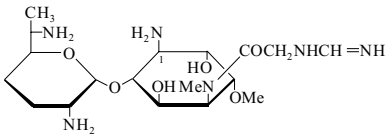
Tri-O-*benzyl:*
$C_{30}H_{31}N_3O_5$ 513.592
Cryst. (EtOAc). Mp 153-154°. $[\alpha]_D$ +123 (c, 2 in CH_2Cl_2).

[116459-64-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 830D (*ir*)
Walwick, E.R. *et al., Proc. Chem. Soc., London*, 1959, 84 (*synth*)
Cardeilhac, P.J. *et al., Cancer Res.*, 1964, **24**, 1595-1603 (*triphosphate*)
Shen, T.Y. *et al., J.O.C.*, 1965, **30**, 835 (*synth*)
Roberts, W.K. *et al., J.O.C.*, 1967, **32**, 816 (*synth*)
Greig, M.E. *et al., Arch. Int. Pharmacodyn. Ther.*, 1969, **182**, 364 (*metab, deriv*)
Tolman, R.L. *et al., J. Med. Chem.*, 1971, **14**, 1112 (*synth*)
Tougard, P. *et al., Acta Cryst. B*, 1974, **30**, 86 (*cryst struct*)
Akiyama, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 981 (*synth, spectra, deriv*)
Beranek, J. *et al., Nucleic Acid Chem.*, 1978, **1**, 239; 249; 255 (*synth*)
Sherfinski, J.S. *et al., Acta Cryst. B*, 1979, **35**, 2141 (*5′-phosphate*)
Turcotte, J.G. *et al., Biochim. Biophys. Acta*, 1980, **619**, 604-618 (*5′-phosphate, synth, ir, uv*)
Ohishi, J. *et al., Cancer Res.*, 1981, **41**, 2501 (*metab, deriv*)
Krenitsky, T.A. *et al., Carbohydr. Res.*, 1981, **97**, 139 (*synth*)
Hruska, F.E. *et al., Can. J. Chem.*, 1982, **60**, 3026 (*pmr, cmr*)
Creasey, W.A. *et al., Antibiotics (N.Y.)*, 1983, **6**, 12 (*rev*)
Pallavicini, M.G. *et al., Pharmacol. Ther.*, 1984, **25**, 207 (*rev, pharmacol*)
Tsukagoshi, S. *et al., Drugs of Today (Barcelona)*, 1986, **22**, 169 (*rev, deriv, pharmacol*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 1297
Woodcock, D.M. *et al., Semin. Oncol.*, 1987, **14**, 251 (*rev, cytotoxicity*)
Jamieson, G.P. *et al., Cancer Res.*, 1989, **49**, 309-313 (*cytarabine*)
Takahashi, A. *et al., Chem. Pharm. Bull.*, 1992, **40**, 1313 (*isol, pmr*)
Schwendener, R.A. *et al., Int. J. Cancer*, 1992, **51**, 466-469 (*hexadecyl, synth, pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 471; 477
Horber, D.H. *et al., Br. J. Cancer*, 1995, **72**, 1067-1073 (*hexadecyl, pharmacol*)
Schwendener, R.A. *et al., Drugs of the Future*, 1995, **20**, 11-15 (*Alkasar-18, rev, synth*)
Abraham, T.W. *et al., J. Med. Chem.*, 1996, **39**, 4569-4575 (*5′-phosphate, synth, pmr, P-31 nmr*)
Koller-Lucae, S.K.M. *et al., J. Pharmacol. Exp. Ther.*, 1997, **282**, 1572-1580 (*Alkasar-18*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AQQ750; AQR000; EAU075

Dactimicin D-1

SF 2052. Antibiotic SF 2052
[73196-97-1]



$C_{18}H_{36}N_6O_6$ 432.519

Aminoglycoside antibiotic. From *Dactylosporangium matsuzakiense* and *Dactylosporangium vinaceum*. Active against gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, EtOAc.

▶ Less nephrotoxic than congeners ; LD_{50} (mus, ivn)300 mg/kg.

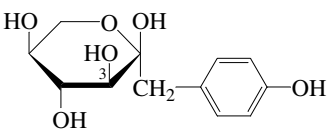
Hydrochloride: Mp 209-210° (dec. with foaming). $[\alpha]_D^{25}$ +87 (c, 1 in H_2O).

1-Epimer: ***1-Epidactimicin***
[103531-05-1]
$C_{18}H_{36}N_6O_6$ 432.519
From *Streptomyces tenjimariensis*. Similar biol. props. as Dactimicin. Powder (as sulfate salt 1:2).
Mp 205° dec. (sulfate). $[\alpha]_D^{21}$ +92 (c, 0.15 in H_2O).

Inouye, S. *et al., J. Antibiot.*, 1979, **32**, 1354 (*isol*)
Shomura, T. *et al., J. Antibiot.*, 1980, **33**, 924 (*isol*)
Ohba, K. *et al., J. Antibiot.*, 1981, **34**, 1090 (*struct*)
Atsumi, K. *et al., J. Antibiot.*, 1982, **35**, 90 (*synth*)
Japan. Pat., 1982, 82 43 694, (*Meiji Seika Kaisha*); *CA*, **97**, 22081g (*manuf*)
Matsukashi, Y. *et al., Antimicrob. Agents Chemother.*, 1985, **27**, 589 (*props*)
Omoto, S. *et al., Drugs Exp. Clin. Res.*, 1987, **13**, 719 (*pharmacol*)
Morioka, M. *et al., J. Antibiot.*, 1989, **42**, 831 (*epimer*)

Dactylose A D-2

1-(4-Hydroxyphenyl)-1-deoxy-α-L-sorbopyranose, 9CI
[191164-55-3]



$C_{12}H_{16}O_6$ 256.255
Constit. of the roots of *Dactylorhiza hatagirea*. Amorph. powder. $[\alpha]_D^{24}$ -23.8 (c, 1 in H_2O). λ_{max} 220 (log ε 3.67); 274 (log ε 3.17) (MeOH).

3-Epimer: ***Dactylose B****. 1-(4-Hydroxyphenyl)-1-deoxy-L-tagatopyranose*
$C_{12}H_{16}O_6$ 256.255
Constit. of the roots of *Dactylorhiza hatagirea*. Amorph. powder. $[\alpha]_D^{26}$ +15 (c, 0.08 in H_2O). An anomeric mixt. containing 9% β-anomer. λ_{max} 220 (log ε 3.67); 274 (log ε 3.12) (MeOH).

Preobrazhenskaya, M.N. *et al., Tetrahedron*, 1997, **53**, 6971-6976 (*synth*)
Kizu, H. *et al., Chem. Pharm. Bull.*, 1999, **47**, 1618-1625 (*isol*)

Dalteparin D-3

Fragmin. Kabi 2165
Low MW heparin (see Heparin, H-5). Av. MW =5000. Approved 1994

Na salt: ***Dalteparin sodium, BAN, INN, USAN***
Used in the treatment of deep vein thrombosis.

Lockner, D. *et al., Haemostasis*, 1986, **16**, 25; 30 (*use*)
Cziraky, M.J. *et al., Clin. Pharm.*, 1993, **12**, 892 (*rev*)
Rasmussen, C. *et al., Int. J. Gynaecol. Obstet.*, 1994, **47**, 121 (*use*)
Matthiasson, S.E. *et al., Thromb. Res.*, 1994, **74**, 655 (*use*)
Dunn, C.J. *et al., Drugs*, 2000, **60**, 203-237 (*rev*)

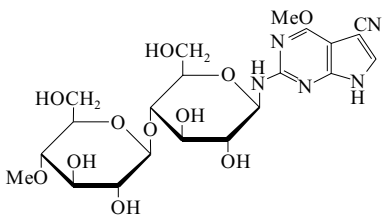
Danaparoid D-4

Org 10172. Mucoglucuronon. Lomoparan. Orgaran
Low MW heparinoid (see Heparin, H-5). Mixt. of sulfated glycosaminoglycans. Isol. from animal mucosa. Anticoagulant for the prevention of deep vein thrombosis. Approved by FDA (1996)

Meuleman, D.G. *et al., Haemostasis*, 1992, **22**, 58 (*rev*)
Ofosu, F.A. *et al., Haemostasis*, 1992, **22**, 66 (*pharmacol*)
Stiekema, J.C.J. *et al., Br. J. Clin. Pharmacol.*, 1993, **36**, 51 (*pharmacol*)
Sasaka, M. *et al., Br. J. Pharmacol.*, 1993, **110**, 107 (*pharmacol*)
Vogel, G.M.T. *et al., Thromb. Haemostasis*, 1993, **69**, 29 (*pharmacol*)
Wilde, M.I. *et al., Drugs*, 1997, **54**, 903-924 (*pharmacol, rev*)
Ibbotson, T. *et al., Drugs*, 2002, **62**, 2283-2314 (*rev*)

Dapiramicin B D-5

[90044-18-1]



$C_{21}H_{29}N_5O_{11}$ 527.487

Nucleoside antibiotic. Isol. from *Micromonospora* sp. SF1917. Active against against sheath blight of rice; less effective than Dapiramicin A. Needles + $1H_2O$ (MeOH aq.). Sol. AcOH, DMF; fairly sol. MeOH, H_2O; poorly sol. Me_2CO, Et_2O.
Mp 241-243°. $[\alpha]_D^{20}$ -37.6 (c, 1 in 50% AcOH). λ_{max} 228 (ε 21700); 250 (ε 22500); 305 (ε 7670) (0.1*N* NaOH) (Derep). λ_{max} 227 (ε 40200); 289 (ε 8640) (MeOH or H_2O) (Derep). λ_{max} 227 (E1%/1cm 650); 289 (E1%/1cm 220) (HCl) (Berdy).

1′-Epimer, 6′-deoxy: ***Epidapiramicin A***
[90044-19-2]
$C_{21}H_{29}N_5O_{10}$ 511.488
Isol. from *Micromonospora* sp. Shows activity against sheath blight of rice. Less effective than Dapiramicin A.

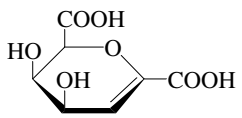
6′-Deoxy: ***Dapiramycin A****. SF 1917. Antibiotic SF 1917*
[67298-15-1]
$C_{21}H_{29}N_5O_{10}$ 511.488
Isol. from *Micromonospora* sp. SF-1917. Effective against sheath blight of rice. Needles. Sol. MeOH, EtOH, AcOH, DMF, butanol; fairly sol. H_2O; poorly sol. EtOAc, Me_2CO, hexane.
Mp 220-222°. $[\alpha]_D^{20}$ +117 (c, 0.5 in MeOH). λ_{max} 228 (ε 21700); 250 (ε 22500); 305 (ε 7670) (0.1*N* NaOH) (Derep). λ_{max} 227 (ε 40200); 289 (ε 8640) (MeOH or H_2O) (Derep). λ_{max} 226 (E1%/1cm 410); 288 (E1%/1cm 140) (MeOH-HCl) (Berdy). λ_{max} 228 (E1%/1cm 200); 248 (E1%/1cm 210); 301 (E1%/1cm 55) (MeOH-NaOH) (Berdy).

▶ LD_{50} (mus, ivn) 400 200 mg/kg , LD_{50} (mus, ipr) 1000 500 mg/kg. UY9105600

Nishizawa, N. *et al., J. Antibiot.*, 1984, **37**, 1 (*isol, uv, ir, pmr, props*)

Daucic acid D-6

2,6-Anhydro-3-deoxy-D-lyxo-hept-2-enaric acid, 9CI
[34098-52-7]



$C_7H_8O_7$ 204.136

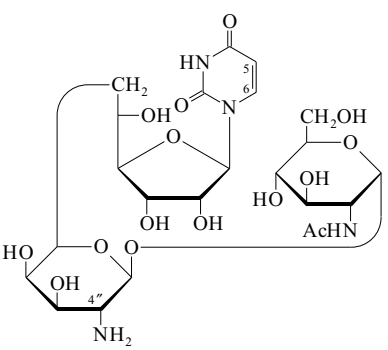
Free acid not obt. pure. Found in wheat, sugar beet, sunflower and tobacco.

Di-Me ester: [33573-25-0]
Cryst. (EtOAc/petrol). Mp 130-131°. $[\alpha]_D^{24.5}$ -102 (c, 0.9 in Me_2CO). Previously incorrectly assigned the D-*xylo* configuration.

Lichtenhaler, F.W. *et al., Tetrahedron: Asymmetry*, 2003, **14**, 3973-3986 (*synth, struct, bibl*)

N-Deacyltunicamycin D-7

N-*Deacylstreptovirudin*. N-*Deacylcorynetoxin*



$C_{23}H_{36}N_4O_{15}$ 608.555

The closely related Tunicamycin, Streptovirudin and Corynetoxin complexes are all mixts. of $N^{4''}$-acyl derivs. of the same

parent struct. Isol. from *Streptomyces lysosuperficus, Streptomyces griseoflavus*, *Streptomyces chartreusis* and *Bacillus cereus*. Corynetoxins are isol. from *Lolium rigidum* infected with *Corynebacterium rathayi*. Inhibitors of *N*-acetylglucosamine lipids in prokaryotes, eukaryotes and viruses, show anticoccidial activity.

N$^{4''}$-*(10-Methyl-2-undecenoyl):* ***Streptovirudin A_2***
[51330-29-1]
$C_{35}H_{56}N_4O_{16}$ 788.845
Needles (MeOH aq.). Mp 250-252°. $[\alpha]_D^{22}$ +69 (c, 0.5 in MeOH). λ_{max} 213 (ϵ 22000); 259 (ϵ 10200) (MeOH) (Derep).

N$^{4''}$-*(10-Methyl-2-dodecenoyl):* ***Streptovirudin B_2***
[51330-31-5]
$C_{36}H_{58}N_4O_{16}$ 802.871
Powder. Sol. MeOH, Py, bases; fairly sol. EtOH, butanol; poorly sol. Me_2CO, hexane. $[\alpha]_D^{22}$ +67 (c, 0.5 in MeOH). λ_{max} 213 (ϵ 22000); 259 (ϵ 10200) (MeOH) (Derep). λ_{max} 212 (E1%/1cm 290); 259 (E1%/1cm 125) (MeOH) (Berdy).

N$^{4''}$-*(11-Methyl-2-dodecenoyl):* ***Tunicamycin I***. *Streptovirudin B_{2a}. Tunicamycin A_0*
[73942-10-6]
$C_{36}H_{58}N_4O_{16}$ 802.871
Mp 215-220° dec. $[\alpha]_D^{25}$ +44 (MeOH).

N$^{4''}$-*(2-Tetradecenoyl):* ***Tunicamycin III***. *Tunicamycin A_2*
[76544-45-1]
$C_{37}H_{60}N_4O_{16}$ 816.898
Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, Me_2CO, $CHCl_3$. Mp 220-235° dec. $[\alpha]_D^{25}$ +38 (MeOH). λ_{max} 260 (E1%/1cm 91) (MeOH) (Berdy).

N$^{4''}$-*(12-Methyl-2-tridecenoyl):* ***Tunicamycin II***. *Tunicamycin C. Streptovirudin C_2. Tunicamycin A_1*
[66081-37-6]
$C_{37}H_{60}N_4O_{16}$ 816.898
Mp 243-252° dec. $[\alpha]_D^{25}$ +48 (MeOH) (+79). λ_{max} 213 (ϵ 22000); 259 (ϵ 10200) (MeOH) (Derep).

N$^{4''}$-*(2-Pentadecenoyl):* ***Tunicamycin IV***. *Tunicamycin B_2*
[73942-09-3]
$C_{38}H_{62}N_4O_{16}$ 830.925
Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, Me_2CO, $CHCl_3$. Mp 232-240° dec. $[\alpha]_D^{25}$ +55 (MeOH). λ_{max} 260 (E1%/1cm 108) (MeOH) (Berdy).

N$^{4''}$-*(12-Methyltetradecanoyl):* ***Corynetoxin S15a***
[82138-79-2]
$C_{38}H_{64}N_4O_{16}$ 832.941

N$^{4''}$-*(12-Methyl-2-tetradecenoyl):* ***Streptovirudin D_2***
[51330-35-9]
$C_{38}H_{62}N_4O_{16}$ 830.925
Powder. Sol. MeOH, Py; fairly sol. butanol; poorly sol. Me_2CO, hexane. Mp 255-256° dec. $[\alpha]_D^{22}$ +55 (c, 0.5 in MeOH). λ_{max} 213 (ϵ 22000); 259 (ϵ 10200) (MeOH) (Derep).

N$^{4''}$-*(13-Methyltetradecanoyl):* ***Tunicamycin VI***. *Tunicamycin B_3*
[88263-43-8]
$C_{38}H_{64}N_4O_{16}$ 832.941
Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, $CHCl_3$, Me_2CO. Mp 240-250° dec. $[\alpha]_D^{25}$ +35 (MeOH). λ_{max} 262 (E1%/1cm 76) (MeOH) (Berdy).

N$^{4''}$-*(13-Methyl-2-tetradecenoyl):* ***Tunicamycin V***. *Tunicamycin A. Tunicamycin B_1*
[66054-36-2]
$C_{38}H_{62}N_4O_{16}$ 830.925
Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, Me_2CO, $CHCl_3$. Mp 240-250°. $[\alpha]_D^{25}$ +57 (MeOH). λ_{max} 205 ; 260 (E1%/1cm 102) (MeOH) (Berdy).

N$^{4''}$-*(14-Methylpentadecanoyl):* ***Corynetoxin S16i***
[82138-77-0]
$C_{39}H_{66}N_4O_{16}$ 846.968

N$^{4''}$-*(2-Hexadecenoyl):* ***Tunicamycin VIII***. *Tunicamycin C_2*
[73942-07-1]
$C_{39}H_{64}N_4O_{16}$ 844.952
Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, Me_2CO, $CHCl_3$. Mp 245-245° dec. $[\alpha]_D^{25}$ +41 (MeOH). λ_{max} 261 (E1%/1cm 102) (MeOH) (Berdy).

N$^{4''}$-*(14-Methyl-2-pentadecenoyl):* ***Tunicamycin VII***. *Tunicamycin B. Tunicamycin C_1. Corynetoxin U16i*
[66081-36-5]
$C_{39}H_{64}N_4O_{16}$ 844.952
Also isol. from *Lolium rigidum* infected with *Corynebacterium rathayi*.
Mp 253-256° dec. $[\alpha]_D^{25}$ +51 (MeOH).

N$^{4''}$-*(3-Hydroxy-14-methylpentadecanoyl):* ***Corynetoxin H16i***
[82138-73-6]
$C_{39}H_{66}N_4O_{17}$ 862.967

N$^{4''}$-*(2-Heptadecenoyl):* ***Tunicamycin IX***. *Tunicamycin D_1*
[73942-08-2]
$C_{40}H_{66}N_4O_{16}$ 858.979
Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, $CHCl_3$, Me_2CO. Mp 230-240° dec. $[\alpha]_D^{25}$ +47 (MeOH). λ_{max} 260 (E1%/1cm 96); 264 ; 335 (MeOH) (Berdy).

N$^{4''}$-*(3-Hydroxy-14-methylhexadecanoyl):* ***Corynetoxin H17a***
[82151-55-1]
$C_{40}H_{68}N_4O_{17}$ 876.994
λ_{max} 260 (ϵ 9000) (H_2O) (Derep).

N$^{4''}$-*(14-Methylhexadecanoyl):* ***Corynetoxin S17a***
[82138-80-5]
$C_{40}H_{68}N_4O_{16}$ 860.994

N$^{4''}$-*(14-Methyl-2-hexadecenoyl):* ***Corynetoxin U17a***
[82151-57-3]
$C_{40}H_{66}N_4O_{16}$ 858.979
λ_{max} 260 (ϵ 9000) (H_2O) (Derep).

N$^{4''}$-*(15-Methyl-2-hexadecenoyl):* ***Tunicamycin X***. *Tunicamycin D. Tunicamycin D_2. Corynetoxin U17i*
[66081-38-7]
$C_{40}H_{66}N_4O_{16}$ 858.979
Also isol. from *Lolium rigidum* infected with *Corynebacterium rathayi*. Sol. MeOH, Py; fairly sol. EtOH, butanol; poorly sol. H_2O, Me_2CO, $CHCl_3$.
Mp 239-254° dec. $[\alpha]_D^{25}$ +37 (MeOH). λ_{max} 201 ; 260 (E1%/1cm 84); 287 (MeOH) (Berdy).

N$^{4''}$-*(16-Methylheptadecanoyl):* ***Corynetoxin S18i***
[82138-78-1]
$C_{41}H_{70}N_4O_{16}$ 875.021
Sol. MeOH, bases; fairly sol. butanol; poorly sol. hexane.

N$^{4''}$-*(3-Hydroxy-16-methylheptadecanoyl):* ***Corynetoxin H18i***
[82138-74-7]
$C_{41}H_{70}N_4O_{17}$ 891.021

N$^{4''}$-*(16-Methyl-2-heptadecenoyl):* ***Corynetoxin U18i***
[82138-75-8]
$C_{41}H_{68}N_4O_{16}$ 873.005
Sol. bases, MeOH; fairly sol. butanol; poorly sol. hexane.

N$^{4''}$-*(16-Methyloctadecanoyl):* ***Corynetoxin S19a***
[82138-81-6]
$C_{42}H_{72}N_4O_{16}$ 889.048

N$^{4''}$-*(16-Methyl-2-octadecenoyl):* ***Corynetoxin U19a***
[82138-76-9]
$C_{42}H_{70}N_4O_{16}$ 887.032

N$^{4''}$-*(3-Hydroxy-16-methyloctadecanoyl):* ***Corynetoxin H19a***
[82151-56-2]
$C_{42}H_{72}N_4O_{17}$ 905.047

5,6-Dihydro, N$^{4''}$-*(10-methyl-2-undecenoyl):* ***Streptovirudin A_1***
[51330-28-0]
$C_{35}H_{58}N_4O_{16}$ 790.86
Needles (MeOH aq.). Sol. MeOH, Py, bases; fairly sol. EtOH, H_2O, butanol; poorly sol. Me_2CO, hexane. $[\alpha]_D^{22}$ +55 (c, 0.5 in MeOH). λ_{max} 213 (E1%/1cm 295) (MeOH) (Berdy).

5,6-Dihydro, N$^{4''}$-*(10-methyl-2-dodecenoyl):* ***Streptovirudin B_1***
[51330-30-4]
$C_{36}H_{60}N_4O_{16}$ 804.887
Sol. MeOH, bases, Py; fairly sol. EtOH, butanol, H_2O; poorly sol. Me_2CO, hexane. Mp 254-256°. $[\alpha]_D^{22}$ +55 (c, 0.5 in MeOH). λ_{max} 213 (E1%/1cm 295) (MeOH) (Berdy).

5,6-Dihydro, N$^{4''}$-*(11-methyl-2-dodecenoyl):* ***Streptovirudin B_{1a}***
[81093-26-7]
$C_{36}H_{60}N_4O_{16}$ 804.887
Sol. MeOH, Py; fairly sol. H_2O, butanol; poorly sol. Me_2CO, hexane. λ_{max} 213 (MeOH) (Berdy).

5,6-Dihydro, N$^{4''}$-*(12-methyl-2-tridecenoyl):* ***Streptovirudin C_1***
[51330-32-6]
$C_{37}H_{62}N_4O_{16}$ 818.914
Needles (MeOH aq.). Sol. MeOH, bases, Py; fairly sol. EtOH, H_2O, butanol; poorly sol. Me_2CO, hexane. Mp 263-265° dec. $[\alpha]_D^{22}$ +54 (c, 0.5 in MeOH). λ_{max} 213 (MeOH) (Berdy).

5,6-Dihydro, N$^{4''}$-*(12-methyl-2-tetradecenoyl):* ***Streptovirudin D_1***
[51330-34-8]

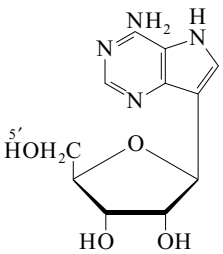
$C_{38}H_{64}N_4O_{16}$ 832.941
Needles (MeOH aq.). Sol. MeOH, Py, bases; fairly sol. EtOH, butanol; poorly sol. Me_2CO, hexane. Mp 252-253° dec. $[\alpha]_D^{22}$ +46 (c, 0.5 in MeOH). λ_{max} 213 (MeOH) (Berdy).

[11089-65-9]

Eckhardt, K. *et al., J. Antibiot.*, 1975, **28**, 274; 1980, **33**, 908; 1981, **34**, 1631 (*isol, struct*)
Mahoney, W.C. *et al., J. Biol. Chem.*, 1979, **254**, 6572 (*props*)
Ito, T. *et al., Agric. Biol. Chem.*, 1980, **44**, 695 (*isol*)
Mahoney, W.C. *et al., J. Chromatogr.*, 1980, **198**, 506
Elbein, D. *et al., Biochemistry*, 1981, **20**, 4210
Edgar, J.A. *et al., Chem. Comm.*, 1982, 222 (*isol, struct, Corynetoxins*)
Cockrum, P.A. *et al., J. Chromatogr.*, 1983, **268**, 245 (*Corynetoxins*)
Eckardt, K. *et al., J. Nat. Prod.*, 1983, **46**, 483 (*struct*)
Suami, T. *et al., Carbohydr. Res.*, 1985, **143**, 85 (*synth, Tunicamycin V*)
Kamogashira, T. *et al., Agric. Biol. Chem.*, 1988, **52**, 859 (*isol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Myers, A.G. *et al., J.A.C.S.*, 1993, **115**, 2036; 1994, **116**, 4697 (*synth*)

9-Deazaadenosine D-8

1-C-*(4-Amino-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)-1,4-dihydro-D-ribitol, 9CI*
[77691-03-3]



$C_{11}H_{14}N_4O_4$ 266.256
Isol. from the cyanobacterium *Anabaena affinis*. Cytotoxic agent. Sol. H_2O, MeOH; poorly sol. EtOAc, hexane.

Hydrochloride: [77699-40-2]
Cryst. (EtOH). Mp 179-183°.

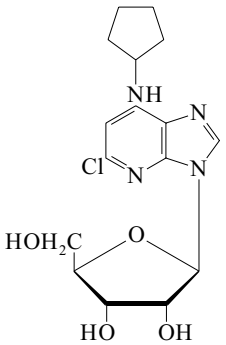
5′-O-α-D-Glucopyranoside: [146445-11-6]
$C_{17}H_{24}N_4O_9$ 428.398
Isol. from *Anabaena affinis*. Sol. H_2O, MeOH; poorly sol. EtOAc, hexane. $[\alpha]_D^{28}$ +21.9 (c, 0.05 in H_2O). λ_{max} 229 ; 268 ; 276 (H_2O) (Berdy). λ_{max} 235 ; 272 (HCl) (Berdy).

[77699-39-9]

Lim, M.-I. *et al., Tet. Lett.*, 1981, **22**, 25 (*synth, pmr*)
Chu, M.Y. *et al., Biochem. Pharmacol.*, 1984, **33**, 1229 (*props*)
Namikoshi, M. *et al., J.A.C.S.*, 1993, **115**, 2504 (*isol, struct*)

1-Deaza-2-chloro-N^6-cyclopentyladenosine D-9

*5-Chloro-*N*-cyclopentyl-3-β-D-ribofuranosyl-3*H*-imidazo[4,5-*b*]pyridin-7-amine, 9CI*
[113646-62-1]

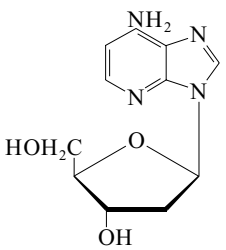


$C_{16}H_{21}ClN_4O_4$ 368.819
Adenosine A_1-receptor agonist. Mp 166-168°. Log P 1 (calc).

Cristalli, G. *et al., J. Med. Chem.*, 1988, **31**, 1179 (*synth, pharmacol*)
Barajas-Lopez, C. *et al., J. Pharmacol. Exp. Ther.*, 1991, **258**, 490 (*pharmacol*)

1-Deaza-2′-deoxyadenosine D-10

*7-Amino-3-(2-deoxy-β-D-*erythro*-pentofuranosyl)-3*H*-imidazo[4,5-*b*]pyridine*
[85687-20-3]

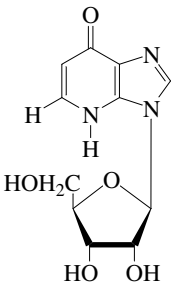


$C_{11}H_{14}N_4O_3$ 250.257
Synthetic nucleoside showing Hoogsteen or reverse-Hoogsteen type base pairing. Incapable of Watson-Crick pairing. Cryst. (MeOH). Mp 217°.

Seela, F. *et al., Helv. Chim. Acta*, 1994, **77**, 1485 (*synth, uv, pmr, cmr, props, bibl*)
Seela, F. *et al., Tetrahedron*, 1999, **55**, 1295-1308 (*cryst struct, cmr, pmr*)

1-Deazaguanosine D-11

*5-Amino-3-(β-D-ribofuranosyl)imidazo[4,5-*b*]pyridin-7-one*
[57048-45-0]

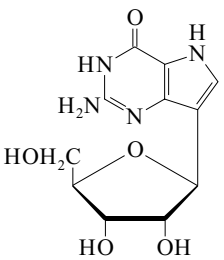


$C_{11}H_{14}N_4O_5$ 282.255
Cryst. (EtOH). Mp 148-150° Mp 137-138° (dihydrate).

Cline, B.L. *et al., J. Het. Chem.*, 1978, **15**, 839-847 (*synth, uv, pmr*)
Kojima, N. *et al., Tetrahedron*, 2000, **56**, 7909-7914 (*synth, pmr, cmr*)

9-Deazaguanosine D-12

*2-Amino-1,5-dihydro-7-β-D-ribofuranosyl-4*H*-pyrrolo[3,2-*d*]pyrimidin-4-one, 9CI*
[102731-45-3]



$C_{11}H_{14}N_4O_5$ 282.255
Purine nucleoside phosphorylase inhibitor. Potential immunotherapeutic and antileukaemic agent.

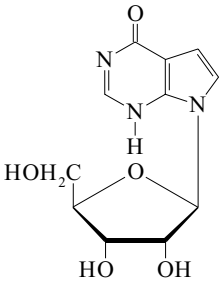
Hydrochloride: [84649-11-6]
Cryst. (MeOH). Mp 280°.

Lim, M.-I. *et al., J.O.C.*, 1983, **48**, 780 (*synth, pmr, uv*)
Stoeckler, J.D. *et al., Cancer Res.*, 1986, **46**, 1774 (*pharmacol*)
Girgis, N.S. *et al., J. Med. Chem.*, 1990, **33**, 2750 (*synth, uv, pmr, activity*)

7-Deazainosine D-13

*1,7-Dihydro-7-β-D-ribofuranosyl-4*H*-pyrrolo[2,3-*d*]pyrimidin-4-one, 9CI. XK 101-2. Antibiotic XK 101-2. B 15645. Antibiotic B 15645*

[2862-16-0]



$C_{11}H_{13}N_3O_5$ 267.241

Nucleoside antibiotic. Identity with B 15645 not certain. Prod. by *Micromonospora chalcea tubercidica* and *Streptomyces griseolus*. Also isol. from the ascidian *Aplidium pantherinum*. Cytotoxic. Needles (H_2O).
Mp 241-244°. $[\alpha]_D^{18}$ -6.72 (c, 0.5 in H_2O).
$[\alpha]_D^{21}$ -47.5 (c, 0.5 in H_2O).

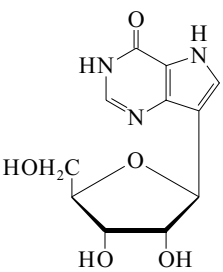
▶ UY9450000

Mizuno, Y. *et al., J.O.C.*, 1963, **28**, 3331 (*synth*)
Japan. Pat., 1970, 20 559; *CA*, **73**, 108248h, (*B 15645*)
Chenon, M.T. *et al., J.A.C.S.*, 1975, **97**, 4627 (*cmr*)
Japan. Pat., 1978, 78 124 685; *CA*, **90**, 136241v (*isol*)
Seela, F. *et al., Chem. Ber.*, 1980, **113**, 3389 (*synth, uv, pmr*)
Kim, J. *et al., J. Nat. Prod.*, 1993, **56**, 1813-1816 (*isol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAE200

9-Deazainosine D-14

*1,5-Dihydro-7-β-D-ribofuranosyl-4*H*-pyrrolo[3,2-*d*]pyrimidin-4-one, 9CI. 7-β-D-Ribofuranosyl-4-oxo-3*H*,5*H*-pyrrolo[3,2-*d*]pyrimidine*

[89458-19-5]



$C_{11}H_{13}N_3O_5$ 267.241

Inhibits *Pneumocystis carinii in vitro* and *in vivo*. Purine nucleoside phosphorylase inhibitor. Antileishmanial and potential antileukaemic agent. Struct. originally assigned to Pyrrolosine, P-117.

Hydrochloride: [74458-08-5]
Cryst. (MeOH). Mp 270°. Darkens at 220°.

*Tri-*O*-Ac:* [84649-18-3]
$C_{17}H_{19}N_3O_8$ 393.352
Cryst. (MeOH). Mp 240-241°.

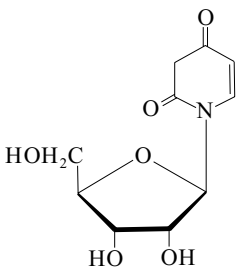
[102731-47-5]

Lim, M.-I. *et al., J.O.C.*, 1983, **48**, 780 (*synth, uv, pmr*)
Marr, J.J. *et al., Antimicrob. Agents Chemother.*, 1984, **25**, 292; 1985, **27**, 33 (*sar*)
Stoeckler, J.D. *et al., Cancer Res.*, 1986, **46**, 1774 (*synth, pharmacol*)
Berman, J.D. *et al., Antimicrob. Agents Chemother.*, 1987, **31**, 111 (*activity*)
Smith, J.W. *et al., Diagn. Microbiol. Infect. Dis.*, 1987, **7**, 113 (*activity*)

3-Deazauridine D-15

*4-Hydroxy-1β-D-ribofuranosyl-2(1*H*)-pyridinone, 9CI, 8CI. NSC 126849. WR 199830*

[23205-42-7]



$C_{10}H_{13}NO_6$ 243.216

Possess moderate activity against a number of bacterial systems *in vitro* and has a wide spectrum of anti-RNA viral activity in various cell cultures. Under investigation as an antineoplastic agent.
Mp 230-232°. $[\alpha]_D^{25}$ +34.1 (c, 1.0 in H_2O).
Log P -2.19 (calc). λ_{max} 278 (ε 4 470) (pH 1); 268(6 450), 255 nm (8 280) (pH 11).

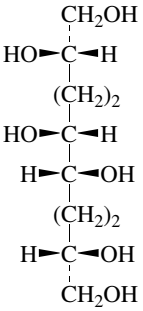
▶ UV1148000

2′,3′,5′-Tribenzoyl: [23220-74-8]
$C_{31}H_{25}NO_9$ 555.54
Mp 140-141°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 374C (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 816B (*ir*)
Robins, M.J. *et al., Chem. Comm.*, 1968, 1547 (*synth*)
Schwalbe, C.H. *et al., Acta Cryst. B*, 1973, **29**, 61 (*cryst struct*)
Cook, P.D. *et al., J. Het. Chem.*, 1977, **14**, 1295 (*synth, pmr*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 19045
Moriconi, W.J. *et al., Invest. New Drugs*, 1986, **4**, 67 (*rev*)

1,2,5,6,9,10-Decanehexaol D-16

3,4,7,8-Tetradeoxydecitol, 9CI



(2*S*,5*R*,6*R*,9*S*)-*form*

$C_{10}H_{22}O_6$ 238.28

(2*S*,5*R*,6*R*,9*S*)-*form*

D-manno-*form*

*1,2:9,10-Di-*O*-isopropylidene:*
[174645-22-8]
$C_{16}H_{30}O_6$ 318.409
$[\alpha]_D^{20}$ +26.8 (c, 1.065 in $CHCl_3$).

(2*S*,5*S*,6*S*,9*S*)-*form*

D-ido-*form*

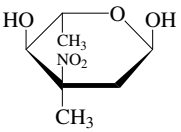
*1,2:9,10-Di-*O*-isopropylidene:*
[174645-24-0]
$[\alpha]_D^{20}$ -2.3 (c, 1.43 in $CHCl_3$).

Koert, U. *et al., Chem. Eur. J.*, 1997, **3**, 1170-1180 (*derivs, synth, pmr, cmr*)

Decilonitrose D-17

*2,3,6-Trideoxy-3-*C*-methyl-3-nitro-L-ribo-hexose, 9CI*

[86402-43-9]



α-Pyranose-*form*

$C_7H_{13}NO_5$ 191.183

Component of Arugomycin and Decilorubicin, D-18.

α-Pyranose-*form*

*Me glycoside: Methyl 2,3,6-trideoxy-3-*C*-methyl-3-nitro-α-L-ribo-hexopyranoside*
$C_8H_{15}NO_5$ 205.21
Cryst. (hexane). Mp 101.5-103°.
$[\alpha]_D$ -172 (c, 0.25 in $CHCl_3$).

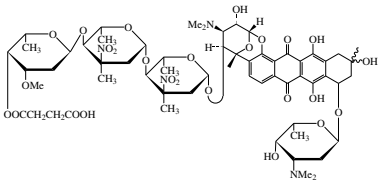
β-Pyranose-*form*

*Me glycoside: Methyl 2,3,6-trideoxy-3-*C*-methyl-3-nitro-β-L-ribo-hexopyranoside*
$C_8H_{15}NO_5$ 205.21
Syrup. $[\alpha]_D^{23}$ -13 (c, 0.2 in $CHCl_3$).

Ishi, K. *et al., J. Antibiot.*, 1983, **36**, 454
Kawai, H. *et al., Tet. Lett.*, 1984, **25**, 1937
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1985, **140**, 163 (*synth, pmr*)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1986, **158**, 249 (*synth, Me-α-gly*)

Decilorubicin D-18

[86016-61-7]



$C_{60}H_{82}N_4O_{26}$ 1275.319

Anthracycline antibiotic. Prod. by *Streptomyces virginiae* ATCC31910. Active against gram-positive bacteria and mouse leukaemia. Red powder. Sol. DMSO, MeOH-$CHCl_3$, Py, DMF; poorly sol. H_2O.

Mp 170-174° dec. $[\alpha]_D^{25}$ +460 (c, 0.05 in $CHCl_3$/MeOH). λ_{max} 220 (ϵ 28000); 235 (ϵ 37100); 255 (ϵ 32200); 292 (ϵ 8300); 383 (ϵ 3400); 475 (ϵ 11800); 498 (ϵ 12500); 535 (ϵ 7000) (MeOH/HCl) (Derep). λ_{max} 253 (ϵ 35400); 295 (sh) (ϵ 6400); 360 (ϵ 5000); 560 (ϵ 13600); 597 (ϵ 13500) (MeOH/NaOH) (Derep). λ_{max} 220 (ϵ 28000); 235 (ϵ 35000); 254 (ϵ 27400); 290 (ϵ 6800); 380 (ϵ 3200); 476 (ϵ 9400); 496 (ϵ 10200); 535 (ϵ 7600); 586 (ϵ 4300) (MeOH) (Derep).

▶ LD_{50} (mus, ivn) 50 - 100 mg/kg , LD_{50} (mus, ipr) 50 - 100 mg/kg.

Me ester: Mp 178-182° dec. $[\alpha]_D^{25}$ +462 (c, 0.05 in $CHCl_3$).

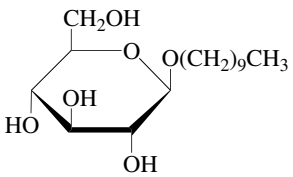
Ishii, K. *et al., J. Antibiot.*, 1983, **36**, 451-453; 454-456 (*isol, struct, props*)

Nishimura, Y. *et al., J. Antibiot.*, 1990, **43**, 54-61 (*struct*)

Aoki, M. *et al., J. Antibiot.*, 1991, **44**, 635 (*cmr*)

Noecker, L. *et al., J. Carbohydr. Chem.*, 1998, **17**, 39-48 (*partial synth*)

Decyl glucoside D-19



$C_{16}H_{32}O_6$ 320.425

β-D-Pyranose-*form* [58846-77-8]

Surfactant. Mp 74-75°. $[\alpha]_D^{20}$ -27.8 (MeOH).

Tetra-Ac: [161344-77-0]
$C_{24}H_{40}O_{10}$ 488.574
$[\alpha]_D^{20}$ -7.6 (c, 2.0 in CH_2Cl_2).

De Grip, W.J. *et al., Chem. Phys. Lipids*, 1979, **23**, 321-335 (*synth, props*)

Koeltzow, D.E. *et al., J. Am. Oil Chem. Soc.*, 1984, **61**, 1651-1655 (*synth, props*)

Kiwada, H. *et al., Chem. Pharm. Bull.*, 1985, **33**, 753-759 (*use*)

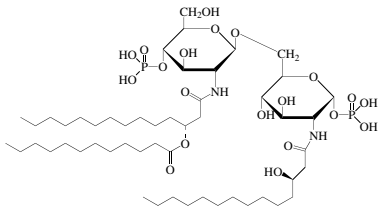
Chung, Y.J. *et al., Biochim. Biophys. Acta*, 1989, **985**, 300-306 (*props*)

Klotz, W. *et al., Annalen*, 1993, 683-690 (*synth*)

Defoslimod, INN D-20

*2-Deoxy-6-*O*-[2-deoxy-2-[[1-oxo-3-[(1-oxododecyl)oxy]tetradecyl]amino]-4-*O*-phosphono-β-D-glucopyranosyl]-2-[(3-hydroxy-1-oxotetradecyl)amino]-α-D-glucopyranose 1-(dihydrogen phosphate), 9CI*

[171092-39-0]



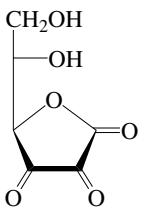
$C_{52}H_{100}N_2O_{20}P_2$ 1135.311

Immunomodulator. No phys. props. reported.

Pat. Coop. Treaty (WIPO), 1995, 95 14 026, (*Laboratories Om*); *CA*, **124**, 9326x (*synth, pharmacol*)

Dehydroascorbic acid D-21

threo-*2,3-Hexodiulosono-1,4-lactone, 9CI, 8CI*



$C_6H_6O_6$ 174.11

L-*form* [490-83-5]

Widespread in plants, as oxidn. prod. of Ascorbic acid, A-868. Formed reversibly *in vivo* from ascorbic acid and shows similar vitamin function.

Mp 225° dec. (196° dec.). $[\alpha]_D^{20}$ +56 → -6 (6d) (c, 1 in phthalate/HCl buffer at pH 3.5). Probably exists in hydrated form as the 2,3-bis-*gem*-diol or as a C-2 hydrated bicyclic form in aq. soln.

2-Phenylhydrazone:
Yellow needles (EtOH). Mp 167-170°.

2,3-Bisphenylhydrazone: [22393-11-9]
Mp 223°.

2,3-Bis(2,4-dinitrophenylhydrazone): Mp 280° dec.

D-*form*

2,3-Bis(2,4-dinitrophenylhydrazone):
[19192-77-9]
Cryst. (EtOH). Mp 252-254°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 702C (*ir*)

Herbert, R.W. *et al., J.C.S.*, 1933, 1270 (*deriv*)

Kenyon, J. *et al., J.C.S.*, 1948, 158 (*synth*)

El Khadem, H. *et al., Carbohydr. Res.*, 1970, **13**, 57; 1972, **21**, 430 (*hydrazones*)

Weiss, W. *et al., Annalen*, 1971, **754**, 152-153 (*deriv*)

Hvoslef, J. *et al., Acta Cryst. B*, 1976, **32**, 448 (*struct*)

Matusch, R. *et al., Z. Naturforsch., B*, 1977, **32**, 562-568 (*cmr*)

Ashny, E.S.H.E. *et al., Chem. Rev.*, 1980, **79**, 151-154 (*ir*)

Tolbert, B.M. *et al., Adv. Chem. Ser.*, 1982, 200 (*rev*)

Ohmuri, W. *et al., Agric. Biol. Chem.*, 1986, **47**, 607-608 (*deriv, synth, ir*)

Kilany, Y.E. *et al., J. Carbohydr. Chem.*, 1988, **7**, 187-198 (*deriv*)

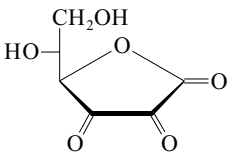
Wolf, G. *et al., Nutr. Rev.*, 1993, **51**, 337-338 (*rev*)

Kurata, T. *et al., Biosci., Biotechnol., Biochem.*, 2000, **64**, 1651-1655 (*props*)

Merck Index, 13th edn., 2001, No. 2886 (*bibl*)

Dehydroisoascorbic acid D-22

erythro-*Hex-2,3-diulosono-1,4-lactone*



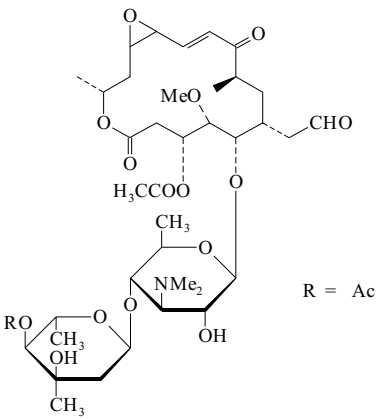
$C_6H_6O_6$ 174.11

Obt. and studied in soln. Shows equilib. between various monomeric and dimeric species.

Hvoslef, J. *et al., Carbohydr. Res.*, 1981, **92**, 9 (*pmr, cmr, struct*)

Deltamycin A_1 D-23

[58880-22-1]



$C_{39}H_{61}NO_{16}$ 799.908

Macrolide antibiotic. Prod. by *Streptomyces halstedii deltae*. Active against gram-positive organisms. Needles (C_6H_6/hexane). Sol. MeOH, C_6H_6; poorly sol. H_2O, hexane.

Mp 201-204°. $[\alpha]_D^{24}$ -49.3 (c, 0.23 in $CHCl_3$). λ_{max} 239 (E1%/1cm 167); 240 (ϵ 14800) (MeOH) (Berdy).

▶ LD_{50} (mus, ipr) 200 - 600 mg/kg. OH4729040

4″-De-Ac: ***Deltamycin X***
[40625-70-5]
$C_{37}H_{59}NO_{15}$ 757.871
Prod. by *Streptomyces halstedii deltae*.

Okamura, K. *et al., J. Ferment. Technol.*, 1977, **55**, 347 (*isol*)

Shimauchi, Y. *et al., J. Antibiot.*, 1978, **31**, 261; 270; 1979, **32**, 878 (*isol, props, struct*)

Deltamycin A_2 D-24

[58880-23-2]

As Deltamycin A_1, D-23 with

R = $COCH_2CH_3$

$C_{40}H_{63}NO_{16}$ 813.935

Macrolide antibiotic. Isol. from *Streptomyces halstedii*. Biol. activity similar to Deltamycin A_1, D-23. Needles (C_6H_6/hexane). Sol. MeOH, C_6H_6; poorly sol. H_2O, hexane.
Mp 189-194°. $[\alpha]_D^{24}$ -55.3 (c, 0.25 in $CHCl_3$). λ_{max} 239 (ϵ 14800); 240 (E1%/1cm 158) (MeOH) (Berdy).

▶ LD_{50} (mus, ipr) 200 - 600 mg/kg. OH4729020

Shimauchi, Y. *et al., J. Antibiot.*, 1978, **31**, 261; 270 (*isol, props*)

Shimauchi, Y. *et al., J. Antibiot.*, 1979, **32**, 878 (*struct*)

Deltamycin A_3 D-25

[58880-24-3]

As Deltamycin A_1, D-23 with

R = $COCH_2CH_2CH_3$

$C_{41}H_{65}NO_{16}$ 827.962

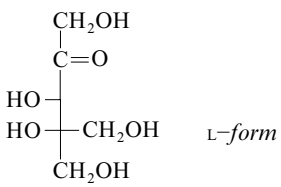
Macrolide antibiotic. Isol. from *Streptomyces halstedii*. Similar biol. activity to Deltamycin A_1, D-23. Needles (C_6H_6/hexane). Sol. MeOH, C_6H_6; poorly sol. H_2O, hexane.
Mp 197-201°. $[\alpha]_D^{24}$ -56.7 (c, 0.26 in $CHCl_3$). λ_{max} 239 (E1%/1cm 152) (MeOH) (Berdy).

▶ LD_{50} (mus, ipr) 200 - 600 mg/kg. OH4726650

Shimauchi, Y. *et al., J. Antibiot.*, 1978, **31**, 261; 270; 1979, **32**, 878 (*isol, props, struct*)

Dendroketose D-26

*4-Hydroxymethyl-1,3,4,5-tetrahydroxy-2-pentanone, 8CI. 4-*C*-Hydroxymethyl-*glycero-*pentulose. β-Acrose*



L–*form*

$C_6H_{12}O_6$ 180.157

D-*form*

*(*R*)-form*

*1,2:3,4-Di-*O*-isopropylidene: 4-*C*-Hydroxymethyl-1,2:3,4-di-*O*-isopropylidene-D-*glycero-*pentose*
$C_{12}H_{20}O_6$ 260.286
Mp 89°. $[\alpha]_D^{16}$ -121 (Me_2CO).

*2,3:4,4′-Di-*O*-isopropylidene: 4-*C*-Hydroxymethyl-2,3:4,4′-di-*O*-isopropylidene-D-*glycero-*pentose*
$C_{12}H_{20}O_6$ 260.286
Mp 64-65°. $[\alpha]_D^{17}$ +60.5 (Me_2CO).

L-*form*

*(*S*)-form*

[58641-74-0]

*2,3-*O*-Isopropropylidene: 4-*C*-Hydroxymethyl-2,3-*O*-isopropylidene-L-*glycero-*pentose*
$C_9H_{16}O_6$ 220.222
$[\alpha]_D$ -14.3 (c, 0.6 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene: 4-*C*-Hydroxymethyl-1,2:3,4-di-*O*-isopropylidene-L-*glycero-*pentose*
$C_{12}H_{20}O_6$ 260.286
Mp 87-88°. $[\alpha]_D$ +117 (c, 1.2 in Me_2CO).

*2,3:4,4′-Di-*O*-isopropylidene: 4-*C*-Hydroxymethyl-2,3:4,4′-di-*O*-isopropylidene-L-*glycero-*pentose*
$C_{12}H_{20}O_6$ 260.286
Mp 58-59°. $[\alpha]_D$ -63.2 (c, 1.6 in Me_2CO).

D,L-*form*

Phenylosazone: Mp 157°.

Utkin, L.M. *et al., Zh. Obshch. Khim.*, 1955, **25**, 530-536; *CA*, **50**, 3228f (L-*form,* DL-*form, synth*)

Vzas, D.M. *et al., Carbohydr. Res.*, 1975, **45**, 151-159 (*derivs*)

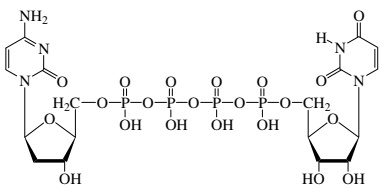
Szarek, W.A. *et al., Carbohydr. Res.*, 1977, **53**, 101-108 (L-*form, synth*)

Ho, P.-T. *et al., Can. J. Chem.*, 1979, **57**, 384-386 (L-*form, synth*)

Denufosol, INN D-27

Uridine 5′-(pentahydrogen tetraphosphate), P‴-5′-ester with 2′-deoxycytidine, 9CI. dCP4U. INS 37217

[211448-85-0]



$C_{18}H_{27}N_5O_{21}P_4$ 773.327

Purine P_{2Y} receptor agonist. Used in the treatment of rhinitis, upper respiratory infection and lung disease, cystic fibrosis, retinal detachment and oedema.

Tetra-Na salt: ***Denufosol tetrasodium, USAN***
[318250-11-2]
Cryst. Mp 202-210°.

Pat. Coop. Treaty (WIPO), 1998, 98 34 942, (*Inspire*); *CA*, **129**, 175919r (*synth, pharmacol*)

Eur. Pat., 2002, 11 91 032, (*Yamasa*); *CA*, **134**, 91109s (*synth*)

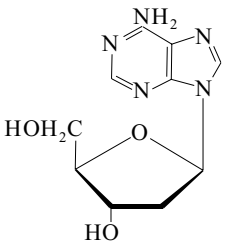
Maminishkis, A. *et al., Invest. Ophthalmol. Visual Sci.*, 2002, **43**, 3565-3566; 3567-3574; 2003, **44**, 4505-4514 (*pharmacol*)

Yerxa, B.R. *et al., J. Pharmacol. Exp. Ther.*, 2002, **302**, 871-880 (*pharmacol*)

2′-Deoxyadenosine, 9CI, 8CI D-28

*9-(2-Deoxy-β-*D*-*erythro*-pentofuranosyl) adenine, 9CI. Adenine deoxyriboside*

[958-09-8]



$C_{10}H_{13}N_5O_3$ 251.244

A common component of deoxyribonucleic acid. Isol. from Dong Chong Xia Chao (*Cordyceps sinensis*). Sol. H_2O.
Mp 187-192°. $[\alpha]_D^{20}$ -27 (c, 0.4 in H_2O). pK_a 3.79 (20°). λ_{max} 260 (ϵ 15220) (H_2O).

▶ AU7358600

3′-Phosphate: 2′-Deoxy-3′-adenylic acid
[15731-72-3]
$C_{10}H_{14}N_5O_6P$ 331.224
Trihydrate (as Ca salt). $[\alpha]_D^{19}$ -10.8 (c, 0.46 in H_2O). λ_{max} 260 (ϵ 14450) (H_2O).

5′-Phosphate: 2′-Deoxy-5′-adenylic acid
[653-63-4]
$C_{10}H_{14}N_5O_6P$ 331.224
Dihydrate (as Ca salt). $[\alpha]_D^{19}$ -26 (c, 0.38 in H_2O). λ_{max} 260 (ϵ 13600) (H_2O).

5′-Diphosphate: [2793-06-8]
$C_{10}H_{15}N_5O_9P_2$ 411.204
No phys. props. reported.

5′-Triphosphate: [1927-31-7]

[95069-73-1]
$C_{10}H_{16}N_5O_{12}P_3$ 491.184
RNA polymerase inhibitor. Solid (EtOH aq.). λ_{max} 259 (H_2O).

3′-Ac: [6612-73-3]
$C_{12}H_{15}N_5O_4$ 293.282
Prisms (EtOAc). Mp 216-217°. $[\alpha]_D^{25}$ -28.6 (c, 1 in MeOH). λ_{max} 260 (ϵ 14300) (H_2O).

5′-Ac:
$C_{12}H_{15}N_5O_4$ 293.282
Cryst. (EtOH). Mp 140-141°. $[\alpha]_D^{25}$ -6.8 (c, 1 in MeOH). λ_{max} 260 (ϵ 14400) (H_2O).

3′,5′-Di-Ac: [17318-24-0]
$C_{14}H_{17}N_5O_5$ 335.319
Needles (EtOAc/petrol). Mp 151-152°.

*6*N*-Benzoyl:* [4546-72-9]
$C_{17}H_{17}N_5O_4$ 355.352
Needles (H_2O). Mp 113-115°.

3′,5′-Dibenzoyl: [20838-22-6]
$C_{24}H_{21}N_5O_5$ 459.46
Cryst. (C_6H_6/hexane). Mp 116-117.5°.

3′-Tosyl, 5′-Ac:
$C_{19}H_{21}N_5O_6S$ 447.471
Plates ($CHCl_3$/petrol). Mp 147-148°.

5′-Trityl:
$C_{29}H_{27}N_5O_3$ 493.564
Mp 195-197°.

*5′-(4,4′-Dimethoxytrityl), 6*N*-benzoyl:*
[64325-78-6]
$C_{38}H_{35}N_5O_6$ 657.724

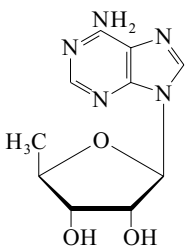
Research tool for antiviral and anticancer studies. Powder.

[16373-93-6]

Andersen, W. *et al., J.C.S.*, 1954, 1882, (*3′-Ac, 5′-Ac, di-Ac, 3′-tosyl 5′-Ac, 5′-trityl*)
Hayes, D.H. *et al., J.C.S.*, 1955, 808 (*phosphates*)
Lehman, I.R. *et al., J. Biol. Chem.*, 1958, **233**, 163-170 (*5′-triphosphate*)
Pedersen, C. *et al., J.A.C.S.*, 1960, **82**, 5210 (*synth*)
Biemann, K. *et al., J.A.C.S.*, 1962, **84**, 2005 (*ms*)
Kuszmann, J. *et al., Chem. Ber.*, 1963, **96**, 2327 (*synth*)
Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3821-3827 (*6N-benzoyl, 5′-(4,4-dimethoxytrityl) deriv*)
Letsinger, R.L. *et al., Tet. Lett.*, 1968, 2621 (*3′,5′-dibenzoyl*)
Jones, A.J. *et al., J.A.C.S.*, 1970, **92**, 4079 (*cmr*)
Davies, D.B. *et al., J.C.S. Perkin 2*, 1975, 1703 (*pmr*)
Saneyoshi, M. *et al., Nucleic Acids Res.*, 1981, **9**, 3129-3138 (*5′-triphosphate*)
Sato, T. *et al., Acta Cryst. C*, 1984, **40**, 880 (*cryst struct*)
Kazimierczuk, Z. *et al., J.A.C.S.*, 1984, **106**, 6379 (*synth*)
Ladner, W.E. *et al., J.O.C.*, 1985, **50**, 1076-1079 (*5′-triphosphate*)
Tanaka, T. *et al., Tet. Lett.*, 1986, **27**, 5641-5644 (*5′-diphosphate*)
Ciuffreda, P. *et al., Tetrahedron*, 2000, **56**, 3239-3243 (*3′-Ac, 5′-Ac, synth, pmr*)
Li, T.S.C. *et al., Chinese and Related North American Herbs*, CRC Press, 2002, 46 (*occur*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAQ200

5′-Deoxyadenosine D-29

[4754-39-6]

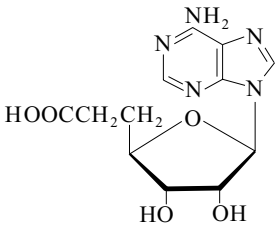


$C_{10}H_{13}N_5O_3$ 251.244
Cryst. (EtOH). Mp 213-214.5° (premelts from 130°). $[\alpha]_D^{26}$ -53.5 (c, 1.01 in EtOH).

Kissman, H.M. *et al., J.A.C.S.*, 1957, **79**, 5534 (*synth*)
McCarthy, J.R. *et al., J.A.C.S.*, 1968, **90**, 4993 (*synth, uv*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1988, **184**, 250 (***synth***)

5′-Deoxy-5′-adenosineacetic acid D-30

*9-(5,6-Dideoxy-β-D-*ribo*-heptofuranosyluronic acid)adenine*
[41355-20-8]



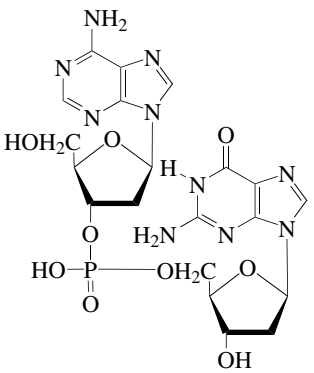
$C_{12}H_{15}N_5O_5$ 309.281
Model nucleotide for AMP. Cryst. (H_2O). Mp 233-234° dec.

Et ester: [41355-18-4]
Cryst. (EtOAc/hexane). Mp 86-91°.

Walker, T.E. *et al., Carbohydr. Res.*, 1973, **27**, 225-234 (*synth, uv, pmr*)
Ishida, T. *et al., J.C.S. Perkin 1*, 1983, 1325-1331 (*pmr, cryst struct*)

2′-Deoxyadenylyl-(3′→5′)-2′-deoxyguanosine, 9CI D-31

d(ApG)
[4336-87-2]

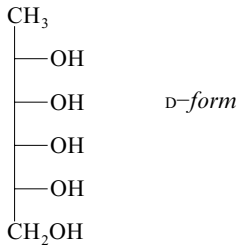


$C_{20}H_{25}N_{10}O_9P$ 580.453

Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Heikkilae, J. *et al., Acta Chem. Scand., Ser. B*, 1985, **39**, 657-659 (*synth, pmr, P-31 nmr*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Hashmi, S.A. *et al., Nucleosides Nucleotides*, 1994, **13**, 1059-1067 (*synth*)

1-Deoxyallitol D-32

6-Deoxyallitol. Allomethylitol



D–*form*

$C_6H_{14}O_5$ 166.174

D-*form*

1-Deoxy-D-allitol. 6-Deoxy-L-allitol
[18545-98-7]
Cryst. Mp 94-96° (62-63°). $[\alpha]_D^{23}$ +15.9 (c, 0.97 in H_2O).

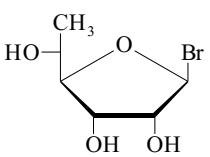
*3,4-*O*-Isopropylidene:* [105617-51-4]
$C_9H_{18}O_5$ 206.238
Needles (Et_2O/hexane). Mp 72-73°. $[\alpha]_D^{15}$ +27.5 (c, 1.0 in $CHCl_3$).

L-*form* *6-Deoxy-D-allitol, 9CI. 1-Deoxy-L-allitol*
[95120-27-7] Detected in normal urine and in those of uremia patients.
Cryst. Mp 62-63°. $[\alpha]_D^{16}$ -11 (H_2O).

Penta-Ac: [51607-20-6]
$C_{16}H_{24}O_{10}$ 376.36
Syrup.

Iwadare, K. *et al., Bull. Chem. Soc. Jpn.*, 1942, **17**, 296 (*synth, D-form*)
Bollenback, G.N. *et al., J.A.C.S.*, 1950, **72**, 741 (*synth, L-form*)
Heinz, K. *et al., Helv. Chim. Acta*, 1967, **50**, 2280 (*synth, L-form*)
Perry, M.B. *et al., Carbohydr. Res.*, 1973, **31**, 131 (*penta-Ac*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1974, 1943 (*pmr*)
Niwa, T. *et al., J. Chromatogr.*, 1984, **336**, 345 (*glc, ms*)
Nakata, M. *et al., Bull. Chem. Soc. Jpn.*, 1989, **62**, 2618 (*isopropylidene*)
Wiesler, W.T. *et al., J.A.C.S.*, 1989, **111**, 9205 (*synth*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1991, 197 (*conformn*)

6-Deoxyallofuranosyl bromide D-33



$C_6H_{11}BrO_4$ 227.054

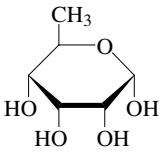
β-D-*form*

Tris(4-nitrobenzoyl): [80851-28-1]
Cryst. (CH_2Cl_2/hexane). Mp 118° (some dec. at 113°).

El-Khadem, H.S. *et al., Carbohydr. Res.*, 1981, **98**, 195 (*nitrobenzoyl, ir*)

6-Deoxyallose D-34

Allomethylose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [4348-84-9]
Found in plant glycosides, e.g. from *Xysmalobium undulatum*.
Needles (EtOH or Me_2CO).
Mp 151-152° (140°). $[\alpha]_D$ +1.2 (H_2O).

Phenylhydrazone: Mp 163-164°. $[\alpha]_D$ +20 (H_2O).

Phenylosazone: Mp 182-183°. $[\alpha]_D$ -72.3 (Py/EtOH).

*2-Me: 6-Deoxy-2-*O*-methylallose, 8CI. Javose*
[921-90-4]
$C_7H_{14}O_5$ 178.185
Sugar component of glycosides found in seeds of *Antiaris toxicaria*.
Mp 112-114°. $[\alpha]_D^{20}$ -54 → -40 (c, 1.6 in H_2O).

*3-Me: 6-Deoxy-3-*O*-methyl-*D*-allose*
[7045-53-6]
$C_7H_{14}O_5$ 178.185
Constit. of the leaves of *Marsdenia erecta* and of the Chinese crude drug "Wujiapi".
Cryst. (Me_2CO/Et_2O).
Mp 122-123°. $[\alpha]_D^{30}$ +9 (c, 1.0 in Et_2O).

α-D-Pyranose-*form*

*Me glycoside, 2-Me: Methyl 6-deoxy-2-*O*-methyl-α-D-allopyranoside*
[17013-99-9]
$C_8H_{16}O_5$ 192.211
$[\alpha]_D^{22}$ +90 (c, 1.6 in $CHCl_3$).

*Me glycoside, 3-Me: Methyl 6-deoxy-3-*O*-methyl-α-D-allopyranoside*
$C_8H_{16}O_5$ 192.211
Cryst. (C_6H_6/petrol). Mp 110-111°.
$[\alpha]_{Hg}^{22}$ +195 (c, 0.67 in MeOH).

*Me glycoside, 3-Me, 2-tosyl: Methyl 6-deoxy-3-*O*-methyl-2-*O*-tosyl-α-D-allopyranoside*
$C_{15}H_{22}O_7S$ 346.401
Mp 116-117°. $[\alpha]_D$ +70 (c, 1.0 in $CHCl_3$).

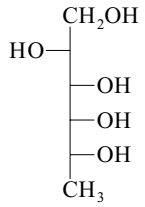
β-D-Pyranose-*form*

*Me glycoside, 2-Me: Methyl 6-deoxy-2-*O*-methyl-β-D-allopyranoside*
[14917-72-7]
$C_8H_{16}O_5$ 192.211
Mp 97-98°. $[\alpha]_D^{26}$ -82.8 (c, 1.5 in MeOH).

Hunger, A. *et al., Helv. Chim. Acta*, 1952, **35**, 1073
Yamana, S. *et al., Bull. Chem. Soc. Jpn.*, 1963, **36**, 473
Reichstein, T. *et al., Helv. Chim. Acta*, 1963, **46**, 8
Hoffmann, St. *et al., Helv. Chim. Acta*, 1966, **49**, 2209 (*synth, pmr*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1966, 499; 1967, 1503; 1971, 2305 (*synth, struct*)
Saner, A. *et al., Helv. Chim. Acta*, 1970, **53**, 221 (*isol, 3-Me*)

6-Deoxyaltritol D-35

1-Deoxytalitol



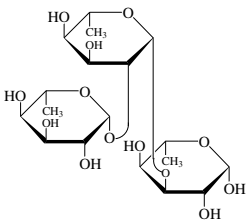
D-*form*

$C_6H_{14}O_5$ 166.174

D-*form*
Present in cell-wall polysaccharides of *Nocardia asteroides* R399.
Mp 104°. $[\alpha]_D^{20}$ -6 (c, 0.02 in H_2O) (+2).

L-*form*
Mp 104°. $[\alpha]_D$ -2.3 (H_2O).
Votoček, E. *et al., Coll. Czech. Chem. Comm.*, 1930, **2**, 36; 47 (*synth, D-form, L-form*)
Voiland, A. *et al., Carbohydr. Res.*, 1985, **141**, 283 (*isol, ms, synth*)

6-Deoxy-β-L-altropyranosyl-(1→2)-6-deoxy-β-L-altropyranosyl-(1→3)-6-deoxy-L-altrose, 9CI D-36



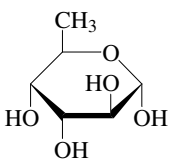
β-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Repeating unit in the O-antigenic lipopolysaccharides of *Yersinia enterocolitica* serovars 0:1,2a,3 and 0:2a,2b,3. Different serovars vary in the acetyl group composition at C-3 of altropyranosyl units.

β-Pyranose-*form* [97451-29-1]
Syrup.
Gorshkova, R.P. *et al., Eur. J. Biochem.*, 1985, **150**, 527 (*isol, struct*)

6-Deoxyaltrose D-37

Altromethylose



α-D-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 30° contains 33.3% α-Pyr, 38.5% β-Pyr, 15.4% α-Fur and 12.8% β-Fur. Found in polysialoglycoprotein of *Salvelinus leucomaemis* eggs. Only 6-deoxyhexose other than fucose found in glycoproteins. Residue present in some strains of *Eubacterium saburreum*.

D-*form* [18546-02-6]
Syrup. $[\alpha]_D$ +16.2 (H_2O).

p-*Bromophenylosazone:* Mp 177-178°. $[\alpha]_D$ +8 ($CHCl_3$).

*4-Me: 6-Deoxy-4-*O*-methyl-D-altrose. **Sordarose***
[34029-96-4]
$C_7H_{14}O_5$ 178.185
Component of Sordarin. Syrup. $Bp_{0.001}$ 140°. $[\alpha]_D^{20}$ +29 (c, 0.45 in H_2O).

α-D-Pyranose-*form*

*Me glycoside, 4-Me: Methyl 6-deoxy-4-*O*-methyl-α-D-altropyranoside*
[33159-51-2]
$C_8H_{16}O_5$ 192.211
Syrup. $Bp_{0.01}$ 155°. $[\alpha]_D^{20}$ +153 (c, 1.3 in MeOH).

*Me glycoside, 4-Me, di-Ac: Methyl 2,3-di-*O*-acetyl-6-deoxy-4-*O*-methyl-α-D-altropyranoside*
$C_{12}H_{20}O_7$ 276.286
Mp 59-62° Mp 92°. $[\alpha]_D^{20}$ +106 (c, 1.05 in MeOH).

*Me glycoside, 2,3-di-Me: Methyl 6-deoxy-2,3-di-*O*-methyl-α-D-altropyranoside*
$C_9H_{18}O_5$ 206.238
$[\alpha]_D^{23}$ +133 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-di-Me, benzoyl: Methyl 4-*O*-benzoyl-6-deoxy-2,3-di-*O*-methyl-α-D-altropyranoside*
$C_{16}H_{22}O_6$ 310.346
Syrup. $[\alpha]_D^{23}$ +61 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, 4-Me: Methyl 6-deoxy-4-*O*-methyl-β-D-altropyranoside*
[33164-14-6]
$C_8H_{16}O_5$ 192.211
$[\alpha]_D^{20}$ -12 (c, 1.0 in MeOH).

*Me glycoside, 4-Me, di-Ac: Methyl 2, 3-di-*O*-acetyl-4-*O*-methyl-β-D-altropyranoside*
$C_{12}H_{20}O_7$ 276.286
Mp 91-92°. $[\alpha]_D^{20}$ -34 (c, 0.71 in MeOH).

β-D-Furanose-*form*

Ph glycoside: Phenyl 6-deoxy-β-D-altrofuranoside
$C_{12}H_{16}O_5$ 240.255
Cryst. (EtOAc/petrol). Mp 114-115°.
$[\alpha]_D$ -98.6 (c, 1.06 in $CHCl_3$).

L-*form* [32738-74-2]
Syrup. $[\alpha]_D$ -17.3.

p-*Bromophenylosazone:* Mp 132°.
$[\alpha]_D$ -1 ($CHCl_3$).

α-L-Furanose-*form*

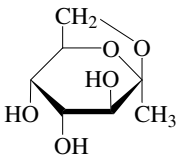
Me glycoside: Methyl 6-deoxy-α-L-altrofuranoside
$C_7H_{14}O_5$ 178.185
Resin. $[\alpha]_D^{20}$ -89 (c, 1.2 in $CHCl_3$).

Freudenberg, K. *et al., Ber.*, 1929, **62**, 373
Hauser, D. *et al., Helv. Chim. Acta*, 1971, **54**, 1178 (*isol, struct, pmr, ms, 4-Me*)
Spichtig, A.M. *et al., Helv. Chim. Acta*, 1971, **54**, 1191 (*4-Me*)
Hoffman, J. *et al., Carbohydr. Res.*, 1976, **47**, 261 (*occur*)
Florent, J.C. *et al., Carbohydr. Res.*, 1980, **85**, 243 (*α-L-Me fur*)
Sato, K.I. *et al., Carbohydr. Res.*, 1982, **103**, 221 (*α-D-Me gly derivs*)

Iwasaki, M. *et al., Eur. J. Biochem.*, 1987, **168**, 185 (*isol*)
Buchanan, J.G. *et al., Tetrahedron*, 1995, **51**, 6033 (*Ph furanoside*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*equilib*)

1-Deoxy-2,7-anhydroaltroheptulose D-38

2,7-Anhydro-1-deoxy-altro-*2-heptulopyranose*

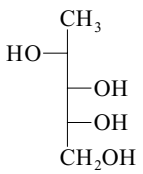


$C_7H_{12}O_5$ 176.169

D-*form* [63487-90-1]
Prod. by mutants of *Bacillus pumilus*. Cryst. (MeOH/EtOAc). Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. Me_2CO, hexane.
Mp 132-133°. $[\alpha]_D^{20}$ -164 (c, 0.9 in H_2O).
Koell, P. *et al., Annalen*, 1977, **110**, 1994-2004 (*synth, pmr*)
Yokota, A. *et al., Agric. Biol. Chem.*, 1978, **42**, 2245-2252 (*isol, synth, pmr*)

1-Deoxyarabinitol D-39

1,2,3,4-Pentanetetrol. 5-Deoxylyxitol. Lyxomethylitol
[61913-77-7]



D–*form*

$C_5H_{12}O_4$ 136.147

D-*form* [13942-77-3]
Mp 132-134°. $[\alpha]_D^{29}$ +2.46 (c, 1.02 in H_2O).
Tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-1-deoxy-D-arabinitol*
$C_{13}H_{20}O_8$ 304.296
Cryst. (EtOH). Mp 115-116°. $[\alpha]_D^{30}$ +27.3 (c, 1.00 in $CHCl_3$).

L-*form* [92622-02-1]
Constit. of the fruit of *Carum ajowan*. Cryst. (MeOH/Et_2O).
Mp 129-131°. $[\alpha]_D^{24}$ -3 (c, 0.5 in H_2O).
Tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-1-deoxy-L-arabinitol*
$C_{13}H_{20}O_8$ 304.296
Cryst. (EtOH). Mp 115°. $[\alpha]_D^{30}$ -26.37 (c, 1.29 in $CHCl_3$).

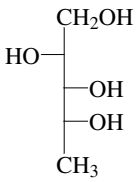
[25289-19-4]

Bollenback, G.N. *et al., J.A.C.S.*, 1950, **72**, 741
Williams, J.M. *et al., Carbohydr. Res.*, 1984, **128**, 73
Enders, D. *et al., Tet. Lett.*, 1993, **34**, 2453-2456 (*synth*)
Ishikawa, T. *et al., Chem. Pharm. Bull.*, 2001, **49**, 840-844 (*isol, pmr, cmr, ms*)

5-Deoxyarabinitol, 9CI D-40

1-Deoxylyxitol
[61913-78-8]

[97466-38-1]



D-*form*

$C_5H_{12}O_4$ 136.147

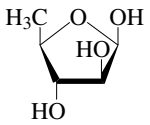
D-*form* [67968-44-9]
Constit. of the fruit of *Glehnia littoralis*. Syrup. $[\alpha]_D^{24}$ -23 (c, 1.1 in MeOH). This is 5-deoxy-D-arabinitol or 1-deoxy-D-lyxitol. The former takes preference acc. to the IUPAC special nomenclature rules for carbohydrates.
Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-5-deoxy-D-arabinitol. 2,3,4,5-Tetra*-O-*acetyl-1-deoxy-D-lyxitol*
[90129-06-9]
$C_{13}H_{20}O_8$ 304.296
Cryst. ($CHCl_3$/pentane). Mp 58-59°. $[\alpha]_D^{20}$ +46.1 (c, 1 in $CHCl_3$).
Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-5-deoxy-D-arabinitol. 2,3,4,5-Tetra*-O-*benzoyl-1-deoxy-D-lyxitol*
$C_{33}H_{28}O_8$ 552.579
Needles (EtOH aq.). Mp 106-107°. $[\alpha]_D^{20}$ +12 (c, 1 in $CHCl_3$).
1,2:3,4-Dibenzylidene: 1,2:3,4-Di-O-*benzylidene-5-deoxy-D-arabinitol*
$C_{19}H_{20}O_4$ 312.365
Needles (EtOH). Mp 143-146°. $[\alpha]_D^{20}$ -45.2 (c, 1.3 in $CHCl_3$).

DL-*form*
Bp_3 176°.
Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-5-deoxy-DL-arabinitol. 2,3,4,5-Tetra*-O-*acetyl-1-deoxy-DL-lyxitol*
$C_{13}H_{20}O_8$ 304.296
Cryst. (EtOH aq.). Mp 71°.
Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-5-deoxy-DL-arabinitol. 2,3,4,5-Tetra*-O-*benzoyl-1-deoxy-DL-lyxitol*
$C_{33}H_{28}O_8$ 552.579
Mp 119-120°.

Zissis, E. *et al., J.A.C.S.*, 1954, **76**, 5515-5522 (*synth*)
Takai, K. *et al., J.O.C.*, 1985, **50**, 3247-3251 (*synth*)
Wiesler, W.T. *et al., J.A.C.S.*, 1989, **111**, 9205-9213 (*cd, abs config*)
Andrews, M.A. *et al., J.O.C.*, 1989, **54**, 5257-5264 (*synth, pmr, cmr*)
Ishikawa, T. *et al., Chem. Pharm. Bull.*, 2001, **49**, 584-588 (*isol, pmr, cmr*)

5-Deoxyarabinose, 9CI, 8CI D-41

Arabomethylose
[16777-96-1]



β-D-Furanose-*form*

$C_5H_{10}O_4$ 134.132

D-*form* [67968-47-2]
2,3-Isopropylidene, di-Et acetal: 5-Deoxy-2,3-O-*isopropylidene-D-arabinose diethyl acetal*
[23362-26-7]
$C_{12}H_{24}O_5$ 248.319
$Bp_{0.02}$ 82-87°. $[\alpha]_D^{20}$ -30 (c, 1 in $CHCl_3$).
2,3-O-*Isopropylidene, di-Et acetal, 4-tosyl: 5-Deoxy-2,3*-O-*isopropylidene-4*-O-*tosyl-D-arabinose diethyl acetal*
[23362-27-8]
$C_{19}H_{30}O_7S$ 402.508
Cryst. (petrol). Mp 76.5°. $[\alpha]_D^{20}$ -5.6 (c, 1.5 in $CHCl_3$).
2,3-O-*Isopropylidene, di-Et mercaptal: 5-Deoxy-2,3*-O-*isopropylidene-D-arabinose diethyl dithioacetal*
[23362-25-6]
$C_{12}H_{24}O_3S_2$ 280.452
$Bp_{0.01}$ 134-138°. $[\alpha]_D^{20}$ +64.9 (c, 1 in $CHCl_3$).

β-D-Furanose-*form*
1,2-Isopropylidene: 5-Deoxy-1,2-O-*isopropylidene-β-D-arabinofuranoside*
[37105-87-6]
$C_8H_{14}O_4$ 174.196
Mp 83-84°. $[\alpha]_D^{23}$ -13.2 (c, 1.2 in $CHCl_3$).
1,2-Isopropylidene, 3-Ac: [37105-88-7]
$C_{10}H_{16}O_5$ 216.233
Syrup. $[\alpha]_D^{23}$ -12.9 (c, 3.1 in $CHCl_3$).

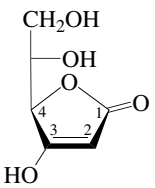
L-*form* [13039-56-0]
$[\alpha]_D^{25}$ -25.3 (c, 0.34 in EtOH).
Phenylhydrazone:
Solid. Mp 78-80°.
Benzylphenylhydrazone: Mp 96-97°.
$[\alpha]_D^{20}$ -6.5 (EtOH).
Phenylosazone:
Yellow needles (EtOH). Mp 172-173°.
$[\alpha]_D^{20}$ -30.5 → +16.4 (EtOH).
Di-Et mercaptal: 5-Deoxy-L-arabinose diethyl dithioacetal
$C_9H_{20}O_3S_2$ 240.387
Cryst. (C_6H_6). Mp 103.5-105.5°.
$[\alpha]_D^{26}$ +20.5 (c, 0.9 in MeOH).

β-L-Furanose-*form*
1,2-Isopropylidene: 5-Deoxy-1,2-O-*isopropylidene-β-L-arabinofuranoside*
[33156-02-4]
$C_8H_{14}O_4$ 174.196
Cryst. (Et_2O/petrol). Mp 78-80°.
$[\alpha]_D^{25}$ -12.6 (c, 0.18 in MeOH).
1,2-Isopropylidene, 3-mesyl: 5-Deoxy-1,2-O-*isopropylidene-3*-O-*mesyl-β-L-arabinofuranoside*
[87614-50-4]
$C_9H_{16}O_6S$ 252.288
Syrup. $[\alpha]_D^{20}$ +2 (c, 0.6 in $CHCl_3$).

Ruff, O. *et al., Ber.*, 1902, **35**, 2364
Green, B. *et al., Chem. Ber.*, 1966, **99**, 2162, (*L-form, deriv*)
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 469 (*D-form, deriv*)
Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1972, **55**, 1141 (*D-furanose deriv*)
Taylor, E.C. *et al., J.A.C.S.*, 1974, **96**, 6781; 1976, **98**, 2301 (*L-form*)
Kiss, J. *et al., Helv. Chim. Acta*, 1975, **58**, 311 (*synth, L-form*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1982, **1**, 213-227 (*β-L-fur 1,2-isopropylidene*)
Fleet, G.W.J. *et al., Tet. Lett.*, 1983, **24**, 3657, (*L-furanose deriv*)
Sengupta, D. *et al., Indian J. Chem., Sect. B*, 1986, **25**, 85 (*synth, D-form*)
Snyder, J.R. *et al., Carbohydr. Res.*, 1987, **163**, 169 (*synth, pmr, cmr*)
Fernandez, A.-M. *et al., J.O.C.*, 1996, **61**, 8698-8700 (*synth, pmr*)

2-Deoxyascorbic acid, 9CI D-42

2-Deoxy-threo-*hex-2-enono-1,4-lactone*



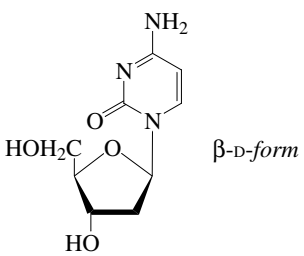
$C_6H_8O_5$ 160.126

L-*form* [182678-33-7]
Cryst. Mp 172-174°. $[\alpha]_D^{25}$ +38.8 (c, 0.25 in MeOH).

Ge, P. *et al., J.O.C.*, 1996, **61**, 8671-8673 (*synth, pmr, cmr*)

2′-Deoxycytidine, 9CI, 8CI D-43

Cytosine deoxyriboside. Cytosine deoxyribonucleoside



$C_9H_{13}N_3O_4$ 227.219

β-D-*form*
*1-(2-Deoxy-β-D-*erythro-*pentofuranosyl)-cytosine, 9CI*
[951-77-9]
Mp 207-210°. $[\alpha]_D$ +57.6 (H_2O).
► Exp. reprod. effects. HA3800000

Hydrochloride: [3992-42-5]

[25203-63-8] Mp 161-164°. $[\alpha]_D^{24}$ +54.3 (c, 6.4 in H_2O).

Picrate: Mp 188-192° dec.

3′-Phosphate: 2′-Deoxy-3′-cytidylic acid
[6220-63-9]
$C_9H_{14}N_3O_7P$ 307.199
Needles (EtOH aq.). Mp 196-197° dec. $[\alpha]_D^{17}$ +57 (c, 1.4 in H_2O).

5′-Phosphate: [1032-65-1]
$C_9H_{14}N_3O_7P$ 307.199
Mp 183-184° dec. $[\alpha]_D^{17}$ +38.5 (c, 1.2 in H_2O).

5′-Diphosphate: [800-73-7]
$C_9H_{15}N_3O_{10}P_2$ 387.179
Powder.

5′-Triphosphate: [2056-98-6]
$C_9H_{16}N_3O_{13}P_3$ 467.159
RNA polymerase inhibitor. λ_{max} 270 (H_2O).

*3′,4*N-*Di-Ac:* [70284-47-8]
$C_{13}H_{17}N_3O_6$ 311.294
Needles (H_2O). Mp 171°.

*4*N-*Benzoyl:* [4836-13-9]
$C_{16}H_{17}N_3O_5$ 331.327
Cryst. (EtOH). Mp 205-207°. $[\alpha]_D^{25}$ +82 (c, 0.6 in EtOH). λ_{max} 258 (ε 20500); 301 (ε 10900) (H_2O).

*3′,4*N-*Dibenzoyl:* [51549-49-6]
$C_{23}H_{21}N_3O_6$ 435.435
Plates (EtOH). Mp 222-224° dec. $[\alpha]_D^{25}$ +1 (c, 1.0 in DMF).

*4*N,*5′-Dibenzoyl:* [4803-92-3]
$C_{23}H_{21}N_3O_6$ 435.435
Cryst. (EtOH). Mp 145-147.5°. $[\alpha]_D^{25}$ +70 (c, 1.0 in DMF).

*3′,4*N,*5′-Tribenzoyl:* [31501-22-1]
$C_{30}H_{25}N_3O_7$ 539.543
Mp 185-186°.

5′-Tosyl: [27999-55-9]
$C_{16}H_{19}N_3O_6S$ 381.409
Amorph. solid. Mp 120-123°. $[\alpha]_D^{25}$ +70 (c, 1.0 in EtOH). λ_{max} 270 nm (ε 8 010) (MeOH).

*5′-Tosyl, 4*N-*benzoyl:*
$C_{23}H_{23}N_3O_7S$ 485.517
Needles (EtOH). Mp 149.5-151° dec. $[\alpha]_D^{25}$ +105 (c, 0.6 in EtOH).

5′-Trityl: [18531-20-9]
$C_{28}H_{27}N_3O_4$ 469.539
Needles (Me_2CO/MeOH). Mp 239°. $[\alpha]_D^{25}$ +56 (c, 1.0 in EtOH).

*5′-Trityl, 3′,4*N-*di-Ac:* [70284-43-4]
$C_{32}H_{31}N_3O_6$ 553.613
Needles (MeOH). Mp 196°.

*5′-Trityl, 3′,4*N-*dibenzoyl:*
$C_{42}H_{35}N_3O_6$ 677.755
Amorph. solid. Mp 113-115°. $[\alpha]_D^{25}$ +29 (c, 0.7 in EtOH).

*5′-(4,4′-Dimethoxytrityl), 4*N-*benzoyl:* [67219-55-0]
$C_{37}H_{35}N_3O_7$ 633.699
Intermed. for synth of oligonucleotides. Research tool for antiviral and anticancer studies. Mp 119°.

*3*N-*Me: 2′-Deoxy-3-methylcytidine, 9CI*
[5040-21-1]
$C_{10}H_{15}N_3O_4$ 241.246
Isol. from *Geodia barettii*. Cryst. (MeOH) (as hydrochloride).
Mp 160° (hydrochloride).

*4*N-*Me:* [22882-02-6]
$C_{10}H_{15}N_3O_4$ 241.246
Cryst. (EtOAc). Mp 160-162°.

*4*N-*(4-Methylphenyl):* [177949-56-3]
$C_{16}H_{19}N_3O_4$ 317.344
Cryst. (EtOAc). Mp 42-44°.

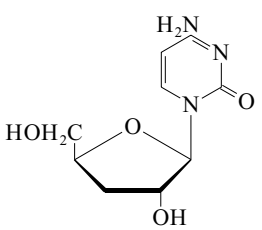
*4*N-*Et:* [70465-61-1]
$C_{11}H_{17}N_3O_4$ 255.273
Cryst. (EtOAc). Mp 58-60°.

β-L-*form Torcitabine, USAN. Epcitabine. NV 02C*
[40093-94-5] Polymerase inhibitor. Used in the treatment of hepatitis B infection. Cryst. (MeOH). $[\alpha]^{23}_D$ -57.2 (c, 2.0 in H_2O).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 832B; 838D; 839C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 396A; 396C (*nmr*)
Michelson, A.M. *et al., J.C.S.*, 1954, 34-40 (*phosphates, 3′,4N-di-Ac, 5′-trityl, 5′-trityl 3′,4N-di-Ac*)
Maley, F. *et al., J. Biol. Chem.*, 1958, **233**, 1538-1543 (*5-diphosphate*)
Fox, J.J. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 283-380 (*rev, derivs*)
Miles, H.T. *et al., J.A.C.S.*, 1963, **85**, 1007-1008 (*ir, pmr*)
Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3821-3827 (*5′-(4,4′-dimethoxytrityl) 4N-benzoyl*)
Ulbricht, T.L.V. *et al., J.C.S.*, 1965, 6134-6135 (*3*N-*Me*)
Benz, E. *et al., J.O.C.*, 1965, **30**, 3067-3071 (*4N-benzoyl, 5′-tosyl, 3′,4N-dibenzoyl, 4N,5′-dibenzoyl, 5′-tosyl 4N-benzoyl, 5′-trityl 3′,4N-dibenzoyl*)
Yang, J.T. *et al., CA*, 1966, **65**, 12454 (*ord*)
Jones, A.J. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 27-30; *CA*, **72**, 96682j (*cmr*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 4072-4087 (*L-form, synth*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497-508 (*pmr*)
Young, D.W. *et al., Acta Cryst. B*, 1975, **31**, 961-965 (*cryst struct*)
Stawinski, J. *et al., Chem. Comm.*, 1976, 243-244 (*3′,4N,5′-tribenzoyl*)
Saneyoshi, M. *et al., Nucleic Acids Res.*, 1981, **9**, 3129-3138 (*5′-triphosphate, synth, uv, biochem*)
Charubala, R. *et al., Synthesis*, 1984, 965-968 (*5′-(4,4′-dimethoxytrityl) 4N-benzoyl*)
Spadari, S. *et al., J. Med. Chem.*, 1992, **35**, 4214-4220 (*pharmacol, L-form, synth*)
Fujimori, S. *et al., Nucleosides Nucleotides*, 1992, **11**, 341-349 (*L-form, synth, activity*)
Saladino, R. *et al., Tetrahedron*, 1996, **52**, 6759-6780 (*4N-Me, 4N-Et, 4N-(4-methylphenyl), synth, pmr, cmr*)
Verri, A. *et al., Mol. Pharmacol.*, 1997, **51**, 132-138 (*L-form, pharmacol*)
Wang, Z. *et al., J.O.C.*, 2000, **65**, 5969-5985 (*synth, ir, pmr, cmr*)
Pat. Coop. Treaty (WIPO), 2000, 00 09 531, (*Novirio*); *CA*, **132**, 166457y (*L-form, synth, pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAQ850

3′-Deoxycytidine, 9CI D-44

[7057-33-2]

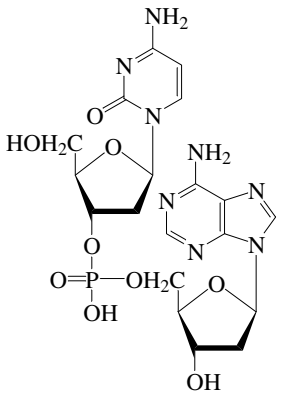


$C_9H_{13}N_3O_4$ 227.219
Cryst. (EtOH). Mp 230-232°. $[\alpha]_D^{23}$ +50 (c, 0.8 in H_2O).
► HA3830000

Walton, E. *et al., J.O.C.*, 1966, **31**, 1163 (*synth*)
Lin, T.-S. *et al., J. Med. Chem.*, 1991, **34**, 693 (*synth, uv, pmr*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1995, **43**, 2005 (*synth, uv, pmr*)
Miah, A. *et al., J.C.S. Perkin 1*, 1998, 3277-3283 (*synth, pmr, cmr*)
Wang, Z. *et al., J.O.C.*, 2000, **65**, 5969-5985 (*synth, ir, pmr, cmr*)

2′-Deoxycytidylyl-(3′ →5′)-2′-deoxyadenosine, 9CI, 8CI D-45

[4624-07-1]

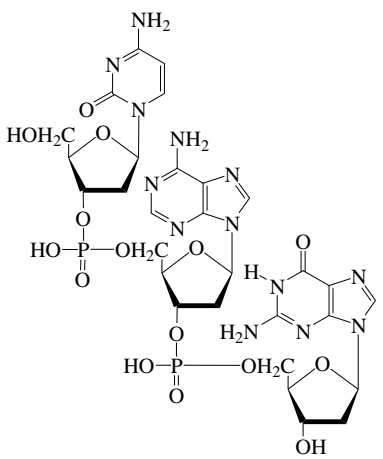


$C_{19}H_{25}N_8O_9P$ 540.429
No phys. props. reported.

Cheng, D.M. *et al., J.A.C.S.*, 1977, **99**, 7333-7348 (*pmr, P-31nmr, conformn*)
Seliger, H. *et al., Nucleosides Nucleotides*, 1985, **41**, 153-155 (*synth*)
Katti, S.B. *et al., Tet. Lett.*, 1985, **26**, 2547-2550 (*synth*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Bauer, C.J. *et al., J. Magn. Reson.*, 1990, **87**, 144-152 (*pmr*)

2′-Deoxycytidylyl-(3′ →5′)-2′-deoxyadenylyl-(3′ →5′)-2′-deoxyguanosine, 9CI D-46

d(CpApG). d(CAG)
[101985-79-9]

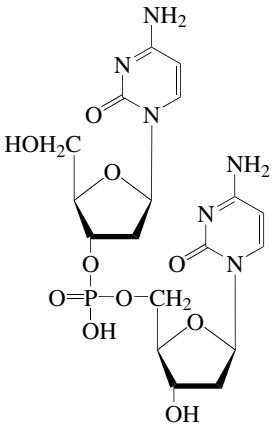


$C_{29}H_{37}N_{13}O_{15}P_2$ 869.637
DNA fragment, repeats of which occur in neurological diseases, e.g. Huntington's disease.

Nasir, J. *et al., Hum. Mol. Genet.*, 1996, **5**, 1431-1435 (*rev, Huntington's disease*)
Rosenberg, R.N. *et al., N. Engl. J. Med.*, 1996, **335**, 1222-1224 (*rev, neurological diseases*)

2′-Deoxycytidylyl-(3′ →5′)-2′-deoxycytidine, 9CI, 8CI D-47

[26467-01-6]

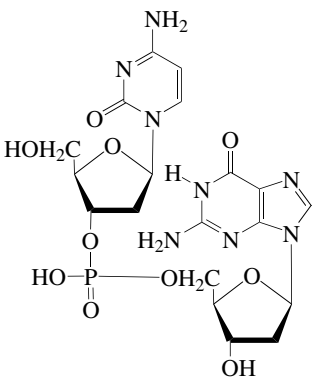


$C_{18}H_{25}N_6O_{10}P$ 516.404
No phys. props. reported. λ_{max} 271 (H_2O).

Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3828-3835 (*synth, uv*)
Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)

2′-Deoxycytidylyl-(3′ →5′)-2′-deoxyguanosine, 9CI D-48

d(CpG)
[15178-66-2]

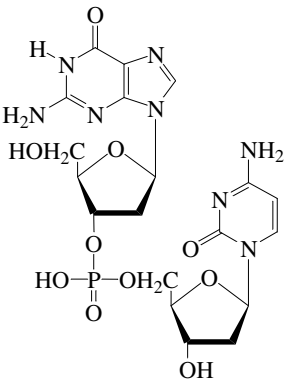


$C_{19}H_{25}N_8O_{10}P$ 556.428

Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3828-3835 (*synth*)
Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Uesugi, S. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3573-3585 (*synth, uv, pmr, cd*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Coll, M. *et al., J. Biomol. Struct. Dyn.*, 1987, **4**, 797-804 (*Na salt, cryst struct*)
Hashmi, S.A. *et al., Nucleosides Nucleotides*, 1994, **13**, 1059-1067 (*synth*)

2′-Deoxycytidylyl-(5′ →3′)-2′-deoxyguanosine, 9CI D-49

2′-Deoxyguanylyl-(3′ →5′)-2′-deoxycytosine. d(GpC)
[23405-83-6]

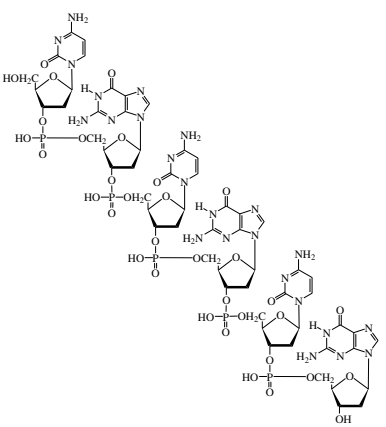


$C_{19}H_{25}N_8O_{10}P$ 556.428

Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3828-3835 (*synth*)
Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Letsinger, R.L. *et al., Tetrahedron*, 1984, **40**, 137-143 (*synth*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Foldesi, A. *et al., J. Biochem. Biophys. Methods*, 1993, **26**, 1-26 (*pmr*)

2′-Deoxycytidylyl-(3′ →5′)-2′-deoxyguanylyl-(3′ →5′)-2′-deoxycytidylyl-(3′ →5′)-2′-deoxyguanylyl-(3′ →5′)-2′-deoxycytidylyl-(3′ →5′)-2′-deoxyguanosine, 9CI D-50

d(CGCGCG). d(CG)$_3$
[58927-26-7]



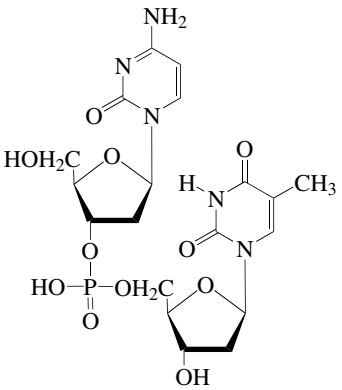
$C_{57}H_{73}N_{24}O_{34}P_5$ 1793.213

Wang, A.H.J. *et al., Nature (London)*, 1979, **282**, 680-686 (*cryst struct*)
Uesugi, S. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3573-3585 (*synth, uv, cd, pmr*)
Senior, M. *et al., Biochemistry*, 1988, **27**, 3879-3885 (*synth, uv, cd, pmr*)
Benevides, J.M. *et al., Biochemistry*, 1989, **28**, 304-310 (*synth, Raman, conformn*)

2′-Deoxycytidylyl-(3′ →5′)-thymidine, 9CI D-51

d(CpT)

[4829-64-5]



$C_{19}H_{26}N_5O_{11}P$ 531.415

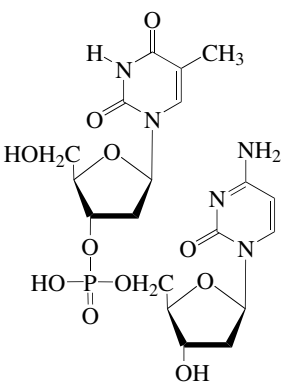
Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3828-3835 (*synth*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Chang, D.M. *et al., J.A.C.S.*, 1977, **99**, 7333-7348 (*pmr, conformn*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)

2′-Deoxycytidylyl-(5′ →3′)-thymidine, 9CI D-52

Thymidylyl-(3′ →5′)-2′-deoxycytidine.

d(TpC)

[5178-19-8]



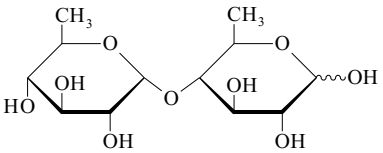
$C_{19}H_{26}N_5O_{11}P$ 531.415

Ohtsuka, E. *et al., J.A.C.S.*, 1965, **87**, 2956-2970 (*synth*)
Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Chang, D.M. *et al., J.A.C.S.*, 1977, **99**, 7333-7348 (*pmr, conformn*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)

6-Deoxy-4-*O*-(6-Deoxy-α-D-glucopyranosyl)-D-glucose, 9CI D-53

4-O-α-D-Quinovopyranosyl-D-quinovose. 6-Deoxy-D-glucobiose

[39669-45-9]



Pyranose–*form*

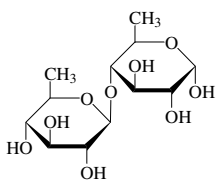
$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. Isol. from Asterosaponin A from starfish *Asterias amurensis*. Needles ($CHCl_3$/MeOH). Mp 192-193.8°. $[\alpha]_D^{25}$ +29.8 (5 min) → +6.4 (48h) (c, 0.05 in H_2O).

Ikegami, S. *et al., Agric. Biol. Chem.*, 1972, **36**, 1843; 2449 (*isol, ms*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 967-976 (*synth, pmr*)

6-Deoxy-4-*O*-(6-deoxy-β-D-glucopyranosyl)-D-glucose D-54

4-O-β-D-Quinovopyranosyl-D-quinovose



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Pyranose-*form*

Hexa-Ac:
$C_{24}H_{34}O_{15}$ 562.524
Mp 236.5-241°. $[\alpha]_D^{20}$ +55.6 (c, 0.88 in Me_2CO).

α-Pyranose-*form*

Ph glycoside, penta-Ac: [69848-46-0]
$C_{28}H_{36}O_{14}$ 596.584
Cryst. ($CHCl_3$/MeOH). Mp 259-261.5°. $[\alpha]_D^{20}$ +98 (c, 0.89 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside, penta-Ac: [69848-36-8]
$C_{23}H_{34}O_{14}$ 534.513
Mp 218-222°. $[\alpha]_D^{20}$ -31.1 (c, 0.85 in Me_2CO).

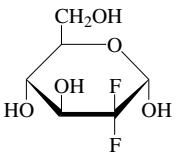
Benzyl glycoside, penta-Ac: [69873-80-9]
$C_{29}H_{38}O_{14}$ 610.611
Mp 235-238°. $[\alpha]_D^{20}$ -50.7 (c, 0.86 in $CHCl_3$).

[69848-45-9, 69848-98-2]

Thiem, J. *et al., Carbohydr. Res.*, 1979, **68**, 287 (*deriv, pmr*)

2-Deoxy-2,2-difluoro-*arabino*-hexose D-55

2-Deoxy-2,2-difluoroglucose. 2,2-Difluoroglucose



α-D-Pyranose-*form*

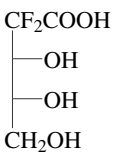
$C_6H_{10}F_2O_5$ 200.139

D-*form* [38440-80-1]
Mp 167-168°. $[\alpha]_D$ +29 (4 min) → +57.5 (equilib.) (H_2O).

Adamson, J. *et al., Carbohydr. Res.*, 1971, **18**, 345
El-Laghdach, A. *et al., Carbohydr. Res.*, 1992, **233**, C1 (***synth***)

2-Deoxy-2,2-difluoro-*erythro*-pentonic acid D-56

2,2-Difluoro-3,4,5-trihydroxypentanoic acid



$C_5H_8F_2O_5$ 186.112

D-*form*

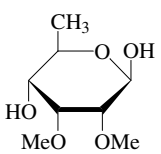
*1,4-Lactone, dibenzoyl: 3,5-Di-*O*-benzoyl-2-deoxy-2,2-difluoro-D-*erythro*-1,4-pentonolactone*
[122111-01-7]
$C_{19}H_{14}F_2O_6$ 376.313
Cryst. (CH_2Cl_2/heptane). Mp 119-120°. $[\alpha]_D^{25}$ +62 (c, 1 in EtOAc).

[122111-02-8]

Chou, T.S. *et al., Synthesis*, 1992, **6**, 565, (*1,4-lactone dibenzoyl, synth, pmr, cmr, ir, uv*)

6-Deoxy-2,3-di-*O*-methylallose D-57

Mycinose



β-D-Pyranose-*form*

$C_8H_{16}O_5$ 192.211

D-*form* [2457-91-2]
Sugar component of Angolamycin also isol. as the Me glycoside by methanolysis of Chalcomycin. Present in Tylosin. Mp 102-106°. $[\alpha]_D^{25}$ -46 → -29 (c, 1.56 in H_2O).

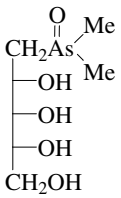
*Di-Ac: 1,4-Di-*O*-acetyl-6-deoxy-2,3-di-*O*-methyl-D-allose*
$C_{12}H_{20}O_7$ 276.286
Mp 73-75°. $Bp_{0.01}$ 70°.

β-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-2,3-di-O-methyl-β-D-allopyranoside. Methyl β-D-mycinoside
$C_9H_{18}O_5$ 206.238
Mp 88-88.5°. $[\alpha]_D^{27}$ -36 (c, 1.6 in $CHCl_3$).

Dion, H.W. *et al., J.A.C.S.*, 1962, **84**, 880, (*D-form, isol, β-D-Me pyr*)
Brufani, M. *et al., Helv. Chim. Acta*, 1966, **49**, 1962 (*D-form, isol, D-di-Ac*)
Martinsson, E. *et al., J. Chromatogr.*, 1970, **50**, 429 (*chromatog*)

1-Deoxy-1-(dimethylarsinoyl)-ribitol D-58

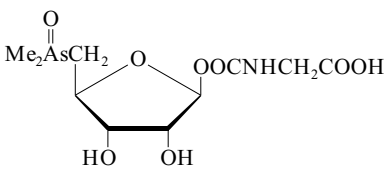


$C_7H_{17}AsO_5$ 256.13

5-O-Sulfate: [194858-47-4]
$C_7H_{17}AsO_8S$ 336.194
Isol. from *Chondria crassicaulis* and other red algae.

Edmonds, J.S. *et al., Tet. Lett.*, 1997, **38**, 5819 (*synth, struct*)

N-[[5-Deoxy-5-(dimethylarsinoyl)ribofuranosyl]oxycarbonyl] glycine D-59

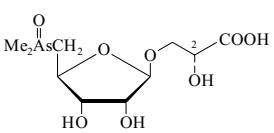


$C_{10}H_{18}AsNO_8$ 355.176

β-D-*form* [142732-39-6]
Constit. of the kidney of *Tridacna maxima*.

Francesconi, K.A. *et al., J.C.S. Perkin 1*, 1992, 1349 (*isol*)

3-[[5-Deoxy-5-(dimethylarsinoyl)ribofuranosyl]oxy]-2-hydroxypropanoic acid D-60



(2*R*)-β-D-*form*

$C_{10}H_{19}AsO_8$ 342.177

(2*R*)-β-D-*form* [142732-41-0]
Constit. of the kidney of *Tridacna maxima*.
Syrup (as NH_4 salt). $[\alpha]_D$ +6.2 (c, 4 in H_2O) (as NH_4 salt).

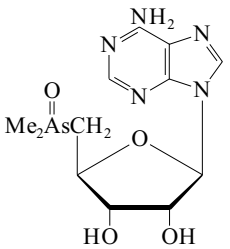
(2*S*)-β-D-*form* [142732-40-9]
Constit. of the kidney of *Tridacna maxima*.
Syrup (as NH_4 salt).

[142808-61-5, 142808-62-6]

Francesconi, K.A. *et al., J.C.S. Perkin 1*, 1992, 1349 (*isol, synth, pmr*)

5′-Deoxy-5′-(dimethylarsinyl)adenosine, 9CI D-61

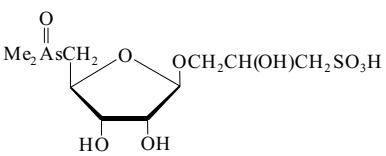
[137138-03-5]



$C_{12}H_{18}AsN_5O_4$ 371.227
Isol. from the kidney of the giant clam, *Tridacna maxima*.
$[\alpha]_D$ +54.2 (c, 3 in MeOH). λ_{max} 260 (ϵ 10000) (MeOH) (Derep).

Francesconi, K.A. *et al., Chem. Comm.*, 1991, 928 (*isol*)

3-[5-Deoxy-5-(dimethylarsinyl)ribofuranosyloxy]-2-hydroxy-1-propanesulfonic acid D-62



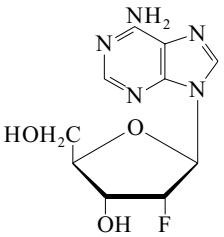
$C_{10}H_{21}AsO_9S$ 392.258

β-D-*form* [77939-92-5]
Isol. from brown kelp *Ecklonia radiata* and from the edible brown seaweeds *Sphaerotrichia divaricata*, *Laminaria japonica* and *Hizikia fusiforme*.
Syrup. Possible metab. in formn. of Arsenobetaine in marine fauna.

Edmonds, J.S. *et al., Nature (London)*, 1981, **289**, 602 (*isol, pmr, ir*)
Edmonds, J.S. *et al., J.C.S. Perkin 1*, 1983, 2375; 1987, 577 (*isol, pmr, ir, cmr, struct*)
Shibata, Y. *et al., Agric. Biol. Chem.*, 1987, **51**, 391 (*isol, pmr, hplc*)
Jin, K. *et al., Agric. Biol. Chem.*, 1988, **52**, 1965 (*isol, pmr*)
Francesconi, K.A. *et al., J.C.S. Perkin 1*, 1991, 2707; 1992, 1349 (*pmr, struct*)
Edmonds, J.S. *et al., Nat. Prod. Rep.*, 1993, **10**, 421 (*isol, rev*)

2′-Deoxy-2′-fluoroadenosine, 9CI D-63

2′-Fluoro-2′-deoxyadenosine
[64183-27-3]

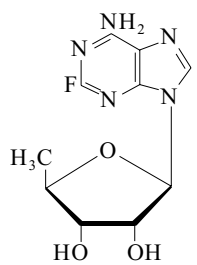


$C_{10}H_{12}FN_5O_3$ 269.235
Cryst. (EtOH). Mp 232-234°.

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2449-2453 (*synth, uv, cmr, pmr*)
Morishita, K. *et al., Acta Cryst. C*, 1984, **40**, 434-436 (*cryst struct*)
Pankiewicz, K.W. *et al., J.O.C.*, 1992, **57**, 553-559 (*synth*)
Kawasaki, A.M. *et al., J. Med. Chem.*, 1993, **36**, 831-841 (*synth, pmr, cmr*)

5′-Deoxy-2-fluoroadenosine, 9CI D-64

9-(5′-Deoxy-β-D-ribofuranosyl)-2-fluoroadenine
[37076-78-1]

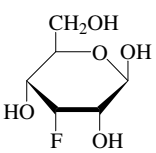


$C_{10}H_{12}FN_5O_3$ 269.235
Mp 258°. $[\alpha]_D^{20}$ -50 (c, 0.15 in EtOH). λ_{max} 262 (ϵ 15200) (0.1*M* NaOH). λ_{max} 264 (ϵ 14000) (0.1*M* HCl).

2′,3′-Di-Ac: [37076-76-9]
$C_{14}H_{16}FN_5O_5$ 353.309
Mp 208°.

Montgomery, J.A. *et al., J. Het. Chem.*, 1972, **9**, 445-446 (*synth*)
Srivastava, P.C. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1977, **4**, 93-100 (*synth*)

3-Deoxy-3-fluoroallose D-65



β-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

β-D-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-fluoro-β-D-allopyranoside
[87585-98-6]

$C_7H_{13}FO_5$ 196.175
Solid. Mp 124-125°.

Me glycoside, 6-pivaloyl: [87586-03-6]
Cryst. (Et_2O). Mp 104.5-106°. $[\alpha]_D$ -48.8 (c, 1.0 in $CHCl_3$).

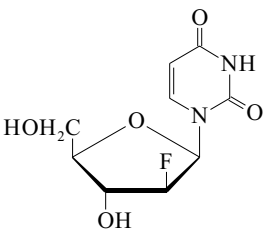
Me glycoside, 6-trityl: Methyl 3-deoxy-3-fluoro-6-O-trityl-β-D-allopyranoside
[87585-97-5]
$C_{26}H_{27}FO_5$ 438.495
Solid. Mp 84-86°.

Me glycoside, 4,6-O-isopropylidene: Methyl 3-deoxy-3-fluoro-4,6-O-isopropylidene-β-D-allopyranoside
[87585-99-7]
$C_{10}H_{17}FO_5$ 236.24
Solid (Et_2O/hexane). Mp 84.5-87.5°.

Card, P.J. *et al., J.O.C.*, 1983, **48**, 4734 (*Me gly deriv, pmr, F-19 nmr*)

1-(2-Deoxy-2-fluoro-β-D-arabinofuranosyl)uracil D-66

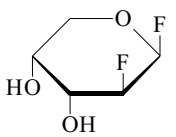
1-(2-Deoxy-2-fluoro-β-D-arabinofuranosyl)-2,4(1H,3H)-pyrimidinedione, 9CI
[69123-94-0]



$C_9H_{11}FN_2O_5$ 246.195
Cryst. (2-propanol/Et_2O). Mp 162° (156-157°).

Watanabe, K.A. *et al., J. Med. Chem.*, 1979, **22**, 21 (*synth*)
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr*)

2-Deoxy-2-fluoroarabinopyranosyl fluoride D-67



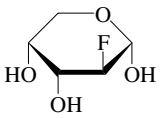
$C_5H_8F_2O_3$ 154.113

β-D-*form*

Di-Ac: [30591-80-1]
$C_9H_{12}F_2O_5$ 238.188
Cryst. (Et_2O/petrol). Mp 75-76°. $Bp_{0.5}$ 72-76° (bath). $[\alpha]_D^{22}$ -191.6 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{23}$ -176 (c, 0.4 in $CHCl_3$).

Dwek, R.A. *et al., Tet. Lett.*, 1970, 2987 (*synth*)
Albano, E.L. *et al., Carbohydr. Res.*, 1971, **19**, 63 (*di-Ac, pmr*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*di-Ac, pmr, F-19 nmr*)

2-Deoxy-2-fluoroarabinose, 8CI D-68



α-D-Pyranose-*form*

$C_5H_9FO_4$ 152.122

D-*form* [20187-75-1]
Syrup. $[\alpha]_D^{21}$ -72.4 (c, 1.0 in H_2O).

5-Benzyl: 5-O-Benzyl-2-deoxy-2-fluoro-D-arabinose
$C_{12}H_{15}FO_4$ 242.246
Syrup. $[\alpha]_D^{23}$ +37.2 (c, 0.6 in EtOH).

α-D-Pyranose-*form* [97549-81-0]
Syrup.

β-D-Pyranose-*form* [97549-79-6]
Syrup.

Tri-Ac: 1,3,4-Tri-O-acetyl-2-deoxy-2-fluoro-β-D-arabinopyranose
[89255-27-6]
$C_{11}H_{15}FO_7$ 278.234
Cryst. (MeOH). Mp 129-131°. $[\alpha]_D^{20}$ -189 (c, 0.4 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside: Methyl 2-deoxy-2-fluoro-α-D-arabinofuranoside
$C_6H_{11}FO_4$ 166.149
Syrup. $[\alpha]_D^{21}$ +141 (c, 0.7 in EtOH).

β-D-Furanose-*form* [125155-51-3]
Syrup.

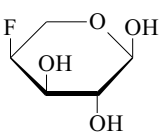
3-Benzyl, 1-Ac: 1-O-Acetyl-3-O-benzyl-2-deoxy-2-fluoro-β-D-arabinofuranose
[112289-58-4]
$C_{14}H_{17}FO_5$ 284.284
Syrup. $[\alpha]_D^{20}$ +14 (c, 0.9 in $CHCl_3$).

α-L-Furanose-*form*

1,3,5-Tribenzoyl: [171721-00-9]
$C_{26}H_{21}FO_7$ 464.446
Cryst. (EtOH aq.). Mp 77-78°.
$[\alpha]_D^{25}$ -4.82 (c, 0.51in $CHCl_3$).

Wright, J.A. *et al., J.O.C.*, 1969, **34**, 2632, (*D-form, synth, D-benzyl, α-D-Me fur*)
Albano, E.L. *et al., Carbohydr. Res.*, 1971, **19**, 63 (*D-form, synth*)
Adam, M.J. *et al., Carbohydr. Res.*, 1983, **124**, 215 (*β-D-pyr tri-Ac*)
Dax, K. *et al., Carbohydr. Res.*, 1987, **162**, 13 (*β-D-pyr tri-Ac, β-D-fur benzyl Ac*)
Ilicheva, I.A. *et al., Bioorg. Khim.*, 1989, **15**, 800; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 428 (*conformn*)
Bols, M. *et al., Acta Chem. Scand.*, 1990, **44**, 252 (*α-D-pyr, α-D-pyr tri-Ac, β-D-pyr, β-D-pyr tri-Ac*)
Ma, T. *et al., J. Med. Chem.*, 1996, **39**, 2835-2843 (*β-D-pyr tribenzoyl, synth, pmr*)

4-Deoxy-4-fluoroarabinose D-69



α–L–Pyranose–*form*

$C_5H_9FO_4$ 152.122

α-L-Pyranose-*form*

Me glycoside: Methyl 4-deoxy-4-fluoro-α-L-arabinopyranoside
[87586-13-8]
$C_6H_{11}FO_4$ 166.149
Solid ($CHCl_3$). Mp 139-141°. $[\alpha]_D$ +222.5 (c, 1.03 in H_2O).

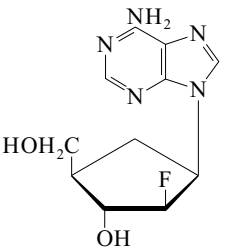
β-L-Pyranose-*form*

Me glycoside: Methyl 4-deoxy-4-fluoro-β-L-arabinopyranoside
[87586-14-9]
$C_6H_{11}FO_4$ 166.149
Solid ($CHCl_3$). Mp 120-122°.
$[\alpha]_D$ -5.2 (c, 1.0 in $CHCl_3$).

Card, P.J. *et al., J.O.C.*, 1983, **48**, 4734, (*α-L-Me pyr, β-L-Me pyr, cmr*)

2′-Deoxy-2′-fluoro-*ara*-aristeromycin D-70

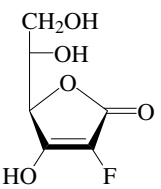
Carbocyclic 2′-ara-fluoroadenosine



$C_{11}H_{14}FN_5O_2$ 267.262
Powerful antiviral agent. Displays potent antiherpes activity *in vitro* and *in vivo*. Mp 109-113°. $[\alpha]_D^{22}$ +81 (H_2O).

Biggadike, K. *et al., Chem. Comm.*, 1988, 898 (*synth*)

2-Deoxy-2-fluoroascorbic acid, 9CI D-71



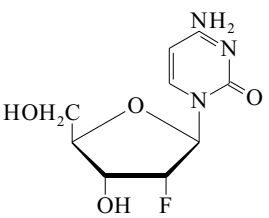
$C_6H_7FO_5$ 178.117

L-*form* [189262-91-7]
Light yellow oil.

Ge, P. *et al., J.O.C.*, 1997, **62**, 3340-3343 (*synth, pmr*)

2′-Deoxy-2′-fluorocytidine, 9CI D-72

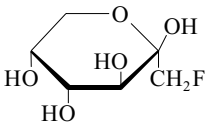
[10212-20-1]



$C_9H_{12}FN_3O_4$ 245.21
Needles (H_2O). Mp 171-173°. $[\alpha]_D^{26}$ +87 (c, 0.1 in H_2O).

Doerr, I.L. *et al., J.O.C.*, 1967, **32**, 1462 (*synth, uv*)
Kawasaki, A.M. *et al., J. Med. Chem.*, 1993, **36**, 831 (*synth, pmr, cmr*)

1-Deoxy-1-fluorofructose D-73



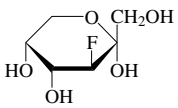
$C_6H_{11}FO_5$ 182.148

D-*form*
Sucrose synthatase will couple the sugar with UDP-glucose to give 1-fluorosucrose. $[\alpha]_D$ -93.1 (c, 1.23 in H_2O).

2,3:4,5-Di-O-*isopropropylidene: 1-Deoxy-1-fluoro-2,3:4,5-di*-O-*isopropylidene-D-fructose*
$C_{12}H_{19}FO_5$ 262.277
$Bp_{0.1}$ 85-95°. $[\alpha]_D$ -19.2 (c, 0.63 in $CHCl_3$).

Card, P.J. *et al., J.A.C.S.*, 1984, **106**, 5348

3-Deoxy-3-fluorofructose D-74



α-D-Pyranose-*form*

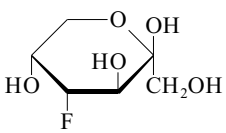
$C_6H_{11}FO_5$ 182.148

D-*form* [110925-86-5]
Syrup or cryst. (MeOH/EtOAc/pentane). Mp 101-103°. $[\alpha]_D^{20}$ -55.4 (c, 0.26 in MeOH). Crystallised only after standing for several months.

1-Benzyl: 1-O-*Benzyl-3-deoxy-3-fluoro-D-fructose*
[141407-07-0]
$C_{13}H_{17}FO_5$ 272.273
Syrup. $[\alpha]_D^{20}$ -19.5 (c, 0.2 in EtOH).

Bols, M. *et al., Carbohydr. Res.*, 1994, **253**, 195 (*synth, pmr, cmr, F-19 nmr*)

4-Deoxy-4-fluorofructose D-75



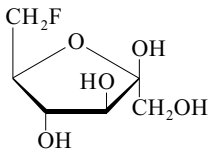
$C_6H_{11}FO_5$ 182.148

β-D-Pyranose-*form* [90301-24-9]
Cryst. (EtOH). Mp 123-126°. $[\alpha]_D$ -116 (c, 0.45 in H_2O).

[99281-37-5]

Budesinsky, M. *et al., Coll. Czech. Chem. Comm.*, 1984, **49**, 267 (*synth, pmr, cmr*)

6-Deoxy-6-fluorofructose D-76



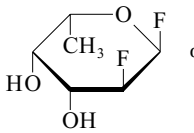
$C_6H_{11}FO_5$ 182.148

β-D-Furanose-*form* [99281-35-3]
Syrup.

2,3-O-*Isopropylidene, 1-tosyl: 6-Deoxy-6-fluoro-2,3*-O-*isopropylidene-1*-O-*tosyl-β-D-fructofuranose*
[83031-99-6]
$C_{16}H_{21}FO_7S$ 376.402
Cryst. (MeOH). Mp 124-125°. $[\alpha]_D^{25}$ +15.5 ($CHCl_3$).

Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 1003 (*isopropyliene, pmr*)
Card, P.J. *et al., J.A.C.S.*, 1986, **108**, 158 (*β-D-fur*)

2-Deoxy-2-fluorofucopyranosyl fluoride D-77



α-L-*form*

$C_6H_{10}F_2O_3$ 168.14

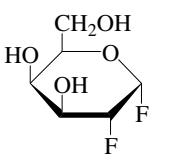
α-L-*form* [84449-12-7]
Cryst. (Et_2O/petrol). Mp 120° dec. $[\alpha]_D^{22}$ -135 (c, 1.0 in MeOH).

Di-Ac: [74554-10-2]
$C_{10}H_{14}F_2O_5$ 252.214
Cryst. Mp 46.5-49° (46°). $[\alpha]_D^{22}$ -187.6 (c, 0.5 in $CHCl_3$) (-182).

β-L-*form*
Di-Ac: [84449-11-6]
Cryst. (Et_2O/petrol). Mp 85-86°. $[\alpha]_D^{22}$ -110 (c, 0.1 in $CHCl_3$).

Butchard, C.G. *et al., Tet. Lett.*, 1979, **35**, 2551 (*di-Ac*)
Korytnyk, W. *et al., Tetrahedron*, 1982, **38**, 2547 (*synth, pmr, F-19 nmr*)

2-Deoxy-2-fluorogalactopyranosyl fluoride D-78



α-D-*form*

$C_6H_{10}F_2O_4$ 184.139

α-D-*form*
Cryst. (Et_2O, 2-propanol). Mp 163°. $[\alpha]_D^{22}$ +105 (c, 1.0 in MeOH).

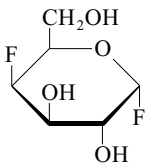
Tri-Ac: [28876-43-9]
$C_{12}H_{16}F_2O_7$ 310.251
Cryst. (Et_2O/petrol). Mp 71-72° (68-70°). $[\alpha]_D$ +148.5 (c, 1.0 in $CHCl_3$).

β-D-*form*

Tri-Ac: [75414-44-7]
Needles (Et_2O/petrol). Mp 79.5-80°. $[\alpha]_D^{22}$ +84.5 (c, 1.0 in $CHCl_3$).

Adamson, J. *et al., Carbohydr. Res.*, 1970, **13**, 314; 1972, **22**, 257 (*tri-Ac, pmr*)
Dwek, R.A. *et al., Tet. Lett.*, 1970, 2987 (*tri-Ac, F-19 nmr*)
Korytnyk, W. *et al., Tetrahedron*, 1982, **38**, 2547 (*synth, pmr*)
Diksic, M. *et al., J. Carbohydr. Chem.*, 1985, **4**, 265 (*synth, F-19 nmr*)

4-Deoxy-4-fluorogalactopyranosyl fluoride D-79



α-D-*form*

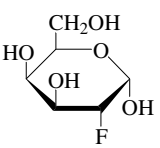
$C_6H_{10}F_2O_4$ 184.139

α-D-*form*
Tri-Ac: [40010-23-9]
$C_{12}H_{16}F_2O_7$ 310.251
Cryst. (Et_2O/petrol). Mp 92-93°. $[\alpha]_D$ +112 (c, 1.0 in $CHCl_3$).

β-D-*form*
Tri-Ac: [40010-24-0]
Cryst. (Et_2O/petrol). Mp 88-89°. $[\alpha]_D$ +11 (c, 1.0 in $CHCl_3$).

Foster, A.B. *et al., Carbohydr. Res.*, 1972, **25**, 228 (*tri-Ac, pmr*)

2-Deoxy-2-fluorogalactose D-80



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148
The ^{18}F labelled form is used in cancer imaging diagnosis.

D-*form* [238418-53-6]

[51146-53-3]
Powder (EtOH/EtOAc). Mp 131°.

α-D-Pyranose-*form* [98856-44-1]

Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-deoxy-2-fluoro-α-D-galactopyranose*
[83697-45-4]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (EtOH). Mp 126-127°. $[\alpha]_D^{24}$ +150 (c, 1 in $CHCl_3$).

1-(Dihydrogen phosphate): [118759-95-8]

[303069-93-4]
$C_6H_{12}FO_8P$ 262.128
Characterised by pmr.

Trifluoromethyl glycoside, 3,4,6-tri-Ac: Trifluoromethyl 3,4,6-tri-O-*acetyl-2-deoxy-2-fluoro-α-D-galactopyranoside*
[28876-42-8]
$C_{13}H_{16}F_4O_8$ 376.258
Solid (petrol). Mp 67-68°.

β-D-Pyranose-*form* [28876-44-0]
Solid (EtOAc/MeOH). Mp 131-135°. $[\alpha]_D$ +78.5 (5 min) → +92 (c, 2.3 in H_2O) (equilib).

Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-deoxy-2-fluoro-β-D-galactopyranose*
[35526-14-8]
$C_{14}H_{19}FO_9$ 350.297
Solid (Et_2O/petrol). Mp 141-143°. $[\alpha]_D$ +47.6 (c, 1.5 in $CHCl_3$).

Me glycoside: Methyl 2-deoxy-2-fluoro-β-D-galactopyranoside
[79698-13-8]
$C_7H_{13}FO_5$ 196.175
Cryst. Mp 151-152°. $[\alpha]_D^{20}$ +43 (c, 2.5 in H_2O).

Me glycoside, 3,4,6-tri-Ac: Methyl 3,4,6-tri-O-*acetyl-2-deoxy-2-fluoro-β-D-galactopyranoside*
[89387-92-8]
$C_{13}H_{19}FO_8$ 322.287
Solid (EtOH/diisopropyl ether). Mp 113-114°. $[\alpha]_D^{25}$ +27.8 (c, 1.04 in $CHCl_3$).

α-D-Furanose-*form*

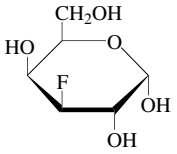
Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-deoxy-2-fluoro-α-D-galactofuranose*
[356533-55-6]
$C_{14}H_{11}FO_9$ 342.234
Characterised spectroscopically.

β-D-Furanose-*form*

Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-deoxy-2-fluoro-β-D-galactofuranose*
[356533-69-2]
$C_{14}H_{19}FO_9$ 350.297
Characterised spectroscopically.

Adamson, J. *et al., Carbohydr. Res.*, 1972, **22**, 257-264 (*β-D-form, synth, pmr, F-19 nmr, tetra-Ac, α-D-trifluoromethyl glycoside, tri-Ac*)
Ittah, Y. *et al., Carbohydr. Res.*, 1981, **95**, 189-194 (*β-D-Me glycoside, synth, pmr, F-19 nmr, ms*)
Adam, M.J. *et al., Carbohydr. Res.*, 1983, **124**, 215-224 (*α-D-tetra-Ac, synth, pmr, F-19 nmr, ms*)
Kovac, P. *et al., J. Carbohydr. Chem.*, 1983, **2**, 313-327 (*β-D-Me glycoside, β-D-Me glycoside tri-Ac, synth, cmr*)
Diksic, M. *et al., Carbohydr. Res.*, 1986, **153**, 17-24 (*synth, F-19 nmr*)
Tada, M. *et al., Carbohydr. Res.*, 1987, **161**, 314-317 (*synth, pmr, α-D-tetra-Ac*)
Kanazawa, Y. *et al., Chem. Pharm. Bull.*, 1988, **36**, 4213-4216 (*1-phosphate, synth, biosynth, metab, F-19 nmr*)
Srikrishnan, T. *et al., J. Carbohydr. Chem.*, 1988, **7**, 571-581 (*β-D-pyr tetra-Ac, cryst struct*)
Oberdorfer, F. *et al., J. Labelled Compd. Radiopharm.*, 1988, **25**, 465-481 (*synth, hplc, pmr, F-19 nmr*)
Hayashi, T. *et al., Bioorg. Med. Chem.*, 1997, **5**, 497-500 (*synth, pmr, ms, 1-phosphate*)
Albert, M. *et al., Tetrahedron*, 1998, **54**, 4839-4848 (*Me glycoside tri-Ac, synth, pmr, cmr, F-19 nmr*)
Burkart, M.D. *et al., Bioorg. Med. Chem.*, 2000, **8**, 1937-1946 (*1-phosphate, synth, pmr*)
Zhang, Q. *et al., J.A.C.S.*, 2001, **123**, 6756-6766 (*furanose-form, tetra-Ac, synth, pmr, cmr, F-19 nmr, ms*)

3-Deoxy-3-fluorogalactose, 9CI D-81



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-*form* [52904-86-6]
Solid (EtOAc/EtOH). Mp 114-116°. $[\alpha]_D^{25}$ +87 → +76 (c, 0.5 in H_2O).

α-D-Pyranose-*form*

Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3-deoxy-3-fluoro-α-D-galactopyranose*
[22434-92-0]
$C_{14}H_{19}FO_9$ 350.297
Mp 97-99°. $[\alpha]_D^{25}$ +126 (c, 1.1 in $CHCl_3$).

Tetrabenzoyl: 1,2,4,6-Tetra-O-*benzoyl-3-deoxy-3-fluoro-α-D-galactopyranose*
[100740-80-5]
$C_{34}H_{27}FO_9$ 598.58
Solid (CH_2Cl_2/MeOH). Mp 158-158.5°. $[\alpha]_D$ +122 (c, 0.7 in $CHCl_3$).

Me glycoside: Methyl 3-deoxy-3-fluoro-α-D-galactopyranoside
[31001-22-6]
$C_7H_{13}FO_5$ 196.175
Solid (EtOH). Mp 185-186°. $[\alpha]_D$ +184 (c, 1 in H_2O). $[\alpha]_D$ +174 (c, 1 in MeOH).

β-D-Pyranose-*form*

Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3-deoxy-3-fluoro-β-D-galactopyranose*
[22434-91-9]
$C_{14}H_{19}FO_9$ 350.297
Solid (EtOH/petrol). Mp 126-127°. $[\alpha]_D$ +35 (c, 0.8 in $CHCl_3$).

Tetrabenzoyl: 1,2,4,6-Tetra-O-*benzoyl-3-deoxy-3-fluoro-β-D-galactopyranose*
$C_{34}H_{27}FO_9$ 598.58
Solid (CH_2Cl_2/MeOH). Mp 211-212°. $[\alpha]_D$ +27 (c, 2.2 in $CHCl_3$).

α-D-Furanose-*form*

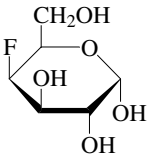
1,2:4,6-Diisopropylidene: 3-Deoxy-3-fluoro-1,2:4,6-di-O-*isopropylidene-α-D-galactofuranose*
[22435-76-3]
$C_{12}H_{19}FO_5$ 262.278
(Et_2O/petrol). Mp 48-49° (47-50°). $[\alpha]_D^{25}$ -30 (c, 1 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside: Methyl 3-deoxy-3-fluoro-β-D-galactofuranoside
[160529-96-4]
$C_7H_{13}FO_5$ 196.175
Solid (EtOH). Mp 108-109°. $[\alpha]_D$ -84.5 (c, 1.2 in H_2O).

Brimacombe, J.S. *et al., Can. J. Chem.*, 1970, **48**, 3946-3952 (*D-form*)
Kovac, P. *et al., Carbohydr. Res.*, 1983, **123**, 326-331 (*diisopropylidene*)
Mulard, L.A. *et al., Carbohydr. Res.*, 1994, **259**, 21-34 (*Me gly*)

4-Deoxy-4-fluorogalactose D-82



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-*form* [40010-20-6]
Cryst. (MeOH/EtOAc). Mp 148-149.5°. $[\alpha]_D$ +104 → +68 (equilib.) (c, 1.32 in H_2O). α:β anomeric ratio =1:2.

Tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-4-deoxy-4-fluoro-D-galactopyranoside*
$C_{14}H_{19}FO_9$ 350.297
Oil. $[\alpha]_D$ +85.6 (c, 0.5 in $CHCl_3$). α:β anomeric ratio 5:1.

α-D-Pyranose-*form* [32934-09-1]

Me glycoside: Methyl 4-deoxy-4-fluoro-α-D-galactopyranoside
[32934-07-9]
$C_7H_{13}FO_5$ 196.175
Cryst. (MeOH/EtOAc). Mp 99-101° Mp 120-122.5°. $[\alpha]_D$ +148 (c, 1 in MeOH).

Me glycoside, tri-Ac: Methyl 2,3,6-tri-O-*acetyl-4-deoxy-4-fluoro-α-D-galactopyranoside*
[32934-08-0]
$C_{13}H_{19}FO_8$ 322.287
Cryst. (EtOH/petrol). Mp 91-92° (EtOH/petrol). $[\alpha]_D$ +150 (c, 1.2 in $CHCl_3$).

1-Bromo-1-deoxy, tri-Ac: 2,3,6-Tri-O-*acetyl-4-deoxy-4-fluoro-α-D-galactopyranosyl bromide*
[148123-78-8]
$C_{12}H_{16}BrFO_7$ 371.157
Oil. $[\alpha]_D$ +214.3 (c, 0.5 in $CHCl_3$).

β-D-Pyranose-*form* [32934-10-4]

Tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-4-deoxy-4-fluoro-β-D-galactopyranoside*
[40010-21-7]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (EtOH/petrol). Mp 119-121°. $[\alpha]_D$ +28.

Me glycoside: Methyl 4-deoxy-4-fluoro-β-D-galactopyranoside
[51385-54-7]
$C_7H_{13}FO_5$ 196.175
Cryst. (EtOAc/EtOH). Mp 155-156°. $[\alpha]_D$ -21.3 (c, 1 in H_2O).

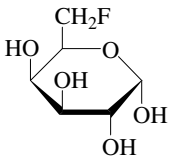
Me glycoside, tri-Ac: Methyl 2,3,6-tri-O-*acetyl-4-deoxy-4-fluoro-β-D-galactopyranoside*
[51996-37-3]
$C_{13}H_{19}FO_8$ 322.287
Cryst. (EtOH). Mp 95-97°. $[\alpha]_D$ -6.2 (c, 1.7 in $CHCl_3$).

Me glycoside, tribenzoyl: Methyl 2,3,6-tri-O-*benzoyl-4-deoxy-4-fluoro-β-D-galactopyranoside*
[51996-36-2]
$C_{28}H_{25}FO_8$ 508.499
Cryst. (MeOH). Mp 134-135°. $[\alpha]_D$ +63.2 (c, 2 in $CHCl_3$).

[40010-22-8]

Marcus, D.M. *et al., Carbohydr. Res.*, 1971, **17**, 269 (*D-form synth, α-D-Me pyr tri-Ac*)
Maradufu, A. *et al., Carbohydr. Res.*, 1974, **32**, 261-277 (*β-D-Me pyr, β-D-Me pyr tri-Ac, β-D-Me pyr tribenzoyl*)
Wray, V. *et al., J.C.S. Perkin 2*, 1976, 1598 (*cmr*)
Card, P.J. *et al., J.O.C.*, 1983, **48**, 4734 (*α-D-Me pyr, α-D-Me pyr tri-Ac*)
Koch, K. *et al., Carbohydr. Res.*, 1993, **241**, 295 (*D-form, **synth, derivs***)
Mulard, L.A. *et al., **Carbohydr. Res.**, **1994, 259***, 21 (*Me gly*)

6-Deoxy-6-fluorogalactose D-83



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-*form* [4536-07-6]

[18961-68-7]

2,5-Dichlorophenylhydrazone:
Cryst. (MeOH aq.). Mp 182°.

α-D-Pyranose-*form* [143616-86-8]

[18961-68-7]
Needles (EtOH/Et_2O). Mp 160°. $[\alpha]_D^{20}$ +135 → +76.5 (c, 1 in H_2O).

1-Phosphate: 6-Deoxy-6-fluoro-α-D-galactopyranose 1-(dihydrogen phosphate)
[35521-87-0]
$C_6H_{12}FO_8P$ 262.128
Solid (EtOH aq., as di-K salt). $[\alpha]_D^{18}$ +81 (c, 0.2 in H_2O).

Di-O-isopropylidene: 6-Deoxy-6-fluoro-1,2:3,4-di-O-isopropylidene-α-D-galactopyranose
[2021-97-8]
$C_{12}H_{19}FO_5$ 262.277
Syrup. $Bp_{0.001}$ 100-120°. $[\alpha]_D^{25}$ -48.3 (conc. not reported, solvent assumed to be $CHCl_3$).

Me glycoside: Methyl 6-deoxy-6-fluoro-α-D-galactopyranoside, 8CI
[4536-13-4]
$C_7H_{13}FO_5$ 196.175
Needles (Me_2CO/Et_2O). Mp 139°. $[\alpha]_D^{20}$ +194 (c, 0.1 in H_2O).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-acetyl-6-deoxy-6-fluoro-α-D-galactopyranoside
[33941-73-0]
$C_{13}H_{19}FO_8$ 322.287
Mp 74°. $[\alpha]_D^{20}$ +152 (c, 1.0 in $CHCl_3$).

Me glycoside, trimesyl: Methyl 6-deoxy-6-fluoro-2,3,4-tri-O-mesyl-α-D-galactopyranoside
$C_{10}H_{19}FO_{11}S_3$ 430.45
Needles (EtOH). Mp 185°.

1-Bromo-1-deoxy, tri-Ac: 2,3,4-Tri-O-acetyl-6-deoxy-6-fluoro-α-D-galactopyranosyl bromide
[35521-86-9]
$C_{12}H_{16}BrFO_7$ 371.157
Cryst. ($CHCl_3$/petrol). Mp 145-146°. $[\alpha]_D^{20}$ +231 (c, 1.8 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-6-fluoro-β-D-galactopyranoside, 9CI
[35521-88-1]
$C_7H_{13}FO_5$ 196.175
Cryst. (Me_2CO/Et_2O). Mp 117-118°. $[\alpha]_D^{21}$ -1.3 (c, 0.9 in H_2O). Error in CAS name in many indexes.

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-acetyl-6-deoxy-6-fluoro-β-D-galactopyranoside
[35521-89-2]
$C_{13}H_{19}FO_8$ 322.287
Cryst. (Et_2O/petrol). Mp 108°. $[\alpha]_D^{22}$ -11 (c, 0.5 in $CHCl_3$). Error in CAS name in 9CI.

L-*form* [68539-73-1]
Cryst. (MeOH/Et_2O). Mp 163-164°. $[\alpha]_D^{22}$ -76.5 (c, 0.2 in H_2O).

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-6-fluoro-L-galactopyranose

[357611-48-4]
$C_{14}H_{19}FO_9$ 350.297
Syrup. Obt. as mixt. of pyranose anomers.

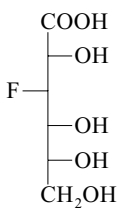
α-L-Pyranose-*form*

Di-O-isopropylidene: 6-Deoxy-6-fluoro-1,2:3,4-di-O-isopropylidene-α-L-galactopyranose
[70981-54-3]
$C_{12}H_{19}FO_5$ 262.277
Syrup. $[\alpha]^{25}{}_D$ +44.7 (c, 1.0 in $CHCl_3$).

[63503-07-1, 118396-36-4, 357611-48-4]

Taylor, N.F. *et al., J.C.S.*, 1958, 872 (*α-D-Me gly, α-D-Me gly trimesyl*)
Petrov, K.A. *et al., Zh. Obshch. Khim.*, 1964, **34**, 1459 (*D-isopropylidene*)
Barnett, J.E.G. *et al., Biochem. J.*, 1968, **109**, 61 (*biochem, pharmacol*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*nmr*)
Kent, P.W. *et al., Carbohydr. Res.*, 1972, **22**, 193 (*α- and β-Me tri-Ac, β-Me gly, bromodeoxy tri-Ac*)
May, J.A. *et al., J. Med. Chem.*, 1979, **22**, 971 (*L-isopropylidene*)
Colonna, S. *et al., J.C.S. Perkin 1*, 1979, 2248 (*α-D-isopropylidene, D-diisopropylidene*)
Sufrin, J.R. *et al., J. Med. Chem.*, 1980, **23**, 143 (*L-form*)
Penglis, A.A.E. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **38**, 195 (*nmr, ms, rev*)
Kováč, P. *et al., J. Carbohydr. Chem.*, 1983, **2**, 313-327 (*Me β-D-gly, synth, cmr*)
Abraham, R.J. *et al., Carbohydr. Res.*, 1992, **226**, C1 (*pmr, conformn*)
Brackhagen, M. *et al., J. Carbohydr. Chem.*, 2001, **20**, 31-43 (*L-form tetra-Ac*)

3-Deoxy-3-fluorogluconic acid D-84



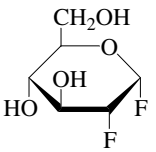
$C_6H_{11}FO_6$ 198.148

D-*form* [29724-55-8]
Cryst. (1,4-dioxan/Et_2O). Mp 119°. $[\alpha]_D^{21}$ -6 (c, 1.0 in H_2O).

Ca salt (2:1): [28846-15-3]
Mp 198-200° dec.

Taylor, N.F. *et al., Carbohydr. Res.*, 1972, **22**, 467

2-Deoxy-2-fluoroglucopyranosyl fluoride D-85



α-D-*form*

$C_6H_{10}F_2O_4$ 184.139

α-D-*form* [75414-45-8]
Syrup. $[\alpha]_D^{20}$ +91.7 (c, 2.0 in MeOH).

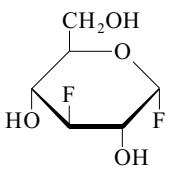
Tri-Ac: [24679-90-1]
$C_{12}H_{16}F_2O_7$ 310.251
Cryst. (Et_2O/petrol). Mp 91-92° (69-70°). $[\alpha]_D^{20}$ +135 (c, 1.0 in $CHCl_3$).

β-D-*form* [103960-04-9]

Tri-Ac: [29069-93-0]
Cryst. (Et_2O/petrol). Mp 104-105° (99-101°). $[\alpha]_D^{20}$ +82 (c, 1.0 in $CDCl_3$) (+75).

Adamson, J. *et al., Carbohydr. Res.*, 1970, **15**, 351 (*α-tri-Ac, pmr*)
Hall, L.D. *et al., Can. J. Chem.*, 1971, **49**, 118 (*β-tri-Ac, F-19 nmr, pmr*)
Ido, T. *et al., J.O.C.*, 1977, **42**, 2341 (*α-tri-Ac, pmr*)
Korytnyk, W. *et al., Tetrahedron*, 1982, **38**, 2547 (*synth, α-form*)
Diksic, M. *et al., J. Carbohydr. Chem.*, 1985, **4**, 265 (*synth, F-19 nmr*)
Withers, S.G. *et al., J. Biol. Chem.*, 1988, **263**, 7929 (*F-19 nmr*)

3-Deoxy-3-fluoroglucopyranosyl fluoride D-86



α−D−*form*

$C_6H_{10}F_2O_4$ 184.139

α-D-*form*
Cryst. (MeCN). Mp 232° dec. $[\alpha]_D^{22}$ +99.8 (c, 2.0 in MeOH).

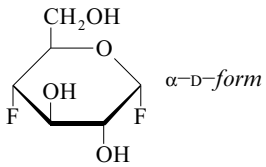
Tri-Ac: [31505-09-6]
$C_{12}H_{16}F_2O_7$ 310.251
Syrup. $Bp_{0.1}$ 155-165° (bath). $[\alpha]_D^{23}$ +76 (c, 1.0 in $CHCl_3$).

β-D-*form*

Tri-Ac: [31505-10-9]
Cryst. (EtOH/petrol). Mp 79.5-80°. $[\alpha]_D^{25}$ +6 (c, 1.0 in $CHCl_3$).

Hall, L.D. *et al., Can. J. Chem.*, 1971, **49**, 236 (*tri-Ac, pmr, F-19 nmr*)
Klemm, G.H. *et al., Tet. Lett.*, 1982, 2927, (*tri-Ac, pmr*)

4-Deoxy-4-fluoroglucopyranosyl fluoride D-87



α-D-*form*

$C_6H_{10}F_2O_4$ 184.139

α-D-*form*

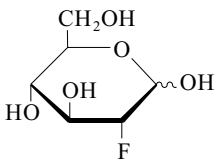
Tri-Ac: [33557-16-3]
$C_{12}H_{16}F_2O_7$ 310.251
Syrup. $Bp_{0.15}$ 145-155° (bath). $[\alpha]_D$ +54 (c, 1.0 in $CHCl_3$).

β-D-*form*

Tri-Ac: [33557-17-4]
Cryst. (Et_2O/petrol). $[\alpha]_D$ -26 (c, 1.0 in $CHCl_3$).

Barford, A.D. *et al., Carbohydr. Res.*, 1971, **19**, 49 (*tri-Ac, pmr, F-19 nmr*)

2-Deoxy-2-fluoroglucose, 9CI D-88



$C_6H_{11}FO_5$ 182.148
Bp 8.02°. ^{18}F labelled compd. is used as a diagnostic aid (Fludeoxyglucose F 18, INN, USAN).

D-*form* [29702-43-0] Inhibitor of the fowl plague virus in chicken embryo cells. Mp 180-181° (170-176°). $[\alpha]_D$ +37 → +62 (H_2O).

α-D-*form*

1,3,4,6-Tetra-Ac: [38711-38-5]
$C_{14}H_{19}FO_9$ 350.297
Mp 78-79°. $[\alpha]_D^{24}$ +146 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-deoxy-2-fluoro-β-D-glucopyranoside*
[39110-57-1]
$C_{13}H_{19}FO_8$ 322.287
Mp 128-129°.

*Me glycoside, 4,6-*O*-benzylidene, 3-Me:*
$C_{15}H_{19}FO_5$ 298.31
Mp 108°.

*Me glycoside, 4,6-*O*-benzylidene, 3-benzyl:*
$C_{21}H_{23}FO_5$ 374.408
Mp 155-158°. $[\alpha]_D$ -45.6 (c, 0.55 in $CHCl_3$).

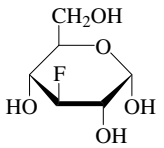
Benzyl glycoside, 3,4,6-tribenzyl:
$C_{34}H_{35}FO_5$ 542.646
$[\alpha]_D^{22}$ -13 (c, 0.85 in $CHCl_3$).

[63503-12-8, 86783-82-6, 105851-17-0]

Adamson, J. *et al., Chem. Comm.*, 1969, 309 (*synth, pmr*)
Pacak, J. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 2589
Schmidt, M.F.G. *et al., J. Virol.*, 1976, **18**, 819 (*biochem*)
Levy, S. *et al., Chem. Comm.*, 1982, 972, (*β-glycoside*)
Adam, M.J. *et al., Carbohydr. Res.*, 1983, **124**, 215 (*tetra-Ac*)
Tewson, T.J. *et al., J.O.C.*, 1983, **48**, 3507 (*synth, glycoside tri-Ac*)
Dessinges, A. *et al., Carbohydr. Res.*, 1984, **126**, C6 (*synth*)
Haradahira, T. *et al., Chem. Pharm. Bull.*, 1985, **33**, 165 (*synth*)
Kovač, P. *et al., Carbohydr. Res.*, 1986, **153**, 168 (***synth, cmr***)
Doboszewski, B. *et al., Can. J. Chem.*, 1987, **65**, 412

3-Deoxy-3-fluoroglucose, 9CI, 8CI D-89

3FG



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-*form* [14049-03-7]
Cryst. (EtOH). Mp 114-115°. $[\alpha]_D^{25}$ +66 (c, 0.7 in H_2O). Approx. equimolar amounts of α- and β-anomers.

2,4-Dichlorophenylhydrazone:
Cryst. (EtOAc/petrol). Mp 135°.

*6-Benzoyl: 6-*O*-Benzoyl-3-deoxy-3-fluoro-D-glucose*
[56632-75-8]
$C_{13}H_{15}FO_6$ 286.256
$[\alpha]_D^{27}$ +40 (c, 0.9 in EtOH).

α-D-Pyranose-*form* [31001-27-1]

*1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-deoxy-3-fluoro-α-D-glucopyranose*
[20409-32-9]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (C_6H_6/petrol). Mp 109-111°. $[\alpha]_D^{25}$ +88 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form* [31001-26-0]

*1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-deoxy-3-fluoro-β-D-glucopyranose*
$C_{14}H_{19}FO_9$ 350.297
Cryst. (C_6H_6/petrol). Mp 119-120°. $[\alpha]_D^{20}$ -12 (c, 0.9 in $CHCl_3$).

Benzyl glycoside: Benzyl 3-deoxy-3-fluoro-β-D-glucopyranoside
[33941-77-4]
$C_{13}H_{17}FO_5$ 272.273
Mp 95°. $[\alpha]_D^{20}$ -58 (c, 1.0 in MeOH).

*Benzyl glycoside, 2,4,6-tri-Ac: Benzyl 2,4,6-tri-*O*-acetyl-3-deoxy-3-fluoro-β-D-glucopyranoside*
$C_{19}H_{23}FO_8$ 398.384
Cryst. (MeOH aq.). Mp 104°. $[\alpha]_D^{19}$ -62 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-3-fluoro-β-D-glucopyranoside*
$C_{14}H_{17}FO_5$ 284.284
Cryst. (EtOH/petrol). Mp 176-177°. $[\alpha]_D^{25}$ -48 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-3-deoxy-3-fluoro-β-D-glucopyranoside*
$C_{16}H_{19}FO_6$ 326.321
Mp 137-138°. $[\alpha]_D^{25}$ -57 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*

*1,2-*O*-Cyclohexylidene: 1,2-*O*-Cyclohexylidene-3-deoxy-3-fluoro-α-D-glucofuranose*
$C_{12}H_{19}FO_5$ 262.277
Cryst. (EtOH/petrol). Mp 121-122°. $[\alpha]_D^{25}$ -12 (c, 0.7 in $CHCl_3$).

*1,2-*O*-Isopropylidene: 3-Deoxy-3-fluoro-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_9H_{15}FO_5$ 222.213
Cryst. (toluene/petrol). Mp 50-52°. $Bp_{0.4}$ 124-126°. $[\alpha]_D$ -18 (c, 0.8 in $CHCl_3$).

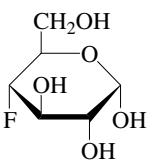
*1,2-*O*-Isopropylidene, 6-benzoyl: 6-*O*-Benzoyl-3-deoxy-3-fluoro-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{16}H_{19}FO_6$ 326.321
Cryst. (EtOH). Mp 132-133°. $[\alpha]_D^{27}$ -7.8 (c, 0.6 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene: 3-Deoxy-3-fluoro-1,2:5,6-di-*O*-isopropylidene-α-D-glucofuranose*
$C_{12}H_{19}FO_5$ 262.277
$Bp_{0.03}$ 66-70°. $[\alpha]_D^{30}$ -22 (c, 1.0 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 5,6-carbonate: 3-Deoxy-3-fluoro-1,2-*O*-isopropylidene-α-D-glucofuranose 5,6-carbonate*
$C_{10}H_{13}FO_6$ 248.207
Cryst. (EtOH/petrol). Mp 84-85°. $[\alpha]_D^{25}$ -27 (c, 1.0 in $CHCl_3$).

Foster, A.B. *et al., Carbohydr. Res.*, 1967, **5**, 292 (*D-form, synth, β-D-pyr tetra-Ac, α-D-fur cyclohexylidene, α-D-fur isopropylidene, derivs*)
Foster, A.B. *et al., Can. J. Chem.*, 1970, **48**, 3937 (*D-form, α-D-tetra-Ac, β-D-Me pyr benzylidene, β-D-Me pyr benzylidene Ac, nmr*)
White, F.H. *et al., FEBS Lett.*, 1970, **11**, 268 (*metab*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*F-19 nmr*)
Taylor, N.F. *et al., Carbohydr. Res.*, 1972, **22**, 467 (*D-form, synth, D-dichlorophenylhydrazone*)
Wright, J.A. *et al., Carbohydr. Res.*, 1974, **32**, 366 (*β-D-benzyl pyr, β-D-benzyl pyr tri-Ac*)
Reichman, U. *et al., Carbohydr. Res.*, 1975, **42**, 233 (*D-benzoyl, α-D-fur isopropylidene, α-D-fur isopropylidene benzoyl, α-D-fur diisopropylidene*)

4-Deoxy-4-fluoroglucose, 9CI D-90



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-*form* [29218-07-3]
Cryst. (EtOH/petrol). Mp 187-189°. $[\alpha]_D$ +26 → +49 (c, 1.0 in H_2O).

α-D-Pyranose-*form*

*Me glycoside, tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-4-deoxy-4-fluoro-α-D-glucopyranoside*
$C_{28}H_{31}FO_5$ 466.548
$[\alpha]_D$ +18.8 (c, 3.5 in $CHCl_3$).

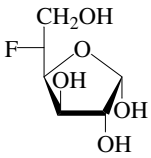
β-D-Pyranose-*form*

Tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-4-deoxy-4-fluoro-β-D-glucopyranose*
$C_{14}H_{19}FO_9$ 350.297
Cryst. (EtOH). Mp 127-129°.
$[\alpha]_D$ -32 (c, 0.5 in $CHCl_3$).

Me glycoside: Methyl 4-deoxy-4-fluoro-β-D-glucopyranoside
$C_7H_{13}FO_5$ 196.175
Cryst. (MeOH/EtOAc). $[\alpha]_D$ -47 (c, 0.9 in H_2O).

Barford, A.D. *et al., Carbohydr. Res.*, 1969, **11**, 287; 1970, **13**, 189 (*synth, pmr*)
Bessel, E.M. *et al., Biochem. J.*, 1972, **128**, 199 (*biochem*)
Doboszewski, B. *et al., Can. J. Chem.*, 1987, **65**, 412 (*Me pyr, pmr, cmr, F-19 nmr*)
Abraham, R.J. *et al., Carbohydr. Res.*, 1992, **226**, C1 (*pmr, conformn*)
Petrakova, E. *et al., J. Carbohydr. Chem.*, 1992, **11**, 407-412 (*Me β-D-gly*)
Hoffmann, M. *et al., J.A.C.S.*, 2001, **123**, 2308-2316 (*conformn*)

5-Deoxy-5-fluoroglucose D-91



α-D-Furanose-*form*

$C_6H_{11}FO_5$ 182.148

D-Furanose-*form*

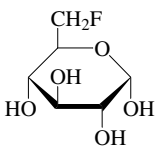
[103357-83-1, 103357-85-3]
Syrup. Mixt. of anomers.

α-D-Furanose-*form*

*1,2-Isopropylidene: 5-Deoxy-5-fluoro-1,2-*O-*isopropylidene-α-D-glucofuranose*
[103357-82-0]
$C_9H_{15}FO_5$ 222.213
Mp 108-110°. $[\alpha]_D^{20}$ -6.5 (c, 1 in Me_2CO).

Albert, R. *et al., J. Carbohydr. Chem.*, 1985, **4**, 513-520 (*D-fur, 1,2-isopropylidene*)

6-Deoxy-6-fluoroglucose, 9CI D-92



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-form [4536-08-7]
Cryst. (EtOAc/EtOH). Mp 155° (152°).
$[\alpha]_D$ +92 → +47 (H_2O, equilib.).

α-D-Pyranose-*form* [62182-12-1]

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-6-deoxy-6-fluoro-α-D-glucopyranose*
[35816-31-0]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (C_6H_6/petrol). Mp 128-129°. $[\alpha]_D^{30}$ +107 (c, 1.0 in $CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-6-deoxy-6-fluoro-α-D-glucopyranose*
[118266-71-0]
$C_{34}H_{27}FO_9$ 598.58
Mp 154-155°. $[\alpha]_D$ +132.5.

Me glycoside: Methyl 6-deoxy-6-fluoro-α-D-glucopyranoside, 9CI, 8CI
[4577-39-3]
$C_7H_{13}FO_5$ 196.175
($CHCl_3$/petrol). Mp 109-110° (103-105°). $[\alpha]_D^{21}$ +43 (c, 1.8 in H_2O). $[\alpha]_D^{30}$ +167 (H_2O).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-acetyl-6-deoxy-6-fluoro-α-D-glucopyranoside
[33557-24-3]
$C_{13}H_{19}FO_8$ 322.287
Syrup. $[\alpha]_D^{30}$ +113 ($CHCl_3$).

*Me glycoside, 2,3,4-tribenzoyl: Methyl 2,3,4-tri-*O-*benzoyl-6-deoxy-6-fluoro-α-D-glucopyranoside*
[118266-73-2]
$C_{28}H_{25}FO_8$ 508.499
Mp 145-146°. $[\alpha]_D$ +52.7.

Ph glycoside: Phenyl 6-deoxy-6-fluoro-α-D-glucopyranoside
[87638-52-6]
$C_{12}H_{15}FO_5$ 258.246
Mp 169.5-171°. $[\alpha]_D$ +191.7 (c, 1.01 in EtOH).

1-Fluoro-1-deoxy: 6-Deoxy-6-fluoro-α-D-glucopyranosyl fluoride, 8CI
[33557-33-4]
$C_6H_{10}F_2O_4$ 184.139
Cryst. (EtOAc). Mp 130-131°. $[\alpha]_D^{30}$ +95 (c, 1.0 in H_2O).

*1-Fluoro-1-deoxy, tri-Ac: 2,3,4-Tri-*O-*acetyl-6-deoxy-6-fluoro-α-D-glucopyranosyl fluoride*
[33557-30-1]
$C_{12}H_{16}F_2O_7$ 310.251
Cryst. (Et_2O/petrol). Mp 106-106.5°. $[\alpha]_D^{30}$ +106 ($CHCl_3$).

β-D-Pyranose-*form* [62182-13-2]

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-6-deoxy-6-fluoro-β-D-glucopyranose*
[33557-29-8]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (C_6H_6/petrol). Mp 123-124°. $[\alpha]_D^{30}$ +21.5 (c, 1 in $CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-*benzoyl-6-deoxy-6-fluoro-β-D-glucopyranose*
[118272-29-0]
$C_{34}H_{27}FO_9$ 598.58
Mp 184-186°. $[\alpha]_D$ -16.5.

Me glycoside: Methyl 6-deoxy-6-fluoro-β-D-glucopyranoside
[87585-93-1]
$C_7H_{13}FO_5$ 196.175
Mp 125-127°. $[\alpha]_D$ +35.4 (c, 1 in EtOH).

Ph glycoside: Phenyl 6-deoxy-6-fluoro-β-D-glucopyranoside
[67010-02-0]
$C_{12}H_{15}FO_5$ 258.246
Solid ($CHCl_3$). Mp 143-145°. $[\alpha]_D$ -62.3 (c, 1.02 in EtOH).

1-Fluoro-1-deoxy: 6-Deoxy-6-fluoro-β-D-glucopyranosyl fluoride, 8CI
[33557-34-5]
$C_6H_{10}F_2O_4$ 184.139
Cryst. (EtOAc). Mp 139-140° dec. $[\alpha]_D^{30}$ +20 (c, 1.0 in MeOH).

*1-Fluoro-1-deoxy, tri-Ac: 2,3,4-Tri-*O-*acetyl-6-deoxy-6-fluoro-β-D-glucopyranosyl fluoride*
[33557-31-2]
$C_{12}H_{16}F_2O_7$ 310.251
Cryst. (C_6H_6/petrol). Mp 141-142°. $[\alpha]_D^{30}$ +20 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*

*Di-*O-*methylene: 6-Deoxy-6-fluoro-1,2:3,5-di-*O-*methylene-α-D-glucofuranose, 9CI*
[32448-02-5]
$C_8H_{11}FO_5$ 206.17
Cryst. ($EtOH/Et_2O$). Mp 58°. $[\alpha]_D^{25}$ +33 (c, 5.8 in $CHCl_3$). $[\alpha]_D$ +56 (c, 1.0 in $CHCl_3$).

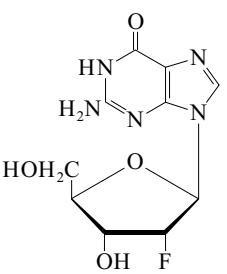
*1,2-*O-*Isopropylidene: 6-Deoxy-6-fluoro-1,2-*O-*isopropylidene-α-D-glucofuranose*
[87586-05-8]
$C_9H_{15}FO_5$ 222.213
Syrup. $Bp_{0.03}$ 149-155°. $[\alpha]_D$ -9.8 (c, 1.02 in $CHCl_3$).

*1,2-*O-*Isopropylidene, 3,5-*O-*benzylidene: 3,5-*O-*Benzylidene-6-deoxy-6-fluoro-1,2-*O-*isopropylidene-α-D-glucofuranose*
[391-24-2]
$C_{16}H_{19}FO_5$ 310.321
Cryst. (MeOH). Mp 104-105°. $[\alpha]_D^{20}$ +32.4 (c, 1.9 in MeOH).

Helferich, B. *et al., Ber.*, 1941, **74**, 1035 (*D-form*)
Taylor, N.F. *et al., J.C.S.*, 1958, 872 (*3,5-*O-*benzylidene, α-Me pyr*)
Bessell, E.M. *et al., Carbohydr. Res.*, 1971, **19**, 39 (*D-form, α-Me pyr, α-tetra-Ac, β-tetra-Ac, fluoride derivs*)
Phillips, L. *et al., J.C.S.(B)*, 1971, 1618 (*nmr*)
Evelyn, L. *et al., Carbohydr. Res.*, 1976, **47**, 285 (*nmr, di-*O-*methylene*)
Wray, V. *et al., J.C.S. Perkin 2*, 1976, 1598 (*cmr*)
Srivastava, H.C. *et al., Carbohydr. Res.*, 1978, **60**, 210 (*di-*O-*methylene*)
Penglis, A.A.E. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **38**, 195 (*rev*)
Card, P.J. *et al., J.O.C.*, 1983, **48**, 393 (*synth, α-Me pyr*)
Kovac, P. *et al., J. Coord. Chem.*, 1988, **7**, 317 (*benzoyl derivs*)
Abraham, R.J. *et al., Carbohydr. Res.*, 1992, **226**, C1 (*pmr, conformn*)

2′-Deoxy-2′-fluoroguanosine, 9CI D-93

[78842-13-4]

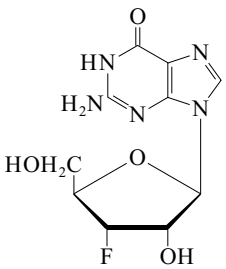


$C_{10}H_{12}FN_5O_4$ 285.234
Needles (H_2O). Mp 240° dec.

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3281 (*synth, uv, pmr, cmr*)
Kawasaki, A.M. *et al., J. Med. Chem.*, 1993, **36**, 831 (*synth, pmr, cmr*)

3′-Deoxy-3′-fluoroguanosine, 9CI D-94

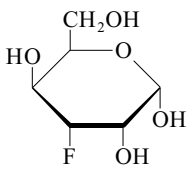
9-(3-Deoxy-3-fluoro-β-D-ribofuranosyl)-guanine
[123402-21-1]



$C_{10}H_{12}FN_5O_4$ 285.234
Potent antiviral agent. Cryst. (H_2O). Mp 275-277°.

Puech, F. *et al., Chem. Comm.*, 1989, 955 (*synth, use*)

3-Deoxy-3-fluorogulose D-95



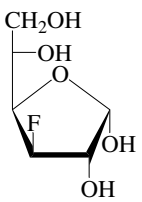
$C_6H_{11}FO_5$ 182.148

α-D-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-fluoro-α-D-gulopyranoside, 9CI
[32587-58-9]
$C_7H_{13}FO_5$ 196.175
Cryst. Mp 123°. $[\alpha]_D^{28}$ +146 (c, 0.3 in MeOH).

Kent, P.W. *et al., Biochem. J.*, 1971, **121**, 10P (*Me gly*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*Me gly, pmr, F-19 nmr*)

3-Deoxy-3-fluoroidose D-96



β-L-Furanose-*form*

$C_6H_{11}FO_5$ 182.148

L-*form* [35520-88-8]
Syrup. $[\alpha]_D$ -21 (H_2O).

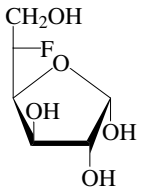
β-L-Furanose-*form*

1,2-O-Isopropylidene: 3-Deoxy-3-fluoro-1,2-O-isopropylidene-β-L-idofuranose
[35520-87-7]
$C_9H_{15}FO_5$ 222.213
Cryst. (Et_2O/hexane). Mp 105-106°.

1,2-O-Isopropylidene, 6-benzoyl: 6-O-Benzoyl-3-deoxy-3-fluoro-1,2-O-isopropylidene-β-L-idofuranose
[35521-30-3]
$C_{16}H_{19}FO_6$ 326.321
Cryst. (Et_2O/hexane). Mp 111-112°. $[\alpha]_D$ -8.5 (c, 1.0 in $CHCl_3$).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1972, **21**, 297 (*derivs, pmr, F-19 nmr*)

5-Deoxy-5-fluoroidose D-97



β-L-Furanose-*form*

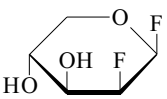
$C_6H_{11}FO_5$ 182.148

L-*form*
Syrup. Consists of a mixt. of α- (47%) and β- (53%) anomers.

β-L-*form* [103357-80-8]
1,2-O-Isopropylidene: 5-Deoxy-5-fluoro-1,2-O-isopropylidene-β-L-idofuranose
[103357-79-5]
$C_9H_{15}FO_5$ 222.213
Cryst. Mp 104-106°. $[\alpha]_D^{20}$ -21.5 (c, 1.0 in Me_2CO).

Albert, R. *et al., J. Carbohydr. Chem.*, 1985, **4**, 513 (*synth, L-form, β-L-pyr isopropylidene, pmr*)

2-Deoxy-2-fluorolyxopyranosyl fluoride D-98



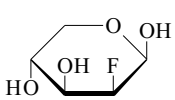
$C_5H_8F_2O_3$ 154.113

β-D-*form* [34050-69-6]
Cryst. (EtOH/Et_2O). Mp 114°. $[\alpha]_D^{24}$ -142 (c, 0.22 in EtOH).

Di-Ac: [30591-78-7]
$C_9H_{12}F_2O_5$ 238.188
Cryst. Mp 109-111°. $[\alpha]_D^{25}$ -114 (c, 0.5 in $CHCl_3$).

Butchard, C.G. *et al., Tetrahedron*, 1971, **27**, 3457 (*synth, pmr*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*di-Ac, pmr, F-19 nmr*)

2-Deoxy-2-fluorolyxose D-99



β−D−Pyranose−*form*

$C_5H_9FO_4$ 152.122

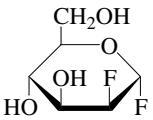
D-Pyranose-*form* [33983-50-5]
Cryst. (EtOH). Mp 124-126°. $[\alpha]_D^{24}$ -11.5 (c, 0.56 in H_2O).

β-D-Pyranose-*form*

Trifluoromethyl glycoside, di-Ac:
[30591-79-8]
$C_{10}H_{12}F_4O_6$ 304.195
Syrup. $[\alpha]_D^{24}$ -120 (c, 0.4 in $CHCl_3$).

Butchard, C.G. *et al., Tetrahedron*, 1971, **27**, 3457 (*synth, pmr, F-19 nmr*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*deriv, pmr, F-19 nmr*)

2-Deoxy-2-fluoromannopyranosyl fluoride D-100



α-D-*form*

$C_6H_{10}F_2O_4$ 184.139

α-D-*form*

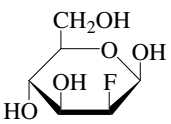
Tri-Ac: [29209-98-1]
$C_{12}H_{16}F_2O_7$ 310.251
Cryst. (Et_2O/petrol). Mp 89-90°. $[\alpha]_D^{25}$ +27 ($CHCl_3$).

β-D-*form*

Tri-Ac: [24679-92-3]
Mp 114-115° (109-111°). $[\alpha]_D$ -2.5 ($CHCl_3$).

Hall, L.D. *et al., Can. J. Chem.*, 1971, **49**, 118 (*α-tri-Ac, pmr, F-19 nmr*)
Ido, T. *et al., J.O.C.*, 1977, **42**, 2341 (*β-tri-Ac, pmr*)
Korytnyk, W. *et al., Tetrahedron*, 1982, **38**, 2547 (*β-tri-Ac*)
Diksic, M. *et al., J. Carbohydr. Chem.*, 1985, **4**, 265 (*synth, F-19 nmr*)
Withers, S.G. *et al., Can. J. Chem.*, 1986, **64**, 232 (*synth, conformn, pmr, cryst struct*)

2-Deoxy-2-fluoromannose D-101



β-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

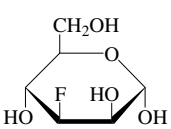
D-*form*
$[\alpha]_D$ +27.7 (H_2O).

β-D-Pyranose-*form*

Tetrabenzyl: 1,3,4,6-Tetra-O-benzyl-2-deoxy-2-fluoro-β-D-mannopyranoside
$C_{34}H_{35}FO_5$ 542.646
Cryst. (diisopropyl ether). Mp 70.5-71°. $[\alpha]_D^{25}$ -48.4 ($CHCl_3$).

Ogaura, T. *et al., J. Carbohydr. Chem.*, 1983, **2**, 461-467 (*D-form, β-D-pyr tetrabenzyl*)

3-Deoxy-3-fluoromannose D-102



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

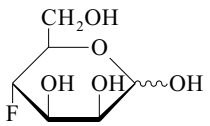
D-*form* [87764-46-3]
Needles (EtOH). Mp 173-175°. $[\alpha]_D$ +32 → +23 (c, 1.4 in H_2O).

*Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-deoxy-3-fluoro-D-mannose*
[88198-26-9]
$C_{14}H_{19}FO_9$ 350.297
Cryst. Mp 116-117°. $[\alpha]_D$ +22 (c, 1.4 in $CHCl_3$).

[86258-31-3, 86334-54-5]

Rasmussen, J.R. *et al., Carbohydr. Res.*, 1983, **116**, 21 (*synth, cmr*)
Cerny, M. *et al., Coll. Czech. Chem. Comm.*, 1983, **48**, 2693 (*synth, tetra-Ac, pmr, F-19 nmr*)

4-Deoxy-4-fluoromannose D-103



$C_6H_{11}FO_5$ 182.148

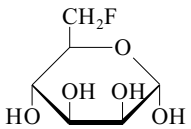
D-*form* [87764-47-4]
Syrup. $[\alpha]_D^{20}$ +3.7 (c, 3.5 in H_2O).

[86258-32-4, 86258-33-5]

Rasmussen, J.R. *et al., Carbohydr. Res.*, 1983, **116**, 21 (*synth, cmr*)
McDowell, W. *et al., Biochem. J.*, 1987, **248**, 523 (*use*)

6-Deoxy-6-fluoromannose D-104

6-Fluororhamnose



$C_6H_{11}FO_5$ 182.148

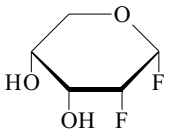
α-D-Pyranose-*form*
Me glycoside: Methyl 6-deoxy-6-fluoro-α-D-mannopyranoside
[87586-10-5]
$C_7H_{13}FO_5$ 196.175
Solid. Mp 112-114°.

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 6-deoxy-6-fluoro-2,3-*O*-isopropylidene-α-D-mannopyranoside*
[87586-08-1]
$C_{10}H_{17}FO_5$ 236.24
Syrup. $Bp_{0.01}$ 150-155°.

*Me glycoside, 2,3-di-Me: Methyl 6-deoxy-6-fluoro-2,3-di-*O*-methyl-α-D-mannopyranoside*
[87586-07-0]
$C_9H_{17}FO_5$ 224.229
Syrup.

Card, P.J. *et al., J.O.C.*, 1983, **48**, 4734 (*α-D-Me pyr derivs, pmr, cmr*)

2-Deoxy-2-fluororibopyranosyl fluoride D-105

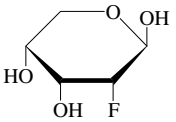


$C_5H_8F_2O_3$ 154.113

α-D-*form*
Di-Ac: [33557-18-5]
$C_9H_{12}F_2O_5$ 238.188
Cryst. Mp 87-88°. $[\alpha]_D^{22}$ +82.8 (c, 0.9 in $CHCl_3$).

Albano, E.L. *et al., Carbohydr. Res.*, 1971, **19**, 63 (*di-Ac, pmr, F-19 nmr*)

2-Deoxy-2-fluororibose D-106



β-D-Pyranose-*form*

$C_5H_9FO_4$ 152.122

D-*form* [79681-18-8]
Fern-like cryst. Mp 106-112°. $[\alpha]_D^{24}$ -37 (H_2O).

D-Pyranose-*form* [33557-20-9]
*Me glycoside, dibenzoyl: Methyl 3,4-di-*O*-benzoyl-2-deoxy-2-fluoro-D-ribopyranoside*
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D^{24}$ -156 (c, 0.4 in $CHCl_3$).

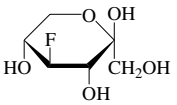
β-D-Pyranose-*form*
*Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-2-deoxy-2-fluoro-β-D-ribopyranose*
[7226-34-8]
$C_{26}H_{21}FO_7$ 464.446
Cryst. Mp 112-116° Mp 144-147° (dimorph.). $[\alpha]_D^{25}$ -146 (c, 0.1 in $CHCl_3$).

D-Furanose-*form*
Me glycoside: Methyl 2-deoxy-2-fluoro-D-ribofuranoside
$C_6H_{11}FO_4$ 166.149
Cryst. (EtOAc/petrol). Mp 81-83°.

*Me glycoside, dibenzoyl: Methyl 3,4-di-*O*-benzoyl-2-deoxy-2-fluoro-D-ribofuranoside*
$C_{20}H_{19}FO_6$ 374.365
Needles (EtOH). Mp 86-88°.

Codington, J.F. *et al., Carbohydr. Res.*, 1966, **1**, 455; 1967, **5**, 31 (*D-form, D-fur Me gly, D-fur Me gly dibenzoyl, β-D-pyr tribenzoyl, synth, pmr*)
Olson, W.K. *et al., J.A.C.S.*, 1982, **104**, 278, (*D-form, conformn, pmr*)
Welch, J.T. *et al., Chem. Comm.*, 1985, 186, (*D-form, pmr, cmr*)
Sanderson, P.N. *et al., Carbohydr. Res.*, 1996, **284**, 51-60 (*pmr, cmr, F-19 nmr*)

4-Deoxy-4-fluorosorbose D-107



β-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

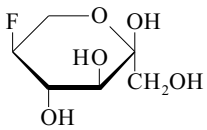
D-*form* [55908-25-3]
Cryst. (EtOAc/MeOH). Mp 129-131°. $[\alpha]_D^{24}$ +49 (c, 2.0 in H_2O).

β-D-Pyranose-*form*
*1,2-*O*-Isopropylidene: 4-Deoxy-4-fluoro-1,2-*O*-isopropylidene-β-D-sorbopyranose*
[41342-43-2]
$C_9H_{15}FO_5$ 222.213
Cryst. (Et_2O/petrol). Mp 108°. $[\alpha]_D^{24}$ -73.6 (c, 2.2 in $CHCl_3$).

*1,2-*O*-Isopropylidene, di-Ac: 3,5-Di-*O*-acetyl-4-deoxy-4-fluoro-1,2-*O*-isopropylidene-β-D-sorbopyranose*
[55908-24-2]
$C_{13}H_{19}FO_7$ 306.287
Cryst. (petrol). Mp 91°. $[\alpha]_D^{24}$ -38 (c, 0.8 in EtOH).

Sarel-Imber, M. *et al., Carbohydr. Res.*, 1973, **27**, 73 (*isopropylidene, F-19 nmr*)
Rao, C.V. *et al., Carbohydr. Res.*, 1975, **40**, 311 (*synth, isopropylidene derivs, cmr*)
Budesinsky, M. *et al., Coll. Czech. Chem. Comm.*, 1984, **49**, 267 (*cmr*)

5-Deoxy-5-fluorosorbose D-108



$C_6H_{11}FO_5$ 182.148

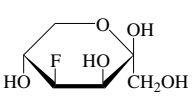
α-L-Pyranose-*form* [55908-32-2]
Cryst. (EtOAc/MeOH). Mp 122-124°. $[\alpha]_D^{24}$ -36 (c, 0.9 in H_2O).

*1,2-*O*-Isopropylidene: 5-Deoxy-5-fluoro-1,2-*O*-isopropylidene-α-L-sorbopyranose*
[55908-29-7]
$C_9H_{15}FO_5$ 222.213
Cryst. (Et_2O). Mp 112-114°. $[\alpha]_D^{24}$ -76 (c, 2.0 in $CHCl_3$).

*1,2-*O*-Isopropylidene, di-Ac: 3,4-Di-*O*-acetyl-5-deoxy-5-fluoro-1,2-*O*-isopropylidene-α-L-sorbopyranose*
[55908-30-0]
$C_{13}H_{19}FO_7$ 306.287
Cryst. (petrol). Mp 68-69°. $[\alpha]_D^{24}$ -37 (c, 0.8 in EtOH).

Rao, G.V. *et al., Carbohydr. Res.*, 1975, **40**, 311 (*synth, isopropylidene derivs, cmr*)

4-Deoxy-4-fluorotagatose D-109



β-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

D-*form* [55908-31-1]
Syrup. $[\alpha]_D^{24}$ -1.7 (c, 0.77 in H_2O).

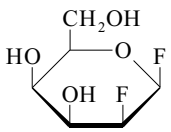
β-D-Pyranose-*form*

1,2-O-Isopropylidene: 4-Deoxy-4-fluoro-1,2-O-isopropylidene-β-D-tagatopyranose
[55908-27-5]
$C_9H_{15}FO_5$ 222.213
Cryst. (C_6H_6). Mp 153-157°. $[\alpha]_D^{24}$ -83 (c, 2.0 in $CHCl_3$).

1,2-O-Isopropylidene, di-Ac: 3,5-Di-O-acetyl-4-deoxy-4-fluoro-1,2-O-isopropylidene-β-D-tagatopyranose
[55908-28-6]
$C_{13}H_{19}FO_7$ 306.287
Cryst. (petrol). Mp 64-66°. $[\alpha]_D^{24}$ -97 (c, 0.8 in EtOH).

Rao, G.V. *et al., Carbohydr. Res.*, 1975, **40**, 311 (*β-D-pyr isopropylidene derivs, cmr*)

2-Deoxy-2-fluorotalopyranosyl fluoride D-110



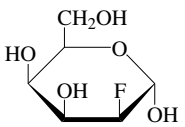
$C_6H_{10}F_2O_4$ 184.139

β-D-*form*

Tri-Ac: [35526-13-7]
$C_{12}H_{16}F_2O_7$ 310.251
Syrup. $Bp_{0.17}$ 168-170°. $[\alpha]_D$ +19 ($CHCl_3$).

Adamson, J. *et al., Carbohydr. Res.*, 1972, **22**, 257 (*tri-Ac*)
Korytnyk, W. *et al., Tetrahedron*, 1982, **38**, 2547 (*tri-Ac, pmr*)

2-Deoxy-2-fluorotalose D-111



α-D-Pyranose-*form*

$C_6H_{11}FO_5$ 182.148

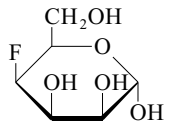
α-D-Pyranose-*form* [98856-45-2]
Syrup.

β-D-Pyranose-*form* [98856-46-3]
Syrup.

Trifluoromethyl glycoside, tri-Ac:
[35526-12-6]
$C_{13}H_{16}F_4O_8$ 376.258
$Bp_{0.15}$ 148-150°. $[\alpha]_D$ +1.9 (c, 3.0 in $CHCl_3$).

Adamson, J. *et al., Carbohydr. Res.*, 1972, **22**, 257 (*deriv, pmr, F-19 nmr*)
Diksic, M. *et al., J. Carbohydr. Chem.*, 1985, **4**, 265 (*synth, F-19 nmr*)

4-Deoxy-4-fluorotalose D-112



$C_6H_{11}FO_5$ 182.148

α-D-Pyranose-*form*

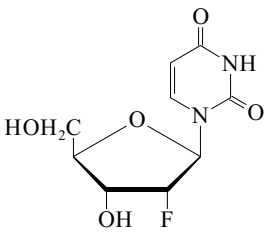
Me glycoside: Methyl 4-deoxy-4-fluoro-α-D-talopyranoside
[87586-12-7]
$C_7H_{13}FO_5$ 196.175
Solid. Mp 91-93°. $[\alpha]_D$ +88.8 (c, 0.99 in H_2O).

Me glycoside, 6-trityl: Methyl 4-deoxy-4-fluoro-6-O-trityl-α-D-talopyranoside
[87586-11-6]
$C_{26}H_{27}FO_5$ 438.495
Solid foam.

Card, P.J. *et al., J.O.C.*, 1983, **48**, 4734 (*α-D-Me pyr derivs, pmr, F-19 nmr*)

2′-Deoxy-2′-fluorouridine, 9CI D-113

[784-71-4]



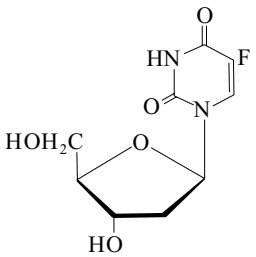
$C_9H_{11}FN_2O_5$ 246.195
Cryst. (EtOH). Mp 150-151°. $[\alpha]_D^{20}$ +52 (c, 0.3 in H_2O).

5′-Phosphate: 2-Deoxy-5-fluoro-5′-uridylic acid, 9CI
[134-46-3]
$C_9H_{12}FN_2O_8P$ 326.175
Metab. of 5-fluorouracil. Cytotoxic inhibitor of thymidylate synthetase.

Hartmann, K.U. *et al., J. Biol. Chem.*, 1961, **236**, 3006-3013 (*biochem*)
Codington, J.F. *et al., J.O.C.*, 1964, **29**, 558 (*synth*)
Ludwig, J. *et al., Synthesis*, 1982, 32-34 (***synth, P-31 nmr, phosphate***)
Amarnath, V. *et al., Biochim. Biophys. Acta*, 1983, **741**, 224-229 (*synth, phosphate*)
Kawasaki, A.M. *et al., J. Med. Chem.*, 1993, **36**, 361 (*synth, pmr, cmr*)

2′-Deoxy-5-fluorouridine, 9CI, 8CI D-114

1-(2-Deoxy-β-D-ribofuranosyl)-5-fluorouracil. ***Floxuridine, INN, USAN.*** *Fluoruridindeoxyribose. FUDR. NSC 27640. WR 138720*
[50-91-9]



$C_9H_{11}FN_2O_5$ 246.195
DNA synthesis inhibitor; antineoplastic agent used in treatment of malignant neoplasms of liver and gastrointestinal tract. Nucleoside transporter substrate.
Cryst. (butyl acetate). Mp 150-151° (145°). $[\alpha]_D$ +37 (H_2O). $[\alpha]_D$ +48.6 (DMF). Log P -1.96 (calc). λ_{max} 268 (ε 7 570) (pH 7.2), 270 nm (6 480) (pH 14).

▶ LD_{50} (rat, orl) 215 mg/kg. Exp. reprod. and teratogenic effects. Human systemic effects when used therapeutically.
YU7525000

3′-Ac:
$C_{11}H_{13}FN_2O_6$ 288.232
Mp 200-201°.

5′-Ac:
$C_{11}H_{13}FN_2O_6$ 288.232
Mp 146°.

3′-Ac, 5′-mesyl: [27095-26-7]
$C_{12}H_{15}FN_2O_8S$ 366.323
Mp 134-134.5°.

3′-Mesyl: [1549-81-1]
$C_{10}H_{13}FN_2O_7S$ 324.286
Mp 158° (161-162°) dec. $[\alpha]_D^{25}$ +32 (c, 0.57 in EtOH). λ_{max} 267.5 nm (ε 9 486) (MeOH).

3′,5′-Ditosyl: [7585-89-9]
$C_{23}H_{23}FN_2O_9S_2$ 554.573
Mp 229°. $[\alpha]_D$ -17 (Py).

3′-Me:
$C_{10}H_{13}FN_2O_5$ 260.221
Mp 146°.

5′-Me:
$C_{10}H_{13}FN_2O_5$ 260.221
Mp 163°.

5′-Trityl: [10343-71-2]
$C_{28}H_{25}FN_2O_5$ 488.514
Mp 196-197°. $[\alpha]_D^{23}$ +49 (c, 0.6 in EtOH). λ_{max} 257 nm (EtOH).

5′-Phosphate: FUDRP
$C_9H_{12}FN_2O_8P$ 326.174
Inhibitor of DNA synthesis.

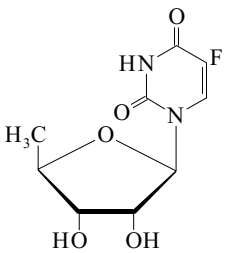
1-Epimer:
$C_9H_{11}FN_2O_5$ 246.195
Mp 150-151°. $[\alpha]_D^{25}$ -21 (c, 2.0 in H_2O).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 817A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 375B (*nmr*)
Hoffer, M. *et al., J.A.C.S.*, 1959, **81**, 4112

Lemieux, R.U. *et al., Can. J. Chem.*, 1961, **39**, 110 (*struct, pmr*)
Sundaralingam, M. *et al., J.A.C.S.*, 1965, **87**, 599 (*conformn, cryst struct*)
Khwaja, T.A. *et al., J. Med. Chem.*, 1967, **10**, 1066; 1970, **13**, 64 (*synth*)
Robins, M.J. *et al., J.A.C.S.*, 1971, **93**, 5277 (*synth, uv, ir, ms*)
Brokes, J. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 439 (*synth*)
Schwarz, B. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 3217 (*synth*)
Mercer, J.R. *et al., J. Med. Chem.*, 1987, **30**, 670-675 (*floxuridine*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 479
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAR400

5′-Deoxy-5-fluorouridine, 9CI D-115

Doxifluridine, INN, JAN. *Flutron. Furtulon. 5-DFUR. Ro 21-9738*
[3094-09-5]

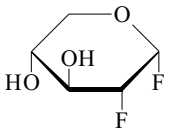


$C_9H_{11}FN_2O_5$ 246.195
Antineoplastic agent. Prodrug of 5-Fluoro-2,4(1*H*,3*H*)-pyrimidinedione. Launched 1987. Needles. Mp 192-193°. $[\alpha]^{25}_{Hg365}$ +163.2 (c, 1 in H_2O). Log P -1.03 (calc).

▶ LD_{50} (rat, orl) 3390 mg/kg. Exp. reprod. and teratogenic effects. YU7526000

Cook, A.F. *et al., J. Med. Chem.*, 1979, **22**, 1330 (*synth, pharmacol*)
Schwarz, B. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 3217 (*synth*)
Bollag, W. *et al., Eur. J. Cancer*, 1980, **16**, 427 (*pharmacol*)
Scott, J.W. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1981, **8**, 171 (*synth*)
Kiss, J. *et al., Helv. Chim. Acta*, 1982, **65**, 1522 (*synth*)
Sommadossi, J.P. *et al., Cancer Res.*, 1983, **43**, 930 (*metab*)
Kono, A. *et al., Chem. Pharm. Bull.*, 1983, **31**, 1666 (*hplc*)
Sommadossi, J.P. *et al., Int. Congr. Ser. Excerpta Med.*, 1984, **647**, 108 (*pharmacol, metab*)
Meynial, D. *et al., J. Pharm. Pharmacol.*, 1986, **38**, 426 (*metab*)
Au, J.L.S. *et al., J. Pharm. Sci.*, 1987, **76**, 699 (*metab*)
Guerrieri, A. *et al., J. Chromatogr.*, 1993, **617**, 71 (*hplc*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 475
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DYE415

2-Deoxy-2-fluoroxylopyranosyl fluoride D-116

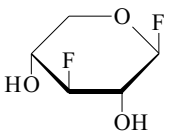


$C_5H_8F_2O_3$ 154.113

α-D-*form*
Di-Ac: [30591-82-3]
$C_9H_{12}F_2O_5$ 238.188
Syrup.

Dwek, R.A. *et al., Tet. Lett.*, 1970, 2987, (*di-Ac, F-19 nmr*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3887 (*di-Ac, config, F-19 nmr*)

3-Deoxy-3-fluoroxylopyranosyl fluoride D-117

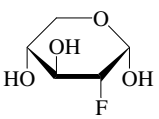


$C_5H_8F_2O_3$ 154.113

β-D-*form*
Di-Ac: [31505-11-0]
$C_9H_{12}F_2O_5$ 238.188
Cryst. ($CHCl_3$/petrol). Mp 58°. $[\alpha]^{20}_D$ -67 (c, 1.0 in $CHCl_3$).

Hall, L.D. *et al., Can. J. Chem.*, 1971, **49**, 236 (*di-Ac, F-19 nmr, pmr*)

2-Deoxy-2-fluoroxylose D-118



α-D-Pyranose-*form*

$C_5H_9FO_4$ 152.122

D-*form* [28867-50-7]
Syrup. $[\alpha]^{23}_D$ +69 (15 min.) → +32 (1h) (c, 0.9 in EtOH).

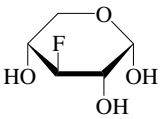
α-D-Pyranose-*form* [129939-84-0]
Trifluoromethyl glycoside, di-Ac:
[30591-83-4]
$C_{10}H_{12}F_4O_6$ 304.195
Cryst. (Et_2O/petrol). Mp 150°. $[\alpha]^{24}_D$ +130 (c, 0.37 in $CHCl_3$).

β-D-Pyranose-*form* [129939-83-9]
Syrup.

β-D-Furanose-*form*
Me glycoside: Methyl 2-deoxy-2-fluoro-β-D-xylofuranoside
[28867-49-4]
$C_6H_{11}FO_4$ 166.149
Oil. $[\alpha]^{23}_D$ -102 (c, 1.4 in EtOH).
Me glycoside, 3-benzoyl, 5-benzyl: Methyl 3-O-benzoyl-5-O-benzyl-2-deoxy-2-fluoro-β-D-xylofuranoside
[28867-51-8]
$C_{20}H_{21}FO_5$ 360.381
Syrup. $[\alpha]^{23}_D$ -63 (c, 1.2 in EtOH).
Me glycoside, 5-benzyl: Methyl 5-O-benzyl-2-deoxy-2-fluoro-β-D-xylofuranoside
[28867-48-3]
$C_{13}H_{17}FO_4$ 256.273
Pale yellow syrup. $[\alpha]^{23}_D$ -42 (c, 0.9 in EtOH).

Wright, J.A. *et al., Carbohydr. Res.*, 1970, **13**, 297 (*D-form, β-Me fur, β-Me fur derivs, pmr*)
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 3457; 3887 (*α-D-pyr deriv, pmr, F-19 nmr*)
Bols, M. *et al., Acta Chem. Scand.*, 1990, **44**, 252 (*synth, pmr*)

3-Deoxy-3-fluoroxylose D-119



α-D-Pyranose-*form*

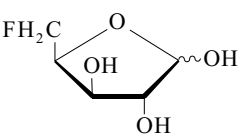
$C_5H_9FO_4$ 152.122

D-*form* [14537-01-0]
Needles (EtOH/butanol). Mp 126-128°. $[\alpha]^{25}_D$ +75 → +26 (c, 1.7 in H_2O).
2,5-Dichlorophenylhydrazone: [14537-02-1]
Cryst. (MeOH aq.). Mp 75°.

α-D-Furanose-*form*
5-Benzoyl, 1,2-di-Ac: 1,2-Di-O-acetyl-5-O-benzoyl-3-deoxy-3-fluoro-α-D-xylofuranose
[159099-24-8]
$C_{16}H_{17}FO_7$ 340.304
Cryst. (heptane/Et_2O). Mp 63-64°. α:β anomeric ratio =5:1.
1,2-Isopropylidene, 5-benzoyl: 5-O-Benzoyl-3-deoxy-3-fluoro-1,2-O-isopropylidene-α-D-xylofuranose
[125291-12-5]
$C_{15}H_{17}FO_5$ 296.295
Oil.

Wright, J.A. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 201 (*synth*)
Gosselin, G. *et al., Carbohydr. Res.*, 1993, **249**, 1 (*synth, pmr, F-19 nmr*)
Jeong, L.S. *et al., Carbohydr. Res.*, 1994, **262**, 103 (*1,2-Isopropylidene-5-benzoyl*)

5-Deoxy-5-fluoroxylose, 8CI D-120



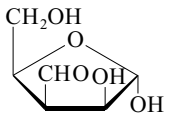
$C_5H_9FO_4$ 152.122

D-Furanose-*form* [34147-21-2]
Cryst. (EtOAc). Mp 77-78°. $[\alpha]^{24}_D$ +52.7 (c, 1.7 in H_2O).

α-D-Furanose-*form*
1,2-O-Isopropylidene: 5-Deoxy-5-fluoro-1,2-O-isopropylidene-α-D-xylofuranose
$C_8H_{13}FO_4$ 192.187
Cryst. (EtOH/petrol). Mp 86°.
$[\alpha]^{23}_D$ -20.6 (c, 1.0 in $CHCl_3$).

1,2-O-*Isopropylidene, 3*-O-*benzyl:*
$C_{15}H_{19}FO_4$ 282.311
Syrup. $[\alpha]_D^{22}$ -40.5 (c, 2.5 in EtOH).
Kent, P.W. *et al., Tetrahedron*, 1971, **27**, 4057 (*synth, pmr*)

3-Deoxy-3-*C*-formyllyxose D-121

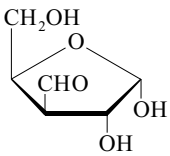


$C_6H_{10}O_5$ 162.142

α-D-Furanose-*form*

Me glycoside, (5→3′)cyclic hemiacetal: Methyl 3-deoxy-3-formyl-α-D-lyxofuranoside hemiacetal
[4144-96-1]
$C_7H_{12}O_5$ 176.169
Needles ($CHCl_3$/petrol). Mp 94°. $[\alpha]_D^{23}$ +32 (c, 1.3 in H_2O).
Austin, P.W. *et al., J.C.S.(C)*, 1967, 372

3-Deoxy-3-*C*-formylxylose D-122



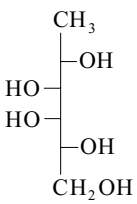
$C_6H_{10}O_5$ 162.142

α-D-Furanose-*form*

Me glycoside, (5→3′)cyclic hemiacetal: Methyl 3-deoxy-3-formyl-α-D-xylofuranoside hemiacetal
[4144-93-8]
$C_7H_{12}O_5$ 176.169
Needles (EtOAc/petrol). Mp 96-98°. $[\alpha]_D$ +68 → +78.5 (c, 1.0 in H_2O).
Austin, P.W. *et al., J.C.S.(C)*, 1967, 372

1-Deoxygalactitol, 9CI, 8CI D-123

Fucitol. Rhodeitol. 6-Deoxygalactitol. Galactomethylitol
[5328-43-8]



D–*form*

$C_6H_{14}O_5$ 166.174
Care necessary with numbering. 1-Deoxy-D-galactitol is the same as 6-Deoxy-L-galactitol (L-Fucitol).

D-*form*

1-Deoxy-D-galactitol. 6-Deoxy-L-galactitol. L-Fucitol
[13074-06-1] Present in urine and blood serum of uraemic patients. Mp 153-154°. $[\alpha]_D^{20}$ +4.7 (10% borax aq.). $[\alpha]_D$ -1.45 (H_2O).

6-Ac: 6-O-*Acetyl-1-deoxy-D-galactitol. 1*-O-*Acetyl-L-fucitol*
[170452-35-4]
$C_8H_{16}O_6$ 208.211
Mp 159-160°. $[\alpha]_D$ +19.5 (c, 0.9 in MeOH).

Penta-Ac: 2,3,4,5,6-Penta-O-*acetyl-1-deoxy-D-galactitol*
[7226-60-0]
$C_{16}H_{24}O_{10}$ 376.36
Mp 127°. $[\alpha]_D^{25}$ +20.5 ($CHCl_3$).

6-Benzoyl: 6-O-*Benzoyl-1-deoxy-D-galactitol*
$C_{13}H_{18}O_6$ 270.282
Mp 177-178°. $[\alpha]_D^{20}$ +4.3 (c, 0.82 in Py).

2,3,4,5-Tetrabenzoyl: 2,3,4,5-Tetra-O-*benzoyl-1-deoxy-D-galactitol. 2,3,4,5-Tetra*-O-*benzoyl-L-fucitol*
[170452-37-6]
$C_{34}H_{30}O_9$ 582.606
Mp 116-118°. $[\alpha]_D$ -1 (c, 0.8 in $CHCl_3$).

Pentabenzoyl: 2,3,4,5,6-Penta-O-*benzoyl-1-deoxy-D-galactitol*
$C_{41}H_{34}O_{10}$ 686.714
Mp 149-150°. $[\alpha]_D^{20}$ -5.96 (c, 0.87 in $CHCl_3$).

2,3:4,5-Di-O-*isopropylidene: 1-Deoxy-2,3:4,5-di*-O-*isopropylidene-D-galactitol*
[42927-35-5]
$C_{12}H_{22}O_5$ 246.303
Mp 59-60°. $[\alpha]_D^{20}$ +11.7 (c, 0.94 in EtOH).

2,3-O-*Butylidene: 2,3*-O-*Butylidene-1-deoxy-D-galactitol*
[57090-31-0]
$C_{10}H_{20}O_5$ 220.265
Mp 66-68°. $[\alpha]_D^{25}$ -12.8 (c, 1.1 in MeOH).

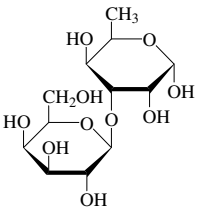
4,6-O-*Butylidene: 4,6*-O-*Butylidene-1-deoxy-D-galactitol*
[57043-13-7]
$C_{10}H_{20}O_5$ 220.265
Syrup. $[\alpha]_D^{25}$ -9.6 (c, 0.56 in MeOH).

4,6-O-*Butylidene, 2,3,5-tri-Ac: 2,3,5-Tri*-O-*acetyl-4,6*-O-*butylidene-1-deoxy-D-galactitol*
[57043-14-8]
$C_{16}H_{26}O_8$ 346.377
Mp 153-156°.

L-*form*

Mp 154-156°. $[\alpha]_D$ +4 (c, 2.0 in satd. borax soln.).
Votoček, E. *et al., Chem. Zentralbl.*, 1906, **1**, 1818 (*synth*)
Votoček, E. *et al., Ber.*, 1913, **46**, 3653 (*synth*)
Ness, A.T. *et al., J.A.C.S.*, 1942, **64**, 982 (*diisopropylidene*)
Bollenback, G.N. *et al., J.A.C.S.*, 1950, **72**, 741 (*synth, L-form*)
Bonner, T.G. *et al., J.C.S. Perkin 1*, 1975, 1323 (*4,6-butylidene*)
Niwa, T. *et al., J. Chromatogr.*, 1983, **277**, 25 (*anal*)
Gillies, D.G. *et al., J.C.S. Perkin 2*, 1985, 1155 (*conformn, pmr*)
Wiesler, W.T. *et al., J.A.C.S.*, 1989, **111**, 9205 (*cd*)
Kindel, P.K. *et al., Carbohydr. Res.*, 1990, **199**, 55 (*glc, ms*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1991, 197 (*conformn*)
Sarbajna, S. *et al., Carbohydr. Res.*, 1995, **270**, 93-96 (*synth, D-form, D-form 6-Ac, D-form tetrabenzoyl*)

6-Deoxy-3-*O*-β-D-galactopyranosyl-D-gulose D-124

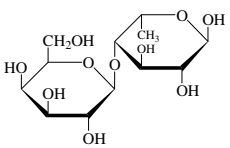


α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Constit. of the repeating unit of the serologically active *O*-specific polysaccharide isolated from the LPS of the bacterium *Yersinia enterocolitica*.

α-Pyranose-*form* [115218-96-7]
$[\alpha]_D$ +4.4 (H_2O).
Kalmykova, E.N. *et al., Bioorg. Khim.*, 1988, **14**, 652; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 364

6-Deoxy-4-*O*-β-D-galactopyranosyl-L-idose D-125



α-Pyranose-*form*

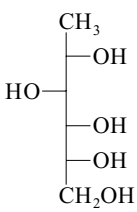
$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*

Hepta-Ac: [52689-63-1]
$C_{26}H_{36}O_{17}$ 620.56
Mp 134-135°. $[\alpha]_D^{13}$ -35 ($CHCl_3$).
Chiba, T. *et al., Chem. Pharm. Bull.*, 1974, **27**, 398
Goto, H. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1926

1-Deoxyglucitol, 9CI D-126

6-Deoxygulitol. Gulomethylitol



D–*form*

$C_6H_{14}O_5$ 166.174

D-*form*

1-Deoxy-D-glucitol. 6-Deoxy-L-gulitol
[18545-96-5]
Constit. of the fruit of *Foeniculum vulgare* (fennel).
Needles (MeOH).
Mp 131-132°. $[\alpha]_D^{25}$ +5 (c, 0.5 in H_2O).

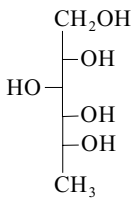
3,4:5,6-Diisopropylidene: 1-Deoxy-3,4:5,6-di-O-*isopropylidene-D-glucitol. 6-Deoxy-*

1,2:3,4-di-O-*isopropylidene-L-gulitol*
$C_{12}H_{22}O_5$ 246.303
Cryst. (EtOH). Mp 134-135° (130-131°).
$[\alpha]_D^{20}$ +4 (c, 4 in H_2O).

L-*form* *6-Deoxy-D-gulitol. 1-Deoxy-L-glucitol*
3,4:5,6-Diisopropylidene: 1-Deoxy-3,4:5,6-di-O-*isopropylidene-L-glucitol. 6-Deoxy-1,2:3,4-di*-O-*isopropylidene-D-gulitol*
$C_{12}H_{22}O_5$ 246.303
Light yellow syrup. $[\alpha]_D$ -1 (c, 1.00 in MeOH).
Bollenback, G.N. *et al., Carbohydr. Res.*, 1950, **72**, 741
Wolfrom, M.L. *et al., J.A.C.S.*, 1964, **68**, 1443-1448 (*synth*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1979, **74**, 187-197 (*synth*)
Wiesler, W.T. *et al., J.A.C.S.*, 1989, **111**, 9205-9213 (*synth*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1991, 197-200 (*props, conformn*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)

6-Deoxyglucitol D-127

epi-*Rhamnitol. Isorhamnitol. Epirhamnitol. 1-Deoxygulitol. Quinovitol*
[5624-40-8]



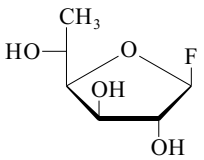
D–*form*

$C_6H_{14}O_5$ 166.174

D-*form*
6-Deoxy-D-glucitol. 1-Deoxy-L-gulitol
Constit. of the fruit of *Cnidium monnieri*.
$[\alpha]_D^{24}$ -11 (c, 0.2 in MeOH).
Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-6-deoxy-D-glucitol*
$C_{16}H_{24}O_{10}$ 376.36
Syrup. $[\alpha]_D^{20}$ +15.7 ($CHCl_3$).
2,4-O-*Methylene: 6-Deoxy-2,4*-O-*methylene-D-glucitol*
$C_7H_{14}O_5$ 178.185
Needles (EtOH). Mp 176-177°.
$[\alpha]_D^{20}$ -20.2 (c, 0.9 in H_2O).

L-*form* *6-Deoxy-L-glucitol. 1-Deoxy-D-gulitol*
Syrup. $[\alpha]_D^{20}$ +9.18 (H_2O).
Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-6-deoxy-L-glucitol*
$C_{16}H_{24}O_{10}$ 376.36
Syrup. $[\alpha]_D^{20}$ -10 (CH_2Cl_2).
2,4-O-*Methylene: 6-Deoxy-2,4*-O-*methylene-L-glucitol*
$C_7H_{14}O_5$ 178.185
Needles (EtOH). Mp 176-177°. $[\alpha]_D^{20}$ +19.7 (c, 1.4 in H_2O).
2,4:3,5-Di-O-*methylene: 6-Deoxy-2,4:3,5-di*-O-*methylene-L-glucitol*
$C_8H_{14}O_5$ 190.196
Mp 178-181°. $[\alpha]_D^{20}$ +38.5 (H_2O).
Votoček, E. *et al., Coll. Czech. Chem. Comm.*, 1931, **3**, 499
Ness, A.T. *et al., J.A.C.S.*, 1944, **66**, 1235, (*D-methylene, D-di-methylene*)
Richtmyer, N.K. *et al., J.A.C.S.*, 1950, **72**, 4934 (*L-methylene, L-di-methylene*)
Kitajima, J. *et al., Phytochemistry*, 2001, **58**, 641-644 (*isol, pmr, cmr*)

6-Deoxyglucofuranosyl fluoride D-128

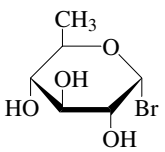


$C_6H_{11}FO_4$ 166.149

β-D-*form*
3,5-Dibenzoyl: 3,5-Di-O-*benzoyl-6-deoxy-β-D-glucofuranosyl fluoride*
[169236-80-0]
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D$ -54.3 (c, 1.01 in $CHCl_3$).
3,5-Dibenzoyl, 2-Ac: 2-O-*Acetyl-3,5-di*-O-*benzoyl-6-deoxy-β-D-glucofuranosyl fluoride*
[169236-79-7]
$C_{22}H_{21}FO_7$ 416.402
Needles (EtOH). Mp 140-142°.
$[\alpha]_D$ -87.8 (c, 0.98 in $CHCl_3$).
Buchanan, J.G. *et al., Tetrahedron*, 1995, **51**, 6033 (*synth, pmr, cmr*)

6-Deoxyglucopyranosyl bromide D-129

Quinovopyranosyl bromide



α-D-*form*

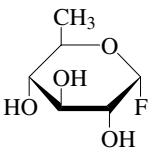
$C_6H_{11}BrO_4$ 227.055

α-D-*form*
Tri-Ac: 2,3,4-Tri-O-*acetyl-6-deoxy-α-D-glucopyranosyl bromide*
[24877-07-4]
$C_{12}H_{17}BrO_7$ 353.166
Solid (Et_2O). Mp 141-142° (125-127°).
$[\alpha]_D^{20}$ +242 (c, 0.43 in $CHCl_3$).
Tribenzoyl: 2,3,4-Tri-O-*benzoyl-6-deoxy-α-D-glucopyranosyl bromide*
[67986-91-8]
$C_{27}H_{23}BrO_7$ 539.379
Cryst. (Et_2O). Mp 155-161°. $[\alpha]_D$ +118 (c, 1.02 in $CHCl_3$).

α-L-*form*
Tri-Ac: 2,3,4-Tri-O-*acetyl-6-deoxy-α-L-glucopyranosyl bromide*
[36807-84-8]
$C_{12}H_{17}BrO_7$ 353.166
Needles ($CHCl_3/Et_2O$). Mp 144-145° dec. $[\alpha]_D^{20}$ -243.6 (c, 1.74 in $CHCl_3$).
Tribenzoyl: 2,3,4-Tri-O-*benzoyl-6-deoxy-α-L-glucopyranosyl bromide*
[61198-82-1]
$C_{27}H_{23}BrO_7$ 539.379
Cryst. Mp 160°. $[\alpha]_D^{20}$ -117.8 (c, 1.0 in $CHCl_3$).
Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1969, 1136-1143; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1969, 1037-1043 (*α-D-tri-Ac*)
Schüep, W. *et al., Helv. Chim. Acta*, 1970, **53**, 1336-1339 (*α-D-tri-Ac*)
Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 273-276 (*α-L-tri-Ac*)
Ekborg, G. *et al., Carbohydr. Res.*, 1978, **65**, 301-306 (*α-D-tribenzoyl*)
Nakajima, R. *et al., Biosci., Biotechnol., Biochem.*, 1993, **57**, 149-151 (*α-L-tribenzoyl*)
Lichtenthaler, F.W. *et al., Eur. J. Org. Chem.*, 2003, 3081-3093 (*α-L-tribenzoyl*)

6-Deoxyglucopyranosyl fluoride D-130

Quinovosyl fluoride

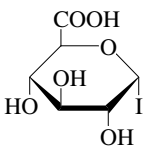


$C_6H_{11}FO_4$ 166.149

α-D-*form* [80382-72-5]
Cryst. (EtOAc/Et_2O). Mp 94°. $[\alpha]_D^{20}$ +86 (c, 1.02 in H_2O).
Horneman, A.M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1-8 (*α-D-form, synth, pmr, cmr*)

1-Deoxy-α-D-glucopyranosyl iodide uronic acid D-131

1-Deoxyglucopyranosyl iodide uronic acid. (Glucopyranosyl iodide)uronate

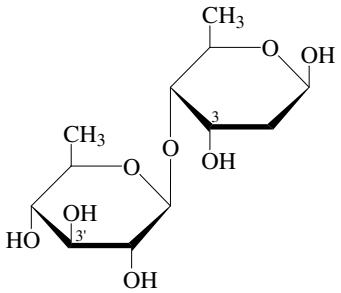


α-D-Pyranose-*form*

$C_6H_9IO_6$ 304.038

α-D-Pyranose-*form*
Tri-Ac, Me ester: Methyl 2,3,4-tri-O-*acetyl-α-D-glucopyranosyl iodide uronate*
[108800-87-9]
$C_{13}H_{17}IO_9$ 444.176
Solid. Mp 108-110° dec. Descr. as β-D-glucopyranuronate by Brown *et al*, but accompanying structure shows α-D-iodo substituent.
Tripivaloyl, Me ester: Methyl 2,3,4-tri-O-*pivaloyl-α-D-glucopyranosyl iodide uronate*
[313948-92-4]
$C_{22}H_{35}IO_9$ 570.418
Pale yellow prisms (hexane).
Mp 104-105°.
Ernst, B. *et al., Tet. Lett.*, 1989, **30**, 3081-3084 (*α-D-tri-Ac Me ester, synth*)
Brown, R.T. *et al., J. Chem. Res., Synop.*, 1997, 370-371 (*α-D-tri-Ac Me ester, synth, pmr*)
Bickley, T. *et al., Chem. Comm.*, 2003, 1266-1267 (*α-D-tripivaloyl Me ester, synth, pmr, cmr, cryst struct*)

6-Deoxy-β-D-glucopyranosyl-(1 →4)-2,6-dideoxy-D-*ribo*-hexose D-132

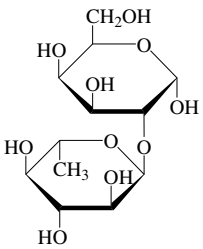


$C_{12}H_{22}O_8$ 294.301

β-D-Pyranose-*form*

*Me glycoside, 3,3′-di-Me: Methyl 6-deoxy-3-O-methyl-β-D-glucopyranosyl-(1 →4)-2,6-dideoxy-3-O-methyl-β-D-*ribo*-hexopyranoside.* ***Dresibioside***
[130855-19-5]
$C_{15}H_{28}O_8$ 336.381
Constit. of the roots of *Dregea sinensis*.
Shen, X. *et al., Huaxue Xuebao*, 1990, **48**, 709; *CA*, **114**, 3446h (*isol, struct*)

2-*O*-(6-Deoxy-α-L-glucopyranosyl)-D-galactose, 9CI D-133
2-O-α-L-Quinovopyranosyl-D-galactose
[58927-33-6]



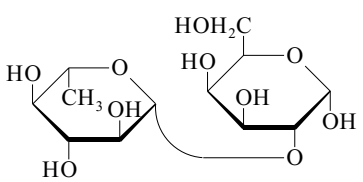
α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Syrup. $[\alpha]_D^{20}$ -59.3 (c, 1.4 in MeOH).

α-Pyranose-*form*

Hepta-Ac: [58927-29-0]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (MeOH). Mp 195°. $[\alpha]_D^{20}$ -18 (c, 2.0 in $CHCl_3$).
Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 273 (*synth*)

2-*O*-(6-Deoxy-β-L-glucopyranosyl)-D-galactose, 9CI D-134
2-O-β-L-Quinovopyranosyl-D-galactose
[58927-34-7]



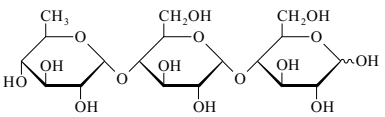
α–Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Syrup. $[\alpha]_D^{20}$ +71.4 (c, 0.93 in MeOH aq.).

α-Pyranose-*form*

Hepta-Ac: [58927-30-3]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 209°. $[\alpha]_D^{20}$ +62.5 (c, 1.6 in $CHCl_3$).
Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 273 (*synth*)

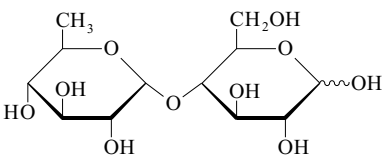
6-Deoxy-α-D-glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →4)-D-glucose D-135
[61637-54-5]



Pyranose–*form*

$C_{18}H_{32}O_{15}$ 488.442
Prod. formed by the action of bacterial amylase on deoxyamylose.
$[\alpha]_D^{25}$ +143 (c, 0.9 in H_2O).
Takeo, K. *et al., Carbohydr. Res.*, 1976, **51**, 73
Weill, C.E. *et al., Carbohydr. Res.*, 1979, **73**, 337

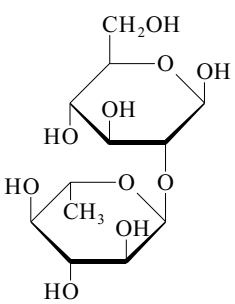
4-*O*-(6-Deoxy-α-D-glucopyranosyl)-D-glucose D-136
4-O-α-D-Quinovopyranosyl-D-glucose. 6′-Deoxymaltose
[42496-90-2]



Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. $[\alpha]_D^{22}$ +134 (c, 1.04 in H_2O). $[\alpha]_D^{22}$ +113 (c, 2.8 in H_2O).
Dutton, G.G.S. *et al., Can. J. Chem.*, 1966, **44**, 1069
Melton, L.D. *et al., Can. J. Chem.*, 1973, **51**, 327 (*synth*)

2-*O*-(6-Deoxy-α-L-glucopyranosyl)-D-glucose, 9CI D-137
2-O-α-L-Quinovopyranosyl-D-glucose
[58927-31-4]

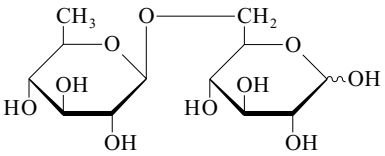


$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Syrup. $[\alpha]_D^{20}$ -56.94 (c, 1.44 in MeOH).

β-Pyranose-*form*

Hepta-Ac: [58927-28-9]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (Et_2O). Mp 168-171°. $[\alpha]_D^{20}$ -87.5 (c, 0.8 in CH_2Cl_2).
Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 273

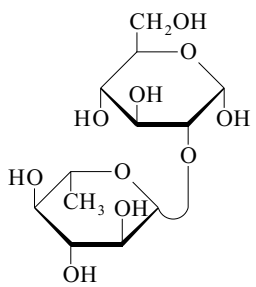
6-*O*-(6-Deoxy-β-D-glucopyranosyl)-D-glucose D-138
6-O-β-D-Quinovosyl-D-glucose



Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. $[\alpha]_D$ -6 (H_2O).
Hepta-Ac:
$C_{26}H_{36}O_{17}$ 620.56
Mp 175-176°. $[\alpha]_D$ -2 ($CHCl_3$).
Gorin, P.A.J. *et al., Can. J. Chem.*, 1959, **37**, 1930 (*synth*)

2-*O*-(6-Deoxy-β-L-glucopyranosyl)-D-glucose D-139
2-O-β-L-Quinovopyranosyl-D-glucose
[58927-32-5]



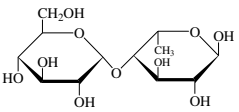
$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. $[\alpha]_D^{20}$ +79.7 (c, 1.28 in H_2O).

α-Pyranose-*form*

Hepta-Ac: [58927-27-8]
$C_{26}H_{36}O_{17}$ 620.56
Needles (Et_2O). Mp 195-196°. $[\alpha]_D^{20}$ +63.7 (c, 0.8 in $CHCl_3$).
Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 273 (*synth*)

6-Deoxy-4-*O*-α-D-glucopyranosyl-L-idose, 9CI D-140

[67831-18-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Amorph. powder + $2H_2O$. $[\alpha]_D^{26}$ +91.2 (c, 0.62 in H_2O).

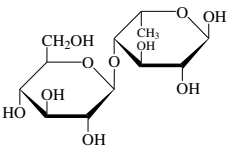
α-Pyranose-*form*

Hepta-Ac: [67890-21-5]
$C_{26}H_{36}O_{17}$ 620.56
Mp 158-159.5°. $[\alpha]_D^{21}$ +28.6 (c, 0.64 in $CHCl_3$).

Goto, H. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1926 (*synth*)

6-Deoxy-4-*O*-β-D-glucopyranosyl-L-idose, 9CI D-141

β-D-Glucopyranosyl-(1→4)-6-deoxy-L-idose
[67831-19-0]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Amorph. powder + $2H_2O$. $[\alpha]_D^{16}$ -28.7 (c, 0.65 in H_2O).

α-Pyranose-*form*

Hepta-Ac: [67890-22-6]
$C_{26}H_{36}O_{17}$ 620.56
Mp 142-144°. $[\alpha]_D^{24}$ -60.3 (c, 0.82 in $CHCl_3$).

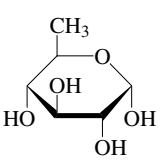
Me glycoside, hexa-Ac: [84094-15-5]
$C_{25}H_{36}O_{16}$ 592.55
Mp 187-188°. $[\alpha]_D^{20}$ -68.9 (c, 0.3 in $CHCl_3$).

Goto, H. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1926

Takeo, K. *et al., Carbohydr. Res.*, 1982, **107**, 71 (*deriv*)

6-Deoxyglucose, 9CI, 8CI D-142

Chinovose, 9CI. Quinovose, 9CI, 8CI. Isorhodeose. Glucomethylose. Isorhamnose. Epirhamnose
[7658-08-4]



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

An aq. soln. at 44° contains 36% α-pyr, 64% β-pyr and 0.002% aldehyde. Present in some plant glycosides, e.g. from *Ipomoea* spp.

D-*form*

Mp 146°. $[\alpha]_D^{20}$ +75 → +30 (c, 8.3 in H_2O).

Phenylosazone: Mp 189-191°. $[\alpha]_D$ -77 (Py/EtOH).

3-Me: 6-Deoxy-3-O-methyl-D-glucose. ***Thevetose***
[5675-98-9]
Occurs in.
Mp 116°. $[\alpha]_D^{20}$ +84 → +33 (H_2O).

3-Me, phenylosazone: Mp 123-128°. $[\alpha]_D^{16}$ -117.8 → -26.4 (c, 1.1 in 2:3 Py/EtOH).

Me glycoside, 4-Me: Methyl 6-deoxy-4-O-methyl-α-D-glucopyranoside
$C_8H_{16}O_5$ 192.211
Solid. Mp 81°. $[\alpha]_D^{22}$ +171 (c, 1.0 in $CHCl_3$).

α-D-Pyranose-*form* [551-63-3]

1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-α-D-glucopyranose
[7404-35-5]
$C_{14}H_{20}O_9$ 332.307
Mp 119°. $[\alpha]_D^{25}$ +122 (c, 0.47 in $CHCl_3$).

2,3-Dibenzoyl, 4-tosyl: 2,3-Di-O-benzoyl-6-deoxy-4-O-tosyl-α-D-glucopyranose
$C_{27}H_{26}O_9S$ 526.563
Mp 141-142°. $[\alpha]_D^{24}$ +95.8 (c, 0.5 in $CHCl_3$).

Me glycoside: Methyl 6-deoxy-α-D-glucopyranoside
[5155-43-1]
$C_7H_{14}O_5$ 178.185
Mp 96-98°. $[\alpha]_D^{25}$ +158 (c, 1.0 in H_2O).

Me glycoside, 4-benzoyl, 2,3-di-Ac: Methyl 2,3-di-O-acetyl-4-O-benzoyl-6-deoxy-α-D-glucopyranoside
$C_{18}H_{22}O_8$ 366.367
Syrup. $[\alpha]_D^{23}$ +59.4 (c, 6.0 in $CHCl_3$).

Me glycoside, tribenzoyl: Methyl 2,3,4-tri-O-benzoyl-6-deoxy-α-D-glucopyranoside
$C_{28}H_{26}O_8$ 490.509
Cryst. (MeOH). Mp 142-143°. $[\alpha]_D^{23}$ +52 (c, 2.3 in $CHCl_3$).

Me glycoside, 2,3-di-Me: Methyl 6-deoxy-2,3-di-O-methyl-α-D-glucopyranoside
$C_9H_{18}O_5$ 206.238
Syrup. $[\alpha]_D^{23}$ +143 (c, 1.1 in $CHCl_3$).

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-benzyl-6-deoxy-α-D-glucopyranoside
[56750-58-4]
$C_{21}H_{26}O_5$ 358.433
$[\alpha]_D^{25}$ +33.4 (c, 5.3 in CCl_4).

3-Me, Tri-Ac: 1,2,4-Tri-O-acetyl-6-deoxy-3-O-methyl-α-D-glucopyranose
$C_{13}H_{20}O_8$ 304.296
Mp 105°. $[\alpha]_D^{20}$ +122 (Me_2CO).

3-Me, Me glycoside: Methyl 6-deoxy-3-O-methyl-α-D-glucopyranoside
$C_8H_{16}O_5$ 192.211
Mp 86°. $[\alpha]_D$ +162 (MeOH). $[\alpha]_D$ +148.3 (H_2O).

3-Me, Me glycoside, di-Ac: Methyl 2,4-di-O-acetyl-6-deoxy-3-O-methyl-α-D-glucopyranoside
$C_{12}H_{20}O_7$ 276.286
Mp 98°. $[\alpha]_D$ +144.6 ($CHCl_3$).

β-D-Pyranose-*form* [22611-09-2]

1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-β-D-glucopyranose
[17081-04-8]
$C_{14}H_{20}O_9$ 332.307
Mp 144-145°. $[\alpha]_D^{25}$ +22 (c, 4.0 in $CHCl_3$).

2,3-Dibenzoyl, 4-tosyl: 2,3-Di-O-benzoyl-6-deoxy-4-O-tosyl-β-D-glucopyranose
[51236-55-6]
$C_{27}H_{26}O_9S$ 526.563
Mp 158-159°. $[\alpha]_D^{24}$ +95.8 (c, 0.5 in $CHCl_3$).

Me glycoside: Methyl 6-deoxy-β-D-glucopyranoside
[6340-52-9]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 130-132°. $[\alpha]_D$ -55 (H_2O).

Me glycoside, 3,4-ditosyl: Methyl 6-deoxy-3,4-di-O-tosyl-β-D-glucopyranoside
$C_{21}H_{26}O_9S_2$ 486.563
Mp 139-140°. $[\alpha]_D$ -16 ($CHCl_3$).

Me glycoside, 2,3,4-tritosyl: Methyl 6-deoxy-2,3,4-tri-O-tosyl-β-D-glucopyranoside
$C_{28}H_{32}O_{11}S_3$ 640.752
Mp 174-175°. $[\alpha]_D$ -23 ($CHCl_3$).

3-Me, Tri-Ac: 1,2,4-Tri-O-acetyl-6-deoxy-3-O-methyl-β-D-glucopyranose
$C_{13}H_{20}O_8$ 304.296
Mp 121°. $[\alpha]_D$ +7.8 (Me_2CO).

3-Me, Me glycoside: Methyl 6-deoxy-3-O-methyl-β-D-glucopyranoside
$C_8H_{16}O_5$ 192.211
Mp 116°. $[\alpha]_D$ -42.1 (MeOH). $[\alpha]_D$ -43.9 (H_2O).

3-Me, Me glycoside, di-Ac: Methyl 2,4-di-O-acetyl-6-deoxy-3-O-methyl-β-D-glucopyranoside
$C_{12}H_{20}O_7$ 276.286
Mp 161°. $[\alpha]_D$ -26.3 ($CHCl_3$).

L-*form*

Mp 142-145°. $[\alpha]_D^{25}$ -30.2 (c, 1.53 in H_2O).

3-Me: Cerberose
Glycosidic constit. of and others.
Mp 128-130°. $[\alpha]_D^{19}$ -66 → -37 (H_2O).

3-Me, phenylosazone: Mp 136-139°. $[\alpha]_D$ +110.8 → +40.3 (c, 1.0 in 2:3 Py/EtOH).

α-L-Pyranose-*form* [35867-45-9]

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-α-L-glucopyranose
[36807-82-6]
$C_{14}H_{20}O_9$ 332.307
Mp 122-124.5°. $[\alpha]_D^{23}$ -104 (c, 1.01 in $CHCl_3$).

3-Me, tri-Ac: 1,2,4-Tri-O-acetyl-6-deoxy-3-O-methyl-α-L-glucopyranose
$C_{13}H_{20}O_8$ 304.296
Mp 103°. $[\alpha]_D$ -113 (MeOH).

β-L-Pyranose-*form*

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-β-L-glucopyranose
[36807-81-5]
$C_{14}H_{20}O_9$ 332.307
Mp 149°. $[\alpha]_D^{23}$ -21.6 (c, 1.15 in $CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-benzoyl-6-deoxy-β-L-glucopyranose
[615541-06-5]
$C_{34}H_{28}O_9$ 580.59
Cryst. (MeOH). Mp 177-179°. $[\alpha]_D^{20}$ +16 (c, 0.9 in $CHCl_3$).

3-Me, tri-Ac: 1,2,4-Tri-O-*acetyl-6-deoxy-3*-O-*methyl-β-L-glucopyranose*
$C_{13}H_{20}O_8$ 304.296
Mp 118°. $[\alpha]_D$ -7.3 (Me_2CO).

3-Me, Et glycoside: Ethyl 6-deoxy-3-O-*methyl-β-L-glucopyranoside*
$C_9H_{18}O_5$ 206.238
Mp 108-109°. $[\alpha]_D^{20}$ +46.1 (c, 1.1 in H_2O).

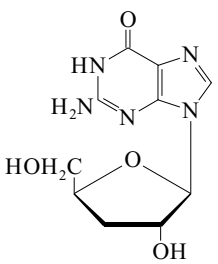
α-D-Furanose-*form*

1,2-O-*Isopropylidene:* See 6-Deoxy-1,2-*O*-isopropylideneglucofuranose, D-283

Helfenberger, H. *et al., Helv. Chim. Acta*, 1948, **31**, 1470 (*isol, Cerberose*)
Reyle, K. *et al., Helv. Chim. Acta*, 1952, **35**, 195 (*3-Me derivs*)
Schmidt, O.T. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 198 (*synth, D-form*)
Smith, C.R. *et al., Phytochemistry*, 1964, **3**, 289 (*isol, D-form*)
Zorbach, W.W. *et al., Adv. Carbohydr. Chem. Biochem.*, 1966, **21**, 288 (*occur, 3-Me*)
Saner, A. *et al., Helv. Chim. Acta*, 1970, **53**, 221 (*3-Me*)
Lerner, L.M. *et al., J.O.C.*, 1972, **37**, 4386, (*L-form, tetra-Ac, synth*)
Jeppesen, L.M. *et al., Acta Chem. Scand.*, 1973, **27**, 3579 (*Me gly tribenzoyl*)
Kondo, Y. *et al., Can. J. Chem.*, 1973, **51**, 3272 (*Me glycosides*)
Staněk, J. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 3370 (*β-D-Me gly, tosyl derivs*)
Simon, P. *et al., Synthesis*, 1979, 951 (*Me gly dibenzyl*)
Sato, K.L. *et al., Carbohydr. Res.*, 1982, **103**, 221 (*Me α-D-gly 2,3-di-Me*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Csuk, R. *et al., Carbohydr. Res.*, 1985, **140**, 167 (*synth*)
Snyder, J.R. *et al., Carbohydr. Res.*, 1987, **163**, 169 (*cmr*)
Heidelberg, T. *et al., J. Prakt. Chem.*, 1998, **340**, 223-232 (*α-D-Me pyr 4-Me*)
Lichtenthaler, F.W. *et al., Eur. J. Org. Chem.*, 2003, 3081-3093 (*β-L-pyr-tetrabenzoyl*)

3′-Deoxyguanosine, 9CI, 8CI D-143

[3608-58-0]



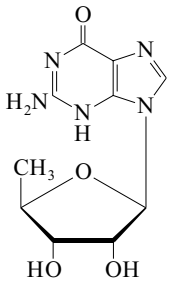
$C_{10}H_{13}N_5O_4$ 267.244
Mp 350°. $[\alpha]_D$ -41.2 (c, 0.5 in H_2O).

2′,5′-Di-Ac: [104706-82-3]
$C_{14}H_{17}N_5O_6$ 351.318
Cryst. (EtOH). Mp 226-229°.

Tong, G.L. *et al., J.O.C.*, 1967, **32**, 859-862 (*synth, uv*)
Ogilvie, K.K. *et al., Can. J. Chem.*, 1972, **50**, 3276-3279 (*synth, uv*)
Mengel, R. *et al., Chem. Ber.*, 1979, **112**, 625-639 (*synth, pmr, uv*)
Reimer, M.L.J. *et al., Biomed. Environ. Mass Spectrom.*, 1989, **18**, 533-542 (*ms*)
Robins, M.J. *et al., Can. J. Chem.*, 1997, **75**, 762-767 (*synth, pmr, cmr*)

5′-Deoxyguanosine, 9CI D-144

[5151-99-5]

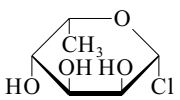


$C_{10}H_{13}N_5O_4$ 267.244
Nucleoside antibiotic. Prod. by *Thermoactinomyces* sp. A6019. Herbicide.
Cryst. (H_2O). Sol. H_2O, MeOH.
Mp 226-228°. $[\alpha]_D^{28}$ -21 (c, 1 in DMF).
λ_{max} 256 (ϵ 12700); 280 (sh) (ϵ 8800) (pH 2) (Derep). λ_{max} 256 (ϵ 12000); 268 (ϵ 12100) (pH 12) (Derep). λ_{max} 252 (ϵ 13900); 275 (sh) (ϵ 9500) (H_2O at pH 7) (Derep). λ_{max} 251 ; 273 (H_2O) (Berdy).

2′,3′-Di-Ac:
$C_{14}H_{17}N_5O_6$ 351.318
Cryst. (H_2O). Mp 262.5-264°. $[\alpha]_D^{27}$ -26 (EtOH aq.).

Reist, E.J. *et al., J.O.C.*, 1961, **26**, 1557 (*synth*)
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1965, **13**, 639 (*synth*)
Isaac, B.G. *et al., J. Antibiot.*, 1991, **44**, 729 (*isol, props*)

6-Deoxygulopyranosyl chloride D-145



$C_6H_{11}ClO_4$ 182.603

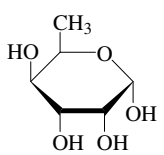
β-L-*form*

2,3-O-*Isopropylidene, 4-Me: 6-Deoxy-2,3*-O-*isopropylidene-4*-O-*methyl-β-L-gulopyranosyl chloride*
[65904-40-7]
$C_{10}H_{17}ClO_4$ 236.695
Oil. $Bp_{0.015}$ 65°. $[\alpha]_D^{23}$ +45.3 (c, 1.23 in $CHCl_3$).

Ireland, R.E. *et al., J.O.C.*, 1978, **43**, 786; 1980, **45**, 48 (*isopropylidene deriv, pmr*)

6-Deoxygulose, 9CI, 8CI D-146

Gulomethylose. Antiarose
[19479-17-5]



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [5158-61-2]
Constit. of the cardenolides of *Erysimum altaicum* and present in the seeds of *Ornithogalum magnum* and *Ipomoea parasitica*. Also a component of the O-antigen of *Yersinia enterocolitica* O8 and other bacteria.
Mp 123-126°. $[\alpha]_D^{19}$ -49.2 → -42.4 (c, 0.5 in H_2O).

4-Bromophenylhydrazone: Mp 133-135°.

Phenylosazone: Mp 182-183°. $[\alpha]_D^{24}$ +17 (Py/EtOH).

3-Me: 6-Deoxy-3-O-*methylgulose, 8CI*
[5158-56-5]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D$ -35 (c, 1.0 in H_2O).

α-D-Pyranose-*form*

Me glycoside, 3-Ac: Methyl 3-O-*acetyl-6-deoxy-α-D-gulopyranoside*
$C_9H_{16}O_6$ 220.222
Cryst. (Et_2O). Mp 144-145°. $[\alpha]_D^{26}$ +133.9 (c, 1.32 in MeOH).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6-deoxy-α-D-gulopyranoside*
[33947-13-6]
$C_{13}H_{20}O_8$ 304.296
Cryst. (Et_2O/hexane). Mp 81-82°. $[\alpha]_D^{26}$ +112 (c, 1.24 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene-α-D-gulopyranoside*
[33947-10-3]
$C_{10}H_{18}O_5$ 218.249
Mp 48-50°. $[\alpha]_D^{26}$ +67.7 (c, 0.77 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, 4-Ac: Methyl 4*-O-*acetyl-6-deoxy-2,3*-O-*isopropylidene-α-D-gulopyranoside*
[33947-12-5]
$C_{12}H_{20}O_6$ 260.286
Cryst. (petrol). Mp 68-69.5°. $[\alpha]_D^{21}$ +64.1 (c, 0.6 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, 4-mesyl:* [33947-11-4]
$C_{11}H_{20}O_7S$ 296.341
Cryst. (EtOAc/petrol). Mp 112-114°.
$[\alpha]_D^{21}$ +71.7 (c, 0.8 in $CHCl_3$).

β-D-Pyranose-*form*

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-6-deoxy-β-D-gulopyranose*
[33947-15-8]
$C_{14}H_{20}O_9$ 332.307
Mp 133-135°. $[\alpha]_D$ +11 (c, 2.0 in $CHCl_3$).

α-L-Pyranose-*form*

Benzyl glycoside, tri-Ac: Benzyl 2,3,4-tri-O-*acetyl-6-deoxy-α-L-gulopyranoside*
$C_{19}H_{24}O_8$ 380.394
$[\alpha]_D^{20}$ -112 (c, 0.7 in $CHCl_3$).

α-D-Furanose-*form*

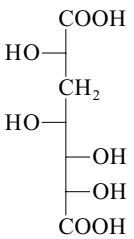
3-Me, 1,2-O-*isopropylidene: 6-Deoxy-1,2*-O-*isopropylidene-3*-O-*methyl-α-D-gulofuranose*
[29587-05-1]
$C_{10}H_{18}O_5$ 218.249
Syrup. Bp_{15} 65-70° (bath). $[\alpha]_D$ +38 (c, 0.7 in $CHCl_3$).

Moore, J.A. *et al., Helv. Chim. Acta*, 1954, **37**, 755 (*D-form, isol, bromophenylhydrazone*)

Smith, C.R. *et al., Phytochemistry*, 1964, **3**, 289 (*isol*)
Capek, K. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1973 (*α-D-pyr Me gly isopropylidene derivs, α-D-pyr Me gly tri-Ac, β-D-pyr tetra-Ac*)
Brimacombe, J.S. *et al., J.C.S.*, 1971, 613, (*3-Me, synth, pmr*)
Komissarenko, N.F. *et al., Khim. Prir. Soedin.*, 1972, 397; *CA*, **77**, 149662q (*isol*)
Stevens, C.L. *et al., J.O.C.*, 1973, **38**, 4311 (*synth, α-D-pyr Me gly Ac, α-D-pyr Me gly tri-Ac, α-D-pyr Me gly isopropylidene*)
Collins, P.M. *et al., Carbohydr. Res.*, 1974, **33**, 25 (*β-D-pyr tetra-Ac*)
Ireland, R.E. *et al., J.O.C.*, 1980, **45**, 197, (*L-form*)
Mori, M. *et al., Chem. Pharm. Bull.*, 1986, **34**, 4037 (*synth, L-form*)
Banaszek, A. *et al., J. Carbohydr. Chem.*, 1994, **13**, 285-291 (*Benzyl α-L-gly tri-Ac*)

3-Deoxy-*manno*-heptaric acid D-147

Cerheptaric acid



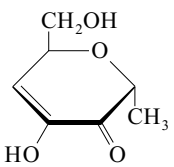
$C_7H_{12}O_8$ 224.167

Abs. config. not determined. D-form illus. Isol. from *Cereus peruvianus* (Cactaceae). Widespread in *Cereus* and *Trichocereus* spp.

7→4 Lactone, Me ester:
$C_8H_{12}O_7$ 220.179
Needles. Mp 159-160°. $[\alpha]_D^{20}$ +39 (c, 1 in MeOH).

Kringstad, R. *et al., Carbohydr. Res.*, 1980, **80**, 285

5-Deoxy-*glycero*-hept-4-ene-2,3-diulo-2,6-pyranose D-148



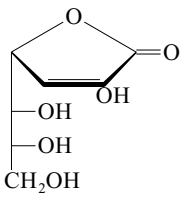
$C_7H_{10}O_4$ 158.154
Unisolated enol.

D-*form*

Dibenzoyl: 4,7-Di-O-benzoyl-5-deoxy-D-glycero-hept-4-ene-2,3-diulo-2,6-pyranose
[122409-65-8]
$C_{21}H_{18}O_6$ 366.37
Syrup. $[\alpha]_D^{20}$ -33 (c, 0.6 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Annalen*, 1989, 1163 (*pmr, cmr*)

3-Deoxy-*arabino*-hept-2-enono-1,4-lactone D-149



$C_7H_{10}O_6$ 190.152
Unisolated enol.

D-*form* [29873-82-3]
Cryst. (AcOH aq.). Mp 167°. $[\alpha]_D^{23}$ -5.8 (c, 2.8 in H_2O).

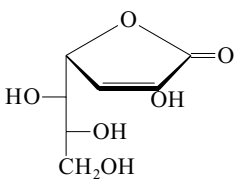
Monosemicarbazone: [29873-86-7]
Cryst. Mp 210° dec. $[\alpha]_D^{23}$ -115 (c, 1.6 in H_2O). The 2-semicarbazone of the 2-oxo tautomer.

Tetrabenzoyl: 2,5,6,7-Tetra-O-benzoyl-3-deoxy-D-arabino-hept-2-enono-1,4-lactone
[41356-09-6]
$C_{35}H_{26}O_{10}$ 606.584
Cryst. (C_6H_6 or Et_2O). Mp 181-182°. $[\alpha]^{16}{}_D$ +24.8 (c, 0.9 in $CHCl_3$).

[72921-72-3]

Paerels, G.B. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1970, **89**, 813 (*synth, uv, ir, D-form*)
Litter, M.I. *et al., Carbohydr. Res.*, 1973, **26**, 431 (*synth, uv, pmr, tetrabenzoyl*)
Zhdanov, Y.A. *et al., Zh. Obshch. Khim.*, 1979, **49**, 2618 (*L-form*)
Sala, L.F. *et al., Carbohydr. Res.*, 1980, **78**, 61 (*tetrabenzoyl*)

3-Deoxy-*lyxo*-hept-2-enono-1,4-lactone D-150



$C_7H_{10}O_6$ 190.152
Unisolated enol.

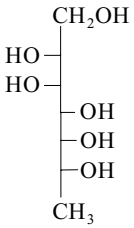
D-*form*

Tetrabenzoyl: 2,5,6,7-Tetra-O-benzoyl-3-deoxy-D-lyxo-hept-2-enono-1,4-lactone
[73163-18-5]
$C_{35}H_{26}O_{10}$ 606.584
Syrup. $[\alpha]_D^{25}$ -68 (c, 0.6 in CH_2Cl_2).

Sala, L.F. *et al., Carbohydr. Res.*, 1980, **78**, 61 (*synth, pmr*)

7-Deoxy-D-*glycero*-D-*manno*-heptitol D-151

1-Deoxy-D-glycero-D-talo-heptitol. Siphulitol
[33904-35-7]

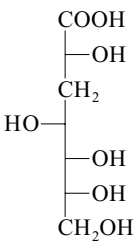


$C_7H_{16}O_6$ 196.2
Constit. of the lichen *Siphula ceratites*. Mp 122-123°. $[\alpha]_D^{20}$ -8 (c, 1.5 in H_2O).

Tri-O-benzylidene:
$C_{28}H_{28}O_6$ 460.526
Mp 239-242°. $[\alpha]_D^{20}$ +9 (c, 1.7 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1962, **16**, 543

3-Deoxy-*gluco*-heptonic acid D-152



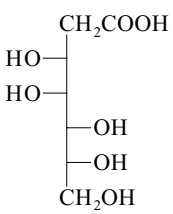
$C_7H_{14}O_7$ 210.183

D-*form*

Me ester:
$C_8H_{16}O_7$ 224.21
Cryst. (MeOH). Mp 173-175°. $[\alpha]_D^{20}$ +12 (c, 1.6 in H_2O).

Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 331 (*synth, cmr*)

2-Deoxy-*manno*-heptonic acid D-153



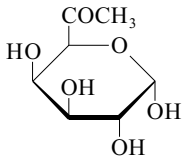
$C_7H_{14}O_7$ 210.183

D-*form*

Me ester: Methyl 2-deoxy-D-manno-heptonate
[42320-55-8]
$C_8H_{16}O_7$ 224.21
Mp 173-175°. $[\alpha]_D^{20}$ +12 (c, 1.6 in H_2O).

Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 331 (*synth, cmr*)

7-Deoxy-*galacto*-heptopyranos-6-ulose D-154



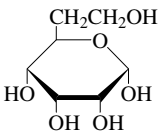
$C_7H_{12}O_6$ 192.168

α-D-*form*

1,2:3,4-Di-O-*isopropylidene:* [78574-39-7]
$C_{13}H_{20}O_6$ 272.297
Syrup.

Martinez, E. *et al., An. Quim., Ser. C*, 1980, **76**, 230 (*diisopropylidene*)

6-Deoxy-*allo*-heptose D-155



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184
An aq. soln. at 31° contains 11.6% α-Pyr, 79.6% β-Pyr, 3.3% α-Fur and 5.5% β-Fur.

D-*form* [168252-83-3]
Mp 104-106°. $[\alpha]_D^{20}$ +29.6 (c, 1.05 in MeOH after 24h).

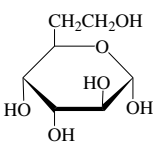
α-D-Pyranose-*form* [335250-91-4]
Penta-Ac: 1,2,3,4,7-Penta-O-*acetyl-6-deoxy-α-D*-allo-*heptopyranose*
[168102-89-4]
$C_{17}H_{24}O_{11}$ 404.37
$[\alpha]_D^{20}$ +8.4 (c, 6.2 in $CHCl_3$).

β-D-Furanose-*form* [335250-97-0]
Me glycoside, 2,3-isopropylidene: Methyl 6-deoxy-2,3-O-*isopropylidene-β-D*-allo-*heptofuranoside*
$C_{11}H_{20}O_6$ 248.275
$[\alpha]_D^{20}$ -52.3 (c, 8.5 in $CHCl_3$).

[121846-18-2, 335250-93-6, 335250-95-8]

Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908 (*D-form, α-D-pyr Penta Ac, β-D-fur Me 1,2-isopropylidene*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

6-Deoxy-*altro*-heptose D-156



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184
An aq. soln. contains 11.6% α-Pyr, 79.6% β-Pyr, 14.1% α-Fur and 5.5% β-Fur at 30°.

D-*form* [59401-37-5]
Component of the antigenic polysaccharide prod. by *Eubacterium saburreum* and polysaccharide from *Campylobacter jejuni*. Foam. $[\alpha]_D^{22}$ +20 (c, 1 in H_2O).

α-D-Pyranose-*form* [335250-99-2]
Me glycoside: Methyl 6-deoxy-α-D-altro-*heptopyranoside*
[68027-32-7]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D$ +105 (c, 0.1 in H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,7-tetra-O-*acetyl-6-deoxy-α-D*-altro-*heptopyranoside*
[155205-40-6]
$C_{16}H_{24}O_{10}$ 376.36
Mp 72-74°. $[\alpha]_D$ +66 (c, 1.4 in $CHCl_3$). $[\alpha]_D$ +77 (c, 1.01 in $CHCl_3$).

Me glycoside, 2,3,4-tri-O-*benzyl: Methyl 2,3,4-tri*-O-*benzyl-6-deoxy-α-D*-altro-*heptopyranoside*
[68027-31-6]
$C_{29}H_{34}O_6$ 478.584
Syrup. $[\alpha]_D$ +87 (c, 0.8 in $CHCl_3$).

Me glycoside, 2,4,7-tri-O-*benzyl: Methyl 2,4,7-tri*-O-*benzyl-6-deoxy-α-D*-altro-*heptopyranoside*
[171082-81-8]
$C_{29}H_{34}O_6$ 478.584
Characterised spectroscopically.

β-D-Furanose-*form* [335251-05-3]
No phys. props. reported.

1,2-Isopropylidene, 3-O-*benzyl: 3*-O-*Benzyl-6-deoxy-1,2*-O-*isopropylidene-β-D*-altro-*heptofuranose*
[168102-92-9]
$C_{17}H_{24}O_6$ 324.373
$[\alpha]_D^{20}$ +10.3 (c, 1.1. in $CHCl_3$).

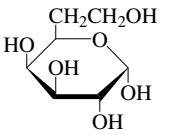
β-L-Furanose-*form*

1,2-Isopropylidene, 3,5-dibenzyl: 3,5-Di-O-*benzyl-6-deoxy-1,2*-O-*isopropylidene-β-L*-altro-*heptofuranose*
[68354-74-5]
$C_{24}H_{30}O_6$ 414.497
$[\alpha]_D^{26}$ +4 (c, 1.9 in $CHCl_3$). $[\alpha]_{365}^{26}$ +14 (c, 1.9 in $CHCl_3$).

[171082-75-0, 335251-01-9, 335251-03-1]

Hoffman, J. *et al., Carbohydr. Res.*, 1976, **47**, 261-267 (*occur*)
Jarrell, H.C. *et al., Carbohydr. Res.*, 1978, **67**, 43-54 (*β-L-Fur 1,2-isopropylidene 3, 5-dibenzyl*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1978, **67**, 263-266 (*α-D-Me pyr*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1994, **72**, 247-251 (*α-D-Me pyr, synth, pmr, bibl*)
Shin, Y. *et al., Bull. Korean Chem. Soc.*, 1995, **16**, 625-630 (*allyl glycoside derivs, α-D-Me-pyr 2,4,7-tribenzyl*)
Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908 (*β-D-fur 1,2-isopropylidene 3 benzyl*)
Hanniffy, O.M. *et al., Carbohydr. Res.*, 1999, **319**, 124-132 (*occur*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*synth, pmr, cmr, equilib*)

6-Deoxy-*galacto*-heptose D-157



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184
An aq. soln. at 31° contains 25.4% α-Pyr, 73.6% β-Pyr,

D-*form* [52562-77-3]
$[\alpha]_D$ +75 (c, 0.9 in H_2O).

α-D-Pyranose-*form* [335251-29-1]
1,2:3,4-Diisopropylidene: 6-Deoxy-1,2:3,4-di-O-*isopropylidene-α-D*-galacto-*heptopyranose*
[52562-76-2]
$C_{13}H_{22}O_6$ 274.313
Syrup. $[\alpha]_D$ -44 (c, 0.6 in $CHCl_3$). $[\alpha]_D^{20}$ -38.4 (c, 1.2 in Me_2CO).

1,2:3,4-Diisopropylidene, 7-Ac: 7-O-*Acetyl-6-deoxy-1,2:3,4-di*-O-*isopropylidene-α-D*-galacto-*heptopyranose*
[75251-48-8]
$C_{15}H_{24}O_3$ 252.353
Syrup. $[\alpha]_D^{20}$ -32 (c, 0.8 in $CHCl_3$).

α-D-Furanose-*form*

3-Benzyl, 1,2-isopropylidene: 3-O-*Benzyl-6-deoxy-1,2*-O-*isopropylidene-α-D*-galacto-*heptofuranose*
[168103-03-5]
$C_{17}H_{24}O_6$ 324.373
$[\alpha]_D^{20}$ -25 (c, 1.1 in $CHCl_3$).

3-Benzyl, 5,7-di-Me, 1,2-isopropylidene: 3-O-*Benzyl-6-deoxy-1,2*-O-*isopropylidene-5,7-di*-O-*methyl-α-D*-galacto-*heptofuranose*
[161747-28-0]
$C_{19}H_{28}O_6$ 352.427
$[\alpha]_D^{20}$ -23.6 (c, 4.3 in $CHCl_3$). $[\alpha]_D^{20}$ -21.2 (c, 2.2 in $CHCl_3$).

L-*form*
Component of *Campylobacter lari* lipopolysaccharide. Identified by degradative techniques.

α-L-Furanose-*form*

3-Benzyl, 1,2-isopropylidene: 3-O-*Benzyl-6-deoxy-1,2*-O-*isopropylidene-α-L*-galacto-*α-L-heptofuranose*
[168102-93-0]
$C_{17}H_{24}O_6$ 324.373
$[\alpha]_D^{20}$ +21.8 (c, 3.1 in $CHCl_3$).

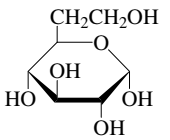
3-Benzyl, 5,7-di-Me, 1,2-isopropylidene: 3-O-*Benzyl-6*-deoxy-*1,2*-O-*isopropylidene-5,7-di*-O-*methyl-α-L*-galacto-*heptofuranose*
[168102-95-2]
$C_{19}H_{28}O_6$ 352.427
$[\alpha]_D^{20}$ +22.6 (c, 3.0 in $CHCl_3$).

[161747-20-2, 335251-31-5]

Eklind, K. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 260-261 (*D-form, α-D-pyr, 1,2:3,4-diisopropylidene*)
Paulsen, H. *et al., Annalen*, 1980, 825-837, (*α-D-pyr 1,2:3,4-diisopropylidene*)
Pakulski, Z. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1994, **68**, 1109-1114

Aspinall, G.O. *et al., Carbohydr. Res.*, 1995, **279**, 227-244; 245-264 (*L-form, occur*)
Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

6-Deoxy-*gluco*-heptose D-158



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

An aq. soln. at 27° contains 25.0% α-Pyr and 75.0% β-Pyr.

D-*form* [168252-84-4]
$[\alpha]_D^{20}$ +62.9 (c, 1.0 in MeOH after 24h).

α-D-Pyranose-*form* [335251-07-5]

Me glycoside, 2,3-dibenzyl, 4-methoxymethyl: Methyl 2,3-di-O-benzyl-6-deoxy-4-O-methoxymethyl-α-D-gluco-heptopyranoside
[220050-72-6]
$C_{24}H_{32}O_7$ 432.513
Mp 56°. $[\alpha]_D^{25}$ +101 (c, 0.25 in $CHCl_3$).

Me glycoside, 2,3-dibenzyl, 4,7-benzylidene(R-): Methyl 4,7-O-benzylidene-2,3-di-O-benzyl-6-deoxy-α-D-gluco-heptopyranoside
[277760-82-4]

[220311-98-8]
$C_{29}H_{32}O_6$ 476.568
Characterised spectroscopically.

Me glycoside, 2,3,4-tribenzyl: Methyl 2,3,4-tri-O-benzyl-6-deoxy-α-D-gluco-heptopyranoside
[133918-92-0]
$C_{29}H_{34}O_6$ 478.584
Syrup.

Me glycoside, 2,3,4-tribenzyl, 7-methanesulfonyl: [127214-39-5]
$C_{30}H_{36}O_8S$ 556.676
No phys. props. reported.

β-D-Pyranose-*form* [335251-09-7]

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-benzyl-6-deoxy-β-D-gluco-heptopyranoside
[153118-57-1]
$C_{22}H_{28}O_6$ 388.46
Cryst. ½H_2O (EtOAc/hexane).
Mp 104-105°. $[\alpha]_D$ -7 (c, 3 in $CHCl_3$).

α-D-Furanose-*form*

1,2-Isopropylidene: 6-Deoxy-1,2-O-isopropylidene-α-D-gluco-heptofuranose
[34044-58-1]
$C_{10}H_{18}O_6$ 234.249
$[\alpha]_D^{20}$ -3.5 (c, 1.4 in EtOH). $[\alpha]_D^{24}$ +16 (c, 2 in EtOH).

3-Me, 1,2-isopropylidene, 5,7-di-Ac: 5,7-Di-O-acetyl-6-deoxy-1,2-O-isopropylidene-3-O-methyl-α-D-gluco-heptofuranose
[75251-59-1]
$C_{15}H_{24}O_8$ 332.35
Syrup. $[\alpha]_D^{20}$ -19 (c, 2.4 in $CHCl_3$).

3-Benzyl, 1,2-isopropylidene, 4,7-di-Ac: 4,7-Di-O-acetyl-3-O-benzyl-6-deoxy-1,2-O-isopropylidene-α-D-gluco-heptofuranose
[220051-17-2]
$C_{21}H_{28}O_8$ 408.447
Syrup. $[\alpha]_D^{25}$ -44 (c, 1 in $CHCl_3$).

1,2-Isopropylidene, 3-benzyl: 3-O-Benzyl-6-deoxy-1,2-O-isopropylidene-α-D-gluco-heptofuranose
[151670-02-9]
$C_{17}H_{24}O_6$ 324.373
Mp 61-62° (51-52°). $[\alpha]_D^{20}$ -52.5 (c, 1.1 in $CHCl_3$). $[\alpha]_D^{25}$ -40 (c, 1 in $CHCl_3$).

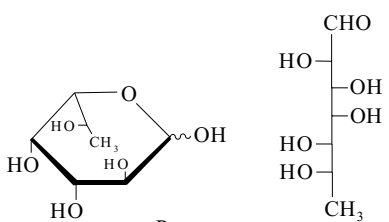
1,2-Isopropylidene, 3,5-benzylidene (R-): 3,5-O-Benzylidene-6-deoxy-1,2-O-isopropylidene-α-D-gluco-heptofuranose
[136839-41-3]
$C_{17}H_{22}O_6$ 322.357
Cryst. (Et_2O/hexane). Mp 75-76°. $[\alpha]_D^{22}$ +76.7 (c, 1 in $CHCl_3$).

1,2-Isopropylidene, 3,5-benzylidene(R-), 7-tosyl: [136839-46-8]
$C_{24}H_{28}O_8S$ 476.546
Cryst. (C_6H_6/hexane). Mp 99-100°. $[\alpha]_D^{24}$ +69 (c, 1 in $CHCl_3$).

[62475-58-5, 75251-58-0, 168103-05-7, 168103-08-0, 194807-86-8]

Paulsen, H. *et al., Annalen*, 1980, 825-857, (*α-D-fur 1,2-isopropylidene, 1,2-isopropylidene di-Ac*)
Akerfeldt, K.S. *et al., J.O.C.*, 1991, **56**, 7133-7144 (*α-Dfur 1,2-isopropylidene, 3, 5-benzylidene, 1,2-isopropylidene 3, 5-benzylidene 7-tosyl*)
Pedretti, V. *et al., Carbohydr. Res.*, 1993, **244**, 247-257 (*β-D-pyr Me 2,3-dibenzyl*)
Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908 (*α-D-fur 1,2-isopropylidene*)
Dong, W. *et al., Biochemistry*, 1996, **35**, 2788-2795 (*α-D-pyr Me 2,3,4-tribenzyl*)
Vargas-Berenguel, A. *et al., Synthesis*, 1998, 1778-1786 (*α-D-fur 1,2-isopropylidene 3-benzyl, α-D-fur 1,2-isopropylidene 3-benzyl di-Ac*)
Madsen, J. *et al., Chem. Eur. J.*, 2000, **6**, 1140-1146 (*α-D-pyr Me 2,3-dibenzyl 4, 7-benzylidene, α-D-Pyr Me 2,3,4-tribenzyl*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

7-Deoxy-L-*glycero*-L-*galacto*-heptose D-159



Pyranose

$C_7H_{14}O_6$ 194.184
Mp 186-187°. $[\alpha]_D^{21}$ -128.6 → -62.5 (c, 2.5 in H_2O).

α-*Pyranose-form*

Penta-Ac:
$C_{17}H_{24}O_{11}$ 404.37
Mp 93-94°. $[\alpha]_D^{20}$ -135.6 (c, 2.1 in $CHCl_3$).

Me glycoside: Methyl 7-deoxy-L-glycero-L-galacto-α-heptopyranoside
$C_8H_{16}O_6$ 208.211
Mp 132°. $[\alpha]_D^{20}$ -174 (c, 3 in H_2O).

β-*Pyranose-form*

Penta-Ac: Mp 108°. $[\alpha]_D^{20}$ -31 (c, 3.6 in $CHCl_3$).

Me glycoside: Methyl 7-deoxy-L-glycero-L-galacto-β-heptopyranoside
Mp 144°. $[\alpha]_D^{20}$ +18.5 (c, 1.5 in H_2O).

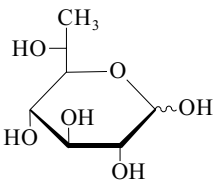
β-*Furanose-form*

Me glycoside: Methyl 7-deoxy-L-glycero-L-galacto-β-heptofuranoside
Mp 178-180°. $[\alpha]_D^{20}$ +117 (c, 3.2 in H_2O).

Jackson, E.L. *et al., J.A.C.S.*, 1953, **75**, 3000

7-Deoxy-D-*glycero*-D-*gluco*-heptose, 9CI, 8CI D-160

SF 666A. Antibiotic SF 666A
[29864-55-9]



$C_7H_{14}O_6$ 194.184

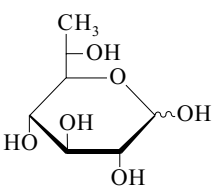
Monosaccharide antibiotic. Isol. from *Streptomyces setonensis*. Effective against *Glucobacter suboxydans*. Hygroscopic powder.
Mp 160-170° dec. $[\alpha]_D^{24}$ +38 (c, 1 in H_2O).

▶ MJ9870000

Ezaki, N. *et al., Meiji Seika Kenkyu Nenpo*, 1970, **11**, 15; *CA*, **76**, 23796 (*isol, ir, props*)
Ezaki, N. *et al., Carbohydr. Res.*, 1971, **17**, 375 (*pmr*)
Ito, T. *et al., Agric. Biol. Chem.*, 1975, **39**, 273 (*synth*)

7-Deoxy-L-*glycero*-D-*gluco*-heptose D-161

MBU 18. Antibiotic MBU 18
[53260-06-3]

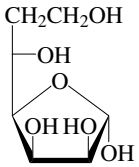


$C_7H_{14}O_6$ 194.184

Monosaccharide antibiotic. Isol. from *Streptomyces* sp. Antifungal. Hygroscopic powder. Sol. H_2O; poorly sol. butanol, hexane. $[\alpha]_D$ +41 (H_2O).

Hauser, O. *et al., Antibiotiki (Moscow)*, 1974, **19**, 483 (*isol, uv, ir, pmr, ms*)

6-Deoxy-*gulo*-heptose D-162



β-L-Furanose-*form*

$C_7H_{14}O_6$ 194.184

An aq. soln. at 22° contains 10.3% α-Pyr, 88.7% β-Pyr,

L-*form* [168252-86-6]
Component of *Campylobacter lari* lipopolysaccharides.
$[\alpha]_D^{20}$ -1.1 (24h) (c, 1.4 in MeOH).

β-L-Furanose-*form*

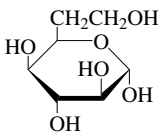
*Me glycoside, 2,3-isopropylidene: Methyl 6-deoxy-2,3-*O-*isopropylidene-β-L-*gulo-*heptofuranoside*
[151670-01-8]
$C_{11}H_{20}O_6$ 248.275
Mp 55-57°. $[\alpha]_D^{20}$ +67.6 (c, 1.4 in $CHCl_3$).

*Me glycoside, 2,3-isopropylidene, 5,7-di-Ac: Methyl 5,7-di-*O*-acetyl-6-deoxy-2,3-*O*-isopropylidene-β-L-*gulo*-heptofuranoside*
[220051-46-7]
$C_{15}H_{24}O_8$ 332.35
Syrup. $[\alpha]_D^{25}$ +40 (c, 1 in $CHCl_3$).

[168103-07-9, 168103-09-1, 335251-17-7, 335251-19-9]

Aspinall, G.O. *et al., Carbohydr. Res.*, 1995, **279**, 227-244; 245-264 (*L-form, occur*)
Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908 (*L-form, β-L-fur Me 1,2-isopropylidene*)
Vargas-Berenguel, A. *et al., Synthesis*, 1998, 1778-1786 (*β-L-fur Me 2,3-isopropylidene 5, 7-di-Ac*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

6-Deoxy-*ido*-heptose D-163



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

An aq. soln. at 30° contains 54.2% α-Pyr, 34.5% β-Pyr, 4.9% α-Fur and 6.4% β-Fur.

L-*form* [168252-85-5]
$[\alpha]_D^{20}$ -9.2 (c, 1.0 in MeOH) (24h).

Penta-Ac: [168103-06-8]
$C_{17}H_{24}O_{11}$ 404.37
Characterised spectroscopically. Mixt. of pyranose and furanose forms 9.4:5.2. Misnamed in CA.

β-L-Furanose-*form* [335251-27-9]

*1,2-Isopropylidene: 6-Deoxy-1,2-*O*-isopropylidene-β-L-*ido*-heptofuranose*
[151670-08-5]
$C_{10}H_{18}O_6$ 234.249
Mp 98-101°. $[\alpha]_D^{20}$ -32.9 (c, 1.2 in MeOH).

*3-Benzyl, 1,2-isopropylidene: 3-*O*-Benzyl-6-deoxy-1,2-*O*-isopropylidene-β-L-*ido*-heptofuranose*
[151670-03-0]
$C_{17}H_{24}O_6$ 324.373
Mp 72-76° Mp 68-69°. $[\alpha]_D^{20}$ -62.2 (c, 0.36 in $CHCl_3$). $[\alpha]_D^{25}$ -50 (c, 0.5 in $CHCl_3$).

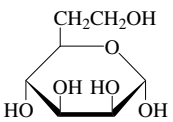
*3-Benzyl, 1,2-isopropylidene, 5,7-di-Ac: 5,7-Di-*O*-acetyl-3-*O*-benzyl-6-deoxy-1,2-*O*-isopropylidene-β-L-*ido*-heptofuranose*
[220098-13-5]
$C_{21}H_{28}O_8$ 408.447
Syrup. $[\alpha]_D^{25}$ -28 (c, 1 in $CHCl_3$).

[335251-21-3, 335251-23-5, 335251-25-7]

Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

6-Deoxy-*manno*-heptose D-164

[335251-15-5]



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

An aq. soln. at 23° contains 45.2% α-Pyr, 52.4% β-Pyr,

D-*form* [40653-20-1]
Component of the lipopolysaccharides from *Yersinia pseudotuberculosis* type IIA and *Pseudomonas pseudomallei*.
$[\alpha]_D$ +25 (c, 0.7 in H_2O).

α-D-Pyranose-*form* [335251-11-1]

*Me glycoside: Methyl 6-deoxy-α-D-*manno-*heptopyranoside*
[40653-19-8]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D$ +80 (c, 0.5 in H_2O).

*Me glycoside, 7-*O*-*tert*-butyldiphenylsilyl:*
[155205-42-8]
$C_{24}H_{34}O_6Si$ 446.615
$[\alpha]_D$ +43 (c, 1.5 in $CHCl_3$).

*Me glycoside, tetra-Ac: Methyl 2,3,4,7-tetra-*O*-acetyl-6-deoxy-α-D-*manno-*heptopyranoside*
[40653-21-2]
$C_{16}H_{24}O_{10}$ 376.36
Cryst. Mp 77-78°. $[\alpha]_D$ +62 (c, 0.4 in $CHCl_3$).

*Me glycoside, 2,3-isopropylidene, 7-*O*-tert-butyldiphenylsilyl:* [155205-43-9]
$C_{27}H_{38}O_6Si$ 486.679
$[\alpha]_D$ +22 (c, 1.05 in $CHCl_3$).

*Me glycoside, 2,3,4-tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-6-deoxy-α-D-*manno-*heptopyranoside*
[40653-18-7]
$C_{29}H_{34}O_6$ 478.584
Syrup. $[\alpha]_D$ +39 (c, 0.6 in $CHCl_3$).

*Me glycoside, 2,4,7-tribenzyl: Methyl 2,4,7-tri-*O*-benzyl-6-deoxy-α-D-*manno-*heptopyranoside*
[171082-80-7]
$C_{29}H_{34}O_6$ 478.584
Characterised spectroscopically.

*Penta-Ac: 1,2,3,4,7-Penta-*O*-acetyl-6-deoxy-α-D-*manno-*heptopyranose*
[139978-87-3]
$C_{17}H_{24}O_{11}$ 404.37
$[\alpha]_D^{20}$ +49 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

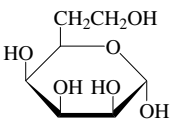
*Me glycoside, 2,3-isopropylidene: Methyl 6-deoxy-2,3-*O*-isopropylidene-α-D-*manno-*heptofuranoside*
[139978-86-2]
$C_{11}H_{20}O_6$ 248.275
Cryst. ($CHCl_3$). Mp 94-95°. $[\alpha]_D^{20}$ +58.8 (c, 1.1 in $CHCl_3$).

*Me glycoside, 2,3-isopropylidene, 5,7-di-Ac: Methyl 5,7-di-*O*-acetyl-6-deoxy-2, 3-isopropylidiene-α-D-heptofuranoside*
[220051-21-8]
$C_{15}H_{24}O_8$ 332.35
Syrup. $[\alpha]_D^{25}$ -51 (c, 1 in $CHCl_3$).

[144705-40-8, 335251-13-3]

Lindberg, B. *et al., Acta Chem. Scand.*, 1972, **26**, 1389-1393; 4143-4146 (*isol, struct, synth, α-Me Pyr tribenzyl*)
Knirel, Y.A. *et al., Carbohydr. Res.*, 1992, **233**, 185-193 (*occur*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1994, **72**, 247-251 (*Me α-Pyr derivs*)
Krajewski, J.W. *et al., Carbohydr. Res.*, 1994, **252**, 97-105 (*synth, pmr, cryst struct, α-D-Me fur isopropylidene*)
Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908 (*synth*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

6-Deoxy-*talo*-heptose D-165



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

An aq. soln. at 28° contains 51.5% α-Pyr, 33.1% β-Pyr, 7.7% α-Fur and 7.7% β-Fur.

D-*form*
Component of *Campylobacter coli* and *Campylobacter jejuni* lipopolysaccharide.

α-D-Pyranose-*form*

*Me glycoside: Methyl 6-deoxy-α-D-*talo-*heptopyranoside*
[155205-45-1]
$C_8H_{16}O_6$ 208.211
$[\alpha]_D^{20}$ +84 (c, 3 in H_2O).

*Me glycoside, tetra-Ac: Methyl 2,3,4,7-tetra-*O*-acetyl-6-deoxy-α-D-*talo-*heptopyranoside*
[155205-46-2]
$C_{16}H_{24}O_{10}$ 376.36
$[\alpha]_D^{20}$ +81 (c, 1.02 in $CHCl_3$).

*Me glycoside, 2,3-isopropylidene, 7-tert-butyldiphenylsilyl: Methyl 6-deoxy-2,3-*O*-isopropylidene-7-*O*-tert-butyldiphenyl-silyl-α-D-*talo*-heptopyranoside*
[155205-44-0]
$C_{27}H_{38}O_6Si$ 486.679
$[\alpha]_D^{20}$ +27 (c, 0.82 in $CHCl_3$).

L-*form* [168252-82-2]
$[\alpha]_D^{20}$ -31.8 (c, 1.1 in MeOH) (after 24h).

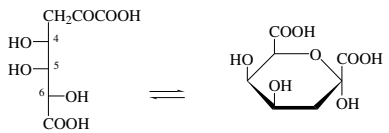
α-L-Pyranose-*form* [335251-33-7]
Penta-Ac: 1,2,3,4,7-Penta-O-*acetyl-6-deoxy-α-L*-talo-*heptopyranose*
[168102-87-2]
$C_{17}H_{24}O_{11}$ 404.37
$[\alpha]_D^{27}$ -75.3 (c, 7.3 in $CHCl_3$).

β-L-Pyranose-*form* [335251-35-9]
Penta-Ac: 1,2,3,4,7-Penta-O-*acetyl-6-deoxy-β-L*-talo-*heptopyranose*
[168102-88-3]
$C_{17}H_{24}O_{11}$ 404.37
$[\alpha]_D^{27}$ -15.2 (c, 3.8 in $CHCl_3$).

α-L-Furanose-*form* [335251-37-1]
Me glycoside, 2,3-isopropylidene: Methyl 6-deoxy-2,3-O-*isopropylidene-α-L*-talo-*heptofuranoside*
[151670-05-2]
$C_{11}H_{20}O_6$ 248.275
Mp 52-53°. $[\alpha]_D^{24}$ -43.8 (c, 1.1 in $CHCl_3$).
Aspinall, G.O. *et al., J. Biol. Chem.*, 1993, **268**, 18321-18329 (*D-form, occur*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1994, **72**, 247-251 (*α-D-pyr Me, α-D-pyr 2,3-isopropylidene 7-tertmethyldiphenylsilyl*)
Pakulski, Z. *et al., Tetrahedron*, 1995, **51**, 871-908 (*L-form, α-L-fur Me 2,3-isopropylidene, α-L-pyr tetra-Ac, β-L-pyr tetra-Ac*)
Shaskov, A.S. *et al., Carbohydr. Res.*, 2001, **330**, 289-294 (*pmr, cmr, equilib*)

3-Deoxy-2-heptulosaric acid D-166

2,3,4-Trihydroxy-6-oxoheptanedioic acid



(4*R*,5*R*,6*S*)-*form* α-D-Pyranose-*form*

$C_7H_{10}O_8$ 222.151

(4*R*,5*R*,6*S*)-*form*
D-lyxo-*form*. *Dha*†
[117144-05-5]
[138529-66-5] Component of Ghamnogalacturonan II of angiosperms and gymnosperms, cell wall of *Tetraselnius striata* and gram-negative Rhizobiaceae bacteria.

Me α-pyranoside, 1-Me ester: [165399-70-2]
$C_9H_{14}O_8$ 250.205
Foam. $[\alpha]_D^{20}$ +6.2 (c, 1.2 in MeOH).

Me α-pyranoside, di-Me ester:
[165399-69-9]
$C_{10}H_{16}O_8$ 264.232
Syrup. $[\alpha]_D^{20}$ +60.5 (c, 1.26 in $CHCl_3$).

Me β-pyranoside, di-Me ester:
[194155-69-6]
$C_{10}H_{16}O_8$ 264.232
Oil. $[\alpha]_D$ +27.2 (c, 0.48 in $CHCl_3$).

Me β-pyranoside, di-Ac, di-Me ester:
[194155-70-9]
$C_{14}H_{20}O_{10}$ 348.306
Oil. $[\alpha]_D$ +91.3 (c, 0.8 in $CHCl_3$).

(4*R*,5*S*,6*S*)-*form* D-arabino-*form*

Me α-pyranoside, di-Me ester:
[194155-57-2]
Oil. $[\alpha]_D$ +61.4 (c, 1.26 in $CHCl_3$).

Me α-pyranoside, di-Ac, di-Me ester:
[194155-59-4]
$C_{14}H_{20}O_{10}$ 348.306
Oil. $[\alpha]_D$ +44.9 (c, 2.53 in $CHCl_3$).

Me β-pyranoside, di-Me ester:
[194155-58-3]
Oil. $[\alpha]_D$ +18 (c, 0.78 in $CHCl_3$).

Me β-pyranoside, di-Ac, di-Me ester:
[194155-60-7]
Oil. $[\alpha]_D$ +24.4 (c, 1.1 in $CHCl_3$).

(4*S*,5*R*,6*S*)-*form* D-xylo-*form*

Me α-pyranoside, di-Me ester: [194155-65-2]
Oil. $[\alpha]_D$ +34.9 (c, 0.6 in $CHCl_3$).

Me α-pyranoside, di-Ac, di-Me ester:
[194155-67-4]
Oil. $[\alpha]_D$ +21.5 (c, 0.6 in $CHCl_3$).

Me β-pyranoside, di-Me ester:
[194155-66-3]
Oil. $[\alpha]_D$ -0.6 (c, 0.95 in $CHCl_3$).

Me β-pyranoside, di-Ac, di-Me ester:
[194155-68-5]
Oil. $[\alpha]_D$ +63.7 (c, 0.85 in $CHCl_3$).

(4*S*,5*S*,6*S*)-*form* D-ribo-*form*

Me α-pyranoside, di-Me ester:
[194155-61-8]
Oil. $[\alpha]_D$ +66.7 (c, 0.8 in $CHCl_3$).

Me α-pyranoside, di-Ac, di-Me ester:
[194155-63-0]
Oil. $[\alpha]_D$ +96.9 (c, 1.17 in $CHCl_3$).

Me β-pyranoside, di-Me ester:
[194155-62-9]
Oil. $[\alpha]_D$ +7.7 (c, 0.83 in $CHCl_3$).

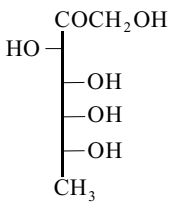
Me β-pyranoside, di-Ac, di-Me ester:
[194155-64-1]
Oil. $[\alpha]_D$ +12.3 (c, 0.75 in $CHCl_3$).

[186831-57-2, 194155-67-4]

Stevenson, T.T. *et al., Carbohydr. Res.*, 1988, **179**, 269-287 (*occur*)
Banaszek, A. *et al., Tetrahedron*, 1995, **51**, 4231-4238 (*synth, pmr, bibl*)
Doco, T. *et al., Carbohydr. Res.*, 1997, **297**, 181-186 (*occur*)
Mlynarski, J. *et al., Tetrahedron*, 1997, **53**, 10643-10658 (*synth, pmr, cmr*)

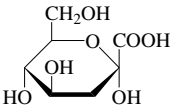
7-Deoxy-*altro*-2-heptulose, 9CI, 8CI D-167

SF 666B. Antibiotic SF 666B
[29864-54-8]



$C_7H_{14}O_6$ 194.184
Isol. from *Streptomyces setonensis*. Effective against *Glucobacter suboxydans*. Hygroscopic powder. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. butanol, hexane.
Mp 180-185° dec. $[\alpha]_D^{17}$ +4 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 10000 mg/kg.
Ezaki, N. *et al., Meiji Seika Kenkyu Nenpo*, 1970, **11**, 15; *CA*, **76**, 23796 (*isol, ir, props*)
Ezaki, N. *et al., Carbohydr. Res.*, 1971, **17**, 375 (*pmr*)

3-Deoxy-*arabino*-heptulosonic acid D-168



α-D-Pyranose-*form*

$C_7H_{12}O_7$ 208.168

D-*form* [56742-43-9]
Syrup. $[\alpha]_D$ +42 (c, 1.47 in H_2O).

K salt:
Solid. $[\alpha]_D^{25}$ +15.7 (c, 3.82 in H_2O).

Ba salt (2:1): [119827-63-3]
Cryst. + $2H_2O$. Mp 185° dec. $[\alpha]_D^{20}$ +33 (c, 1.0 in H_2O).

Me ester: [85464-47-7]
$C_8H_{14}O_7$ 222.194
Mp 92°. $[\alpha]_D^{20}$ +43 (c, 2.0 in H_2O).

Tetra-Ac, Me ester: [85464-54-6]
$C_{16}H_{22}O_{11}$ 390.343
Cryst. (Et_2O/hexane). Mp 117°. $[\alpha]_D^{20}$ +62 (c, 2.4 in $CHCl_3$).

7-Phosphate: 3-Deoxy-D-arabino-*heptulosonic acid 7-phosphate. DAHP*
[2627-73-8]
$C_7H_{13}O_{10}P$ 288.147
Enzymatically cyclised to 3-dehydroquinate in the aromatic shikimate biosynthetic pathway. $[\alpha]_D^{22}$ +18 (c, 0.5 in H_2O) (as Ca salt).

4-Me: 3-Deoxy-4-O-*methyl*-arabino-*heptulosonic acid*
[114743-14-5]
$C_8H_{14}O_7$ 222.194
Cryst. (MeOH/Me_2CO) (as ammonium salt). Mp 135-140° dec. (ammonium salt). $[\alpha]_D^{20}$ +11 (c, 0.4 in H_2O).

α-D-Pyranose-*form* [61914-15-6]
Me glycoside: Methyl 3-deoxy-arabino-*heptulosonic acid*
[85464-50-2]
$C_8H_{14}O_7$ 222.194
Solid + $2H_2O$ (as Na salt). $[\alpha]_D^{20}$ +62 (c, 0.6 in H_2O). CAS no. refers to Na salt.

Me glycoside, Me ester: [85549-51-5]
$C_9H_{16}O_7$ 236.221
Mp 148-149°. $[\alpha]_D^{20}$ +65 (c, 1.0 in MeOH).

β-D-Pyranose-*form* [114817-79-7]
Me glycoside, tri-Me, Me ester: Methyl (methyl 3-deoxy-4,6,7-tri-O-*methyl-β-D*-arabino-*heptulopyranosonate)*
[114743-10-1]
$C_{12}H_{22}O_7$ 278.302
Syrup.

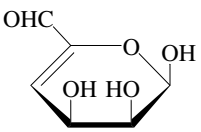
Me glycoside, tribenzyl, Me ester: Methyl (methyl 4,6,7-tri-O-benzyl-3-deoxy-β-D-arabino-heptulopyranosonate)
[119005-66-2]
$C_{30}H_{34}O_7$ 506.594
Syrup.

β-D-Furanose-*form*

Me glycoside, Me ester: Methyl (methyl 3-deoxy-β-D-arabino-heptulofuranosonate)
[85464-49-9]
$C_9H_{16}O_7$ 236.221
Syrup.

Charon, D. *et al., Carbohydr. Res.*, 1974, **34**, 271 (*4-Me*)
Charon, D. *et al., J.C.S. Perkin 1*, 1982, 3055 (*derivs, pmr, cmr, cryst struct, cd*)
Garner, C.C. *et al., Carbohydr. Res.*, 1984, **127**, 9; **132**, 317 (*synth, pmr, cmr, phosphate*)
Adlersberg, M. *et al., Carbohydr. Res.*, 1984, **127**, 9 (*synth, phosphate*)
Reimer, L.M. *et al., J.A.C.S.*, 1986, **108**, 8010 (*synth, phosphate*)
Tacken, A. *et al., Carbohydr. Res.*, 1987, **167**, 1 (*deriv*)
Crich, D. *et al., Chem. Comm.*, 1988, 985, (*tri-Me, tribenzyl*)
Ramage, R. *et al., Tet. Lett.*, 1988, **29**, 4877 (*synth*)
Myrvold, S. *et al., J.A.C.S.*, 1989, **111**, 1861 (*Me ester deriv*)
Draths, K.M. *et al., J.A.C.S.*, 1990, **112**, 9630
Dondoni, A. *et al., J.A.C.S.*, 1994, **116**, 3324
Mlynarski, J. *et al., Carbohydr. Res.*, 1996, **295**, 69-75 (*synth, phosphate*)

4-Deoxy-*erythro*-hex-4-enodialdo-1,5-pyranose D-169



α-L-*form*

$C_6H_8O_5$ 160.126

α-L-*form*

Tri-Ac: 1,2,3-Tri-O-acetyl-4-deoxy-α-L-erythro-hex-4-enodialdo-1,5-pyranose
$C_{12}H_{14}O_8$ 286.238
Mp 92-93°. $[\alpha]_D$ +49 (c, 1.0 in $CHCl_3$).

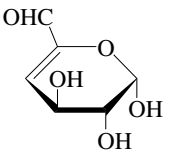
β-L-*form*

Tri-Ac: 1,2,3-Tri-O-acetyl-4-deoxy-β-L-erythro-hex-4-enodialdo-1,5-pyranose
[38982-67-1]
$C_{12}H_{14}O_8$ 286.238
Mp 116-117°. $[\alpha]_D$ +248 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-di-Ac: Methyl 2,3-di-O-acetyl-4-deoxy-β-L-erythro-hex-4-enodialdo-1,5-pyranose
[25654-05-1]
$C_{11}H_{14}O_7$ 258.227
Mp 57-59°. $[\alpha]_D$ +244 (c, 2.0 in $CHCl_3$).

Cree, G.M. *et al., Can. J. Chem.*, 1969, **47**, 511
Mackie, D.M. *et al., Carbohydr. Res.*, 1972, **24**, 67

4-Deoxy-*threo*-hex-4-enodialdo-1,4-pyranose D-170



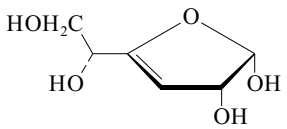
$C_6H_8O_5$ 160.126

β-L-*form*

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-benzyl-4-deoxy-β-L-threo-hex-4-enodialdo-1,4-pyranose
[116013-32-2]
$C_{21}H_{22}O_5$ 354.402
Viscous syrup. $[\alpha]_D$ +147.7 (c, 0.63 in $CHCl_3$).

Giuliano, R.M. *et al., J. Carbohydr. Chem.*, 1987, **6**, 541-552 (*β-L-Me gly 2,3-dibenzyl*)

3-Deoxy-*erythro*-hex-3-enofuranose D-171



$C_6H_{10}O_5$ 162.142

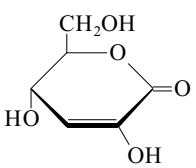
α-D-*form*

1,2:5,6-Diisopropylidene: 3-Deoxy-1,2:5,6-di-O-isopropylidene-erythro-hex-3-enofuranose, 9CI, 8CI
[2774-28-9]
$C_{12}H_{18}O_5$ 242.271
Mp 50-51°. $[\alpha]_D^{20}$ +19.8 (c, 3.0 in EtOH).

3-Acetoxy, 1,2:5,6-diisopropylidene: 3-O-Acetyl-1,2:5,6-di-O-isopropylidene-α-D-erythro-hex-3-enofuranose, 9CI, 8CI
[14686-88-5]
$C_{14}H_{20}O_7$ 300.308
Mp 62°. $[\alpha]_D^{20}$ -33 (c, 1.0 in $CHCl_3$).

Weygand, F. *et al., Chem. Ber.*, 1952, **85**, 256
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1969, **102**, 1071
Jochims, J.C. *et al., Chem. Ber.*, 1970, **103**, 448 (*pmr*)
Anderson, R.C. *et al., Tet. Lett.*, 1977, 2865

3-Deoxy-*erythro*-hex-2-enono-1,5-lactone D-172



$C_6H_8O_5$ 160.126
Unisolated enol.

D-*form*

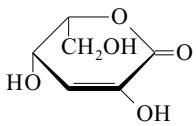
Tri-Ac: 2,4,6-Tri-O-acetyl-3-deoxy-erythro-hex-2-enono-1,5-lactone
$C_{12}H_{14}O_8$ 286.238
$Bp_{0.1}$ 110°. $[\alpha]_D$ +109 (c, 1.0 in $CHCl_3$).

Tribenzoyl: 2,4,6-Tri-O-benzoyl-3-deoxy-erythro-hex-2-enono-1,5-lactone
[53942-33-9]
$C_{27}H_{20}O_8$ 472.45
Mp 110-111°. $[\alpha]_D$ +104 (c, 1.0 in $CHCl_3$).

[138320-62-4]

De Lederkremer, R.M. *et al., Carbohydr. Res.*, 1974, **36**, 185 (*synth, tribenzoyl*)
Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1980, 2762 (*synth, pmr, tribenzoyl*)
Jarglis, P. *et al., Tet. Lett.*, 1982, **23**, 3781 (*synth, tri-Ac, tribenzoyl*)

3-Deoxy-*threo*-hex-2-enono-1,5-lactone D-173



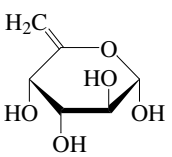
$C_6H_8O_5$ 160.126
Unisolated enol.

L-*form*

Tribenzyl: 2,4,6-Tri-O-benzyl-3-deoxy-threo-hex-2-enono-1,5-lactone
[16134-29-5]
$C_{27}H_{26}O_5$ 430.499
Cryst. (Et_2O or C_6H_6/hexane). Mp 83-84°. $[\alpha]_D^{20}$ +112.1 (c, 1.5 in $CHCl_3$).

Kuzuhara, H. *et al., J.O.C.*, 1968, **33**, 1816 (*synth*)

6-Deoxy-*arabino*-hex-5-enopyranose D-174



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

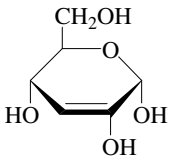
Me glycoside, 4-benzoyl, 2,3-di-Ac: Methyl 2,3-di-O-acetyl-4-O-benzoyl-6-deoxy-α-D-arabino-hex-5-enopyranose
[73139-33-0]
$C_{18}H_{20}O_8$ 364.351
$[\alpha]_D^{20}$ -5 (c, 0.1 in $CHCl_3$).

β-L-*form*

1,2:3,4-Di-O-isopropylidene: 6-Deoxy-1,2:3,4-di-O-isopropylidene-arabino-hex-5-enopyranose, 9CI, 8CI
[22618-03-7]
$C_{12}H_{18}O_5$ 242.271
Mp 86-87°. $[\alpha]_D^{20}$ -128 ($CHCl_3$).

Freudenberg, K. *et al., Ber.*, 1929, **62**, 373, (*β-L-diisopropylidene*)
Binkley, R.W. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1975, **2**, 465, (*β-L-diisopropylidene*)
Machado, A.S. *et al., Carbohydr. Res.*, 1985, **135**, 231 (*Me α-D-pyr*)

3-Deoxy-*erythro*-hex-2-enopyranose D-175



α-D-*form*

$C_6H_{10}O_5$ 162.142

Unisolated enol form of 3-Deoxy-*erythro*-hexos-2-ulose, D-214.

α-D-*form*

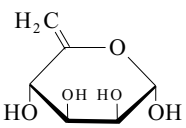
Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3-deoxy-α-D*-erythro-*hex-2-enopyranose*
[3366-49-2]
$C_{14}H_{18}O_9$ 330.291
Mp 70-71°. $[\alpha]_D^{21}$ +50 (c, 3.0 in $CHCl_3$).

β-D-*form*

Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3-deoxy-β-D*-erythro-*hex-2-enopyranose*
[3366-48-1]
$C_{14}H_{18}O_9$ 330.291
Mp 83-84°. $[\alpha]_D^{23}$ +151 (c, 4.8 in $CHCl_3$).

Ferrier, R.J. *et al., J.C.S.*, 1965, 2830; 1968, 974
Lemieux, R.U. *et al., J.O.C.*, 1965, **30**, 1092
Lemieux, R.U. *et al., Can. J. Chem.*, 1966, **44**, 1855

6-Deoxy-*lyxo*-hex-5-enopyranose D-176



$C_6H_{10}O_5$ 162.142

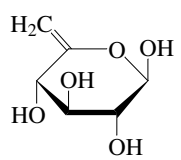
α-D-Pyranose-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene-α-D*-lyxo-*hex-5-enopyranoside*
$C_{10}H_{16}O_5$ 216.233
$[\alpha]_D^{24}$ +51 (c, 0.4 in 67% MeOH aq.).

Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6-deoxy-α-D*-lyxo-*hex-5-enopyranoside*
$C_{13}H_{18}O_8$ 302.28
Mp 73°. $[\alpha]_D^{25}$ +14.5 (c, 0.5 in H_2O).

Lehmann, J. *et al., J.A.C.S.*, 1964, **86**, 4469

6-Deoxy-*xylo*-hex-5-enopyranose D-177



β-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-*form*

1,2,3,4-Tetra-O-*Ac: 1,2,3,4-Tetra*-O-*acetyl-6-deoxy-α-D*-xylo-*hex-5-enopyranose*
$C_{14}H_{18}O_9$ 330.291
Mp 115-116°. $[\alpha]_D$ +110 ($CHCl_3$).

Me glycoside, 2,3,4-tri-O-*Ac: Methyl 2,3,4-tri*-O-*acetyl-6-deoxy-α-D*-xylo-*hex-5-enopyranoside*
[6217-21-6]
$C_{13}H_{18}O_8$ 302.28
Mp 100-101°. $[\alpha]_D$ +124 ($CHCl_3$).

Me glycoside, 3,4-di-O-*benzoyl, 2*-O-*tosyl:*
Mp 132-133°. $[\alpha]_D$ +24 (c, 1.3 in $CHCl_3$).

β-D-*form*

1,2,3,4-Tetra-O-*Ac: 1,2,3,4-Tetra*-O-*acetyl-6-deoxy-β-D*-xylo-*hex-5-enopyranose*
$C_{14}H_{18}O_9$ 330.291
Mp 119°. $[\alpha]_D$ -35 ($CHCl_3$).

Me glycoside: Methyl 6-deoxy-β-D-xylo-*hex-5-enopyranoside*
$C_7H_{12}O_5$ 176.169
Mp 109-110°. $[\alpha]_D^{22}$ -114.5 (c, 7.0 in H_2O).

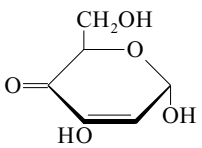
Me glycoside, 2,3,4-tri-O-*Ac: Methyl 2,3,4-tri*-O-*acetyl-6-deoxy-β-D*-xylo-*hex-5-enopyranoside*
[53577-81-4]
Mp 92-93°. $[\alpha]_D$ -35 ($CHCl_3$).

Me glycoside, 4-O-*Ac, 2,3-di*-O-*tosyl: Methyl 4*-O-*acetyl-6-deoxy-2,3-di*-O-*tosyl-β-D*-xylo-*hex-5-enopyranoside*
Mp 79-80°. $[\alpha]_D$ -24 ($CHCl_3$).

Me glycoside, 2,4-di-O-*Ac, 3*-O-*Me: Methyl 2,4-di*-O-*acetyl-6-deoxy-3*-O-*methyl-β-D*-xylo-*hex-5-enopyranoside*
$C_{12}H_{18}O_7$ 274.27
Mp 76-77°. $[\alpha]_D$ -54 ($CHCl_3$).

Helferich, B. *et al., Ber.*, 1928, **61**, 1825
Helferich, B. *et al., J. Prakt. Chem.*, 1932, **132**, 321
Ferrier, R.J. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 67 (*rev*)
Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1979, 1455
Blattner, R. *et al., J.C.S. Perkin 1*, 1980, 1535

2-Deoxy-*glycero*-hex-2-enopyranosid-4-ulose D-178



$C_6H_8O_5$ 160.126

Unisolated enol.

α-D-*form*

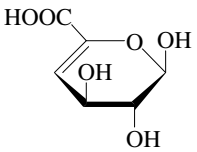
Me glycoside, 3,6-di-O-*benzoyl: Methyl 3,6-di*-O-*benzoyl-2-deoxy-α-D*-glycero-*hex-2-enopyranosid-4-ulose*
[25552-06-1]
$C_{21}H_{18}O_7$ 382.369
Needles (EtOH). Mp 127-128°. $[\alpha]_D^{25}$ +70 (c, 1 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Chem. Ber.*, 1977, **110**, 3324 (*synth, pmr, uv*)
Koh, L.L. *et al., Acta Cryst. C*, 1992, **48**, 585 (*cryst struct*)

4-Deoxy-*threo*-hex-4-enopyranosiduronic acid D-179

[91447-03-9]

[2706-31-2]



α-L-*form*

$C_6H_8O_6$ 176.126

α-L-*form*

Me glycoside, Me ester: Methyl (methyl 4-deoxy-α-L-threo-*hex-4-enopyranosid) uronate*
[24909-33-9]
$C_8H_{12}O_6$ 204.179
Syrup. $[\alpha]_D^{25}$ -67 (c, 1.2 in MeOH).

Me glycoside, 2,3-di-Ac, Me ester: Methyl (methyl 2,3-di-O-*acetyl-4-deoxy-α-L*-threo-*hex-4-enopyranosid)uronate*
$C_{12}H_{16}O_8$ 288.254
Prisms (C_6H_6/heptane). Mp 90.5-91°. $[\alpha]_D^{26}$ +34 (c, 1.6 in MeOH).

Me glycoside, 2,3-dibenzyl, Me ester: Methyl (methyl 2,3-di-O-*benzyl-4-deoxy-α-L*-threo-*hex-4-enopyranosid) uronate*
[25130-08-9]
$C_{22}H_{24}O_6$ 384.428
Mp 111°.

Me glycoside, 2,3-di-Me, Me ester: Methyl (methyl 4-deoxy-2,3-di-O-*methyl-α-L*-threo-*hex-4-enopyranosid)uronate*
[38709-36-3]
$C_{10}H_{16}O_6$ 232.233
Mp 57.5-58.5° (51-53°). $[\alpha]_D^{25}$ -34 (c, 2.0 in MeOH). $[\alpha]_D^{18}$ +48 (c, 2.0 in MeOH) (lit. gives a temp. range).

β-L-*form*

Residue present in xylan Kraft pulp in papermaking.

Me glycoside, Me ester: Methyl (methyl 4-deoxy-β-L-threo-*hex-4-enopyranosid) uronate*
[1080-00-8]
$C_8H_{12}O_6$ 204.179
Oil. $[\alpha]_D^{22}$ +207 (c, 1 in MeOH) (+192.5, +165.8).

Me glycoside, 2,3-di-Ac, Me ester: Methyl (methyl 2,3-di-O-*acetyl-4-deoxy-β-L*-threo-*hex-4-enopyranosid)uronate*
[24916-48-1]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{22}$ +241 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{29}$ +259.9 (c, 1.0 in MeOH) (+203.7).

Me glycoside, 2,3-dibenzyl, Me ester: Methyl (methyl 2,3-di-O-*benzyl-4-deoxy-β-L*-threo-*hex-4-enopyranosid) uronate*
[25130-03-4]
$C_{22}H_{24}O_6$ 384.428
Mp 68°. $[\alpha]_D^{25}$ +133 (c, 1.0 in $CHCl_3$).
λ_{max} 238 nm (EtOH).

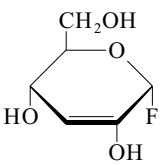
Me glycoside, 2-Me, Me ester: Methyl (methyl 4-deoxy-2-O-*methyl-β-L*-threo-*hex-4-enopyranosid)uronate*

[52545-23-0]
$C_9H_{14}O_6$ 218.206
Syrup. $Bp_{0.02}$ 140-160° (bath). $[\alpha]_D^{27}$ +198.5 (c, 2.0 in MeOH). λ_{max} 233 nm, (ϵ 7100) (MeOH).

Me glycoside, 2,3-di-Me, Me ester: Methyl (methyl 4-deoxy-2,3-di-O-methyl-β-L-threo-hex-4-enopyranosid)uronate
[31506-21-5]
$C_{10}H_{16}O_6$ 232.233
$Bp_{0.02}$ 89-90° $Bp_{0.03}$ 75-82°. $[\alpha]_D^{23}$ +189 (c, 1.0 in MeOH). λ_{max} 238 nm (ϵ 8100) (MeOH).

Heim, P. *et al., Helv. Chim. Acta*, 1962, **45**, 1735 (*β-L-Me ester*)
Kiss, J. *et al., Carbohydr. Res.*, 1969, **10**, 328, (*α-L-Me ester dibenzyl, β-L-Me ester dibenzyl, pmr*)
Schmidt, H.W.H. *et al., Carbohydr. Res.*, 1969, **10**, 361 (*α-L-Me ester, β-L-Me ester*)
Schmidt, H.W.H. *et al., Tet. Lett.*, 1969, 2011 (*α-L-Me ester di-Ac, β-L-Me ester di-Ac*)
Hashimoto, H. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 235 (*β-L-Me ester, β-L-Me ester di-Me*)
Llewellyn, J.W. *et al., Carbohydr. Res.*, 1972, **22**, 221 (*β-L-Me ester, β-L-Me ester di-Ac*)
Kováč, P. *et al., Carbohydr. Res.*, 1974, **32**, 360 (*α-L-Me ester, α-L-Me ester di-Me, β-L-Me ester, β-L-Me ester 2-Me*)
Alfoldi, J. *et al., Carbohydr. Res.*, 1975, **44**, 133 (*conformn, pmr*)
Teleman, A. *et al., Carbohydr. Res.*, 1995, **272**, 55-71 (*pmr, cmr*)

3-Deoxy-*erythro*-hex-2-eno-pyranosyl fluoride, 9CI D-180



$C_6H_9FO_4$ 164.133

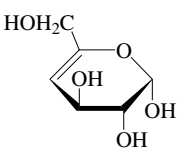
α-D-*form*

Tri-Ac: [25146-87-6]
$C_{12}H_{15}FO_7$ 290.245
Syrup.

Tribenzoyl: [26512-03-8]
$C_{27}H_{21}FO_7$ 476.457
Syrup.

Bock, K. *et al., Tet. Lett.*, 1969, 2983, (*tri-Ac, tribenzoyl, pmr*)

4-Deoxy-*threo*-hex-4-enose D-181



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

Me glycoside, 2,3-di-Ac: Methyl 2,3-di-O-acetyl-4-deoxy-α-D-threo-hex-4-enopyranoside
$C_{11}H_{16}O_7$ 260.243
Oil. $[\alpha]_D$ +277 (c, 1.0 in CH_2Cl_2).

α-L-Pyranose-*form*

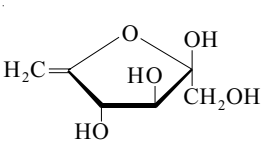
Me glycoside, 2,6-di-Me: Methyl 4-deoxy-2,6-di-O-methyl-α-L-threo-hex-4-enopyranoside
[125459-10-1]
$C_9H_{16}O_5$ 204.222
Oil. $[\alpha]_D$ -63 (c, 1.05 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-benzyl-4-deoxy-β-L-threo-hex-4-enopyranoside
[25159-13-1]
$C_{21}H_{24}O_5$ 356.418
Syrup. $[\alpha]_D$ +155.2 (c, 0.4 in C_6H_6).

Giuliano, R.H. *et al., J. Carbohydr. Chem.*, 1987, **6**, 541-552 (*β-L-Me pyr 2,3-dibenzyl, synth, pmr, cmr*)
Barili, P.L. *et al., Carbohydr. Res.*, 1989, **190**, 13 (*α-L-Me pyr 2,6-di-Me, synth, pmr*)
Levoirier, E. *et al., Carbohydr. Res.*, 2004, **339**, 2737-2747 (*α-D-Me pyr di-Ac*)

6-Deoxy-*threo*-hex-5-enulo-furanose, 8CI D-182



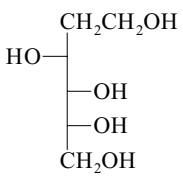
$C_6H_{10}O_5$ 162.142

β-D-*form*

2,3-O-Isopropylidene: [6983-51-3]
$C_9H_{14}O_5$ 202.207
Mp 116°. $[\alpha]_D^{20}$ +89.3 (c, 1 in $CHCl_3$).

Hough, L. *et al., Adv. Chem. Ser.*, 1968, **74**, 120 (*synth, nmr, rev*)
Klemer, A. *et al., Chem. Ber.*, 1980, **113**, 1761 (*synth, cmr*)

2-Deoxy-*arabino*-hexitol D-183



$C_6H_{14}O_5$ 166.174

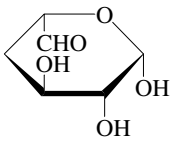
D-*form*

Cryst. (EtOH). Mp 104-106°. $[\alpha]_D$ +17.5 (H_2O).

3,4:5,6-Diisopropylidene: 3,4:5,6-Di-O-isopropylidene-D-arabino-hexitol
$C_{12}H_{22}O_5$ 246.303
$[\alpha]_D$ +9.6.

Tiwari, K.N. *et al., Carbohydr. Res.*, 1986, **156**, 19 (*synth*)
Regeling, H. *et al., Carbohydr. Res.*, 1990, **205**, 261 (*synth, deriv*)

4-Deoxy-*arabino*-hexodial-dose D-184



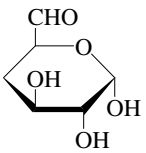
$C_6H_{10}O_5$ 162.142

β-L-Pyranose-*form*

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-benzyl-4-deoxy-β-L-arabino-hexodialdopyranoside
[116051-71-9]
$C_{21}H_{24}O_5$ 356.418
Liq. $[\alpha]_D$ +13.9 (c, 1.84 in $CHCl_3$).

Giuliano, R.M. *et al., J. Carbohydr. Chem.*, 1987, **6**, 541-552 (*β-L-pyr Me gly 2,3-dibenzyl, synth, pmr, cmr*)

4-Deoxy-*xylo*-hexodialdose D-185



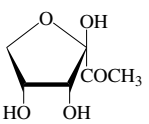
$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-benzyl-4-deoxy-α-D-xylo-hexodialdo-pyranoside
[116013-33-3]
$C_{21}H_{24}O_5$ 356.418
Viscous syrup. $[\alpha]_D$ +23.2 (c, 2.95 in $CHCl_3$). $[\alpha]_D^{20}$ +23 (c, 1.2 in CH_2Cl_2) (pure). Not obt. completely pure.

Giuliano, R.M. *et al., J. Carbohydr. Chem.*, 1987, **6**, 541-552 (*α-D-pyr Me gly 2,3-dibenzyl, synth, pmr, cmr*)
Czernecki, S. *et al., J. Carbohydr. Chem.*, 1989, **8**, 793-798 (*α-D-Me pyr dibenzyl*)

1-Deoxy-*erythro*-hexo-2,3-diulose D-186



β-D-3,6-Furanose-*form*

$C_6H_{10}O_5$ 162.142

D-*form*

Postulated common intermed. in the formation of sugar-amine products in food browning and related reactions.
Amorph. solid.

Phenylosazone: Mp 137-141°. $[\alpha]_D^{20}$ -30.6 (c, 0.75 in Py).

Bis(2,4-dinitrophenylhydrazone), 4,5,6-tri-Ac: [53928-59-9]
Orange needles (EtOH).
Mp 177-179° dec.

D-3,6-Furanose-*form*

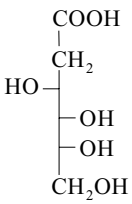
4,5-O-*Isopropylidene: 1-Deoxy-4,5*-O-*isopropylidene*-D-erythro-*hexo-2,3-diulo-3,6-furanose*
$C_9H_{14}O_5$ 202.207
Mp 98-100°. $[\alpha]_D^{20}$ -65 (c, 0.79 in MeOH).

Benzyl glycoside, 4,5-O-*isopropylidene: Benzyl 1-deoxy-4,5*-O-*isopropylidene*-D-erythro-*hexo-2,3-diulo-3,6-furanoside*
$C_{16}H_{20}O_5$ 292.331
$[\alpha]_D^{20}$ -124 (c, 0.75 in MeOH).

Okuda, T. *et al., Carbohydr. Res.*, 1979, **68**, 1
Fisher, B.E. *et al., Carbohydr. Res.*, 1983, **116**, 209
Glomb, M.A. *et al., Carbohydr. Res.*, 2000, **329**, 515-523 (***synth, pmr, cmr***)

2-Deoxy-*arabino*-hexonic acid, 9CI, 8CI D-187

2-Deoxygluconic acid. Glucodesonic acid. Desonic acid



$C_6H_{12}O_6$ 180.157

D-*form* [3442-69-1]
Formed by the oxidising action of *Pseudomonas aeruginosa* and *Saccharomyces cerevisiae* (baker's yeast) on 2-Deoxy-*arabino*-hexose, D-199.
Mp 145°. $[\alpha]_D^{25}$ +2.4 → +33.2 (H_2O).

Phenylhydrazide: [61244-22-2]
Mp 176°.

Me ester. Methyl 2-deoxy-D-arabino-*hexonate. Methyl 2-deoxy*-D-*gluconate*
[27963-68-4]
$C_7H_{14}O_6$ 194.184
Isol. from ferns *Pteris formosana* and *Pteris inaequalis* var. *aequata*.
Mp 147-148°. $[\alpha]_D^{20}$ +9.2 (c, 1.1 in MeOH).

Me ester, tetra-Ac: Methyl 3,4,5,6-tetra-O-*acetyl-2-deoxy*-D-arabino-*hexonate*
[35813-17-3]
$C_{15}H_{22}O_{10}$ 362.333
Mp 55-56°. $[\alpha]_D^{20}$ +28.6 (c, 1 in CH_2Cl_2).

Et ester, tetra-Ac: Ethyl 3,4,5,6-tetra-O-*acetyl-2-deoxy*-D-arabino-*hexonate*
[27963-67-3]
$C_{16}H_{24}O_{10}$ 376.36
Mp 119-120°. $[\alpha]_D^{20}$ +38.2 ($CHCl_3$).

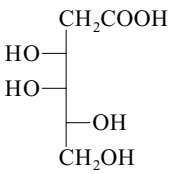
1,4-Lactone: 2-Deoxy-D-arabino-*hexono-1,4-lactone*
[42400-32-8]
$C_6H_{10}O_5$ 162.142
Mp 95-97°. $[\alpha]_D^{25}$ +68 (H_2O).

1,4-Lactone, tri-Me: 2-Deoxy-3,5,6-tri-O-*methyl*-D-arabino-*hexono-1,4-lactone*
$C_9H_{16}O_5$ 204.222
Mp 62°. $[\alpha]_D^{20}$ +21.5 (C_6H_6).

1,5-Lactone, tri-Me: 2-Deoxy-3,4,6-tri-O-*methyl*-D-arabino-*hexono-1,5-lactone*
$C_9H_{16}O_5$ 204.222
$Bp_{0.04}$ 120°. $[\alpha]^{19}_D$ +106 → +49 (H_2O).

Levene, P.A. *et al., J. Biol. Chem.*, 1930, **88**, 791 (*lactone, tri-Me-lactone*)
Hirst, E.L. *et al., J.C.S.*, 1931, 1131 (*tri-Me 1,5-lactone*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, 4th edn., J.A. Barth, Leipzig, 1935, 184 (*rev*)
Danilov, S.N. *et al., CA*, 1937, **31**, 95 (*synth*)
Bauer, S. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1165 (*isol*)
Zhdanov, Y.A. *et al., Zh. Obshch. Khim.*, 1969, **39**, 2360; *CA*, **72**, 55803f (*Et ester tetra-Ac*)
Eagon, R.G. *et al., Can. J. Biochem.*, 1971, **49**, 606 (*isol*)
Kawakishi, S. *et al., Carbohydr. Res.*, 1973, **26**, 252 (*synth, ms, pmr*)
Murakami, T. *et al., Chem. Pharm. Bull.*, 1978, **26**, 643 (*isol*)

2-Deoxy-*lyxo*-hexonic acid D-188



$C_6H_{12}O_6$ 180.157

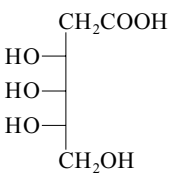
D-*form*

1,4-Lactone, tri-Ac: 3,5,6-Tri-O-*acetyl-2-deoxy*-D-lyxo-*hexono-1,4-lactone*
[69863-81-6]
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D^{20}$ +6.4 (c, 7.6 in $CHCl_3$).

[61653-41-6]

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 555 (*synth*)

2-Deoxy-*ribo*-hexonic acid D-189



$C_6H_{12}O_6$ 180.157

L-*form*

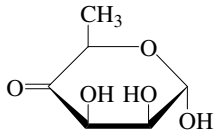
1,4-Lactone: 2-Deoxy-ribo-*hexono-1,4-lactone*
[95103-67-6]
$C_6H_{10}O_5$ 162.142
Syrup.

1,4-Lactone, tri-Ac: 3,5,6-Tri-O-*acetyl-2-deoxy*-L-ribo-*hexono-1,4-lactone*
[95103-69-8]
$C_{12}H_{16}O_8$ 288.254
Cryst. (Et_2O/pentane). Mp 74-75°. $[\alpha]_D^{20}$ +8 (c, 5.4 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 555 (*synth*)

6-Deoxy-*lyxo*-hexopyranos-4-ulose D-190

4-Ketorhamnose. 6-Deoxy-4-ketomannose



α-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene*-α-D-lyxo-*hexopyranosid-4-ulose*
[15830-63-4]
$C_{10}H_{16}O_5$ 216.233
$[\alpha]_D^{27}$ +105 (c, 0.71 in MeOH).

Me glycoside, 2,3-O-*isopropylidene, oxime:*
[15830-65-6]
$C_{10}H_{17}NO_5$ 231.248
Mp 123-125°.

Me glycoside, 2,3-di-Me: Methyl 6-deoxy-2,3-di-O-*methyl*-α-D-lyxo-*hexopyranosid-4-ulose*
$C_9H_{16}O_5$ 204.222
Syrup. $[\alpha]_D^{27}$ +98 (c, 0.8 in $CHCl_3$).

α-L-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene*-α-L-lyxo-*hexopyranosid-4-ulose*
[2592-53-2]
$C_{10}H_{16}O_5$ 216.233
$Bp_{0.45}$ 78-80°. $[\alpha]_D^{26}$ -105.8 (c, 1.0 in $CHCl_3$).

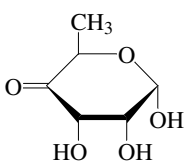
Me glycoside, 2,3-O-*isopropylidene, oxime:*
Mp 133-135° (form 1). $[\alpha]_D^{26}$ +42.5 (c, 0.63 in $CHCl_3$) (form 1). $[\alpha]_D^{26}$ +9.1 (c, 0.72 in $CHCl_3$) (form 2).

β-L-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene*-β-L-lyxo-*hexopyranosid-4-ulose*
$C_{10}H_{16}O_5$ 216.233
$[\alpha]_D^{26}$ +45.1 (c, 0.51 in $CHCl_3$).

Gunner, S.W. *et al., Carbohydr. Res.*, 1967, **4**, 498 (α-L-*isopropylidene*)
Stevens, C.L. *et al., J.O.C.*, 1968, **33**, 1586; 1973, **38**, 4311 (α-D-*isopropylidene,* α-L-*isopropylidene,* β-L-*isopropylidene*)
Simon, P. *et al., J. Chem. Res., Synop.*, 1980, 352; *J. Chem. Res., Miniprint*, 4337, (α-D-*isopropylidene*)
Sato, K.-I. *et al., Carbohydr. Res.*, 1982, **103**, 221 (α-D-*di-Me*)

6-Deoxy-*ribo*-hexopyranos-4-ulose D-191



α-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 6-deoxy-2,3-*O*-isopropylidene-α-D-*ribo*-hexopyranosid-4-ulose*
[37063-23-3]
$C_{10}H_{16}O_5$ 216.233
Mp 48° (38°). $[\alpha]_D^{26}$ +176.2 (c, 1.1 in $CHCl_3$). $[\alpha]_D^{25}$ +63 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, oxime:*
$C_{10}H_{17}NO_5$ 231.248
Cryst. (Et_2O). Mp 117-118°. $[\alpha]_D^{25}$ +260 (c, 1.1 in $CHCl_3$).

*Me glycoside, 2,3-di-Me: Methyl 6-deoxy-2,3-di-*O*-methyl-α-D-*ribo*-hexopyranosid-4-ulose*
$C_9H_{16}O_5$ 204.222
Cryst. (Et_2O/hexane). Mp 94-96°. $[\alpha]_D^{23}$ +214 (c, 0.3 in $CHCl_3$).

*Me glycoside, 2,3-anhydro: Methyl 2,3-anhydro-6-deoxy-α-D-*ribo*-hexopyranosid-4-ulose, 9CI*
[55533-59-0]
$C_7H_{10}O_4$ 158.154
Mp 58°. $[\alpha]_D^{20}$ +206 (c, 1.0 in $CHCl_3$).

α-L-*form*

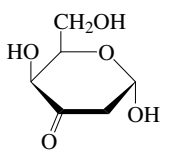
*Me glycoside, 2,3-*O*-isopropylidene: Methyl 6-deoxy-2,3-*O*-isopropylidene-β-D-*ribo*-hexopyranosid-4-ulose*
$C_{10}H_{16}O_5$ 216.233
Cryst. (pentane). Mp 40-42°. $[\alpha]_D^{26}$ +36.2 (c, 0.34 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, oxime:*
$C_{10}H_{17}NO_5$ 231.248
Cryst. (Et_2O/pentane). Mp 133-135°. $[\alpha]_D^{26}$ +42.5 (c, 0.6 in $CHCl_3$).

*Me glycoside, 2,3-anhydro: Methyl 2,3-anhydro-6-deoxy-α-L-*ribo*-hexopyranosid-4-ulose*
[59463-87-5]
$C_7H_{10}O_4$ 158.154
Solid. Mp 58°. $[\alpha]_D^{20}$ -105 (c, 1.1 in $CHCl_3$).

Stevens, C.L. *et al., Carbohydr. Res.*, 1972, **21**, 166 (*β-D-Me gly isopropylidene*)
Stevens, C.L. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 337 (*α-D-Me gly isopropylidene*)
Stevens, C.L. *et al., J.O.C.*, 1973, **38**, 4311, (*α-D-Me gly isopropylidene, β-D-Me gly isopropylidene*)
Paulsen, H. *et al., Chem. Ber.*, 1978, **111**, 869 (*D-Me pyr anhydro, L-Me pyr anhydro, pmr, cmr*)
Sato, K.-I. *et al., Carbohydr. Res.*, 1982, **103**, 221 (*D-Me pyr di-Me, pmr*)

2-Deoxy-*threo*-hexopyranos-3-ulose D-192



α-D-Pyranose-*form*

$C_6H_{10}O_5$ 162.142

α-D-Pyranose-*form*

*Me glycoside, (*E*)-oxime:* [22886-99-3]
$C_7H_{13}NO_5$ 191.183
Mp 221-222°. $[\alpha]_D$ +238 (c, 1 in DMSO).

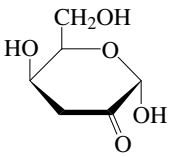
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-α-D-*threo*-hexopyranosid-3-ulose*
[10578-82-2]
$C_{14}H_{16}O_5$ 264.277
Cryst. (2-propanol). Mp 132-133° (112-113°). $[\alpha]_D$ +150 ($CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-β-D-*threo*-hexopyranosid-3-ulose*
[77481-68-6]
$C_{14}H_{16}O_5$ 264.277
Mp 155-156° Mp 177-178°. $[\alpha]_D$ -26 ($CHCl_3$). $[\alpha]_D$ -29 (c, 1.0 in $CHCl_3$).

Beynon, P.J. *et al., J.C.S.(C)*, 1966, 1131, (*α-D-Me pyr benzylidene*)
Beynon, P.J. *et al., J.C.S.(C)*, 1969, 272, (*α-D-Me pyr benzylidene oxime*)
Thang, T.T. *et al., Tet. Lett.*, 1980, **21**, 4495, (*β-D-Me pyr benzylidene*)

3-Deoxy-*threo*-hexopyranos-2-ulose D-193



α-D-*form*

$C_6H_{10}O_5$ 162.142

α-D-*form*

*Me glycoside: Methyl 3-deoxy-α-D-*threo*-hexopyranosid-2-ulose, 8CI*
[24332-90-9]
$C_7H_{12}O_5$ 176.169
$Bp_{0.05}$ 100-110°. $[\alpha]_D^{20}$ +52 (c, 0.1 in MeOH).

β-D-*form*

*Me glycoside: Methyl 3-deoxy-β-D-*threo*-hexopyranosid-2-ulose*
$C_7H_{12}O_5$ 176.169
$Bp_{0.03}$ 90-110°. $[\alpha]_D^{20}$ -105 (c, 0.1 in MeOH).

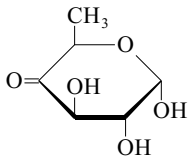
*Ph glycoside: Phenyl 3-deoxy-β-D-*threo*-hexopyranosid-2-ulose, 8CI*
[24332-86-3]
$C_{12}H_{14}O_5$ 238.24
$[\alpha]_D^{20}$ -45 (c, 0.1 in MeOH).

α-L-*form*

*6-Deoxy, Me glycoside: Methyl 3, 6-dideoxy-α-L-*threo*-hexopyranosid-2-ulose, 9CI*
[55533-68-1]
$C_7H_{12}O_4$ 160.169
$[\alpha]_D^{20}$ -128 (c, 1.4 in MeOH).

Antonakis, K. *et al., Bull. Soc. Chim. Fr.*, 1969, 122 (*α-D-Me pyr, β-D-Me pyr, β-D-Ph pyr*)
Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 3907 (*α-L-Me pyr deoxy*)

6-Deoxy-*xylo*-hexopyranos-4-ulose D-194



$C_6H_{10}O_5$ 162.142

α-D-*form*

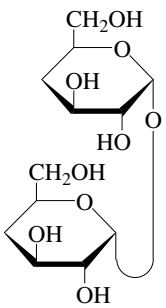
*Me glycoside, 2,3-di-Me: Methyl 6-deoxy-2,3-di-*O*-methyl-α-D-*xylo*-hexopyranosid-4-ulose*
$C_9H_{16}O_5$ 204.222
$[\alpha]_D^{27}$ +197 (c, 1.1 in $CHCl_3$).

*Me glycoside, 3-bromo-3-deoxy: Methyl 3-bromo-3,6-dideoxy-α-D-*xylo*-hexopyranosid-4-ulose*
$C_7H_{11}BrO_4$ 239.065
Mp 30-35°. $[\alpha]_D^{20}$ +163 (c, 0.9 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 3907 (*α-D-3-bromo-3-deoxy*)
Sato, K.-I. *et al., Carbohydr. Res.*, 1982, **103**, 221 (*α-D-di-Me*)

4-Deoxy-α-D-*xylo*-hexopyranosyl 4-deoxy-α-D-*xylo*-hexopyranoside D-195

4,4′-Dideoxy-α,α-trehalose. 4,4′-Dideoxy-α,α-xylotrehalose
[53684-66-5]

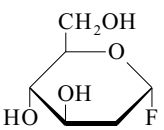


$C_{12}H_{22}O_9$ 310.3
Cryst. (EtOH). Mp 185.5-187°. $[\alpha]_D$ +263.3 (c, 0.4 in H_2O).

Hexa-Ac: [53684-68-7]
$C_{24}H_{34}O_{15}$ 562.524
Cryst. (EtOH). Mp 131-132.5°. $[\alpha]_D$ +174.2 (c, 0.5 in $CHCl_3$).

Birch, G.G. *et al., Carbohydr. Res.*, 1974, **36**, 97-109 (*synth, hexa-Ac*)
Lee, C.K. *et al., J. Carbohydr. Chem.*, 1994, **13**, 619-629 (*cryst struct*)

2-Deoxy-*arabino*-hexopyranosyl fluoride D-196



$C_6H_{11}FO_4$ 166.149

α-D-*form*

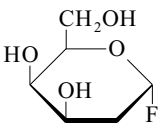
Tri-Ac: [16488-74-7]
$C_{12}H_{17}FO_7$ 292.26
Flat needles ($CHCl_3$/petrol). Mp 73-74°. $[\alpha]_D^{23}$ +67 (c, 2.15 in $CHCl_3$).

3,6-Dibenzoyl:
$C_{20}H_{19}FO_6$ 374.365
Syrup. Unstable at 25°.

Tribenzoyl: [16750-05-3]
$C_{27}H_{23}FO_7$ 478.473
Cryst. (Et_2O/pentane). Mp 112-114° (110-112°). $[\alpha]_D^{27}$ +44.1 (c, 1.5 in $CHCl_3$) (+41.6).

Lundt, I. *et al., Acta Chem. Scand.*, 1967, **21**, 1239 (*benzoyl derivs, pmr*)
Hall, L.D. *et al., Can. J. Chem.*, 1967, **45**, 1299 (*tri-Ac, pmr, F-19 nmr*)
Hall, L.D. *et al., Carbohydr. Res.*, 1969, **9**, 11 (*conformn, F-19 nmr*)

2-Deoxy-*lyxo*-hexopyranosyl fluoride D-197



$C_6H_{11}FO_4$ 166.149

α-D-*form*

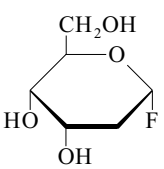
3,6-Dibenzoyl: [34948-83-9]
$C_{20}H_{19}FO_6$ 374.365
Cryst. (Et_2O/pentane). Mp 112-113° dec. $[\alpha]_D^{23}$ +11.5 (c, 1.5 in $CHCl_3$).

4,6-Dibenzoyl: [34948-82-8]
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D^{23}$ -6.1 (c, 1.0 in $CHCl_3$).

Tribenzoyl: [34948-81-7]
$C_{27}H_{23}FO_7$ 478.473
Syrup. $[\alpha]_D^{23}$ +26.8 (c, 2.5 in $CHCl_3$).

Lundt, I. *et al., Acta Chem. Scand.*, 1971, **25**, 2749 (*benzoyl derivs, pmr*)

2-Deoxy-*ribo*-hexopyranosyl fluoride D-198



$C_6H_{11}FO_4$ 166.149

α-D-*form*

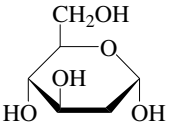
3,6-Dibenzoyl: [18424-59-4]
$C_{20}H_{19}FO_6$ 374.365
Syrup. Unstable at 25°.

Tribenzoyl: [18424-60-7]
$C_{27}H_{23}FO_7$ 478.473
Cryst. (Et_2O/pentane). Mp 93-95°. $[\alpha]_D^{26}$ +167 (c, 0.9 in $CHCl_3$).

Lundt, I. *et al., Acta Chem. Scand.*, 1967, **21**, 1239 (*benzoyl derivs, pmr*)

2-Deoxy-*arabino*-hexose, 9CI, 8CI D-199

2-Deoxyglucose. 2-Deoxymannose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 44° contains 47.5% α-pyr, 52.5% β-pyr and 0.008% aldehyde.

D-*form* [154-17-6]
Isol. from ferns *Pteris ensiformis, Pteris formosana, Pteris inaequalis* and *Neurocallis praestantissima*. Exp. antiviral agent.
▶ Exp. reprod. and teratogenic effects (large dose). LD_{50} (rat, scu) 250mg/kg.
MQ3325000

3,4,6-Tri-Ac: 3,4,6-Tri-O-*acetyl-2-deoxy-D*-arabino-*hexose*
[69503-94-2]
$C_{12}H_{18}O_8$ 290.269
Oil.

Di-Me acetal:
$C_8H_{18}O_6$ 210.227
Cryst. (MeOH/Et_2O). Mp 110-112°. $[\alpha]_D^{18}$ +19.7 (c, 1.22 in MeOH).

Di-Me acetal, 3,4,5,6-tetra-Ac:
$C_{16}H_{26}O_{10}$ 378.375
Cryst. (Et_2O/pentane). Mp 56-57°. $[\alpha]_D^{18}$ +34.7 (c, 1.41 in MeOH).

Di-Et dithioacetal: [3650-68-8]
$C_{10}H_{22}O_4S_2$ 270.413
Cryst. (MeOH). Mp 135°. $[\alpha]_D^{18}$ +13.1 (c, 1.6 in MeOH) (c, 1 in MeOH).

Di-Et dithioacetal, 3,4,5,6-tetra-Ac:
[16885-34-0]
$C_{18}H_{30}O_8S_2$ 438.562
Cryst. (Et_2O/pentane). Mp 76-77°. $[\alpha]_D^{19}$ +28.6 (c, 1.64 in MeOH) (c, 0.91 in $CHCl_3$).

Dibenzyl dithioacetal:
$C_{20}H_{26}O_4S_2$ 394.555
Needles (EtOH). Mp 154°. $[\alpha]_D^{19}$ -40 (c, 0.6 in EtOH).

Dibenzyl dithioacetal, 3,4,5,6-tetra-Ac:
$C_{28}H_{34}O_8S_2$ 562.704
Needles (EtOH). Mp 63°. $[\alpha]_D^{17}$ +18.2 (c, 0.77 in MeOH).

3-Me: 2-Deoxy-3-O-*methyl-D*-arabino-*hexose*
[39036-70-9]
$C_7H_{14}O_5$ 178.185
Isol. from *Pteris inaequalis* var. *aequata*.
Syrup; cryst. (Me_2CO/Et_2O).
Mp 110-112°.
$[\alpha]_D^{20}$ +14.7 (c, 1.56 in H_2O).

3,4,6-Tri-O-*benzyl: 3,4,6-Tri*-O-*benzyl-2-deoxy-D*-arabino-*hexose*
[132732-60-6]
$C_{27}H_{30}O_5$ 434.531
Oil.

6-Phosphate: 2-Deoxy-D-arabino-*hexose-6-phosphate*
[3573-50-0]
$C_6H_{13}O_8P$ 244.138
Powder (EtOH aq.) (as Ba salt).

α-D-Pyranose-*form* [13299-15-5]
Mp 128-129°. $[\alpha]_D$ +57.6 → +46 (H_2O). $[\alpha]_D$ +153 → +87.6 (Py).

1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-deoxy-α-D*-arabino-*hexopyranose*
[16750-06-4]
$C_{14}H_{20}O_9$ 332.307
Needles (2-propanol). Mp 110-111°. $[\alpha]_D^{25}$ +108 (c, 1.1 in $CHCl_3$).

6-Benzoyl: 6-O-*Benzoyl-2-deoxy-α-D*-arabino-*hexopyranose*
[108274-08-4]
$C_{13}H_{16}O_6$ 268.266
Cryst. (Me_2CO). Mp 116-117°. $[\alpha]_D$ +60 (c, 1 in $CHCl_3$).

Me glycoside: See Methyl 2-deoxy-*arabino*-hexopyranoside, M-171

4-Pentenyl glycoside: 4-Pentenyl 2-deoxy-α-D-arabino-*hexopyranoside*
[132871-90-0]
$C_{11}H_{20}O_5$ 232.276
Characterised spectroscopically.

β-D-Pyranose-*form* [13299-16-6]
Mp 146°. $[\alpha]_D$ +38 → +46 (H_2O). $[\alpha]_D$ +15 → +92 (Py).

Me glycoside: See Methyl 2-deoxy-*arabino*-hexopyranoside, M-171

1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2-deoxy-β-D*-arabino-*hexopyranose*
[16750-07-5]
$C_{14}H_{20}O_9$ 332.307
Prisms (2-propanol). Mp 92-93°. $[\alpha]_D^{25}$ -2.82 (c, 3.5 in $CHCl_3$).

1,6-Dibenzoyl: 1,6-Di-O-*benzoyl-2-deoxy-β-D*-arabino-*hexopyranose*
[108274-10-8]
$C_{20}H_{20}O_7$ 372.374
Foam. $[\alpha]_D$ -41 (c, 1 in $CHCl_3$).

1,3,6-Tribenzoyl: 1,3,6-Tri-O-*benzoyl-2-deoxy-β-D*-arabino-*hexopyranose*
[108274-11-9]
$C_{27}H_{24}O_8$ 476.482
Foam. $[\alpha]_D$ +2 (c, 1 in $CHCl_3$).

1,4,6-Tribenzoyl: 1,4,6-Tri-O-*benzoyl-2-deoxy-β-D*-arabino-*hexopyranose*
[108274-12-0]
$C_{27}H_{24}O_8$ 476.482
Cryst. (EtOAc/hexane). Mp 136°. $[\alpha]_D$ +70 (c, 1 in $CHCl_3$).

Tetrabenzoyl: 1,3,4,6-Tetra-O-*benzoyl-2-deoxy-β-D*-arabino-*hexopyranose*
[16750-08-6]
$C_{34}H_{28}O_9$ 580.59
Mp 145°. $[\alpha]_D$ +12 (c, 1 in $CHCl_3$).

3-Benzyl: 3-O-*Benzyl-2-deoxy-β-D*-arabino-*hexopyranose*
[475291-22-6]
$C_{13}H_{18}O_5$ 254.282
Cryst. (EtOH/petrol). Mp 120-123.5°. $[\alpha]_D^{23.5}$ +25.4 (c, 0.86 in MeOH).

α-D-Furanose-*form*

1,3,5,6-Tetra-Ac: 1,3,5,6-Tetra-O-*acetyl-2-deoxy-α-D*-arabino-*hexofuranose*
[34980-87-5]
$C_{14}H_{20}O_9$ 332.307
Cryst. (Et_2O/petrol). Mp 95°. $[\alpha]_D$ +64 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 2-deoxy-α-D-arabino-*hexofuranoside*
[6001-17-8]

$C_7H_{14}O_5$ 178.185
Mp 80°. $[\alpha]_D$ +117 (c, 1 in EtOH).

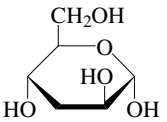
*Me glycoside, 3-benzyl: Methyl 3-*O*-benzyl-2-deoxy-α-D-*arabino*-hexofuranoside*
[386765-73-7]
$C_{14}H_{20}O_5$ 268.309
Cryst. (EtOAc/hexane). Mp 93-95.5°. $[\alpha]^{24}_D$ +31.9 (c, 0.62 in $CHCl_3$).

[33068-19-8, 55644-83-2]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 192D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 296B (*nmr*)
Bolliger, H.R. *et al., Helv. Chim. Acta*, 1946, **29**, 1121-1123 (*D-3-O-Me*)
Overend, W.G. *et al., J.C.S.*, 1949, 2841; 2846 (*α-D-pyr, D-dibenzyl dithioacetal, D-dibenzyl dithioacetal tetra-Ac, D-di-Et dithioacetal*)
Bolliger, H.R. *et al., Helv. Chim. Acta*, 1951, **34**, 989 (*D-di-Me acetal, D-di-Me acetal tetra-Ac, D-di-Et dithioacetal, D-di-Et dithioacetal tetra-Ac*)
Crane, R.K. *et al., J. Biol. Chem.*, 1954, **210**, 597 (*6-phosphate, enzymatic synth*)
Bonner, W.A. *et al., J.O.C.*, 1961, **26**, 908 (*α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
Remisov, A.L. *et al., Zh. Obshch. Khim.*, 1961, **31**, 3769; *J. Gen. Chem. USSR (Engl. Transl.)*, 1961, **31**, 3521 (*6-phosphate*)
Bolliger, H.R. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 186 (*D-form*)
Shafizadeh, F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 190 (*synth, D-form*)
Wells, W.W. *et al., Biochim. Biophys. Acta*, 1964, **82**, 408 (*6-phosphate, gc*)
Pace, N. *et al., J.A.C.S.*, 1964, **86**, 3160 (*ord*)
Casu, B. *et al., Tet. Lett.*, 1964, 2839 (*pmr*)
Biely, P. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 1588 (*6-phosphate*)
Wirz, P. *et al., Helv. Chim. Acta*, 1971, **54**, 2017 (*α-D-Me fur, α-D-fur tetra-Ac, α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
Harvey, D.J. *et al., J. Chromatogr.*, 1973, **76**, 51 (*6-phosphate, gc, ms*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*cmr*)
de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 1201
Murakami, T. *et al., Chem. Pharm. Bull.*, 1975, **23**, 1634; 1978, **26**, 643 (*D-3-O-Me, isol*)
Trigalo, F. *et al., J.C.S. Perkin 1*, 1975, 600 (*6-phosphate*)
Shiue, C.Y. *et al., Carbohydr. Res.*, 1979, **74**, 323-326 (*synth, D-form*)
Sala, L.F. *et al., Carbohydr. Res.*, 1980, **78**, 61 (*synth*)
Wong, M.Y.H. *et al., Carbohydr. Res.*, 1980, **80**, 87 (*synth*)
Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1980, 2657 (*α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
Monneret, C. *et al., Carbohydr. Res.*, 1981, **96**, 299 (*synth*)
Maluszynska, H. *et al., Carbohydr. Res.*, 1981, **97**, 199 (*cryst struct*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Fiandor, J. *et al., Carbohydr. Res.*, 1986, **153**, 325 (*α-D-6-benzoyl, β-D-dibenzoyl, β-D-tribenzoyl, β-D-tetrabenzoyl*)
Tiwari, K.N. *et al., Carbohydr. Res.*, 1986, **156**, 19 (*synth*)
Dornhagen, J. *et al., J. Carbohydr. Chem.*, 1986, **5**, 115-126 (*3-Me, **synth***)
Puliti, R. *et al., Carbohydr. Res.*, 1988, **182**, 148 (*cryst struct*)
Konradsson, P. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1991, **110**, 23 (*α-D-pyr pentenyl gly, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993,
Jorgensen, C. *et al., Carbohydr. Res.*, 1997, **299**, 307-310 (*synth*)
Betteli, E. *et al., Tetrahedron*, 1998, **54**, 6011-6018 (*3,4,6-tri-Ac, 3,4,6-tribenzyl*)
Oishi, T. *et al., Bull. Chem. Soc. Jpn.*, 2002, **75**, 1927-1947 (*β-D-pyr-3-benzyl, α-D-Me 3-benzyl-fur*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAR600

3-Deoxy-*arabino*-hexose D-200

3-Deoxymannose. 3-Deoxyaltrose



α-D-Pyranose-*form*

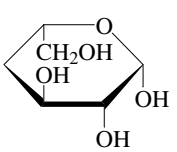
$C_6H_{12}O_5$ 164.158
Equilibrium mixt. of α-Pyr: β-Pyr: α-Fur: β-Fur. 26:51:6:17 in soln.

D-*form* [5517-48-6]
Mp 141-142°. $[\alpha]_D$ +53.1 (H_2O).
Phenylhydrazone: Mp 128-129°. $[\alpha]_D$ -46.7 (MeOH).
Dimethyl dithioacetal:
$C_8H_{18}O_4S_2$ 242.36
Mp 82°. $[\alpha]_D$ -38.6 (MeOH).

D-Pyranose-*form*
*Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-deoxy-D-*arabino*-hexopyranose*
[23655-58-5]
$C_{14}H_{20}O_9$ 332.307
Syrup. Mainly α-Pyr isomer.

α-D-Pyranose-*form*
*Me glycoside: Methyl 3-deoxy-α-D-*arabino*-hexopyranoside*
[29073-92-5]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOH). Mp 123-124°.
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-α-D-*arabino*-hexopyranoside*
[72904-78-0]
$C_{14}H_{18}O_5$ 266.293
Mp 111-112°. $[\alpha]_D$ +107 (c, 1.1 in $CHCl_3$).
Rembarz, G. *et al., Chem. Ber.*, 1960, **93**, 622 (*synth, dimethyl dithioacetate*)
Pfeffer, P.E. *et al., Carbohydr. Res.*, 1980, **84**, 13 (*equilib*)
Scensny, P.M. *et al., Carbohydr. Res.*, 1983, **112**, 307 (***synth, cmr, bibl***)
Du Mortier, C. *et al., J. Carbohydr. Chem.*, 1984, **3**, 219-228 (*synth, cmr, equilib*)
Christian, R. *et al., Carbohydr. Res.*, 1989, **194**, 49 (*synth, pmr, cmr, bibl, α-D-Me pyr, D-tetra-Ac*)
Lee, E. *et al., Carbohydr. Res.*, 1991, **219**, 229 (*synth, pmr, cryst struct, α-D-Me gly benzylidene*)

4-Deoxy-*arabino*-hexose D-201

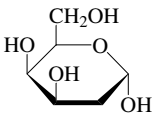


$C_6H_{12}O_5$ 164.158

β-L-Pyranose-*form*
*Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-4-deoxy-β-L-*arabino*-hexopyranoside*
[116013-35-5]
$C_{21}H_{26}O_5$ 358.433
Syrup. $[\alpha]_D$ +56.8 (c, 2.46 in $CHCl_3$).
Giuliano, R.M. *et al., J. Carbohydr. Chem.*, 1987, **6**, 541-552 (*Me β-L-pyr 2,3-dibenzyl*)

2-Deoxy-*lyxo*-hexose, 9CI, 8CI D-202

2-Deoxygalactose. 2-Deoxytalose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 31° contains 40% α-pyr, 44% β-pyr, 8% α-fur, 8% β-fur and 0.03% aldehyde.

D-*form* [1949-89-9]
Isol. as a cryst. β-form. Mp 120-121°. $[\alpha]^{20}_D$ +24 → +56 (c, 2 in H_2O).
*3,4,6-Tri-Ac: 3,4,6-Tri-*O*-acetyl-D-*lyxo*-hexose*
[69503-96-4]
$C_{12}H_{18}O_8$ 290.269
Oil.
Di-Et dithioacetal:
$C_{10}H_{22}O_4S_2$ 270.413
Cryst. (MeOH aq.). Mp 104-105°.
Dibenzyl dithioacetal:
$C_{20}H_{26}O_4S_2$ 394.555
Plates (MeOH aq.). Mp 106-107°. $[\alpha]^{20}_D$ -38 (c, 1.72 in Py).
*3,4,6-Tri-*O*-benzyl: 3,4,6-Tri-*O*-benzyl-2-deoxy-D-*lyxo*-hexose*
[94189-64-7]
$C_{27}H_{30}O_5$ 434.531
Oil.

α-D-Pyranose-*form* [14215-77-1]
*Me glycoside: Methyl 2-deoxy-α-D-*lyxo*-hexopyranoside*
[3971-45-7]
$C_7H_{14}O_5$ 178.185
Mp 115-116°. $[\alpha]^{24}_D$ +164 (H_2O).
*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-deoxy-α-D-*lyxo*-hexopyranoside*
[6087-42-9]
$C_{13}H_{20}O_8$ 304.296
Syrup. $[\alpha]^{20}_D$ +159 (c, 1 in C_6H_6).
*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2-deoxy-3,4-*O*-isopropylidene-α-D-*lyxo*-hexopyranoside*
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]^{20}_D$ +92.5 (c, 1.04 in Me_2CO).
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-α-D-*lyxo*-hexopyranoside*
[19877-02-2]
$C_{14}H_{18}O_5$ 266.293
Needles (MeOH aq.). Mp 184-185°. $[\alpha]_D$ +104 (c, 0.3 in EtOH).

*Me glycoside, 6-trityl: Methyl 2-deoxy-6-O-trityl-α-D-*lyxo*-hexopyranoside*
[26291-68-9]
$C_{26}H_{28}O_5$ 420.504
Mp 111-112°. $[\alpha]_D^{23}$ +53 (CH_2Cl_2).

β-D-Pyranose-*form* [14215-78-2]

*Me glycoside: Methyl 2-deoxy-β-D-*lyxo*-hexopyranoside*
$C_7H_{14}O_5$ 178.185
Cryst. (MeOH). Mp 125-126°. $[\alpha]_D$ -16 (c, 0.5 in H_2O).

*Me glycoside, 6-benzoyl: Methyl 6-O-benzoyl-2-deoxy-β-D-*lyxo*-hexopyranoside*
$C_{14}H_{18}O_6$ 282.293
Cryst. (Me_2CO). Mp 149-151°. $[\alpha]_D$ -27 (c, 0.4 in MeOH).

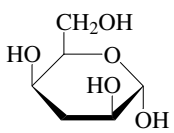
*Me glycoside, 6-benzoyl, 3,4-isopropylidene: Methyl 6-O-benzoyl-2-deoxy-3,4-O-isopropylidene-β-D-*lyxo*-hexopyranoside*
$C_{17}H_{22}O_6$ 322.357
Mp 62.5-63°. $[\alpha]_D^{25}$ -18 (c, 0.8 in $CHCl_3$).

*Me glycoside, 4,6-O-benzylidene: Methyl 4,6-O-benzylidene-β-D-*lyxo*-hexopyranoside*
[3971-46-8]
$C_{14}H_{18}O_5$ 266.293
Mp 202°. $[\alpha]_D$ -40.5 ($CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 192C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 296A (*nmr*)
Foster, A.B. *et al., J.C.S.*, 1951, 974 (*D-form, synth, D-dibenzyl dithioacetal, D-di-Et dithioacetal, α-D-Me pyr, α-D-Me pyr derivs*)
Howarth, G.B. *et al., Carbohydr. Res.*, 1968, **7**, 284 (*α-D-Me pyr benzylidene*)
Zorbach, W.W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 445 (*α-D-Me pyr, α-D-Me pyr trityl*)
de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 1201 (*pmr*)
Baer, H.M. *et al., Carbohydr. Res.*, 1975, **39**, C8 (*β-D-Me pyr benzylidene*)
Sala, L.F. *et al., Carbohydr. Res.*, 1980, **78**, 61 (*synth*)
Wong, M.Y.H. *et al., Carbohydr. Res.*, 1980, **80**, 87 (*synth*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Puliti, R. *et al., Carbohydr. Res.*, 1984, **135**, 47 (*cryst struct*)
Pin, T.H. *et al., Carbohydr. Res.*, 1989, **188**, 228 (*β-D-Me pyr derivs*)
Jorgensen, C. *et al., Carbohydr. Res.*, 1997, **299**, 307-310 (*synth*)
Betteli, E. *et al., Tetrahedron*, 1998, **54**, 6011-6018 (*3,4,6-tri-Ac, 3,4,6-tribenzyl*)

3-Deoxy-*lyxo*-hexose D-203

3-Deoxyidose. 3-Deoxytalose



α-D-*form*

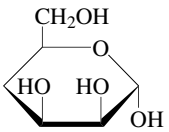
$C_6H_{12}O_5$ 164.158

D-*form* [14154-19-9]
Syrup. $[\alpha]_D$ -10 (H_2O).
2,5-Dichlorophenylosazone: Mp 225-226°. $[\alpha]_D$ -204 (Py).

L-*form*
Dimethyl dithioacetal:
$C_8H_{18}O_4S_2$ 242.36
Mp 46-48°. $[\alpha]_D$ +48 ($CHCl_3$).
Ferrier, R.J. *et al., J.C.S.(C)*, 1966, 2339, (*D-form*)
Němec, J. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2097 (*L-form*)

4-Deoxy-*lyxo*-hexose D-204

4-Deoxymannose. 4-Deoxytalose



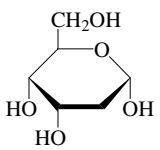
α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [74164-24-2]
Syrup. $[\alpha]_D^{24}$ +13.2 (c, 1.61 in MeOH). $[\alpha]_D^{20}$ +17.7 (c, 1.7 in MeOH). Mixt. of anomers α:β 1.5:1 for the sample of lower opt. rotn.
Paulsen, H. *et al., Carbohydr. Res.*, 1987, **165**, 229 (*synth, pmr*)
Matsumoto, K. *et al., Carbohydr. Res.*, 1993, **246**, 345 (*synth, ir, pmr, cmr*)

2-Deoxy-*ribo*-hexose D-205

2-Deoxyallose. 2-Deoxyaltrose
[6605-21-6]



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 31° contains 15% α-pyr, 58% β-pyr, 12% α-fur, 15% β-fur.

D-*form*
Cryst. (EtOH). Mp 140-142°. $[\alpha]_D$ +57.5 (c, 1.2 in H_2O).
p-*Nitrophenylhydrazone:* Mp 61-62°. $[\alpha]_D^{13}$ -54.6 (c, 1.1 in MeOH).
Di-Et dithioacetal: [25876-36-2]
$C_{10}H_{22}O_4S_2$ 270.413
Cryst. (THF/Et_2O). Mp 93-96°. $[\alpha]_D^{25}$ +0.1 (c, 0.9 in THF).
*3,4,6-Tri-O-benzyl: 3,4,6-Tri-O-benzyl-2-deoxy-D-*ribo*-hexose*
[208925-32-0]
$C_{27}H_{30}O_5$ 434.531
Oil.

α-D-Pyranose-*form* [20789-85-9]
*Me glycoside: Methyl 2-deoxy-α-D-*ribo*-hexopyranoside*
[17676-18-5]
$C_7H_{14}O_5$ 178.185
Hygroscopic needles (THF/Et_2O). Mp 97-99.5°. $[\alpha]_D^{25}$ +183 (c, 0.5 in MeOH).
*Me glycoside, 4,6-benzylidene, 3-mesyl: Methyl 4,6-O-benzylidene-2-deoxy-3-O-mesyl-α-D-*ribo*-hexopyranoside*
[6600-11-9]
$C_{15}H_{20}O_7S$ 344.385
Cryst. ($CHCl_3$/EtOH). Mp 117-119° (110-111°). $[\alpha]_D^{22}$ +134.7 ($CHCl_3$).

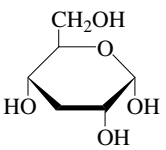
β-D-Pyranose-*form*
*Me glycoside: Methyl 2-deoxy-β-D-*ribo*-hexopyranoside*
[20830-65-3]
$C_7H_{14}O_5$ 178.185
Cryst. (THF/pentane). Mp 99-100.5°. $[\alpha]_D^{25}$ -20 (c, 0.52 in MeOH).

α-D-Furanose-*form*
*Me glycoside: Methyl 2-deoxy-α-D-*ribo*-hexofuranoside*
[25876-37-3]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 115-119°. $[\alpha]_D^{25}$ +146 (c, 0.6 in MeOH).

β-D-Furanose-*form*
*Me glycoside: Methyl 2-deoxy-β-D-*ribo*-hexofuranoside*
[25876-40-8]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 117-122°. $[\alpha]_D^{25}$ -46 (c, 0.2 in MeOH).
Gut, M. *et al., Helv. Chim. Acta*, 1947, **30**, 1223 (*D-form, synth*)
Zorbach, W.W. *et al., J.O.C.*, 1964, **29**, 1790, (*D-form, synth*)
Richardson, A.C. *et al., Carbohydr. Res.*, 1967, **4**, 422 (*α-D-Me gly 4,6-benzylidene mesyl, synth*)
Kovár, J. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 2498 (*α-D-Me gly 4,6-benzylidene mesyl synth*)
Bhat, C.C. *et al., Carbohydr. Res.*, 1969, **10**, 197 (*di-Et dithioacetal, Me glycosides*)
Haga, M. *et al., Carbohydr. Res.*, 1974, **34**, 214 (*D-form, synth*)
Angyal, S.T. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Betteli, E. *et al., Tetrahedron*, 1998, **54**, 6011-6018 (*3,4,6-tribenzyl*)

3-Deoxy-*ribo*-hexose, 9CI D-206

3-Deoxyglucose. 3-Deoxyallose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 31° contains 24.5% α-pyr, 55% β-pyr, 5% α-fur and 15.5% β-fur. Equilib. composition α-pyr: β-pyr: α-fur. 56.6:25.7:17.6 (H_2O).

α-D-Pyranose-*form*
Needles (EtOH). Mp 108-111° (105.5-107°). $[\alpha]_D^{20}$ +102 → +32.2 (c, 1.0 in H_2O).
*Tetra-Ac: 1,2,4,6-Tetra-O-acetyl-3-deoxy-α-D-*ribo*-hexopyranoside*
$C_{14}H_{20}O_9$ 332.307
Cryst. (EtOH). Mp 129-130°. $[\alpha]_D$ -14 (c, 1.0 in $CHCl_3$).
*Me glycoside: Methyl 3-deoxy-α-D-*ribo*-hexopyranoside*
[26922-85-0]
$C_7H_{14}O_5$ 178.185
Syrup. $Bp_{0.1}$ 150-170° (bath). $[\alpha]_D$ +125.1 (c, 2.3 in H_2O).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-α-D-*ribo*-hexopyranoside*
[40773-64-6]
$C_{14}H_{18}O_5$ 266.293
Cryst. (EtOH). Mp 187-187.5°. $[\alpha]_D^{19}$ +130.1 (c, 0.84 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 2-tosyl: Methyl 4,6-*O*-benzylidene-2-*O*-tosyl-α-D-*ribo*-hexopyranoside*
$C_{21}H_{24}O_7S$ 420.482
Cryst. (EtOAc/petrol). Mp 123.5-124°. $[\alpha]_D^{20}$ +60.1 (c, 2.7 in $CHCl_3$).

*Ph glycoside: Phenyl 3-deoxy-α-D-*ribo*-hexopyranoside*
$C_{12}H_{16}O_5$ 240.255
Cryst. (EtOH/Et_2O). Mp 136-138°. $[\alpha]_D^{20}$ +172 (H_2O).

β-D-Pyranose-*form*
Prisms (EtOH). Mp 137°. $[\alpha]_D^{25}$ +30.4 (c, 3.6 in H_2O).

*1,2,4-Tri-Ac: 1,2,4-Tri-*O*-acetyl-3-deoxy-β-D-*ribo*-hexopyranose*
[56946-02-2]
$C_{12}H_{18}O_8$ 290.269
Cryst. (Et_2O/petrol). Mp 86-88°. $[\alpha]_D$ -7.2 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-β-D-*ribo*-hexopyranoside*
[24921-02-6]
$C_{14}H_{18}O_5$ 266.293
Needles (dioxan/petrol). Mp 165°. $[\alpha]_D^{18}$ +59.5 (c, 4.1 in $CHCl_3$).

*Ph glycoside: Phenyl 3-deoxy-β-D-*ribo*-hexopyranoside*
$C_{12}H_{16}O_5$ 240.255
Cryst. (H_2O). Mp 183-185°. $[\alpha]_D^{20}$ -94 (c, 0.27 in H_2O).

α-D-Furanose-*form*

*1,2-Isopropylidene: 3-Deoxy-1,2-*O*-isopropylidene-α-D-*ribo*-hexofuranose. Monoacetone 3-deoxyglucose*
[4494-96-6]
$C_9H_{16}O_5$ 204.222
Needles ($CHCl_3$/petrol). Mp 84°. $Bp_{0.2}$ 135-137°. $[\alpha]_D^{24}$ -15.3 (c, 1.5 in EtOH).

*1,2-*O*-Isopropylidene, 6-benzoyl: 6-*O*-Benzoyl-3-deoxy-1,2-*O*-isopropylidene-α-D-*ribo*-hexofuranose*
[20720-46-1]
$C_{16}H_{20}O_6$ 308.33
Mp 141.5-142.5°.

*1,2-*O*-Isopropylidene, dibenzoyl: 5,6-Di-*O*-benzoyl-3-deoxy-1,2-*O*-isopropylidene-α-D-*ribo*-hexofuranose*
[4613-64-3]
$C_{23}H_{24}O_7$ 412.438
Mp 84.5-86°. $[\alpha]_D^{23}$ +14 (c, 1.4 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene: 3-Deoxy-1,2:5,6-di-*O*-isopropylidene-α-D-*ribo*-hexofuranose*
[4613-62-1]
$C_{12}H_{20}O_5$ 244.287
Syrup. $Bp_{0.3}$ 74-78°. $[\alpha]_D^{20}$ -8.5 (c, 1.5 in $CHCl_3$).

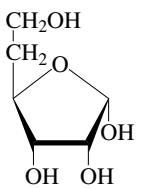
*6-Trityl, 1,2-*O*-isopropylidene: 3-Deoxy-1,2-*O*-isopropylidene-6-*O*-trityl-α-D-*ribo*-hexofuranose*
[20720-48-3]
$C_{28}H_{30}O_5$ 446.542
Mp 149.5-150.5°. $[\alpha]_D^{23}$ -14.5 (c, 1.4 in $CHCl_3$).

[2490-91-7]

Vis, E. *et al., Helv. Chim. Acta*, 1954, **37**, 378, (*α-D-Me pyr benzylidene, α-D-Me pyr benzylidene tosyl*)
Pratt, J.W. *et al., J.A.C.S.*, 1957, **79**, 2597 (*α-D-form, α-D-tetra-Ac, α-D-Ph pyr, β-D-Ph pyr*)
Anet, E.F.L.J. *et al., Chem. Ind. (London)*, 1960, 345 (*β-D-form*)
Hedgley, E.J. *et al., J.C.S.*, 1963, 4701 (*α-D-form, α-D-Me pyr, β-D-Me pyr benzylidene, α-D-fur isopropylidene, α-D-fur diisopropylidene, synth*)
Němec, J. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2097 (*α-D-fur isopropylidene benzoyl, α-D-fur isopropylidene trityl*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1975, **53**, 2178 (*β-D-pyr tri-Ac*)
Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1975, 1574; 1977, 1718 (*synth, α-D-fur diisopropylidene, α-D-Me pyr benzylidene*)
Collins, P.M. *et al., Chem. Comm.*, 1977, 927 (*synth, α-D-fur diisopropylidene*)
Scensny, P.M. *et al., Carbohydr. Res.*, 1983, **112**, 307 (***synth, cmr, bibl***)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Du Mortier, C. *et al., J. Carbohydr. Chem.*, 1984, **3**, 219 (*equilib*)
Colombo, D. *et al., J. Carbohydr. Chem.*, 1994, **13**, 611-617 (*Me α-D-Pyr, enzymic synth*)
Bolon, P. *et al., Tetrahedron*, 1995, **51**, 10443 (*diisopropylidene derivs*)
Org. Synth., 2000, **78**, 239-248 (*α-D-fur diisopropylidene, synth, ir, pmr, cmr*)
Kopper, S. *et al., Helv. Chim. Acta*, 2003, **86**, 827-843 (*synth, pmr, cmr*)

5-Deoxy-*ribo*-hexose, 9CI D-207

5-Deoxyallose. 5-Deoxytalose. Homoribose



α-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [6829-62-5]
Syrup. $[\alpha]_D^{23}$ +19.4 (H_2O).
Phenylosazone: Mp 137-139°. $[\alpha]_D^{23}$ +17.8 (MeOH).

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene, 3,6-dibenzoyl: 3,6-Di-*O*-benzoyl-5-deoxy-1,2-*O*-isopropylidene-α-D-*ribo*-hexofuranose*
[55085-29-5]
$C_{23}H_{24}O_7$ 412.438
Mp 87°.

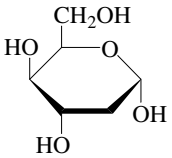
β-D-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-deoxy-2,3-*O*-isopropylidene-β-D-*ribo*-hexofuranoside*
$C_{10}H_{18}O_5$ 218.249
Syrup. $Bp_{0.2}$ 84-86°. $[\alpha]_D^{23}$ -54.6 (c, 2.3 in MeOH).

Ryan, K.J. *et al., J.A.C.S.*, 1964, **86**, 2503 (*synth*)
Montgomery, J.A. *et al., J.O.C.*, 1964, **29**, 3436 (*synth*)
Sepulchre, A.M. *et al., Tet. Lett.*, 1973, 3619 (*synth*)
David, S. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1974, **279**, 651 (*synth*)

2-Deoxy-*xylo*-hexose D-208

2-Deoxygulose. 2-Deoxyidose



α-D-*form*

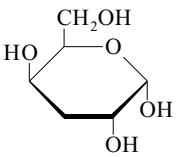
$C_6H_{12}O_5$ 164.158

D-*form* [23583-41-7]
Syrup. $[\alpha]_D$ +12 (H_2O).
Phenylhydrazone: Mp 124-126°. $[\alpha]_D$ -8.1 (MeOH).
p-*Toluidide: 2-Deoxy-D-*xylo-*hexose* p-*toluidinimide*
$C_{13}H_{19}NO_4$ 253.297
Two forms. Mp 74-76° Mp 141-142°.

Golab, T. *et al., Helv. Chim. Acta*, 1961, **44**, 616

3-Deoxy-*xylo*-hexose, 9CI, 8CI D-209

3-Deoxygalactose. 3-Deoxygulose



α−D−Pyranose−*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 31° contains <27% α-pyr, 53.3% β-pyr, <27% α-fur, and 19.5% β-fur.

D-*form* [4005-35-0]
Syrup. $[\alpha]_D^{22}$ +6.6 (c, 2.4 in H_2O).
2,4-Dinitrophenyllhydrazone: Mp 129-130°. $[\alpha]_D$ -15.1 (MeOH).
1,1,2,4,5,6-Hexa-Ac:
$C_{18}H_{26}O_{12}$ 434.396
Mp 107-108°. $[\alpha]_D^{25}$ +43 (c, 2 in $CHCl_3$).

α-D-Pyranose-*form*

*1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-deoxy-α-D-*xylo*-hexopyranose*
[28538-18-3]
$C_{14}H_{20}O_9$ 332.307
Mp 104°. $[\alpha]_D^{25}$ +71.6 (c, 0.1 in $CHCl_3$).

*Me glycoside: Methyl 3-deoxy-α-D-*xylo*-hexopyranoside*
[29581-42-8]
$C_7H_{14}O_5$ 178.185
Cryst. (MeOH/Et_2O). Mp 162-164°.

p-*Nitrophenyl glycoside:* [23644-41-9]
$C_{12}H_{15}NO_7$ 285.253
Yellow needles (EtOH/petrol). Mp 164°. $[\alpha]_D^{25}$ +218.8 (c, 0.06 in MeOH).

β-D-Pyranose-*form*

1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3-deoxy-β-D*-xylo-*hexopyranose*
[15451-80-6]
$C_{14}H_{20}O_9$ 332.307
Cryst. (EtOAc/petrol). Mp 102-103°. $[\alpha]_D^{25}$ -25.5 (c, 2.1 in $CHCl_3$).

Me glycoside: Methyl 3-deoxy-β-D-xylo-*hexopyranoside*
$C_7H_{14}O_5$ 178.185
Mp 177.5-179° (173-174°). $[\alpha]_D$ -67 (c, 0.5 in H_2O).

Me glycoside, tribenzoyl: Methyl 2,3,6-tri-O-*benzoyl-3-deoxy-β-D*-xylo-*hexopyranoside*
$C_{28}H_{26}O_8$ 490.509
Glass. $[\alpha]_D^{25}$ -17 (c, 0.4 in $CHCl_3$).

D-Furanose-*form*

1,2,5,6-Tetra-Ac: 1,2,5,6-Tetra-O-*acetyl-3-deoxy-D*-xylo-*hexofuranose*
[23655-60-9]
$C_{14}H_{20}O_9$ 332.307
Syrup. $[\alpha]_D^{25}$ -16 (c, 1.9 in $CHCl_3$).

α-D-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene: 3-Deoxy-1,2:5,6-di*-O-*isopropylidene-α-D*-xylo-*hexofuranose*
[2774-29-0]
$C_{12}H_{20}O_5$ 244.287
Mp 81.5°. $[\alpha]_D^{20}$ -52.5 (c, 0.6 in H_2O).

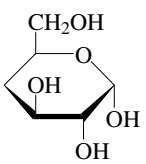
β-D-Furanose-*form*

4-Nitrophenyl glycoside: [23644-44-2]
Yellow plates (EtOH/petrol). Mp 128-129°. $[\alpha]_D^{25}$ -202.4 (c, 0.09 in MeOH).

Huber, H. *et al., Helv. Chim. Acta*, 1948, **31**, 1645 (*D-form, α-D-Me pyr*)
Weygand, F. *et al., Chem. Ber.*, 1952, **85**, 256, (*D-form, α-D-fur diisopropylidene*)
Fahrenheim, G. *et al., Annalen*, 1968, **720**, 177 (*D-form, D-hexa-Ac, D-fur tetra-Ac, α-D-pyr tetra-Ac, β-D-pyr tetra-Ac, nitrophenyl glycosides*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1972, **25**, 1711 (*pmr, equilib*)
Kucar, S. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 457 (*synth*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Lin, T.H. *et al., Carbohydr. Res.*, 1989, **188**, 228 (*β-D-Me pyr, β-D-Me pyr tribenzoyl*)
Binch, H. *et al., Carbohydr. Res.*, 1998, **306**, 409-419 (*synth, L-form*)

4-Deoxy-*xylo*-hexose, 9CI, 8CI D-210

4-Deoxyglucose. 4-Deoxygalactose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [7286-46-6]
Cryst. (EtOH). Mp 136-140° (131-132°). $[\alpha]_D$ +44 → +60.3 (c, 2.4 in H_2O).

Dibenzyl dithioacetal:
$C_{20}H_{26}O_4S_2$ 394.555
Cryst. (EtOH/Et_2O/petrol).
Mp 106-108°. $[\alpha]_D$ -88 (c, 1.0 in EtOH).

α-D-Pyranose-*form* [28434-38-0]

Me glycoside: Methyl 4-deoxy-α-D-xylo-*hexopyranoside*
[13241-00-4]
$C_7H_{14}O_5$ 178.185
Prisms (EtOAc). Mp 90°. $[\alpha]_D$ +168.2 (c, 0.86 in MeOH).

Me glycoside, 2,3,6-tri-Ac: Methyl 2,3,6-tri-O-*acetyl-4-deoxy-α-D*-xylo-*hexopyranoside*
[13264-03-4]
$C_{13}H_{20}O_8$ 304.296
Cubes ($CHCl_3$/petrol). Mp 75-76°. $[\alpha]_D$ +138 (c, 0.5 in $CHCl_3$).

Me glycoside, 2,3-di-Me: Methyl 4-deoxy-2,3-di-O-*methyl-α-D*-xylo-*hexopyranoside*
[62853-48-9]
$C_9H_{18}O_5$ 206.238
Oil. $[\alpha]_D^{22}$ +70 (c, 1.0 in MeOH).

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-*benzyl-4-deoxy-α-D*-xylo-*hexopyranoside*
$C_{21}H_{26}O_5$ 358.433
Syrup. $[\alpha]_D$ +75.4 (c, 1 .425 in CH_2Cl_2).

β-D-Pyranose-*form*

1,2,3,6-Tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-4-deoxy-β-D*-xylo-*hexopyranose*
[53797-36-7]
$C_{14}H_{20}O_9$ 332.307
Cryst. (Et_2O/petrol). Mp 112-114°. $[\alpha]_D$ +12 (c, 1.8 in $CHCl_3$).

Me glycoside: Methyl 4-deoxy-β-D-xylo-*hexopyranoside*
[51385-57-0]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 145-146°. $[\alpha]_D$ -35.7 (c, 0.8 in H_2O).

Me glycoside, 2,3,6-tri-Ac: Methyl 2,3,6-tri-O-*acetyl-4-deoxy-β-D*-xylo-*hexopyranoside*
[51996-22-6]
$C_{13}H_{20}O_8$ 304.296
$[\alpha]_D$ -23.2 (c, 2.2 in $CHCl_3$).

Me glycoside, tribenzoyl: Methyl 2,3,6-tri-O-*benzoyl-4-deoxy-β-D*-xylo-*hexopyranoside*
$C_{28}H_{26}O_8$ 490.509
Amorph. $[\alpha]_D^{25}$ +53 (c, 0.8 in $CHCl_3$).

Ph glycoside: Phenyl 4-deoxy-β-D-xylo-*hexopyranoside*
$C_{12}H_{16}O_5$ 240.255
Cryst. Mp 118-120°. $[\alpha]_D^{20}$ -57.9 (c, 1 in H_2O).

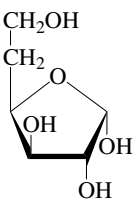
β-L-Pyranose-*form*

(-)-Menthyl glycoside, 2,3,6-tri-Ac: Menthyl 2,3,6-tri-O-*acetyl-4-deoxy-β-L*-xylo-*hexopyranoside*
$C_{22}H_{36}O_8$ 428.522
Mp 103-105°. $[\alpha]_D^{23}$ -26.6 (c, 0.7 in $CHCl_3$).

Černý, V. *et al., Coll. Czech. Chem. Comm.*, 1962, **27**, 94 (*D-form, synth, β-D-pyr tetra-Ac*)
Hedgley, E.J. *et al., J.C.S.*, 1963, 4701 (*D-form, synth, α-D-Me pyr, α-D-Me pyr tri-Ac, β-D-pyr tetra-Ac, β-D-Me pyr*)
Cook, A.F. *et al., J.C.S.(C)*, 1966, 1549, (*α-D-Me pyr*)
Gero, S.D. *et al., J.C.S.(C)*, 1967, 1761, (*α-D-Me pyr tri-Ac*)
Freemantle, H.H. *et al., J.C.S.(B)*, 1969, 551; 547 (*pmr*)
Vegh, L. *et al., Helv. Chim. Acta*, 1973, **56**, 2079 (*β-D-pyr tetra-Ac*)
Maradufu, A. *et al., Carbohydr. Res.*, 1974, **32**, 261 (*β-D-Me pyr tri-Ac*)
Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1977, 1718 (*α-D-Me pyr di-Me*)
Kiss, L. *et al., Acta Chim. Acad. Sci. Hung.*, 1978, **98**, 349 (*β-D-Ph pyr*)
Brockhaus, M. *et al., Chem. Ber.*, 1978, **111**, 811 (*D-form, synth*)
Sinha, S.K. *et al., Carbohydr. Res.*, 1980, **81**, 239 (*synth*)
Bednarski, M. *et al., J.A.C.S.*, 1983, **105**, 6968 (*β-L-menthyl pyr tri-Ac*)
Giuliano, R.H. *et al., J. Carbohydr. Chem.*, 1987, **6**, 541-552 (*Me α-D-pyr 2,3-dibenzyl*)
Lin, T.H. *et al., Carbohydr. Res.*, 1989, **188**, 228 (*α-D-Me gly tribenzoyl, β-D-Me gly*)
Czernecki, S. *et al., J. Carbohydr. Chem.*, 1989, **8**, 793; 1995, **14**, 157-163 (*Me α-D-pyr 2, 3-dibenzyl*)

5-Deoxy-*xylo*-hexose, 9CI, 8CI D-211

5-Deoxyglucose. 5-Deoxyidose



α-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [7640-19-9]
Syrup. $[\alpha]_D^{24}$ +38 (c, 2.1 in H_2O). $[\alpha]_D$ +17.3 (c, 5.5 in H_2O).

Phenylosazone:
Cryst. (EtOH aq.). Mp 151°.

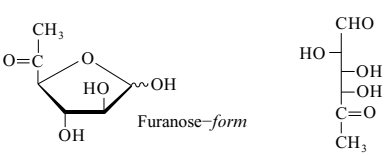
α-D-Furanose-*form*

*1,2-*O-*Isopropylidene: 5-Deoxy-1,2-*O-*isopropylidene-α-D*-xylo-*hexofuranoside*
[7057-09-2]
$C_9H_{16}O_5$ 204.222
Cryst. (Et_2O/petrol). Mp 94-96°. $[\alpha]_D^{24}$ -10.6 (c, 2.0 in $CHCl_3$).

Wolfrom, M.L. *et al., J.O.C.*, 1963, **28**, 3551 (*synth, α-D-fur isopropylidene, pmr*)
Hedgley, E.J. *et al., J.C.S.(C)*, 1967, 888 (*synth*)
de Jongh, D.C. *et al., Adv. Chem. Ser.*, 1968, **74**, 202 (*ms*)
Ritchie, R.G.S. *et al., Can. J. Chem.*, 1972, **50**, 507 (*α-D-fur isopropylidene*)
Overend, W.G. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 173 (*synth*)

6-Deoxy-*arabino*-hexos-5-ulose D-212

6-Deoxy-arabino-*hexofuranos-5-ulose, 8CI*

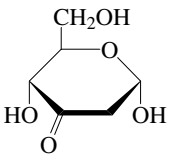


$C_6H_{10}O_5$ 162.142

D-*form*
Component of Hygromycin A, H-201.
Yellow syrup. $[\alpha]_D^{12}$ -4.3 (c, 1.88 in MeOH).
1,5-Bis-p-*nitrophenylhydrazone:* Mp 211° dec. $[\alpha]_D^{15}$ +1.1 (c, 0.55 in Py).

D-*Furanose-form* [17651-03-5]
β-1,2-O-*Isopropylidene: 6-Deoxy-1,2*-O-*isopropylidene-β-D*-arabino-*hexofuranos-5-ulose*
$C_9H_{14}O_5$ 202.207
Needles. Mp 85-86°. $[\alpha]_D^{16}$ -18.2 (c, 1 in $CHCl_3$).
Takahashi, S. *et al., Tet. Lett.*, 1967, 2285 (*synth*)

2-Deoxy-*erythro*-hexos-3-ulose D-213



α-D-*form*

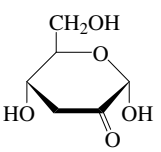
$C_6H_{10}O_5$ 162.142

D-*form* [23298-58-0]
Syrup. $[\alpha]_D^{20}$ +33.9 (c, 0.97 in H_2O).

α-D-Pyranose-*form*
2-Deoxy-α-D-erythro-*hexopyranos-3-ulose*
Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-2-deoxy-α-D*-erythro-*hexopyranosid-3-ulose*
[6752-49-4]
[63598-31-2]
$C_{14}H_{16}O_5$ 264.277
Mp 177-178°. $[\alpha]_D$ +159 (c, 1.0 in EtOAc).
Me glycoside, 4,6-O-*benzylidene, oxime:* [16697-52-2]
$C_{14}H_{17}NO_5$ 279.292
Mp 207-208°. $[\alpha]_D$ +200 (c, 1.2 in $CHCl_3$).
Beynon, P.J. *et al., J.C.S.(C)*, 1966, 1131-1136 (*glycoside, synth*)
Horton, D. *et al., Carbohydr. Res.*, 1975, **43**, 227-235 (*glycoside, pmr*)
Ingle, T.R. *et al., Indian J. Chem., Sect. B*, 1983, **22**, 69-70 (*glycoside, synth, ir, pmr*)
Kopper, S. *et al., Chem. Eur. J.*, 1998, **4**, 2442-2455 (*synth, pmr, cmr*)

3-Deoxy-*erythro*-hexos-2-ulose, 9CI D-214

3-Deoxyglucosone
[30382-30-0]



α-D-Pyranose-*form*

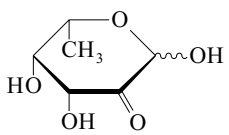
$C_6H_{10}O_5$ 162.142

D-*form* [4084-27-9]
Syrup. $[\alpha]_D$ -2.5 → +1.2 (H_2O, equilib.).
►MQ3390000
Bis(phenylhydrazone): [32443-72-4]
Yellow needles (EtOH aq.). Mp 190° dec. $[\alpha]_D^{25}$ -73.1 (c, 0.2 in Py).
Bis(2,4-dinitrophenylhydrazone): [2595-22-4]
Red needles (EtOAc). Mp 265-266° dec. $[\alpha]_D^{25}$ +800 (Py/AcOH).
Bis(thiosemicarbazone): [115494-22-9]
Yellow needles (EtOH aq.). Mp 229°. $[\alpha]_D^{24}$ +512 (c, 1 in DMSO).
4,6-O-*Benzylidene: 4,6*-O-*Benzylidene-3-deoxy-D*-erythro-*hexos-2-ulose*
$C_{13}H_{14}O_5$ 250.251
Cryst. (EtOH). Mp 114-114.5°.
4,6-O-*Benzylidene, bis(phenylhydrazone):* [35800-04-5]
Yellow needles (EtOH). Mp 188-189°.

α-D-Pyranose-*form*
Me glycoside, 4,6-O-*benzylidene:* See Methyl 4,6-*O*-benzylidene-3-deoxy-*erythro*-hexopyranosid-2-ulose, M-160
Benzyl glycoside, 4,6-O-*benzylidene: Benzyl 4,6*-O-*benzylidene-3-deoxy-α-D*-erythro-*hexopyranosid-2-ulose*
[58006-35-2]
$C_{20}H_{20}O_5$ 340.375
Cryst. (EtOH). Mp 149-150°. $[\alpha]_D^{20}$ +129 (c, 1 in $CHCl_3$).
Benzyl glycoside, 4,6-O-*benzylidene, oxime:* [58006-36-3]
$C_{20}H_{21}NO_5$ 355.39
Cryst. (EtOH). Mp 160-163°. $[\alpha]_D^{20}$ +120 (c, 1 in $CHCl_3$).
[14686-49-8]
Anet, E.F.L.J. *et al., J.A.C.S.*, 1960, **82**, 1502 (*synth*)
Theander, O. *et al., Adv. Carbohydr. Chem.*, 1962, **17**, 223-299 (*rev*)
Kato, H. *et al., Agric. Biol. Chem.*, 1962, **26**, 187-192 (*D-form, isol*)
El Khadem, H. *et al., Carbohydr. Res.*, 1971, **17**, 183-192 (*D-form, synth*)
Collins, P.M. *et al., Carbohydr. Res.*, 1972, **22**, 187-192 (*D-benzylidene*)
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1975, **108**, 3397-3411 (*α-D-benzyl pyr benzylidene, α-D-benzyl pyr benzylidene oxime*)
Horton, D. *et al., Carbohydr. Res.*, 1987, **168**, 295-300 (*thiosemicarbazone*)
Weenan, H. *et al., ACS Symp. Ser.*, 1992, **490**, 217-231 (*pmr, cmr*)
Kopper, S. *et al., Chem. Eur. J.*, 1998, **4**, 2442-2455 (*synth*)
Kopper, S. *et al., Helv. Chim. Acta*, 2003, **86**, 827-843 (*synth, pmr, cmr*)

6-Deoxy-*lyxo*-hexos-2-ulose D-215

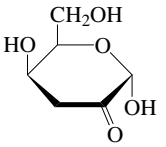
2-Ketofucose. Angustose



$C_6H_{10}O_5$ 162.142

L-*form*
Hydrolysis product of Angustmycin A, A-478. Cryst. Mp 116-118° dec. $[\alpha]_D^{20}$ +18 (EtOH).
Yunsten, H. *et al., Bull. Agric. Chem. Soc. Jpn.*, 1957, **21**, 261; *CA*, **51**, 18058h (*isol*)
Yunsten, H. *et al., J. Antibiot., Ser. A*, 1958, **11**, 77; *CA*, **54**, 3427i (*struct*)

3-Deoxy-*threo*-hexos-2-ulose D-216



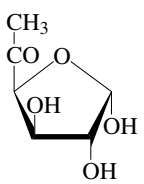
α-D-Pyranose-*form*

$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*
Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-3-deoxy-α-D*-threo-*hexopyranosid-2-ulose, 8CI*
[20196-82-1]
$C_{14}H_{16}O_5$ 264.277
Cryst. (2-propanol). Mp 147-148°. $[\alpha]_D^{20}$ +107 (c, 0.1 in MeOH).

β-D-Pyranose-*form*
4,6-O-*Benzylidene, acetylhydrazone:* [26540-56-7]
$C_{15}H_{18}N_2O_5$ 306.318
Mp 193-195°. $[\alpha]_D^{20}$ +55 (c, 0.4 in $CHCl_3$).
Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-3-deoxy-β-D*-threo-*hexopyranosid-2-ulose*
[24333-06-0]
$C_{14}H_{16}O_5$ 264.277
Cryst. (EtOH). Mp 189°. $[\alpha]_D^{20}$ -80 (c, 0.1 in MeOH).
Ph glycoside, 4,6-O-*benzylidene: Phenyl 4,6*-O-*benzylidene-3-deoxy-β-D*-threo-*hexopyranosid-2-ulose, 8CI*
[24332-85-2]
$C_{19}H_{18}O_5$ 326.348
Cryst. (2-propanol). Mp 155-156°. $[\alpha]_D^{20}$ -60 (c, 0.1 in MeOH).
Butterworth, R.F. *et al., Chem. Ind. (London)*, 1968, 1485 (*pmr*)
Antonakis, K. *et al., Bull. Soc. Chim. Fr.*, 1969, 122 (*α-D-Me pyr benzylidene, β-D-Me pyr benzylidene, β-D-Ph pyr benzylidene*)
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 3824 (*β-D-pyr benzylidene acetylhydrazone*)

6-Deoxy-*xylo*-hexos-5-ulose, 9CI, 8CI D-217



α-D-Furanose-*form*

$C_6H_{10}O_5$ 162.142
A D_2O soln. contains 36% α-fur, 28% β-fur and and 36% β pyr forms.

D-*form* [22413-26-9]
Mp 125-126°. $[\alpha]_D^{20}$ -34 (c, 10 in H_2O). Also descr. as a gum, representing a mixt. of furanose and pyranose forms.
Bis-4-nitrophenylhydrazone: Mp 120.5°

dec.

α-D-Furanose-*form*

1,2-O-Isopropylidene: 6-Deoxy-1,2-O-isopropylidene-α-D-xylo-hexofuranos-5-ulose
[19189-70-9]
$C_9H_{14}O_5$ 202.207
Cryst. (C_6H_6/petrol). Mp 99-100°. $[\alpha]_D^{22}$ -47 (c, 1 in $CHCl_3$). $[\alpha]_D^{20}$ -107 (c, 0.69 in $CHCl_3$).

1,2-O-Isopropylidene, phenylhydrazone:
[20701-59-1]
Mp 200-204°. $[\alpha]_D^{22}$ -12 (c, 1 in $CHCl_3$).

1,2-O-Isopropylidene, 4-nitrophenylhydrazone, 3-Me: [57032-40-3]
Mp 142-144°. $[\alpha]_D^{22}$ -50.8 (c, 1 in EtOH).

1,2-O-Isopropylidene, 3-benzyl: 3-O-Benzyl-6-deoxy-1,2-O-isopropylidene-α-D-xylo-hexofuranos-5-ulose
[41670-98-8]
$C_{16}H_{20}O_5$ 292.331
Cryst. (Et_2O/petrol). Mp 56-57°. $[\alpha]_D^{22}$ -88 (c, 1 in $CHCl_3$).

1,2-O-Methylene: 6-Deoxy-1,2-O-methylene-α-D-xylo-hexofuranos-5-ulose
[65827-45-4]
$C_7H_{10}O_5$ 174.153
Cryst. (EtOH). Mp 102-103°. $[\alpha]_D$ -107 (c, 1 in $CHCl_3$).

1,2-O-Methylene, 3-tosyl: 6-Deoxy-1,2-O-methylene-3-O-tosyl-α-D-xylo-hexofuranos-5-ulose
[65827-53-4]
$C_{14}H_{16}O_7S$ 328.342
Cryst. (EtOH). Mp 120-121°. $[\alpha]_D$ -62 (c, 2 in $CHCl_3$).

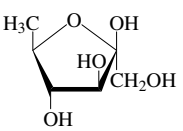
β-D-Furanose-*form*

Me glycoside, 2,3-ditosyl: Methyl 6-deoxy-2,3-di-O-tosyl-β-D-xylo-hexofuranosid-5-ulose
[65827-47-6]
Cryst. (EtOH). Mp 131°. $[\alpha]_D$ -99 (c, 1 in $CHCl_3$).

Helferich, B. *et al., Ber.*, 1929, **62**, 2136 (*D-form, synth*)
Wolfrom, M.L. *et al., J.O.C.*, 1962, **27**, 2107, (*α-D-fur isopropylidene benzyl*)
Blair, M.G. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 415 (*α-D-fur isopropylidene*)
Rosenthal, A. *et al., Carbohydr. Res.*, 1971, **19**, 145 (*α-D-fur isopropylidene*)
Arrick, R.E. *et al., Carbohydr. Res.*, 1973, **26**, 441 (*α-D-fur isopropylidene benzyl*)
Kiely, D.E. *et al., Carbohydr. Res.*, 1973, **31**, 387 (*D-form, α-D-fur isopropylidene, α-D-fur isopropylidene benzyl*)
Ferrier, R.J. *et al., Carbohydr. Res.*, 1977, **59**, 333 (*α-D-fur methylene, α-D-fur methylene tosyl, β-D-Me fur ditosyl*)
Yamashita, M. *et al., Carbohydr. Res.*, 1979, **70**, 247 (*α-D-fur isopropylidene*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1983, **2**, 427-438 (*pmr, cmr, equilib*)

6-Deoxy-*arabino*-2-hexulose D-218

6-Deoxyfructose. Fructomethylose. Rhamnulose



β-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [148409-42-1]
Syrup. $[\alpha]_D$ -6 (c, 2.07 in H_2O).

2-Nitrophenylhydrazone:
Orange-yellow needles. Mp 136-137°. $[\alpha]_D^{20}$ +40 (c, 1 in EtOH).

β-D-Furanose-*form*

2,3-Isopropylidene: 6-Deoxy-2,3-O-isopropylidene-β-D-arabino-2-hexulofuranose
[20853-36-5]
$C_9H_{16}O_5$ 204.222
Needles (Me_2CO/Et_2O/pentane). Mp 80-81°.

2,3-Isopropylidene, ditosyl: 6-Deoxy-2,3-O-isopropylidene-1,6-di-O-tosyl-β-D-arabino-2-hexulofuranose
$C_{23}H_{28}O_9S_2$ 512.601
Needles (Et_2O/pentane). Mp 132-133°. $[\alpha]_D^{20}$ +15.2 (c, 0.3 in EtOH).

L-*form* [14807-05-7]
Syrup. $[\alpha]_D^{22}$ +7.3 (c, 5.0 in H_2O). 95-97 % pure.

2-Nitrophenylhydrazone: [72774-23-3]
Yellow needles (EtOH/Et_2O). Mp 135-137°. $[\alpha]_D^{20}$ -39 (c, 1 in H_2O).

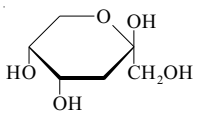
1-Phosphate:
$C_6H_{13}O_8P$ 244.138
$[\alpha]_D$ +8.7 (c, 0.56 in AcOH) (as Ba salt).

[144382-86-5, 144382-87-6]

Morgan, W.T.J. *et al., Helv. Chim. Acta*, 1938, **21**, 1023 (*D-form*)
Kučár, S. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 3119 (*L-form*)
Ennifar, S. *et al., Carbohydr. Res.*, 1989, **193**, 303 (*L-form*)
Zhou, P. *et al., Carbohydr. Res.*, 1992, **232**, 177 (*L-phosphate*)
Hecquet, L. *et al., Tetrahedron*, 1994, **50**, 8677-8684 (*D-form, enzymic synth*)
Freimund, S. *et al., Chem. Eur. J.*, 1998, **4**, 2442-2455 (*D-form, synth, pmr, cmr, ms*)
Kopper, S. *et al., Helv. Chim. Acta*, 2003, **86**, 827-843 (*D-form, synth, pmr, cmr*)

3-Deoxy-*erythro*-2-hexulose D-219

3-Deoxyfructose
[4746-12-7]



β–D–Pyranose–*form*

$C_6H_{12}O_5$ 164.158

In aq. soln. exists as a mixt. of 5 tautomeric forms in which the β-pyranose form is preponderant (52.5% at 22°).

D-*form* [6196-57-2]
Needles (H_2O). Mp 113-114°. $[\alpha]_D$ -117 → -43.4 (24h) (c, 1 in H_2O). $[\alpha]_D^{23}$ -44 (c, 1.0 in H_2O).

p-*Nitrophenylosazone:*
Red solid. Mp 246-247° dec. $[\alpha]_D^{21}$ +455 (c, 0.2 in Py).

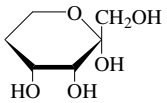
1-Me, 5,6-isopropylidene: 3-Deoxy-5,6-O-isopropylidene-1-O-methyl-D-erythro-2-hexulose
[68622-51-5]
$C_{10}H_{18}O_5$ 218.249
$[\alpha]_D^{20}$ -14.4 (c, 5.34 in $CHCl_3$).

β-D-Pyranose-*form*

Tetrabenzoyl: 1,2,4,5-Tetra-O-benzoyl-3-deoxy-β-D-erythro-hex-2-ulopyranose
$C_{34}H_{28}O_9$ 580.59
Cryst. (CCl_4 or EtOH). $[\alpha]_D^{21}$ +5.4 (c, 2 in $CHCl_3$).

Kuhn, R. *et al., Chem. Ber.*, 1961, **94**, 2534 (*synth, tetrabenzoyl*)
Thiem, J. *et al., Chem. Ber.*, 1976, **109**, 3588 (*synth*)
Kucar, S. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 2592 (*synth*)
Aparicio, F.J.L. *et al., An. Quim.*, 1977, **73**, 1168 (*isopropylidene*)
Bystricky, S. *et al., Coll. Czech. Chem. Comm.*, 1984, **49**, 828 (*cd, conformn*)
Bystricky, S. *et al., Biochim. Biophys. Acta*, 1990, **1035**, 71 (*cmr*)
Dills, W.L. *et al., Carbohydr. Res.*, 1990, **208**, 276 (***synth***)
Szarek, W.A. *et al., Can. J. Chem.*, 1995, **73**, 1639-1644 (*synth, ir, pmr, cmr*)
Szarek, W.A. *et al., Acta Cryst. C*, 1997, **53**, 1921-1923 (*β-D-pyr form, cryst struct*)

5-Deoxy-*erythro*-2-hexulose D-220



α-D-Pyranose-*form*

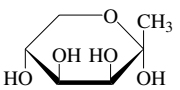
$C_6H_{12}O_5$ 164.158

D-Pyranose-*form*
Characterised spectroscopically. Mixt. of anomers.

Fechter, M.H. *et al., Carbohydr. Res.*, 1999, **319**, 55-62

1-Deoxy-*lyxo*-2-hexulose D-221

1-Deoxytagatose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

In soln. prob. consists of a mixt. of cyclic forms plus appreciable amounts of open-chain form.

D-*form*
Cryst. (Me_2CO). Mp 128-130° (121-123°). $[\alpha]_D$ -14.3 (c, 1.7 in H_2O).

5,6-Isopropylidene: 1-Deoxy-5,6-O-isopropylidene-D-lyxo-hexose
$C_9H_{16}O_5$ 204.222
Syrup. $[\alpha]_D$ +71 (c, 0.9 in $CHCl_3$).

D-Furanose-*form*

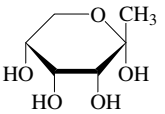
3,4-Isopropylidene: 1-Deoxy-3,4-O-isopropylidene-D-lyxo-2-hexulofuranose
$C_9H_{16}O_5$ 204.222
Cryst. ($CHCl_3$). Mp 123-125°. $[\alpha]_D$ +16 (c, 1.24 in $CHCl_3$).

3,4-Isopropylidene, Ac: 6-O-Acetyl-1-deoxy-3,4-O-isopropylidene-D-lyxo-2-hexulofuranose
$C_{11}H_{18}O_6$ 246.26
Mp 78-79°. $[\alpha]_D$ +26.3 (c, 0.8 in $CHCl_3$).

Wolfrom, M.L. *et al., J.O.C.*, 1965, **30**, 1284, (*D-form, synth*)
Dills, W.L. *et al., Carbohydr. Res.*, 1981, **89**, 338 (*synth, pmr*)
Cubero, I.I. *et al., Carbohydr. Res.*, 1985, **138**, 139 (*synth, pmr*)

1-Deoxy-*ribo*-2-hexulose D-222

1-Deoxypsicose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form*
Syrup. $[\alpha]_D$ +2.3 (c, 1.3 in H_2O) (+1.5, -0.1).

5,6-Isopropylidene: 1-Deoxy-5,6-O-isopropylidene-D-ribo-2-hexulose
$C_9H_{16}O_5$ 204.222
Cryst. (hexane). Mp 59-61°. $[\alpha]_D$ -52.5 (c, 1 in $CHCl_3$).

D-Pyranose-*form*

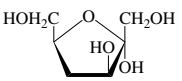
Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-1-deoxy-D-ribo-2-hexulopyranoside
$C_{14}H_{20}O_9$ 332.307
Cryst. (MeOH/Et_2O/petrol). Mp 75-77°. $[\alpha]_D^{28}$ -47 (c, 3 in $CHCl_3$).

Me glycoside: Methyl 1-deoxy-D-ribo-2-hexulopyranoside
$C_7H_{14}O_5$ 178.185
Cryst. Mp 107°. $[\alpha]_D^{20}$ -105.3 (c, 0.225 in H_2O). $[\alpha]_D^{20}$ -132.1 (c, 0.170 in MeOH).

L-*form*
Viscous oil. $[\alpha]_D^{22}$ -0.25 (c, 2.5 in H_2O).
Wolfrom, M.L. *et al., J.A.C.S.*, 1945, **67**, 1793 (*synth, tetra-Ac*)
Šmejkal, J. *et al., Coll. Czech. Chem. Comm.*, 1963, **28**, 1345 (*D-form, D-Me gly*)
James, K. *et al., Aust. J. Chem.*, 1972, **25**, 1967 (*L-form*)
Cubero, I.I. *et al., Carbohydr. Res.*, 1985, **138**, 139 (*synth, pmr*)

4-Deoxy-*threo*-2-hexulose D-223

4-Deoxyfructose. 4-Deoxytagatose



α-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [50439-30-0]
$[\alpha]_D^{24}$ -3.9 (c, 1.12 in H_2O).

6-Phosphate:
$C_6H_{13}O_8P$ 244.138
Yellow solid. $[\alpha]_D^{25}$ +5.9 (c, 7.8 in H_2O). Occurs in soln. as 40:60 mixt. of α- and β-anomers. Crystallises as β-furanose.

α-D-Furanose-*form*

Me glycoside: Methyl 4-deoxy-α-D-threo-2-hexulofuranoside
[121686-40-6]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{26}$ +94.5 (c, 1.6 in MeOH).

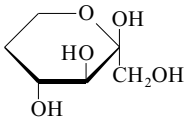
β-D-Furanose-*form*

Me glycoside: Methyl 4-deoxy-β-D-threo-2-hexulofuranoside
[82064-01-5]
$C_7H_{14}O_5$ 178.185
Hygroscopic syrup. $[\alpha]_D$ -45 (c, 1 in MeOH).

Haylock, C.R. *et al., Can. J. Biochem.*, 1973, **51**, 969-972 (*synth*)
Guthrie, R.D. *et al., Carbohydr. Res.*, 1982, **103**, 1-6 (*β-D-Me fur*)
Martin, O.R. *et al., Carbohydr. Res.*, 1989, **185**, 77-89 (*α-D-Me fur*)
Guerard, C. *et al., Eur. J. Org. Chem.*, 1999, 3399-3402 (*6-phosphate*)

5-Deoxy-*threo*-2-hexulose D-224

5-Deoxyfructose. 5-Deoxysorbose



β–D–Pyranose–*form*

$C_6H_{12}O_5$ 164.158

D-*form* [92574-10-2]
Cryst. (MeOH/Me_2CO). Mp 109-111°. $[\alpha]_D$ -67.3 (c, 0.7 in H_2O). V. sweet; sweetness comparable to that of fructose. Exists in soln. mainly as β-D-pyranose-form.

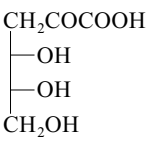
β-D-Pyranose-*form* [82945-01-5]

Et glycoside, tri-Ac: Ethyl 1,3,4-tri-O-acetyl-5-deoxy-β-D-threo-hex-2-ulopyranoside
[82945-03-7]
$C_{14}H_{22}O_8$ 318.323
$[\alpha]_D^{23}$ -75.6 (c, 1.11 in $CHCl_3$).

Martin, O.R. *et al., Can. J. Chem.*, 1982, **60**, 1857-1862 (*synth, deriv*)
Tiwari, K.N. *et al., Carbohydr. Res.*, 1986, **156**, 19-24 (*synth*)
Liu, K.K. *et al., J.C.S. Perkin 1*, 1991, 2669-2673 (*D-form, enzymic synth, pmr, cmr*)

3-Deoxy-*erythro*-2-hexulosonic acid D-225

2-Keto-3-deoxygluconic acid. KDG



$C_6H_{10}O_6$ 178.141
Prob. shows complex equilib. between pyranose, furanose and lactones in soln. (cf. 3-Deoxy-*threo*-2-hexulosonic acid, D-226).

D-*form* [17510-99-5]
Important prod. of degradation of polysaccharides by bacteria. $[\alpha]_D^{25}$ -33.1 (c, 1.3 in H_2O).

2,4-Dinitrophenylhydrazone:
Yellow cryst. (EtOAc). Mp 206° dec. (rapid melt).

4,6-Isopropylidene, Me ester: [135253-55-3]
$C_{10}H_{16}O_6$ 232.233
Mp 55-56°. $[\alpha]_D^{25}$ -30.9 (c, 3.75 in $CHCl_3$).

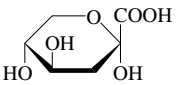
α-D-Furanose-*form*

Tribenzoyl, Me ester: Methyl 2,4,6-tri-O-benzoyl-3-deoxy-α-D-erythro-hex-2-ulofuranosonate
[314058-80-5]
$C_{28}H_{24}O_9$ 504.492
Cryst. (hexane/EtOAc). Mp 117-118°. $[\alpha]_D$ +28 (c, 0.9 in $CHCl_3$). β-Anomer also obt. but identified only in admixture with the α-isomer.

Madson, M.A. *et al., Carbohydr. Res.*, 1983, **115**, 288 (*synth, pmr*)
Plantier-Royon, R. *et al., J. Carbohydr. Chem.*, 1991, **10**, 239-249; 787-811 (*synth, cmr*)
Di Nardo, C. *et al., Carbohydr. Res.*, 2000, **328**, 605-610 (*α-D-fur tribenzoyl Me ester*)

3-Deoxy-*threo*-2-hexulosonic acid D-226

3-Deoxy-2-oxogalactonic acid



α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141
Prob. shows equilib. between pyranose, furanose and lactone forms in aq. soln.

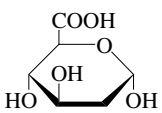
D-*form* [56742-44-0]
Component of the lipopolysaccharide of *Vibrio parahaemolyticus* serotypes 07 and 012. Also in *Azobbacter vinelandii* strain 1484.
Mp 159-163° (as K salt). $[\alpha]_D^{19}$ +15 (c, 0.7 in H_2O).

Phenylhydrazone, phenylhydrazide:
Yellow needles. Mp 204-205°. $[\alpha]_D$ +13.9 (c, 0.57 in Py).

1,4-Lactone: 3-Deoxy-threo-hex-2-ulosono-1,4-lactone
$C_6H_8O_5$ 160.126
Mp 213-214° (as phenylhydrazone). $[\alpha]_D^{18}$ -270 (c, 0.45 in Py) (phenylhydrazone).

Kuhn, R. *et al., Annalen*, 1959, **628**, 207 (*synth, derivs*)
Kondo, S. *et al., Carbohydr. Res.*, 1989, **188**, 97 (*isol*)
Ferriera, F. *et al., Carbohydr. Res.*, 1991, **210**, 255 (*isol*)

2-Deoxy-*arabino*-hexuronic acid D-227



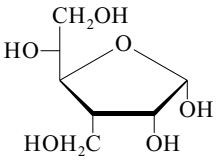
α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

D-*form*
Found in exopolysaccharides of *Sphingomonas paucimobilis* strain I886, *Azotobacter indicus* var. *myxogenes* and a *Rhizobium* sp. CAS no. not found 8-14CI.

Falk, C. *et al., Carbohydr. Res.*, 1996, **285**, 69-79 (*occur*)
Gulin, S. *et al., Carbohydr. Res.*, 2001, **331**, 285-290 (*occur*)
Guentas, L. *et al., Carbohydr. Res.*, 2001, **332**, 167-173 (*occur*)

3-Deoxy-3-*C*-hydroxymethyl-allose D-228



$C_7H_{14}O_6$ 194.184

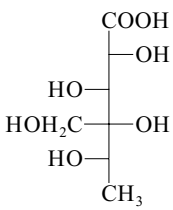
α-D-Furanose-*form*

*1,2-Isopropylidene: 3-Deoxy-3-*C*-hydroxymethyl-1,2-*O*-isopropylidene-α-D-allofuranose*
[26277-33-8]
$C_{10}H_{18}O_6$ 234.249
$[\alpha]_D^{22}$ +75 (c, 1 in $CHCl_3$).

*1,2:5,6-Diisopropylidene: 3-Deoxy-3-*C*-hydroxymethyl-1,2:5,6-di-*O*-isopropylidene-α-D-allofuranose*
[69832-48-0]
$C_{13}H_{22}O_6$ 274.313
Syrup or cryst. Mp 49-50°. $[\alpha]_D^{22}$ +103 (c, 2 in $CHCl_3$).

Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 4477 (*diisopropylidene, isopropylidene, synth, pmr*)
Acton, E.M. *et al., J. Med. Chem.*, 1979, **22**, 518 (*synth*)
Ariatti, M. *et al., J.O.C.*, 1981, **46**, 5204 (*synth*)
Mazur, A. *et al., Tetrahedron*, 1984, **40**, 3949 (*synth, pmr*)

6-Deoxy-4-*C*-(hydroxymethyl)idonic acid D-229



$C_7H_{14}O_7$ 210.183

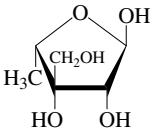
L-*form*

*5-Me, 2,3-methylene, Me ester: Methyl 6-deoxy-4-*C*-hydroxymethyl-5-*O*-methyl-2,3-*O*-methylene-L-idonate*
$C_{10}H_{18}O_7$ 250.248
Residue present in Olgose, O-30. Syrup. $[\alpha]_D^{23}$ -26 (c, 0.8 in $CHCl_3$).

Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **100**, 283 (*synth, deriv*)

5-Deoxy-3-*C*-hydroxymethyl-lyxose, 9CI D-230

Dihydrostreptose
[20399-13-7]



α-L-Furanose-*form*

$C_6H_{12}O_5$ 164.158
Occurs in antibiotic compds. derived from microorganisms, mainly strains of *Streptomyces*. Constit. of Bluensomycin, Glebomycin and dihydrostreptobiosamine. Amorph. glass. $[\alpha]_D^{20}$ -23 (c, 1.3 in H_2O). Formation of α-form favoured over β in aq. soln.

α-L-Furanose-*form*

*Me glycoside: Methyl 5-deoxy-3-*C*-(hydroxymethyl)-α-L-lyxofuranoside, 9CI. Methyl α-dihydrostreptoside*
[55628-12-1]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{25}$ -111 (c, 2.0 in $CHCl_3$).

*Benzyl glycoside: Benzyl 5-deoxy-3-*C*-(hydroxymethyl)-α-L-lyxofuranoside. Benzyl α-dihydrostreptoside*
[55628-11-0]
$C_{13}H_{18}O_5$ 254.282
Syrup. $[\alpha]_D^{25}$ -100 (c, 1.0 in $CHCl_3$).

*Benzyl glycoside, 3,3′-*O*-isopropylidene:*
[51884-87-8]
$C_{16}H_{22}O_5$ 294.347
Syrup. $[\alpha]_D^{18}$ -85 (c, 1.0 in $CHCl_3$).

*Benzyl glycoside, 3,3′-*O*-isopropylidene, 2-O-Ac:* [55628-17-6]
$C_{18}H_{24}O_6$ 336.384
Syrup. $[\alpha]_D^{25}$ -110 (c, 2.0 in $CHCl_3$).

*Benzyl glycoside, 2,3′-di-*O*-Ac:* [55628-16-5]
$C_{17}H_{22}O_7$ 338.357
Syrup. $[\alpha]_D^{21}$ -107 (c, 2.0 in $CHCl_3$).

β-L-Furanose-*form*

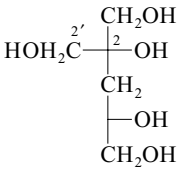
*1,2-*O*-Isopropylidene:*
$C_9H_{16}O_5$ 204.222
Cryst. ($CHCl_3$/hexane). Mp 104-106°. $[\alpha]_D^{20}$ +1.3 (c, 0.8 in dioxan).

*Me glycoside: Methyl 5-deoxy-3-*C*-(hydroxymethyl)-β-L-lyxofuranoside. Methyl β-dihydrostreptoside*
[55628-13-2]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{20}$ +100 (c, 2 in $CHCl_3$).

Bannister, A. *et al., J.A.C.S.*, 1963, **85**, 234 (*occur*)
Ortmann, R. *et al., Eur. J. Biochem.*, 1974, **43**, 265 (*synth, pmr*)
Wahl, H.P. *et al., Biochem. Soc. Trans.*, 1975, **3**, 1089; *CA*, **84**, 132347n (*rev*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1975, **48**, 556 (*synth, pmr, derivs*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 1896

3-Deoxy-2-*C*-(hydroxymethyl)-*erythro*-pentitol D-231

2-(Hydroxymethyl)-1,2,4,5-pentanetetrol



$C_6H_{14}O_5$ 166.174
C-2 is not a chiral centre in the parent compd.

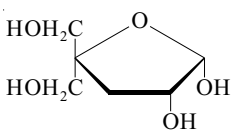
D-*form*

(R)-form
[93662-50-1]

*2,2′-Isopropylidene, tri-Ac: 1,4,5-Tri-*O*-acetyl-3-deoxy-2-*C*-(hydroxymethyl)-2,2′-*O*-isopropylidene-D-*erythro*-pentitol*
[95335-01-6]
$C_{15}H_{24}O_8$ 332.35
Chiral synthon. Syrup. $[\alpha]_D$ -16 (c, 1 in $CHCl_3$). Two chiral centres.

Bennani, F. *et al., Tetrahedron*, 1984, **40**, 4669 (*synth*)

3-Deoxy-4-*C*-hydroxymethyl-*glycero*-pentofuranose D-232



$C_6H_{12}O_5$ 164.158

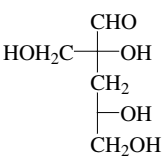
β-L-*form*

*1,2-Isopropylidene: 3-Deoxy-4-*C*-hydroxymethyl-1,2-*O*-isopropylidene-β-L-glycero-pentofuranose*
[75082-05-2]
$C_9H_{16}O_5$ 204.222
Syrup.

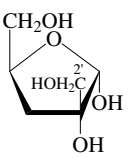
*1,2-Isopropylidene, ditosyl: 3-Deoxy-1,2-*O*-isopropylidene-5-*O*-tosyl-4-*C*-(tosyloxymethyl)-α-L-glcyero-pentofuranose*
[74996-07-9]
$C_{23}H_{28}O_9S_2$ 512.601
Cryst. (EtOH). Mp 161-163°.

Brunner, H. *et al., J. Chem. Res., Synop.*, 1980, 74; *J. Chem. Res., Miniprint*, 1980, 1251 (*synth, pmr*)

3-Deoxy-2-*C*-(hydroxymethyl)-*erythro*-pentose D-233



D-*form*



α-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

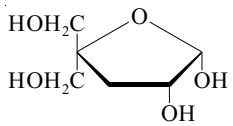
D-*form*

2,2′:4,5-Diisopropylidene: 3-Deoxy-2-C-(hydroxymethyl)-2,2′:4,5-di-O-isopropylidene-D-erythro-pentose
[93662-54-5]
$C_{12}H_{20}O_5$ 244.287
Syrup. $[\alpha]_D$ -53 (c, 1 in $CHCl_3$).

Bennani, F. *et al., Tetrahedron*, 1984, **40**, 4669 (*synth, pmr*)
Genot, A. *et al., J.O.C.*, 1987, **52**, 1057 (*synth*)

3-Deoxy-4-hydroxymethyl-*glycero*-pentose D-234

[55797-66-5]



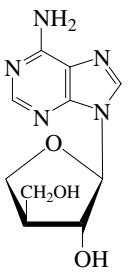
$C_6H_{12}O_5$ 164.158

α-D-*form*

1,2-Isopropylidene: 3-Deoxy-4-hydroxymethyl-1,2-O-isopropylidene-α-D-glycero-pentose
$C_9H_{16}O_5$ 204.222
Mp 91-93°.

Leland, D.L. *et al., Carbohydr. Res.*, 1974, **38**, C9 (*synth*)

9-(3-Deoxy-3-*C*-hydroxymethylthreofuranosyl)adenine D-235



α-*form*

$C_{10}H_{13}N_5O_3$ 251.244

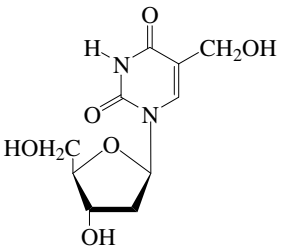
α-L-*form* [19200-56-7]
Mp 122-123.5°. $[\alpha]_D^{20}$ +88 (c, 0.3 in Py). λ_{max} 259 (ε 14400) (pH7 and 13). λ_{max} 257 (ε 14200) (pH 1).

β-L-*form* [20789-72-4]
Mp 212-213°. $[\alpha]_D^{24}$ -72 (c, 0.5 in Py). The original paper refers to these as D-*erythro*-forms. λ_{max} 259 (ε 14150) (pH 7). λ_{max} 257 (ε 14000) (pH 1). λ_{max} 260 (14400) (pH 13).

Reist, E.J. *et al., J.A.C.S.*, 1968, **90**, 3852

2′-Deoxy-5-hydroxymethyluridine, 8CI D-236

α-Hydroxythymidine, 9CI. 1-(β-D-erythro-2-Deoxypentofuranosyl)-5-hydroxymethyl-1H-pyrimidine-2,4-dione
[5116-24-5]

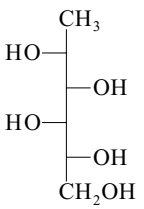


$C_{10}H_{14}N_2O_6$ 258.23
Prisms ($CHCl_3$/EtOH). Mp 179-180°.

Cline, R.E. *et al., J.A.C.S.*, 1959, **81**, 2521-2527 (*synth*)
Emerson, J.R. *et al., Biochemistry*, 1967, **6**, 843-850 (*conformn, ord*)
Shiau, G.T. *et al., J. Med. Chem.*, 1980, **23**, 127-133 (*synth, uv, pmr*)
Shaw, A.A. *et al., J.C.S. Perkin 2*, 1990, 2063-2070 (*synth*)

1-Deoxyiditol D-237

Idomethylitol. 6-Deoxyiditol



D–*form*

$C_6H_{14}O_5$ 166.174
6-Deoxy-D-iditol ≡ 1-deoxy-D-iditol.

D-*form*
Light yellow syrup. $[\alpha]_D^{28}$ +1.43 (c, 1.00 in H_2O).

Penta-Ac:
$C_{16}H_{24}O_{10}$ 376.36
Mp 100°. $[\alpha]_D^{28}$ +10.5 (c, 1.00 in $CHCl_3$).

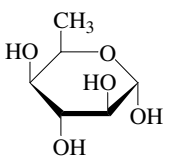
L-*form*
$[\alpha]_D^{17}$ -2.6 (H_2O).

Penta-Ac: Mp 102-103°. $[\alpha]_D$ -13.1 ($CHCl_3$).

Bollenback, G.N. *et al., Carbohydr. Res.*, 1980, **72**, 741

6-Deoxyidose D-238

Idomethylose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [18546-05-9]
Syrup. $[\alpha]_D$ +14.7 (c, 0.7 in H_2O).

Phenylosazone: Mp 175-177°.

α-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-α-D-idopyranoside
$C_7H_{14}O_5$ 178.185
Prisms (CH_2Cl_2/hexane). Mp 96-97.5°. $[\alpha]_D^{25}$ +105.2 (Me_2CO).

L-*form* [7658-09-5]
Occurs in some natural glycosides, e.g.
Mp 98-100°. $[\alpha]_D^{15}$ +2.2 → -26 (H_2O). $[\alpha]_D^{25}$ -1.9 (c, 2.5 in H_2O).

Phenylosazone: Mp 184-185°.

α-L-Pyranose-*form*

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-α-L-idopyranose
$C_{14}H_{20}O_9$ 332.307
$[\alpha]_D^{25}$ -61.3 (c, 1.0 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-β-L-idopyranoside, 9CI
[34299-65-5]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 81.5°. $[\alpha]_D^{25}$ +74 (c, 1.0 in H_2O).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-acetyl-6-deoxy-1,2-O-isopropylidene-β-L-idopyranoside
$C_{13}H_{20}O_8$ 304.296
Cryst. (EtOH). Mp 93.5-94°. $[\alpha]_D^{20}$ +46 (c, 1.0 in $CHCl_3$).

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-6-deoxy-β-L-idopyranose
$C_{14}H_{20}O_9$ 332.307
$[\alpha]_D$ +16.9 (c, 1.0 in $CHCl_3$).

β-L-Furanose-*form*

1,2-O-Isopropylidene: 6-Deoxy-1,2-O-isopropylidene-β-L-idofuranose
$C_9H_{16}O_5$ 204.222
Mp 90-91°. $[\alpha]_D^{21}$ -12.9 ($CHCl_3$).

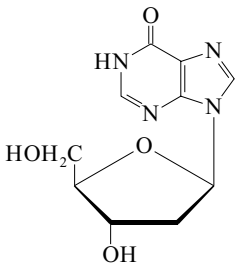
1,2-O-Isopropylidene, di-Ac: 3,4-Di-O-acetyl-6-deoxy-1,2-O-isopropylidene-β-L-idofuranose
$C_{13}H_{20}O_7$ 288.297
Mp 122-123°. $[\alpha]_D^{23}$ -27 (c, 2.0 in $CHCl_3$).

Meyer, A.S. *et al., Helv. Chim. Acta*, 1946, **29**, 139 (*L-form, synth*)
Wolfrom, M.L. *et al., J.O.C.*, 1962, **27**, 1800, (*β-L-fur isopropylidene, β-L-fur isopropylidene di-Ac*)
Ikeda, D. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 2529 (*β-L-pyr Me gly, β-L-pyr Me gly tri-Ac*)
Perry, M.B. *et al., Can. J. Chem.*, 1973, **51**, 3039 (*D-form, synth*)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1989, **191**, 1 (*synth, pmr, cmr, cryst struct, α-D-Me pyr*)
Hung, S.C. *et al., Carbohydr. Res.*, 2001, **331**, 369-374 (*α-L-Pyr tetra-Ac, β-L-Pyr tetra-Ac*)

2′-Deoxyinosine D-239

9-(2-Deoxyribofuranosyl)hypoxanthine. Hypoxanthine 2-deoxyriboside
[29868-32-4]

[890-38-0]



$C_{10}H_{12}N_4O_4$ 252.229
Isol. from herring sperm DNA, from *Phaseolus vulgaris* (kidney bean), *Laminaria saccharina, Furcellaria fastigiata, Lactobacillus* spp. etc. Ambiguous nucleoside forming base pairs with all four conventional nucleosides. Needles (MeOH), cryst. (H_2O).
Mp 218° dec. $[\alpha]_D^{27}$ +7.92 (c, 0.53 in 0.1*M* NaOH). $[\alpha]_D^{30}$ -21 (c, 1 in H_2O).

Oxime: [51385-49-0]
Mp 139-140°. $[\alpha]_D$ -21.8 (c, 1 in MeOH). Softens at 110-115° and 130-135°.

3′-Ac: [229326-13-0]
$C_{12}H_{14}N_4O_5$ 294.266
Mp 116°. $[\alpha]_D^{25}$ -22.5 (c, 1 in MeOH).

Brown, D.M. *et al., J.C.S.*, 1950, 1990 (*struct*)
Manson, L.A. *et al., J. Biol. Chem.*, 1951, **191**, 87 (*isol*)
Banhidi, Z.G. *et al., Acta Chem. Scand.*, 1953, **7**, 713 (*isol*)
Venner, H. *et al., Chem. Ber.*, 1960, **93**, 140 (*synth*)
Robins, M.J. *et al., J.A.C.S.*, 1965, **87**, 4934 (*pmr*)
Rousseau, R.J. *et al., J. Het. Chem.*, 1970, **7**, 367 (*synth, uv*)
Robins, M.J. *et al., Can. J. Chem.*, 1973, **51**, 3161 (*synth*)
Yamazaki, A. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1143 (*synth*)
Mengel, R. *et al., Annalen*, 1977, 1585 (*synth*)
Ciuffreda, P. *et al., Tetrahedron*, 2000, **56**, 3239-3243 (*3′-Ac, synth, pmr*)

3′-Deoxyinosine, 9CI D-240

*9-(3-Deoxy-β-D-*erythro*-pentofuranosyl)-1,9-dihydro-6*H*-purin-6-one. Hypoxanthine 3′-deoxyriboside*
[13146-72-0]

$C_{10}H_{12}N_4O_4$ 252.229
Needles (EtOH aq.). Mp 202-203°.
$[\alpha]_D^{30}$ -87.9 (c, 1 in Py).

2′-Ac: [287966-14-7]
$C_{12}H_{14}N_4O_5$ 294.266
Mp 143°. $[\alpha]_D^{25}$ -26.8 (c, 1 in MeOH).

Haga, K. *et al., Bull. Chem. Soc. Jpn.*, 1970, **43**, 3922 (*synth, pmr*)
Yamazaki, A. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1143 (*synth*)
Montgomery, J.A. *et al., J. Med. Chem.*, 1975, **18**, 564 (*synth*)
Mengel, R. *et al., Annalen*, 1977, 1585 (*synth*)
Ciuffreda, P. *et al., Tetrahedron*, 2000, **56**, 3239-3243 (*2′-Ac, synth, pmr*)

5′-Deoxyinosine, 9CI D-241

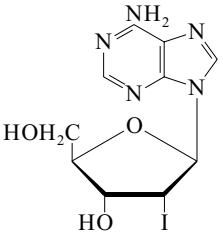
[69655-07-8]

$C_{10}H_{12}N_4O_4$ 252.229
Solid (MeOH). Mp 188-190°.

Ciuffreda, P. *et al., Eur. J. Org. Chem.*, 2003, 4748-4751 (*synth, pmr*)

2′-Deoxy-2′-iodoadenosine, 9CI D-242

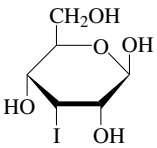
[68775-04-2]



$C_{10}H_{12}IN_5O_3$ 377.141
Cryst. (MeOH). Mp 202-203°.

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2449 (*synth, uv, pmr, cmr*)

3-Deoxy-3-iodoallose D-243



β-D-Pyranose-*form*

$C_6H_{11}IO_5$ 290.054

β-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-3-iodo-β-D-allopyranoside*
[117605-32-0]
$C_{14}H_{17}IO_5$ 392.19
Cryst. Mp 151-152°. $[\alpha]_D^{22}$ +1.62 (c, 2.22 in $CHCl_3$).

*Me glycoside, 4,6-*O*-(4-methoxybenzylidene):* [117605-33-1]
Syrup. $[\alpha]_D^{22}$ -27 (c, 0.89 in $CHCl_3$).

α-D-Furanose-*form*

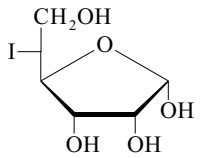
*1,2-*O*-Isopropylidene: 3-Deoxy-3-iodo-1,2-*O*-isopropylidene-α-D-allofuranose*
[114192-72-2]
$C_9H_{15}IO_5$ 330.119
Oil.

*1,2-*O*-Isopropylidene, 5,6-dimesyl: 3-Deoxy-3-iodo-1,2-*O*-isopropylidene-5,6-di-*O*-mesyl-α-D-allofuranose*
[114192-73-3]
$C_{11}H_{19}IO_9S_2$ 486.302
Cryst. (EtOAc/petrol). Mp 146°. $[\alpha]_D$ +69 (c, 0.7 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene: 3-Deoxy-3-iodo-1,2:5,6-di-*O*-isopropylidene-α-D-allofuranose*
[67337-61-5]
$C_{12}H_{19}IO_5$ 370.184
Mp 55-56°. $[\alpha]_D^{22}$ +64 (c, 2.0 in $CHCl_3$). $[\alpha]_D$ +79.5 (c, 0.6 in C_6H_6).

Kunz, H. *et al., Annalen*, 1982, 1245 (*diisopropylidene*)
Gurjar, M.K. *et al., Carbohydr. Res.*, 1987, **165**, 313 (*dimesyl*)
Classon, B. *et al., J.O.C.*, 1988, **53**, 6126, (*β-Me gly deriv, pmr, cmr*)
Russell, R.N. *et al., Carbohydr. Res.*, 1990, **201**, 95 (*diisopropylidene, pmr, cmr*)
Marco-Contelles, J.L. *et al., Synlett*, 1990, 167 (*isopropylidene*)

5-Deoxy-5-iodoallose D-244



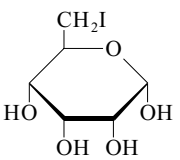
$C_6H_{11}IO_5$ 290.054

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene, 3,6-dibenzoyl: 3,6-Di-*O*-benzoyl-5-deoxy-5-iodo-1,2-*O*-isopropylidene-α-D-allofuranose*
[55085-26-2]
$C_{23}H_{23}IO_7$ 538.335
Cryst. (EtOH). Mp 65-67°. $[\alpha]_D^{20}$ +60 (c, 0.3 in CH_2Cl_2).

Serge, D. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1974, **279**, 651 (*isopropylidene deriv*)
Serge, D. *et al., Carbohydr. Res.*, 1979, **77**, 79 (*isopropylidene deriv*)

6-Deoxy-6-iodoallose D-245



α−D−Pyranose−*form*

$C_6H_{11}IO_5$ 290.054

α-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-6-iodo-α-D-allopyranoside
[56571-02-9]
$C_7H_{13}IO_5$ 304.081
Cryst. (EtOAc/hexane). Mp 81°. $[\alpha]_D^{22}$ +85.3 (c, 1.75 in $CHCl_3$).

Me glycoside, tri-Ac: [56570-98-0]
$C_{13}H_{19}IO_8$ 430.193
Cryst. (Et_2O/hexane). Mp 75°. $[\alpha]_D^{22}$ +72.2 (c, 1.4 in $CHCl_3$).

Me glycoside, 2,3-dibenzoyl, 4-Ac: [109681-64-3]
$C_{23}H_{23}IO_8$ 554.334
Amorph. powder. $[\alpha]_D^{22}$ +46.3 (c, 1.31 in $CHCl_3$).

Me glycoside, 3-(tetrahydropyran-2-yl), 2-Ac: [107599-43-9]
Oil. $[\alpha]_D^{20}$ +34.7 (c, 3.0 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-6-iodo-β-D-allopyranoside
[56571-03-0]
$C_7H_{13}IO_5$ 304.081
Cryst. (EtOAc/MeOH). Mp 72°. $[\alpha]_D^{22}$ -38.8 (c, 2.0 in CH_3OH).

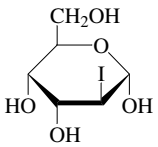
Me glycoside, tri-Ac: [56570-99-1]
Cryst. (hexane). Mp 85°. $[\alpha]_D^{22}$ -33.8 (c, 1.0 in $CHCl_3$).

[114925-88-1, 114925-89-2]

Lehmann, J. *et al., Carbohydr. Res.*, 1975, **42**, 275 (*α-Me gly, β-Me gly, tri-Ac*)
Mori, M. *et al., Chem. Pharm. Bull.*, 1986, **34**, 4037 (*4-Ac deriv, ir, pmr*)

Nicolaou, K.C. *et al., J.A.C.S.*, 1987, **109**, 2821; 1988, **110**, 4696 (*tetrahydropyranyl, ir, pmr*)

2-Deoxy-2-iodoaltrose D-246



α-D-Pyranose-*form*

$C_6H_{11}IO_5$ 290.054

α-D-Pyranose-*form*

Me glycoside: Methyl 2-deoxy-2-iodo-α-D-altropyranoside
[71019-18-6]
$C_7H_{13}IO_5$ 304.081
Needles (Me_2CO). Mp 134° dec. $[\alpha]_D^{22}$ +44 (c, 1.0 in H_2O). Unstable to heat and light.

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-deoxy-2-iodo-α-D-altropyranoside*
[106023-34-1]
$C_{13}H_{19}IO_8$ 430.193
Oil. $[\alpha]_D^{20}$ +21.7 (c, 2.0 in $CHCl_3$).

*Me glycoside, 3,4-*O*-benzylidene (*R*-): Methyl 3,4-*O*-(*R*)-benzylidene-2-deoxy-2-iodo-α-D-altropyranoside*
[35775-00-9]
$C_{14}H_{17}IO_5$ 392.19
Syrup.

*Me glycoside, 3,4-*O*-benzylidene (*S*-): Methyl 3,4-*O*-(*S*)-benzylidene-2-deoxy-2-iodo-α-D-altropyranoside*
[35775-04-3]
$C_{14}H_{17}IO_5$ 392.19
Cryst. (petrol). Mp 100°. $[\alpha]_D^{20}$ +35 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-2-iodo-α-D-altropyranoside*
[14125-73-6]
$C_{14}H_{17}IO_5$ 392.19
Cryst. (Et_2O/hexane or EtOH). Mp 105-106°. $[\alpha]_D^{20}$ +41 (c, 1.5 in $CHCl_3$). $[\alpha]_D^{25}$ +35 (c, 2.0 in $CHCl_3$).

β-D-Pyranose-*form*

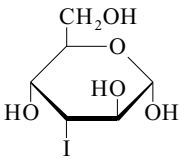
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-2-iodo-β-D-altropyranoside*
[18968-73-5]
$C_{14}H_{17}IO_5$ 392.19
Cryst. (EtOH). Mp 175-176°. $[\alpha]_D^{25}$ -91 (c, 2.8 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 3-Ac: Methyl 3-*O*-acetyl-4,6-*O*-benzylidene-2-deoxy-2-iodo-β-D-altropyranoside*
[18968-74-6]
$C_{16}H_{19}IO_6$ 434.227
Needles. Mp 123-123.5°. $[\alpha]_D^{25}$ -109 (c, 3.0 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*α-Me gly deriv, β-Me gly deriv*)
Inch, T.D. *et al., Carbohydr. Res.*, 1972, **21**, 37 (*3,4-benzylidene*)
Guthrie, R.D. *et al., Carbohydr. Res.*, 1979, **72**, 285 (*α-Me gly*)
Furstner, A. *et al., J.O.C.*, 1989, **54**, 2307, (*4,6-benzylidene, pmr*)

3-Deoxy-3-iodoaltrose D-247

*3-Deoxy-3-iodo-1,2:5,6-di-*O*-isopropylidene-α-D-allofuranose*



$C_6H_{11}IO_5$ 290.054

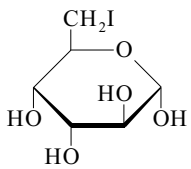
α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-3-iodo-α-D-altropyranoside*
[56981-10-3]
$C_{14}H_{17}IO_5$ 392.19
Rods (EtOAc). Mp 163.5-164.5°. $[\alpha]_D^{23}$ +117 (c, 4.0 in $CHCl_3$) (+111).

*Me glycoside, 4,6-*O*-benzylidene, 2-tosyl: Methyl 4,6-*O*-benzylidene-3-deoxy-3-iodo-2-*O*-tosyl-α-D-altropyranoside*
$C_{21}H_{23}IO_7S$ 546.379
Cryst. (EtOH). Mp 128-129°. $[\alpha]_D^{23}$ +46.4 ($CHCl_3$) (+37.5). Unstable at r.t., dec. to a dark tar.

Richards, G.N. *et al., J.C.S.*, 1954, 4511; 1956, 496 (*benzylidene*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*2-tosyl*)
Hicks, D.R. *et al., Can. J. Chem.*, 1975, **53**, 2017 (*benzylidene*)

6-Deoxy-6-iodoaltrose D-248



$C_6H_{11}IO_5$ 290.054

α-D-Pyranose-*form*

Me glycoside:
$C_7H_{13}IO_5$ 304.081
Cryst. Mp 105-106°. $[\alpha]_D$ +91.4 ($CHCl_3$).

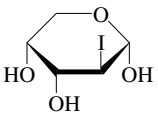
Me glycoside, tribenzoyl:
$C_{28}H_{25}IO_8$ 616.405
Cryst. Mp 143-145°.
$[\alpha]_D$ +2.5 ($CHCl_3$).

Me glycoside, 2,3-dibenzyl:
[118068-39-6]
$C_{21}H_{25}IO_5$ 484.33
Syrup. $[\alpha]_D^{27}$ +51 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-dibenzyl, 4-Ac:
[127213-05-2]
$C_{23}H_{27}IO_6$ 526.367
Syrup. $[\alpha]_D^{27}$ +21 (c, 0.25 in $CHCl_3$).

Rosenfeld, D.A. *et al., J.A.C.S.*, 1948, **70**, 2204 (*Me gly*)
Noritaka, C. *et al., Bull. Chem. Soc. Jpn.*, 1991, **64**, 2118 (*4-Ac, pmr, ir*)
Chida, N. *et al., J.O.C.*, 1991, **56**, 2976 (*dibenzyl, ir, pmr*)

2-Deoxy-2-iodoarabinose D-249



α-D-Pyranose-*form*

$C_5H_9IO_4$ 260.028

α-D-Pyranose-*form*

*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-deoxy-2-iodo-α-D-arabinopyranoside*
[131337-13-8]
$C_{10}H_{15}IO_6$ 358.129
Cryst. (Et_2O/hexane). Mp 100-101°. $[\alpha]_D^{20}$ -51.2 (c, 1.0 in $CHCl_3$).

α-L-Pyranose-*form*

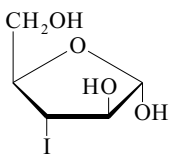
*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-deoxy-2-iodo-α-L-arabinopyranoside*
[26528-48-3]
$C_{10}H_{15}IO_6$ 358.129
Cryst. (Et_2O/petrol). Mp 100-101.5°.

β-L-Pyranose-*form*

Me glycoside, 4-benzoyl: Methyl 4-O-benzoyl-2-deoxy-2-iodo-β-L-arabinopyranoside
[26528-17-6]
$C_{13}H_{15}IO_5$ 378.163
Cryst. (EtOH). Mp 96-97°. $[\alpha]_D^{25}$ +144 (c, 2.32 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413; 4427 (*α-L-Me gly deriv, β-L-Me gly deriv, pmr*)
Horton, D. *et al., Carbohydr. Res.*, 1990, **205**, 71 (*α-D-Me gly deriv, pmr*)

3-Deoxy-3-iodoarabinose D-250



$C_5H_9IO_4$ 260.028

α-D-Furanose-*form*

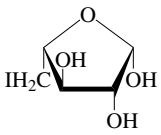
Me glycoside, 5-benzoyl: Methyl 5-O-benzoyl-3-deoxy-3-iodo-α-D-arabinofuranoside
[26532-12-7]
$C_{13}H_{15}IO_5$ 378.163
Syrup. $[\alpha]_D^{25}$ +73.1 (c, 1.58 in $CHCl_3$).

Me glycoside, 5-(4-nitrobenzoyl):
[53081-37-1]
Pale yellow needles (Et_2O/petrol). Mp 101-102°. $[\alpha]_D^{22}$ +79.5 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,5-bis-(4-nitrobenzoyl):
[53081-38-2]
Pale yellow needles (CH_2Cl_2/hexane). Mp 185°. $[\alpha]_D^{22}$ -1.09 (c, 1.0 in CH_2Cl_2).

Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*benzoyl*)
El Khadem, H.S. *et al., Carbohydr. Res.*, 1974, **33**, 329 (*nitrobenzoyl, ir, pmr*)

5-Deoxy-5-iodoarabinose D-251



β-L-Furanose-*form*

$C_5H_9IO_4$ 260.028

L-*form*

Ethylene dithioacetal, 2,3,4-tri-Ac:
[17073-62-0]
$C_{13}H_{19}IO_6S_2$ 462.326
Cryst. (EtOH). Mp 110-110.5°.

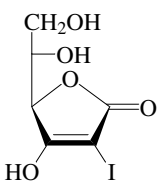
β-L-Furanose-*form*

*1,2-*O-*Isopropylidene: 5-Deoxy-5-iodo-1, 2-*O-*isopropylidene-β-L-arabinofuranose*
[84936-06-1]
$C_8H_{13}IO_4$ 300.093
Needles (EtOAc/petrol). Mp 66-67°. $[\alpha]_D^{27}$ +6.86 ($CHCl_3$).

*1,2-*O-*Isopropylidene, 3-Ac: 3-*O-*Acetyl-5-deoxy-5-iodo-1,2-*O-*isopropylidene-β-L-arabinofuranose*
[20853-30-9]
$C_{10}H_{15}IO_5$ 342.13
Syrup.

Levene, P.A. *et al., J. Biol. Chem.*, 1936, **116**, 189 (*β-L-fur deriv*)
Fernandez-Bolanos, J. *et al., An. R. Soc. Esp. Fis. Quim., Ser. B*, 1966, **62**, 1069; *CA*, **67**, 82339n (*dithioacetal*)
Hough, L. *et al., Adv. Chem. Ser.*, 1968, 120; *CA*, **69**, 97035a (*β-L-fur deriv*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1982, **1**, 213 (*β-L-fur deriv*)

2-Deoxy-2-iodoascorbic acid, 9CI D-252



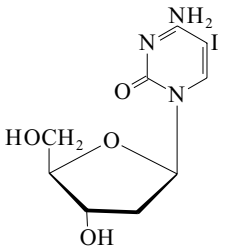
$C_6H_7IO_5$ 286.023

L-*form* [189262-86-0]
Cryst. Mp 173-175°. $[\alpha]_D^{25}$ +76.4 (c, 0.25 in MeOH).

Ge, P. *et al., J.O.C.*, 1997, **62**, 3340-3343 (*synth, pmr*)

2′-Deoxy-5-iodocytidine, 9CI, 8CI D-253

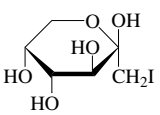
Ibacitabine, INN. *Iododesoxycytidine. Cebevir. Cebe-Viran. Cuterpes. Marenil. I.D.C. NSC 527083*
[611-53-0]



$C_9H_{12}IN_3O_4$ 353.116
Antiviral (antiherpetic) agent. Cryst. Mp 175-178° dec.

Chang, P.K. *et al., Biochem. Pharmacol.*, 1961, **8**, 327 (*synth*)
Chang, P.K. *et al., J. Med. Chem.*, 1963, **6**, 428 (*synth, pharmacol*)
Miles, D.W. *et al., J.A.C.S.*, 1969, **91**, 831 (*cd*)
Fritzsche, H. *et al., Z. Chem.*, 1971, **11**, 69 (*pmr, ir*)
Prusoff, W.H. *et al., Pharmacol. Ther.*, 1979, **7**, 1 (*rev, pharmacol*)
Ghiassy, F. *et al., Acta Cryst. B*, 1981, **37**, 1921 (*cryst struct*)
De Clercq, E. *et al., Mol. Pharmacol.*, 1982, **21**, 217 (*pharmacol*)
Prusoff, W.H. *et al., Int. Encycl. Pharmacol. Ther.*, 1984, **111**, 341 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 548

1-Deoxy-1-iodofructose D-254



β-D-Pyranose-*form*

$C_6H_{11}IO_5$ 290.054

D-*form*

*Tetra-Ac: 3,4,5,6-Tetra-*O-*acetyl-1-deoxy-1-iodo-D-fructose*
$C_{14}H_{19}IO_9$ 458.203
Mp 55-56°. $[\alpha]_D$ +63 ($CHCl_3$).

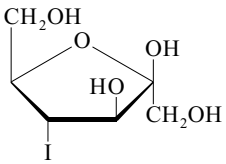
β-D-Pyranose-*form*

*3,4,5-Tribenzoyl: 3,4,5-Tri-*O-*benzoyl-1-deoxy-1-iodo-β-D-fructopyranose*
[134136-51-9]
$C_{27}H_{23}IO_8$ 602.378
Syrup.

*2,3:4,5-Di-*O-*isopropylidene: 1-Deoxy-1-iodo-2,3:4,5-di-*O-*isopropylidene-β-D-fructopyranose*
[38084-03-6]
$C_{12}H_{19}IO_5$ 370.184
Oil. $[\alpha]_D^{24}$ -21.4 (c, 4.5 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1943, **65**, 1516 (*D-tetra-Ac*)
James, K. *et al., Aust. J. Chem.*, 1972, **25**, 1967 (*diisopropylidene, pmr*)
Campbell, M.H. *et al., Tet. Lett.*, 1991, **32**, 1237 (*tribenzoyl*)

4-Deoxy-4-iodofructose D-255



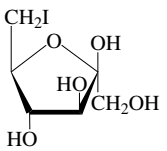
$C_6H_{11}IO_5$ 290.054

β-D-Furanose-*form*

*Me glycoside, tri-Ac: Methyl 2,3,6-tri-*O-*acetyl-4-deoxy-4-iodo-β-D-fructofuranoside*
[82078-04-4]
$C_{13}H_{19}IO_8$ 430.193
Syrup. $[\alpha]_D$ -52 (c, 1.0 in $CHCl_3$).

Guthrie, R.D. *et al., Carbohydr. Res.*, 1982, **103**, 1 (*tri-Ac, cmr*)

6-Deoxy-6-iodofructose D-256



β-D-Furanose-*form*

$C_6H_{11}IO_5$ 290.054

D-*form*

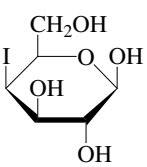
Oil. $[\alpha]_D^{20}$ +20 (10min) → +7 (24h) (c, 1.0 in EtOH).

β-D-Furanose-*form*

*2,3-*O-*Isopropylidene, 1-tosyl: 6-Deoxy-6-iodo-2,3-*O-*isopropylidene-1-*O-*tosyl-β-D-fructofuranose*
[83032-12-6]
$C_{16}H_{21}IO_7S$ 484.308
Cryst. ($CHCl_3$/hexane). Mp 124-125°. $[\alpha]_D^{25}$ +5.6 ($CHCl_3$). $[\alpha]_D$ +7.5 (c, 3.2 in MeOH).

Morgan, W.T.J. *et al., Helv. Chim. Acta*, 1938, **21**, 1023 (*deriv*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 1003 (*deriv, pmr*)
Page, P. *et al., Tetrahedron*, 1996, **52**, 1557-1572 (*synth*)
Fellahi, M. *et al., Carbohydr. Res.*, 1999, **322**, 142-146 (*synth, pmr, cmr*)

4-Deoxy-4-iodogalactose D-257



β-D-Pyranose-*form*

$C_6H_{11}IO_5$ 290.054

β-D-Pyranose-*form*

Me glycoside: Methyl 4-deoxy-4-iodo-β-D-galactopyranoside
[51385-59-2]
$C_7H_{13}IO_5$ 304.081

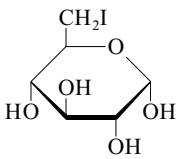
Cryst. (MeOH). Mp 200° dec. $[\alpha]_D$ +25.5 (c, 1.0 in H_2O).

*Me glycoside, tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-deoxy-4-iodo-β-D-galactopyranoside*
[51996-27-1]
$C_{13}H_{19}IO_8$ 430.193
Cryst. (EtOH aq.). Mp 87-88°. $[\alpha]_D$ +76 (c, 1 in $CHCl_3$).

*Me glycoside, 2,3,6-tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-4-deoxy-4-iodo-β-D-galactopyranoside*
$C_{28}H_{25}IO_8$ 616.405
Cryst. (MeOH). Mp 163-164°. $[\alpha]_D$ +47.7 (c, 2 in $CHCl_3$).

Maradufu, A. *et al., Carbohydr. Res.*, 1974, **32**, 261-267 (*β-D-Me pyr, β-D-Me pyr tri-Ac, β-D-Me pyr tribenzoyl*)

6-Deoxy-6-iodoglucose D-258



α–D–Pyranose–*form*

$C_6H_{11}IO_5$ 290.054

D-*form* [6304-86-5]
Cryst. (MeOH aq.). Mp 114.3-115.6°. $[\alpha]_D$ +70.5 (c, 1 in H_2O).

α-D-Pyranose-*form* [174955-12-5]

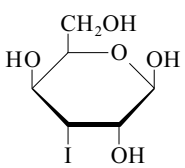
*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-deoxy-6-iodo-α-D-glucopyranose*
[24871-54-3]
$C_{14}H_{19}IO_9$ 458.203
Cryst. (MeOH). Mp 178-179°. $[\alpha]_D^{20}$ +101 (c, 0.8 in $CHCl_3$).

Me glycoside: Methyl 6-deoxy-6-iodo-α-D-glucopyranoside
[5155-46-4]
$C_7H_{13}IO_5$ 304.081
Cryst. ($CHCl_3$/hexane). Mp 148°. $[\alpha]_D^{25}$ +107.8 (c, 1 in MeOH).

[174955-11-4]

Hardegger, E. *et al., Helv. Chim. Acta*, 1946, **29**, 1199 (*D-tetra-Ac*)
Kochetkov, N.K. *et al., Dokl. Akad. Nauk SSSR*, 1960, **133**, 1094 (*D-form, D-tetra-Ac*)
Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1978, **61**, 511 (*α-D-Me pyr, synth*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 227 (*α-D-Me pyr, synth*)
Ishii, T. *et al., Carbohydr. Res.*, 1986, **154**, 63, (*D-form, synth*)
Desseaux, C. *et al., Bioorg. Med. Chem. Lett.*, 1993, **3**, 1547 (*synth*)
Fr. Pat., 1993, 2 680 788, (*Beghin-Say*); *CA*, **119**, 271615c (*D-form, synth*)

3-Deoxy-3-iodogulose D-259



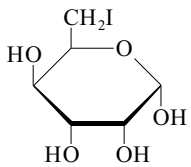
$C_6H_{11}IO_5$ 290.054

β-D-Pyranose-*form*

*Me glycoside, tribenzoyl: Methyl 2,4,6-tri-*O*-benzoyl-3-deoxy-3-iodo-β-D-gulopyranoside*
[124314-31-4]
$C_{28}H_{25}IO_8$ 616.405
Glass. $[\alpha]_D^{25}$ +61 (c, 0.6 in $CHCl_3$).

Lin, T.-H. *et al., Carbohydr. Res.*, 1989, **188**, 228 (*tribenzoyl, cmr*)

6-Deoxy-6-iodogulose D-260



$C_6H_{11}IO_5$ 290.054

α-D-Pyranose-*form*

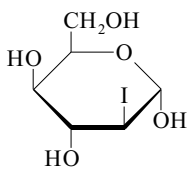
Me glycoside, 3-benzyl, 2-tosyl:
[96691-86-0]
$C_{21}H_{25}IO_7S$ 548.395
Syrup. $[\alpha]_D$ +143 (c, 1.0 in $CHCl_3$).

Me glycoside, 3-benzyl, 4-benzoyl, 2-tosyl:
[96691-87-1]
$C_{28}H_{29}IO_8S$ 652.503
Syrup. $[\alpha]_D$ +54 (c, 1.0 in $CHCl_3$).

Me glycoside, 3,4-dibenzyl, 2-tosyl: [96691-88-2]
$C_{28}H_{31}IO_7S$ 638.519
Syrup. $[\alpha]_D$ +25 ($CHCl_3$).

Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1985, 301 (*Me gly deriv, pmr*)

2-Deoxy-2-iodoidose D-261



$C_6H_{11}IO_5$ 290.054

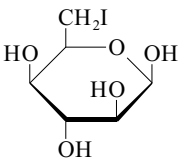
α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-2-iodo-α-D-idopyranoside*
[18968-77-9]
$C_{14}H_{17}IO_5$ 392.19
Needles (EtOH). Mp 162-163°. $[\alpha]_D^{25}$ +28 (c, 1.2 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 3-Ac: Methyl 3-*O*-acetyl-4,6-*O*-benzylidene-2-deoxy-2-iodo-α-D-idopyranoside*
[18968-82-6]
$C_{16}H_{19}IO_6$ 434.227
Cubes. Mp 174-175°. $[\alpha]_D^{25}$ -28 (c, 2.4 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*Me gly derivs*)

6-Deoxy-6-iodoidose D-262



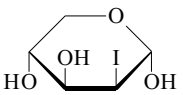
$C_6H_{11}IO_5$ 290.054

β-D-Pyranose-*form*

Me glycoside, 3-Me, 2,4-ditosyl:
$C_{22}H_{27}IO_9S_2$ 626.486
Syrup.

Fischer, R. *et al., Helv. Chim. Acta*, 1954, **37**, 6 (*Me gly deriv*)

2-Deoxy-2-iodolyxose D-263



α–D–Pyranose–*form*

$C_5H_9IO_4$ 260.028

α-D-Pyranose-*form*

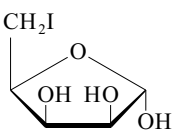
*Me glycoside, di-Ac: Methyl 3,4-di-*O*-acetyl-2-deoxy-2-iodo-α-D-lyxopyranoside*
[51385-07-0]
$C_{10}H_{15}IO_6$ 358.129
Cryst. Mp 116°. $[\alpha]_D^{25}$ -17 (c, 1.65 in $CHCl_3$). Dec. when stored at r.t.

α-L-Pyranose-*form*

*Me glycoside, di-Ac: Methyl 3,4-di-*O*-acetyl-2-deoxy-2-iodo-α-L-lyxopyranoside*
[131267-50-0]
$C_{10}H_{15}IO_6$ 358.129
Cryst. (Et_2O/hexane). Mp 115-117°. $[\alpha]_D^{20}$ +14.9 (c, 1.0 in $CHCl_3$).

Van Es, T. *et al., J. S. Afr. Chem. Inst.*, 1973, **26**, 152 (*D-Me gly deriv, pmr*)
Horton, D. *et al., Carbohydr. Res.*, 1990, **205**, 71 (*L-Me gly deriv, pmr*)

5-Deoxy-5-iodolyxose D-264



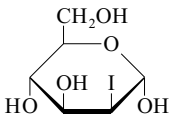
$C_5H_9IO_4$ 260.028

α-D-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene:*
[63087-96-7]
$C_9H_{15}IO_4$ 314.12
Oil. $[\alpha]_D^{20}$ +75.4 (c, 9.0 in CH_2Cl_2). $[\alpha]_D^{24}$ +72.6 (c, 2.88 in MeOH).

Fuerstner, A. *et al., J.O.C.*, 1991, **56**, 2213, (*Me gly deriv, pmr*)

2-Deoxy-2-iodomannose D-265



α–D–Pyranose–*form*

$C_6H_{11}IO_5$ 290.054

D-*form*

Syrup.

α-D-Pyranose-*form*

3,4,6-Tri-Ac: [53008-86-9]
$C_{12}H_{17}IO_8$ 416.166
Syrup. $[\alpha]_D^{35}$ -18.8 (c, 1.4 in $CHCl_3$).

1-Benzoyl, 3,4,6-tri-Ac: [20846-99-5]
$C_{19}H_{21}IO_9$ 520.274
Cryst. Mp 160-161°. $[\alpha]_D$ +45.3 (c, 2.0 in $CHCl_3$).

Me glycoside: Methyl 2-deoxy-2-iodo-α-D-mannopyranoside
[10226-88-7]
$C_7H_{13}IO_5$ 304.081
Cryst. Mp 145-146°. $[\alpha]_D$ +49.2 (c, 1.0 in MeOH).

Me glycoside, tri-Ac: [20701-50-2]
$C_{13}H_{19}IO_8$ 430.193
Syrup. $[\alpha]_D$ +44.9 ($CHCl_3$).

β-D-Pyranose-*form*

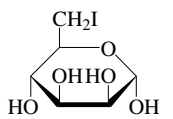
Me glycoside: Methyl 2-deoxy-2-iodo-β-D-mannopyranoside
[53008-76-7]
$C_7H_{13}IO_5$ 304.081
Needles (MeOH/Et_2O). Mp 147-148°. $[\alpha]_D^{28}$ -6.3 (c, 0.7 in MeOH).

Me glycoside, tri-Ac: [53008-74-5]
Cryst. (Et_2O/hexane). Mp 118-118.5°. $[\alpha]_D^{27}$ -97.8 (c, 1.9 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1962, **40**, 1926 (*α-Me gly*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 361 (*1-benzoyl*)
Honda, S. *et al., Carbohydr. Res.*, 1974, **34**, 45 (*D-form, α-tri-Ac, α-Me gly, β-Me gly*)
Horton, D. *et al., Carbohydr. Res.*, 1990, **205**, 71 (*α-tri-Ac*)

6-Deoxy-6-iodomannose D-266

6-Iodorhamnose



α-D-Pyranose-*form*

$C_6H_{11}IO_5$ 290.054

α-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-6-iodo-α-D-mannopyranoside
[52290-43-4]
$C_7H_{13}IO_5$ 304.081
Cryst. Mp 120-122°. $[\alpha]_D$ +55 (H_2O).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-deoxy-6-iodo-α-D-mannopyranoside*
[50692-55-2]
$C_{13}H_{19}IO_8$ 430.193
Cryst. (EtOH). Mp 91-92°. $[\alpha]_D^{22}$ +48 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-dimesyl: Methyl 6-deoxy-6-iodo-2,3-di-*O*-mesyl-α-D-mannopyranoside*
[118360-72-8]
$C_9H_{17}IO_9S_2$ 460.264
Amorph. solid. $[\alpha]_D^{31}$ +29 (c, 0.6 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 6-deoxy-6-iodo-2,3-*O*-isopropylidene-α-D-mannopyranoside*
[22932-34-9]
$C_{10}H_{17}IO_5$ 344.146
Cryst. Mp 111-112° (109-110°). $[\alpha]_D^{24}$ +44.2 (c, 1.0 in MeOH). $[\alpha]_D^{20}$ +46 (c, 1.3 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-benzoyl: Methyl 4-*O*-benzoyl-6-deoxy-6-iodo-2,3-*O*-isopropylidene-α-D-mannopyranoside*
[122805-35-0]
$C_{17}H_{21}IO_6$ 448.254
Cryst. (EtOH). Mp 159-161°. $[\alpha]_D^{22}$ +10.5 (c, 1.85 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-mesyl: Methyl 6-deoxy-6-iodo-2,3-*O*-isopropylidene-4-*O*-mesyl-α-D-mannopyranoside*
[22932-31-6]
$C_{11}H_{19}IO_7S$ 422.237
Cryst. Mp 84.5-85°. Subl.$_{0.0005}$ 80° (bath). $[\alpha]_D^{28}$ +23.9 (c, 1.03 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-O-(*p*-bromobenzenesulfonyl):* [22932-33-8]
$C_{16}H_{20}BrIO_7S$ 563.204
Needles (EtOH/Et_2O). Mp 86-87.5°. $[\alpha]_D^{24}$ +2.4 (c, 1.0 in MeOH).

Me glycoside, tribenzyl:
$C_{28}H_{31}IO_5$ 574.454
Oil. $[\alpha]_D^{20}$ +22 (c, 0.95 in $CHCl_3$).

β-D-Pyranose-*form*

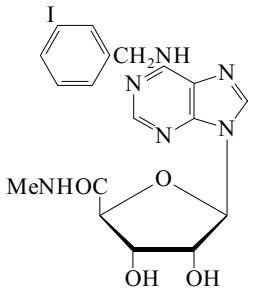
Me glycoside: Methyl 6-deoxy-6-iodo-β-D-mannopyranoside
[56571-01-8]
$C_7H_{13}IO_5$ 304.081
Cryst. (EtOAc). Mp 127°. $[\alpha]_D^{22}$ -26.2 (c, 1.9 in MeOH).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-deoxy-6-iodo-β-D-mannopyranoside*
[56570-97-9]
$C_{13}H_{19}IO_8$ 430.193
Cryst. (Et_2O/hexane). Mp 120°. $[\alpha]_D^{22}$ -16 (c, 1.0 in $CHCl_3$).

Lehmann, J. *et al., J.A.C.S.*, 1964, **86**, 4496, (*α-Me pyr*)
Stevens, C.L. *et al., J.O.C.*, 1970, **35**, 592 (*isopropylidene, 4-mesyl, 4-brosyl*)
Lehmann, J. *et al., Carbohydr. Res.*, 1975, **42**, 275 (*β-Me pyr deriv*)
Tatsuta, K. *et al., Bull. Chem. Soc. Jpn.*, 1988, **61**, 2525 (*dimesyl*)
Bundle, D.R. *et al., Carbohydr. Res.*, 1988, **174**, 239 (*isopropylidene, pmr*)
Classon, B. *et al., J.O.C.*, 1988, **53**, 6126 (*tri-Ac*)
Tsvetkov, Y.E. *et al., Bioorg. Khim.*, 1989, **15**, 231; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 126 (*4-benzoyl, pmr*)
Kleban, M. *et al., Synthesis*, 2000, 1027-1033 (*tribenzyl-α-D-Me pyr*)

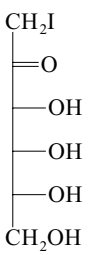
1-Deoxy-1-[6-[|(3-iodophenyl)-methyl]amino]-9*H*-purin-9-yl]-*N*-methyl-β-D-ribofuranuronamide, 9CI D-267

N^6-*(3-Iodobenzyl)-5′-*N*-methylcarboxamidoadenosine. IB-MECA*
[152918-18-8]



$C_{18}H_{19}IN_6O_4$ 510.29
Adenosine A_3 receptor agonist. Shows cerebral antiischaemic activity in an animal model. Induces apoptosis in a human leukaemic cell line. Mp 174-177°.
Jacobson, K.A. *et al., FEBS Lett.*, 1993, **336**, 57 (*pharmacol*)
Carter, M.F. *et al., Eur. J. Pharmacol.*, 1994, **263**, 59 (*pharmacol*)
Von Lubitz, D.K.J.E. *et al., Eur. J. Pharmacol.*, 1994, **263**, 59 (*pharmacol*)
Gallo-Rodriguez, C. *et al., J. Med. Chem.*, 1994, **37**, 636 (*synth, pmr, pharmacol*)
Pat. Coop. Treaty (WIPO), 1995, 95 02 604, (*United States Dept. of Health and Human Services*); *CA*, **123**, 257265q (*synth, pharmacol*)
Kohno, Y. *et al., Biochem. Biophys. Res. Commun.*, 1996, **219**, 904 (*pharmacol*)

1-Deoxy-1-iodopsicose D-268



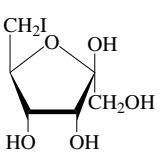
$C_6H_{11}IO_5$ 290.054

D-*form*

*Tetra-Ac: 3,4,5,6-Tetra-*O*-acetyl-1-deoxy-1-iodo-D-psicose*
$C_{14}H_{19}IO_9$ 458.203
Cryst. Mp 64-65°. $[\alpha]_D$ +6.8 ($CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1945, **67**, 1793 (*tetra-Ac*)
Vanek, T. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 1339 (*tetra-Ac*)

6-Deoxy-6-iodopsicose D-269



β-D-Furanose-*form*

$C_6H_{11}IO_5$ 290.054

D-Furanose-*form* [58463-06-2]
Cryst. ($Me_2CO/CHCl_3$). Mp 80.5-81°. $[\alpha]_D^{23}$ +14.6 (c, 1 in H_2O).

*Tetrabenzoyl: 1,2,3,4-Tetra-*O*-benzoyl-6-deoxy-6-iodo-D-psicofuranose*
[58463-07-3]
$C_{34}H_{27}IO_9$ 706.486
Foam.

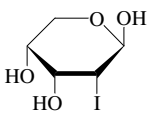
*Tetrakis(*p*-nitrobenzoyl):* [58463-08-4]
Cryst. ($CHCl_3$/hexane). Mp 173-174°.

β-D-Furanose-*form*

*1,2:3,4-Di-*O*-isopropylidene: 6-Deoxy-6-iodo-1,2:3,4-di-*O*-isopropylidene-β-D-psicofuranose*
[38084-06-9]
$C_{12}H_{19}IO_5$ 370.184
Cryst. (MeOH aq. or hexane). Mp 46-47° (44-44.5°). $[\alpha]_D^{23}$ -74.3 (c, 0.5 in $CHCl_3$).

James, K. *et al., Aust. J. Chem.*, 1972, **25**, 1967 (*diisopropylidene, pmr*)
Prisbe, E.J. *et al., J.O.C.*, 1976, **41**, 1836 (*synth, deriv, pmr, cmr*)

2-Deoxy-2-iodoribose D-270



β-D-Pyranose-*form*

$C_5H_9IO_4$ 260.028

β-D-Pyranose-*form*

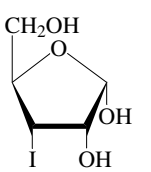
*Me glycoside, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-deoxy-2-iodo-β-D-ribopyranoside*
[131267-52-2]
$C_{10}H_{15}IO_6$ 358.129
Syrup. $Bp_{0.04}$ 90°. $[\alpha]_D^{20}$ +10.7 (c, 1 in $CHCl_3$).

*Me glycoside, 1-benzoyl, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-1-*O*-benzoyl-2-deoxy-2-iodo-β-D-ribopyranoside*
[22854-36-0]
$C_{16}H_{17}IO_7$ 448.211
Cryst. Mp 129-130° (EtOH aq.). $[\alpha]_D^{27}$ -26.5 (c, 1.46 in $CHCl_3$).

β-D-Furanose-*form* [125155-50-2]
Syrup.

Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 361 (*β-pyr deriv*)
Ilicheva, I.A. *et al., Bioorg. Khim.*, 1989, **15**, 800; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 428 (*conformn, anal*)
Horton, D. *et al., Carbohydr. Res.*, 1990, **205**, 71 (*β-pyr deriv, pmr*)

3-Deoxy-3-iodoribose D-271



α-D-Furanose-*form*

$C_5H_9IO_4$ 260.028

α-D-Furanose-*form*

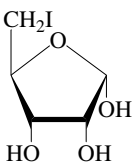
*1,2-*O*-Isopropylidene, 5-methoxycarbonyl:*
[136317-52-7]
$C_{10}H_{15}IO_6$ 358.129
Cryst. (hexane). Mp 106-106.5°.

β-L-Pyranose-*form*

*Me glycoside, 2,4-dibenzoyl: Methyl 2,4-di-*O*-benzoyl-3-deoxy-3-iodo-β-L-ribopyranoside*
$C_{20}H_{19}IO_6$ 482.271
Leaflets (EtOH). Mp 143-144°. $[\alpha]_D^{25}$ +55 (c, 1.64 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*β-pyr deriv*)
Japan. Pat., 1987, 62 149 697; *CA*, **108**, 6351k (*deriv*)
Branchaud, B.P. *et al., Organometallics*, 1991, **10**, 3795 (*α-fur deriv*)

5-Deoxy-5-iodoribose D-272



α-D-Furanose-*form*

$C_5H_9IO_4$ 260.028

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 5-Deoxy-5-iodo-1,2-*O*-isopropylidene-α-D-ribofuranose*
[84258-15-1]
$C_8H_{13}IO_4$ 300.093
Cryst. (EtOAc/hexane). Mp 84-85°. $[\alpha]_D^{25}$ +20.6 (c, 0.5 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-benzyl: 3-*O*-Benzyl-5-deoxy-5-iodo-1,2-*O*-isopropylidene-α-D-ribofuranose*
[89702-28-3]
$C_{15}H_{19}IO_4$ 390.217
Oil. $[\alpha]_D^{20}$ +84.9 (c, 4.7 in CH_2Cl_2).

1-(Dihydrogen phosphate): [100752-90-7]
$C_5H_{10}IO_7P$ 340.008
Syrup.

β-D-Furanose-*form*

*Tri-Ac: 1,2,3-Tri-*O*-acetyl-5-deoxy-5-iodo-β-D-ribofuranose*
$C_{11}H_{15}IO_7$ 386.14
Cryst. Mp 86-88°. $[\alpha]_D$ -39 (EtOH).

*2,3-Dibenzoyl, 1-Ac: 1-*O*-Acetyl-2,3-di-*O*-benzoyl-5-deoxy-5-iodo-β-D-ribofuranose*
[19945-76-7]
$C_{21}H_{19}IO_7$ 510.281
Cryst. Mp 112-113°. $[\alpha]_D^{21}$ +20.4 (c, 2.0 in $CHCl_3$).

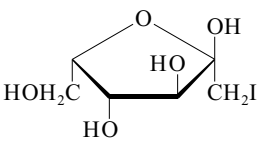
*2,3-*O*-Isopropylidene, 1-Ac: 1-*O*-Acetyl-5-deoxy-5-iodo-2,3-*O*-isopropylidene-β-D-ribofuranose*
[111570-90-2]
$C_{10}H_{15}IO_5$ 342.13
Cryst. Mp 38°. $[\alpha]_D^{22}$ -65.8 (c, 0.3 in MeOH).

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-deoxy-5-iodo-2,3-*O*-isopropylidene-β-D-ribofuranoside*
[38838-06-1]
$C_9H_{15}IO_4$ 314.12
Syrup. $Bp_{0.1}$ 75-80° (78-79°). $[\alpha]_D^{22}$ -71 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{25}$ -68 ($CHCl_3$).

*Me glycoside, 2,3-*O*-benzylidene: Methyl 2,3-*O*-benzylidene-5-deoxy-5-iodo-β-D-ribofuranoside*
[33208-38-7]
$C_{13}H_{15}IO_4$ 362.164
Syrup. $[\alpha]^{25}{}_D$ -42.5 (c, 0.8 in $CHCl_3$).

Pischel, H. *et al., Z. Chem.*, 1968, **8**, 178 (*β-dibenzoyl*)
Prystas, M. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1448 (*β-D-Me fur deriv*)
Hanessian, S. *et al., Carbohydr. Res.*, 1972, **24**, 45 (*β-D-Me fur deriv*)
Kiss, J. *et al., Helv. Chim. Acta*, 1982, **65**, 1522 (*α-isopropylidene*)
Ohrui, H. *et al., Agric. Biol. Chem.*, 1987, **51**, 625 (*β-isopropylidene*)
Choi, H.S. *et al., CA*, 1991, **114**, 177971r (*phosphate, synth, metab*)
Furstner, A. *et al., J.O.C.*, 1991, **56**, 2213 (*α-isopropylidene*)
Palmer, A.M. *et al., Eur. J. Org. Chem.*, 2001, 1293-1308 (*α-D-Me fur isopropylidene*)

1-Deoxy-1-iodosorbose D-273



$C_6H_{11}IO_5$ 290.054

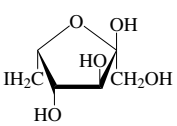
α-L-Furanose-*form*

*2,3-*O*-Isopropylidene: 1-Deoxy-1-iodo-2,3-*O*-isopropylidene-α-L-sorbofuranose*
[38084-09-2]
$C_9H_{15}IO_5$ 330.119
Cryst. (Et_2O/pentane). Mp 112-113°. $[\alpha]_D^{18}$ -3.1 (c, 1 in $CHCl_3$).

*2,3:4,6-Di-*O*-isopropylidene: 1-Deoxy-1-iodo-2,3:4,6-di-*O*-isopropylidene-α-L-sorbofuranose*
[38084-00-3]
$C_{12}H_{19}IO_5$ 370.184
Cryst. (heptane). Mp 82-83°. $[\alpha]_D^{22}$ -24.5 (c, 1 in $CHCl_3$).

Gardner, T.S. *et al., J.O.C.*, 1947, **12**, 733 (*diisopropylidene*)
James, K. *et al., Aust. J. Chem.*, 1972, **25**, 1967 (*α-L-fur derivs, pmr*)
Fuerstner, A. *et al., J. Carbohydr. Chem.*, 1990, **9**, 561 (*props, use*)

6-Deoxy-6-iodosorbose D-274



α-L-Furanose-*form*

$C_6H_{11}IO_5$ 290.054

L-Furanose-*form*

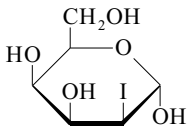
*2,3-*O*-Isopropylidene, 1-tosyl: 6-Deoxy-6-iodo-2,3-*O*-isopropylidene-1-*O*-tosyl-L-sorbofuranose*
$C_{16}H_{21}IO_7S$ 484.308
Mp 130-140°. $[\alpha]_D$ +25 (EtOH).

α-L-Furanose-*form*

*2,3-*O*-Isopropylidene, 1-Ac: 1-*O*-Acetyl-6-deoxy-6-iodo-2,3-*O*-isopropylidene-α-L-sorbofuranose*
[58238-55-4]
$C_{11}H_{17}IO_6$ 372.156
Cryst. (Et_2O/petrol). Mp 106°. $[\alpha]_D^{20}$ +35.8 (c, 1 in $CHCl_3$).

Muller, H. *et al., Helv. Chim. Acta*, 1938, **21**, 263 (*tosyl*)
Heyns, K. *et al., Chem. Ber.*, 1975, **108**, 3619 (*Ac*)

2-Deoxy-2-iodotalose D-275



$C_6H_{11}IO_5$ 290.054

α-D-Pyranose-*form*

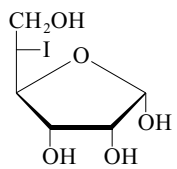
Me glycoside: Methyl 2-deoxy-2-iodo-α-D-talopyranoside
[53008-83-6]
$C_7H_{13}IO_5$ 304.081
Syrup.

*Me glycoside, tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-deoxy-2-iodo-α-D-talopyranoside*
[53008-81-4]
$C_{13}H_{19}IO_8$ 430.193
Syrup.

*Benzyl glycoside, 4,6-*O*-benzylidene (*S*-): Benzyl 4,6-*O*-(*S*)-benzylidene-2-deoxy-2-iodo-α-D-talopyranoside*
[75810-26-3]
$C_{20}H_{21}IO_5$ 468.287
Cryst. (EtOAc/hexane). Mp 138.8°. $[\alpha]_D^{20}$ +110.7 (c, 1 in $CHCl_3$).

Honda, S. *et al., Carbohydr. Res.*, 1974, **34**, 45 (*α-Me gly, pmr*)
Thiem, J. *et al., Chem. Ber.*, 1980, **113**, 3067 (*benzyl gly deriv*)
Korth, H.G. *et al., J.C.S. Perkin 2*, 1986, 1461 (*conformn*)
Chen, S.H. *et al., J.O.C.*, 1991, **56**, 5834 (*α-Me gly tri-Ac, ir, pmr, ms*)

5-Deoxy-5-iodotalose D-276



$C_6H_{11}IO_5$ 290.054

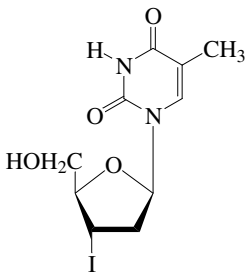
β-L-Furanose-*form*

*1,2-*O*-Isopropylidene, 3,5-dibenzoyl: 3, 5-Di-*O*-benzoyl-5-deoxy-5-iodo-1,2-*O*-isopropylidene-β-L-talofuranose*
[55085-27-3]
$C_{23}H_{23}IO_7$ 538.335
Cryst. (EtOH). Mp 122-124°. $[\alpha]_D^{20}$ +70 (c, 0.6 in CH_2Cl_2).

Serge, D. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1974, **279**, 651 (*isopropylidene deriv*)
Serge, D. *et al., Chem. Ber.*, 1979, **77**, 79 (*isopropylidene deriv, pmr*)

3′-Deoxy-3′-iodothymidine, 9CI D-277

[14260-82-3]



$C_{10}H_{13}IN_2O_4$ 352.128
Needles (H_2O). Mp 166-167° (dec.).

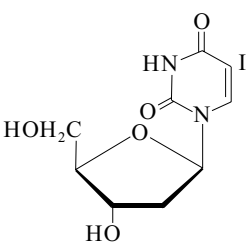
5′-Trityl: [25442-44-8]
$C_{29}H_{27}IN_2O_4$ 594.448
Cubes (Me_2CO/MeOH). Mp 147-148°.

[14259-59-7, 14260-81-2]

Michelson, A.M. *et al., J.C.S.*, 1955, 816-823 (*synth*)
Pfitzner, K.E. *et al., J.O.C.*, 1964, **29**, 1508-1511 (*5′-trityl*)
Zemlicka, J. *et al., J.A.C.S.*, 1975, **97**, 4089-4095 (*derivs, pmr*)

2′-Deoxy-5-iodouridine, 9CI, 8CI D-278

Idoxuridine, BAN, INN, JAN, USAN. *Dendrid. Herpid. Herplex. Idoxene. Iduridin. Kerecid. Virudox. IDU. NSC 39661. Many other names*
[54-42-2]



$C_9H_{11}IN_2O_5$ 354.101
Used in the treatment of ocular herpetic infections. Cryst. (H_2O). Mp 160° (190-195°, 240°) dec. $[\alpha]_D^{20}$ +29 (c, 1 in 1*M* NaOH). Log P -0.98 (calc).

▶ Skin and eye irritant. Other adverse effects on eye and systemic effects when used therapeutically. Exp. reprod. and teratogenic effects. YU7700000

3′-Ac: [15384-26-6]
$C_{11}H_{13}IN_2O_6$ 396.138
Mp 196-198°.

3′,5′-Di-Ac: [1956-30-5]
$C_{13}H_{15}IN_2O_7$ 438.175
Mp 161-163°.

5′-Tosyl: [58349-27-2]
$C_{16}H_{17}IN_2O_7S$ 508.29
Mp 164-165° dec.

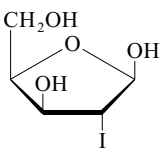
5′-Trityl: [15414-61-6]
$C_{28}H_{25}IN_2O_5$ 596.42
Mp 220°. λ_{max} 286 (ε 6 610) (0.1*M* HCl), 278 nm (4 840) (0.1*M* NaOH).

5′-Trityl, 3′-Ac:
$C_{30}H_{27}IN_2O_6$ 638.458
Mp 132-145°.

[13104-59-1]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 816D (*ir*)
Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 695C (*nmr*)
Cheong, L. *et al., J. Biol. Chem.*, 1960, **235**, 1441 (*synth*)
Fr. Pat., 1963, 1 336 866; *CA*, **60**, 3082 (*synth*)
Chang, P.K. *et al., J. Med. Chem.*, 1963, **6**, 428 (*synth*)
Camerman, N. *et al., Acta Cryst.*, 1965, **18**, 203 (*cryst struct*)
U.S. Pat., 1967, 3 324 110; *CA*, **67**, 108960k, (*3′-Ac 5′-trityl*)
Lin, T. *et al., J. Med. Chem.*, 1976, **19**, 495, (*5′-tosyl*)
Prusoff, W.H. *et al., Antibiotics (N.Y.)*, 1979, **5**, 236 (*rev, pharmacol*)
Prusoff, W.H. *et al., Int. Encycl. Pharmacol. Ther.*, 1984, **111**, 341 (*rev, pharmacol*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 1205 (*synonyms*)
Asakura, J. *et al., J.O.C.*, 1990, **55**, 4928 (*synth, pmr, uv*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 548
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAS000

2-Deoxy-2-iodoxylose D-279



β–D–Furanose–*form*

$C_5H_9IO_4$ 260.028

β-D-Furanose-*form*

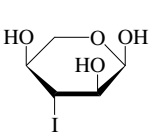
Me glycoside, 3-tosyl, 5-Ac: [26528-13-2]
$C_{15}H_{19}IO_7S$ 470.281
Cryst. (EtOH). Mp 118-119°. $[\alpha]_D^{25}$ -80.7 (c, 3.4 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside, di-Ac: [131267-51-1]
$C_{10}H_{15}IO_6$ 358.129
Cryst. (Et_2O/hexane). Mp 110-112°. $[\alpha]_D^{20}$ -49.2 (c, 1.0 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*Me fur deriv*)
Horton, D. *et al., Carbohydr. Res.*, 1990, **205**, 71 (*Me pyr deriv, pmr*)

3-Deoxy-3-iodoxylose D-280



α-L-Pyranose-*form*

$C_5H_9IO_4$ 260.028

α-L-Pyranose-*form*

*Me glycoside, 4-Ac: Methyl 4-*O*-acetyl-3-deoxy-3-iodo-α-L-xylopyranoside*
[26528-31-4]
$C_8H_{13}IO_5$ 316.092
Cryst. (EtOH). Mp 125-126°. $[\alpha]_D^{25}$ -109 (c, 2.2 in $CHCl_3$).

*Me glycoside, 4-Ac, 2-tosyl: Methyl 4-*O*-acetyl-3-deoxy-3-iodo-2-*O*-tosyl-α-L-xylopyranoside*
[26532-18-3]
$C_{15}H_{19}IO_7S$ 470.281
Cryst. (EtOH). Mp 116-117°. $[\alpha]_D^{25}$ -60 (c, 2.5 in $CHCl_3$).

*Me glycoside, di-Ac: Methyl 2,4-di-*O*-acetyl-3-deoxy-3-iodo-α-L-xylopyranoside*
[26528-32-5]
$C_{10}H_{15}IO_6$ 358.129
Cryst. Mp 89.5-90.5°.

β-L-Pyranose-*form*

*Me glycoside, 4-Ac: Methyl 4-*O*-acetyl-3-deoxy-3-iodo-β-L-xylopyranoside*
[26528-20-1]
$C_8H_{13}IO_5$ 316.092
Cryst. (EtOH). Mp 145-145.5°. $[\alpha]_D^{25}$ +10.7 (c, 3.28 in $CHCl_3$).

*Me glycoside, 4-Ac, 2-tosyl: Methyl 4-*O*-acetyl-3-deoxy-3-iodo-2-*O*-tosyl-β-L-xylopyranoside*
[26532-15-0]
$C_{15}H_{19}IO_7S$ 470.281
Cryst. (EtOH). Mp 131-132.5°. $[\alpha]_D^{25}$ -60 (c, 2.51 in $CHCl_3$).

*Me glycoside, di-Ac: Methyl 2,4-di-*O*-acetyl-3-deoxy-3-iodo-β-L-xylopyranoside*
[26528-21-2]
$C_{10}H_{15}IO_6$ 358.129
Leaflets. Mp 141-141.5°. $[\alpha]_D^{25}$ +39.4 (c, 3.2 in $CHCl_3$).

*Me glycoside, 4-benzoyl: Methyl 4-*O*-benzoyl-3-deoxy-3-iodo-β-L-xylopyranoside*
[26528-16-5]
$C_{13}H_{15}IO_5$ 378.163
Needles (EtOH). Mp 158-159°. $[\alpha]_D^{25}$ +113 (c, 1.44 in $CHCl_3$).

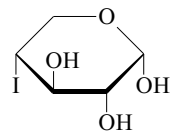
*Me glycoside, 4-Me: Methyl 3-deoxy-3-iodo-4-*O*-methyl-β-L-xylopyranoside*
[26528-25-6]
$C_7H_{13}IO_4$ 288.082
Cryst. (EtOH). Mp 94.5-95.5°.

*Me glycoside, 4-Me, 2-Ac: Methyl 2-*O*-acetyl-3-deoxy-3-iodo-4-*O*-methyl-β-L-xylopyranoside*
[26528-26-7]
$C_9H_{15}IO_5$ 330.119
Cryst. (EtOH). Mp 125.5-126.5°.

Benzyl glycoside: Benzyl 3-deoxy-3-iodo-β-L-xylopyranoside
[128843-81-2]
$C_{12}H_{15}IO_4$ 350.153
Cryst. (EtOAc/heptane or $CHCl_3$/heptane). Mp 67-70°. $[\alpha]_D^{25}$ -7.6 (c, 1.1 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*Me gly derivs*)
Rehnberg, N. *et al., J.O.C.*, 1990, **55**, 5467 (*benzyl gly*)

4-Deoxy-4-iodoxylose D-281



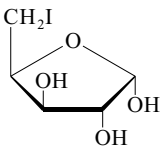
$C_5H_9IO_4$ 260.028

α-D-Pyranose-*form*

*Benzyl glycoside, 2-benzyl: Benzyl 2-*O*-benzyl-4-deoxy-4-iodo-α-D-xylopyranoside*
[50908-55-9]
$C_{19}H_{21}IO_4$ 440.277
Cryst. Mp 89-91°. $[\alpha]_D$ +130 (c, 1.34 in $CHCl_3$).

Ritchie, R. *et al., Chem. Comm.*, 1973, 686 (*benzyl gly deriv, pmr*)

5-Deoxy-5-iodoxylose D-282



α–D–Furanose–*form*

$C_5H_9IO_4$ 260.028

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene:* [50600-39-0]
$C_8H_{13}IO_4$ 300.093
Powder. $[\alpha]_D^{20}$ -38 (c, 1.07 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-Ac:* [20853-29-6]
$C_{10}H_{15}IO_5$ 342.13
Syrup.

*1,2-*O*-Isopropylidene, 3-benzoyl:*
[41164-24-3]
$C_{15}H_{17}IO_5$ 404.201
Syrup. $[\alpha]_D^{25}$ -50.8 (c, 1.02 in $CHCl_3$).

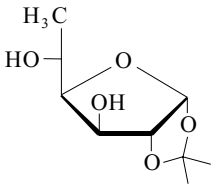
*1,2-*O*-Isopropylidene, 3-tosyl:* [29873-56-1]
$C_{15}H_{19}IO_6S$ 454.282
Pale yellow syrup. $[\alpha]_D^{23}$ -65.5 (c, 2.0 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-benzyl:*
[29580-99-2]
$C_{15}H_{19}IO_4$ 390.217
Needles (EtOH). Mp 74-75°. $[\alpha]_D^{23}$ -81.5 (c, 0.68 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-trimethylsilyl:*
[16749-52-3]
$C_{11}H_{21}IO_4Si$ 372.275
Oil. $Bp_{0.006}$ 72-74°. n_D^{25} 1.4861.

Hedgeley, E.J. *et al., J.C.S.(C)*, 1967, 888 (*trimethylsilyl*)
Ando, H. *et al., Bull. Chem. Soc. Jpn.*, 1970, **43**, 2966 (*tosyl*)
Young, R.C. *et al., Tetrahedron*, 1970, **26**, 3983 (*benzyl*)
Culbertson, T.P. *et al., J.O.C.*, 1973, **38**, 3624 (*benzoyl, pmr*)
Rahman, A.U. *et al., J. Chem. Soc. Pak.*, 1986, **8**, 397 (*Ac, pmr*)
Achab, S. *et al., J.C.S. Perkin 1*, 1990, 2863 (*isopropylidene, pmr*)

6-Deoxy-1,2-*O*-isopropylideneglucofuranose, 9CI, 8CI D-283



$C_9H_{16}O_5$ 204.222

α-D-*form* [17668-66-5]
Cryst. Mp 90-91°. $[\alpha]_D$ -24.2 (c, 1.53 in $CHCl_3$).

*Dimesyl: 6-Deoxy-1,2-*O*-isopropylidene-3,5-di-*O*-mesyl-α-D-glucofuranose*
[30595-47-2]
$C_{11}H_{20}O_9S_2$ 360.406
Cryst. (C_6H_6/cyclohexane). Mp 101°. $[\alpha]_D^{20}$ -30.9 (c, 2.0 in $CHCl_3$).

*3,5-*O*-Isopropylidene: 6-Deoxy-1,2:3,5-di-*O*-isopropylidene-α-D-glucofuranose*
[32785-99-2]
$C_{12}H_{20}O_5$ 244.287
Syrup. $Bp_{0.07}$ 58°. $[\alpha]_D^{19}$ +38.9 (c, 1.95 in $CHCl_3$).

*3-Benzyl: 3-*O*-Benzyl-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[18439-44-6]
$C_{16}H_{22}O_5$ 294.347
Syrup. $[\alpha]_D^{23}$ -64 (c, 4.2 in $CHCl_3$).

*3-Benzyl, 5-benzoyl: 5-*O*-Benzoyl-3-*O*-benzyl-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{23}H_{26}O_6$ 398.455
Cryst. (EtOH). Mp 101-102°. $[\alpha]_D^{22}$ -55 (c, 0.9 in $CHCl_3$).

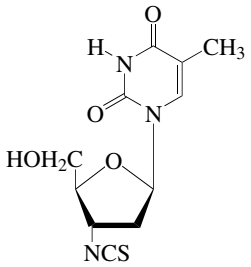
*5-Benzyl, 3-mesyl: 5-*O*-Benzyl-6-deoxy-1,2-*O*-isopropylidene-3-*O*-mesyl-α-D-glucofuranose*
[39686-87-8]
$C_{17}H_{24}O_7S$ 372.438
Cryst. (MeOH). Mp 99.5°. $[\alpha]_D$ -47 (c, 1.0 in $CHCl_3$).

*Dibenzyl: 3,5-Di-*O*-benzyl-6-deoxy-1,2-*O*-isopropylidene-α-D-glucofuranose*
[54522-22-4]
$C_{23}H_{28}O_5$ 384.471
Mp 53°. $[\alpha]_D^{20}$ -56 ($CHCl_3$).

Inch, T.D. *et al., Carbohydr. Res.*, 1967, **5**, 45, (α-D-benzoyl benzyl, α-D-benzyl)
Haylock, C.R. *et al., Carbohydr. Res.*, 1971, **16**, 375 (α-D-isopropylidene)
Weidmann, H. *et al., Carbohydr. Res.*, 1972, **24**, 184 (α-D-benzyl mesyl, α-D-dimesyl)
Kiely, D.E. *et al., Carbohydr. Res.*, 1973, **31**, 387 (α-D-form, synth, α-D-benzyl)
Zobáčová, A. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 3505 (α-D-form)

3′-Deoxy-3′-isothiocyanatothymidine, 9CI D-284

[130945-07-2]



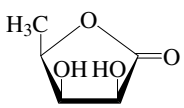
$C_{11}H_{13}N_3O_4S$ 283.307
Used for fluorescent labelling of nucleotides. Hygroscopic cryst. (hexane). Mp 113°.

Hydrochloride: Mp 248°.

Matsuda, A. *et al., Nucleosides Nucleotides*, 1990, **9**, 587-597 (*synth, pmr*)
Zehl, A. *et al., Liebigs Ann./Recl.*, 1997, 595-600 (*synth, pmr*)

5-Deoxy-1,4-lyxonolactone D-285

Capilliplactone

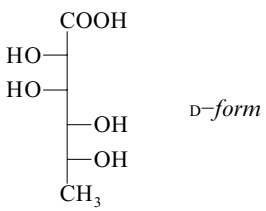


$C_5H_8O_4$ 132.116

L-*form* [248256-29-3]
Constit. of *Lysimachia capillipes*.
Needles.
Mp 110-112°. $[\alpha]_D^{20}$ -43 (c, 0.07 in MeOH).
Xie, C. *et al., Chin. Chem. Lett.*, 1998, **9**, 1095-1096

6-Deoxymannonic acid, 9CI, 8CI D-286

Rhamnonic acid
[28223-46-3]



D–*form*

$C_6H_{12}O_6$ 180.157

D-*form*
1,4-Lactone: 6-Deoxy-D-mannono-1, 4-lactone. D-Rhamnono-1,4-lactone
[106293-98-5]
$C_6H_{10}O_5$ 162.142
Constit. of *Coronilla varia*.

L-*form* [6422-34-0]
Prod. by strains of yeast utilising L-rhamnose.
$[\alpha]_D$ -7.7 → +29.8 (+11 →-34.3) (H_2O).

Amide: L-Rhamnonamide
$C_6H_{13}NO_5$ 179.172
Mp 134-134.5°. $[\alpha]_D^{20}$ +27.7 (H_2O).

1,4-Lactone: L-Rhamnono-1,4-lactone. 6-Deoxy-L-mannono-1,4-lactone
$C_6H_{10}O_5$ 162.142
Mp 149-151°. $[\alpha]_D^{20}$ -39.2 (H_2O).

1,4-Lactone, 2,5-dibenzoyl: 2,5-Di-O-benzoyl-L-rhamnono-1,4-lactone
$C_{20}H_{18}O_7$ 370.358
Mp 195-197°. $[\alpha]_D^{20}$ +13.5 (c, 1.0 in $CHCl_3$).

1,4-Lactone, 2-tosyl: 2-O-Tosyl-L-1, 4-rhamnonolactone
[146820-61-3]
$C_{13}H_{16}O_7S$ 316.331
Cryst. ($CHCl_3$). Mp 183-185°. $[\alpha]_D^{20}$ -57 (c, 1.0 in Me_2CO).

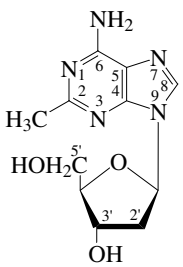
1,5-Lactone: L-Rhamnono-1,5-lactone
$C_6H_{10}O_5$ 162.142
Mp 172-182°. $[\alpha]_D^{23}$ -98.4 (H_2O).

1,5-Lactone, tribenzoyl: 2,3,4-Tri-O-benzoyl-L-rhamnono-1,5-lactone
$C_{27}H_{22}O_8$ 474.466
Amorph. solid. $[\alpha]_D^{20}$ -15.3 (c, 0.9 in $CHCl_3$). Could not be crystallised.

Rehorst, K. *et al., Annalen*, 1933, **503**, 143
Brackenbury, J.M. *et al., J.A.C.S.*, 1933, **55**, 2514 (*synth*)
Suzuki, T. *et al., Agric. Biol. Chem.*, 1968, **32**, 888 (*isol*)
Peterson, G. *et al., Tetrahedron*, 1970, **26**, 3413 (*ms*)
Peterson, G. *et al., Carbohydr. Res.*, 1974, **33**, 47 (*glc*)
Varela, O.J. *et al., Carbohydr. Res.*, 1980, **79**, 219 (*lactone tribenzoyl*)
Fernández Cirelli, A. *et al., J. Carbohydr. Chem.*, 1983, **2**, 167-176 (*L-1,4-lactone 2, 5-dibenzyl*)
Opletal, L. *et al., Pharmazie*, 1986, **41**, 605, (*6-Deoxy-D-mannono-1,4-lactone*)
Bols, M. *et al., Carbohydr. Res.*, 1991, **222**, 141 (*lactone anhydride*)
Lundt, I. *et al., Synthesis*, 1992, 1129 (*lactone 2-tosyl*)
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **264**, 181 (*cryst struct, 1,4-lactone*)

2′-Deoxy-2-methyladenosine, 9CI D-287

[110952-90-4]



$C_{11}H_{15}N_5O_3$ 265.271
Solid ($EtOH/Et_2O$).

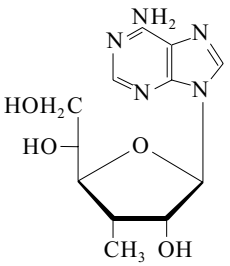
N-*Me:* [402750-83-8]
$C_{12}H_{17}N_5O_3$ 279.298
Solid (EtOH). Mp 150°.

N-*Me, 3′-phosphate:*
$C_{12}H_{18}N_5O_6P$ 359.278
Solid ($MeOH/Et_2O$). Mp 167°.

N-*Me, 3′,5′-diphosphate:* [402750-80-5]
$C_{12}H_{19}N_5O_9P_2$ 439.258
Solid (MeOH). Mp 146°.

Raboisson, P. *et al., J. Med. Chem.*, 2002, **45**, 962-972 (*synth, N-Me, pmr*)

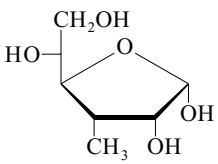
9-(3′-Deoxy-3′-*C*-methylallofuranosyl)adenine, 8CI D-288



$C_{12}H_{17}N_5O_4$ 295.297

β-D-*form* [26291-78-1]
Mp 227-228°. $[\alpha]_D^{22}$ -25 (c, 1.0 in H_2O).
λ_{max} 261 nm (ϵ 18 250) (H_2O).
Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 3941 (*synth, pmr*)

3-Deoxy-3-*C*-methylallose D-289

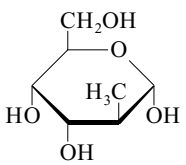


$C_7H_{14}O_5$ 178.185

α-D-Furanose-*form*
1,2-O-Isopropylidene: 1,2-O-Isopropylidene-3-deoxy-3-C-methyl-α-D-allofuranose
[26291-75-8]
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D^{22}$ +35 (c, 1 in $CHCl_3$).

1,2:5,6-Di-O-isopropylidene: 3-Deoxy-1,2:5,6-di-O-isopropylidene-3-C-methyl-α-D-allofuranose
[26293-58-3]
$C_{13}H_{22}O_5$ 258.314
Oil. $Bp_{0.05}$ 77-80°. $[\alpha]_D^{22}$ +37 (c, 1 in $CHCl_3$).
Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 3941 (*isopropylidene, diisopropylidene*)

2-Deoxy-2-*C*-methylaltrose D-290



$C_7H_{14}O_5$ 178.185

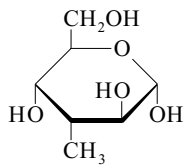
α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-2-*C*-methyl-α-D-altropyranoside*
[19465-06-6]
$C_{15}H_{20}O_5$ 280.32
Cryst. (Et_2O/hexane). Mp 111-113°. $[\alpha]_D^{23}$ +122.5 (c, 1 in $CHCl_3$).

*Me glycoside, 6-benzyl: Methyl 6-*O*-benzyl-2-deoxy-2-*C*-methyl-α-D-altropyranoside*
$C_{15}H_{22}O_5$ 282.336
Oil. $[\alpha]_D^{18}$ +91.3 (c, 2.63 in $CHCl_3$).

Sepulchre, A.-M. *et al., Bull. Soc. Chim. Fr.*, 1972, 4000 (*α-D-Me pyr benzylidene*)
Hicks, D.R. *et al., Can. J. Chem.*, 1975, **53**, 2017 (*α-D-Me pyr benzylidene*)
Paquette, L.A. *et al., Synthesis*, 2002, 2105-2109 (*α-D-Me pyr 6-benzyl*)

3-Deoxy-3-*C*-methylaltrose D-291



$C_7H_{14}O_5$ 178.185

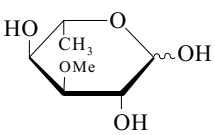
α-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-3-*C*-methyl-α-D-altropyranoside*
[5987-36-0]
$C_{15}H_{20}O_5$ 280.32
Chiron used in synthesis. Cryst. (Et_2O/hexane). Mp 115-115.5°. $[\alpha]_D$ +120 (c, 1.7 in $CHCl_3$).

Pougny, J.-R. *et al., J. Chem. Res., Synop.*, 1982, 1; *J. Chem. Res., Miniprint*, 1982, 0186, (*α-D-Me pyr benzylidene*)

6-Deoxy-3-*O*-methylaltrose, 9CI, 8CI D-292

Vallarose



$C_7H_{14}O_5$ 178.185

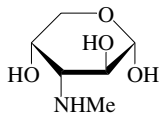
L-*form* [18546-08-2]
Component of cardiac glycosides, e.g. Vallaroside; isol. from the seeds of *Vallaris solanacea*.
Mp 113-114°. $[\alpha]_D$ -22 (c, 1.1 in H_2O).

α-L-*Pyranose-form*

*Tri-Ac: 1,2,4-Tri-*O*-acetyl-6-deoxy-3-*O*-methyl-α-L-altropyranoside*
$C_{13}H_{20}O_8$ 304.296
Mp 112-113° (sinters) Mp 122-123°.

Kaufmann, H. *et al., Helv. Chim. Acta*, 1965, **48**, 83 (*isol*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 3762 (*synth*)

3-Deoxy-3-(methylamino) arabinose D-293



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

α-D-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-(methylamino)-α-D-arabinopyranoside
$C_7H_{15}NO_4$ 177.2
Syrup. $[\alpha]_D^{26}$ -21.3 (c, 0.3 in MeOH).

α-D-Furanose-*form*

Me glycoside: Methyl 3-deoxy-3-(methylamino)-α-D-arabinofuranoside
[25787-44-4]
$C_7H_{15}NO_4$ 177.2
Cryst. (MeCN)(as hydrochloride). Mp 126-127° (hydrochloride). $[\alpha]_D^{20}$ +99 (c, 1.0 in H_2O).

Me glycoside, N-*Ac: Methyl 3-deoxy-3-(*N*-methylacetamido)-α-D-arabinofuranoside*
[25787-46-6]
$C_9H_{17}NO_5$ 219.237
Cryst. (EtOH). Mp 155-156°. $[\alpha]_D^{23}$ +89 (c, 1.0 in H_2O).

Me glycoside, N*,2,5-tri-Ac: Methyl 2,5-di-*O*-acetyl-3-deoxy-3-(*N*-methylacetamido)-α-D-arabinofuranoside*
[25787-45-5]
$C_{13}H_{21}NO_7$ 303.311
Syrup. $[\alpha]_D^{24}$ +89 (c, 0.87 in $CHCl_3$).

L-*form*
Component of antibiotic 66-40D from *Micromonospora inyoensis*.

N-*Ac: 3-Deoxy-3-(*N*-methylacetamido)-L-arabinose*
$C_8H_{15}NO_5$ 205.21
Needles (MeOH). Mp 167-168.5°. $[\alpha]_D^{26}$ +110.7 (c, 1.0 in MeOH).

α-L-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-(methylamino)-α-L-arabinopyranoside
[56153-84-5]
$C_7H_{15}NO_4$ 177.2
Mp 81-84°. $[\alpha]_D^{26}$ +35.2 (c, 0.3 in H_2O).

β-L-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-(methylamino)-β-L-arabinopyranoside, 9CI
$C_7H_{15}NO_4$ 177.2
Mp 97-99°. $[\alpha]_D^{26}$ +235.1 (c, 0.3 in H_2O).

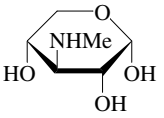
β-L-Furanose-*form*

N-*Ac, 1,2-*O*-isopropylidene: 3-Deoxy-1,2-*O*-isopropylidene-3-(*N*-methylacetamido)-β-L-arabinofuranose*
$C_{11}H_{19}NO_5$ 245.275
Gum. $[\alpha]_D^{26}$ +24.1 (c, 1.0 in MeOH).

Lee, W.W. *et al., J.O.C.*, 1970, **35**, 3808 (*α-D-fur Me gly, α-D-fur Me gly Ac derivs*)
Reimann, H. *et al., J.O.C.*, 1974, **39**, 1451, (*β-L-pyr 4-C-Me, occur*)
Egan, R.S. *et al., J. Antibiot.*, 1975, **28**, 29 (*occur*)
Cooper, D.J. *et al., J.C.S. Perkin 1*, 1975, 785, (*α-L-pyr, β-L-pyr Me gly, pmr*)
Davies, D.H. *et al., J.C.S. Perkin 1*, 1975, 814 (*β-L-form, occur*)

3-Deoxy-3-(methylamino)xylose D-294

Gentosamine



α-D-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

D-*form*
Constit. of the antibiotics Gentamicin A, G-224 and Sisomicin B, S-46.

Hydrochloride: [28251-69-6]
Cryst. (EtOH aq. or MeOH/EtOH/Me_2CO). Mp 172-173° dec. $[\alpha]_D^{20}$ 0 → 0 (c, 1 in H_2O).

α-D-Pyranose-*form*

*1,2-*O*-Isopropylidene,* N*-benzoyl: 3-Deoxy-1,2-*O*-isopropylidene-3-(*N*-methylbenzamido)-α-D-xylopyranose, 8CI*
[29914-66-7]
$C_{16}H_{21}NO_5$ 307.346
Cryst. (Et_2O/petrol). Mp 179-180°. $[\alpha]_D^{20}$ +72.5 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 3-deoxy-3-(methylamino)-α-D-xylopyranoside, 9CI, 8CI. Methyl α-gentosaminide
$C_7H_{15}NO_4$ 177.2
Cryst. (EtOH). Mp 110-120°. $[\alpha]_D^{26}$ +122.9 (c, 0.3 in H_2O).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-(methylamino)-β-D-xylopyranoside, 8CI. Methyl β-gentosaminide
[28251-70-9]
$C_7H_{15}NO_4$ 177.2
Rhombohedral cryst. ($EtOH/C_6H_6$). Mp 144-145° (139°). $[\alpha]_D^{26}$ -62.1 (c, 0.3 in H_2O).

Me glycoside, N-*Ac: Methyl 3-deoxy-3-(*N*-methylacetamido)-β-D-xylopyranoside, 8CI*
[28251-72-1]
$C_9H_{17}NO_5$ 219.237
Needles ($EtOH/Et_2O$). Mp 183°. $[\alpha]_D^{25}$ -59.5 (c, 0.8 in H_2O).

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene,* N*-Ac: 3-Deoxy-1,2-*O*-isopropylidene-3-(*N*-methylacetamido)-α-D-xylofuranose*
[38711-54-5]
$C_{11}H_{19}NO_5$ 245.275
Cryst. ($EtOH/Et_2O$/petrol). Mp 117-120°. $[\alpha]_D^{20}$ +95 (c, 1 in $CHCl_3$).

*1,2-*O*-Isopropylidene,* N*-benzoyl: 3-Deoxy-1,2-*O*-isopropylidene-3-(*N*-methylbenzamido)-α-D-xylofuranose, 8CI*
[29914-64-5]
$C_{16}H_{21}NO_5$ 307.346
Mp 126-128°. $[\alpha]_D^{20}$ +72 (c, 1 in $CHCl_3$).

1,2-O-*Isopropylidene, 5-benzyl,* N-*Ac: 5*-O-*Benzyl-3-deoxy-1,2*-O-*isopropylidene-3-(*N-*methylacetamido)-α-D-xylofuranose*
[79249-06-2]
$C_{18}H_{25}NO_5$ 335.399
Syrup. $[\alpha]_D^{26}$ +26.7 ($CHCl_3$).

Me glycoside, 5-benzyl: Methyl 5-O-*benzyl-3-deoxy-3-(methylamino)-α-D-xylofuranoside*
[79249-07-3]
$C_{14}H_{21}NO_4$ 267.324
Syrup. $[\alpha]_D^{26}$ +107.5 ($CHCl_3$).

Me glycoside, 5-benzyl, N-*Ac: Methyl 5*-O-*benzyl-3-deoxy-3-(*N-*methylacetamido)-α-D-xylofuranoside*
[79249-09-5]
$C_{16}H_{23}NO_5$ 309.361
Syrup. $[\alpha]_D^{26}$ +192.5 ($CHCl_3$).

Me glycoside, 2,5-dibenzyl, N-*Ac: Methyl 2,5-di*-O-*benzyl-3-deoxy-3-(*N-*methylacetamido)-α-D-xylofuranoside*
[79249-11-9]
$C_{23}H_{29}NO_5$ 399.486
Syrup. $[\alpha]_D^{26}$ +7 ($CHCl_3$).

β-D-Furanose-*form*

Me glycoside, 5-benzyl: Methyl 5-O-*benzyl-3-deoxy-3-(methylamino)-β-D-xylofuranoside*
[79249-08-4]
$C_{14}H_{21}NO_4$ 267.324
Syrup. $[\alpha]_D^{26}$ -37.6 ($CHCl_3$).

Me glycoside, 5-benzyl, N-*Ac: Methyl 5*-O-*benzyl-3-deoxy-3-(*N-*methylacetamido)-β-D-xylofuranoside*
[79249-10-8]
$C_{16}H_{23}NO_5$ 309.361
Syrup. $[\alpha]_D^{26}$ +21.7 ($CHCl_3$).

Me glycoside, 2,5-dibenzyl, N-*Ac: Methyl 2,5-di*-O-*benzyl-3-deoxy-3-(*N-*methylacetamido)-β-D-xylofuranoside*
[79249-12-0]
$C_{23}H_{29}NO_5$ 399.486
Syrup. $[\alpha]_D^{26}$ +81 ($CHCl_3$).

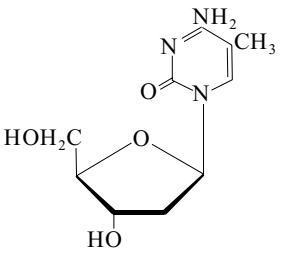
β-L-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-(methylamino)-β-L-xylopyranoside
$C_7H_{15}NO_4$ 177.2
Needles (EtOH). Mp 141-142°. $[\alpha]_D^{26}$ +60.6 (c, 1 in H_2O).

Maehr, H. *et al., J.A.C.S.*, 1970, **92**, 1697, (*isol, β-D-pyr Me gly, β-D-pyr Me gly N-Ac*)
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1972, **105**, 2546 (*synth, α-D-pyr isopropylidene N-benzoyl, α-D-fur isopropylidene N-benzoyl, α-D-fur-isopropylidene N-Ac*)
Cooper, D.J. *et al., J.C.S. Perkin 1*, 1975, 785, (*α-D-pyr Me gly, β-D-pyr Me gly, β-L-pyr Me gly*)
Davies, D.H. *et al., J.C.S. Perkin 1*, 1975, 814; 1981, 2151 (*isol, α-D-pyr Me gly, β-D-pyr Me gly, α-D-fur isopropylidene N-Ac derivs*)

2′-Deoxy-5-methylcytidine, 9CI, 8CI D-295

*1-(2-Deoxy-β-D-*erythro-*pentofuranosyl)-5-methylcytosine. 5-Methylcytosine deoxyriboside*
[838-07-3]



$C_{10}H_{15}N_3O_4$ 241.246
Isol. from wheat-germ deoxyribonucleic acid.
Mp 211-212°. $[\alpha]_D^{22}$ +43 (c, 1.4 in H_2O). λ_{max} 286.5 (ε 12 400), 212 (ε 11 800) (0.1N HCl); 279 nm (8 770) (0.1N NaOH).
▶ HA3860000

Hydrochloride: Mp 148-150° (156°). $[\alpha]_D^{23}$ +54 (c, 1.0 in 0.1N HCl).

Picrate: Mp 175-178° dec.

N^4-*Me:* [25406-44-4]
$C_{11}H_{17}N_3O_4$ 255.273
Cryst. (EtOAc). Mp 188-190°.

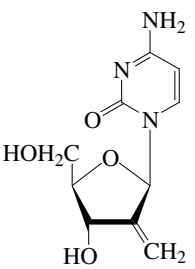
N^4-*Et:* [25406-43-3]
$C_{12}H_{19}N_3O_4$ 269.3
Cryst. (EtOAc). Mp 100-102°.

N^4-*(4-Methylphenyl):* [177949-57-4]
$C_{17}H_{21}N_3O_4$ 331.371
Cryst. (EtOAc). Mp 80-82°.

Dekker, C.A. *et al., J.C.S.*, 1951, 2864 (*isol*)
Fox, J.J. *et al., J.A.C.S.*, 1959, **81**, 178 (*synth*)
Biochem. Prep., 1963, **10**, 98 (*synth*)
Becker, E.D. *et al., J.A.C.S.*, 1965, **87**, 5575 (*pmr*)
Vorbrueggen, H. *et al., Annalen*, 1975, 988 (*synth, pmr*)
Saladino, R. *et al., Tetrahedron*, 1996, **52**, 6759-6780 (N^4-*derivs, synth, pmr, cmr*)

2′-Deoxy-2′-methylenecytidine D-296

2′-Deoxy-2′-methylidenecytidine, 9CI
[119804-96-5]



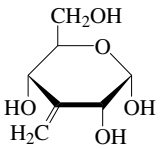
$C_{10}H_{13}N_3O_4$ 239.23
Yellowish foam.

Hydrochloride: [113648-25-2]
Cryst. ($MeOH/Me_2CO$). Mp >300°.

Yamagami, K. *et al., Cancer Res.*, 1991, **51**, 2319-2323 (*pharmacol*)
Matsuda, A. *et al., J. Med. Chem.*, 1991, **34**, 812-819 (*synth, pharmacol*)
Lin, T.S. *et al., J. Med. Chem.*, 1991, **34**, 2607-2615 (*cryst struct*)
Brindley, C.J. *et al., Clin. Pharmacokinet.*, 2000, **38**, 475-491 (*rev*)
Niitsu, N. *et al., Cancer Res.*, 2001, **61**, 178-185 (*pharmacol*)

3-Deoxy-3-*C*-methylene-*ribo*-hexose D-297

3-Deoxy-3-C-*methyleneglucose*



α-D-Pyranose-*form*

$C_7H_{12}O_5$ 176.169

α-D-Pyranose-*form*

Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-3-deoxy-3*-C-*methylene-α-D*-ribo-*hexopyranoside*
$C_{15}H_{18}O_5$ 278.304
Mp 194-195°. $[\alpha]_D^{23}$ +159.

α-D-Furanose-*form*

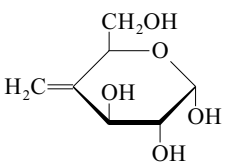
1,2:5,6-Di-O-*isopropylidene: 3-Deoxy-1,2:5,6-di*-O-*isopropylidene-3*-C-*methylene-α-D*-ribo-*hexofuranose*
[21665-16-7]
$C_{13}H_{20}O_5$ 256.298
$[\alpha]_D^{22}$ +104 (c, 2 in $CHCl_3$).

α-D-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene: 3-Deoxy-1,2:5,6-di*-O-*isopropylidene-3*-C-*methylene-α-D*-ribo-*hexofuranose*
$C_{13}H_{20}O_5$ 256.298
Pale yellow liq. Not fully purified.

Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 3941 (*diisopropylidene*)
Carey, F.A. *et al., J.O.C.*, 1982, **47**, 3548 (*benzylidene*)
Mazur, A. *et al., Tetrahedron*, 1984, **40**, 3949 (*diisopropylidene*)
Lankin, D.C. *et al., Carbohydr. Res.*, 1993, **244**, 49 (*α-D-fur diisopropylidene*)

4-Deoxy-4-*C*-methylene-*xylo*-hexose D-298



$C_7H_{12}O_5$ 176.169

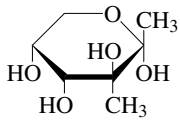
α-D-Pyranose-*form*

Me glycoside, tribenzyl: Methyl 2,3,6-tri-O-*benzyl-4-deoxy-4*-C-*methylene-α-D*-xylo-*hexopyranoside*
[139070-96-5]
$C_{29}H_{32}O_5$ 460.569
Syrup. $[\alpha]_D^{22}$ +59.2 (c, 1 in $CHCl_3$).

Preuss, R. *et al., Annalen*, 1992, 377 (*tribenzyl, pmr, cmr*)

1-Deoxy-3-*C*-methylfructose D-299

1-Deoxy-3-C-*methyl*-arabino-*hexulose*



α-D-Pyranose-*form*

$C_7H_{14}O_5$ 178.185

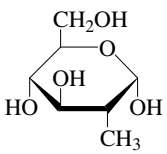
D-*form* [94048-23-4]
Syrup. $[\alpha]_D$ +20 (c, 2 in H_2O).

3,4:5,6-Diisopropylidene: 1-Deoxy-3,4:5,6-di-O-*isopropylidene-3*-C-*methyl*-D-arabino-*hex-2-ulose*
[94048-20-1]
$C_{13}H_{22}O_5$ 258.314
Syrup. $[\alpha]_D$ +14 ($CHCl_3$).

β-D-Pyranose-*form*

2,3:4,5-Diisopropylidene: 1-Deoxy-2,3:4,5-di-O-*isopropylidene-3*-C-*methyl*-β-D-arabino-*hexulopyranose. 1-Deoxy-2,3:4,5-di*-O-*isopropylidene-3*-C-*methyl*-β-D-*fructopyranose*
[94096-73-8]
$C_{13}H_{22}O_5$ 258.314
Cryst. (hexane). Mp 39.5-40.5°. $[\alpha]_D$ +12 (c, 1.5 in $CHCl_3$).
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **134**, 39 (*synth*)

2-Deoxy-2-*C*-methylglucose D-300

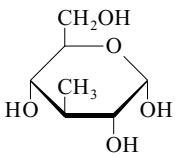


α-D-Pyranose-*form*

$C_7H_{14}O_5$ 178.185

D-*form* [115945-70-5]
$[\alpha]_D$ +39.5 (c, 1.12 in H_2O) (5 min).
Faghih, R. *et al., J. Carbohydr. Chem.*, 1987, **6**, 619-624 (*D-form*)

3-Deoxy-3-*C*-methylglucose D-301



α–D–Pyranose–*form*

$C_7H_{14}O_5$ 178.185

D-*form* [81755-88-6]
Hygroscopic syrup. $[\alpha]_D$ +43 (c, 0.82 in H_2O) (2h).

α-D-Pyranose-*form*

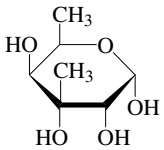
Me glycoside: Methyl 3-deoxy-3-C-*methyl*-α-D-*glucopyranoside*
[84247-05-2]
$C_8H_{16}O_5$ 192.211
Needles (Me_2CO/hexane). Mp 131-132°. $[\alpha]_D^{32}$ +147 (c, 0.89 in MeOH).

α-D-Furanose-*form*

1,2-Isopropylidene: 3-Deoxy-1,2-O-*isopropylidene-3*-C-*methyl*-α-D-*glucofuranose*
[81114-49-0]
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D^{15}$ -23 (c, 1.14 in $CHCl_3$).
Kinoshita, M. *et al., Carbohydr. Res.*, 1982, **109**, 5 (*synth, pmr, derivs*)
Pougny, J.-R. *et al., J. Chem. Res., Synop.*, 1982, 1; *J. Chem. Res., Miniprint*, 1982, 0186, (*D-form, synth*)
Kim, S. *et al., Tet. Lett.*, 1989, **30**, 6279, (*D-form, synth*)

6-Deoxy-3-*C*-methylgulose, 9CI D-302

Virenose
[69351-79-7]



α-D-Pyranose-*form*

$C_7H_{14}O_5$ 178.185
Constit. of Chrysomycin A, C-131 and Chrysomycin B.

D-*form*
Isol. from *Coxiella burnettii* phase I lipopolysaccharide.
$[\alpha]_D$ -9.8 (H_2O). The claimed isol. of both enantiomers with equal and opposite opt. rotns. from the same source is currently unexplained. The D-form isol. is the most recent work and is probably correct.

α-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-3-C-*methyl*-α-D-*gulopyranoside*
$C_8H_{16}O_5$ 192.211
Cryst. ($CHCl_3$/hexane). Mp 138-139.5°. $[\alpha]_D$ +143 (c, 0.5 in $CHCl_3$).

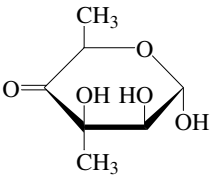
β-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-3-C-*methyl*-β-D-*gulopyranoside*
[69400-72-2]
$C_8H_{16}O_5$ 192.211
Cryst. ($CHCl_3$/hexane). Mp 131°. $[\alpha]_D^{20}$ -39 (c, 0.35 in $CHCl_3$).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6-deoxy-3*-C-*methyl*-β-D-*gulopyranoside*
$C_{14}H_{22}O_8$ 318.323
Cryst. (Et_2O/hexane). Mp 164°. $[\alpha]_D^{20}$ -15 (c, 0.1 in $CHCl_3$).

L-*form* [99247-34-4]
Reported from acid hydrol. of lipopolysaccharides from *Coxiella burnetii* phase I cells. Involved in serological activity of *C. burnetti* LPS. $[\alpha]_D^{15}$ +8.1 (H_2O).
Kulyaeva, V.V. *et al., Bioorg. Khim.*, 1978, **4**, 1087; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 798 (*isol*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1983, **112**, 320 (*synth, pmr*)
Schramek, S. *et al., Eur. J. Biochem.*, 1985, **148**, 455 (*isol*)
Amano, K. *et al., J. Biol. Chem.*, 1987, **262**, 4740
Mayer, H. *et al., Adv. Exp. Med. Biol.*, 1988, **228**, 577; *CA*, **110**, 228219d
Toman, R. *et al., Carbohydr. Res.*, 1998, **306**, 291-296 (*isol, synth*)

6-Deoxy-3-*C*-methyl-*lyxo*-hexopyranos-4-ulose D-303



α-D-*form*

$C_7H_{12}O_5$ 176.169

α-D-*form*

Me glycoside: Methyl 6-deoxy-3-C-*methyl*-α-D-lyxo-*hexopyranosid-4-ulose*
[104846-16-4]
$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D^{20}$ +93.7 (c, 0.93 in $CHCl_3$).

Me glycoside, di-Ac: Methyl 2,3-di-O-*acetyl-6-deoxy-3*-C-*methyl*-α-D-lyxo-*hexopyranosid-4-ulose*
[104846-18-6]
$C_{12}H_{18}O_7$ 274.27
Syrup. $[\alpha]_D^{20}$ +97.3 (c, 1.02 in $CHCl_3$).

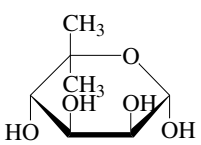
Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene-3*-C-*methyl*-α-D-lyxo-*hexopyranosid-4-ulose*
[104846-15-3]
$C_{11}H_{18}O_5$ 230.26
Syrup. $[\alpha]_D^{20}$ +101.1 (c, 1.2 in $CHCl_3$).

α-L-*form*

Me glycoside: Methyl 6-deoxy-3-C-*methyl*-α-L-lyxo-*hexopyranosid-4-ulose*
[104846-14-2]
$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D^{20}$ -99.8 (c, 1.05 in Me_2CO).

Me glycoside, 2,3-O-*isopropylidene: Methyl 6-deoxy-2,3*-O-*isopropylidene-3*-C-*methyl*-α-L-lyxo-*hexopyranosid-4-ulose*
[90329-14-9]
$C_{11}H_{18}O_5$ 230.26
Syrup. $[\alpha]_D^{20}$ -110.8 (c, 0.85 in $CHCl_3$).
Klemer, A. *et al., J. Carbohydr. Chem.*, 1983, **2**, 457; 1985, **4**, 205; 1986, **5**, 67 (*α-D-Me gly derivs, α-L-Me gly derivs, pmr*)

6-Deoxy-5-*C*-methyl-*lyxo*-hexose D-304



α-D-Pyranose-*form*

$C_7H_{14}O_5$ 178.185

D-*form*

4-Me: 6-Deoxy-5-C-*methyl-4*-O-*methyl*-D-lyxo-*hexose*
[206185-18-4]
$C_8H_{16}O_5$ 192.211

Cryst. (cyclohexane/EtOAc). Mp 128°. $[\alpha]_D^{20}$ -29.2 (c, 1 in 50% EtOH aq.). Exists mainly in β-pyranose form.

L-*form*

4-Me: 6-Deoxy-5-C-*methyl-4*-O-*methyl-L*-lyxo-*hexose. Noviose*
[114129-09-8]

[470-31-5]
$C_8H_{16}O_5$ 192.211
Degradn. prod. of Novobiocin. Needles (EtOAc).
Mp 128-130°. $[\alpha]_D^{24}$ +19.9 (c, 0.1 in EtOH aq.).

4-Me, 3-carbamoyl: Novobiose
$C_9H_{17}NO_6$ 235.236
Sugar component of Novobiocin.
Mp 124-126°. $[\alpha]_D^{24}$ +45.3 (c, 1 in EtOH).

α-L-Pyranose-*form*

Me glycoside, 4-Me: Methyl 6-deoxy-5-C-*methyl-4*-O-*methyl-α-L*-lyxo-*hexopyranoside*
[6893-45-4]
$C_9H_{18}O_5$ 206.238
Plates. Mp 61-68°. $[\alpha]_D^{25}$ +113.8 (c, 1 in H_2O).

β-L-Pyranose-*form*

Me glycoside, 4-Me: Methyl 6-deoxy-5-C-*methyl-4*-O-*methyl-β-L*-lyxo-*hexopyranoside*
[60660-91-5]
$C_9H_{18}O_5$ 206.238
Rods. Mp 69-70°. $[\alpha]_D^{22}$ -66.8 (c, 1.0 in EtOH).

β-DL-Pyranose-*form*

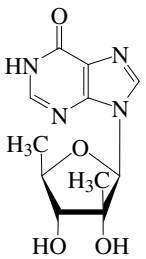
Me glycoside, 4-Me: Methyl 6-deoxy-5-C-*methyl-4*-O-*methyl-β-DL*-lyxo-*hexopyranoside*
[60660-90-4]
$C_9H_{18}O_5$ 206.238
Cryst. (Et_2O). Mp 99-100°.

Me glycoside, 4-Me, 2,3-di-Ac: Methyl 2,3-di-O-*acetyl-6-deoxy-5*-C-*methyl-4*-O-*methyl-β-DL*-lyxo-*hexopyranoside*
[60617-94-9]
$C_{13}H_{22}O_7$ 290.313
Cryst. (petrol). Mp 68-70°.

Hinman, J.W. *et al., J.A.C.S.*, 1957, **79**, 3789-3800 (*isol, struct, Noviose, Novobiose*)
Walton, E. *et al., J.A.C.S.*, 1958, **80**, 5168 (*struct, Noviose*)
Vaterlaus, B.P. *et al., Helv. Chim. Acta*, 1964, **47**, 381-390 (*Noviose*)
Achmatowicz, O. *et al., Tetrahedron*, 1976, **32**, 1051-1054 (*DL-Noviose*)
Klemer, A. *et al., Annalen*, 1986, 221-225 (*Noviose, synth*)
Pankau, W.M. *et al., Helv. Chim. Acta*, 1998, **81**, 1997-2004 (*synth, pmr, cmr, bibl, derivs*)
Takeuchi, M. *et al., Tet. Lett.*, 2000, **41**, 2609-2611 (*synth*)
Gammon, D.W. *et al., Tet. Lett.*, 2002, **43**, 3141-3144 (*synth*)
Yu, X.M. *et al., J.O.C.*, 2004, **69**, 7375-7378 (*Noviose, synth*)

5′-Deoxy-2′-*C*-methylinosine, 9CI D-305

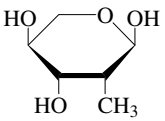
Trachycladine B
[164803-17-2]



$C_{11}H_{14}N_4O_4$ 266.256
Isol. from the marine sponge *Trachycladus laevispirulifer*. Amorph. solid. Sol. MeOH, butanol; fairly sol. H_2O; poorly sol. hexane. λ_{max} 249 (ϵ 15000) (MeOH).

Searle, P.A. *et al., J.O.C.*, 1995, **60**, 4296-4298 (*isol, uv, pmr, ms*)

2-Deoxy-2-*C*-methyllyxose D-306



α-L-Pyranose-*form*

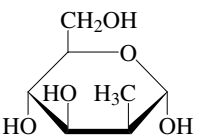
$C_6H_{12}O_4$ 148.158

L-*form*

4,5-Dibenzyl: 4,5-Di-O-*benzyl-2-deoxy-2*-C-*methyl-L-lyxose*
[109200-13-7]
$C_{20}H_{24}O_4$ 328.407
Syrup. $[\alpha]_D^{21}$ +8.2 (c, 1.19 in MeOH).

Tadano, K.I. *et al., J. Carbohydr. Chem.*, 1986, **5**, 411-422 (*dibenzyl*)

2-Deoxy-2-*C*-methylmannose D-307



$C_7H_{14}O_5$ 178.185

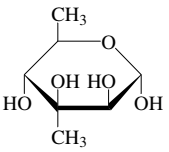
α-D-Pyranose-*form*

Allyl glycoside, 3,4,6-tribenzyl: Allyl 3,4,6-tri-O-*benzyl-2-deoxy-2*-C-*methyl-α-D-mannopyranoside*
[218445-37-5]
$C_{31}H_{36}O_5$ 488.622
$[\alpha]_D^{25}$ +51.5 (c, 1.0 in $CHCl_3$).

Beyer, J. *et al., J.A.C.S.*, 2000, **122**, 9575-9783 (*α-D-allyl pyr tribenyl*)

6-Deoxy-3-*C*-methylmannose, 9CI D-308

Evalose



α-Pyranose-*form*

$C_7H_{14}O_5$ 178.185

D-*form* [50886-66-3]
A component of Flambamycin, F-8 and Everninomicin B, E-33. Also a component of bacterial lipopolysaccharides.
Oil. $[\alpha]_D$ -4.7 → -5.2 (H_2O). $[\alpha]_D$ -7 (EtOH) (-4.9).

1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-6-deoxy-3*-C-*methyl-α-D-mannopyranoside*
$C_{15}H_{22}O_9$ 346.333
Mp 131-132°.

2-Me: 6-Deoxy-2-O,*3*-C-*dimethylmannose*
$C_8H_{16}O_5$ 192.211
Sugar component of Callipeltoside C. Abs. config. not yet certain (1998).

2,3,4-Tri-Me: 6-Deoxy-3-C-*methyl-2,3,4-tri*-O-*methyl-D-mannose*
[50929-68-5]
$C_{10}H_{20}O_5$ 220.265
Mp 115-120°. $[\alpha]_D$ +16 → +3 (c, 0.3 in MeOH). $[\alpha]_D$ +18.3 → +6.3 (c, 1.0 in MeOH).

α-D-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-3-C-*methyl-α-D-mannopyranoside. Methyl α-D-evaloside*
[78148-16-0]
$C_8H_{16}O_5$ 192.211
Mp 130-131° (122°). $[\alpha]_D$ +88.9 (MeOH) (+39.5). $[\alpha]_D$ +54 ($CHCl_3$).

Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6-deoxy-3*-C-*methyl-α-D-mannopyranoside*
$C_{14}H_{22}O_8$ 318.323
Mp 157°.

L-*form*

2,3,4-Tri-Me: 6-Deoxy-3-C-*methyl-2,3,4-tri*-O-*methyl-L-mannose. **Nogalose***
[30319-19-8]
$C_{10}H_{20}O_5$ 220.265
Sugar portion of Nogalamycin. Cryst. (EtOAc).
Mp 115-121°. $[\alpha]_D^{25}$ -10.6 (c, 1.0 in MeOH).

α-L-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-3-C-*methyl-α-L-mannopyranoside. Methyl α-L-evalopyranoside*
$C_8H_{16}O_5$ 192.211
Mp 128-131°. $[\alpha]_D^{20}$ -76.6 (c, 1 in MeOH). Formerly assigned β-config.

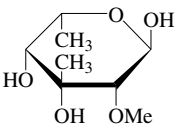
Me glycoside, 2,3,4-tri-Me: Methyl 6-deoxy-3-C-*methyl-2,3,4-tri*-O-*methyl-L-mannopyranoside. Methyl α-L-nogaloside*
$C_{11}H_{22}O_5$ 234.292
Mp 41-43°. $[\alpha]_D$ -48.4 (MeOH). $[\alpha]_D^{20}$ -51.6 (c, 0.83 in $CHCl_3$).

α-L-Furanose-*form*

*Me glycoside: Methyl 6-deoxy-3-*C*-methyl-α-L-mannofuranoside*
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D^{20}$ -98.6 (c, 1 in $CHCl_3$).
Wiley, P.F. *et al., J.O.C.*, 1971, **36**, 2670 (*Nogalose, cryst struct, abs config*)
Ganguly, A.K. *et al., Chem. Comm.*, 1973, 531 (*isol, struct*)
Ollis, W.D. *et al., Chem. Comm.*, 1974, 881, (*isol, struct, α-D-Me pyr tri-Ac*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1974, 1568 (*Nogalose, synth*)
Yoshimura, J. *et al., Chem. Lett.*, 1979, 1263 (*synth, bibl*)
Valente, L. *et al., Carbohydr. Res.*, 1981, **90**, 329 (*synth*)
Hong, N. *et al., Carbohydr. Res.*, 1981, **96**, 21 (*Nogalose, synth*)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1986, **155**, 252; 1989, **185**, 61 (*synth, cryst struct, Nogalose, α-L-Me pyr, α-L-Me fur*)
Klemer, A. *et al., J. Carbohydr. Chem.*, 1986, **5**, 67-76 (*α-L-pyr Me gly tri-Me*)
Parker, K.A. *et al., Carbohydr. Res.*, 1988, **172**, 319 (*Nogalose, synth*)
Zagar, C. *et al., Annalen*, 1992, 693 (*α-D-Me pyr*)

6-Deoxy-3-*C*-methyl-2-*O*-methyltaltose, 9CI D-309

Vinelose



α-L-Pyranose-*form*

$C_8H_{16}O_5$ 192.211

L-*form* [27208-98-6]
A constit. of *Acetobacter vinelandii*.
Syrup. $[\alpha]_D$ +13 (c, 0.7 in H_2O).

α-L-Pyranose-*form*

*1,4-Di-Ac: 1,4-Di-*O*-acetyl-6-deoxy-3-*C*-methyl-2-*O*-methyl-α-L-talopyranose*
[57865-96-0]
$C_{12}H_{20}O_7$ 276.286
Syrup. $[\alpha]_D^{23}$ -53.9 (c, 1.05 in MeOH).

β-L-Pyranose-*form*

*1,4-Di-Ac: 1,4-Di-*O*-acetyl-6-deoxy-3-*C*-methyl-2-*O*-methyl-β-L-talopyranose*
[57865-97-1]
$C_{12}H_{20}O_7$ 276.286
Needles. Mp 119-120°. $[\alpha]_D^{23}$ +9.8 (c, 0.55 in MeOH).

*Me glycoside: Methyl 6-deoxy-3-*C*-methyl-2-*O*-methyl-β-L-talopyranoside*
[78148-17-1]
$C_9H_{18}O_5$ 206.238
$[\alpha]_D$ +86 ($CHCl_3$).

α-L-Furanose-*form*

*1,5-Di-Ac: 1,5-Di-*O*-acetyl-6-deoxy-3-*C*-methyl-2-*O*-methyl-α-L-talofuranose*
$C_{12}H_{20}O_7$ 276.286
Syrup. $[\alpha]_D^{23}$ -25.4 (c, 1.05 in MeOH).

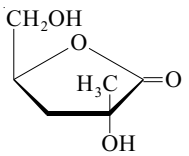
*Me glycoside: Methyl 6-deoxy-3-*C*-methyl-2-*O*-methyl-α-L-talofuranoside*
[55533-96-5]
$C_9H_{18}O_5$ 206.238
Syrup. $[\alpha]_D^{24}$ -15 (c, 1.34 in MeOH).

*Me glycoside, 3,5-dibenzyl: Methyl 3,5-di-*O*-benzyl-6-deoxy-3-*C*-methyl-2-*O*-methyl-α-L-talofuranoside*
[55533-94-3]
$C_{23}H_{30}O_5$ 386.487
$[\alpha]_D^{24}$ -3.4 (c, 1.34 in MeOH).

β-L-Furanose-*form*

*Me glycoside, 3,5-dibenzyl: Methyl 3,5-di-*O*-benzyl-6-deoxy-3-*C*-methyl-2-*O*-methyl-β-L-talofuranoside*
[55533-95-4]
$C_{23}H_{30}O_5$ 386.487
Syrup. $[\alpha]_D^{24}$ +66 (c, 1.11 in MeOH).
Funabashi, M. *et al., Carbohydr. Res.*, 1975, **44**, 275 (*L-form, config, synth, β-L-pyr 1,4-di-Ac, α-L-Me fur dibenzyl, β-L-Me fur dibenzyl, α-L-Me fur, α-L-fur 1,5-di-Ac, α-L-pyr 1,4-di-Ac*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1975, 1292 (*L-form, synth, α,β-L-Me fur*)
Eguchi, Y. *et al., J. Biol. Chem.*, 1977, **248**, 3341 (*biosynth*)
Barata, L.E.S. *et al., Carbohydr. Res.*, 1981, **90**, 326 (*L-form, synth, β-L-Me pyr*)
Klemer, A. *et al., J. Carbohydr. Chem.*, 1985, **4**, 205-213 (***synth***)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1988, **183**, 277 (*synth*)

3-Deoxy-2-*C*-methyl-*erythro*-1,4-pentonolactone D-310

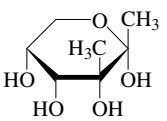


$C_6H_{10}O_4$ 146.143

D-*form* [134639-11-5]
Cryst. Mp 107-108°. $[\alpha]_D^{25}$ +49 (c, 1.1 in MeOH).

*Di-Ac: 2,5-Di-*O*-acetyl-3-deoxy-2-*C*-methyl-D-*erythro-*1,4-pentonolactone*
[111507-12-1]
$C_{10}H_{14}O_6$ 230.217
Syrup. $[\alpha]_D^{20}$ +64.2 (c, 1.4 in $CHCl_3$).
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1987, **41**, 13 (*D-di-Ac, pmr, cmr*)
Bertounesque, E. *et al., Synthesis*, 1991, 270, (*D-form, synth*)

1-Deoxy-3-*C*-methylpsicose D-311



α-D-Pyranose-*form*

$C_7H_{14}O_5$ 178.185

D-*form* [95015-56-8]
Syrup. $[\alpha]_D$ -12.5 (c, 1.5 in MeOH).

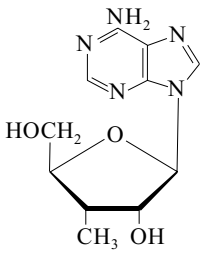
α-D-Furanose-*form*

*2,3-Isopropylidene: 1-Deoxy-2,3-*O*-isopropylidene-3-*C*-methyl-α-D-psicofuranose*
[95015-55-7]
$C_{10}H_{18}O_5$ 218.249
Syrup, cryst. on storage. Mp 88-89°.
$[\alpha]_D$ +12 (c, 1.4 in $CHCl_3$).

*2,3-Isopropylidene, 6-benzoyl: 6-O-Benzoyl-1-deoxy-2,3-*O*-isopropylidene-3-*C*-methyl-α-D-psicofuranose*
[95015-54-6]
$C_{17}H_{22}O_6$ 322.357
Syrup. $[\alpha]_D$ +9 (c, 1.1 in $CHCl_3$).
David, S. *et al., Chem. Comm.*, 1976, 747 (*synth*)
Cubero, I.I. *et al., Carbohydr. Res.*, 1984, **134**, 327 (*synth, pmr, cmr, derivs*)

9-(3-Deoxy-3-*C*-methylribofuranosyl)adenine D-312

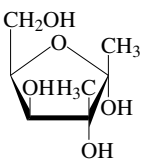
3′-Deoxy-3′-methyladenosine, 9CI, 8CI



$C_{11}H_{15}N_5O_3$ 265.271

β-D-*form* [26383-05-1]
Mp 231-232°. $[\alpha]_D^{22}$ -36 (c, 1.0 in H_2O).
λ_{max} 261 nm (ϵ 13 400) (H_2O).
Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 3941 (*synth, pmr*)
Cass, C.E. *et al., Biochim. Biophys. Acta*, 1973, **291**, 734
Rosowsky, A. *et al., J. Med. Chem.*, 1976, **19**, 1265 (*synth*)

1-Deoxy-3-*C*-methylsorbose D-313



α-D-Furanose-*form*

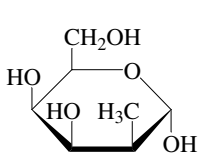
$C_7H_{14}O_5$ 178.185

D-*form* [94048-24-5]
Syrup. $[\alpha]_D$ +0.62 (c, 1.6 in H_2O).

α-D-Furanose-*form*

*2,3:4,6-Diisopropylidene: 1-Deoxy-2,3:4,6-di-*O*-isopropylidene-3-*C*-methyl-α-D-sorbofuranose*
[94048-21-2]
$C_{13}H_{22}O_5$ 258.314
Cryst. (hexane). Mp 54.5-55°. $[\alpha]_D$ -1.3 (c, 1.24 in $CHCl_3$).
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **134**, 39 (*synth*)

2-Deoxy-2-*C*-methyltalose D-314

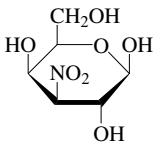


$C_7H_{14}O_5$ 178.185

α-D-Pyranose-*form*

*Me glycoside, tribenzyl: Methyl 3,4,6-tri-*O*-benzyl-2-deoxy-2-*C*-methyl-α-D-talopyranoside*
[218445-42-2]
$C_{29}H_{34}O_5$ 462.585
$[\alpha]_D^{25}$ +26.2 (c, 1.7 in $CHCl_3$).
Beyer, J. *et al., J.A.C.S.*, 2000, **122**, 9575-9583 (*α-D-Me pyr tribenzyl*)

3-Deoxy-3-nitrogalactose D-315



β-D-Pyranose-*form*

$C_6H_{11}NO_7$ 209.155

β-D-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-nitro-β-D-galactopyranoside
[14218-25-8]
$C_7H_{13}NO_7$ 223.182
Needles ($Me_2CO/CHCl_3$). Mp 87-90° Mp 131-132°. $[\alpha]_D$ +33 (c, 1 in H_2O). Mp dependent on rate of heating or drying stage.

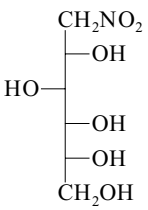
*Me glycoside, 4,6-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-3-nitro-β-D-galactopyranoside*
[3767-29-1]
$C_{14}H_{17}NO_7$ 311.291
Needles (EtOH). Mp 230-231° dec. $[\alpha]_D^{23}$ +24.8 (c, 1 in DMF).

β-L-Pyranose-*form*

*Me glycoside, 4,6-benzylidene: Methyl 4,6-*O*-benzylidene-3-deoxy-3-nitro-β-L-galactopyranoside*
$C_{14}H_{17}NO_7$ 311.291
Mp 231° dec. $[\alpha]_D^{23}$ -26.2 (c, 1 in DMF).
Baer, H.H. *et al., Can. J. Chem.*, 1965, **43**, 1829; 3074 (*D-Me gly benzylidene, L-Me gly benzylidene*)
Baer, H.H. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 245 (*synth*)

1-Deoxy-1-nitroglucitol D-316

6-Deoxy-6-nitrogulitol



D-*form*

$C_6H_{13}NO_7$ 211.171

D-*form*

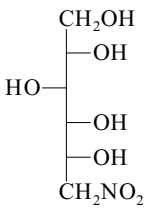
1-Deoxy-1-nitro-D-glucitol. 6-Deoxy-6-nitro-L-gulitol
[14199-88-3]
Cryst. (EtOH). Mp 107-108°. $[\alpha]_D^{25}$ -9.7 (c, 6.6 in H_2O).

L-*form*

1-Deoxy-1-nitro-L-glucitol. 6-Deoxy-6-nitro-D-gulitol
[69257-51-8]
Cryst. (EtOH). Mp 107-108°. $[\alpha]_D^{25}$ +9.5 (c, 6.7 in H_2O).
Sowden, J.C. *et al., J.A.C.S.*, 1947, **69**, 1963
Sowden, J.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 132 (*synth*)
Satoh, C. *et al., Carbohydr. Res.*, 1967, **5**, 140 (*D-form, cd, ord*)
Köll, P. *et al., Annalen*, 1991, 207 (*pmr*)

6-Deoxy-6-nitroglucitol D-317

1-Deoxy-1-nitrogulitol



D-*form*

$C_6H_{13}NO_7$ 211.171

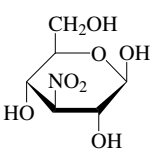
D-*form*

6-Deoxy-6-nitro-D-glucitol. 1-Deoxy-1-nitro-L-gulitol
[74183-68-9]
Needles and prisms (EtOAc). Mp 81-83° Mp 89-91° (dimorph).

*2,4-Benzylidene: 2,4-*O*-Benzylidene-6-deoxy-6-nitro-D-glucitol*
[78124-22-8]
$C_{13}H_{17}NO_7$ 299.28
Cryst. (EtOAc). Mp 192-194°. $[\alpha]_D^{25}$ +2.5 (c, 3.5 in EtOH).

L-*form* *6-Deoxy-6-nitro-L-glucitol. 1-Deoxy-1-nitro-D-gulitol*
[114612-66-7] No phys. props. reported.
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 137 (*benzylidene, synth*)
U.S. Pat., 1981, 4 262 032, (*Biospherics*); *CA*, **95**, 78771h (*synth*)
Köll, P. *et al., Annalen*, 1988, 685 (*L-form*)

3-Deoxy-3-nitroglucose D-318



β-D-Pyranose-*form*

$C_6H_{11}NO_7$ 209.155

D-*form* [42776-33-0]
Cryst. ($Me_2CO/CHCl_3$). Mp 176-177° dec. $[\alpha]_D^{25}$ +99.6 → +73.9 (equilib.) (c, 1.3 in H_2O).

*Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-deoxy-3-nitro-α-D-glucopyranose*
[28538-29-6]
$C_{14}H_{19}NO_{11}$ 377.304
Cryst. (EtOAc/petrol). Mp 112-113°. $[\alpha]_D^{25}$ +95.5 (c, 0.7 in 1,2-dichloroethane).

β-D-Pyranose-*form*

*2,4,6-Tri-Ac: 2,4,6-Tri-*O*-acetyl-3-deoxy-3-nitro-β-D-glucopyranose*
[28538-31-0]
$C_{12}H_{17}NO_{10}$ 335.267
Needles ($CHCl_3$/petrol). Mp 165°. $[\alpha]_D^{25}$ +9.6 → +70.5 (equilib.) (c, 1 in MeOH).

Me glycoside: Methyl 3-deoxy-3-nitro-β-D-glucopyranoside
$C_7H_{13}NO_7$ 223.182
Needle-shaped prisms (EtOAc/MeOH). Mp 204-205° dec. $[\alpha]_D$ -12 (c, 2 in H_2O).

*Me glycoside, 2,6-di-Ac: Methyl 2,6-di-*O*-acetyl-3-deoxy-3-nitro-β-D-glucopyranoside*
[28538-33-2]
$C_{11}H_{17}NO_9$ 307.257
Cryst. (H_2O). Mp 107-108°. $[\alpha]_D^{25}$ -45 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,4,6-tri-Ac: Methyl 2,4,6-tri-*O*-acetyl-3-deoxy-3-nitro-β-D-glucopyranoside*
[18604-35-8]
$C_{13}H_{19}NO_{10}$ 349.294
Cryst. (EtOH aq.). Mp 152-153°. $[\alpha]_D^{23}$ -23.5 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

*1,2-Isopropylidene, 5,6-di-Ac: 5,6-Di-*O*-acetyl-3-deoxy-1,2-*O*-isopropylidene-3-nitro-α-D-glucofuranose*
[42776-35-2]
$C_{13}H_{19}NO_9$ 333.294
Cryst. (Et_2O/petrol). Mp 79-80°. $[\alpha]_D^{20}$ +17 (c, 1.1 in $CHCl_3$).

*Diisopropylidene: 3-Deoxy-1,2:5,6-di-*O*-isopropylidene-3-nitro-α-D-glucofuranose*
[34379-42-5]
$C_{12}H_{19}NO_7$ 289.285
Cryst. Mp 61-62°. $[\alpha]_D^{20}$ +7.3 (c, 1 in $CHCl_3$).

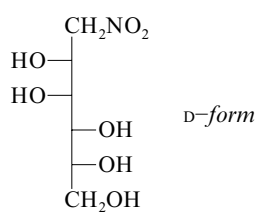
β-L-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-3-nitro-β-L-glucopyranoside
[4631-20-3]
$C_7H_{13}NO_7$ 223.182
Cryst. (EtOAc/EtOH). Mp 204-205° dec. $[\alpha]_D^{23}$ +12.1 (c, 1 in H_2O).

[4631-21-4, 28538-28-5]

Baer, H.H. *et al., Can. J. Chem.*, 1965, **43**, 3074 (*Me β-L-gly*)
Baer, H.H. *et al., Can. J. Chem.*, 1970, **48**, 1302 (*α-D-pyr-form, α-D-pyr tetra-Ac, β-D-tri-Ac, β-D-Me pyr di-Ac, β-D-Me pyr tri-Ac*)
Baer, H.H. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 245 (*Me β-D-gly*)
Takamoto, T. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 1532 (*α-D-fur diisopropylidene, α-D-fur isopropylidene di-Ac*)

1-Deoxy-1-nitromannitol D-319



D-*form*

$C_6H_{13}NO_7$ 211.171

L-*form*

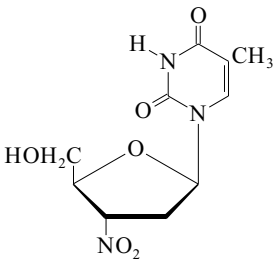
6-Deoxy-6-nitro-D-mannitol. 1-Deoxy-1-nitro-L-mannitol
[6027-42-5]
Cryst. (EtOH). Mp 133-134°. $[\alpha]_D^{25}$ +7 (c, 6.2 in H_2O). The name 6-deoxy-6-nitro-D-mannitol is preferred for this enantiomer according to the IUPAC special rules for carbohydrates.

Sowden, J.C. *et al., J.A.C.S.*, 1947, **69**, 1963 (*synth*)

Sowden, J.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 132 (*synth*)

3′-Deoxy-3′-nitrothymidine D-320

[151753-97-8]

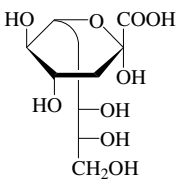


$C_{10}H_{13}N_3O_6$ 271.229
Mp 152-154°.

Huang, J.J. *et al., J. Het. Chem.*, 1995, **32**, 691 (*synth, pmr, cmr, uv*)

3-Deoxy-D-*glycero*-D-*galacto*-2-nonulosonic acid, 9CI D-321

Deaminated neuraminic acid. KDN
[22594-61-2]



α-Pyranose-*form*

$C_9H_{16}O_9$ 268.22
Isol. from polysialoglycoproteins of rainbow trout eggs. Constit. of *Klebsiella ozaenae* capsular polysaccharide antigen K4. Plays an important role in egg function by protecting the non reducing termini of polysialoglycoproteins from enzymatic attack.

α-Pyranose-*form* [124233-95-0]

Me glycoside, benzyl ester: [121409-15-2]
$C_{17}H_{24}O_9$ 372.371
Needles + $1H_2O$ (MeOH/Et_2O). Mp 97-99°. $[\alpha]_D^{27}$ -38.4 (c, 0.17 in MeOH).

Me glycoside, 4,5,7,8,9-penta-Ac, benzyl ester: [121409-14-1]
$C_{27}H_{34}O_{14}$ 582.557
Amorph. solid. $[\alpha]_D^{25}$ -24 (c, 1.0 in H_2O).

β-Pyranose-*form* [120104-31-6]

NH_4 salt: [112543-66-5]
Solid. $[\alpha]_D$ -42 (c, 0.8 in H_2O).

2,4,5,7,8,9-Hexa-Ac, Me ester:
[123843-50-5]
$C_{22}H_{30}O_{15}$ 534.47
Needles (Et_2O/hexane). $[\alpha]_D^{19}$ -20.4 (c, 0.71 in $CHCl_3$).

2,4,5,7,8,9-Hexa-Ac, benzyl ester:
[121409-12-9]
$C_{28}H_{34}O_{15}$ 610.568
Amorph. solid. $[\alpha]_D^{25}$ -17.4 (c, 1.0 in $CHCl_3$).

Me glycoside, Me ester: [78082-67-4]
$C_{11}H_{20}O_9$ 296.274
Oil. $[\alpha]_D$ -53 (H_2O).

Me glycoside, benzyl ester: [121409-16-3]
Amorph. solid + H_2O. $[\alpha]_D^{26}$ -37.9 (c, 0.33 in MeOH).

Inoue, Y. *et al., J. Biol. Chem.*, 1986, **261**, 11550 (*isol, glc, ms, pmr*)

Auge, C. *et al., Chem. Comm.*, 1987, 859 (*synth, cmr, pmr*)

Nakamura, M. *et al., Chem. Pharm. Bull.*, 1988, **36**, 4807; 1989, **37**, 2204 (*isol, hplc, pmr, deriv*)

Knirel, Y.A. *et al., Carbohydr. Res.*, 1989, **188**, 145 (*constit, pmr, cmr, deriv*)

Schreiner, E. *et al., Annalen*, 1990, 581, (*β-pyr hexa-Ac Me ester*)

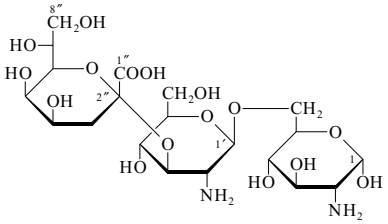
Iwasaki, M. *et al., J. Biol. Chem.*, 1990, **265**, 2596 (*isol*)

Song, Yu. *et al., J. Biol. Chem.*, 1991, 21929 (*isol, struct*)

Banwell, M. *et al., Chem. Comm.*, 1999, 1189-1190 (*synth*)

Banwell, M.G. *et al., Org. Lett.*, 2004, **6**, 2737-2740 (*synth*)

3-Deoxy-α-D-*manno*-2-octulopyranosonosyl-(2 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose, 9CI D-322



$C_{20}H_{36}N_2O_{16}$ 560.508

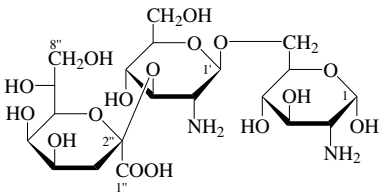
α-Pyranose-*form*

N,N′-*Di-Ac:* [92052-26-1]
$C_{24}H_{40}N_2O_{18}$ 644.583
Amorph. solid (as ammonium salt). $[\alpha]_D^{20}$ +16 (c, 0.5 in H_2O). CAS no. refers to ammonium salt.

[92052-28-3]

Paulsen, H. *et al., Annalen*, 1984, 1288, (*di-N-Ac, pmr*)

3-Deoxy-β-D-*manno*-2-octulopyranosonosyl-(2 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose, 9CI D-323

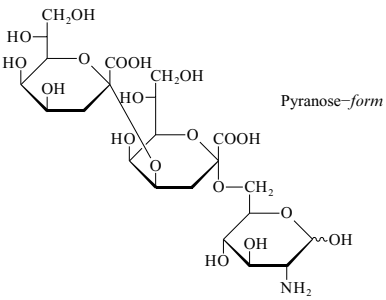


α-Pyranose-*form*

$C_{20}H_{36}N_2O_{16}$ 560.508
Obt. as a complex deriv.

Paulsen, H. *et al., Annalen*, 1984, 1288 (*synth, pmr*)

3-Deoxy-α-D-*manno*-2-octulopyranosonosyl-(2 →4)-3-deoxy-α-D-*manno*-2-octulopyranosonosyl-(2 →6)-2-amino-2-deoxy-D-glucose, 9CI D-324

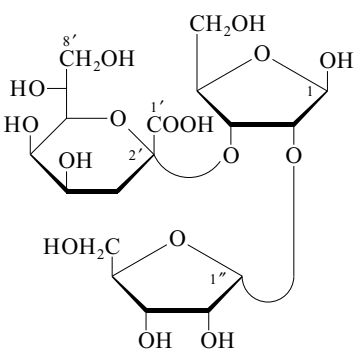


Pyranose–*form*

$C_{22}H_{37}NO_{19}$ 619.53
Constit. of the tetrasaccharide isol. from the R-mutant of *Salmonella minnesota*. Syrup. $[\alpha]_D$ +82 (c, 1.3 in H_2O).

Paulsen, H. *et al., Tet. Lett.*, 1986, **27**, 1135 (*synth, pmr, cmr*)

3-Deoxy-α-D-*manno*-2-octulopyranosonosyl-(2 →3)-[α-D-ribofuranosyl-(1 →2)]-D-ribose, 9CI D-325



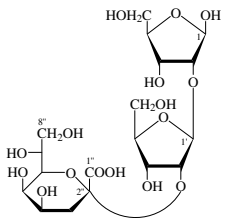
$C_{18}H_{30}O_{16}$ 502.425

β-Furanose-*form*

Me glycoside, 2″,3″,5,5″-tetrabenzoyl, 4′,5′,7′,8′-tetra-Ac, Me ester:
[101142-00-1]

$C_{56}H_{58}O_{24}$ 1115.06
Syrup. $[\alpha]_D^{20}$ +91.1 (c, 1.3 in $CHCl_3$).
Kosma, P. *et al., Carbohydr. Res.*, 1985, **141**, 239 (*β-Me fur Me ester deriv, pmr*)

3-Deoxy-α-D-*manno*-2-octulopyranosonosyl-(2→2)-β-D-ribofuranosyl-(1→2)-D-ribose D-326



β-Furanose-*form*

$C_{18}H_{30}O_{16}$ 502.425
Repeating unit of linear and branched structures of the capsular polysaccharide from *Esherichia coli* LP 1092.

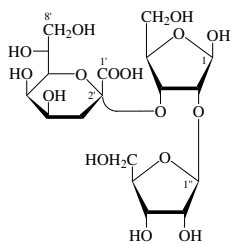
β-Furanose-*form*

Me glycoside: [101024-44-6]
$C_{19}H_{32}O_{16}$ 516.452
Glass (as Na salt). $[\alpha]_D^{20}$ +16.1 (c, 1.08 in H_2O). CAS no. refers to Na salt.

Me glycoside, 3-benzyl, 5,5′-dibenzoyl, 4″,5″,7″,8″-tetra-Ac, Me ester: [101024-41-3]
$C_{49}H_{56}O_{22}$ 996.968
Syrup. $[\alpha]_D^{20}$ +92.7 (c, 0.85 in $CHCl_3$).

Me glycoside, 5,5′-dibenzoyl, 3′,4″,5″,7″,8″-penta-Ac, Me ester: [101024-43-5]
$C_{44}H_{52}O_{23}$ 948.881
Syrup. $[\alpha]_D^{20}$ +14.3 (c, 0.8 in $CHCl_3$).
Kosma, P. *et al., Carbohydr. Res.*, 1985, **141**, 239 (*β-Me fur, β-Me fur Me esters*)

3-Deoxy-α-D-*manno*-2-octulopyranosonosyl-(2→3)-[β-D-ribofuranosyl-(1→2)]-D-ribose, 9CI D-327



β-Furanose-*form*

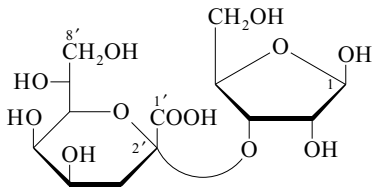
$C_{18}H_{30}O_{16}$ 502.425
Constit. of lipopolysaccharide of gram negative bacteria, e.g. capsular polysaccharide of *E. coli* strain LP 1092.

β-Furanose-*form*

Me glycoside: [101024-36-6]
$C_{19}H_{32}O_{16}$ 516.452
Glass (as Na salt). $[\alpha]_D^{20}$ +27.5 (c, 0.99 in H_2O). CAS no. refers to Na salt.

Me glycoside, 2″,3″,5,5″-tetrabenzoyl, 4′,5′,7′,8′-tetra-Ac, Me ester: [101024-35-5]
$C_{56}H_{58}O_{24}$ 1115.06
Syrup. $[\alpha]_D^{20}$ +46 (c, 0.7 in $CHCl_3$).
Jennings, H.J. *et al., Carbohydr. Res.*, 1982, **105**, 45 (*occur*)
Neszmelyi, A. *et al., Chem. Comm.*, 1982, 1017 (*cmr*)
Kosma, P. *et al., Carbohydr. Res.*, 1985, **141**, 239 (*β-Me fur derivs, pmr, occur*)

3-Deoxy-α-D-*manno*-2-octulopyranosonosyl-(2→3)-D-ribose, 9CI D-328



$C_{13}H_{22}O_{12}$ 370.31

β-Pyranose-*form*

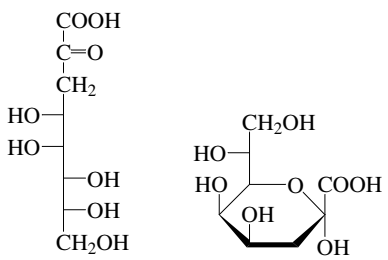
Me glycoside: [101024-33-3]
$C_{14}H_{24}O_{12}$ 384.336
Glass (as Na salt). $[\alpha]_D^{20}$ +35.8 (c, 1.7 in H_2O). CAS no. refers to Na salt.

Me glycoside, 5-benzoyl, 4′,5′,7′,8′-tetra-Ac, Me ester: [101024-32-2]
$C_{30}H_{38}O_{17}$ 670.62
Syrup. $[\alpha]_D^{20}$ +47.9 (c, 1.1 in $CHCl_3$).

Me glycoside, 2-benzyl, 5-benzoyl, 4′,5′,7′,8′-tetra-Ac, Me ester: [101024-31-1]
$C_{37}H_{44}O_{17}$ 760.744
Syrup. $[\alpha]_D^{20}$ +59.2 (c, 0.94 in $CHCl_3$).
Kosma, P. *et al., Carbohydr. Res.*, 1985, **141**, 239 (*β-Me pyr, β-Me pyr Me esters, pmr*)

3-Deoxy-*manno*-oct-2-ulosonic acid, 9CI D-329

KDO
[10149-14-1]
[1069-03-0]



D-*form* α-D-Pyranose-*form*

$C_8H_{14}O_8$ 238.194

D-*form* [20595-77-1]
Component of the polysaccharides of gram-negative bacteria. Also found in the cell wall polysaccharides of higher plants. Mp 125-126° (as NH_4 salt). $[\alpha]_D^{27}$ +41.3 (c, 1.9 in H_2O). CAS no. refers to NH_4 salt.

8-Phosphate: [61302-28-1]
$C_8H_{15}O_{11}P$ 318.174
$[\alpha]_D^{20}$ +28 (c, 1 in H_2O) (as tri-Li salt).

1,4-Lactone: 3-Deoxy-D-manno-oct-2-enono-1,4-lactone. Methyl 3-deoxy-D-manno-oct-2-ulono-1,4-lactone
[130948-52-6]

[20603-29-6]
$C_8H_{12}O_7$ 220.179
Mp 192-194°. $[\alpha]_D^{24}$ +31.8 (c, 1.4 in H_2O).

Penta-Ac, Me ester: Methyl 4,5,6,7,8-penta-O-acetyl-3-deoxy-D-manno-oct-2-ulopyranosonate
[66053-62-1]
$C_{19}H_{26}O_{13}$ 462.407
Cryst. (EtOAc/hexane). Mp 152-153°. $[\alpha]_D^{23}$ +97 (c, 0.9 in MeOH).

Me glycoside, 4,5,7,8-tetrabenzoyl, Me ester: Methyl (methyl 4,5,7,8-tetra-O-benzoyl-3-deoxy-D-manno-oct-2-ulopyranosid)onate
[73154-90-2]
$C_{38}H_{34}O_{12}$ 682.679
Cryst. (EtOAc/hexane). Mp 169°. $[\alpha]_D^{20}$ -36 (c, 1.0 in CH_2Cl_2).

α-D-Pyranose-*form*

2,4,5,7,8-Penta-Ac: 2,4,5,7,8-Penta-O-acetyl-3-deoxy-α-D-manno-oct-2-ulosonic acid
[73508-80-2]
$C_{18}H_{24}O_{13}$ 448.38
Mp 155-160°. $[\alpha]_D^{20}$ +114 (c, 0.8 in $CHCl_3$). Incorr. descr. in CAS as tetra-Ac.

2,4,5,7,8-Penta-Ac, Me ester: Methyl 2,4,5,7,8-penta-O-acetyl-3-deoxy-α-D-manno-2-octulopyranosonate
[73650-00-7]
$C_{19}H_{26}O_{13}$ 462.407
Cryst. (EtOH). Mp 155-158°. $[\alpha]_D^{20}$ +87.1 (c, 0.81 in $CHCl_3$).

Me glycoside: Methyl 3-deoxy-α-D-manno-oct-2-ulopyranosidonic acid
[66053-65-4]
$C_9H_{16}O_8$ 252.221
$[\alpha]_D^{23}$ +79 (c, 0.5 in H_2O).

Me glycoside, 4,5,7,8-tetra-Ac, Me ester: Methyl (methyl 4,5,7,8-tetra-O-acetyl-3-deoxy-α-D-manno-oct-2-ulopyranosid)onate
[73650-02-9]

[73177-02-3]
$C_{18}H_{26}O_{12}$ 434.396
Cryst. (Et_2O/petrol). Mp 110°. $[\alpha]_D^{20}$ +76.8 (c, 0.6 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 3-deoxy-β-D-manno-oct-2-ulopyranosidonic acid
[73610-18-1]
$C_9H_{16}O_8$ 252.221
Mp 143-145° (as NH_4 salt). $[\alpha]_D^{23}$ +47 (c, 2 in H_2O). CAS no. refers to NH_4 salt.

Me glycoside, 4,5,7,8-tetra-Ac, Me ester: Methyl (methyl 4,5,7,8-tetra-O-acetyl-3-deoxy-β-D-manno-oct-2-ulopyranosid)onate
[73650-01-8]
$C_{18}H_{26}O_{12}$ 434.396
$[\alpha]_D^{20}$ +67.8 (c, 1.1 in $CHCl_3$).

D-Furanose-*form*

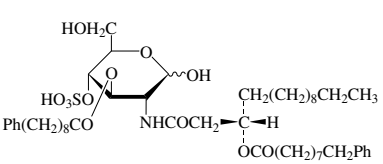
*2,4,6,7,8-Penta-Ac, Me ester: Methyl (2,4,6,7,8-penta-*O*-acetyl-3-deoxy-D-*manno*-oct-2-ulofuranosid)onate*
[73154-87-7]
$C_{19}H_{26}O_{13}$ 462.407
Cryst. (Et_2O/hexane). Mp 123-125°.
$[\alpha]_D^{20}$ +4 (c, 1 in MeOH).

*Me glycoside, 4,6,7,8-tetrabenzoyl, Me ester: Methyl (methyl 4,6,7,8-tetra-*O*-benzoyl-3-deoxy-D-manno-oct-2-ulofuranosid)onate*
[73154-89-9]
$C_{38}H_{34}O_{12}$ 682.679
Syrup. $[\alpha]_D^{20}$ +13 (c, 1 in CH_2Cl_2).

Hershberger, C. *et al., J. Biol. Chem.*, 1968, **243**, 1578; 1585 (*synth*)
Charon, D. *et al., J.C.S. Perkin 1*, 1976, 1628 (*phosphate*)
Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 44 (*synth*)
Bhattacharjee, A.K. *et al., Biochemistry*, 1978, **17**, 645 (*pmr*)
Cherniak, R. *et al., Carbohydr. Res.*, 1979, **75**, 39-49 (*cmr, equilib*)
Charon, D. *et al., J.C.S. Perkin 1*, 1979, 2369 (*Me ester pyr penta-Ac, Me ester fur penta-Ac, Me ester Me-pyr tetrabenzoyl, Me ester Me-fur tetrabenzoyl*)
Unger, F.M. *et al., Carbohydr. Res.*, 1980, **80**, 191 (*synth, α-D-penta-Ac derivs, β-D-Me pyr penta-Ac Me ester, β-D-Me pyr*)
Unger, F.M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **38**, 324 (*rev*)
Kratky, C. *et al., Carbohydr. Res.*, 1981, **92**, 299 (*cryst struct*)
Collins, P.M. *et al., Chem. Comm.*, 1981, 1139 (*synth*)
Schmidt, R.R. *et al., Angew. Chem., Int. Ed.*, 1984, **23**, 430 (*synth*)
York, S. *et al., Carbohydr. Res.*, 1985, **138**, 109 (*occur*)
Danishefsky, S.J. *et al., J.A.C.S.*, 1985, **107**, 1280 (*±-form*)
Fesik, S.W. *et al., Carbohydr. Res.*, 1986, **153**, 136 (*equilib*)
Birnbaum, G. *et al., J. Carbohydr. Chem.*, 1987, **6**, 17-39 (*cryst struct, pmr, glycoside*)
Itoh, H. *et al., Bull. Chem. Soc. Jpn.*, 1988, **61**, 3356 (*synth, lactone*)
Horito, S. *et al., J. Carbohydr. Chem.*, 1989, **8**, (*synth*)
Braeuer, N. *et al., Eur. J. Org. Chem.*, 1998, 2729-2732 (*synth, bibl*)
Burke, S.D. *et al., Org. Lett.*, 1999, **1**, 71-74 (*synth*)
Mlynarski, J. *et al., Org. Lett.*, 1999, **1**, 1709-1711 (*synth*)
Barco, A. *et al., Tetrahedron*, 2002, **58**, 8553-8558 (***synth***)

2-Deoxy-2-[[1-oxo-3-[(1-oxo-9-phenylnonyl)oxy]tetradecyl]amino]-D-glucose, 3-benzenenonanoate 4-(hydrogen sulfate), 9CI D-330

ONO 4007



$C_{50}H_{79}NO_{12}S$ 918.24
Antineoplastic agent. Immunomodulator. Analogue of Lipid A. Used as the Na salt.

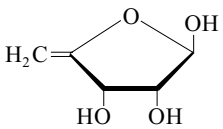
(*S*)-*form* [111250-67-0]

Na salt: [152646-95-2]
Cryst. (EtOH). Mp 149-150°.

[111250-71-6]

Eur. Pat., 1987, 226 381, (*Ono*); *CA*, **107**, 237216r (*synth, isomers, pharmacol*)
Eur. Pat., 1993, 553 786, (*Ono*); *CA*, **120**, 116838e (*Na salt, synth, pharmacol*)
Hattori, Y. *et al., Eur. J. Pharmacol.*, 1995, **291**, 83-90 (*pharmacol*)
Matsumoto, N. *et al., J. Pharmacol. Exp. Ther.*, 1998, **284**, 189-195 (*pharmacol*)
de Bono, J.S. *et al., Clin. Cancer Res.*, 2000, **6**, 397-405 (*pharmacol*)

5-Deoxy-*erythro*-pent-4-enofuranose D-331



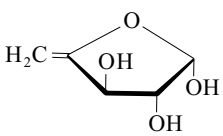
$C_6H_{10}O_4$ 146.143

β-D-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 5-deoxy-2,3-*O*-isopropylidene-β-D-*erythro*-pent-4-enofuranoside, 8CI*
[6991-65-7]
$C_9H_{14}O_4$ 186.207
Syrup. Bp_8 53-60°.

Hough, L. *et al., Chem. Comm.*, 1966, 173 (*synth*)
Hough, L. *et al., Adv. Chem. Ser.*, 1968, **74**, 120 (*rev*)
Inokawa, S. *et al., Carbohydr. Res.*, 1973, **30**, 127 (*synth, pmr*)

5-Deoxy-*threo*-pent-4-enofuranose D-332



$C_5H_8O_4$ 132.116

β-L-*form*

*1,2-*O*-Isopropylidene, 3-Ac: 3-*O*-Acetyl-5-deoxy-1,2-*O*-isopropylidene-β-L-*threo*-pent-4-enofuranose*
[6983-39-7]
$C_{10}H_{14}O_5$ 214.218
Mp 31-33°.

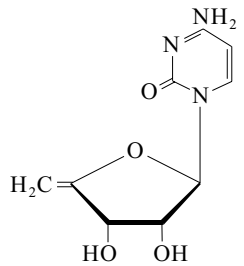
*1,2-*O*-Isopropylidene, 3-benzoyl: 3-*O*-Benzoyl-5-deoxy-1,2-*O*-isopropylidene-β-L-*threo*-pent-4-enofuranose*
[6983-41-1]
$C_{15}H_{16}O_5$ 276.288
Mp 52-54°.

*1,2-*O*-Isopropylidene, 3-*O*-tetrahydropyranyl: 5-Deoxy-1,2-*O*-isopropylidene-3-*O*-tetrahydropyranyl-β-L-*threo*-pent-4-enofuranose*
[33156-06-8]
$[\alpha]_D^{25}$ +18.3 (c, 0.54 in $CHCl_3$).

Hough, L. *et al., Chem. Comm.*, 1966, 173
Kiss, J. *et al., Helv. Chim. Acta*, 1975, **58**, 311

1-(5-Deoxy-*erythro*-pent-4-enofuranosyl)cytosine D-333

4′,5′-Didehydro-5′-deoxycytidine, 9CI



$C_9H_{11}N_3O_4$ 225.204

β-D-*form* [52523-42-9]
Mp 108-109.5° (pyridine solvate). λ_{max} 270, 263, 257, 251 nm (ε 9 300, 10 500, 11 000, 10 700) (alkaline MeOH).

exo-*2′,3′-*O*-Anisylidene: (*R*)-4′,5′-Didehydro-5′-deoxy-2′,3′-*O*-[(methoxyphenyl)-methylene]cytidine, 9CI*
[53166-60-2]
Mp 206-208°.

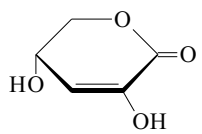
exo-*2′,3′-*O*-Anisylidene,* N*-Ac:* Mp 233-235°.

exo-*2′,3′-*O*-Anisylidene,* N*-benzoyl:* Mp 237-238.5°.

endo-*2′,3′-*O*-Anisylidene,* N*-benzoyl:* Mp 222-223.5°.

Verheyden, J.P.H. *et al., J.O.C.*, 1974, **39**, 3573 (*synth*)
Sasaki, T. *et al., J.O.C.*, 1975, **40**, 106 (*synth, pmr*)

3-Deoxy-*glycero*-pent-2-enono-1,5-lactone D-334



$C_5H_6O_4$ 130.1
Unisolated enol.

D-*form*

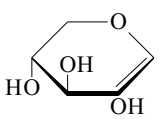
(S)-form

*Dibenzoyl: 2,4-Di-*O*-benzoylpent-2-enono-1,5-lactone*
[84679-46-9]
$C_{19}H_{14}O_6$ 338.316
Cryst. (EtOH). Mp 134-135°. $[\alpha]_D^{20}$ +79 (c, 1 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Annalen*, 1989, 1153 (*synth, pmr*)

1-Deoxy-*threo*-pent-1-enopyranose D-335

*1,5-Anhydro-*threo*-pent-1-enitol. 2-Hydroxyxylal*



$C_5H_8O_4$ 132.116
Unisolated enol.

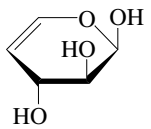
D-*form*

2,3,4-Tri-Ac: 2,3,4-Tri-O-*acetyl-1-deoxy-2-hydroxy-D*-threo-*pent-1-enopyranose*
$C_{11}H_{14}O_7$ 258.227
Mp 81-82°. $[\alpha]_D$ -280 ($CHCl_3$).

2,3,4-Tribenzoyl: 2,3,4-Tri-O-*benzoyl-1-deoxy-2-hydroxy-D*-threo-*pent-1-enopyranose*
$C_{26}H_{20}O_7$ 444.44
Mp 128-130°. $[\alpha]_D$ -290 ($CHCl_3$).

Ferrier, R.J. *et al., J.C.S.(C)*, 1966, 2339, (*tri-Ac*)

4-Deoxy-*threo*-pent-4-enopyranose D-336



β-D-*form*

$C_5H_8O_4$ 132.116

β-D-*form*

1,2-O-*Isopropylidene:* [60885-01-0]
$C_8H_{12}O_4$ 172.18
Syrup. $Bp_{0.1}$ 130° (bath). $[\alpha]_D^{20}$ -176.7 (c, 0.5 in $CHCl_3$).

1,2-O-*Isopropylidene, 3-Ac:*
$C_{10}H_{14}O_5$ 214.218
Syrup. $Bp_{0.08}$ 110° (bath). $[\alpha]_D^{20}$ -166.5 (c, 0.23 in $CHCl_3$).

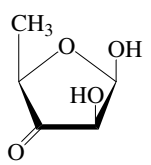
1,2-O-*Isopropylidene, 3-(4-nitrobenzoyl):*
Cryst. (Et_2O). Mp 152-153°. $[\alpha]_D^{20}$ -340.4 (c, 1.1 in $CHCl_3$).

β-L-*form*

1,2-O-*Isopropylidene:* [77852-81-4]
Syrup. $[\alpha]_D^{20}$ +183 (c, 1.1 in $CHCl_3$).

Klemer, A. *et al., Chem. Ber.*, 1976, **109**, 2849; 1981, **114**, 1192 (*synth, pmr, ms*)

5-Deoxy-*threo*-pentofuranos-3-ulose D-337



β-D-*form*

$C_5H_8O_4$ 132.116

β-D-*form*

1,2-O-*Isopropylidene: 5-Deoxy-1,2*-O-*isopropylidene-β-D*-threo-*pentofuranos-3-ulose*
[35827-71-5]
$C_8H_{12}O_4$ 172.18
$[\alpha]_D^{24}$ -26.3 (c, 1.8 in $CHCl_3$).

1,2-O-*Isopropylidene, oxime:*
$C_8H_{13}NO_4$ 187.195
Cryst. (Et_2O). Mp 98-102°. $[\alpha]_D^{18}$ +20.9 (c, 2.0 in EtOH).

β-L-*form*

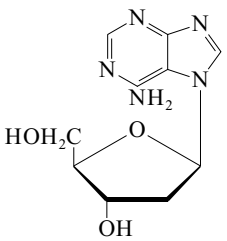
1,2-O-*Isopropylidene: 5-Deoxy-1,2*-O-*isopropylidene-β-L*-threo-*pentofuranos-3-ulose*
[37111-48-1]
$C_8H_{12}O_4$ 172.18
$[\alpha]_D$ +76 (c, 1 in $CHCl_3$).

1,2-O-*Isopropylidene, oxime:* Mp 104-106°. $[\alpha]_D$ -10.

Dyer, J.R. *et al., J.A.C.S.*, 1965, **87**, 654, (*β-L-deoxy isopropylidene*)
Paulsen, H. *et al., Chem. Ber.*, 1972, **105**, 1978 (*β-L-deoxy isopropylidene*)
Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1972, **55**, 613; 2286 (*β-D-deoxy isopropylidene, β-D-deoxy isopropylidene oxime*)

7-(2-Deoxy-*erythro*-pentofuranosyl)adenine D-338

7-(2-Deoxy-erythro-*pentofuranosyl)-7*H-*purin-6-amine. 6-Amino-7-(2-deoxy*-erythro-*pentofuranosyl)purine*



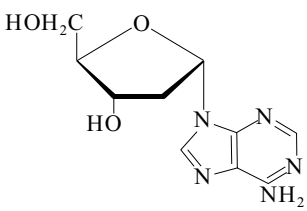
$C_{10}H_{13}N_5O_3$ 251.244

β-D-*form* [148171-35-1]
Shows reverse Watson-Crick base pairing behaviour.
Cryst. (MeOH). Mp 187°. Labile.

Seela, F. *et al., Helv. Chim. Acta*, 1994, **77**, 597 (*synth, uv, pmr, cmr*)

9-(2-Deoxy-*erythro*-pentofuranosyl)adenine D-339

*9-(2-Deoxypentofuranosyl)-9*H-*purin-6-amine, 9CI*



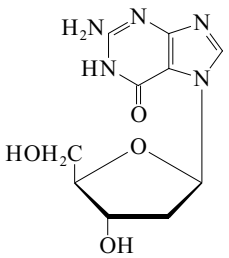
$C_{10}H_{13}N_5O_3$ 251.244
α-D-form shown.

α-D-*form*
Mp 209-211°. $[\alpha]_D^{20}$ +71 (c, 0.54 in H_2O).
λ_{max} 260 nm (ϵ 16 290) (H_2O).

α-L-*form* [14426-54-1]
Mp 204-205°. $[\alpha]_D^{21}$ -70.8 (c, 1 in H_2O).
For β-D-form see 2′-Deoxyadenosine, D-28.

Pedersen, C. *et al., J.A.C.S.*, 1960, **82**, 5210 (*synth*)
Kuszmann, J. *et al., Chem. Ber.*, 1963, **96**, 2327 (*synth*)
Robins, M.J. *et al., J.O.C.*, 1970, **35**, 636; 1974, **39**, 113 (*synth, pmr*)
Schmidt, R.R. *et al., Chem. Ber.*, 1973, **106**, 1256 (*synth*)
Wilson, M.S. *et al., J.A.C.S.*, 1975, **97**, 3436 (*ms*)

N^7-(2-Deoxy-*erythro*-pentofuranosyl)guanine D-340

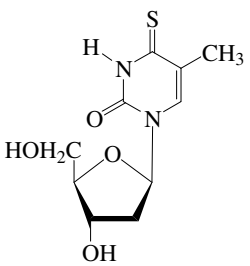


$C_{10}H_{13}N_5O_4$ 267.244

β-D-*form*
Regioisomer of 2′-Deoxyribofuranosylguanine, D-360. Forms oligonucleotides capable of base-pairing with cytosine.
Pale yellow solid.

Seela, F. *et al., Helv. Chim. Acta*, 1996, **79**, 477 (*synth, uv, pmr*)

1-(2-Deoxypentofuranosyl)-4-thiothymidine D-341



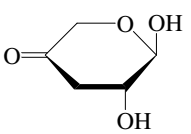
$C_{10}H_{14}N_2O_4S$ 258.298

β-D-*erythro*-*form*

2-Deoxy-4-thiothymine
[7236-57-9]
Cryst. Mp 125-127°.

Fox, J.J. *et al., J.A.C.S.*, 1959, **81**, 178 (*synth*)
Scheit, K.-H. *et al., Chem. Ber.*, 1968, **101**, 1141 (*synth*)
Palamino, E. *et al., J. Med. Chem.*, 1990, **33**, 258 (*synth, pmr*)

3-Deoxy-*glycero*-pentopyranos-4-ulose D-342



β-D-*form*

$C_5H_8O_4$ 132.116

β-D-*form*

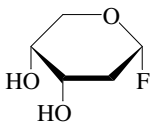
*Me glycoside: Methyl 3-deoxy-β-D-*glycero-*pentopyranosid-4-ulose. Dihydro-5-hydroxy-6-methoxy-2*H-*pyran-3(4*H*)-one*
[55533-73-8]

$C_6H_{10}O_4$ 146.143
$[\alpha]_D$ -152.1
(c, 0.6 in $CHCl_3$).

β-L-*form*

*Me glycoside: Methyl 3-deoxy-β-L-*glycero-*pentopyranosid-4-ulose*
[60894-72-6]
$C_6H_{10}O_4$ 146.143
$[\alpha]_D$ +153 (c, 0.6 in $CHCl_3$).
Cossy, J. *et al., Carbohydr. Res.*, 1994, **259**, 141 (*β-D-Me pyr, β-L-Me pyr, pmr, cmr*)

2-Deoxy-*erythro*-pentopyranosyl fluoride D-343



α-D-*form*

$C_5H_9FO_3$ 136.123

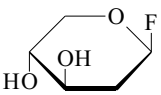
α-D-*form*

Dibenzoyl: [34992-93-3]
$C_{19}H_{17}FO_5$ 344.339
Cryst. (Et_2O/pentane). Mp 112° dec.
$[\alpha]_D^{23}$ +59.2 (c, 0.8 in $CHCl_3$).

β-D-*form*

Dibenzoyl: [34992-94-4]
Cryst. (Et_2O/pentane). Mp 77-78.5°.
$[\alpha]_D^{23}$ -199 (c, 1.7 in $CHCl_3$).
Bock, K. *et al., Acta Chem. Scand.*, 1971, **25**, 2757 (*α-D-dibenzoyl, β-D-dibenzoyl, pmr*)

2-Deoxy-*threo*-pentopyranosyl fluoride D-344



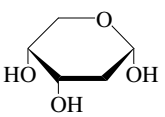
$C_5H_9FO_3$ 136.123

β-D-*form*

Dibenzoyl: [34992-95-5]
$C_{19}H_{17}FO_5$ 344.339
Cryst. Mp 126-127° dec. $[\alpha]_D^{23}$ -146
(c, 1.8 in $CHCl_3$).
Bock, K. *et al., Acta Chem. Scand.*, 1971, **25**, 2757 (*dibenzoyl, pmr*)

2-Deoxy-*erythro*-pentose D-345

2-Deoxyribose, 9CI, 8CI. 2-Deoxyarabinose. Desoxyribose. Ribodesose. Thyminose. de-Rib
[1724-14-7]



α-D-Pyranose-*form*

$C_5H_{10}O_4$ 134.132
An aq. soln. at 31° contains 40% α-pyr, 35% β-pyr, 13% α-fur, 12% β-fur.

D-*form* [533-67-5]
Constit. of many nucleic acids. Present in all animal and plant tissues as component of Deoxyribonucleic acid, D-361.
Cryst. (EtOAc).
Mp 91° Mp 96-98°. $[\alpha]_D$ -57 (c, 1.1 in H_2O) (-53.8). pK_{a1} 12.61 (25°). Crystallises as β-anomer.
► SB7230000

4-Nitrophenylhydrazone: Mp 160°.
$[\alpha]_D^{14}$ -11.1 (c, 0.09 in EtOH).

*1,3,4-Tri-Ac: 1,3,4-Tri-*O*-acetyl-2-deoxy-D-*erythro*-pentose*
$C_{11}H_{16}O_7$ 260.243
Needles (MeOH). Mp 98°. $[\alpha]_D^{23}$ -171.8
(c, 0.56 in $CHCl_3$).

*3,4,5-Tri-Ac: 3,4,5-Tri-*O*-acetyl-2-deoxy-D-*erythro*-pentose*
$C_{11}H_{16}O_7$ 260.243
$Bp_{0.0001}$ 105° (bath). $[\alpha]_D^{21}$ +3.4
(c, 4.57 in Py).

*1,3,4-Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-2-deoxy-D-*ribo*-pentose*
$C_{26}H_{22}O_7$ 446.456
Nodules (EtOH). Mp 127°. $[\alpha]_D^{23}$ -65
(c, 1.02 in $CHCl_3$).

*3,4,5-Tribenzoyl: 3,4,5-Tri-*O*-benzoyl-2-deoxy-D-*erythro*-pentose*
$C_{26}H_{22}O_7$ 446.456
Needles (EtOAc/petrol). Mp 118-119°.
$[\alpha]_D^{18}$ -2.8 (c, 1.44 in Py).

Di-Et dithioacetal:
$C_9H_{20}O_3S_2$ 240.387
Oil. $[\alpha]_D$ -15 (c, 1.4 in EtOH).

*3,5-*O*-Benzylidene, di-Et dithioacetal:*
$C_{16}H_{24}O_3S_2$ 328.496
Sl. yellow syrup. $[\alpha]_D^{25}$ -52 (c, 3.5 in EtOH).

*5-Trityl: 2-Deoxy-5-*O*-trityl-D-*erythro*-pentose*
Cryst. (C_6H_6/pentane). Mp 108-110°.
$[\alpha]_D^{20}$ +39.6 → +12.4 (15h, c, 3.9 in Py).

5-Phosphate:
$C_5H_{11}O_7P$ 214.111
Isol. from *E. coli* extracts.
$[\alpha]_D^{20}$ +16.51 (H_2O) (as Ba salt).

α-D-Pyranose-*form* [36792-85-5]

*1,3,4-Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-2-deoxy-α-D-*erythro*-pentopyranose*
[17685-01-7]
$C_{26}H_{22}O_7$ 446.456
Cryst. (MeOH). Mp 151-152°. $[\alpha]_D^{20}$
+41.6 (c, 0.83 in $CHCl_3$).

*Me glycoside: Methyl 2-deoxy-α-D-*erythro*-pentopyranoside*
$C_6H_{12}O_4$ 148.158
Mp 95°. $[\alpha]_D^{20}$ +40.1 (H_2O).

Me glycoside, 3,4-bis(4-nitrobenzoyl):
[20535-31-3]
Cryst. (MeOH). Mp 112-114°.
$[\alpha]_D$ -12.8 (c, 1.13 in $CHCl_3$).

β-D-Pyranose-*form* [22900-10-3]

*1,3,4-Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-2-deoxy-β-D-*erythro*-pentopyranose*
[17685-02-8]
$C_{26}H_{22}O_7$ 446.456
Cryst. (MeOH). Mp 159-161°. $[\alpha]_D^{20}$ -195
(c, 0.96 in $CHCl_3$).

*Me glycoside: Methyl 2-deoxy-β-D-*erythro*-pentopyranoside*
$C_6H_{12}O_4$ 148.158
Cryst. (C_6H_6). Mp 83-84°. $[\alpha]_D^{16}$ -200
(c, 1.01 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2-deoxy-3,4-*O*-isopropylidene-β-D-*erythro*-pentopyranoside*
$C_9H_{16}O_4$ 188.223
Syrup. $[\alpha]_D^{16}$ -105 (c, 1.07 in H_2O).

*Me glycoside, 3,4-*O*-cyclohexylidene: Methyl 3,4-*O*-cyclohexylidene-2-deoxy-β-D-*erythro*-pentopyranoside*
[30545-66-5]
$C_{12}H_{20}O_4$ 228.288
$[\alpha]_D^{22}$ -97 ($CHCl_3$).

Me glycoside, 3,4-bis(4-nitrobenzoyl):
[20535-30-2]
Cryst. (MeOH). Mp 141-143°. $[\alpha]_D$ -230
(c, 1.78 in $CHCl_3$).

*Me glycoside, 3-Me, 4-benzoyl: Methyl 4-*O*-benzoyl-2-deoxy-3-*O*-methyl-β-D-*erythro*-pentopyranoside*
[34385-24-5]
$C_{14}H_{18}O_5$ 266.293
Cryst. (Et_2O/pentane). Mp 53-54°. $[\alpha]_D^{23}$
-142 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

*1,3,5-Tribenzoyl: 1,3,5-Tri-*O*-benzoyl-2-deoxy-α-D-*erythro*-pentofuranose*
$C_{26}H_{22}O_7$ 446.456
Needles (Et_2O/pentane). Mp 110-112°.
$[\alpha]_D$ +75.3 (c, 0.38 in $CHCl_3$).

*Me glycoside: Methyl 2-deoxy-α-D-*erythro*-pentofuranoside*
[60134-26-1]
$C_6H_{12}O_4$ 148.158
Syrup. $[\alpha]_D$ +70 (c, 2 in H_2O).

*Me glycoside, 3,5-di-Ac: Methyl 3,5-di-*O*-acetyl-2-deoxy-α-D-*erythro*-pentofuranoside*
[23701-40-8]
$C_{10}H_{16}O_6$ 232.233
Syrup. $[\alpha]_D^{25}$ +56 (c, 0.87 in $CHCl_3$).

Me glycoside, 3,5-bis(4-methylbenzoyl):
[22837-36-1]
Mp 83-84°. $[\alpha]_D^{27}$ -135.2 (c, 0.9 in $CHCl_3$).

*Me glycoside, 5-tosyl: Methyl 2-deoxy-5-*O*-tosyl-α-D-*erythro*-pentofuranoside*
[10437-39-5]
$C_{13}H_{18}O_6S$ 302.348
Mp 81°. $[\alpha]_D^{26}$ -43.7 (c, 1.13 in $CHCl_3$).

Me glycoside, 5-(4-nitrophenyl):
[33275-29-5]
Mp 70°. $[\alpha]_D^{26}$ -47.5 (c, 1.4 in $CHCl_3$).

*Me glycoside, 5-trityl: Methyl 2-deoxy-5-*O*-trityl-α-D-*erythro*-pentofuranoside*
[16801-99-3]
$C_{25}H_{26}O_4$ 390.478
Gum. $[\alpha]_D^{26}$ +64.4 (c, 1.3 in $CHCl_3$).

β-D-Furanose-*form*

*1,3,5-Tribenzoyl: 1,3,5-Tri-*O*-benzoyl-2-deoxy-β-D-*erythro*-pentofuranose*
$C_{26}H_{22}O_7$ 446.456
Needles (Et_2O/pentane). Mp 84-87°.
$[\alpha]_D^{20}$ -19.8 (c, 1.15 in $CHCl_3$).

Me glycoside, 3,5-bis(4-methylbenzoyl):
[22837-37-2]
Mp 78-78.5°. $[\alpha]_D^{27}$ +77 (c, 1.7 in $CHCl_3$).

*Me glycoside, 5-trityl: Methyl 2-deoxy-5-*O*-trityl-β-D-*erythro-*pentofuranoside*
[16802-00-9]
Syrup. $[\alpha]_D^{26}$ -43.8 (c, 1.2 in $CHCl_3$).

*Benzyl glycoside: Benzyl 2-deoxy-β-D-*erythro-*pentofuranoside*
$C_{12}H_{16}O_4$ 224.256
Oil + $1H_2O$.

L-*form* [29780-54-9]
Cryst. (EtOAc). Mp 80° Mp 92-95°. $[\alpha]_D^{16.5}$ +59 (equilib., c, 1.14 in H_2O).

Benzylphenylhydrazone: Mp 125-126°. $[\alpha]_D^{25}$ +17.5 (Py).

α-L-Pyranose-*form*

*Me glycoside: Methyl 2-deoxy-α-L-*erythro-*pentopyranoside*
[26528-46-1]
$C_6H_{12}O_4$ 148.158
Mp 101-102° subl. $[\alpha]_D^{25}$ -169 (c, 1.03 in $CHCl_3$). $[\alpha]_D^{25}$ -50 (c, 1.15 in H_2O).

*Me glycoside, di-Ac: Methyl 3,4-di-*O*-acetyl-2-deoxy-α-L-*erythro-*pentopyranoside*
[26528-45-0]
$C_{10}H_{16}O_6$ 232.233
Cryst. (Et_2O/petrol). Mp 73.5-74°. $[\alpha]_D^{25}$ -22.7 (c, 0.9 in $CHCl_3$). $[\alpha]_D^{25}$ +4.7 (c, 0.9 in H_2O).

*Me glycoside, dimesyl: Methyl 2-deoxy-3,4-di-*O*-mesyl-α-L-*erythro-*pentopyranoside*
$C_8H_{16}O_8S_2$ 304.342
Cryst. (EtOH). Mp 199°.

β-L-Pyranose-*form*

*Me glycoside: Methyl 2-deoxy-β-L-*erythro-*pentopyranoside*
[26528-67-6]
Cryst. (Et_2O/petrol). Mp 85.5-86.5°. $[\alpha]_D^{25}$ +197 (c, 1.25 in H_2O). $[\alpha]_D^{25}$ +201 (c, 1.36 in $CHCl_3$).

*Me glycoside, ditosyl: Methyl 2-deoxy-3,4-di-*O*-tosyl-β-L-*erythro-*pentopyranoside*
[26528-69-8]
$C_{20}H_{24}O_8S_2$ 456.537
Mp 110-111°. $[\alpha]_D^{25}$ +117 (c, 1.8 in $CHCl_3$).

L-Furanose-*form*

*Me glycoside: Methyl 2-deoxy-L-*erythro-*pentofuranoside*
[446251-73-6]
$C_6H_{12}O_4$ 148.158
Solid. $[\alpha]_D^{20}$ -48 (c, 0.8 in MeOH).

α-L-Furanose-*form*

*Me glycoside, 3,5-dibenzyl: Methyl 3,5-di-*O*-benzyl-2-deoxy-α-L-*erythro-*pentofuranoside*
[161594-28-1]
$C_{20}H_{24}O_4$ 328.407
$[\alpha]_D^{20}$ -58 (c, 0.8 in MeOH).

β-L-Furanose-*form*

*Me glycoside, 3,5-dibenzyl: Methyl 3,5-di-*O*-benzyl-2-deoxy-β-L-*erythro-*pentofuranoside*
[161594-35-0]
$[\alpha]^{20}{}_D$ -14.3 (c, 0.8 in MeOH).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 189B (*ir*)

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 292C (*nmr*)

Deriaz, R.E. *et al., J.C.S.*, 1949, 1879; 2836 (*D-form, L-form, α-L-Me pyr, β-L-Me pyr*)

Allerton, R. *et al., J.C.S.*, 1951, 1480 (*D-1,3,4-tri-Ac, D-1,3,4-tribenzoyl*)

Zinner, H. *et al., Chem. Ber.*, 1957, **90**, 2696; 1958, **91**, 148 (*D-3,4,5-tri-Ac, D-3,4,5-tribenzoyl*)

Ukita, C. *et al., Chem. Pharm. Bull.*, 1959, **7**, 655 (*5-phosphate*)

Pedersen, C. *et al., J.A.C.S.*, 1960, **82**, 3425 (*α-D-pyr tribenzoyl, β-D-pyr tribenzoyl, β-D-fur tribenzoyl*)

Ness, R.K. *et al., J.A.C.S.*, 1960, **82**, 3434 (*D-trityl*)

Hardegger, E. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 177 (*synth, D-form*)

Richards, G.N. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 180 (*synth, D-form*)

Šmejkal, J. *et al., Coll. Czech. Chem. Comm.*, 1966, **31**, 291 (*α-D-Me pyr*)

Nakaminami, G. *et al., Tet. Lett.*, 1967, 3983 (*L-form, L-N-phenylglycosylamine, DL-form, DL-N-phenylglycosylamine*)

Wittenburg, E. *et al., Chem. Ber.*, 1968, **101**, 1614 (*α-D-Me pyr bisnitrobenzoyl, β-D-Me pyr bisnitrobenzoyl*)

Leonard, N.J. *et al., J.O.C.*, 1968, **33**, 3169 (*α-D-Me fur trityl, β-D-Me fur trityl*)

Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4427 (*α-L-Me pyr, α-L-Me pyr di-Ac, α-L-Me pyr dimesyl, β-L-Me pyr*)

Reist, E.J. *et al., Carbohydr. Res.*, 1969, **9**, 71 (*α-D-Me fur di-Ac*)

David, S. *et al., Carbohydr. Res.*, 1971, **18**, 39 (*α,β-D-Me fur tosyl, α,β-D-Me fur nitrophenyl*)

Lemieux, R.U. *et al., Carbohydr. Res.*, 1971, **20**, 59 (*equilib*)

Bock, K. *et al., Carbohydr. Res.*, 1971, **20**, 73 (*β-D-Me pyr benzoyl Me*)

Ryan, K.J. *et al., J.O.C.*, 1971, **36**, 2646 (*β-D-Me pyr cyclohexylidene*)

Breitmaier, E. *et al., Chimia*, 1972, **26**, 136 (*cmr*)

Rosenthal, A. *et al., Carbohydr. Res.*, 1974, **32**, 67 (*α-D-Me fur trityl, β-D-Me fur trityl*)

Wong, M.Y.H. *et al., J.A.C.S.*, 1978, **100**, 3548 (*D-form, synth*)

Hauske, J.R. *et al., J.O.C.*, 1979, **44**, 2472 (*D-form, synth*)

Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)

Mathlouthi, M. *et al., Carbohydr. Res.*, 1983, **122**, 31 (*ir, Raman*)

Hoffmann, R.W. *et al., Carbohydr. Res.*, 1983, **123**, 320 (*synth*)

Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)

Inokawa, S. *et al., Carbohydr. Res.*, 1985, **142**, 321 (*β-D-Me pyr, β-D-Me pyr isopropylidene*)

Nawrot, B. *et al., J. Carbohydr. Chem.*, 1988, **7**, 95-114 (*benzyl β-D-fur*)

Dyson, M.R. *et al., Carbohydr. Res.*, 1991, **216**, 237 (*di-Et dithioacetal*)

Jorgensen, C. *et al., Carbohydr. Res.*, 1997, **299**, 307-310 (*synth*)

Fazio, F. *et al., Tetrahedron: Asymmetry*, 2000, **11**, 1869-1876; 2001, **12**, 2143-2145 (*L-form, **synth***)

Merck Index, 13th edn., 2001, No. 2925 (*D-form, bibl, props*)

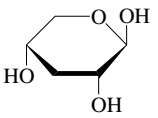
Chong, Y. *et al., Carbohydr. Res.*, 2002, **337**, 397-402 (***synth***)

Shi, Z.-D. *et al., Tetrahedron*, 2002, **58**, 3287-3296 (*L-form, synth, α:β-L-Me fur, α:β-L-Me fur dibenzyl*)

Noda, H. *et al., Tetrahedron: Asymmetry*, 2002, **13**, 2667-2672 (*L-form, synth*)

3-Deoxy-*erythro*-pentose, 9CI, 8CI D-346

3-Deoxyxylose. 3-Xylodesose. 3-Deoxyribose. 3-Ribodesose. Cordycepose
[3396-73-4]



β-D-Pyranose-*form*

$C_5H_{10}O_4$ 134.132
Erroneous (branched-chain) struct. originally assigned to Cordycepose. $Bp_{0.06}$ 128-130°. $[\alpha]_D^{20}$ +10 (c, 1.2 in DMSO).

D-*form*
Present in Cordycepin, C-152.
Syrup. $[\alpha]_D^{24}$ -6.3 (c, 1.3 in H_2O).

β-D-Pyranose-*form*

*Me glycoside: Methyl 3-deoxy-β-D-*erythro-*pentopyranoside*
[51785-69-4]
$C_6H_{12}O_4$ 148.158
Syrup. $Bp_{0.01}$ 110-112° (bath). $[\alpha]_D^{19}$ -13.3 (c, 3.0 in H_2O).

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 3-Deoxy-1,2-*O*-isopropylidene-α-D-*erythro-*pentofuranoside*
[3396-71-2]
$C_8H_{14}O_4$ 174.196
Cryst. (Et_2O). Mp 73-75°. $[\alpha]_D^{24}$ -6 (c, 0.5 in MeOH).

*Me glycoside: Methyl 3-deoxy-α-D-*erythro-*pentofuranoside*
[42890-91-5]
$C_6H_{12}O_4$ 148.158
Syrup. $[\alpha]_D^{20}$ +14.4 (c, 0.6 in H_2O).

β-D-Furanose-*form*

*Benzyl glycoside: Benzyl 3-deoxy-β-D-*erythro-*pentofuranoside*
$C_{12}H_{16}O_4$ 224.256
Syrup.

L-*form*
Syrup. $[\alpha]_D^{18}$ +8.7 ($CHCl_3$).

*5-Benzoyl, 1,2-di-Ac: 1,2-Di-*O*-acetyl-5-*O*-benzoyl-3-deoxy-L-*erythro-*pentofuranose*
$C_{16}H_{18}O_7$ 322.314
Cryst. (petrol). Mp 54-56°. Mixt. of anomers.

α-L-Pyranose-*form*

*Me glycoside: Methyl 3-deoxy-α-L-*erythro-*pentopyranoside*
[26532-17-2]
$C_6H_{12}O_4$ 148.158
Mp 96°. $[\alpha]_D^{25}$ -157 (c, 0.9 in H_2O).

β-L-Pyranose-*form*

*Me glycoside: Methyl 3-deoxy-β-L-*erythro-*pentopyranoside*
[19773-91-2]
$C_6H_{12}O_4$ 148.158
Syrup. $Bp_{0.05}$ 70-80° (bath). $[\alpha]_D^{25}$ +94.5 (c, 10.5 in H_2O).

*Me glycoside, 2,4-di-Ac: Methyl 2,4-di-*O*-acetyl-3-deoxy-β-L-*erythro*-pentopyranoside*
[26528-22-3]
$C_{10}H_{16}O_6$ 232.233
Syrup. $[\alpha]_D^{25}$ +117 (c, 1.78 in $CHCl_3$).

α-L-Furanose-*form*

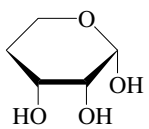
*1,2-Isopropylidene: 3-Deoxy-1,2-*O*-isopropylidene-α-L-ribofuranose*
[114861-23-3]
$C_8H_{14}O_4$ 174.196
Solid. Mp 77-78°. $[\alpha]_D^{20}$ +15.6 (c, 1.3 in $CHCl_3$).

*1,2-Isopropylidene, 5-benzoyl: 5-*O*-Benzoyl-3-deoxy-1,2-*O*-isopropylidene-α-L-*erythro*-pentofuranose*
$C_{15}H_{18}O_5$ 278.304
$Bp_{0.06}$ 128-130°. $[\alpha]_D^{20}$ +10 (c, 1.2 in DMSO).

Mukherjee, S. *et al., J.C.S.*, 1947, 969 (*L-form, L-nitrophenylosazone*)
Kent, P.W. *et al., J.C.S.*, 1949, 1232 (*D-form, β-D-Me pyr*)
Defaye, J. *et al., Carbohydr. Res.*, 1967, **4**, 145 (*α-D-fur isopropylidene*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*α-L-Me pyr, β-L-Me pyr, β-L-Me pyr di-Ac*)
Novak, J.J. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 1173 (*α-D-Me fur*)
Witczak, Z.J. *et al., Carbohydr. Res.*, 1982, **110**, 326 (***synth, bibl, D-form***)
Nawrot, B. *et al., J. Carbohydr. Chem.*, 1988, **7**, 95-114 (*benzyl β-D-fur*)
Mathé, C. *et al., Carbohydr. Res.*, 2000, **323**, 226-229 (*L-form 5-benzoyl 1,2-di-Ac, α-L-fur 1,2-isopropylidene 5-benzoyl*)
Jiang, B. *et al., J.O.C.*, 2003, **68**, 2376-2384, (*α-L-fur, 1,2-isopropylidene*)

4-Deoxy-*erythro*-pentose D-347

4-Deoxyribose. 4-Deoxylyxose. Mentzelose



β-D-Pyranose-*form*

$C_5H_{10}O_4$ 134.132

4-Deoxy-D-lyxose corresponds to the L-form. An aq. soln. at 30° contains 30% α-pyr, and 70% β-pyr. Constit. of glycosides isol. from *Mentzelia* spp.

D-*form*
Syrup. $[\alpha]_D^{15}$ -27.6 (c, 0.5 in H_2O).

α-D-Pyranose-*form*

*Me glycoside: Methyl 4-deoxy-α-D-*erythro-*pentopyranoside*
$C_6H_{12}O_4$ 148.158
$[\alpha]_D^{15}$ +80.3 (c, 1.1 in H_2O).

Me glycoside, bis(4-nitrobenzoyl):
Mp 184-185°.

β-D-Pyranose-*form*

*Me glycoside: Methyl 4-deoxy-β-D-*erythro-*pentopyranoside*
$C_6H_{12}O_4$ 148.158
Syrup. $[\alpha]_D^{15}$ -95.9 (c, 1.0 in H_2O).

*Me glycoside, di-Ac: Methyl 2,3-di-*O*-acetyl-4-deoxy-β-D-*erythro-*pentopyranoside*
$C_{10}H_{16}O_6$ 232.233
$[\alpha]_D^{15}$ -88.8 (c, 0.93 in $CHCl_3$).

L-*form* [20072-97-3]
Syrup. $[\alpha]_D^{21}$ +28.5 (c, 0.2 in H_2O).

β-L-Pyranose-*form*

*Me glycoside: Methyl 4-deoxy-β-L-*erythro-*pentopyranoside*
$C_6H_{12}O_4$ 148.158
$[\alpha]_D^{21}$ +39.2 (c, 0.2 in H_2O).

*Et glycoside: Ethyl 4-deoxy-β-L-*erythro-*pentopyranoside*
$C_7H_{14}O_4$ 162.185
$Bp_{0.001}$ 90°. $[\alpha]_D^{21}$ +104 (MeOH).

DL-*form* [33428-78-3]
Semisolid. $Bp_{0.09}$ 74-76° (oil-bath).

β-DL-Pyranose-*form*

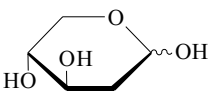
*Me glycoside: Methyl 4-deoxy-β-DL-*erythro-*pentopyranoside*
$C_6H_{12}O_4$ 148.158
Mp 49-51.5°. $Bp_{1.5}$ 72°.

*Me glycoside, di-Ac: Methyl 2,3-di-*O*-acetyl-4-deoxy-β-DL-*erythro-*pentopyranoside*
$C_{10}H_{16}O_6$ 232.233
Cryst. (CH_2Cl_2/hexane). Mp 82-83.5°.

Verheyden, J.P.H. *et al., J.O.C.*, 1969, **34**, 2643 (*L-form, β-L-Et pyr, pmr*)
Srivastava, R.M. *et al., Can. J. Chem.*, 1971, **49**, 1339 (*DL-form, DL-Me pyr, DL-Me pyr di-Ac, pmr*)
Jensen, S.R. *et al., Phytochemistry*, 1981, **20**, 71 (*occur*)
Kinoshita, T. *et al., Carbohydr. Res.*, 1982, **102**, 298 (*synth, D-form, D-form derivs*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 12 (*equilib*)

2-Deoxy-*threo*-pentose, 9CI, 8CI D-348

2-Deoxyxylose. 2-Deoxylyxose



Pyranose–*form*

$C_5H_{10}O_4$ 134.132

D-*form* [5284-18-4]
Cryst. (MeOH/Et_2O). Mp 82-86°. $[\alpha]_D^{19}$ -25.5 → -2 (25 min.) (c, 0.5 in H_2O) (+2).

Benzylphenylhydrazone: Mp 116-118°. $[\alpha]_D^{25}$ +13.5 (Py).

α-D-Furanose-*form*

*3,5-*O*-Benzylidene: 3,5-*O*-Benzylidene-2-deoxy-D-*threo-*pentose*
$C_{12}H_{14}O_4$ 222.24
Cryst. Mp 135-136°. $[\alpha]_D^{20}$ +7 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

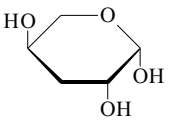
*Benzyl glycoside: Benzyl 2-deoxy-β-D-*threo-*pentofuranoside*
$C_{12}H_{16}O_4$ 224.256
No phys. props. reported.

L-*form*

Benzylphenylhydrazone:
Cryst. (EtOH aq.). Mp 122-124°. $[\alpha]_D^{20}$ -12 (c, 1.7 in Py).

Levene, P.A. *et al., J. Biol. Chem.*, 1929, **83**, 803 (*D-benzylphenylhydrazone*)
Weygand, F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 182 (*synth, D-form*)
Kuzuhara, H. *et al., J.O.C.*, 1968, **33**, 1816, (*L-benzylphenylhydrazone*)
Schimmel, S.D. *et al., Anal. Biochem.*, 1970, **37**, 385 (*D-form*)
Havlicek, J. *et al., Acta Chem. Scand.*, 1972, **26**, 2205 (*chromatog, ms*)
Wong, M.Y.H. *et al., J.A.C.S.*, 1978, **100**, 3548 (*D-form, synth*)
Nawrot, B. *et al., J. Carbohydr. Chem.*, 1988, **7**, 95-114 (*benzyl β-D-fur*)
Ulven, T. *et al., Eur. J. Org. Chem.*, 2001, 3367-3374 (*α-D-fur-benzylidene*)

3-Deoxy-*threo*-pentose D-349



α–D–Pyranose–*form*

$C_5H_{10}O_4$ 134.132

D-*form* [55658-87-2]
Oil. $[\alpha]_D^{25}$ -3.3 (c, 1 in H_2O).

Benzyphenylhydrazone:
Cryst. (Et_2O). Mp 85-86°. $[\alpha]_D^{24}$ +16.2 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

*Me glycoside: Methyl 3-deoxy-α-D-*threo-*pentofuranoside*
[53081-35-9]
$C_6H_{12}O_4$ 148.158
Cryst. (EtOH). Mp 47°. $[\alpha]_D^{22}$ +134.8 (c, 1 in MeOH).

*Me glycoside, dibenzoyl: Methyl 2,5-di-*O*-benzoyl-3-deoxy-α-D-*threo-*pentofuranoside*
[26532-13-8]
$C_{20}H_{20}O_6$ 356.374
Cryst. (Et_2O/petrol). Mp 89-89.5°. $[\alpha]_D^{25}$ +36.7 (c, 1.05 in $CHCl_3$).

*Me glycoside, bis-*O*-(4-nitrobenzoyl):*
[53081-36-0]
Light-yellow needles. Mp 135-136°. $[\alpha]_D^{22}$ +49.8 (c, 1 in $CHCl_3$).

β-D-Furanose-*form*

*Me glycoside: Methyl 3-deoxy-β-D-*threo-*pentofuranoside*
[53081-41-7]
Cryst. Mp 35°. $[\alpha]_D^{22}$ -117.7 (c, 1.1 in MeOH).

*Me glycoside, di-Ac: Methyl 2,5-di-*O*-acetyl-3-deoxy-β-D-*threo-*pentofuranoside*
[35780-01-9]
$C_{10}H_{16}O_6$ 232.233
Cryst. (petrol). Mp 63-64°. $[\alpha]_D^{25}$ -111.4 (c, 1.85 in $CHCl_3$). $[\alpha]_D^{25}$ -85.2 (c, 0.51 in $CHCl_3$).

*Me glycoside, bis-*O*-4-(nitrobenzoyl):*
[18930-04-6]
Light-yellow needles (C_6H_6). Mp 115°. $[\alpha]_D^{22}$ -83 (c, 1 in $CHCl_3$).

*Benzyl glycoside: Benzyl 3-deoxy-β-D-*threo*-pentofuranoside*
[117363-28-7]
$C_{12}H_{16}O_4$ 224.256
Oil.

L-*form* [41107-43-1]
Syrup. $[\alpha]_D^{20}$ +8.4 (c, 2.31 in H_2O).
4-Nitrophenylosazone:
Brown needles (EtOH aq.). Mp 212°. $[\alpha]_D^{22}$ +33.5 (c, 0.82 in MeOH).

β-L-Pyranose-*form*
*Benzyl glycoside, 2-benzyl: Benzyl 2-O-benzyl-3-deoxy-β-L-*threo*-pentopyranoside*
[50908-56-0]
$C_{19}H_{22}O_4$ 314.38
Cryst. (Et_2O/petrol). Mp 121-123°. $[\alpha]_D$ +135 (c, 1.8 in $CHCl_3$).

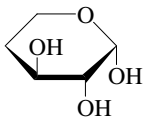
L-Furanose-*form*
*5-Ac: 5-O-Acetyl-3-deoxy-L-*threo*-pentofuranose*
[41107-66-8]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D^{22}$ -35 (c, 4.3 in Py).
*Tri-Ac: 1,2,5-Tri-O-acetyl-3-deoxy-L-*threo*-pentofuranose*
[41107-68-0]
$C_{11}H_{16}O_7$ 260.243
Syrup. $Bp_{0.0001}$ 110° (bath). $[\alpha]_D^{21}$ -28.1 (c, 3.77 in Py).

β-L-Furanose-*form*
*1,2-O-Isopropylidene: 1,2-O-Isopropylidene-3-deoxy-β-L-*threo*-pentofuranose*
[14260-66-3]
$C_8H_{14}O_4$ 174.196
$Bp_{0.001}$ 80° (bath). $[\alpha]_D^{21}$ -25.5 (c, 1.22 in Py).
*1,2-Isopropylidene, 5-tosyl: 3-Deoxy-1,2-O-isopropylidene-5-tosyl-β-L-*threo*-pentofuranose*
[41107-52-2]
$C_{15}H_{20}O_6S$ 328.385
Cryst. (EtOH). Mp 76.5-77.5°. $[\alpha]_D^{23}$ -38.2 (c, 2.51 in Py).

DL-*form* [88425-02-9]
Syrup.
Casini, G. *et al., J.A.C.S.*, 1964, **86**, 1427, (*D-form, synth*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1969, **47**, 4413 (*α-D-Me fur dibenzoyl*)
Zinner, H. *et al., J. Prakt. Chem.*, 1973, **315**, 137; 179 (*L-form, synth, L-tri-Ac*)
El Khadem, H.S. *et al., Carbohydr. Res.*, 1974, **33**, 329 (*α-D-Me fur, β-D-Me fur*)
Kučár, S. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 457 (*D-form*)
Ritchie, R.G.S. *et al., Can. J. Chem.*, 1978, **56**, 794 (*β-L-benzyl pyr benzyl*)
Buddrus, J. *et al., Annalen*, 1983, 1950 (*DL-form*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1984, **132**, 168 (*β-L-fur isopropylidene tosyl*)
Nawrot, B. *et al., J. Carbohydr. Chem.*, 1988, **7**, 95-114 (*benzyl β-D-fur*)
Gasparini, F. *et al., J.O.C.*, 1990, **55**, 2451, (*D-form, synth*)
Brandstetter, T. *et al., Tetrahedron*, 1994, **50**, 1437 (*α-D-Me fur, pmr*)

4-Deoxy-*threo*-pentose D-350

4-Deoxyarabinose. 4-Deoxyxylose



β-L-Pyranose-*form*

$C_5H_{10}O_4$ 134.132
The L-enantiomer illus. corresponds to 4-deoxy-L-arabinose or 4-deoxy-D-xylose.

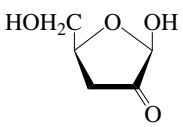
L-Pyranose-*form* [126638-07-1]
Oil. Mixture of anomers.

β-L-Pyranose-*form*
*Me glycoside: Methyl 4-deoxy-β-L-*threo*-pentopyranoside*
[23397-74-2]
$C_6H_{12}O_4$ 148.158
Cryst. Mp 110-111°. $[\alpha]_D$ +193 (c, 0.9 in $CHCl_3$).

[75800-66-7, 75800-68-9]

Szarek, W.A. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1978, **5**, 273 (*β-L-Me pyr, synth, pmr*)
Gagnieu, C. *et al., Carbohydr. Res.*, 1980, **84**, 61 (*DL-form, synth*)
Grouiller, A. *et al., J. Carbohydr. Chem.*, 1988, **7**, 507 (*DL-form*)
Rabow, L.E. *et al., J.A.C.S.*, 1990, **112**, 3196 (*synth, pmr*)
Dow, K.E. *et al., Biochim. Biophys. Acta*, 1992, **1156**, 7 (*β-L-Me pyr, cmr*)

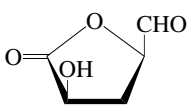
3-Deoxypentos-3-ulose D-351



$C_5H_8O_4$ 132.116

β-D-Furanose-*form*
*Benzyl glycoside: Benzyl 3-deoxy-β-D-*glycero*-pentofuranos-2-uloside*
[117363-23-2]
$C_{12}H_{14}O_4$ 222.24
No phys. props. reported. Incorrectly called 3-uloside in the ref.
Nawrot, B. *et al., J. Carbohydr. Chem.*, 1988, **7**, 95-114 (*benzyl β-D-gly*)

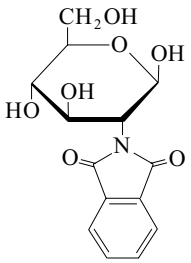
3-Deoxy-*threo*-penturono-5,2-lactone D-352



$C_5H_6O_4$ 130.1

L-*form* [139714-45-7]
Syrup (as hydrate).
Bols, M. *et al., Tetrahedron*, 1992, **48**, 319 (*synth, cmr*)

2-Deoxy-2-phthalimidoglucose D-353



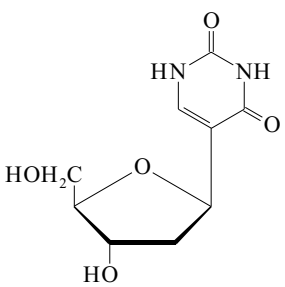
$C_{14}H_{15}NO_7$ 309.275

β-D-Pyranose-*form*
1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-acetyl-2-deoxy-2-phthalimido-β-D-glucopyranose
[10022-13-6]
$C_{22}H_{23}NO_{11}$ 477.424
Mp 199-200°.
1-Bromo, 3,4,6-tri-Ac: 3,4,6-Tri-O-acetyl-2-deoxy-2-phthalimido-β-D-glucopyranosyl bromide
[10028-45-2]
$C_{20}H_{20}BrNO_9$ 498.283
Mp 122-123°. $[\alpha]_D^{24}$ +57.3 (c, 1.0 in $CHCl_3$).
Benzyl pyranoside: Benzyl 2-deoxy-2-phthalimido-β-D-glucopyranoside
$C_{21}H_{21}NO_7$ 399.399
Mp 176-177°. $[\alpha]_D^{25}$ -34.2 (c, 0.76 in Me_2CO).
2,2,2-Trichloroethyl glycoside, 3,6-dibenzyl: 2,2,2-Trichloroethyl 3,6-di-O-benzyl-2-deoxy-2-phthalimido-β-D-glucopyranoside
$C_{30}H_{28}Cl_3NO_7$ 620.912
$[\alpha]_D$ +10.1 (c, 0.7 in $CHCl_3$).
3,4,6-Tri-Ac, 1-thiomethyl glycoside: Methyl 3,4,6-tri-O-acetyl-2-deoxy-2-phthalimido-1-thio-β-D-glucopyranoside
$C_{21}H_{23}NO_9S$ 465.48
Mp 154-155°. $[\alpha]_D$ +50.9 (c, 0.32 in $CHCl_3$).

Baker, B.R. *et al., J.O.C.*, 1954, **19**, 1786
Ogawa, T. *et al., Carbohydr. Res.*, 1981, **96**, 29
Lemieux, R.U. *et al., Can. J. Chem.*, 1982, **60**, 58

2′-Deoxypseudouridine D-354

*5-(2-Deoxy-β-D-*erythro*-pentofuranosyl)-2,4(1H,3H)-pyrimidinedione, 9CI.*
2′-Deoxy-ψ-uridine
[39967-60-7]

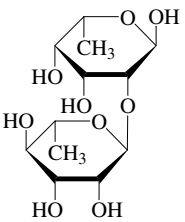


$C_9H_{12}N_2O_5$ 228.204
Cryst. (EtOH). Mp 219-221°.

Matsuda, A. *et al., J.O.C.*, 1981, **46**, 3603 (*synth, uv*)
Pankiewicz, K. *et al., J.O.C.*, 1982, **47**, 485 (*synth, pmr*)
Zhang, H.-C. *et al., J.O.C.*, 1992, **57**, 4690 (*synth*)

6-Deoxy-2-*O*-α-L-rhamnopyranosyl-L-talose D-355

*6-Deoxy-2-*O*-(6-deoxy-α-L-mannopyranosyl)-L-talose*



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Occurs as the inner unit of oligosaccharide chains in the polar glycopeptidiolipid antigens in the *Mycobacterium avium – Mycobacterium intracellulase – Mycobacterium scrofulaceum* (MAIS) serocomplex. Serves as a common aglycone for attachment of serovar-specific external sugar residues. Hygroscopic solid. $[\alpha]_D^{20}$ -48.2 (c, 1.4 in H_2O).

α-Pyranose-*form*

Benzyl glycoside: [88819-12-9]
$C_{19}H_{28}O_9$ 400.425
Mp 176-178°. $[\alpha]_D^{20}$ -123.8 (c, 1.5 in H_2O).

*Benzyl glycoside, 3,4-*O*-isopropylidene:* [88819-10-7]
$C_{22}H_{32}O_9$ 440.489
Syrup. $[\alpha]_D^{20}$ -92.5 (c, 1.6 in $CHCl_3$).

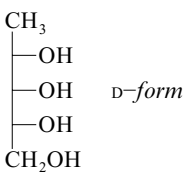
Benzyl glycoside, 2′,3′,4′-tri-Ac, dibenzyl: [88819-16-3]
$C_{39}H_{46}O_{12}$ 706.785
Syrup. $[\alpha]_D^{20}$ -54.8 (c, 0.8 in $CHCl_3$).

Benzyl glycoside, 3,4-dibenzyl: [88819-15-2]
$C_{33}H_{40}O_9$ 580.674
Syrup. $[\alpha]_D^{20}$ -76.2 (c, 2.1 in $CHCl_3$).

Aspinall, G.O. *et al., Carbohydr. Res.*, 1983, **121**, 61

1-Deoxyribitol D-356

5-Deoxyribitol
[62137-55-7]



D-*form*

$C_5H_{12}O_4$ 136.147

D-*form*

1-Deoxy-D-ribitol. 5-Deoxy-L-ribitol
[13046-76-9]
Constit. of the fruit of *Foeniculum vulgare* (fennel).
Cryst. (MeCN).
Mp 69°. $[\alpha]_D^{21}$ +15 (c, 0.9 in H_2O). The CAS no. was originally applied erroneously to the L-enantiomer.

*Tetra-Ac: Tetra-*O*-acetyl-1-deoxy-D-ribitol*
[7260-90-4]
$C_{13}H_{20}O_8$ 304.296
No phys. props. reported.

L-*form*

1-Deoxy-L-ribitol. 5-Deoxy-D-ribitol
[67968-45-0]
Cryst. (EtOAc/MeOH). Mp 80-85°. $[\alpha]_D^{23}$ -11.2 (c, 1.4 in MeOH).

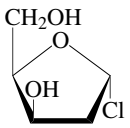
*3,4-Isopropylidene: 5-Deoxy-2,3-*O*-isopropylidene-D-ribitol. 1-Deoxy-3,4-*O*-isopropylidene-L-ribitol*
$C_8H_{16}O_4$ 176.212
Syrup. $[\alpha]_D^{27}$ -15.5 (c, 2.7 in EtOH). n_D^{20} 1.4510.

[25289-19-4]

Hough, L. *et al., Can. J. Chem.*, 1958, **36**, 1720 (*synth, L-form*)
Buck, K.W. *et al., Carbohydr. Res.*, 1966, **2**, 115 (*synth*)
Sepulchre, A.-M. *et al., Carbohydr. Res.*, 1972, **24**, 311 (*synth, D-form*)
Fischer, J.-C. *et al., Can. J. Chem.*, 1977, **55**, 4078 (*synth, ms*)
Takai, K. *et al., J.O.C.*, 1985, **50**, 3247 (*synth, pmr, cmr, tetra-Ac*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)

2-Deoxyribofuranosyl chloride D-357

2-Deoxy-erythro-*pentofuranosyl chloride, 9CI*



α-D-*form*

$C_5H_9ClO_3$ 152.577

α-D-*form* [73793-20-1]

*3,5-Bis(4-methylbenzoyl): 2-Deoxy-3,5-di-*O*-toluoyl-α-D-*erythro-*pentofuranosyl chloride*
[4330-21-6]

[3601-89-6]
$C_{21}H_{21}ClO_5$ 388.847
Widely used precursor for synth. of deoxyribonucleosides. Cryst. (toluene or CCl_4). Mp 109° (dec.). $[\alpha]_D^{20}$ +110.1 (c, 2.04 in DMF). Dec. in moist air. Anomerises to β-form in polar solvs.

3,5-Bis(4-chlorobenzoyl): [21740-23-8]
$C_{19}H_{15}Cl_3O_5$ 429.683
Fluffy cryst. (CCl_4). Mp 131-132°. $[\alpha]_D^{25}$ +109 (c, 1 in $CHCl_3$). Resolidifies with final melting and dec. at 238-241°.

β-D-*form*

*3,5-Bis(4-methylbenzoyl): 2-Deoxy-3,5-di-*O*-toluoyl-β-D-*erythro-*pentofuranosyl chloride*
[52304-86-6]
$C_{21}H_{21}ClO_5$ 388.847
No phys. props. reported.

α-L-*form*

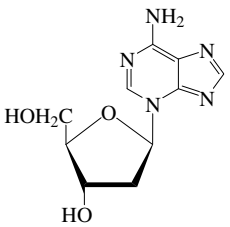
3,5-Bis(4-methylbenzoyl): [141846-57-3]

[3056-12-0] Mp 118-121°. $[\alpha]_D^{25}$ -125.7 (c, 0.811 in DMF).

Hoffer, M. *et al., Chem. Ber.*, 1960, **93**, 2777-2781 (*ditoluoyl*)
Zinner, H. *et al., Chem. Ber.*, 1961, **94**, 2792-2797 (*ditoluoyl*)
Kotick, M.P. *et al., J.O.C.*, 1969, **34**, 3806-3813 (*α-D-bischlorobenzoyl*)
Takashita, M. *et al., J. Biol. Chem.*, 1987, **262**, 10171-10179 (*α-D-ditoluoyl, synth, pmr*)
Shinozuka, K. *et al., Chem. Lett.*, 1991, 1941-1944 (*β-D-ditoluoyl*)
Urata, H. *et al., Nucleic Acids Res.*, 1992, **20**, 3325-3332 (*α-L-ditoluoyl, synth, pmr*)
Chin, T.-M. *et al., J. Chin. Chem. Soc. (Taipei)*, 1997, **44**, 413-416 (*ditoluoyl, synth, ir, pmr, cmr, ms*)
Pat. Coop. Treaty (WIPO), 1997, 97 31 008; *CA*, **127**, 248359d (*ditoluoyl, synth, pmr, cmr*)
Rolland, V. *et al., Synth. Commun.*, 1997, **27**, 3505-3511 (*ditoluoyl, synth, pmr, cmr*)-

3-(2-Deoxyribofuranosyl) adenine D-358

3-(2-Deoxy-erythro-*pentofuranosyl) adenine*



β-D-*form*

$C_{10}H_{13}N_5O_3$ 251.244

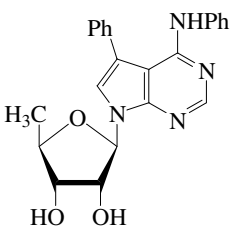
α-D-*form* [19046-81-2]
Mp 184-185°. $[\alpha]_D^{25}$ +11 (H_2O). λ_{max} 271 (13900) (pH 1). λ_{max} 276 (13200) (pH 13). λ_{max} 214 (17800); 277 (12800) (EtOH).

β-D-*form* [19046-84-5]
Mp 188-191°. $[\alpha]_D^{25}$ +19 (H_2O). λ_{max} 214 (ϵ 18000); 278 (ϵ 12900) (EtOH). λ_{max} 271 (ϵ 14300) (pH 1). λ_{max} 277 (ϵ 13100) (pH 13).

Rasmussen, M. *et al., J.A.C.S.*, 1967, **89**, 5439 (*synth, pmr, ord*)

7-(5-Deoxyribofuranosyl)-*N*,5-diphenyl-7*H*-pyrrolo[2,3-*d*] pyrimidin-4-amine, 9CI D-359

*4-(*N*-Phenylamino)-5-phenyl-7-(5′-deoxyribofuranosyl)pyrrolo[2,3-*d*]pyrimidine. GP 683*

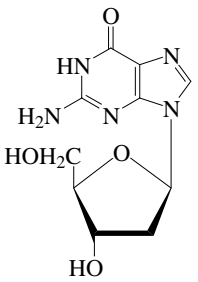


$C_{23}H_{22}N_4O_3$ 402.452
Adenosine kinase inhibitor. Anticonvulsant.

β-D-*form* [144928-17-6]
Mp 207-208°.
Eur. Pat., 1992, 496 617, (*Gensia*); *CA*, **118**, 234420u (*synth, pharmacol*)
Wang, B. *et al., Anaesth. Analg.*, 1997, **85**, 675-680 (*pharmacol*)
Tatlisumak, T. *et al., Stroke (Dallas)*, 1998, **29**, 1952-1958 (*pharmacol*)
Wiesner, J.B. *et al., J. Pharmacol. Exp. Ther.*, 1999, **289**, 1669-1677 (*pharmacol*)

2′-Deoxyribofuranosylguanine D-360

2-Amino-9-(2-deoxy-erythro-*pentofuranosyl)-6-purinone*



β-D-*form*

$C_{10}H_{13}N_5O_4$ 267.244

α-D-*form*
Hemihydrate. $[\alpha]_D^{26}$ +102.4 (c, 0.99 in DMF). λ_{max} 255 (ε 10700); 274 (ε 7710) (pH 1). λ_{max} 263 (ε 9960 br) (pH 11).

β-D-*form*
2′-Deoxyguanosine. Guanine deoxyriboside [961-07-9]
Component of all deoxyribonucleic acids. Isol. from plants, e.g. *Phaseolus vulgaris* (kidney bean). Cryst. + $1H_2O$. Mp 300° (also said to be indefinite). $[\alpha]_D^{26}$ -20.3 (c, 1.2 in DMF). $[\alpha]_D^{19}$ -47.7 (0.1*M* NaOH). $[\alpha]_D^{24}$ -30.2 (H_2O). λ_{max} 254 (ε 10700); 274 (ε 7710) (HCl) (Berdy). λ_{max} 259 (ε 9960) (NaOH) (Berdy). λ_{max} 252 (ε 13700) (H_2O) (pH 7). λ_{max} 255 (ε 12100); 272 (sh) (ε 8460) (H_2O) (pH 1). λ_{max} 262 (ε 12000) (H_2O) (pH 11).
► MF8760000

3′-Ac: [51549-58-7]
$C_{12}H_{15}N_5O_5$ 309.281
Mp 240° dec. $[\alpha]_D^{19.5}$ -12.5 (10% EtOH aq.).

5′-Ac:
$C_{12}H_{15}N_5O_5$ 309.281
$[\alpha]_D^{18.5}$ -33 (c, 0.4 in 10% EtOH aq.).

3′,5′-Di-Ac:
$C_{14}H_{17}N_5O_6$ 351.318
Mp 222° dec. $[\alpha]_D^{18}$ -38 (c, 0.3 in 10% EtOH aq.).

2N,3′-Di-Ac: [51549-57-6]
$C_{14}H_{17}N_5O_6$ 351.318
Mp 130-132°. λ_{max} 255 ; 260 ; 280 (EtOH).

2N-Me:
$C_{11}H_{15}N_5O_4$ 281.271
$[\alpha]_D^{26}$ -15.2 (c, 1.64 in DMF). λ_{max} 258 (ε 13400); 281 (sh) (ε 7370) (pH 1). λ_{max} 258 (ε 11200); 270 (sh) (ε 10200) (pH 11).

5′-Phosphate: 2′-Deoxyguanosine 5′-(dihydrogen phosphate), 9CI. 2′-Deoxy-5′-guanylic acid
[902-04-5]
[33430-61-4, 52558-16-4, 133342-19-5]
$C_{10}H_{14}N_5O_7P$ 347.224
Solid + $4H_2O$ (as Ba salt); cryst. + $4H_2O$ (as Na salt). $[\alpha]_D^{19.5}$ -18.6 (c, 0.37 in H_2O) (as Ba salt). λ_{max} 253 (ε 15680) (H_2O). λ_{max} 255 (ε 13650) (0.01*M* HCl). λ_{max} 264 (ε 12870) (0.01*M* NaOH).

*2N-(2-Methylpropanoyl): 2′-Deoxy-*N-*(2-methyl-1-oxopropyl)guanosine, 9CI*
[68892-42-2]
$C_{14}H_{19}N_5O_5$ 337.335
Cryst. (MeOH aq.). Mp >300°.

2N-(2-Methylpropanoyl), 5′-(4,4′-dimethoxytrityl): [68892-41-1]
$C_{35}H_{37}N_5O_7$ 639.707
Comly. available synthon. Intermed. for synth. of oligonuclecotides. Powder. Mp 154-155° dec.

*6-Me: 2′-Deoxy-6-*O-*methylguanosine, 12CI*
[964-21-6]
$C_{11}H_{15}N_5O_4$ 281.271
Intermed. for solid phase synth of oligonucleotides. Mp 121-123°.

6-Et: [50704-46-6]
$C_{12}H_{17}N_5O_4$ 295.297
Needles (H_2O). Mp 79-82°.

6-Propyl: [142738-57-6]
$C_{13}H_{19}N_5O_4$ 309.324
Solid.

3′-Phosphate: 2′-Deoxy-3′-guanylic acid, 9CI
[6220-62-8]
$C_{10}H_{14}N_5O_7P$ 347.224
Powder + $2H_2O$ (EtOH aq.) (as Ba salt). $[\alpha]_D^{19.5}$ -8.5 (c, 0.5 in H_2O). λ_{max} 255 (HCl aq.).

5′-Diphosphate: [3493-09-2]
$C_{10}H_{15}N_5O_{10}P_2$ 427.204
No phys. props. reported.

5′-Triphosphate: [2564-35-4]
$C_{10}H_{16}N_5O_{13}P_3$ 507.184
No phys. props. reported.

α-L-*form*
Hemihydrate. $[\alpha]_D^{26}$ -103 (c, 1.1 in DMF). λ_{max} 254 (ε 12900); 272 (sh) (ε 8900) (pH 1). λ_{max} 262 (ε 12000 Br) (pH 11).

β-L-*form*
Monohydrate. $[\alpha]^{26}{}_D$ +20.5 (c, 1 in DMF). λ_{max} 254 (ε 12900); 272 (sh) (ε 8900) (pH 1). λ_{max} 263 (ε 12000 br) (pH 11).
[102783-74-4]

Hayes, D.H. *et al., J.C.S.*, 1955, 808-815 (*β-D-3′-Ac, β-D-5′-Ac, β-D-3′,5-di-Ac, β-D-5′-phosphates*)
Hay, D.H. *et al., J.C.S.*, 1955, 808-815 (*3′-phosphate*)
U.S. Pat., 1955, 2795580; *CA*, **51**, 18015 (*5′-diphosphate*)
Lehman, I.R. *et al., J. Biol. Chem.*, 1958, **233**, 163-170 (*5′-triphosphate*)
Smith, M. *et al., J.A.C.S.*, 1958, **80**, 1141 (*5′-diphosphate*)
Keir, H.M. *et al., Biochim. Biophys. Acta*, 1959, **35**, 405-412 (*5′-triphosphtae*)
Mantsavinos, R. *et al., J. Biol. Chem.*, 1959, **234**, 628 (*5′-diphosphate*)
Canellakis, E.M. *et al., J. Biol. Chem.*, 1959, **234**, 2096 (*5′-diphosphate*)
Montgomery, J.A. *et al., Adv. Carbohydr. Chem.*, 1962, **17**, 301 (*rev*)
Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3821 (*β-D-3′,5′-di-Ac*)
Moffatt, J.G. *et al., Can. J. Chem.*, 1964, **42**, 599-604 (*5′-triphosphate, **synth***)
Ulbricht, T.L.V. *et al., Tet. Lett.*, 1964, 695 (*ord*)
Robins, M.J. *et al., J.O.C.*, 1969, **34**, 2160; 1970, **35**, 636 (*α-D-form, β-D-form, α-D-2N-Me, α-L-form, β-L-form*)
Dorman, D.E. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 19-26 (*cmr, 5′-phosphate*)
Jones, A.J. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 27; *CA*, **72**, 96682j (*cmr*)
Ogilvie, K.K. *et al., Can. J. Chem.*, 1973, **51**, 3799 (*β-D-2N 3′-di-Ac, β-D-3′-Ac*)
Young, D.Y. *et al., Acta Cryst. B*, 1974, **30**, 2012-2018 (*cryst struct, 5′-phosphate*)
Davies, D.B. *et al., J.C.S. Perkin 2*, 1975, 1703 (*pmr*)
Jankowska, J. *et al., Bull. Pol. Acad. Sci., Chem.*, 1983, **31**, 17 (*5′-diphosphate*)
Den Hartog, J.ol J. *et al., Eur. J. Biochem.*, 1983, **134**, 485-495 (*3′-phosphate, pmr, cmr*)
McGee, D.P.C. *et al., Synthesis*, 1983, 540 (*β-D-2N-(2-methylpropanoyl)*)
Danny, P.C. *et al., Synthesis*, 1983, 540-541 (*β-D-*N-*(2-methylpropanoyl), 5′-(4,4′-dimethoxytrityl), synth*)
Renich, G.G. *et al., J. Chromatogr.*, 1984, **317**, 283-300 (*5′-triphosphate, purifn*)
Ip, C. *et al., Anal. Biochem.*, 1985, **147**, 180 (*5′-diphosphate, hplc*)
Hayakawa, Y. *et al., Tet. Lett.*, 1987, **28**, 2259-2262 (*3′-phosphate*)
Koole, L.H. *et al., Can. J. Chem.*, 1988, **66**, 2634 (*β-D-3′,5′-di-Ac, pmr, cryst struct*)
Roelen, H.C.P.F. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1992, **111**, 227-234 (*β-D-6-*O-*alkyl, synth, use, uv, pmr, cmr*)
Hernandez, H. *et al., Rapid Commun. Mass Spectrom.*, 1996, **10**, 1543-1550 (*3′-phosphate, ms*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAR800

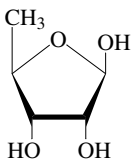
Deoxyribonucleic acid, 9CI, 8CI D-361

DNA. Thymus nucleic acid

A polynucleotide constructed from chains of 2-deoxy-D-ribose purine and pyrimidine units linked by phosphate diester bonds between the 3′- and 5′-hydroxyls of adjacent sugars. DNA from viruses have molecular weights ca. 1-130 × 10^6 whereas bacterial and animal DNA has much higher molecular weights with chains easily severed during isoln. The adenine and thymine contents are equal and the guanine and cytosine contents also equal, regardless of source. In the secondary structure two polymer chains form right-handed helices about a common axis, with the sequence of atoms running in opposite directions in each strand. The bases are inside the helix and the adenine of one chain is hydrogen bonded to the thymine of the other and similarly with the guanine and cytosine. Present in all life forms except some viruses. An essential component of chromosomes in cell nuclei which carries genetic information by containing a chemical code in its structure, which is exactly reproducible. The linear sequence of bases in one strand determines the sequence in the other. Thus each strand can serve as a template for replication of the original DNA molecule. DNA also serves as a template for the formation of ribonucleic acids.

Watson, J.D. *et al., Nature (London)*, 1953, **171**, 737; 964 (*struct*)
Chargaff, E. *et al., The Nucleic Acids*, Academic Press, Vol. 1, 1955, (*rev*)
Brown, D.M. *et al., Compr. Biochem.*, (Florkin, M. etal, Ed.), 1963, **8**, 157 (*rev*)
Crick, F. *et al., Nature (London)*, 1970, **227**, 561
Davidson, J.N. *et al., The Biochemistry of Nucleic Acids*, Academic Press, 7th Ed., 1972,
Narang, S.A. *et al., Tetrahedron*, 1983, **39**, 3 (*rev*)
Jankowski, K. *et al., Adv. Heterocycl. Chem.*, 1986, **39**, 79 (*rev, ms*)
Taillandier, E. *et al., J. Mol. Struct.*, 1989, **214**, 185 (*rev, ir, Raman*)
Wemmer, D.E. *et al., Biol. Magn. Reson.*, 1992, **10**, 195 (*rev, nmr*)

5-Deoxyribose D-362



β-D-Furanose-*form*

$C_5H_{10}O_4$ 134.132

D-*form* [13039-75-3]
Oil. $[\alpha]_D^{23}$ +11 (c, 4 in H_2O).
Phenylosazone: Mp 175-177° (172-174°).
$[\alpha]_D$ -65 (c, 0.65 in EtOH/Py 3:2).

D-Furanose-*form*
Me glycoside: Methyl 5-deoxy-D-ribofuranoside
$C_6H_{12}O_4$ 148.158
Low-melting hygroscopic cryst. $Bp_{0.3}$ 83-88°. $[\alpha]_D^{25}$ -76 (c, 2 in EtOH).
Anomeric composition not determined.

β-D-Furanose-*form*
Tri-Ac: 1,2,3-Tri-O-acetyl-5-deoxy-β-D-ribofuranose
[62211-93-2]
$C_{11}H_{16}O_7$ 260.243
Cryst. (diisopropyl ether). Mp 66-67°.
$[\alpha]_D^{25}$ -27.7 (c, 1 in $CHCl_3$).
Me glycoside, 2,3-isopropylidene: Methyl 5-deoxy-2,3-O-isopropylidene-β-D-ribofuranoside
[23202-81-5]
$C_9H_{16}O_4$ 188.223
Liq. $Bp_{0.05}$ 29-30°. $[\alpha]_D^{26}$ -116 (c, 2.57 in EtOH) (-109).

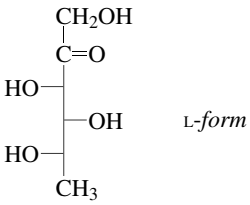
L-*form* [18555-65-2]
Syrup. $[\alpha]_D^{23}$ -11.9 (c, 2 in H_2O).
Phenylhydrazone: [123168-30-9]
Cryst. (diisopropyl ether/hexane). Mp 115-117°.

[79083-45-7, 79120-55-1]

Shunk, C.H. *et al., J.A.C.S.*, 1955, **77**, 2210 (*synth, D-Me-fur*)
Horton, D. *et al., Carbohydr. Res.*, 1976, **47**, 326 (*D-form, synth*)
Bílik, V. *et al., Chem. Zvesti*, 1978, **32**, 372, (*L-form, synth*)
Lerner, L.M. *et al., J.O.C.*, 1978, **43**, 161 (*synth, β-D-Me-fur isopropylidene*)
Mori, K. *et al., Annalen*, 1989, 1267, (*L-form, synth*)
Escandar, G.M. *et al., Org. Prep. Proced. Int.*, 1990, **22**, 623 (*D-form, synth*)
Wang, G. *et al., J. Med. Chem.*, 2000, **43**, 2566-2574 (*deriv, synth, pmr*)
Sairam, P. *et al., Carbohydr. Res.*, 2003, **338**, 303-306 (*D-form tri-Ac, Me glycoside isopropylidene*)

6-Deoxysorbose D-363

6-Deoxy-xylo-*2-hexulose*



L-*form*

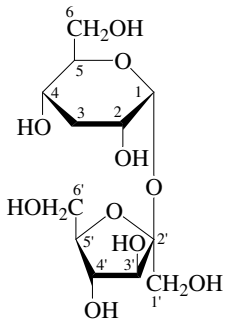
$C_6H_{12}O_5$ 164.158
Equilib. composition 83% α-fur, 17% β-fur in H_2O. The crystals contain 95% α-fur, 5% β-fur.

L-*form* [18545-94-3]
Mp 86-89°. $[\alpha]_D^{25}$ -27.7 (c, 0.01 in H_2O). The only crystalline ketohexose unable to form a pyranoid ring structure.
Tetra-Ac: 1,3,4,5-Tetra-O-acetyl-6-deoxy-L-sorbose
[158227-01-1]
$C_{14}H_{20}O_9$ 332.307
Yellow oil.

Muller, H. *et al., Helv. Chim. Acta*, 1938, **21**, 263-272 (*synth*)
Kaufman, H. *et al., Helv. Chim. Acta*, 1967, **50**, 2280-2287 (*synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1249-1265 (*equilib*)
Swaminathan, P. *et al., Carbohydr. Res.*, 1979, **75**, 1-10; 1981, **89**, 151 (*cryst struct*)
Wong, C.-H. *et al., J.O.C.*, 1983, **48**, 3493-3497 (*synth, cmr*)
Lerner, L.M. *et al., J. Med. Chem.*, 1987, **30**, 1521-1525 (*synth*)
Peters, J. *et al., Tetrahedron: Asymmetry*, 1993, **4**, 1173-1182 (*L-form, synth, pmr, cmr*)
Hecquet, L. *et al., Tetrahedron*, 1994, **50**, 8677-8684; 1996, **52**, 8223-8232 (*L-form, synth, pmr, cmr, tetra-Ac*)

3-Deoxysucrose D-364

*β-D-Fructofuranosyl 3-deoxy-α-D-*ribo-*hexopyranoside, 9CI*
[102039-75-8]



$C_{12}H_{22}O_{10}$ 326.3
Cryst. (EtOH). Mp 145-150° Mp 185° (dec.). $[\alpha]_D$ +56 (c, 1 in H_2O).

Binder, T.P. *et al., Carbohydr. Res.*, 1986, **147**, 149-154 (*synth, cmr*)
Descotes, G. *et al., Carbohydr. Res.*, 1989, **188**, 63-70 (*synth, pmr*)

4-Deoxysucrose D-365

*β-D-Fructofuranosyl 4-deoxy-α-D-*xylo-*hexopyranoside, 9CI*
[103949-81-1]
$C_{12}H_{22}O_{10}$ 326.3
Cryst. (EtOH). Mp 190-195° (181-182°).
$[\alpha]_D$ +64.4 (c, 1 in H_2O).

Choudhary, M.S. *et al., Carbohydr. Res.*, 1986, **147**, 49-58 (*synth, ms*)
Descotes, G. *et al., Carbohydr. Res.*, 1989, **188**, 63-70 (*synth, pmr*)

6-Deoxysucrose D-366

β-D-Fructofuranosyl 6-deoxy-α-D-glucopyranoside, 9CI
[92596-12-8]
$C_{12}H_{22}O_{10}$ 326.3
Cryst. (EtOH). Mp 172-180° (170-175°).
$[\alpha]_D$ +54.8 (c, 1.03 in H_2O).

Binder, T.P. *et al., Carbohydr. Res.*, 1984, **132**, 173-177 (*synth, cmr*)
Descotes, G. *et al., Carbohydr. Res.*, 1989, **188**, 63-70 (*synth, pmr*)

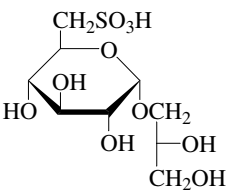
6′-Deoxysucrose D-367

6-Deoxy-β-D-fructofuranosyl α-D-glucopyranoside, 9CI
[99281-34-2]
$C_{12}H_{22}O_{10}$ 326.3
Cryst. Mp 175-178°.

Card, P.J. *et al., J.A.C.S.*, 1986, **108**, 158-161 (*synth, cmr*)

1-*O*-(6-Deoxy-6-sulfoglucopyranosyl)glycerol D-368

2,3-Dihydroxypropyl 6-deoxy-6-sulfoglucopyranoside, 9CI. 6-Sulfoquinovopyranosyl-(1→1)-glycerol



$C_9H_{18}O_{10}S$ 318.301

α-D-*form* [2308-53-4]
Isol. from nitrogen-fixing *Rhizobium* bacteria. Biosynth. intermediate for 1, 2-Diacylglycerol 6-sulfoquinovosides, D-395.
$[\alpha]_D^{22}$ +55 (c, 0.5 in H_2O).
Na salt: [84271-27-2]
$[\alpha]_D^{15}$ +58 (c, 0.6 in H_2O).
Cyclohexylamine salt:
Cryst. (EtOH/EtOAc). Mp 151.5-153°.
$[\alpha]_D^{25}$ +74.5 (c, 1.8 in H_2O, pH 4). No CAS no found 8-14 CI.
3-Tetradecanoyl: [71932-07-5]
$C_{23}H_{44}O_{11}S$ 528.66
Isol. from shell of the sea urchin *Anthocidaris crassispina* and *Tetragoma expansa*. Isol. as mixt. with 1-hexadecanoyl (4:96).

3-Hexadecanoyl: [71963-28-5]
$C_{25}H_{48}O_{11}S$ 556.714
Isol. from shell of the sea urchin *Anthocidaris crassispina* and brown alga *Sargassum thunbergii*. Isol. as mixt. with 1-tetradecanoyl (96:4).

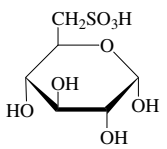
3-Octadecanoyl:
$C_{27}H_{52}O_{11}S$ 584.767
Isol. from brown alga *Sargassum thunbergii*. Isol. as a mixt. with 1-hexadecanoyl (4:96). No CAS no. found 8-14CI.

Diacyl derivs: See 1,2-Diacylglycerol 6-sulfoquinovosides, D-395

Lepage, M. *et al., J.A.C.S.*, 1961, **83**, 157-159 (*isol*)
Miyano, M. *et al., J.A.C.S.*, 1962, **84**, 59-62 (*synth*)
Okaya, Y. *et al., Acta Cryst.*, 1964, 1276-1282 (*cryst struct*)
Anderson, R. *et al., Biochim. Biophys. Acta*, 1978, **528**, 89-106 (*Nitzchia alba*)
Sato, N. *et al., Biochim. Biophys. Acta*, 1979, **572**, 19-28 (*Anabaena varialulis Anacystis vidulous*)
Kitagawa, I. *et al., Chem. Pharm. Bull.*, 1979, **27**, 1934-1937 (*3-hexadecanoyl, 3-tetradecanoyl*)
Harwood, J.L. *et al., Biochem. Plants.*, 1980, **4**, 1-55 (*rev*)
Mudd, J.B. *et al., Chemistry*, 1981, **94**, 61720 (*biosynth, rev*)
Son, B.W. *et al., Phytochemistry*, 1990, **29**, 307-309 (*Gracilaria verucosa*)
Son, B.W. *et al., Bull. Korean Chem. Soc.*, 1992, **13**, 584-586 (*3-octadecanoyl, 3-hexadecanoyl*)
Sahara, H. *et al., Br. J. Cancer*, 1997, **75**, 324-332 (*Strongylocentrus intermedius*)
Wang, J. *et al., Carbohydr. Res.*, 1998, **307**, 347-350 (*isol, pmr*)

6-Deoxy-6-*C*-sulfoglucose D-369

Sulfoquinovose



α-D-Pyranose-*form*

$C_6H_{12}O_8S$ 244.222

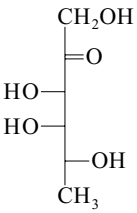
D-*form*

Present in sulfoquinovosyldiacylglycerol, the lipid associated with photosynthesis. Important component of the biological sulfur cycle.
Powder + $1H_2O$ (as K salt). $[\alpha]_{Hg}^{20}$ +71.7 → +49.7 (c, 1.5 in H_2O) (K salt).

Roy, A.B. *et al., Carbohydr. Res.*, 1997, **302**, 113-117 (*synth, bibl*)

6-Deoxytagatose D-370

6-Deoxy-lyxo-*2-hexulose. Tagatomethylose*



D–*form*

$C_6H_{12}O_5$ 164.158

D-*form* [18546-17-3]
Syrup. $[\alpha]_D^{18}$ -2 (c, 2.0 in H_2O).

4-Nitrophenylhydrazone:
Cryst. (EtOH). Mp 160-161°. $[\alpha]_D^{17}$ +72.5 (c, 0.6 in MeOH).

o-*Nitrophenylosazone:* Mp 160-168°. $[\alpha]_D$ +72.5 (MeOH).

D-Furanose-*form*

1,2:3,4-Di-O-*isopropylidene: 6-Deoxy-1,2:3,4-di*-O-*isopropylidene*-D-*tagatofuranose*
$C_{12}H_{20}O_5$ 244.287
Mp 8-9°. $Bp_{0.4}$ 73-75°. $[\alpha]_D^{17}$ +79.7 (c, 14 in Me_2CO).

L-*form*

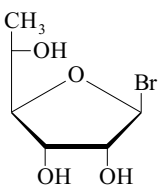
Mp 68-69°. $[\alpha]_D$ +3 (c, 2 in H_2O).

4-Nitrophenylhydrazone: Mp 161-162°. $[\alpha]_D^{20}$ -69 (c, 0.6 in MeOH).

4-Nitrophenylosazone: Mp 161-162°. $[\alpha]_D$ -69.5 (MeOH).

Barnett, J. *et al., Helv. Chim. Acta*, 1937, **20**, 1529 (D-*form,* L-*form,* D-*diisopropylidene,* D-*nitrophenylhydrazone,* L-*nitrophenylhydrazone*)
Barnett, J. *et al., Helv. Chim. Acta*, 1938, **21**, 913 (L-*form*)
Butterworth, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 279 (*rev*)

6-Deoxytalofuranosyl bromide D-371



$C_6H_{11}BrO_4$ 227.054

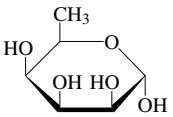
α-L-*form*

Tris(4-nitrobenzoyl): [80851-32-7]
Yellowish-white cryst. (CH_2Cl_2/hexane). Mp 149° dec.

El Khadem, H.S. *et al., Carbohydr. Res.*, 1981, **98**, 195 (*nitrobenzoyl, ir*)

6-Deoxytalose, 9CI D-372

Talomethylose. Epifucose. Pnemose
[7420-19-1]



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 30° contains 44% α-pyr, 28% β-pyr, 16% α-fur, 11% β-fur.

D-*form*

Component of the extracellular polysaccharide from *Butyrivibrio fibrisolvens* strain X6C61, in *Mycobacterium* glycolipids and other bacterial sources.
Mp 129-131°. $[\alpha]_D$ +20.6 (H_2O).

Phenylhydrazone: Mp 140-141°.

3-Me: 6-Deoxy-3-O-*methyl*-D-*talose*
$C_7H_{14}O_5$ 178.185
Constit. of the lipopolysaccharide of *Rhodopseudomonas palustris*. Syrup. $[\alpha]_D^{25}$ +16.5 (H_2O).

α-D-Pyranose-*form*

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6-deoxy-α*-D-*talopyranoside*
[15830-76-9]
$C_{13}H_{20}O_8$ 304.296
Cryst. ($CHCl_3$/hexane). Mp 91-92°. $[\alpha]_D^{26}$ +76 (c, 1.13 in MeOH).

Me glycoside, 2,3-isopropylidene: Methyl 6-deoxy-2,3-O-*isopropylidene-α*-D-*talopyranoside*
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D$ +48.9 (c, 1.3 in MeOH).

Me glycoside, 4-mesyl: Methyl 6-deoxy-4-O-*mesyl-α*-D-*talopyranoside*
$C_8H_{16}O_7S$ 256.276
Cryst. (Et_2O/pentane). Mp 102-104°. $[\alpha]_D$ -95.7 (c, 1.0 in MeOH).

Me glycoside, 2,3-O-*isopropylidene, 4-mesyl: Methyl 6-deoxy-2,3*-O-*isopropylidene-4*-O-*mesyl-α*-D-*talopyranoside*
[15830-64-5]
$C_{11}H_{20}O_7S$ 296.341
Needles (EtOH aq.). Mp 112-114°. $[\alpha]_D^{27}$ +20.2 (c, 0.8 in MeOH).

L-*form* [7658-10-8]
Constit. of the cardiac glycoside Sarmentoside A (see 3,5,11,14-Tetrahydroxy-19-oxocard-20(22)-enolide) and of glycolipids of *Mycobacterium avium* and *Pseudomonas pseudomallei*. Constit. of the antigenic glycan from *Salmonella bovis* and the virulent strains of *Actinomyces viscosus* and *Actinomyces naeslundii*.
Cryst. ($EtOH/Me_2CO$).
Mp 126-127°. $[\alpha]_D$ -20.5 (H_2O).

4-Bromophenylhydrazone: Mp 145-147°.

2-Me: 6-Deoxy-2-O-*methyl*-L-*talose*
$C_7H_{14}O_5$ 178.185
$[\alpha]_D^{20}$ -6 (c, 2.0 in H_2O).

3-Me: 6-Deoxy-3-O-*methyl*-L-*talose. Acovenose*
[642-33-1]
$C_7H_{14}O_5$ 178.185
Occurs in *Mycobacterium avium* polysaccharides and in plant glycosides (see

Acovenosides in 1,3,14-Trihydroxycard-20(22)-enolide). Syrup. $Bp_{0.01}$ 85°. $[\alpha]_D^{18}$ -29.6 (c, 1.1 in H_2O) (-14.2).

α-L-Pyranose-*form*

Me glycoside: Methyl 6-deoxy-α-L-talopyranoside
$C_7H_{14}O_5$ 178.185
Mp 63-65°. $[\alpha]_D^{20}$ -104 (c, 2.1 in H_2O).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-deoxy-α-L-talopyranoside*
[2592-54-3]
$C_{13}H_{20}O_8$ 304.296
Needles (petrol). Mp 90-91°. $[\alpha]_D$ -77 (c, 0.6 in MeOH). $[\alpha]_D^{20}$ -129 (c, 0.7 in H_2O).

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 6-deoxy-2,3-*O*-isopropylidene-α-L-talopyranoside*
[24562-43-4]
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D$ -49 (c, 1.3 in MeOH).

*Me glycoside, 2,3-*O*-isopropylidene, 4-Ac: Methyl 4-*O*-acetyl-6-deoxy-2,3-*O*-isopropylidene-α-L-talopyranoside*
$C_{12}H_{20}O_6$ 260.286
Mp 118-119°. $[\alpha]_D$ -38 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-mesyl: Methyl 6-deoxy-2,3-*O*-isopropylidene-4-*O*-mesyl-α-L-talopyranoside*
[22594-25-8]
$C_{11}H_{20}O_7S$ 296.341
Cryst. (Et_2O/petrol). Mp 116-117°. $[\alpha]_D$ -19 (c, 0.6 in $CHCl_3$).

Benzyl glycoside: Benzyl 6-deoxy-α-L-talopyranoside
$C_{13}H_{18}O_5$ 254.282
Cryst. (hexane). Mp 87-88°. $[\alpha]_D^{20}$ -94.4 (c, 1.7 in H_2O).

*Benzyl glycoside, tri-Ac: Benzyl 2,3,4-tri-*O*-acetyl-6-deoxy-α-L-talopyranoside*
$C_{19}H_{24}O_8$ 380.394
Syrup. $[\alpha]_D^{26}$ -90.4 (c, 2.0 in $CHCl_3$).

*Benzyl glucoside, 2,3-isopropylidene: Benzyl 6-deoxy-2,3-*O*-isopropylidene-α-L-talopyranoside*
$C_{16}H_{22}O_5$ 294.347
Cryst. (cyclohexane). Mp 41-42°. $[\alpha]_D^{27}$ -68.2 (c, 2.0 in $CHCl_3$).

*Benzyl glycoside, 3,4-isopropylidene: Benzyl 6-deoxy-3,4-*O*-isopropylidene-α-L-talopyranoside*
$C_{16}H_{22}O_5$ 294.347
Cryst. (petrol). Mp 75-76°. $[\alpha]_D^{20}$ -97.7 (c, 2.7 in $CHCl_3$).

β-L-Pyranose-*form*

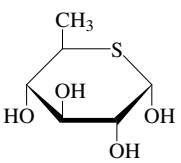
Me glycoside: Methyl 6-deoxy-β-L-talopyranoside
[109718-81-2]
$C_7H_{14}O_5$ 178.185
Prisms (Et_2O/hexane). Mp 105-106°. $[\alpha]_D^{18}$ +68.2 (c, 0.47 in MeOH).

α-L-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 6-deoxy-2,3-*O*-isopropylidene-α-L-talofuranoside*
[28538-26-3]
$C_{10}H_{18}O_5$ 218.249
Bp_1 90-95°. $[\alpha]_D^{27}$ -54 (c, 1.58 in MeOH).

Schmutz, J. *et al., Helv. Chim. Acta*, 1948, **31**, 1719 (*L-form, isol, synth*)
Euw, J.V. *et al., Helv. Chim. Acta*, 1950, **33**, 485 (*isol, 3-Me*)
Reist, E.J. *et al., J.A.C.S.*, 1958, **80**, 5775, (*α-L-Me fur isopropylidene*)
Reichstein, T. *et al., Adv. Carbohydr. Chem.*, 1962, **17**, 65 (*occur, rev, 3-Me*)
MacLennan, A.P. *et al., Biochem. J.*, 1962, **82**, 394 (*isol*)
Collins, P.M. *et al., J.C.S.*, 1965, 1912 (*L-form, synth, α-L-Me pyr, α-L-Me pyr tri-Ac*)
Kapur, B.M. *et al., Helv. Chim. Acta*, 1968, **51**, 89 (*L-form, 3-Me*)
Stevens, C.L. *et al., J.O.C.*, 1968, **33**, 1586, (*α-D-Me pyr tri-Ac, α-D-Me pyr isopropylidene mesyl*)
King, R.D. *et al., Carbohydr. Res.*, 1969, **9**, 423 (*pmr*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1969, 1270 (*α-L-Me pyr isopropylidene, α-L-Me pyr isopropylidene mesyl, α-L-Me pyr tri-Ac*)
Butterworth, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 279 (*rev*)
Al-Radhi, A.K. *et al., J.C.S. Perkin 1*, 1972, 315 (*α-L-Me pyr isopropylidene Ac*)
Weckesser, J. *et al., Biochem. J.*, 1973, **135**, 293 (*D-form, 3-Me, isol, synth*)
Gaugler, R.W. *et al., CA*, 1974, **81**, 73 545p (*biosynth*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1983, **121**, 61 (*synth, 2-Me, 3-Me, benzyl gly derivs*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Mori, M. *et al., Chem. Pharm. Bull.*, 1986, **34**, 4037 (*L-form, synth, β-L-Me pyr*)
Zsoldos-Mády, V. *et al., Monatsh. Chem.*, 1986, **117**, 1325 (*synth, L-form*)
Eis, M.J. *et al., Carbohydr. Res.*, 1988, **176**, 316 (*α-D-Me gly isopropylidene, Me gly 4-mesyl*)
Stack, R.J. *et al., Carbohydr. Res.*, 1989, **189**, 281 (*occur, bibl*)
Hung, S.C. *et al., Carbohydr. Res.*, 2001, **331**, 369-374 (*L-Acovenose, synth*)

6-Deoxy-5-thioglucose, 9CI D-373



α-D-Pyranose-*form*

$C_6H_{12}O_4S$ 180.224

D-*form* [185802-10-2]
Syrup. $[\alpha]_D$ +157 (c, 1.0 in Py).

D-Pyranose-*form*

*1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-deoxy-5-thio-D-glucopyranose*
[185802-54-4]
$C_{14}H_{20}O_8S$ 348.373
Obt. as a 4:1 α:β anomeric mixt.

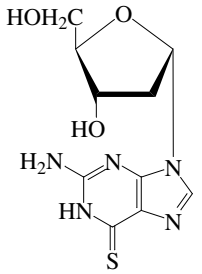
α-D-Pyranose-*form*

*Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-deoxy-5-thio-α-D-glucopyranoside*
[185802-82-8]
$C_{13}H_{20}O_7S$ 320.363
Mp 92-95°. $[\alpha]_D$ +236 (c, 0.5 in $CHCl_3$).

Bozó, E. *et al., Carbohydr. Res.*, 1996, **290**, 159-173

2′-Deoxythioguanosine D-374

*2-Amino-9-(2-deoxy-*erythro*-pentofuranosyl)-1,9-dihydro-6*H*-purine-6-thione, 9CI*



α-*form*

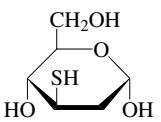
$C_{10}H_{13}N_5O_3S$ 283.31
Immunosuppressant. Log P -3.71 (calc).

α-D-*form* [2133-81-5]
Cryst. (H_2O). Mp 170° dec. $[\alpha]_D^{24}$ +65 (0.1*N* NaOH).
▶ UP0745000

β-D-*form* [789-61-7]
Cryst. (H_2O). Mp 190° dec. $[\alpha]_D^{25}$ -32 (c, 0.1*N* NaOH).
▶ UP0750000

Iwamoto, R.H. *et al., J. Med. Chem.*, 1963, **6**, 684 (*α-D-form, β-D-form, synth*)
Iwamoto, R.H. *et al., Nature (London)*, 1963, **198**, 285 (*synth*)
Kimball, A.P. *et al., Proc. Soc. Exp. Biol. Med.*, 1967, **126**, 181; *CA*, **68**, 11584y (*pharmacol*)
Henry, M.C. *et al., Cancer Chemother. Rep., Part 3*, 1974, **5**, 9; *CA*, **82**, 25808a (*tox*)
Roark, D.N. *et al., Nucleic Acid Chem.*, 1978, **2**, 583 (*synth*)
Acton, E.M. *et al., J. Med. Chem.*, 1979, **22**, 518 (*sar*)

2-Deoxy-3-thio-*arabino*-hexose D-375



α-D-Pyranose-*form*

$C_6H_{12}O_3S$ 164.225

D-*form*

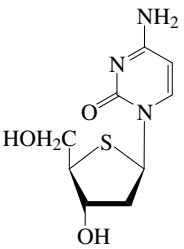
S-*Et, 4,6-di-Ac: 4,6-Di-*O*-acetyl-2-deoxy-3-*S*-ethyl-3-thio-D-*arabino*-hexopyranose. 4,6-Di-*O*-acetyl-2,3-dideoxy-3-(ethylthio)-D-*arabino*-hexopyranose*
[131853-24-2]
$C_{12}H_{20}O_6S$ 292.352
Oil. α:β-anomeric ratio 3:1.

S-tert-*Butyl, 4,6-di-Ac: 4,6-Di-*O*-acetyl-S-tert-butyl-2-deoxy-3-thio-D-*arabino*-hexopyranose. 4,6-Di-*O*-acetyl-3-(tert-butylthio)-2,3-dideoxy-D-*arabino*-hexopyranose*
$C_{14}H_{24}O_6S$ 320.406
Mp 138-140°.

Lau, J. *et al., Acta Chem. Scand.*, 1990, **44**, 1046 (*synth, pmr, cmr*)

1-(2-Deoxy-4-thiopentofuranosyl)cytosine D-376

4-Amino-1-(2-deoxy-4-thiopentofuranosyl)-2(1H)-pyrimidinone, 9CI



β-D-*erythro-form*

$C_9H_{13}N_3O_3S$ 243.286

β-D-*erythro-form*
2′-Deoxy-4′-thiocytidine
[134111-30-1]
Amorph. hygroscopic powder (EtOH). Mp 129-132°.

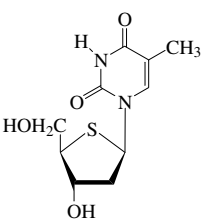
α-L-*erythro-form* [219662-11-0]
Mp 210-212°. $[\alpha]_D^{24}$ -54.5 (c, 0.11 in MeOH).

β-L-*erythro-form* [160452-69-7]
Cryst. (Et_2O). Mp 212-214°. $[\alpha]_D^{24}$ +31.2 (c, 0.1 in MeOH).

α-L-*threo-form* [338742-39-5]
Solid. Mp 185°. $[\alpha]_D^{20}$ -61.5 (c, 1.0 in MeOH).
Secrist, J.A. *et al., J. Med. Chem.*, 1991, **34**, 2361 (*synth, pmr, cmr*)
Uenishi, J. *et al., Nucleosides Nucleotides*, 1994, **13**, 1347-1361 (*synth, pmr, cmr, ms*)
De Valette, F. *et al., Nucleosides Nucleotides*, 1998, **17**, 2289-2310 (*synth, pmr*)
Wirsching, J. *et al., Eur. J. Org. Chem.*, 2001, 1077-1087 (*synth, pmr, cmr*)

1-(2-Deoxy-4-thiopentofuranosyl)thymine, 9CI D-377

1-(2-Deoxy-4-thiopentofuranosyl)-5-methyl-2,4(1H,3H)-pyrimidinedione, 9CI



β-D-*erythro-form*

$C_{10}H_{14}N_2O_4S$ 258.298
Shows antiviral activity. $[\alpha]_D^{24}$ -32.7 (c, 1.0 in MeOH).

α-D-*erythro-form* [134111-35-6]
Cryst. (EtOH). Mp 205-207° (194-196°).

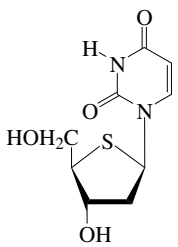
β-D-*erythro-form*
4′-Thiothymidine, 9CI
[134111-33-4]
Cryst. (EtOH). Mp 213-215°.
5′-Ac: [160452-63-1]
$C_{12}H_{16}N_2O_5S$ 300.335
Cryst. (EtOH). Mp 170-172°. $[\alpha]_D^{24}$ -26.7 (c, 0.5 in EtOH).

α-L-*threo-form* [153439-73-7]
Solid (EtOH). Mp 180° (165-167°). $[\alpha]_D^{20}$ -79.2 (c, 1.0 in MeOH).

β-L-*threo-form* [153439-74-8]
Solid (EtOH). Mp 220° (208-209°). $[\alpha]_D^{25}$ +28.3 (c, 1.0 in MeOH).
Secrist, J.A. *et al., J. Med. Chem.*, 1991, **34**, 2361-2366 (*synth, uv, pmr, cmr*)
Dyson, M.R. *et al., J. Med. Chem.*, 1991, **34**, 2782-2786 (*synth, uv, pmr*)
Tiwari, K.N. *et al., Nucleosides Nucleotides*, 1993, **12**, 841-846 (*synth, pmr*)
Uenishi, J. *et al., Nucleosides Nucleotides*, 1994, **13**, 1347-1361 (*synth, pmr, cmr, ms, 5′-Ac*)
Hancox, E.L. *et al., Nucleosides Nucleotides*, 1996, **15**, 135-148 (*synth, pmr*)
Wirshing, J. *et al., Eur. J. Org. Chem.*, 2001, 1077-1087 (*synth, ir, pmr, cmr*)

1-(2-Deoxy-4-thiopentofuranosyl)uracil, 9CI D-378

1-(2-Deoxy-4-thiopentofuranosyl)-2,4(1H,3H)-pyrimidinedione, 9CI



β-D-*erythro-form*

$C_9H_{12}N_2O_4S$ 244.271
$[\alpha]_D^{24}$ -30.7 (c, 0.5 in MeOH).

α-D-*erythro-form* [134111-34-5]
Cryst. (EtOH). Mp 190-192° (184-187°).
5′-Ac: [160452-62-0]
$C_{11}H_{14}N_2O_5S$ 286.308
Cryst. (EtOH). Mp 139-142°. $[\alpha]_D^{24}$ -23.5 (c, 0.13 in EtOH).

β-D-*erythro-form* *2′-Deoxy-4′-thiouridine*
[134111-32-3]
Cryst. (EtOH). Mp 186-188°.

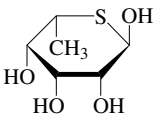
α-L-*erythro-form* [219662-10-9]
$[\alpha]_D^{24}$ -46 (c, 0.69 in MeOH).

β-L-*erythro-form* [160452-67-5]
Mp 190-192°. $[\alpha]_D^{24}$ +28 (c, 0.25 in MeOH).

α-L-*threo-form* [338742-30-6]
Cryst. (H_2O). Mp 180°. $[\alpha]_D^{20}$ +91 (c, 1.0 in MeOH).

β-L-*threo-form* [338742-44-2]
Cryst. (H_2O). Mp 220°. $[\alpha]_D^{20}$ -2.2 (c, 1.0 in MeOH).
Secrist, J.A. *et al., J. Med. Chem.*, 1991, **34**, 2361-2366 (*synth, uv, pmr, cmr*)
Uenishi, J. *et al., Nucleosides Nucleotides*, 1994, **13**, 1347-1361 (*synth, pmr, cmr*)
Otter, G.P. *et al., J.C.S. Perkin 2*, 1998, 2343-2349 (*synth, pmr, cmr*)
De Valette, F. *et al., Nucleosides Nucleotides*, 1998, **17**, 2289-2310 (*synth, pmr*)
Wirsching, J. *et al., Eur. J. Org. Chem.*, 2001, 1077-1087 (*synth, cryst struct, pmr*)

6-Deoxy-5-thiotalose D-379



α-L-Pyranose-*form*

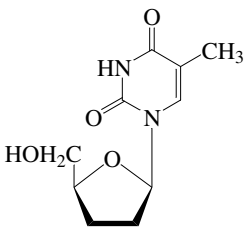
$C_6H_{12}O_4S$ 180.224

L-Pyranose-*form* [14620-59-8]
Mp 111-114°. $[\alpha]_D^{26}$ -130 (c, 1.0 in MeOH).
*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-thio-L-talopyranose*
$C_{14}H_{20}O_8S$ 348.373
Cryst. (MeOH). Mp 131-132°.

α-L-Furanose-*form*
Me glycoside, 2,3-isopropylidene, S*-benzoyl: Methyl 6-deoxy-2,3-*O*-isopropylidene-5-thiobenzoyl-α-L-talofuranoside*
[14990-72-8]
$C_{17}H_{22}O_5S$ 338.424
Cryst. Mp 104-105°. $[\alpha]_D^{27}$ -3.4 (c, 1.0 in MeOH).
Owen, L.N. *et al., J.C.S.(C)*, 1966, 1291 (*synth*)
Stevens, C.L. *et al., Tet. Lett.*, 1967, 649 (*synth, struct*)

3′-Deoxythymidine, 9CI D-380

2′,3′-Dideoxy-5-methyluridine
[3416-05-5]



$C_{10}H_{14}N_2O_4$ 226.232
Cryst. (MeOH), or needles (EtOAc). Mp 150-152°.

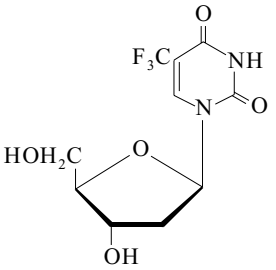
5′-Phosphate: 3′-Deoxy-5′-thymidylic acid, 9CI
[3715-64-8]
$C_{10}H_{15}N_2O_7P$ 306.212
Solid $+8H_2O$ (as Ba salt).

5′-Triphosphate: [611-60-9]
$C_{10}H_{17}N_2O_{13}P_3$ 466.171
Solid (as Li salt).

Michelson, A.M. *et al., J.C.S.*, 1955, 816-823 (*synth, props*)
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1963, **11**, 961-967 (*triphosphate, synth, uv*)
Pfitzner, K.E. *et al., J.O.C.*, 1964, **29**, 1508-1511 (*synth, prop, monophosphate*)
Horwitz, J.P. *et al., J.O.C.*, 1966, **31**, 205-211 (*synth*)
Zemlicka, J. *et al., J.A.C.S.*, 1975, **97**, 4089-4095 (*pmr*)
Prisbe, E.J. *et al., Synth. Commun.*, 1985, **15**, 401-409 (*synth, uv, pmr*)
Sekine, M. *et al., J.O.C.*, 1990, **55**, 924-928 (*synth, pmr*)
Filichev, V.V. *et al., Bioorg. Med. Chem.*, 2004, **12**, 2843-2851 (*synth*)

2′-Deoxy-5-(trifluoromethyl)uridine, 8CI D-381

α,α,α-Trifluorothymidine, 9CI. ***Trifluridine, INN, USAN***. *Bephen. Thilol. Triherpine. Viromidin. Viroptic. F_3T. NSC 75520*
[70-00-8]



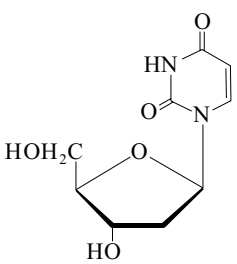
$C_{10}H_{11}F_3N_2O_5$ 296.203
Ophthalmic antiviral agent. Used in treatment of herpetic keratitis. Cryst. (EtOAc). Mp 186-189°. $[\alpha]_D^{20}$ +46.9 (H_2O). Log P -0.97 (calc).

▶ Mutagenic props. LD_{50} (mus, ipr) 1931 mg/kg. XP2087500

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 376A (*nmr*)
Heidelberger, C. *et al., J.A.C.S.*, 1962, **84**, 3597 (*synth*)
Ryan, K.J. *et al., J.O.C.*, 1966, **31**, 1181 (*synth*)
Cushley, R.J. *et al., J.A.C.S.*, 1968, **90**, 709 (*nmr*)
Heidelberger, C. *et al., Pharmacol. Ther.*, 1979, **6**, 427 (*rev, pharmacol*)
Kobayashi, Y. *et al., J.C.S. Perkin 1*, 1980, 2755 (*synth*)
Carmine, A.A. *et al., Drugs*, 1982, **23**, 329 (*rev, pharmacol*)
Schwarz, B. *et al., J. Prakt. Chem.*, 1984, **326**, 985 (*synth*)
Riegel, M.R. *et al., J. Chromatogr.*, 1991, **568**, 467 (*hplc*)
Tandon, M. *et al., Biochem. Pharmacol.*, 1992, **44**, 2223; 1994, **48**, 1033 (*metab*)
Harris, D.J. *et al., N. Engl. J. Med.*, 1994, **331**, 481 (*use*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 662
Komatsu, H. *et al., Org. Process Res. Dev.*, 2002, **6**, 847-850 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TKH325

2′-Deoxyuridine, 9CI D-382

*1-(2-Deoxy-β-D-*erythro*-pentofuranosyl)uracil. 1-(2-Deoxy-β-D-ribofuranosyl) uracil*
[951-78-0]



$C_9H_{12}N_2O_5$ 228.204
Isol. from *Acanthaster planci, Acanthaster pauci, Aplidium pantherinum, Chara globularis* and *Ptychodera flava*. Cryst. (MeOH).
Mp 167° (163.5°). $[\alpha]_D$ +30 (H_2O). $[\alpha]_D$ +50 (1*M* NaOH). λ_{max} 262 (ϵ 10200).

▶ YU7490000

5′-Phosphate: 2′-Deoxy-5′-uridylic acid, 9CI
[964-26-1]
$C_9H_{13}N_2O_8P$ 308.184

5′-Ac:
$C_{11}H_{14}N_2O_6$ 270.241
Mp 96°.

5′-Trityl: [14270-73-6]
$C_{28}H_{26}N_2O_5$ 470.524
Mp 204-205°.

N-*Me:* ***2′-Deoxy-3-methyluridine, 9CI***
[24514-32-7]
$C_{10}H_{14}N_2O_5$ 242.231
Isol. from the marine sponge *Geodia baretti*. Plates (EtOAc).
Mp 98-100°.

5′-Carboxylic acid: ***2′-Deoxyuridine-5′-carboxylic acid***
[3180-30-1]
$C_9H_{10}N_2O_6$ 242.188
Constit. of the ascidian *Aplidium fuscum*. Plates (H_2O).
Mp 226-227° dec. (222-223°).

5′-Carboxylic acid amide: 2′-Deoxyuridine-5′-carboxamide
[68382-10-5]
$C_9H_{11}N_3O_5$ 241.203
Mp 257-258° dec.

5-Fluoro: See 2′-Deoxy-5-fluorouridine, D-114

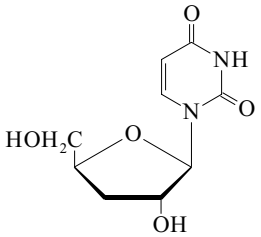
5-Bromo: See 5-Bromo-2′-deoxyuridine, B-101

5′-Triphosphate: [1173-82-6]
$C_9H_{15}N_2O_{14}P_3$ 468.144
Cell nucleic acid constit.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 816A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 374B (*nmr*)
Dekker, C.A. *et al., Nature (London)*, 1950, **166**, 557 (*synth*)
Brown, D.M. *et al., J.C.S.*, 1958, 3035 (*synth*)
Fox, J.J. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 283 (*rev*)
U.S. Pat., 1966, 3 280 104; *CA*, **66**, 38207y
Kikugawa, K. *et al., Chem. Pharm. Bull.*, 1969, **17**, 785 (*synth, deriv*)
Rahman, A. *et al., Acta Cryst. B*, 1972, **28**, 2260 (*cryst struct*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497 (*conformn, pmr*)
Sprecher, C.A. *et al., Biopolymers*, 1977, **16**, 2243 (*cd*)
Schinazi, R.F. *et al., J. Med. Chem.*, 1978, **21**, 1141 (*synth, acid*)
Brokes, J. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 439 (*synth*)
Akhrem, A.A. *et al., Org. Magn. Reson.*, 1979, **12**, 247 (*cmr*)
Komori, T. *et al., Annalen*, 1980, 653-668 (*isol*)
Barr, P.J. *et al., Tetrahedron*, 1980, **36**, 1269 (*cryst struct*)
Ludwig, J. *et al., Synthesis*, 1982, 32-34, (*5′-phosphate*)
Sakema, S. *et al., Comp. Biochem. Physiol., B: Comp. Biochem.*, 1985, **82**, 107-109 (*isol*)
Dematte, N. *et al., Comp. Biochem. Physiol., B: Comp. Biochem.*, 1986, **84**, 11 (*isol, acid*)
Lidgren, G. *et al., J. Nat. Prod.*, 1988, **51**, 1277-1280 (*2′-Deoxy-3-methyluridine*)
Rimerman, R.A. *et al., J. Chromatogr., B: Biomed. Appl.*, 1993, **619**, 29-35, (*5′-triphosphate*)

3′-Deoxyuridine, 9CI D-383

[7057-27-4]

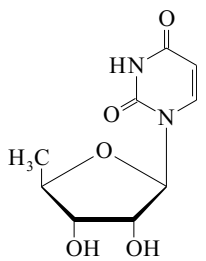


$C_9H_{12}N_2O_5$ 228.204
Needles (MeOH). Mp 181-182° (178°).

Brown, D.M. *et al., J.C.S.*, 1958, 3028 (*synth*)
Walton, E. *et al., J.O.C.*, 1966, **31**, 1163 (*synth*)
Johnston, G.A.R. *et al., Aust. J. Chem.*, 1968, **21**, 513 (*synth*)
Lin, T.-S. *et al., J. Med. Chem.*, 1991, **34**, 693 (*synth, uv, pmr*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1995, **43**, 2005 (*synth, uv, pmr*)
Miah, A. *et al., J.C.S. Perkin 1*, 1998, 3277-3283 (*synth, pmr, cmr*)

5′-Deoxyuridine, 9CI D-384

[15958-99-3]

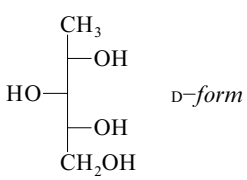


$C_9H_{12}N_2O_5$ 228.204
Cryst. (MeCN). Mp 187-189° (183-185°). $[\alpha]_D^{25}$ +9.5 (c, 1 in H_2O).

Codington, J.F. *et al., J.A.C.S.*, 1960, **82**, 2794 (*synth*)
Hein, L. *et al., Nucleic Acids Res.*, 1976, **3**, 1125 (*synth*)
Kimura, J. *et al., Bull. Chem. Soc. Jpn.*, 1984, **57**, 2017 (*synth, uv*)
Mayer, J.D. *et al., Mol. Pharmacol.*, 1985, **28**, 454 (*pharmacol*)
Mickhailov, S.N. *et al., Khim. Geterotsikl. Soedin.*, 1988, 91; *CA*, **109**, 70787 (*synth*)

1-Deoxyxylitol D-385

5-Deoxyxylitol
[62137-56-8]



$C_5H_{12}O_4$ 136.147

D-*form*

1-Deoxy-D-xylitol. 5-Deoxy-L-xylitol
[68832-17-7]
Constit. of the fruit of *Foeniculum vulgare* (fennel).
Cryst. (EtOH aq).
Mp 77-78°. $[\alpha]_D$ 0 (H_2O).

Tetra-Ac: Tetra-O-acetyl-1-deoxy-D-xylitol
$C_{13}H_{20}O_8$ 304.296
Prisms ($CHCl_3$/pentane). Mp 62-63°. $[\alpha]_D^{20}$ +10.4 (c, 1.0 in $CHCl_3$).

2,4-Methylene: 1-Deoxy-2,4-methylene-D-xylitol
$C_6H_{12}O_4$ 148.158
Cryst. (Et_2O). Mp 70-72°. $[\alpha]_D^{20}$ +5.9 (c, 0.5 in $CHCl_3$).

2,4-Methylene, 5-tosyl: 1-Deoxy-2,4-O-methylene-5-O-tosyl-D-xylitol
$C_{13}H_{18}O_6S$ 302.348
Prisms $^1/_3H_2O$ (Et_2O/pentane). Mp 62-68°. $[\alpha]_D^{20}$ -2.1 (c, 0.85 in $CHCl_3$).

2,4-Methylene, 3,5-ditosyl: 1-Deoxy-2,4-O-methylene-3,5-di-O-tosyl-D-xylitol
$C_{20}H_{24}O_8S_2$ 456.537
Long needles (EtOH). Mp 99-100°. $[\alpha]_D^{20}$ -18.7 (c, 1 in $CHCl_3$).

2,4:3,5-Dimethylene: 1-Deoxy-2,4:3,5-di-O-methylene-D-xylitol
$C_7H_{12}O_4$ 160.169
Mp 154-155°. $[\alpha]_D^{20}$ +33.3 (c, 1 in H_2O).

2,3:4,5-Dibenzylidene: 2,3:4,5-Di-O-benzylidene-1-deoxy-D-xylitol
$C_{19}H_{20}O_4$ 312.365
Silky needles (C_6H_6). Mp 175-176°. $[\alpha]_D^{20}$ -34.5 (C, 0.4 in $CHCl_3$).

L-*form*

2,4:3,5-Dimethylene: 1-Deoxy-2,4:3,5-di-O-methylene-L-xylitol
$C_7H_{12}O_4$ 160.169
Prismatic needles (EtOH). Mp 154-155°. $[\alpha]_D^{20}$ -33.1 (c, 0.8 in H_2O).

DL-*form*

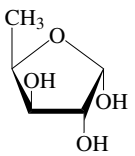
2,4:3,5-Dimethylene: 1-Deoxy-2,4:3,5-di-O-methylene-DL-xylitol
Mp 155-156°.

2,3:4,5-Dibenzylidene: 2,3:4,5-Di-O-benzylidene-1-deoxy-DL-xylitol
$C_{19}H_{20}O_4$ 312.365
Fine needles (EtOH). Mp 173-174°.

[25289-19-4]

Zissis, E. *et al., J.A.C.S.*, 1953, **75**, 129 (*D-form*)
Ness, A.T. *et al., J.A.C.S.*, 1953, **75**, 132, (*L-form, DL-form*)
David, S. *et al., J.C.S. Perkin 1*, 1982, 2131-2137 (*synth*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1991, 197-200 (*conformn*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)

5-Deoxyxylose D-386



α-D-Furanose-*form*

$C_5H_{10}O_4$ 134.132

D-*form* [13039-77-5]
Syrup. $[\alpha]_D^{24}$ +13.3 (H_2O). May oligomerise on isol. Earlier (1935) report may need reinvestigation.

α-D-Furanose-*form*

Me glycoside: Methyl 5-deoxy-α-D-xylofuranoside
[197011-66-8]
$C_6H_{12}O_4$ 148.158
Mp 83-84°. $[\alpha]_D^{21}$ +141.3 (c, 0.5 in $CHCl_3$).

Me glycoside, di-Ac: Methyl 2,3-di-O-acetyl-5-deoxy-α-D-xylofuranose
[56570-76-4]
$C_{10}H_{16}O_6$ 232.233
Syrup. $[\alpha]_D^{22}$ +169.5 (c, 1.6 in $CHCl_3$).

1,2-Isopropylidene: 5-Deoxy-1,2-O-isopropylidene-α-D-xylofuranose
[4152-79-8]
$C_8H_{14}O_4$ 174.196
Oil, crystallising to needles. Mp 66-67°. $[\alpha]_D^{29}$ -20.7 (c, 1.9 in $CHCl_3$).

1,2-Isopropylidene, 3-mesyl: 5-Deoxy-1,2-O-isopropylidene-3-O-mesyl-α-D-xylofuranose
[95141-91-6]
$C_9H_{16}O_6S$ 252.288
Oil. $[\alpha]_D^{27}$ -10.2 (c, 2.10 in $CHCl_3$).

β-D-Furanose-*form*

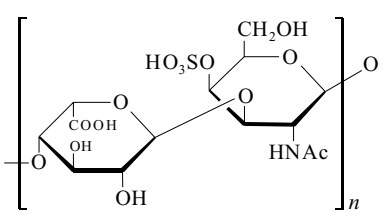
Me glycoside: Methyl 5-deoxy-β-D-xylofuranoside
[21090-81-3]
Syrup, crystallising on standing at -70°. $[\alpha]_D^{24}$ -99.8 (c, 1.9 in H_2O).

Me glycoside, di-Ac: Methyl 2,3-di-O-acetyl-5-deoxy-β-D-xylofuranoside
[56570-77-5]
Syrup. $[\alpha]_D^{23}$ -22.2 (c, 1.7 in $CHCl_3$).

Levene, P.A. *et al., J. Biol. Chem.*, 1935, **111**, 325 (*D-form, synth*)
Sakakibara, T. *et al., Carbohydr. Res.*, 1981, **95**, 291 (*D-form*)
Snyder, J.R. *et al., Carbohydr. Res.*, 1987, **163**, 169 (*D-form, synth*)
Hildebrandt, B. *et al., Carbohydr. Res.*, 1991, **214**, 87 (*synth, pmr, α-D-fur isopropylidene, α-D-fur isopropylidene mesyl*)
Moravcová, J. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1061-1073 (*Me α-D-fur, Me β-D-fur, Me α-D-fur di-Ac, Me β-D-fur di-Ac*)

Dermatan sulfate, 9CI D-387

Chondroitinsulfuric acid type B. β-Heparin



$C_{14}H_{21}NO_{14}S$ 459.384

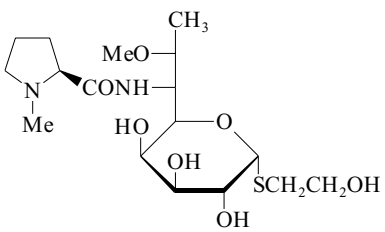
A mucopolysaccharide composed of L-Iduronic acid, *N*-Acetylgalactosamine 4-sulfate linked(1→3) and (1→4) plus small amounts of D-Glucuronic acid. Polymeric. Minimum formula given. Found in skin, blood vessels, heart valves, tendons, aorta, spleen and brain. Usually isol. from pig skin or beef lung tissue. Large amounts are stored in tissue of subjects with Hurler's syndrome and are excreted in the urine. Anticoagulant and antithrombotic agent. $[\alpha]_D$ -55 (H_2O). MW = 2-5 × 10^4.

Desmin 370 [24967-94-0]
Low MW dermatan sulfate (5500D ± 500D). Anticoagulant and antithrombotic agent. Prepared by controlled depolymerisation using $H_2O_2/Fe^{2\oplus}$ or other metal ions.

Brimacombe, J.S. *et al., Mucopolysaccharides*, Elsevier, 1964, 138
Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 114 (*isol*)
Handb. Biochem. Mol. Biol., CRC Press, 3rd Ed., 1975, 356
Hamer, G. *et al., Carbohydr. Res.*, 1976, **49**, 37 (*pmr*)
Lindahl, U. *et al., Int. Rev. Sci.: Org. Chem., Ser. Two*, 1976, **7**, 283
Lindahl, U. *et al., Annu. Rev. Biochem.*, 1978, **47**, 385-417 (*biochem, rev*)
Agnelli, G. *et al., Thromb. Haemostasis*, 1992, **67**, 203-208 (*pharmacol*)
Tamagnone, G. *et al., Drugs of the Future*, 1994, **19**, 638-640 (*Desmin 370, rev*)
Onaya, J. *et al., Cardiovasc. Drug Rev.*, 1999, **17**, 225-236 (*rev*)
Yeung, B.K.S. *et al., J. Carbohydr. Chem.*, 2002, **21**, 799-865 (*rev, synth*)

Desalicetin D-388

[19246-70-9]



$C_{17}H_{32}N_2O_7S$ 408.515
Isol. from *Streptomyces caelestis*. Shows antibiotic props. Structurally related to Lincomycin.

▶ LW5436500

Hydrochloride:
Cryst. $[\alpha]_D^{25}$ +150 (c, 1 in H_2O).

2′-(4-Amino-2-hydroxybenzoyl): Desalicetin 2′-(4-aminosalicylate)
[55051-88-2]
$C_{24}H_{37}N_3O_9S$ 543.637
From *Streptomyces caelestis* with 4-Aminosalicylic acid. Active against gram-positive bacteria. Sol. H_2O, EtOH, MeOH. λ_{max} 208 (ε 13500); 240 (ε 4550); 288 (ε 7300); 306 (ε 9200) (MeOH) (Berdy).

*2′-Butanoyl: **Isocelesticetin B**. Desalicetin 2′-butyrate*
[54202-70-9]
$C_{21}H_{38}N_2O_8S$ 478.606
From *Streptomyces caelestis*.

N-*De-Me, 2′-(4-amino-2-hydroxybenzoyl):* N-*Demethyldesalicetin-2-(4′-aminosalicylate)*
$C_{23}H_{35}N_3O_9S$ 529.61
From *Streptomyces caelestis* with 4-Aminosalicylic acid. Active against gram-positive bacteria.

7-O-*De-Me, 2′-(4-amino-2-hydroxybenzoyl):* 7-O-*Demethyldesalicetin 2-(4-aminosalicylate)*
$C_{23}H_{35}N_3O_9S$ 529.61
From *Streptomyces caelestis* with 4-Aminosalicylic acid. Active against gram-positive bacteria. Sol. H_2O.

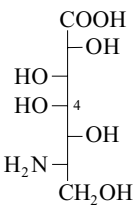
N,O^7-*Di-de-Me, 2′-(4-amino-2-hydroxybenzoyl):* N-*Demethyl-7*-O-*demethyldesalicetin 2-(4-aminosalicylate)*
$C_{22}H_{33}N_3O_9S$ 515.583
From *Streptomyces caelestis* with 4-Aminosalicylic acid. Active against gram-positive bacteria. Sol. H_2O.

2′-Ac: Celesticetin D. Desalicetin 2′-acetate
$C_{19}H_{34}N_2O_8S$ 450.552
Isol. from *Streptomyces caelestis*. Shows antibiotic props. Sol. MeOH.

Argoudelis, A.D. *et al., J. Antibiot.*, 1972, **25**, 194; 1974, **27**, 642; 674; 738 (*isol, struct, nmr, synth, derivs*)
U.S. Pat., 1975, 3 907 774; 3 923 602; *CA*, **84**, 41976; 72641 (*derivs*)

Destomic acid D-389

6-Amino-6-deoxy-L-glycero-*D*-galacto-*heptonic acid*
[14307-79-0]



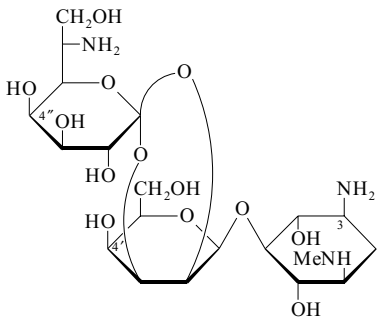
$C_7H_{15}NO_7$ 225.198
Component of destomycin antibiotics (see Destomycin A, D-390.
Mp 200-210°. $[\alpha]_D$ +4.7 (c, 2 in H_2O).

4-Epimer: ***Epidestomic acid****. 6-Amino-6-deoxy-L*-glycero-*D*-gluco-*heptonic acid*
$C_7H_{15}NO_7$ 225.198
Component of destomycins.
Mp 210-215°. $[\alpha]_D$ +17.8 (c, 1 in H_2O) (synthetic).

Hashimoto, H. *et al., Carbohydr. Res.*, 1982, **104**, 87 (*synth*)
Dondoni, A. *et al., Synlett*, 1993, 78 (*synth*)

Destomycin A D-390

XK 33FI. Antibiotic XK 33FI. Anthelmin. Destonate 20
[14918-35-5]



$C_{20}H_{37}N_3O_{13}$ 527.525
Aminoglycoside antibiotics. Isol. from *Streptomyces rimofaciens*. Broad spectrum antibiotic, veterinary anthelmintic. Powder. Sol. H_2O, MeOH; poorly sol. butanol, hexane.
Mp 180-190° dec. $[\alpha]_D^{22}$ +7 (c, 2 in H_2O).
▶ LD_{50} (mus, orl) 50 mg/kg. LD_{50} (mus, ivn) 5 mg/kg. WK2129900

N^3-*Me:* ***Destomycin C****.* N-*Methylhygromycin A. AB 74. Antibiotic AB 74*
[55651-94-0]
$C_{21}H_{39}N_3O_{13}$ 541.551
From *Streptomyces rimofaciens* and *Streptomyces aquacanus*. Broad spectrum antibiotic, anthelmintic. Hygroscopic powder.
Mp 182-190° dec. $[\alpha]_D^{22}$ +9 (c, 1 in H_2O).
Log P -7.68 (uncertain value) (calc).
▶ LD_{50} (mus, ivn) 6.25 mg/kg. WK2129000

N-*De-Me:* ***Antibiotic SS 56D****. A 396I. SS 56D. Antibiotic A 396I*
[31357-30-9]
$C_{19}H_{35}N_3O_{13}$ 513.498
Isol. from *Streptomyces eurocidicus*. Active against gram-positive and -negative bacteria. Amorph. powder. Sol. H_2O, MeOH; fairly sol. EtOH, butanol; poorly sol. Me_2CO, hexane.
Mp 185-190° dec. $[\alpha]_D^{25}$ +12.7 (c, 1.08 in H_2O).
▶ LD_{50} (mus, ivn) 12.5 mg/kg. CB9198000

N-*De-Me,* N^3-*Me:* ***Hygromycin B****. Hygrovetine. Hyanthelmix*
[31282-04-9]
$C_{20}H_{37}N_3O_{13}$ 527.525
Prod. by *Streptomyces hygroscopicus*. FDA approved food additive for swine and poultry. Shows broad-spectrum antibiotic activity. Of practical importance against helminths including ascarids. Amorph.
Mp 160-180° dec. $[\alpha]_D^{26}$ +20.2 (c, 1 in H_2O).
pK_{a1} 7.1; pK_{a2} 8.8.
▶ WK2130000

2S-*Hydroxy,* N-*de-Me:* ***Antibiotic SS 56C****. SS 56C*
[39471-55-1]

[40980-50-5]
$C_{19}H_{35}N_3O_{14}$ 529.497
Isol. from *Streptomyces eurocidicus*. Active against gram-positive and gram-negative bacteria. Amorph. powder. Sol. H_2O; poorly sol. butanol, hexane.
Mp 201-203° dec. $[\alpha]_D^{25}$ +12 (c, 1.08 in H_2O).

2S-*Hydroxy,* N-*de-Me,* N^1-*amidino:* ***1-N-Amidino-1-N-demethyl-2-hydroxydestomycin A***
[96479-74-2]
$C_{20}H_{37}N_5O_{14}$ 571.537
Isol. from *Saccharopolyspora hirsuta*. Weak antibacterial and antifungal agent. Powder +1H_2O (as trihydrochloride). Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane. $[\alpha]_D^{25}$ +7.7 (c, 1 in H_2O). Hydrochloride dec. at 172-183°.
▶ LD_{50} (mus, ivn) 6.25 - 12.5 mg/kg. WK2128700

4′-*Epimer,* N-*de-Me,* N^3-*Me:* ***Antibiotic RH 5012C****. RH 5012C*
[83378-70-5]
$C_{20}H_{37}N_3O_{13}$ 527.525
Prod. by *Streptoverticillium eurocidicum*. Active against gram-positive and -negative bacteria and *Candida albicans*. Powder + 2H_2O. Sol. H_2O; poorly sol. EtOH, hexane, Et_2O.
Mp 191-194° dec. $[\alpha]_D^{20}$ +12.9 (c, 1 in H_2O).
▶ LD_{50} (mus, orl) 100 - 300 mg/kg , LD_{50} (mus, ipr) 6.5 - 11.5 mg/kg. WK2128350

4′,4″-*Diepimer,* N^3-*Me:* ***Destomycin B****. A 16316C. Antibiotic A 16316C*
[11005-98-4]
$C_{21}H_{39}N_3O_{13}$ 541.551
Isol. from *Streptomyces rimofaciens, Streptoverticillium eurocidicum* and *Micromonospora cyaneogranulata*. Broad spectrum antibiotic. Powder.
Mp 140-200° dec., 175-185° dec. $[\alpha]_D^{21}$ +6 (c, 1 in H_2O). Log P -7.68 (uncertain value) (calc).
▶ LD_{50} (mus, orl) 50 mg/kg. LD_{50} (mus, ivn) 5 mg/kg. HH1330000

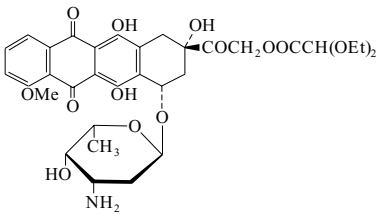
[59794-19-3]

Mann, R.L. *et al., J.A.C.S.*, 1958, **80**, 2714-2716 (*Hygromycin B, isol*)
Wiley, P.F. *et al., J.O.C.*, 1962, **27**, 2793-2796 (*Hygromycin B*)
Kondo, S. *et al., J. Antibiot., Ser. A*, 1965, **18**, 38-42; 1966, **19**, 139-140 (*isol, struct, ir, ms, pmr*)
Neuss, N. *et al., Helv. Chim. Acta*, 1970, **53**, 2314-2319 (*struct*)
Shoji, J. *et al., J. Antibiot.*, 1970, **23**, 391 (*SS56, isol*)
Inouye, S. *et al., J. Antibiot.*, 1973, **26**, 374-385 (*SS 56C, SS 56D*)
Shimura, M. *et al., J. Antibiot.*, 1975, **28**, 83-84 (*Destomycins A-C*)
Shimura, M. *et al., Agric. Biol. Chem.*, 1976, **40**, 611-618 (*Destomycin B*)
Tamura, A. *et al., J. Antibiot.*, 1976, **29**, 590-591; 592-594 (*Destomycin A, AB 74, isol*)
Japan. Pat., 1976, 76 82 793, (*Dainippon*); *CA*, **86**, 15201n (*Destomycin B*)
Wright, D.E. *et al., Tetrahedron*, 1979, **35**, 1207 (*Hygromycin B, Destomycins, rev*)
Horito, S. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 2147-2150 (*cryst struct*)
Yoshimura, J. *et al., CA*, 1981, **96**, 181549; 1986, **105**, 97853 (*rev, synth*)
Japan. Pat., 1982, 82 95 995; *CA*, **97**, 198514 (*RH 5012C*)
Ikeda, Y. *et al., J. Antibiot.*, 1985, **38**, 436, (*1-Amidino-1-demethyl-2-hydroxydestomycin A*)
Tamura, J. *et al., Carbohydr. Res.*, 1988, **174**, 181-199 (*Destomycin C, synth, pmr*)

Kamps-Holtzapple, C. *et al., J. Agric. Food Chem.*, 1994, **42**, 822-827 (*Hygromycin B, anal*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DBB400

Detorubicin, INN D-391

14-Diethoxyacetoxydaunorubicin. RP 33921. NSC 292652
[66211-92-5]



$C_{33}H_{39}NO_{14}$ 673.669

Anthracycline. Semisynthetic. Antineoplastic agent. Log P -0.69 (uncertain value) (calc).

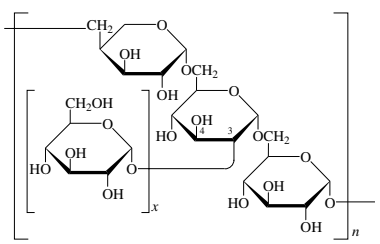
▶ AG9427000

Hydrochloride: $[\alpha]_D^{20}$ +184 (c, 0.2 in EtOH).

Maral, R. *et al., C. R. Hebd. Seances Acad. Sci. Ser. D*, 1978, **286**, 443 (*synth, uv, ir*)
Jacquillat, C. *et al., Cancer Treat. Rep.*, 1979, **63**, 889 (*pharmacol*)
U.S. Pat., 1980, 4 225 589; *CA*, **94**, 121880 (*synth*)
Carter, S.K. *et al., Drugs*, 1980, **20**, 375 (*pharmacol*)
Smith, R.G. *et al., Anal. Chem.*, 1982, **54**, 2006 (*ms*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 12635

Dextran, 9CI, 8CI, BAN, INN D-392

Hemodex. Hyskon. Infucoll. Intradex. Macrose
[9004-54-0]



Bacterial polysaccharides of α-(1-6)-D-Glcp units differing only in chain length and degree of branching which occurs through α(1→3) (illus.) and α(1→4) branch points. M40000 (average for Dextran 40). Many bacteria synthesise Dextran from sucrose. *Leuconostoc mesenteroides* and *Leuconostoc dextranicum* are used commercially. Also prod. by *Lactobacillus confusus* (BP 2865). Used as mol. sieve in a modified form. Mixed ethers and esters are used in lacquers. Plasma volume expander. Chem. and phys. props. differ depending on mode of prodn. Native dextrans have a high Mw, clinical dextrans prod. by synth. or by depolymerisation of native dextrans have a low Mw.

▶ Adverse human systemic effects when used therapeutically. Exp. reprod. and teratogenic effects (large doses) (Dextran 70). LD_{50} (rat, scu) 10700 mg/kg. HH9247500

Na salt, Al complex: ***Detralfate, INN***
[37209-31-7] Antiulcerogenic agent. $[\alpha]_D^{20}$ +83.2 (c, 5 in 1*M* HCl).

▶ LD_{50} (rat, ipr) 200 mg/kg. LD_{50} (rat, scu) 1600 mg/kg. HH2860000

Poly-O-*sulfate:* [9042-14-2]

[9011-18-1] Anticoagulant and antihyperlipoproteinemic agent. Used in affinity chromatography of blood products.
Powder. Heparin-like polysaccharide containing up to three sulfate groups per glucose molecule with a molecular weight range of 4000-500,000 Da.

Poly-O-*2-(diethylaminoethyl):* ***Colextran, INN***. *Detaxtran*
[9015-73-0] Antihypercholesterolaemic agent.

▶ HH9250000

Poly-O-*(carboxymethyl):* [9044-05-7]
Displacing agent for proteins in displacement chromatography on ion exchange resins.
Powder. Sol. MeOH, H_2O, insol. Me_2CO.

Poly(2,3-dihydroxypropyl-2-hydroxy-1, 3-propanediyl) ether: ***Dextranomer, BAN, INN***. *Debrisan*
[56087-11-7] Promotes wound healing.

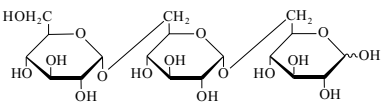
▶ HH9255000

[9011-18-1, 39422-86-1]

Jeanes, A. *et al., J.A.C.S.*, 1954, **76**, 5041
Neely, W. *et al., Adv. Carbohydr. Chem.*, 1960, **15**, 341 (*struct, synth, rev*)
Jeanes, A. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 118; 127 (*synth*)
Ger. Pat., 1969, 1 916 535, (*Meito Sangyo*); *CA*, **72**, 35780 (*Detralfate*)
Murphy, P.T. *et al., Ind. Gums*, (Whistler, R.L., Ed.), 2nd Ed., Academic Press, 1973, 513 (*struct, manuf, rev*)
Sidebotham, R.L. *et al., Adv. Carbohydr. Chem. Biochem.*, 1974, **30**, 371 (*rev*)
Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845 (*cmr*)
Weetman, D.F. *et al., Drugs of Today (Barcelona)*, 1978, **14**, 360 (*pharmacol, Dextranomer*)
Walker, G.J. *et al., Int. Rev. Biochem.*, 1978, **16**, 75 (*rev*)
Seymour, F.R. *et al., Carbohydr. Res.*, 1979, **74**, 77-92 (*pmr*)
Kennedy, J.F. *et al., Compr. Org. Chem.*, (Drayton, C.J., Ed.), Pergamon Press, Oxford, Part 26, 1979, **5**, 790 (*rev*)
Heel, R.C. *et al., Drugs*, 1979, **18**, 89 (*rev, pharmacol, Dextranomer*)
Alsop, R.M. *et al., Prog. Ind. Microbiol.*, 1983, **18**, 1 (*rev, manuf, fermn*)
Guizard, C. *et al., Macromolecules*, 1984, **17**, 100 (*cryst struct*)
Forsgren, M. *et al., J.C.S. Perkin 1*, 1985, **11**, 2383 (*pmr*)
Encyclopaedia of Polymer Science and Engineering, 1986, **4**, 752 (*rev*)
Peterson, E.A. *et al., Methods Enzymol.*, 1987, **138**, 429-442 (*carboxymethyl ether*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 650; 651; 652
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 792-793
Mähner, C. *et al., Carbohydr. Res.*, 2001, **331**, 203-208 (*sulfate, synth*)
Merck Index, 13th edn., 2001, No. 2953; No. 2965; No. 2968 (*Colextran, Dextran, Dextranomer*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DBB500; DBD000; DBD200; DBD400; DBD600; DHW600; DBD700; DBC800

Dextrantriose D-393

O-α-D-*Glucopyranosyl-(1→6)*-O-α-D-*glucopyranosyl-(1→6)*-D-*glucose, 9CI. 6-α-Isomaltosyl-*D-*glucose. Isomaltotriose*
[3371-50-4]



$C_{18}H_{32}O_{16}$ 504.441
Occurs in Saké, honeydew etc. Formed by acid hydrol. of Dextran and by the action of transglucosidase (enzyme of *Aspergillus oryzae*) on Maltose.
$[\alpha]_D$ +134 (c, 0.5 in H_2O).

Undecabenzoyl:
$C_{95}H_{76}O_{27}$ 1649.629
Mp 226-227°. $[\alpha]_D$ +131 ($CHCl_3$).

Pazur, J.H. *et al., J. Biol. Chem.*, 1952, **196**, 265 (*isol*)
Jeans, A. *et al., J.A.C.S.*, 1953, **75**, 5911
Takiura, K. *et al., Chem. Pharm. Bull.*, 1973, **21**, 523 (*synth*)
Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845 (*conformn, cmr*)

Dextrin, 9CI, 8CI, BAN D-394

Icodextrin, BAN, INN, USAN. Adept. AmylinStarch gum. British gum. Amylodextrin. Dextrid. Icodial. Starch gum
[9004-53-9]
$(C_6H_{10}O_5)_n.xH_2O$.

A mixture of polymerised glucosans. Gives a reddish-brown colour with iodine and does not reduce Fehling's soln. Commercial dextrin is less pure and usually contains sol. starch and glucose. Treatment with dil. acids gives maltose and finally glucose. Formed by partial hydrol. of starch or by heating glucosans, product differs according to conditions of preparation. Used in emulsions, for thickening mordants used in printing fabrics and in manuf. of printer's inks, glues, matches, fireworks, explosives, binder, colloid stabiliser and other uses in food, oral dietary supplement. Capsule and tablet diluent. Oral dietary supplement. Used clinically to reduce postoperative adhesions and used as the osmotic agent in peritoneal dialysis soln. Approved for clinical use in the European Union (1999). White or yellow, amorph. powder. Insol. EtOH, Et_2O; sol. in boiling water to give a gummy soln.

▶ HH9450000

*Mixt. with iron(*III*) hydroxide:* ***Dextriferron, BAN, INN***. *Astrafer. Haemigron*

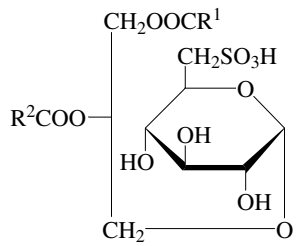
[8063-26-1] Used in the treatment of iron-deficiency anaemia.

[9004-51-7, 9005-84-9, 337376-15-5]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 199C (*ir*)
Satterthwaite, R.W. *et al., Ind. Gums*, 2nd Ed., Academic Press, New York, 1973, 577 (*rev*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
Umeki, K. *et al., J. Biochem. (Tokyo)*, 1975, **78**, 897 (*struct*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, DBD800
Biotechnol. Amylodextrin Oligosaccharides, Friedman, R.B. (ed.), Amer. Chem. Soc., 1991, (*book*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 151-153
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1359
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 793-796 (*use*)
Peers, E. *et al., Artif. Organs*, 1998, **22**, 8-12 (*icodextrin, rev*)
Tintillier, M. *et al., Am. J. Kidney Dis.*, 2002, **40**, 435 (*icodextrin, use*)
Frampton, J.E. *et al., Drugs*, 2003, **63**, 2079-2105 (*icodextrin, rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DBD800; IGT000

1,2-Diacylglycerol 6-sulfoquinovosides D-395

1,2-Diacylglycerol 3-(6-deoxy-6-sulfo-α-D-glucopyranosides). 6-Sulfoquinovose diacylglycerides



All examples so far characterised have R^2 = hexadecanoyl, with 2*S*-(≡1,2-diacyl-*sn*-glycerol) abs. config. Isol. from cultured cyanobacteria (blue-green algae) *Lyngbya lagerheimii* and *Phormidium tenue* and from *Rhizobium* nitrogen-fixing bacteria. Incompletely characterised diacyl mixtures have also been isol. from the non-photosynthetic diatom *Nitzscia alba*, blue-green algae *Anabaena variabilis* and *Anacystis nidulans*, red alga *Gracilaria verrucosa*, marine sponge *Phyllospongia foliascens* and the sea urchin *Stronglocentrotus imtermedius*. Occur in the organelle membranes involved in CO_2 fixation. Show anti-HIV-1 activity *in vitro*.

2-*O*-Hexadecanoyl-1-*O*-(9-hexadecenoyl) glycerol 3-(6-deoxy-6-sulfo-α-D-glucopyranoside) [122991-49-5]
$C_{41}H_{76}O_{12}S$ 793.11

2-*O*-Hexadecanoyl-1-*O*-(9-octadecenoyl) glycerol 3-(6-deoxy-6-sulfo-α-D-glucopyranoside) [123016-84-2]
$C_{43}H_{80}O_{12}S$ 821.164

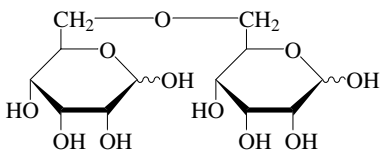
2-*O*-Hexadecanoyl-1-*O*-(9*Z*,12*Z*-octadecadienoyl)glycerol 3-(6-deoxy-6-sulfo-α-D-glucopyranoside) [123016-83-1]
$C_{43}H_{78}O_{12}S$ 819.148
$[\alpha]_D$ +62.8 (c, 0.83 in MeOH).

2-*O*-Hexadecanoyl-1-*O*-(9*Z*,12*Z*,15*Z*-octadecatrienoyl)glycerol 3-(6-deoxy-6-sulfo-α-D-glucopyranoside) [123036-44-2]
[130193-67-8] $[\alpha]_D^{22}$ +42.8 (c, 1 in MeOH) (as Na salt).

Gustafson, K.R. *et al., J. Natl. Cancer Inst.*, 1989, **81**, 1254-1258 (*isol, pmr, cmr, activity*)
Adebodun, F. *et al., Biochemistry*, 1992, **31**, 4502-4509 (*pmr, cmr*)
Gordon, D.M. *et al., J.A.C.S.*, 1992, **114**, 659-663 (*isol, struct*)
Kim, Y.H. *et al., J. Mass Spectrom.*, 1997, **32**, 968-977 (*ms*)

Di-6-allosyl ether D-396

Coyolosa

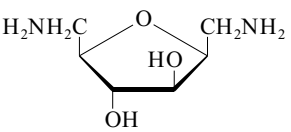


$C_{12}H_{22}O_{11}$ 342.299

Evidence for the proposed struct. and stereochem. of the nat prod. Coyolosa was highly defective and has been shown to be incorrect by synthesis. Claimed constit. of the roots of *Acrocomia mexicana*. Hypoglycaemic agent (nat. prod.). Cryst. solid (MeOH). Mp 170-172°.

Pérez, S. *et al., Pharm. Acta Helv.*, 1997, **72**, 105-111 (*isol, pmr, cmr, ir, ms, activity*)
Haines, A.H. *et al., Tet. Lett.*, 2004, **45**, 835-837 (*synth, struct*)

1,6-Diamino-2,5-anhydro-1,6-dideoxyglucitol D-397



D–*form*

$C_6H_{14}N_2O_3$ 162.188

D-*form* [88777-24-6]
Solid. Mp 173° dec. (as dihydrochloride). $[\alpha]_D^{20}$ +29 (H_2O) (as dihydrochloride). CAS no. refers to hydrochloride (incorrectly as monohydrochloride).

*4-Mesyl: 1,6-Diamino-2,5-anhydro-1,6-dideoxy-4-*O*-mesyl-D-glucitol*
[84415-95-2]
$C_7H_{16}N_2O_5S$ 240.28
Mp 198° dec. (as dihydrochloride). $[\alpha]_D^{20}$ +20 (H_2O). CAS no. refers to dihydrochloride.

*3,4-Dimesyl: 1,6-Diamino-2,5-anhydro-1,6-dideoxy-3,4-di-*O*-mesyl-D-glucitol*
[84379-83-9]
$C_8H_{18}N_2O_7S_2$ 318.371
Mp 219-220° dec. (as dihydrochloride). $[\alpha]_D^{20}$ +9.5 (H_2O). CAS no. refers to dihydrochloride.

N,N,N′,N′-*Tetra-Me: 2,5-Anhydro-1,6-dideoxy-1,6-bis(dimethylamino)-D-glucitol*
[88777-25-7]
$C_{10}H_{22}N_2O_3$ 218.295
Foam (as dihydrochloride). $[\alpha]_D^{20}$ +33 (H_2O). CAS no. refers to hydrochloride (erroneously as monohydrochloride).

N,N,N′,N′-*Tetra-Me, dimesyl: 2,5-Anhydro-1,6-dideoxy-1,6-bis(dimethylamino)-3,4-di-*O*-mesyl-D-glucitol*
[84379-87-3]
$C_{12}H_{26}N_2O_7S_2$ 374.479
Mp 205° dec. (as dihydrochloride). $[\alpha]_D^{20}$ +12.3 (H_2O). CAS no. refers to dihydrochloride.

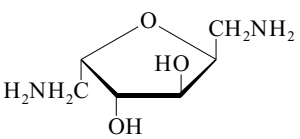
DL-*form* [84379-93-1]
Mp 226-227° dec. (as dihydrochloride). CAS no. refers to dihydrochloride.

N,N,N′,N′-*Tetra-Me: 2,5-Anhydro-1,6-dideoxy-1,6-bis(dimethylamino)-DL-glucitol*
[84379-94-2]
$C_{10}H_{22}N_2O_3$ 218.295
Semisolid foam (as dihydrochloride).

N-*Hexa-Me: 2,5-Anhydro-1,6-dideoxy-1,6-bis(trimethylammonio)-DL-glucitol*
[84379-95-3]
$C_{12}H_{28}N_2O_3^{\oplus}$ 248.365
Cryst. (MeOH aq.) (as diiodide). Mp 210-213° dec. (diiodide). CAS no. refers to diiodide.

Kuszmann, J. *et al., Carbohydr. Res.*, 1982, **108**, 247; 1983, **123**, 209

1,6-Diamino-2,5-anhydro-1,6-dideoxyiditol D-398



$C_6H_{14}N_2O_3$ 162.188

L-*form* [78135-97-4]
Mp 231-233° (219-225°) (as dihydrochloride). $[\alpha]_D^{20}$ +3 (-0.7) (H_2O). CAS no. refers to dihydrochloride.

N,N′-*Di-Ac: 1,6-Diacetamido-2,5-anhydro-1,6-dideoxy-L-iditol*
[78135-95-2]
$C_{10}H_{18}N_2O_5$ 246.263
Cryst. Mp 174-176°. $[\alpha]_D^{20}$ -43.3 (H_2O).

*1*N*,3,4,6*N*-Tetra-Ac: 1,6-Diacetamido-3,4-di-*O*-acetyl-2,5-anhydro-1,6-dideoxy-L-iditol*
[78135-96-3]
$C_{14}H_{22}N_2O_7$ 330.337
Cryst. (EtOH). Mp 158-159°. $[\alpha]_D^{20}$ -24 (H_2O).

*3,4-Dimesyl, 1*N,*6*N*-di-Ac: 1,6-Diacetamido-2,5-anhydro-1,6-dideoxy-3,4-di*-O*-mesyl-*L*-iditol*
[78135-84-9]
$C_{12}H_{22}N_2O_9S_2$ 402.446
Cryst. Mp 144-146°. $[\alpha]_D^{20}$ -26.5 (H_2O).

N,N,N′,N′-*Tetra-Me:* [78136-00-2]
$C_{10}H_{22}N_2O_3$ 218.295
Cryst. (as dihydrochloride). Mp 150° dec. (dihydrochloride). $[\alpha]_D^{20}$ -9.4 (H_2O). CAS no. refers to dihydrochloride.

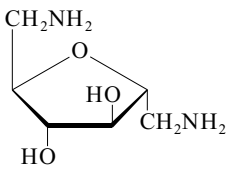
N,N,N′,N′-*Tetra-Me, 3,4-dimesyl:* [78135-85-0]
$C_{12}H_{26}N_2O_7S_2$ 374.479
Cryst. (EtOH). Mp 225° dec. $[\alpha]_D^{20}$ -27 (H_2O).

N,N,N,N′,N′,N′-*Hexa-Me:* [78136-01-3]
$C_{12}H_{28}N_2O_3^{\oplus}$ 248.365
Exhibits muscarine like activity. Cryst. (MeOH aq.) (as diiodide). Mp 260° (diiodide). $[\alpha]_D^{20}$ -1 (H_2O).

N,N,N,N′,N′,N′-*Hexa-Me, 3,4-dimesyl:* [78135-87-2]
$C_{14}H_{32}N_2O_7S_2^{\oplus}$ 404.548
Cryst. (as diiodide). Mp 300° (diiodide). $[\alpha]_D^{20}$ -11 (H_2O). CAS no. refers to diiodide.

Kuszmann, J. *et al., Carbohydr. Res.*, 1981, **89**, 103 (*dimesyl di-Ac, tetra-Me dimesyl, di-Ac, tetra-Ac, L-form*)
Koell, P. *et al., Annalen*, 1987, 205, (*L-form, synth*)

1,6-Diamino-2,5-anhydro-1,6-dideoxymannitol D-399



$C_6H_{14}N_2O_3$ 162.188

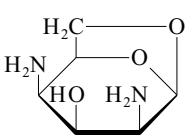
D-*form*

3,4-Di-Me: 1,6-Diamino-2,5-anhydro-1,6-dideoxy-3,4-di-O*-methyl-D-mannitol*
[114809-90-4]
$C_8H_{18}N_2O_3$ 190.242
Cryst. (MeOH/MeCN) (as dihydrochloride). Mp 260° (dihydrochloride). $[\alpha]_D$ +69.2 (c, 0.2 in H_2O). CAS no. refers to dihydrochloride.

3,4-Di-Me, N,N′*-bis(benzyloxycarbonyl):*
[114809-84-6]
$C_{24}H_{30}N_2O_7$ 458.51
Cryst. Mp 69-71°. $[\alpha]_D^{20}$ +37.8 ($CHCl_3$).

Lehn, J.M. *et al., Can. J. Chem.*, 1988, **66**, 195 (*di-Me derivs, ir, pmr, cmr*)

2,4-Diamino-1,6-anhydro-2,4-dideoxytalose D-400



$C_6H_{12}N_2O_3$ 160.172

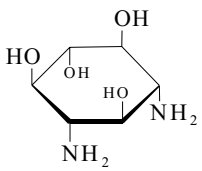
β-D-Pyranose-*form* [30004-05-8]
Cryst. (EtOH aq.) (as hydrochloride). Mp 350° (hydrochloride). $[\alpha]_D^{20}$ -58.5 (c, 1.0 in H_2O). CAS no. refers to hydrochloride.

N,N′-*Dibenzoyl: 1,6-Anhydro-2,4-dibenzamido-2,4-dideoxy-D-talopyranose* [29914-63-4]
$C_{20}H_{20}N_2O_5$ 368.388
Cryst. Mp 225-227°. $[\alpha]_D^{20}$ -86 (c, 1.0 in DMSO).

N,N′-*Dibenzoyl, 3-Ac: 3*-O-*Acetyl-1,6-anhydro-2,4-dibenzamido-2,4-dideoxy-D-talopyranose* [29914-62-3]
$C_{22}H_{22}N_2O_6$ 410.426
Cryst. Mp 234-235°. $[\alpha]_D^{20}$ -46.5 (c, 1.0 in $CHCl_3$).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1970, **103**, 2424 (*synth, dibenzoyl derivs, pmr*)

4,6-Diamino-1,2,3,5-cyclohexanetetrol D-401



$C_6H_{14}N_2O_4$ 178.188

(1α,2β,3α,4β,5α,6β)-*form*
1,3-Diamino-1,3-dideoxy-scyllo-*inositol. Streptamine*
[488-52-8]
Degradn. prod. of Streptomycin, S-83. Mp 290°. Opt. inactive (*meso*-).

Hydrochloride (1:2): Mp 280° (245-255°) dec.

Dipicrate: Mp 300° dec.

O-*Tetra-Ac:*
$C_{14}H_{22}N_2O_8$ 346.336
Mp 260° (as hydrochloride).

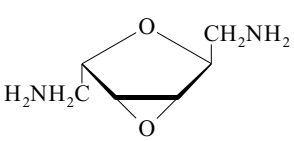
Hexa-Ac:
$C_{18}H_{26}N_2O_{10}$ 430.411
Mp 245-248° dec. Also reported to have Mp 342-343° with a phase transition at 240-250°.

N,N′-*Diamidino:* See Streptidine, S-79

Peck, R.L. *et al., J.A.C.S.*, 1946, **68**, 776 (*struct*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1950, **72**, 1727 (*struct*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1967, **100**, 2383 (*synth*)
Schwesinger, R. *et al., Angew. Chem., Int. Ed.*, 1975, **14**, 630 (*synth*)

1,6-Diamino-2,5:3,4-dianhydro-1,6-dideoxyaltritol, 9CI D-402

1,6-Diamino-2,5:3,4-dianhydro-1,6-dideoxytalitol



$C_6H_{12}N_2O_2$ 144.173

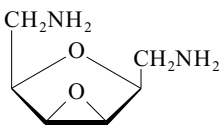
L-*form* [78136-03-5]
Pale yellow syrup. Erroneously descr. as L-*ido* in the ref.

N,N′-*Di-Ac:* [78135-94-1]
$C_{10}H_{16}N_2O_4$ 228.247
Cryst. (Me_2CO). Mp 163-165°. $[\alpha]_D^{20}$ +36.6 (H_2O).

N,N,N,N′,N′,N′-*Hexa-Me:* [78135-92-9]
$C_{12}H_{26}N_2O_2^{\oplus}$ 230.35
Exibits muscarine-like activity. Cryst. (MeOH) (as diiodide). Mp 260° (diiodide). $[\alpha]_D^{20}$ -6 (H_2O).

Kuszmann, J. *et al., Carbohydr. Res.*, 1981, **89**, 103 (*di-Ac, hexa-Me*)

1,6-Diamino-2,5:3,4-dianhydro-1,6-dideoxygalactitol D-403



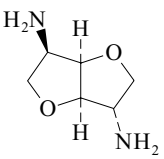
$C_6H_{12}N_2O_2$ 144.173

Meso-.

N,N′-*Di-Ac: 1,6-Diacetamido-2,5:3,4-dianhydro-1,6-dideoxygalactitol*
[84416-00-2]
$C_{10}H_{16}N_2O_4$ 228.247
Mp 183-185° dec.

Kuszmann, J. *et al., Carbohydr. Res.*, 1982, **108**, 247 (N,N′-*di-Ac, synth, pmr*)

2,5-Diamino-1,4:3,6-dianhydro-2,5-dideoxyglucitol D-404

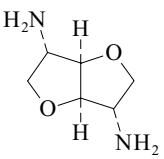


$C_6H_{12}N_2O_2$ 144.173

D-*form* [92418-32-1]
Cryst. Mp 320° dec. (300°) (as dihydrochloride). CAS no. refers to dihydrochloride.

Montgomery, R. *et al., J.C.S.*, 1946, 393 (*synth*)
Thiem, J. *et al., Makromol. Chem.*, 1991, **192**, 2163 (*synth, pmr*)

2,5-Diamino-1,4:3,6-dianhydro-2,5-dideoxyiditol D-405



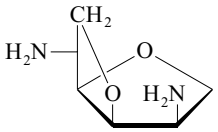
$C_6H_{12}N_2O_2$ 144.173

L-*form* [125335-70-8]
Syrup.

Hydrochloride (1:2): [92418-36-5]
Cryst. Mp 280-300° (260-280°) dec.

Archibald, T.G. *et al., Synth. Commun.*, 1989, **19**, 1493 (*synth*)
Thiem, J. *et al., Makromol. Chem.*, 1991, **192**, 2163 (*synth*)

2,5-Diamino-1,4:3,6-dianhydro-2,5-dideoxymannitol D-406



$C_6H_{12}N_2O_2$ 144.173

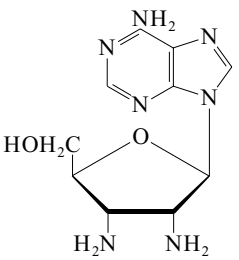
D-*form* [106182-72-3]
Solid.

Hydrochloride (1:2): [92418-34-3]
Cryst. Mp 255° (250-260°) dec.

Montgomery, R. *et al., J.C.S.*, 1946, 393 (*synth*)
Thiem, J. *et al., Makromol. Chem.*, 1986, **187**, 2775; 1991, **192**, 2163 (*synth, pmr*)

2′,3′-Diamino-2′,3′-dideoxyadenosine, 9CI D-407

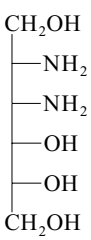
9-(2,3-Diamino-2,3-dideoxy-β-D-ribofuranosyl)adenine
[90362-10-0]



$C_{10}H_{15}N_7O_2$ 265.274
Needles (MeOH/Et_2O). Mp *ca.* 175° (softens at *ca*.155°).

Chen, Y.-C.J. *et al., J.O.C.*, 1991, **56**, 3410 (*synth, pmr, ms*)

2,3-Diamino-2,3-dideoxyallitol, 9CI D-408



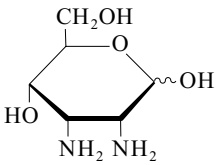
$C_6H_{16}N_2O_4$ 180.203

D-*form*

*5,6-*O*-Isopropylidene, 4-benzyl:*
[65023-56-5]
$C_{16}H_{26}N_2O_4$ 310.392
Intermed. in synthesis of Biotin. Cryst. Mp 116-117°. $[\alpha]_D^{20}$ +45.7 ($CHCl_3$).

Ogawa, T. *et al., Carbohydr. Res.*, 1977, **57**, C31 (*benzyl isopropylidene*)
Japan. Pat., 1978, 78 73 562; *CA*, **89**, 215717n (*benzyl isopropylidene*)
Japan. Pat., 1978, 78 73 588; *CA*, **89**, 180013a (*use*)

2,3-Diamino-2,3-dideoxyallose D-409



$C_6H_{14}N_2O_4$ 178.188

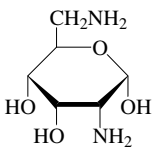
D-*form*

Hydrochloride (1:2):
Hygroscopic powder. $[\alpha]_D^{23}$ +50 (c, 1.2 in H_2O).

*2,3-Di-*N*-(2,4-dinitrophenyl):* Mp 137°. $[\alpha]_D^{28}$ -225.5 (c, 0.51 in MeOH).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1964, **97**, 1275 (*synth*)

2,6-Diamino-2,6-dideoxyallose, 8CI D-410



α-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form*

Hydrochloride (1:2): [19949-67-8]
Mp 180°. $[\alpha]_D^{26}$ +118.3 → +39.4 (c, 1.07 in H_2O).

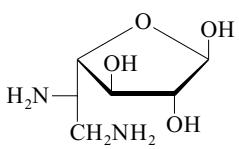
N,N′-Di-Ac: 2,6-Diacetamido-2,6-dideoxy-α-D-allopyranoside
$C_{10}H_{18}N_2O_6$ 262.262
Mp 150-151°. $[\alpha]_D^{27}$ -112.1 → +71 (c, 1.07 in H_2O).

β-D-Pyranose-*form*

Me glycoside, N,N′*-dibenzoyl: Methyl 2,6-dibenzamido-2,6-dideoxy-α-D-allopyranoside*
$C_{21}H_{24}N_2O_6$ 400.43
Mp 221-222°. $[\alpha]_D^{27}$ -28 (c, 1.0 in DMSO).

Gross, P.H. *et al., Naturwissenschaften*, 1964, **51**, 509
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1968, **101**, 2289 (*synth*)

5,6-Diamino-5,6-dideoxyaltrose D-411



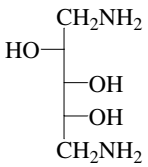
$C_6H_{14}N_2O_4$ 178.188

α-L-Furanose-*form*

Me glycoside, 2,3-dibenzyl, 5N,6N*-di-Ac: Methyl 5,6-diacetamido-2,3-di-*O*-benzyl-5,6-dideoxy-α-L-altrofuranoside*
[20398-97-4]
$C_{25}H_{32}N_2O_6$ 456.538
Needles (2-propanol). Mp 187-188°. $[\alpha]_D^{20}$ -55.1 (c, 2.3 in $CHCl_3$).

Saeki, H. *et al., Chem. Pharm. Bull.*, 1968, **16**, 188; 2471 (*α-L-Me fur deriv, pmr*)

1,5-Diamino-1,5-dideoxyarabinitol D-412



D-*form*

$C_5H_{14}N_2O_3$ 150.177

D-*form* [173009-07-9]

Dihydrobromide: [173009-04-6]
Cryst. Mp 189-191°.

Bis(4-methylbenzenesulfonate) salt:
[173009-08-0]
$[\alpha]_D$ +6.8 (c, 0.57 in H_2O).

L-*form*

Dihydrobromide: [173009-05-7]
Cryst. Mp 197°.

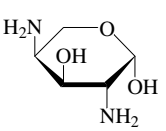
Bis(4-methylbenzenesulfonate) salt:
[173009-10-4]
$[\alpha]_D$ -7 (c, 0.5 in H_2O).

*2,3,4-Tri-Me: 1,5-Diamino-1,5-dideoxy-2,3,4-tri-*O*-methyl-L-arabinitol*
[362513-00-6]
$C_8H_{20}N_2O_3$ 192.258
Solid (as dihydrochloride). Mp 268-270° dec. (dihydrochloride). $[\alpha]_D$ -25 (c, 0.5 in H_2O) (dihydrochloride). CAS no. refers to dihydrochloride.

*2,3,4-Tris-(4-chlorobenzyl): 1,5-Diamino-2,3,4-tris-(*O*-4-chlorobenzyl)-D-arabinitol. ZM 240304*
$C_{26}H_{29}Cl_3N_2O_3$ 523.885
Antibacterial agent active against experimental infections in animals. Active against broad spectrum of pathogenic bacteria. Incorrectly indexed in CAS.

Zajaczkowski, I. *et al., Z. Naturforsch., B*, 1995, **50**, 1329-1334 (*D-form, L-form, salts, synth*)
Barrett-Bee, K. *et al., J. Antimicrob. Chemother.*, 1996, **38**, 605-614 (*L-form, 2,3,4-tri-4-chlorobenzyl*)
Glacon, V. *et al., Tet. Lett.*, 1996, **37**, 3683-3686 (*D-form, synth*)
Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 2001, **333**, 95-103 (*L-form, 2,3,4-tri-Me*)

2,4-Diamino-2,4-dideoxyarabinose D-413

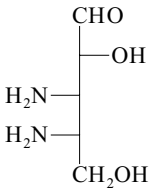


α-L-Pyranose-*form*

$C_5H_{12}N_2O_3$ 148.161

L-*form* [135221-06-6] Pt complexes used as antitumour agents. Inhibit mice leukaemia (L-1210).
Syrup.
Japan. Pat., 1990, 90 223 591; *CA*, **115**, 84232f (*activity*)

3,4-Diamino-3,4-dideoxyarabinose D-414

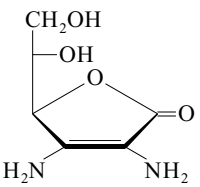


$C_5H_{12}N_2O_3$ 148.161

L-*form* [135221-07-7] Pt complexes used as antineoplastic agents. Inhibits mice leukaemia (L-1210).
Syrup.
Japan. Pat., 1990, 02 223 591; *CA*, **115**, 84232 (*activity*)

2,3-Diamino-2,3-dideoxyascorbic acid D-415

2,3-Diamino-2,3-dideoxy-threo-*hex-2-enono-1,4-lactone*



$C_6H_{10}N_2O_4$ 174.156

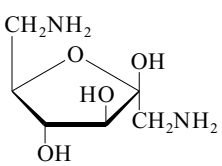
L-*form*
Faintly coloured prisms (EtOH). Sol. H_2O. Mp 138-140°.

N,N′-*Diformyl:*
$C_8H_{10}N_2O_6$ 230.177
Prisms (EtOH). Mp 201-203°.

N^2-*Ac:*
$C_8H_{12}N_2O_5$ 216.193
Prisms (EtOH). Mp 208-209°.

Micheel, F. *et al., Ber.*, 1937, **70**, 1862 (*synth*)
Gross, B. *et al., Carbohydr. Res.*, 1974, **37**, 384 (*synth, N-Ac*)
El Sekily, M.A. *et al., Carbohydr. Res.*, 1982, **108**, 315 (*synth, derivs*)

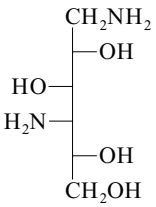
1,6-Diamino-1,6-dideoxyfructose D-416



$C_6H_{14}N_2O_4$ 178.188

β-D-Furanose-*form*
2,3-O-*Isopropylidene: 1,6-Diamino-1,6-dideoxy-2,3*-O-*isopropylidene-β-D-fructofuranose*
$C_9H_{18}N_2O_4$ 218.252
Syrup (as dihydrochloride). $[\alpha]_D^{20}$ +26 (c, 1.02 in H_2O).
Paulsen, H. *et al., Chem. Ber.*, 1967, **100**, 802 (*isopropylidene*)

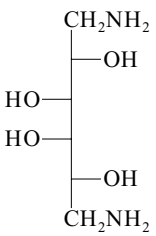
1,4-Diamino-1,4-dideoxygalactitol D-417



$C_6H_{16}N_2O_4$ 180.203

D-*form* [109958-73-8]
Cryst. (EtOH). Mp 192-194°
(as dihydrochloride). $[\alpha]_D^{20}$ +3 (H_2O).
*1*N,*2,3,4*N,*5,6-Hexa-Ac:* [109958-74-9]
$C_{18}H_{28}N_2O_{10}$ 432.427
Cryst. (Et_2O). Mp 166-168°. $[\alpha]_D^{20}$ +17 ($CHCl_3$).
Kuszmann, J. *et al., Carbohydr. Res.*, 1986, **156**, 25 (*synth*)

1,6-Diamino-1,6-dideoxygalactitol D-418



$C_6H_{16}N_2O_4$ 180.203
Meso-.

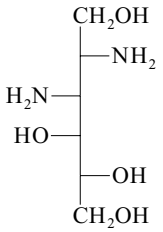
2,3:4,5-Di-O-*benzylidene:* [22527-35-1]
$C_{20}H_{24}N_2O_4$ 356.421
Liq. $Bp_{0.01}$ 250-280° (bath).

2,3:4,5-Di-O-*isopropylidene:* [22527-37-3]
$C_{12}H_{24}N_2O_4$ 260.333
Solid. Mp 69-71°. $Bp_{0.05}$ 96-98°.

[6613-80-5, 6613-81-6, 28260-04-0]

Belg. Pat., 1965, 65 149; *CA*, **64**, 11348e (*dibenzylidene, diisopropylidene*)
U.S. Pat., 1965, 3 404 136; *CA*, **70**, 20498s (*dibenzylidene, diisopropylidene*)

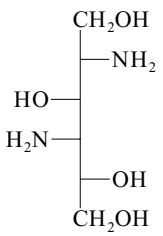
2,3-Diamino-2,3-dideoxygalactitol D-419



$C_6H_{16}N_2O_4$ 180.203

D-*form*
N,N′-*Di-Ac:* [27299-24-7]
$C_{10}H_{20}N_2O_6$ 264.278
Cryst. (MeOH). Mp 193-194°. $[\alpha]_D^{20}$ -96 (c, 1.0 in DMSO).
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1970, **103**, 37; 995 (*di-Ac*)

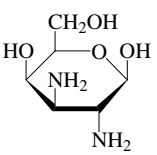
2,4-Diamino-2,4-dideoxygalactitol D-420



$C_6H_{16}N_2O_4$ 180.203

D-*form*
N,N′-*Di-Ac:* [38420-50-7]
$C_{10}H_{20}N_2O_6$ 264.278
Cryst. (EtOH/MeOH). Mp 199-200°.
$[\alpha]_D^{20}$ -15 (c, 1.0 in MeOH/H_2O 3:1).
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1972, **105**, 2998 (*di-Ac*)

2,3-Diamino-2,3-dideoxygalactose D-421



β-D-Pyranose-*form*

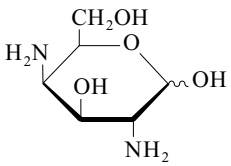
$C_6H_{14}N_2O_4$ 178.188

D-*form*
Hydrochloride (1:2): [28234-67-5]
Hygroscopic powder. $[\alpha]_D^{20}$ +45 → +55 (c, 1.0 in H_2O).

β-D-Pyranose-*form*
Me glycoside, N,N′-*dibenzoyl: Methyl 2,3-dibenzamido-2,3-dideoxy-β-D-galactopyranoside*
$C_{21}H_{24}N_2O_6$ 400.43
Mp 275-280°. $[\alpha]_D^{20}$ +72 (c, 0.5 in 1:1 $CHCl_3$/MeOH).

Me glycoside, N,N′*-dibenzoyl, 4,6-di-Ac: Methyl 4,6-di-*O*-acetyl-2,3-dibenzamido-2,3-dideoxy-β-*D*-galactopyranoside*
$C_{25}H_{28}N_2O_8$ 484.505
Mp 270°. $[\alpha]_D^{20}$ +56 (c, 0.5 in $CHCl_3$).
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1970, **103**, 37; 995 (*synth*)

2,4-Diamino-2,4-dideoxygalactose, 9CI D-422



$C_6H_{14}N_2O_4$ 178.188

D-*form* [53372-90-0]

Hydrochloride (1:2): [38420-51-8]
Amorph. hygroscopic powder. $[\alpha]_D^{20}$ -8 (c, 2.5 in MeOH). $[\alpha]_D^{20}$ +62 (c, 1.0 in MeOH).

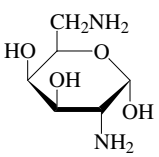
Penta-Ac:
$C_{16}H_{24}N_2O_9$ 388.374
Syrup. $[\alpha]_D^{20}$ +55 (c, 3.0 in $CHCl_3$).

α-D-*Pyranose-form*

Benzyl glycoside: Benzyl 2,4-diamino-2,4-dideoxy-α-D-galactopyranoside
$C_{13}H_{20}N_2O_4$ 268.312
$[\alpha]_D^{20}$ +115 (c, 1.0 in MeOH, as hydrochloride).

*Benzyl glycoside, 2,4-di-*N*-Ac: Benzyl 2,4-diacetamido-2,4-dideoxy-α-D-galactopyranoside*
$C_{17}H_{24}N_2O_6$ 352.386
Mp 239-241°. $[\alpha]_D^{20}$ +200 (c, 1.0 in MeOH).
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1972, **105**, 2998 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 2016 (*synth*)

2,6-Diamino-2,6-dideoxygalactose, 8CI D-423



α-D-Pyranose-*form*

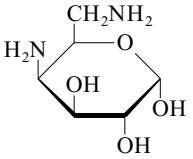
$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form* [37699-10-8]

Hydrochloride (1:2): Mp 175° dec. $[\alpha]_D^{23}$ +104 → +94 (c, 2.0 in H_2O).

N,N′*-Di-Ac: 2,6-Diacetamido-2,6-dideoxy-α-D-galactopyranose*
$C_{10}H_{18}N_2O_6$ 262.262
Cryst. (MeOH/$CHCl_3$/Et_2O). Mp 192-193°. $[\alpha]_D^{25}$ +113 → +95 (c, 0.5 in H_2O).
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1963, **96**, 2019 (*synth*)
Meyer zu Reckendorf, W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 270 (*synth*)

4,6-Diamino-4,6-dideoxygalactose D-424



$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form*

*Me glycoside, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-diamino-4,6-dideoxy-α-D-galactopyranoside*
[23792-17-8]
$C_{11}H_{20}N_2O_6$ 276.289
Syrup.

Me glycoside, 4N,6N*-di-Ac: Methyl 4,6-diacetamido-4,6-dideoxy-α-D-galactopyranoside*
[22435-44-5]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. (Me_2CO/petrol). Mp 215-216° (212-213°). $[\alpha]_D^{20}$ +153 (c, 0.5 in MeOH). $[\alpha]_D^{20}$ +151 (c, 1.0 in H_2O).

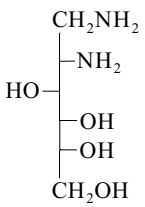
*Me glycoside, 2,3,*4N,6N*-tetra-Ac: Methyl 4,6-diacetamido-2,3-di-*O*-acetyl-4,6-dideoxy-α-D-galactopyranoside*
[22435-43-4]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. Mp 218-219°. $[\alpha]_D$ +123 (c, 1.0 in H_2O).

Me glycoside, 2,3-dibenzyl, 4N,6N*-di-Ac: Methyl 4,6-diacetamido-2,3-di-*O*-benzyl-4,6-dideoxy-α-D-galactopyranoside*
[26532-01-4]
$C_{25}H_{32}N_2O_6$ 456.538
Cryst. (EtOH/petrol). Mp 193-194.5°. $[\alpha]_D^{20}$ -23.6 (c, 0.8 in $CHCl_3$).

*Me glycoside, 2,3,*4N,6N*-tetrabenzoyl: Methyl 4,6-dibenzamido-2,3-di-*O*-benzoyl-4,6-dideoxy-α-D-galactopyranoside*
[22435-45-6]
$C_{35}H_{32}N_2O_8$ 608.646
Cryst. ($CHCl_3$/petrol). Mp 284-286°. $[\alpha]_D$ +52 (c, 0.35 in $CHCl_3$).
Hill, J. *et al., Carbohydr. Res.*, 1968, **8**, 7, (α-D-*Me pyr tetrabenzoyl*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1969, **102**, 994 (α-D-*Me pyr di-Ac derivs, pmr, conformn*)
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 3833 (α-D-*Me pyr di-Ac,* α-D-*Me pyr dibenzyl di-Ac*)

1,2-Diamino-1,2-dideoxyglucitol D-425

1,2-Diamino-1,2-dideoxysorbitol



$C_6H_{16}N_2O_4$ 180.203

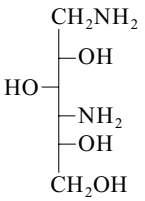
D-*form*

Hydrobromide (1:2): Mp 146.5-147.5°. $[\alpha]_D^{22}$ +4 (c, 5.06 in H_2O).

*1,2-Di-*N*-salicylidene:* Mp 205-206°. $[\alpha]_D^{20}$ -139 (c, 2.0 in Py).
Henseke, G. *et al., Chem. Ber.*, 1964, **97**, 733 (*synth*)
Wolfrom, M.L. *et al., J.O.C.*, 1965, **30**, 841 (*synth*)

1,4-Diamino-1,4-dideoxyglucitol, 9CI D-426

1,4-Diamino-1,4-dideoxysorbitol



$C_6H_{16}N_2O_4$ 180.203

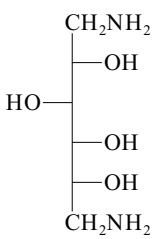
D-*form* [61566-48-1]
Aglycone of the aminoglycoside sorbistin antibiotics produced by a *Pseudomonas* strain and of the LL-AM31 antibiotics produced by *Streptoverticillium* spp.

Sulfate: Mp 261-265°. $[\alpha]_D^{28}$ -10.3 (c, 0.38 in H_2O).

*Di-*N*-Ac: 1,4-Diacetamido-1,4-dideoxy-D-glucitol*
$C_{10}H_{20}N_2O_6$ 264.278
Cryst. (MeOH/Me_2CO). Mp 154-156°.

*Hexa-Ac: 1,4-Diacetamido-2,3,5,6-tetra-*O*-acetyl-1,4-dideoxy-D-glucitol*
$C_{18}H_{28}N_2O_{10}$ 432.427
Cryst. ($CHCl_3$/hexane). Mp 116-117°.
Konishi, M. *et al., J. Antibiot.*, 1976, **29**, 1152 (*synth, struct, pmr, ms*)
Kirby, J.P. *et al., J. Antibiot.*, 1977, **30**, 344 (*abs config, isol, glc, ms*)

1,6-Diamino-1,6-dideoxyglucitol D-427



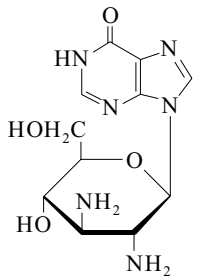
$C_6H_{16}N_2O_4$ 180.203

D-*form* [7194-83-4]
Patented for use in hyperacidity treatment.

Hydrochloride (1:2): [104769-32-6]
Cryst. Mp 185°.

Picrate (1:2): [104769-33-7]
Yellow cryst. + 0.5 H_2O. Mp 201-202°.
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183 (*synth*)
Eur. Pat., 1987, 275 998; *CA*, **109**, 204928n (*use*)

9-(2,3-Diamino-2,3-dideoxyglucopyranosyl)hypoxanthine D-428



$C_{11}H_{16}N_6O_4$ 296.285

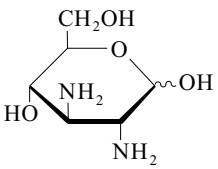
β-D-*form*

2,3-Di-N-*Ac:* [24660-02-4]
$C_{15}H_{20}N_6O_6$ 380.36
Mp 230° dec. $[\alpha]_D^{20}$ -39 ($CHCl_3$).

2,3-Di-N-*Ac, 4,6-di-Ac:* [24660-03-5]
$C_{19}H_{24}N_6O_8$ 464.434
Mp 195-199° dec. $[\alpha]_D^{20}$ -11 ($CHCl_3$).

Lichtenthaler, F.W. *et al., Tet. Lett.*, 1969, 1213

2,3-Diamino-2,3-dideoxyglucose, 9CI D-429



$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form* [7687-95-8]
Occurs in lipopolysaccharides of *Rhodopseudomonas viridis*. Constit. of lipid A prod. by 25 spp. of bacteria from 12 genera.

Hydrochloride (1:2): [7695-34-3]
Mp 196° dec. $[\alpha]_D^{20}$ +66.5 → +50 (c, 1.0 in H_2O). $[\alpha]_D^{20}$ +112 → +103.6 (H_2O).

2,3-Di-N-*Ac: 2,3-Diacetamido-2,3-dideoxy-α-D-glucopyranose*
[7703-49-3]
$C_{10}H_{18}N_2O_6$ 262.262
Cryst. (EtOH/EtOAc). Mp 249-250°. $[\alpha]_D^{20}$ -19 → -46 (c, 1.0 in H_2O). $[\alpha]_D^{26}$ -50 → -96 (c, 1 in H_2O).

Benzyl glycoside, 2,3-di-N-*Ac: Benzyl 2,3-diacetamido-2,3-dideoxy-α-D-glucopyranoside*
[27539-64-6]
$C_{17}H_{24}N_2O_6$ 352.386
Cryst. (EtOH). Mp 267-268°. $[\alpha]_D^{20}$ +146.5 (c, 1.0 in DMSO).

Benzyl glycoside, 2,3-bis-N-*(2,4-dinitrophenyl):* [53910-46-6]
Cryst. (EtOAc/petrol). Mp 226-228°. $[\alpha]_D^{20}$ +655 (c, 1.0 in Me_2CO).

β-D-Pyranose-*form*

Me glycoside, 2,3-bis-N-*(2,4-dinitrophenyl):* [53910-50-2]
Mp 145-148°. $[\alpha]_D^{20}$ +406 (c, 1.0 in Me_2CO).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1964, **97**, 1275 (*synth, α-D-pyr di-N-Ac*)

Meyer zu Reckendorf, W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 266 (*synth, α-D-benzyl pyr di-N-Ac, α-D-pyr di-N-Ac*)

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1974, **107**, 2585 (*α-D-benzyl pyr di-N-dinitrophenyl, β-D-Me pyr di-N-dinitrophenyl*)

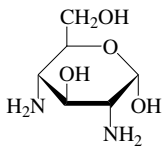
Roppel, J. *et al., Carbohydr. Res.*, J., 1975, **40**, 31 (*ms*)

Keilich, G. *et al., Carbohydr. Res.*, 1976, **51**, 129 (*isol, cd*)

Moran, A.P. *et al., Carbohydr. Res.*, 1992, **231**, 309 (*occur, bibl*)

Agrawal, P.K. *et al., J. Carbohydr. Chem.*, 1992, **11**, 945-950 (*di-N-Ac, pmr, cmr*)

2,4-Diamino-2,4-dideoxyglucose D-430



α-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

D-*form*

Hydrochloride (1:2): [38416-37-4]
$[\alpha]_D^{20}$ +42 (c, 1.0 in H_2O).

N,N′-*Di-Ac: 2,4-Diacetamido-2,6-dideoxy-D-glucose*
$C_{10}H_{18}N_2O_6$ 262.262
Mp 232°. $[\alpha]_D^{20}$ +88 → +61 (c, 1.2 in H_2O).

2,4-Bis-N-*(2,4-dinitrophenyl):*
Mp 178-185°.

α-D-Pyranose-*form*

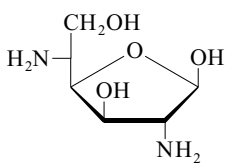
Benzyl glycoside: Benzyl 2,4-diamino-2,4-dideoxy-α-D-glucopyranoside
$C_{13}H_{20}N_2O_4$ 268.312
Mp 149-159° (as hydrochloride). $[\alpha]_D^{20}$ +100 (c, 1.0 in MeOH).

2,4-Dinitrophenyl glycoside, 2,4-bis-N-*(2,4-dinitrophenyl):* Mp 170-177°. $[\alpha]_D^{20}$ +138 (c, 1.0 in 2:1 Me_2CO/MeOH).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1972, **105**, 2998 (*synth*)

Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 104 (*synth*)

2,5-Diamino-2,5-dideoxyglucose D-431



$C_6H_{14}N_2O_4$ 178.188

β-D-Furanose-*form*

*Me glycoside, 2*N-*Ac: Methyl 2-acetamido-5-amino-2,5-dideoxy-β-D-glucofuranoside*
[125305-13-7]
$C_9H_{18}N_2O_5$ 234.252
Cryst. (EtOH/$CHCl_3$). Mp 90-91°. $[\alpha]_D^{20}$ -52 (MeOH).

*Me glycoside, 3-benzyl, 2*N-*Ac: Methyl 2-acetamido-5-amino-3*-O-*benzyl-2,5-dideoxy-β-D-glucofuranoside*
[125289-30-7]
$C_{16}H_{24}N_2O_5$ 324.376
Cryst. ($CHCl_3$). Mp 115-116°. $[\alpha]_D^{20}$ -92 (MeOH).

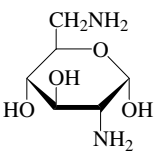
*Me glycoside, 3-benzyl, 6-trityl, 2*N-*Ac: Methyl 2-acetamido-5-amino-3*-O-*benzyl-2,5-dideoxy-6*-O-*trityl-β-D-glucofuranoside*
[125289-28-3]
$C_{35}H_{38}N_2O_5$ 566.696
Cryst. ($CHCl_3$/petrol). Mp 176°. $[\alpha]_D^{20}$ -79 ($CHCl_3$).

*Benzyl glycoside, 3-benzyl, 2*N-*Ac: Benzyl 2-acetamido-5-amino-3*-O-*benzyl-2,5-dideoxy-β-D-glucofuranoside*
[125289-38-5]
$C_{22}H_{28}N_2O_5$ 400.474
Cryst. ($CHCl_3$). Mp 182°. $[\alpha]_D^{20}$ -92 (MeOH).

*Benzyl glycoside, 3-benzyl, 6-trityl, 2*N-*Ac: Benzyl 2-acetamido-5-amino-3*-O-*benzyl-2,5-dideoxy-6*-O-*trityl-β-D-glucofuranoside*
[125289-36-3]
$C_{41}H_{42}N_2O_5$ 642.793
Cryst. (toluene). Mp 158°. $[\alpha]_D^{20}$ -66 (MeOH).

Kappes, E. *et al., J. Carbohydr. Chem.*, 1989, **8**, 371 (*β-D-Me fur 2N-Ac derivs, β-D-benzyl fur 2N-Ac derivs*)

2,6-Diamino-2,6-dideoxyglucose, 9CI D-432



α-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

D-*form*

Neosamine C
A constit. of Neomycin C, N-24, Kanamycin B, K-4, Ribostamycin, R-143, Butirosin A, B-138, Hybrimycins A and B, and Paromomycin, P-13. Pt complex exhibits anticancer activity. $[\alpha]_D$ +67.1 (H_2O).

2,6-Bis-N-*(2,4-dinitrophenyl):* Mp 100°. $[\alpha]_D^{20}$ +8 (c, 1.0 in 1:1 $CHCl_3$/MeOH).

α-D-Pyranose-*form* [84056-78-0]
Cryst. EtOH (as dihydrochloride). Mp 150° dec. (hydrochloride). $[\alpha]_D$ +20 → +68 (c, 1.0 in H_2O). CAS No. refers to hydrochloride.

Me glycoside: Methyl 2,6-diamino-2,6-dideoxy-α-D-glucopyranoside
[41110-60-5]
$C_7H_{16}N_2O_4$ 192.214
Hygroscopic cryst. (EtOH/MeOH) (as dihydrochloride). Mp 198-201° dec. (dihydrochloride). $[\alpha]_D^{21}$ +125 (c, 1.28 in H_2O). CAS No. refers to dihydrochloride.

Benzyl glycoside: Benzyl 2,6-diamino-2, 6-dideoxy-α-D-glucopyranoside
[58902-24-2]
$C_{13}H_{20}N_2O_4$ 268.312
Syrup. $[\alpha]_D$ +130 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, hydrochloride (1:2):
[4781-36-6]
Hygroscopic cryst. + ½H_2O (EtOH/Et_2O). Mp 223-230° dec. $[\alpha]_D$ +117 (c, 1.0 in MeOH).

Benzyl glycoside, 2N,6N-di-Ac: Benzyl 2,6-diacetamido-2,6-dideoxy-α-D-glucopyranoside
[58902-22-0]
$C_{17}H_{24}N_2O_6$ 352.386
Cryst. ($CHCl_3$/MeOH/Et_2O). Mp 232-235°. $[\alpha]_D$ +150 (c, 1.0 in $CHCl_3$/MeOH 1:1).

Benzyl glycoside, 2N,3,4,6N-tetra-Ac: Benzyl 2,6-diacetamido-3,4-di-O-acetyl-2,6-dideoxy-α-D-glucopyranoside
[58902-23-1]
$C_{21}H_{28}N_2O_8$ 436.461
Cryst. ($CHCl_3$/MeOH/Et_2O). Mp 95-97°. $[\alpha]_D$ +122 (c, 1.0 in MeOH).

Benzyl glycoside, 2N,6N-bis(trifluoroacetyl): [58902-26-4]
$C_{17}H_{18}F_6N_2O_6$ 460.329
Cryst. (EtOH). Mp 253-254°. $[\alpha]_D$ +166 (c, 1.0 in MeOH).

Benzyl glycoside, 2N,3,4,6N-tetrakis (trifluoroacetyl): [58902-25-3]
$C_{21}H_{16}F_{12}N_2O_8$ 652.347
Cryst. ($CHCl_3$/Et_2O). Mp 194-196°. $[\alpha]_D$ +125 (c, 1.0 in MeOH).

Benzyl glycoside, 2N,6N-bis(trifluoroacetyl), 3,4-di-Ac: [58902-27-5]
$C_{21}H_{22}F_6N_2O_8$ 544.404
Cryst. (EtOH). Mp 224-225°. $[\alpha]_D$ +100 (c, 1.0 in $CHCl_3$).

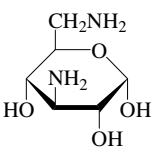
2,4-Dinitrophenyl glycoside:
Amorph. Mp 140°. $[\alpha]_D^{20}$ +106 (c, 1.0 in $CHCl_3$/MeOH).

β-D-Pyranose-*form*
Mp 150° dec. (as dihydrochloride). $[\alpha]_D^{23}$ +68.9 (c, 2.6 in H_2O).

[10536-74-0]

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1963, **96**, 2017 (*β-D-pyr*)
Machinami, T. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 1013 (*α-D-Me pyr*)
Meyer zu Reckendorf, W. *et al., Carbohydr. Res.*, 1975, **45**, 307 (*α-D-pyr, α-D-benzyl pyr, α-D-benzyl pyr derivs, α-D-dinitrophenyl pyr*)
Eur. Pat., 1986, 186 085, (*American Cyanamid*); *CA*, **106**, 50470f (*use*)

3,6-Diamino-3,6-dideoxyglucose D-433



α-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

D-Pyranose-*form* [22169-80-8]
Cryst. (EtOH aq.) (as dihydrochloride). Mp 160° (dihydrochloride). $[\alpha]_D^{20}$ +16 → +46 (c, 1.0 in H_2O). CAS no. refers to dihydrochloride.

α-D-Pyranose-*form*

1,2,3N,4,6N-Penta-Ac: 3,6-Diacetamido-1,2,4-tri-O-acetyl-3,6-dideoxy-α-D-glucopyranose
[22169-82-0]
$C_{16}H_{24}N_2O_9$ 388.374
Cryst. (2-propanol). Mp 260-261°. $[\alpha]_D^{20}$ +75 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 3,6-diamino-3,6-dideoxy-α-D-glucopyranoside
[14133-33-6]
$C_7H_{16}N_2O_4$ 192.214
Cryst. (EtOH). Mp 148-150°. $[\alpha]_D^{23}$ +128 (H_2O).

Me glycoside; hydrochloride (1:2):
[14257-75-1]
Cryst. (EtOAc/MeOH). Mp 244-247° dec. $[\alpha]_D^{20}$ +108 (H_2O).

Me glycoside, 2,3N,4,6N-tetra-Ac: Methyl 3,6-diacetamido-2,4-di-O-acetyl-3,6-dideoxy-α-D-glucopyranoside
[14133-44-9]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (EtOH/Et_2O). Mp 249-250°. $[\alpha]_D^{20}$ +81.5 (H_2O). $[\alpha]_D^{20}$ +64.8 ($CHCl_3$).

β-D-Pyranose-*form*

1,2,3N,4,6N-Penta-Ac: 3,6-Diacetamido-1,2,4-tri-O-acetyl-3,6-dideoxy-β-D-glucopyranose
[22169-81-9]
$C_{16}H_{24}N_2O_9$ 388.374
Cryst. (EtOH). Mp 281-282° dec. $[\alpha]_D^{22}$ -29.8 (H_2O).

Me glycoside: Methyl 3,6-diamino-3,6-dideoxy-β-D-glucopyranoside
[25531-82-2]
$C_7H_{16}N_2O_4$ 192.214
Cryst. Mp 178-183° dec. $[\alpha]_D^{21}$ -28 (H_2O).

Me glycoside; hydrochloride (1:2): [25532-15-4]
Cryst. Mp 350°. $[\alpha]_D^{20}$ -20.2 (H_2O).

Me glycoside, 2,3N,4,6N-tetra-Ac: Methyl 3,6-diacetamido-2,4-di-O-acetyl-3,6-dideoxy-β-D-glucopyranoside
[25531-83-3]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (EtOH/petrol). Mp 242-243°. $[\alpha]_D^{23}$ -44.5 (H_2O). $[\alpha]_D^{23}$ -57 ($CHCl_3$).

α-D-Furanose-*form*

1,2-O-Isopropylidene: 3,6-Diamino-3,6-dideoxy-1,2-O-isopropylidene-α-D-glucofuranose
[25531-81-1]
$C_9H_{18}N_2O_4$ 218.252
Cryst. (EtOAc/Et_2O). Mp 90-92°. $[\alpha]_D^{20}$ -15 (H_2O).

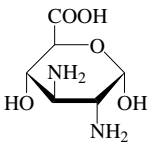
1,2-O-Isopropylidene; hydrochloride (1:2):
[25572-87-6]
Cryst. (MeOH/Et_2O). Mp 228-229°.

1,2-O-Isopropylidene, 3N,6N-di-Ac: 3,6-Diacetamido-3,6-dideoxy-1,2-O-isopropylidene-α-D-glucofuranose
[22169-79-5]
$C_{13}H_{22}N_2O_6$ 302.327
Cryst. Mp 116-118°. $[\alpha]_D^{20}$ +70 (c, 1.0 in $CHCl_3$).

1,2-O-Isopropylidene, 3N,6N-dibenzoyl: 3,6-Dibenzamido-3,6-dideoxy-1,2-O-isopropylidene-α-D-glucofuranose
[22169-78-4]
$C_{23}H_{26}N_2O_6$ 426.468
Cryst. (Et_2O/EtOH). Mp 231-232°. $[\alpha]_D^{20}$ -15 (c, 1.0 in DMSO).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1968, **101**, 3802 (*α-D-pyr penta-Ac, β-D-pyr penta-Ac, α-D-fur isopropylidene derivs*)
Kovar, J. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 2619 (*α-D-pyr penta-Ac, β-D-pyr penta-Ac*)
Inouye, S. *et al., Chem. Pharm. Bull.*, 1972, **20**, 2320 (*α-D-Me pyr derivs, ms*)

2,3-Diamino-2,3-dideoxyglucuronic acid D-434



α-D-Pyranose-*form*

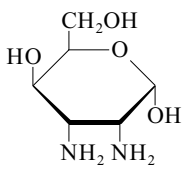
$C_6H_{12}N_2O_5$ 192.171

D-*form*

2N,3N-Di-Ac: 2,3-Diacetamido-2,3-dideoxy-D-glucuronic acid
[79319-92-9]
$C_{10}H_{16}N_2O_7$ 276.246
Constit. of the *O*-specific polysaccharide of *Pseudomonas aeruginosa* strain 170014(serotype 06). Also from *Haloferax denitrificans* and *Vibrio cholerae* polysaccharides.

Knirel, Y.A. *et al., Carbohydr. Res.*, 1981, **93**, C12
Parolis, L.A.S. *et al., Carbohydr. Res.*, 1999, **319**, 133-140 (*occur*)
Kocharova, N.A. *et al., Carbohydr. Res.*, 2001, **330**, 83-92 (*occur*)

2,3-Diamino-2,3-dideoxygulose D-435



$C_6H_{14}N_2O_4$ 178.188

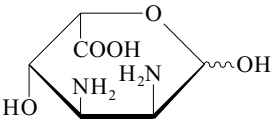
α-D-Pyranose-*form*

Me glycoside, N,N′*-di-Ac: Methyl 2,3-diacetamido-2,3-dideoxy-α-D-gulopyranoside*
$C_{11}H_{20}N_2O_6$ 276.289
Mp 165-165.5°. $[\alpha]_D$ +30 (c, 0.5 in H_2O).

Me glycoside, 4,6-benzylidene, N,N′*-di-Ac: Methyl 2,3-diacetamido-4,6-O-benzylidene-2,3-dideoxy-α-D-gulopyranoside*
$C_{18}H_{24}N_2O_6$ 364.397
Mp 231-235°. $[\alpha]_D$ +72 (c, 0.5 in $CHCl_3$).

Knirel, Y.A. *et al., Carbohydr. Res.*, 1983, **122**, 181 (*synth, pmr, cmr*)

2,3-Diamino-2,3-dideoxyguluronic acid D-436

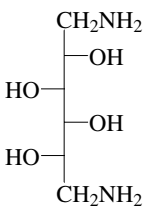


$C_6H_{12}N_2O_5$ 192.171

L-*form*

2,3-N-*Di-Ac: 2,3-Diacetamido-2,3-dideoxy-L-guluronic acid*
[85357-14-8]
$C_{10}H_{16}N_2O_7$ 276.246
Constit. of the *O*-specific polysaccharide of *Pseudomonas aeruginosa* and in *Vibrio cholerae* polysaccharides. Not isol. in the free state.
Knirel, Yu.A. *et al., Carbohydr. Res.*, 1983, **112**, C4
Knirel, Yu.A. *et al., Eur. J. Biochem.*, 1983, **134**, 289 (*isol, cmr, struct*)
Kocharova, N.A. *et al., Carbohydr. Res.*, 2001, **330**, 83-92 (*occur*)

1,6-Diamino-1,6-dideoxyiditol D-437



L-*form*

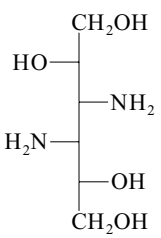
$C_6H_{16}N_2O_4$ 180.203

L-*form*

2,3,4,5-Tetra-Me: 1,6-Diamino-1,6-dideoxy-2,3,4,5-tetra-O-*methyl-L-iditol*
[439937-92-5]
$C_{10}H_{24}N_2O_4$ 236.311
Syrup. $[\alpha]_D$ -25 (c, 1 in $CHCl_3$).

2,3,4,5-Tetra-Me, dihydrochloride:
[440094-52-0]
Hygroscopic syrup. $[\alpha]_D$ -9 (c, 1 in Py).
Mancera, M. *et al., Carbohydr. Res.*, 2002, **337**, 607-611 (*2,3,4,5-tetra-Me*)

3,4-Diamino-3,4-dideoxyiditol D-438

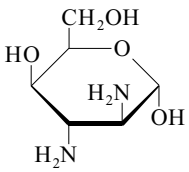


$C_6H_{16}N_2O_4$ 180.203

D-*form* [130970-23-9]
Cryst. (EtOH aq.). Mp 160-161°. $[\alpha]_D^{25}$ -104 (c, 1.0 in H_2O).

1,2:5,6-Di-O-*isopropylidene, 3*N,*4*N-*dibenzoyl:* [29709-61-3]
$C_{26}H_{32}N_2O_6$ 468.549
Cryst. (EtOAc/petrol). Mp 182-183°. $[\alpha]_D$ +129 (c, 0.3 in $CHCl_3$).
Barford, A.D. *et al., Carbohydr. Res.*, 1970, **14**, 231 (*diisopropylidene dibenzoyl*)
Canadian Pat., 1990, 1 265 811; *CA*, **114**, 94142v (*synth*)

2,3-Diamino-2,3-dideoxyidose D-439



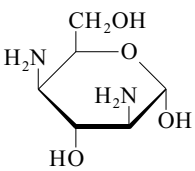
$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form*

*Me glycoside, 2*N,*3*N-*di-Ac:* [88261-56-7]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. (EtOH). Mp 220-221°. $[\alpha]_D^{20}$ +74 (c, 1 in H_2O).

Me glycoside, 4,6-O-*benzylidene, 2*N,*3*N-*di-Ac:* [52885-53-7]
$C_{18}H_{24}N_2O_6$ 364.397
Cryst. Mp 304-305°. $[\alpha]_D$ +39 (c, 0.7 in $CHCl_3$).
Guthrie, R.D. *et al., J.C.S. Perkin 1*, 1974, 650 (*α-Me pyr benzylidene*)
Knirel, Y.A. *et al., Carbohydr. Res.*, 1983, **122**, 181 (*α-Me pyr, di-Ac, cmr*)

2,4-Diamino-2,4-dideoxyidose D-440



$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form*

Me glycoside: Methyl 2,4-diamino-2,4-dideoxy-α-D-idopyranoside
[58645-30-0]
$C_7H_{16}N_2O_4$ 192.214
Syrup. $[\alpha]_D^{20}$ +74 (c, 5.4 in H_2O).

*Me glycoside, 2*N,*4*N-*di-Ac: Methyl 2,4-diacetamido-2,4-dideoxy-α-D-idopyranoside*
[29788-86-1]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. (EtOH). Mp 242-244°. $[\alpha]_D^{22}$ +61 (c, 0.2 in H_2O).

*Me glycoside, 2*N,*3,4*N,*6-tetra-Ac: Methyl 2,4-diacetamido-3,6-di*-O-*acetyl-2,4-dideoxy-α-D-idopyranoside*
[29788-85-0]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (EtOH). Mp 245-247°. $[\alpha]_D^{22}$ +80 (c, 1 in H_2O).

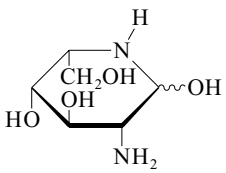
*Me glycoside, 2*N,*3,4*N,*4*N,*6-penta-Ac: Methyl 2-acetamido-3,6-di*-O-*acetyl-4-(diacetylamino)-2,4-dideoxy-α-D-idopyranoside*
[58645-26-4]
$C_{17}H_{26}N_2O_9$ 402.4
Syrup. $[\alpha]_D^{20}$ +24 (c, 2 in MeOH).

*Me glycoside, 3,6-dibenzoyl, 2*N,*4*N-*di-Ac: Methyl 2,4-diacetamido-3,6-di*-O-*benzoyl-2,4-dideoxy-α-D-idopyranoside*
[58645-24-2]
$C_{25}H_{28}N_2O_8$ 484.505
Cryst. (EtOH). Mp 263-265°. $[\alpha]_D^{20}$ +52 (c, 2 in $CHCl_3$).

*Me glycoside, 2*N,*3,4*N,*6-tetrabenzoyl, 2*N,*4*N-*di-Ac:*
$C_{39}H_{36}N_2O_{10}$ 692.721
Cryst.

*Me glycoside, 3,6-di-Me, 2*N,*4*N-*di-Ac: Methyl 2,4-diacetamido-2,4-dideoxy-3,6-di*-O-*methyl-α-D-idopyranoside*
[58645-32-2]
$C_{13}H_{24}N_2O_6$ 304.342
Cryst. (EtOH). Mp 248-250°. $[\alpha]_D^{20}$ +91 (c, 4 in MeOH).
Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1970, **43**, 2948 (*Me gly derivs*)
Paulsen, H. *et al., Carbohydr. Res.*, 1975, **45**, 205 (*Me gly derivs, pmr, conformn*)
Luger, P. *et al., Acta Cryst. B*, 1978, **34**, 1254 (*tetrabenzoyl, cryst struct*)

2,5-Diamino-2,5-dideoxyidose D-441

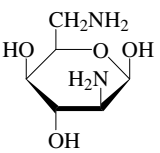


$C_6H_{14}N_2O_4$ 178.188

L-Pyranose-*form*

2-N-*Ac: 2-Acetamido-5-amino-2,5-dideoxy-L-idopyranose*
$C_8H_{16}N_2O_5$ 220.225
Cryst. (Me_2CO aq.) (as hydrogen sulfite). Mp 138-142° dec. (hydrogen sulfite). $[\alpha]_D^{20}$ +27 (c, 0.3 in MeOH).
Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **81**, 249

2,6-Diamino-2,6-dideoxyidose D-442



β-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

D-*form*

Hydrochloride: [51250-07-8]
Syrup.

β-D-Pyranose-*form*

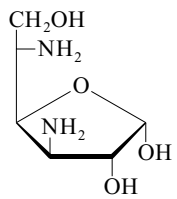
*Me glycoside, 2*N-*Ac: Methyl 2-acetamido-6-amino-2,6-dideoxy-β-D-idopyranoside*
[59150-47-9]
$C_9H_{18}N_2O_5$ 234.252
Cryst. (EtOAc/petrol). Mp 149-153°. $[\alpha]_D^{20}$ -108 (c, 1.0 in H_2O).

*Me glycoside, 2*N*,3,4-tri-Ac: Methyl 6-amino-2-acetamido-3,4-di*-O*-acetyl-β-*D*-idopyranoside*
[59150-46-8]
$C_{13}H_{22}N_2O_7$ 318.326
Cryst. (EtOAc/petrol). Mp 140-144°. $[\alpha]_D^{20}$ -37 (c, 1.0 in $CHCl_3$).

L-*form* *Neosamine B*. *Paromose*
[527-10-6]
A constit. of Neomycin B, Paromomycin, Hybrimycins A and B, Lividomycins A and B, Zygomycin and Framycetin.
Hydrochloride (1:2): [49810-58-4]
Mp 135-150° dec. $[\alpha]_D^{24}$ +17.8 (c, 1.18 in H_2O).
2,6-Di-N*-Ac: 2,6-Diacetamido-2,6-dideoxy-L-idose*
$C_{10}H_{18}N_2O_6$ 262.262
$[\alpha]_D^{25}$ +7 (c, 1.9 in H_2O).
p-*Nitrophenylhydrazone, 2,6-di*-N*-Ac:*
Yellow needles. Mp 211-215° Mp 229-231°. $[\alpha]_D^{28}$ +5.9 (c, 0.4 in MeOH).
Dibenzyl dithioacetal:
$C_{20}H_{28}N_2O_3S_2$ 408.585
Mp 225-230° (as hydrochloride).
$[\alpha]_D^{28}$ -126 (c, 2.5 in MeOH).
Dibenzyl dithioacetal, 2,6-di-N*-Ac:*
$C_{24}H_{32}N_2O_5S_2$ 492.659
Mp 82-84°. $[\alpha]_D^{23}$ -12.5 (c, 1.0 in MeOH).

α-L-Pyranose-*form*
Me glycoside: Methyl 2,6-diamino-2,6-dideoxy-α-L-idopyranoside
$C_7H_{16}N_2O_4$ 192.214
Hygroscopic solid (as carbamate).
$[\alpha]_D^{23}$ -89 (c, 1.7 in H_2O).
Meyer zu Reckendorf, W. *et al., Angew. Chem., Int. Ed.*, 1963, **2**, 398 (*synth, struct, L-form*)
Haskell, T.H. *et al., J.O.C.*, 1963, **28**, 2599 (*config*)
Perry, M.B. *et al., Can. J. Biochem.*, 1973, **51**, 1335 (*D-form, chromatogr*)
Ogawa, S. *et al., J.O.C.*, 1974, **39**, 812 (*synth, L-form*)
Jaroslavi, S. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 3698 (*β-D-form, β-Me pyr deriv, pmr*)
Lodhi, S. *et al., Biochim. Biophys. Acta*, 1976, **426**, 781 (*Me α-L-pyr*)
Usui, T. *et al., Carbohydr. Res.*, 1984, **130**, 165 (*Me α-L-pyr*)

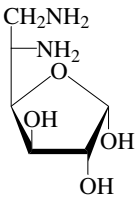
3,5-Diamino-3,5-dideoxyidose D-443



$C_6H_{14}N_2O_4$ 178.188

β-L-Furanose-*form*
6-Trityl, 1,2-O-*isopropylidene, 3*N*,5*N*-di-Ac: 3,5-Diacetamido-3,5-dideoxy-1,2*-O-*isopropylidene-6*-O-*trityl-β-L-idofuranose*
[26532-03-6]
$C_{32}H_{36}N_2O_6$ 544.646
Cryst. (EtOH/Et_2O). Mp 238-239°. $[\alpha]_D^{20}$ -15 (c, 1.4 in $CHCl_3$).
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 3833 (*isopropylidene deriv*)

5,6-Diamino-5,6-dideoxyidose D-444



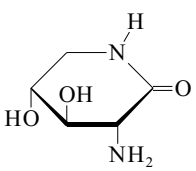
β-L-Furanose-*form*

$C_6H_{14}N_2O_4$ 178.188

L-Furanose-*form*
*5*N*,6*N*-Di-Ac: 5,6-Diacetamido-5,6-dideoxy-L-idofuranose*
[14685-96-2]
$C_{10}H_{18}N_2O_6$ 262.262
Cryst. Mp 170-174°. $[\alpha]_D$ +11.6 (H_2O).

β-L-Furanose-*form*
1,2-O-*Cyclohexylidene, 5*N*-Ac: 6-Amino-5-acetamido-1,2*-O-*cyclohexylidene-5,6-dideoxy-β-L-idofuranose*
$C_{14}H_{24}N_2O_5$ 300.354
Cryst. (as hydrochloride). Mp 194-199° (hydrochloride). $[\alpha]_D$ -41.2 (MeOH).
1,2-O-*Cyclohexylidene, 5*N*,6*N*-Di-Ac: 5,6-Diacetamido-1,2*-O-*cyclohexylidene-5,6-dideoxy-β-L-idofuranose*
$C_{16}H_{26}N_2O_6$ 342.391
Cryst. + $2H_2O$. Mp 110-114°. $[\alpha]_D$ -11.6 (MeOH).
*1,2-Isopropylidene, 5*N*-benzyl:* [26277-20-3]
$C_{16}H_{24}N_2O_4$ 308.377
Syrup.
Paulsen, H. *et al., Annalen*, 1963, **665**, 166, (*di-Ac, cyclohexylidene derivs*)
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 3844 (*isopropylidene benzyl*)

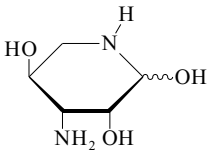
2,5-Diamino-2,5-dideoxy-*xy-lono*-1,5-lactam D-445



$C_5H_{10}N_2O_3$ 146.146

D-*form* [135030-05-6]
Cryst. (MeOH/EtOAc). Mp 169-171°. $[\alpha]_D^{20}$ +15 (c, 0.4 in H_2O).
Bols, M. *et al., Acta Chem. Scand.*, 1991, **45**, 280 (*synth, pmr, cmr*)

3,5-Diamino-3,5-dideoxylyxose D-446



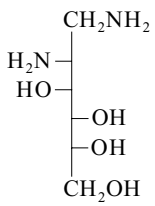
L–Pyranose–*form*

$C_5H_{12}N_2O_3$ 148.161

L-Pyranose-*form*
*1,2,3*N*,4,5*N*-Penta-Ac: 3,5-Diacetamido-1,2,4-tri*-O-*acetyl-3,5-dideoxy-L-lyxopyranose*
[32778-88-4]
$C_{15}H_{22}N_2O_8$ 358.347
Cryst. (MeOH/Et_2O). Mp 205-206°. $[\alpha]_D$ +57 (c, 1.0 in $CHCl_3$).

β-L-Furanose-*form*
1,2-O-*Isopropylidene, 3*N*,5*N*-di-Ac: 3,5-Diacetamido-3,5-dideoxy-1,2*-O-*isopropylidene-β-L-lyxofuranose*
[32778-87-3]
$C_{12}H_{20}N_2O_5$ 272.3
Cryst. (Me_2CO/Et_2O). Mp 175-177°. $[\alpha]_D$ -62 (c, 1.0 in MeOH).
Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 1634 (*L-pyr penta-Ac, β-L-fur di-N-Ac*)

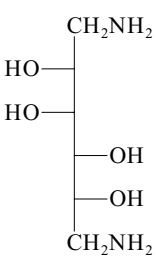
1,2-Diamino-1,2-dideoxymannitol D-447



$C_6H_{16}N_2O_4$ 180.203

D-*form*
Hydrochloride (1:2): Mp 184°. $[\alpha]_D^{21}$ -5 (c, 4.8 in H_2O).
1,2-Di-N*-salicylidene:* Mp 220-221°. $[\alpha]_D^{20}$ +125 (c, 2.0 in Py).
Henseke, G. *et al., Chem. Ber.*, 1964, **97**, 733 (*synth*)
Wolfrom, M.L. *et al., J.O.C.*, 1965, **30**, 841 (*synth*)

1,6-Diamino-1,6-dideoxymannitol D-448



$C_6H_{16}N_2O_4$ 180.203

D-*form* [41111-65-3]
Syrup. Bp_{22} 78-82°. n_D^{20} 1.4572.

Hydrochloride (1:2): [15543-77-8]
Cryst. Mp 238-241° (220°) dec. $[\alpha]_D$ +61 (c, 0.24 in H_2O).

Picrate (1:2): [104769-34-8]
Yellow cryst. + H_2O (H_2O). Mp 199-200°.

2,3,4,5-Tetra-Me: 1,6-Diamino-1,6-dideoxy-2,3,4,5-tetra-O-*methyl-*D-*mannitol*
[439937-88-9]
$C_{10}H_{24}N_2O_4$ 236.311
Oil. $[\alpha]_D$ +20 (c, 1 in $CHCl_3$).

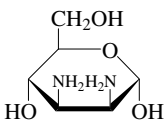
2,3,4,5-Tetra-Me, dihydrochloride:
[440094-51-9]
Amorph. solid. $[\alpha]_D$ -13 (c, 1 in Py).

2,4:3,5-Di-O-*methylene:* [35827-60-2]
$C_8H_{16}N_2O_4$ 204.225
Solid (as hydrochloride). CAS no. refers to hydrochloride.

*1*N*,6*N*-Bis(2-chloroethyl):* See Mannomustine, M-35

Haworth, W.N. *et al., J.C.S.*, 1944, 155 (*synth*)
Samoilova, O.I. *et al., Zh. Obshch. Khim.*, 1973, **43**, 365; *J. Gen. Chem. USSR (Engl. Transl.)*, 1973, **43**, 363 (*dimethylene*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183 (*synth*)
Mancera, M. *et al., Carbohydr. Res.*, 2002, **337**, 607-611 (*2,3,4,5-tetra-Me*)

2,3-Diamino-2,3-dideoxymannose D-449



α-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188
Pt complexes exhibit antitumour activity.

D-Pyranose-*form*

Hydrochloride: [21871-07-8]
Cryst. (EtOH/EtOAc). $[\alpha]_D$ +1 (2 min.) → -3 (1h) (c, 0.6 in H_2O).

α-D-Pyranose-*form*

*Me glycoside, 2*N*,3*N*-di-Ac: Methyl 2,3-diacetamido-2,3-dideoxy-α-*D*-mannopyranoside*
[53840-71-4]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. Mp 248-250°. $[\alpha]_D$ +4.8 (c, 0.4 in H_2O).

*Me glycoside, 2*N*,3*N*,4,6-tetra-Ac: Methyl 2,3-diacetamido-4,6-di*-O-*acetyl-2,3-dideoxy-α-*D*-mannopyranoside*
[6386-22-7]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (C_6H_6/petrol). Mp 200-202°. $[\alpha]_D$ +89.2 ($CHCl_3$).

*Me glycoside, 4,6-*O-*benzylidene, 2*N*,3*N*-di-Ac: Methyl 2,3-diacetamido-4,6-*O-*benzylidene-2,3-dideoxy-α-*D*-mannopyranoside*
[3150-18-3]
$C_{18}H_{24}N_2O_6$ 364.397
Cryst. Mp 310-311°. $[\alpha]_D$ -36.2 (DMF).

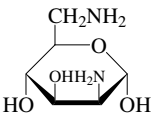
β-D-Pyranose-*form*

*Me glycoside: Methyl 2,3-diamino-2,3-dideoxy-β-*D*-mannopyranoside*
[21871-05-6]
$C_7H_{16}N_2O_4$ 192.214
Cryst. + 0.66 2-propanol (MeOH/2-propanol) (as dihydrochloride). Mp 180° dec. (browns) (dihydrochloride). $[\alpha]_D$ -46.7 (c, 1 in H_2O). CAS no. refers to dihydrochloride.

*Me glycoside, 2*N*,3*N*-di-Ac: Methyl 2,3-diacetamido-2,3-dideoxy-β-*D*-mannopyranoside*
[21871-06-7]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. Mp 116-135°. $[\alpha]_D$ -108 (c, 0.6 in H_2O).

Guthrie, R.D. *et al., Chem. Ind. (London)*, 1962, 1473 (*α-Me pyr benzylidene di-Ac*)
Baer, H.H. *et al., J.O.C.*, 1969, **34**, 3848 (*synth, β-Me pyr derivs, ir*)
Baer, H.H. *et al., Can. J. Chem.*, 1974, **52**, 2257 (*α-Me pyr acetates, ir*)
Tsubomura, T. *et al., Chem. Comm.*, 1986, 459 (*Pt complexes, pharmacol*)

2,6-Diamino-2,6-dideoxymannose, 8CI D-450



α-D-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form*

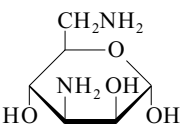
N,N′*-Di-Ac: 2,6-Diacetamido-2,6-dideoxy-α-*D*-mannopyranose*
$C_{10}H_{18}N_2O_6$ 262.262
Mp 211-212°. $[\alpha]_D^{26}$ +47 → +33 (c, 1.0 in H_2O).

β-D-Pyranose-*form*

Hydrochloride (1:2): Mp 155° dec. $[\alpha]_D^{26}$ -8 → -1 (c, 1.0 in H_2O).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1965, **98**, 93 (*synth*)
Wolfrom, M.L. *et al., Chem. Comm.*, 1965, 143 (*synth*)
Meyer zu Reckendorf, W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 274 (*synth, struct*)

3,6-Diamino-3,6-dideoxymannose D-451



$C_6H_{14}N_2O_4$ 178.188

α-D-Pyranose-*form*

*Me glycoside: Methyl 3,6-diamino-3,6-dideoxy-α-*D*-mannopyranoside*
[14133-34-7]
$C_7H_{16}N_2O_4$ 192.214
Syrup.

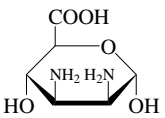
Me glycoside, hydrochloride (1:2):
[14257-76-2]
Amorph. solid. (Me_2CO/EtOH). $[\alpha]_D^{22}$ +43 (c, 1.07 in H_2O).

*Me glycoside, 3*N*,6*N*-di-Ac: Methyl 3,6-diacetamido-3,6-dideoxy-α-*D*-mannopyranoside*
[14133-48-3]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. (EtOH). Mp 211° dec. $[\alpha]_D^{22}$ +46 (c, 0.91 in H_2O).

*Me glycoside, 2,3*N*,4,6*N*-tetra-Ac: Methyl 3,6-diacetamido-2,4-di*-O-*acetyl-3,6-dideoxy-α-*D*-mannopyranoside*
[14133-49-4]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (EtOAc). Mp 189-190°. $[\alpha]_D^{22}$ 0 (c, 0.91 in $CHCl_3$).

Shigeharu, I. *et al., Chem. Pharm. Bull.*, 1966, **14**, 902; 1210 (*α-D-Me pyr, α-D-Me pyr derivs*)

2,3-Diamino-2,3-dideoxymannuronic acid D-452



α-D-Pyranose-*form*

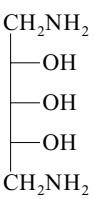
$C_6H_{12}N_2O_5$ 192.171

D-*form*

N,N′*-Di-Ac: 2,3-Diacetamido-2,3-dideoxy-*D*-mannuronic acid*
$C_{10}H_{16}N_2O_7$ 276.246
Aminosugar present in *Pseudomonas aeruginosa* lipopolysaccharide and *Vibrio cholerae* polysaccharide. Characterised as di- and trisaccharide residues.

Knirel, Y.A. *et al., Carbohydr. Res.*, 1982, **104**, C4
Kocharova, N.A. *et al., Carbohydr. Res.*, 2001, **330**, 83-92 (*occur*)

1,5-Diamino-1,5-dideoxyribitol D-453



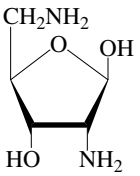
$C_5H_{14}N_2O_3$ 150.177
meso-.

Hydrochloride (1:2): [104769-36-0]
Hygroscopic solid.

Picrate: [104769-80-4]
Cryst. (H_2O). Mp 205-208°.

Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183 (*synth*)

2,5-Diamino-2,5-dideoxyribose D-454



β-D-Furanose-*form*

$C_5H_{12}N_2O_3$ 148.161

D-Furanose-*form*

2N,5N-Di-Ac: 2,5-Diacetamido-2,5-dideoxy-D-ribofuranose
[86258-84-6]
$C_9H_{16}N_2O_5$ 232.236
Needles. Mp 151-153°. $[\alpha]_D^{20}$ -16 (c, 0.5 in MeOH).

β-D-Furanose-*form*

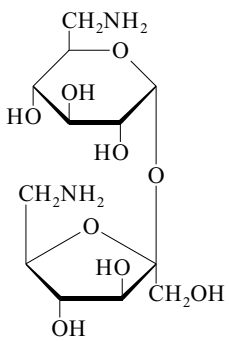
Benzyl glycoside, 2N,5N-di-Ac: Benzyl 2,5-diacetamido-2,5-dideoxy-β-D-ribofuranoside
[74593-06-9]
$C_{16}H_{22}N_2O_5$ 322.36
Cryst. Mp 135°. $[\alpha]_D^{20}$ -52 (c, 0.5 in MeOH).

Benzyl glycoside, 2N,3,5N-tri-Ac: Benzyl 2,5-diacetamido-3-O-acetyl-2,5-dideoxy-β-D-ribofuranoside
[74593-07-0]
$C_{18}H_{24}N_2O_6$ 364.397
Needles. Mp 160°. $[\alpha]_D^{20}$ -48 (c, 0.2 in MeOH).

[86258-85-7]

Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **81**, 23 (*D-fur deriv, β-D-fur deriv, ir, pmr*)

6,6′-Diamino-6,6′-dideoxysucrose D-455



$C_{12}H_{24}N_2O_9$ 340.33
Mp 105-110°. $[\alpha]_D$ +51.6 (c, 1.5 in H_2O).

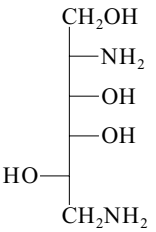
N,N′-Di-Ac:
$C_{16}H_{28}N_2O_{11}$ 424.404
Mp 85-88°. $[\alpha]_D$ +44.5 (c, 0.86 in MeOH).

1′,2,2′,3,3′,4,6N,6′N-Octa-Ac:
$C_{28}H_{40}N_2O_{17}$ 676.627
Cryst. (Et_2O). Mp 86-89°. $[\alpha]_D$ +70.5 (c, 1.1 in $CHCl_3$).

Khan, R. *et al., Carbohydr. Res.*, 1970, **78**, 185 (*synth, pmr*)

2,6-Diamino-2,6-dideoxytalitol D-456

1,5-Diamino-1,5-dideoxyaltritol, 9CI



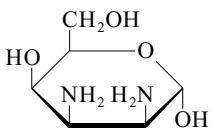
$C_6H_{16}N_2O_4$ 180.203

L-*form* [109958-76-1]
Cryst. (EtOH) (as hydrochloride). Mp 166-168° (hydrochloride). $[\alpha]_D^{20}$ -19 (c, 1.0 in H_2O). CAS no. refers to hydrochloride.

1,2N,3,4,5,6N-Hexa-Ac: [109968-42-5]
$C_{18}H_{28}N_2O_{10}$ 432.427
Cryst. (Et_2O). Mp 164-166°. $[\alpha]_D^{20}$ -31 (c, 1.0 in $CHCl_3$).

Kuszmann, J. *et al., Carbohydr. Res.*, 1986, **156**, 25 (*synth, L-form, hexa-Ac, pmr*)

2,3-Diamino-2,3-dideoxytalose D-457



$C_6H_{14}N_2O_4$ 178.188

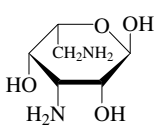
α-D-Pyranose-*form*

Me glycoside, N,N′*-di-Ac: Methyl 2,3-diacetamido-2,3-dideoxy-α-D-talopyranoside*
[53840-74-7]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. Mp 220-221°. $[\alpha]_D$ +11.8 (c, 0.8 in H_2O).

Me glycoside, 2N,3N,4,6-tetra-Ac: Methyl 2,3-diacetamido-4,6-di-O-acetyl-2,3-dideoxy-α-D-talopyranoside
[53840-75-8]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. + 0.5 C_6H_6 (C_6H_6/petrol). Mp 85-89°. $[\alpha]_D$ +107.5 (c, 1.0 in $CHCl_3$).

Baer, H.H. *et al., Can. J. Chem.*, 1974, **52**, 2257 (*α-D-Me pyr derivs*)
Knirel, Y.A. *et al., Carbohydr. Res.*, 1983, **122**, 181 (*α-D-Me pyr derivs, cmr*)

3,6-Diamino-3,6-dideoxytalose D-458



α-L-Pyranose-*form*

$C_6H_{14}N_2O_4$ 178.188

α-L-Pyranose-*form*

Me glycoside: Methyl 3,6-diamino-3,6-dideoxy-α-L-talopyranoside
[19286-10-3]
$C_7H_{16}N_2O_4$ 192.214
Cryst. + ½H_2O (MeOH/C_6H_6) (as dihydrochloride). Mp 233-234° (dihydrochloride). $[\alpha]_D^{22}$ -62 (c, 0.75 in H_2O). CAS no. refers to dihydrochloride.

Me glycoside, 3N,6N-di-Ac: Methyl 3,6-diacetamido-3,6-dideoxy-α-L-talopyranoside
[19286-13-6]
$C_{11}H_{20}N_2O_6$ 276.289
Cryst. (EtOAc/EtOH). Mp 182-189°. $[\alpha]_D$ -115 ($CHCl_3$).

Me glycoside, 2,3N,4,6N-tetra-Ac: Methyl 3,6-diacetamido-2,4-di-O-acetyl-3,6-dideoxy-α-L-talopyranoside
[19286-12-5]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. + 1H_2O (EtOAc). Mp 106-108°. $[\alpha]_D^{19}$ -33.8 ($CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 3,6-diamino-3,6-dideoxy-β-L-talopyranoside
[19286-11-4]
$C_7H_{16}N_2O_4$ 192.214
Syrup. $[\alpha]_D^{22}$ +75.5 (c, 0.75 in H_2O).

Me glycoside; hydrochloride (1:2):
Hygroscopic needles. $[\alpha]_D^{22}$ +36.4 (c, 0.75 in H_2O).

Me glycoside, 2,3N,4,6N-tetra-Ac: Methyl 3,6-diacetamido-2,4-di-O-acetyl-3,6-dideoxy-β-L-talopyranoside
[19286-14-7]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (EtOAc/Et_2O). Mp 134-136°. $[\alpha]_D^{20}$ +66.2 ($CHCl_3$).

L-Furanose-*form*

Me glycoside, 2,3N,5,6N-tetra-Ac: Methyl 3,6-diacetamido-2,5-di-O-acetyl-3,6-dideoxy-L-talofuranoside
[19286-15-8]
$C_{15}H_{24}N_2O_8$ 360.363
Cryst. (EtOAc/Et_2O). Mp 178-180°. $[\alpha]_D^{22}$ +27 ($CHCl_3$).

β-L-Furanose-*form*

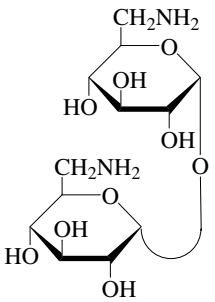
1,2-O-Isopropylidene: 3,6-Diamino-3,6-dideoxy-1,2-O-isopropylidene-β-L-talofuranose
[19286-08-9]
$C_9H_{18}N_2O_4$ 218.252
Foam. $[\alpha]_D^{20}$ +23 (H_2O).

1,2-O-Isopropylidene, 3N,5,6N-tri-Ac: 3,6-Diacetamido-5-O-acetyl-3,6-dideoxy-1,2-O-isopropylidene-β-L-talofuranose
[19286-09-0]
$C_{15}H_{24}N_2O_7$ 344.364
Cryst. (EtOAc). Mp 175-176°. $[\alpha]_D^{22}$ +39 ($CHCl_3$).

Kovar, J. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 549 (*α-L-Me pyr derivs, β-L-Me pyr derivs, L-Me fur tetra-Ac, β-L-fur isopropylidene derivs, fur pyr deriv*)

6,6′-Diamino-6,6′-dideoxy-α-trehalose D-459

6-Amino-6-deoxy-α-D-glucopyranosyl 6-amino-6-deoxy-α-D-glucopyranoside
[30923-00-3]

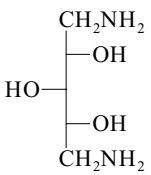


$C_{12}H_{24}N_2O_9$ 340.33
Solid + 0.6 MeOH. Mp *ca.* 218° (sinters and chars).

N,N′,2,2′,3,3′-Hexa-O-benzoyl: [428509-03-9]
$C_{54}H_{48}N_2O_{15}$ 964.978
Cryst. (EtOH). Mp 201-202°. CAS no. refers to dihydrochloride.

Rose, J.D. *et al., Carbohydr. Res.*, 2002, **337**, 105-120 (*synth, pmr, hexabenzoyl*)

1,5-Diamino-1,5-dideoxyxylitol D-460



$C_5H_{14}N_2O_3$ 150.177
Opt. inactive (*meso*-).

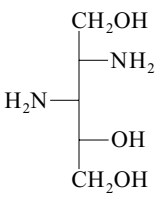
Hydrochloride (1:2): [104769-35-9]
Hygroscopic solid.

Picrate (1:2): [104769-28-0]
Cryst. + H_2O. Mp 235-236°.

2,3,4-Tri-Me: 1,5-Diamino-1,5-dideoxy-2,3,4-tri-O-methylxylitol
[362513-09-5]
$C_8H_{20}N_2O_3$ 192.258
Mp 103-106° (as dihydrochloride). CAS no. refers to dihydrochloride.

Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1986, **5**, 183 (*synth*)
Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 2001, **333**, 95-103 (*2,3,4-tri-Me*)

2,3-Diamino-2,3-dideoxyxylitol D-461



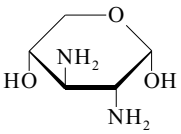
$C_5H_{14}N_2O_3$ 150.177

D-*form* [131097-19-3]
Liq.

1,4,5-Tri-Me: [130970-26-2]
$C_8H_{20}N_2O_3$ 192.258
Liq.

Canadian Pat., 1990, 1 265 811; *CA*, **114**, 94142v (*synth*)

2,3-Diamino-2,3-dideoxyxylose D-462



α–D–Pyranose–*form*

$C_5H_{12}N_2O_3$ 148.161

D-Pyranose-*form*

2N,3N-Di-Ac: 2,3-Diacetamido-2,3-dideoxy-D-xylopyranose
[79974-86-0]
$C_9H_{16}N_2O_5$ 232.236
Syrup. $[\alpha]_D^{20}$ -81.22 (c, 0.25 in H_2O).

1,2N,3N,4-Tetra-Ac: 2,3-Diacetamido-1,4-di-O-acetyl-2,3-dideoxy-D-xylopyranose
[79974-87-1]
$C_{13}H_{20}N_2O_7$ 316.31
Syrup. $[\alpha]_D^{20}$ +20 (c, 0.1 in $CHCl_3$).

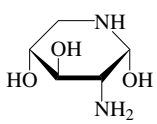
α-D-Pyranose-*form*

Benzyl glycoside, 4-benzyl, 2N,3N-di-Ac: Benzyl 2,3-diacetamido-4-O-benzyl-2,3-dideoxy-α-D-xylopyranoside
[79974-85-9]
$C_{23}H_{28}N_2O_5$ 412.485
Cryst. ($CHCl_3$/petrol). Mp 256.5°. $[\alpha]_D^{20}$ +62.5 (c, 0.5 in $CHCl_3$).

[79974-96-2, 79974-97-3]

Paulsen, H. *et al., Annalen*, 1981, 1633 (*D-pyr deriv, α-D-pyr deriv, pmr*)

2,5-Diamino-2,5-dideoxyxylose D-463



α-D-Pyranose-*form*

$C_5H_{12}N_2O_3$ 148.161

α-D-Pyranose-*form*

2N,5N-Di-Ac: 2,5-Diacetamido-2,5-dideoxy-α-D-xylopyranose
[86204-37-7]
$C_9H_{16}N_2O_5$ 232.236
Needles (MeOH). Mp 190-192° dec.
$[\alpha]_D^{20}$ +17 (c, 0.38 in MeOH).

1,2N,3,4,5N-Penta-Ac: 2,5-Diacetamido-1,3,4-tri-O-acetyl-2,5-dideoxy-α-D-xylopyranose
[86204-38-8]
$C_{15}H_{22}N_2O_8$ 358.347
Prisms. Mp 178-179°. $[\alpha]_D^{20}$ +30 (c, 0.25 in $CHCl_3$).

D-Furanose-*form*

2N,5N-Di-Ac: 2,5-Diacetamido-2,5-dideoxy-D-xylofuranose
[86258-82-4]
$C_9H_{16}N_2O_5$ 232.236
Needles (EtOH/Et_2O). Mp 171°. $[\alpha]_D^{26}$ +64 (c, 0.5 in MeOH).

α-D-Furanose-*form*

1,2N,3,5N-Tetra-Ac: 2,5-Diacetamido-1,3-di-O-acetyl-2,5-dideoxy-α-D-xylofuranose
$C_{13}H_{20}N_2O_7$ 316.31
Needles. Mp 198-200° dec. $[\alpha]_D^{20}$ +108 (c, 0.3 in MeOH).

β-D-Furanose-*form*

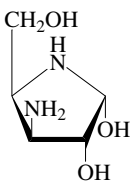
Benzyl glycoside, 2N,5N-di-Ac: Benzyl 2,5-diacetamido-2,5-dideoxy-β-D-xylofuranoside
[74593-38-7]
$C_{16}H_{22}N_2O_5$ 322.36
Needles (EtOH). Mp 249° dec. $[\alpha]_D^{20}$ -62 (c, 0.3 in MeOH).

Benzyl glycoside, 2N,3,5N-tri-Ac: Benzyl 2,5-diacetamido-3-O-acetyl-2,5-dideoxy-β-D-xylofuranoside
$C_{18}H_{24}N_2O_6$ 364.397
Cryst. (Et_2O). Mp 182-183°. $[\alpha]_D^{20}$ -43 (c, 0.3 in MeOH).

[86286-44-4]

Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **81**, 23 (*α-D-fur deriv, benzyl β-D-fur deriv, ir, pmr*)
Okumura, H. *et al., Agric. Biol. Chem.*, 1983, **47**, 839 (*D-fur deriv, α-D-pyr deriv, ir, pmr*)

3,4-Diamino-3,4-dideoxyxylose D-464



α-D-Furanose-*form*

$C_5H_{12}N_2O_3$ 148.161

α-D-Furanose-*form*

1,2-O-Isopropylidene, 5-benzoyl, 3N,4N-di-Ac:
$C_{19}H_{24}N_2O_6$ 376.408
Foam. $[\alpha]_D$ -28 (c, 1.2 in $CHCl_3$).

L-*form* [135221-05-5]
Pt complexes used as antitumour agents. Active against L-1210 leukaemic cells of mice.
Syrup.

β-L-Pyranose-*form*

Me glycoside: Methyl 3,4-diamino-3,4-dideoxy-β-L-xylopyranoside
[81905-70-6]
$C_6H_{14}N_2O_3$ 162.188
Needles (EtOH). Mp 190-192° dec.

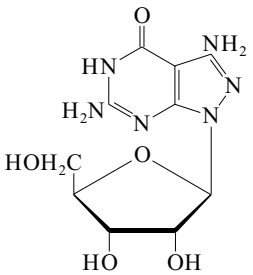
Me glycoside, 2,3N,4N-tribenzoyl:
[81905-71-7]
$C_{27}H_{26}N_2O_6$ 474.512
Cryst. (EtOH). Mp 269°.

Hajivarnava, G.S. *et al., J.C.S. Perkin 1*, 1982, 205 (*β-L-Me pyr, pmr, ir*)

Coetzee, I. *et al., S. Afr. J. Chem.*, 1984, **37**, 11 (α-D-*fur isopropylidene deriv, pmr, ir*)
Japan. Pat., 1990, 02 134 395; *CA*, **115**, 149108s (*pharmacol*)

3,6-Diamino-1,5-dihydro-1-β-D-ribofuranosyl-4*H*-pyrazolo[3,4-*d*]pyrimidin-4-one, 9CI D-465

[127820-69-3]

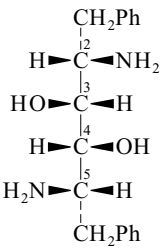


$C_{10}H_{14}N_6O_5$ 298.258
Solid. Mp 180° dec.

Bontems, R.J. *et al., J. Med. Chem.*, 1990, **33**, 2174 (*synth, uv, pmr*)

2,5-Diamino-1,6-diphenyl-3,4-hexanediol D-466

2,5-Diamino-1,2,5,6-tetradeoxy-1,6-diphenylhexitol



(2*S*,3*R*,4*R*,5*S*)–*form*

$C_{18}H_{24}N_2O_2$ 300.4

(2*S*,3*R*,4*R*,5*S*)-*form*
L-ido-*form*
[134805-49-5] Shows retroviral protease inhibitory activity.
Solid + ¼H_2O. Mp 86-89°.

3,4-O-Isopropylidene: [136740-99-3]
$C_{21}H_{28}N_2O_2$ 340.464
Syrup.

N,N′-*Bis(*tert-*butyloxycarbonyl):*
[129491-63-0]
Cryst. + 0.5H_2O. Mp 200-202°.

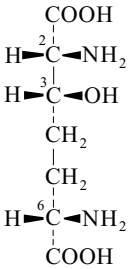
(2*S*,3*S*,4*S*,5*S*)-*form* L-manno-*form*
[134878-06-1] Shows retroviral protease inhibitory activity.

N,N′-*Bis(*tert-*butyloxycarbonyl):*
[129491-64-1]
$C_{28}H_{40}N_2O_6$ 500.634
Cryst. Mp 216-218°.

Eur. Pat., 1990, 402 646, (*Abbott*); *CA*, **115**, 50304r (*synth, pmr*)
Chenera, B. *et al., Bioorg. Med. Chem. Lett.*, 1991, **1**, 219 (*synth*)

2,6-Diamino-3-hydroxyheptanedioic acid, 9CI, 8CI D-467

2,6-Diamino-3-hydroxypimelic acid
[535-24-0]



(2*RS*,3*RS*,6*SR*)–*form*

$C_7H_{14}N_2O_5$ 206.198

(2*RS*,3*SR*,6*SR*)-*form*
2,6-Diamino-2,4,5,6-tetradeoxy-xylo-*heptaric acid*
[10575-46-9]
Present in the microbial cell walls of certain members of the Actinomycetales, e.g. *Ampullariella regularis* (presumably in an enantiomeric form).
Mp 237° dec.

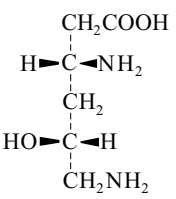
(2*RS*,3*RS*,6*RS*)-*form*
2,6-Diamino-2,4,5,6-tetradeoxy-lyxo-*heptaric acid*
[10575-50-5]
Present in small quantities in microbial cell walls of certain members of the Actinomycetales, presumably in an enantiomeric form.
Mp 244° dec. Other stereoisomers are known synthetically.

*1,7-Di-Me ester, 2*N*-benzoyl, 6*N*-phthaloyl:* Mp 149.5°.

Stewart, J.M. *et al., J.A.C.S.*, 1956, **78**, 5336; 1961, **83**, 435 (*config*)
Perkins, H.R. *et al., Nature (London)*, 1965, **27**, 872 (*isol*)
Sundharadas, G. *et al., CA*, 1967, **67**, 938v (*synth*)
Perkins, H.R. *et al., Biochem. J.*, 1969, **115**, 797 (*occur*)
Gelb, M.H. *et al., J.A.C.S.*, 1990, **112**, 4932 (*synth, ir, pmr, cmr*)

3,6-Diamino-5-hydroxyhexanoic acid, 9CI D-468

δ-Hydroxy-β-lysine. 3,6-Diamino-2,3,4,6-tetradeoxyhexonic acid



$C_6H_{14}N_2O_3$ 162.188

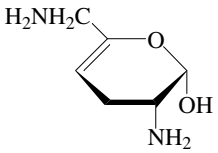
(3*R*,5*R*)-*form*
L-threo-*form*
Component of Negamycin.

*Di-*N*-Ac, lactone:*
$C_{10}H_{16}N_2O_4$ 228.247
Mp 190-192° (183-185°). $[\alpha]_D^{21}$ -5.8 (c, 1 in H_2O).

Shibahara, S. *et al., J.A.C.S.*, 1972, **94**, 4353 (*synth, bibl*)
Uehara, Y. *et al., J. Antibiot.*, 1976, **29**, 937

2,6-Diamino-2,3,4,6-tetradeoxy-*glycero*-hex-4-enopyranose D-469

Sisosamine



α-D-*form*

$C_6H_{12}N_2O_2$ 144.173

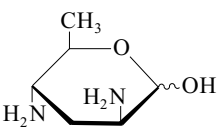
D-*form*
Component residue of Sisomicin, S-45.

α-D-*form*
*Et glycoside, 2,6-di-*N*-Ac: Ethyl 2,6-diacetamido-2,3,4,6-tetradeoxy-α-D-*glycero-*hex-4-enopyranoside*
[55713-19-4]
$C_{12}H_{20}N_2O_4$ 256.301
Mp 159-160°. $[\alpha]_D$ +115 (c, 1.0 in $CHCl_3$).

Cooper, D.J. *et al., Chem. Comm.*, 1971, 285; 924
Cleophax, J. *et al., Chem. Comm.*, 1975, 11 (*synth*)

2,4-Diamino-2,3,4,6-tetradeoxy-*arabino*-hexose, 9CI, 8CI D-470

Kasugamine



$C_6H_{14}N_2O_2$ 146.189

D-*form* [19477-25-9]
Residue present in Kasugamycin, K-6 and Minosaminomycin, M-313.

α-D-Pyranose-*form*
Me glycoside, N,N′*-di-Ac: Methyl 2,4-diacetamido-2,3,4,6-tetradeoxy-α-D-*arabino-*hexopyranoside, 8CI. Methyl* N,N′*-diacetyl-α-kasugaminide*
[20590-62-9]
$C_{11}H_{20}N_2O_4$ 244.29
Needles (EtOAc). Mp 195-196°. $[\alpha]_D^{24}$ +98 (c, 1.0 in H_2O). $[\alpha]_D^{22}$ +107 (c, 1.0 in MeOH).

β-D-Pyranose-*form*
Me glycoside, N,N′*-di-Ac: Methyl 2,4-diacetamido-2,3,4,6-tetradeoxy-β-D-*arabino-*hexopyranoside, 8CI. Methyl* N,N′*-diacetyl-β-kasuguminide*
$C_{11}H_{20}N_2O_4$ 244.29
Mp 226-229°. $[\alpha]_D^{25}$ +82 (c, 1.0 in EtOH).

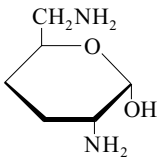
Et glycoside, N,N′*-di-Ac: Ethyl 2,4-diacetamido-2,3,4,6-tetradeoxy-β-D-*arabino-*hexopyranoside*
$C_{12}H_{22}N_2O_4$ 258.317

Cryst. (EtOAc). Mp 227-229°. $[\alpha]_D^{21}$ +171 (c, 1.0 in MeOH). Named apparently incorrectly as the α-D-pyr epimer in the experimental section of the paper (Yasuda *et al*).

Suhara, Y. *et al., Tet. Lett.*, 1966, 1239 (*struct*)
Kitahara, K. *et al., Agric. Biol. Chem.*, 1969, **33**, 748 (*α-D-pyr Me gly di-Ac, β-D-pyr Me gly di-Ac, pmr*)
Yasuda, S. *et al., Tetrahedron*, 1973, **29**, 3141, (*α-D-pyr Me gly di-Ac, β-D-pyr Et gly di-Ac*)
Iinuma, K. *et al., J. Antibiot.*, 1975, **28**, 613 (*occur*)

2,6-Diamino-2,3,4,6-tetradeoxy-*erythro*-hexose, 9CI, 8CI D-471

Purpurosamine C



α–D–Pyranose–*form*

$C_6H_{14}N_2O_2$ 146.189

D-*form* [34323-18-7]
Constit. of Gentamicin C_{1a}.

Di-Et dithioacetal, 2,6-di-N-*Ac: 2,6-Diacetamido-2,3,4,6-tetradeoxy-D*-erythro-*hexose diethyl dithioacetal*
[55385-23-4]
$C_{14}H_{28}N_2O_3S_2$ 336.519
Cryst. Mp 110-112°. $[\alpha]_D$ +27 (c, 0.5 in MeOH).

6-N-*Me: 2-Amino-2,3,4,6-tetradeoxy-6-methylamino-D*-erythro-*hexose*
$C_7H_{16}N_2O_2$ 160.216
Component of Sannamycin C, S-9.

α-D-Pyranose-*form*

Me glycoside: Methyl 2,6-diamino-2,3,4,6-tetradeoxy-α-D-erythro-*hexopyranoside, 9CI*
[35012-80-7]
$C_7H_{16}N_2O_2$ 160.216
Mp 180° (as sulfate salt monohydrate). $[\alpha]_D^{22}$ +128 (c, 1.0 in H_2O). Sl. premelting transition at 135°.

Me glycoside, 2,6-di-N-*Ac: Methyl 2,6-diacetamido-2,3,4,6-tetradeoxy-α-D*-erythro-*hexopyranoside*
[52485-48-0]
$C_{11}H_{20}N_2O_4$ 244.29
Cryst. (EtOAc). Mp 195-197°. $[\alpha]_D$ +166 (c, 0.8 in MeOH).

Me glycoside, 6-N-*Me, 2,6-di*-N-*Ac:*
[72509-59-2]
$C_{12}H_{22}N_2O_4$ 258.317
Syrup. $[\alpha]_D^{23}$ +172 (c, 1.0 in MeOH).

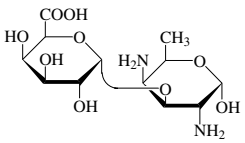
Me glycoside, 2,6-bis-N-*methoxycarbonyl:*
Syrup. $[\alpha]_D^{19}$ +126 (c, 0.7 in MeOH).

Et glycoside, 2,6-di-N-*Ac: Ethyl 2,6-diacetamido-2,3,4,6-tetradeoxy-α-D*-erythro-*hexopyranoside*
[55385-22-3]
$C_{12}H_{22}N_2O_4$ 258.317
Mp 201-202°. $[\alpha]_D$ +159 (c, 1.1 in EtOH).

Cooper, D.J. *et al., J.C.S.(C)*, 1971, 2876, (*D-di-Et dithioacetal di-Ac, pmr*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 3619 (*α-D-pyr Me gly, pmr*)
Guthrie, R.D. *et al., J.C.S. Perkin 1*, 1972, 2619 (*struct, stereochem*)
Cleophax, J. *et al., Chem. Comm.*, 1975, 11 (*α-D-pyr Et gly di-Ac, D-di-Et dithioacetal di-Ac*)
Rakhit, S. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1975, **2**, 153 (*α-D-pyr Me gly*)
Deushi, T. *et al., J. Antibiot.*, 1980, **33**, 1274 (*occur, α-D-pyr Me gly di-N-Ac N-Me, pmr*)

2,4-Diamino-2,4,6-trideoxy-3-(α-D-galactopyranuronosyl)-D-galactose D-472

α-D-Galactopyranuronosyl-(1→3)-2,4-diamino-2,4,6-trideoxy-D-galactose



α-Pyranose-*form*

$C_{12}H_{22}N_2O_9$ 338.314

N^2-*Ac:*
$C_{14}H_{24}N_2O_{10}$ 380.351
Structural element of the capsular polysaccharide antigen of *Streptoccoccus pneumoniae* type 1.

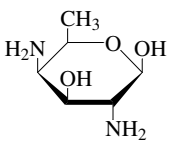
α-Pyranose-*form*

Me glycoside, N^2-*Ac:*
$C_{15}H_{26}N_2O_{10}$ 394.378
Amorph. powder. $[\alpha]_D^{22}$ +164 (c, 0.4 in H_2O).

Lönn, H. *et al., Carbohydr. Res.*, 1984, **132**, 39 (*synth, pmr, cmr, deriv*)

2,4-Diamino-2,4,6-trideoxygalactose D-473

2,4-Diamino-2,4-dideoxyfucose



β-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

D-*form*

N^2-*Ac: 2-Acetamido-4-amino-2,4,6-trideoxy-D-galactose*
[72690-13-2]
$C_8H_{16}N_2O_4$ 204.225
Occurs in the cell wall polysaccharide (*C*-substance) of *Streptococcus pneumoniae*.

N,N′-*Di-Ac: 2,4-Diacetamido-2,4,6-trideoxy-D-galactose*
[68567-47-5]
$C_{10}H_{18}N_2O_5$ 246.263
Cryst. (MeOH/Et_2O). Mp 177-178°. $[\alpha]_D^{22}$ +3 (c, 0.6 in MeOH aq.).

α-D-Pyranose-*form*

Benzyl glycoside, N,N′-*di-Ac: Benzyl 2,4-diacetamido-2,4,6-trideoxy-α-D-galactopyranoside*
[68536-13-0]
$C_{17}H_{24}N_2O_5$ 336.387
Cryst. (EtOH). Mp 230°. $[\alpha]_D^{22}$ +146 (c, 0.7 in $CHCl_3$).

Benzyl glycoside, N,N,*3-tri-Ac: Benzyl 2,4-diacetamido-3*-O-*acetyl-2,4,6-trideoxy-α-D-galactopyranoside*
[68536-14-1]
$C_{19}H_{26}N_2O_6$ 378.424
Cryst. (Et_2O/petrol). Mp 106-108°. $[\alpha]_D^{22}$ +124 (c, 0.6 in $CHCl_3$).

Benzyl glycoside, 3-benzyl, 2-Ac: Benzyl 2-acetamido-4-amino-3-O-*benzyl-2,4,6-trideoxy-α-D-galactopyranoside*
[81997-64-0]
$C_{22}H_{28}N_2O_4$ 384.474
Mp 150° (remelts at 180°). $[\alpha]_D^{22}$ +166.6 (c, 0.5 in $CHCl_3$).

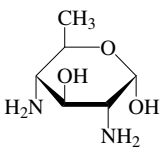
Benzyl glycoside, 3-benzyl, N,N′-*di-Ac: Benzyl 2,4-diacetamido-3*-O-*benzyl-2,4,6-trideoxy-α-D-galactopyranoside*
[68536-12-9]
$C_{24}H_{30}N_2O_5$ 426.511
Cryst. (C_6H_6/petrol). Mp 85-90°. $[\alpha]_D^{22}$ +182 (c, 0.85 in $CHCl_3$).

Benzyl glycoside, N,N′-*di-Ac, 3-mesyl: Benzyl 2,4-diacetamido-2,4,6-trideoxy-3*-O-*mesyl-α-D-galactopyranoside*
[81997-67-3]
$C_{18}H_{26}N_2O_7S$ 414.479
Mp 120°. $[\alpha]_D^{22}$ +116.5 (c, 0.5 in $CHCl_3$).

Liav, A. *et al., Carbohydr. Res.*, 1978, **66**, 95, (*D-N,N′-di-Ac, α-D-benzyl gly di-Ac, α-D-benzyl gly tri-Ac, α-D-benzyl gly 3-benzyl di-Ac*)
Jennings, H.J. *et al., Biochemistry*, 1980, **19**, 4712 (*D-2-N-Ac, occur*)
Lindberg, B. *et al., Carbohydr. Res.*, 1980, **78**, 111 (*D-2-N-Ac, occur*)
Sheinblatt, M. *et al., Carbohydr. Res.*, 1982, **103**, (*α-D-benzyl gly 3-benzyl 2-Ac, α-D-benzyl gly di-Ac 3-mesyl*)
Hermans, J.P.G. *et al., J. Carbohydr. Chem.*, 1987, **6**, 451-462 (*benzyl gly di-N-Ac*)

2,4-Diamino-2,4,6-trideoxyglucose, 9CI D-474

Bacillosamine
[7013-45-8]



α-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

D-*form*

Isol. from *Bacillus licheniformis* ATCC 9945 (formerly *Bacillus subtilis*). Component of a lipopolysaccharide from *Pseudomonas aeruginosa* NCTC 805.

4-N-*Ac: 4-Acetamido-2-amino-2,4,6-trideoxy-D-glucose.* N-*Acetylbacillosamine*
$C_8H_{16}N_2O_4$ 204.225
Isol. from hydrol. of *Bacillus subtilis* polysaccharides.
Mp 220° dec. (as hydrochloride). $[\alpha]_D^{26}$ +115 (5 min) → +94 (23 h) (c, 0.05 in H_2O).

2,4-Di-N-*Ac: 2,4-Diacetamido-2,4,6-trideoxy-D-glucose. Di*-N-*acetylbacillosamine*
[40838-02-6]
$C_{10}H_{18}N_2O_5$ 246.263
Needles (EtOH/petrol or EtOH/EtOAc). Mp 263-265° dec. $[\alpha]_D^{24}$ +76 (5 min) → +63 (2.5 h) (c, 0.5 in 50% EtOHaq.). $[\alpha]_D^{24}$ +105 → +83 (equilib.) (c, 0.8 in 50% EtOH aq.).

1,3-Di-Ac, 2,4-di-N-*Ac: 2,4-Diacetamido-1,3-di*-O-*acetyl-2,4,6-trideoxy-D-glucopyranose. Tetraacetylbacillosamine*
$C_{14}H_{22}N_2O_7$ 330.337
Needles (MeOH/EtOAc/hexane). Mp 224° dec. $[\alpha]_D^{24}$ +117 (c, 0.6 in $CHCl_3$).

4-N-*(3*S*-Hydroxybutanoyl), 2*-N-*Ac: 2-Acetamido-2,4,6-trideoxy-4-(3-hydroxybutyramido)-D-glucose*
$C_{12}H_{22}N_2O_6$ 290.316
Component of the *O*-specific polysaccharide of *Pseudomonas fluorescens* biovar B strain IMV 247.

α-D-Pyranose-*form*

Benzyl glycoside, 2,4-di-N-*Ac: Benzyl 2,4-diacetamido-2,4,6-trideoxy-α-D-glucopyranoside*
[68536-15-2]
$C_{17}H_{24}N_2O_5$ 336.387
Cryst. ($CHCl_3$/petrol). Mp 222-223°. $[\alpha]_D^{22}$ +163 (c, 0.6 in MeOH).

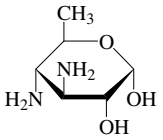
Benzyl glycoside, 2,4-di-N-*Ac, 3-Ac: Benzyl 2,4-diacetamido-3*-O-*acetyl-2,4,6-trideoxy-α-D-glucopyranoside*
[68536-16-3]
$C_{19}H_{26}N_2O_6$ 378.424
Cryst. (MeOH/Et_2O). Mp 232°. $[\alpha]_D^{22}$ +99 (c, 0.6 in $CHCl_3$).

Benzyl glycoside, 2,4-di-N-*Ac, 3-benzyl: Benzyl 2,4-diacetamido-3*-O-*benzyl-2,4,6-trideoxy-α-D-glucopyranoside*
[50908-21-9]
$C_{24}H_{30}N_2O_5$ 426.511
Cryst. (Me_2CO/Et_2O). Mp 244-245°. $[\alpha]_D^{22}$ +106 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2,4-di-N-*Ac, 3-mesyl: Benzyl 2,4-diacetamido-2,4,6-trideoxy-3*-O-*mesyl-α-D-glucopyranoside*
$C_{18}H_{26}N_2O_7S$ 414.479
Mp 195-196°. $[\alpha]_D^{22}$ +121 (c, 0.5 in $CHCl_3$).

Sharon, N. *et al., J. Biol. Chem.*, 1960, **235**, 1 (*isol*)
Zehavi, U. *et al., J. Biol. Chem.*, 1973, **248**, 433 (*struct, pmr*)
Liav, A. *et al., Carbohydr. Res.*, 1974, **33**, 217; 1978, **66**, 95 (*D-di-N-Ac, α-D-benzyl pyr di-N-Ac benzyl, α-D-benzyl pyr di-N-Ac, α-D-benzyl pyr di-N-Ac 3-Ac, synth*)
Wilkinson, S.G. *et al., Biochem. J.*, 1977, **161**, 103
Sheinblatt, M. *et al., Carbohydr. Res.*, 1982, **103**, 146 (*α-D-benzyl pyr di-Ac mesyl, pmr*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 1998, **306**, 297-303 (*N-3-hydroxybutanoyl-N-Ac*)

3,4-Diamino-3,4,6-trideoxyglucose D-475



α-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

α-D-Pyranose-*form*

*Me glycoside, 3*N,*4*N-*di-Ac: Methyl 3,4-diacetamido-3,4,6-trideoxy-α-D-glucopyranoside*
[114949-87-0]
$C_{11}H_{20}N_2O_5$ 260.289
Cryst. (EtOH/petrol). Mp 286-288°. $[\alpha]_D^{20}$ +255 (MeOH).

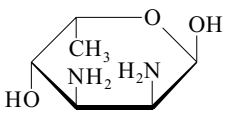
α-L-Pyranose-*form*

Me glycoside, 2-Me: Methyl 3,4-diamino-3,4,6-trideoxy-2-O-*methyl-α-L-glucopyranoside*
[51296-09-4]
$C_8H_{18}N_2O_3$ 190.242
Cryst. (EtOH/EtOAc) (as dihydrochloride). Mp 188-190° dec. (dihydrochloride). $[\alpha]_D$ -111 (c, 0.7 in MeOH). CAS no. incorr. assigned to the α-isomer.

*Me glycoside, 2-Me, 3*N,*4*N-*di-Ac: Methyl 3,4-diacetamido-3,4,6-trideoxy-2*-O-*methyl-α-L-glucopyranoside*
[51296-10-7]
$C_{12}H_{22}N_2O_5$ 274.316
Cryst. (EtOH/EtOAc). Mp 298-300°. $[\alpha]_D$ -201 (c, 0.6 in MeOH).

Baer, H.H. *et al., Carbohydr. Res.*, 1973, **31**, 347 (*α-L-Me pyr derivs, pmr, ir*)
Capek, K. *et al., Coll. Czech. Chem. Comm.*, 1987, **52**, 2248 (*α-D-Me pyr di-Ac, pmr*)

2,3-Diamino-2,3,6-trideoxygulose D-476



$C_6H_{14}N_2O_3$ 162.188

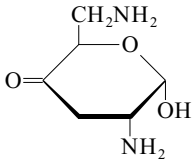
α-L-Pyranose-*form*

Me glycoside: Methyl 2,3-diamino-2,3,6-trideoxy-α-L-gulopyranoside
[81905-75-1]
$C_7H_{16}N_2O_3$ 176.215
Cryst. Mp 221-222°. $[\alpha]_D$ -97 (c, 1.2 in MeOH).

*Me glycoside, 3*N-*benzyl: Methyl 2-amino-3-benzylamino-2,3,6-trideoxy-α-L-gulopyranoside*
[81905-73-9]
$C_{14}H_{22}N_2O_3$ 266.339
Needles (EtOAc/petrol). Mp 130-131°. $[\alpha]_D$ -93 (c, 1.75 in $CHCl_3$).

Hajivarnava, G.S. *et al., J.C.S. Perkin 1*, 1982, 205 (*α-Me pyr deriv, ir, pmr*)

2,6-Diamino-2,3,6-trideoxy-*erythro*-hexopyranos-4-ulose D-477



$C_6H_{12}N_2O_3$ 160.172

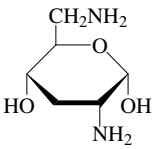
α-D-*form*

*Me glycoside, 2*N,*6*N-*di-Ac:* [68115-57-1]
$C_{11}H_{18}N_2O_5$ 258.274
Cryst. (EtOH). Mp 230-250° dec. $[\alpha]_D$ +116 (EtOH). $[\alpha]_D$ +132 (c, 1.0 in MeOH).

Florent, J.C. *et al., Tetrahedron*, 1978, **34**, 909 (*α-D-Me gly di-Ac, ir, pmr, ms*)

2,6-Diamino-2,3,6-trideoxy-*ribo*-hexose D-478

Nebrosamine. Tobrosamine



α-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

D-*form*

Constit. of Tobramycin, T-117.

α-D-Pyranose-*form* [52850-89-2]

Me glycoside, N,N′-*di-Ac: Methyl 2,6-diacetamido-2,3,6-trideoxy-α-D*-ribo-*hexopyranoside*
[68115-58-2]
$C_{11}H_{20}N_2O_5$ 260.289
Cryst. (Me_2CO/MeOH). Mp 207°. $[\alpha]_D^{20}$ +90 ($CHCl_3$).

Me glycoside, N,N′-*di-Ac, 4-mesyl: Methyl 2,6-diacetamido-2,3,6-trideoxy-4*-O-*mesyl-α-D*-ribo-*hexopyranoside*
[52850-87-0]
$C_{12}H_{22}N_2O_7S$ 338.381
Cryst. (EtOH). Mp 164-165.5°. $[\alpha]_D$ +118 (c, 0.65 in EtOH abs.).

Et glycoside, N,N′-*di-Ac: Ethyl 2,6-diacetamido-2,3,6-trideoxy-α-D*-ribo-*hexopyranoside*
[50991-68-9]
$C_{12}H_{22}N_2O_5$ 274.316
Mp 181-183°. $[\alpha]_D^{25}$ +129 (c, 1.6 in MeOH).

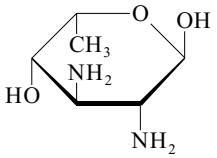
α-D-Furanose-*form*

Me glycoside, N,N′-*di-Ac: Methyl 2,6-diacetamido-2,3,6-trideoxy-α-D*-ribo-*hexofuranoside*
$C_{11}H_{20}N_2O_5$ 260.289
Cryst. (Me_2CO). Mp 176-177°. $[\alpha]_D^{20}$ +120 (c, 2.0 in MeOH).

Cleophax, J. *et al., Chem. Comm.*, 1973, 710, (*α-D-pyr Et gly di-N-Ac*)
Brewer, C.L. *et al., J.C.S. Perkin 1*, 1974, 657 (*struct, α-D-pyr Me gly di-N-Ac mesyl, pmr*)

Leboul, J. *et al., Tetrahedron*, 1977, **33**, 965 (*synth*)
Florent, J.C. *et al., Tetrahedron*, 1978, **34**, 909 (α-D-*pyr Me gly di-N-Ac*)
Florent, J.C. *et al., Tetrahedron, Suppl. 9*, 1981, **37**, 9 (α-D-*pyr Me gly di-N-Ac,* α-D-*fur Me gly di-N-Ac*)
Abuaan, M.M. *et al., Carbohydr. Res.*, 1984, **132**, 51 (*synth, deriv*)

2,3-Diamino-2,3,6-trideoxy-idose D-479



$C_6H_{14}N_2O_3$ 162.188

α-L-Pyranose-*form*

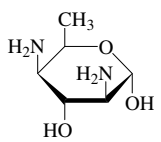
Me glycoside: Methyl 2,3-diamino-2,3,6-trideoxy-α-L-idopyranoside
[81905-74-0]
$C_7H_{16}N_2O_3$ 176.215
Needles. Mp 199-200°. $[\alpha]_D$ -96 (c, 0.9 in MeOH).

*Me glycoside, 3*N*-benzyl: Methyl 2-amino-3-benzylamino-2,3,6-trideoxy-α-L-idopyranoside*
[81905-72-8]
$C_{14}H_{22}N_2O_3$ 266.339
Syrup. $[\alpha]_D$ -87 (c, 1.15 in $CHCl_3$).

*Me glycoside, 3*N*-Me: Methyl 2-amino-2,3,6-trideoxy-3-methylamino-α-L-idopyranoside*
[81905-77-3]
$C_8H_{18}N_2O_3$ 190.242
Syrup. $[\alpha]_D$ -100 (c, 1.5 in $CHCl_3$).

Hajivarnava, G.S. *et al., J.C.S. Perkin 1*, 1982, 205 (α-*Me pyr deriv, ir, pmr*)

2,4-Diamino-2,4,6-trideoxy-idose D-480



α-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

α-D-Pyranose-*form*

Me glycoside: Methyl 2,4-diamino-2,4,6-trideoxy-α-D-idopyranoside
[58394-13-1]
$C_7H_{16}N_2O_3$ 176.215
Syrup. $[\alpha]_D^{20}$ +91 (c, 2.4 in MeOH).

Me glycoside, hydrochloride (1:2): [58394-17-5]
Amorph. solid. $[\alpha]_D^{20}$ +65 (c, 2 in H_2O).

*Me glycoside, 3-Ac: Methyl 3-*O*-acetyl-2,4-diamino-2,4,6-trideoxy-α-D-idopyranoside*
[58394-19-7]
$C_9H_{18}N_2O_4$ 218.252
Syrup (as dihydrochloride). $[\alpha]_D^{20}$ +49 (c, 2 in H_2O). CAS no. refers to dihydrochloride.

*Me glycoside, 2*N*,4*N*-di-Ac: Methyl 2,4-diacetamido-2,4,6-trideoxy-α-D-idopyranoside*
[58394-14-2]
$C_{11}H_{20}N_2O_5$ 260.289
Cryst. (EtOH). Mp 251°. $[\alpha]_D^{20}$ +65 (c, 2 in MeOH).

*Me glycoside, 2*N*,3,4*N*-tri-Ac: Methyl 2,4-diacetamido-3-*O*-acetyl-2,4,6-trideoxy-α-D-idopyranoside*
[58394-10-8]
$C_{13}H_{22}N_2O_6$ 302.327
Cryst. (EtOH). Mp 246-248°. $[\alpha]_D^{20}$ +38 (c, 2 in MeOH).

L-Pyranose-*form*

*2*N*,4*N*-Di-Ac: 2,4-Diacetamido-2,4,6-trideoxy-L-idopyranose*
[50611-21-7]
$C_{10}H_{18}N_2O_5$ 246.263
Cryst. (EtOH/petrol). Mp 172-174°. $[\alpha]_D^{25}$ -45 (c, 0.87 in H_2O).

α-L-Pyranose-*form*

*Me glycoside, 2*N*,3,4*N*-tri-Ac: Methyl 2,4-diacetamido-3-*O*-acetyl-2,4,6-trideoxy-α-L-idopyranoside*
[34388-74-4]
$C_{13}H_{22}N_2O_6$ 302.327
Needles (EtOAc). Mp 261° dec. $[\alpha]_D^{22}$ -60 (c, 0.38 in $CHCl_3$).

β-L-Pyranose-*form*

*Benzyl glycoside, 2*N*,4*N*-di-Ac: Benzyl 2,4-diacetamido-2,4,6-trideoxy-β-L-idopyranoside*
[50611-17-1]
$C_{17}H_{24}N_2O_5$ 336.387
Cryst. (Me_2CO/petrol). Mp 232-233°. $[\alpha]_D^{25}$ +105 (c, 1.1 in MeOH).

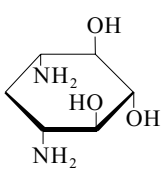
*Benzyl glycoside, 2*N*,3,4*N*-tri-Ac: Benzyl 2,4-diacetamido-3-*O*-acetyl-2,4,6-trideoxy-β-L-idopyranoside*
[50611-15-9]
$C_{19}H_{26}N_2O_6$ 378.424
Cryst. (Me_2CO/petrol). Mp 193-194°. $[\alpha]_D^{25}$ +70 (c, 1.1 in $CHCl_3$).

*Benzyl glycoside, 3-mesyl, 2*N*,4*N*-di-Ac: Benzyl 2,4-diacetamido-2,4,6-trideoxy-3-*O*-mesyl-β-L-idopyranoside*
[50611-18-2]
$C_{18}H_{26}N_2O_7S$ 414.479
Cryst. (EtOH/petrol). Mp 248°. $[\alpha]_D^{25}$ +28 (c, 0.7 in $CHCl_3$).

Zehavi, U. *et al., J.O.C.*, 1972, **37**, 2145 (α-L-*pyr deriv*)
Liav, A. *et al., Carbohydr. Res.*, 1973, **30**, 109, (L-*pyr deriv,* β-L-*pyr deriv, pmr*)
Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 90, (α-D-*pyr deriv*)
Capek, K. *et al., Coll. Czech. Chem. Comm.*, 1987, **52**, 2248 (α-D-*Me pyr di-Ac, pmr*)

1,3-Diamino-1,2,3-trideoxy-*myo*-inositol D-481

2-Deoxystreptamine, 9CI



$C_6H_{14}N_2O_3$ 162.188
The most frequently encountered natural inosamine, present in several antibiotics, e.g. Kanamycin, Neomycin and Paromomycin.
Mp 255-258° (221-223°). Opt. inactive (*meso*-).

Hydrochloride (1:2): Mp 280° Mp 325° dec. (part subl. >300°).

Dipicrate: Mp 260°.

Hydrobromide (1:2): Mp 283-286° dec. (263-267°).

N,N′-*Di-Ac:*
$C_{10}H_{18}N_2O_5$ 246.263
Mp 340-350° (297-300° dec.).

*Tri-*O*-Ac:*
$C_{12}H_{20}N_2O_6$ 288.3
Mp 250° (as hydrochloride).

Penta-Ac:
$C_{16}H_{24}N_2O_8$ 372.374
Prisms (MeOH). Mp 340-350°.

N,N′-*Dibenzoyl:* [85880-39-3]
$C_{20}H_{22}N_2O_5$ 370.404
Mp 212-213°.

N-*Me:* N-*Methyl-2-deoxystreptamine.* ***Hyosamine***
[4226-17-9]
$C_7H_{16}N_2O_3$ 176.215
Isol. from Hygromycin B and destomycins. The former yields the dextrorotatory form. Mp 160-162° Mp 183-186°. $[\alpha]_D$ -31.1 (H_2O). Asym. by mono *N*-substitution.

N-*Tetra-Me:*
$C_{10}H_{22}N_2O_3$ 218.295
Mp 158-159°.

N-*Tetra-Me; hydrochloride (1:2):* Mp 277°.

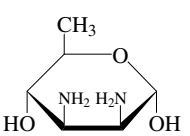
N-*Tetra-Me, dipicrate:* Mp 257-258°.

N-*Tetra-Me; methiodide (1:2):* Mp 258°.

Daly, J. *et al., J.A.C.S.*, 1960, **82**, 5928
Wiley, P.F. *et al., J.O.C.*, 1962, **27**, 2793
Nakajima, M. *et al., Annalen*, 1965, **689**, 235
Kondo, S. *et al., J. Antibiot., Ser. A*, 1965, **18**, 192 (*Hyosamine*)
Suami, T. *et al., Tet. Lett.*, 1967, 2671
Hasegawa, A. *et al., Agric. Biol. Chem.*, 1968, **32**, 1123
Neuss, N. *et al., Helv. Chim. Acta*, 1970, **53**, 2314 (*Hyosamine*)
Omoto, S. *et al., J. Antibiot.*, 1973, **26**, 717, (*di-Ac, cmr*)
Morton, J.B. *et al., J.A.C.S.*, 1973, **95**, 7464 (*cmr*)
Suami, T. *et al., J.A.C.S.*, 1973, **95**, 8734
Koch, K.F. *et al., J.A.C.S.*, 1974, **96**, 3300
Prinzbach, H. *et al., Angew. Chem., Int. Ed.*, 1975, **14**, 632
Cox, D.A. *et al., Top. Antibiot. Chem.*, (Ed., Sammes, P.G.), Ellis Horwood, 1977, **1**, 1
Baer, H.H. *et al., Can. J. Chem.*, 1987, **65**, 1443 (*synth*)

2,3-Diamino-2,3,6-trideoxy-mannose D-482

2,3-Diamino-2,3-dideoxyrhamnose



α-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

D-*form*

N^2-*Ac,* N^3-*formyl: 2-Acetamido-2,3,6-trideoxy-3-formamido-D-mannose*
$C_9H_{16}N_2O_5$ 232.236
Component of the *O*-antigen of *E. coli* 0119.

β-L-Pyranose-*form*

2,3-Di-Ac: 2,3-Diacetamido-2,3,6-trideoxy-β-L-mannopyranose
$C_{10}H_{18}N_2O_5$ 246.263
Component of the exocellular capsular polysaccharide of *E.coli* 08:K48:H9. Probable abs. config.

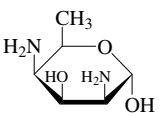
Anderson, A.N. *et al., Carbohydr. Res.*, 1992, **237**, 249 (*2-Ac, occur, 3-formyl*)
Whittaker, D.V. *et al., Carbohydr. Res.*, 1994, **256**, 289 (*di-Ac, occur*)

5,7-Diamino-5,7,9-trideoxy-non-2-ulosonic acid D-483

5,7-Diamino-3,4,6,8-tetrahydroxy-2-oxononanoic acid
[452962-46-8]
$H_3CCH(OH)CH(NH_2)$-$CH(OH)CH(NH_2)CH(OH)CH(OH)CO$-$COOH$
$C_9H_{18}N_2O_7$ 266.25
Component of lipopolysaccharides of a phytopathogenic *Pseudomonas* sp.

Corsaro, M.M. *et al., Carbohydr. Res.*, 2002, **337**, 955-959 (*isol, struct, pmr, cmr*)

2,4-Diamino-2,4,6-trideoxytalose D-484



α-D-Pyranose-*form*

$C_6H_{14}N_2O_3$ 162.188

α-D-Pyranose-*form*

*Me glycoside, 2*N,*4*N-*di-Ac: Methyl 2,4-diacetamido-2,4,6-trideoxy-α-D-talopyranoside*
[114949-79-0]
$C_{11}H_{20}N_2O_5$ 260.289
Cryst. (EtOAc). Mp 194-196°. $[\alpha]_D^{20}$ +66 (c, 1.0 in MeOH).

L-*form*

*2*N,*4*N-*Di-Ac: 2,4-Diacetamido-2,4,6-trideoxy-L-talose*
[50611-22-8]
$C_{10}H_{18}N_2O_5$ 246.263
Syrup. $[\alpha]_D^{25}$ -89 (c, 1.0 in H_2O).

β-L-Pyranose-*form*

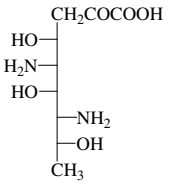
*Benzyl glycoside, 2*N,*4*N-*di-Ac: Benzyl 2,4-diacetamido-2,4,6-trideoxy-β-L-talopyranoside*
[50611-19-3]
$C_{17}H_{24}N_2O_5$ 336.387
Cryst. + 0.5H_2O (Me_2CO/petrol). Mp 228-229°. $[\alpha]_D^{25}$ +54 (c, 0.95 in MeOH).

*Benzyl glycoside, 2*N,*3,4*N-*tri-Ac: Benzyl 2,4-diacetamido-3*-O-*acetyl-2,4,6-trideoxy-β-L-talopyranoside*
[50611-20-6]
$C_{19}H_{26}N_2O_6$ 378.424
Cryst. (Me_2CO/petrol). Mp 216-217°. $[\alpha]_D^{25}$ +33 (c, 1.07 in $CHCl_3$).

Liav, A. *et al., Carbohydr. Res.*, 1973, **30**, 109, (*L-di-Ac, β-L-benzyl gly Ac derivs, pmr, ms*)
Capek, K. *et al., Coll. Czech. Chem. Comm.*, 1987, **52**, 2248 (*α-D-Me pyr di-Ac, pmr*)

5,7-Diamino-4,6,8-trihydroxy-2-oxononanoic acid D-485

5,7-Diamino-3,5,7,9-tetradeoxynon-2-ulosonic acid



(4*R*,5*R*,6*S*,7*R*,8*R*)-*form*

$C_9H_{18}N_2O_6$ 250.251
Exists mainly in pyranose forms.

(4*R*,5*R*,6*S*,7*R*,8*R*)-*form*

D-glycero-D-talo-*form. 4-Epilegionamic acid*
Obt. by mild hydrol. of *Legionella pneumophila* lipopolysaccharides. Formerly assigned as the L-*glycero*-D-*talo*- isomer.
N,N′-*Di-Ac:* $[\alpha]_D$ -3.9 (c, 0.2 in H_2O).

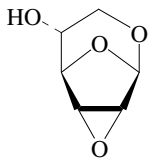
(4*S*,5*R*,6*S*,7*R*,8*R*)-*form* D-glycero-D-galacto-*form. **Legionamic acid***
Isol. from lipopolysaccharides of *Legionella pneumophila*, *Pseudomonas fluorescens*, *Vibrio salmonicida*, *Vibrio alginolyticus* and *Acinetobacter baumannii*. Formerly assigned to either the L-*glycero*-D-*galacto*- or D-*glycero*-L-*galacto*- stereochem.
N,N′-*Di-Ac:* $[\alpha]_D$ +25.2 (c, 0.5 in H_2O).

(4*S*,5*R*,6*S*,7*R*,8*S*)-*form* L-glycero-D-galacto-*form. 8-Epilegionamic acid*
Isol. from lipopolysaccharides of *Pseudomonas aeruginosa*, *Salmonella arizonae* and *Yersinia ruckeri*. Formerly assigned as the enantiomeric D-*glycero*-L-*galacto*- form.
N^5-*(1-Iminoethyl),* N^7-*Ac: 5-Acetamidino-7-acetamido-3,5,7,9-tetradeoxy-L-*glycero-D-galacto-*non-2-ulosonic acid*
$C_{13}H_{23}N_3O_7$ 333.341
Component of the lipopolysaccharides of *Morganella morganii*.

(4*S*,5*S*,6*S*,7*S*,8*S*)-*form* L-glycero-L-manno-*form. **Pseudaminic acid***
[93973-64-9]
Residue present in some *O*-specific polysaccharides of *Shigella boydii* and *Pseudomonas aeruginosa*.
N^5-*Ac,* N^7-*formyl: 5-Acetamido-3,5,7,9-tetradeoxy-7-formamido-L-*glycero-L-manno-*nonulosonic acid*
$C_{12}H_{20}N_2O_8$ 320.299
Isol. from polysaccharides of the marine *Pseudoalteromonas distincta* KMM 638. Residue present in *O*-specific side chain of *Pseudomonas aeruginosa* type 6 lipopolysaccharides.
N^5,N^7-*Di-Ac:*
$C_{13}H_{22}N_2O_8$ 334.325
Residue present in *Pseudomonas aeruginosa* O13 and *Proteus vulgaris* O39 polysaccharides.
N^7-*(3-Hydroxybutanoyl),* N^5-*Ac:*
$C_{15}H_{26}N_2O_9$ 378.378
Larger fragment present in *Shigella boydii* and *Pseudomonas aeruginosa* polysaccharides.

Knirel, Y.A. *et al., Carbohydr. Res.*, 1985, **141**, C1; 1986, **145**, C1; 2001, **333**, 241-249 (*Pseudaminic acid derivs*)
Muldoon, J. *et al., Carbohydr. Res.*, 2001, **330**, 231-239 (*N-Ac-N-formyl, isol*)
Tsvetkov, Y.E. *et al., Carbohydr. Res.*, 2001, **331**, 233-237; **335**, 221-243 (*synth, abs config, bibl*)
Kilcoyne, M. *et al., Carbohydr. Res.*, 2002, **337**, 1697-1702 (*iminoethyl Ac*)

1,6:2,3-Dianhydrallofuranose D-486



$C_6H_8O_4$ 144.127

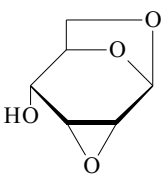
β-D-Furanose-*form*

Benzoyl: 1,6:2,3-Dianhydro-5-O-*benzoyl-β-D-allofuranose*
[120288-28-0]
$C_{13}H_{12}O_5$ 248.235
Mp 109-109.5°. $[\alpha]_D^{20}$ +4.6 (c, 0.4 in $CHCl_3$).

Köll, P. *et al., J. Carbohydr. Chem.*, 1988, **3**, 757-771 (*β-D-fur benzoyl*)

1,6:2,3-Dianhydroallopyranose D-487

allo-*Cerny epoxide*



$C_6H_8O_4$ 144.127
The name Cerny epoxide is a generic one for the parent diepoxide, its derivs. and stereoisomers.

β-D-Pyranose-*form* [26423-96-1] Derivs. are important conformationally fixed chiral synthons.
Cryst. (EtOAc/petrol). Mp 93-96°. $[\alpha]_D$ +41 (Me_2CO). $[\alpha]_D$ +55 (H_2O).

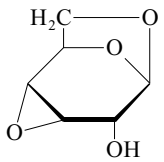
Tosyl: 1,6:2,3-Dianhydro-4-O-*tosyl-β-D-allopyranose*
[26423-97-2]
$C_{13}H_{14}O_6S$ 298.316
Cryst. (EtOH). Mp 146-147°. $[\alpha]_D$ +52 ($CHCl_3$).

Benzyl: 1,6:2,3-Dianhydro-4-O-*benzyl-β-D-allopyranose*
[26540-44-3]
$C_{13}H_{14}O_4$ 234.251

Cryst. (EtOAc/petrol). Mp 74-76°. $[\alpha]_D$ +127 ($CHCl_3$).

Černy, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 3377 (*synth*)
Trnka, T. *et al., Carbohydr. Res.*, 1979, **76**, 39-44 (*cmr*)
Lauer, G. *et al., Angew. Chem., Int. Ed.*, 1993, **32**, 272 (*synth, rev*)

1,6:3,4-Dianhydroallose D-488



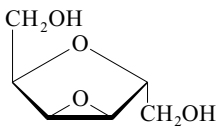
$C_6H_8O_4$ 144.127

D-*form* [26423-98-3]
Cryst. (EtOAc/petrol). Mp 104-106° (subl. at 80°). $[\alpha]_D$ -134 (c, 0.7 in H_2O).

Cerný, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 3377 (*synth*)

2,5:3,4-Dianhydroaltritol D-489

2,5:3,4-Dianhydrotalitol



D−*form*

$C_6H_{10}O_4$ 146.143

D-*form* [84518-62-7]
Cryst. (EtOH/Et_2O). Mp 91.5-93°. $[\alpha]_D^{24}$ -76.3 (c, 2.73 in MeOH).

*1,6-Di-Ac: 1,6-Di-*O*-acetyl-2,5:3,4-dianhydro-*D*-altritol*
[84447-11-0]
$C_{10}H_{14}O_6$ 230.217
Oil. $[\alpha]_D^{25}$ -53.5 (in $CHCl_3$). Incorrectly named as a D-allitol deriv. in the lit.

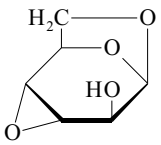
*1,6-Dibenzoyl: 2,5:3,4-Dianhydro-1,6-di-*O*-benzoyl-D-altritol*
[91318-12-6]
$C_{20}H_{18}O_6$ 354.359
Cryst. (pentane). Mp 73-74°. $[\alpha]_D^{24}$ -70.9 (c, 1.92 in $CHCl_3$).

L-*form*
Syrup. $[\alpha]_D^{20}$ +85.6 (c, 0.9 in EtOH).

DL-*form* [128899-69-4]
Syrup.

Guthrie, R.D. *et al., Aust. J. Chem.*, 1982, **35**, 2169 (*di-Ac, cmr*)
Otero, D.A. *et al., Carbohydr. Res.*, 1984, **128**, 79 (*synth, D-form, dibenzyl*)
Bock, K. *et al., Acta Chem. Scand.*, 1989, **43**, 264 (*synth, L-form, pmr*)
Kammerer, J. *et al., Angew. Chem., Int. Ed.*, 1990, **29**, 1038 (*DL-form*)
Gabriel Garcia, J. *et al., Acta Cryst. C*, 1992, **48**, 1692 (*cryst struct*)

1,6:3,4-Dianhydroaltrose D-490

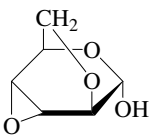


$C_6H_8O_4$ 144.127

D-*form* [3868-04-0]
Cryst. Mp 161-162° (subl. >120°). $[\alpha]_D^{18}$ -121 (c, 0.5 in H_2O).

Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1965, **30**, 1151 (*synth*)

2,6:3,4-Dianhydroaltrose, 9CI D-491



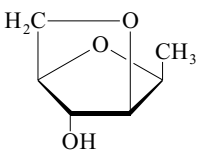
$C_6H_8O_4$ 144.127

α-D-Pyranose-*form*
Me glycoside: Methyl 2,6:3,4-dianhydro-α-D-altropyranoside
[70941-14-9]
$C_7H_{10}O_4$ 158.154
Cryst. (EtOH or Et_2O). Mp 80.7-81.4° (78-80°).

[71109-93-8]

Sinclair, H.B. *et al., J.O.C.*, 1979, **44**, 3361-3368 (*Me α-gly, synth*)
Coxon, B. *et al., Carbohydr. Res.*, 2000, **329**, 131-139 (*Me α-gly, synth, pmr*)

2,5:3,6-Dianhydro-1-deoxy-glucitol D-492



$C_6H_{10}O_3$ 130.143

D-*form*
Cryst. (EtOAc/petrol). Mp 79-81°. $[\alpha]_D^{20}$ +107.9 (H_2O).

*Mesyl: 2,5:3,6-Dianhydro-1-deoxy-4-*O*-mesyl-D-glucitol*
$C_7H_{12}O_5S$ 208.235
Needles. Mp 58-60° Mp 92-93° (after drying). $[\alpha]_D^{20}$ +69.3 (c, 1 in $CHCl_3$).

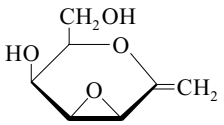
p-*Nitrobenzoyl:* Mp 114-116°. $[\alpha]_D^{20}$ +13.4.

*Tosyl: 2,5:3,6-Dianhydro-1-deoxy-4-*O*-tosyl-D-glucitol*
$C_{13}H_{16}O_5S$ 284.332
Cryst. (Et_2O/petrol). Mp 83-85°. $[\alpha]_D^{20}$ +62 (c, 1 in $CHCl_3$).

Vargha, L. *et al., Carbohydr. Res.*, 1968, **8**, 157 (*D-form, mesyl, tosyl*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1983, **123**, 209; 1985, **142**, 71 (*synth, tosyl*)

2,6:3,4-Dianhydro-1-deoxy-*talo*-hept-1-enitol D-493

2,6:4,5-Dianhydro-7-deoxy-altro-*hept-6-enitol, 9CI*

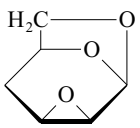


$C_7H_{10}O_4$ 158.154

D-*form* [69165-03-3] Irreversible inhibitor of β-galactosidase. Mp 119°. $[\alpha]_D^{22}$ +55.5 (c, 0.5 in Me_2CO).

Lehmann, J. *et al., Chem. Ber.*, 1978, **111**, 3961 (*synth, pmr*)

1,6:2,3-Dianhydro-4-deoxy-*lyxo*-hexopyranose D-494

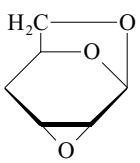


$C_6H_8O_3$ 128.127

β-D-*form* [50767-54-9]
Cryst. Mp 69-70° (previous subl.). $Bp_{0.1}$ 140-160° (bath). $[\alpha]_D$ -35 (c, 1.0 in H_2O).

Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1962, **27**, 94 (*synth*)

1,6:2,3-Dianhydro-4-deoxy-*ribo*-hexopyranose D-495

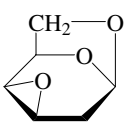


$C_6H_8O_3$ 128.127

β-D-*form* [40838-15-1]
Cryst. (Et_2O/petrol). Mp 66-67°. $[\alpha]_D$ +30 (c, 1.8 in H_2O).

Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1962, **27**, 94 (*synth*)

1,6:3,4-Dianhydro-2-deoxy-*lyxo*-hexose, 9CI D-496

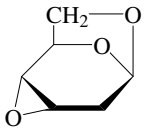


$C_6H_8O_3$ 128.127

β-D-Pyranose-*form* [50767-53-8]
Oil. $Bp_{0.01}$ 80° (bath). $[\alpha]_D^{24}$ -105 (c, 0.6 in H_2O) (lit gives a temp. range).

Halbych, J. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 2151-2166 (*synth, glc*)
Trnka, T. *et al., Carbohydr. Res.*, 1979, **76**, 39-44 (*cmr*)

1,6:3,4-Dianhydro-2-deoxy-*ribo*-hexose, 9CI D-497



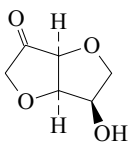
$C_6H_8O_3$ 128.127

β-D-Pyranose-*form* [50767-52-7] $Bp_{0.1}$ 80° (bath). $[\alpha]_D^{24}$ -136 (c, 0.75 in H_2O) (lit. gives a temp. range).

Halbych, J. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 2151-2166 (*synth, glc*)

Trnka, T. *et al., Carbohydr. Res.*, 1979, **76**, 39-44 (*cmr*)

1,4:3,6-Dianhydrofructose D-498



$C_6H_8O_4$ 144.127

D-*form* [13241-40-2]
Viscous liq. $[\alpha]_D^{27}$ +91.9 (H_2O).

Nitrate: [110627-22-0]
$C_6H_7NO_6$ 189.124
Solid (diisopropyl ether). Mp 59-62°. $[\alpha]_D^{20}$ +212.6 (c, 0.89 in Me_2CO).

Nitrate, oxime: [110627-24-2]
$C_6H_8N_2O_6$ 204.139
Solid (diisobutyl ether). Mp 111-115°. $[\alpha]_D^{20}$ +280.4 (c, 0.93 in MeOH).

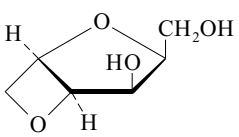
Heyns, K. *et al., Chem. Ber.*, 1963, **96**, 3195 (*synth*)

Ger. Pat., 1987, 3 602 067; *CA*, **107**, 176017c, (*D-nitrate, D-nitrate oxime*)

Limberg, G. *et al., Synthesis*, 1994, 317-321, (*D-form, synth, pmr, cmr*)

Tokic-Vujosevic, Z. *et al., Synthesis*, 2001, 2028-2034 (*D-nitrate oxime*)

2,5:4,6-Dianhydrogalactitol D-499



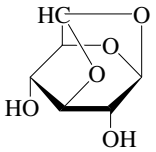
$C_6H_{10}O_4$ 146.143

D-*form* [106248-76-4]
Syrup. $[\alpha]_D^{20}$ +14.5 (c, 1.4 in $CHCl_3$).

1-Tosyl: 2,5:4,6-Dianhydro-1-O-tosyl-D-galactitol
[106248-77-5]
$C_{13}H_{16}O_6S$ 300.332
Cryst. (Et_2O/hexane). Mp 73-74°. $[\alpha]_D^{20}$ -3.9 (c, 0.7 in $CHCl_3$).

Köll, P. *et al., Annalen*, 1987, 205 (*synth, pmr, cmr*)

1,6:3,6-Dianhydrogalactodialdopyranose D-500



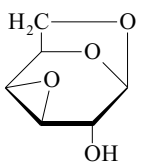
$C_6H_8O_5$ 160.126

D-*form*

Di-Ac: 2,4-Di-O-acetyl-1,6:3,6-dianhydro-D-galactohexodialdopyranose
[141990-00-3]
$C_{10}H_{12}O_7$ 244.201
Cryst. (EtOH). Mp 93°. $[\alpha]_D^{21}$ -27.9 (c. 1.0 in $CHCl_3$).

Vogel, C. *et al., J. Carbohydr. Chem.*, 1992, **11**, 287-303 (*D-form, di-Ac, synth, pmr, cmr, cryst struct*)

1,6:3,4-Dianhydrogalactose D-501



$C_6H_8O_4$ 144.127

D-Pyranose-*form* [16939-77-8]
Cryst. (EtOH/petrol). Mp 67-69°. $[\alpha]_D$ -80 (Me_2CO).

Tosyl: 1,6:3,4-Dianhydro-2-O-tosyl-β-D-galactopyranose
[6167-32-4]
$C_{13}H_{14}O_6S$ 298.316
Cryst. ($CHCl_3$/EtOH). Mp 148-151°. $[\alpha]_D$ -42 (c, 2.0 in $CHCl_3$).

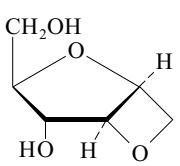
2-Me: 1,6:3,4-Dianhydro-2-O-methyl-β-D-galactopyranose
$C_7H_{10}O_4$ 158.154
Mp 91-93°. $[\alpha]_D$ -77 ($CHCl_3$).

2-Benzyl: 1,6:3,4-Dianhydro-2-O-benzyl-β-D-galactopyranose
[33208-46-7]
$C_{13}H_{14}O_4$ 234.251
Mp 47-48°. $[\alpha]_D$ -55 ($CHCl_3$).

Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1963, **28**, 1569

Szeja, W. *et al., Carbohydr. Res.*, 1986, **183**, 135 (*synth, tosyl*)

1,3:2,5-Dianhydroglucitol D-502



$C_6H_{10}O_4$ 146.143

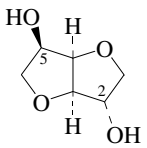
D-*form* [106248-70-8]
Syrup. $[\alpha]_D^{20}$ +7.7 (c, 2.3 in $CHCl_3$).

Di-Ac: 4,6-Di-O-acetyl-1,3:2,5-dianhydro-D-glucitol
[106248-71-9]
$C_{10}H_{14}O_6$ 230.217
Syrup. $[\alpha]_D^{20}$ -13.9 (c, 1.4 in $CHCl_3$).

Köll, P. *et al., Annalen*, 1987, 205 (*synth, pmr*)

1,4:3,6-Dianhydroglucitol, 9CI, 8CI D-503

1,4:3,6-Dianhydrosorbitol. ***Isosorbide, BAN, INN, JAN, USAN.*** *Devicoran. Hydronol. Ismotic. Isobide. Isorgen G. Sorbide (obsol.). NSC 40725. AT 101*



(D)-*form*

$C_6H_{10}O_4$ 146.143
Approved 1981. Log P -1.58 (calc).

D-*form* [652-67-5]
Readily obt. from glucose. By-prod. of the starch industry obt. by dehydration of Glucitol, G-247. Inexpensive starting material for synthesis. Osmotic diuretic. Used in the treatment of hydrocephalus. Also a chiral modifying agent for asymmetric redn. of ketones. Mp 62-64°. Bp_2 160-175°. $[\alpha]_D^{20}$ +44.8 (H_2O).
▶ LD_{50} (rat, orl) 24000 mg/kg. LZ4380000

2-Ac: 2-O-Acetyl-1,4:3,6-dianhydro-D-glucitol
[13042-39-2]
$C_8H_{12}O_5$ 188.18
Cryst. (Me_2CO). Mp 80°. $[\alpha]_D^{20}$ +78.8 (c, 1 in MeOH).

5-Ac: 5-O-Acetyl-1,4:3,6-dianhydro-D-glucitol
[65940-93-4]
$C_8H_{12}O_5$ 188.18
Oil. $Bp_{0.2}$ 110-114°. $[\alpha]_D^{20}$ +120.8 (c, 1 in MeOH).

5-Benzoyl: 1,4:3,6-Dianhydro-5-O-benzyl-D-glucitol
[24332-67-0]
$C_{13}H_{14}O_5$ 250.251
Mp 117-118°. $[\alpha]_D^{20}$ +44.8 (c, 1.0 in MeOH).

2-Tosyl, 5-Ac: [111554-46-2]
$C_{15}H_{18}O_7S$ 342.369
$[\alpha]_D$ +83.6 ($CHCl_3$).

5-Tosyl, 2-Ac: [111443-17-5]
$C_{15}H_{18}O_7S$ 342.369
Mp 65-66°. $[\alpha]_D$ +79.2 ($CHCl_3$).

2,5-Ditosyl: [66966-12-9]
$C_{20}H_{22}O_8S_2$ 454.521
Mp 100-101°. $[\alpha]_D^{23}$ +57.4 (c, 1 in $CHCl_3$).

2-Nitrate: [16106-20-0]
$C_6H_9NO_6$ 191.14
Cryst. Mp 52-53°.

2-Nitrate, 5-tosyl: [18978-12-6]
$C_{13}H_{15}NO_8S$ 345.329
Cryst. Mp 74.5-75.5°.

5-Nitrate: ***Isosorbide mononitrate, BAN, INN, USAN.*** *Corangin. Elantan. Imdur. Ismo. Isotrate. Monosorb. Nitrosorbide.*

AHR 4698. BM 22145
[16051-77-7]
$C_6H_9NO_6$ 191.14
Approved 1993
Used for treatment of angina pectoris. Mp 52-53°. Log P -0.71 (calc). Metab. of Isosorbide dinitrate.

▶ LD_{50} (rat, orl) 2000 mg/kg. Exp. reprod. effects (large dose). LZ4386500

5-Nitrate, 2-tosyl: Mp 81-83°.

2,5-Dinitrate: ***Isosorbide dinitrate, BAN, INN, USAN.*** *Cedocard. Dinitrosorbide. Cardopax. Frandol. Imtack. Isoket. Isordil. Sorbangil. Sorbitrate. Vascardin. Nitrol-R*
[87-33-2]
$C_6H_8N_2O_8$ 236.138
Cardiac stimulant, coronary vasodilator; used in the management of angina. Mp 51-52° Mp 71°. $[\alpha]_D^{20}$ +135 (EtOH). Log P 0.16 (calc). Disadvantaged by low bioavailability, first-pass effect and tolerance development.

▶ LD_{50} (rat, orl) 747 mg/kg. Exp. reprod. effects. Skin irritant. LZ4385000

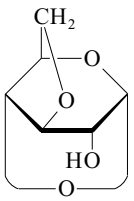
2,5-Di-Me ether: [5306-85-4]
$C_8H_{14}O_4$ 174.196
Bp_1 60°.

2,5-Dibenzyl: [24332-66-9]
$C_{20}H_{22}O_4$ 326.391
$[\alpha]_D$ +75.7 ($CHCl_3$).

L-*form* [124508-14-1]
Cryst. (EtOAc/pentene). Mp 62-63°. $[\alpha]^{20}{}_D$ -47 (c, 1.2 in H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 406C (*nmr*)
Hockett, R.C. *et al., J.A.C.S.*, 1946, **68**, 927
Wiggins, L.F. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 191 (*rev, props*)
Cope, A.C. *et al., J.A.C.S.*, 1956, **78**, 3177 (*stereochem*)
Jackson, M. *et al., Can. J. Chem.*, 1959, **37**, 1048
Buck, K.W. *et al., Carbohydr. Res.*, 1966, **2**, 122 (*2-Ac*)
Hayward, L.D. *et al., Can. J. Chem.*, 1967, **45**, 2191-2194 (*2-nitrate, synth, ir*)
Hopton, F.J. *et al., Can. J. Chem.*, 1969, **47**, 2395 (*pmr*)
Soltzberg, S. *et al., Adv. Carbohydr. Chem. Biochem.*, 1970, **25**, 229 (*rev*)
Anteunis, M. *et al., Org. Magn. Reson.*, 1971, **3**, 693-701 (*2-nitrate, synth, pmr, ir*)
Barton, R.E. *et al., Can. J. Chem.*, 1972, **50**, 1719-1728 (*2-nitrate, uv, ord, cd*)
Silvieri, L.A. *et al., Anal. Profiles Drug Subst.*, 1975, **4**, 225 (*deriv*)
Hirao, A. *et al., J.O.C.*, 1979, **44**, 1720 (*use*)
Bogaert, M.G. *et al., Clin. Pharmacokinet.*, 1983, **8**, 410 (*dinitrate, rev*)
van Koningsveld, H. *et al., Acta Cryst. C*, 1984, **40**, 519 (*cryst struct*)
Abshagen, U. *et al., Mononitrates, [Int. Symp.]*, 1984, 53 (*nitrates, rev*)
Jelleff, C.C. *et al., Am. Heart J.*, 1985, **110**, 197 (*dinitrate, rev*)
Fleche, G. *et al., Starch/Staerke*, 1986, **38**, 26 (*rev, synth, chem*)
Achet, D. *et al., Synthesis*, 1986, 642-643 (*di-Me ether*)
de Lucchi, O. *et al., Gazz. Chim. Ital.*, 1987, **117**, 173 (*nitrates, synth, ir, pmr*)
Ger. Pat., 1987, 3 521 809; *CA*, **106**, 120177s (*di-Me ether, synth*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 453; 474
Stoss, P. *et al., Synthesis*, 1987, 174 (*5-Ac, 2-Ac*)
Bock, K. *et al., Acta Chem. Scand.*, 1989, **43**, 264 (*L-form*)
Defraye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191 (*synth*)
Stoss, P. *et al., Adv. Carbohydr. Chem. Biochem.*, 1991, **49**, 93 (***rev***)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 823; 1023; 1024
Abenhaim, D. *et al., Carbohydr. Res.*, 1994, **261**, 255 (*alkyl derivs*)
Chandrasekaran, S. *et al., Synthesis*, 1994, 1032 (*nitrates, synth*)
Duclos, A. *et al., Synthesis*, 1994, 1087 (*synth, cmr*)
Prakash, A. *et al., Drugs*, 1999, **57**, 93-99; 261-277 (*5-nitrate, rev*)
Kurszewska, M. *et al., Carbohydr. Res.*, 2002, **337**, 1261-1268 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CCK125; HID350; ISC500

1,4:3,6-Dianhydroglucose D-504

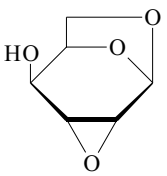


$C_6H_8O_4$ 144.127

α-D-Pyranose-*form*
Prod. by gasification of wood and by vac. pyrol. of amylose. Mp 122-123°.
Tischenko, D. *et al., Zh. Obshch. Khim.*, 1948, **18**, 1193
Bedford, G.R. *et al., Chem. Comm.*, 1965, 287 (*synth, pmr*)
Ohnishi, A. *et al., Carbohydr. Res.*, 1981, **96**, 161 (*cryst struct, nmr*)

1,6:2,3-Dianhydrogulose D-505

gulo-*Cerny epoxide*



$C_6H_8O_4$ 144.127
The name Cerny epoxide is a generic one for the parent diepoxide, its derivs. and stereoisomers.

β-D-Pyranose-*form* [34147-05-2]
Derivs. are important conformationally fixed chiral synthons. Mp 135-137°. $[\alpha]_D$ +30 (H_2O).

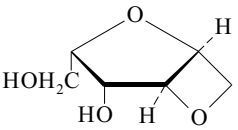
4-Ac: 4-O-Acetyl-1,6:2,3-dianhydro-β-D-gulopyranose
[65359-91-3]
$C_8H_{10}O_5$ 186.164
Mp 83-85°. $[\alpha]_D$ +47 ($CHCl_3$).

4-Tosyl: 1,6:2,3-Dianhydro-4-O-tosyl-β-D-gulopyranose
$C_{13}H_{14}O_6S$ 298.316
Syrup. $[\alpha]_D$ +26 ($CHCl_3$).

4-Me: 1,6:2,3-Dianhydro-4-O-methyl-β-D-gulopyranose
$C_7H_{10}O_4$ 158.154
Mp 36-38°. $[\alpha]_D$ -4.4 ($CHCl_3$).

Černy, M. *et al., Coll. Czech. Chem. Comm.*, 1963, **28**, 1659 (*synth*)
Berking, B. *et al., Acta Cryst. B*, 1971, **27**, 1752 (*cryst struct*)
Shashkov, A.S. *et al., Bioorg. Khim.*, 1977, **3**, 1503 (*cmr*)
Trnka, T. *et al., Carbohydr. Res.*, 1979, **76**, 39-44 (*cmr*)
Sinclair, H.B. *et al., J.O.C.*, 1979, **44**, 3361 (*synth, pmr*)

1,3:2,5-Dianhydroiditol D-506



$C_6H_{10}O_4$ 146.143

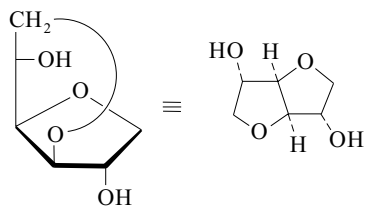
L-*form* [106192-89-6]
Syrup. $[\alpha]_D^{20}$ +3.8 (c, 2.6 in $CHCl_3$).

6-Tosyl: 1,3:2,5-Dianhydro-6-O-tosyl-L-iditol
[106192-94-3]
$C_{13}H_{16}O_6S$ 300.332
Cryst. (Et_2O). Mp 114-115°. $[\alpha]_D^{20}$ +6.9 (c, 0.4 in $CHCl_3$).

6-Tosyl, 4-Ac: 4-O-Acetyl-1,3:2,5-dianhydro-6-O-tosyl-L-iditol
[106192-95-4]
$C_{15}H_{18}O_7S$ 342.369
Cryst. (Et_2O/hexane). Mp 90-91°. $[\alpha]_D^{20}$ +13 (c, 1.9 in $CHCl_3$).
Köll, P. *et al., Annalen*, 1987, 205 (*synth, pmr*)

1,4:3,6-Dianhydroiditol, 9CI, 8CI D-507

Isoidide
[5627-19-0]



L−*form*

$C_6H_{10}O_4$ 146.143

D-*form* [28948-16-5]

Di-Ac: 2,5-Di-O-acetyl-1,4:3,6-dianhydro-D-iditol
[54522-25-7]
$C_{10}H_{14}O_6$ 230.217
Mp 55-56°. $[\alpha]_D^{23}$ -89 (c, 4.2 in $CHCl_3$).

Dibenzoyl: 1,4:3,6-Dianhydro-2,5-di-O-benzoyl-D-iditol
[54522-26-8]
$C_{20}H_{18}O_6$ 354.359
Mp 110-111.5°. $[\alpha]_D^{23}$ -132 (c, 2.17 in $CHCl_3$).

*Dimesyl: 1,4:3,6-Dianhydro-2,5-di-*O*-mesyl-*D*-iditol*
[54522-27-9]
$C_8H_{14}O_8S_2$ 302.326
Mp 159-160°. $[\alpha]_D^{23}$ -31.6 (c, 1.77 in Me_2CO).

*Ditosyl: 1,4:3,6-Dianhydro-2,5-di-*O*-tosyl-*D*-iditol*
$C_{20}H_{22}O_8S_2$ 454.521
Mp 105-106°. $[\alpha]_D^{23}$ -31.1 (c, 2.66 in $CHCl_3$).

L-*form* [24332-71-6]
Mp 63.8-64.4°. $Bp_{0.2}$ 160°. $[\alpha]_D^{24.5}$ +20.8 ($CHCl_3$).

Hemihydrate: Mp 43-45°. $[\alpha]_D^{17}$ +18.4 (c, 2.4 in H_2O).

*Di-Ac: 2,5-Di-*O*-acetyl-1,4:3,6-dianhydro-*L*-iditol*
$C_{10}H_{14}O_6$ 230.217
Mp 57-58°. $Bp_{0.5}$ 110-115° (bath). $[\alpha]_D^{25}$ +89.6 (c, 1.5 in $CHCl_3$).

*Dibenzoyl: 1,4:3,6-Dianhydro-2,5-di-*O*-benzoyl-*L*-iditol*
$C_{20}H_{18}O_6$ 354.359
Mp 111-112°. $[\alpha]_D^{23}$ +140.3 ($CHCl_3$).

*Dimesyl: 1,4:3,6-Dianhydro-2,5-di-*O*-mesyl-*L*-iditol*
$C_8H_{14}O_8S_2$ 302.326
Mp 155-156°. $[\alpha]_D^{17}$ +41.9 (c, 1.2 in Me_2CO).

*Ditosyl: 1,4:3,6-Dianhydro-2,5-di-*O*-tosyl-*L*-iditol*
$C_{20}H_{22}O_8S_2$ 454.521
Mp 105.5-106°. $[\alpha]_D$ +33.2 ($CHCl_3$).

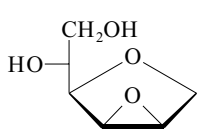
DL-*form*
Mp 84-85° (73-77°). $Bp_{0.15}$ 158-160°.

Di-Ac:
Cryst. (EtOH). Mp 69-71°.

*Dibenzoyl: 1,4:3,6-Dianhydro-2,5-di-*O*-benzoyl-*DL*-iditol*
$C_{20}H_{18}O_6$ 354.359
Mp 122-124°.

Fletcher, H.G. *et al., J.A.C.S.*, 1945, **67**, 1042
Wiggins, L.F. *et al., J.C.S.*, 1947, 1403 (*synth*)
Vul'fson, N.S. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1969, 768; *CA*, **71**, 25 794r (*ms*)
Hartmann, L.A. *et al., CA*, 1970, **73**, 35 703r
Hicks, D.R. *et al., Can. J. Chem.*, 1974, **52**, 3367 (*synth, pmr*)
Stoss, P. *et al., Adv. Carbohydr. Chem. Biochem.*, 1991, **49**, 93 (***rev***)
Kurszewska, M. *et al., Carbohydr. Res.*, 2002, **337**, 1261-1268 (*DL-form, synth, pmr, cmr, di-Ac, cryst struct*)

1,4:2,3-Dianhydromannitol D-508



$C_6H_{10}O_4$ 146.143

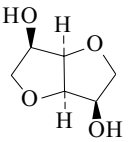
D-*form* [101069-54-9]
Mp 101.5-102.5°. $[\alpha]_D$ -49.5 (c, 1 in EtOH).

*5,6-Isopropylidene: 1,4:2,3-Dianhydro-5,6-*O*-isopropylidene-*D*-mannitol*
[55730-76-2]
$C_9H_{14}O_4$ 186.207
Syrup. $Bp_{0.015}$ 53-54°.

Hanessian, S. *et al., Tet. Lett.*, 1974, 3983
Hanessian, S. *et al., Carbohydr. Res.*, 1985, **141**, 221

1,4:3,6-Dianhydromannitol, 9CI, 8CI D-509

Isomannide
[28218-68-0]



$C_6H_{10}O_4$ 146.143

D-*form* [641-74-7]
Isol. from the fruit of *Cotoneaster microphylla*.
Cryst. (EtOAc/EtOH).
Mp 86.5-89°. $[\alpha]_D^{26}$ +62.2 ($CHCl_3$). $[\alpha]_D^{26}$ +139.4 (Py). $[\alpha]_D^{26}$ +91 (H_2O).

*2,5-Di-Ac: 2,5-Di-*O*-acetyl-1,4:3,6-dianhydro-*D*-mannitol*
[24808-22-8]
$C_{10}H_{14}O_6$ 230.217
Syrup. $Bp_{0.5}$ 118°. $[\alpha]_D$ +194.5 (c, 6.7 in $CHCl_3$).

*2,5-Dibenzoyl: 1,4:3,6-Dianhydro-2,5-di-*O*-benzoyl-*D*-mannitol*
[24332-64-7]
$C_{20}H_{18}O_6$ 354.359
Needles (EtOH aq.). Mp 132-133° Mp 142°. $[\alpha]_D$ +226 (c, 1.3 in $CHCl_3$).

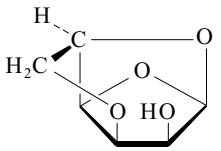
*2,5-Ditosyl: 1,4:3,6-Dianhydro-2,5-di-*O*-tosyl-*D*-mannitol*
[67890-26-0]
$C_{20}H_{22}O_8S_2$ 454.521
Mp 93-94°. $[\alpha]_D^{20}$ +92.2 (c, 2.5 in $CHCl_3$).

2,5-Dibenzyl: [287945-50-0]
$C_{20}H_{22}O_4$ 326.391
Solid (MTBE). Mp 41°. $[\alpha]_D^{21}$ +83 (c, 0.99 in $CHCl_3$).

*2,5-Ditrityl: 1,4:3,6-Dianhydro-2,5-di-*O*-trityl-*D*-mannitol*
$C_{44}H_{38}O_4$ 630.782
Cryst. (EtOH aq.). Mp 92-94°. $[\alpha]_D^{27}$ +44.3.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 406B (*nmr*)
Fletcher, H.G. *et al., J.A.C.S.*, 1945, **67**, 1042 (*D-form, D-dibenzoyl*)
Wiggins, L.F. *et al., J.C.S.*, 1945, 4 (*synth*)
Hockett, R.C. *et al., J.A.C.S.*, 1946, **68**, 931; 935; 939 (*D-form, struct, synth, D-dibenzoyl, D-ditosyl, D-ditrityl*)
Montgomery, R. *et al., J.C.S.*, 1946, 393 (*D-ditosyl*)
Dirlikov, S.K. *et al., ACS Symp. Ser.*, 1990, **433**, 176 (*synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191 (*synth*)
Stoss, P. *et al., Adv. Carbohydr. Chem. Biochem.*, 1991, **49**, 93 (***rev***)
Bisht, G. *et al., Asian J. Chem.*, 1995, **7**, 455; *CA*, **122**, 261131q (*isol*)
Vogler, M. *et al., Synthesis*, 2004, 1211-1228 (*2,5-dibenzyl*)

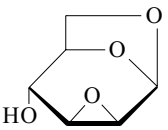
1,4:3,6-Dianhydromannose D-510



$C_6H_8O_4$ 144.127

α-D-Pyranose-*form*
Pyrolysis product from D-mannose. Mp 105-110°.
Bedford, G.R. *et al., Chem. Comm.*, 1965, 287 (*synth, pmr*)

1,6:2,3-Dianhydromannose, 9CI, 8CI D-511



$C_6H_8O_4$ 144.127

β-D-Pyranose-*form*
manno-*Cerny epoxide*
[3868-03-9]
Derivs. are important conformationally fixed chiral synthons.
Cryst. (Me_2CO/petrol). Mp 68-70°. $[\alpha]_D^{18}$ -35 ($CHCl_3$). The name Cerny epoxide is a generic one for the parent diepoxide, its derivs. and stereoisomers.

*4-Tosyl: 1,6:2,3-Dianhydro-4-*O*-tosyl-β-D-mannopyranose*
[3868-08-4]
$C_{13}H_{14}O_6S$ 298.316
Needles (EtOH). Mp 137-139°. $[\alpha]_D^{20}$ -37 (c, 1.0 in $CHCl_3$).

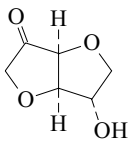
*4-Me: 1,6:2,3-Dianhydro-4-*O*-methyl-β-D-mannopyranose*
$C_7H_{10}O_4$ 158.154
Cryst. (MeOH). Mp 56-58°. $[\alpha]_D$ -48 (c, 1.2 in MeOH).

*4-Benzyl: 1,6:2,3-Dianhydro-4-*O*-benzyl-β-D-mannopyranose*
[33208-47-8]
$C_{13}H_{14}O_4$ 234.251
Cryst. (Et_2O/petrol). Mp 64°. $[\alpha]_D$ -27 ($CHCl_3$).

*4-Trityl: 1,6:2,3-Dianhydro-4-*O*-trityl-β-D-mannopyranose*
$C_{25}H_{22}O_4$ 386.446
Mp 138-140°. $[\alpha]_D^{20}$ -17 ($CHCl_3$).

Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1965, **30**, 1151 (*β-D-form, synth, β-D-tosyl, β-D-trityl*)
Seib, P.A. *et al., J.C.S.(C)*, 1969, 2552, (*β-D-tosyl, β-D-benzyl*)
Trnka, T. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 2216 (*β-D-form, synth, β-D-benzyl*)
Bochkov, A.F. *et al., Carbohydr. Res.*, 1974, **32**, 1 (*synth, β-D-Me*)
Černý, M. *et al., Adv. Carbohydr. Chem.*, 1977, **34**, 23 (*rev*)
Shashkov, A.S. *et al., Bioorg. Khim.*, 1977, **3**, 1503 (*cmr*)
Lauer, G. *et al., Angew. Chem., Int. Ed.*, 1993, **32**, 272 (*synth, pmr, cmr, bibl, deriv*)

1,4:3,6-Dianhydrosorbose D-512



$C_6H_8O_4$ 144.127

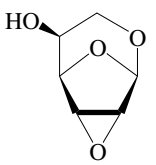
L-*form* [13241-38-8]
Viscous liq. $[\alpha]_D^{27}$ +64.2 (H_2O).

Nitrate: [110627-23-1]
$C_6H_7NO_6$ 189.124
Solid (diisopropyl ether). Mp 69-72°.
$[\alpha]_D^{20}$ +80.3 (c, 0.69 in Me_2CO).

Nitrate, oxime: [110627-25-3]
$C_6H_8N_2O_6$ 204.139
Solid (toluene). Mp 121° (113-115°).
$[\alpha]_D^{20}$ +114.6 (c, 0.82 in MeOH).

Heyns, K. *et al., Chem. Ber.*, 1963, **96**, 3195 (*synth*)
Ger. Pat., 1987, 3 602 067; *CA*, **107**, 176017c, (*L-nitrate, L-nitrate oxime*)
Limberg, G. *et al., Synthesis*, 1994, 317-321, (*L-form, synth, pmr, cmr*)
Tokic-Vujosevic, Z. *et al., Synthesis*, 2001, 2028-2034 (*L-nitrate oxime*)

1,6:2,3-Dianhydrotalofuranose D-513



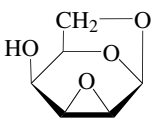
$C_6H_8O_4$ 144.127

α-L-Furanose-*form*

*Benzoyl: 1,6:2,3-Dianhydro-5-*O*-benzoyl-α-L-talofuranose*
[120288-29-1]
$C_{13}H_{12}O_5$ 248.235
Mp 102-106°.

Köll, P. *et al., J. Carbohydr. Chem.*, 1988, **7**, 757-771 (*α-L-fur benzoyl*)

1,6:2,3-Dianhydrotalopyranose D-514

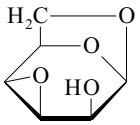


$C_6H_8O_4$ 144.127

β-D-*form* [6893-59-0]
Cryst. (Me_2CO/Et_2O). Mp 132°. $[\alpha]_D^{20}$ -88 (c, 0.76 in H_2O).

James, S.P. *et al., J.C.S.*, 1946, 625-628 (*synth*)
Stanek, J. *et al., Synthesis*, 1972, 698-699 (*synth*)
Trnka, T. *et al., Carbohydr. Res.*, 1979, **76**, 39-44 (*cmr*)
Budesinsky, M. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 1965-1983 (*pmr*)

1,6:3,4-Dianhydrotalose D-515

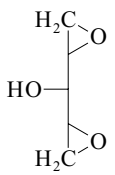


$C_6H_8O_4$ 144.127

D-*form* [34147-09-6]
Mp 74-75°. $[\alpha]_D^{24}$ -49.7 (c, 1.44 in H_2O) (+50). The positive opt. rotn. (Staněk) appears to be an error.

Hann, A.E. *et al., J.A.C.S.*, 1942, **64**, 925 (*synth*)
Staněk, J. *et al., Synthesis*, 1972, 698 (*synth*)
Matsumoto, K. *et al., Carbohydr. Res.*, 1993, **246**, 345 (*synth, ir, pmr, cmr*)
Jung, M.E. *et al., J.O.C.*, 1998, **63**, 8133-8144 (*synth, pmr*)

1,2:4,5-Dianhydroxylitol D-516



$C_5H_8O_3$ 116.116
$Bp_{0.3}$ 60-62°. Opt. inactive (*meso*-).

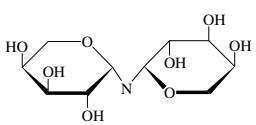
*Ac: 3-*O*-Acetyl-1,2:4,5-dianhydroxylitol*
$C_7H_{10}O_4$ 158.154
Cryst. (EtOAc/hexane). Mp 36-38°.

*Benzoyl: 1,2:4,5-Dianhydro-3-*O*-benzoylxylitol*
$C_{12}H_{12}O_4$ 220.224
Cryst. (EtOAc/hexane). Mp 39-40°.

*Me ether: 1,2:4,5-Dianhydro-3-*O*-methylxylitol*
$C_6H_{10}O_3$ 130.143
$Bp_{0.2}$ 43°.

Vidra, I. *et al., Carbohydr. Res.*, 1983, **111**, 215 (*synth, pmr, cryst struct, deriv*)

Diarabinopyranosylamine D-517



D-D-α,α-*form*

$C_{10}H_{19}NO_8$ 281.262

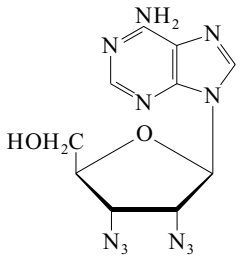
D,D-α,α-*form*
N-α-D-*Arabinopyranosyl-*α-D-*arabinopyranosylamine*
[152612-55-0]
Mp 143-144°. $[\alpha]_D^{25}$ -52 (c, 2.0 in H_2O).

L,L-α,α-*form*
N-α-L-*Arabinopyranosyl-*α-L-*arabinopyranosylamine*
Mp 145°. $[\alpha]_D$ +50.6 (c, 1.6 in H_2O).

Isbell, H.S. *et al., J.O.C.*, 1958, **23**, 1309, (*di-α-L-pyr*)
Linek, K. *et al., Carbohydr. Res.*, 1993, **247**, 329 (*di-α-D-pyr*)

2′,3′-Diazido-2′,3′-dideoxyadenosine, 9CI D-518

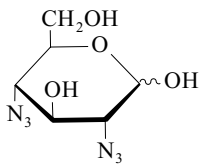
9-(2,3-Diazido-2,3-dideoxy-β-D-ribofuranosyl)adenine
[119644-21-2]



$C_{10}H_{11}N_{11}O_2$ 317.269
Granular solid. Mp 171-172° dec.

Chen, Y.-C.J. *et al., J.O.C.*, 1991, **56**, 3410 (*synth, uv, pmr, ms*)

2,4-Diazido-2,4-dideoxyglucose, 9CI D-519



$C_6H_{10}N_6O_4$ 230.183

D-*form* [56883-40-0]
Syrup. $[\alpha]_D^{20}$ +132 (c, 2.7 in MeOH).

α-D-*Pyranose-form*

*Tri-Ac: 1,3,6-Tri-*O*-acetyl-2,4-diazido-2,4-dideoxy-α-D-glucopyranose*
$C_{12}H_{16}N_6O_7$ 356.294
Syrup. $[\alpha]_D^{20}$ +193 (c, 2.0 in $CHCl_3$).

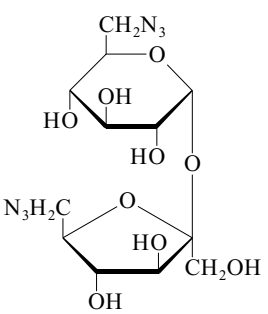
β-D-*Pyranose-form*

1,6-Anhydro: 1,6-Anhydro-2,4-diazido-2,4-dideoxy-β-D-glucopyranose
$C_6H_8N_6O_3$ 212.168
Mp 49.5°. $[\alpha]_D^{20}$ -72 (c, 2 in $CHCl_3$).

Paulsen, H. *et al., Tet. Lett.*, 1975, 1493 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1976, **109**, 104 (*synth, conformn, pmr*)

6,6′-Diazido-6,6′-dideoxysucrose D-520

[33585-16-9]

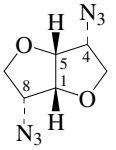


$C_{12}H_{20}N_6O_9$ 392.325

Cryst. Mp 163-164°. $[\alpha]_D$ +78.8 (c, 0.98 in H_2O).

Hough, L. *et al., Carbohydr. Res.*, 1972, **25**, 497 (*synth*)
Almquist, R.G. *et al., J. Med. Chem.*, 1977, **20**, 1246 (*synth*)
Khan, R. *et al., Carbohydr. Res.*, 1980, **78**, 185 (*synth*)

4,8-Diazido-2,6-dioxabicyclo[3.3.0]octane D-521



(1*R*,4*R*,5*R*,8*R*)-*form*

$C_6H_8N_6O_2$ 196.168

(1*R*,4*R*,5*R*,8*R*)-*form*
1,4:3,6-Dianhydro-2,5-diazido-2,5-dideoxy-D-mannitol, 9CI
[76753-19-0]
$[\alpha]_D^{20}$ +338.

(1*R*,4*R*,5*R*,8*S*)-*form*
1,4:3,6-Dianhydro-2,5-diazido-2,5-dideoxy-D-glucitol, 9CI
[76753-08-7]
Pale yellow liq. $[\alpha]_D^{20}$ +170 (c, 1 in $CHCl_3$).

(1*R*,4*S*,5*R*,8*S*)-*form*
1,4:3,6-Dianhydro-2,5-diazido-2,5-dideoxy-L-iditol
[76753-09-8]
Pale yellow liq. $Bp_{0.3}$ 92-94°. $[\alpha]_D^{20}$ +111 (c, 1 in $CHCl_3$).
► Dec. explosively during combustion anal.

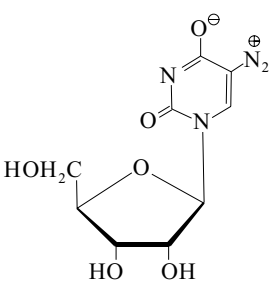
(1*S*,4*S*,5*S*,8*S*)-*form*
1,4:3,6-Dianhydro-2,5-diazido-2,5-dideoxy-L-mannitol
[76756-16-6]
Highly effective hypnotic agent.
Pale yellow liq. $[\alpha]_D^{20}$ -343 (c, 0.5 in $CHCl_3$). The only stereoisomer exhibiting pharmacol. activity.

[76753-08-7, 76753-19-0]

Kuszmann, J. *et al., Carbohydr. Res.*, 1980, **85**, 259 (*synth, pharmacol*)
Hungarian Pat., 1980, 178 152, (*Gyogyszerkutato Intezet*); *CA*, **96**, 200099h (*synth, pharmacol*)
Archibald, T.G. *et al., Synth. Commun.*, 1989, **19**, 1493 (*synth, ir, pmr*)

5-Diazouridine D-522

β-D-Ribofuranosyl-5-diazouracil



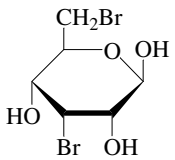
$C_9H_{10}N_4O_6$ 270.201
Mp 178-182° dec. λ_{max} 262 nm (ε 12 400) (MeOH);ν 2150 cm^{-1} (N_2).

2′-Deoxy: 2′-Deoxy-5-diazouridine
$C_9H_{10}N_4O_5$ 254.202
Mp 163.5° dec. λ_{max} 261 nm (ε 12600) (MeOH).

Roberts, M. *et al., J.A.C.S.*, 1952, **74**, 668 (*synth*)
Paolini, J.P. *et al., Biochim. Biophys. Acta*, 1963, **72**, 114 (*synth*)

3,6-Dibromo-3,6-dideoxyallose, 9CI D-523

[162856-76-0]

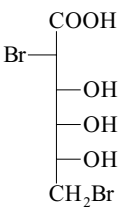


$C_6H_{10}Br_2O_4$ 305.951

β-D-Pyranose-*form*
Me glycoside: Methyl 3,6-dibromo-3,6-dideoxy-β-D-allopyranoside, 9CI
[172471-31-1]
$C_7H_{12}Br_2O_4$ 319.977
Cryst. ($CHCl_3$/EtOAc). Mp 138° (dec.). $[\alpha]_D^{25}$ -38 (c, 0.52 in EtOH).

Furuhata, K. *et al., Carbohydr. Res.*, 1995, **275**, 17-24

2,6-Dibromo-2,6-dideoxyaltronic acid D-524

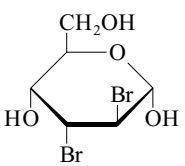


$C_6H_{10}Br_2O_5$ 321.95

D-*form*
1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-D-altrono-1,4-lactone
[109986-29-0]
$C_6H_8Br_2O_4$ 303.935
Syrup. $[\alpha]_D^{20}$ +13.8 (c, 2.1 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1986, **40**, 740 (*synth, pmr, cmr*)

2,3-Dibromo-2,3-dideoxaltrose D-525

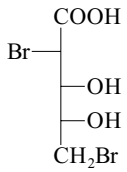


$C_6H_{10}Br_2O_3$ 289.951

α-D-Pyranose-*form*
Me glycoside, 4,6-benzylidene: Methyl 4,6-O-benzylidene-2,3-dibromo-2,3-dideoxy-α-D-altropyranoside
[20853-45-6]
$C_{14}H_{16}Br_2O_4$ 408.086
Cryst. Mp 79-81°. $[\alpha]_D^{20}$ +72.5 (c, 0.7 in $CHCl_3$).

Albano, E.L. *et al., Carbohydr. Res.*, 1969, **9**, 149 (*α-D-Me pyr benzylidene*)

2,5-Dibromo-2,5-dideoxyarabinonic acid D-526



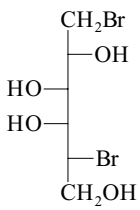
$C_5H_8Br_2O_4$ 291.924

D-*form*
1,4-Lactone: 2,5-Dibromo-2,5-dideoxy-D-arabino-1,4-lactone
[78138-88-2]
Cryst. ($CHCl_3$ at -78°). Mp 46-47°. $[\alpha]_D^{25}$ +62 (c, 6 in EtOAc).
1,4-Lactone, benzoyl: 3-O-Benzoyl-2,5-dibromo-2,5-dideoxy-D-arabinono-1,4-lactone
[90108-50-2]
$C_{12}H_{10}Br_2O_4$ 378.017
Syrup. $[\alpha]_D$ -49.5 (c, 3.1 in $CHCl_3$).

Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 17 (*D-form, pmr, cmr*)
Chen, S.-Y. *et al., J.O.C.*, 1984, **49**, 2168 (*benzoyl*)

1,5-Dibromo-1,5-dideoxygalactitol D-527

2,6-Dibromo-2,6-dideoxygalactitol



D–*form*

$C_6H_{12}Br_2O_4$ 307.966

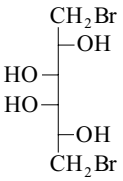
D-*form*
1,5-Dibromo-1,5-dideoxy-D-galactitol. 2,6-Dibromo-2,6-dideoxy-L-galactitol
[152884-06-5]
Cryst. (MeOH). Mp 150-151°. $[\alpha]_D^{20}$ +0.6 (c, 3 in MeOH).

L-*form*
1,5-Dibromo-1,5-dideoxy-L-galactitol. 2,6-Dibromo-2,6-dideoxy-D-galactitol
[152884-05-4]
Cryst. (MeOH). Mp 154-155° dec. $[\alpha]_D^{20}$ -0.6 (c, 3 in MeOH).

Lundt, I. *et al., Synthesis*, 1993, 720 (*synth, pmr, cmr*)

1,6-Dibromo-1,6-dideoxygalactitol, 8CI D-528

Mitolactol, INN. *Dibromidulcitol. Elobromol. DBD. NSC 104800*
[10318-26-0]

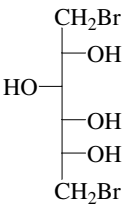


$C_6H_{12}Br_2O_4$ 307.966
Antineoplastic agent. Mp 187-188°. Log P -2 (calc).

▶ LW5425000

Netherlands Pat., 1966, 6 600 395; *CA*, **65**, 20205f (*synth, pharmacol*)
Kellner, B. *et al., Arzneim.-Forsch.*, 1967, **216**, 669 (*pharmacol*)
Kellner, B. *et al., Nature (London)*, 1967, **213**, 402 (*synth, pharmacol*)
Simon, K. *et al., Acta Cryst. B*, 1971, **27**, 806 (*cryst struct*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 1849
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DDJ000

1,6-Dibromo-1,6-dideoxyglucitol D-529



$C_6H_{12}Br_2O_4$ 307.966

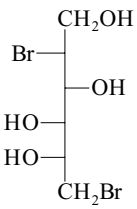
D-*form* [32452-75-8]
No phys. props. reported.

Tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-1,6-dibromo-1,6-dideoxy-D-glucitol*
[150822-91-6]
$C_{14}H_{20}Br_2O_8$ 476.115
Brown oil.

Hungarian Pat., 1971, 2357; *CA*, **75**, 141111x (*synth*)
El Anzi, A. *et al., Tet. Lett.*, 1993, **34**, 3741-3744 (*synth*)
Crombez-Robert, C. *et al., Carbohydr. Res.*, 1997, **303**, 359-365 (*synth*)

2,6-Dibromo-2,6-dideoxyglucitol D-530

1,5-Dibromo-1,5-dideoxygulitol



$C_6H_{12}Br_2O_4$ 307.966
Acc. to IUPAC special rules for carbohydrates, the name 2,6-dibromo-2,6-dideoxyglucitol has priority.

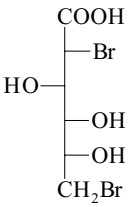
L-*form*

2,6-Dibromo-2,6-dideoxy-L-glucitol. 1,5-Dibromo-1,5-dideoxy-D-glucitol
[124379-09-5]
Syrup. $[\alpha]_D^{20}$ +15.3 (c, 0.4 in MeOH).

Tetra-Ac: 1,3,4,5-Tetra-O-*acetyl-2,6-dibromo-2,6-dideoxy-L-glucitol*
$C_{14}H_{20}Br_2O_8$ 476.115
Cryst. (Et_2O/pentane). Mp 66-67°. $[\alpha]_D^{20}$ +21.1 (c, 2 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand.*, 1989, **43**, 264 (*synth, cmr*)
Lundt, I. *et al., Synthesis*, 1993, 714 (*cmr*)

2,6-Dibromo-2,6-dideoxygluconic acid D-531



$C_6H_{10}Br_2O_5$ 321.95

D-*form*

1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-D-glucono-1,4-lactone
[78138-23-5]
$C_6H_8Br_2O_4$ 303.935
Cryst. (Et_2O/pentane). Mp 90-92°. $[\alpha]_D^{20}$ +29 (c, 2 in EtOAc).

1,4-Lactone, di-Ac: 3,5-Di-O-*acetyl-2,6-dibromo-2,6-dideoxy-D-glucono-1,4-lactone*
[69617-71-6]
$C_{10}H_{12}Br_2O_6$ 388.009
Cryst. (Et_2O). Mp 93-95°. $[\alpha]_D^{20}$ +51.4 (c, 2.3 in $CHCl_3$).

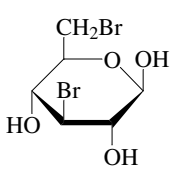
L-*form*

1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-L-glucono-1,4-lactone
[152786-43-1]
$C_6H_8Br_2O_4$ 303.935
Cryst. (Et_2O/hexane). Mp 91-92°. $[\alpha]_D^{20}$ -30 (c, 2 in EtOAc).

Bock, K. *et al., Carbohydr. Res.*, 1979, **68**, 313; 1981, **90**, 7 (*D-lactone, lactone di-Ac, pmr, cmr*)
Lundt, I. *et al., Synthesis*, 1993, 714 (*synth, cmr, L-form lactone*)

3,6-Dibromo-3,6-dideoxyglucose, 9CI D-532

[162856-75-9]



$C_6H_{10}Br_2O_4$ 305.951

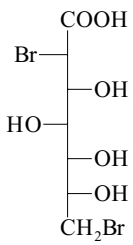
β-D-Pyranose-*form*

Me glycoside: Methyl 3,6-dibromo-3,6-dideoxy-β-D-glucopyranoside, 9CI
[172471-32-8]
$C_7H_{12}Br_2O_4$ 319.977
Hygroscopic cryst. ($CHCl_3$/EtOAc). Mp 117-118°. $[\alpha]_D^{25}$ +12 (c, 0.30 in EtOAc).

Me glycoside di-Ac: Methyl 2,4-di-O-*acetyl-3,6-dibromo-3,6-dideoxy-β-D-glucopyranoside*
$C_{11}H_{16}Br_2O_6$ 404.052
Mp 146-147°. $[\alpha]_D^{25}$ -6 (c, 0.25 in EtOAc).

Furuhata, K. *et al., Carbohydr. Res.*, 1995, **275**, 17-24

2,7-Dibromo-2,7-dideoxy-D-*glycero*-D-*ido*-heptonic acid D-533



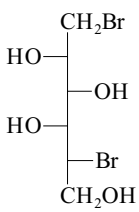
$C_7H_{12}Br_2O_6$ 351.976

*1,4-Lactone: 2,7-Dibromo-2,7-dideoxy-D-*glycero-*D-*ido-*heptono-1,4-lactone*
[116386-12-0]
$C_7H_{10}Br_2O_5$ 333.961
Cryst. (EtOAc). Mp 146-147°. $[\alpha]_D^{20}$ -38 (c, 2.1 in H_2O).

Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 331 (*lactone, pmr, cmr*)

1,5-Dibromo-1,5-dideoxyiditol D-534

2,6-Dibromo-2,6-dideoxyiditol



D−*form*

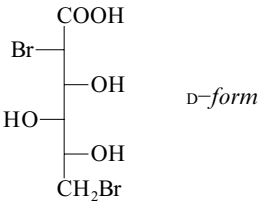
$C_6H_{12}Br_2O_4$ 307.966

D-*form* [152884-03-2]
Cryst. (EtOH). Mp 110-111°. $[\alpha]_D^{20}$ -17 (c, 4 in MeOH).

L-*form* [152884-04-3]
Cryst. (EtOH). Mp 111-112°. $[\alpha]_D^{20}$ +17 (c, 4 in MeOH).

Lundt, I. *et al., Synthesis*, 1993, 720 (*synth, pmr, cmr*)

2,6-Dibromo-2,6-dideoxyidonic acid D-535



D–*form*

$C_6H_{10}Br_2O_5$ 321.95

D-*form*

1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-D-idono-1,4-lactone
[109986-31-4]
$C_6H_8Br_2O_4$ 303.935
Syrup.

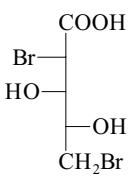
1,4-Lactone, di-Ac: 3,5-Di-O-acetyl-2,6-dibromo-2,6-dideoxy-D-idono-1,4-lactone
[109986-32-5]
$C_{10}H_{12}Br_2O_6$ 388.009
Cryst. (Et_2O/hexane). Mp 118-119°. $[\alpha]_D^{18}$ -38.8 (c, 2.1 in $CHCl_3$).

L-*form*

1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-L-idono-1,4-lactone
[129151-32-2]
$C_6H_8Br_2O_4$ 303.935
Syrup.

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1986, **40**, 740 (*D-form, synth, D-di-Ac, pmr, cmr*)
Vekemans, J.A.J.M. *et al., J.O.C.*, 1990, **55**, 5336 (*L-form, synth*)

2,5-Dibromo-2,5-dideoxylyxonic acid D-536



$C_5H_8Br_2O_4$ 291.924

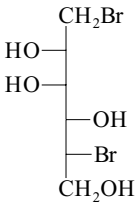
D-*form*

1,4-Lactone: 2,5-Dibromo-2,5-dideoxy-D-lyxono-1,4-lactone
[82805-10-5]
$C_5H_6Br_2O_3$ 273.909
Cryst. (Et_2O/pentane). Mp 92-93°. $[\alpha]_D^{20}$ +17 (c, 2.7 in EtOAc).

Bock, K. *et al., Carbohydr. Res.*, 1982, **104**, 79 (*D-lactone, pmr, cmr*)

1,5-Dibromo-1,5-dideoxymannitol D-537

2,6-Dibromo-2,6-dideoxymannitol



D–*form*

$C_6H_{12}Br_2O_4$ 307.966

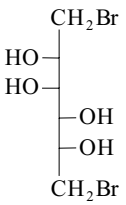
D-*form* [71672-05-4]
Cryst. (EtOAc/pentane). Mp 92-93°. $[\alpha]_D^{20}$ -9 (c, 1.6 in EtOAc).

L-*form* [152884-15-6]
Cryst. (EtOAc/hexane). Mp 91-92°. $[\alpha]_D^{20}$ +8.9 (c, 1.8 in EtOAc).

Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 7, (*D-form, synth*)
Lundt, I. *et al., Synthesis*, 1993, 714 (*L-form, synth*)

1,6-Dibromo-1,6-dideoxymannitol, 9CI, 8CI D-538

Mitobronitol, BAN, INN, JAN. *Myebrol. Myelobromol. DBM. NSC 94100. WR 220057*



$C_6H_{12}Br_2O_4$ 307.966
Alkylating agent; antineoplastic agent.
Log P -2 (calc).

D-*form* [488-41-5]
Cryst. (MeOH/dichloroethane). Mp 176-178°.
▶ Human systemic effects when used therapeutically. Exp. reprod. and teratogenic effects. LD_{50} (rat, orl) 1500 mg/kg.
OP2800000

3,4-O-Isopropylidene: 1,6-Dibromo-1,6-dideoxy-3,4-O-isopropylidene-D-mannitol
$C_9H_{16}Br_2O_4$ 348.031
Mp 71-72°. $[\alpha]_D^{20}$ +32.8 (Me_2CO).

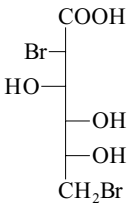
3,4-O-Isopropylidene, 2,5-di-Ac:
$C_{13}H_{20}Br_2O_6$ 432.105
Mp 49-50°. $[\alpha]_D^{20}$ +13.4 ($CHCl_3$).

3,4-O-Isopropylidene, 2,5-dimesyl: Mp 112-113°. $[\alpha]_D^{20}$ -1.9 (dioxan).

Tetramesyl: Mp 105-107°. $[\alpha]_D^{20}$ +29.1 (c, 1.0 in $CHCl_3$).

Kuszmann, J. *et al., Carbohydr. Res.*, 1969, **11**, 165 (*synth*)
Horvath, T. *et al., CA*, 1970, **73**, 56 370v (*synth*)
Simon, K. *et al., Cryst. Struct. Commun.*, 1973, **2**, 481 (*cryst struct*)
Eckhardt, S. *et al., Haematologica*, 1973, **57**, 722 (*rev*)
Jarman, M. *et al., Org. Mass Spectrom.*, 1974, **8**, 377 (*ms*)
Weisburger, J.H. *et al., CA*, 1976, **84**, 84 368w (*tox*)
Ota, K. *et al., CA*, 1979, **90**, 33653 (*rev*)
Chiuten, D.F. *et al., Cancer (Philadelphia)*, 1981, **47**, 442 (*props*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 492
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DDP600

2,6-Dibromo-2,6-dideoxymannonic acid D-539



$C_6H_{10}Br_2O_5$ 321.95

D-*form*

1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-D-mannono-1,4-lactone
[69617-72-7]
$C_6H_8Br_2O_4$ 303.935
Cryst. (EtOAc/pentane). Mp 131-133°. $[\alpha]_D^{20}$ +52.2 (c, 0.7 in EtOAc).

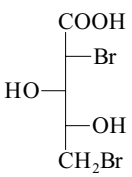
1,4-Lactone, di-Ac: 3,5-Di-O-acetyl-2,6-dibromo-2,6-dideoxy-D-mannono-1,4-lactone
[69617-82-9]
$C_{10}H_{12}Br_2O_6$ 388.009
Cryst. (Et_2O/pentane). Mp 103-105°. $[\alpha]_D^{20}$ +11.7 (c, 3.2 in $CHCl_3$).

L-*form*

1,4-Lactone: 2,6-Dibromo-2,6-dideoxy-L-mannono-1,4-lactone
[152772-67-3]
$C_6H_8Br_2O_4$ 303.935
Cryst. (EtOAc/hexane). Mp 131-133°. $[\alpha]_D^{20}$ -53 (c, 0.7 in EtOAc).

Bock, K. *et al., Carbohydr. Res.*, 1979, **68**, 313 (*D-form, synth, pmr, cmr, deriv*)
Lundt, I. *et al., Synthesis*, 1993, 714 (*L-form, cmr*)

2,5-Dibromo-2,5-dideoxyxylonic acid D-540



$C_5H_8Br_2O_4$ 291.924

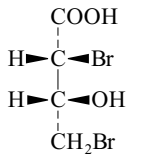
D-*form*

1,4-Lactone: 2,5-Dibromo-2,5-dideoxy-D-xylono-1,4-lactone
[78138-86-0]
$C_5H_6Br_2O_3$ 273.909

Cryst. ($CHCl_3$). Mp 63-64.5°. $[\alpha]_D^{25}$ +12 (c, 9.6 in EtOAc).

Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 17 (*D-lactone, synth, pmr, cmr*)

2,4-Dibromo-3-hydroxybutanoic acid D-541



(2*R*,3*R*)–*form*

$C_4H_6Br_2O_3$ 261.898

(2*R*,3*R*)-*form*

D-threo-*form*

Me ester: Methyl 2,4-dibromo-2,4-dideoxy-D-threonate
[88824-09-3]
$C_5H_8Br_2O_3$ 275.924
Cryst. (Et_2O/pentane). Mp 76-77°. $[\alpha]_D^{20}$ -44.4 (c, 3.4 in $CHCl_3$).

(2*R*,3*S*)-*form*

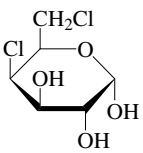
Me ester: Methyl 2,4-dibromo-2,4-dideoxy-L-erythronate
[88824-10-6]
$C_5H_8Br_2O_3$ 275.924
Syrup. Bp_2 115-116°. $[\alpha]_D^{20}$ -26 (c, 17 in $CHCl_3$).

(2*S*,3*S*)-*form*

Me ester: Methyl 2,4-dibromo-2,4-dideoxy-L-threonate
[88824-11-7]
$C_5H_8Br_2O_3$ 275.924
Cryst. (Et_2O/pentane). Mp 75-76.5°. $[\alpha]_D^{20}$ +43.8 (c, 3.5 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1983, **37**, 341 (*synth, cmr*)

4,6-Dichloro-4,6-dideoxygalactose D-542



α-D-Pyranose-*form*

$C_6H_{10}Cl_2O_4$ 217.048

D-*form*

Cryst. (MeOH aq.). Mp 184-186°.

α-D-Pyranose-*form*

1,2-Di-O-*Ac, 3*-O-*Me:* [69848-55-1]
$C_{11}H_{16}Cl_2O_6$ 315.149
Mp 168-172°. $[\alpha]_D^{20}$ +127.5 (c, 1.0 in MeOH).

Me glycoside: Methyl 4,6-dichloro-4,6-dideoxy-α-D-galactopyranoside, 9CI, 8CI
[4990-82-3]
$C_7H_{12}Cl_2O_4$ 231.075
Needles ($CHCl_3$/petrol). Mp 158°. $[\alpha]_D^{21}$ +179 (c, 2.0 in H_2O).

Me glycoside, 2-Ac: [33428-84-1]
$C_9H_{14}Cl_2O_5$ 273.112
Syrup. $[\alpha]_D$ +174.7 (c, 1.0 in $CHCl_3$).

Me glycoside, 2-Ac, 3-chlorosulfate:
[33501-34-7]
$[\alpha]_D$ +142.2 (c, 1.1 in $CHCl_3$).

Me glycoside, di-Ac: Methyl 2,3-di-O-acetyl-4,6-dichloro-4,6-dideoxy-α-D-galactopyranoside
[35521-81-4]
$C_{11}H_{16}Cl_2O_6$ 315.149
Cryst. (2-propanol). Mp 103.5-105°. $[\alpha]_D$ +190 (c, 1.0 in $CHCl_3$).

Me glycoside, 3-Ac: [33423-28-8]
$C_9H_{14}Cl_2O_5$ 273.112
Cryst. (Et_2O/petrol). Mp 117-118°. $[\alpha]_D$ +209 (c, 1.0 in $CHCl_3$).

Me glycoside, 3-Ac, 2-Me: [33423-29-9]
$C_{10}H_{16}Cl_2O_5$ 287.139
$Bp_{0.3}$ 110-115°. $[\alpha]_D$ +194.6 (c, 1.8 in $CHCl_3$).

Me glycoside, 3-chlorosulfate: [33501-29-0]
Needles ($CHCl_3$/petrol). Mp 132-133° dec. $[\alpha]_D$ +180 (c, 0.3 in $CHCl_3$).

Me glycoside, 2,3-dichlorosulfate:
[33513-33-6]
$[\alpha]_D^{21}$ +115 (c, 1.2 in $CHCl_3$).

Me glycoside, 2,3-cyclic sulfate:
Needles (Et_2O/petrol). Mp 103-104°. $[\alpha]_D^{21}$ +139 (c, 1.8 in MeOH).

Me glycoside, ditosyl: Methyl 4,6-dichloro-4,6-dideoxy-2,3-di-O-tosyl-α-D-galactopyranoside
[20550-17-8]
Mp 119-120°. $[\alpha]_D^{19}$ +97.2 (Py). $[\alpha]_D^{18}$ +102.5 ($CHCl_3$). These phys. constants were originally (1935) erroneously assigned to the corresponding glucose deriv.

β-D-Pyranose-*form*

Me glycoside: Methyl 4,6-dichloro-4,6-dideoxy-β-D-galactopyranoside
[4990-85-6]
$C_7H_{12}Cl_2O_4$ 231.075
Needles. Mp 152-153.5° (cryst. change at 120°). $[\alpha]_D^{20}$ +7 (c, 1.4 in H_2O) (lit. gives a temp. range). $[\alpha]_D^{20}$ -14 (c, 0.5 in $CHCl_3$) (lit. gives a temp. range).

Benzyl glycoside, 2-Ac, 3-Me: [69848-96-0]
$C_{16}H_{20}Cl_2O_5$ 363.236
Mp 95°. $[\alpha]_D^{20}$ +10.5 (c, 1.0 in MeOH).

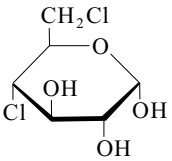
Cyclohexyl glycoside, 2-Ac, 3-Me: [69848-95-9]
Mp 102°. $[\alpha]_D^{20}$ +37.2 (c, 1.0 in MeOH).

Me glycoside, 2-Ac, 3-Me: [69848-57-3]
$C_{10}H_{16}Cl_2O_5$ 287.139
Mp 85°. $[\alpha]_D^{20}$ +42.9 (c, 1.0 in MeOH).

Me glycoside, ditosyl: Methyl 4,6-dichloro-4,6-dideoxy-2,3-di-O-tosyl-β-D-galactopyranoside
[20550-18-9]
Mp 147.5-148°. $[\alpha]_D^{19}$ +23.3 ($CHCl_3$). $[\alpha]_D^{18}$ +19.2 (Py). These constants originally (1935) erroneously assigned to the corresponding glucose deriv.

Bragg, P.D. *et al., Can. J. Chem.*, 1959, **37**, 1412 (*D-form*)
Jennings, H.J. *et al., Can. J. Chem.*, 1962, **40**, 1408; 1963, **41**, 1151; 1965, **43**, 2372 (*synth*)
Parrish, F.W. *et al., Carbohydr. Res.*, 1968, **6**, 503 (*α- and β-, Me pyr, ditosyl*)
Hoge, R. *et al., J.C.S.(A)*, 1969, **14**, 2165 (*cryst struct, α-Me pyr*)
Parolis, H. *et al., Carbohydr. Res.*, 1971, **19**, 97
Szarek, W. *et al., Adv. Carbohydr. Chem. Biochem.*, 1973, **28**, 225 (*rev*)
Szarek, W.A. *et al., Can. J. Chem.*, 1974, **52**, 3394; 1976, **54**, 3783 (*cmr*)
Edwards, R.G. *et al., Carbohydr. Res.*, 1974, **35**, 111 (*β-Me pyr, α- and β-Me pyr, di-Ac*)
Redlich, H. *et al., Carbohydr. Res.*, 1979, **68**, 275 (*β-benzyl, β-cyclohexyl pyr*)

4,6-Dichloro-4,6-dideoxyglucose D-543



$C_6H_{10}Cl_2O_4$ 217.048

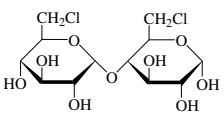
α-D-Pyranose-*form*

Me glycoside: Methyl 4,6-dichloro-4,6-dideoxy-α-D-glucopyranoside
$C_7H_{12}Cl_2O_4$ 231.075
Needles ($CHCl_3$/petrol). Mp 119-121°. $[\alpha]_D^{21}$ +122 (c, 1.9 in H_2O).

Jones, J.K.N. *et al., Can. J. Chem.*, 1960, **38**, 1122 (*synth*)
Hoge, R. *et al., J.C.S.(A)*, 1968, 267 (*cryst struct*)
Szarek, W. *et al., Adv. Carbohydr. Chem. Biochem.*, 1973, **28**, 225 (*rev*)

6,6′-Dichloro-6,6′-dideoxymaltose D-544

6-Chloro-4-O-*(6-chloro-6-deoxy-α-D-glucopyranosyl)-6-deoxy-D-glucose*
[56665-80-6]

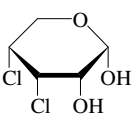


α-Pyranose-*form*

$C_{12}H_{20}Cl_2O_9$ 379.19
Syrup. $[\alpha]_D$ +99.6 (c, 2.0 in H_2O).

Colson, P. *et al., Can. J. Chem.*, 1975, **53**, 1030 (*synth*)

3,4-Dichloro-3,4-dideoxyribose D-545



α-D-Pyranose-*form*

$C_5H_8Cl_2O_3$ 187.022

D-*form*

Needles ($CHCl_3$/petrol). Mp 107-108°. $[\alpha]_D^{21}$ -3.2 (c, 0.6 in MeOH) (equilib.). Crystallises as β-anomer.

α-D-Pyranose-*form*

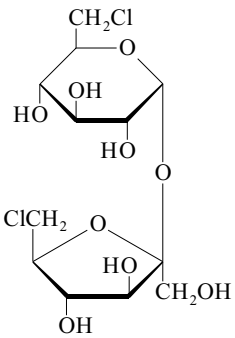
*1,2-*O*-Isopropylidene: 3,4-Dichloro-3,4-dideoxy-1,2-*O*-isopropylidene-α-D-ribopyranose*
$C_8H_{12}Cl_2O_3$ 227.086
Needles ($CHCl_3$/petrol). Mp 171°. $[\alpha]_D^{21}$ -52 (c, 0.7 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 3,4-dichloro-3,4-dideoxy-β-D-ribopyranoside
$C_6H_{10}Cl_2O_3$ 201.049
Syrup. $[\alpha]_D^{21}$ -55 (c, 0.8 in MeOH).
Jennings, H.J. *et al., Can. J. Chem.*, 1965, **43**, 3018 (*β-D-form, β-D-Me pyr, β-D-isopropylidene*)
Coxon, B. *et al., Tetrahedron*, 1967, **23**, 2395 (*synth*)

6,6′-Dichloro-6,6′-dideoxysucrose D-546

[40984-16-5]



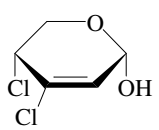
$C_{12}H_{20}Cl_2O_9$ 379.19
Cryst. (butanone) or hygroscopic amorph. powder. Mp 84-88°. $[\alpha]_D^{25}$ +60 (c, 1 in H_2O).

Hexa-Ac:
$C_{24}H_{32}Cl_2O_{15}$ 631.413
Syrup.

Hexabenzoyl: [35903-09-4]
$C_{54}H_{44}Cl_2O_{15}$ 1003.838
Cryst. (EtOH). Mp 88-89°. $[\alpha]_D^{25}$ +5.7 (c, 1 in $CHCl_3$).

Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1978, **61**, 511 (*synth*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 227 (*synth*)
Chen, C.C. *et al., Carbohydr. Res.*, 1983, **117**, 318 (*synth*)

3,4-Dichloro-2,3,4-trideoxy-*glycero*-pent-2-enopyranose, 8CI D-547



α-D-*form*

$C_5H_6Cl_2O_2$ 169.007

α-D-*form*

*Me glycoside: Methyl 3,4-dichloro-2,3,4-trideoxy-α-D-*glycero*-pent-2-enopyranoside*
[16609-00-0]
$C_6H_8Cl_2O_2$ 183.033
Syrup. $[\alpha]_D$ +55 (c, 0.8 in MeOH).

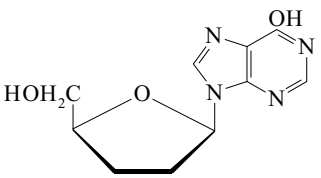
β-D-*form* [16609-01-1]
Needles ($CHCl_3$/petrol). Mp 130-132° Mp 205-210° (double Mp). $[\alpha]_D$ +108 (c, 0.7 in MeOH) (24h).

*Me glycoside: Methyl 3,4-dichloro-2,3,4-trideoxy-β-D-*glycero*-pent-2-enopyranoside, 8CI*
$C_6H_8Cl_2O_2$ 183.033
Plates (MeOH aq.). Mp 72-73°. $[\alpha]_D^{21}$ +53 (c, 0.8 in MeOH).

Jennings, H.J. *et al., Can. J. Chem.*, 1965, **43**, 3018 (*synth*)
Coxon, B. *et al., Tetrahedron*, 1967, **23**, 2395, (*α-D-Me pyr, β-D-pyr form, synth, pmr*)

Didanosine, BAN, INN, USAN D-548

*2′,3′-Dideoxy-1,9-dihydro-9-β-D-ribofuranosyl-6*H*-purin-6-one. 2′,3′-Dideoxyinosine. DDI. NSC 612049. BMY 40900. Videx*
[69655-05-6]



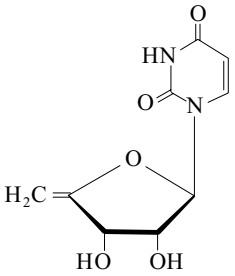
$C_{10}H_{12}N_4O_3$ 236.23
Antiviral agent. Potentially of use against HIV infection. Nucleoside transporter substrate. Launched 1991 (US). Cryst. (EtOH aq. or CH_2Cl_2/Me_2CO).
Log P -0.24 (calc). Softens at 184-186°, does not melt

▶ NM7460700

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 215B (*nmr*)
Mitsuya, H. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1986, **83**, 1911 (*pharmacol*)
Ray, G. *et al., Anal. Lett.*, 1987, **20**, 1815 (*hplc*)
Ahluwalia, G. *et al., Biochem. Pharmacol.*, 1987, **36**, 3797
Hao, Z. *et al., Mol. Pharmacol.*, 1988, **34**, 431 (*pharmacol*)
Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217 (*synth, pmr*)
McGowan, J.J. *et al., Rev. Infect. Dis.*, 1990, **12**, S513 (*rev, antiretroviral props*)
Shelton, M.J. *et al., Ann. Pharmacother.*, 1992, **26**, 660 (*rev*)
Wu, X. *et al., J. Biol. Chem.*, 1992, **267**, 8813-8818 (*pharmacol*)
Bhat, V. *et al., Synth. Commun.*, 1992, **22**, 1481 (***synth, pmr, uv***)
Nassar, M.N. *et al., Anal. Profiles Drug Subst.*, 1993, **22**, 185 (*rev*)
De Clercq, E. *et al., J. Clin. Virol.*, 2004, **30**, 115-133 (*rev*)

4′,5′-Didehydro-5′-deoxyuridine, 9CI D-549

*1-(5-Deoxy-*erythro*-pent-4-enofuranosyl)uracil, 8CI*



$C_9H_{10}N_2O_5$ 226.188

β-D-*form* [14365-63-0]
Cryst. (Me_2CO). Mp 169-170°. λ_{max} 261 nm (ϵ 9 600) (MeOH).

2′,3′-Di-Ac: [14365-62-9]
$C_{13}H_{14}N_2O_7$ 310.263
Foam.

*2′,3′-*O*-Isopropylidene:* [17331-67-8]
$C_{12}H_{14}N_2O_5$ 266.253
Cryst. (2-propanol). Mp 50-60° (2-propanol solvate).

2′,3′-Cyclic carbonate: [57209-49-1]
Cryst. (Me_2CO/hexane). Mp 143-146°.

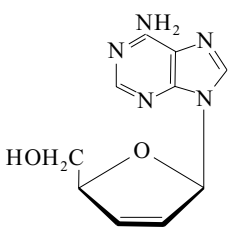
*2′,3′-*O*-Anisylidene (*R*-):* [53166-54-4]
Cryst. (EtOH/Me_2CO). Mp 195-196°.

*2′,3′-*O*-Anisylidene (*S*-):* [53166-53-3]
Foam.

Robins, M.J. *et al., J. Het. Chem.*, 1967, **4**, 313 (*β-D-isopropylidene*)
Verheyden, J.P.H. *et al., J.O.C.*, 1974, **39**, 3573 (*β-D-form, synth, β-D-di-Ac*)
Verheyden, J.P.H. *et al., J.A.C.S.*, 1975, **97**, 4386 (*synth, pmr, β-D-cyclic carbonate*)
Sasaki, T. *et al., J.O.C.*, 1975, **40**, 106, (*β-D-anisylidene derivs*)

2′,3′-Didehydro-2′,3′-dideoxyadenosine, 9CI D-550

*9-(2,3-Dideoxy-β-D-*glycero*-pent-2-enofuranosyl)adenine, 8CI. 2′,3′-Dideoxy-2′,3′-didehydroadenosine*
[7057-48-9]



$C_{10}H_{11}N_5O_2$ 233.229
Mp 194-199°. $[\alpha]_D^{23}$ +22.8 (c, 0.25 in MeOH). λ_{max} 260 nm (ϵ 15 200) (MeOH).

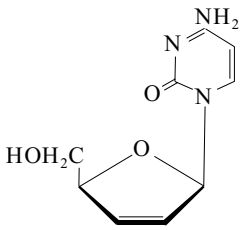
5′-Deoxy: 2′,3′-Didehydro-2′,3′,5′-trideoxyadenosine
$C_{10}H_{11}N_5O$ 217.23
Mp 175-177° dec. λ_{max} 259 nm (ϵ 14 800) (MeOH).

McCarthy, J.R. *et al., J.A.C.S.*, 1966, **88**, 1549 (*5′-deoxy*)
Horwitz, J.P. *et al., Tet. Lett.*, 1966, 1343 (*synth*)

Ferrier, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1969, **24**, 199 (*rev*)
Hutcheon, W.L.B. *et al., Acta Cryst. B*, 1974, **30**, 1777 (*cryst struct, synth*)
Jain, T.C. *et al., J.O.C.*, 1974, **39**, 30 (*synth, pmr*)
Classon, B. *et al., Acta Chem. Scand., Ser. B*, 1982, **36**, 251 (*synth*)
Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217 (*synth, pmr, cryst struct*)
Dillon, J.L. *et al., Synth. Commun.*, 1997, **27**, 4367-4371 (*synth*)

2′,3′-Didehydro-2′,3′-dideoxycytidine, 9CI D-551

*1-(2,3-Dideoxy-β-D-*glycero*-pent-2-enofuranosyl)cytosine, 8CI. 2′,3′-Dideoxy-2′,3′-didehydrocytidine*
[7481-88-1]



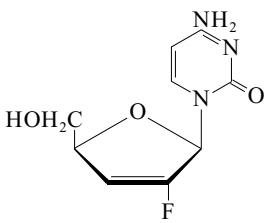
$C_9H_{11}N_3O_3$ 209.204
Anti-HIV agent on clinical trial (1991). Mp 168-169° (resolidifies at 173-174°). $[\alpha]_D^{27}$ +52 (c, 0.97 in EtOH). λ_{max} 271 (ε 8 710) (H_2O); 275, 215 (10 100, 11 900) (0.1N HCl); 271, 231 nm (8 890, 7 710) (0.1N NaOH).

▶ HA3865000

Horwitz, J.P. *et al., J.O.C.*, 1967, **32**, 817 (*synth, pmr*)
Ferrier, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1969, **24**, 199 (*rev*)
Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217 (*synth, pmr*)
Johansen, O. *et al., Aust. J. Chem.*, 1991, **44**, 37; 1994, **47**, 1843 (*synth*)
Van Roey, P. *et al., J.A.C.S.*, 1993, **115**, 5365 (*cryst struct, bibl*)

2′,3′-Didehydro-2′,3′-dideoxy-2′-fluorocytidine, 9CI D-552

*1-(2,3-Dideoxy-2-fluoro-β-D-*glycero*-2-pentenofuranosyl)cytosine*
[122757-53-3]

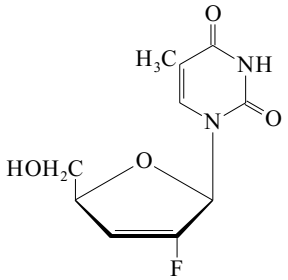


$C_9H_{10}FN_3O_3$ 227.195
Cryst. (EtOAc). Mp 157-159°.

Martin, J.A. *et al., J. Med. Chem.*, 1990, **33**, 2137 (*synth, pmr*)
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, ms*)

2′,3′-Didehydro-2′,3′-dideoxy-2′-fluorothymidine D-553

*2′,3′-Didehydro-2′,3′-dideoxy-2′-fluoro-5-methyluridine, 9CI. 1-(2,3-Dideoxy-2-fluoro-β-D-*glycero*-pent-2-enofuranosyl)thymine*
[122757-54-4]

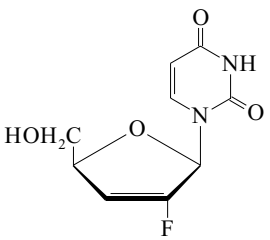


$C_{10}H_{11}FN_2O_4$ 242.206
Cryst. (EtOAc). Mp 129-131° dec Mp 152-154°.

Martin, J.A. *et al., J. Med. Chem.*, 1990, **33**, 2137 (*synth, pmr*)
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr*)

2′,3′-Didehydro-2′,3′-dideoxy-2′-fluorouridine D-554

[122757-52-2]

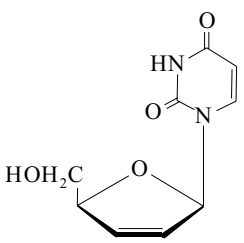


$C_9H_9FN_2O_4$ 228.179
Cryst. (EtOAc/hexane). Mp 162-163°.

Martin, J.A. *et al., J. Med. Chem.*, 1990, **33**, 2137 (*synth, pmr*)

2′,3′-Didehydro-2′,3′-dideoxyuridine D-555

*1-[2,5-Dihydro-5-(hydroxymethyl)-2-furanyl]-2,4(1*H*,3*H*)-pyrimidinedione, 9CI. 1-(2,3-Dideoxy-*glycero*-pent-2-enofuranosyl)uracil, 8CI. Uridinene*
[5974-93-6]



$C_9H_{10}N_2O_4$ 210.189
Cryst. (C_6H_6/EtOH). Sol. H_2O, MeOH. Mp 154.5-155.5°. $[\alpha]_D^{24}$ -84 (c, 0.3 in H_2O). $[\alpha]_D^{23}$ -15.4 (c, 0.2 in MeOH). λ_{max} 260 (ε 10318) (H_2O) (Berdy). λ_{max} 260 (ε 10000) (HCl) (Berdy). λ_{max} 260 (ε 10000) (NaOH) (Berdy). λ_{max} 260 (9800) (MeOH). λ_{max} 260 (7200) (MeOH).

5′-Ac:
$C_{11}H_{12}N_2O_5$ 252.226
Cryst. (EtOAc). Mp 127-128°.

5′-Benzoyl:
$C_{16}H_{14}N_2O_5$ 314.297
Cryst. (Et_2O/petrol). Mp 138.5-139°. $[\alpha]_D^{25}$ -106.8 (c, 0.5 in Me_2CO).

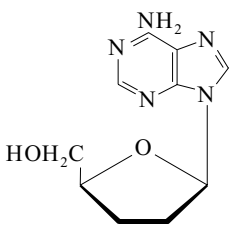
5′-Trityl:
$C_{28}H_{24}N_2O_4$ 452.509
Cryst. (EtOH). Mp 195-197°. $[\alpha]_D^{25}$ -56 (c, 0.4 in EtOH).

5′-Chloro-5′-deoxy: 5′-Chloro-5′-deoxy-2′,3′-didehydro-2′,3′-dideoxyuridine
$C_9H_9ClN_2O_3$ 228.634
Cryst. (MeOH/EtOAc). Mp 166.5-167.5°. $[\alpha]_D^{23}$ -67 (c, 0.6 in MeOH).

Horwitz, J.P. *et al., J.O.C.*, 1966, **31**, 205 (*synth, 5′-benzoyl, 5′-trityl*)
Ferrier, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1969, **24**, 199 (*rev*)
Jain, T.C. *et al., J.O.C.*, 1974, **39**, 30 (*synth, 5′-Ac, 5′-chloro-5′-deoxy, uv, ord, pmr, bibl*)
Zemlica, J. *et al., J.A.C.S.*, 1975, **97**, 4089 (*pmr*)
David, S. *et al., Carbohydr. Res.*, 1980, **82**, 45 (*synth*)
Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217 (*synth, pmr, cmr*)
McGuigan, C. *et al., J. Med. Chem.*, 2004, **47**, 1847-1851 (*synth, pmr*)

2′,3′-Dideoxyadenosine, 9CI, 8CI D-556

*2,3-Dideoxy-β-D-ribofuranosyladenine. 2,3-Dideoxy-β-D-*glycero*-pentopyranosyladenine. NSC 98700*
[4097-22-7]



$C_{10}H_{13}N_5O_2$ 235.245
Cryst. (EtOH). Mp 184-186°. $[\alpha]_D^{25}$ -25.2 (c, 1.0 in H_2O). λ_{max} 259.5 nm (ε 14 800).

▶ LD_{50} (mus, orl) 5000 mg/kg. AU7358900

5′-Triphosphate: [24027-80-3]

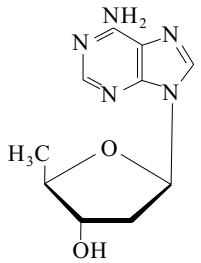
[72029-21-1, 132619-65-9]
$C_{10}H_{16}N_5O_{11}P_3$ 475.185
Inhibitor of DNA polymerase 1-catalysed elongation.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 220C (*nmr*)
Robins, M.J. *et al., Biochemistry*, 1966, **5**, 224 (*synth, pmr*)
Tyrsted, G. *et al., Biochim. Biophys. Acta*, 1968, **155**, 619 (*pharmacol*)
Miles, D.W. *et al., J. Phys. Chem.*, 1968, **72**, 1483 (*ord*)
Plunkett, W. *et al., Cancer Res.*, 1975, **35**, 1547 (*use*)
Sanger, F. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1977, **74**, 5463-5467 (*5′-triphosphate*)
Silverton, J.V. *et al., Acta Cryst. C*, 1988, **44**, 321 (*cryst struct*)

Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217 (*synth, cryst struct*)
Carr, R.L.K. *et al., Org. Prep. Proced. Int.*, 1990, **22**, 245 (*synth, uv, pmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DHA325

2′,5′-Dideoxyadenosine, 9CI, 8CI D-557

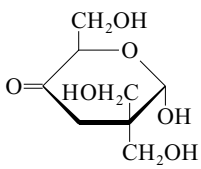
*9-(2,5-Dideoxy-β-D-*erythro-*pentofuranosyl)adenine*
[6698-26-6]



$C_{10}H_{13}N_5O_2$ 235.245
Inhibits intracellular 5-phosphoribosyl 1-pyrophosphate synth. Antagonist of cholera toxin. Mp 186-188°. $[\alpha]_D^{22}$ -38 (c, 0.7 in H_2O). λ_{max} 259.5 nm (ϵ 14 400) (MeOH).

Robins, M.J. *et al., Biochemistry*, 1966, **5**, 224 (*synth*)
Tyrsted, G. *et al., Biochim. Biophys. Acta*, 1968, **155**, 619
Shaw, S.J. *et al., J.A.C.S.*, 1970, **92**, 2510 (*ms*)
Zenser, T.V. *et al., Proc. Soc. Exp. Biol. Med.*, 1976, **152**, 126 (*biochem*)

2,3-Dideoxy-2,2-bis(hydroxymethyl)-*glycero*-hexopyranos-4-ulose D-558



α-D-*form*

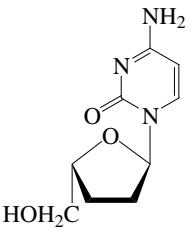
Et glycoside, tri-Ac, 2,4-dinitrophenylhydrazone: [66176-62-3]
Mp 146-148°.

[55941-69-0]

Fraser-Reid, B. *et al., Can. J. Chem.*, 1977, **55**, 3978 (*synth, pmr*)

2′,3′-Dideoxycytidine, BAN, INN, USAN D-559

4-Amino-1-[tetrahydro-5-(hydroxymethyl)-2-furanyl]-2(1H)-pyrimidinone, 9CI. DDC



(1′*R*,4′*R*)-*form*

$C_9H_{13}N_3O_3$ 211.22

(1′*R*,4′*R*)-*form*

α-L-*form*
[121154-52-7]
Powder. Mp 184°. $[\alpha]_D^{20}$ +69.8 (c, 0.5 in DMF).

(1′*R*,4′*S*)-*form*

β-D-*form*. ***Zalcitabine, BAN, INN, USAN***. *Hivid. Ro 24-2027. NSC 606170*
[7481-89-2] Antiviral agent. Reverse transcriptase inhibitor. Orally active dideoxynucleoside used in combination with Zidovudine, Z-4 for treatment of HIV infection. Nucleoside transporter substrate. Launched 1992 (Austria). Mp 231-232° (214-217°). $[\alpha]_D^{20}$ +90 (c, 0.5 in H_2O). $[\alpha]_D$ +105.9 (c, 0.53 in MeOH). Log P -1.32 (calc).
► Possible human carcinogen (IARC 2B).

5′-Triphosphate: [66004-77-1]
$C_9H_{16}N_3O_{12}P_3$ 451.16
Metab. of parent compd.

N-*Benzoyl:* N^4-*Benzoyl-2′,3′-dideoxycytidine*
$C_{16}H_{17}N_3O_4$ 315.328
Anti-HIV agent. Cryst. (EtOAc/MeOH).

(1′*S*,4′*R*)-*form*

β-L-*form*
[121154-51-6]
Potent antiviral agent active against hepatitis B and HIV.
Cryst. (EtOAc). Mp 220-222° (194-196°). $[\alpha]_D$ -90.3 (c, 0.14 in MeOH).

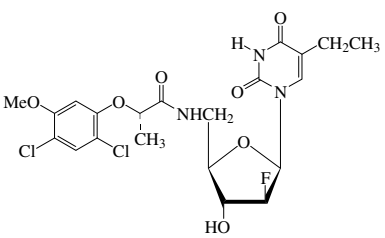
(1′*S*,4′*S*)-*form*

α-D-*form*
[116561-09-2]
Solid (2-propanol). Mp 170-172°. $[\alpha]_D$ -83.4 (c, 0.56 in MeOH).

Horwitz, J.P. *et al., J.O.C.*, 1967, **32**, 817 (*synth*)
Sanger, F. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1977, **74**, 5463-5467 (*Zalcitabine 5′-triphosphate*)
Mitsuya, H. *et al., Proc. Natl. Acad. Sci. U.S.A.*, (*London*), 1986, **83**, 1911 (*Zalcitabine, pharmacol*)
Starnes, M.C. *et al., J. Biol. Chem.*, 1987, **262**, 988-991 (*Zalcitabine 5′-triphosphate*)
Mitsuya, H. *et al., Nature (London)*, 1987, **325**, 773
Okabe, M. *et al., J.O.C.*, 1988, **53**, 4780-4786 (*α-D-form, synth, ir, uv, pmr*)
Plagemann, P.G. *et al., Biochem. Pharmacol.*, 1989, **38**, 3469-3475 (*Zalcitabine, pharmacol*)
Kaskar, B. *et al., J. Het. Chem.*, 1989, **26**, 1531 (*synth*)
Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217 (*synth*)
Montauria, M.S. *et al., Annalen*, 1990, 599 (*synth*)
Johansen, O. *et al., Aust. J. Chem.*, 1991, **44**, 37 (*synth*)
Whittington, R. *et al., Drugs*, 1992, **44**, 656 (*rev*)
Manchand, P.S. *et al., J.O.C.*, 1992, **57**, 3473 (***synth, uv, ir, pmr, cmr***)
Gulbis, J.M. *et al., Acta Cryst. C*, 1993, **49**, 1095 (*cryst struct, deriv*)
Drugs of Today (Barcelona), 1993, **29**, 19 (*rev*)
Lipsky, J.J. *et al., Lancet*, 1993, **341**, 30
Lin, T.-S. *et al., J. Med. Chem.*, 1994, **37**, 798-803 (*β-L-form, α-L-form, synth, props, uv, pmr*)
Van Draanen, N.A. *et al., Nucleosides Nucleotides*, 1994, **13**, 1679-1693 (*α-L-form, synth, uv, pmr*)
Pat. Coop. Treaty (WIPO), 1995, 95 07 287; *CA*, **123**, 286530c (*β-L-form, synth, uv, pmr*)
Adkins, J.C. *et al., Drugs*, 1997, **53**, 1054-1080 (*rev*)
Rassu, G. *et al., J. Med. Chem.*, 1997, **40**, 168-180 (*α-L-form, β-L-form, synth, pmr, cmr*)
U.S. Pat., 1998, 5 756 706; *CA*, **129**, 41380z (*β-L-form, synth, pmr*)
Sivets, G.G. *et al., Synthesis*, 2002, 253-259 (*β-L-form, synth, cd, uv, pmr*)
IARC Monog. (Web), (*Zalcitabine*)

1-[2,5-Dideoxy-5-[[2-(2,4-dichloro-5-methoxyphenoxy)-1-oxopropyl]amino]-2-fluoro-β-D-arabinofuranosyl]-5-ethyl-2,4(1*H*,3*H*)-pyrimidinedione, 9CI D-560

Ro 32-2313
[187588-73-4]



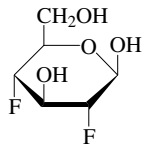
$C_{21}H_{24}Cl_2FN_3O_7$ 520.34
Inhibitor of herpes simplex virus thymidine kinase. Potentially useful in the treatment of herpes simplex. Cryst. (MeOH). Poorly sol. H_2O (0.006mg/ml). Mp 195-196°.

L-*Valine ester: Ro 32-4397*
[187589-41-9]
$C_{26}H_{33}Cl_2FN_4O_8$ 619.473
Cryst. (2-propanol) (as hydrochloride). Sol. H_2O (>200mg/ml). Mp 132-157° dec. (hydrochloride). Prodrug of Ro 32-2313. CAS no. refers to hydrochloride.

[187589-49-7, 187589-58-8]

Pat. Coop. Treaty (WIPO), 1997, 97 03 082, (*Hoffmann-La Roche*); *CA*, **126**, 186326j (*synth, ester, pharmacol*)
Watkins, A.M. *et al., Antiviral Chem. Chemother.*, 1998, **9**, 9-18 (*pharmacol*)

2,4-Dideoxy-2,4-difluoroglucose, 9CI D-561



β-D-Pyranose-*form*

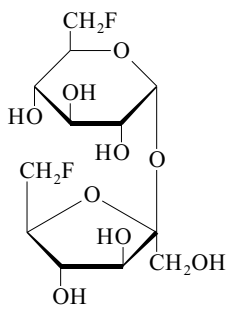
$C_6H_{10}F_2O_4$ 184.139

D-*form* [38711-44-3]
Cryst. Mp 58-64°. $[\alpha]_D^{20}$ +51 (c, 0.8 in H_2O).

β-D-Pyranose-*form* [29332-86-3]

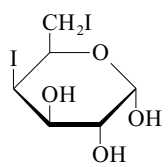
1,6-Anhydro: 1,6-Anhydro-2,4-dideoxy-2,4-difluoro-β-D-glucopyranose
[29332-85-2]
$C_6H_8F_2O_3$ 166.124
Mp 99-100°. $[\alpha]_D^{20}$ -62 (c, 0.8 in H_2O).
Pacák, J. *et al., Chem. Ind. (London)*, 1970, 929 (*D-form, synth, β-D-anhydro*)
Barford, A.D. *et al., Carbohydr. Res.*, 1971, **19**, 49 (*anhydro*)
Pacák, J. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 2589 (*D-form, synth, β-D-anhydro*)

6,6′-Dideoxy-6,6′-difluorosucrose D-562



$C_{12}H_{20}F_2O_9$ 346.281
$[\alpha]_D$ +53.7 (c, 2.45 in H_2O).
Zikopoulos, J.N. *et al., Carbohydr. Res.*, 1982, **104**, 245 (*synth, cmr*)

4,6-Dideoxy-4,6-diiodogalactose D-563



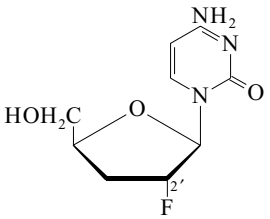
$C_6H_{10}I_2O_4$ 399.952

α-D-Pyranose-*form*

Me glycoside: Methyl 4,6-dideoxy-4,6-diiodo-α-D-galactopyranoside
[82224-99-5]
$C_7H_{12}I_2O_4$ 413.978
$[\alpha]_D^{22}$ +102.5 (c, 1 in $CHCl_3$).
Garregg, P.J. *et al., J.C.S. Perkin 1*, 1982, 681 (*α-D-Me pyr*)

2′,3′-Dideoxy-2′-fluorocytidine, 9CI D-564

*4-Amino-1-(2,3-dideoxy-2-fluoro-β-D-*erythro*-pentofuranosyl)-2(1H)-pyrimidinone, 9CI. 1-(2,3-Dideoxy-2-fluoro-β-D-*erythro*-pentofuranosyl)cytosine*



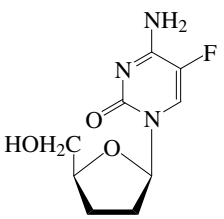
$C_9H_{12}FN_3O_3$ 229.21
Cryst. (EtOH) (as hydrochloride). Mp 219-220°.

2′-Epimer: F-DDC
[119555-47-4]
$C_9H_{12}FN_3O_3$ 229.21
Shows activity against HIV. Cryst. (EtOH). Mp 205-208°. $[\alpha]_{365}$ +710.15 (c, 1.027 in H_2O). $[\alpha]_D^{20}$ +168.7 (c, 0.5 in H_2O).

2′-Epimer, di-Ac: [128115-08-2]
$C_{13}H_{16}FN_3O_5$ 313.285
Cryst. (MeOH). Mp 223-224°.
Martin, J.A. *et al., J. Med. Chem.*, 1990, **33**, 2137 (*synth, pmr, ms*)
Watanabe, K.A. *et al., J. Med. Chem.*, 1990, **33**, 2145 (*synth, pmr*)
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr, uv, ir*)
Okabe, M. *et al., J.O.C.*, 1991, **56**, 4392 (*synth, pmr, ir*)

2′,3′-Dideoxy-5-fluorocytidine D-565

4-Amino-5-fluoro-1-[tetrahydro-5-(hydroxymethyl)-2-furanyl]-2(1H)-pyrimidinone, 9CI. 1-(2,3-Dideoxyribofuranosyl)-5-fluorocytosine. FddC



(+)-*form*

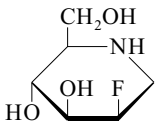
$C_9H_{12}FN_3O_3$ 229.21

(+)-*form* [107036-62-4]
Solid. Mp 155-160° (softens at 100°).

(-)-*form* [147058-39-7]
Potent antiviral agent against hepatitis B and HIV.
Cryst. (EtOAc). Mp 158-160° (147-149°). $[\alpha]_D$ -108 (c, 0.13 in MeOH).
Kim, C.H. *et al., J. Med. Chem.*, 1987, **30**, 862 (*synth*)
Lin, T.S. *et al., J. Med. Chem.*, 1994, **37**, 798-803 (*synth, uv, pmr*)
Pat. Coop. Treaty (WIPO), 1995, 95 07 287; *CA*, **123**, 286530c (*synth, uv, pmr*)
Chen, S.H. *et al., J.O.C.*, 1997, **62**, 3449-3452 (*synth, pmr*)
U.S. Pat., 1998, 5 756 706; *CA*, **129**, 41380z (*synth, uv, pmr*)

1,2-Dideoxy-2-fluoro-1,5-iminonamannitol D-566

2-Deoxy-2-fluoromannojirimycin

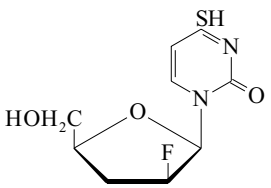


$C_6H_{12}FNO_3$ 165.164

D-*form*
$[\alpha]_D^{23}$ -125 (c, 0.8 in H_2O).
Kajimoto, T. *et al., J.A.C.S.*, 1991, **113**, 6187 (*synth, pmr, cmr*)

1-(2,3-Dideoxy-2-fluoro-β-D-*threo*-pentofuranosyl)-4-thiouracil D-567

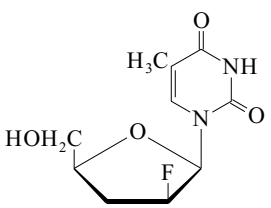
*1-(2,3-Dideoxy-2-fluoro-β-D-*threo*-pentofuranosyl)-3,4-dihydro-4-thioxo-2(1H)-pyrimidinone, 9CI*
[128632-07-5]



$C_9H_{11}FN_2O_3S$ 246.262
Cryst. (EtOH/Et_2O). Mp 134-137°.
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr, ms*)

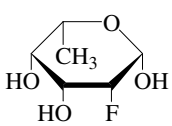
1-(2,3-Dideoxy-2-fluoro-β-D-*threo*-pentofuranosyl)thymine D-568

*1-(2,3-Dideoxy-2-fluoro-β-D-*threo*-pentofuranosyl)-5-methyl-2,4(1H,3H)-pyrimidinedione, 9CI*
[121353-89-7]



$C_{10}H_{13}FN_2O_4$ 244.222
Cryst. (CH_2Cl_2/Et_2O/hexane).
Mp 162-164°.
Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr, ms*)

2,6-Dideoxy-2-fluorotalose D-569



$C_6H_{11}FO_4$ 166.149

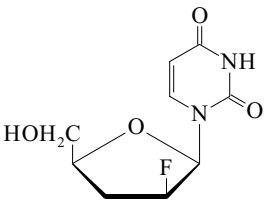
β-L-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-2-fluoro-β-L-talopyranoside
$C_7H_{13}FO_4$ 180.176
Solid. Mp 136-137°. $[\alpha]_D$ +63.7 (c, 1.45 in $CHCl_3$).

Deal, S.T. *et al., Carbohydr. Res.*, 1999, **315**, 187-191 (*synth*)

2′,3′-Dideoxy-2′-fluorouridine D-570

*1-(2,3-Dideoxy-2-fluoro-β-D-*threo*-pentofuranosyl)-2,4(1*H*,3*H*)-pyrimidinedione, 9CI*
[124424-25-5]

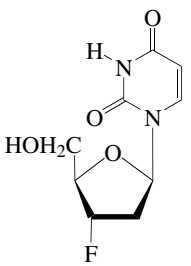


$C_9H_{11}FN_2O_4$ 230.195
Cryst. Mp 159-162°.

Sterzycki, R.Z. *et al., J. Med. Chem.*, 1990, **33**, 2150 (*synth, pmr, cmr*)

2′,3′-Dideoxy-3′-fluorouridine D-571

[41107-56-6]

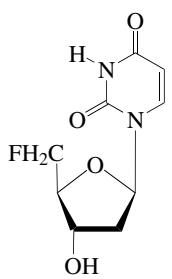


$C_9H_{11}FN_2O_4$ 230.195
Cryst. (AcOH). Mp 189-190.5° (184-188°). $[\alpha]_D^{20}$ +10.5 (c, 0.5 in 1*M* NaOH).

Kowollik, Von G. *et al., J. Prakt. Chem.*, 1973, **315**, 895 (*synth*)
Everaert, D.H. *et al., Acta Cryst. C*, 1991, **47**, 898 (*cryst struct*)

2′,5′-Dideoxy-5′-fluorouridine D-572

[27999-48-0]



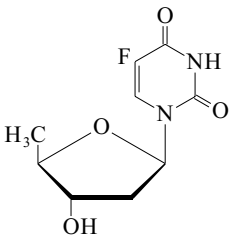
$C_9H_{11}FN_2O_4$ 230.195
Cryst. (Me_2CO/petrol). $[\alpha]_D^{20}$ +25.3 (c, 1.46 in H_2O).

3′-Ac: [27999-49-1]
$C_{11}H_{13}FN_2O_5$ 272.233
Cryst. (Me_2CO). Mp 190-193°.

Kowollik, G. *et al., Carbohydr. Res.*, 1970, **12**, 301 (*synth, pmr, 3′-Ac*)
Von Schütt, M. *et al., J. Prakt. Chem.*, 1972, **314**, 251 (*synth, 3′-Ac*)

2′,5′-Dideoxy-5-fluorouridine D-573

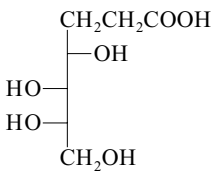
[61168-97-6]



$C_9H_{11}FN_2O_4$ 230.195
Cryst. (EtOH). Mp 171-173° (168°).

Cook, A.F. *et al., J. Med. Chem.*, 1980, **23**, 852 (*synth, pmr, uv*)
Chae, W.-G. *et al., J.O.C.*, 1992, **57**, 1002 (*synth, pmr, F-19 nmr*)

2,3-Dideoxy-*arabino*-heptonic acid D-574



$C_7H_{14}O_6$ 194.184

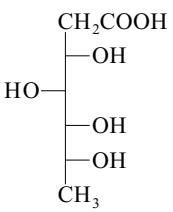
L-*form*

*1,4-Lactone, tri-Ac: 5,6,7-Tri-*O*-acetyl-2,3-dideoxy-L-*arabino*-heptono-1,4-lactone*
[119124-89-9]
$C_{13}H_{18}O_8$ 302.28
Cryst. (EtOH). Mp 103-105°. $[\alpha]_D^{20}$ +7.4 (c, 3.8 in MeOH).

[57501-72-1]

Bock, K. *et al., Carbohydr. Res.*, 1988, **179**, 87 (*synth, cmr*)

2,7-Dideoxy-*gluco*-heptonic acid D-575



$C_7H_{14}O_6$ 194.184

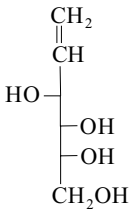
D-*form*

*1,4-Lactone: 2,7-Dideoxy-D-*gluco*-heptono-1,4-lactone*
[116386-14-2]
Cryst. (EtOAc). Mp 104-106°. $[\alpha]_D^{20}$ -68 → -64 (c, 0.7 in H_2O).

Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 331 (*D-form, synth, pmr, cmr*)

1,2-Dideoxy-*arabino*-hex-1-enitol D-576

1:2-Mannitoleen



$C_6H_{12}O_4$ 148.158

D-*form* [123672-31-1]
Mp 149°. $[\alpha]_D^{20}$ +33 (H_2O).

*Tetra-Ac: 3,4,5,6-Tetra-*O*-acetyl-1,2-dideoxy-D-*arabino*-hex-1-enitol*
[173006-87-6]
$C_{14}H_{20}O_8$ 316.307
Cryst. (petrol). Mp 81°. $[\alpha]_D^{20}$ +49 ($CHCl_3$).

*3,4:5,6-Di-*O*-isopropylidene: 1,2-Dideoxy-3,4:5,6-di-*O*-isopropylidene-D-*arabino*-hex-1-enitol*
[4239-90-1]
$C_{12}H_{20}O_4$ 228.288
$[\alpha]_D^{20}$ -5.5 (c, 2.4 in $CHCl_3$).

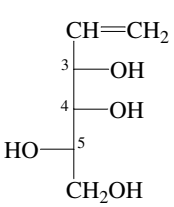
*3,4,5-Tri-*O*-benzyl: 3,4,5-Tri-*O*-benzyl-1,2-dideoxy-D-*arabino*-hex-1-enitol*
[73174-53-5]
$C_{27}H_{30}O_4$ 418.532
Oil. $[\alpha]_D$ -10.2 (c, 0.8 in $CHCl_3$).

*3,6-Anhydro, 4,5-*O*-isopropylidene: 3,6-Anhydro-1,2-dideoxy-4,5-*O*-isopropylidene-D-*arabino*-hex-1-enitol*
$C_9H_{14}O_3$ 170.208
Mp 23-24°. $Bp_{0.05}$ 65-75° (bath). $[\alpha]_D^{20}$ +87.5 (c, 0.9 in MeOH).

Karrer, P. *et al., Helv. Chim. Acta*, 1948, **31**, 1611 (*D-form, synth, D-tetra-Ac*)
Bladon, P. *et al., J.C.S.*, 1950, 598 (*D-form, D-diisopropylidene, D-tetra-Ac*)
Foster, A.B. *et al., J.C.S.*, 1951, 680 (*D-anhydro isopropylidene*)
Bernet, B. *et al., Helv. Chim. Acta*, 1979, **62**, 2400-2410 (*D-tribenzyl*)
Gracza, T. *et al., Synthesis*, 1991, **110**, 1108-1118 (*D-form, synth, ir, pmr*)
Moriarty, R.M. *et al., Tet. Lett.*, 1995, **36**, 9265-9268 (*D-tetra-Ac*)
Désiré, J. *et al., Eur. J. Org. Chem.*, 2000, 3075-3084 (*D-tribenzyl*)

1,2-Dideoxy-*lyxo*-hex-1-enitol D-577

5,6-Dideoxy-arabino-*hex-5-enitol*



$C_6H_{12}O_4$ 148.158

The *arabino* name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates.

L-*form*

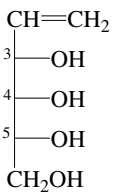
3,4-O-*Isopropylidene: 1,2-Dideoxy-3,4*-O-*isopropylidene-L*-lyxo-*hex-1-enitol. 5,6-Dideoxy-3,4*-O-*isopropylidene-L*-arabino-*hex-5-enitol*
[131234-68-9]
$C_9H_{16}O_4$ 188.223
Oil. $[\alpha]_D^{20}$ +23.6 (c, 6 in CH_2Cl_2).

3,4,5-Tri-O-*benzyl: 3,4,5-Tri*-O-*benzyl-1,2-dideoxy-L*-lyxo-*hex-1-enitol. 2,3,4-Tri*-O-*benzyl-5,6-dideoxy-L*-arabino-*hex-5-enitol*
[305834-23-5]
$C_{27}H_{30}O_4$ 418.532
$[\alpha]_D^{20}$ +13.2 (c, 1.17 in $CHCl_3$).

Fürstner, A. *et al., J. Carbohydr. Chem.*, 1990, **9**, 561-570 (*isopropylidene*)
Désiré, J. *et al., Eur. J. Org. Chem.*, 2000, 3075-3084 (*tribenzyl*)

1,2-Dideoxy-*ribo*-hex-1-enitol D-578

5,6-Dideoxy-ribo-*hex-5-enitol*



$C_6H_{12}O_4$ 148.158

D-*form* [123672-26-4]
This is the D-form of the hex-1-enitol and the L-form of the hex-5-enitol. The 1-enitol name strictly has precedence acc. to the IUPAC special nomenclature rules for carbohydrates.

4,5-O-*Isopropylidene: 1,2-Dideoxy-4,5*-O-*isopropylidene-D*-ribo-*hex-1-enitol. 5,6-Dideoxy-2,3*-O-*isopropylidene-L*-ribo-*hex-5-enitol*
[182510-96-9]
$C_9H_{16}O_4$ 188.223
$Bp_{0.25}$ 94-100°. $[\alpha]_D^{23}$ -42.5 (c, 1.53 in $CHCl_3$).

5,6-O-*Isopropylidene: 1,2-Dideoxy-5,6*-O-*isopropylidene-D*-ribo-*hex-1-enitol. 5,6-Dideoxy-1,2*-O-*isopropylidene-L*-ribo-*hex-1-enitol*
[106948-25-8]
$C_9H_{16}O_4$ 188.223
Oil. $[\alpha]_D^{23}$ +7 (c, 0.95 in $CHCl_3$).

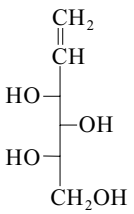
L-*form* [201800-16-0]
Solid. $[\alpha]_D^{25}$ +7 (c, 0.73 in MeOH). This is the L-form of the hex-1-enitol and the D-form of the hex-5-enitol. The latter name has priority acc. to the IUPAC special carbohydrate rules.

3,4,5-Tribenzyl: 1,2-Dideoxy-3,4,5-tri-O-*benzyl-D*-ribo-*hex-5-enitol. 5,6-Dideoxy-2,3,4-tri*-O-*benzyl-L*-ribo-*hex-1-enitol*
[139014-28-1]
$C_{27}H_{30}O_4$ 418.532
Oil. $[\alpha]_D^{20}$ -36 (c, 1.66 in $CHCl_3$).

Roush, W.R. *et al., Tetrahedron*, 1992, **48**, 1981-1998 (*D-5,6-isopropylidene*)
Pearson, W.H. *et al., J.O.C.*, 1996, **61**, 7217-7221 (*D-4,5-isopropylidene*)
Pitsch, S. *et al., Helv. Chim. Acta*, 1997, **80**, 2286-2314 (*L-form, synth, pmr, cmr*)
Désiré, J. *et al., Eur. J. Org. Chem.*, 2000, 3075-3084 (*L-3,4,5-tribenzyl*)
Sato, A. *et al., J.O.C.*, 2000, **65**, 918-921, (*D-5,6-isopropylidene*)

1,2-Dideoxy-*xylo*-hex-1-enitol D-579

5:6-Sorbitoleen



$C_6H_{12}O_4$ 148.158

L-*form* [139404-79-8]
Oil. $[\alpha]_D^{19}$ +20 (c, 3.8 in H_2O).

Tetra-Ac: 3,4,5,6-Tetra-O-*acetyl-1,2-dideoxy-L*-xylo-*hex-1-enitol. 1,2,3,4-Tetra*-O-*acetyl-5,6-dideoxy-D*-xylo-*hex-5-enitol*
[137491-74-8]
$C_{14}H_{20}O_8$ 316.307
Prisms (MeOH aq.). Mp 57-58°. $[\alpha]_D^{21}$ -14 (c, 1.2 in $CHCl_3$).

3,5:4,6-Di-O-*ethylidene: 1,2-Dideoxy-3,5:4,6-di*-O-*ethylidene-L*-xylo-*hex-1-enitol*
$C_{10}H_{16}O_4$ 200.234
Cryst. (EtOAc). Mp 122-123°. $[\alpha]_D^{21}$ -24 (c, 1.1 in $CHCl_3$).

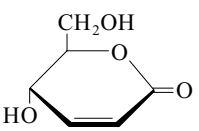
3,5:4,6-Di-O-*benzylidene: 3,5:4,6-Di*-O-*benzylidene-1,2-dideoxy-L*-xylo-*hex-1-enitol*
$C_{20}H_{20}O_4$ 324.376
Mp 187-188°. $[\alpha]_D^{20}$ +19 ($CHCl_3$). Exp. details not provided; apparently unpublished.

3,4,5-Tri-O-*benzyl: 2,3,4-Tri*-O-*benzyl-5,6-dideoxy-D*-xylo-*hex-5-enitol*
[73111-16-7]
$C_{27}H_{30}O_4$ 418.532
Oil. $[\alpha]_D^{20}$ -2.4 (c, 1.17 in $CHCl_3$).

Hann, R.M. *et al., J.A.C.S.*, 1944, **66**, 73, (*L-dibenzylidene*)
Bladon, P. *et al., J.C.S.*, 1950, 598 (*L-form, synth, L-diethylidene, L-tetra-Ac*)
Bernet, B. *et al., Helv. Chim. Acta*, 1979, **62**, 1990-2016 (*L-tribenzyl*)
Gracza, T. *et al., Synthesis*, 1991, 1108-1118, (*L-form, synth, ir, pmr*)
Désiré, J. *et al., Eur. J. Org. Chem.*, 2000, 3075-3084 (*L-tribenzyl*)

2,3-Dideoxy-*erythro*-hex-2-enono-1,5-lactone D-580

2,3-Dideoxy-erythro-*hex-2-enonic acid δ-lactone, 8CI*



$C_6H_8O_4$ 144.127

D-*form*

4,6-Di-Ac: 4,6-Di-O-*acetyl-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
[41976-28-7]
$C_{10}H_{12}O_6$ 228.201
Syrup. $Bp_{0.1}$ 135°. $[\alpha]_D$ +158 (+119.5) ($CHCl_3$).

4,6-Dibenzoyl: 4,6-Di-O-*benzoyl-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
[79999-45-4]
$C_{20}H_{16}O_6$ 352.343
Syrup. $[\alpha]_D$ +195 (c, 1.0 in $CHCl_3$).

4-Ac, 6-tosyl: 4-O-*Acetyl-2,3-dideoxy-6*-O-*tosyl-D*-erythro-*hex-2-enono-1,5-lactone*
[84679-45-8]
$C_{15}H_{16}O_7S$ 340.353
Mp 92-93°. $[\alpha]_D$ +92 (c, 1.0 in $CHCl_3$).

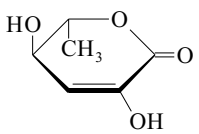
4,6-O-*Benzylidene: 4,6*-O-*Benzylidene-2,3-dideoxy-D*-erythro-*hex-2-enono-1,5-lactone*
[25541-60-0]
$C_{13}H_{12}O_4$ 232.235
Cryst. (Me_2CO aq.). Mp 136-137°. $[\alpha]_D^{27}$ +33 (c, 1.0 in $CHCl_3$). $[\alpha]_D$ +26.5 (c, 1.0 in $CHCl_3$).

2-Benzoyloxy, 4,6-dibenzoyl:
$C_{27}H_{20}O_8$ 472.45
Mp 110-111°. $[\alpha]_D$ +104 (c, 1.0 in $CHCl_3$).

[74708-50-2]

Baer, H.H. *et al., Can. J. Chem.*, 1969, **47**, 2811 (*D-benzylidene*)
Mieczkowski, J. *et al., Carbohydr. Res.*, 1977, **56**, 180 (*D-di-Ac*)
Bernasconi, C. *et al., Bull. Soc. Chim. Fr.*, 1979, 332 (*D-di-Ac*)
Furuichi, K. *et al., Chem. Comm.*, 1980, 66, (*D-benzylidene*)
Rollin, P. *et al., Carbohydr. Res.*, 1981, **98**, 139 (*D-di-Ac, D-dibenzoyl*)
Jarglis, P. *et al., Tet. Lett.*, 1982, **23**, 3781, (*D-di-Ac, D-dibenzoyl*)
Fun, H.K. *et al., Acta Cryst. C*, 1995, **51**, 1330 (*cryst struct*)

3,6-Dideoxy-*erythro*-hex-2-enono-1,5-lactone D-581



$C_6H_8O_4$ 144.127
Unisolated enol.

L-*form*

Di-Ac: 2,4-Di-O-*acetyl-3,6-dideoxy-L*-erythro-*hex-2-enono-1,5-lactone*
[122359-36-8]
$C_{10}H_{12}O_6$ 228.201
Syrup. $[\alpha]_D^{20}$ -122 (c, 1.1 in $CHCl_3$).

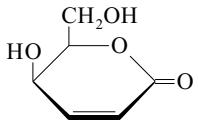
Dibenzoyl: 2,4-Di-O-*benzoyl-3,6-dideoxy-L*-erythro-*hex-2-enono-1,5-lactone*
[69992-13-8]
$C_{20}H_{16}O_6$ 352.343
Cryst. (EtOH). Mp 108-110°. $[\alpha]_D^{20}$ -93 (c, 1.0 in $CHCl_3$).

Varela, O.J. *et al., Carbohydr. Res.*, 1979, **70**, 27 (*dibenzoyl, pmr*)

Lichtenthaler, F.W. *et al., Annalen*, 1989, 1153 (*di-Ac*)

2,3-Dideoxy-*threo*-hex-2-enono-1,5-lactone D-582

*5-Hydroxy-6-hydroxymethyl-5,6-dihydro-2*H*-pyran-2-one*



$C_6H_8O_4$ 144.127

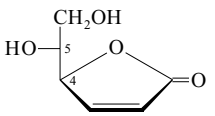
D-*form*

*Di-Ac: 4,6-Di-*O*-acetyl-D-*threo*-hex-2-enono-1,5-lactone*
[63952-82-9]
$C_{10}H_{12}O_6$ 228.201
Oil. $Bp_{0.3}$ 160°. $[\alpha]_D^{20}$ -347 (c, 1.0 in $CHCl_3$).

Mieczkowski, J. *et al., Carbohydr. Res.*, 1977, **56**, 180 (*synth, pmr*)
Lichtenthaler, F.W. *et al., Annalen*, 1989, 1153 (*4,6-di-Ac, pmr*)

2,3-Dideoxyhex-2-enono-1,4-lactone D-583

*5-(1,2-Dihydroxyethyl)-2(5*H*)-furanone*



D–*erythro*–*form*

$C_6H_8O_4$ 144.127
Carbohydrate numbering shown.

D-*erythro*-*form*

*(4*S*,5*R*)-form. 2,3-Dideoxy-D-ascorbic acid*
[102335-56-8]
Cryst. (EtOAc). Mp 95-96°. $[\alpha]_D^{20}$ -187 (c, 0.69 in H_2O).

D-*threo*-*form*

*(4*R*,5*R*)-form*
Cryst. Mp 86-87°. $[\alpha]_D^{20}$ +118 (c, 1 in H_2O).

L-*erythro*-*form*

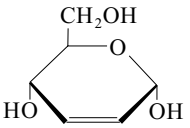
*(4*R*,5*S*)-form*
Cryst. (EtOAc). Mp 94-95°. $[\alpha]_D^{20}$ +187 (c, 0.7 in H_2O).

L-*threo*-*form*

*(4*S*,5*S*)-form. 2,3-Dideoxy-L-ascorbic acid*
[102335-47-7]
Cryst. (EtOAc). Mp 85-86°. $[\alpha]_D^{20}$ -120 (c, 1.00 in H_2O).

Vekemans, J.A.J.M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1985, **104**, 266 (*synth, pmr*)
Vekemans, J.A.J.M. *et al., J.O.C.*, 1988, **53**, 627; 1990, **55**, 5336 (*synth, ir, pmr, cmr*)
Fun, H. *et al., Acta Cryst. C*, 1995, **51**, 1330 (*cryst struct*)

2,3-Dideoxy-*erythro*-hex-2-enopyranose D-584



$C_6H_{10}O_4$ 146.143

α-D-*form*

*Me glycoside, 4,6-dibenzoyl: Methyl 4,6-di-*O*-benzoyl-2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
[13322-95-7]
$C_{21}H_{20}O_6$ 368.385
Cryst. (EtOH). Mp 75-76°. $[\alpha]_D$ +192 (c, 1 in $CHCl_3$).

*Me glycoside, 4,6-dibenzyl: Methyl 4,6-di-*O*-benzyl-2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
$C_{21}H_{24}O_4$ 340.418
$[\alpha]_D^{20}$ +74.7 (c, 2.9 in $CHCl_3$).

*Me glycoside, 4-benzyl, 6-trityl: Methyl 4-*O*-benzyl-2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
$C_{33}H_{32}O_4$ 492.613
Cryst. (MeOH/Me_2CO). Mp 130°. $[\alpha]_D^{24}$ +72.3 (c, 0.8 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
[3169-98-0]
$C_{14}H_{16}O_4$ 248.278
Cryst. (heptane). Mp 119-120°. $[\alpha]_D^{22}$ +130 (c, 0.54 in $CHCl_3$).

*Et glycoside: Ethyl 2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
[23339-15-3]
$C_8H_{14}O_4$ 174.196
Mp 101° (96-97°). $[\alpha]_D^{20}$ +96 (c, 1.8 in EtOH).

*Et glycoside, 4,6-di-Ac: Ethyl 4,6-di-*O*-acetyl-2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
[3323-72-6]
$C_{12}H_{18}O_6$ 258.271
Needles (EtOH). Mp 78-79°. $[\alpha]_D^{17}$ +106.7 (c, 2.1 in C_6H_6).

*Et glycoside, 4,6-dimesyl: Ethyl 2,3-dideoxy-4,6-di-*O*-mesyl-α-D-*erythro*-hex-2-enopyranoside*
$C_{10}H_{18}O_8S_2$ 330.379
Needles (EtOH aq.). Mp 71-72°. $[\alpha]_D^{20}$ +87.7 (c, 1.46 in Me_2CO).

*Et glycoside, 4,6-dibenzyl: Ethyl 4,6-di-*O*-benzyl-2,3-dideoxy-α-D-*erythro*-hex-2-enopyranoside*
$C_{22}H_{26}O_4$ 354.445
$[\alpha]_D^{20}$ +91 (c, 1.2 in $CHCl_3$).

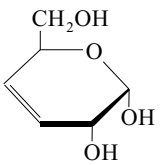
β-D-Pyranose-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2,3-dideoxy-β-D-*erythro*-hex-2-enopyranoside*
[18968-70-2]
$C_{14}H_{16}O_4$ 248.278
Needles (EtOH). Mp 94-95°. $[\alpha]_D^{12}$ +43 (c, 1 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1094A (*nmr*)

Laland, S. *et al., J.C.S.*, 1950, 738 (*α-D-Et pyr, α-D-Et pyr di-Ac, α-D-Et pyr dimesyl*)
Albano, E. *et al., Carbohydr. Res.*, 1966, **2**, 349 (*α-D-Me pyr benzylidene*)
Ciment, D.M. *et al., J.C.S.(C)*, 1966, 446, (*α-D-Me pyr dibenzoyl, α-D-Et pyr*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*α-D-Me pyr benzylidene, β-D-Me pyr benzylidene*)
Ferrier, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1969, **24**, 199 (*rev*)
Dimitrijevich, S. *et al., Carbohydr. Res.*, 1969, **11**, 531 (*α-D-Me pyr benzyl trityl*)
Yamazaki, T. *et al., Carbohydr. Res.*, 1976, **50**, 279 (*α-D-Me pyr benzylidene, β-D-Me pyr benzylidene*)
Descotes, G. *et al., Carbohydr. Res.*, 1977, **56**, 168 (*α-D-Me pyr dibenzyl, α-D-Et pyr dibenzyl*)
Barrett, A.G.M. *et al., J.C.S. Perkin 1*, 1979, 2378 (*α-D-Me pyr benzylidene*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1980, **80**, 354 (*α-D-Me pyr benzylidene*)
Radatus, B.K. *et al., Synthesis*, 1980, 47, (*α-D-Me pyr benzylidene*)
Paulsen, H. *et al., Synthesis*, 1980, 636 (*α-D-Me pyr benzylidene*)
Bessodes, M. *et al., Chem. Comm.*, 1981, 26 (*synth, α-D-Me pyr benzylidene*)
Wingert, L.M. *et al., Carbohydr. Res.*, 1984, **128**, 1 (*cryst struct, α-D-Et pyr*)

3,4-Dideoxy-*erythro*-hex-3-enopyranose D-585



$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

*2,6-Dibenzoyl: 2,6-Di-*O*-benzoyl-3,4-dideoxy-α-D-*erythro*-hex-3-enopyranoside*
$C_{20}H_{18}O_6$ 354.359
Characterised by pmr.

*2,6-Bis-*p*-nitrobenzoyl:* Mp 152-153°. $[\alpha]_D^{23}$ -57.7 (c, 5.0 in $CHCl_3$).

*Me glycoside: Methyl 3,4-dideoxy-α-D-*erythro*-hex-3-enopyranoside*
[51385-38-7]
$C_7H_{12}O_4$ 160.169
Cryst. (Et_2O). Mp 61-62°. $Bp_{0.2}$ 80-85° (bath). $[\alpha]_D$ +62.5 (c, 1 in $CHCl_3$).

*Me glycoside, 2,6-dibenzoyl: Methyl 2,6-di-*O*-benzoyl-3,4-dideoxy-α-D-*erythro*-hex-3-enopyranoside*
[34254-52-9]
$C_{21}H_{20}O_6$ 368.385
Liq. $Bp_{0.0005}$ 180-190° (bath). $[\alpha]_D^{22}$ -17.3 (c, 1 in $CHCl_3$).

Me glycoside, 2,6-bis(4-nitrobenzoyl):
Cryst. ($CHCl_3$/petrol). Mp 152-153°. $[\alpha]_D^{23}$ -57.7 (c, 5.0 in $CHCl_3$).

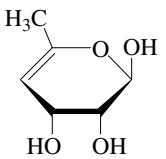
*Me glycoside, 2,6-dimesyl: Methyl 3,4-dideoxy-2,6-di-*O*-mesyl-α-D-*erythro*-hex-3-enopyranoside*
[56883-15-9]
$C_9H_{16}O_8S_2$ 316.353
$[\alpha]_D$ +120 (c, 0.9 in $CHCl_3$).

*Me glycoside, 6-trityl: Methyl 3,4-dideoxy-6-O-trityl-α-D-*erythro*-hex-3-enopyranoside*
$C_{26}H_{26}O_4$ 402.489
Cryst. (Et_2O/EtOH). Mp 122-123°. $[\alpha]_D^{23}$ -11.3 (c, 6.1 in $CHCl_3$).

*Me glycoside, 6-trityl, 2-benzoyl: Methyl 2-O-benzoyl-3,4-dideoxy-6-O-trityl-α-D-*erythro*-hex-3-enopyranoside*
$C_{33}H_{30}O_5$ 506.597
Microcryst. solid. Mp 49-50°. $[\alpha]_D^{24}$ +8 (c, 3.1 in EtOAc).

Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 3619 (*synth, pmr, Me gly dibenzoyl*)
Holder, N.L. *et al., Can. J. Chem.*, 1973, **51**, 3357 (*α-D-Me pyr bisnitrobenzoyl, α-D-Me pyr trityl*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1975, 979 (*α-D-Me pyr, α-D-Me pyr bisnitrobenzoyl*)
Ho, W.M. *et al., Tetrahedron*, 1995, **51**, 7373 (*synth, trityl derivs*)

4,6-Dideoxy-*erythro*-hex-4-enopyranose D-586



β-D-*form*

$C_6H_{10}O_4$ 146.143

β-D-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 4,6-dideoxy-2,3-*O*-isopropylidene-β-D-*erythro*-hex-4-enopyranoside, 8CI*
[22594-26-9]
$C_{10}H_{16}O_4$ 200.234
Bp_{11} 87°. $[\alpha]_D$ -193 (c, 6.6 in $CHCl_3$).

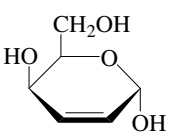
*Me glycoside, di-Me: Methyl 4,6-dideoxy-2,3-di-*O*-methyl-β-D-*erythro*-hex-4-enopyranoside, 9CI*
[28297-28-1]
$C_9H_{16}O_4$ 188.223
$Bp_{0.05}$ 33-35°. $[\alpha]_D$ -288 (c, 1.2 in $CHCl_3$).

β-L-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 4,6-dideoxy-2,3-*O*-isopropylidene-β-L-*erythro*-hex-4-enopyranoside*
$C_{10}H_{16}O_4$ 200.234
Bp_{13} 93-96°. $[\alpha]_D^{25}$ -193 (c, 1.0 in $CHCl_3$).

Lehmann, J. *et al., Angew. Chem., Int. Ed.*, 1965, **4**, 874 (*β-L-form*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1969, 1270 (*β-D-isopropylidene*)
Jary, J. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 3046 (*β-D-form*)
Al-Radhi, A.K. *et al., Carbohydr. Res.*, 1972, **22**, 103 (*β-D-di-Me*)

2,3-Dideoxy-*threo*-hex-2-enopyranose D-587



α-D-*form*

$C_6H_{10}O_4$ 146.143

α-D-*form*

*Tri-Ac: 1,4,6-Tri-*O*-acetyl-2,3-dideoxy-α-D-*threo*-hex-2-enopyranose*
$C_{12}H_{16}O_7$ 272.254
Mp 72-73°. $[\alpha]_D$ -232 ($CHCl_3$).

*Me glycoside: Methyl 2,3-dideoxy-α-D-*threo*-hex-2-enopyranoside*
$C_7H_{12}O_4$ 160.169
Mp 87-88°. $[\alpha]_D$ -134 (EtOH).

*Me glycoside, di-Ac: Methyl 4,6-di-*O*-acetyl-2,3-dideoxy-α-D-*threo*-hex-2-enopyranoside*
[6605-29-4]
$C_{11}H_{16}O_6$ 244.244
Mp 61-62°. $[\alpha]_D$ -174 ($CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-O-benzylidene-2,3-dideoxy-α-D-*threo*-hex-2-enopyranoside*
[18968-71-3]
$C_{14}H_{16}O_4$ 248.278
Mp 163-164°. $[\alpha]_D^{25}$ -130 (c, 3.0 in $CHCl_3$).

*Et glycoside, di-Ac: Ethyl 4,6-di-*O*-acetyl-2,3-dideoxy-α-D-*threo*-hex-2-enopyranoside*
[69055-68-1]
$C_{12}H_{18}O_6$ 258.271
Syrup. Mp 19.5-20.5°. $Bp_{0.6}$ 140°. $[\alpha]_D$ -171.5 (c, 1.5 in $CHCl_3$).

4-Nitrophenyl glycoside, 4,6-di-Ac: Mp 114-115°. $[\alpha]_D$ -99 (C_6H_6).

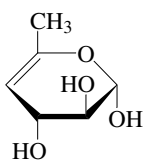
β-D-*form*

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-O-benzylidene-2,3-dideoxy-β-D-*threo*-hex-2-enopyranoside*
$C_{14}H_{16}O_4$ 248.278
Mp 123°. $[\alpha]_D^{25}$ -172 (c, 1.1 in $CHCl_3$).

[58917-64-9]

Ciment, D.M. *et al., J.C.S.(C)*, 1966, 441 (*α-D-tri-Ac, α-D-Me pyr, α-D-Me pyr di-Ac, α-D-nitrophenyl pyr di-Ac*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*α-D-Me pyr benzylidene, β-D-Me pyr benzylidene*)
Ferrier, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1969, **24**, 199 (*rev*)
Grynkiewicz, G. *et al., Carbohydr. Res.*, 1979, **68**, 33 (*synth, pmr*)
Baer, H.H. *et al., Can. J. Chem.*, 1981, **59**, 889 (*synth*)
Bessodes, M. *et al., Chem. Comm.*, 1981, 26 (*synth*)

4,6-Dideoxy-*threo*-hex-4-enopyranose D-588



α-D-*threo-form*

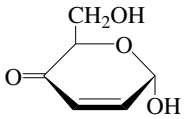
$C_6H_{10}O_4$ 146.143

α-D-Pyranose-*form*

*Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-dideoxy-α-D-*threo*-hex-4-enopyranoside, 9CI*
[55570-72-4]
$C_{21}H_{24}O_4$ 340.418
Mp 62-63°. $[\alpha]_D^{23}$ -20.1 (c, 1.0 in $CHCl_3$).

Stevens, C.L. *et al., J.O.C.*, 1975, **40**, 2474

2,3-Dideoxy-*glycero*-hex-2-enopyranos-4-ulose D-589



α-D-*form*

$C_6H_8O_4$ 144.127

α-D-*form*

*Et glycoside: Ethyl 2,3-dideoxy-α-D-*glycero*-hex-2-enopyranosid-4-ulose*
[25474-14-0]
$C_8H_{12}O_4$ 172.18
Mp 85-86°. $[\alpha]_D^{23}$ -14.5 (c, 2.0 in $CHCl_3$).

*Et glycoside, 6-Ac: Ethyl 6-*O*-acetyl-2,3-dideoxy-α-D-*glycero*-hex-2-enopyranosid-4-ulose*
[25474-16-2]
$C_{10}H_{14}O_5$ 214.218
Mp 41-53°. $[\alpha]_D^{23}$ -24.1 (c, 2.2 in $CHCl_3$).

*Et glycoside, 6-benzoyl: Ethyl 6-*O*-benzoyl-2,3-dideoxy-α-D-*glycero*-hex-2-enopyranosid-4-ulose*
$C_{15}H_{16}O_5$ 276.288
Mp 50-51°. $[\alpha]_D^{23}$ -41.8 (c, 2.6 in $CHCl_3$).

*Et glycoside, 6-tosyl: Ethyl 2,3-dideoxy-6-O-tosyl-α-D-*glycero*-hex-2-enopyranosid-4-ulose*
[25474-15-1]
$C_{15}H_{18}O_6S$ 326.37
Mp 84-85°. $[\alpha]_D^{23}$ -29.6 (c, 2.0 in $CHCl_3$).

β-D-*form*

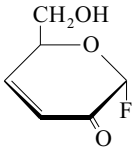
*1,6-Anhydro: 1,6-Anhydro-2,3-dideoxy-β-D-*glycero*-hex-2-enopyranos-4-ulose. 6,8-Dioxabicyclo[3.2.1]oct-3-en-2-one. Isolevoglucosenone*
[33647-85-7]
$C_6H_6O_3$ 126.112
Pale yellow oil. $[\alpha]_D^{31}$ +425 (c, 1.10 in $CHCl_3$). Dec. on storage after several months at r.t.

β-L-*form*

1,6-Anhydro: [184576-71-4]
Oil. $[\alpha]_D^{30}$ -428 (c, 1.10 in $CHCl_3$).

Fraser-Reid, B. *et al., Can. J. Chem.*, 1970, **48**, 2877 (*α-D-Et-pyr, α-D-Et pyr benzoyl, α-D-Et pyr Ac, α-D-Et pyr tosyl*)
Köll, P. *et al., Chem. Ber.*, 1976, **109**, 337, (*β-D-anhydro*)
Furneaux, R.H. *et al., Carbohydr. Res.*, 1986, **146**, 113 (*β-D-anhydro*)
Horton, D. *et al., J.O.C.*, 1996, **61**, 3783-3793 (*β-D-anhydro, synth*)
Kadota, K. *et al., Synthesis*, 2000, 1372-1374 (*β-D-anhydro, β-L-anhydro*)
Witczak, Z.J. *et al., J. Carbohydr. Chem.*, 2002, **21**, 143-148 (*β-D-anhydro, synth*)

3,4-Dideoxy-*glycero*-hex-3-enopyranosulos-1-yl fluoride, 9CI D-590



$C_6H_7FO_3$ 146.118

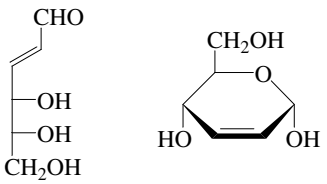
α-D-*form*

Ac: [25146-88-7]
$C_8H_9FO_4$ 188.155
Syrup. $[\alpha]_D^{25}$ -126.9 ($CHCl_3$).

Benzoyl: [25146-89-8]
$C_{13}H_{11}FO_4$ 250.226
Syrup. $[\alpha]_D^{25}$ -115.6 (c, 3.6 in $CHCl_3$).

Bock, K. *et al., Tet. Lett.*, 1969, 2983 (α-D-*Ac,* α-D-*benzoyl*)
Bock, K. *et al., Acta Chem. Scand.*, 1971, **25**, 1021 (α-D-*Ac,* α-D-*benzoyl, synth, pmr, ir*)

2,3-Dideoxy-*erythro*-hex-2-enose D-591



D-(2*E*)-*form* α-D-Pyranose-*form*

$C_6H_{10}O_4$ 146.143

D-(2*E*)-*form*

4,6-Di-Ac: 4,6-Di-O-*acetyl-2,3-dideoxy*-D-*erythro-hex-2-enose*
[29581-05-3]
$C_{10}H_{14}O_6$ 230.217
Oil. $[\alpha]_D^{23}$ +8.9 (c, 1.0 in $CHCl_3$).

Tri-Ac: 4,5,6-Tri-O-*acetyl-2,3-dideoxy*-D-erythro-*hex-2-enose*
[37793-29-6]
$C_{12}H_{16}O_7$ 272.254
Oil. $[\alpha]_D^{23}$ +11.7 (c, 4.6 in $CHCl_3$).

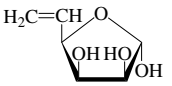
α-D-Pyranose-*form*

Et glycoside, 6-benzyl: Ethyl 6-O-*benzyl-2,3-dideoxy-α-D*-erythro-*hex-2-enopyranoside*
[80516-25-2]
$C_{15}H_{20}O_4$ 264.321
Syrup. $[\alpha]_D^{20}$ +35 (c, 1 in $CHCl_3$).

[38081-31-1]

Fraser-Reid, B. *et al., J.A.C.S.*, 1970, **92**, 5288 (*synth, pmr*)
Gonzalez, F. *et al., Carbohydr. Res.*, 1975, **42**, 267 (*synth, pmr*)
Valverde, S. *et al., Chem. Comm.*, 1987, 1714, (α-D-*pyr deriv*)
Lau, J. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1991, **324**, 83 (*di-Ac*)
Pedretti, V. *et al., Carbohydr. Res.*, 1993, **244**, 247 (α-D-*pyr deriv*)

5,6-Dideoxy-*lyxo*-hex-5-enose D-592



α-D-Furanose-*form*

$C_6H_{10}O_4$ 146.143

α-D-Furanose-*form*

2,3-O-*Isopropylidene: 5,6-Dideoxy-2,3*-O-*isopropylidene-D*-lyxo-*hex-5-enofuranose*
[73111-64-5]
$C_9H_{14}O_4$ 186.207
Cryst. Mp 61° (55-56°). $[\alpha]_D^{20}$ -29 (c, 0.57 in $CHCl_3$).

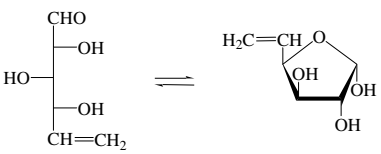
Me glycoside, 2,3-O-*isopropylidene: Methyl 5,6-dideoxy-2,3*-O-*isopropylidene-D*-lyxo-*hex-5-enofuranoside*
[57783-59-2]
$C_{10}H_{16}O_4$ 200.234
Syrup. $[\alpha]_D^{20}$ +28 (c, 0.7 in $CHCl_3$).

α-L-Furanose-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 5,6-dideoxy-2,3*-O-*isopropylidene-α-L*-lyxo-*hex-5-enofuranoside*
[35906-38-8]
$C_{10}H_{16}O_4$ 200.234
$Bp_{3.2}$ 76°. $[\alpha]_D$ -23.5 (c, 1.4 in $CHCl_3$).

Chaves, G *et al., Carbohydr. Res.*, 1972, **22**, 205-208 (α-L-*Me fur isopropylidene*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1973, **31**, 146-150 (α-L-*Me fur isopropylidene*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1977, **31**, 248 (α-D-*Me fur isopropylidene*)
Bernet, B. *et al., Helv. Chim. Acta*, 1979, **62**, 2400-2410 (α-D-*isopropylidene*)
Kleban, M. *et al., Synthesis*, 2000, 1027-1033 (α-D-*isopropylidene*)
Von lanthen, D. *et al., Synthesis*, 2003, 1087-1090 (α-D-*isopropylidene*)

5,6-Dideoxy-*xylo*-hex-5-enose D-593



D-*form* α-D-Furanose-*form*

$C_6H_{10}O_4$ 146.143

D-*form* [162238-84-8]

[139326-96-8]
Yellow oil. $[\alpha]_D^{22}$ -2.9 (c, 0.85 in MeOH). Obt. as a mixt. of α- and β-furanose anomers.

Tri-Ac: 2,3,4-Tri-O-*acetyl-5,6-dideoxy*-D-xylo-*hex-5-enose*
[131566-70-6]
$C_{12}H_{16}O_7$ 272.254
Oil. $[\alpha]_D^{20}$ -20.4 (c, 1.22 in $CHCl_3$).

Tribenzyl: 2,3,4-Tribenzyl-5,6-dideoxy-D-xylo-*hex-5-enose*
[73111-15-6]

[73111-20-3]
$C_{27}H_{28}O_4$ 416.516
Unstable oil. $[\alpha]_D$ -15 (c, 0.8 in $CHCl_3$) (as dipropyl acetal).

α-D-Furanose-*form*

1,2-O-*Isopropylidene: 5,6-Dideoxy-1,2*-O-*isopropylidene-α-D*-xylo-*hex-5-enofuranose*
[7284-07-3]
$C_9H_{14}O_4$ 186.207
Cryst. (petrol). Mp 64°. $[\alpha]_D^{25}$ -60.5 (c, 2.0 in H_2O).

3-Me, 1,2-O-*isopropylidene: 5,6-Dideoxy-1,2*-O-*isopropylidene-3*-O-*methyl-α-D*-xylo-*hex-5-enofuranose*
$C_{10}H_{16}O_4$ 200.234
Bp_2 80°. $[\alpha]_D^{21}$ -43.1 (c, 1.5 in EtOH).

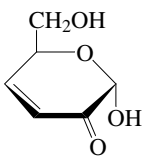
3-Benzyl, 1,2-O-*isopropylidene: 3*-O-*Benzyl-5,6-dideoxy-1,2*-O-*isopropylidene-α-D*-xylo-*hex-5-enofuranose*
$C_{16}H_{20}O_4$ 276.332
$Bp_{0.2}$ 124-128°. $[\alpha]_D^{21}$ -55.5 (c, 3.0 in EtOH).

[139326-95-7]

Josan, J.S. *et al., Carbohydr. Res.*, 1968, **7**, 161 (α-D-*3-benzyl isopropylidene,* α-D-*3-Me isopropylidene*)
Lance, D.G. *et al., Carbohydr. Res.*, 1969, **10**, 306 (α-D-*isopropylidene*)
Bernet, B. *et al., Helv. Chim. Acta*, 1979, **62**, 1990-2016 (*2,3,4-tribenzyl*)
Barrett, A.G.M. *et al., J.C.S. Perkin 1*, 1979, 2378 (α-D-*3-Me isopropylidene*)
Gracza, T. *et al., Synthesis*, 1991, 1108-1118 (*synth, ir, pmr, cmr*)
Kleban, M. *et al., Synthesis*, 2000, 1027-1033 (*tri-Ac*)

3,4-Dideoxy-*glycero*-hex-3-enos-2-ulose D-594

3,4-Dideoxy-glycero-*hex-3-enopyranos-2-ulose. 2-Hydroxy-6-(hydroxymethyl)-2*H-*pyran-3(6*H*)-one, 9CI. Glucosenone*



α-D-*form*

$C_6H_8O_4$ 144.127

α-D-*form*

Di-Ac: 1,6-Di-O-*acetyl-3,4-dideoxy-α-D*-glycero-*hex-3-enopyranos-2-ulose*
[35303-95-8]
$C_{10}H_{12}O_6$ 228.201
Syrup. $[\alpha]_D^{20}$ -116.4 (-85) (c, 2.1 in $CHCl_3$).

Me glycoside: Methyl 3,4-dideoxy-α-D-glycero-*hex-3-enopyranosid-2-ulose*
[25146-92-3]
$C_7H_{10}O_4$ 158.154
Needles (Et_2O/petrol). Mp 61°. $[\alpha]_D^{23}$ +54.7 (c, 5.0 in $CHCl_3$).

Me glycoside, 6-benzoyl: Methyl 6-O-*benzoyl-3,4-dideoxy-α-D*-glycero-*hex-3-enopyranosid-2-ulose*
[35303-94-7]
$C_{14}H_{14}O_5$ 262.262
Cryst. (EtOH). Mp 87-88°.

Me glycoside, 6-trityl: Methyl 3,4-dideoxy-6-O-*trityl-α-D*-glycero-*hex-3-enopyranosid-2-ulose*
$C_{26}H_{24}O_4$ 400.473

Needles (Et_2O/EtOH). Mp 127-128°. $[\alpha]_D^{23}$ -15.9 (c, 5.8 in $CHCl_3$).

tert-*Butyl glycoside, 6-Ac:* tert-*Butyl 6-*O-*acetyl-3,4-dideoxy-α-D-*glycero-*hex-3-enopyranosid-2-uloside*
[81668-95-3]
$C_{12}H_{18}O_5$ 242.271
$[\alpha]_D$ +4.4 (c, 1.4 in $CHCl_3$).

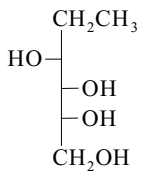
β-D-*form*

1,6-Anhydro: See 1,6-Anhydro-3,4-dideoxy-*glycero*-hex-3-enopyranos-2-ulose, A-583

*Di-Ac: 1,6-Di-*O*-acetyl-3,4-dideoxy-β-D-*glycero-*hex-3-enopyranos-2-ulose*
$C_{10}H_{12}O_6$ 228.201
Syrup. $[\alpha]_D^{20}$ -87.6 (-78.2) (c, 1.1 in $CHCl_3$).

Holder, N.L. *et al., Can. J. Chem.*, 1973, **51**, 3357 (*α-D-Me pyr, α-D-Me pyr trityl, α-D-Me pyr benzoyl*)
Mori, M. *et al., Carbohydr. Res.*, 1984, **129**, 73 (*purifn*)
Köll, P. *et al., J. Carbohydr. Chem.*, 1984, **3**, 403-415 (*di-Ac*)
Hanessian, S. *et al., Tetrahedron*, 1990, **46**, 231 (*α-D-tert-butyl pyr*)

1,2-Dideoxy-*arabino*-hexitol D-595



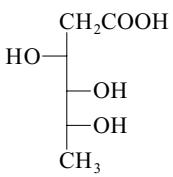
$C_6H_{14}O_4$ 150.174

D-*form*

Cryst. (EtOH/Me_2CO). Mp 122°. $[\alpha]_D^{18}$ +4.2.

Karrer, P. *et al., Helv. Chim. Acta*, 1948, **31**, 1611 (*synth*)
Regeling, H. *et al., Carbohydr. Res.*, 1990, **205**, 261 (*synth*)

2,6-Dideoxy-*arabino*-hexonic acid D-596



$C_6H_{12}O_5$ 164.158

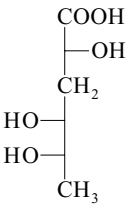
D-*form*

*1,4-Lactone: 2,6-Dideoxy-D-*arabino-*1,4-hexonolactone*
[71698-58-3]
$C_6H_{10}O_4$ 146.143
$[\alpha]_D^{20}$ +53 (c, 3.3 in EtOH).

*1,4-Lactone, di-Ac: 3,5-Di-*O*-acetyl-2,6-dideoxy-D-*arabino-*hexono-1,4-lactone*
$C_{10}H_{14}O_6$ 230.217
Mp 101-102°. $[\alpha]_D^{25}$ +25 (c, 1.1 in $CHCl_3$).

Bock, K. *et al., Carbohydr. Res.*, 1981, **90**, 7 (*synth, cmr*)

3,6-Dideoxy-*arabino*-hexonic acid D-597



$C_6H_{12}O_5$ 164.158
$[\alpha]_D^{20}$ -50.8 (c, 1.2 in H_2O).

L-*form*

Phenylhydrazide: [69992-18-3]
Cryst. (MeOH/Et_2O). Mp 170-172°. $[\alpha]_D^{20}$ +51 (c, 0.5 in H_2O).

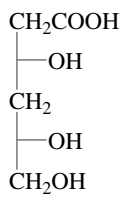
*1,5-Lactone: 3,6-Dideoxy-L-*arabino-*hexono-1,5-lactone. Ascarylonolactone*
[69992-17-2]
$C_6H_{10}O_4$ 146.143
Syrup. $[\alpha]_D^{20}$ +8.6 (c, 1.6 in H_2O) (equilib.).

*1,5-Lactone, dibenzoyl: 2,4-Di-*O*-benzoyl-3,6-dideoxy-L-*arabino-*hexono-1,5-lactone*
[6992-14-9]
$C_{20}H_{18}O_6$ 354.359
Cryst. (EtOH). Mp 85-87°. $[\alpha]_D^{20}$ +18.2 (c, 1.0 in $CHCl_3$).

Varela, O.J. *et al., Carbohydr. Res.*, 1979, **70**, 27 (*synth, pmr*)

2,4-Dideoxy-*erythro*-hexonic acid D-598

3,5,6-Trihydroxyhexanoic acid



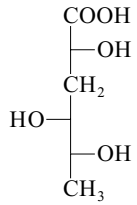
$C_6H_{12}O_5$ 164.158

D-*form*

*3,5-*O*-Isopropylidene,* tert-*butyl ester:* tert-*Butyl 2,4-dideoxy-3,5-*O*-isopropylidene-*erythro-*hexonate*
[124655-09-0]
$C_{13}H_{24}O_5$ 260.33
$[\alpha]_D^{20}$ -7.57 (c, 2 in MeOH).

Hirokazu, U. *et al., Tet. Lett.*, 1992, **33**, 4183 (*synth*)
Hiyama, T. *et al., Bull. Chem. Soc. Jpn.*, 1995, **68**, 364 (*synth, pmr, ir, ms*)

3,6-Dideoxy-*xylo*-hexonic acid D-599



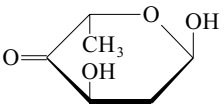
$C_6H_{12}O_5$ 164.158

D-*form*

*1,4-Lactone: 3,6-Dideoxy-D-*xylo-*hexono-1,4-lactone*
[79645-45-7]
$C_6H_{10}O_4$ 146.143
Cryst. (EtOAc). Mp 85-86°. $[\alpha]_D^{20}$ -50.8 (c, 1.2 in H_2O).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 155 (*synth, cmr*)

2,6-Dideoxy-*erythro*-hexopyranos-4-ulose D-600



$C_6H_{10}O_4$ 146.143

α-L-*form*

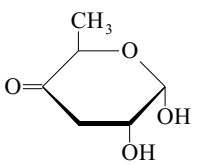
Me glycoside, 3-(2-methoxyethoxymethyl):
[83355-86-6]
$C_{11}H_{20}O_6$ 248.275
Syrup. $[\alpha]_D^{22}$ -127.7 (c, 5.68 in $CHCl_3$).

*Me glycoside, 3-(*tert-*butyldimethylsilyl):*
[86731-78-4]
$C_{13}H_{26}O_4Si$ 274.431
Syrup. $[\alpha]_D^{22}$ -173.9 (c, 3.86 in $CHCl_3$).

Suami, T. *et al., Chem. Lett.*, 1982, 1245 (*α-L-Me gly derivs*)
Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 1431 (*α-L-Me gly derivs, pmr*)

3,6-Dideoxy-*erythro*-hexopyranos-4-ulose D-601

3,6-Dideoxy-4-ketoglucose. Cinerulose B



α−D−*form*

$C_6H_{10}O_4$ 146.143
Isol. from *Pasteurella pseudotuberculosis* type V strain VO. Suggested biosynthetic intermediate for the formation of 3,6-Dideoxy-*arabino*-hexose, D-608, 3,6-Dideoxy-*ribo*-hexose, D-613 and 3,6-Dideoxy-*xylo*-hexose, D-617.

α-D-*form* [56783-59-6]
Gum.

1,2-O-*Isopropylidene: 3,6-Dideoxy-1,2*-O-*isopropylidene*-α-D-erythro-*hexopyranos-4-ulose*
[50272-24-7]
$C_9H_{14}O_4$ 186.207
Oil. $Bp_{0.3}$ 47-49°. $[\alpha]_D^{27}$ +166.3 (c, 1.0 in $CHCl_3$).

1,2-O-*Isopropylidene, oxime:* [50272-13-4]
$C_9H_{15}NO_4$ 201.222
Cryst. (hexane). Mp 131-133°. $[\alpha]_D^{27}$ +158.3 (c, 1.0 in $CHCl_3$).

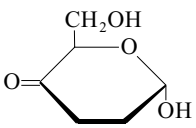
L-*form*
Constit. of Cinerubin B.

α-L-*form*
Me glycoside: Methyl 3,6-dideoxy-α-L-erythro-*hexopyranosid-4-ulose. Methyl cineruloside B*
[157380-22-8]
$C_7H_{12}O_4$ 160.169
$[\alpha]_D$ -176 (c, 2 in $CHCl_3$).

[50272-12-3]

Matsuhashi, S. *et al., J. Biol. Chem.*, 1967, **242**, 3494 (*isol*)
Ritchie, W. *et al., Helv. Chim. Acta*, 1972, **55**, 467 (*occur, L-form*)
Stevens, C.L. *et al., J.A.C.S.*, 1973, **95**, 5767 (α-D-*isopropylidene*)
Stevens, C.L. *et al., J.O.C.*, 1975, **40**, 3704 (*D-form, synth*)
Cossy, J. *et al., Carbohydr. Res.*, 1994, **259**, 141 (α-L-*Me pyr*)

2,3-Dideoxy-*glycero*-hexopyranos-4-ulose D-602



α−D−*form*

$C_6H_{10}O_4$ 146.143

α-D-*form*
Et glycoside: Ethyl 2,3-dideoxy-α-D-glycero-*hexopyranosid-4-ulose*
$C_8H_{14}O_4$ 174.196
$[\alpha]_D^{23}$ +29.5 (c, 1.3 in $CHCl_3$).

Et glycoside, 6-benzoyl: Ethyl 6-O-*benzoyl-2,3-dideoxy*-α-D-glycero-*hexopyranosid-4-ulose*
$C_{15}H_{18}O_5$ 278.304
$[\alpha]_D^{23}$ +128.4 (c, 2.2 in $CHCl_3$).

6-Deoxy, Me glycoside: Methyl 2,3,6-trideoxy-α-D-glycero-*hexopyranosid-4-ulose*
[26922-37-2]
$C_7H_{12}O_3$ 144.17
$[\alpha]_D^{22}$ +310 (c, 1.3 in $CHCl_3$). Dec. after 4d at 0°.

6-Deoxy, Me glycoside, oxime:
[28369-12-2]
$C_7H_{13}NO_3$ 159.185
$Bp_{0.1}$ 95-98° (bath). $[\alpha]_D^{20}$ +223 (c, 0.5 in $CHCl_3$).

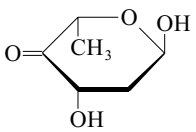
6-Deoxy, Me glycoside, 4-nitrophenylhydrazone: [28369-11-1]
Mp 158-159°. $[\alpha]_D^{20}$ +347 (c, 0.6 in $CHCl_3$).

β-D-*form*
Me glycoside: Methyl 2,3-dideoxy-β-D-glycero-*hexopyranosid-4-ulose, 8CI*
[34340-41-5]
$C_7H_{12}O_4$ 160.169
$[\alpha]_D$ -63.2 (c, 1.3 in $CHCl_3$).

α-L-*form*
6-Deoxy, Me glycoside: Methyl 2,3,6-trideoxy-α-L-glycero-*hexopyranosid-4-ulose*
$C_7H_{12}O_3$ 144.17
Bp_{16} 80°. $[\alpha]_D$ -254 (c, 1.1 in $CHCl_3$) (-232).

Albano, E.L. *et al., Carbohydr. Res.*, 1969, **11**, 485 (α-D-*Me pyr deoxy*)
Fraser-Reid, B. *et al., Can. J. Chem.*, 1970, **48**, 2877 (α-D-*Et pyr,* α-D-*Et pyr benzoyl*)
Williams, E.H. *et al., Carbohydr. Res.*, 1971, **20**, 49 (β-D-*Me pyr*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 2146 (α-L-*Me pyr deoxy*)

2,6-Dideoxy-*threo*-hexopyranos-4-ulose D-603



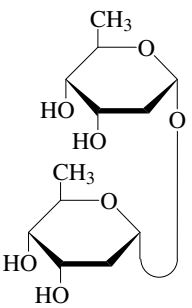
$C_6H_{10}O_4$ 146.143

α-L-*form*
Me glycoside, 3-Me: [67909-19-7]
$C_8H_{14}O_4$ 174.196
Syrup. $[\alpha]_D^{20}$ -245 (c, 3.3 in $CHCl_3$).

Me glycoside, 3-Me, oxime: [67909-20-0]
$C_8H_{15}NO_4$ 189.211
Cryst. Mp 105-110°. $[\alpha]_D^{20}$ -193 (c, 1.22 in $CHCl_3$).

Monneret, C. *et al., Carbohydr. Res.*, 1978, **65**, 35 (α-L-*Me gly derivs, ir*)

2,6-Dideoxy-α-D-*ribo*-hexopyranosyl 2,6-dideoxy-α-D-*ribo*-hexopyranoside D-604



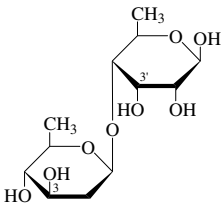
$C_{12}H_{22}O_7$ 278.302
Cryst. (CH_2Cl_2/diisopropyl ether). Mp 148-150°. $[\alpha]_D$ +165 (c, 1 in $CHCl_3$).

Tetrabenzoyl: [32780-23-7]
$C_{40}H_{38}O_{11}$ 694.734
Cryst. Mp 161-162°. $[\alpha]_D^{20}$ +160 (c, 1.3 in $CHCl_3$).

Tetramesyl: [33034-89-8]
$C_{16}H_{30}O_{15}S_4$ 590.668
Mp 110-112° dec. $[\alpha]_D$ +177 (c, 1.2 in DMF).

Hough, L. *et al., J.C.S.(C)*, 1971, 1732-1738 (*tetrabenzoyl, tetramesyl*)
Lee, C.K. *et al., J. Carbohydr. Chem.*, 1995, **14**, 9-16 (*tetrabenzoyl, cryst struct*)

2,6-Dideoxy-β-D-*arabino*-hexopyranosyl-(1→4)-6-deoxy-D-allose D-605



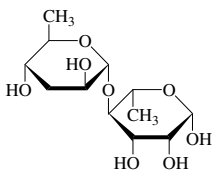
β-Pyranose-*form*

$C_{12}H_{22}O_8$ 294.301

β-Pyranose-*form*
Et glycoside, 3,3′-di-Me: ***Rolinose****. Ethyl* β-D-*oleandropyranosyl-(1→4)-6-deoxy-3-*O-*methyl*-β-D-*allopyranoside*
[230973-44-1]
$C_{16}H_{30}O_8$ 350.408
Constit. of the dried twigs of *Marsdenia roylei*.
$[\alpha]_D$ +15 (c, 0.67 in $CHCl_3$).
Kumar, A. *et al., Phytochemistry*, 1999, **50**, 1353-1357 (*isol, pmr, cmr, ms*)

4-*O*-(3,6-Dideoxy-α-D-*arabino*-hexopyranosyl)-L-rhamnose D-606

6-Deoxy-4-O-*(3,6-dideoxy*-α-D-arabino-*hexopyranosyl)*-L-*mannose. 4*-O-α-D-*Tyvelosyl*-L-*rhamnose*
[74996-11-5]



β-Pyranose-*form*

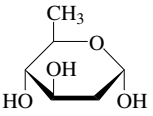
$C_{12}H_{22}O_8$ 294.301
Reducing disaccharide. $[\alpha]_D^{20}$ +68.5 (c, 2 in H_2O).

Pyranose-*form*
Penta-Ac: [74996-12-6]
$C_{22}H_{32}O_{13}$ 504.487
$[\alpha]_D^{20}$ +28 (c, 2.45 in $CHCl_3$).

β-Pyranose-*form*
1,2-O-*Methylorthoacetate, 2′,3,4′-tri-Ac:*
$C_{21}H_{32}O_{12}$ 476.477
$[\alpha]_D^{20}$ +57 (c, 7 in $CHCl_3$).
Kochetkov, N.K. *et al., Tetrahedron*, 1980, **36**, 1099

2,6-Dideoxy-*arabino*-hexose, 9CI D-607

Chromose C. Olivose. Canarose. 2-Deoxyrhamnose. 2,6-Dideoxymannose



α-D-Pyranose-*form*

$C_6H_{12}O_4$ 148.158

D-*form* [6988-55-2]
Constit. of the antibiotics Chromomycin, Olivomycin, Flambamycin, F-8, Everninomicin B, E-33, Everninomicin C, E-34, Chromocyclomycin, C-127 and Oxamicetin also in cardiac glycosides. Hygroscopic cryst.
Mp 100-103° (86-98°). $[\alpha]_D^{21}$ +25 (c, 1.4 in H_2O).

*3-Me: 2,6-Dideoxy-3-*O*-methyl-*D*-arabino-hexose.* ***D-Oleandrose***
$C_7H_{14}O_4$ 162.185
Present in cardiac glycosides.
Mp 62-63°. $[\alpha]_D$ -12.5.

α-D-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-α-D-arabino-hexopyranoside
$C_7H_{14}O_4$ 162.185
Syrup. Bp_1 126-129°. $[\alpha]_D^{23}$ +87 (c, 1.2 in H_2O).

Me glycoside, 4-Me: Methyl 2,6-dideoxy-4-O-methyl-α-D-arabino-hexopyranoside
$C_8H_{16}O_4$ 176.212
Present in the tetrasaccharide group of *Mycobacterium kansasii* glycolipid.
Fine needles (hexane).
Mp 77° (75°). $[\alpha]_D^{23}$ +101 (c, 0.40 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-β-D-arabino-hexopyranoside
$C_7H_{14}O_4$ 162.185
Cryst. (EtOAc/hexane). Mp 84°.
$[\alpha]_D^{22}$ -85 (c, 1.0 in EtOH).

L-*form*
Found as component of seed glycosides in *Stapelia gigantea*.
Mp 93-94°. $[\alpha]_D^{22}$ -20 (c, 0.8 in H_2O) (-18.1).

*3-Me: 2,6-Dideoxy-3-*O*-methyl-L-arabino-hexose.* ***L-Oleandrose***
[6786-76-1]
$C_7H_{14}O_4$ 162.185
Hydrol. prod. from Oleandrigenin. Present in other plant glycosides and in Oleandomycin.
Mp 59-60°. $[\alpha]_D$ +11.7 (c, 1.5 in H_2O).

3-Me, 2,4-dinitrophenylhydrazone: Mp 155-160°.

*3-Et: 2,6-Dideoxy-3-*O*-ethyl-L-arabino-hexopyranose.* ***Dianose***
$C_8H_{16}O_4$ 176.212
Isol. from aerial parts of *Dianthus chinensis*. Needles (MeOH aq.).
Mp 76-78°. Tentative assignment of abs. config.

α-L-Pyranose-*form*

*3-Me, 1,4-dibenzoyl: 1,4-Di-*O*-benzoyl-2,6-dideoxy-3-*O*-methyl-arabino-α-L-hexopyranose*
$C_{21}H_{22}O_6$ 370.401
Mp 116-120°. $[\alpha]_D$ -51.5 (in MeOH).

Me glycoside: Methyl 2,6-dideoxy-α-L-arabino-hexopyranoside
$C_7H_{14}O_4$ 162.185
Thick syrup. $[\alpha]_D^{23}$ -152.5 (c, 0.7 in Me_2CO) (-146).

Me glycoside, 4-Me: Methyl 2,6-dideoxy-4-O-methyl-α-L-arabino-hexopyranoside
$C_8H_{16}O_4$ 176.212
Fine needles (hexane). Mp 76-78°. $[\alpha]_D^{23}$ -13.9 (c, 0.45 in $CHCl_3$).

Benzyl glycoside: Benzyl 2,6-dideoxy-α-L-arabino-pyranoside
$C_{13}H_{18}O_4$ 238.283
Cryst. (EtOAc/hexane). Mp 98°. $[\alpha]_D^{20}$ -88 (c, 1 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-β-L-arabino-hexopyranoside
$C_7H_{14}O_4$ 162.185
Needles (EtOAc/hexane). Mp 87-87.5° (84°).

DL-*form*

Me glycoside, 3-Me, 4-Ac: Methyl 4-O-acetyl-2,6-dideoxy-3-O-methyl-DL-arabino-hexose
$C_{10}H_{18}O_5$ 218.249
Bp_2 101-103°.

α-DL-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-α-DL-arabino-hexopyranoside. Methyl α-DL-chromoside C
[53293-94-0]
$C_7H_{14}O_4$ 162.185
Cryst. (EtOAc). Mp 100°.

β-DL-Pyranose-*form*

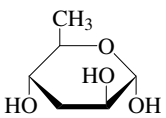
Butyl glycoside: Butyl 2,6-dideoxy-β-DL-arabino-hexopyranoside. Butyl β-DL-olivoside
[144791-61-7]
$C_{10}H_{20}O_4$ 204.266
Solid.

Butyl glycoside, 3-Me: Butyl 2,6-dideoxy-3-O-methyl-β-DL-arabino-hexopyranoside
[144791-62-8]
$C_{11}H_{22}O_4$ 218.292
Solid.

Vischer, E. *et al., Helv. Chim. Acta*, 1944, **27**, 1332 (*D-form 3-Me, synth*)
Blindenbacher, F. *et al., Helv. Chim. Acta*, 1948, **31**, 2061 (*L-form 3-Me, synth*)
Els, H. *et al., J.A.C.S.*, 1958, **80**, 3777 (*L-form 3-Me, isol*)
Reichstein, T. *et al., Adv. Carbohydr. Chem. Biochem.*, 1962, **17**, 65 (*Oleandrose, rev*)
Berlin, Y.A. *et al., Tet. Lett.*, 1964, 3513 (*isol*)
Miyamoto, M. *et al., Tetrahedron*, 1966, **22**, 2785 (*D-form, isol, struct, pmr*)
Yasuda, S. *et al., Tetrahedron*, 1973, **29**, 4087 (*α-DL-Me pyr, synth, pmr*)
Sztaricskai, F. *et al., Carbohydr. Res.*, 1978, **65**, 193 (*α-L-Me pyr*)
Berti, G. *et al., Tetrahedron*, 1982, **38**, 3067 (*DL-3-Me, pmr, cmr, synth*)
Klausener, A. *et al., Carbohydr. Res.*, 1983, **116**, 295 (***synth, α-D-Me pyr***)
Roush, W.R. *et al., J.O.C.*, 1983, **48**, 5093 (*total synth, D-form*)
Schmidt, R.C. *et al., Tet. Lett.*, 1985, **26**, 2065 (*total synth, L-form*)
Gilleron, M. *et al., J. Carbohydr. Chem.*, 1988, **7**, 733-748 (*Me gly 4-Me*)
Gurjar, M.K. *et al., J. Carbohydr. Chem.*, 1988, **7**, 799-804 (*Me gly 4-Me*)
Tolman, R.L. *et al., Carbohydr. Res.*, 1989, **189**, 113 (*L-form 3-Me, α-L-pyr 3-Me dibenzoyl, pmr*)
Ramiliarison, C. *et al., J. Carbohydr. Chem.*, 1989, **8**, 723-734 (*benzyl α-L-gly*)
Bols, M. *et al., Carbohydr. Res.*, 1991, **222**, 141
Toshima, K. *et al., Carbohydr. Res.*, 1991, **222**, 173 (*L-form, β-L-Me pyr, L-form 3-Me, synth, pmr*)
Bredenkamp, M.W. *et al., Synth. Commun.*, 1992, **22**, 2459 (*L-form 3-Me, synth*)
Coleman, R.S. *et al., J.O.C.*, 1993, **58**, 385-392 (*β-DL-pyr derivs*)
Li, H. *et al., Carbohydr. Res.*, 1994, **252**, 303 (*Dianose*)
Jorgensen, C. *et al., Carbohydr. Res.*, 1997, **299**, 307-310 (*synth*)

3,6-Dideoxy-*arabino*-hexose, 8CI D-608

3,6-Dideoxymannose. 3,6-Dideoxyaltrose. Tyvelose. Ascarylose



α-D-Pyranose-*form*

$C_6H_{12}O_4$ 148.158

Historically Tyvelose was the D-form and Ascarylose the L-form.

D-*form* [5658-12-8]
Isol. from various lipopolysaccharides elaborated by Gram-negative bacteria, e.g. *Salmonella typhi*.
Cryst. (MeCN).
Mp 97-99°. $[\alpha]_D$ +22 (c, 0.7 in H_2O).

4-Nitrobiphenylsulfonylhydrazone: Mp 143-144°.

α-D-Pyranose-*form*

Me glycoside: Methyl 3,6-dideoxy-α-D-arabino-hexopyranoside
[6154-71-8]
$C_7H_{14}O_4$ 162.185
Mp 82-84°. $[\alpha]_D^{20}$ +102.7 (c, 1.8 in H_2O).

Me glycoside, bis-4-nitrobenzoyl: [58056-39-6]
Cryst. (MeOH). Mp 139-141°. $[\alpha]_D$ -59 ($CHCl_3$).

*Me glycoside, 2,4-dibenzyl: Methyl 2,4-di-*O*-benzyl-3,6-dideoxy-α-D-arabino-hexopyranoside*
[187746-19-6]
$C_{21}H_{26}O_4$ 342.434
Oil. $[\alpha]_D^{22}$ +66 (c, 0.4 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 3,6-dideoxy-β-D-arabino-hexopyranoside
[6109-62-2]
$C_7H_{14}O_4$ 162.185
$[\alpha]_{Hg}^{23}$ -72 (c, 1.1 in MeOH).

L-*form* [32142-24-8]
Present in the egg cell membranes of Ascaris worms and in polysaccharides of

Pasteurella pseudotuberculosis.
Mp 97-99°. $[\alpha]_D$ -25 (H_2O).

Tosylhydrazone: Mp 124°.

4-Nitrobiphenylsulfonylhydrazone: Mp 152°.

α-L-Pyranose-*form*

Tri-Ac: 1,2,4-Tri-O-*acetyl-3,6-dideoxy-α-L*-arabino-*hexopyranose*
[139630-54-9]
$C_{12}H_{18}O_7$ 274.27
Syrup. $[\alpha]_D^{20}$ -84 (c, 0.9 in $CHCl_3$). Cont. some pyranose isomer.

Me glycoside: Methyl 3,6-dideoxy-α-L-arabino-*hexopyranoside*
[64880-44-0]
$C_7H_{14}O_4$ 162.185
Mp 85-87° (80-81°). $[\alpha]_D$ -80.5 ($CHCl_3$). $[\alpha]_D$ -102 (H_2O).

Me glycoside, 2,4-dibenzyl: Methyl 2,4-di-O-*benzyl-3,6-dideoxy-α-L*-arabino-*hexopyranoside*
[76178-08-0]
$C_{21}H_{26}O_4$ 342.434
Syrup. $[\alpha]_D$ -58 ($CHCl_3$).

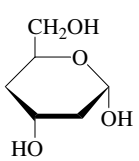
α-L-Furanose-*form*

2,5-Dibenzoyl: 2,5-Di-O-*benzoyl-3,6-dideoxy-α-L*-arabino-*hexofuranose*
[75721-94-7]
$C_{20}H_{20}O_6$ 356.374
Cryst. (EtOH aq.). Mp 76-78°. $[\alpha]_D^{20}$ +48.3 (c, 0.5 in $CHCl_3$).

2,5-Dibenzoyl, 1-Ac: 1-O-*Acetyl-2,5-di*-O-*benzoyl-3,6-dideoxy-α-L*-arabino-*hexofuranose*
[75721-95-8]
$C_{22}H_{22}O_7$ 398.412
Cryst. (EtOH). Mp 100-102°. $[\alpha]_D^{20}$ +10 (c, 0.5 in $CHCl_3$).

Fouquey, C. *et al., Bull. Soc. Chim. Fr.*, 1959, 803 (*D-form, synth, struct*)
Westphal, O. *et al., Angew. Chem.*, 1960, **72**, 881 (*rev*)
Davies, D.A.L. *et al., Nature (London)*, 1961, **191**, 43 (*isol*)
Butterworth, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 279 (*rev*)
Williams, E.H. *et al., Can. J. Chem.*, 1971, **49**, 796 (*D-form, synth, β-D-Me pyr*)
Ekborg, G. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 765 (*α-D-Me pyr bisnitrobenzoyl*)
Varela, O.J. *et al., Carbohydr. Res.*, 1980, **85**, 130 (*α-L-fur derivs*)
Poszgay, V. *et al., Carbohydr. Res.*, 1980, **85**, 143-150 (*α-L-Me pyr, α-L-Me pyr dibenzyl*)
Klausener, A. *et al., Carbohydr. Res.*, 1983, **116**, 295 (*α-D-Me pyr,* ***synth***)
Jütten, P. *et al., J. Carbohydr. Chem.*, 1990, **9**, 675-681 (*Me α-L-Pyr,* ***synth****, pmr, cmr*)
Bols, M. *et al., Carbohydr. Res.*, 1991, **222**, 141 (*L-fur, α-L-pyr tri-Ac, synth, pmr, cmr*)
Bartley, J.P. *et al., J. Nat. Prod.*, 1996, **59**, 921 (*struct*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1409-1421 (*α-D-Me pyr dibenzyl*)

2,4-Dideoxy-*erythro*-hexose D-609



α-D-Pyranose-*form*

$C_6H_{12}O_4$ 148.158

D-*form* [89401-22-9]
Syrup. $[\alpha]_D^{25}$ +98 (c, 1.1 in MeOH).

D-Pyranose-*form*

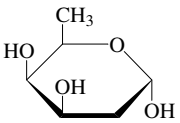
Me glycoside, dibenzoyl: Methyl 3,6-di-O-*benzoyl-2,4-dideoxy-D*-erythro-*hexopyranoside*
$C_{21}H_{22}O_6$ 370.401
No phys. props. reported.

[149067-55-0, 149067-64-1, 152335-69-8]

Ho, P. *et al., Carbohydr. Res.*, 1984, **125**, 318, (*D-pyr form, synth*)
Augustyns, K. *et al., J.O.C.*, 1993, **58**, 2977, (*D-Me pyr dibenzoyl*)

2,6-Dideoxy-*lyxo*-hexose, 9CI D-610

2,6-Dideoxygalactose. 2-Deoxyfucose. Oliose
[5658-09-3]



α-D-Pyranose-*form*

$C_6H_{12}O_4$ 148.158
Equilib. α-pyranose approx 40%, β-furanose 50%, furanose 10% (D_2O).

D-*form* [6988-56-3]
Component of Olivomycin.
Syrup. $[\alpha]_D^{20}$ +46 (c, 0.7 in H_2O).

3-Ac: 3-O-*Acetyl-2,6-dideoxy*-lyxo-*hexose. Chromose D*
[2595-12-2]
$C_8H_{14}O_5$ 190.196
Constit. of the antibiotic Chromomycin.
Needles.
Mp 118°. $[\alpha]_D^{23}$ +87 (c, 1.5 in H_2O).

4-Me: 2,6-Dideoxy-4-O-*methyl-D*-lyxo-*hexose. Chromose A. Olivomose*
[3868-09-5]
$C_7H_{14}O_4$ 162.185
Constit. of antibiotics of the Chromomycin, Olivomycin and Rhodomycin groups.
Cryst. (petrol/EtOAc).
Mp 158-162° (151-153° dec.). $[\alpha]_D^{25}$ +80 (c, 1.1 in H_2O).

4-Me, 2,4-dinitrophenylhydrazone: Cryst. (EtOH). Mp 148-149°.

α-D-Pyranose-*form*

4-Me, Me glycoside: Methyl 2,6-dideoxy-4-O-*methyl-α-D*-lyxo-*hexopyranoside*
[3868-02-8]
$C_8H_{16}O_4$ 176.212
Needles (cyclohexane). Mp 96-97°. $[\alpha]_D^{25}$ +174 (c, 1.2 in EtOH). $[\alpha]_D^{22}$ +122 (c, 1.0 in EtOH).

Me glycoside, 3-Ac: Methyl 3-O-*acetyl-2,6-dideoxy-α-D*-lyxo-*hexopyranoside*
[4092-39-1]
$C_9H_{16}O_5$ 204.222
Syrup. $[\alpha]_D^{16}$ +142 (c, 2.4 in $CHCl_3$).

β-D-Pyranose-*form*

4-Me, Me glycoside: Methyl 2,6-dideoxy-4-O-*methyl-β-D*-lyxo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Needles (cyclohexane). Mp 152°. $[\alpha]_D^{22}$ -36 (c, 1.0 in EtOH).

L-*form* [19165-06-1]
Cryst. Mp 100.5-103°. $[\alpha]_D^{21}$ -70.3 (6 min.) → -50.3 (c, 0.4 in H_2O).

α-L-Pyranose-*form* [51020-42-9]

Tri-Ac: 1,3,4-Tri-O-*acetyl-2,6-dideoxy-α-L*-lyxo-*hexopyranose*
[33985-27-2]
$C_{12}H_{18}O_7$ 274.27
Cryst. (2-propanol). Mp 198-200°. $[\alpha]_D^{22}$ -128.5 (c, 0.26 in $CHCl_3$).

Me glycoside: Methyl 2,6-dideoxy-α-L-lyxo-*hexopyranoside*
[33985-35-2]
$C_7H_{14}O_4$ 162.185
Hygroscopic cryst. Mp 53-55°. $[\alpha]_D^{22}$ -160 (c, 0.19 in H_2O).

Me glycoside, di-Ac: Methyl 3,4-di-O-*acetyl-2,6-dideoxy-α-L*-lyxo-*hexopyranoside*
[78464-95-6]
$C_{11}H_{18}O_6$ 246.26
Cryst. (EtOH/petrol). Mp 66.5-67.5°.
$[\alpha]_D^{22}$ -166 (c, 0.79 in $CHCl_3$).

Benzyl glycoside, di-Ac: Benzyl 3,4-di-O-*acetyl-2,6-dideoxy-α-L*-lyxo-*hexopyranoside*
[128135-62-6]
$C_{17}H_{22}O_6$ 322.357
Syrup. $[\alpha]_D^{24}$ -123 (c, 1 in $CHCl_3$).

Benzyl glycoside, 3-benzyl, 4-Ac: Benzyl 4-O-*acetyl-3*-O-*benzyl-2,6-dideoxy-α-L*-lyxo-*hexopyranoside*
[131768-76-8]
$C_{22}H_{26}O_5$ 370.444
Syrup. $[\alpha]_D^{24}$ -172 (c, 1 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-β-L-lyxo-*hexopyranoside*
[62346-15-0]
$C_7H_{14}O_4$ 162.185
Cryst. (Et_2O). Mp 110°. $[\alpha]_D^{22}$ +44 (c, 0.8 in MeOH). $[\alpha]_D^{22}$ +50.3 (c, 1.2 in $CHCl_3$).

Me glycoside, 3,4-dibenzoyl: Methyl 3,4-di-O-*benzoyl-2,6-dideoxy-β-L*-lyxo-*hexopyranoside*
[64429-65-8]
$C_{21}H_{22}O_6$ 370.401
Needles (EtOH). Mp 122-123°. $[\alpha]_D^{22}$ -63.4 (c, 0.9 in $CHCl_3$).

β-L-Furanose-*form*

Me glycoside: Methyl 2,6-dideoxy-β-L-lyxo-*hexofuranoside*
[143087-71-2]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D^{21}$ +97 (c, 3 in CH_2Cl_2).

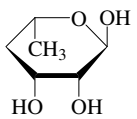
Me glycoside, 3,5-di-Ac: Methyl 3,5-di-O-*acetyl-β-L*-lyxo-*hexofuranoside*
[78464-94-5]
$C_{11}H_{18}O_6$ 246.26
Oil. $[\alpha]_D^{24}$ +129 (c, 0.73 in $CHCl_3$).

Brimacombe, J.S. *et al., J.C.S.*, 1964, 5614 (*synth, Chromose A*)
Berlin, Y.A. *et al., Tet. Lett.*, 1964, 1323; 1966, 1431 (*isol, synth, D-form, derivs*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1965, **1**, 128 (*Chromose D*)
Miyamoto, M. *et al., Tetrahedron*, 1966, **22**, 2785 (*isol, synth, D-form, derivs*)

Berlin, Y.A. *et al., Khim. Prir. Soedin.*, 1973, **9**, 539 (*occur*)
Cheung, T.M. *et al., Carbohydr. Res.*, 1977, **58**, 139-151 (*β-L-form, synth, β-L-Me pyr, β-L-Me pyr dibenzoyl*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 201 (*L-form, synth*)
Korytnyk, W. *et al., Carbohydr. Res.*, 1982, **103**, 170 (*synth, L-form, α-L-pyr derivs*)
Rousch, W.R. *et al., J.O.C.*, 1983, **48**, 5093, (*D-form, synth, pmr, cmr*)
Pauls, H.W. *et al., J. Carbohydr. Chem.*, 1985, **4**, 1-14 (*Me α-L-pyr, synth*)
Kolar, C. *et al., Carbohydr. Res.*, 1990, **208**, 111 (*α-L-pyr benzyl gly di-Ac, α-L-pyr benzyl gly benzyl Ac*)
Durgnat, J.M. *et al., Synth. Commun.*, 1992, **22**, 1883 (*β-L-fur Me gly, β-L-fur Me gly di-Ac*)
Shafer, C.M. *et al., Carbohydr. Res.*, 1998, **310**, 223-228 (*synth*)

4,6-Dideoxy-*lyxo*-hexose D-611

Janose



α-L-Pyranose-*form*

$C_6H_{12}O_4$ 148.158

L-*form*

Cryst. (2-propanol/petrol). Mp 129-134° (137-138.5°). $[\alpha]_D^{20}$ -3.5 (c, 0.38 in H_2O) (5h). $[\alpha]_D^{20}$ -10.6 (5 min.) → -2.8 (c, 0.5 in H_2O).

*2-Me: 4,6-Dideoxy-2-*O*-methyl-L-*lyxo-*hexose*
$C_7H_{14}O_4$ 162.185
Syrup. $Bp_{0.02}$ 100° (bath). $[\alpha]_D^{26}$ +8.7 (c, 0.5 in H_2O).

*3-Me: 4,6-Dideoxy-3-*O*-methyl-L-*lyxo-*hexose*
$C_7H_{14}O_4$ 162.185
Cryst. Mp 104-106°. $[\alpha]_D^{23}$ +5.8 (c, 1 in H_2O) (6h).

*2,3-Di-Me: 4,6-Dideoxy-2,3-di-*O*-methyl-L-*lyxo-*hexose*
$C_8H_{16}O_4$ 176.212
Syrup. $Bp_{0.05}$ 70-80°. $[\alpha]_D^{24}$ +13.5 (c, 0.6 in H_2O).

*2-Benzyl: 2-*O*-Benzyl-4,6-dideoxy-L-*lyxo-*hexose*
$C_{13}H_{18}O_4$ 238.283
Cryst. Mp 111-112°.

α-L-Pyranose-*form*

*Me glycoside: Methyl 4,6-dideoxy-α-L-*lyxo-*hexopyranoside*
$C_7H_{14}O_4$ 162.185
Cryst. (EtOAc/petrol). Mp 102-103° (99-100.5°). $[\alpha]_D^{22}$ -89.8 (c, 0.5 in $CHCl_3$) (-83).

*Me glycoside, 2-Me: Methyl 4,6-dideoxy-2-*O*-methyl-α-L-*lyxo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Syrup. $Bp_{0.1}$ 50° (bath). $[\alpha]_D^{23}$ -42.4 (c, 0.95 in $CHCl_3$).

*Me glycoside, 3-Me: Methyl 4,6-dideoxy-3-*O*-methyl-α-L-*lyxo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Syrup. $Bp_{0.1}$ 50° (bath). $[\alpha]_D^{24}$ -87.5 (c, 0.9 in $CHCl_3$).

*Me glycoside, di-Me: Methyl 4,6-dideoxy-2,3-di-*O*-methyl-α-L-*lyxo-*hexopyranoside*
$C_9H_{18}O_4$ 190.239
Syrup. $Bp_{0.1}$ 30-40°. $[\alpha]_D^{22}$ -59 (c, 0.6 in $CHCl_3$).

*Benzyl glycoside, 2-benzyl: Benzyl 2-*O*-benzyl-4,6-dideoxy-α-L-*lyxo-*hexopyranoside*
$C_{20}H_{24}O_4$ 328.407
Mp 47-48°. $[\alpha]_D^{23}$ -65.9 (c, 1 in MeOH).

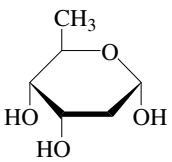
β-L-Pyranose-*form*

*Benzyl glycoside, 2-benzyl: Benzyl 2-*O*-benzyl-4,6-dideoxy-β-L-*lyxo-*hexopyranoside*
$C_{20}H_{24}O_4$ 328.407
Cryst. Mp 104-106°. $[\alpha]_D^{23}$ +10.5 (c, 1 in $CHCl_3$).

Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1701; 1973, **38**, 2627 (*L-form, L-Me, L-di-Me, α-L-Me pyr, α-L-Me pyr Me, α-L-Me pyr di-Me*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1980, **85**, 143 (*synth, pmr, cmr, Me α-L-pyr*)
Küfner, U. *et al., Carbohydr. Res.*, 1987, **161**, 211

2,6-Dideoxy-*ribo*-hexose, 9CI, 8CI D-612

Digitoxose



α-D-*form*

$C_6H_{12}O_4$ 148.158

A solution in DMSO-*d*6 contains 11.2% α-pyr, 67.3% β-pyr, 8.4% α- fur, 13.0% β-fur and 0.1% open-chain form.

D-*form* [527-52-6]

Me glycosides are components of the antibiotic α-lipomycin produced by *Streptomyces aureofaciens*. A common constit. of plant glycosides, e.g. Digitoxin. Found, *inter alia*, in the Cruciferae, Scrophulariaceae, Asclepiadaceae and Apocynaceae.
Mp 110-112°. $[\alpha]_D^{18}$ +43.6 → +50.2 (c, 1.65 in H_2O).

Oxime:
$C_6H_{13}NO_4$ 163.173
Mp 102°.

Phenylhydrazone: Mp 204-209°.

*3-Me: 2,6-Dideoxy-3-*O*-methyl-D-*ribo-*hexose. **Cymarose**. Variose*
[13089-76-4]
$C_7H_{14}O_4$ 162.185
Cryst. (Me_2CO/Et_2O). Mp 92-95° (84-85°). $[\alpha]_D^{18}$ +48.9 (c, 0.47 in H_2O).

α-D-Pyranose-*form*

*Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-2,6-dideoxy-α-D-*ribo-*hexopyranose*
$C_{27}H_{24}O_7$ 460.482
Mp 145-147°.

*Me glycoside: Methyl 2,6-dideoxy-α-D-*ribo-*hexopyranoside. Methyl α-D-digitoxoside*
[17676-19-6]
$C_7H_{14}O_4$ 162.185
Syrup. $Bp_{0.1}$ 98-110°. $[\alpha]_D^{20}$ +178.4 (c, 3.7 in $CHCl_3$).

*Me glycoside, 3,4-dibenzoyl: Methyl 3,4-di-*O*-benzoyl-2,6-dideoxy-α-D-*ribo-*hexopyranoside*
[32469-90-2]
$C_{21}H_{22}O_6$ 370.401
Needles (Et_2O/petrol). Mp 83-85°. $[\alpha]_D^{20}$ +214.6 (c, 1.6 in $CHCl_3$).

*Me glycoside, 3-Me: Methyl 2,6-dideoxy-3-*O*-methyl-α-D-*ribo-*hexopyranoside*
[33650-59-8]
$C_8H_{16}O_4$ 176.212
Mp 41-44°. $[\alpha]_D^{17}$ +212 (c, 1.2 in MeOH).

*Me glycoside, 3-Me, 4-tosyl: Methyl 2,6-dideoxy-3-*O*-methyl-4-*O*-tosyl-α-D-*ribo-*hexopyranoside*
[25878-51-7]
$C_{15}H_{22}O_6S$ 330.401
Mp 83-84°. $[\alpha]_D^{20}$ +154 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

*Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-2,6-dideoxy-β-D-*ribo-*hexopyranoside*
$C_{27}H_{24}O_7$ 460.482
Mp 176-177°.

α-D-Furanose-*form*

*Me glycoside, 3-Me: Methyl 2,6-dideoxy-3-*O*-methyl-α-D-*ribo-*hexofuranoside. Methyl α-D-cymarofuranoside*
[76234-95-2]
$C_8H_{16}O_4$ 176.212
Oil. Bp_2 81° (bath). $[\alpha]_D$ +175 (c, 0.7 in $CHCl_3$).

L-*form* [75044-73-4] Component of Kijanimicin. Isolated from *Digitalis purpurea*, *Strophanthus ledienli* and *Euonymus atropurpurea*.
Cryst. (Me_2CO/Et_2O). Mp 105-106°. $[\alpha]_D$ -48.1 (c, 0.79 in H_2O, equilib.).

*3-Me: 2,6-Dideoxy-3-*O*-methyl-L-*ribo-*hexose*
[32791-73-4]
$C_7H_{14}O_4$ 162.185
Component of glycosides, e.g. Needles (Et_2O/petrol).
Mp 87-91°. $[\alpha]_D^{25}$ -53.6 (c, 0.92 in H_2O).

*4-Me: 2,6-Dideoxy-4-*O*-methyl-L-*ribo-*hexose*
$C_7H_{14}O_4$ 162.185
Component of Kijanimicin.

α-L-Pyranose-*form*

*Me glycoside: Methyl 2,6-dideoxy-α-L-*ribo-*hexopyranoside. Methyl α-L-digitoxoside*
[78853-88-0]
$C_7H_{14}O_4$ 162.185
Isol. from Kijanimicin. Oil. $[\alpha]_D$ -158.4 (c, 0.07 in $CHCl_3$). β-L-anomer also isol.

*Me glycoside, 4-Me: Methyl 2,6-dideoxy-4-*O*-methyl-α-L-*ribo-*hexopyranoside*
[78798-10-4]
$C_8H_{16}O_4$ 176.212
$Bp_{0.1}$ 68-71° (bath). $[\alpha]_D$ -204.5 (c, 0.8 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-β-L-

ribo-*hexopyranoside*
[71305-70-9]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D^{26}$ +33.2 (c, 0.3 in $CHCl_3$).

α-L-Furanose-*form*

*Me glycoside: Methyl 2,6-dideoxy-α-L-*ribo-*hexofuranoside*
[78798-12-6]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D^{26}$ -135.8 (c, 0.3 in $CHCl_3$).

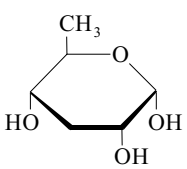
β-L-Furanose-*form*

*Me glycoside: Methyl 2,6-dideoxy-β-L-*ribo-*hexofuranoside*
[78798-13-7]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D^{26}$ +98.4 (c, 0.3 in $CHCl_3$).

Bolliger, H.R. *et al., Helv. Chim. Acta*, 1952, **35**, 93 (*D-form, α-D-Me pyrD-form, α-D-Me pyr 3-Me, α-D-Me pyr 3-Me tosyl*)
Micheel, F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 204 (*isol*)
Krasso, A.F. *et al., Helv. Chim. Acta*, 1963, **46**, 1691-1696 (*3-Me, isol, struct*)
v. Euw, J. *et al., Helv. Chim. Acta*, 1966, **49**, 1475 (*biosynth*)
Haga, M. *et al., Carbohydr. Res.*, 1971, **16**, 486 (*D-form, α-D-Me pyr, α-D-Me pyr dibenzoyl*)
Zeeck, A. *et al., Annalen*, 1975, 2079 (*α-D-Me pyr, β-D-Me pyr, α-D-Me fur, β-D-Me fur, isol, pmr, ms*)
Tursunova, R.N. *et al., Khim. Prir. Soedin.*, 1975, **11**, 171-177; *Chem. Nat. Compd. (Engl. Transl.)*, 1975, **11**, 183-187 (*Cymarose, occur*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1980, 1800-1803 (*α-D-Me fur 3-Me*)
Mallams, A.K. *et al., J.A.C.S.*, 1981, **103**, 3938 (*Me α-L-fur, Me α-L-pyr*)
Ahmad, H.I. *et al., Carbohydr. Res.*, 1982, **105**, 165 (*α-L-Me pyr, α-L-Me pyr 4-Me*)
Roush, W.R. *et al., J.O.C.*, 1983, **48**, 5093 (*D-form, pmr, cmr, total synth*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 555 (*L-form, synth*)
Coxon, B. *et al., J. Carbohydr. Chem.*, 1984, **3**, 525-543 (*pmr, equilib*)
Pauls, H.W. *et al., J. Carbohydr. Chem.*, 1985, **4**, 1-14 (*Me α-L-pyr, synth*)
Tsukamoto, S. *et al., Chem. Pharm. Bull.*, 1986, **34**, 3130-3134 (*3-Me, resoln*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1988, **7**, 157-167 (*α-D-pyr tribenzyl, β-D-pyr tribenzyl*)
Tsukamoto, S. *et al., J.C.S. Perkin 1*, 1988, 2621 (*occur, hplc*)
Toshima, K. *et al., Carbohydr. Res.*, 1991, **222**, 173-188 (*synth, pmr, L-form*)

3,6-Dideoxy-*ribo*-hexose, 9CI, 8CI D-613

3,6-Dideoxyglucose. Paratose



$C_6H_{12}O_4$ 148.158

D-*form* [5658-13-9]
Constit. of the lipopolysaccharides of *Salmonella* spp.
Syrup. $[\alpha]_D^{22}$ +8 (c, 1.1 in H_2O).

4-Nitrophenylsulfonylhydrazone:
[14125-93-0]
Mp 241°.

α-D-Pyranose-*form*

*Me glycoside: Methyl 3,6-dideoxy-α-D-*ribo-*hexopyranoside*
[31899-66-8]
$C_7H_{14}O_4$ 162.185
Syrup. $[\alpha]_D^{23}$ +170 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

*Me glycoside: Methyl 3,6-dideoxy-β-D-*ribo-*hexopyranoside*
[31505-15-4]
$C_7H_{14}O_4$ 162.185
Cryst. (EtOAc/petrol). Mp 63-65°. $[\alpha]_D^{23}$ -60 (c, 1.5 in MeOH).

α-D-Furanose-*form*

*1,2-*O-*Isopropylidene: 3,6-Dideoxy-1,2-*O-*isopropylidene-α-D-*ribo-*hexofuranose*
$C_9H_{16}O_4$ 188.223
Hygroscopic needles. Mp 35.5-37°. $[\alpha]_D^{22}$ -28 (c, 1.0 in $CHCl_3$).

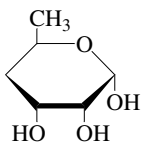
L-*form* [73679-24-0]
$[\alpha]_D^{20}$ -11 (c, 6.1 in MeOH).

[583-82-4]

Westphal, O. *et al., Angew. Chem.*, 1960, **72**, 881 (*rev*)
Williams, E.H. *et al., Can. J. Chem.*, 1971, **49**, 796 (*D-form, synth, β-D-Me pyr*)
Ekborg, G. *et al., Acta Chem. Scand.*, 1973, **27**, 1437 (*α-D-Me pyr, synth, pmr*)
Patroni, J.J. *et al., Aust. J. Chem.*, 1978, **31**, 445 (*D-form, synth, α-D-fur isopropylidene*)
Shibaev, V.N. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1980, 158 (*L-form, synth*)

4,6-Dideoxy-*ribo*-hexose D-614

4,6-Dideoxyallose. 4,6-Dideoxygulose



α-D-Pyranose-*form*

$C_6H_{12}O_4$ 148.158

D-Pyranose-*form* [116907-47-2]
Solid. Mixt. of anomers.

*2,3-Isopropylidene: 4,6-Dideoxy-2,3-*O-*isopropylidene-D-*ribo-*hexopyranose*
[94498-98-3]
$C_9H_{16}O_4$ 188.223
Light yellow oil. Mixt. of anomers.

α-D-Pyranose-*form*

*Me glycoside: Methyl 4,6-dideoxy-α-D-*ribo-*hexopyranoside*
[72212-13-6]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D^{20}$ +111 (c, 1.97 in MeOH).

*Me glycoside, 2-tosyl: Methyl 4,6-dideoxy-2-*O-*tosyl-α-D-*ribo-*hexopyranoside*
[101155-81-1]
$C_{14}H_{20}O_6S$ 316.374
Cubic cryst. (Et_2O/pentane). Mp 88-88.5° (82-84°). $[\alpha]_D^{20}$ +43.5 (c, 1.58 in $CHCl_3$).

*Me glycoside, 2-Me: Methyl 4,6-dideoxy-2-*O-*methyl-α-D-*ribo-*hexopyranoside*
[94772-57-3]
$C_8H_{16}O_4$ 176.212
Oil. $Bp_{0.05}$ 43°. $[\alpha]_D^{20}$ +76 (c, 1.03 in $CHCl_3$).

*Me glycoside, 2-benzyl: Methyl 2-*O-*benzyl 4,6-dideoxy-α-D-*ribo-*hexopyranoside*
[294178-42-0]
$C_{14}H_{20}O_4$ 252.31
No phys. props. reported.

β-D-Pyranose-*form* [116907-46-1]

*Tri-Ac: 1,2,3-Tri-*O-*acetyl-4,6-dideoxy-β-D-*ribo-*hexopyranose*
[96744-64-8]
$C_{12}H_{18}O_7$ 274.27
Solid. Mp 131.5-133°. $[\alpha]_D^{20}$ -53.3 (c, 3.32 in $CHCl_3$).

L-*form* [61244-61-9]
Cryst. ($CHCl_3$). Mp 105-106°. $[\alpha]_D^{20}$ +71 (c, 1.2 in H_2O).

*2,3-Di-Me: 4,6-Dideoxy-2,3-di-*O-*methyl-L-*ribo-*hexose*
[61244-63-1]
$C_8H_{16}O_4$ 176.212
$Bp_{0.05}$ 60-70°.

α-L-Pyranose-*form* [23583-37-1]

*Me glycoside: Methyl 4,6-dideoxy-α-L-*ribo-*hexopyranoside, 9CI*
[94841-22-2]
$C_7H_{14}O_4$ 162.185
Syrup. $Bp_{0.05}$ 100°. $[\alpha]_D^{20}$ -116.6 (c, 1 in $CHCl_3$).

Me glycoside, 2,3-di-Ac: [94772-55-1]
$C_{11}H_{18}O_6$ 246.26
$Bp_{0.01}$ 102°. $[\alpha]_D^{20}$ -53.8 (c, 0.9 in $CHCl_3$).

*Me glycoside, 2-Me: Methyl 4,6-dideoxy-2-*O-*methyl-α-L-*ribo-*hexopyranoside*
[94772-61-9]
$C_8H_{16}O_4$ 176.212
$Bp_{0.05}$ 45°. $[\alpha]_D^{20}$ -75.8 (c, 1.03 in $CHCl_3$).

*Me glycoside, 2,3-di-Me: Methyl 4,6-dideoxy-2,3-di-*O-*methyl-α-L-*ribo-*hexopyranoside*
[94772-62-0]
$C_9H_{18}O_4$ 190.239
$Bp_{0.05}$ 50°. $[\alpha]_D^{20}$ -67.3 (c, 1 in $CHCl_3$).

β-L-Pyranose-*form*

*Me glycoside: Methyl 4,6-dideoxy-β-L-*ribo-*hexopyranoside*
[94841-23-3]
$C_7H_{14}O_4$ 162.185
Solid by subl. Mp 61°. $[\alpha]_D^{20}$ +104.5 (c, 1.3 in $CHCl_3$).

*Me glycoside, 2,3-di-Ac: Methyl 2,3-di-*O-*acetyl-4,6-dideoxy-β-L-*ribo-*hexopyranoside*
[94772-56-2]
$C_{11}H_{18}O_6$ 246.26
$Bp_{0.01}$ 98°. $[\alpha]_D^{20}$ +107.5 (c, 1.5 in $CHCl_3$).

*Me glycoside, 2-benzoyl: Methyl 2-*O-*benzoyl-4,6-dideoxy-β-L-*ribo-*hexopyranoside*
[94772-59-5]
$C_{14}H_{18}O_5$ 266.293
Solid (Et_2O/petrol). Mp 74-75°. $[\alpha]_D^{20}$ +58.9 (c, 1.0 in $CHCl_3$).

Me glycoside, 2-Me: Methyl 4,6-dideoxy-2-

O-*methyl*-β-L-ribo-*hexopyranoside*
[94772-63-1]
$C_8H_{16}O_4$ 176.212
$Bp_{0.05}$ 60°. $[\alpha]_D^{20}$ +101.8 (c, 0.86 in $CHCl_3$).

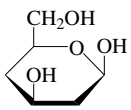
*Me glycoside, 3-Me: Methyl 4,6-dideoxy-3-*O*-methyl-*β*-L-*ribo-*hexopyranoside*
[94841-24-4]
$C_8H_{16}O_4$ 176.212
Oil. $Bp_{0.19}$ 44-45°. $[\alpha]_D^{20}$ +129.2 (c, 0.62 in $CHCl_3$).

*Me glycoside, 3-Me, 2-benzoyl: Methyl 2-*O*-benzoyl-4,6-dideoxy-3-*O*-methyl-*β*-L-*ribo-*hexopyranoside*
[94772-60-8]
$C_{15}H_{20}O_5$ 280.32
Syrup.

*Me glycoside, 2,3-di-Me: Methyl 4,6-dideoxy-2,3-di-*O*-methyl-*β*-L-*ribo-*hexopyranoside*
[94772-64-2]
$C_9H_{18}O_4$ 190.239
$Bp_{0.05}$ 50°. $[\alpha]_D^{20}$ +89.3 (c, 1.1 in $CHCl_3$).

Nemec, J. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 843-848 (*α-L-Pyr, synth*)
Kerfurt, K. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 1791-1798; 1984, **49**, 2130-2140, (*L-form, L-2,3-di-Me, Me L-gly derivs*)
Hanessian, S. *et al., Can. J. Chem.*, 1985, **63**, 163-172 (*α-D-Me gly, β-D-Pyr tri-Ac*)
Miljkovic, D. *et al., Tetrahedron*, 1985, **41**, 2737-2743 (*α-D-Me gly 2-tosyl, synth, ir, pmr, ms*)
Keck, G.E. *et al., J.O.C.*, 1989, **54**, 896-906, (*α-D-Pyr derivs, β-D-Pyr derivs, synth, ir, pmr, cmr*)
Chang, C.-W. *et al., Angew. Chem., Int. Ed.*, 2000, **39**, 2160-2163 (*α-D-Me gly 2-benzyl*)
Brimble, M.A. *et al., J.C.S. Perkin 1*, 2000, 697-709 (*D-2-benzyl-3-triethylsilyl-5-*tert*-butyldimethylsilyl, synth, ir, pmr, cmr, ms*)

2,4-Dideoxy-*threo*-hexose D-615



β-D-Pyranose-*form*

$C_6H_{12}O_4$ 148.158

D-*form*
Syrup. $[\alpha]_D$ +9.6 (c, 1.2 in H_2O).

D-Pyranose-*form*

*3,6-Dibenzoyl: 3,6-Di-*O*-benzoyl-2,4-dideoxy-D-*threo-*hexopyranose*
[113544-66-4]
$C_{20}H_{20}O_6$ 356.374
Cryst. (Et_2O). Mp 116-117°. $[\alpha]_D$ +37 (c, 1 in $CHCl_3$). Obt. as a 2:1 α:β anomeric mixt. Anomeric composition of the crystalline material not detd.

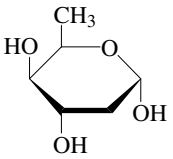
β-D-Pyranose-*form*

*Tribenzoyl: 1,3,6-Tri-*O*-benzoyl-2,4-dideoxy-β-D-*threo-*hexopyranose*
[108274-14-2]
$C_{27}H_{24}O_7$ 460.482
Syrup. $[\alpha]_D$ +8 (c, 1 in $CHCl_3$).

Cook, A.F. *et al., Chem. Ind. (London)*, 1966, 1141 (*D-form*)
Fiandor, J. *et al., Carbohydr. Res.*, 1986, **153**, 325 (*D-dibenzoyl*)

2,6-Dideoxy-*xylo*-hexose, 9CI, 8CI D-616

Boivinose



Pyranose-*form*

$C_6H_{12}O_4$ 148.158

D-*form* [13263-85-9]
Constit. of strobiside and boistroside; isol. from *Corchorus trilocularis* and *Vincetoxicum hirundinaria*.
Cryst. (Me_2CO/Et_2O).
Mp 100-103°. $[\alpha]_D^{18}$ -3.9 → +3.9 (c, 0.6 in H_2O).

*3-Me: 2,6-Dideoxy-3-*O*-methyl-D-*xylo-*hexose, 9CI, 8CI.* ***Sarmentose***
[90-56-2]
$C_7H_{14}O_4$ 162.185
Present in Chinese crude drug Wujiapi and hydrolysates of cardiac heterosides.
Mp 78-79°. $[\alpha]_D$ +12 → +15.8 (H_2O).

α-D-Pyranose-*form*

*Me glycoside: Methyl 2,6-dideoxy-α-D-*xylo-*hexopyranoside*
$C_7H_{14}O_4$ 162.185
$Bp_{0.05}$ 50-70° (bath). $[\alpha]_D^{20}$ +108.7 (c, 1.0 in MeOH).

*Me glycoside, ditosyl: Methyl 2,6-dideoxy-3,4-di-*O*-tosyl-α-D-*xylo-*hexopyranoside*
$C_{21}H_{26}O_8S_2$ 470.564
Cryst. (petrol/C_6H_6). Mp 58-68°. $[\alpha]_D^{19}$ +22.9 (c, 1.1 in $CHCl_3$).

*3-Me, Me glycoside: Methyl 2,6-dideoxy-3-*O*-methyl-α-D-*xylo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Mp 35°. $[\alpha]_D$ +156 (c, 2.3 in Me_2CO).

β-D-Pyranose-*form*

*3-Me, Me glycoside: Methyl 2,6-dideoxy-3-*O*-methyl-β-D-*xylo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Mp 45°. $[\alpha]_D$ -39.4 (c, 1.7 in Me_2CO).

β-DL-Pyranose-*form*

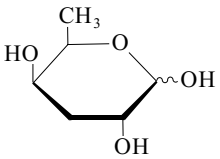
*Butyl glycoside: Butyl 2,6-dideoxy-β-DL-*xylo-*hexopyranoside. Butyl β-DL-boivinoside*
[144791-77-5]
$C_{10}H_{20}O_4$ 204.266
Solid.

*Butyl glycoside, 3-Me: Butyl 2,6-dideoxy-3-*O*-methyl-β-DL-*xylo-*hexopyranoside. Butyl β-DL-sarmentoside*
[144791-78-6]
$C_{11}H_{22}O_4$ 218.292
Oil.

Hauenstein, H. *et al., Helv. Chim. Acta*, 1950, **33**, 446 (*3-Me, α-D-Me pyr 3-Me, β-D-Me pyr 3-Me*)
Schindler, O. *et al., Helv. Chim. Acta*, 1952, **35**, 730 (*isol*)
Bolliger, H.R. *et al., Helv. Chim. Acta*, 1953, **36**, 302 (*synth, α-D-Me pyr, α-D-Me pyr ditosyl*)
Russel, J.H. *et al., Helv. Chim. Acta*, 1961, **44**, 1315 (*isol, 3-Me*)
Mitsuhashi, H. *et al., Chem. Pharm. Bull.*, 1963, **11**, 1452; 1966, **14**, 779 (*isol, 3-Me*)
Stoeckel, K. *et al., Helv. Chim. Acta*, 1969, **52**, 1175 (*isol*)
Banaszek, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1971, **45**, 391 (*synth, 3-Me*)
Perry, M.B. *et al., Can. J. Chem.*, 1973, **51**, 3039 (*synth*)
Coleman, R.S. *et al., J.O.C.*, 1993, **58**, 385-392 (*β-DL-Bu pyr, β-DL-Bu pyr 3-Me*)
Binder, W.H. *et al., Tetrahedron*, 1994, **50**, 749 (*synth, pmr*)

3,6-Dideoxy-*xylo*-hexose, 9CI, 8CI D-617

3,6-Dideoxygalactose. 3-Deoxyfucose. Abequose. Colitose
[28196-64-7]



$C_6H_{12}O_4$ 148.158

D-*form* [56816-60-5]
Constit. of the lipopolysaccharides of *Salmonella abortus equi* and other Gram-negative organisms.
Syrup. $[\alpha]_D^{20}$ -5 (c, 0.33 in H_2O).

4-Nitrobiphenylsulfonylhydrazone:
Cryst. (MeOH). Mp 138-139°.

α-D-Pyranose-*form*

*Me glycoside: Methyl 3,6-dideoxy-α-D-*xylo-*hexopyranoside*
[6109-60-0]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D$ +139.1 (c, 0.9 in $CHCl_3$).

Me glycoside, 2,4-bis(4-nitrobenzoyl):
Cryst. ($EtOH/Me_2CO$). Mp 89-90°.
$[\alpha]_D$ +155.5 (c, 1 in $CHCl_3$).

D-Furanose-*form*

*1,2-*O*-Isopropylidene: 3,6-Dideoxy-1,2-*O*-isopropylidene-D-*xylo-*hexofuranose*
[22395-75-1]
$C_9H_{16}O_4$ 188.223
Syrup. $[\alpha]_D^{20}$ -25 (c, 1 in $CHCl_3$).

*2,5-Dibenzoyl: 2,5-Di-*O*-benzoyl-3,6-dideoxy-D-*xylo-*hexofuranose*
[136757-84-1, 136757-85-2]
$C_{20}H_{20}O_6$ 356.374
Syrup. $[\alpha]_D$ -30 (c, 1 in $CHCl_3$). Mixt. of anomers.

β-D-Furanose-*form*

*2,5-Dibenzoyl, 1-Ac: 1-*O*-Acetyl-2,5-di-O-benzoyl-3,6-dideoxy-β-D-*xylo-*hexofuranose*
[136757-86-3]
$C_{22}H_{22}O_7$ 398.412
Syrup. $[\alpha]_D$ -66 (c, 0.5 in CH_3Cl) (solvent prob. a misprint for $CHCl_3$).

*Me glycoside, 2,5-dibenzoyl: Methyl 2,5-di-*O*-benzoyl-3,6-dideoxy-β-D-*xylo-*hexofuranoside*
[136757-87-4]
$C_{21}H_{22}O_6$ 370.401
$[\alpha]_D$ -53 (c, 0.4 in $CHCl_3$).

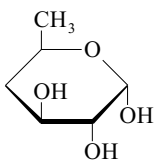
L-*form* [4221-05-0]
Occurs in lipopolysaccharides of various strains of *Salmonella* and *E. coli*.
Syrup. $[\alpha]_D$ +4 (H_2O).
4-Nitrophenylsulfonylhydrazone:
Needles (MeOH). Mp 141°.

β-L-Pyranose-*form*
*Me glycoside: Methyl 3,6-dideoxy-β-L-*xylo-*hexopyranoside*
$C_7H_{14}O_4$ 162.185
Syrup. $[\alpha]_D^{22}$ -149 (c, 1 in $CHCl_3$).
*1,2,4-Tribenzoyl: 1,2,4-Tri-*O*-benzoyl-3,6-dideoxy-β-L-*xylo-*hexopyranose*
[210100-15-5]
$C_{27}H_{24}O_7$ 460.482
Syrup. $[\alpha]_D^{20}$ -184.3.

Lüderitz, O. *et al., Biochem. J.*, 1958, **330**, 193 (*synth, isol*)
Forquey, C. *et al., C. R. Hebd. Seances Acad. Sci.*, 1958, **246**, 2417 (*struct*)
Westphal, O. *et al., Angew. Chem.*, 1960, **72**, 881
Eklind, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 633 (*synth*)
Copeland, C. *et al., Aust. J. Chem.*, 1977, **30**, 1269 (*synth, struct, pmr*)
Bundle, D.R. *et al., Can. J. Chem.*, 1978, **56**, 2686 (*synth*)
Baer, H.H. *et al., Carbohydr. Res.*, 1984, **126**, 343 (*Me gly*)
Moradei, O. *et al., J. Carbohydr. Chem.*, 1991, **10**, 469-479 (*D-Fur 2,5-dibenzoyl, β-D-fur 2,5-dibenzoyl 1-Ac, D-fur Me gly 2,5-dibenzoyl*)
Binch, H. *et al., Carbohydr. Res.*, 1998, **306**, 409-419 (*synth, L-pyr-form, β-L-pyr tribenzoyl*)

4,6-Dideoxy-*xylo*-hexose D-618

4-Deoxyfucose



α–D–*form*

$C_6H_{12}O_4$ 148.158

D-*form*
Mp 137-138°. $[\alpha]_D^{20}$ +37.5 (c, 1 in H_2O) (2h). Mixt. of anomers.
*3-Me: 4,6-Dideoxy-3-*O*-methyl-D-*xylo-*hexose, 9CI, 8CI.* ***Chalcose****. Lankavose*
[3150-28-5]
Constit. of the antibiotics Chalcomycin, Lankamycin and Neutramycin.
Needles (petrol/Et_2O).
Mp 96-99°. $[\alpha]_D^{24}$ +120 → +76 (c, 1.5 in H_2O).

β-D-Pyranose-*form*
*Me glycoside, 3-Me: Methyl 4,6-dideoxy-3-*O*-methyl-β-D-*xylo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Mp 101.5-102°. $[\alpha]_D^{27}$ -21 (c, 2.04 in $CHCl_3$).

L-*form*
*3-Me: 4,6-Dideoxy-3-*O*-methyl-L-*xylo-*hexose*
$C_7H_{14}O_4$ 162.185
Mp 89-90°. $[\alpha]_D^{23}$ -78 (c, 0.66 in H_2O, equilib., 1 day).

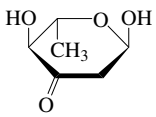
L-Pyranose-*form*
Mp 125°. Mp 141°. Mixt. of anomers.

α-L-Pyranose-*form*
*Me glycoside: Methyl 4,6-dideoxy-α-L-*xylo-*hexopyranoside*
[102340-49-8]
$C_7H_{14}O_4$ 162.185
Mp 107°. $[\alpha]_D^{20}$ -163 (c, 1.1 in MeOH).

[132957-12-1, 132957-13-2]

Woo, P.W. *et al., J.A.C.S.*, 1961, **83**, 3352; 1962, **84**, 1066 (*synth, struct, 3-Me*)
Foster, A.B. *et al., J.C.S.*, 1965, 2318 (*stereochem*)
Lawton, B.T. *et al., Can. J. Chem.*, 1969, **47**, 2899 (*synth, 3-Me*)
Danishefsky, S. *et al., J.O.C.*, 1982, **47**, 1597 (*pmr, 3-Me*)
Küfner, U. *et al., Carbohydr. Res.*, 1987, **161**, 211 (*synth*)
Lindhorst, T.K. *et al., Carbohydr. Res.*, 1991, **209**, 119 (*synth, pmr, cmr, L-pyr, α-L-Me pyr*)

2,6-Dideoxy-*erythro*-hexos-3-ulose D-619



α-L-Pyranose-*form*

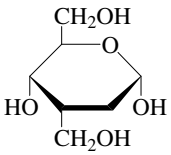
$C_6H_{10}O_4$ 146.143

α-L-Pyranose-*form*
*Me glycoside: Methyl 2,6-dideoxy-α-L-*erythro-*hexopyranosid-3-ulose*
[68682-42-8]
$C_7H_{12}O_4$ 160.169
$[\alpha]_D^{20}$ -177.8 (c, 1.7 in MeOH).
*Me glycoside, 4-Me: Methyl 2,6-dideoxy-4-*O*-methyl-α-L-*erythro-*hexopyranosid-3-ulose, 9CI*
[61199-77-7]
$C_8H_{14}O_4$ 174.196
Cryst. (petrol). Mp 71-72°. $[\alpha]_D^{25}$ -301 (c, 1 in $CHCl_3$).
*Me glycoside, 4-methoxymethyl: Methyl 2,6-dideoxy-4-*O*-methoxymethyl-α-L-*erythro-*hexopyranosid-3-ulose*
$C_9H_{16}O_5$ 204.222
Mp 73-75°. $[\alpha]_D$ -344 (c, 1 in $CHCl_3$).
*Me glycoside, 4-(tetrahydropyranyl): Methyl 2,6-dideoxy-4-*O*-(tetrahydro-2*H*-pyran-2-yl)-α-L-*erythro-*hexopyranosid-3-ulose, 9CI*
[69277-68-5]
$C_{12}H_{20}O_5$ 244.287
$[\alpha]_D^{20}$ -74.5 (c, 0.75 in MeOH).

β-L-Pyranose-*form*
*Me glycoside, 4-Me: Methyl 2,6-dideoxy-4-*O*-methyl-β-L-*erythro-*hexopyranosid-3-ulose, 9CI*
[72397-95-6]
$C_8H_{14}O_4$ 174.196
Cryst. (hexane). Mp 98-100°. $[\alpha]_D^{22}$ -96.2 (c, 0.85 in $CHCl_3$).

Clode, D.M. *et al., Carbohydr. Res.*, 1976, **49**, 305 (*α-L-Me*)
Thiem, J. *et al., Chem. Ber.*, 1978, **111**, 3514, (*α-L-form*)
Klemer, A. *et al., J. Chem. Res., Synop.*, 1978, 303; *J. Chem. Res., Miniprint*, 3823 (*α-L-tetrahydropyranyl*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1979, **76**, 67 (*α-L-Me, β-L-Me*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1982, **100**, C10 (*α-L-methoxymethyl*)

2,3-Dideoxy-3-*C*-(hydroxymethyl)-*ribo*-hexose D-620

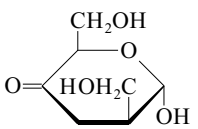


$C_7H_{14}O_5$ 178.185

α-D-Pyranose-*form*
*Et glycoside, 6-benzyl: Ethyl 6-*O*-benzyl-2,3-dideoxy-3-*C*-(hydroxymethyl)-α-D-*ribo-*hexopyranoside*
[151807-84-0]
$C_{16}H_{24}O_5$ 296.363
Foam. $[\alpha]_D^{20}$ +71 (c, 1 in $CHCl_3$).

Pedretti, V. *et al., Carbohydr. Res.*, 1993, **244**, 247-257 (*α-D-Et pyr benzyl*)

2,3-Dideoxy-2-*C*-(hydroxymethyl)-*threo*-hexos-4-ulose D-621

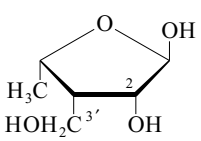


$C_7H_{12}O_5$ 176.169

α-D-Pyranose-*form*
*Et glycoside: Ethyl 2,3-dideoxy-2-*C*-(hydroxymethyl)-α-D-*threo-*hexopyranos-4-ulose*
[66176-59-8]
$C_9H_{16}O_5$ 204.222
Syrup.
Et glycoside, bis(4-nitrobenzoyl):
[66176-60-1]
Mp 134.5-135°. $[\alpha]_D^{23}$ +75 (c, 5 in $CHCl_3$).

Fraser-Reid, B. *et al., Can. J. Chem.*, 1977, **55**, 3978 (*synth*)

3,5-Dideoxy-3-*C*-hydroxymethyllyxose D-622



$C_6H_{12}O_4$ 148.158

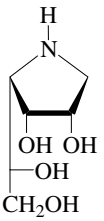
α-L-*form*
*Benzyl glycoside, 2,3′-dibenzyl: Benzyl 2-*O*-benzyl-3-*C*-benzyloxymethyl-3,5-dideoxy-α-L-lyxofuranoside*
[73980-93-5]

$C_{27}H_{30}O_4$ 418.532
$[\alpha]_D$ -53 (c, 0.4 in $CHCl_3$).

Pozgay, V. *et al., Tet. Lett.*, 1980, **21**, 211 (*synth, pmr, cmr*)

1,4-Dideoxy-1,4-iminogulitol D-623

2-(1,2-Dihydroxyethyl)-3,4-pyrrolidinediol



D-*form*

$C_6H_{13}NO_4$ 163.173

D-***form*** [129247-85-4]
Yellow needles (as hydrochloride). Mp 180-182° (hydrochloride). $[\alpha]_D$ -4.9 (c, 1.0 in H_2O) (hydrochloride). CAS no. refers to hydrochloride.

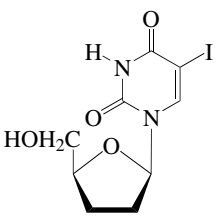
L-***form*** [114927-10-5]

[114976-75-9]
Syrup; cryst. (MeOH) (as hydrochloride). Mp 182-183° (170-173°) (hydrochloride). $[\alpha]^{20}_D$ +6 (c, 4 in H_2O).

Austin, G.N. *et al., Tetrahedron*, 1987, **43**, 3095-3108 (*L-form, synth, ir, pmr, cmr, ms*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1990, 699-706 (*D-form, synth, pmr, cmr, ms*)
Lundt, I. *et al., Tetrahedron*, 1994, **50**, 7513-7526 (*L-form, synth, pmr, cmr*)
Blanco, M.-J. *et al., J.O.C.*, 1996, **61**, 4748-4755 (*L-form, synth, ir, pmr, cmr*)
Henkel, S. *et al., Z. Kristallogr.*, 1997, **212**, 217-218 (*D-form, synth, cryst struct*)

2′,3′-Dideoxy-5-iodouridine, 9CI D-624

[105784-83-6]



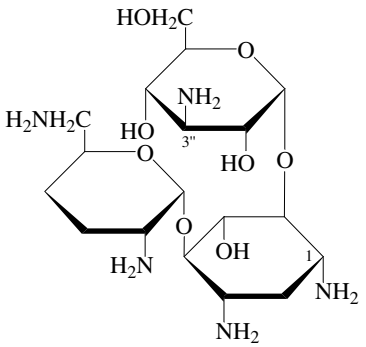
$C_9H_{11}IN_2O_4$ 338.101
Mp 176° (dec.).

5′-Ac: [161058-54-4]
$C_{11}H_{13}IN_2O_5$ 380.139
Mp 150-151°.

Lin, T.-S. *et al., J. Med. Chem.*, 1987, **30**, 440 (*synth, uv, pmr*)
Persson, T. *et al., Antiviral Chem. Chemother.*, 1994, **5**, 395 (*5′-Ac*)
McGuigan, C. *et al., J. Med. Chem.*, 2004, **47**, 1847-1851 (*synth, pmr*)

3′,4′-Dideoxykanamycin B D-625

Dibekacin, BAN, INN, JAN. *Orbicin. Debecacin. Many other names*
[34493-98-6]



$C_{18}H_{37}N_5O_8$ 451.519

Aminocyclitol antibiotic. Semisynthetic. Active against some kanamycin-resistant bacteria. Solid. $[\alpha]^{20}_D$ +132 (c, 0.65 in H_2O). Log P -6.02 (uncertain value) (calc).

▶ LD_{50} (mus, orl) 763 mg/kg. LD_{50} (mus, ipr) 12 mg/kg. Exp. reprod. and teratogenic effects. WK1985000

Sulfate salt (1:7): Panimycin. Debekacyl
[58580-55-5]
Yellowish-white powder with bitter taste.

▶ LD_{50} (rat, ivn) 140 mg/kg. LD_{50} (rat, orl) 6950 mg/kg. WK1990000

N^1-*(4-Amino-2-hydroxybutanoyl): Habekacin*. ***Arbekacin, INN***. *HBK*
[51025-85-5]
$C_{22}H_{44}N_6O_{10}$ 552.624
Launched 1990
Semisynthetic. Antibacterial agent. Log P -7.34 (uncertain value) (calc).

▶ WK1979000

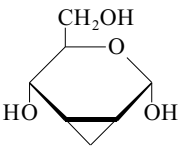
N^1-*(4-Amino-2-hydroxybutanoyl), sulfate:* ***Arbekacin sulfate, JAN***. *Habekacin*
[104931-87-5]

3″-N-*Me:* ***3′,4′-Dideoxy-3″-N-methylkanamycin B***. *Combimicin* B_4
[76551-36-5]
$C_{19}H_{39}N_5O_8$ 465.546
Prod. by *Micromonospora echinospora*. Powder. $[\alpha]_D$ +131.1 (H_2O).

3″,6′-N,N-*Di-Me:* ***3′,4′-Dideoxy-3″,6′-di-N-methylkanamyicn B***. *Combimicin* B_3
$C_{20}H_{41}N_5O_8$ 479.573
Prod. by *Micromonospora echinospora*. Powder. $[\alpha]_D$ +134.8 (H_2O).

Umezawa, S. *et al., J. Antibiot.*, 1971, **24**, 485 (*synth*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 3624 (*synth*)
Fakatsu, S. *et al., Jpn. J. Antibiot.*, (Suppl.), 1972, **32**, S178 (*rev*)
Miyake, T. *et al., Carbohydr. Res.*, 1976, **49**, 141 (*synth*)
Yoneta, T. *et al., Bull. Chem. Soc. Jpn.*, 1979, **52**, 1131 (*synth*)
Tsuchiya, T. *et al., Tet. Lett.*, 1979, 4951 (*synth, deriv*)
Tanaka, Y. *et al., J. Antibiot.*, 1981, **34**, 892 (*deriv*)
Matsuno, T. *et al., Carbohydr. Res.*, 1982, **109**, 271 (*synth*)
Takeda, N. *et al., Org. Mass Spectrom.*, 1982, **17**, 247 (*ms*)
Noone, P. *et al., Drugs*, 1984, **27**, 548 (*rev, pharmacol*)
Chemotherapy (Tokyo), Suppl. 1, 1986, **34**, (*deriv, numerous papers*)
Okamoto, R. *et al., Chemotherapy (Tokyo)*, (Suppl. 1), 1986, **34**, 1-10 (*habekacin, pharmacol*)
Saito, A. *et al., Chemotherapy (Tokyo)*, (Suppl. 1), 1986, **34**, 129-137 (*habekacin, pharmacol*)
Yoshikawa, M. *et al., Chem. Pharm. Bull.*, 1987, **35**, 2136 (*synth*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 5083
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 118; 159
Kak, V. *et al., Antimicrob. Agents Chemother.*, 2000, **44**, 2545-2546 (*habekacin, pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DCQ800; PAG050

2,3-Dideoxy-2,3-*C*-methyleneallose D-626



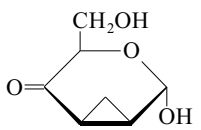
$C_7H_{12}O_4$ 160.169

α-D-**Pyranose-*form***

*Et glycoside: Ethyl 2,3-dideoxy-2,3-*C-*methylene-α-D-allopyranoside*
[39937-79-6]
$C_9H_{16}O_4$ 188.223
Oil.

Fraser-Reid, B. *et al., Can. J. Chem.*, 1972, **50**, 2928 (*synth, pmr*)

2,3-Dideoxy-2,3-*C*-methylene-*lyxo*-hexopyranos-4-ulose D-627



$C_7H_{10}O_4$ 158.154

α-D-***form***

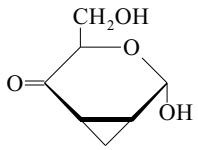
*Et glycoside: Ethyl 2,3-dideoxy-2,3-*C-*methylene-α-D-*lyxo-*hexopyranosid-4-ulose*
[39937-84-3]
$C_9H_{14}O_4$ 186.207
Syrup.

*Et glycoside, Ac: Ethyl 6-*O-*acetyl-2,3-dideoxy-2,3-*C-*methylene-α-D-*lyxo-*hexopyranosid-4-ulose*
[39937-86-5]
$C_{11}H_{16}O_5$ 228.244
Syrup. $[\alpha]^{23}_D$ +74.3 (c, 5.16 in $CHCl_3$).

[39937-83-2]

Fraser-Reid, B. *et al., Can. J. Chem.*, 1972, **50**, 2928 (*α-D-Et pyr derivs, ir, pmr*)

2,3-Dideoxy-2,3-*C*-methylene-*ribo*-hexopyranos-4-ulose D-628



$C_7H_{10}O_4$ 158.154

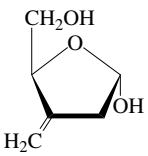
α-D-*form*

Et glycoside, 6-trityl: [39937-85-4]
$C_{28}H_{28}O_4$ 428.527
Cryst. (EtOAc). Mp 169-170.5°. $[\alpha]_D^{23}$ +33.2 (c, 2.36 in $CHCl_3$).

Fraser-Reid, B. *et al., Can. J. Chem.*, 1972, **50**, 2928 (α-D-*Et gly deriv, ir, pmr*)

2,3-Dideoxy-3-*C*-methylene-*glycero*-pentose D-629

Tetrahydro-5-hydroxy-3-methylene-2-furan-methanol



α-D-Furanose-*form*

$C_6H_{10}O_3$ 130.143

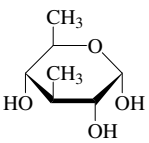
D-*form*

Syrup. $[\alpha]_D$ +4 (c, 2.0 in H_2O).

[140429-33-0, 140630-49-5]

Raifeld, Yu.E. *et al., Carbohydr. Res.*, 1992, **224**, 103 (*synth*)

3,6-Dideoxy-3-*C*-methylglucose D-630



α-D-Pyranose-*form*

$C_7H_{14}O_4$ 162.185

α-D-Pyranose-*form*

1,2-Isopropylidene: 3,6-Dideoxy-1,2-O-isopropylidene-3-C-methyl-α-D-glucopyranose
[84247-09-6]
$C_{10}H_{18}O_4$ 202.25
Cryst. solid. Characterised by pmr.

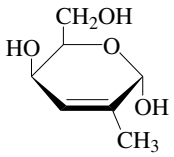
Me glycoside: Methyl 3,6-dideoxy-3-C-methyl-α-D-glucopyranoside
[84247-04-1]
$C_8H_{16}O_4$ 176.212
Needles (EtOAc/hexane). Mp 51.5-52.5°. $[\alpha]_D^{19}$ +155 (c, 0.71 in MeOH).

α-D-Furanose-*form*

1,2-Isopropylidene: 3,6-Dideoxy-1,2-O-isopropylidene-3-C-methyl-α-D-glucofuranose
[78822-31-8]
$C_{10}H_{18}O_4$ 202.25
Syrup. $[\alpha]_D^{25}$ -42 (c, 1 in $CHCl_3$).

Kinoshita, M. *et al., Carbohydr. Res.*, 1982, **109**, 5 (α-D-*Me pyr, isopropylidene-fur, isopropylidene-pyr*)

2,3-Dideoxy-2-*C*-methyl-*threo*-hex-2-enose D-631



α-D-Pyranose-*form*

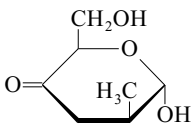
$C_7H_{12}O_4$ 160.169

α-D-Pyranose-*form*

Benzyl glycoside, 4,6-dibenzyl: Benzyl 4,6-di-O-benzyl-2,3-dideoxy-2-C-methyl-α-D-threo-hex-2-enopyranoside
[308116-75-8]
$C_{28}H_{30}O_4$ 430.543
$[\alpha]_D^{25}$ +45.7 (c, 0.6 in $CHCl_3$).

Beyer, J. *et al., J.A.C.S.*, 2000, **122**, 9575-9783 (α-D-*benzyl pyr dibenzyl*)

2,3-Dideoxy-2-*C*-methyl-*threo*-hexopyranos-4-ulose D-632



$C_7H_{12}O_4$ 160.169

α-D-*form*

Me glycoside: [94795-61-6]
$C_8H_{14}O_4$ 174.196
Syrup.

Me glycoside, 2,4-dinitrophenylhydrazone:
Cryst. Mp 188.5-189°. $[\alpha]_D^{23}$ +203 (c, 0.51 in $CHCl_3$).

Me glycoside, 6-Ac: [94795-60-5]
$C_{10}H_{16}O_5$ 216.233
Gum. $[\alpha]_D^{25}$ +94 (c, 1.0 in $CHCl_3$).

Me glycoside, 6-trityl: [68880-93-3]
$C_{27}H_{28}O_4$ 416.516
Cryst. Mp 88-89°. $[\alpha]_D^{28}$ +98.8 (c, 0.2 in $CHCl_3$).

Et glycoside: [66149-53-9]
$C_9H_{16}O_4$ 188.223
Syrup.

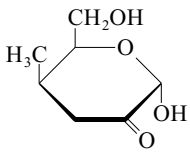
Et glycoside, 2,4-dinitrophenylhydrazone: [66149-61-9]
Yellow cryst. (EtOAc). Mp 188.5-189°.

Yunker, M.B. *et al., Can. J. Chem.*, 1977, **55**, 4002 (α-D-*Et gly, pmr*)

Sum, P.E. *et al., Can. J. Chem.*, 1978, **56**, 2700 (α-D-*Me gly derivs, ir, pmr*)

Chapleur, Y. *et al., J. Carbohydr. Chem.*, 1984, **3**, 443 (α-D-*Me gly*)

3,4-Dideoxy-4-*C*-methyl-*threo*-hexopyranos-2-ulose D-633



$C_7H_{12}O_4$ 160.169

α-D-*form*

Me glycoside, 6-trityl: Methyl 3,4-dideoxy-4-C-methyl-6-O-trityl-α-D-threo-hexopyranosid-2-ulose
[66149-56-2]
$C_{27}H_{28}O_4$ 416.516
Mp 164-165°. $[\alpha]_D^{23}$ +4.6 (c, 3.1 in $CHCl_3$).

α-L-*form*

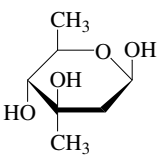
6-Deoxy, Me glycoside: Methyl 3,4,6-trideoxy-4-C-methyl-α-L-threo-hexopyranosid-2-ulose
$C_8H_{14}O_3$ 158.197
$[\alpha]_D^{20}$ -138 (c, 1.0 in $CHCl_3$).

Yunker, M.B. *et al., Can. J. Chem.*, 1977, **55**, 4002 (α-D *Me gly 6-trityl*)

Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 2127 (*6-deoxy Me gly*)

2,6-Dideoxy-3-*C*-methyl-*arabino*-hexose D-634

Olivomycose. *Deacetylchromose. Epimycarose. Evermicose*



β-D-Pyranose-*form*

$C_7H_{14}O_4$ 162.185

Historically, Evermicose was the D-form and Olivomycose the L-form.

D-*form* [26391-83-3]
Obt. by hydrol. of Everninomicin C, E-34.
Mp 108-112°. $[\alpha]_D$ +20.7 (H_2O).

1,4-Di-Ac:
$C_{11}H_{18}O_6$ 246.26
Mp 73°. $[\alpha]_D$ +39.5 ($CHCl_3$). Anomeric config. not certain.

L-*form* [6988-54-1]
Component of Olivomycin and Chromomycin A_3.
Cryst. (Me_2CO/Et_2O).
Mp 109°. $[\alpha]_D^{22}$ -22 (c, 1.0 in H_2O).

4-Ac: 4-O-Acetyl-2,6-dideoxy-3-C-methyl-L-arabino-hexopyranose, 9CI. Chromose B
[13322-75-3]
$C_9H_{16}O_5$ 204.222
Constit. of Chromomycin A_3. Syrup. $[\alpha]_D^{21}$ -24 (c, 1.1 in H_2O).

4-O-(2-Methylpropanoyl): 4-O-Isobutyryl-L-olivomycose
$C_{11}H_{20}O_5$ 232.276
Glycoside residue from Olivomycin A.

α-L-Pyranose-*form*

*Me glycoside: Methyl 2,6-dideoxy-3-C-methyl-α-L-*arabino-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Oil. $[\alpha]_D^{22}$ -147 (c, 1 in EtOH).

β-L-Pyranose-*form*

*Me glycoside: Methyl 2,6-dideoxy-3-C-methyl-β-L-*arabino-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Cryst. (hexane). Mp 93-94°. $[\alpha]_D^{23}$ +50 (c, 1 in EtOH).

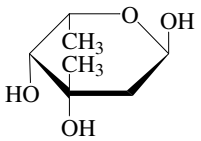
β-DL-Pyranose-*form*

*Butyl glycoside, 4-Ac: Butyl 4-O-acetyl-2,6-dideoxy-3-C-methyl-β-DL-*arabino-*hexopyranoside. Butyl β-DL-chromoside B*
[144791-65-1]
$C_{13}H_{24}O_5$ 260.33
Oil.

Berlin, Y.A. *et al., Tet. Lett.*, 1964, 1323; 3513 (*Me gly, Olivomycose, struct*)
Miyamoto, M. *et al., Tet. Lett.*, 1964, 2371; 1966, 2785 (*Olivomycose*)
Miyamoto, M. *et al., Tetrahedron*, 1966, **22**, 2785 (*L-pyr form, Chromose B L-pyr Ac, isol*)
Williams, E.H. *et al., Can. J. Chem.*, 1969, **47**, 4467 (*Olivmycose*)
Ganguly, A.K. *et al., Chem. Comm.*, 1969, 1149 (*struct, abs config*)
Dyong, I. *et al., Chem. Ber.*, 1977, **110**, 2721 (*synth*)
Fuganti, C. *et al., Chem. Comm.*, 1978, 299 (*Olivomycose*)
Thiem, J. *et al., Chem. Ber.*, 1979, **112**, 818, (*α-L-Me gly*)
Giuliano, R.M. *et al., Carbohydr. Res.*, 1984, **131**, 341 (*synth*)
Toshima, K. *et al., Carbohydr. Res.*, 1991, **222**, 173 (*synth, pmr, L-form*)
Coleman, R.S. *et al., J.O.C.*, 1993, **58**, 385-392 (*β-DL-Bu pyr Ac*)
Giuliano, R.M. *et al., J.O.C.*, 1995, **60**, 202, (*Me gly, synth, pmr, cmr*)

2,6-Dideoxy-3-*C*-methyl-*lyxo*-hexose D-635

[98168-10-6]



$C_7H_{14}O_4$ 162.185

α-L-Pyranose-*form*

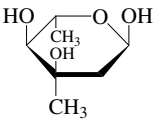
*Me glycoside: Methyl 2,6-dideoxy-3-C-methyl-α-L-*lyxo-*hexopyranoside*
[56782-16-2]
$C_8H_{16}O_4$ 176.212
Cryst. (diisopropyl ether). Mp 77-78°. $[\alpha]_D$ -161 (c, 0.5 in $CHCl_3$).

*Me glycoside, 4-O-benzyl: Methyl 4-O-benzyl-2,6-dideoxy-3-C-methyl-α-L-*lyxo-*hexopyranoside*
[56733-54-1]
$C_{15}H_{22}O_4$ 266.336
Syrup.

[98168-09-3]

Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 507-512 (*α-L-Me pyr, synth, pmr*)
Roush, W.R. *et al., Carbohydr. Res.*, 1985, **136**, 187-193 (*synth*)

2,6-Dideoxy-3-*C*-methyl-*ribo*-hexose D-636



α-L-Pyranose-*form*

$C_7H_{14}O_4$ 162.185

D-*form* [6752-46-1]
Found in Mithramycin.
Needles.
Mp 129.5-130.5°. $[\alpha]_D$ +32 (c, 1.7 in H_2O).

*3-Me: 2,6-Dideoxy-3-C-methyl-3-O-methyl-D-*ribo-*hexose, 9CI. 2,6-Dideoxy-3-C,3-O-dimethyl-D-*ribo-*hexose*
[470-12-2]
$C_8H_{16}O_4$ 176.212
Syrup. $Bp_{0.005}$ 90-95°. $[\alpha]_D$ +21 (c, 0.7 in H_2O).

α-D-Pyranose-*form*

*3-Me, di-Ac: 1,4-Di-O-acetyl-2,6-dideoxy-3-C-methyl-3-O-methyl-α-D-*ribo-*hexopyranose*
$C_{12}H_{20}O_6$ 260.286
Mp 66-67°. $[\alpha]_D$ +41.2 (c, 0.6 in MeOH).

*Me glycoside: Methyl 2,6-dideoxy-3-C-methyl-α-D-*ribo-*hexopyranoside, 9CI, 8CI*
[6752-55-2]
$C_8H_{16}O_4$ 176.212
Mp 56-57°. $[\alpha]_D$ +136 (c, 1.0 in $CHCl_3$).

*Me glycoside, 3-Me: Methyl 2,6-dideoxy-3-C-methyl-3-O-methyl-α-D-*ribo-*hexopyranoside*
$C_9H_{18}O_4$ 190.239
Plates. Mp 27.5-28.5° (sealed tube). $[\alpha]_D$ +7.3 (c, 4.1 in H_2O).

L-*form* *Mycarose*
[6032-92-4]
Residue present in numerous antibiotics.
Needles.
Mp 129-131°. $[\alpha]_D^{25}$ -31.1 (c, 4.0 in H_2O).

*4-Ac: 4-O-Acetyl-2,6-dideoxy-3-C-methyl-L-*ribo-*hexopyranose*
$C_9H_{16}O_5$ 204.222
Residue present in leucomycins.

*1,4-Di-Ac: 1,4-Di-O-acetyl-2,6-dideoxy-3-C-methyl-α-L-*ribo-*hexose*
[18423-83-1]
$C_{11}H_{18}O_6$ 246.26
Cryst. (Et_2O/petrol). Mp 88-90°.

4-(3-Methylbutanoyl): 4-O-Isovaleroylmycarose
$C_{12}H_{22}O_5$ 246.303
Residue present in Leucomycin A_1 and other leucomycins. Oil. $Bp_{1.5}$ 115-116°.

*3-Me: 2,6-Dideoxy-3-C-methyl-3-O-methyl-L-*ribo-*hexose. 2,6-Dideoxy-3-C,3-O-dimethyl-L-*ribo-*hexose.*
Cladinose
[3758-45-0]
$C_8H_{16}O_4$ 176.212
Degradn. prod. from Erythromycin, E-18.
Syrup. $Bp_{2.5}$ 120-132°. $[\alpha]_D$ -23.1 (H_2O).

α-L-Pyranose-*form*

*3-Me, di-Ac: 1,4-Di-O-acetyl-2,6-dideoxy-3-C-methyl-3-O-methyl-α-L-*ribo-*hexopyranose*
[18464-06-7]
$C_{12}H_{20}O_6$ 260.286
Mp 66-67°. $[\alpha]_D$ -36 (c, 1.4 in MeOH).

*Me glycoside: Methyl 2,6-dideoxy-3-C-methyl-α-L-*ribo-*hexopyranoside, 8CI*
[18424-67-4]
$C_8H_{16}O_4$ 176.212
Mp 55-57°. $[\alpha]_D$ -143 (c, 0.7 in EtOH).

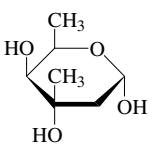
*Me glycoside, 3-Me: Methyl 2,6-dideoxy-3-C-methyl-3-O-methyl-α-L-*ribo-*hexopyranoside*
[18423-88-6] $Bp_{0.2}$ 51-53°. $[\alpha]_D^{30}$ -6.9 (c, 3.0 in H_2O).

DL-*form*
Mp 63-64° (monohydrate) Mp 110-111° (anhyd.).

Regna, P.P. *et al., J.A.C.S.*, 1953, **75**, 4625-4626 (*L-form*)
Flynn, E.H. *et al., J.A.C.S.*, 1954, **76**, 3121, (*3-Me, isol*)
Watanabe, T. *et al., Bull. Chem. Soc. Jpn.*, 1961, **34**, 1285 (*4-Isovaleroylmycarose*)
Foster, A.B. *et al., Chem. Ind. (London)*, 1962, 1619 (*α-L-pyr 3-Me di-Ac*)
Wiley, P.F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 264 (*3-Me, synth*)
Korte, F. *et al., Tetrahedron*, 1962, **18**, 1257, (*DL-form, synth*)
Hofheinze, W. *et al., Tetrahedron*, 1962, **18**, 1265 (*pmr*)
Lemal, D.M. *et al., Tetrahedron*, 1962, **18**, 1275 (*L-form, L-form 3-Me, isol, synth, config*)
Flaherty, B. *et al., J.C.S.(C)*, 1966, 398, (*D-form, D-pyr -Me, α-D-pyr 3-Me di-Ac*)
Howarth, G.B. *et al., Can. J. Chem.*, 1967, **45**, 2253 (*L-form, synth, α-L-Me pyr, L-di-Ac*)
Berlin, Y.A. *et al., Nature (London)*, 1968, **218**, 193 (*isol*)
Nourse, J.G. *et al., J.A.C.S.*, 1975, **97**, 4584 (*conformn, cmr*)
Terui, Y. *et al., Tet. Lett.*, 1975, 2583 (*α-L-Me pyr 3-Me, β-L-Me pyr -Me, cmr*)
Williams, N.R. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1980, **1B**, 761 (*rev*)
Roush, W.R. *et al., Carbohydr. Res.*, 1985, **136**, 187 (*L-form, synth*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1985, **4**, 227-242 (*Me α-D-gly, synth*)
Koft, E.R. *et al., J.O.C.*, 1989, **54**, 2936, (*3-Me, synth*)
Montgomery, S.H. *et al., Carbohydr. Res.*, 1990, **202**, 13 (*3-Me, synth*)
Kaufmann, T. *et al., Carbohydr. Res.*, 1990, **207**, 33-38 (*α-L-Me pyr*)
Toshima, K. *et al., Carbohydr. Res.*, 1991, **222**, 173 (*L-form, L-form 3-Me, synth, pmr*)

2,6-Dideoxy-3-*C*-methyl-*xylo*-hexose, 9CI D-637

Axenose



α-D-Pyranose-*form*

$C_7H_{14}O_4$ 162.185

D-*form*

3-Me: 2,6-Dideoxy-3-C-*methyl-3*-O-*methyl*-D-xylo-*hexose, 9CI*
[19231-36-8]
$C_8H_{16}O_4$ 176.212
Prisms (EtOAc/petrol). Mp 101-102°. $[\alpha]_D^{20}$ +19.8 (c, 1.0 in EtOH).

α-D-Pyranose-*form*

Me glycoside, 3-Me: Methyl 2,6-dideoxy-3-C-*methyl-3*-O-*methyl*-α-D-xylo-*hexopyranoside*
$C_9H_{18}O_4$ 190.239
Needles (pentane). Mp 93-94°. $[\alpha]_D$ +167 (c, 0.7 in $CHCl_3$).

L-*form* [26548-40-3]
Sugar component of Axenomycin A and Axenomycin B.
Mp 106-108°. $[\alpha]_D^{21}$ -27 (c, 0.32 in H_2O).

3-Me: 2,6-Dideoxy-3-C-*methyl-3*-O-*methyl*-L-xylo-*hexose. 2,6-Dideoxy-3*-C,*3*-O-*dimethyl*-L-xylo-*hexose. Arcanose*
$C_8H_{16}O_4$ 176.212
Residue present in Lankamycin.
Mp 96-98°. $[\alpha]_D^{20}$ -19.2 (c, 4.6 in EtOH).

3-Me, 4-Ac: 4-O-*Acetyl-3*-C-*methyl-3*-O-*methyl*-L-xylo-*hexose. 4*-O-*Acetylarcanose*
$C_{10}H_{18}O_5$ 218.249
Hydrol. prod. of Lankamycin. Oil. $[\alpha]_D$ -52.3 (c, 5.98 in EtOH).

α-L-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-3-C-*methyl*-α-L-xylo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Mp 101-103°. $[\alpha]_D$ -142 ($CHCl_3$).

β-L-Pyranose-*form*

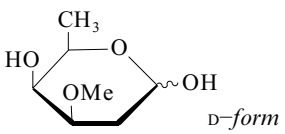
Me glycoside: Methyl 2,6-dideoxy-3-C-*methyl*-β-L-xylo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Mp 122-123°. $[\alpha]_D$ +38 ($CHCl_3$).

[41942-90-9]

Keller-Schierlein, W. *et al., Helv. Chim. Acta*, 1962, **45**, 138 (*L-form, L-Ac, isol*)
Roncari, G. *et al., Helv. Chim. Acta*, 1966, **49**, 705 (*config*)
Haworth, G.B. *et al., Carbohydr. Res.*, 1968, **7**, 284 (*D-form, synth, α-D-Me pyr*)
v. Muntwyler, R. *et al., Helv. Chim. Acta*, 1972, **55**, 460 (*stereochem, pmr*)
Arcamone, F. *et al., J.A.C.S.*, 1973, **95**, 2008 (*synth, ms, L-form*)
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 507 (*synth, L-form*)
Giuliano, R.M. *et al., J.O.C.*, 1995, **60**, 202 (*synth, pmr, cmr, L-form*)

2,6-Dideoxy-3-*O*-methyl-*lyxo*-hexose, 8CI D-638

Diginose. 2-Deoxy-3-O-*methylfucose*
[4432-92-2]



D–*form*

$C_7H_{14}O_4$ 162.185

D-*form* [22252-39-7]
Component of several plant glycosides.
Syrup. $[\alpha]_D^{18}$ +56.2 (c, 0.68 in H_2O).

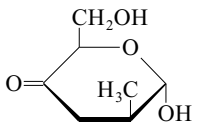
α-D-Pyranose-*form*

Me glycoside: Methyl 2,6-dideoxy-3-O-*methyl*-D-lyxo-*hexopyranoside*
$C_8H_{16}O_4$ 176.212
Syrup. $Bp_{0.08}$ 50-70°. $[\alpha]_D^{20}$ +81.4 (c, 1.58 in Me_2CO).

L-*form* [23457-90-1]
Hydrol. prod. of glycosides isol. from roots of *Vincetoxicum hirundinaria* and others.
Mp 81-87°. $[\alpha]_D^{22}$ -63.4 → +59.6 (c, 0.68 in H_2O).

Tamm, C. *et al., Helv. Chim. Acta*, 1948, **31**, 1630 (*synth*)
Reichstein, T. *et al., Helv. Chim. Acta*, 1954, **37**, 1361; 1493; 2204; 1955, **38**, 98 (*isol*)
Renkonen, O. *et al., Helv. Chim. Acta*, 1959, **42**, 182 (*isol*)
Meyer, U. *et al., Helv. Chim. Acta*, 1964, **47**, 2230 (*isol*)
Stoeckel, K. *et al., Helv. Chim. Acta*, 1969, **52**, 1175 (*isol*)

2,3-Dideoxy-2-*C*-methyl-*threo*-hexos-4-ulose D-639



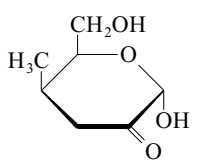
$C_7H_{12}O_4$ 160.169

α-D-Pyranose-*form*

Et glycoside, 6-trityl: Ethyl 2,3-dideoxy-2-C-*methyl-6*-O-*trityl*-α-D-threo-*hexopyranosid-4-ulose*
[66149-54-0]
$C_{28}H_{30}O_4$ 430.543
No phys. props. reported.

Yunker, M.B. *et al., Can. J. Chem.*, 1977, **55**, 4002 (*synth, pmr*)

3,4-Dideoxy-4-*C*-methyl-*threo*-hexos-2-ulose D-640



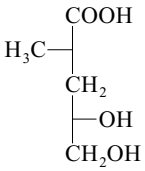
$C_7H_{12}O_4$ 160.169

α-D-Pyranose-*form*

tert-*Butyl glycoside, Ac:* tert-*Butyl 6*-O-*acetyl-3,4-dideoxy-4*-C-*methyl*-α-D-threo-*hexopyranosid-2-ulose*
[81668-94-2]
$C_{13}H_{22}O_5$ 258.314
Syrup. $[\alpha]_D$ +141.4.

Hanessian, S. *et al., Tet. Lett.*, 1981, **22**, 4583 (*synth*)

2,3-Dideoxy-2-*C*-methyl-*threo*-pentonic acid D-641



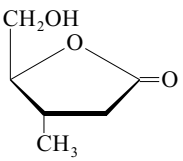
$C_6H_{12}O_4$ 148.158

D-*form*

1,4-Lactone, Ac: 5-O-*Acetyl-2,3-dideoxy-2*-C-*methyl*-threo-*pentono-1,4-lactone*
[111507-13-2]
$C_8H_{12}O_4$ 172.18
Liq. $[\alpha]_D^{20}$ +45.1 (c, 0.7 in $CHCl_3$). CAS name error.

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1987, **41**, 13 (*synth, pmr, cmr*)

2,3-Dideoxy-3-*C*-methyl-*erythro*-1,4-pentonolactone D-642



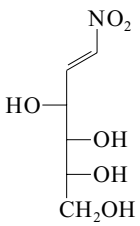
$C_6H_{10}O_3$ 130.143

D-*form*

Trityl: 2,3-Dideoxy-3-C-*methyl-5*-O-*trityl*-D-erythro-*1,4-pentonolactone*
[84911-45-5]
$C_{25}H_{24}O_3$ 372.463
$[\alpha]_D^{25}$ +22.3 (c, 2.8 in $CHCl_3$).

Ireland, R.E. *et al., J.A.C.S.*, 1983, **105**, 1988 (*synth, pmr*)

1,2-Dideoxy-1-nitro-*arabino*-hex-1-enitol D-643



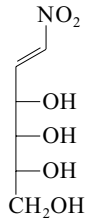
$C_6H_{11}NO_6$ 193.156

D-(1*E*)-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-*acetyl-1,2-dideoxy-1-nitro*-D-arabino-*hex-1-enitol*
[122999-05-7]
$C_{14}H_{19}NO_{10}$ 361.305
Cryst. (EtOH). Mp 115-116°. $[\alpha]_D^{23}$ +32.4 (c, 5.2 in $CHCl_3$).

Sowden, J.C. *et al., J.A.C.S.*, 1947, **69**, 1048 (*synth*)
Sowden, J.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 235 (*synth*)

1,2-Dideoxy-1-nitro-*ribo*-hex-1-enitol D-644



$C_6H_{11}NO_6$ 193.156

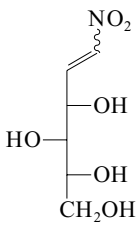
D-(1*E*)-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-*acetyl-1,2-dideoxy-1-nitro-D*-ribo-*hex-1-enitol*
[60478-51-5]
$C_{14}H_{19}NO_{10}$ 361.305
Cryst. (EtOH). Mp 87-88°. $[\alpha]_D$ +17 (c, 5 in $CHCl_3$).

Sowden, J.C. *et al., J.A.C.S.*, 1947, **69**, 1048 (*synth*)

Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 25 (*synth*)

1,2-Dideoxy-1-nitro-*xylo*-hex-1-enitol D-645



$C_6H_{11}NO_6$ 193.156

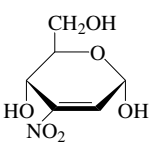
D-*form*

Tetra-Ac: 3,4,5,6-Tetra-O-*acetyl-1,2-dideoxy-1-nitro-D*-xylo-*hex-1-enitol*
[39848-12-9]
$C_{14}H_{19}NO_{10}$ 361.305
Cryst. (EtOH). Mp 115-116°. $[\alpha]_D^{25}$ +10.2 ($CHCl_3$).

Sowden, J.C. *et al., J.A.C.S.*, 1947, **69**, 1048 (*synth*)

Perry, M.B. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 29 (*synth*)

2,3-Dideoxy-3-nitro-*erythro*-hex-2-enose D-646



α-D-Pyranose-*form*

$C_6H_9NO_6$ 191.14

α-D-Pyranose-*form*

Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-2,3-dideoxy-3-nitro-α-D*-erythro-*hex-2-enopyranoside*
[16697-51-1]
$C_{14}H_{15}NO_6$ 293.276
Prisms (EtOAc/petrol). Mp 183-184°. $[\alpha]_D^{23}$ -93 (c, 0.9 in EtOAc).

β-D-Pyranose-*form*

Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-2,3-dideoxy-3-nitro-β-D*-erythro-*hex-2-enopyranoside*
$C_{14}H_{15}NO_6$ 293.276
Needles (EtOAc/petrol). Mp 144-145°. $[\alpha]_D^{23}$ -192.5 (c, 1.2 in $CHCl_3$).

[61664-96-8, 66008-34-2]

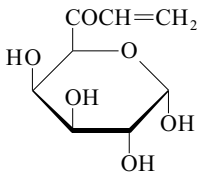
Baer, H.H. *et al., Can. J. Chem.*, 1965, **43**, 840; 1967, **45**, 983 (*α-D-form, β-D-form, synth*)

Tachimori, Y. *et al., Chem. Lett.*, 1976, 483, (*α-D-form, β-D-form*)

Baer, H.H. *et al., J.O.C.*, 1976, **41**, 3474, (*α-D-form, synth*)

Sakakibara, T. *et al., Chem. Comm.*, 1981, 261 (*α-D-form, β-D-form*)

7,8-Dideoxy-*galacto*-oct-7-enopyranos-6-ulose D-647



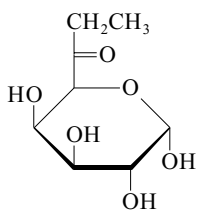
$C_8H_{12}O_6$ 204.179

α-D-*form*

1,2:3,4-Di-O-*isopropylidene:* [72369-63-2]
$C_{14}H_{20}O_6$ 284.308
Cryst. Mp 81-83°. $[\alpha]_D^{25}$ -104 (c, 0.6 in $CHCl_3$).

Horton, D. *et al., Carbohydr. Res.*, 1978, **67**, 357; 1979, **75**, 151 (*diisopropylidene, ir, cryst struct*)

7,8-Dideoxy-*galacto*-octopyranos-6-ulose D-648



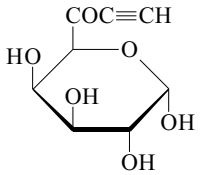
$C_8H_{14}O_6$ 206.195

α-D-*form*

1,2:3,4-Di-O-*isopropylidene:* [65784-44-3]
$C_{14}H_{22}O_6$ 286.324
Cryst. (Et_2O/hexane). Mp 70-72°. $[\alpha]_D^{20}$ -136 (c, 1.0 in $CHCl_3$).

Gonzalez, A. *et al., Carbohydr. Res.*, 1977, **59**, 598 (*diisopropylidene, ir*)

7,8-Dideoxy-*galacto*-oct-7-ynopyranos-6-ulose D-649



$C_8H_{10}O_6$ 202.163

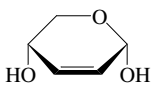
α-D-*form*

1,2:3,4-Di-O-*isopropylidene:* [65784-43-2]
$C_{14}H_{18}O_6$ 282.293
Needles (Et_2O/petrol). Mp 128-129°. $[\alpha]_D^{25}$ -117 (c, 0.8 in $CHCl_3$).

Gonzalez, A. *et al., Carbohydr. Res.*, 1977, **59**, 598 (*diisopropylidene*)

Horton, D. *et al., Carbohydr. Res.*, 1978, **67**, 357; 1979, **75**, 151 (*diisopropylidene, ir, cryst struct*)

2,3-Dideoxy-*glycero*-pent-2-enose D-650



α-D-Pyranose-*form*

$C_5H_8O_3$ 116.116

α-D-Pyranose-*form*

Me glycoside, Ac: Methyl 4-O-*acetyl-2,3-dideoxy-α-D*-glycero-*pent-2-enopyranoside*
[25874-23-1]
$C_8H_{12}O_4$ 172.18
$Bp_{0.4}$ 100°.

α-D-Furanose-*form*

Me glycoside, 6-trityl: Methyl 2,3-dideoxy-5-O-*trityl-α-D*-glycero-*pent-2-enofuranoside*
[67890-35-1]
$C_{25}H_{24}O_3$ 372.463
$[\alpha]_D^{22}$ -57 (c, 1 in CH_2Cl_2). Error in struct. diag. in the ref.

β-D-Furanose-*form*

Me glycoside, 6-trityl: Methyl 2,3-dideoxy-5-O-*trityl-β-D*-glycero-*pent-2-enofuranoside*
[16802-02-1]
$C_{25}H_{24}O_3$ 372.463
$[\alpha]_D^{22}$ -71 (c, 1 in CH_2Cl_2).

Bock, K. *et al., Acta Chem. Scand.*, 1969, **23**, 2083 (*Me pyr deriv*)

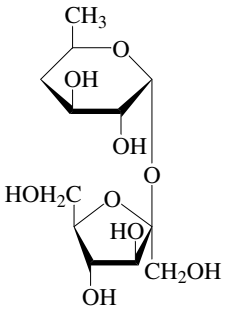
Achmatowicz, O. *et al., Tetrahedron*, 1971, **27**, 1973 (*Me pyr deriv*)

Lacourt-Gadras, B. *et al., Carbohydr. Res.*, 1992, **235**, 281 (*Me fur derivs*)

4,6-Dideoxysucrose D-651

β-D-Fructofuranosyl 4,6-dideoxy-α-D-xylo-hexopyranoside, 9CI

[118650-57-0]



$C_{12}H_{22}O_9$ 310.3

Cryst. (MeOH). Mp 188° (176-178°). $[\alpha]_D$ +56.6 (c, 1.2 in H_2O). $[\alpha]_D^{20}$ -61.9 (c, 1.43 in MeOH).

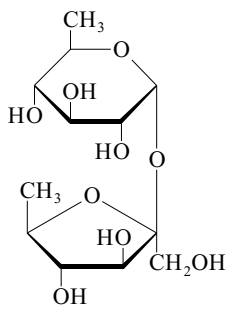
Tamriseven, A. *et al., Carbohydr. Res.*, 1989, **186**, 87-94 (*synth*)

Descotes, G. *et al., Carbohydr. Res.*, 1989, **188**, 63-70 (*synth, pmr*)

6,6′-Dideoxysucrose D-652

6-Deoxy-α-D-glucopyranosyl 6-deoxy-β-D-fructofuranoside

[68791-19-5]



$C_{12}H_{22}O_9$ 310.3

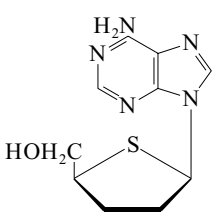
Cryst. (EtOH). Mp 205-206°. $[\alpha]_D^{25}$ +54 (c, 1.5 in H_2O).

Chen, C.C. *et al., Carbohydr. Res.*, 1983, **117**, 318 (*synth, pmr, cmr, bibl*)

2′,3′-Dideoxy-4′-thioadenosine D-653

5-(6-Amino-9H-purin-9-yl)tetrahydro-2-thiophenemethanol, 9CI

[137819-75-1]



$C_{10}H_{13}N_5OS$ 251.312

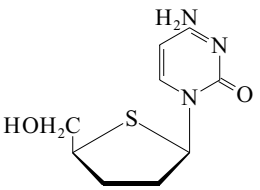
Cryst. (EtOH/EtOAc). Mp 179-182°.

Secrist, J.A. *et al., J. Med. Chem.*, 1992, **35**, 533 (*synth, pmr*)

2′,3′-Dideoxy-4′-thiocytidine D-654

4-Amino-1-[tetrahydro-5-(hydroxymethyl)-2-thienyl]-2(1H)-pyrimidinone, 9CI

[137719-36-9]



$C_9H_{13}N_3O_2S$ 227.287

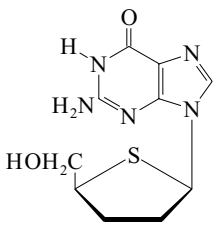
Amorph. solid. Mp 83-85°.

Secrist, J.A. *et al., J. Med. Chem.*, 1992, **35**, 533 (*synth, pmr*)

2′,3′-Dideoxy-4′-thioguanosine D-655

2-Amino-1,9-dihydro-9-[tetrahydro-5-(hydroxymethyl)-2-thienyl]-6H-purin-6-one, 9CI

[137719-32-5]

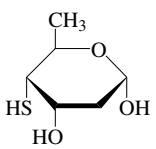


$C_{10}H_{13}N_5O_2S$ 267.311

Cryst. (EtOH). Mp 180-183°.

Secrist, J.A. *et al., J. Med. Chem.*, 1992, **35**, 533 (*synth, pmr*)

2,6-Dideoxy-4-thio-*ribo*-hexose D-656



α-D-Pyranose-*form*

$C_6H_{12}O_3S$ 164.225

D-*form* [126448-21-3]

Constit. of the Calicheamicins, a new class of antitumour antibiotics.

α-D-*form*

Me glycoside: Methyl 2,6-dideoxy-4-thio-α-D-ribo-hexopyranoside, 9CI

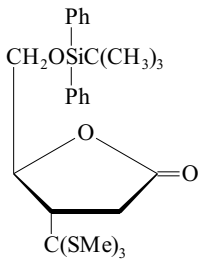
[126448-25-7]

$C_7H_{14}O_3S$ 178.252

Syrup. $[\alpha]_D^{20}$ +144.7 (c, 1.5 in $CHCl_3$).

Van Laak, K. *et al., Tet. Lett.*, 1989, **30**, 4505; 1990, **31**, 4113 (*synth, pmr, cmr*)

2,3-Dideoxy-3-[tris(methylthio)methyl]-5-*O*-*tert*-butyldiphenylsilyl-*erythro*-pentono-1,4-lactone D-657



$C_{25}H_{34}O_3S_3Si$ 506.825

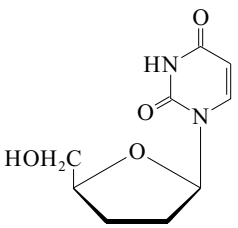
D-*form* [106820-44-4]

Functionalised carbohydrate synthon. Cryst. Mp 140-142°. $[\alpha]_D$ +20.5 (c, 1.1 in $CHCl_3$).

Hanessian, S. *et al., Tetrahedron*, 1987, **43**, 5055 (*synth, pmr, ir*)

2′,3′-Dideoxyuridine, 9CI D-658

[5983-09-5]



$C_9H_{12}N_2O_4$ 212.205

Used in antiviral and anticancer studies. Cryst. Mp 127-129°. $[\alpha]_D^{20}$ +34 (c, 0.4 in H_2O).

5′-Ac: [102935-28-4]

$C_{11}H_{14}N_2O_5$ 254.242

Cryst. Mp 80.1-80.6°.

5′-Benzoyl: [28616-91-3]

$C_{16}H_{16}N_2O_5$ 316.313

Needles (EtOAc). Mp 143-144°.

Pfitzner, K.E. *et al., J.O.C.*, 1964, **29**, 1508 (*synth*)

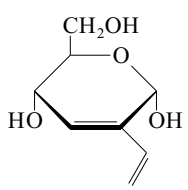
Furukawa, Y. *et al., Chem. Pharm. Bull.*, 1970, **18**, 554 (*synth, benzoyl, uv, pmr*)

Shiragami, H. *et al., J.O.C.*, 1988, **53**, 5170 (*synth, Ac, uv, pmr*)

Jung, M.E. *et al., Tet. Lett.*, 1992, **33**, 2921 (*synth, benzoyl*)

McGuigan, C. *et al., J. Med. Chem.*, 2004, **47**, 1847-1851 (*synth, pmr*)

2,3-Dideoxy-2-*C*-vinyl-*erythro*-hex-2-enose D-659



$C_8H_{12}O_4$ 172.18

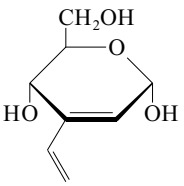
α-D-Pyranose-*form*

*Me glycoside, 4,6-benzylidene: Methyl 4,6-O-benzylidene-2,3-dideoxy-2-C-vinyl-α-D-*erythro-*hex-2-enopyranoside*
[117514-02-0]
$C_{16}H_{18}O_4$ 274.316
Cryst. Mp 138-140°. $[\alpha]_D$ +127 (c, 1.8 in $CHCl_3$).

López, J.C. *et al., Tetrahedron*, 1993, **49**, 7701 (*pmr, cmr*)

2,3-Dideoxy-3-*C*-vinyl-*erythro*-hex-2-enose D-660

*2,3-Dideoxy-3-C-ethenyl-*erythro-*hex-2-enose*



$C_8H_{12}O_4$ 172.18

α-D-Pyranose-*form*

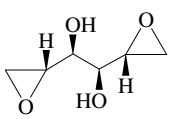
*Me glycoside, 4,6-*O*-benzylidene(*R*-): Methyl 4,6-O-benzylidene-2,3-dideoxy-3-C-vinyl-α-D-*erythro-*hex-2-enopyranoside*
[118204-02-7]
$C_{16}H_{18}O_4$ 274.316
Needles. Mp 130-133°. $[\alpha]^{23}_{Hg365}$ -52 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene:*
[117514-04-2]
Cryst. Mp 119-121°. $[\alpha]_D$ -1.2 (c, 1.1 in $CHCl_3$). Not clear if this is the same as the compd. reported above. Benzylidene configuration not determined.

Lipschutz, B.H. *et al., Tetrahedron*, 1988, **44**, 3355 (*synth, pmr, cmr, ms*)
López, J.C. *et al., Tetrahedron*, 1993, **49**, 7701 (*synth, pmr, cmr*)

1,2:5,6-Diepoxy-3,4-hexanediol D-661

1,2-Dioxiranyl-1,2-ethanediol. 1,2:5,6-Dianhydrohexitol



(2*R*,3*S*,4*S*,5*R*)-*form*

$C_6H_{10}O_4$ 146.143

(2*R*,3*S*,4*S*,5*R*)-*form*

1,2:5,6-Dianhydro-L-iditol
[132957-76-7]
No phys. props. reported.

(2*S*,3*S*,4*S*,5*S*)-*form*

1,2:5,6-Dianhydro-D-mannitol
[19895-66-0] Antineoplastic agent. Needles. Mp 64-66°. $[\alpha]^{25}_D$ +40 (c, 1.25 in H_2O).

Di-Et ether: [71223-72-8]
$C_{10}H_{18}O_4$ 202.25
Liq. $Bp_{0.1}$ 67-70°. $[\alpha]_D$ -5.5 (c, 3.4 in $CHCl_3$).

*3,4-*O*-Isopropylidene: 1,2:5,6-Dianhydro-3,4-*O*-isopropylidene-D-mannitol*
[63700-05-0]
$C_9H_{14}O_4$ 186.207
$[\alpha]_D$ -2 (c, 4.0 in $CHCl_3$).

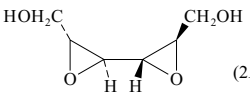
(2*RS*,3*SR*,4*RS*,5*SR*)-*form* *1,2:5,6-Dianhydrogalactitol*
[23261-20-3] Antineoplastic agent. Plates. Mp 96.5-98.5°. $[\alpha]^{25}_D$ +2 (c, 1.25 in H_2O). Dimorphic. A *meso*-diastereoisomer.

*Di-Ac: 3,4-Di-*O*-acetyl-1,2:5,6-dianhydrogalactitol*
[57230-48-5]
$C_{10}H_{14}O_6$ 230.217
Needles (MeOH). Mp 91°.

Elson, L.A. *et al., Eur. J. Cancer*, 1968, **4**, 617 (*synth, pharmacol*)
Jarman, M. *et al., Carbohydr. Res.*, 1969, **9**, 139 (*synth*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1979, **71**, 123-134 (*di-Me ether, di-Et ether*)
Czugler, M. *et al., Carbohydr. Res.*, 1982, **108**, 173 (*cryst struct, dianhydrogalactitol*)
Horváth, I.P. *et al., Eur. J. Cancer Clin. Oncol.*, 1982, **18**, 573 (*pharmacol*)
Takano, S. *et al., J.A.C.S.*, 1991, **113**, 2786 (*Dianhydroiditol*)
de March, P. *et al., J.O.C.*, 2003, **68**, 2437-2447 (*di-Et ether, isopropylidene, synth*)

2,3:4,5-Diepoxy-1,6-hexanediol D-662

2,2′-Bioxirane-3,3′-dimethanol. 2,3:4,5-Dianhydrohexitol



(2*R*,3*S*,4*S*,5*R*)–*form*

$C_6H_{10}O_4$ 146.143

(2*R*,3*S*,4*S*,5*R*)-*form*

*(+)-*trans,trans-*form. 2,3:4,5-Dianhydro-D-iditol*
[20706-76-7]
Cryst. (EtOAc). Mp 100-101°. $[\alpha]^{25}_D$ +82.1 (c, 1.0 in H_2O).

*Di-Ac: 1,6-Di-*O*-acetyl-2,3:4,5-dianhydro-D-iditol*
[20706-77-8]
$C_{10}H_{14}O_6$ 230.217
Cryst. (2-propanol). Mp 48-49.5°. $[\alpha]^{22}_D$ +87 (c, 2.1 in $CHCl_3$).

*Dibenzoyl: 2,3:4,5-Dianhydro-1,6-di-*O*-benzoyl-D-iditol*
[20706-78-9]
$C_{20}H_{18}O_6$ 354.359
Cryst. (EtOH). Mp 95-96°. $[\alpha]^{21}_D$ +63.8 (c, 1.0 in $CHCl_3$).

(2*S*,3*R*,4*R*,5*S*)-*form* *(-)-*trans-trans-*form. 2,3:4,5-Dianhydro-L-iditol*
[23261-22-5]
Prisms. Mp 98-99°. $[\alpha]^{20}_D$ -80.4 (c, 0.5 in H_2O) (-72).

(2*RS*,3*RS*,4*SR*,5*SR*)-*form* *2,3:4,5-Dianhydroallitol.* cis-cis-*form*
[63699-93-4]
Cryst. (EtOAc). Mp 140-141°. *Meso*-.

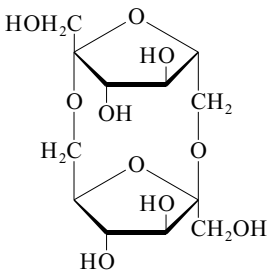
*Di-Ac: 1,6-Di-*O*-acetyl-2,3:4,5-dianhydroallitol*
[63699-94-5]
$C_{10}H_{14}O_6$ 230.217
Cryst. (2-propanol). Mp 88.5-89°.

*Dimesyl: 2,3:4,5-Dianhydro-1,6-di-*O*-mesylallitol*
[42355-32-8]
$C_8H_{14}O_8S_2$ 302.326
Cryst. (Me_2CO). Mp 132.5-133.5°.

Tipson, R.S. *et al., Carbohydr. Res.*, 1968, **7**, 232 (*synth, di-Ac, dibenzoyl, pmr*)
Jarman, M. *et al., Carbohydr. Res.*, 1969, **9**, 139 (*synth*)
Schneider, G. *et al., Carbohydr. Res.*, 1977, **56**, 43 (*dianhydroallitol*)
Bock, K. *et al., Acta Chem. Scand.*, 1989, **43**, 264 (*synth*)

Di-β-D-fructofuranose 2,6′:6,2′-dianhydride, 9CI D-663

β-D-Fructofuranose β-D-fructofuranose 2,6′:6,2′-dianhydride. ***Alliuminoside***
[546-42-9]



$C_{12}H_{20}O_{10}$ 324.284

Not to be confused with Alliumosides (see Furost-5-ene-3,22,26-triol. Isol. from bulbs of *Allium sewertzowi*. Prod. by reacting levan or phlein with fructosyl transferase from *Pseudomonas fluorescens*. Exhibits good heat stability. Shows anticancer activity. Cryst. (EtOH). Mp 177-178° (92-93°). $[\alpha]^{20}_D$ -32 (c, 1.2 in H_2O). $[\alpha]^{20}_D$ -23.8 (H_2O).

Hexa-Ac:
$C_{24}H_{32}O_{16}$ 576.507
Mp 142-143° (98-99°). $[\alpha]^{20}_D$ -54.9 (c, 0.7 in $CHCl_3$) (-29.3).

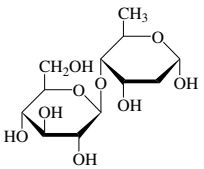
Hexa-Me:
$C_{18}H_{32}O_{10}$ 408.445
$[\alpha]^{20}_D$ -56.6 (c, 1.1 in $CHCl_3$) (-39.7).
$[\alpha]^{20}_D$ -39.7 (c, 1.1 in $CHCl_3$).

[97949-45-6]

Strepkov, S.M. *et al., Zh. Obshch. Khim.*, 1958, **28**, 3143 (*isol, deriv*)
Tanaka, K. *et al., Carbohydr. Res.*, 1982, **99**, 197 (*synth, deriv*)
Japan. Pat., 1988, 214 160; *CA*, **110**, 153057p (*use*)
Japan. Pat., 1989, 91 793; *CA*, **111**, 76554q (*synth*)

Digilanidobiose D-664

*4-O-β-D-Glucopyranosyl-2,6-dideoxy-D-*ribo*-hexose, 8CI. 4-O-β-D-Glucopyranosyl-D-digitoxose*
[7757-13-3]



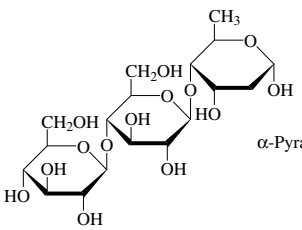
α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Isol. by mild acid hydrolysis from the glycosides lanatoside A, B and C (from *Digitalis* species), Erysimoside (from *Erysimum perofskianum*) and from the glycosides of *Isoplexis isabelliana* and from *Isoplexis canariensis*.
Mp 229-230°. $[\alpha]_D$ +30.6 (H_2O).

Breton, J.L. *et al., Chem. Ind. (London)*, 1960, 205
Kowalewski, Z. *et al., Helv. Chim. Acta*, 1960, **43**, 1280
Lichti, H. *et al., Helv. Chim. Acta*, 1961, **44**, 238
Sigrid, S. *et al., Helv. Chim. Acta*, 1967, **50**, 1893 (*isol*)
Imre, Z. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1977, **310**, 142; *CA*, **86**, 177205x

Digilanidotriose D-665

*β-D-Glucopyranosyl-(1→4)-β-D-glucopyranosyl(1→4)-D-digitoxose. β-D-Cellobiosyl-(1→4)-D-digitoxose. β-D-Glucopyranosyl-(1→4)-β-D-glucopyranosyl-2,6-dideoxy-D-*ribo*-hexose*

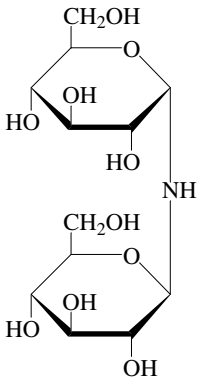


α-Pyranose-*form*

$C_{18}H_{32}O_{14}$ 472.442
The sugar moiety of the glycoside Gitorocellobioside from *Digitalis purpurea*. Needles (MeOH/H_2O/Et_2O). Mp 215-219°. $[\alpha]_D^{20}$ +17.6 (c, 1.206 in H_2O).

Okano, A. *et al., Chem. Pharm. Bull.*, 1959, **7**, 226 (*isol, struct*)

Diglucopyranosylamine D-666



D,D-α,β-*form*

$C_{12}H_{23}NO_{10}$ 341.314

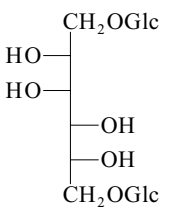
D,D-α,β-*form*
α-D-Glucopyranosyl-β-D-glucopyranosylamine
[103129-66-4]
Mp 170-171°. $[\alpha]_D^{20}$ +88.5 (c, 2.0 in H_2O). Formerly assigned the α,α-config.
*Octa-Ac: (2,3,4,6-Tetra-*O*-acetyl-α-D-glucopyranosyl)(2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranosyl)amine*
[68398-27-6]
$C_{28}H_{39}NO_{18}$ 677.612
Cryst. (EtOH/Me_2CO). Mp 212-213°. $[\alpha]_D^{20}$ +88 (c, 2.0 in $CHCl_3$).

D,D-β,β-*form* [103059-85-4]
Foam. $[\alpha]_D^{20}$ +6 (c, 2.0 in H_2O).
*Octa-Ac: Bis(2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranosyl)amine*
[63976-10-3]
$C_{28}H_{39}NO_{18}$ 677.612
Cryst. (EtOH). Mp 154°. $[\alpha]_D^{20}$ +16.9 (c, 2.0 in $CHCl_3$).

Linek, K. *et al., Carbohydr. Res.*, 1987, **164**, 195 (*synth, pmr, cmr, bibl*)
Imberty, A. *et al., Carbohydr. Res.*, 1998, **311**, 135-146 (*octa-Ac, cryst struct*)

1,6-Di-*O*-β-D-glucopyranosyl-D-mannitol D-667

O-*β-D-Glucopyranosyl-(1→6)*-O-*β-D-glucopyranosyl-(1→1)-D-mannitol, 8CI*
[28976-36-5]

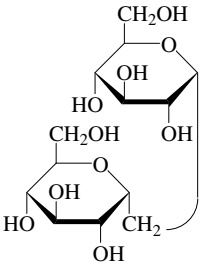


$C_{18}H_{34}O_{16}$ 506.457
Occurs in the brown algae *Fucus vesiculosus, Fucus spiralis, Pelvetia canaliculata, Laminaria cloustoni* and *Desmarestia aculeata*.
$[\alpha]_D^{20}$ -14 (c, 2.0 in H_2O).

Lindberg, B. *et al., Acta Chem. Scand.*, 1953, **7**, 1119 (*isol*)
Bouveng, H. *et al., Acta Chem. Scand.*, 1955, **9**, 168 (*isol*)
Coassini, L.L. *et al., CA*, 1970, **73**, 63240f

Di-1-glucosylmethane D-668

C-*Trehalose*



α,α-*form*

$C_{13}H_{24}O_{10}$ 340.327
Analogue of α,α-Trehalose, T-123, α,β-Trehalose, T-124 and β,β-Trehalose, T-125 with CH_2 replacing glycosidic O.

α,α-*form*
Solid + $2H_2O$ (MeOH). Mp 225° dec. $[\alpha]_D$ +81.8 (c, 1.59 in H_2O).

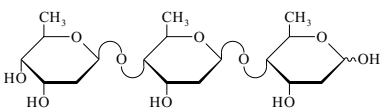
α,β-*form*
$[\alpha]_D$ +33 (c, 1.02 in H_2O).

β,β-*form*
Gum. $[\alpha]_D$ -20.7 (c, 0.73 in H_2O).
Octa-Ac: [130168-59-1]
$C_{29}H_{40}O_{18}$ 676.624
Hygroscopic solid. Mp 127-129°. $[\alpha]_D^{20}$ -9.1 (c, 1.0 in $CHCl_3$).

Wei, A. *et al., J.O.C.*, 1994, **59**, 88 (*synth, pmr, cmr, conformn*)
Paterson, D.E. *et al., Eur. J. Org. Chem.*, 2002, 1323-1336 (*β,β-octa-Ac*)

Digoxose D-669

*2,6-Dideoxy-β-D-*ribo*-hexopyranosyl-(1→4)-2,6-dideoxy-β-D-*ribo*-hexopyranosyl-(1→4)-2,6-dideoxy-D-*ribo*-hexose*
[93449-30-0]



$C_{18}H_{32}O_{10}$ 408.445
Isol. from dried twigs of *Orthenthera viminea* (Asclepiadaceae). Present in several cardioactive glycosides.
Mp 171-174°. $[\alpha]_D^{25}$ +36.3 (c, 0.70 in MeOH).

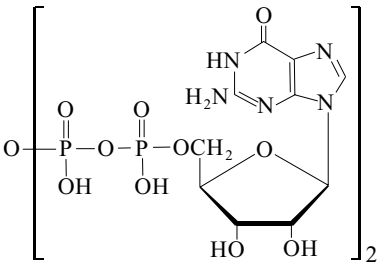
α-Pyranose-*form*
Penta-Ac:
$C_{28}H_{42}O_{15}$ 618.631
Amorph. $[\alpha]_D^{25}$ +75.3 (c, 0.6 in MeOH).

Tiwari, K.N. *et al., Carbohydr. Res.*, 1984, **129**, 179 (*isol, pmr*)

P^1,P^4-Diguanosine 5′-tetraphosphate D-670

Guanosine 5′-(pentahydrogen tetraphosphate) 5′,5′-ester of guanosine, 9CI, 8CI. Diguanosine 5′,5‴-(P^1,P^4-tetraphosphate). GP_4G

[4130-19-2]



$C_{20}H_{28}N_{10}O_{21}P_4$ 868.39

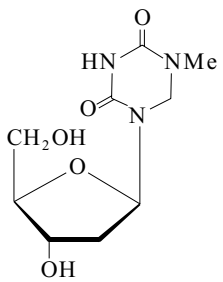
Present in brine shrimp (*Artemia salina*) eggs and in rat liver. Is converted into ATP in the metabolism of the brine shrimp. λ_{max} 256-7 nm (ε 21 700) (pH 2 and 10).

Biochem. Prep., 1966, **11**, 27 (*isol, synth*)
van Denbos, G. *et al., J. Biol. Chem.*, 1974, **249**, 2816
Sy, J. *et al., Biochemistry*, 1975, **14**, 970
Vallejo, C.G. *et al., Biochim. Biophys. Acta*, 1976, **438**, 304

5,6-Dihydro-5-azathymidine D-671

*1-(2-Deoxy-β-D-*erythro*-pentofuranosyl)-dihydro-5-methyl-1,3,5-triazine-2,4(1*H*,3*H*)-dione, 9CI. PA 399. U 44590. Antibiotic PA 399. Antibiotic U 44590*

[57350-36-4]



$C_9H_{15}N_3O_5$ 245.235

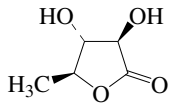
Nucleoside-type antibiotic. Obt. from *Streptomyces platensis* var. *clarensis* and *Micromonospora melanogenes*. Antiviral agent, useful against herpes simplex. Also active against gram-positive and -negative bacteria. Needles. Sol. H_2O.
Mp 141-142°. $[\alpha]_D^{23}$ -5 (c, 0.903 in H_2O).

*3′,5′-Di-*O*-Ac: 3′,5′-Diacetyl-5,6-dihydro-5-azathymidine. U 44474. Antibiotic U 44474*
[57350-37-5]
$C_{13}H_{19}N_3O_7$ 329.309
Semisynthetic.

U.S. Pat., 1975, 3 907 643; *CA*, **84**, 15683h (*isol*)
Argoudelis, A.D. *et al., J. Antibiot.*, 1976, **29**, 818
Weirenga, W. *et al., J.O.C.*, 1978, **43**, 529 (*cmr*)
Japan. Pat., 1978, 78 66 494; *CA*, **89**, 178087 (*isol*)
Skulnick, H.I. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1979, **6**, 263 (*synth*)
Wierenga, W. *et al., Carbohydr. Res.*, 1981, **90**, 41 (*synth*)

Dihydro-3,4-dihydroxy-5-methyl-2(3*H*)-furanone D-672

2,3-Dihydroxy-4-methylbutyrolactone. 5-Deoxypentono-1,4-lactone



(3*R*,4*R*,5*S*)-*form*

$C_5H_8O_4$ 132.116

(3*R*,4*R*,5*S*)-*form*
L-arabino-*form*
Long needles ($CHCl_3$). Mp 125° (119-122°). $[\alpha]_D^{20}$ -39 (c, 1.5 in EtOAc).

(3*R*,4*S*,5*R*)-*form*
D-ribo-*form*
[96291-06-4]
Yellowish solid. Mp 127°. $[\alpha]_D$ +17 (c, 1.0 in MeOH).

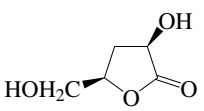
(3*S*,4*S*,5*R*)-*form*
D-arabino-*form*
Cryst. (EtOAc). Mp 120-122°. $[\alpha]_D^{25}$ +39 (c, 1 in EtOAc).

Andrews, P. *et al., J.A.C.S.*, 1955, **77**, 125
Bock, K. *et al., Carbohydr. Res.*, 1982, **104**, 79 (*synth*)
Papageorgiou, C. *et al., Tet. Lett.*, 1984, **25**, 6041 (*D-ribo, synth*)
Torii, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 3629-3630 (*synth, ir, pmr, cmr*)
Fernandez, A.M. *et al., J.O.C.*, 1997, **62**, 4007-4014 (*synth, ir, pmr, cmr*)

4,5-Dihydro-3-hydroxy-5-(hydroxymethyl)-2(3*H*)-furanone D-673

3-Deoxypentonic acid γ-lactone, 9CI. 2-Hydroxy-4-hydroxymethyl-4-butanolide

[74243-47-3]



(3*R*,5*R*)-*form*

$C_5H_8O_4$ 132.116

(3*R*,5*R*)-*form*
L-threo-*form*
[117141-72-7]
Oil. $[\alpha]_D^{20}$ -22.2 (c, 1.26 in MeOH). $[\alpha]_D$ -22.5 (c, 1.5 in MeOH).

3-Benzoyl: [116983-09-6]
$C_{12}H_{12}O_5$ 236.224
Mp 49-50°. $[\alpha]_D^{20}$ -20.5 (c, 0.87 in MeOH).

(3*R*,5*S*)-*form*
D-erythro-*form*
[19473-19-9]
Oil. $[\alpha]_D^{20}$ +50.3 (c, 1.75 in MeOH). $[\alpha]_D$ +49.2 (c, 1.4 in EtOH).

3-Benzoyl: [116983-07-4]
Solid. Mp 84-86°. $[\alpha]_D^{20}$ +41.9 (c, 1.0 in MeOH).

(3*S*,5*R*)-*form*
L-erythro-*form*
[117141-71-6]
Oil. $[\alpha]_D^{25}$ -47.5 (c, 0.72 in EtOH). $[\alpha]_D^{20}$ -45.6 (c, 1.6 in MeOH).

5-Ac: [124867-29-4]
$C_7H_{10}O_5$ 174.153
$[\alpha]_D^{25}$ -53.8 (c, 0.53 in $CHCl_3$).

5-Benzoyl: [116983-08-5]
$C_{12}H_{12}O_5$ 236.224
Mp 82-85°. $[\alpha]_D^{20}$ -42.1 (c, 1.12 in MeOH).

(3*S*,5*S*)-*form*
D-threo-*form*
[19473-20-2]
Isol. from human and rat blood serum. Shows appetite-stimulant props.
Oil. $[\alpha]_D^{20}$ +23.2 (c, 3.61 in MeOH) (+11.4).

Di-Ac: [79580-65-7]
$C_9H_{12}O_6$ 216.19
Cryst. (EtOAc/hexane). Mp 69-71°. $[\alpha]_D^{25}$ +51.2 (c, 1.3 in $CHCl_3$).

3-Benzoyl: [116983-06-3]
$C_{12}H_{12}O_5$ 236.224
Mp 50-51°. $[\alpha]_D^{20}$ +21.1 (c, 0.9 in MeOH).

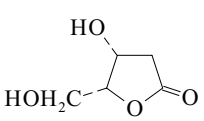
Dibenzoyl: [149311-32-0]
$C_{19}H_{16}O_6$ 340.332
Cryst. Mp 135.5-137.5°. CA gives the *erythro* stereochem. to this compd. which is incorr.

3-(4-Methylbenzenesulfonyl):
[147410-02-4]
$C_{12}H_{14}O_6S$ 286.305
Cryst. (EtOAc/hexane). Mp 90-95°. $[\alpha]_D$ +9.49 (c, 1.18 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 155-162 (*di-Ac*)
Attwood, S.V. *et al., J.C.S. Perkin 1*, 1984, 1315-1322 (*synth, pmr*)
Uchikawa, O. *et al., Bull. Chem. Soc. Jpn.*, 1988, **61**, 2025-2029 (*synth, ir, pmr, cmr, bibl*)
Xie, Z.-F. *et al., Chem. Pharm. Bull.*, 1989, **37**, 1650-1652 (*5-Ac*)
Matsumoto, K. *et al., Heterocycles*, 1992, **34**, 363-367 (*synth*)
Ariza, J. *et al., Tetrahedron*, 1993, **49**, 1315-1326 (*2-tosyl*)
Xie, Z.-F. *et al., Tetrahedron: Asymmetry*, 1993, **4**, 973-980 (*synth*)
Ticozzi, C. *et al., Tet. Lett.*, 1994, **35**, 7421-7424 (*synth, pmr*)
Choquet-Farnier, C. *et al., Carbohydr. Res.*, 1997, **303**, 185-191 (*synth, pmr, cmr*)
Org. Synth., Coll. Vol., 9, 1998, 717-721 (*synth, di-Ac, 4,5-isopropylidene*)
Shiraiwa, T. *et al., Chem. Pharm. Bull.*, 1999, **47**, 1180-1183 (*synth, ir, pmr, cmr*)
Enders, D. *et al., Tetrahedron*, 1999, **55**, 6129-6138 (*synth, ir, pmr, cmr, ms*)

4,5-Dihydro-4-hydroxy-5-(hydroxymethyl)-2(3*H*)-furanone D-674

3-Hydroxy-4-hydroxymethyl-4-butanolide. 3,4,5-Trihydroxypentanoic acid 1,4-lactone. 2-Deoxypentono-1,4-lactone



(4*R*,5*R*)–*form*

$C_5H_8O_4$ 132.116

Satiety-modulating substance in rats.

(4*R*,5*R*)-*form*
D-threo-*form*. *2-Deoxy-D-xylono-1,4-lactone*
[78185-08-7]
Oil. $[\alpha]_D^{24}$ +67.3 (c, 1.01 in MeOH) (+49.3).

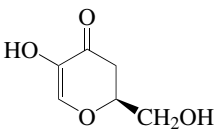
(4*R*,5*S*)-*form*
L-erythro-*form*. *2-Deoxy-L-ribono-1,4-lactone*
[38996-14-4]
Constit. of the fruit of *Foeniculum vulgare* (fennel).
Oil. $[\alpha]_D^{22}$ +3.5 (c, 0.8 in MeOH). $[\alpha]_D$ +13.5 (c, 0.8 in H_2O).

(4*S*,5*R*)-*form*
D-erythro-*form*. *2-Deoxy-D-ribono-1,4-lactone*
[34371-14-7]
Constit. of the leaves of *Aristolochia arcuata*.
$[\alpha]_D^{24}$ -4.5 (c, 1.44 in EtOH) (-1.5).
1′,4-Bis(triphosphate): 2-Deoxy-D-ribono-1,4-lactone 3,5-bis(triphosphate)
$C_5H_{14}O_{22}P_6$ 611.995
Constit. of the leaves of *Aristolochia arcuata*. Solid (MeOH).
Mp 189-190°. $[\alpha]_D^{25}$ -1.9 (c, 1.65 in H_2O).

(4*R,5*S**)-*form***
Constit. of the roots of *Clematis chinensis*.
Fernández, M.V. *et al., Tetrahedron*, 1990, **46**, 7911-7922 (*synth, pmr, cmr*)
Matsumoto, K. *et al., Bull. Chem. Soc. Jpn.*, 1995, **68**, 670-672 (*synth*)
Kita, Y. *et al., J.O.C.*, 1998, **53**, 554-561 (*synth*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)
Doyle, M.P. *et al., J.O.C.*, 1999, **64**, 8907-8915 (*synth, bibl, pmr*)
He, M. *et al., Yaoxue Xuebao*, 2001, **36**, 278-280 (*isol*)
Francisco, M.C. *et al., Phytochemistry*, 2003, **62**, 1265-1270 (*3,5-bistriphosphate*)

2,3-Dihydro-5-hydroxy-2-(hydroxymethyl)-4*H*-pyran-4-one D-675

1,5-Anhydro-4-deoxy-glycero-*hex-1-en-3-ulose*. ***Ascopyrone P***
[6380-97-8]

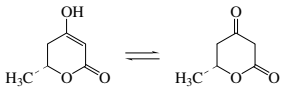


$C_6H_8O_4$ 144.127

(*S*)-*form*
D-*form*
[68732-99-0]
Prod. by *Plicaria leiocarpa*. Squalene synthase inhibitor. Cryst. Sol. H_2O. Mp 91-96° (92°). $[\alpha]_D$ +155 (c, 1.1 in H_2O). λ_{max} 292 (log ϵ 3.8) (H_2O). λ_{max} 211 (ϵ 345) (MeCN) (Berdy). λ_{max} 339 (NaOH) (Berdy).
Shafizadeh, F. *et al., Carbohydr. Res.*, 1978, **67**, 433 (*synth*)
Stevenson, T.T. *et al., Carbohydr. Res.*, 1981, **90**, 319 (*cryst struct*)
Baute, M.A. *et al., Phytochemistry*, 1993, **33**, 41-45 (*isol, uv, ir, pmr, cmr, ms*)
Andersen, S.M. *et al., J. Carbohydr. Chem.*, 2002, **21**, 569-578 (*synth*)

5,6-Dihydro-4-hydroxy-6-methyl-2*H*-pyran-2-one, 9CI D-676

*Dihydro-6-methyl-2*H*-pyran-2,4(3*H*)-dione, 9CI*. *β-Keto-δ-valerolactone*
[33177-29-6]
[85825-79-2]



(*R*)-*form*

$C_6H_8O_3$ 128.127

(*R*)-*form* [148586-29-2]
Cryst. (MeOH aq.). Mp 135°. $[\alpha]_D^{25}$ -147.3 (c, 2.10 in EtOH).
*Me ether: 5,6-Dihydro-4-methoxy-6-methyl-2*H*-pyran-2-one*
[221356-83-8]
$C_7H_{10}O_3$ 142.154
Solid. Mp 61°. $[\alpha]_D^{25}$ -168.09 (c, 1.2 in $CHCl_3$).

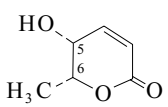
(*S*)-*form* [149115-92-4]
[132604-11-6]
Solid. Mp 135°. $[\alpha]_D^{25}$ +145.4 (c, 2.1 in EtOH).

O-*β*-D-*Glucopyranoside:* ***Gerberin***
[125445-59-2]
$C_{12}H_{18}O_8$ 290.269
Constit. of *Gerbera jamesonii hybrida*. Amorph. powder. $[\alpha]_D^{19}$ -11.2 (c, 1.2 in MeOH).
Me ether: Mp 59-60°. $[\alpha]_D^{17}$ +256 (c, 0.5 in MeOH).

(±)-*form* [74259-30-6]
Cryst. Mp 123-125° (121-122°).
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1158B (*nmr*)
Izawa, T. *et al., Chem. Lett.*, 1975, 161 (*synth*)
Svendsen, A. *et al., J.O.C.*, 1975, **40**, 1927 (*synth*)
Nedjar, B. *et al., J. Het. Chem.*, 1978, **15**, 1153 (*synth*)
Haeusler, J. *et al., Monatsh. Chem.*, 1982, **113**, 1213 (*synth*)
Nagumo, S. *et al., Chem. Pharm. Bull.*, 1989, **37**, 2621-2623 (*Gerberin*)
Tabuchi, H. *et al., J.O.C.*, 1994, **59**, 4749-4759 (*synth, ir, pmr, cmr*)
Fehr, M.J. *et al., New J. Chem.*, 1998, **22**, 1499-1504 (*Me ether*)
Drochner, D. *et al., Eur. J. Org. Chem.*, 2001, 211-215 (*enantiomers, Me ether, synth, pmr, cmr*)

5,6-Dihydro-5-hydroxy-6-methyl-2*H*-pyran-2-one, 9CI D-677

4-Hydroxy-2-hexen-5-olide
[54826-92-5]



(5*R*,6*R*)–*form*

$C_6H_8O_3$ 128.127

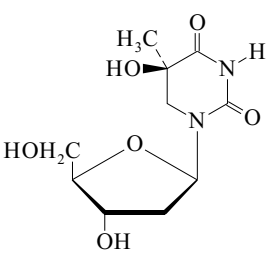
(5*R*,6*R*)-*form*
O-*β*-D-*Glucopyranoside:* ***Angiopteroside***
[80433-52-9]
$C_{12}H_{18}O_8$ 290.269
Constit. of rhizome of *Angiopteris lygodiifolia*. Cryst. ($CHCl_3$/MeOH).
Ac: [54621-88-4]
$C_8H_{10}O_4$ 170.165
Oil. $Bp_{0.1}$ 130°. $[\alpha]_D^{20}$ -179 (c, 1 in $CHCl_3$).

(5*R*,6*S*)-*form* *Osmundalactone*
[69308-39-0]
Constit. of *Osmunda japonica* (zenmai). Plates (C_6H_6) or needles.
Mp 82-82.5°. $[\alpha]_D^{22}$ -70.6 (c, 2.0 in H_2O).
O-*β*-D-*Glucopyranoside:* ***Osmundalin***
[54835-71-1]
$C_{12}H_{18}O_8$ 290.269
Isol. from ferns *Osmunda japonica* (zenmai) and *Osmunda regalis*. Syrup; needles (MeOH) as tetra-Ac.
Mp 172.5-173.5° (tetra-Ac).

(5*S*,6*R*)-*form*
Isol. from the fungus *Paxillus atrotomentosus*. Cryst. (EtOAc). Mp 81.5-82.5°. $[\alpha]_D$ +70.9 (c, 1.3 in H_2O).
Hollenbeak, K.H. *et al., Tetrahedron*, 1974, **30**, 2307 (*isol, synth*)
Torssell, K. *et al., Acta Chem. Scand., Ser. B*, 1977, **31**, 297; 1978, **32**, 457 (*synth*)
Yamagiwa, S. *et al., J.C.S. Perkin 1*, 1979, 570 (*synth*)
Hseu, T.H. *et al., Acta Cryst. B*, 1981, **37**, 2095 (*cryst struct*)
Numata, A. *et al., Chem. Pharm. Bull.*, 1984, **32**, 2815
Murayama, T. *et al., Agric. Biol. Chem.*, 1986, **50**, 2347 (*synth*)
Lichtenthaler, F.W. *et al., Annalen*, 1989, 1153 (*synth, pmr, acetate*)
Buchanan, M.S. *et al., Phytochemistry*, 1995, **40**, 1251 (*isol, pmr, cmr*)
Ono, M. *et al., Heterocycles*, 1999, **51**, 1503-1508 (*synth*)
Yonghang, G. *et al., J. Chem. Res., Synop.*, 1999, 488-489 (*synth*)
Carda, M. *et al., Eur. J. Org. Chem.*, 2002, 2649-2655; 3491 (*synth*)

5,6-Dihydro-5-hydroxythymidine D-678

Thymidine C*(5)-hydrate*
[41308-58-1]



(5*R*)–*form*

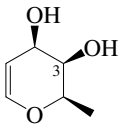
$C_{10}H_{16}N_2O_6$ 260.246
▶ Prob. mutagenic and/or cytotoxic.

(5*R*)-*form* [78216-58-7]
Oxidative stress prod. derived from interaction of reactive oxygen species with Thymidine, T-104. Mp 216°.

(5*S*)-*form* [67145-02-2]
Cryst. (EtOH). Mp 192-194°.
Grand, A. *et al., Acta Cryst. B*, 1978, **34**, 1524 (*cryst struct*)
Barvian, M.R. *et al., J.O.C.*, 1993, **58**, 6151 (*synth, ir, pmr, cmr*)
Matray, T.J. *et al., J.A.C.S.*, 1994, **116**, 6931 (*props*)

3,4-Dihydro-2-methyl-2*H*-pyran-3,4-diol D-679

*3,4-Dihydro-3,4-dihydroxy-2-methyl-2*H-*pyran*



(2*R*,3*R*,4*R*)-*form*

$C_6H_{10}O_3$ 130.143
Care needed with nomenclature and numbering. Shown here numbered as pyrans. If named as carbohydrates, it is preferable to consider all stereoisomers as hex-1-enitols, in which case positions 2,3,4 become 5,4,3 respectively. Strict application of the IUPAC special rules for carbohydrates would mean that some of the stereoisomers would be named as hex-5-enitols not hex-1-enitols (e.g. 2,6-anhydro-1,5-dideoxy-*arabino*-hex-5-enitol is preferred over 1,5-anhydro-2,6-dideoxy-*lyxo*-hex-1-enitol), in which case 2,3,4- remain 2,3,4- but with the Me group not the O atom numbered 1.

(2*R*,3*R*,4*R*)-*form*
2,6-Anhydro-1,5-dideoxy-arabino-*hex-5-enitol. 1,5-Anhydro-2,6-dideoxy*-lyxo-*hex-1-enitol.* D-*Fucal. 6-Deoxy-*D-*galactal*
[134355-03-6]
Mp 72-73°. $[\alpha]_D^{21}$ -18.9 (c, 1.25 in $CHCl_3$).

Di-Ac: [75829-69-5]
$C_{10}H_{14}O_5$ 214.218
Mp 49-51°. $[\alpha]_D^{21}$ -8.53 (c, 0.95 in Me_2CO).

(2*R*,3*S*,4*R*)-*form*
*1,5-Anhydro-2,6-dideoxy-*D-arabino-*hex-1-enitol.* D-*Rhamnal. 6-Deoxy-*D-*glucal. 6-Deoxy-*D-*mannal*
[78086-61-0]
Solid.

*Di-Ac: 3,4-Di-*O-*acetyl-*D-*rhamnal*
[76739-66-7]
$C_{10}H_{14}O_5$ 214.218
Syrup. $[\alpha]_D^{20}$ -76.4 (c, 0.28 in $CHCl_3$).

*3-Me: 3-*O-*Methyl-*D-*rhamnal. 6-Deoxy-3-*O-*methyl-*D-*glucal*
$C_7H_{12}O_3$ 144.17
Mp 26°. $Bp_{0.03}$ 47-49°. $[\alpha]_D^{14}$ -75.6 (c, 5.3 in H_2O). CAS no. not found 8-14CI.

*3-Me, 4-Ac: 4-*O-*Acetyl-6-deoxy-3-*O-*methyl-*D-*glucal*
$C_9H_{14}O_4$ 186.207
$Bp_{0.03}$ 45-50°. $[\alpha]_D^{16}$ -32.6 (c, 4.8 in Me_2CO). CAS no. not found 8-14CI.

(2*R*,3*S*,4*S*)-*form* *1,5-Anhydro-2,6-dideoxy-*D-ribo-*hex-1-enitol. 1,2,6-Trideoxy-*D-ribo-*hex-1-enopyranose. 6-Deoxy-*D-*allal.* D-*Digitoxal*
[69515-54-4]
Cryst. ($CHCl_3$/hexane). Mp 118-119°. $[\alpha]_D$ +323 (H_2O).

*3,4-Di-Ac: 3,4-Di-*O-*acetyl-1,5-anhydro-1,6-dideoxy-*D-*ribo-*hex-1-enitol. 3,4-Di-*O-*acetyl-1,2,6-trideoxy-*D-*ribo-*hex-1-enopyranose. 3,4-Di-*O-*acetyl-6-deoxy-*D-*allal*
[69483-67-6]
$C_{10}H_{14}O_5$ 214.218
Mp 47-50°. $[\alpha]_D$ +387 ($CHCl_3$).

3,4-Bis(4-nitrobenzoyl):
Cryst. (Et_2O). Mp 143-144°. $[\alpha]_D^{20}$ +389.

*4-Me ether, 3-*O-*[2,6-dideoxy-3-*O-*methyl-β-*D-*arabino-hexopyranosyl-(1→4)-2,6-dideoxy-β-*D-*ribo-hexopyranoside]:* ***Maryal***
[230973-11-2]
$C_{20}H_{34}O_9$ 418.483
Constit. of the dried twigs of *Marsdenia roylei*.
$[\alpha]_D$ +185 (c, 0.27 in $CHCl_3$).

(2*S*,3*R*,4*R*)-*form* *2,6-Anhydro-1,5-dideoxy-*L-ribo-*hex-5-enitol.* L-*Digitoxal*
[80483-21-2]
Cryst. ($CHCl_3$/hexane). Mp 117°. $[\alpha]_D^{20}$ -319.6 (c, 1.0 in MeOH).

(2*S*,3*R*,4*S*)-*form* [53657-42-4]
Solid (C_6H_6). Mp 74-75°. $[\alpha]_D^{20}$ -21 (c, 2 in $CHCl_3$). $[\alpha]_D$ +45 (H_2O). The positive opt. rotn. is from the older lit. It may be due to solvent dependence.

*4-*O*-β-*D*-Glucopyranoside:* ***Sapopyroside***
[81793-76-2]
$C_{12}H_{20}O_8$ 292.285
Isol. from *Saponaria officinalis* and *Dianthus superbus* var. *longicalycinus*.
Prisms or needles (EtOH/EtOAc).
Mp 179°. $[\alpha]_D$ -64 (c, 1.0 in H_2O).

*3-Ac: 3-*O-*Acetyl-*L-*rhamnal*
[95475-49-3]
$C_8H_{12}O_4$ 172.18
Syrup. $[\alpha]_D^{25}$ +21 (c, 2.0 in $CHCl_3$).

*4-Ac: 4-*O-*Acetyl-*L-*rhamnal*
[95475-50-6]
$C_8H_{12}O_4$ 172.18
Syrup. $[\alpha]_D^{25}$ -41 (c, 1.5 in $CHCl_3$).

*Di-Ac: 3,4-Di-*O-*acetyl-*L-*rhamnal*
[34819-86-8]
$C_{10}H_{14}O_5$ 214.218
Oil. $[\alpha]_D^{20}$ +63 (tetrachloroethane).

*3-Benzoyl: 3-*O-*Benzoyl-*L-*rhamnal*
[104006-65-7]
$C_{13}H_{14}O_4$ 234.251
Needles (C_6H_6/cyclohexane).
Mp 64-65°. $[\alpha]_D^{25}$ +120 (c, 1.0 in $CHCl_3$).

*4-Benzoyl: 4-*O-*Benzoyl-*L-*rhamnal*
[104069-01-4]
$C_{13}H_{14}O_4$ 234.251
Cryst. (Et_2O/hexane). Mp 76°. $[\alpha]_D^{25}$ -79 (c, 1.0 in $CHCl_3$).

*3,4-Dibenzoyl: 3,4-Di-*O-*benzoyl-*L-*rhamnal*
[34820-21-8]
$C_{20}H_{18}O_5$ 338.359
Syrup. $[\alpha]_D^{23}$ +229 (c, 1.2 in $CHCl_3$).

*3-Me: 3-*O-*Methyl-*L-*rhamnal. 6-Deoxy-3-*O-*methyl-*L-*glucal.* L-*Oleandral*
[112042-01-0]
$C_7H_{12}O_3$ 144.17
Needles. Mp 25°. $[\alpha]_D^{20}$ +75 (c, 1.2 in H_2O).

*3-Me, 4-Ac: 4-*O-*Acetyl-3-*O-*methyl-*L-*rhamnal*
[101665-43-4]
$C_9H_{14}O_4$ 186.207
$[\alpha]_D^{20}$ +32 (c, 2.0 in Me_2CO).

*3-Me, 4-benzoyl: 1,5-Anhydro-4-*O-*benzoyl-2,6-dideoxy-3-*O-*methyl-*L-arabino-*hex-1-enitol*
[74920-14-2]
$C_{14}H_{16}O_4$ 248.278
$[\alpha]_D$ +89.7 (c, 0.7 in MeOH).

(2*S*,3*S*,4*R*)-*form*
*2,6-Anhydro-1,5-dideoxy-*D-xylo-*hex-5-enitol, 9CI. 6-Deoxy-*L-*gulal*
[80483-17-6]
$[\alpha]_D$ -134 (c, 5.5 in H_2O).

*3,4-Di-Ac: 3,4-Di-*O-*acetyl-1,5-anhydro-2,6-dideoxy-*L-xylo-*hex-1-enitol*
[80483-15-4]
$C_{10}H_{14}O_5$ 214.218
Needles (Et_2O/petrol). Mp 79-80°.
$[\alpha]_D$ -291 (c, 2.6 in Me_2CO).

*4-Me: 1,5-Anhydro-2,6-dideoxy-4-*O-*methyl-*L-*xylo-*hex-1-enitol. 2,6-Anhydro-1,5-dideoxy-3-*O-*methyl-*D-xylo-*hex-5-enitol, 9CI. 6-Deoxy-4-*O-*methyl-*L-*gulal*
[65981-48-8]
$C_7H_{12}O_3$ 144.17
Liq. $[\alpha]_D^{23}$ -121.5 (c, 1.4 in $CHCl_3$).

(2*S*,3*S*,4*S*)-*form* *L-Fucal. 6-Deoxy-*L-*galactal*
[80483-16-5]
Cryst. (C_6H_6). Mp 70-72°. $[\alpha]_D^{15}$ +10.4 (c, 1.4 in Me_2CO).

*4-*O*-β-*D*-Glucopyranoside:* ***Barbapyroside***
[94323-77-0]
$C_{12}H_{20}O_8$ 292.285
Isol. from *Dianthus barbatus* and *Dianthus deltoides*. Prisms or needles.
Mp 215°. $[\alpha]_D$ -24 (c, 1.0 in H_2O).

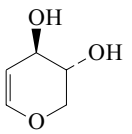
*Di-Ac: 3,4-Di-*O-*acetyl-*L-*fucal*
[54621-94-2]
Mp 49-50°. $Bp_{0.02}$ 68-69°. $[\alpha]^{19}{}_D$ +9.9 (c, 1.0 in Me_2CO).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1058C (*nmr*)
Bergmann, M. *et al., Ber.*, 1921, **54**, 440-455 (*L-Rhamnal,* L*-Rhamnal di-Ac, synth*)
Micheel, F. *et al., Ber.*, 1930, **63**, 347-359 (D*-Rhamnal di-Ac,* D*-Allal,* D*-Allal di-Ac*)
Iselin, B. *et al., Helv. Chim. Acta*, 1944, **27**, 1200-1203 (L*-Fucal, synth,* L*-Fucal di-Ac*)
Vischer, E. *et al., Helv. Chim. Acta*, 1944, **27**, 1332-1345 (*3-Methyl-*D*-rhamnal, 3-Methyl-*D*-rhamnal 4-Ac*)
Meyer, A.S. *et al., Helv. Chim. Acta*, 1946, **29**, 139-152 (*6-Deoxy-*L*-gulal, 6-Deoxy-*L*-gulal di-Ac*)
Blindenbacher, F. *et al., Helv. Chim. Acta*, 1948, **31**, 2061-2064 (*3-Methyl-*L*-rhamnal, 3-Methyl-*L*-rhamnal 4-Ac*)
Zorbach, W.W. *et al., J.O.C.*, 1962, **27**, 1474-1477 (D*-Allal bisnitrobenzoyl*)
El Khadem, H.S. *et al., Carbohydr. Res.*, 1977, **58**, 230-234 (L*-Fucal di-Ac*)
Thiem, J. *et al., Chem. Ber.*, 1980, **113**, 955-969 (D*-Allal,* D*-Allal di-Ac*)
Ireland, R.E. *et al., J.O.C.*, 1980, **45**, 48-61 (*4-Methyl-*L*-gulal*)
Shimizu, M. *et al., Phytochemistry*, 1982, **21**, 245-247 (*Sapopyroside*)

Fraser-Reid, B. *et al., J. Carbohydr. Chem.*, 1983, **2**, 105-114 (*D-Rhamnal di-Ac*)
Horton, D. *et al., Carbohydr. Res.*, 1985, **144**, 317-324 (*L-Rhamnal Ac, Benzoyl-L-rhamnal, L-Rhamnal di-Ac, Dibenzoyl-L-rhamnal, cmr*)
Czernecki, S. *et al., J.O.C.*, 1986, **51**, 5472-5475 (*L-Rhamnal, synth*)
Plouvier, G. *et al., Phytochemistry*, 1986, **25**, 546-548 (*Barbapyroside, Sapopyroside*)
Köpper, S. *et al., Annalen*, 1987, 531-535 (*L-Allal*)
Tolman, R.L. *et al., Carbohydr. Res.*, 1989, **189**, 113-122 (*Allal, Oleandral, synth*)
Berkowitz, D.B. *et al., J.A.C.S.*, 1992, **114**, 4518-4529 (*D-Fucal, D-Fucal di-Ac, L-Fucal di-Ac, synth, pmr, ir, ms*)
Bredenkamp, M.W. *et al., Synth. Commun.*, 1992, **22**, 2459-2477 (*L-Rhamnal, synth, ir, pmr, cmr, ms*)
Shull, B.K. *et al., J. Carbohydr. Chem.*, 1996, **15**, 955-964 (*L-form di-Ac, **synth***)
Van Heerden, F.R. *et al., Synth. Commun.*, 1998, **28**, 3345-3357 (*3,4-Dibenzoyl-L-rhamnal, synth*)
Kumar, A. *et al., Phytochemistry*, 1999, **50**, 1353-1357 (*Maryal*)

3,4-Dihydro-2*H*-pyran-3,4-diol D-680

1,2-Dideoxypent-1-enopyranose, 8CI. 1,5-Anhydro-2-deoxypent-1-enitol. 3,4-Dihydro-3,4-dihydroxy-2H-pyran



(3*R*,4*R*)–*form*

$C_5H_8O_3$ 116.116

(3*R*,4*R*)-*form*

D-threo-*form*. D-*Xylal*. D-*Lyxal*
[496-62-8]
Prisms (EtOH/Et_2O). Mp 51°. $Bp_{0.05}$ 100-105°. $[\alpha]_D$ -259 (c, 1.0 in H_2O). Has sweet taste followed by bitter aftertaste.

4-Ac: 4-O-*Acetyl-1,5-anhydro-2-deoxy-D-threo-pent-1-enitol*. 4-O-*Acetal-D-xylal*
[115344-45-1]
$C_7H_{10}O_4$ 158.154
No phys. props. reported.

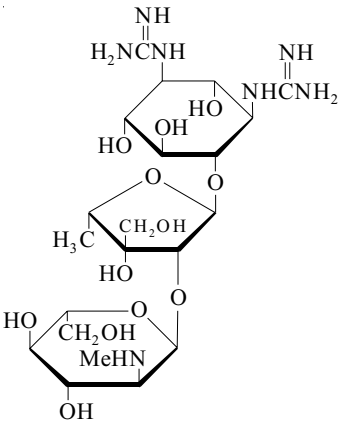
Di-Ac: 3,4-*Di*-O-*acetyl-1,5-anhydro-2-deoxy-D-threo-pent-1-enitol*. 3,4-*Di*-O-*acetyl-D-xylal*
[3152-43-0]
$C_9H_{12}O_5$ 200.191
Mp 40°. $[\alpha]_D^{25}$ -314.7 ($CHCl_3$).

3,4-Di-Me: 3,4-*Dihydro-3,4-dimethoxy-2H-pyran*. 3,4-*Di*-O-*methyl-D-xylal*
$C_7H_{12}O_3$ 144.17
Liq. Bp_{17} 73° approx. $[\alpha]_D^{20}$ -180 ($CHCl_3$).

Levene, P.A. *et al., J. Biol. Chem.*, 1929, **83**, 803 (*synth*)
Haworth, W.N. *et al., J.C.S.*, 1937, 780 (*struct*)
Overend, W.G. *et al., J.C.S.*, 1950, 1027 (*synth*)
Helferich, B. *et al., Chem. Ber.*, 1954, **87**, 1488 (*di-Ac*)
Bouhroum, S. *et al., Tet. Lett.*, 1987, **28**, 5529 (*4-Ac*)

Dihydrostreptomycin, BAN, INN D-681

Abiocine. Citrocil. Dihydrostrep. Hydrosin. Mycin. Vibriomycin. DST. M43-05026. Many other names
[128-46-1]



$C_{21}H_{41}N_7O_{12}$ 583.595

Aminoglycoside antibiotic. Isol. from *Streptomyces humidus* and obt. by redn. of streptomycin. Broad-spectrum antibacterial agent, restricted to veterinary use due to likely ototoxicity. Sol. H_2O; poorly sol. butanol, hexane. Log P -7.25 (uncertain value) (calc).

▶ Human and exp. teratogenic effects. LD_{50} (rat, ivn) 200 mg/kg ; LD_{50} (mus, ivn) 200 mg/kg. WK2450000

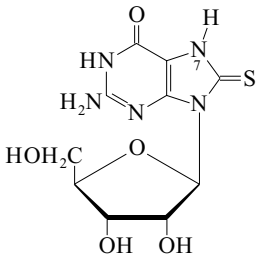
Hydrochloride (1:3): [6533-54-6]
Cryst. (MeOH). Mp 190-195° dec. $[\alpha]_D^{25}$ -95.

Sulfate (1:1.5): ***Dihydrostreptomycin sulfate, USAN***. *Sol-Mycin. Streptomagma. Didromycine*
[5490-27-7]
Cryst. (MeOH aq.). $[\alpha]_D^{17}$ -85 (c, 0.1 in H_2O). Dec. at 255-265°. Component of Diathal and Azimycin.

▶ WK2236000

Peck, R.L. *et al., J.A.C.S.*, 1946, **68**, 1390 (*synth*)
Bartz, Q.R. *et al., J.A.C.S.*, 1946, **68**, 2163 (*synth*)
Tatsuoka, S. *et al., Chem. Pharm. Bull.*, 1957, **5**, 343 (*isol*)
Schlessinger, D. *et al., Antibiotics (N.Y.)*, 1975, **3**, 535 (*rev*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1975, **48**, 568 (*synth, pmr*)
Yamasaki, T. *et al., J. Antibiot.*, 1978, **31**, 1233 (*synth, pmr*)
Wallace, B.J. *et al., Antibiotics (N.Y.)*, 1979, **5**, 272 (*pharmacol, rev*)
Umezawa, S. *et al., Jpn. J. Antibiot.*, (Suppl.), 1979, **32**, S60 (*synth, rev*)
Nichols, W.W. *et al., Biochim. Biophys. Acta*, 1987, **895**, 11 (*pharmacol, rev*)
Kimitsuki, T. *et al., Brain Res.*, 1993, **624**, 143 (*ototoxicity*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 159
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 8770 (*synonyms*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DME000

7,8-Dihydro-8-thioxoguanosine, 9CI D-682



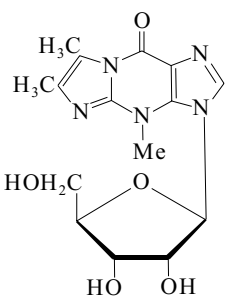
$C_{10}H_{13}N_5O_5S$ 315.309

7-Me: 7,8-Dihydro-7-methyl-8-thioxoguanosine
[127794-14-3]
$C_{11}H_{15}N_5O_5S$ 329.336
Shows antiviral activity. Amorph. solid.

Henry, E.M. *et al., J. Med. Chem.*, 1990, **33**, 2127 (*synth, pmr, cmr, use*)

3,4-Dihydro-4,6,7-trimethyl-3-β-D-ribofuranosyl-9*H*-imidazo[1,2-*a*]purin-9-one, 9CI D-683

MimG
[108274-04-0]

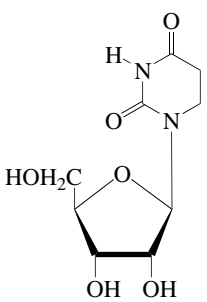


$C_{15}H_{19}N_5O_5$ 349.346
Isol. from *Sulfolobus solfataricus, Thermoproteus neutrophilus* and *Pyrodictium occultum*. No phys. props. reported.

McCloskey, J.A. *et al., Nucleic Acids Res.*, 1987, **15**, 683 (*isol, struct*)

5,6-Dihydrouridine D-684

5,6-Dihydro-1-β-D-ribofuranosyluracil
[5627-05-4]



$C_9H_{14}N_2O_6$ 246.219
Modified nucleoside present in tRNAs. Needles (MeOH).

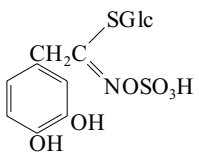
Mp 101-103° (dec.). $[\alpha]_D^{20}$ -36.8 (c, 2 in H_2O).

Cerutti, P. *et al., J.A.C.S.*, 1968, **90**, 771 (*synth*)
Sundaralingam, M. *et al., J.A.C.S.*, 1971, **93**, 7055 (*cryst struct*)
Suck, D. *et al., Acta Cryst. B*, 1972, **28**, 596 (*cryst struct*)
Pfleiderer, W. *et al., Annalen*, 1981, 1568 (*synth*)
Smith, D.L. *et al., Biomed. Mass Spectrom.*, 1983, **10**, 269 (*ms*)
Crow, F.W. *et al., Anal. Biochem.*, 1984, **139**, 243 (*ms*)
Davis, D.R. *et al., J. Biol. Chem.*, 1986, **261**, 3584 (*occur, N-15 nmr*)

3,4-Dihydroxybenzyl glucosinolate D-685

*1-Thio-β-D-glucopyranose 1-[3,4-dihydroxy-*N*-(sulfooxy)benzeneethanimidate], 9CI.* ***Glucomatronalin***

[31297-64-0]



$C_{14}H_{19}NO_{11}S_2$ 441.436

Present in leaves of *Bretschneidera sinensis*.

3-Me ether: ***4-Hydroxy-3-methoxybenzyl glucosinolate***

[88162-42-9]

$C_{15}H_{21}NO_{11}S_2$ 455.463

Present in seeds of *Brassica elongata*.

Di-Me ether: 3,4-Dimethoxybenzyl glucosinolate. ***Veratryl glucosinolate***

[88162-43-0]

$C_{16}H_{23}NO_{11}S_2$ 469.49

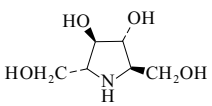
Present in seeds of *Heliophila longifolia* and *Brassica elongata*.

Ettlinger, M.G. *et al., Acta Chem. Scand.*, 1966, **20**, 1778 (*occur*)
Schroeder, W.P. *et al., J. Nat. Prod.*, 1983, **46**, 667 (*occur*)
Boufford, D.F. *et al., Biochem. Syst. Ecol.*, 1989, **17**, 375 (*occur*)

3,4-Dihydroxy-2,5-bis(hydroxymethyl)pyrrolidine D-686

3,4-Dihydroxy-2,5-pyrrolidinedimethanol, 9CI

[59920-31-9]



(2*R*,3*R*,4*R*,5*R*)–*form*

$C_6H_{13}NO_4$ 163.173

(2*R*,3*R*,4*R*,5*R*)-*form*

2,5-Dideoxy-2,5-imino-D-mannitol

Alkaloid from the leaves of *Derris elliptica* and the seeds of *Lonchocarpus sericeus* (Leguminosae). Glycosidase inhibitor.

Cryst. (EtOH/Me_2CO/EtOAc). Mp 115-117°. $[\alpha]_D^{20}$ +56.4 (c, 7 in H_2O).

(2*R*,3*R*,4*R*,5*S*)-*form*

2,5-Dideoxy-2,5-imino-D-glucitol

Sl. yellow powder. Mp 139-142.5°. $[\alpha]_D^{23}$ +25.75 (c, 4.0 in H_2O).

(2*S*,3*R*,4*R*,5*S*)-*form*

2,5-Dideoxy-2,5-imino-L-iditol, 9CI

[105015-44-9]

Mp 161-162°. $[\alpha]_D$ +14.3 (c, 0.93 in H_2O).

(2*S*,3*R*,4*S*,5*S*)-*form*

L-altro-*form. 2,5-Dideoxy-2,5-imino-L-altritol*

Yellow oil. C-3 and C-4 are pseudoasymmetric.

Hydrochloride: [152785-78-9]

Mp 191-192°. $[\alpha]_D^{22}$ -51 (c, 1.1 in H_2O).

(2*RS*,3*RS*,4*SR*,5*SR*)-*form*

allo-*form. 2,5-Dideoxy-2,5-imino-allitol*

[368424-96-8]

Hygroscopic gum. Obt. only in admixture with the D-*altro* isomer. Called D-*allo*- in the ref. although it is a meso-compd.

(2*RS*,3*SR*,4*RS*,5*SR*)-*form*

all-cis-*form. 2,5-Dideoxy-2,5-iminogalactitol*

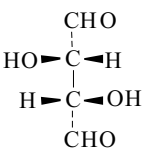
Oil(?). Opt. inactive (*meso*-).

Welter, A. *et al., Phytochemistry*, 1976, **15**, 747 (*isol, ir, pmr, cmr, ms, struct*)
Lamotte-Brasseur, J. *et al., Acta Cryst. B*, 1977, **33**, 409 (*cryst struct*)
Fleet, G.W.J. *et al., Tet. Lett.*, 1985, **26**, 1469 (*synth, abs config*)
Shing, T.K.M. *et al., Chem. Comm.*, 1987, 262 (*synth*)
Hung, R.R. *et al., J.O.C.*, 1991, **56**, 3849 (*synth*)
Liu, K.K.C. *et al., J.O.C.*, 1991, **56**, 6280 (*synth*)
Zou, W. *et al., Carbohydr. Res.*, 1993, **242**, 311 (*synth*)
Legler, G. *et al., Carbohydr. Res.*, 1993, **250**, 67 (*synth*)
Wang, Y. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 1242 (*synth, cryst struct*)
Watson, A.A. *et al., Phytochemistry*, 1997, **46**, 255 (*isol, props*)
Huwe, C.M. *et al., Synthesis*, 1997, 61 (*synth, pmr, cmr, L-altro*)
Fechter, M.H. *et al., Carbohydr. Res.*, 1999, **319**, 55-62 (*D-galacto, D-altro, L-altro, allo, synth*)
Dondoni, A. *et al., J.O.C.*, 2002, **67**, 7203-7214 (*gluco, manno, altro, allo, synth, pmr*)
Wrodnigg, T.M. *et al., Monatsh. Chem.*, 2002, **133**, 393-426 (*rev, isol, synth, activity*)
Garcia, A.L.L. *et al., Tet. Lett.*, 2003, **44**, 1553-1557 (*all-R-form, synth*)

2,3-Dihydroxybutanedial, 9CI D-687

Tartaric dialdehyde. Dihydroxysuccindialdehyde. Tartraldehyde. Tetrodialdose

[34361-91-6]



(2*S*,3*S*)–*form*

$C_4H_6O_4$ 118.089

(2*S*,3*S*)-*form*

Monophenylhydrazone: Sol. EtOAc, spar. sol. H_2O, Et_2O. Mp 145° dec. $[\alpha]_D^{18}$ -183 (EtOH aq.).

α-Bisphenylhydrazone:

Platelets (EtOH aq.). Mp 177-179° dec. $[\alpha]_D^{20}$ -100 (Py).

β-Bisphenylhydrazone:

Platelets (AcOH/Py). Mp 195° dec. $[\alpha]_D$ -2 (Py).

(2*RS*,3*SR*)-*form*

meso-*form*

[58066-70-9]

Bisphenylhydrazone:

Yellow prisms. Mp 197.5° dec.

Bis-2,4-dinitrophenylhydrazone:

[62729-38-8]

Cryst. (DMF aq.). Mp 213.5°.

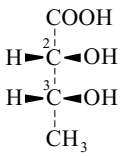
[66213-22-7, 74111-90-3]

Wohl, A. *et al., Ber.*, 1912, **45**, 322 (*synth*)
Bergmann, M. *et al., Ber.*, 1921, **54**, 2651 (*2S3S-form, hydrazone derivs*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1965, **18**, 1973 (*meso-bisphenylhydrazone*)

2,3-Dihydroxybutanoic acid, 9CI D-688

3-Methylglyceric acid. 4-Deoxytetronic acid

[3413-97-6]



(2*R*,3*R*)–*form*

$C_4H_8O_4$ 120.105

(2*R*,3*R*)-*form*

(-)-erythro-*form. 4-Deoxy-D-erythronic acid*

[15851-57-7]

$[\alpha]_D^{25}$ -9.5 (c, 1.0 in H_2O).

Et ester: [6982-48-5]

$C_6H_{12}O_4$ 148.158

Liq. $[\alpha]_D$ -10 (c, 1 in EtOH).

(2*S*,3*S*)-*form*

(+)-erythro-*form. 4-Deoxy-L-erythronic acid*

[23334-72-7]

$[\alpha]_D^{20}$ +10.3 (c, 3.2 in H_2O).

(2*RS*,3*RS*)-*form*

(±)-erythro-*form*

[36294-90-3]

Cryst. (EtOAc). Mp 81°.

Me ester:

$C_5H_{10}O_4$ 134.132

Bp_{10} 109°.

Phenylhydrazide:

Cryst. (EtOAc). Mp 123.5°.

Di-Ac:

$C_8H_{12}O_6$ 204.179

Cryst. + H_2O (H_2O), oily liq. when anhyd. Mp 50°. Bp_4 127° (anhyd.).

Di-Ac, chloride:

$C_8H_{11}ClO_5$ 222.625

Bp_3 79°.

(2*R*,3*S*)-*form*

(+)-threo-*form. 4-Deoxy-L-threonic acid*

[105663-42-1]

$[\alpha]_D^{20}$ +15.9 (c, 2.1 in H_2O).

(2*S*,3*R*)-*form*

(-)-threo-*form. 4-Deoxy-D-threonic acid*

[15851-58-8]
$[\alpha]_D^{25}$ -17.75 (c, 1.0 in H_2O).

(2*RS*,3*SR*)-*form*
(±)-threo-*form*
[97275-68-8]
Prisms (H_2O). Mp 73-74°.

[759-06-8, 5057-95-4, 36183-26-3, 38410-83-2]

Meyer, C.E. *et al., J. Biol. Chem.*, 1936, **115**, 721 (*phenylhydrazide derivs*)
Glattfeld, J.W.E. *et al., J.A.C.S.*, 1938, **60**, 1384 (*(±)-erythro-form, (±)-erythro derivs*)
Izumi, Y. *et al., Bull. Chem. Soc. Jpn.*, 1966, **39**, 2223 (*(+)-erythro-form, (+)-threo-form*)
Bachelor, F.W. *et al., Can. J. Chem.*, 1967, **45**, 79; 1969, **47**, 4089 (*(-)-erythro-form, (-)-threo-form, (±)-erythro-form, (±)-threo-form, synth, abs config*)
Viscontini, M. *et al., Helv. Chim. Acta*, 1972, **55**, 570 (*(±)-erythro-form*)
Sakai, T. *et al., Chem. Pharm. Bull.*, 1986, **59**, 3185-3188 (*(+)-threo-form, (+)-erythro-form*)
Solladié, G. *et al., Eur. J. Org. Chem.*, 2000, 357-364 (*Et ester*)

1,4-Dihydroxy-2-butanone, 9CI D-689

[140-86-3]
$HOCH_2CH_2COCH_2OH$
$C_4H_8O_3$ 104.105
$Bp_{0.5}$ 108-110°.

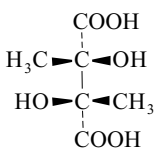
4-Me ether: 1-Hydroxy-4-methoxy-2-butanone
[58177-21-2]
$C_5H_{10}O_3$ 118.132
$Bp_{3.6}$ 71°.

Di-Me ether: 1,4-Dimethoxy-2-butanone
[25680-86-8]
$C_6H_{12}O_3$ 132.159
Bp_{17} 83-85°.

Hennion, G.F. *et al., J.O.C.*, 1953, **18**, 1601-1609 (*synth*)
Reppe, W. *et al., Annalen*, 1955, **596**, 63 (*synth*)

2,3-Dihydroxy-2,3-dimethylbutanedioic acid, 9CI D-690

2,3-Dimethyltartaric acid, 8CI. 2,3-Dihydroxy-2,3-dimethylsuccinic acid
[74543-88-7]



(2*R*,3*R*)−*form*

$C_6H_{10}O_6$ 178.141

(2*R*,3*R*)-*form*
Mp 160°. $[\alpha]_D^{20}$ -13.4 (c, 4 in H_2O).

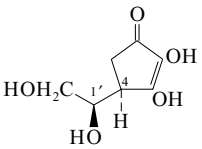
(2*S*,3*S*)-*form*
Mp 158°. $[\alpha]_D^{20}$ +13.4 (c, 4.0 in H_2O).

(2*RS*,3*RS*)-*form*
(±)-form
Mp 185-186°.

(2*RS*,3*SR*)-*form*
meso-*form*
Mp 179-180°.

Bailey, W.J. *et al., J.O.C.*, 1963, **28**, 828 (*synth*)
Izumi, Y. *et al., Bull. Chem. Soc. Jpn.*, 1966, **39**, 361; 602 (*synth, resoln*)
Muroi, M. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 2948 (*synth*)
Hahs, S.K. *et al., Chem. Comm.*, 1974, 791 (*abs config*)
Katsaros, N. *et al., Tet. Lett.*, 1979, 4319 (*synth*)
Duesler, E.N. *et al., Acta Cryst. C*, 1984, **40**, 1286; 1887 (*cryst struct*)

4-(1,2-Dihydroxyethyl)-2,3-dihydroxy-2-cyclopenten-1-one, 9CI D-691



(1′*RS*,4*RS*)−*form*

$C_7H_{10}O_5$ 174.153

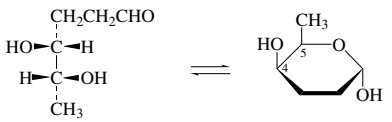
(1′*RS*,4*RS*)-*form*
Carbaascorbic acid
[170649-43-1] Carbocyclic analogue of Ascorbic acid, A-868 (racemate).
Cryst. (1-butanol/MeOH). Mp 165° dec.

(1′*RS*,4*SR*)-*form*
Carbaisoascorbic acid
[170649-44-2]
Cryst. (MeOH aq.). Mp 163° dec.

Schachtner, J. *et al., Tetrahedron*, 1995, **51**, 9005 (*synth, uv, pmr, cmr, cryst struct*)

4,5-Dihydroxyhexanal, 9CI D-692

2,3,6-Trideoxyhexose



(4*R*,5*R*)-*form* α-Pyranose-*form*

$C_6H_{12}O_3$ 132.159

(4*R*,5*R*)-*form*
D-threo-*form*
$Bp_{0.1}$ 60-65° (bath). $[\alpha]_D$ -0.2 (H_2O).
2,4-Dinitrophenylhydrazone: Mp 121-122°. $[\alpha]_D$ +13.7 (c, 0.9 in Py).

(4*S*,5*S*)-*form*
L-threo-*form. Rhodinose*
[35903-48-1]
A component of Rhodomycin, Streptolydigin, S-82 and Granaticin B .
$[\alpha]_D^{25}$ -11 (c, 1.1 in Me_2CO).
2,4-Dinitrophenylhydrazone: [35775-20-3] Mp 116-118°. $[\alpha]_D^{20}$ -17 (c, 0.83 in Py).

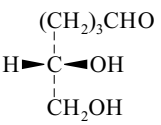
(4*S*,5*R*)-*form*
D-erythro-*form. Amicetose*
Fragment of the struct. of Amicetin, A-119. $Bp_{0.1}$ 70-80° (bath). $[\alpha]_D$ +28.6 (H_2O). $[\alpha]_D^{22}$ +43.6 (c, 1.0 in Me_2CO).
2,4-Dinitrophenylhydrazone: Needles ($MeOH/C_6H_6$). Mp 154-155° (152-153°). $[\alpha]_D$ -9.8 (Py).
Di-Me acetal, di-Ac: 4,5-Diacetoxy-1,1-dimethoxyhexane
$C_{12}H_{22}O_6$ 262.302
Oil. $[\alpha]_D$ -1.7 (c, 1.0 in $CHCl_3$).

*α-Me pyranoside: Methyl 2,3,6-trideoxy-α-D-*erythro-*hexopyranoside. Methyl α-amicetoside*
$C_7H_{14}O_3$ 146.186
Bp_3 55-60° (bath). $[\alpha]_D^{25}$ +75.1 (c, 0.87 in H_2O). $[\alpha]_D^{18}$ +142 (c, 1.2 in H_2O).
α-Me pyranoside, 4-(3,5-dinitrobenzoyl): Platelets (MeOH). Mp 100-101°. $[\alpha]_D$ +134 (c, 0.4 in $CHCl_3$).
*α-Et pyranoside: Ethyl 2,3,6-trideoxy-α-D-*erythro-*hexopyranose*
$C_8H_{16}O_3$ 160.213
$Bp_{0.2}$ 53-55°. $[\alpha]_D^{21}$ +144 (c, 1.0 in $CHCl_3$).

Stevens, C.L. *et al., J.O.C.*, 1962, **27**, 2991; *J.A.C.S.*, 1964, **86**, 3592
v. Barcza, S. *et al., Helv. Chim. Acta*, 1966, **49**, 1736 (*L-threo-form, isol*)
Albano, E.L. *et al., J.O.C.*, 1969, **34**, 3519 (*α-D-erythro-Me pyr, α-D-erythro-Me pyr dinitrobenzoyl*)
Butterworth, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 279 (*rev, derivs*)
Bethell, G.S. *et al., J.C.S. Perkin 1*, 1973, 1400 (*α-D-erythro-Me pyr, α-D-erythro-Me pyr dinitrobenzoyl*)
Brockmann, H. *et al., Tet. Lett.*, 1973, 3699; 1975, 831 (*L-threo-form, isol*)
Knollmann, R. *et al., Chem. Ber.*, 1975, **108**, 2021 (*L-threo-form, synth, pmr*)
Collins, P.M. *et al., Chem. Comm.*, 1977, 927, (*α-D-erythro-Me pyr*)
Berti, G. *et al., Carbohydr. Res.*, 1983, **124**, 35 (*synth*)
Kelly, T.R. *et al., J.O.C.*, 1983, **48**, 2775, (*L-threo-form, synth*)
Marco, J.L. *et al., Synth. Commun.*, 1989, **19**, 485 (*D-erythro-form, synth*)
Dondoni, A. *et al., Tetrahedron*, 1989, **45**, 5141 (*L-threo-form, synth*)
Herczegh, P. *et al., Annalen*, 1991, 599, (*D-threo- and L-threo-forms, synth*)
Regeling, H. *et al., Carbohydr. Res.*, 1991, **216**, 79
Lajšić, S. *et al., Carbohydr. Res.*, 1992, **233**, 261 (*D-erythro-form, synth*)

5,6-Dihydroxyhexanal D-693

2,3,4-Trideoxyhexose



$C_6H_{12}O_3$ 132.159

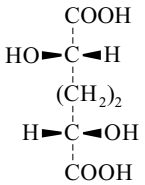
(*R*)-*form*
D-*form*
[74720-50-6]
$[\alpha]_D^{20}$ +37 (H_2O).
2,4-Dinitrophenylhydrazone: [136963-35-4] Cryst. (1,2-dimethoxyethane/toluene). Mp 106-108°. $[\alpha]_D$ -8 (c, 0.4 in Py).
5,6-Isopropylidene: 2,2-Dimethyl-1,3-dioxolane-4-butanal
[131064-72-7]
$C_9H_{16}O_3$ 172.224
$Bp_{0.4}$ 100°. $[\alpha]_D$ +16 (c, 1 in $CHCl_3$).

(*S*)-*form* L-*form*
[74720-51-7]
$[\alpha]_D^{20}$ -41 (H_2O).

David, S. *et al., J.C.S. Perkin 1*, 1974, 2274; 1979, 1795 (*D-form, L-form*)
Regeling, H. *et al., Carbohydr. Res.*, 1991, **216**, 79 (*isopropylidene, pmr*)

2,5-Dihydroxyhexanedioic acid, 9CI D-694

2,5-Dihydroxyadipic acid. 3,4-Dideoxyhexaric acid
[13544-77-9]



(2*S*,5*S*)−*form*

$C_6H_{10}O_6$ 178.141

(2*S*,5*S*)-*form*
Needles ($Me_2CO/CHCl_3$). Mp 157° dec. $[\alpha]_D^{16}$ +3.8 (H_2O). Abs. config. based on rotational comparisons and may not be reliable.

Diisopropyl ester:
$C_{12}H_{22}O_6$ 262.302
Cryst. (hexane). Mp 53.5-54.5°.
$[\alpha]_D^{25}$ -17.3 (c, 1.6 in $CHCl_3$).

Diamide:
$C_6H_{12}N_2O_4$ 176.172
Cryst. (Py). Mp 164°.

Di-Ac:
$C_{10}H_{14}O_8$ 262.216
Cryst. (Me_2CO/petrol). Mp 159° dec.

(2*RS*,5*RS*)-*form*
(±)-form
Plates ($Me_2CO/CHCl_3$). Mp 146°.

Diamide: Mp 177° dec.

Dianilide:
$C_{18}H_{20}N_2O_4$ 328.367
Plates (EtOH). Mp 186°.

(2*RS*,5*SR*)-*form*
meso-*form*
[20221-46-9]
Plates (EtOH). Mp 174°.

Di-Me ester:
$C_8H_{14}O_6$ 206.195
Needles (C_6H_6/petrol). Mp 89°.

Diamide: [20221-48-1]
Plates (H_2O). Mp 243° dec.

Dianilide:
Plates (EtOH). Mp 216°.

Di-Ac, di-Me ester: [20221-49-2]
$C_{12}H_{18}O_8$ 290.269
Cryst. (C_6H_6). Mp 130°.

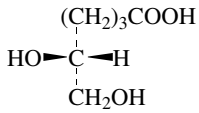
Di-Me ether, di-Me ester:
$C_{10}H_{18}O_6$ 234.249
Cryst. (petrol). Mp 53°.

[20221-44-7, 20221-47-0, 120849-46-9]

Le Sueur, H.R. *et al., J.C.S.*, 1908, **93**, 716, (*(±)-form, (±)-diamide, (±)-dianilide, meso-form, meso-di-Me ester, meso-diamide, meso-dianilide*)
Freudenberg, K. *et al., Annalen*, 1934, **510**, 206 (*2S5S-form, synth, resoln, abs config*)
Schmidt, O.T. *et al., Ber.*, 1941, **74**, 33 (*meso-di-Me ester di-Me ether*)
Gryszkiewicz-Trochimowski, E. *et al., Bull. Soc. Chim. Fr.*, 1958, 603 (*meso-form, synth*)
Brettle, R. *et al., J.C.S.(C)*, 1968, 906, (*(±)-form, meso-form, meso-di-Me ester di-Ac, meso-diamide*)
Burns, C.J. *et al., J.O.C.*, 1989, **54**, 2826, (*2S5S-diisopropyl ester*)

5,6-Dihydroxyhexanoic acid D-695

2,3,4-Trideoxyhexonic acid
[51460-81-2]



(*R*)-*form*

$C_6H_{12}O_4$ 148.158

(*R*)-*form*
Lactone: 6-(Hydroxymethyl)tetrahydro-2H-pyran-2-one, 9CI. 5-(Hydroxymethyl)-δ-valerolactone
[160226-44-8]
$C_6H_{10}O_3$ 130.143
$[\alpha]_D^{25}$ -32 (c, 1.3 in $CHCl_3$).

(*S*)-*form*
Me ester: [103367-32-4]
$C_7H_{14}O_4$ 162.185
Oil. $[\alpha]_D^{20}$ -26.7 (c, 4.8 in EtOH).

Et ester:
$C_8H_{16}O_4$ 176.212
$[\alpha]_D^{20}$ -14.1 (c, 2.0 in EtOH).

5,6-Isopropylidene, Me ester:
$C_{10}H_{18}O_4$ 202.25
$[\alpha]_D$ +15 ($CHCl_3$) (+6.7).

Lactone: [89408-86-6] $Bp_{0.5}$ 130-140°. $[\alpha]_D^{20}$ +34.5 (c, 0.6 in $CHCl_3$) (98% ee).

Lactone, Ac: [122804-27-7]
$C_8H_{12}O_4$ 172.18
$[\alpha]_D^{20}$ +30 (c, 0.98 in CCl_4).

(±)-*form* [122804-25-5]
Liq. Lactonises on distillation.

Nitrile: 5-Cyano-1,2-pentanediol
[133775-61-8]
$C_6H_{11}NO_2$ 129.158
Pale yellow syrup.

Lactone: [122872-98-4]

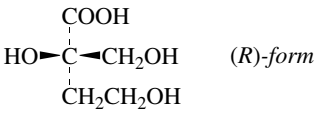
[81683-96-7]
$C_6H_{10}O_3$ 130.143
No. phys. props. reported.

Murahashi, S.-I. *et al., Tet. Lett.*, 1981, **52**, 5327-5330 (*lactone, (±)-form, synth*)
Corey, E.J. *et al., Tet. Lett.*, 1983, **24**, 4883-4886 (*lactone, S-form, synth*)
Gerth, D.B. *et al., J.O.C.*, 1986, **51**, 3726-3729 (*lactone, S-form, synth, pmr*)
Pianetti, P. *et al., J. Carbohydr. Chem.*, 1988, **7**, 811-815 (*lactone, (±)-form, S-form, synth, lactone Ac*)
Regeling, H. *et al., Carbohydr. Res.*, 1991, **216**, 79 (*isopropylidene Me ester*)
de Raadt, A. *et al., J.C.S. Perkin 1*, 1992, 137 (*nitrile*)
Sugita, Y. *et al., J.C.S. Perkin 1*, 1992, 2855-2861 (*S-form, lactone, synth, bibl*)
Coutrot, Ph. *et al., Tet. Lett.*, 1994, **35**, 8381-8384 (*lactone, R-form, S-form, synth*)
Liu, Z.Y. *et al., J.C.S. Perkin 1*, 2000, 3519-3521 (*S-form, lactone, synth, ir, pmr, ms*)

2,4-Dihydroxy-2-(hydroxymethyl)butanoic acid, 9CI D-696

3-Deoxy-2-C-hydroxymethyltetronic acid. Xyloisosaccharinic acid
[80620-03-7]

[29706-64-7]



(*R*)-*form*

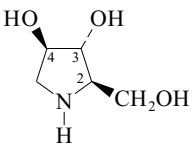
$C_5H_{10}O_5$ 150.131
A major degradn. prod. of wood xylan. Individual enantiomers are not well characterised and it is not clear which enantiomer occurs naturally.

(*RS*)-*form*
DL-form
Lactone: Dihydro-3-hydroxy-3-(hydroxymethyl)-2(3H)-furanone. 3-Deoxy-2-C-hydroxymethyltetrono-1,4-lactone. Xyloisosaccharinic acid lactone
[19444-86-1]
$C_5H_8O_4$ 132.116
Cryst. (EtOAc). Mp 95.5-96.1°.

Aspinall, G.O. *et al., J.C.S.*, 1956, 4807-4810 (*DL-lactone, synth*)
Aten, R. *et al., Acta Chem. Scand., Ser. B*, 1980, **34**, 387-388 (*DL-lactone, ir, pmr, glc*)
Alén, R. *et al., Acta Chem. Scand.*, 1995, **49**, 536-539 (*DL-lactone, cryst struct*)

3,4-Dihydroxy-2-(hydroxymethyl)pyrrolidine D-697

1,4-Dideoxy-1,4-iminopentitol, 11CI. 2-(Hydroxymethyl)-3,4-pyrrolidinediol, 12CI. DAB-1
[98632-49-6]



(2*R*,3*R*,4*R*)−*form*

$C_5H_{11}NO_3$ 133.147

(2*R*,3*R*,4*R*)-*form*
1,4-Dideoxy-1,4-imino-D-arabinitol
[100937-52-8]
Isol. from *Arachniodes standishii* and *Angylocalyx* spp. α-Glucosidase inhibitor. Hygroscopic oil. $[\alpha]_D^{20}$ +7.8 (c, 0.46 in H_2O).

Hydrochloride: [100991-91-1]
Cryst. (Me_2CO aq.). Mp 107-111°.
$[\alpha]^{25}{}_D$ -34.6 (c, 0.37 in H_2O).

1′-O-β-D-Glucopyranoside: ***1,4-Dideoxy-1,4-imino-5-O-β-D-glucopyranosyl-D-arabinitol***
$C_{11}H_{21}NO_8$ 295.289
Alkaloid from the pods of *Angylocalyx pynaertii*.
$[\alpha]_D$ +40.1 (c, 0.16 in H_2O).

4-O-β-D-Glucopyranoside:
$C_{11}H_{21}NO_8$ 295.289
Alkaloid from leaves of *Morus bombycis* (Moraceae). Powder. $[\alpha]_D$ -29.8 (c, 0.73 in H_2O).

N-(2-Hydroxyethyl): 3,4-Dihydroxy-1-(2-hydroxyethyl)-2-(hydroxymethyl)pyrrolidine
$C_7H_{15}NO_4$ 177.2
Alkaloid from the pods of *Angylocalyx pynaertii*.
$[\alpha]_D$ +54.7 (c, 0.38 in H_2O).

N-*(3-Amino-3-oxopropyl): 3,4-Dihydroxy-2-hydroxymethyl-1-pyrrolidinepropanamide*
$C_8H_{16}N_2O_4$ 204.225
Alkaloid from *Morus alba* (white mulberry).
$[\alpha]_D$ -53.7 (c, 0.41 in H_2O).

(2*R*,3*R*,4*S*)-*form*
1,4-Dideoxy-1,4-imino-D-ribitol
[105990-41-8]
Alkaloid from roots of *Morus alba* (white mulberry) (Moraceae).
Solid. $[\alpha]_D$ +42 (c, 0.53 in H_2O).
Hydrochloride: [117781-12-1]
Cryst. Mp 128-132°. $[\alpha]^{20}_D$ +57.6 (c, 0.5 in H_2O).

(2*R*,3*S*,4*R*)-*form*
1,4-Dideoxy-1,4-imino-D-lyxitol
[100937-51-7] α-Galactosidase inhibitor.
$[\alpha]^{20}_D$ -15.8 (c, 0.14 in H_2O).
Hydrochloride: [100991-93-3]
Cryst. Mp 159-161°. $[\alpha]^{20}_D$ +19.8 (c, 0.45 in H_2O).

(2*R*,3*S*,4*S*)-*form*
1,4-Dideoxy-1,4-imino-D-xylitol
[97058-12-3]
Alkaloid from the bark of *Angylocalyx pynaerti*.
Hydrochloride: [101399-04-6]
Cryst. (EtOH/Me_2CO). Mp 127-129°.
$[\alpha]^{20}_D$ +9.8 (c, 0.6 in H_2O).

(2*S*,3*R*,4*R*)-*form*
1,4-Dideoxy-1,4-imino-L-xylitol. 2,5-Dideoxy-2,5-imino-D-xylitol
[105990-42-9]
Oil. $[\alpha]^{31}_D$ -4.1 (c, 1.0 in H_2O).
Hydrochloride: [114488-33-4]
Cryst. (EtOH/Me_2CO). Mp 128-129°.
$[\alpha]_D$ -9.9 (c, 0.71 in H_2O).

(2*S*,3*R*,4*S*)-*form*
1,4-Dideoxy-1,4-imino-L-lyxitol
[129568-47-4]
Hydrochloride: [129568-48-5]
Cryst. Mp 155-156°. $[\alpha]^{20}_D$ -18.4 (c, 0.22 in H_2O).

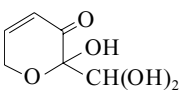
(2*S*,3*S*,4*R*)-*form*
1,4-Dideoxy-1,4-imino-L-ribitol
[105990-40-7]
Pale yellow solid. Mp 119-120°. $[\alpha]^{20}_D$ -53.9 (c, 0.6 in H_2O).
Hydrochloride: [117770-01-1]
Cryst. Mp 126-131°. $[\alpha]^{20}_D$ -59 (c, 0.59 in H_2O).

(2*S*,3*S*,4*S*)-*form*
1,4-Dideoxy-1,4-imino-L-arabinitol
[100937-53-9]
$[\alpha]^{20}_D$ -12 (c, 0.21 in MeOH).
Hydrochloride: [100991-91-1]
Cryst. (Me_2CO aq.). Mp 107-111°.
$[\alpha]^{25}_D$ -34.6 (c, 0.37 in H_2O).

Furukawa, J. *et al., Phytochemistry*, 1985, **24**, 593 (*isol, pmr, cmr, ms, ord, config*)
Nash, R.J. *et al., Phytochemistry*, 1985, **24**, 1620 (*isol, pmr, cmr, ms, struct*)
Japan. Pat., 1986, 86 118 360 (*1,4-Dideoxy-1,4-imino-D-arabinitol*)
Fleet, G.W.J. *et al., Tetrahedron*, 1986, **42**, 5685; 1987, **43**, 3083; 1988, **44**, 2637; 2649 (*synth, ir, pmr*)
Setol, H. *et al., Chem. Pharm. Bull.*, 1987, **35**, 3995 (*synth, ir, pmr*)
Ikota, N. *et al., Chem. Pharm. Bull.*, 1989, **37**, 1087; 3399 (*synth*)
Wehmer, V. *et al., Angew. Chem., Int. Ed.*, 1990, **29**, 1169 (*synth*)
Duréault, A. *et al., J. Carbohydr. Chem.*, 1990, **9**, 121-123 (*2S,3R,4S-form, synth*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1990, 699 (*synth*)
Van der Klein, P.A.M. *et al., Synth. Commun.*, 1992, **22**, 1763 (*synth*)
Asano, N. *et al., Carbohydr. Res.*, 1994, **253**, 235; **259**, 243 (*1,4-Dideoxy-1,4-imino-2-O-β-D-glucopyranosyl-D-arabinitol, 1,4-Dideoxy-1,4-imino-D-ribitol*)
Griffart-Brunet, D. *et al., Tet. Lett.*, 1994, **35**, 2889 (*synth*)
Blanco, M.-J. *et al., J.O.C.*, 1996, **61**, 4748 (*2R,3S,4R-form, synth, ir, pmr, cmr*)
Huang, Y. *et al., J.O.C.*, 1997, **62**, 372-376 (*synth, pmr, ir, cmr*)
Watson, A.A. *et al., Phytochemistry*, 1997, **46**, 255 (*isol, props*)
Huwe, C.M. *et al., Synthesis*, 1997, 61 (*synth, pmr, cmr*)
Hulme, A.N. *et al., J.C.S. Perkin 1*, 2000, 1837-1841 (*2R,3R,4R-form, synth, pmr, cmr*)
Lee, B.W. *et al., Synthesis*, 2000, 1305-1309 (*2S,3R,4R-form*)
Asano, N. *et al., Eur. J. Biochem.*, 2001, **268**, 35-41 (*1,4-Dideoxy-1,4-imino-D-xylitol, isol*)
Asano, N. *et al., J. Agric. Food Chem.*, 2001, **49**, 4208-4213 (*N-propanamide*)
Lombardo, M. *et al., J.O.C.*, 2001, **66**, 1264-1268 (*1,4-Dideoxy-1,4-imino-L-arabinitol*)
Yasuda, K. *et al., J. Nat. Prod.*, 2002, **65**, 198-202 (*1,4-Dideoxy-1,4-imino-5-glucopyranosylarabinitol, 1-hydroxyethyl deriv*)
El-Ashry, E.H. *et al., Carbohydr. Res.*, 2003, **338**, 2265-2290 (*rev, synth*)
Ayad, T. *et al., Eur. J. Org. Chem.*, 2003, 2903-2910 (*1,4-dideoxy-1,4-imino-D-arabitinol*)
Koh, D.W. *et al., J. Med. Chem.*, 2003, **46**, 4322-4332 (*2R,3R,4S-form, synth, pmr, cmr*)

2-(Dihydroxymethyl)-2-hydroxy-2*H*-pyran-3(6*H*)-one, 9CI D-698

Cortalcerone
[59896-20-7]

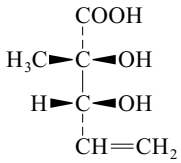


$C_6H_8O_5$ 160.126
Isol. from *Corticium caeruleum*. Shows antibiotic props. Sol. H_2O.
Mp 87°. λ_{max} 230 ; 345 (dioxan) (Berdy).
λ_{max} 230 (H_2O) (Berdy).

Baute, R. *et al., Phytochemistry*, 1976, **15**, 1753 (*isol*)
Baute, R. *et al., Phytochemistry*, 1987, **26**, 1395 (*biosynth*)
Koths, K. *et al., Carbohydr. Res.*, 1992, **232**, 59 (*synth*)
Szechner, B. *et al., Coll. Czech. Chem. Comm.*, 1992, **57**, 159 (*synth*)
Gabriel, J. *et al., Carbohydr. Res.*, 1994, **252**, 297 (*synth*)

2,3-Dihydroxy-2-methyl-4-pentenoic acid D-699

4,5-Dideoxy-2-C-methylpent-4-enonic acid



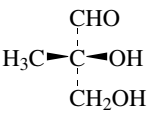
$C_6H_{10}O_4$ 146.143

(2*R*,3*R*)-*form*
D-erythro-*form*
2,3-Isopropylidene: [130353-10-5]
$C_9H_{14}O_4$ 186.207
Oil. $[\alpha]^{20}_D$ +23 (c, 2.2 in $CHCl_3$).
2,3-Isopropylidene, Me ester: [85963-85-5]
$C_{10}H_{16}O_4$ 200.234
Syrup. $[\alpha]^{20}_D$ -30 (c, 1.6 in $CHCl_3$).

Hoffmann, R.W. *et al., Chem. Ber.*, 1983, **116**, 1631 (*synth, pmr, cmr*)
Deguin, B. *et al., J.O.C.*, 1991, **56**, 405 (*synth, pmr*)

2,3-Dihydroxy-2-methylpropanal, 9CI D-700

2-C-Methylglyceraldehyde
[37428-66-3]



(*R*)-*form*

$C_4H_8O_3$ 104.105

(*R*)-*form*
D-*form*
2,3-O-Isopropylidene: [69821-02-9]
$C_7H_{12}O_3$ 144.17
Bp_{12} 80° (bath).
2,3-O-Isopropylidene, semicarbazone: [71541-44-1]
Cryst. Mp 201-203°.

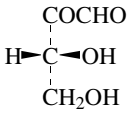
(*S*)-*form*
2,3-O-Isopropylidene: [79243-92-8]
Bp_{30} 50-53°. $[\alpha]^{25}_D$ -7 (c, 1 in MeOH).
2-Benzyl, 3-benzoyl: [119927-26-3]
$C_{18}H_{18}O_4$ 298.338
Syrup. $[\alpha]^{22}_D$ +6 (c, 0.5 in $CHCl_3$).

(±)-*form* [114790-45-3]
2,4-Dinitrophenylhydrazone: [114790-49-7]
Cryst. (EtOH aq.). Mp 177-178°.
2,3-O-Isopropylidene:
[68691-67-8, 81600-36-4]
Bp_{20} 51°.

Maag, H. *et al., J.A.C.S.*, 1978, **100**, 6786-6788 (*2,3-isopropylidene*)
Barner, R. *et al., Helv. Chim. Acta*, 1979, **62**, 2384-2399 (*2,3-isopropylidene semicarbazone*)
Yamaura, M. *et al., Carbohydr. Res.*, 1988, **181**, 267-272 (*2,3-isopropylidene, 2-benzyl 3-benzoyl*)
Bischofberger, N. *et al., J.O.C.*, 1988, **53**, 3457-3465 (*synth*)
Snyder, J.R. *et al., Carbohydr. Res.*, 1991, **210**, 21-38 (*synth*)

3,4-Dihydroxy-2-oxobutanal D-701

glycero-*Tetros-2-ulose*



$C_4H_6O_4$ 118.089

(*R*)-*form*

D-form

[25691-81-0]

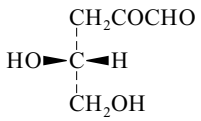
Bis(diphenylhydrazone):

Pale yellow syrup.

Volc, J. *et al., Carbohydr. Res.*, 2000, **329**, 219-225 (*R-form, synth*)

4,5-Dihydroxy-2-oxopentanal D-702

3-Deoxy-glycero-*pentos-2-ulose. 3-Deoxyxylosone*



$C_5H_8O_4$ 132.116

(*R*)-*form*

L-form

[16397-95-8]

Syrup.

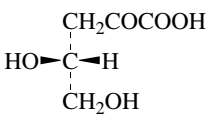
Bis(benzoylhydrazone): Mp 230°.

Dong Bum Shin, *et al., Carbohydr. Res.*, 1990, **208**, 246 (*synth*)

4,5-Dihydroxy-2-oxopentanoic acid D-703

3-Deoxy-2-ketoarabonic acid. 3-Deoxy-2-pentulosonic acid

[7636-04-6]



(*R*)-*form*

$C_5H_8O_5$ 148.115

(*R*)-*form*

L-form

[3495-27-0]

2,4-Dinitrophenylhydrazone:

Cryst. Mp 163°.

(*S*)-*form*

D-form

[53857-83-3]

Isolated from cell free extracts of *Pseudomonas saccharophila* with L-arabonate.

(±)-*form* [56782-24-2]

2,4-Dinitrophenylhydrazone:

Cryst. (MeOH). Mp 219-221°.

Palleroni, N.J. *et al., J. Biol. Chem.*, 1956, **223**, 499-508 (*synth*)

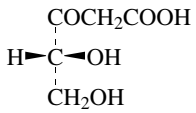
Stoolmiller, A.C. *et al., J. Biol. Chem.*, 1966, **241**, 5764-5771 (*synth*)

Stoolmiller, A.C. *et al., Methods Enzymol., Part B*, 1975, **41**, 101-103 (*synth*)

Vlahos, C.J. *et al., J. Biol. Chem.*, 1985, **260**, 5480-5485 (*synth*)

4,5-Dihydroxy-3-oxopentanoic acid, 9CI D-704

2-Deoxy-3-pentulosonic acid



$C_5H_8O_5$ 148.115

(*R*)-*form*

D-form

4,5-O-Isopropylidene, Me ester: Methyl 2,2-dimethyl-β-oxo-1,3-dioxolane-4-propanoic acid, 9CI

[69763-95-7]

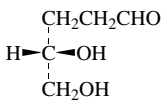
$C_9H_{14}O_5$ 202.207

Liq. $Bp_{0.5}$ 80°.

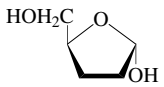
López Aparicio, F.J. *et al., An. Quim.*, 1978, **74**, 1561-1565 (*isopropylidene Me ester*)

4,5-Dihydroxypentanal, 9CI D-705

2,3-Dideoxy-glycero-*pentose*



D-*form*



α-D-Furanose-*form*

$C_5H_{10}O_3$ 118.132

D-*form*

(S)-form

Di-Et acetal: 5,5-Diethoxy-1,2-pentanediol, 9CI

[163106-11-4]

$C_9H_{20}O_4$ 192.255

Yellow oil. $[\alpha]_D^{20}$ -3.3 (c, 3.2 in MeOH). n_D^{20} 1.4480.

α-D-Furanose-*form*

Et glycoside: Ethyl 2,3-dideoxy-α-D-pentofuranoside

[163251-14-7]

$C_7H_{14}O_3$ 146.186

$[\alpha]_D^{20}$ +51.6 (c, 2.1 in MeOH).

β-D-Furanose-*form*

Et glycoside: Ethyl 2,3-dideoxy-β-D-pentofuranoside

[163251-13-6]

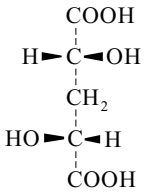
$C_7H_{14}O_3$ 146.186

$[\alpha]_D^{20}$ -12.5 (c, 3.9 in MeOH).

Raifeld, Y.E. *et al., Tetrahedron*, 1994, **50**, 8603-8616 (*synth, pmr, cmr*)

2,4-Dihydroxypentanedioic acid D-706

3-Deoxypentaric acid, 9CI. 2,4-Dihydroxyglutaric acid



(2*R*,4*R*)−*form*

$C_5H_8O_6$ 164.115

(2*R*,4*R*)-*form*

L-threo-*form*

Cryst. (H_2O). Mp 135°. $[\alpha]_D^{20}$ +3.9 (H_2O).

(2*S*,4*S*)-*form*

D-threo-*form*

Cryst. (H_2O). Mp 135°. $[\alpha]_D^{20}$ -2.6 (H_2O).

Diisopropyl ester: [120742-26-9]

$C_{11}H_{20}O_6$ 248.275

Flocculent solid (hexane). Mp 66-67°. $[\alpha]_D^{25}$ -8.8 (c, 3.0 in $CHCl_3$).

(2*RS*,4*RS*)-*form*

(±)-threo-*form*

Plates or prisms (H_2O), cryst. (Me_2CO). Mp 143-144° (125°).

Dianilide:

$C_{17}H_{18}N_2O_4$ 314.34

Prisms (EtOH). Mp 156°.

(2*RS*,4*SR*)-*form*

meso-*form*. erythro-*form*

Prisms (Me_2CO). Mp 162°.

Dianilide:

Plates (EtOH). Mp 223°.

Kiliani, H. *et al., Ber.*, 1907, **40**, 1238, (*2R4R-form*)

Nef, J.U. *et al., Annalen*, 1910, **376**, 22, (*2S4S-form, 2R4R-form, synth*)

Ingold, C.K. *et al., J.C.S.*, 1921, **119**, 322, (*(±)-form, (±)-dianilide, meso-form, meso-dianilide*)

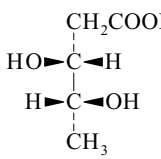
Benoiton, L. *et al., J.A.C.S.*, 1957, **79**, 6192 (*abs config*)

Tailly, F. *et al., Bull. Soc. Chim. Fr.*, 1962, 38 (*synth, ir, (±)-form*)

Burns, C.J. *et al., J.O.C.*, 1989, **54**, 2826 (*synth, pmr, cmr, resoln, 2S4S-diisopropyl ester*)

3,4-Dihydroxypentanoic acid D-707

2,5-Dideoxypentonic acid



(4*R*,5*R*)−*form*

$C_5H_{10}O_4$ 134.132

(4*R*,5*R*)-*form*

D-threo-*form*

Bp_3 103-105°.

1,4-Lactone: 2,5-Dideoxy-D-threo-1,4-pentonolactone. Dihydro-4-hydroxy-5-methyl-2(3H)-furanone

[38996-24-6]

$C_5H_8O_3$ 116.116
Oil. $[\alpha]_D$ +75 (c, 0.25 in EtOH).

(4*R*,5*S*)-*form* L-erythro-*form*

1,4-Lactone: 2,5-Dideoxy-L-erythro-1,4-pentonolactone
[98512-76-6]
$C_5H_8O_3$ 116.116
Liq. Bp_{12} 125°. $[\alpha]_D^{20}$ -10.81 (c, 1.85 in $CHCl_3$).

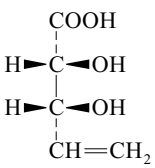
(4*S*,5*R*)-*form* D-erythro-*form*

1,4-Lactone: 2,5-Dideoxy-D-erythro-1,4-pentonolactone
[88400-20-8]
$C_5H_8O_3$ 116.116
Liq. $Bp_{0.025}$ 108-110°. $[\alpha]_D$ +10.87 (c, 2.42 in $CHCl_3$).

(4*S*,5*S*)-*form* L-threo-*form*

1,4-Lactone: 2,5-Dideoxy-L-threo-1,4-pentonolactone
[105881-47-8]
$C_5H_8O_3$ 116.116
Oil. $[\alpha]_D^{20}$ -73.7 (c, 1.6 in EtOH).
Chen, S. *et al., J.O.C.*, 1984, **49**, 2168 (*synth, pmr, cmr, ir, ms*)
Moore, R.E. *et al., J.O.C.*, 1984, **49**, 2484 (*synth, pmr, cd*)
Ortuño, R.M. *et al., Tetrahedron*, 1987, **43**, 2191 (*synth, pmr, ir, ms*)
Takahata, H. *et al., J.O.C.*, 1994, **59**, 7201 (*synth, ir, pmr, cmr, lactone*)

2,3-Dihydroxy-4-pentenoic acid D-708



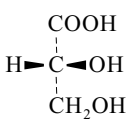
$C_5H_8O_4$ 132.116

(2*R*,3*R*)-*form*

2,3-Isopropylidene, Me ester: Methyl 5-ethenyl-2,2-dimethyl-1,3-dioxolane-4-carboxylate
[85963-83-3]
$C_9H_{14}O_4$ 186.207
Oil. Bp_{12} 94-96°. $[\alpha]_D^{23}$ -52.4 (c, 5.0 in $CDCl_3$).
Hoffmann, R.W. *et al., Chem. Ber.*, 1983, **116**, 1631 (*synth, pmr, cmr*)

2,3-Dihydroxypropanoic acid, 9CI D-709

Glyceric acid. Glyceronic acid
[473-81-4]



(*R*)-*form*

$C_3H_6O_4$ 106.078

(*R*)-*form*

D-*form*
[6000-40-4]
Isol. from various plants, e.g. *Vicia faba* and cress. Intermed. in plant metabolic cycles.
Thick gum. Dec. on dist. Laevorotatory.

Ca salt (2:1): [14028-62-7]
Cryst. + $2H_2O$. Mp 138°. $[\alpha]_D$ +14.4 (c, 2.2 in H_2O).

Quinine salt: Mp 178-180°. $[\alpha]_D^{20}$ -116.2 (H_2O).

Di-Ac, amide:
$C_7H_{11}NO_5$ 189.168
Needles (C_6H_6/MeOH). $[\alpha]_D^{29}$ +1.6 (c, 1.22 in $CHCl_3$).

2-O-α-D-Mannopyranosyl: ***Digeneaside***
[68005-65-2]
$C_9H_{16}O_9$ 268.22
Isol. from red algae *Alsidium, Chondria, Laurencia, Polysiphonia, Halopithys, Vidalia* and *Digenea* spp.
Mp 255-270° dec. (as Na salt). $[\alpha]_D^{18}$ +106 (c, 1 in H_2O).

3-O-(p-Hydroxycinnamoyl), Me ester: Methyl 3-O-(4-hydroxycinnamoyl)glycerate
[113459-57-7]
$C_{13}H_{14}O_6$ 266.25
Constit. of *Coronilla varia*.

2-O-(3,4-Dihydroxycinnamoyl): ***2-O-Caffeoylglyceric acid***
[147199-43-7]
$C_{12}H_{12}O_7$ 268.223
Constit. of *Chelidonium majus*.
$[\alpha]_D^{20}$ -57.9 (c, 1.05 in H_2O).

3-Phosphate: 2-Hydroxy-3-phosphonooxypropanoic acid, 9CI
[3443-58-1]
$C_3H_7O_7P$ 186.058
$[\alpha]_D$ -14.3 (c, 1.19 in 1*N* HCl).

(*S*)-*form* L-*form*
[28305-26-2]
Residue present in gellan gum from *Pseudomonas elodea*.
Thick gum. Dec. on dist. Dextrorotatory.

Ca salt (2:1): [6057-35-8]
Cryst. + $2H_2O$. Mp 137°. $[\alpha]_D$ -14.6 (H_2O).

Brucine salt: Mp 222°. $[\alpha]_D$ -33 (H_2O).

Me ester: [10303-88-5]
$C_4H_8O_4$ 120.105
Constit. of the rhizomes of *Begonia nantoensis*. Oil. Bp_{14} 119-120°. $[\alpha]_D^{20}$ -14.6 (c, 5 in H_2O). λ_{max} 204 (log ϵ 3.11); 222 (log ϵ 2.97) (MeOH).

Et ester, di-Ac:
$C_9H_{14}O_6$ 218.206
Bp 247-249°. $[\alpha]_D^{15}$ -16.3.

2,3-Isopropylidene: See 2,2-Dimethyl-1,3-dioxolane-4-carboxylic acid in *The Combined Chemical Dictionary.*

3-Phosphate: [73358-94-8]
$[\alpha]_D$ +12 (c, 0.7 in 1*N* HCl).

(±)-*form* [600-19-1]
Thick gum. pK_a 5.5. Dec. on dist.

Ca salt: [65644-56-6]

[67525-74-0]
Cryst. Mp 138-139° dec.

Me ester: [15909-76-9] Bp_{14} 119-120°.

Amide: [54393-33-8]
$C_3H_7NO_3$ 105.093
Prisms (EtOH). Mp 92°.

2-Benzoyl:
$C_{10}H_{10}O_5$ 210.186
Mp 141-142°.

3-Phosphate: [820-11-1]

(ξ)-*form*

2-O-(E-p-Hydroxycinnamoyl):
[154639-28-8]
$C_{12}H_{12}O_6$ 252.223
Constit. of *Eleusine coracana* (finger millet).
$[\alpha]_D^{24}$ -55 (c, 1.5 in MeOH).

2-O-(Z-p-Hydroxycinnamoyl):
[154639-27-7]
$C_{12}H_{12}O_6$ 252.223
Constit. of *Eleusine coracana* (finger millet).
$[\alpha]_D^{24}$ +70 (c, 1.5 in MeOH). Config. not confirmed.

[115136-20-4]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 855C (*nmr*)
Karrer, P. *et al., Helv. Chim. Acta*, 1924, **7**, 931 (*synth*)
Kiessling, W. *et al., Ber.*, 1935, **68**, 243-248, (*3-phosphate*)
Brewster, P. *et al., Nature (London)*, 1950, **166**, 178 (*abs config*)
Sallach, *et al., J.A.C.S.*, 1952, **74**, 2415 (*synth, bibl*)
Isherwood, F.A. *et al., Biochem. J.*, 1954, **56**, 15 (*isol*)
Ballou, C.E. *et al., J.A.C.S.*, 1954, **76**, 3188-3193 (*R-form, 3-phosphate*)
Bouveng, H. *et al., Acta Chem. Scand.*, 1955, **9**, 807 (*Digeneaside*)
Wold, F. *et al., J.O.C.*, 1961, **26**, 197-199, (*S-form, 3-phosphate, synth*)
Ashworth, J.M. *et al., J.C.S.*, 1963, 2563
Biochem. Prep., 1966, **11**, 50 (*synth*)
Barton, D.H.R. *et al., J.C.S.(C)*, 1967, 128 (*synth*)
Taga, T. *et al., Bull. Chem. Soc. Jpn.*, 1978, **51**, 1697-1700 (*Ca salt, cryst struct*)
Kirst, G.O. *et al., Phytochemistry*, 1980, **19**, 1107 (*Digeneaside*)
Kuo, M.S. *et al., Carbohydr. Res.*, 1986, **156**, 173 (*occur, S-form*)
Opletal, L. *et al., Pharmazie*, 1987, **42**, 708 (*deriv*)
Petrarulo, M. *et al., Clin. Chim. Acta*, 1992, **211**, 143 (*hplc*)
Hahn, R. *et al., Planta Med.*, 1993, **59**, 71, (*2-Caffeoylglyceric acid*)
Kim, C.-S. *et al., Biosci., Biotechnol., Biochem.*, 1994, **58**, 380 (*2-hydroxycinnamates*)
Sone, H. *et al., J.O.C.*, 1995, **60**, 4774, (*di-Ac amide*)
Popek, T. *et al., Acta Cryst. C*, 1996, **52**, 2716 (*cryst struct, salts*)
Wu, P.-L. *et al., Chem. Pharm. Bull.*, 2004, **52**, 345-349 (*Me ester, isol*)

1,3-Dihydroxy-2-propanone, 9CI D-710

1,3-Dihydroxyacetone. Glycerone. DHA. Otan
[96-26-4]
$HOCH_2COCH_2OH$
$C_3H_6O_3$ 90.079
Prod. by microorganisms, e.g. *Corynebacterium diphtheriae*. Artificial tanning agent. Hygroscopic cryst. Sol. H_2O, EtOH; insol. petrol.
Mp *ca.* 80°. Cryst. in form of dimer. On heating, forms a ladder polymer with a spiroacetal struct. In aq. soln., equilibrates with dimers and with via the enediol tautomer.

► UC1645000

Oxime: [37110-18-2]
$C_3H_7NO_3$ 105.093
Mp 84°.

2,4-Dinitrophenylhydrazone: [54420-11-0]
Mp 277-278° dec.

Di-Ac: [6946-10-7]
$C_7H_{10}O_5$ 174.153
Needles (Et_2O/petrol). Mp 46-47°.

Di-Et acetal: 2,2-Diethoxy-1,3-propanediol
$C_7H_{16}O_4$ 164.201
Cryst. (C_6H_6). Mp 90°.

Mono-O-*phosphate: Dihydroxyacetone phosphate*
[57-04-5]
$C_3H_7O_6P$ 170.058
Important biochemical intermed.
Relatively unstable in soln.

Di-Me ether: 1,3-Dimethoxy-2-propanone, 9CI
[18664-32-9]
$C_5H_{10}O_3$ 118.132
Liq. Bp_{32} 85.5-86°.

Di-Et ether: 1,3-Diethoxy-2-propanone, 9CI
[5460-70-8]
$C_7H_{14}O_3$ 146.186
Liq. Bp_{14} 90-92°.

Dibenzyl ether: 1,3-Bis(phenylmethoxy)-2-propanone, 9CI
[77356-14-0]
$C_{17}H_{18}O_3$ 270.327
Solid.

Di-Ph ether: 1,3-Diphenoxy-2-propanone, 9CI
[57641-21-1]
$C_{15}H_{14}O_3$ 242.274
Cryst. (Et_2O). Mp 56-58°.

Benzylidene deriv.: See 2-Phenyl-1,3-dioxan-5-one in *The Combined Chemical Dictionary.*

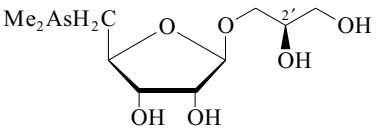
Di-Me acetal: 2,2-Dimethoxy-1,3-propanediol
$C_5H_{12}O_4$ 136.147
V. hygroscopic cryst. (toluene) or waxy solid. Bp_2 115-125°.

[26776-70-5]

Fischer, H.O. *et al., Ber.*, 1924, **57**, 707 (*synth*)
Rutten, A.M.G. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1951, **70**, 449 (*biosynth*)
Kenner, J. *et al., J.C.S.*, 1953, 2240 (*dialkyl derivs*)
Ballou, C.E. *et al., J.A.C.S.*, 1956, **78**, 1659 (*phosphate*)
Ando, T. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2611 (*synth*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 443 (*occur*)
Kobayashi, Y. *et al., J. Mol. Struct.*, 1976, **35**, 85 (*ir, Raman*)
Kobayashi, Y. *et al., Spectrochim. Acta A*, 1979, **35**, 307 (*pmr, conformn*)
Araki, Y. *et al., J.C.S. Perkin 1*, 1981, 12 (*di-Me ether, synth, pmr*)
Akar, A. *et al., Makromol. Chem. Rapid Commun.*, 1989, **10**, 127 (*polym*)
Fessner, W.D. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 209 (*synth, pmr, bibl, phosphate*)
Cho, H. *et al., J. Med. Chem.*, 1996, **39**, 3797-3805 (*di-Me ether*)
Yaylayan, V.A. *et al., Carbohydr. Res.*, 1999, **318**, 20-25 (*equilib*)
Ferroni, E.L. *et al., J.O.C.*, 1999, **64**, 4943-4945 (*di-Me acetal*)
Walker, L.F. *et al., J.C.S. Perkin 1*, 2002, 965-981 (*di-Me ether, di-Et ether, dibenzyl ether, synth, ir, pmr, cmr*)
Sax, N.I. *et al., Dangerous Properties of Industrial Materials, 5th edn., Van Nostrand Reinhold*, 1979, 588

2′,3′-Dihydroxypropyl [5-deoxy-5-(dimethylarsino)]ribofuranoside D-711

3-[[5-Deoxy-5-(dimethylarsinoyl)ribofuranosyl]oxy]-1,2-propanediol



$C_{10}H_{21}AsO_6$ 312.194

(β-D, 2′*R*)-*form*

2,3:2′,3′-Diisopropylidene:
$C_{16}H_{29}AsO_6$ 392.323
Oil. $Bp_{0.05}$ 150°. $[\alpha]_D^{19}$ +30.

As-*Oxide: 2′,3′-Dihydroxypropyl [5-deoxy-5-(demethylarsinyl)]ribofuranoside*
[103476-61-5]
$C_{10}H_{21}AsO_7$ 328.193
Isol. from brown kelp *Ecklonia radiata* and giant clam *Tridacna maxima* and brown alga *Laminaria japonica*. Oil. $[\alpha]_D^{20}$ -2.6 (c, 5.5 in MeOH).

As-*Oxide, 2,3:2′,3′-diisopropylidene:*
$C_{16}H_{29}AsO_7$ 408.322
Oil. $[\alpha]_D^{20}$ -7.7.

As-*Me,* O-*sulfate:* See 2-Hydroxy-3-(sulfooxy)propyl-5-deoxy-5-(trimethylarsonio)-β-D-ribofuranoside, H-199

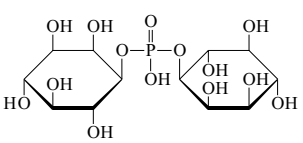
As-*Oxide,* O-*sulfate:* See 3-[5-Deoxy-5-(dimethylarsinyl)ribofuranosyloxy]-2-hydroxy-1-propanesulfonic acid, D-62

[77939-93-6]

Edmonds, J.S. *et al., J.C.S. Perkin 1*, 1982, 2989; 1983, 2375 (*oxide, isol, cmr, pmr*)
Shibata, Y. *et al., Agric. Biol. Chem.*, 1987, **51**, 391 (*oxide, isol, pmr, cmr, hplc*)
McAdam, D.P. *et al., Aust. J. Chem.*, 1987, **40**, 1901 (*isol, derivs*)
Edmonds, J.S. *et al., Nat. Prod. Rep.*, 1993, **10**, 421 (*isol, rev*)

1,1′-Di-*myo*-inositol phosphate D-712

[143491-08-1]



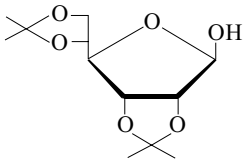
L-*form*

$C_{12}H_{23}O_{14}P$ 422.279
Isol. from *Pyrococcus woesei*.

[143562-44-1]

Scholz, S. *et al., FEBS Lett.*, 1992, **306**, 239 (*isol, pmr, ms, P-31 nmr*)

2,3:5,6-Di-*O*-isopropylideneallofuranose, 9CI D-713



$C_{12}H_{20}O_6$ 260.286

D-*form* [33823-04-0]
Cryst. (petrol). Mp 67-69°. $[\alpha]_D^{24}$ -26.6 (c, 2.0 in $CHCl_3$). Config. of this prepn. not detd. but prob. β- as phys. consts. almost identical with the β-form below.

1-(4-Nitrobenzoyl): [33823-05-1]
Needles (Et_2O/petrol). Mp 117.5-119°. $[\alpha]_D^{24}$ -42.6 (c, 2.0 in $CHCl_3$).

β-D-*form* [27108-13-0]
Cryst. (petrol). Mp 65-67.5°. $[\alpha]_D^{26}$ -26.4 (c, 1.0 in $CHCl_3$).

*1-Ac: 1-*O*-Acetyl-2,3:5,6-di-*O*-isopropylidene-β-D-allofuranose*
[29474-75-7]
$C_{14}H_{22}O_7$ 302.324
Cryst. (petrol). Mp 42-45° (51-51.5°). $[\alpha]_D^{26}$ -45.1 (c, 1.24 in $CHCl_3$).

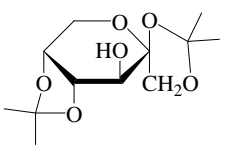
*1-Benzoyl: 1-*O*-Benzoyl-2,3:5,6-di-*O*-isopropylidene-β-D-allofuranose*
[29474-76-8]
$C_{19}H_{24}O_7$ 364.394
Cryst. (EtOH). Mp 109-110°. $[\alpha]_D^{20}$ -38.5 (c, 1.0 in $CHCl_3$).

Me glycoside: See Methyl alloside, M-148

Haga, M. *et al., Carbohydr. Res.*, 1970, **14**, 237 (*β-D-form, β-D-Ac, β-D-benzoyl*)
Kohn, B.D. *et al., Carbohydr. Res.*, 1971, **18**, 349 (*D-form, D-nitrobenzoyl, synth*)
Ballard, J.M. *et al., Carbohydr. Res.*, 1972, **12**, 37 (*β-D-form*)
Dick, W.E. *et al., Carbohydr. Res.*, 1975, **39**, 87 (*β-D-form, β-D-Ac, pmr*)

1,2:4,5-Di-*O*-isopropylidenefructopyranose D-714

*1,2:4,5-Di-*O*-isopropylidenefructose, 8CI*



β-D-*form*

$C_{12}H_{20}O_6$ 260.286

β-D-*form* [25018-67-1]
Needles (Et_2O/pentane). Mp 118-119°. $[\alpha]_D^{23}$ -155 (c, 1.0 in Me_2CO). $[\alpha]_D^{23}$ -145 ($CHCl_3$).

*3-Ac: 3-*O*-Acetyl-1,2:4,5-di-*O*-isopropylidene-β-D-fructopyranose*
$C_{14}H_{22}O_7$ 302.324
Cryst. (EtOH aq.). Mp 76-77°. $[\alpha]_D^{25}$ -175.9 (c, 1.0 in $CHCl_3$).

*3-Mesyl: 1,2:4,5-Di-*O*-isopropylidene-3-*O*-mesyl-β-D-fructopyranose*
$C_{13}H_{22}O_8S$ 338.378
Cryst. (Et_2O). Mp 102-104°. $[\alpha]_D^{20}$ -159 (c, 0.99 in $CHCl_3$).

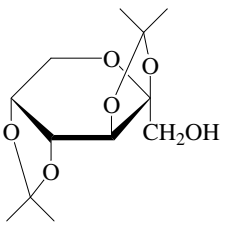
β-L-*form* [83602-34-0]
Cryst. (petrol). Mp 120°. $[\alpha]_D^{25}$ +150 (c, 1 in Me_2CO).

3-O-*Benzyl:*
$C_{19}H_{26}O_6$ 350.411
Oil. $[\alpha]_D^{23}$ +87 (c, 2 in $CHCl_3$).

Ness, R.K. *et al., J.O.C.*, 1968, **33**, 181 (*β-D-form, synth, β-D-mesyl*)
Brady, R.F. *et al., Carbohydr. Res.*, 1970, **15**, 35 (*β-D-form, synth*)
Tipson, R.S. *et al., Carbohydr. Res.*, 1971, **16**, 383 (*β-D-form, synth, β-D-Ac*)
Morgenlie, S. *et al., Carbohydr. Res.*, 1982, **107**, 137 (*β-L-form, synth*)
Bessières, B. *et al., J.O.C.*, 2003, **68**, 4100-4103 (*β-L-form, 3-benzyl, synth*)
Org. Synth., 2003, **80**, 1-8 (*β-D-form, synth, ir, pmr, cmr*)

2,3:4,5-Di-*O*-isopropylidene-fructopyranose D-715

2,3:4,5-Bis-O-*(1-methylethylidene)fructopyranose, 9CI*



β-D-*form*

$C_{12}H_{20}O_6$ 260.286Log P 0.36 (calc).

β-D-*form* [20880-92-6]
Needles (Et_2O/pentane). Mp 97°. $[\alpha]_D^{23}$ -24.2 (c, 0.6 in $CHCl_3$).

Sulfamoyl: ***Topiramate, BAN, INN, USAN.*** *Topamax. MCN 4853. RWJ 17021*
[97240-79-4]
$C_{12}H_{21}NO_8S$ 339.366
Launched 1995 (UK). Worldwide 94th best selling prescription drug ($0.69 bn, 2002) (Johnson and Johnson) (Med Ad News)
Anticonvulsant. Cryst. (EtOAc/hexane). Mp 125-126°. $[\alpha]_D^{23}$ -34 (c, 0.4 in MeOH).
► LS7083000

Dimethylsulfamoyl: [106881-33-8]
Cryst. (EtOH aq.). Mp 57-58°. $[\alpha]_D^{23}$ -31.3 (c, 0.31 in MeOH).

1-Triflyl:
$C_{13}H_{19}F_3O_8S$ 392.349
Mp 36-38.5°. $[\alpha]_D$ -28.5 (c, 1.03 in $CHCl_3$).

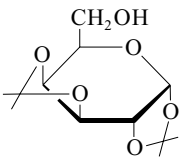
1-Me: 2,3:4,5-Di-O-*isopropylidene-1*-O-*methyl-β-D-fructopyranose*
[60885-04-3]
$C_{13}H_{22}O_6$ 274.313
Cryst. (C_6H_6). Mp 48-49°. $[\alpha]_D$ -29.8 ($CHCl_3$).

β-L-*form* [76513-58-1]
Cryst. (petrol). Mp 97°. $[\alpha]_D^{25}$ +23 (c, 2 in $CHCl_3$).

Maeda, T. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 2635 (*conformn, pmr*)
Morgenlie, S. *et al., Carbohydr. Res.*, 1980, **80**, 215 (*ms*)
Martin, O.R. *et al., Can. J. Chem.*, 1982, **60**, 1857 (*β-D-form, synth*)
Card, P.J. *et al., J.A.C.S.*, 1984, **106**, 5348 (*triflate*)
Maryanoff, B.E. *et al., J. Med. Chem.*, 1987, **30**, 880 (*synth, sulfamate, pharmacol*)
Watkins, S.F. *et al., Carbohydr. Res.*, 1990, **197**, 33 (*cryst struct, 1-Me*)
Nortey, S.O. *et al., Carbohydr. Res.*, 1997, **304**, 29-34 (*metab, Topiramate*)
Langtry, H.D. *et al., Drugs*, 1997, **54**, 752-773 (***rev, topiramate***)
Michelucci, R. *et al., CNS Drug Rev.*, 1998, **4**, 165-186
Clarke's Analysis of Drugs and Poisons, 3rd edn., (eds. Moffat, A.C. *et al*), Pharmaceutical Press, 2004, 1651 (*props, gc, Topiramate*)

1,2:3,4-Di-*O*-isopropylidene-galactopyranose, 8CI D-716

1,2:3,4-Bis-O-*(1-methylethylidene)galactopyranose, 9CI*



$C_{12}H_{20}O_6$ 260.286

α-D-*form* [4064-06-6]
$Bp_{0.35}$ 125-130° (lit. gives a pressure range) $Bp_{0.2}$ 131-135°.

6-Ac: 6-O-*Acetyl-1,2:3,4-di*-O-*isopropylidene-α-D-galactopyranose*
[4860-78-0]
$C_{14}H_{22}O_7$ 302.324
Mp 108°. $[\alpha]_D^{20}$ -48 (c, 1.0 in $CHCl_3$).

6-Mesyl: 1,2:3,4-Di-O-*isopropylidene-6*-O-*mesyl-α-D-galactopyranose*
[4148-55-4]
$C_{13}H_{22}O_8S$ 338.378
Mp 122°. $[\alpha]_D$ -62 (in $CHCl_3$).

*6-(*p-*Nitrobenzoyl):* [20581-75-3]
Pale-yellow plates. Mp 116.5-117.5°. $[\alpha]_D^{20}$ -57 (c, 1.0 in $CHCl_3$).

6-Tosyl: 1,2:3,4-Di-O-*isopropylidene-6*-O-*tosyl-α-D-galactopyranose*
[4478-43-7]
$C_{19}H_{26}O_8S$ 414.476
Plates (EtOH). Mp 104-105° (99-100°). $[\alpha]_D^{20}$ -66 (c, 1.0 in $CHCl_3$).

6-Allyl: 6-O-*Allyl-1,2:3,4-di*-O-*isopropylidene-α-D-galactopyranose*
[2771-58-6]
$C_{15}H_{24}O_6$ 300.351
$Bp_{0.6}$ 110° $Bp_{0.3}$ 86°.

6-Benzyl: 6-O-*Benzyl-1,2:3,4-di*-O-*isopropylidene-α-D-galactopyranose*
[35526-05-7]
$C_{19}H_{26}O_6$ 350.411
$Bp_{0.5}$ 140-145°. $[\alpha]_D^{23}$ -59 (c, 2.0 $CHCl_3$).

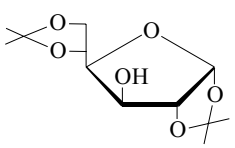
6-Me: 1,2:3,4-Di-O-*isopropylidene-6*-O-*methyl-α-D-galactopyranose*
$C_{13}H_{22}O_6$ 274.313
$Bp_{0.5}$ 120° $Bp_{0.2}$ 109-115° (Pressure $Bp_{0.2\text{-}0.5}$).

6-Trityl: 1,2:3,4-Di-O-*isopropylidene-6*-O-*trityl-α-D-galactopyranose*
[76951-66-1]
$C_{31}H_{34}O_6$ 502.606
Mp 80-82°. $[\alpha]_D$ -58.4 (in $CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 200D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 316B (*nmr*)
Freudenberg, K. *et al., Ber.*, 1923, **56**, 2119; 1927, **60**, 1633 (*6-tosyl, 6 Me*)
Ohle, H. *et al., Ber.*, 1925, **58**, 2585 (*6-Ac*)
Hockett, R.C. *et al., J.A.C.S.*, 1941, **63**, 2516, (*6-trityl*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; *Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 179 (*rev*)
Black, W.A.P. *et al., Carbohydr. Res.*, 1967, **5**, 362 (*6-allyl*)
Horton, D. *et al., Carbohydr. Res.*, 1976, **7**, 56 (*nitrobenzoyl*)
Dimetriev, B.A. *et al., Carbohydr. Res.*, 1976, **47**, 25 (*synth*)
Berry, J.M. *et al., Carbohydr. Res.*, 1976, **47**, 307 (*6-benzyl*)
Stacey, B.E. *et al., Carbohydr. Res.*, 1976, **49**, 129 (*pmr*)
Krajewski, J.W. *et al., Carbohydr. Res.*, 1986, **148**, 1 (*6-tosyl, cryst struct*)
Dahlhoff, W.V. *et al., Synthesis*, 1986, 561
Romero Zaliz, C.L. *et al., J. Carbohydr. Chem.*, 2001, **20**, 689-701 (*6-mesyl*)

1,2:5,6-Di-*O*-isopropylidene-glucofuranose, 8CI D-717

Diacetone glucose
[582-52-5]



$C_{12}H_{20}O_6$ 260.286
► LZ4958000

α-D-*form*
Readily obt. in 1 step from glucose. Important chiral building block.
Mp 111-113°. $[\alpha]_D$ -19.7 (H_2O).

3-Ac: 3-O-*Acetyl-1,2:5,6-di*-O-*isopropylidene-α-D-glucofuranose, 8CI*
[16713-80-7]
$C_{14}H_{22}O_7$ 302.324
Mp 62-63°. $[\alpha]_D$ -31.6 (EtOH).
► LZ4910000

3-Benzoyl: 3-O-*Benzoyl-1,2:5,6-di*-O-*isopropylidene-α-D-glucofuranose*
[13964-22-2]
$C_{19}H_{24}O_7$ 364.394
Mp 66.5°. $[\alpha]_D^{20}$ -53.5 ($CHCl_3$).

3-O-(4-Bromobenzoyl): Mp 79-80°. $[\alpha]_D^{19}$ -49.1 (Me_2CO).

3-Mesyl: 1,2:5,6-Di-O-*isopropylidene-3*-O-*mesyl-α-D-glucofuranose*
[5450-26-0]
$C_{13}H_{22}O_8S$ 338.378
Mp 83-84°. $[\alpha]_D$ -50 ($CHCl_3$).

3-Tosyl: 1,2:5,6-Di-O-*isopropylidene-3*-O-*tosyl-α-D-glucofuranose*
[3253-75-6]
$C_{19}H_{26}O_8S$ 414.476
Mp 120-121°. $[\alpha]_D$ -82 ($C_2H_2Cl_4$).

3-Trifluoromethylsulfonyl: 1,2:5,6-Di-O-*isopropylidene-3*-O-*triflyl-α-D-glucofuranose*
Cryst. (petrol). Mp 70°. $[\alpha]_D^{25}$ -35 (c, 2.0 in Me_2CO).

3-(2,2,2-Trifluoroethylsulfonyl):
Needles (petrol). Mp 90-91°. $[\alpha]_D^{25}$ -39 (c, 2.7 in Me_2CO).

3-(Pentafluorophenylsulfonyl): Mp 132-136°.

3-Allyl: [20316-77-2]
$C_{15}H_{24}O_6$ 300.351
Syrup. $[\alpha]_D^{20}$ -31 (c, 0.5 in $CHCl_3$).

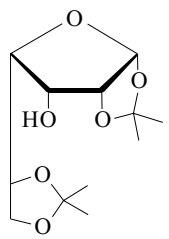
3-tert-*Butyl:*
$C_{16}H_{28}O_6$ 316.394
Bp_{14} 165°. $[\alpha]_D$ -5.9 (petrol).

3-Benzyl: 3-O-*Benzyl-1,2:5,6-di*-O-*isopropylidene-α-D-glucofuranose*
$C_{19}H_{26}O_6$ 350.411
$Bp_{0.003}$ 143°. $[\alpha]_D$ -28.3 (EtOH).

3-Trityl: 1,2:5,6-Di-O-*isopropylidene-3*-O-*trityl-α-D-glucofuranose*
$C_{31}H_{34}O_6$ 502.606
Mp 115°. $[\alpha]_D$ -24.1 ($CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 200A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 314B; 1059B (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros., Inc., Ann Arbor, 1943, 250 (*rev*)
Schmidt, O.T. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 318 (*synth*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, derivs*)
Vyas, D.M. *et al., Can. J. Chem.*, 1975, **53**, 2748 (*cmr*)
de Bruyn, A. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1975, **2**, 227 (*conformn, pmr*)
Hall, L.D. *et al., Carbohydr. Res.*, 1976, **47**, 299 (*synth, pmr, fluorinated derivs*)
Smith, A.B. *et al., J.A.C.S.*, 1991, **113**, 2092-2112 (*3-allyl, synth, ir, pmr*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1992, **16**, 136 (*use*)
Bozo, E. *et al., Carbohydr. Res.*, 1996, **290**, 159-173 (*3-allyl, synth*)

1,2:5,6-Di-*O*-isopropylidene-gulofuranose, 8CI D-718



$C_{12}H_{20}O_6$ 260.286

α-D-*form* [14686-89-6]
Cryst. (EtOH/Et_2O/petrol). Mp 105-106°. $[\alpha]_D^{20}$ +7.5 (c, 1.0 in $CHCl_3$).

3-Ac: 3-O-*Acetyl-1,2:5,6-di*-O-*isopropylidene-α-D-gulofuranose*
[26775-14-4]
$C_{14}H_{22}O_7$ 302.324
Cryst. (EtOH). Mp 73-74°. $[\alpha]_D$ +66 (c, 0.36 in $CHCl_3$).

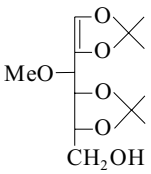
3-Tosyl: 1,2:5,6-Di-O-*isopropylidene-3*-O-*tosyl-α-D-gulofuranose*
[19131-06-7]
$C_{19}H_{26}O_8S$ 414.476
Cryst. (EtOH aq.). Mp 122-123° dec. $[\alpha]_D$ +32 (c, 0.7 in $CHCl_3$).

3-Me: 1,2:5,6-Di-O-*isopropylidene-3*-O-*methyl-α-D-gulofuranose*
[29587-01-7]
$C_{13}H_{22}O_6$ 274.313
Mp 72-73.5°. $[\alpha]_D$ +33 (c, 1.1 in $CHCl_3$).

3-Benzyl: 3-O-*Benzyl-1,2:5,6-di*-O-*isopropylidene-α-D-gulofuranose*
[23885-38-3]
$C_{19}H_{26}O_6$ 350.411
Cryst. (MeOH). Mp 132-133°. $[\alpha]_D^{20}$ +39.1 (c, 1.4 in $CHCl_3$).

Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 567 (*α-D-form, α-D-tosyl*)
Slessor, K.N. *et al., Can. J. Chem.*, 1969, **47**, 3989 (*α-D-form, α-D-Ac*)
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 820 (*α-D-benzyl*)
Brimacombe, J.S. *et al., Chem. Ind. (London)*, 1970, 655 (*α-D-Me*)
Meyer zu Reckendorf, W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 130 (*α-D-form, synth*)

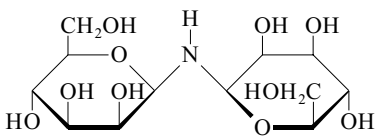
1,2:4,5-Di-*O*-isopropylidene-3-*O*-methyl-*arabino*-hex-1-enitol D-719



$C_{13}H_{22}O_6$ 274.313

D-*form* [62478-10-8]
$[\alpha]_D^{20}$ -75.5 (c, 1 in MeOH).
Klemer, A. *et al., Annalen*, 1977, 181 (*synth, pmr*)

Dimannopyranosylamine D-720



$C_{12}H_{23}NO_{10}$ 341.314

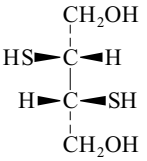
D,D-β,β-*form* [152612-56-1]
Mp 160°. $[\alpha]_D$ -36.8 (c, 5.0 in H_2O).

O-*Octa-Ac:* [152612-57-2]
$C_{28}H_{39}NO_{18}$ 677.612
Cryst. or solid. Mp 146-147°. $[\alpha]_D^{25}$ -27 (c, 2 in $CHCl_3$). $[\alpha]_D^{20}$ -68 (c, 2.0 in $CHCl_3$). Linek *et al* were unable to crystallise this deriv. according to earlier work and obt. it as a solid with the lower opt. rotn. given.

Isbell, H.S. *et al., J.O.C.*, 1958, **23**, 1309
Linek, K. *et al., Carbohydr. Res.*, 1993, **247**, 329

2,3-Dimercapto-1,4-butanediol, 9CI D-721

1,4-Dihydroxy-2,3-butanedithiol
[64131-50-6]



(2*R*,3*R*)-*form*

$C_4H_{10}O_2S_2$ 154.254

(2*R*,3*R*)-*form*
(-)-threo-*form. 2,3-Dithio-D-threitol*
[176779-07-0]
Cryst. Mp 114.8-115.3°. $[\alpha]_D^{22}$ -6.3 (c, 2.0 in EtOH).

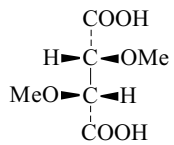
Tetra Ac: [176703-50-7]
$C_{12}H_{18}O_6S_2$ 322.403
Oil which solidifies on standing. $[\alpha]_D^{22}$ -3.4 (c, 1.0 in $CHCl_3$).

(2*RS*,3*SR*)-*form*
(+)-erythro-*form. 2,3-Dithioerythritol*
[122844-69-3]
Yellow oil. *meso*-.

Boyd, V.L. *et al., Chem. Res. Toxicol.*, 1989, **2**, 301 (*synth, pmr, cmr*)
Brånalt, J. *et al., J.O.C.*, 1996, **61**, 3611 (*synth, tetra-Ac, pmr, cmr*)

2,3-Dimethoxybutanedioic acid D-722

Dimethoxysuccinic acid. Tartaric acid dimethyl ether



(2*R*,3*R*)-*form*

$C_6H_{10}O_6$ 178.141

(2*R*,3*R*)-*form* [7305-62-6]
Prisms (H_2O), plates (Me_2CO). Sol. H_2O. Mp 153°. $[\alpha]_D^{20}$ +95.8 (Me_2CO). Dec. on dist.

Di-Na salt: $[\alpha]_D^{20}$ +52.7 (H_2O).

Di-Me ester: [56145-21-2]
$C_8H_{14}O_6$ 206.195
Mp 53-54°. Bp_{12} 130-132°.

Dichloride:
$C_6H_8Cl_2O_4$ 215.032
Prisms (Et_2O). Mp 90-93°. $[\alpha]_D^{20}$ +80 (Me_2CO).

Anhydride: [28008-17-5]
$C_6H_8O_5$ 160.126
Cryst. (Et_2O). Mp 80-82°. $[\alpha]_D^{20}$ +14.9 (Me_2CO).

Diamide:
$C_6H_{12}N_2O_4$ 176.172
Needles (H_2O). Mp 266-268° dec. $[\alpha]_D^{20}$ +97.1 (H_2O).

Bis(dimethylamide): 2,3-Dimethoxy-N,N,N′,N′-tetramethylbutanediamide, 9CI
$C_{10}H_{20}N_2O_4$ 232.279

Resolving agent. Mp 61-62°. $[\alpha]_D$ +115 (c, 1.2 in $CHCl_3$).

(2*S*,3*S*)-*form*
Mp 154°.

Di-Me ester:
$C_8H_{14}O_6$ 206.195
Cryst. (Et_2O/petrol). Mp 52°.
Bp_9 125-135°. $[\alpha]_D$ -28.3.

(2*RS*,3*RS*)-*form*
(±)-form
[34209-22-8]
Cryst. (Me_2CO/hexane). Mp 168-169°.

Di-Me ester:
Cryst. (Et_2O). Mp 68°.

(2*RS*,3*SR*)-*form*
meso-*form*
[34212-77-6]
Cryst. (H_2O). Mp 161°.

Di-Me ester: [72719-00-7]
Cryst. (C_6H_6 or Et_2O). Mp 68°.

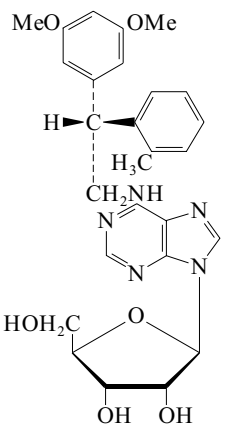
Diamide: Mp 255-257° dec.

[26549-29-1, 62182-40-5, 63126-53-4]

Patterson, T.S. *et al., J.C.S.*, 1915, **107**, 152 (*synth*)
Asahina, Y. *et al., Ber.*, 1931, **64**, 1805 (*synth*)
Levene, P.A. *et al., J. Biol. Chem.*, 1932, **97**, 491 (*synth*)
Wintersteiner, O. *et al., J.A.C.S.*, 1948, **70**, 885; 1951, **73**, 2917 (*synth*)
Summerbell, R.K. *et al., J.A.C.S.*, 1957, **79**, 3878 (*synth*)
Yunstën, H. *et al., J. Antibiot.*, 1958, **11**, 77; 79; 233; 244 (*synth*)
Cope, A.C. *et al., J.A.C.S.*, 1964, **86**, 1268 (*synth, abs config*)
Toda, F. *et al., J.A.C.S.*, 1988, **53**, 3607 (*bisdimethylamide*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1990, **15**, 140 (*bisdimethylamide, use*)

N^6-[2-(3,5-Dimethoxyphenyl)-2-(2-methylphenyl)ethyl]adenosine D-723

DPMA. PD 125944
[120442-40-2]



(2*R*)−*form*

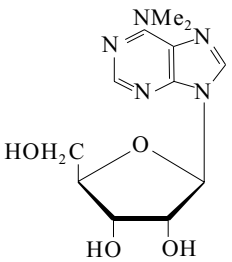
$C_{27}H_{31}N_5O_6$ 521.572
Selective adenosine A_2-receptor agonist. Enhances serum erythropoietin levels in hypoxic (polycythaemic) mice.
Abs. config. not detd.

[114675-14-8, 114675-18-2]

Bridges, A.J. *et al., J. Med. Chem.*, 1988, **31**, 1282 (*synth, pharmacol*)
Pat. Coop. Treaty (WIPO), 1988, 88 03 147, (*Warner-Lambert*); *CA*, **111**, 97690w (*synth, pharmacol*)
Trivedi, B.K. *et al., J. Med. Chem.*, 1989, **32**, 1667 (*sar, pharmacol*)
Bridges, A.J. *et al., Nucleosides Nucleotides*, 1989, **8**, 357 (*synth, resoln*)
Lappe, R.W. *et al., J. Cardiovasc. Pharmacol.*, 1992, **19**, 460 (*pharmacol*)
Klitgaard, H. *et al., Eur. J. Pharmacol.*, 1993, **242**, 221 (*pharmacol*)
Ohigashi, T. *et al., J. Lab. Clin. Med.*, 1995, **126**, 299 (*pharmacol*)

N,*N*-Dimethyladenosine, 9CI, 8CI D-724

[2620-62-4]



$C_{12}H_{17}N_5O_4$ 295.297
Component of *t*-RNA and of Puromycin. Isol. from *E. coli* ribosomal RNA and *Triticum* spp. Needles (Me_2CO aq.).
Mp 182-183°. $[\alpha]_D^{20}$ -58.5 (c, 2.3 in H_2O).
pK_{a1} 4.5 (22°).

5′-Ac:
$C_{14}H_{19}N_5O_5$ 337.335
Mp 114-119°.

2′-Benzoyl:
$C_{19}H_{21}N_5O_5$ 399.405
Mp 149-151°.

3′-Benzoyl:
$C_{19}H_{21}N_5O_5$ 399.405
Mp 176-177°.

5′-Benzoyl:
$C_{19}H_{21}N_5O_5$ 399.405
Cryst. (MeOH aq.). Mp 116-123°.

2′,3′-O-*Isopropylidene:* [19083-21-7]
$C_{15}H_{21}N_5O_4$ 335.362
Mp 176-177°.

2′,3′-O-*Benzylidene:*
$C_{19}H_{21}N_5O_4$ 383.406
Mp 172°.

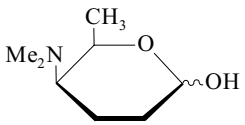
5′-Benzyl: [74397-38-9]
$C_{19}H_{23}N_5O_4$ 385.422
Cryst. (C_6H_6). Mp 142-145°.

5′-Phosphate:
$C_{12}H_{18}N_5O_7P$ 375.277
Mp 225° dec. $[\alpha]_D^{20}$ -51 (c, 2.0 in H_2O).
λ_{max} 268 nm (ε 18 300) (H_2O).

Littlefield, J.W. *et al., Biochemistry*, 1958, **70**, 642 (*isol*)
Andrews, K.J.M. *et al., J.C.S.*, 1958, 2768 (*synth*)
Starr, J.L. *et al., J. Biol. Chem.*, 1964, **239**, 3457 (*isol*)
Townsend, L.B. *et al., J.A.C.S.*, 1964, **86**, 5320 (*pmr*)
Green, D.P.L. *et al., Chem. Comm.*, 1968, 729 (*synth, pmr*)
Komoroski, R.A. *et al., Biochemistry*, 1974, **13**, 369 (*cmr*)
Žemlička, J. *et al., Biocatalysis*, 1975, **14**, 5239 (*synth*)
Kato, T. *et al., J.O.C.*, 1980, **45**, 4006 (*isopropylidene, 5′-benzyl, 5′-benzoyl*)

4-(Dimethylamino)-2,3,4,6-tetradeoxy-*threo*-hexose D-725

4-Dimethylamino-5-hydroxyhexanal. Ossamine



$C_8H_{17}NO_2$ 159.228

D-*form* [18423-30-8]
Constit. of Ossamycin.
Syrup. $Bp_{0.5}$ 100-110° (bath) $Bp_{0.01}$ 60° (bath). $[\alpha]_D^{26}$ -2.46 (c, 1.1 in MeOH).

Hydrochloride: [24384-99-4]
Mp 145-147°. $[\alpha]_D$ +3 (c, 3.4 in EtOH).

Picrate: [18423-31-9]
Cryst. Mp 171-172°. $[\alpha]_D^{27}$ -1.4 (c, 1.0 in MeOH).

Tosylate salt: [24385-02-2]
Cryst. Mp 102-103°.

Methiodide: [18423-32-0]
Mp 162-163°. $[\alpha]_D^{27}$ +3.67 (c, 1.0 in MeOH).

α-D-Pyranose-*form*

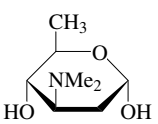
Me glycoside: Methyl 4-(dimethylamino)-2,3,4,6-tetradeoxy-α-D-threo-hexopyranoside, 8CI
[28369-14-4]
$C_9H_{19}NO_2$ 173.255
$Bp_{0.5}$ 40-45° (bath). $[\alpha]_D^{25}$ +55.2 (c, 0.7 in $CHCl_3$).

Et glycoside, tosylate salt: [18423-29-5]
Mp 128-129°. $[\alpha]_D^{26}$ +53 (c, 0.9 in MeOH).

Stevens, C.L. *et al., Tet. Lett.*, 1966, 5717; 1969, 1181 (*isol*)
Albano, E.L. *et al., Carbohydr. Res.*, 1969, **11**, 485 (*synth, pmr*)

3-(Dimethylamino)-2,3,6-trideoxy-*arabino*-hexose, 9CI, 8CI D-726

Angolosamine
[14702-57-9]



α-D-Pyranose-*form*

$C_8H_{17}NO_3$ 175.227
The *xylo*-configuration is given in some earlier work.

D-*form*
Constit. of Angolamycin.
Hydrochloride: [14702-59-1]
Cryst. (EtOH/Et_2O). Mp 172-174°. $[\alpha]_D$ +4.6 (c, 1.6 in H_2O).

1,4-Di-Ac: 1,4-Di-O-*acetyl-3-(dimethylamino)-2,3,6-trideoxy-*D-arabino-*hexose*
[14702-58-0]
$C_{12}H_{21}NO_5$ 259.302
Syrup. $[\alpha]_D$ +56 (c, 0.6 in Me_2CO).

α-D-Pyranose-*form*

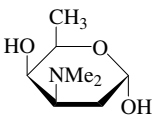
*Me glycoside: Methyl 3-(dimethylamino)-2,3,6-trideoxy-α-D-*arabino-*hexopyranoside. Methyl α-D-angolosaminide*
[72062-93-2]
$C_9H_{19}NO_3$ 189.254
Oil. $[\alpha]_D^{22}$ +87 (c, 1.8 in MeOH).

β-D-Pyranose-*form*

*Me glycoside: Methyl 3-(dimethylamino)-2,3,6-trideoxy-β-D-*arabino-*hexopyranoside*
[72062-94-3]
$C_9H_{19}NO_3$ 189.254
Oil. $[\alpha]_D^{22}$ -68 (c, 1.3 in MeOH).
Brufani, M. *et al., Helv. Chim. Acta*, 1966, **49**, 1962 (*D-form, synth, D-di-Ac*)
Kinumaki, A. *et al., J. Antibiot.*, 1972, **25**, 480
Bartner, P. *et al., J.C.S. Perkin 1*, 1979, 1600 (*α-D-Me pyr, β-D-Me pyr, pmr, cmr*)

3-(Dimethylamino)-2,3,6-trideoxy-*lyxo*-hexose D-727

Rhodosamine



α-D-Pyranose-*form*

$C_8H_{17}NO_3$ 175.227

α-D-Pyranose-*form*

*Me glycoside: Methyl 2,3,6-trideoxy-3-dimethylamino-α-D-*lyxo-*hexopyranoside*
$C_9H_{19}NO_3$ 189.254
Syrup. $[\alpha]_D^{26}$ +114 (c, 1.6 in MeOH).

β-D-Pyranose-*form*

*Me glycoside: Methyl 2,3,6-trideoxy-3-dimethylamino-β-D-*lyxo-*hexopyranoside*
$C_9H_{19}NO_3$ 189.254
Syrup. $[\alpha]_D^{22}$ -38 (c, 1.0 in MeOH).

L-*form*

Sugar component of the antibiotics Rhodomycin A, Rhodomycin B, γ-Rhodomycin II, γ-Rhodomycin III, R-85, γ-Rhodomycin IV, R-86, Pyrromycin, Cinerubin A and Cinerubin B.

Hydrochloride: Mp 152-153°. $[\alpha]_D^{20}$ -65.2 → -48.2 (25 min; c, 2.9 in H_2O).

α-L-Pyranose-*form*

Di-Ac: 1,4-Di-O-*acetyl-2,3,6-trideoxy-3-(dimethylamino)-α-L-*lyxo-*hexopyranose*
$C_{12}H_{21}NO_5$ 259.302
Mp 81-83°. $[\alpha]_D^{20}$ -109 (c, 0.18 in Me_2CO).

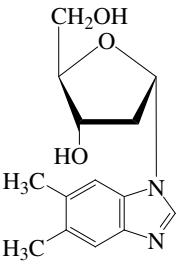
β-L-Pyranose-*form*

Di-Ac: 1,4-Di-O-*acetyl-2,3,6-trideoxy-3-(dimethylamino)-β-L-*lyxo-*hexopyranose*
$C_{12}H_{21}NO_5$ 259.302
Mp 68-73°. $[\alpha]_D^{20}$ -20 (c, 2.87 in Me_2CO).

[30636-50-1]
Brockmann, H. *et al., Chem. Ber.*, 1963, **96**, 2925 (*isol, config, α-L-di-Ac, β-L-di-Ac*)
Brockmann, H. *et al., Naturwissenschaften*, 1963, **50**, 92 (*isol*)
Nourse, J.G. *et al., J.A.C.S.*, 1975, **97**, 4584 (*cmr*)
Thang, T.T. *et al., J.A.C.S.*, 1978, **100**, 663 (*occur*)
Bartner, P. *et al., J.C.S. Perkin 1*, 1979, 1600, (*α-D-Me pyr, β-D-Me pyr, pmr*)

5,6-Dimethyl-1-(2-deoxyribofuranosyl)benzimidazole D-728

*1-(2-Deoxy-*erythro-*pentofuranosyl)-5,6-dimethylbenzimidazole, 8CI*



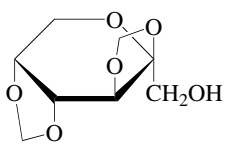
α-D-*form*

$C_{14}H_{18}N_2O_3$ 262.308

α-D-*form* [4600-71-9]
Mp 225-226°. $[\alpha]_D^{27}$ +109.6 (MeOH).

β-D-*form* [4600-72-0]
Mp 158-160°. $[\alpha]_D^{27}$ -32.2 (MeOH).
Whittle, C.P. *et al., J.A.C.S.*, 1965, **87**, 4940 (*synth, pmr*)
Diwan, A. *et al., J. Gen. Virol.*, 1968, **3**, 393; *CA*, **70**, 35339q

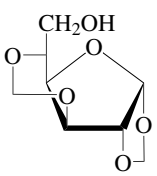
2,3:4,5-Di-*O*-methylenefructopyranose, 9CI D-729



$C_8H_{12}O_6$ 204.179

β-D-*form* [139964-44-6]
Syrup. $[\alpha]_D$ -30 (c, 1.5 in MeOH).
Nouguier, R. *et al., Carbohydr. Res.*, 1995, **277**, 339-345 (*synth, pmr, cmr*)

1,2:3,5-Di-*O*-methylenegalactofuranose, 9CI D-730

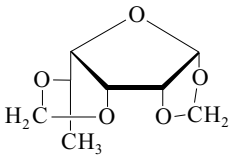


$C_8H_{12}O_6$ 204.179

α-D-*form* [16667-94-0]
Syrup. $[\alpha]_D$ +35 (c, 1.3 in MeOH).
Nouguier, R. *et al., Carbohydr. Res.*, 1995, **277**, 339-345 (*synth, pmr, cmr*)

1,2:3,5-Di-*O*-methylenerhamnofuranose D-731

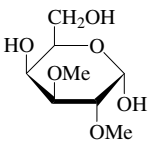
*6-Deoxy-1,2:3,5-di-*O-*methylenemannofuranose*



$C_8H_{12}O_5$ 188.18

β-L-*form*
Mp 100°. $[\alpha]_D$ +3 (H_2O).
Andrews, P. *et al., J.A.C.S.*, 1955, **77**, 125

2,3-Di-*O*-methylgalactose, 9CI, 8CI D-732



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form* [4060-10-0]
Glass. $[\alpha]_D^{15}$ +11.3 (c, 1.15 in $CHCl_3$).
$[\alpha]_D^{19}$ +113 (c, 3.2 in H_2O).

α-D-Pyranose-*form* [13403-33-3]

*Me glycoside: Methyl 2,3-di-*O-*methyl-α-D-galactopyranoside*
[22323-71-3]
$C_9H_{18}O_6$ 222.238
Syrup. $[\alpha]_D^{15}$ +173.7 (c, 1.13 in $CHCl_3$).

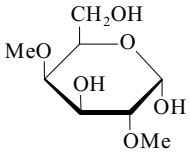
*Me glycoside, 6-benzoyl: Methyl 6-*O-*benzoyl-2,3-di-*O-*methyl-α-D-galactopyranoside*
[53437-96-0]
$C_{16}H_{22}O_7$ 326.346
Cryst. (petrol/EtOH). Mp 109°. $[\alpha]_D$ +110 (c, 2.2 in $CHCl_3$).

Me glycoside, 4,6-dinitrate:
$C_9H_{16}N_2O_{10}$ 312.233
Mp 95°. $[\alpha]_D^{19}$ +114 (c, 1.6 in $CHCl_3$).

β-D-Pyranose-*form* [13403-34-4]

*Me glycoside: Methyl 2,3-di-*O-*methyl-β-D-galactopyranoside*
[22323-70-2]
$C_9H_{18}O_6$ 222.238
Syrup. $[\alpha]_D^{18}$ +23 (c, 7.4 in H_2O).
$[\alpha]_D$ -10.7 (c, 6.8 in $CHCl_3$).
Robertson, G.J. *et al., J.C.S.*, 1934, 1321, (*D-form, synth, α-D-Me pyr, α-D-Me pyr dinitrate, α-D-Me pyr benzylidene*)
Bell, D.J. *et al., J.C.S.*, 1955, 1136 (*D-form, synth, α-D-Me pyr, α-D-Me pyr dinitrate, β-D-Me pyr*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **21**, 73 (*pmr*)
Haverkamp, J. *et al., Carbohydr. Res.*, 1974, **33**, 319 (*cmr*)
Cooper, D.B. *et al., J.C.S. Perkin 1*, 1974, 1049 (*α-D-Me pyr benzoyl*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)

2,4-Di-*O*-methylgalactose, 9CI, 8CI D-733



α–D–Pyranose–*form*

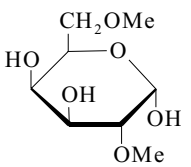
$C_8H_{16}O_6$ 208.211

D-*form* [4301-53-5]
Obt. as a crystalline α-monohydrate. Mp 105-108°. $[\alpha]_D$ +130 → +85 (H_2O).

α-D-Pyranose-*form* [35780-92-8]
*Me glycoside: Methyl 2,4-di-*O*-methyl-α-D-galactopyranoside*
[35781-10-3]
$C_9H_{18}O_6$ 222.238
Cryst. (Me_2CO/petrol). Mp 105°. $[\alpha]_D^{18}$ +142 (c, 1.1 in H_2O).

β-D-Pyranose-*form* [35781-03-4]
*Me glycoside: Methyl 2,4-di-*O*-methyl-β-D-galactopyranoside*
$C_9H_{18}O_6$ 222.238
Cryst. (Me_2CO/Et_2O). Mp 165-166°. $[\alpha]_D$ 0 (c, 1.8 in H_2O).
Smith, F. *et al., J.C.S.*, 1939, 1724 (*D-form, α-D-Me pyr, β-D-Me pyr*)
Westwood, J.H. *et al., J.O.C.*, 1967, **32**, 1643, (*D-form, synth, β-D-Me pyr*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **21**, 73 (*pmr*)
Dea, I.C.M. *et al., J.C.S. Perkin 2*, 1974, 105, (*D-form, cryst struct*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)

2,6-Di-*O*-methylgalactose, 9CI, 8CI D-734



α–D–Pyranose–*form*

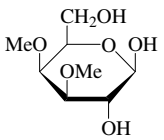
$C_8H_{16}O_6$ 208.211

D-*form* [4060-07-5]
Mp 119-120°. $[\alpha]_D$ +47 → +88 (c, 5.4 in H_2O).

α-D-Pyranose-*form* [35781-04-5]
*Me glycoside, 3,4-*O*-isopropylidene: Methyl 3,4-*O*-isopropylidene-2,6-di-*O*-methyl-α-D-galactopyranoside*
[35780-98-4]
$C_{12}H_{22}O_6$ 262.302
$[\alpha]_D$ +155 (c, 1 in H_2O).
Me glycoside, 3,4-dinitrate:
$C_9H_{16}N_2O_{10}$ 312.233
Needles (petrol). Mp 50-51°. $[\alpha]_D^{20}$ +161 ($CHCl_3$).

β-D-Pyranose-*form* [5188-19-2]
*Me glycoside: Methyl 2,6-di-*O*-methyl-β-D-galactopyranoside*
[7225-55-0]
$C_9H_{18}O_6$ 222.238
Needles ($CHCl_3$/petrol). Mp 73-75°. $[\alpha]_D^{21}$ -24 (c, 6.98 in $CHCl_3$).
*Me glycoside, 3,4-*O*-isopropylidene: Methyl 3,4-*O*-isopropylidene-2,6-di-*O*-methyl-β-D-galactopyranoside*
$C_{12}H_{22}O_6$ 262.302
Mp 56-57°. $[\alpha]_D^{21}$ -4.5 (c, 5.8 in $CHCl_3$).
Me glycoside, 3,4-dinitrate:
$C_9H_{16}N_2O_{10}$ 312.233
Needles (MeOH). Mp 88°. $[\alpha]_D^{17}$ +3.5 ($CHCl_3$).
Oldham, J.W.H. *et al., J.A.C.S.*, 1938, **60**, 323 (*β-D-Me pyr, β-D-Me pyr dinitrate*)
Bell, D.J. *et al., J.C.S.*, 1938, 1196 (*α-D-Me pyr dinitrate, α-D-Me pyr isopropylidene*)
Bell, D.J. *et al., J.C.S.*, 1945, 692 (*β-D-Me pyr, β-D-Me pyr isopropylidene*)
Dewar, E.T. *et al., J.C.S.*, 1947, 1622 (*occur*)
Andrews, P. *et al., J.C.S.*, 1954, 806 (*occur*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **21**, 73 (*pmr*)
Morgenlie, S. *et al., Carbohydr. Res.*, 1975, **41**, 77 (*D-form, synth*)

3,4-Di-*O*-methylgalactose, 9CI D-735



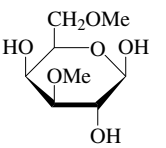
β-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form* [50721-19-2]
Mp 170-171°. $[\alpha]_D^{20}$ +90.2 → +117.3 (c, 0.92 in H_2O).

β-D-Pyranose-*form* [35781-07-8]
*Me glycoside: Methyl 3,4-di-*O*-methyl-β-D-galactopyranoside*
[22323-72-4]
$C_9H_{18}O_6$ 222.238
Needles (CCl_4/$CHCl_3$). Mp 102-103°. $[\alpha]_D^{20}$ -9.1 (c, 6.2 in $CHCl_3$).
Me glycoside, 2,6-dinitrate: [35781-00-1]
$C_9H_{16}N_2O_{10}$ 312.233
Plates (MeOH aq.). Mp 75-76°. $[\alpha]_D^{21}$ -13.3 (c, 6.5 in $CHCl_3$).
Bacon, J.S.D. *et al., J.C.S.*, 1939, 1869 (*D-form, synth, β-D-Me pyr, β-D-Me pyr dinitrate*)
Hirase, S. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 1569 (*synth*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **21**, 73 (*pmr*)

3,6-Di-*O*-methylgalactose D-736



β-D-Pyranose-*form*

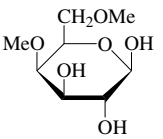
$C_8H_{16}O_6$ 208.211

D-*form* [51385-33-2]
Cryst. (EtOH aq./Me_2CO). Mp 101-102°. $[\alpha]_D$ +93.2 (c, 1.1 in H_2O).

β-D-Pyranose-*form*
*Me glycoside: Methyl 3,6-di-*O*-methyl-β-D-galactopyranoside*
[51385-32-1]
$C_9H_{18}O_6$ 222.238
Syrup. $[\alpha]_D$ -11.5 (c, 1.86 in Me_2CO).

α-D-Furanose-*form*
*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-3,6-di-*O*-methyl-α-D-galactofuranose*
[53951-14-7]
$C_{11}H_{20}O_6$ 248.275
Syrup. $Bp_{0.1}$ 105° (bath). $[\alpha]_D$ -39 (c, 0.8 in $CHCl_3$).
Penman, A. *et al., J.C.S. Perkin 1*, 1973, 2188 (*D-form, occur, β-D-Me pyr*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1974, **36**, 205 (*D-form, synth, α-D-fur isopropylidene*)

4,6-Di-*O*-methylgalactose, 9CI, 8CI D-737



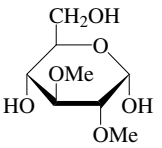
β-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form* [34327-08-7]
Cryst. (EtOH). Mp 148-150°. $[\alpha]_D^{20}$ +128.8 → +76.2 (c, 1.3 in H_2O).

β-D-Pyranose-*form* [25029-41-8]
*Me glycoside: Methyl 4,6-di-*O*-methyl-β-D-galactopyranoside*
[25029-39-4]
$C_9H_{18}O_6$ 222.238
Needles (Et_2O). Mp 140°. $[\alpha]_D^{20}$ -41.5 (c, 4 in $CHCl_3$).
*Me glycoside, 2,3-dibenzoyl: Methyl 2,3-di-*O*-benzoyl-4,6-di-*O*-methyl-β-D-galactopyranoside*
[25029-38-3]
$C_{23}H_{26}O_8$ 430.454
Gum. $[\alpha]_D^{26}$ +63.8 (c, 1.5 in $CHCl_3$).
*Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-di-*O*-methyl-β-D-galactopyranoside*
$C_{23}H_{30}O_6$ 402.486
Mp 68-69°. $[\alpha]_D^{18}$ +3.05 (c, 6.5 in $CHCl_3$).
*Me glycoside, 2,3-ditosyl: Methyl 4,6-di-*O*-methyl-2,3-di-*O*-tosyl-β-D-galactopyranoside*
$C_{23}H_{30}O_{10}S_2$ 530.616
Syrup. $[\alpha]_D$ +6 (c, 2.34 in $CHCl_3$).
Bacon, J.S.D. *et al., J.C.S.*, 1940, 1147, (*D-form, synth, β-D-Me pyr, β-D-Me pyr ditosyl, β-D-Me pyr dibenzyl*)
Gros, E.G. *et al., Carbohydr. Res.*, 1969, **10**, 318 (*D-form, synth, β-D-Me pyr*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **21**, 73 (*pmr*)

2,3-Di-*O*-methylglucose, 9CI, 8CI D-738



α-D-Pyranose-*form*

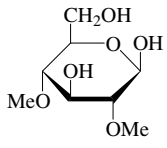
$C_8H_{16}O_6$ 208.211

D-*form* [4261-27-2]
Hydrol. prod. of *Streblus asper* heterosides.
Anil: Mp 134°.

α-D-Pyranose-*form* [13405-48-6]
Mp 85-87°. $[\alpha]_D^{23}$ +81.9 → +48.3 (Me_2CO).
*Me glycoside: Methyl 2,3-di-*O*-methyl-α-D-glucopyranoside*
[14048-30-7]
$C_9H_{18}O_6$ 222.238
Mp 83-85°. $[\alpha]_D^{20}$ +143 (H_2O).
*Me glycoside, 4,6-*O*-isopropylidene: Methyl 4,6-*O*-isopropylidene-2,3-di-*O*-methyl-α-D-glucopyranoside*
$C_{12}H_{22}O_6$ 262.302
Bp_{12} 142-143°. $[\alpha]_D^{19}$ -19 (MeOH).
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-methyl-α-D-glucopyranoside*
$C_{16}H_{22}O_6$ 310.346
Mp 122-123°. $[\alpha]_D^{20}$ +97 (Me_2CO).

β-D-Pyranose-*form* [13224-89-0]
Cryst. (EtOAc). Mp 110°. $[\alpha]_D^{20}$ +5.7 → +64.4 (H_2O).
*Me glycoside: Methyl 2,3-di-*O*-methyl-β-D-glucopyranoside*
[10227-29-9]
$C_9H_{18}O_6$ 222.238
Mp 62-64°. $[\alpha]_D$ -47.8 ($CHCl_3$).
*Ph glycoside: Phenyl 2,3-di-*O*-methyl-β-D-glucopyranoside*
$C_{14}H_{20}O_6$ 284.308
Cryst. (H_2O). Mp 97-98°. $[\alpha]_D^{25}$ -72.8 (c, 2.0 in $CHCl_3$).
*Ph glycoside, 4,6-*O*-benzylidene: Phenyl 4,6-*O*-benzylidene-2,3-di-*O*-methyl-β-D-glucopyranoside*
$C_{21}H_{24}O_6$ 372.417
Cryst. (1,2-diethoxyethane/EtOH). Mp 179-180°. $[\alpha]_D^{25}$ -55.8 (c, 2.0 in $CHCl_3$).
Irvine, J.C. *et al., J.C.S.*, 1913, **103**, 575, (*α-D-pyr, β-D-pyr*)
McCloskey, C.M. *et al., J.O.C.*, 1945, **10**, 184 (*β-D-pyr, β-D-Ph pyr, β-D-Ph pyr benzylidene*)
Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev, derivs*)
Khare, M.P. *et al., Helv. Chim. Acta*, 1962, **45**, 1534 (*isol*)
Casu, B. *et al., Tetrahedron*, 1967, **24**, 803 (*conformn, pmr*)

2,4-Di-*O*-methylglucose, 9CI, 8CI D-739



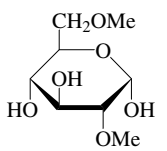
β-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form* [19887-43-5]
Anil:
$C_{14}H_{21}NO_5$ 283.324
Needles (EtOH). Mp 196°.
*4-Nitroanil: 2,4-Di-*O*-methyl-*N*-(4-nitrophenyl)glucosylamine*
Mp 250-251°. $[\alpha]_D^{25}$ -252 → -268 (c, 0.5 in Py).

β-D-Pyranose-*form*
Mp 128-130°. $[\alpha]_D^{25}$ +37.3 → +76.5 (c, 1.6 in H_2O).
*Tri-Ac: 1,3,6-Tri-*O*-acetyl-2,4-di-*O*-methyl-β-D-glucopyranose*
$C_{14}H_{22}O_9$ 334.322
Needles ($CHCl_3$/petrol). Mp 105-106°. $[\alpha]_D^{20}$ +11.5 (c, 7.3 in $CHCl_3$).
*Me glycoside: Methyl 2,4-di-*O*-methyl-β-D-glucopyranoside*
[2811-19-0]
$C_9H_{18}O_6$ 222.238
Cryst. (Et_2O). Mp 120-121°. $[\alpha]_D^{20}$ -26.8 (c, 3.4 in H_2O).
*Ph glycoside: Phenyl 2,4-di-*O*-methyl-β-D-glucopyranoside*
$C_{14}H_{20}O_6$ 284.308
Cryst. (C_6H_6). Mp 166.5-167.5°. $[\alpha]_D^{25}$ -54.5 (c, 3.0 in Me_2CO).
Bell, D.J. *et al., J.C.S.*, 1954, 1145 (*D-form, β-D-pyr tri-Ac, β-D-Me pyr*)
Van Cleve, J.W. *et al., J.A.C.S.*, 1955, **77**, 5341 (*β-D-form, synth, β-D-Me pyr, β-D-Ph pyr*)
Petersson, G. *et al., CA*, 1969, **70**, 78 300n (*ms*)
Nanasi, P. *et al., Magy. Kem. Foly.*, 1974, **80**, 217; *CA*, **81**, 91880y (*pmr*)

2,6-Di-*O*-methylglucose, 9CI, 8CI D-740



α-D-Pyranose-*form*

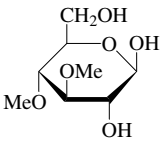
$C_8H_{16}O_6$ 208.211

D-*form* [16274-29-6]
Syrup. $[\alpha]_D^{20}$ +58.3 → +63.3 (H_2O).

α-D-Pyranose-*form*
*Me glycoside: Methyl 2,6-di-*O*-methyl-α-D-glucopyranoside*
$C_9H_{18}O_6$ 222.238
Syrup. $[\alpha]_D$ +156 (H_2O).

β-D-Pyranose-*form*
*Me glycoside: Methyl 2,6-di-*O*-methyl-β-D-glucopyranoside*
$C_9H_{18}O_6$ 222.238
Hygroscopic needles (Et_2O/hexane). Mp 50-52°. $[\alpha]_D^{20}$ -43.5 (c, 11 in $CHCl_3$).
Bell, D.J. *et al., J.C.S.*, 1938, 833 (*D-form, synth, β-D-Me pyr*)
Freudenberg, K. *et al., Ber.*, 1941, **74**, 237, (*D-form, synth*)
Haworth, S. *et al., Carbohydr. Res.*, 1969, **9**, 491 (*glc*)

3,4-Di-*O*-methylglucose, 9CI D-741



β-D-Pyranose-*form*

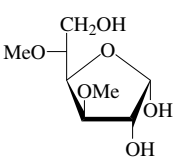
$C_8H_{16}O_6$ 208.211

D-*form* [37111-57-2]
Cryst. (EtOAc). Mp 115-119°. $[\alpha]_D^{22}$ +80.95 → +75 (c, 1.0 in H_2O).
Phenylosazone:
Yellow needles. Mp 126-127°.
Anil:
$C_{14}H_{21}NO_5$ 283.324
Mp 177-178°. $[\alpha]_D^{20}$ -106 (c, 2.2 in EtOH).

α-D-Pyranose-*form*
*Me glycoside: Methyl 3,4-di-*O*-methyl-α-D-glucopyranoside*
[23262-69-3]
$C_9H_{18}O_6$ 222.238
Cryst. (Et_2O/hexane). Mp 55-56°. $[\alpha]_D^{22}$ +179.3 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*
Cryst. (propyl acetate). Mp 113°. $[\alpha]_D^{16}$ +64.9 → +94.8 (c, 0.97 in H_2O).
*Me glycoside: Methyl 3,4-di-*O*-methyl-β-D-glucopyranoside*
$C_9H_{18}O_6$ 222.238
Cryst. (Me_2CO). Mp 79-81°. $[\alpha]_D^{15}$ -10.9 (c, 5.38 in Me_2CO).
*Me glycoside, 6-trityl: Methyl 3,4-di-*O*-methyl-6-*O*-trityl-β-D-glucopyranoside*
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D^{15}$ +14.2 (c, 3.76 in $CHCl_3$).
Me glycoside, 2,6-dinitrate:
$C_9H_{16}N_2O_{10}$ 312.233
Mp 62-63°. $[\alpha]_D^{11}$ +9.7 (c, 3.7 in $CHCl_3$).
Dewar, J. *et al., J.C.S.*, 1944, 496 (*β-D-pyr, synth, β-D-Me pyr, β-D-Me pyr trityl*)
Bell, D.J. *et al., J.C.S.*, 1950, 1902 (*β-D-pyr, synth, β-D-Me pyr*)
Mitra, A.K. *et al., J.O.C.*, 1962, **27**, 160, (*α-D-3,4-di-Me, Me α-D-pyr*)
Lipták, A. *et al., Acta Chim. Acad. Sci. Hung.*, 1970, **66**, 315 (*D-form, synth, α-D-Me pyr*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1974, **38**, 71 (*glc, ms*)

3,5-Di-*O*-methylglucose D-742



α-D-Furanose-*form*

$C_8H_{16}O_6$ 208.211

D-*form*

Phenylosazone:
Cryst. (EtOH aq.). Mp 64-65° dec. $[\alpha]_D^{25}$ -83 (c, 1.5 in EtOH).

D-Furanose-*form* [16714-11-7]
$Bp_{0.0001}$ 140-155° (bath). $[\alpha]_D^{20}$ -20.1 (c, 1.37 in H_2O). $[\alpha]_D^{25}$ -28 (c, 0.9 in H_2O).

α-D-Furanose-*form*

*1,2-*O-*Isopropylidene: 1,2-*O-*Isopropylidene-3,5-di-*O-*methyl-α-D-glucofuranose*
$C_{11}H_{20}O_6$ 248.275
$Bp_{0.011}$ 89-90°.

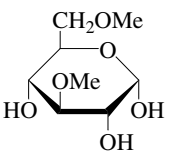
*1,2-*O-*Isopropylidene, 6-tosyl: 1,2-*O-*Isopropylidene-3,5-di-*O-*methyl-6-*O-*tosyl-α-D-glucofuranose*
[16714-10-6]
$C_{18}H_{26}O_8S$ 402.465
$[\alpha]_D^{25}$ -15 (c, 1.0 in $CHCl_3$).

*1,2-*O-*Isopropylidene, 6-benzyl: 6-*O-*Benzyl-1,2-*O-*isopropylidene-3,5-di-*O-*methyl-α-D-glucofuranose*
$C_{18}H_{26}O_6$ 338.4
Cryst. (petrol). Mp 80.8-81.3°.
$[\alpha]_D^{20}$ -41.6 ($CHCl_3$).

*1,2-*O-*Isopropylidene, 6-trityl: 1,2-*O-*Isopropylidene-3,5-di-*O-*methyl-6-*O-*trityl-α-D-glucofuranose*
$C_{30}H_{34}O_6$ 490.595
$[\alpha]_D^{27}$ -30 (c, 1.4 in EtOH).

Huffman, G.W. *et al., J.A.C.S.*, 1955, **77**, 4346 (*D-fur-form, synth*)
Bishop, C.T. *et al., Can. J. Chem.*, 1957, **35**, 61 (*D-fur form, α-D-fur isopropylidene trityl*)
Coleman, G.H. *et al., J.O.C.*, 1957, **22**, 1336, (*α-D-fur, α-D-fur isopropylidene, α-D-fur isopropylidene benzyl*)
Cox, J.M. *et al., J.C.S.(C)*, 1967, 1121 (*α-D-fur, α-D-fur isopropylidene tosyl*)
Chittenden, G.F. *et al., Carbohydr. Res.*, 1979, **74**, 333-336 (*synth*)

3,6-Di-*O*-methylglucose, 9CI, 8CI D-743



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form* [6207-55-2]
Fragment of *Mycobacterium leprae* phenolic glycolipids responsible for their immunological specificity. Has been used in experimental serological tests for leprosy infection in humans.

Phenylosazone:
Yellow needles. Mp 114.5-115.5°. $[\alpha]_D^{25}$ -139.4 → -50 (c, 1.51 in 2:3 Py/EtOH).

α-D-Pyranose-*form* [24435-81-2]
Cryst. (EtOAc). Mp 124-126° (113-116°). $[\alpha]_D^{23}$ +101 → +64.7 (c, 1.2 in H_2O).

*1,2-*O-*Isopropylidene: 1,2-*O-*Isopropylidene-3,6-di-*O-*methyl-α-D-glucopyranose*
$C_{11}H_{20}O_6$ 248.275
$Bp_{0.1}$ 97-101° (bath). $[\alpha]_D$ -33.5 (c, 2.0 in Me_2CO).

β-D-Pyranose-*form* [24435-82-3]

*Me glycoside: Methyl 3,6-di-*O-*methyl-β-D-glucopyranoside*
[65877-30-7]
$C_9H_{18}O_6$ 222.238
Syrup. $[\alpha]_D^{18}$ +62.9 ($CHCl_3$).

*Me glycoside, 2,4-di-Ac: Methyl 2,4-di-*O-*acetyl-3,6-di-*O-*methyl-β-D-glucopyranoside*
[24905-08-6]
$C_{13}H_{22}O_8$ 306.312
Cryst. (petrol). Mp 100-101°. $[\alpha]_D^{23}$ -30.5 (c, 0.97 in $CHCl_3$).

*Me glycoside, dibenzoyl: Methyl 2,4-di-*O-*benzoyl-3,6-di-*O-*methyl-β-D-glucopyranoside*
$C_{23}H_{26}O_8$ 430.454
Cryst. (MeOH). Mp 155-156°.
$[\alpha]_D^{19}$ -11.65 (c, 3.0 in $CHCl_3$).

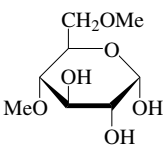
*Me glycoside, ditosyl: Methyl 3,6-di-*O-*methyl-2,4-di-*O-*tosyl-β-D-glucopyranoside*
$C_{23}H_{30}O_{10}S_2$ 530.616
Cryst. (EtOH). Mp 158-160°. $[\alpha]_D^{15}$ -22.8 (c, 4.5 in $CHCl_3$).

α-D-Furanose-*form*

*1,2-*O-*Isopropylidene: 1,2-*O-*Isopropylidene-3,6-di-*O-*methyl-α-D-glucofuranose*
[77778-12-2]
$C_{11}H_{20}O_6$ 248.275
Syrup. $[\alpha]_D^{23}$ -48 (c, 1 in $CHCl_3$).

Bell, D.J. *et al., J.C.S.*, 1935, 175; 1936, 1553, (*α-D-pyr, α-D-Me pyr, α-D-Me pyr dibenzoyl, α-D-Me pyr ditosyl, synth*)
Fried, J. *et al., J.A.C.S.*, 1952, **74**, 5468 (*α-D-pyr, synth*)
Sinner, M. *et al., J. Chromatogr.*, 1976, **121**, 122 (*chromatog*)
Gigg, R. *et al., J. Carbohydr. Chem.*, 1983, **2**, 207-223 (*synth, β-D-pyr di-Ac, β-D-pyr dibenzoyl, α-D-fur isopropylidene*)
Liav, A. *et al., Carbohydr. Res.*, 1986, **149**, C13 (***synth, bibl***)
Sen, A.K. *et al., J. Carbohydr. Chem.*, 1988, **7**, 645-654 (*synth*)

4,6-Di-*O*-methylglucose, 9CI D-744



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

α-D-Pyranose-*form* [24462-98-4]
Needles (EtOAc). Mp 156-158°. $[\alpha]_D$ +110 → +64 (H_2O).

*Me glycoside: Methyl 4,6-di-*O-*methyl-α-D-glucopyranoside*
[23262-68-2]
$C_9H_{18}O_6$ 222.238
$Bp_{0.05}$ 140-142°. $[\alpha]_D^{20}$ +156.8 ($CHCl_3$).

*Me glycoside, ditosyl: Methyl 4,6-di-*O-*methyl-2,3-di-*O-*tosyl-α-D-glucopyranoside*
$C_{23}H_{30}O_{10}S_2$ 530.616
Cryst. (MeOH). Mp 113°. $[\alpha]_D^{18}$ +55.5 ($CHCl_3$).

*Me glycoside, dibenzyl: Methyl 2,3-di-*O-*benzyl-4,6-di-*O-*methyl-α-D-glucopyranoside*
$C_{23}H_{30}O_6$ 402.486
$Bp_{0.03}$ 215-220° (bath). $[\alpha]_D^{18}$ +32.9 (c, 5.0 in $CHCl_3$).

β-D-Pyranose-*form* [24435-83-4]

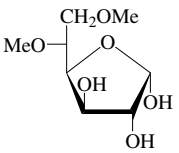
*Me glycoside: Methyl 4,6-di-*O-*methyl-β-D-glucopyranoside*
[4153-25-7]
$C_9H_{18}O_6$ 222.238
Cryst. (Et_2O). Mp 77-78° Mp 50-52° (monohydrate). $[\alpha]_D^{18}$ -33.7 (c, 0.41 in $CHCl_3$).

*Me glycoside, ditosyl: Methyl 4,6-di-*O-*methyl-2,3-di-*O-*tosyl-β-D-glucopyranoside*
$C_{23}H_{30}O_{10}S_2$ 530.616
Cryst. (EtOH). Mp 146-149°. $[\alpha]_D^{20}$ -14.8 (c, 3.0 in $CHCl_3$).

Me glycoside, dinitrate:
$C_9H_{16}N_2O_{10}$ 312.233
Needles (petrol). Mp 54-57°. $[\alpha]_D^{15}$ -13.4 (c, 3.0 in $CHCl_3$).

Bell, D.J. *et al., J.C.S.*, 1937, 1711 (*α-D-pyr, β-D-Me pyr, β-D-Me pyr ditosyl, β-D-Me pyr dinitrate*)
Freudenberg, K. *et al., Ber.*, 1940, **73**, 621, (*α-D-pyr, synth*)
Bell, D.J. *et al., J.C.S.*, 1940, 453 (*α-D-pyr, α-D-Me pyr, α-D-Me pyr ditosyl, α-D-Me pyr dibenzyl*)
O'Meara, D. *et al., J.C.S.*, 1955, 4232 (*β-D-Me pyr dinitrate*)
Grellert, E. *et al., Carbohydr. Res.*, 1973, **30**, 218 (*chromatog*)
Terui, T. *et al., Chem. Pharm. Bull.*, 1974, **22**, 2476 (*pmr*)

5,6-Di-*O*-methylglucose D-745



α-D-Furanose-*form*

$C_8H_{16}O_6$ 208.211

D-*form*
Syrup. $[\alpha]_D^{32}$ +4 (c, 2.4 in H_2O).

4-Bromophenylosazone:
Yellow needles. Mp 155-156°.

Tris-4-nitrobenzoyl: Mp 90-120°. $[\alpha]_D$ +90 (Me_2CO).

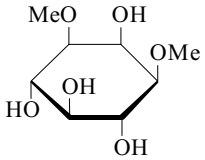
α-D-Furanose-*form*

*1,2-*O-*Isopropylidene: 1,2-*O-*Isopropylidene-5,6-di-*O-*methyl-α-D-glucofuranose*
$C_{11}H_{20}O_6$ 248.275
Cryst. (petrol). Mp 56°. $Bp_{0.15}$ 105-110°. $[\alpha]_D^{30}$ -13 (H_2O) (-5.2). Also descr. as a syrup.

Salmon, M.R. *et al., J.A.C.S.*, 1939, **61**, 3507 (*D-form, synth, α-D-fur isopropylidene*)
Freudenberg, K. *et al., Ber.*, 1940, **73**, 621, (*D-form, synth*)

1,3-Di-*O*-methyl-*myo*-inositol, 9CI, 8CI D-746

Dambonitol. *Dambonite*
[523-94-4]



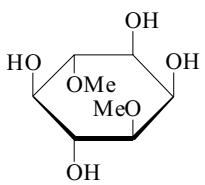
$C_8H_{16}O_6$ 208.211
Constit. of latex of *Dyera lowii* and in the leaves of *Anodendron affine*. Also from *Nerium oleander, Trachelospermum jasminoides* and other plants. Latex used for manuf. of chewing gum. Allergy inhibitor. Cryst. (EtOH) with sweet taste. Mp 210°. Exhibits polymorphism. Opt. inactive (*meso*-).

Tetra-Ac: 2,4,5,6-Tetra-O-*acetyldambonitol*
[109338-68-3]
$C_{16}H_{24}O_{10}$ 376.36
Cryst. (MeOH). Mp 195°.

Comollo, A.J. *et al., J.C.S.*, 1953, 3319, (*isol, constit*)
Kiang, A.K. *et al., J.C.S.*, 1956, 480-483 (*struct*)
Angyal, S.J. *et al., J.C.S.*, 1957, 1417-1422, (*isol, struct*)
Kindl, H. *et al., Monatsh. Chem.*, 1966, **97**, 1778 (*biosynth*)
Dorman, E.D. *et al., J.A.C.S.*, 1970, **92**, 1351 (*cmr*)
Anderson, L. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 519 (*rev*)
Paart, E. *et al., J. Chromatogr.*, 1973, **85**, 93 (*chromatog*)
Sakurai, K. *et al., Biosci., Biotechnol., Biochem.*, 1992, **56**, 975 (*isol, pmr, cmr, props*)

1,4-Di-*O*-methyl-*myo*-inositol D-747

Liriodendritol
[28282-41-9]



(±)–*form*

$C_8H_{16}O_6$ 208.211

D-*form* [22006-88-8]
Isol. from *Liriodendron tulipifera, Liriodendron chinense* and other plants. Prisms (EtOH).
Mp 224° (anhyd.). $[\alpha]_D$ -25 (c, 1.5 in H_2O).

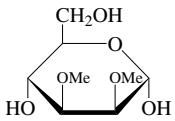
Tetra-Ac:
$C_{16}H_{24}O_{10}$ 376.36
Mp 139°. $[\alpha]_D$ -24 ($CHCl_3$).

(±)-*form*
Mp 203°.

Tetra-Ac:
Cryst. (EtOH aq.). Mp 155-156°.

Angyal, S.J. *et al., J.C.S.*, 1961, 4718 (*struct, synth*)
Kindl, H. *et al., Prog. Chem. Org. Nat. Prod.*, 1966, **24**, 149 (*rev*)
Aguilo, A. *et al., Tet. Lett.*, 1992, **33**, 401-404 (*synth*)

2,3-Di-*O*-methylmannose D-748



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form*
Syrup. $[\alpha]_D^{17}$ -21.7 (c, 1.17 in H_2O).

4-Me: 2,3,4-Tri-O-*methyl-D-mannose*
[58894-01-2]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D^{20}$ +2 (c, 5.9 in H_2O).

α-D-Pyranose-*form*

*1,4,6-Tris(*p-*nitrobenzoyl):* [53767-32-1]
Cryst. (MeOH). Mp 194-195°. $[\alpha]_D^{20}$ +42 (c, 0.9 in $CHCl_3$).

Me glycoside: Methyl 2,3-di-O-*methyl-α-D-mannopyranoside*
[27299-05-4]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D^{18}$ +37.1 (c, 1.31 in $CHCl_3$).

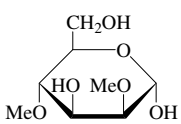
Me glycoside, 4-Ac: Methyl 4-O-*acetyl-2,3-di*-O-*methyl-α-D-mannopyranoside*
[53767-30-9]
$C_{11}H_{20}O_7$ 264.275
Syrup. $[\alpha]_D$ +33.5 (c, 1.63 in $CHCl_3$).

Me glycoside, 4-tosyl: Methyl 2,3-di-O-*methyl-4*-O-*tosyl-α-D-mannopyranoside*
[32934-13-7]
$C_{16}H_{24}O_8S$ 376.427
$[\alpha]_D^{22}$ +41 (c, 2.5 in $CHCl_3$).

Me glycoside, 4-Me: Methyl 2,3,4-tri-O-*methyl-α-D-mannopyranoside*
[6150-08-9]
$C_{10}H_{20}O_6$ 236.264
$Bp_{0.005}$ 150° (bath). $[\alpha]_D^{20}$ +38 (c, 3.9 in 1N HCl).

Robertson, G.J. *et al., J.C.S.*, 1934, 330 (*D-form, α-D-Me pyr*)
Haworth, W.N. *et al., J.C.S.*, 1939, 1878, (*D-4-Me, α-D-Me pyr 4-Me*)
Aspinall, G.O. *et al., Adv. Carbohydr. Res.*, 1953, **8**, 217 (*D-4-Me, rev*)
Murty, V.L.N. *et al., Carbohydr. Res.*, 1969, **11**, 273 (*D-form, synth, α-D-pyr-trisnitrobenzoyl, α-D-Me pyr*)
Choy, Y.M. *et al., Carbohydr. Res.*, 1971, **17**, 439 (*α-D-Me pyr 4-tosyl*)
Baker, C.W. *et al., Carbohydr. Res.*, 1974, **33**, 372 (*α-D-Me pyr, α-D-Me pyr Ac*)

2,4-Di-*O*-methylmannose D-749



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form* [25581-53-7]
Mp 120°. $[\alpha]_D$ +13.5 (c, 0.6 in H_2O).

α-D-Pyranose-*form*

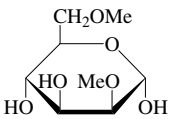
Me glycoside: Methyl 2,4-di-O-*methyl-α-D-mannopyranoside*
[25581-52-6]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D$ +51 (c, 1.1 in H_2O).

Me glycoside, dibenzoyl: Methyl 3,6-di-O-*benzoyl-2,4-di*-O-*methyl-α-D-mannopyranoside*
[50710-90-2]
$C_{23}H_{26}O_8$ 430.454
$[\alpha]_D^{25}$ +24 (c, 1.0 in MeOH).

Seymour, F.R. *et al., Carbohydr. Res.*, 1973, **30**, 327; 1975, **44**, 181 (*synth, pmr*)
Noumi, K. *et al., Carbohydr. Res.*, 1984, **134**, 172 (*Me gly*)

2,6-Di-*O*-methylmannose D-750

Curamicose



α-D-Pyranose-*form*

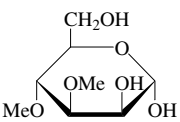
$C_8H_{16}O_6$ 208.211

D-*form* [58859-02-2]
Syrup. $[\alpha]_D^{20}$ +10.3 → +22.4 (c, 1.0 in H_2O). Component of Curamycin A, C-157.

Gross, E.G. *et al., Experientia*, 1968, **24**, 323
Perry, M.B. *et al., Can. J. Chem.*, 1969, **47**, 31
Lipták, A. *et al., Acta Chim. Acad. Sci. Hung.*, 1977, **94**, 261

3,4-Di-*O*-methylmannose D-751

[27299-06-5]



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211
Cryst. (EtOAc).

D-*form*
Cryst. (EtOAc), also reported as a syrup. Mp 73-74°. $[\alpha]_D^{19}$ +12.2 (5 min.) → +5 (2 hr.) (H_2O). $[\alpha]_D^{19}$ +1.1 (c, 4.3 in H_2O).

α-D-Pyranose-*form* [23397-61-7]
$[\alpha]_D^{28}$ +1.1 (c, 4.32 in H_2O).

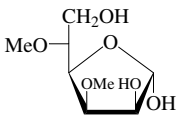
Me glycoside: Methyl 3,4-di-O-*methyl-α-D-mannopyranoside*
[27299-04-3]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D^{25}$ +86 (c, 1.4 in $CHCl_3$). $[\alpha]_D^{18}$ +72.5 (c, 0.9 in H_2O).

Me glycoside, 2-tosyl: Methyl 3,4-di-O-*methyl-2*-O-*tosyl-α-D-mannopyranoside*
[53008-60-9]
$C_{16}H_{24}O_8S$ 376.427
$[\alpha]_D^{25}$ +76 (c, 5.3 in $CHCl_3$).

Murty, V.L.N. *et al., Carbohydr. Res.*, 1969, **11**, 273 (*D-form, α-D-Me pyr*)
Handa, N. *et al., Carbohydr. Res.*, 1969, **11**, 467 (*D-form*)
Medvedeva, E.I. *et al., Khim. Prir. Soedin.*, 1973, **2**, 229

Noumi, K. *et al., Carbohydr. Res.*, 1984, **134**, 172 (α-D-*Me pyr*)

3,5-Di-*O*-methylmannose D-752



α-D-Furanose-*form*

$C_8H_{16}O_6$ 208.211

Reports before 1968 may be wrong.

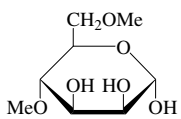
D-Furanose-*form* [14253-67-9]
$[\alpha]_D^{29}$ +4.4 (c, 5.0 in H_2O).

6-Me: 3,5,6-Tri-O-*methyl-D-mannofuranose*
[25018-60-4]
$C_9H_{18}O_6$ 222.238
Cryst. (diisopropyl ether). Mp 73-75°. $[\alpha]_D^{26}$ +12.8 (c, 1.5 in H_2O). $[\alpha]_D$ +10.6 (3 min.) → +12.8 (5 hr., equilib.) (c, 1.5 in H_2O).

Siddiqui, I.R. *et al., Carbohydr. Res.*, 1968, **8**, 477 (*synth*)
Siddiqui, I.R. *et al., Carbohydr. Res.*, 1969, **9**, 344 (*D-6-Me*)

4,6-Di-*O*-methylmannose D-753

[36722-30-2]



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

D-*form*
$[\alpha]_D^{21}$ +20.8 (c, 1.0 in H_2O).

2,3-O-*Isopropylidene: 2,3*-O-*Isopropylidene-4,6-di*-O-*methyl-D-mannose*
$C_{11}H_{20}O_6$ 248.275
Cryst. (petrol). Mp 76-77°. $[\alpha]_D^{21}$ +11 (c, 1.0 in MeOH).

α-D-Pyranose-*form*

Me glycoside: Methyl 4,6-di-O-*methyl-α-D-mannopyranoside*
[13000-41-4]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D^{21}$ +81.3 (c, 1.0 in MeOH).

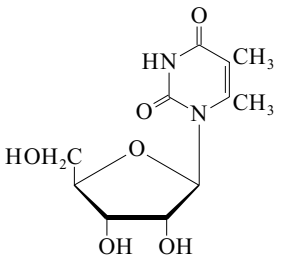
Me glycoside, 2,3-dimesyl: Methyl 2,3-di-O-*mesyl-4,6-di*-O-*methyl-α-D-mannopyranoside*
[16802-93-0]
$C_{11}H_{22}O_{10}S_2$ 378.421
Mp 128°. $[\alpha]_D^{22}$ +30.5 (c, 2.5 in $CHCl_3$).

Me glycoside, 2,3-ditosyl: Methyl 4,6-di-O-*methyl-2,3-di*-O-*tosyl-α-D-mannopyranoside*
[58720-05-1]
$C_{23}H_{30}O_{10}S_2$ 530.616
$[\alpha]_D^{33}$ +3.5 (c, 3.3 in $CHCl_3$).

Ault, R.G. *et al., J.C.S.*, 1935, 1012 (*isopropylidene*)
Gross, E.G. *et al., Carbohydr. Res.*, 1972, **23**, 148 (*D-form, α-D-Me pyr*)
Seymour, F.R. *et al., Carbohydr. Res.*, 1976, **46**, 189 (*α-D-Me pyr, α-D-Me pyr ditosyl*)

5,6-Dimethyluridine, 9CI, 8CI D-754

[16710-16-0]

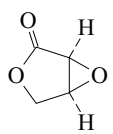


$C_{11}H_{16}N_2O_6$ 272.257
Cryst. (2-propanol aq.). Mp 182° (179-180°). $[\alpha]_D^{30}$ -30.6 (c, 1.47 in H_2O).

2′,3′,5′-Tribenzoyl: [25691-82-1]
$C_{32}H_{28}N_2O_9$ 584.581
Needles (CH_2Cl_2/pentane).
Mp 176-178°. $[\alpha]_D^{20}$ -10.3 (c, 1.0 in $CHCl_3$).

Winkley, M.W. *et al., J.O.C.*, 1968, **33**, 2822 (*synth*)
Niedballa, U. *et al., J.O.C.*, 1974, **39**, 3660 (*tribenzoyl*)

3,6-Dioxabicyclo[3.1.0]hexan-2-one D-755



$C_4H_4O_3$ 100.074

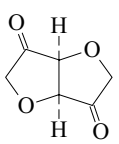
(1*S*,5*S*)-*form*
L-erythro-*form. 2,3-Anhydro-L-erythrono-1,4-lactone*
[129939-80-6]
Cryst. ($CHCl_3$). Mp 21-24°. Bp_1 79°. $[\alpha]_D^{20}$ -25 (c, 2.9 in $CHCl_3$).

[152785-40-5]

Bols, M. *et al., Acta Chem. Scand.*, 1990, **44**, 252 (*synth, cmr*)

2,6-Dioxabicyclo[3.3.0]octane-3,8-dione D-756

1,4:3,6-Dianhydrohexo-2,5-diulose, 9CI. Tetrahydrofuro[3,2-b]furan-3,6-dione



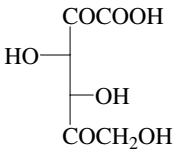
$C_6H_6O_4$ 142.111

(3*aS*,6*aS*)-*form*
(+)-cis-*form. D*-threo-*form*
[13241-36-6]
Cryst. Mp 116°. $[\alpha]_D^{27}$ +110 (H_2O).

Heyns, K. *et al., Chem. Ber.*, 1963, **96**, 3195 (*synth*)
Limberg, G. *et al., Synthesis*, 1994, 317 (*synth, pmr, cmr*)

2,5-Dioxo-*threo*-hexonic acid D-757

2,5-Diketo-threo-*hexonic acid*



$C_6H_8O_7$ 192.125

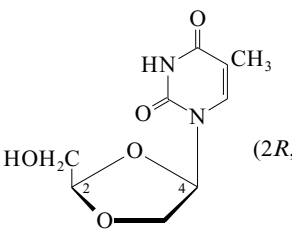
Exists in a hydrated pyranose-form in aq. soln.

D-*form*
2,5-Diketo-D-gluconic acid
Obt. by cultivation of *Gluconobacter* sp. or *Erwinia citreus* on glucose, galactose in v. high efficiency. Intermed. in coml. synth. of ascorbic acid. $[\alpha]_D^{24}$ -54.1 (c, 1 in H_2O).

Hameršak, Z. *et al., Carbohydr. Res.*, 1997, **302**, 245-249 (*synth, bibl*)

Dioxolane T D-758

1-[2-(Hydroxymethyl)-1,3-dioxolan-4-yl]-5-methyl-2,4(1H,3H)-pyrimidinedione, 9CI. 1-[2-(Hydroxymethyl)-4-dioxolanyl]thymine. 3′-Oxa-3′-deoxythymidine
[126652-30-0]



(2*R*,4*R*)–*form*

$C_9H_{12}N_2O_5$ 228.204
Thymidine analogue showing powerful antiviral activity.
(2*R*)-Isomers pharmacol. more active.

(2*R*,4*R*)-*form* [136982-89-3]
Solid. Mp 174-175°. $[\alpha]_D^{25}$ -18.8 (c, 0.17 in MeOH).

(2*R*,4*S*)-*form* [136982-90-6]
Foam. $[\alpha]_D^{25}$ +10.7 (c, 0.15 in MeOH).

(2*S*,4*R*)-*form* [145414-66-0]
Foam. $[\alpha]_D^{25}$ -10 (c, 0.45 in MeOH).

(2*S*,4*S*)-*form* [145414-65-9]
Cryst. (Et_2O/MeOH). Mp 174-175°. $[\alpha]_D^{25}$ +18.6 (c, 0.75 in MeOH).

[126652-14-0, 126652-15-1, 127658-07-5]

Eur. Pat., 1989, 337 713, (*IAF Biochem Internat*); *CA*, **112**, 198359 (*synth, pharmacol*)
Norbeck, D.W. *et al., Tet. Lett.*, 1989, **30**, 6263 (*synth, pmr, pharmacol*)
Choi, W.-B. *et al., J.A.C.S.*, 1991, **113**, 9377 (*synth*)
Kim, H.O. *et al., J. Med. Chem.*, 1992, **35**, 1987; 1993, **36**, 519 (*synth, pmr, pharmacol*)
Evans, C.A. *et al., Tetrahedron: Asymmetry*, 1993, **4**, 2319 (*synth*)

2,3-Dioxopropanoic acid, 9CI D-759

Mesoxalaldehydic acid, 8CI. Oxoaldehydoacetic acid. Aldehydoglyoxylic acid
[815-53-2]
HOOCCOCHO
$C_3H_2O_4$ 102.046
Syrup.

Dioxime:
$C_3H_4N_2O_4$ 132.076
Needles. Mp 178-180°.

Bisphenylhydrazone: [75640-08-3]
Mp 213-215°.

Bisphenylhydrazone, Et ester: [53249-98-2]
Yellow cryst. (C_6H_6). Mp 220-222°.

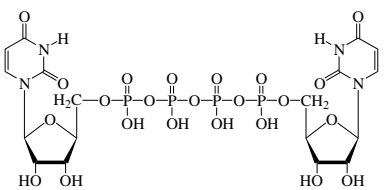
Bis-4-nitrophenylhydrazone, Et ester:
Bright-red prisms (AcOH).
Mp 272-274°.

Tetra-Et acetal, Et ester: Ethyl 2,2,3,3-tetraethoxypropanoate
[77070-74-7]
$C_{13}H_{26}O_6$ 278.345
Liq. $Bp_{0.01}$ 78°.

Panizzi, L. *et al., Gazz. Chim. Ital.*, 1946, **76**, 56; *CA*, **40**, 7163 (*synth*)
Baganz, H. *et al., Chem. Ber.*, 1963, **96**, 2666 (*acetal, synth*)

Diquafosol, INN D-760

Uridine 5′-(pentahydrogen tetraphosphate) P‴-5′-ester with uridine, 9CI. P^1,P^4-*Di(uridine 5′-)tetraphosphate. INS 365. KPY 998*
[59985-21-6]



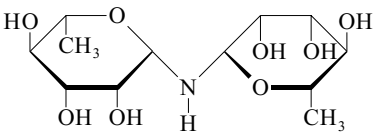
$C_{18}H_{26}N_4O_{23}P_4$ 790.312
Purine P_{2Y} receptor agonist. In clinical development for the enhancement of mucosal hydration in the treatment of dry eye and lung diseases (incl. cystic fibrosis).

Tetra-Na salt: ***Diquafosol tetrasodium, USAN***
[211427-08-6]
Solid.

[219786-28-4]

Coste, H. *et al., J. Biol. Chem.*, 1987, **262**, 12096-12103 (*synth, activity*)
Yerxa, B.R. *et al., Drugs of the Future*, 1999, **24**, 759-769; 2001, **26**, 707-710 (*rev*)
Pat. Coop. Treaty (WIPO), 1999, 99 05 155, (*Inspire*); *CA*, **130**, 125350y (*synth*)
Pendergast, W. *et al., Bioorg. Med. Chem. Lett.*, 2001, **11**, 157-160 (*tetra Na salt, synth, activity, pmr, P-31nmr*)
Fujihara, T. *et al., Invest. Ophthalmol. Visual Sci.*, 2001, **42**, 96-100 (*pharmacol*)
Noone, P.G. *et al., Pediatr. Pulmonol.*, 2001, **32**, 122-128 (*pharmacol*)
Fischberg, J. *et al., Curr. Opin. Invest. Drugs*, 2003, **4**, 1377-1384 (*diquafosol tetrasodium, rev*)

Dirhamnopyranosylamine D-761

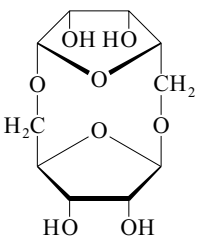


$C_{12}H_{23}NO_8$ 309.316

L,L-β,β-*form*
*6-Deoxy-*N*-(6-deoxy-β-L-mannopyranosyl)-β-L-mannopyranosylamine, 9CI*
[152501-66-1]
Mp 118°. $[\alpha]_D^{25}$ +52 (c, 2.0 in H_2O).
O-*Hexa-Ac:* [152501-67-2]
$C_{24}H_{35}NO_{14}$ 561.539
Mp 153-155°. $[\alpha]_D^{25}$ +23 (c, 2 in $CHCl_3$).
Linek, K. *et al., Carbohydr. Res.*, 1993, **247**, 329

Di-β-D-ribofuranose 1,5′:5,1′-dianhydride D-762

β-D-Ribofuranose β-D-ribofuranose 1,5′:5,1′-dianhydride



$C_{10}H_{16}O_8$ 264.232
Cryst. (EtOH). Mp 224-227°. $[\alpha]_D$ +6.8 (c, 1.06 in H_2O).

Tetra-Ac:
$C_{18}H_{24}O_{12}$ 432.38
Mp 165-167°. $[\alpha]_D$ +52.6 (c, 0.93 in $CHCl_3$).

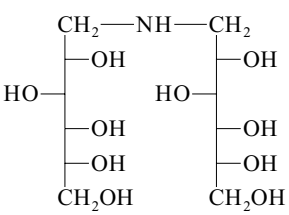
*Di-*O*-benzylidene:*
$C_{24}H_{24}O_8$ 440.449
Cryst. (Me_2CO). Mp 200-201°. $[\alpha]_D$ -41.4 (c, 0.66 in $CHCl_3$).

Tetra-Me:
$C_{14}H_{24}O_8$ 320.339
Mp 125-126°.

Barker, G.R. *et al., J.C.S.*, 1950, 23
Wood, H.B. *et al., J.A.C.S.*, 1956, **78**, 4715
Stoddart, J.F. *et al., Can. J. Chem.*, 1968, **46**, 3061 (*synth*)

Disorbitylamine D-763

1,1′-Iminobis[1-deoxyglucitol], 9CI. α-Diglucosylamine
[15351-31-2]



$C_{12}H_{27}NO_{10}$ 345.346

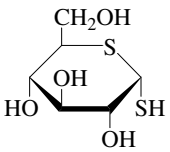
D-*form*
Cryst. (MeOH aq.). Mp 166-168°. $[\alpha]_D^{20}$ -22 (c, 5 in H_2O).

Hydrochloride: [96037-90-0]
Cryst. (MeOH aq.). $[\alpha]_D^{25}$ -26.7 (c, 5 in H_2O).

N-*Ac:*
$C_{14}H_{29}NO_{11}$ 387.383
Mp 130°. $[\alpha]_D^{25}$ -27 (c, 1 in H_2O).

Brigl, P. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1929, **180**, 38 (*synth*)
Hodge, J.E. *et al., J.O.C.*, 1963, **28**, 2784 (*synth, derivs*)

1,5-Dithioglucose D-764



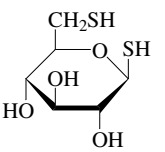
$C_6H_{12}O_4S_2$ 212.29

β-D-Pyranose-*form*
*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-1,5-dithio-β-D-glucopyranose*
[152039-48-0]
$C_{14}H_{20}O_8S_2$ 380.439
Cryst. (MeOH). Mp 128°. $[\alpha]_D$ +11 (c, 1.0 in $CHCl_3$).

4-Nitrophenyl glycoside: 4-Nitrophenyl 1,5-dithio-β-D-glucopyranoside
[152135-45-0]
$C_{12}H_{15}NO_6S_2$ 333.386
Cryst. Mp 154-156°. $[\alpha]_D$ +33 (c, 1.0 in Me_2CO).

Joseph, B. *et al., J. Carbohydr. Chem.*, 1993, **12**, 719-729 (*β-D-pyr, tetra-Ac, 4-nitrophenyl gly, synth, pmr, cmr*)

1,6-Dithioglucose D-765



β-D-Pyranose-*form*

$C_6H_{12}O_4S_2$ 212.29

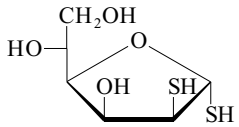
D-*form*
Syrup. $[\alpha]_D^{18}$ +4.1 (c, 1.1 in H_2O).

β-D-Pyranose-*form*
*1,6-Dibenzoyl, tri-Ac: 2,3,4-Tri-*O*-acetyl-1,6-di-*S*-benzoyl-1,6-dithio-β-D-glucopyranose*
$C_{26}H_{26}O_9S_2$ 546.618
Mp 130-131°. $[\alpha]_D^{20}$ -9 (c, 4.0 in $CHCl_3$).

6-Tosyl, tetra-Ac:
$C_{21}H_{26}O_{10}S_3$ 534.628
Prisms (Me_2CO/EtOH). Mp 192-193° dec. $[\alpha]_D^{23}$ +23.8 (c, 1.7 in $CHCl_3$).

Akagi, M. *et al., Chem. Pharm. Bull.*, 1963, **11**, 58 (*synth, β-D-pyr-tosyl tetra-Ac*)
Kocourek, J. *et al., Angew. Chem., Int. Ed.*, 1964, **3**, 62 (*β-D-pyr-dibenzoyl tri-Ac*)

1,2-Dithiomannose D-766



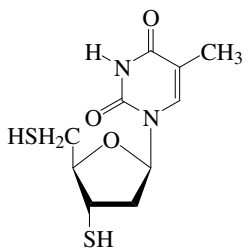
$C_6H_{12}O_3S_2$ 196.291

α-D-Furanose-*form*

S,S′-*Di-Et: Ethyl 2*-S-*ethyl-1,2-dithio-α-D-mannofuranoside*
[30085-91-7]
$C_{10}H_{20}O_4S_2$ 268.398
Cryst. (H_2O). Mp 93-94°. $[\alpha]_D^{25}$ +106 (c, 1.1 in $CHCl_3$).
Ducruix, A. *et al., Acta Cryst. B*, 1972, **28**, 1195 (*cryst struct*)
Horton, D. *et al., Carbohydr. Res.*, 1975, **39**, 67 (*synth*)

3′,5′-Dithiothymidine, 9CI D-767

[183428-19-5]



$C_{10}H_{14}N_2O_3S_2$ 274.364
Cryst. (EtOH/AcOH). Mp 163-166°. $[\alpha]_D^{25}$ +1.85 (c, 1.00 in dichloroethane).

3′,5′-S-*Isopropylidene:* [183428-18-4]
$C_{13}H_{18}N_2O_3S_2$ 314.429
Cryst. (MeOH aq.). Mp 191-192.5°.

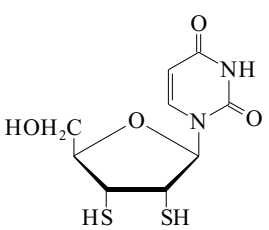
3′-S-*Me:*
$C_{11}H_{16}N_2O_3S_2$ 288.391
Oil. $[\alpha]_D^{25}$ +1.92 (c, 1.00 in dichloroethane).

3′,5′-S-*Di-Me:*
$C_{12}H_{18}N_2O_3S_2$ 302.418
Oil. $[\alpha]_D^{25}$ +3.03 (c, 1.00 in dichloroethane).

Eleuteri, A. *et al., J.C.S. Perkin 1*, 1996, 2237 (*synth, pmr, cmr*)
Chiba, J. *et al., J.O.C.*, 2003, **68**, 331-338 (*synth, Me derivs, ir, pmr, cmr, cryst struct*)

2′,3′-Dithiouridine, 9CI D-768

[156592-92-6]



$C_9H_{12}N_2O_4S_2$ 276.337
Needles. Mp 131-132°.

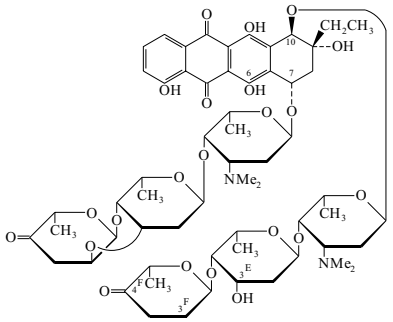
S,S′-*Isopropylidene:* [156592-91-5]
$C_{12}H_{16}N_2O_4S_2$ 316.401
Cryst. Mp 158-160°.

S,S′-*Di-Me:* [156592-89-1]
$C_{11}H_{16}N_2O_4S_2$ 304.39
Cryst. Mp 159-160°.

Johnson, R. *et al., Chem. Comm.*, 1994, 133 (*isopropylidene, di-Me, pmr, cmr*)

Ditrisarubicin A D-769

[87399-21-1]



$C_{60}H_{82}N_2O_{22}$ 1183.308
Anthracycline antibiotic. Isol. from *Streptomyces cyaneus*. Active against gram-positive bacteria and tumours. Red powder. Sol. MeOH, $CHCl_3$, DMSO, MeCN; poorly sol. H_2O, C_6H_6, hexane.
Mp 184-187° dec. $[\alpha]_D^{25}$ +119 (c, 0.1 in $CHCl_3$). λ_{max} 234 (ε 40300); 253 (ε 22100); 290 (ε 7800); 495 (ε 14300); 527 (ε 9100) (MeOH/HCl) (Derep). λ_{max} 238 (ε 45500); 288 (ε 10900); 567 (ε 17700); 602 (ε 15700) (MeOH/NaOH) (Derep). λ_{max} 234 (ε 37800); 252 (ε 23600); 290 (ε 6860); 496 (ε 11800); 530 (ε 9570); 588 (ε 4960) (MeOH) (Derep). λ_{max} 234 (E1%/1cm 320); 252 (E1%/1cm 200); 290 (E1%/1cm 56); 496 (E1%/1cm 100); 530 (E1%/1cm 81); 588 (E1%/1cm 42) (MeOH) (Berdy). λ_{max} 234 (E1%/1cm 341); 253 (E1%/1cm 187); 290 (E1%/1cm 66); 495 (E1%/1cm 121); 527 (E1%/1cm 77) (MeOH-HCl) (Berdy). λ_{max} 238 (E1%/1cm 385); 288 (E1%/1cm 92); 567 (E1%/1cm 150); 602 (E1%/1cm 133) (MeOH-NaOH) (Berdy).
▶ LD_{50} (mus, ipr) 5 - 10 mg/kg. QI9296050

*4^F-Alcohol (*S-*):* ***Ditrisarubicin G***
[101799-25-1]
$C_{60}H_{84}N_2O_{22}$ 1185.324
From *Streptomyces cyaneus*. Cytotoxic. Sol. MeOH, $CHCl_3$, MeCN, Py, DMSO; poorly sol. H_2O, hexane. λ_{max} 234 (E1%/1cm 219); 290 (E1%/1cm 67); 464 (ε 126) (MeOH) (Berdy). λ_{max} 242 (E1%/1cm 325); 298 (E1%/1cm 62); 565 (E1%/1cm 138); 605 (E1%/1cm 125) (MeOH-NaOH) (Berdy).

3^E-Deoxy: ***Ditrisarubicin D***
[101799-24-0]
$C_{60}H_{82}N_2O_{21}$ 1167.309
From *Streptomyces cyaneus*. Cytotoxic.

*3^E-Deoxy, 4^F*S*-alcohol:* ***Ditrisarubicin F.*** *Cytorhodin U*
[101770-05-2]

[100630-85-1]
$C_{60}H_{84}N_2O_{21}$ 1169.324
From *Streptomyces cyaneus* and *Streptomyces purpurascens*. Cytotoxic.

3^E-Deoxy, 2^F,3^F-didehydro: ***Ditrisarubicin C.*** *Cytorhodin D*
[87385-18-0]

[100630-83-9]
$C_{60}H_{80}N_2O_{21}$ 1165.293
From *Streptomyces cyaneus* and *Streptomyces purpurascens*. Active against gram-positive bacteria and tumours. Red powder.
Mp 173-176° dec. $[\alpha]_D^{25}$ +167 (c, 0.1 in $CHCl_3$). λ_{max} 234 (ε 40300); 253 (ε 22100); 290 (ε 7800); 495 (ε 14300); 527 (ε 9100) (MeOH/HCl) (Derep). λ_{max} 238 (ε 45500); 288 (ε 10900); 567 (ε 17700); 602 (ε 15700) (MeOH/NaOH) (Derep). λ_{max} 234 (ε 37800); 252 (ε 23600); 290 (ε 6860); 496 (ε 11800); 530 (ε 9570); 588 (ε 4960) (MeOH) (Derep).
▶ QI9296070

6-Deoxy: ***Cosmocarcin B***
[106750-24-7]
$C_{60}H_{82}N_2O_{21}$ 1167.309
Prod. by *Streptomyces cosmosus*. Antitumour agent.

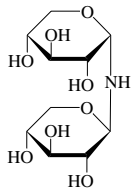
4^E-O-*Deglycosyl: 4^E*-O-*Derhodinosylditrisarubicin G*
[101770-07-4]
$C_{54}H_{74}N_2O_{20}$ 1071.18
Prod. by *Streptomyces cyaneus*. Sol. MeOH, Py, DMSO, MeCN, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 176°. $[\alpha]_D$ +176 ($CHCl_3$). λ_{max} 254 ; 290 ; 495 (MeOH). λ_{max} 254 (E1%/1cm 256); 290 (E1%/1cm 75); 495 (E1%/1cm 142) (MeOH) (Berdy). λ_{max} 242 (E1%/1cm 374); 300 (E1%/1cm 67); 565 (E1%/1cm 159); 605 (E1%/1cm 141) (MeOH-NaOH) (Berdy).

*10-De-*O-*glycosyl:* ***Betaclamycin B***
[143413-62-1]
$C_{40}H_{49}NO_{15}$ 783.825
Biosynth. prod. from *Streptomyces galileus*. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 182-185°. λ_{max} 204 (E1%/1cm 332); 235 (E1%/1cm 589); 254 (E1%/1cm 344); 293 (E1%/1cm 115); 495 (E1%/1cm 208) (MeOH) (Berdy). λ_{max} 206 (E1%/1cm 486); 235 (E1%/1cm 654); 254 (E1%/1cm 388); 291 (E1%/1cm 138); 498 (E1%/1cm 208) (MeOH-HCl) (Berdy). λ_{max} 207 (E1%/1cm 686); 240 (E1%/1cm 557); 298 (E1%/1cm 107); 550 (E1%/1cm 203); 592 (E1%/1cm 180) (MeOH-NaOH) (Berdy).

7-De(glycosyloxy), 6-deoxy: ***Cosmocarcin C***
[106750-06-5]
$C_{40}H_{51}NO_{13}$ 753.842
Semisynth. Antitumour agent.

Uchida, T. *et al., J. Antibiot.*, 1983, **36**, 1080; 1985, **38**, 795 (*isol, uv, ir, pmr, struct*)
Eur. Pat., 1986, 167 935; *CA*, **104**, 184852 (*isol*)
Japan. Pat., 1986, 86 212 595; *CA*, **106**, 100845 (*Cosmocarcin*)
Yoshimoto, A. *et al., J. Antibiot.*, 1992, **45**, 1005 (*Betaclamycin B*)
Mackay, J.P. *et al., Tetrahedron*, 1996, **52**, 5617-5624 (*pmr, conformn*)

Dixylopyranosylamine D-770



D-D-α,β-*form*

$C_{10}H_{19}NO_8$ 281.262

D,D-α,β-*form*

*Hexa-Ac: (2,3,4-Tri-*O*-acetyl-α-D-xylopyranosyl)(2,3,4-tri-*O*-acetyl-β-D-xylopyranosyl)amine*
[114244-99-4]
$C_{22}H_{31}NO_{14}$ 533.485
Cryst. (EtOH). Mp 224-225° (218-219°). $[\alpha]_D^{20}$ +16.8 (c, 2.0 in $CHCl_3$) (+15.1).

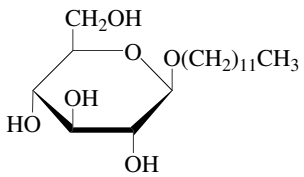
D,D-β,β-*form* [62983-70-4]
Cryst. (H_2O/MeOH/Me_2CO). Mp 164° (154-155°). $[\alpha]_D^{20}$ -44.3 (c, 1.4 in H_2O).

*Hexa-Ac: Bis(2,3,4-tri-*O*-acetyl-β-D-xylopyranosyl)amine*
[114298-55-4]
$C_{22}H_{31}NO_{14}$ 533.485
Mp 151-152°. $[\alpha]_D^{20}$ -28 (c, 2.0 in $CHCl_3$).

Ishbell, H.S. *et al., J.O.C.*, 1958, **23**, 1309 (*synth*)
De Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1976, **85**, 605 (*pmr, conformn*)
Linek, K. *et al., Carbohydr. Res.*, 1987, **164**, 195 (*synth, pmr, cmr, bibl*)

Dodecyl glucoside D-771

AG 12



$C_{18}H_{36}O_6$ 348.479

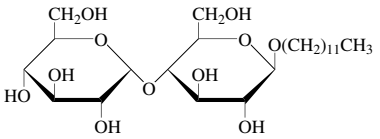
β-D-Pyranose-*form* [59122-55-3]
Surfactant. Used in the isol. and purifn. of membrane proteins. Mp 78-80° Mp 136-137°. $[\alpha]_D^{20}$ -22 (c, 1.0 in MeOH).

Tetra-Ac: [66854-07-7]
$C_{26}H_{44}O_{10}$ 516.628
Mp 59°. $[\alpha]_D^{20}$ -19 (c, 1.0 in MeOH).

Weber, N. *et al., Chem. Phys. Lipids*, 1982, **31**, 325-329 (*synth, ir, ms, bibl*)
Koeltzow, D.E. *et al., J. Am. Oil Chem. Soc.*, 1984, **61**, 1651-1655 (*synth, props*)
Kiwada, H. *et al., Chem. Pharm. Bull.*, 1985, **33**, 753-759 (*use*)
Focher, B. *et al., Chem. Phys. Lipids*, 1990, **53**, 141-155 (*synth, pmr, cmr, props*)

Dodecyl maltoside D-772

Lauryl maltoside



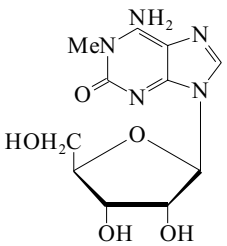
$C_{24}H_{46}O_{11}$ 510.621

β-D-Pyranose-*form* [69227-93-6]
Detergent used in study of photosynthetic membranes and the characterisation of enzymes.
Cryst. (MeOH/EtOH). Mp 104-105°. $[\alpha]_D^{20}$ +47 (MeOH).

De Grip, W.J. *et al., Chem. Phys. Lipids*, 1979, **23**, 321-335 (*synth, pmr*)
Rosevar, P. *et al., Biochemistry*, 1980, **19**, 4108-4115 (*synth, cmr*)
Van Aken, T. *et al., Methods Enzymol.*, 1986, **125**, 27 (*synth, use*)
Hodges, M. *et al., Biochim. Biophys. Acta*, 1988, **935**, 41-52 (*use*)
Dekker, J.P. *et al., Biochim. Biophys. Acta*, 1988, **936**, 307-318 (*use*)
Tandon, S. *et al., Biochim. Biophys. Acta*, 1988, **955**, 19-25 (*use*)

Doridosine D-773

N,*6-Didehydro-1,2,3,6-tetrahydro-1-methyl-2-oxoadenosine, 9CI. 1-Methylisoguanosine*
[73027-05-1]



$C_{11}H_{15}N_5O_5$ 297.27

Nucleoside antibiotic. Obt. from the marine sponges *Tedania digitata* and *Anisodoris nobilis*. Shows antiinflammatory and muscle relaxant props. Long-acting hypertensive agent. Cryst. (H_2O). Sol. MeOH, H_2O; poorly sol. Me_2CO, hexane.
Mp 266-267° (262-263°). $[\alpha]_D^{24}$ -65.4 (c, 1.0 in DMSO). $[\alpha]_D^{22}$ -54.6 (c, 1.0 in H_2O). Log P -4.17 (calc). λ_{max} 237 (ϵ 5600); 283 (ϵ 12900) (dil HCl) (Derep). λ_{max} 253 (ϵ 8400); 292 (ϵ 11200) (dil. NaOH) (Derep). λ_{max} 250 (ϵ 8600); 294 (ϵ 11400) (H_2O at pH 6.3) (Derep). λ_{max} 250 (ϵ 9400); 299 (ϵ 11500) (MeOH) (Berdy). λ_{max} 234 (ϵ 7000); 283 (ϵ 13700) (HCl) (Berdy). λ_{max} 286 (ϵ 7500) (pH 12 buffer) (Berdy).

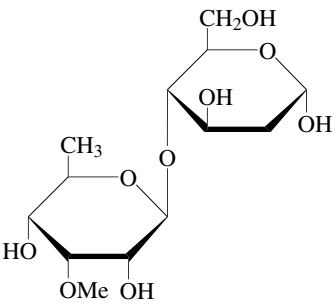
▶ LD_{50} (mus, orl) 1000 mg/kg.

[70639-65-5]

Cook, A.F. *et al., J.O.C.*, 1980, **45**, 4020 (*isol, synth, cmr, ms*)
Fuhrman, F.A. *et al., Science (Washington, D.C.)*, 1980, **207**, 193; 1981, **212**, 557, (*isol, pharmacol*)
Quinn, R.J. *et al., Tet. Lett.*, 1980, **21**, 567, (*isol, struct, synth*)
Kim, Y.H. *et al., J. Nat. Prod.*, 1981, **44**, 206 (*isol, struct, pharmacol*)
Wong, R.L. *et al., Acta Cryst. C*, 1984, **40**, 1409 (*cryst struct*)
Nachman, R.J. *et al., J.C.S. Perkin 1*, 1985, 1315 (*synth*)
Davies, L.P. *et al., Trends Pharmacol. Sci.*, 1985, **6**, 143 (*isol, rev*)
Chern, J.-W. *et al., J.O.C.*, 1991, **56**, 4213 (*synth*)

Dredehongbiose D-774

*6-Deoxy-3-*O*-methyl-β-D-allopyranosyl-(1→4)-2-deoxy-D-*arabino*-hexose*
[117869-63-3]



$C_{13}H_{24}O_9$ 324.327

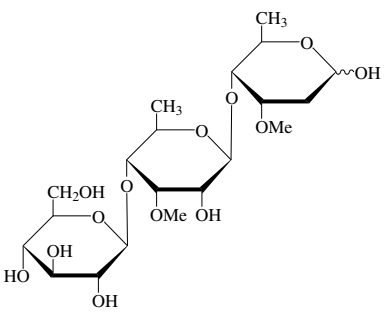
α-D-Pyranose-*form*

*Me glycoside: Methyl 6-deoxy-3-*O*-methyl-β-D-allopyranosyl-(1→4)-2-deoxy-α-D-*arabino*-hexopyranoside. Methyl α-dredehongbioside*
$C_{14}H_{26}O_9$
Present in *Dregea volubilis*.

Chiu, M. *et al., Zhiwu Xuebao*, 1988, **30**, 297; *CA*, **110**, 4673j

Dregeatriose D-775

*β-D-Glucopyranosyl-(1→4)-6-deoxy-3-*O*-methyl-β-D-allopyranosyl-(1→4)-2,6-dideoxy-3-*O*-methyl-D-*ribo*-hexose, 9CI. β-D-Glucopyranosyl-(1→4)-3-*O*-methyl-β-D-allomethylopyranosyl-(1→4)-D-cymaropyranoside*
[89203-41-8]



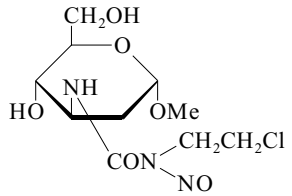
$C_{20}H_{36}O_{13}$ 484.497
Constit. of *Dregea volubilis*.

Hayashi, K. *et al., CA*, 1984, **100**, 135778p

Ecomustine, INN E-1

Methyl 3-[[[(2-chloroethyl)nitrosoamino]carbonyl]amino]-2,3-dideoxy-α-D-arabino-hexopyranoside, 9CI. Cy 233. NSC 609224

[98383-18-7]



$C_{10}H_{18}ClN_3O_6$ 311.721

Antineoplastic agent. Cryst. (cyclohexane). Mp 118°. $[\alpha]_D$ +96.2 (c, 0.5 in $CHCl_3$). Log P -1.21 (calc).

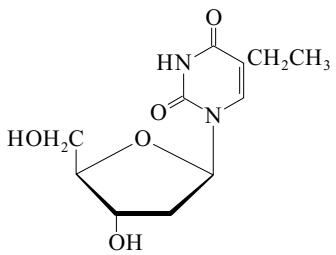
▶ LD_{50} (mus, ipr) 40 mg/kg. MQ3130200

Gosse, C. *et al., Anticancer Res.*, 1988, **8**, 1419 (*pharmacol*)
Atassi, G. *et al., Cancer Chemother. Pharmacol.*, 1989, **25**, 205 (*pharmacol*)
Gosse, C. *et al., J. Med. Chem.*, 1989, **32**, 16 (*synth, pmr, pharmacol*)
el Abed, I. *et al., Cancer Chemother. Pharmacol.*, 1991, **27**, 295 (*hplc*)

Edoxudine, INN, USAN E-2

2′-Deoxy-5-ethyluridine, 9CI. Aedurid. Edurid. Etoxuridine. Virostat. ORF 15817. EDU. Et UdR. EUDR

[15176-29-1]



$C_{11}H_{16}N_2O_5$ 256.258

Antiviral agent; used topically in treatment of herpes infections. Long needles (Me_2CO). Mp 152-153°. Log P -1.41 (calc).

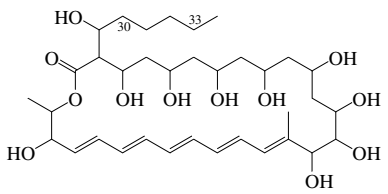
▶ Mutagenic props.. YU7500000

Remin, M. *et al., Eur. J. Biochem.*, 1975, **53**, 197 (*conformn, pmr*)
Bergstrom, D.E. *et al., J.A.C.S.*, 1978, **100**, 8106 (*synth*)
Robins, M.J. *et al., J.O.C.*, 1983, **48**, 1854 (*synth*)
Rode, W. *et al., Biochem. Pharmacol.*, 1984, **33**, 2699 (*synth, pharmacol*)
Hempel, B. *et al., Arzneim.-Forsch.*, 1985, **35**, 1058 (*pharmacol*)
Walker, R.T. *et al., Nucleic Acids Symp. Ser.*, 1985, **16**, 291 (*synth, pharmacol*)
Buchele, A. *et al., Arzneim.-Forsch.*, 1989, **39**, 220 (*metab*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 544

Elizabethin E-3

Isolagosin

[78361-81-6]



$C_{35}H_{58}O_{12}$ 670.836

Polyene antibiotic. Prod. by *Streptomyces elizabethii* and *Streptomyces* sp. M90025. Antifungal agent. Shows cytotoxic activity. Pale yellow cryst. (MeOH). Sol. Py, DMF; fairly sol. MeOH; poorly sol. EtOH, hexane. Mp 225-227°. $[\alpha]_D^{25}$ -228 (c, 1.0 in DMF). $[\alpha]_D^{25}$ -155 (c, 0.4 in MeOH). λ_{max} 310 ; 325 ; 340 ; 360 (MeOH) (Berdy).

▶ LD_{50} (mus, ipr) 24 mg/kg, LD_{50} (mus, orl) 50-70 mg/kg. JX9500000

Deca-Ac: Mp 70-75°. $[\alpha]_D^{25}$ +47 (c, 0.8 in MeOH).

33-Demethyl: ***Antibiotic M 90025A***. *M 90025A*

[300811-60-3]

$C_{34}H_{56}O_{12}$ 656.809

Prod. by *Streptomyces* sp. M90025. Antifungal agent.

32-Deethyl, 30-methyl: ***Antibiotic M 90025B***. *M 90025B*

[300811-61-4]

$C_{34}H_{56}O_{12}$ 656.809

Prod. by *Streptomyces* sp. M90025. Antifungal agent.

Pirt, S.J. *et al., J. Chem. Technol. Biotechnol.*, 1981, **31**, 167 (*isol*)
Bird, C.W. *et al., J. Chem. Technol. Biotechnol.*, 1981, **31**, 368 (*struct*)
Seo, Y. *et al., J. Microb. Biotechnol.*, 2000, **10**, 176-180 (*M 90025*)

Elsinan E-4

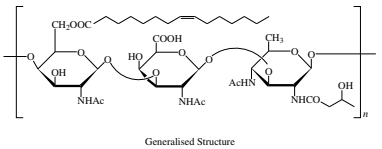
[66457-06-5]

Linear α-D-glucan consisting mainly of 1,4- and 1,3-linkages in molar ratios 2.0:1 to 2.5:1. Approx. 1 in 140 linkages is α-1,6. MW 2-6 × 10^6. Secondary metabolite prod. by species of *Elsinoe*. $[\alpha]_D^{20}$ +243 (c, 0.81 in H_2O).

Misaki, A. *et al., Agric. Biol. Chem.*, 1978, **42**, 491 (*isol*)
Tsumuraya, Y. *et al., Carbohydr. Res.*, 1978, **66**, 53; 1982, **109**, 207 (*struct*)
Misaki, A. *et al., ACS Symp. Ser.*, 1980, **126**, 197 (*rev*)
Backman, I. *et al., J.C.S. Perkin 1*, 1988, 889 (*cmr*)
Misaki, A. *et al., Methods Carbohydr. Chem.*, 1994, **10**, 165 (*struct*)
Yui, T. *et al., J. Carbohydr. Chem.*, 2000, **19**, 1075-1081 (*struct*)

Emulsan E-5

[80450-55-1]



Generalised Structure

Lipoheteropolysaccharide. Prod. by *Acinetobacter calcoaceticus* RAG-1. Emulsifies hydrocarbons and crude oil. MW *ca*. 10^6 Da.

Gutnick, D.L. *et al., Biopolymers*, 1987, **26**, S223-S240 (*rev*)
Gorkovenko, A. *et al., Polym. Mater. Sci. Eng.*, 1995, **72**, 92-94 (*biosynth*)
Zhang, J. *et al., Int. J. Biol. Macromol.*, 1997, **20**, 9-21 (*biosynth, derivs*)
Zhang, J. *et al., J. Chem. Technol. Biotechnol.*, 1999, **74**, 759-765 (*props, bibl*)

Enoxaparin, BAN, INN E-7

Clexane†. Deciphar. Klexane. Lovenox. Plaucina. Trombenox. PK 10169. Kabi 2165. CY 216†

Low MW heparin (see Heparin, H-5). Prep. by alkaline degradation of heparin benzyl ester obt. from the intestinal mucosa of pigs. Anticoagulant, antithrombotic. Intended for use in the treatment of deep vein thrombosis. Launched 1987. Worldwide 31st best selling prescription drug ($1.48 bn, 2002) (Aventis) (Med Ad News). Av. MW 3500-5500.

Na salt: Enoxaparin sodium, BAN, USAN

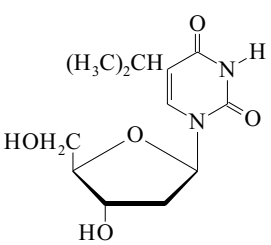
[9041-08-1, 679809-58-6]

Doutzenberg, M.D. *et al., Thromb. Haemostasis*, 1990, **64**, 490 (*activity*)
Buckley, M.M. *et al., Drugs*, 1992, **44**, 465 (*rev*)
Bouthier, J. *et al., Low Mol. Weight Heparins Clin. Pract.*, (Ed. C. Doutremepuich), Dekker, 1992, 199 (*rev*)
Carter, C.A. *et al., Ann. Pharmacother.*, 1993, **27**, 1223 (*rev*)
Cziraky, M.J. *et al., Clin. Pharm.*, 1993, **12**, 892 (*rev*)
Noble, S. *et al., Drugs*, 1995, **49**, 388; 1998, **56**, 259-272 (*rev*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 864
Ibbotson, T. *et al., Drugs*, 2002, **62**, 1407-1431 (*rev*)
Chapman, T.M. *et al., Drugs*, 2003, **63**, 2357-2377 (*bemiparin, rev*)

Epervudine, INN E-8

2′-Deoxy-5-(1-methylethyl)uridine, 9CI. 5-Isopropyl-2′-deoxyuridine. IPDU

[60136-25-6]



$C_{12}H_{18}N_2O_5$ 270.285

Antiviral agent; used in the treatment of herpes. Launched (1988). Log P -1.01 (calc).

Otvos, L. *et al., Nucleic Acids Res., Spec. Publ.*, 1975, **1**, S49 (*synth*)
Czugler, M. *et al., Acta Cryst. B*, 1979, **35**, 1626 (*cryst struct*)
Draminski, M. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1980, **54**, 1085 (*synth*)
De Clercq, E. *et al., Mol. Pharmacol.*, 1987, **32**, 286 (*pharmacol*)
Czugler, M. *et al., Acta Pharm. Hung.*, 1993, **63**, 193 (*cryst struct*)

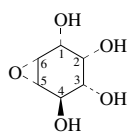
Epiglucan E-9

A highly branched (1→3:1→6)-β-D-glucan. Two alternative structs. have been proposed. Polysaccharide prod. by the microfungus *Epicoccum nigrum*. Amorph. solid.

Schmid, F. *et al., Carbohydr. Res.*, 2001, **331**, 163-171 (*isol, uv, cmr*)

5,6-Epoxy-1,2,3,4-cyclohexanetetrol E-10

1,2-Anhydroinositol, 9CI. 7-Oxabicyclo[4.1.0]heptane-1,2,3,4-tetrol



(1α,2α,3α,4β,5α,6α)-*form*

$C_6H_{10}O_5$ 162.142

(1α,2α,3α,4β,5α,6α)-*form*
1,2-Anhydro-epi-*inositol, 9CI. Conduritol C* cis-*epoxide*
[80736-38-5] Specific β-glycosidase inhibitor.
Cryst. Mp 126° (110-127°). Racemate.

Tetra-Ac:
$C_{14}H_{18}O_9$ 330.291
Prisms (EtOH). Mp 115.5-116.5°.

(1α,2α,3α,4β,5β,6β)-*form* *1,2-Anhydro*-neo-*inositol, 9CI. Conduritol C* trans-*epoxide*
[80736-37-4] α-Galactosidase inhibitor.
Cryst. (EtOH). Mp 145° (130-143°). Racemate.

Tetra-Ac:
Cryst. (EtOH/H_2O). Mp 114-115°.

(1α,2α,3β,4β,5α,6α)-*form* *1,2-Anhydro*-allo-*inositol, 9CI. Conduritol E epoxide*
[23559-36-6]
Mp 176-177°. Racemate. Known also in opt. active form (+)-form +153 (c, 0.5 in H_2O).

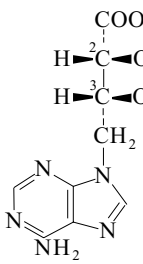
Tetranitrate: [23627-80-7]
$C_6H_6N_4O_{13}$ 342.132
Cryst. (EtOH). Mp 89-89.2°.

(1α,2β,3α,4β,5α,6α)-*form* *1,2-Anhydro-DL*-myo-*inositol, 9CI. Conduritol B epoxide*
[6090-95-5] Inhibitor of the enzyme which cleaves glucosylceramide. The enzyme is defective in the human genetic disorder Gaucher disease. Reliable glucosidase inhibitor used in enzyme research.
Cryst. (EtOH). Mp 155-156°. Racemate. Has also been synthesised in opt. active form.

Angyal, S.J. *et al., J.C.S.*, 1957, 3691 (*(+)-Conduritol E epoxide*)
Nakajima, M. *et al., Chem. Ber.*, 1959, **92**, 173; 1961, **94**, 515 (*synth, ir*)
Legler, G. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1966, **345**, 197 (*synth*)
Anikeeva, A.N. *et al., Zh. Obshch. Khim.*, 1966, **36**, 194; *J. Gen. Chem. USSR (Engl. Transl.)*, 1966, **36**, 203 (*ir*)
Eremenko, L.T. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1970, 920; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1970, 920 (*Conduritol E tetranitrates*)
Legler, G. *et al., FEBS Lett.*, 1981, **135**, 139 (*synth, biochem*)
Lee, K.J. *et al., Carbohydr. Res.*, 1985, **144**, 148 (*synth, Conduritol B epoxide*)
Gal, A.E. *et al., J. Labelled Compd. Radiopharm.*, 1987, **24**, 397; *CA*, **108**, 55775k (*synth*)
Datta, S.C. *et al., Biochem. Biophys. Res. Commun.*, 1988, **152**, 155 (*biochem*)
Jaramillo, C. *et al., Carbohydr. Res.*, 1991, **209**, 296 (*synth, 1D-1,2-anhydro-myo-inositol*)
Carless, H.A.J. *et al., Tet. Lett.*, 1992, **33**, 6379 (*synth, pmr, cmr, Conduritol E epoxides*)
Falshaw, A. *et al., Carbohydr. Res.*, 2000, **329**, 301-308 (*myo- enantiomers*)

Eritadenine E-11

*6-Amino-α,β-dihydroxy-9*H-*purine-9-butanoic acid, 9CI. 4-(6-Amino-9*H-*purin-9-yl)-4-deoxyerythronic acid, 8CI. 4-(9-Adeninyl)-2,3-dihydroxybutanoic acid. Lentysine. Lentinacin*



(2*R*,3*R*)–*form*

$C_9H_{11}N_5O_4$ 253.217
Shows antihypercholesterolaemic activity and antiviral props. Log P -2.76 (calc).

(2*R*,3*R*)-*form*
D-erythro-*form*
[23918-98-1]
Isol. from the edible shiitake mushroom *Lentinus edodes*.
Mp 261-263° dec. (279° dec.). $[\alpha]_D$ +50 (0.1*M* NaOH). $[\alpha]_D$ +16 (1*M* HCl). λ_{max} 259 (ε 14129) (HCl) (Berdy). λ_{max} 261 (ε 14508) (H_2O) (Berdy). λ_{max} 262 (ε 14300) (NaOH) (Berdy).

Me ester: [25616-63-1]
Mp 231° dec.

2,3-Di-Ac, Me ester: [25616-64-2]
Mp 225° dec.

2,3-O-*Isopropylidene, Me ester:*
[28991-46-0]
Mp 181°.

3-Deoxy: ***Deoxyeritadenine***
[31701-90-3]
$C_9H_{11}N_5O_3$ 237.218
Constit. of the edible shiitake mushroom *Lentinus edodes*. Exhibits weak hypocholesterolemic activity.

Mp 270-271° dec. $[\alpha]_D$ +18.4 (c, 1.0 in 0.1N NaOH). λ_{max} 262 (ε 14300) (0.1 M NaOH). λ_{max} 262 (ε 13900) (0.1 M HCl).

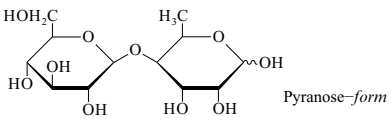
(2*R*,3*S*)-*form*
D-threo-*form*
[28617-17-6]
Mp 297° dec. $[\alpha]_D$ +82 (0.1*M* NaOH).

(2*S*,3*R*)-*form*
L-threo-*form*
[28617-16-5]
Mp 297° dec. $[\alpha]_D$ -81 (0.1*M* HCl).

Chibata, I. *et al., Experientia*, 1969, **25**, 1237 (*isol*)
Rokujo, T. *et al., Life Sci.*, 1970, **9**, 379 (*pharmacol*)
Hashimoto, M. *et al., Tet. Lett.*, 1970, 1359 (*synth*)
Saito, Y. *et al., Tet. Lett.*, 1970, 4863 (*Deoxyeritadenine*)
Okumura, K. *et al., J.O.C.*, 1971, **36**, 1573
Kamiya, T. *et al., Tetrahedron*, 1972, **28**, 899 (*synth, abs config*)
Kawazu, M. *et al., J.O.C.*, 1973, **38**, 2887 (*synth, pmr*)
Okumura, K. *et al., J. Med. Chem.*, 1974, **17**, 846
Tensho, A. *et al., Yakugaku Zasshi*, 1974, **94**, 708 (*Deoxyeritadenine*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1982, **47**, 1392 (*synth, pharmacol*)

Erycordinobiose E-12

6-Deoxy-4-O-*β-D-glucopyranosyl-D-gulose, 9CI*
[41094-27-3]



Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Constit. of the cardiac glycoside erycordin. Cryst. (MeOH/butanol). Mp 133-136° Mp 160-163°. $[\alpha]_D^{19}$ -22.4 (c, 1.2 in H_2O).

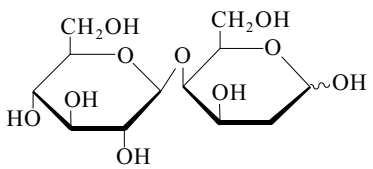
Phenylosazone: Mp 214.5-216°. $[\alpha]_D^{21}$ -34.7 (c, 0.35 in Py).

Hepta-Ac: [40879-87-6]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (Et_2O/petrol). Mp 71-73°. $[\alpha]_D^{18}$ -1.8 (c, 1.67 in $CHCl_3$).

Makarevich, I. *et al., Khim. Prir. Soedin.*, 1973, **9**, 50; 1989, **25**, 73; *Chem. Nat. Compd. (Engl. Transl.)*, 40; 63

Eryscenobiose E-13

4-O-*β-D-Glucopyranosyl-2-deoxy-D*-lyxo-*hexopyranose*

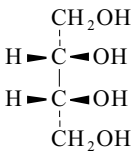


$C_{12}H_{22}O_{10}$ 326.3
Isol. from *Erysimum canescens*.
Mp 211-216°. $[\alpha]_D^{25}$ +22.2 (c, 1.0 in H_2O, 8 hr.). Acid hydrol. → 2-Deoxygalactose + Glucose.

Bauer, S. *et al., Tet. Lett.*, 1966, 1703 (*isol*)

Erythritol, 9CI, 8CI E-14

(R,S)-1,2,3,4-Butanetetrol, 9CI, 8CI. Mesoerythritol. Phycitol. Erythroglucin
[149-32-6]



$C_4H_{10}O_4$ 122.121

For (*R*,*R*)-form see Threitol, T-100. Opt. inactive (*meso*-): some derivs. may be chiral (see for example 5-Hydroxy-2-phenyl-1,3-dioxane-4-methanol, H-193). Found in a variety of algae, lichens and fungi. Prod. by *Protococcus vulgaris*, *Trentepohlia iolithus* and *Aspergillus terreus*. Bulk sweetener with good taste props. Also thickener, stabiliser, humectant, etc. in food. Cryst. (MeOH). Mp 121.5°. Bp 329-331° Bp_{200} 294-296°. Sweetness ca. 0.7 x sucrose.

► KF2000000

1-O-[3,4-Dihydroxycinnamoyl-(→6)-β-D-glucopyranoside]:
$C_{19}H_{26}O_{12}$ 446.407
Constit. of the leaves of *Lonicera gracilipes* var. *glandulosa*. Amorph. powder. $[\alpha]_D^{30}$ -15.2 (c, 0.5 in MeOH).

Tetra-Ac: 1,2,3,4-Tetra-O-acetylerythritol
[7208-40-4]
$C_{12}H_{18}O_8$ 290.269
Cryst. (AcOH). Mp 89°.

2,3-Dibenzoyl: 2,3-Di-O-benzoylerythritol
[50622-01-0]
$C_{18}H_{18}O_6$ 330.337
Cryst. (Et_2O/petrol). Mp 129-131°.

1,2,3-Tribenzoyl: 1,2,3-Tri-O-benzoylerythritol
[60405-75-6]
$C_{25}H_{22}O_7$ 434.445
Mp 108-108.5°.

Tetrabenzoyl: 1,2,3,4-Tetra-O-benzoylerythritol
[16054-80-1]
$C_{32}H_{26}O_8$ 538.553
Cryst. (EtOH). Mp 188-189°.

Tetrakis(4-hydroxybenzoyl): ***Kelletinin I***
[87697-99-2]
$C_{32}H_{26}O_{12}$ 602.55
Metab. of the marine mollusc *Kelletia kelletii*. Antibacterial, cytotoxic. Sol. MeOH, bases, Et_2O; poorly sol. H_2O. λ_{max} 258 (ε 63100) (EtOH/HCl) (Derep). λ_{max} 301 (ε 100000) (EtOH/NaOH) (Derep). λ_{max} 258 (ε 50100) (EtOH) (Derep).

Tetranitrate: ***Erythrityl tetranitrate, USAN****. Eritrityl tetranitrate, INN. Erythrol tetranitrate. Cardilate. Cardiloid. Cardiwell. Nitroerythrite. Tetranitrin. Tetranitrol. NSC 106566*
[7297-25-8]
$C_4H_6N_4O_{12}$ 302.111
Coronary vasodilator and antispasmodic agent. Leaflets (EtOH). Mp 61°. Log P 0.93 (calc).

► Explosive by percussion or excessive heat.

2,3-O-Isopropylidene: 2,3-O-Isopropylideneerythritol
[55904-12-6]
$C_7H_{14}O_4$ 162.185
Cryst. (diisopropyl ether). Mp 48-49.5°. $Bp_{0.5}$ 106-108°.

1,2:3,4-Diisopropylidene: 1,2:3,4-Di-O-isopropylideneerythritol. 2,2,2′,2′-Tetramethyl-4,4′-bi-1,3-dioxolane, 9CI
[3969-82-2]
$C_{10}H_{18}O_4$ 202.25
Mp 53°.

1,3:2,4-Diisopropylidene: 1,3:2,4-Di-O-isopropylideneerythritol. Tetrahydro-2,2,6,6-tetramethyl[1,3]dioxino[5,4-d]-1,3-dioxin, 9CI
[131247-51-3]
$C_{10}H_{18}O_4$ 202.25
Mp 108-110°.

1,4:2,3-Diisopropylidene: 1,4:2,3-Di-O-isopropylideneerythritol. Tetrahydro-2,2,6,6-tetramethyl-1,3-dioxolo[4,5-e][1,3]dioxepin, 9CI
[131247-50-2]
$C_{10}H_{18}O_4$ 202.25
Syrup.

1,3-Benzylidene: See 5-Hydroxy-2-phenyl-1,3-dioxane-4-methanol, H-193

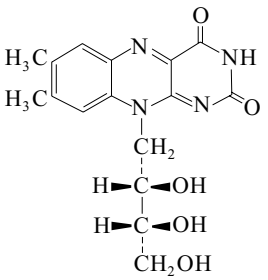
1,3:2,4-Dibenzylidene: 1,3:2,4-Di-O-benzylideneerythritol
[4148-59-8]
$C_{18}H_{18}O_4$ 298.338
Mp 201-202°.

1,2-Dibenzyl ether (2R,3S-): 1,2-Di-O-benzylerythritol
$C_{18}H_{22}O_4$ 302.369
Oil. $[\alpha]_D$ -27.3 (c, 3.4 in $CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 184C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 287A (*nmr*)
Trenner, N.R. *et al., J.A.C.S.*, 1949, **71**, 2352 (*synth*)
Jeanes, A. *et al., J.O.C.*, 1955, **20**, 1565 (*synth*)
Feit, P.W. *et al., J. Med. Chem.*, 1964, **7**, 14 (*isopropylidene*)
Kovář, J. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 4099 (*dibenzylidene*)
Haga, M. *et al., J.O.C.*, 1968, **33**, 1810 (*tetrabenzoate*)
Sonogashira, K. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2616 (*synth, ir*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 144 (*occur*)
Nánási, P. *et al., Carbohydr. Res.*, 1973, **29**, 201 (*dibenzoate*)
Ceccarelli, C. *et al., Acta Cryst. B*, 1980, **36**, 3079 (*cryst struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
Tymiak, A.A. *et al., J.A.C.S.*, 1983, **105**, 7396 (*Kelletinin*)
Hawkes, G.E. *et al., J.C.S. Perkin 2*, 1984, 2073 (*pmr, conformn*)
Awal, A. *et al., Carbohydr. Res.*, 1990, **205**, 173 (*diisopropylidene derivs*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1020
Matsuda, N. *et al., Chem. Pharm. Bull.*, 1995, **43**, 1049 (*6-caffeoylglucoside*)
Marco, J.A. *et al., Annalen*, 1996, 1801, (*1,2-dibenzyl ether*)
Rozenberg, M. *et al., Carbohydr. Res.*, 1999, **315**, 85-97 (*ir, Raman*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)
Food Chem. News, 2001, **43(36)**, 26-27 (*use*)
Bachir-Lesage, S, *et al., J. Carbohydr. Chem.*, 2002, **21**, 35-46 (*alkyl derivs*)

Erythroflavin E-15

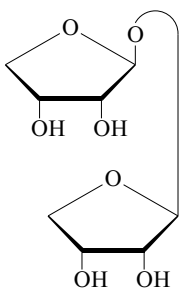
7,8-Dimethyl-10-(2,3,4-trihydroxybutyl)-benzo[g]pteridine-2,4(3H,10H)-dione, 9CI. 9-(1′-D-Erythrityl)-6,7-dimethylisoalloxazine
[303-59-3]



$C_{16}H_{18}N_4O_5$ 346.342
Orange plates (6N HCl). Mp 285° dec. $[\alpha]_D^{21}$ -106.

Uehara, K. *et al., J. Biochem. (Tokyo)*, 1963, **54**, 267; *CA*, **60**, 15962 (*synth*)

β-D-Erythrofuranosyl β-D-erythrofuranoside E-16



$C_8H_{14}O_7$ 222.194

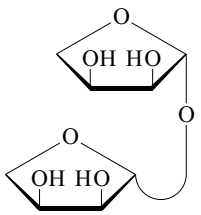
2,3-Isopropylidene:
$C_{11}H_{18}O_7$ 262.259
Cryst. (C_6H_6/heptane). Mp 127-128°. $[\alpha]_D^{20}$ -237 (c, 1 in EtOH).

2,3-Isopropylidene, dibenzyl:
$C_{25}H_{30}O_7$ 442.508
Mp 75-76°.

2,3:2′,3′-Diethylidene:
$C_{12}H_{18}O_7$ 274.27
Cryst. (C_6H_6/heptane). Mp 164-165°. $[\alpha]_D^{20}$ -245 (c, 1 in C_6H_6).

Van Cleve, J.W. *et al., Carbohydr. Res.*, 1982, **106**, 246 (*synth, pmr, cmr*)

β-L-Erythrofuranosyl β-L-erythrofuranoside E-17



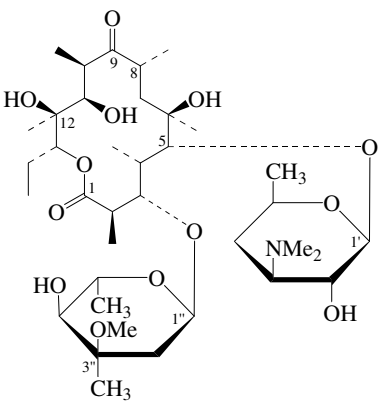
$C_8H_{14}O_7$ 222.194

2,3:2′,3′-Diisopropylidene: 2,3-O-Isopropylidene-β-L-erythrofuranosyl 2,3-O-isopropylidene-β-L-erythrofuranoside
[120142-89-4]
$C_{14}H_{22}O_7$ 302.324
Feathery needles. Mp 117-118°. $[\alpha]_D^{26}$ +221 (c, 2.07 in EtOAc).

Lerner, L.M. *et al., Carbohydr. Res.*, 1988, **182**, 287; 1990, **208**, 273 (*diisopropylidene, pmr*)

Erythromycin, 9CI, BAN, INN E-18

Ilotycin. Erythrocin. Erythromycin A
[114-07-8]



$C_{37}H_{67}NO_{13}$ 733.935

Macrolide antibiotic. Exists partly as 9, 12-cyclic hemiacetal. Prod. by *Streptomyces erythreus*, *Streptomyces griseoplanus*, *Arthrobacter* sp., *Saccharopolyspora erythraea* Nrrl2338, *Bacillus* and *Nocardia* spp. Broad-spectrum clinically used antibiotic. Hypotensive agent, antifouling agent. Cryst. (Me_2CO aq. or $CHCl_3$). Sol. MeOH, Et_2O; fairly sol. H_2O, hexane. Mp 136-140° Mp 190-193° (double Mp). $[\alpha]_D^{25}$ -78 (c, 1.99 in EtOH). Log P 0.65 (uncertain value) (calc). λ_{max} 282 (ϵ 30) (EtOH) (Derep). λ_{max} 278 (ϵ 27) (MeOH) (Berdy). λ_{max} 289 (ϵ 25.7) (pH 6 buffer) (Berdy).

▶ Gastrointestinal disturbances and other adverse effects reported when used therapeutically. LD_{50} (rat, orl) 9272 mg/kg. LD_{50} (ham, orl) 3018 mg/kg, LD_{50} (mus, scu) 1800 mg/kg , LD_{50} (mus, scu) 2500 mg/kg , LD_{50} (mus, ivn) 425 mg/kg , LD_{50} (mus, ipr) 490 mg/kg. Exp. reprod. and teratogenic effects. KF4375000

Thiocyanate salt: Erythromix V
[7704-67-8] Antibiotic.

*Octadecanoate salt: **Erythromycin stearate, USAN**. Gallimycin. Many other names*
[643-22-1] Antibacterial agent. Mp 92-93°.

▶ LD_{50} (mus, orl) 3112 mg/kg. KF5790000

*4-O-β-D-Galactopyranosyl-D-gluconate salt: **Erythromycin lactobionate, USAN***
[3847-29-8] Antibacterial agent.
Amorph. powder. Mp 145-150°.

▶ LD_{50} (mus, ipr) 735 mg/kg. OD7320000

D-glycero-D-gulo-*Heptonate salt: Erythromycin glucoheptonate. **Erythromycin gluceptate, USAN**. Ilotycin gluceptate*
[23067-13-2] Antibacterial agent. Mp 95-140°.

▶ LD_{50} (ham, orl) 4 mg/kg. KF4950000

N-*Oxide: **Erythromycin* N-*oxide***
[992-65-4]
$C_{37}H_{67}NO_{14}$ 749.935
From *Streptomyces erythreus*.
Mp 222-224°.

*9-(O-Methyloxime): **Lexithromycin, INN**. 9-Deoxo-9-methoxyiminoerythromycin*
[53066-26-5]
$C_{38}H_{70}N_2O_{13}$ 762.977
Prisms (Me_2CO aq.). Mp 128-129°. $[\alpha]_D^{21}$ -71.8.

*2′-Ac: **Erythromycin acetate***
[992-69-8]
$C_{39}H_{69}NO_{14}$ 775.972
Antibiotic. Needles (C_6H_6/hexane). Mp 128-138°. $[\alpha]_D^{26}$ -62.2 (EtOH). Log P 1.5 (uncertain value) (calc).

*2′-Ac, octadecanoate salt: **Erythromycin acistrate, INN**. Erasis. Gallimycin W. Matachron*
[96128-89-1]
$C_{57}H_{105}NO_{16}$ 1060.454
Launched 1988
Antibiotic. Needles (C_6H_6/hexane). Mp 128-138°. $[\alpha]_D^{26}$ -62.2 (EtOH).

*2′-Propanoyl: **Erythromycin propionate, USAN**. Propiocine*
[134-36-1]
$C_{40}H_{71}NO_{14}$ 789.999
Antibiotic. Cryst. + $1H_2O$ (Me_2CO aq.). Mp 122-126°. $[\alpha]_D^{25}$ -81.6 (Me_2CO). Log P 2.03 (uncertain value) (calc).

▶ KF5190000

*2′-Propanoyl, dodecyl sulfate salt: **Erythromycin estolate, BAN, USAN**. Propionylerythromycin lauryl sulfate. Ilosone. Many other names*
[3521-62-8] Antibacterial agent.
Long needles. Mp 135-140° dec.

▶ Hepatic and other adverse effects reported when used therapeutically. LD_{50} (rat, orl) 1447 mg/kg. KF5775000

2′-Propanoyl, salt with mercaptobutanedioic acid: RV11. Zalig
[84252-06-2] Antibiotic used in the treatment of chronic bronchitis.

2′-Propanoyl, compd. with N-*acetyl-L-cysteine (1:1): **Erythromycin stinoprate, INN***
[84252-03-9]
Cryst. Mp 128-140°.

*2′-(Ethyl butanedioate): **Erythromycin ethylsuccinate, USAN**. Evesin. Many other names*
[1264-62-6]
$C_{43}H_{75}NO_{16}$ 862.063
Launched 1989
Antibiotic. Cryst. (Me_2CO aq.). Mp 219-224°. $[\alpha]_D^{21}$ -54 (c, 2 in dioxan). Log P 2.27 (uncertain value) (calc).

▶ LD_{50} (mus, orl) >10000 mg/kg. WM9800000

2′-(Ethyl carbonate): [7218-80-6]
$C_{40}H_{71}NO_{15}$ 805.999
Antibiotic. $[\alpha]_D^{24}$ -75 (c, 1 in $CHCl_3$). Log P 1.99 (uncertain value) (calc).

*Cyclic 11,12-carbonate: **Davercin***
[55224-05-0]
$C_{38}H_{65}NO_{14}$ 759.93
Antibiotic. Cryst. (Me_2CO aq.). Mp 219-224°. $[\alpha]_D^{21}$ -54 (c, 2 in dioxan). Log P 0.92 (uncertain value) (calc).

▶ KF4670000

N-*De-Me:* N-***Demethylerythromycin***
[992-62-1]
$C_{36}H_{65}NO_{13}$ 719.908
Minor metab. of *Streptomyces erythraeus*.
Cryst. (Me_2CO). Sol. MeOH, C_6H_6; fairly sol. hexane; poorly sol. H_2O.
Mp 140-145°.

O^6-*Me: 6-O-Methylerythromycin, 9CI. **Clarithromycin, BAN, INN, USAN**. Biaxin. Cyllind. Klacid. Klaricid. Macladin. Mavid. Naxy. Veclam. Zeclar. A 56268. TE 031. Many other names*
[81103-11-9]
$C_{38}H_{69}NO_{13}$ 747.962
Antibacterial agent. Shows superior pharmacokinetic props. to erythromycin and about twice the activity, with a similar spectrum of activity. Marketed drug. Launched 1990. Worldwide 47th best selling prescription drug ($1.10 bn, 2002) (Abbott) (Med Ad News). Needles (EtOH). Mp 222-225°. $[\alpha]_D^{24}$ -90.4 (c, 1 in $CHCl_3$). Log P 1.28 (uncertain value) (calc).

▶ KF4997000

3″-O-*De-Me: **Erythromycin C***
[1675-02-1]
$C_{36}H_{65}NO_{13}$ 719.908
Prod. by *Streptomyces erythraeus*. Broad-spectrum antibiotic. Needles ($CHCl_3$).
Mp 121-125°.

*11-Ketone: **11-Deoxy-11-oxoerythromycin A***
[150418-09-0]
$C_{37}H_{65}NO_{13}$ 731.919
Prod. by a gene-modified *Saccharopolyspora erythraea*.

*7-Hydroxy: **7-Hydroxyerythromycin A***
[150418-10-3]
$C_{37}H_{67}NO_{14}$ 749.935
Prod. by a gene-modified *Saccharopolyspora erythraea*.

*16-Hydroxy: **Erythromycin F***
[82230-93-1]
$C_{37}H_{67}NO_{14}$ 749.935
Prod. by *Streptomyces erythreus*. Cryst. (CH_2Cl_2). Sol. MeOH, C_6H_6; poorly sol. H_2O, hexane.
Mp 168-170°. $[\alpha]_D^{24}$ -61.5 (c, 1 in MeOH).

*6-Deoxy: **6-Deoxyerythromycin A***
[135361-13-6]
Prod. by *Saccharopolyspora erythraea*.
$[\alpha]_D$ -54.8 ($CHCl_3$).

*6-Deoxy, 3″-O-de-Me: **6-Deoxyerythromycin C***
[135329-67-8]

$C_{36}H_{65}NO_{12}$ 703.909
Prod. by *Saccharopolyspora erythraea*.
$[\alpha]_D$ -41 ($CHCl_3$).

6-Deoxy, 6,7-didehydro, 3″-O-de-Me: ***6,7-Anhdroerythromycin C***
[150335-94-7]
$C_{36}H_{63}NO_{12}$ 701.893
Prod. by *Saccharopolyspora erythraea*.
Powder.

6-Deoxy, 7-hydroxy: ***6-Deoxy-7-hydroxyerythromycin A***
[150418-11-4]
$C_{37}H_{67}NO_{13}$ 733.935
Prod. by a gene-modified *Saccharopolyspora erythraea*.

12-Deoxy: ***Erythromycin B****. 12-Deoxyerythromycin, 9CI. Berythromycin, INN, USAN. Abbott 24091*
[527-75-3]
$C_{37}H_{67}NO_{12}$ 717.936
Prod. by *Streptomyces erythreus* and *Saccharopolyspora erythraea*. Shows similar antimicrobial spectrum as Erythromycin A; broad spectrum of antimicrobial activity. Cryst. (Me_2CO). Sol. MeOH, Et_2O; fairly sol. H_2O, hexane.
Mp 191-195°. $[\alpha]_D^{25}$ -78 (c, 2 in EtOH).
λ_{max} 286 (ϵ 59) (MeOH) (Berdy). λ_{max} 289 (ϵ 36.4) (pH 6 buffer) (Berdy).
▶ LD_{50} (mus, ivn) 200 mg/kg.

12-Deoxy, hydrochloride:
Cryst. (Me_2CO). Mp 149-150°.

12-Deoxy, hydroiodide: Mp 167-169°.

12-Deoxy, sulfate: Mp 154-156°.

12-Deoxy, 16-hydroxy: ***Erythromycin G***
$C_{37}H_{67}NO_{13}$ 733.935
Prod. by *Saccharopolyspora erythraea*.
Solid.
Mp 220-222° (MeCN). $[\alpha]_D^{25}$ -80.5 (c, 0.9 in MeOH).

6,12-Dideoxy: ***6-Deoxyerythromycin B***
[135361-14-7]
$C_{37}H_{67}NO_{11}$ 701.936
Prod. by *Saccharopolyspora erythraea*.
$[\alpha]_D$ -74.3 ($CHCl_3$).

8-Fluoro: ***Flurithromycin, INN****. 8-Fluoroerythromycin, 9CI. Fluithromycin. P 0501A*
[82664-20-8]
$C_{37}H_{66}FNO_{13}$ 751.926
Isol. from *Streptomyces erythreus*. Antibacterial agent. Phase I clinical trials.
Cryst. (EtOH).
Mp 183-184°. $[\alpha]_D$ -54.9.

8-Fluoro, ethylsuccinate: Flurithromycin ethylsuccinate. Ritro
[82730-23-2]

[160515-65-1]
Cryst. (Et_2O/hexane). Mp 80-85°. $[\alpha]_D^{20}$ -52.7 (c, 1 in Me_2CO).

3-O-Deglycosyl: ***Erythrolosamine****. 5-O-Desosaminylerythromycin A*
[53066-32-3]
$C_{29}H_{53}NO_{10}$ 575.738
Minor metab. of *Streptomyces erythraeus*.
Sol. MeOH, C_6H_6; poorly sol. hexane.
$[\alpha]_D$ -24 (MeOH). λ_{max} 285 (E1%/1cm 0.54) (MeOH) (Berdy).

5-De(glucosyloxy), 12-deoxy, 5-oxo:
[150418-17-0]
$C_{29}H_{50}O_{10}$ 558.708
Prod. by a gene-modified *Saccharopolyspora erythraea*. Cryst.

14S-(1S-Hydroxyethyl): 14-(1-Hydroxyethyl)erythromycin A, 9CI
[150941-01-8]
$C_{39}H_{71}NO_{14}$ 777.988
Prod. by a gene-modified *Saccharopolyspora erythraea*.

14-Propyl: 14-Propylerythromycin A, 9CI
[150418-15-8]
$C_{40}H_{73}NO_{13}$ 776.016
Prod. by a gene-modified *Saccharopolyspora erythraea*.

14-(1-Hydroxypropyl): 14-(1-Hydroxypropyl)erythromycin A, 9CI
[150418-16-9]
$C_{40}H_{73}NO_{14}$ 792.015
Prod. by a gene-modified *Saccharopolyspora erythraea*.

[304-63-2, 14271-02-4, 41342-53-4, 118244-58-9, 118244-59-0, 132830-05-8]

Clark, R.K. *et al., Antibiot. Chemother. (Washington, D.C.)*, 1955, **5**, 206 (*struct*)
Wiley, P.F. *et al., J.A.C.S.*, 1955, **77**, 3422; 1957, **79**, 6062; 6074 (*struct*)
Stephens, V.C. *et al., Antibiot. Annu.*, 1958, 59; 346 (*esters*)
U.S. Pat., 1959, 2 852 429; 2 881 163; *CA*, **53**, 1650; **55**, 25172 (*glucoheptonate, stearate*)
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U.S. Pat., 1979, 4 137 397; *CA*, **90**, 174677 (*lactobionate*)
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Paterson, I. *et al., Tetrahedron*, 1985, **41**, 3569 (*synth, rev*)
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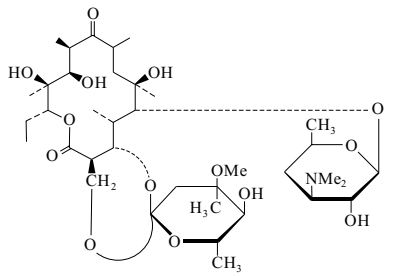
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, EDH500; EDJ000; EDI500; EDJ500

Erythromycin E E-19

1″,16-Epoxyerythromycin, 9CI

[41451-91-6]



$C_{37}H_{65}NO_{14}$ 747.919

Macrolide antibiotic. Metab. of Erythromycin A. Prod. by *Nocardia brasiliensis*. Prisms (Et_2O). Sol. MeOH. Mp 160-165°. $[\alpha]_D^{23}$ -49.7 (c, 1 in MeOH). λ_{max} 285 (ε 31) (MeOH).

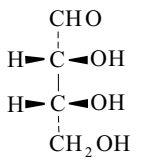
Martin, J.R. *et al., Tetrahedron*, 1975, **31**, 1985-1989 (*isol, struct*)

Mikami, Y. *et al., J. Antibiot.*, 1999, **52**, 201-202 (*isol*)

Erythrose, 8CI E-20

*(2*R,*3*R*)-2,3,4-Trihydroxybutanal, 9CI*

[1758-51-6]



D–*form*

$C_4H_8O_4$ 120.105

D-*form*

*(2*R,*3*R*)-form*

[583-50-6]

An intermed. in the Embden-Meyerhof glycolysis and alcohol fermentation scheme. Found in ferns and tobacco. Syrup. $[\alpha]_D^{22}$ -43.5 (c, 1 in H_2O). Exists in dilute aq. soln. as a mixt. of the hydrate and furanose forms. Concentration of the soln. causes dimerisation.

Phenylosazone:
Needles (C_6H_6). Mp 164°.

4-Phosphate: [585-18-2]
$C_4H_9O_7P$ 200.085
Occurs in trace amounts in muscle. Important intermediate in the Embden-Meyerhof-Parnas metabolic pathway.

*2,4-*O*-Benzylidene: 2,4-*O*-Benzylidene-*D*-erythrose*
[81577-69-7]
$C_{11}H_{12}O_4$ 208.213
Mp 134-136°.

α-D-Furanose-*form*

*1,2,3-Tri-Ac: 1,2,3-Tri-*O*-acetyl-α-*D*-erythrofuranose*
[66757-61-7]
$C_{10}H_{14}O_7$ 246.216
Amorphous solid. $[\alpha]_D$ +56.3 (c, 1.1 in $CHCl_3$).

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-D-erythrofuranose*
[14048-37-4]
$C_7H_{12}O_4$ 160.169
Cryst. (hexane). Mp 74.5-75.5°. $[\alpha]_D^{23}$ +25.5 (c, 1.8 in EtOH).

Allyl glycoside: Allyl α-D-erythrofuranoside
[82883-26-9]
$C_7H_{12}O_4$ 160.169
Syrup. Bp_5 95-97° (bath). $[\alpha]_D^{20}$ +120 (c, 2 in EtOH). n_D^{28} 1.4745.

Benzyl glycoside: Benzyl α-D-erythrofuranoside
[82883-31-6]
$C_{11}H_{14}O_4$ 210.229
Syrup. $[\alpha]_D^{20}$ +96 (c, 0.7 in C_6H_6).

β-D-Furanose-*form*

*1,2,3-Tri-Ac: 1,2,3-Tri-*O*-acetyl-β-D-erythrofuranose*
[66757-62-8]
$C_{10}H_{14}O_7$ 246.216
Amorphous solid. $[\alpha]_D$ -90.4 (c, 1.1 in $CHCl_3$).

*2,3-*O*-Isopropylidene: 2,3-*O*-Isopropylidene-β-D-erythrofuranose*
[90409-96-4]
$C_7H_{12}O_4$ 160.169
Readily obt. from D-arabinose. Important chiral intermediate. Mp 30-32.5°. $[\alpha]_D^{25}$ -77.03 (c, 2.09 in $CHCl_3$). Has been reported to dimerise on long standing (not reproducible). Dimerises in presence of $Fe^{3\oplus}$ ions.

Allyl glycoside: Allyl β-D-erythrofuranoside
[82883-25-8]
$C_7H_{12}O_4$ 160.169
Syrup hardening to a glassy solid on storage. Bp_5 107-109° (bath). $[\alpha]_D^{20}$ -155 (c, 2 in EtOH). n_D^{30} 1.4742.

*Allyl glycoside, dibenzoyl: Allyl 2,3-di-*O*-benzoyl-β-D-erythrofuranoside*
[82883-28-1]
$C_{21}H_{20}O_6$ 368.385
Cryst. (EtOH aq.). Mp 50°. $[\alpha]_D^{20}$ -87 (c, 1.5 in EtOAc).

Benzyl glycoside: Benzyl β-D-erythrofuranoside
[82883-32-7]
$C_{11}H_{14}O_4$ 210.229
Syrup. $[\alpha]_D^{20}$ -144 (c, 1.5 in C_6H_6).

*Benzyl glycoside, dibenzoyl: Benzyl 2,3-di-*O*-benzoyl-β-D-erythrofuranoside*
[82883-35-0]
$C_{25}H_{22}O_6$ 418.445
Cryst. (EtOH aq.). Mp 79.5°. $[\alpha]_D^{20}$ -122 (c, 0.5 in C_6H_6).

L-*form* *(2*S,*3*S*)-form*

[533-49-3]
Syrup. $[\alpha]_D^{20}$ +39 (H_2O).

Phenylosazone: Mp 163-164°.

β-L-Furanose-*form*

*2,3-*O*-Isopropylidene: 2,3-*O*-Isopropylidene-β-L-erythrofuranose*
[23262-84-2]
$C_7H_{12}O_4$ 160.169
Syrup. $Bp_{0.45}$ 67-74°. $[\alpha]_D^{23}$ +83.2 (c, 4.36 in EtOAc).

DL-*form* *(2*RS,*3*RS*)-form*

[29825-68-1]
Syrup.

Phenylosazone:
Cryst. (C_6H_6). Mp 166-167° dec.

Di-Et-acetal, 2,3,4-tri-Ac: 4,4-Diethoxy-1,2,3-butanetriol triacetate
[38982-36-4]
$C_{14}H_{24}O_8$ 320.339
Viscous liq. $Bp_{0.0001}$ 97-98°. n_D^{20} 1.4327.

[37669-01-5, 51607-16-0]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 904A (*nmr*)

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 187B (*ir*)

Ruff, O. *et al., Ber.*, 1901, **34**, 1362-1372 (*synth*)

Ballou, C.E. *et al., J.A.C.S.*, 1957, **79**, 165-166 (*D-2,3-isopropylidene*)

Baxter, J.N. *et al., Can. J. Chem.*, 1960, **38**, 2217-2225 (*L-2,3-isopropylidene*)

Perlin, A.S. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 64 (*synth*)

Ludlow, C.J. *et al., Phytochemistry*, 1966, **5**, 251-257 (*occur*)

Walton, D.J. *et al., Can. J. Chem.*, 1967, **45**, 2921-2925 (*synth*)

Carey, F.A. *et al., Carbohydr. Res.*, 1967, **3**, 205-213 (*1,2-isopropylidene*)

Lerner, L.M. *et al., Carbohydr. Res.*, 1969, **9**, 1-4; 1990, **208**, 273-275 (*L-form, synth, L-2,3-isopropylidene*)

Sonogashira, K. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2616-2612 (*DL-form, synth*)

Andersson, R. *et al., Carbohydr. Res.*, 1978, **61**, 501-509 (*α-D-fur tri-Ac, β-D-fur tri-Ac*)

Barker, R. *et al., Can. J. Chem.*, 1979, **57**, 3160-3167 (*pmr, cmr*)

Westerlund, E. *et al., Carbohydr. Res.*, 1981, **91**, 21-29 (*props*)

Van Cleve, J.W. *et al., Carbohydr. Res.*, 1982, **106**, 239-245 (*D-form, allyl gly derivs, benzyl gly derivs*)

Cohen, N. *et al., J.A.C.S.*, 1983, **105**, 3661-3672 (*D-2,3-isopropylidene*)

Shah, R.H. *et al., Carbohydr. Res.*, 1986, **155**, 212-216 (*L-form, synth*)

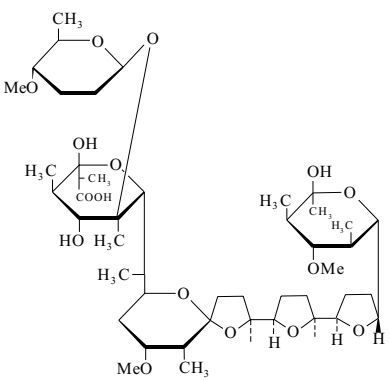
Shah, R.H. *et al., J. Carbohydr. Chem.*, 1986, **5**, 139-146 (*D-form, synth*)

Baker, S.R. *et al., Tet. Lett.*, 1988, **29**, 991-994 (*D-form 2,4-benzylidene*)

Etheromycin E-21

Antibiotic 38295. CP 38295. Antibiotic CP 38295. T 40517. Antibiotic T 40517

[59149-05-2]



$C_{48}H_{82}O_{16}$ 915.166

Polyether-type antibiotic. Isol. from *Streptomyces hygroscopicus*. Antifungal, anticoccidial agent. Active against gram-positive and -negative bacteria. Growth stimulant for ruminant and monogastric animals. Ionophore. $[\alpha]_D^{25}$

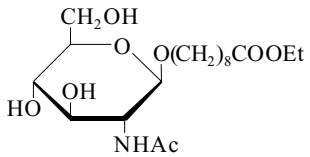
+22.6 (c, 1.0 in MeOH).

Na/K salt: Mp 200°. $[\alpha]_D^{25}$ +36.

Ger. Pat., 1976, 2 534 342; *CA*, **85**, 19048y (*isol*)
U.S. Pat., 1978, 4 129 578; *CA*, **90**, 150295x (*isol*)
Seto, H. *et al., J. Antibiot.*, 1979, **32**, 239 (*cmr*)

8-Ethoxycarbonyloctyl 2-acetamido-2-deoxyglucopyranoside E-22

Ethyl 9-[[2-(acetylamino)-2-deoxyglucopyranosyl]oxy]nonanoate, 9CI



$C_{19}H_{35}NO_8$ 405.487

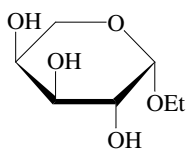
β-D-*form* [56342-94-0]
Amorph. powder (Et_2O).

Tri-Ac: [56342-97-3]
$C_{25}H_{41}NO_{11}$ 531.599
Cryst. (Et_2O/hexane). Mp 112°. $[\alpha]_D^{20}$ -12.2 (c, 2.4 in $CHCl_3$).

4,6-O-Benzylidene: [56343-05-6]
$C_{26}H_{39}NO_8$ 493.596
Cryst. (EtOH). Mp 219-220°. $[\alpha]_D^{24}$ -55.5 (c, 1.3 in $CHCl_3$).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4076 (*β-D-form*)
Netherlands Pat., 1977, 76 07 562; *CA*, **88**, 87558b (*β-D-form*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1980, **58**, 631 (*pmr, cmr, conformn*)
U.S. Pat., 1980, 4 238 473, (*Chembiomed*); *CA*, **94**, 154863m (*synth*)

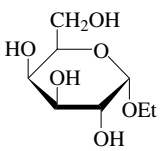
Ethyl arabinopyranoside E-23



$C_7H_{14}O_5$ 178.185

β-L-Pyranose-*form*
Isol. from roots of *Hibiscus rosa-sinensis*. Plates.
Mp 139-140°. $[\alpha]_D^{25}$ +298.8 (c, 0.5 in MeOH).
Qiu, S.X. *et al., Carbohydr. Res.*, 1998, **311**, 85-88 (*isol, pmr, cmr*)

Ethyl galactoside E-24



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

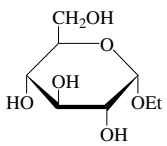
α-D-Pyranose-*form*
Eleutheroside C
[15486-24-5]
Constit. of *Acanthopanax* sp., *Adhatoda* sp., *Cassia* sp., *Clitoria* sp., *Eleutherococcus* sp., *Glycine max* (soybean) and *Trigonella* sp.
Cryst. (EtOH).
Mp 140°. $[\alpha]_D^{20}$ +186 (H_2O).

Tetra-O-Ac: Ethyl 2,3,4,6-tetra-O-acetyl-α-D-galactopyranoside
[31281-90-0]
$C_{16}H_{24}O_{10}$ 376.36
Cryst. (pentane). Mp 87-88°. $[\alpha]_D^{20}$ +136 ($CHCl_3$).

β-D-Pyranose-*form* [18997-88-1]
Constit. of *Polianthes tuberosa* and *Trigonella corniculata*.
Cryst. (EtOH).
Mp 159-161°. $[\alpha]_D^{21}$ -6 (c, 2 in H_2O).
Overend, W.G. *et al., J.C.S.*, 1962, 3429 (*synth*)
Ovodov, Y.S. *et al., Khim. Prir. Soedin.*, 1967, **3**, 63; *Chem. Nat. Compd. (Engl. Transl.)*, 1967, **3**, 53 (*isol*)
Kulshrestha, D.K. *et al., Chem. Ber.*, 1968, **101**, 2096 (*isol*)
Bruyne, C.K. *et al., Carbohydr. Res.*, 1972, **25**, 59 (*synth*)
Sishandri, T.R. *et al., Curr. Sci.*, 1973, **42**, 421 (*isol*)
Schroeder, L.R. *et al., Carbohydr. Res.*, 1974, **37**, 368 (*synth*)
Zamojski, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1975, **49**, 2113 (*synth*)
Van Heeswijk, W.A.R. *et al., Carbohydr. Res.*, 1977, **58**, 494 (*synth*)
Jain, M.P. *et al., Phytochemistry*, 1980, **19**, 1880 (*isol*)
Khan, K.M. *et al., Nat. Prod. Lett.*, 2002, **16**, 283-290 (*isol, pmr, cmr*)

Ethyl glucoside, 8CI E-25

[27214-60-4]



α-D-Pyranose-*form*

$C_8H_{16}O_6$ 208.211

α-D-Pyranose-*form* [19467-01-7]
Mp 114°. $[\alpha]_D^{26}$ +152 (H_2O).

2,3,4,6-Tetra-Ac: Ethyl 2,3,4,6-tetra-O-acetyl-α-D-glucopyranoside
$C_{16}H_{24}O_{10}$ 376.36
Mp 58-59°. $[\alpha]_D$ +132 ($CHCl_3$).

2,3,4,6-Tetrakis(4-nitrobenzoyl): Mp 110-115°.

2-Me, 3,4,6-tri-Ac: Ethyl 3,4,6-tri-O-acetyl-2-O-methyl-α-D-glucopyranoside
[35584-50-0]
$C_{15}H_{24}O_9$ 348.349
Mp 136-137°. $[\alpha]_D^{20}$ +145 (c, 1.0 in $CHCl_3$).

3,4,6-Tribenzyl: Ethyl 3,4,6-tri-O-benzyl-α-D-glucopyranoside
$C_{29}H_{34}O_6$ 478.584
Mp 82-83°. $[\alpha]_D^{20}$ +93 (c, 1.0 in $CHCl_3$).

3,4,6-Tribenzyl, 2-Me: Ethyl 3,4,6-tri-O-benzyl-2-O-methyl-α-D-glucopyranoside
$C_{30}H_{36}O_6$ 492.611
$[\alpha]_D^{20}$ +70.3 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form* [3198-49-0]
Constit. of *Artabotrys* sp., *Allophylus* sp., *Cistus* sp., *Citrus* sp., *Manihot* sp. and other plant spp. Exhits antihypertensive activity in rats.
Cryst. with bitter taste.
Mp 90.4° Mp 98-100°. $[\alpha]_D^{20}$ -36.7 (H_2O).

2,3,4-Tri-Ac: Ethyl 2,3,4-tri-O-acetyl-β-D-glucopyranoside
$C_{14}H_{22}O_9$ 334.322
Cryst. (EtOH). Mp 137-138°. $[\alpha]_D^{20}$ -27.1 (c, 1.7 in $CHCl_3$).

2,3,4,6-Tetra-Ac: Ethyl 2,3,4,6-tetra-O-acetyl-β-D-glucopyranoside
$C_{16}H_{24}O_{10}$ 376.36
Cryst. (EtOH). Mp 107°. $[\alpha]_D$ -22.7 (H_2O).

4-O-(4-Hydroxy-3-methoxy-E-cinnamoyl): Ethyl 4-feruloyl-β-D-glucopyranoside
[274931-04-3]
$C_{18}H_{24}O_9$ 384.382
Constit. of the rhizomes of *Alpinia speciosa*. Antioxidant. Solid. $[\alpha]_D^{27}$ -34 (c, 0.59 in Me_2CO).

2,3,4,6-Tetrakis(4-nitrobenzoyl): Mp 215-216°.

4-Me: Ethyl 4-O-methyl-β-D-glucopyranoside
$C_9H_{18}O_6$ 222.238
Cryst. (EtOAc). Mp 133°. $[\alpha]_D^{20}$ -29.2 (c, 0.6 in H_2O).

4-Me, 2,3,6-tri-Ac: Ethyl 2,3,6-tri-O-acetyl-4-O-methyl-β-D-glucopyranoside
[38953-98-9]
$C_{15}H_{24}O_9$ 348.349
Mp 69-70°. $[\alpha]_D^{20}$ -39.4 (c, 1.9 in $CHCl_3$).

3-Me, 2,4,6-tri-Ac: Ethyl 2,4,6-tri-O-acetyl-3-O-methyl-β-D-glucopyranoside
[38953-99-0]
$C_{15}H_{24}O_9$ 348.349
Mp 98°. $[\alpha]_D^{20}$ -41.6 (c, 0.75 in $CHCl_3$).

2-Allyl, 3,4,6-tri-Ac: Ethyl 3,4,6-tri-O-acetyl-2-O-allyl-β-D-glucopyranoside
$C_{17}H_{26}O_9$ 374.387
Mp 101-102°. $Bp_{0.15}$ 145-155°. $[\alpha]_D^{20}$ +1 (c, 1.0 in $CHCl_3$).

6-Trityl, 2,3,4-tri-Ac: Ethyl 2,3,4-tri-O-acetyl-6-O-trityl-β-D-glucopyranoside
$C_{33}H_{36}O_9$ 576.642
Mp 156°. $[\alpha]_D^{20}$ +23.8 (c, 0.67 in $CHCl_3$).

3,4,6-Tribenzyl: Ethyl 3,4,6-tri-O-benzyl-β-D-glucopyranoside
[35510-36-2]
$C_{29}H_{34}O_6$ 478.584
Mp 51-52°. $[\alpha]_D^{20}$ +26 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*
Needles (EtOAc/EtOH). Mp 82-83°. $[\alpha]_D$ +98 (c, 1.58 in H_2O).

3,5,6-Tribenzoyl: Ethyl 3,5,6-tri-O-benzoyl-α-D-glucofuranoside
[35510-28-2]
$C_{29}H_{28}O_9$ 520.535
$[\alpha]_D^{20}$ +17 (c, 1.0 in Py).

3,5,6-Tribenzyl: See Ethyl 3,5,6-tri-*O*-benzylglucofuranoside, E-28

β-D-Furanose-*form* [25320-77-8]
Mp 59-60°. $[\alpha]_D$ -86 (H_2O).

3,5,6-Tribenzoyl: Ethyl 3,5,6-tri-O-benzoyl-β-D-glucofuranoside
[35510-29-3]
$C_{29}H_{28}O_9$ 520.535
$[\alpha]_D^{20}$ -108 (c, 1.0 in Py).

3,5,6-Tribenzyl: See Ethyl 3,5,6-tri-*O*-benzylglucofuranoside, E-28

Haworth, W.N. *et al., J.C.S.*, 1929, 2796, (*α-D-fur, β-D-fur*)
Ferguson, J.H. *et al., J.A.C.S.*, 1932, **54**, 4086 (*α-D-pyr, α-D-pyr tetra-Ac, β-D-pyr, β-D-pyr tetra-Ac*)
Wing, R.E. *et al., Carbohydr. Res.*, 1969, **10**, 441 (*α-D-pyr*)
Rowell, R.M. *et al., Carbohydr. Res.*, 1972, **23**, 417 (*β-D-pyr, β-D-pyr tri-Ac, β-D-pyr tri-Ac derivs, β-D-pyr Me*)
Stanek, J. *et al., Helv. Chim. Acta*, 1972, **55**, 434 (*α,β-D-pyr tribenzyl, α-D-pyr tribenzyl Me, β-D-pyr tri-Ac allyl, α-D-fur tribenzoyl*)
Prawat, H. *et al., Phytochemistry*, 1995, **40**, 1167-1173 (*isol, pmr, ms*)
Masuda, T. *et al., J. Agric. Food Chem.*, 2000, **48**, 1479-1484 (*isol, 4-ferulate*)
Matsubera, Y. *et al., CA*, **113**, 17474g (*β-D-pyr, isol, props*)

Ethyl glucosinolate E-26

1-Thio-β-D-glucopyranose 1-[N-(sulfooxy)propanimidate], 9CI. ***Glucolepidiin***
[101144-39-2]
$H_3CCH_2C(SGlc){=}NOSO_3H$
$C_9H_{17}NO_9S_2$ 347.367
The putative parent of ethyl isothiocyanate found in *Lepidium menziesii*.
Amorph. powder (as K salt). $[\alpha]_D$ -20.5 (c, 0.6 in H_2O) (K salt).

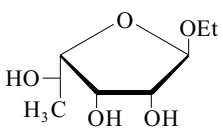
Tetra-Ac: [89752-91-0]
Cryst. (EtOH aq.) (as K salt). Mp 205-207° dec. (K salt). $[\alpha]_D$ -18.6 (c, 1.0 in H_2O).

[89777-25-3]

Kjaer, A. *et al., Acta Chem. Scand.*, 1954, **8**, 699 (*isol*)
Keller, T.H. *et al., Can. J. Chem.*, 1984, **62**, 437 (*synth, pmr*)

Ethyl rhamnoside E-27

Ethyl 6-deoxymannoside

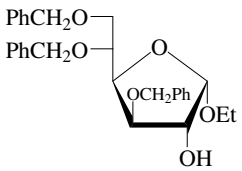


$C_8H_{16}O_5$ 192.211

α-L-Furanose-*form*
Hygroscopic needles (Et_2O/petrol). Mp 54-56°. $[\alpha]_D^{20}$ -95.5 (c, 1.1 in H_2O).
Green, J.W. *et al., J.A.C.S.*, 1938, **60**, 2288 (*α-L-form, synth*)
Pacsu, E. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 360 (*synth*)

Ethyl 3,5,6-tri-*O*-benzylglucofuranoside, 8CI E-28

Ethyl 3,5,6-tris-O-(phenylmethyl)glucofuranoside, 9CI



α-D-*form*

$C_{29}H_{34}O_6$ 478.584

D-*form*
Tribenoside, BAN, INN, JAN, USAN. *Glyvenol*
[10310-32-4] Antirheumatic and antiarthritic agent. Sclerosing agent.
Viscous lipophilic oil. $Bp_{1.2}$ 270-280°. $[\alpha]_D^{26}$ +8 ($CHCl_3$).
► LZ4993000

α-D-*form* [20822-90-6]
$[\alpha]_D^{20}$ +21 (c, 1.0 in $CHCl_3$).

2-Ac: Ethyl 2-O-acetyl-3,5,6-tri-O-benzyl-α-D-glucofuranoside
$C_{31}H_{36}O_7$ 520.621
$Bp_{0.05}$ 240°. $[\alpha]_D^{20}$ +55 (c, 1.09 in $CHCl_3$).

2-Allyl: [20789-50-8] $Bp_{0.02}$ 225-230°. $[\alpha]_D^{20}$ +47 (c, 1.06 in $CHCl_3$).

β-D-*form* [20822-91-7]
$[\alpha]_D^{20}$ -61 (c, 1.0 in $CHCl_3$).

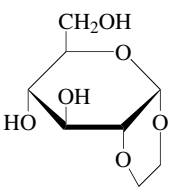
2-Ac: Ethyl 2-O-acetyl-3,5,6-tri-O-benzyl-β-D-glucofuranoside
$C_{31}H_{36}O_7$ 520.621
$Bp_{0.05}$ 260°. $[\alpha]_D^{20}$ -78 (c, 1.05 in $CHCl_3$).

2-Allyl: [20789-51-9] $Bp_{0.02}$ 220-225°. $[\alpha]_D^{20}$ -53 (c, 1.13 in $CHCl_3$).

2-Me: Ethyl 3,5,6-tri-O-benzyl-2-O-methyl-β-D-glucofuranoside
[20789-47-3]
$C_{30}H_{36}O_6$ 492.611
$[\alpha]_D^{20}$ -61 (c, 1.1 in $CHCl_3$).

U.K. Pat., 1962, 909 278, (*CIBA*); *CA*, **59**, 11642g (*D-form, synth, derivs*)
Huber, G. *et al., Helv. Chim. Acta*, 1968, **51**, 1185 (*α-D-form, α-D-Ac, α-D-allyl, β-D-form, β-D-Ac, β-D-allyl, β-D-Me, pmr*)
Hayashibara, M. *et al., Takeda Kenkyushoho*, 1973, **32**, 497; *CA*, **80**, 108813h (*D-form, uv, ir, nmr*)
Jaques, R. *et al., Pharmacology*, 1977, **15**, 445 (*rev, pharmacol*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1762

1,2-*O*-Ethyleneglucose E-29



α-D-Pyranose-*form*

$C_8H_{14}O_6$ 206.195

α-D-Pyranose-*form* [22329-44-8]
Cryst. (EtOH). Mp 131-132°. $[\alpha]_D^{24}$ +96.8 ((H_2O)).

Tri-Ac: 3,4,6-Tri-O-acetyl-1,2-O-ethylene-α-D-glucopyranose
[125365-26-6]
$C_{14}H_{20}O_9$ 332.307
Cryst. (EtOH). Mp 115-116°. $[\alpha]_D^{20}$ +107.4 (c, 0.5 in $CHCl_3$).

β-D-Pyranose-*form* [22329-45-9]
Cryst. (EtOH). Mp 211-212°. $[\alpha]_D^{25}$ +52 (c, 0.81 in H_2O).

6-Ac: 6-O-Acetyl-1,2-O-ethylene-β-D-glucopyranose
[136409-96-6]
$C_{10}H_{16}O_7$ 248.232
Solid (EtOAc/EtOH). Mp 138-141°.
$[\alpha]_D^{20}$ +50.9 (c, 1 in EtOH).

Tri-Ac: 3,4,6-Tri-O-acetyl-1,2-O-ethylene-β-D-glucopyranose
[6087-45-2]
$C_{14}H_{20}O_9$ 332.307
Mp 125°. $[\alpha]_D$ +52 (c, 1.0 in $CHCl_3$).

Tribenzoyl: 3,4,6-Tri-O-benzoyl-1,2-O-ethylene-β-D-glucopyranose
[188431-31-4]
$C_{29}H_{26}O_9$ 518.519
Solid (hexane/EtOAc). Mp 122-123°.
$[\alpha]_D^{25}$ -14.3 (c, 1.3 in $CHCl_3$).

Tri-Me: 1,2-O-Ethylene-3,4,6-tri-O-methyl-β-D-glucopyranose
[159320-45-3]
$C_{11}H_{20}O_6$ 248.275
Cryst. (hexane). Mp 80°.

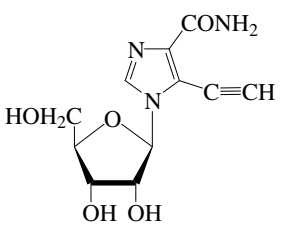
α-D-Furanose-*form* [22329-46-0]
Cryst. (EtOH). Mp 218-220°. $[\alpha]_D$ -56 (H_2O).

Tri-Ac: 3,5,6-Tri-O-acetyl-1,2-O-ethylene-α-D-glucofuranose
[28069-78-5]
$C_{14}H_{20}O_9$ 332.307
Cryst. (EtOH). Mp 93-95°. $[\alpha]_D^{20}$ -40.7 (c, 0.11 in $CHCl_3$).

Helferich, B. *et al., Ber.*, 1942, **75**, 949-951, (*α-D-pyr, β-D-pyr*)
Höök, J.E. *et al., Acta Chem. Scand.*, 1968, **22**, 2157-2160 (*α-D-fur*)
Srivastava, H.C. *et al., Tet. Lett.*, 1969, 2643-2646 (*α-D-fur*)
Marquez, F. *et al., Carbohydr. Res.*, 1972, **22**, 446-449 (*β-D-pyr, synth, pmr*)
Norrestam, R. *et al., Acta Cryst. B*, 1981, **37**, 1689-1693 (*β-D-pyr, cryst struct*)
Nagai, K. *et al., Carbohydr. Res.*, 1989, **190**, 165-180 (*tri-Ac*)
Reuben, J. *et al., Carbohydr. Res.*, 1990, **197**, 257-261 (*cmr*)
Miethchen, R. *et al., Liebigs Ann./Recl.*, 1997, 553-561 (*β-D-pyr, synth, pmr, cmr*)

5-Ethynyl-1-β-D-ribofuranosyl-1*H*-imidazole-4-carboxamide, 9CI E-30

EICAR
[118908-07-9]

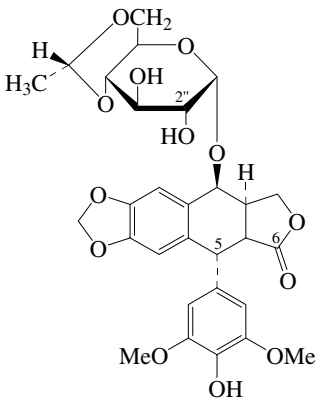


$C_{11}H_{13}N_3O_5$ 267.241
Potent inhibitor of inosinate dehydrogenase activity. Antineoplastic agent. Cryst. (EtOH). Mp 182-185°.

Eur. Pat., 1989, 331 080, (*Yamasa Shoyu; Sumitomo*); *CA*, **112**, 158839w (*synth, pharmacol*)
Minakawa, N. *et al., J. Med. Chem.*, 1991, **34**, 778-786 (*synth, uv, pmr, pharmacol*)
Shigeta, S. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 435-439 (*pharmacol*)
Balzarini, J. *et al., J. Biol. Chem.*, 1993, **268**, 24591-24598 (*pharmacol*)
Balzarini, J. *et al., Adv. Exp. Med. Biol.*, 1998, **431**, 723-728 (*metab*)

Etoposide, BAN, INN, USAN E-31

Abiposid. Amizide. Citodox. Etopophos. Exitop. Toposar. Vepesid. Vepeside. Vespid. NSC 141540. VP 16213. BMY 40481. Many other names
[33419-42-0]



$C_{29}H_{32}O_{13}$ 588.564
Closely related to Teniposide, T-17. Semisynthetic podophyllotoxin deriv. DNA topoisomerase II inhibitor. Antineoplastic agent. Marketed drug. Cryst. (MeOH). Mp 236-251°. $[\alpha]_D^{20}$ -110.5 (c, 0.6 in $CHCl_3$). Log P -1.89 (uncertain value) (calc).
▶ Haemopoietic effects, gastrointestinal toxicity and neurotoxicity reported when used therapeutically. LD_{50} (rat, orl) 1784 mg/kg. Mutagen. Exp. reprod. and teratogenic effects. Probable human carcinogen (IARC 2A). KC0190000

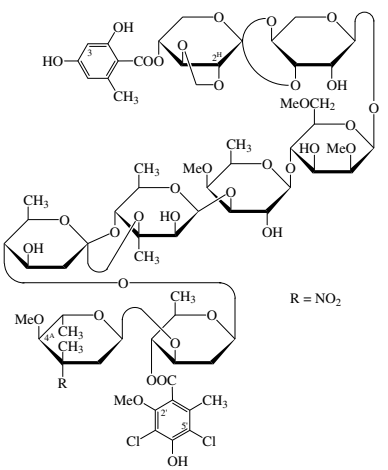
2″-Deoxy-2″-(dimethylamino): NK 611
[105655-99-0]

[105760-98-3, 112246-52-3]
$C_{31}H_{37}NO_{12}$ 615.633
Antineoplastic agent. Cryst. (Me_2CO). Mp 196-198°. $[\alpha]_D^{21}$ -107 (c, 0.78 in $CHCl_3$).
Keller-Juslen, C. *et al., J. Med. Chem.*, 1971, **14**, 936 (*synth, pharmacol*)
Arnold, A.M. *et al., Lancet*, 1981, **2**, 912 (*rev*)
Issell, B.F. *et al., Etoposide (VP-16): Curr. Status New Dev. [Pap. Symp]*, (Eds.), Academic Press, 1984, (*book*)
Saito, H. *et al., Chem. Pharm. Bull.*, 1986, **34**, 3741-3746 (*NK 611, synth, pmr, ir*)
Clark, P.I. *et al., Clin. Pharmacokinet.*, 1987, **12**, 223 (*rev, pharmacol, metab, tox*)
Holthuis, J.J.M. *et al., Anal. Profiles Drug Subst.*, 1989, **18**, 121 (*rev*)
Stähelin, H.F. *et al., Prog. Drug Res.*, 1989, **33**, 169 (*rev*)
Kolar, C. *et al., J. Carbohydr. Chem.*, 1990, **9**, 571-583 (*synth*)
Stähelin, H.F. *et al., Cancer Res.*, 1991, **51**, 5 (*rev*)
Semin. Oncol., Suppl. 13, 1992, **19**, (*rev*)
von Wartburg, A. *et al., Chron. Drug Discovery*, 1993, **3**, 349 (*rev*)
Cragg, G. *et al., Anticancer Drugs: Antimetabolite Metabolism and Natural Anticancer Agents*, (ed. Powis, G.), Pergamon Press, 1994, 364 (*rev*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 10960 (*synonyms*)
Hainsworth, J.D. *et al., Ann. Oncol.*, 1995, **6**, 325 (*pharmacol, rev*)
Hanauske, A.R. *et al., Eur. J. Cancer, Part A*, 1995, **31**, 1677-1681 (*NK 611, pharmacol*)
Rassmann, I. *et al., Invest. New Drugs*, 1996, **14**, 379-386; 1998, **16**, 319-324 (*NK 611, pharmacokinet*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 532
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, EAV500

Evernimicin, INN, USAN E-32

Everninomicin. Sch 27899. Antibiotic Sch 27899. Ziracin. Antibiotic 13-384-1. Everninomicin A
[109545-84-8]

[104841-32-9]



$C_{70}H_{97}Cl_2NO_{38}$ 1631.426
Oligosaccharide antibiotic. Prod. by *Micromonospora carbonaceae*. Highly active against gram-positive bacteria, clinically used against infections caused by resistant bacteria. Amorph. Sol. EtOAc, Me_2CO; poorly sol. hexane. $[\alpha]_D^{26}$ -47.2 (MeOH). Related to Everninomicin B, E-33. λ_{max} 215 ; 268 ; 301 (MeOH) (Berdy).
▶ LD_{50} (mus, ivn) 320 mg/kg.

*4^A-O-De-Me: **Antibiotic Sch 58773**. Sch 58773*
$C_{69}H_{95}Cl_2NO_{38}$ 1617.399
Prod. by *Micromonospora carbonacea* var. *africana*. Powder. $[\alpha]_D^{20}$ -45.5 (c, 0.1 in MeOH). λ_{max} 211 ; 265 ; 305 (no solvent reported).

*$2^H,3^H$-De-O-methylene, 3^H-O-formyl: **Antibiotic Sch 58775**. Sch 58775*
$C_{70}H_{97}Cl_2NO_{39}$ 1647.425
Prod. by *Micromonospora carbonacea* var. *africana*. Powder. $[\alpha]_D^{20}$ -45.8 (c, 0.1 in MeOH). λ_{max} 213 ; 265 ; 303 (no solvent reported).

*3-Chloro: **Antibiotic Sch 58761**. Sch 58761*
$C_{70}H_{96}Cl_3NO_{38}$ 1665.87
Prod. by *Micromonospora carbonaceae*. Active against multidrug-resistant bacteria. Amorph. powder. Mp 183-185°. $[\alpha]_D^{20}$ -48.4 (c, 0.1 in MeOH).

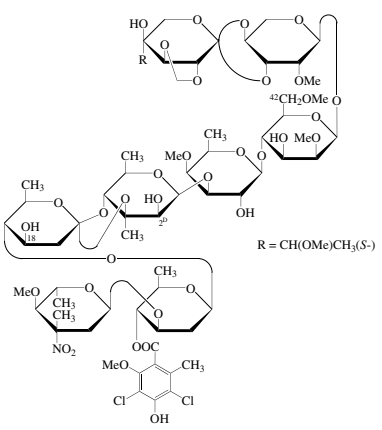
*3′-Dechloro: **Antibiotic Sch 58771**. Sch 58771*
$C_{70}H_{98}ClNO_{38}$ 1596.981
Prod. by *Micromonospora carbonacea* var. *africana*. Powder. $[\alpha]_D^{20}$ -47 (c, 0.1 in MeOH). λ_{max} 211 ; 264 ; 305 (no solvent reported).

*3′-Dechloro, 2′-O-de-Me: **Antibiotic Sch 58769**. Sch 58769*
$C_{69}H_{96}ClNO_{38}$ 1582.954
Prod. by *Micromonospora carbonacea* var. *africana*. Powder. $[\alpha]_D^{20}$ -47.2 (c, 0.1 in MeOH). λ_{max} 211 ; 268 ; 305 (no solvent reported).

Cacciapuoti, A. *et al., j Intersci. Conf. Antimicrob. Agents Chemoth., 25th*, 1985, 239 (*activity*)
Ganguly, A.K. *et al., Heterocycles*, 1989, **28**, 83-88 (*pmr, ms, struct*)
Urban, C. *et al., J. Antimicrob. Chemother.*, 1996, **37**, 361-364 (*activity*)
Chan, T.-M. *et al., Magn. Reson. Chem.*, 1997, **35**, 529-532 (*pmr, cmr*)
Ganguly, A.K. *et al., Tet. Lett.*, 1997, **38**, 7989-7992 (*abs config*)
Nicolaou, K.C. *et al., Angew. Chem., Int. Ed.*, 1999, **38**, 3334-3339; 3340-3345; 3345-3350 (*synth*)
Dever, L.L. *et al., Antimicrob. Agents Chemother.*, 1999, **43**, 1773-1775 (*activity*)
Maertens, J.A. *et al., IDrugs*, 1999, **2**, 446-453 (*rev*)
Wang, E. *et al., Antimicrob. Agents Chemother.*, 2000, **44**, 1010-1018 (*pharmacokinet*)
Pramanik, B.N. *et al., J. Antibiot.*, 2000, **53**, 640-643 (*ms, struct*)
Ganguly, A.K. *et al., J. Antibiot.*, 2000, **53**, 1038-1044 (*rev*)
Chu, M. *et al., Tet. Lett.*, 2000, **41**, 6689-6693 (*Sch 58761*)
Chu, M. *et al., J. Nat. Prod.*, 2002, **65**, 1588-1593 (*isol, pmr, cmr*)

Everninomicin B E-33

[53296-30-3]



$C_{66}H_{99}Cl_2NO_{36}$ 1553.399

Oligosaccharide antibiotic. Isol. from *Micromonospora carbonaceae*. Active against gram-positive bacteria and mycobacteria. Sol. MeOH, bases, $CHCl_3$; fairly sol. C_6H_6; poorly sol. Et_2O, H_2O, hexane.
Mp 184-185°. $[\alpha]_D$ -33.1 ($CHCl_3$). λ_{max} 300 (ε 6360) (MeOH) (Derep). λ_{max} 210 (E1%/1cm 17); 285 (E1%/1cm 1.5); 288 (E1%/1cm 12) (MeOH) (Berdy). λ_{max} 296 (E1%/1cm 72) (MeOH-NaOH) (Berdy). λ_{max} 305 (E1%/1cm 34) (pH 8 buffer) (Berdy).

▶ LD_{50} (mus, scu) 1700 mg/kg, LD_{50} (mus, ivn) 875 mg/kg , LD_{50} (mus, ipr) 880 mg/kg. OP4099000

2^D-Deoxy: ***Everninomicin D***
[39340-46-0]
$C_{66}H_{99}Cl_2NO_{35}$ 1537.399
Prod. by *Micromonospora carbonaceae*. Amorph. solid. Sol. MeOH, bases, $CHCl_3$; fairly sol. Et_2O; poorly sol. C_6H_6, hexane, H_2O. $[\alpha]_D$ -34.2. λ_{max} 300 (ε 6360) (MeOH) (Derep). λ_{max} 289 (E1%/1cm 22) (MeOH) (Berdy). λ_{max} 295 (E1%/1cm 80.8) (MeOH-NaOH) (Berdy).

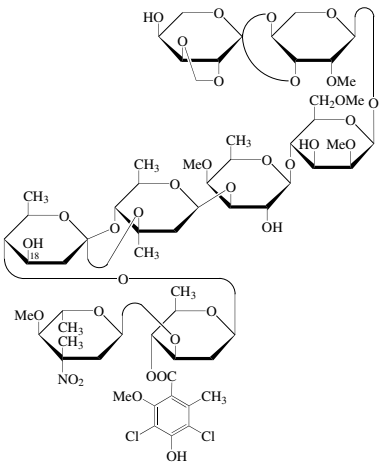
▶ LD_{50} (mus, orl) 3750 mg/kg. LD_{50} (mus, scu) 3750 mg/kg, LD_{50} (mus, ivn) 125 mg/kg , LD_{50} (mus, ipr) 500 mg/kg.

*2^D-Deoxy, 3^F-de(nitroglycosyl), 42-*O*-de-Me:* ***Everninomicin 6***
[197569-42-9]
$C_{57}H_{84}Cl_2O_{31}$ 1336.177

Weinstein, M.J. *et al., Antimicrob. Agents Chemother.*, 1964, 24; 33 (*isol*)
Ganguly, A.K. *et al., J. Antibiot.*, 1975, **28**, 707; 1982, **35**, 561; 1985, **38**, 808 (*ms, struct*)
Ganguly, A.K. *et al., J.A.C.S.*, 1975, **97**, 1984 (*Everninomicin D*)
Wright, D.E. *et al., Tetrahedron*, 1979, **35**, 1207 (*struct*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **100**, 283 (*stereochem*)
Jütten, P. *et al., J.O.C.*, 1991, **56**, 7144 (*partial synth*)
Bartner, P. *et al., J. Am. Soc. Mass Spectrom.*, 1997, **8**, 1134-1140 (*Everninomicin 6*)
Ganguly, A.K. *et al., Tet. Lett.*, 1997, **38**, 7989-7992 (*abs config*)
Pramanik, B.N. *et al., J. Antibiot.*, 2000, **53**, 640-643 (*ms, struct*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ERD000; ERC800

Everninomicin C E-34

[53296-29-0]

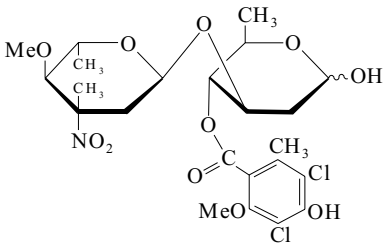


$C_{63}H_{93}Cl_2NO_{34}$ 1479.319
Isol. from *Micromonospora carbonaceae*. Shows antibiotic activity. Sol. MeOH; poorly sol. H_2O.
Mp 181-184°. $[\alpha]_D$ -33.7. λ_{max} 292 (ε 8710) (0.1*N* NaOH) (Derep). λ_{max} 288 (ε 1770) (EtOH) (Derep). λ_{max} 208 (E1%/1cm 19.8); 211 (E1%/1cm 19.5) (MeOH) (Berdy).

Ganguly, A.K. *et al., J. Antibiot.*, 1975, **28**, 710 (*struct*)
Ganguly, A.K. *et al., Tet. Lett.*, 1997, **38**, 7989-7992 (*abs config*)
Pramanik, B.N. *et al., J. Antibiot.*, 2000, **53**, 640-643 (*ms, struct*)

Everninonitrose E-35

[34361-82-5]

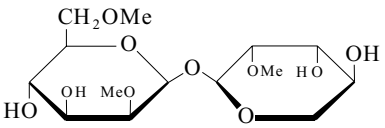


$C_{23}H_{31}Cl_2NO_{11}$ 568.403
Constit. of Everninomicins *B*, *C* and *D*. $[\alpha]_D$ -65.4 ($CHCl_3$).

Ganguly, A.K. *et al., Chem. Comm.*, 1971, 746 (*isol*)
Ganguly, A.K. *et al., J. Antibiot.*, 1975, **28**, 710
Ganguly, A.K. *et al., Chem. Comm.*, 1977, 313 (*struct*)

Everninose E-36

*2-*O*-Methyl-α-*L*-lyxopyranosyl 2,6-di-*O*-methyl-β-*D*-mannopyranoside, 9CI, 8CI*
[27963-83-3]



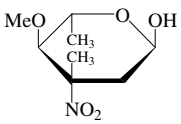
$C_{14}H_{26}O_{10}$ 354.353
Obt. by hydrol. of Everninomicin B, E-33 and Everninomicin C, E-34.
Mp 200-201°. $[\alpha]_D$ -74.1 (H_2O).

Tetra-Ac:
$C_{22}H_{34}O_{14}$ 522.502
Mp 150-151°. $[\alpha]_D$ -77.1 ($CHCl_3$).

Ganguly, A.K. *et al., Chem. Comm.*, 1969, 1488 (*struct, abs config, pmr, ms*)
Ganguly, A.K. *et al., J. Antibiot.*, 1975, **28**, 710
Olah, V.A. *et al., Carbohydr. Res.*, 1988, **174**, 113 (*synth*)

Evernitrose E-37

*2,3,6-Trideoxy-3-*C*-methyl-4-*O*-methyl-3-nitro-*arabino*-hexose, 8CI*



α-L-Pyranose-*form*

$C_8H_{15}NO_5$ 205.21

L-*form* [23259-14-5]
Present in Everninomicins B, C and D.
Mp 88-93°. $[\alpha]_D$ -4.9 → -19.4 (EtOH).

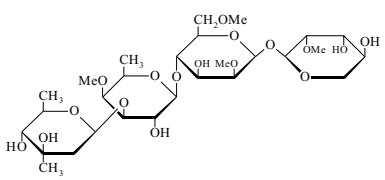
L-Pyranose-*form*

*Ac: 1-*O*-Acetyl-2,3,6-trideoxy-3-*C*-methyl-4-*O*-methyl-3-nitro-L-*arabino*-hexopyranose*
$C_{10}H_{17}NO_6$ 247.247
Mp 58-59°. $[\alpha]_D$ -20.5 (EtOH).

Ganguly, A.K. *et al., J.A.C.S.*, 1968, **90**, 7129 (*isol, pmr, ms*)
Ganguly, A.K. *et al., Chem. Comm.*, 1977, 313 (*stereochem, struct*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1979, **76**, 67 (*synth*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1980, 2054 (*synth*)
Jütten, P. *et al., Carbohydr. Res.*, 1991, **212**, 93 (***synth***)

Evertetrose E-38

*2-*O*-Methyl-α-*L*-lyxopyranosyl* O*-2,6-dideoxy-3-*C*-methyl-β-*D*-*arabino*-hexopyranosyl-(1→3)-*O*-6-deoxy-4-*O*-methyl-β-*D*-galactopyranosyl-(1→4)-2,6-di-*O*-methyl-β-*D*-mannopyranoside, 9CI, 8CI*



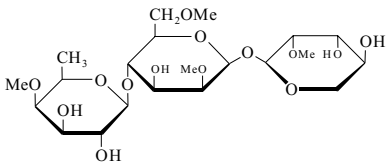
$C_{28}H_{50}O_{17}$ 658.693

Constit. of Everninomicins *C* and *D*.
$[\alpha]_D$ -37.2 (H_2O).

Ganguly, A.K. *et al., Chem. Comm.*, 1971, 746 (*struct, pmr, ms*)
Ganguly, A.K. *et al., J.A.C.S.*, 1975, **77**, 1982 (*struct, synth*)
Ganguly, A.K. *et al., J. Antibiot.*, 1975, **28**, 710

Evertriose E-39

2-O-Methyl-α-L-lyxopyranosyl 4-O-(6-deoxy-4-O-methyl-β-D-galactopyranosyl)-2,6-di-O-methyl-β-D-mannopyranoside, 9CI, 8CI
[29747-97-5]



$C_{21}H_{38}O_{14}$ 514.523
Trisaccharide component of Everninomicins *B*, *C* and *D*.
$[\alpha]_D$ -41.6 (H_2O).

Penta-Me: $[\alpha]_D$ -47.7 ($CHCl_3$).

Ganguly, A.K. *et al., Chem. Comm.*, 1970, 911 (*isol, struct*)
Ganguly, A.K. *et al., J. Antibiot.*, 1975, **28**, 710 (*struct*)

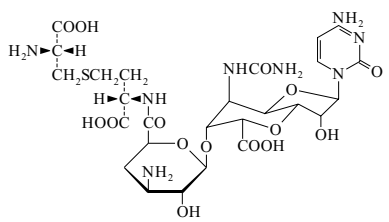
Exfoliatin E-40

[1407-50-7]

$C_{27}H_{40}ClO_{16}$ 656.056
Struct. unknown. From *Streptomyces exfoliatus*. Antibiotic active against gram-positive bacteria. Needles (EtOH). Sol. MeOH, $CHCl_3$; poorly sol. Et_2O, hexane, H_2O.
Mp 172°. Probably an oligosaccharide similar to the Everninomicins.
λ_{max} 214 ; 288 (MeOH) (Berdy).
► LD_{50} (mus, scu) 500 mg/kg. LF2500000
Umezawa, H. *et al., J. Antibiot.*, 1952, **5**, 466
Umezawa, H. *et al., Jpn. J. Med. Sci. Biol.*, 1952, **5**, 311

Ezomycin A_1 E-41

[39422-19-0]

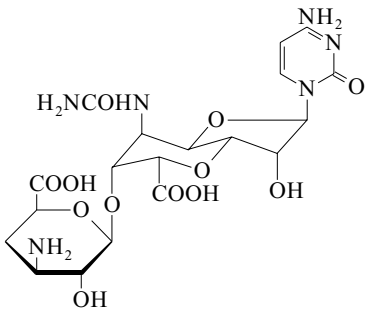


$C_{26}H_{38}N_8O_{15}S$ 734.697
Nucleoside-type antibiotic. Produced by a *Streptomyces* sp. Antifungal antibiotic. Sol. H_2O; poorly sol. MeOH, hexane.
Mp 200° dec. $[\alpha]_D^{22}$ +13.5 (c, 1.05 in H_2O). λ_{max} 278 (ε 10500) (0.05*N* HCl) (Derep). λ_{max} 271 (ε 7900) (0.05*N* NaOH) (Derep). λ_{max} 278 (ε 10500) (0.05*N* HCl) (Derep). λ_{max} 278 (E1%/1cm 120) (HCl) (Berdy). λ_{max} 271 (E1%/1cm 87.1) (NaOH) (Berdy).

Sakata, K. *et al., Agric. Biol. Chem.*, 1974, **38**, 1883; 1976, **40**, 1993 (*isol, ir, uv, pmr, struct*)
Sakata, K. *et al., Org. Magn. Reson.*, 1977, **10**, 230 (*cmr*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Ezomycin A_2 E-42

[54328-22-2]

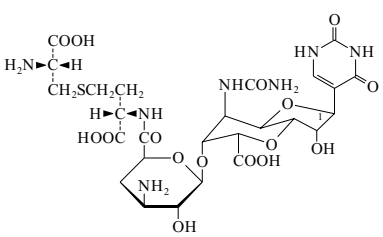


$C_{19}H_{26}N_6O_{12}$ 530.447
Nucleoside antibiotic. Produced by a *Streptomyces* sp. Antifungal agent.
Mp 200° dec. $[\alpha]_D^{16}$ +44.4 (c, 1.03 in 0.2M NaOH). λ_{max} 278 (ε 11100) (0.05*N* HCl) (Derep). λ_{max} 229 (sh) (ε 6100); 271 (ε 7100) (0.05*N* NaOH) (Derep). λ_{max} 278 (ε 11100) (0.05*N* HCl) (Derep).

Sakata, K. *et al., Tet. Lett.*, 1974, 4327 (*struct, ir, nmr, ms*)
Sakata, K. *et al., Agric. Biol. Chem.*, 1976, **40**, 1993 (*struct, uv, ir, ms, nmr*)
Sakata, K. *et al., Org. Magn. Reson.*, 1977, **10**, 230 (*cmr*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Maier, S. *et al., Annalen*, 1990, 483 (*synth*)

Ezomycin B_1 E-43

[39422-20-3]



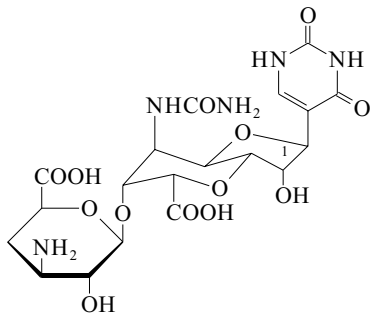
$C_{26}H_{37}N_7O_{16}S$ 735.682
Metab. of a *Streptomyces* sp. Antifungal antibiotic. Amorph. solid. Sol. H_2O; poorly sol. MeOH, hexane.
Mp 200° dec. $[\alpha]_D^{22}$ -25.4 (c, 1.32 in H_2O). λ_{max} 262 (ε 7000) (0.05*N* HCl) (Derep). λ_{max} 286 (ε 6100) (0.05*N* NaOH) (Derep). λ_{max} 262 (ε 7000) (0.05*N* HCl) (Derep). λ_{max} 263 (E1%/1cm 77.7) (HCl) (Berdy). λ_{max} 286 (E1%/1cm 64.6) (NaOH) (Berdy).

1-Epimer: ***Ezomycin C_1***
[58002-06-5]
$C_{26}H_{37}N_7O_{16}S$ 735.682
From *Streptomyces* sp. Antifungal antibiotic. Amorph. Sol. H_2O; poorly sol. MeOH, hexane.
Mp 200° dec. $[\alpha]_D^{22}$ -76.4 (c, 0.94 in H_2O). λ_{max} 262 (ε 7000) (0.05*N* HCl) (Derep). λ_{max} 286 (ε 6100) (0.05*N* NaOH) (Derep). λ_{max} 262 (ε 7000) (0.05*N* HCl) (Derep). λ_{max} 263 (E1%/1cm 89.5) (HCl) (Berdy). λ_{max} 287 (E1%/1cm 73.6) (NaOH) (Berdy). λ_{max} 263 (ε 6400) (H_2O) (Berdy). λ_{max} 287 (ε 4900) (pH 12 buffer) (Berdy).

Sakata, K. *et al., Agric. Biol. Chem.*, 1974, **38**, 1883; 1977, **41**, 2033 (*isol, ir, uv, pmr, ms, struct*)
Sakata, K. *et al., Org. Magn. Reson.*, 1977, **10**, 230 (*cmr*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Ezomycin B_2 E-44

[57973-16-7]



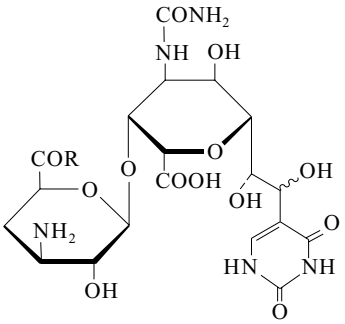
$C_{19}H_{25}N_5O_{13}$ 531.432
Metab. of a *Streptomyces* sp. Antifungal agent. Prisms.
Mp 205° dec. $[\alpha]_D^{16}$ +10.8 (c, 1.02 in 0.2*M* NaOH). λ_{max} 262 (ε 6300) (0.05*N* HCl) (Derep). λ_{max} 286 (ε 4900) (0.05*N* NaOH) (Derep). λ_{max} 262 (ε 6300) (0.05*N* HCl) (Derep).

1-Epimer: ***Ezomycin C_2***
[57973-14-5]
$C_{19}H_{25}N_5O_{13}$ 531.432
From a *Streptomyces* sp. Antifungal agent. Needles. Sol. H_2O.
Mp 200° dec. $[\alpha]_D^{18}$ -100 (c, 0.52 in NH_4OH). λ_{max} 262 (ε 6300) (0.05*N* HCl) (Derep). λ_{max} 286 (ε 4900) (0.05*N* NaOH) (Derep). λ_{max} 262 (ε 6300) (0.05*N* HCl) (Derep). λ_{max} 263 (ε 6200) (H_2O) (Berdy). λ_{max} 287 (ε 4800) (pH 12 buffer) (Berdy). λ_{max} 263 (ε 6200) (pH 2 buffer) (Berdy).

Sakata, K. *et al., Agric. Biol. Chem.*, 1974, **38**, 1883; 1977, **41**, 2033 (*isol, ir, uv, pmr, struct*)
Sakata, K. *et al., Org. Magn. Reson.*, 1977, **10**, 230 (*cmr*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Ezomycin D_1 E-45

[57973-15-6]
As Ezomycin D_1, E-45 with



R = OH

$C_{26}H_{39}N_7O_{17}S$ 753.697

Aminoglycoside. Metab. of a *Streptomyces* sp. Antifungal antibiotic. Amorph. Sol. H_2O.
Mp 200° dec. $[\alpha]_D^{22}$ -62.1 (c, 0.84 in H_2O). λ_{max} 262 (ϵ 7000) (0.05*N* HCl) (Derep). λ_{max} 286 (ϵ 6100) (0.05*N* NaOH) (Derep). λ_{max} 262 (ϵ 7000) (0.05*N* HCl) (Derep). λ_{max} 263 (ϵ 6900) (H_2O) (Berdy). λ_{max} 287 (ϵ 5200) (pH 12 buffer) (Berdy). λ_{max} 263 (ϵ 6700) (pH 2 buffer) (Berdy).

Sakata, K. *et al., Tet. Lett.*, 1975, 3191 (*struct, uv, ir, ms, nmr*)
Sakata, K. *et al., Agric. Biol. Chem.*, 1977, **41**, 2033 (*struct, uv, ir, pmr, ms*)
Sakata, K. *et al., Org. Magn. Reson.*, 1977, **10**, 230 (*cmr*)

Ezomycin D_2 E-46

[57973-11-2]
As Ezomycin D_1, E-45 with
R = OH

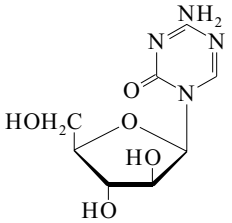
$C_{19}H_{27}N_5O_{14}$ 549.447
Metab. of a *Streptomyces* sp. Antifungal antibiotic. Needles. Sol. H_2O.
Mp 208° dec. $[\alpha]_D^{18}$ +58.8 (c, 0.87 in NH_4OH). λ_{max} 264 (ϵ 6700) (H_2O) (Berdy). λ_{max} 287 (ϵ 4900) (pH 12 buffer) (Berdy). λ_{max} 264 (ϵ 6500) (pH 2 buffer) (Berdy).

Sakata, K. *et al., Tet. Lett.*, 1975, 3191 (*struct, uv, ir, ms, nmr*)
Sakata, K. *et al., Agric. Biol. Chem.*, 1977, **41**, 2033 (*struct, ir, uv, ms, nmr*)
Sakata, K. *et al., Org. Magn. Reson.*, 1977, **10**, 230 (*cmr*)

Fazarabine, INN, USAN F-1

4-Amino-1-β-D-arabinofuranosyl-1,3,5-triazin-2(1H)-one, 9CI. 1-β-D-Arabinofuranosyl-5-azacytosine. Ara-Ac. Kymarabine. NSC 281272

[65886-71-7]



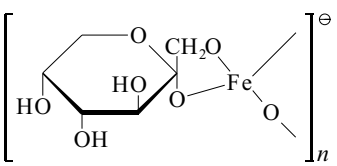
$C_8H_{12}N_4O_5$ 244.207

Antineoplastic agent. Mp 223-225°. $[\alpha]_D^{24}$ +122 (c, 1.0 in H_2O). $[\alpha]_D^{24}$ +63 (c, 1.0 in H_2O). Log P -4 (calc).

▶ Mutagenic props. XZ2854400

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 418C (*nmr*)
Beisler, J.A. *et al., J. Med. Chem.*, 1979, **22**, 1230 (*synth, pharmacol*)
Dalal, M. *et al., Cancer Res.*, 1986, **46**, 831; 4479 (*props*)
Grem, J.L. *et al., Invest. New Drugs*, 1987, **5**, 315 (*rev, pharmacol*)
Osman, F.H. *et al., J. Prakt. Chem.*, 1987, **329**, 209 (*synth*)
King, S.A. *et al., Drugs of the Future*, 1989, **14**, 20 (*rev*)
Bailey, H. *et al., Cancer Res.*, 1991, **51**, 1105 (*clin trials*)
Heideman, R.L. *et al., Invest. New Drugs*, 1993, **11**, 135 (*pharmacokinet tox*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 479

Ferric fructose, INN, USAN F-2



$C_6H_{10}FeO_7^{\ominus}$ 249.988

Polymeric. Minimum formula given. Haematinic. Never marketed

K salt: Ferritose. CB 302

[12286-76-9]

[29041-71-2]

Stitt, C. *et al., Proc. Soc. Exp. Biol. Med.*, 1962, **110**, 70 (*synth*)
Charley, P.J. *et al., Biochim. Biophys. Acta*, 1963, **69**, 313 (*formn, props*)
Princiotto, J.V. *et al., Biochem. Med.*, 1970, **3**, 289

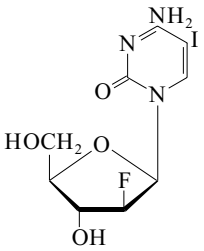
Fetuin F-3

Glycoprotein. Consists of a single polypeptide chain linked to three heteropolysaccharide units consisting of sialic acid, galactose, *N*-acetylglucosamine and mannose linked through asparagine. The predominant glycoprotein of foetal calf serum.

Nilsson, B. *et al., J. Biol. Chem.*, 1979, **254**, 4545-4553 (*struct, bibl*)

Fiacitabine, INN, USAN F-4

4-Amino-1-(2-deoxy-2-fluoroarabinofuranosyl)-5-iodo-2(1H)-pyrimidinone, 9CI. 2′-Fluoro-5-iodoaracytosine. FIAC



$C_9H_{11}FIN_3O_4$ 371.106

Antiviral agent. Log P -1.23 (calc).

β-D-*form* [69123-90-6]

▶ Mutagenic props. UW7353000

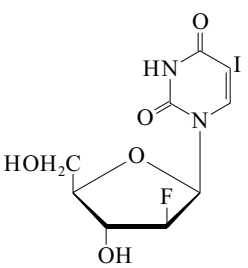
Hydrochloride: [69124-05-6]
Cryst. (MeOH). Mp 177-181° dec.

Watanabe, K.A. *et al., J. Med. Chem.*, 1979, **22**, 21; 1983, **26**, 152 (*synth, pmr, pharmacol*)
Chou, T.-C. *et al., Cancer Res.*, 1982, **42**, 3957 (*mutagen*)
Birnbaum, G.I. *et al., J.A.C.S.*, 1982, **104**, 7626 (*cryst struct*)
Chun, M.W. *et al., Arch. Pharmacal Res.*, 1983, **6**, 79 (*synth*)
Philips, F.S. *et al., Cancer Res.*, 1983, **43**, 3619 (*metab*)
Donner, A.L. *et al., Drug Intell. Clin. Pharm.*, 1984, **18**, 885 (*rev, pharmacol*)
Feingberg, A. *et al., Antimicrob. Agents Chemother.*, 1985, **27**, 733 (*metab, pharmacokinet*)
Leyland-Jones, B. *et al., J. Infect. Dis.*, 1986, **154**, 430 (*activity*)
De Clercq, E. *et al., Life Sci.*, 1986, **38**, 281 (*mutagen*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 544

Fialuridine, INN, USAN F-5

1-(2-Deoxy-2-fluoro-β-D-arabinofuranosyl)-5-iodo-2,4(1H,3H)-pyrimidinedione, 9CI. 2′-Fluoro-5-iodo-1-β-D-arabinofuranosyluracil. FIAU

[69123-98-4]



$C_9H_{10}FIN_2O_5$ 372.091

Antiviral agent. Cryst. (EtOH). Mp 223-226°. Log P -0.68 (calc).

▶ YQ9512500

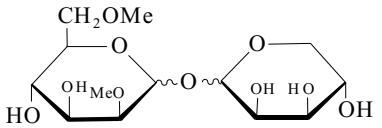
[157695-90-4]

Watanabe, K.A. *et al., J. Med. Chem.*, 1979, **22**, 21 (*synth, pharmacol*)
Chou, T.-C. *et al., Cancer Res.*, 1981, **41**, 3336 (*pharmacol*)
Eur. Pat., 1985, 145 978, (*Bristol-Myers*); *CA*, **103**, 178579d (*synth*)
Tann, C.H. *et al., J.O.C.*, 1985, **50**, 3644 (*synth, pmr, ir*)
Staschke, K.A. *et al., Antiviral Res.*, 1994, **23**, 45 (*pharmacol*)
Colacino, J.M. *et al., Antiviral Res.*, 1996, **29**, 125 (*rev, tox*)

Flambabiose F-7

L-Lyxopyranosyl 2,6-di-O-methyl-D-mannopyranoside, 9CI

[55728-18-2]



$C_{13}H_{24}O_{10}$ 340.327

Acid hydrol. prod. from Flambamycin, F-8.

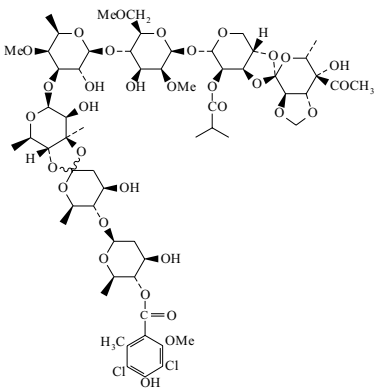
Penta-Ac: Mp 149-150°.

Ollis, W.D. *et al., Chem. Comm.*, 1974, 881 (*isol*)

Flambamycin F-8

RP 21190. Antibiotic RP 21190

[42617-24-3]



$C_{61}H_{88}Cl_2O_{33}$ 1420.252

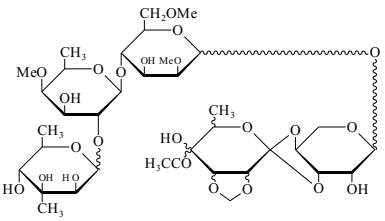
Oligosaccharide antibiotic structurally related to the Everninomicins. Isol. from *Streptomyces hygroscopicus* NRRL3576. Active against gram-positive bacteria and certain tumours. Cryst. (Me_2CO, MeOH or EtOH). Sol. $CHCl_3$, DMF, bases, Py; fairly sol. EtOAc, MeOH, EtOH, Me_2CO, H_2O; poorly sol. hexane.
Mp 226-228° (202-203°). $[\alpha]_D^{20}$ -11.4 (c, 1 in $CHCl_3$). λ_{max} 292 (ε 8270) (0.1*N* NaOH) (Derep). λ_{max} 228 (ε 13200); 286 (ε 2000); 300 (sh) (ε 1320) (MeOH) (Derep). λ_{max} 288 (E1%/1cm 12) (EtOH) (Berdy). λ_{max} 292 (E1%/1cm 59) (NaOH) (Berdy).

▶ LD_{50} (mus, scu) 2500 mg/kg. OP4087000

Ninet, L. *et al., Experientia*, 1974, **30**, 1270 (*isol*)
Wright, D.E. *et al., Tetrahedron*, 1979, **35**, 105; 1207 (*uv, ir, pmr, ms*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **100**, 283 (*stereochem*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1982, 2583 (*struct*)

Flambeurekanose F-9

O-*4*-C-*Acetyl-6-deoxy-2,3*-O-*methylene-hexopyranosylidene-(1→3-4)-L-lyxopyranosyl* O-*6-deoxy-3*-C-*methyl-D-mannopyranosyl-(1→2)*-O-*6-deoxy-4*-O-*methyl-β-D-galactopyranosyl-(1→4)-2,6-di*-O-*methyl-D-mannopyranoside, 9CI*
[60551-08-8]



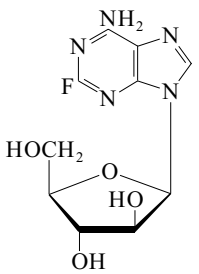
$C_{36}H_{58}O_{23}$ 858.84
Hydrol. prod. from Flambamycin.
Mp 191-192°.

Penta-Ac: Mp 195-196°.

Ollis, W.D. *et al., Chem. Comm.*, 1976, 348 (*isol, pmr, cmr*)

Fludarabine, INN F-10

*9-β-D-Arabinofuranosyl-2-fluoro-9*H-*purin-6-amine, 9CI. 9-β-D-Arabinofuranosyl-2-fluoroadenine. Fludara*
[21679-14-1]



$C_{10}H_{12}FN_5O_4$ 285.234
Antineoplastic agent. Launched 1991 (US). Cryst. (EtOH aq.). Mp 260°. $[\alpha]_D^{25}$ +17 (c, 0.1 in EtOH). Log P -2.73 (calc).

▶ AU6207000

5′-Phosphate: Fludarabine phosphate, BAN, USAN. 2-Fluoro-9-(5-O-*phosphono-β-D-arabinofuranosyl)-9*H-*purin-6-amine, 9CI. F-ara AMP-2. NSC 312887*
[75607-67-9]

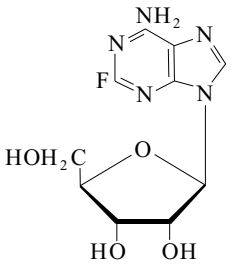
▶ UO7440900

[75607-66-8]

Montgomery, J.A. *et al., J. Med. Chem.*, 1969, **12**, 498 (*synth*)
Brockman, R.W. *et al., Cancer Res.*, 1980, **40**, 3610 (*metab, pharmacol*)
Plunkett, W. *et al., Semin. Oncol.*, (Suppl. 7), 1993, **20**, 2 (*rev*)
Rodriguez, G. *et al., Invest. New Drugs*, 1994, **12**, 75 (*rev*)
Adkins, J.C. *et al., Drugs*, 1997, **53**, 1005-1037 (*rev*)
Plosker, G.L. *et al., Drugs*, 2003, **63**, 2317-2323 (*rev*)

2-Fluoroadenosine, 9CI, 8CI F-11

[146-78-1]



$C_{10}H_{12}FN_5O_4$ 285.234
Ribonucleotide metab. inhibitor, blood platelet aggregation antagonist. Shows synergism on Actinobolin antimicrobial action. Mp 200° dec. $[\alpha]_D^{26}$ -60.3 (c, 0.13 in EtOH). λ_{max} 260.5 (ϵ 14 300) (H_2O), 260.5 (13 700) (pH 1), 260.5 nm (14 800) (pH 13).

▶ LD_{50} (mus, ipr) 27.04 mg/kg. AU7386000

2′,3′,5′-Tri-Ac: [15811-32-2]
$C_{16}H_{18}FN_5O_7$ 411.346
Cryst. (EtOAc). Mp 204°. $[\alpha]_D^{25}$ -28.6 (c, 1.0 in $CHCl_3$).

Montgomery, J.A. *et al., J.A.C.S.*, 1957, **79**, 4559 (*synth*)
Mongomery, J.A. *et al., J.O.C.*, 1968, **33**, 432 (*synth, tri-Ac*)
Montgomery, J.A. *et al., J. Med. Chem.*, 1970, **13**, 427 (*N-Me, N,N-di-Me derivs*)

8-Fluoroadenosine, 9CI, 8CI F-12

[23205-67-6]

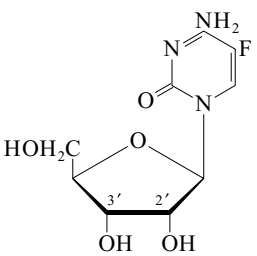
$C_{10}H_{12}FN_5O_4$ 285.234
Mp 190-191°. λ_{max} 263 (H_2O), 261.5 (pH 1), 264 nm (pH 13).

2′,3′,5′-Tri-Ac: [23205-66-5]
$C_{16}H_{18}FN_5O_7$ 411.346
Mp 99-102° (170-171°).

Ikehara, M. *et al., Chem. Comm.*, 1961, 1509 (*synth, pmr*)
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1971, **19**, 104 (*synth, tri-Ac*)
Ikehara, M. *et al., Biochemistry*, 1972, **11**, 830 (*conformn*)
Kobayashi, Y. *et al., Chem. Comm.*, 1976, 430 (*synth, nmr, ms, tri-Ac*)

5-Fluorocytidine F-13

[2341-22-2]



$C_9H_{12}FN_3O_5$ 261.209
Cryst. (EtOH). Mp 193-193.5°.

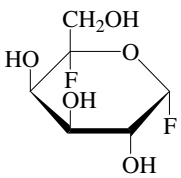
2′-Deoxy: 2′-Deoxy-5-fluorocytidine, 9CI, 8CI
[10356-76-0]
$C_9H_{12}FN_3O_4$ 245.21
Cryst. (EtOH). Mp 195-196.5°. $[\alpha]_D^{26}$ +66 (c, 2.5 in H_2O).

▶ LD_{50} (rat, ipr) 2000 mg/kg. Exp. reprod. and teratogenic effects. HA3850000

3′-Deoxy: 3′-Deoxy-5-fluorocytidine. 5-Fluoro-3′-deoxycytidine
$C_9H_{12}FN_3O_4$ 245.21
Cryst. (EtOH). Mp 194-195°. λ_{max} 238 (ϵ 7600); 289 (7700) (H_2O).

Aldrich Library of FT-NMR Spectra, **3**, 383C (*nmr*)
Wempen, I. *et al., J.A.C.S.*, 1961, **83**, 4755 (*2′-deoxy*)
Utz, J.P. *et al., Bull. N.Y. Acad. Med.*, 1975, **51**, 1103 (*rev, pharmacol*)
Waysek, E.H. *et al., Anal. Profiles Drug Subst.*, 1976, **5**, 115 (*rev*)
Robins, M.J. *et al., J.A.C.S.*, 1976, **98**, 7381 (*synth, F-19 nmr*)
Louis, T. *et al., Cryst. Struct. Commun.*, 1982, **11**, 1059 (*cryst struct*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1995, **43**, 2005 (*3′-deoxy*)

5-*C*-Fluorogalactosyl fluoride F-14



$C_6H_{10}F_2O_5$ 200.139

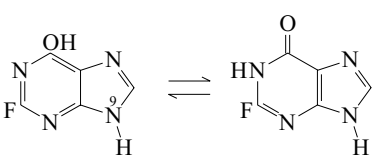
α-D-Pyranose-*form*
Syrup.

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-5*-C-*fluoro-α-D-galactopyranosyl fluoride*
$C_{14}H_{18}F_2O_9$ 368.288
Gum.

Ly, H.D. *et al., Carbohydr. Res.*, 2000, **329**, 539-547

2-Fluoro-4-hydroxypurine F-15

2-Fluorohypoxanthine

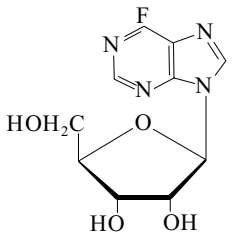


$C_5H_3FN_4O$ 154.103
Cryst. (Me_2CO). No phys. props. reported.

9-β-D-Ribopyranosyl: 2-Fluoroinosine
$C_{10}H_{11}FN_4O_5$ 286.219
$[\alpha]_D^{25}$ -34.4 (c, 1.0 in H_2O).

Gerster, J.F. *et al., J.O.C.*, 1966, **31**, 3258 (*synth, pmr*)
Michal, G. *et al., Pharmacol. Res. Commun.*, 1974, **6**, 203; *CA*, **81**, 59961q

6-Fluoro-9-ribofuranosyl-9*H*-purine, 9CI, 8CI F-16



$C_{10}H_{11}FN_4O_4$ 270.22

β-D-*form*

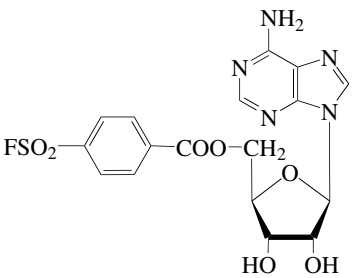
9-Fluoronebularine
[24784-69-8]
Mp 140-141°. $[\alpha]_D$ -39 (c, 1.0 in H_2O). λ_{max} 248 (ε 6 600) (pH 2), 254 nm (13 400) (pH 14).

2′,3′,5′-Tri-Ac: [18354-17-1]
$C_{16}H_{17}FN_4O_7$ 396.331
$[\alpha]_D^{23}$ -10.8 (c, 1.0 in $CHCl_3$). λ_{max} 243 nm (ε 6 500) (EtOH). Unstable at pH 13.

Montgomery, J.A. *et al., J.O.C.*, 1969, **34**, 1396 (*synth, pmr*)
Kiburis, J. *et al., J.C.S.(C)*, 1971, 3942 (*synth*)

5′-[4-(Fluorosulfonyl)benzoyl]adenosine F-17

Adenosine 5′-[4-(fluorosulfonyl)benzoate]
[57454-44-1]

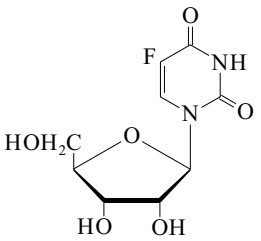


$C_{17}H_{16}FN_5O_7S$ 453.407
Kinase inhibitor. Forms covalent adducts with ATP binding sites. Cryst. (DMF). Mp 159-160°.

Pal, P.K. *et al., J. Biol. Chem.*, 1975, **250**, 8140-8147 (*activity*)
Colman, R.F. *et al., Methods Enzymol.*, 1977, **46**, 240-249 (*synth, bibl, props*)
Kruse, C.H. *et al., J. Med. Chem.*, 1988, **31**, 1762-1767 (*use*)
McKay, G.A. *et al., Biochemistry*, 1994, **33**, 14115-14120 (*use*)

5-Fluorouridine F-18

1-α-D-Ribofuranosyl-5-fluoro-2,4(1H,3H)-pyrimidinedione
[316-46-1]



$C_9H_{11}FN_2O_6$ 262.194
Antineoplastic agent. Mp 151-154° Mp 184-185° (181-182°) (dimorph.). $[\alpha]_D^{26}$ +17 (c, 2 in H_2O).

▶ YU8050000

2′-Me: [61671-80-5]
$C_{10}H_{13}FN_2O_6$ 276.221
Needles. Mp 151-152° (144-147°). $[\alpha]_D^{22}$ +51.2 (c, 1 in MeOH).

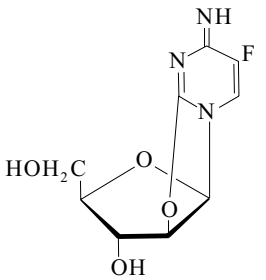
3′-Deoxy: 3′-Deoxy-5-fluorouridine. 5-Fluoro-3′-deoxyuridine
$C_9H_{11}FN_2O_5$ 246.195
Cryst. (EtOH). Mp 169-171°.

5′-Phosphate: [796-66-7]
[67550-10-1]
$C_9H_{12}FN_2O_9P$ 342.174
Metab. of 5-Fluorouridine. Needles (Me_2CO aq.) (as Na salt).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 372A (*nmr*)
Robins, M.J. *et al., Can. J. Chem.*, 1975, **53**, 1302-1306 (*synth, uv, pmr, F-19 nmr, 5-phosphate*)
Robins, M.J. *et al., J.A.C.S.*, 1976, **98**, 7381 (*synth, pmr, F-19 nmr, ms*)
Alderfer, J.L. *et al., Biochemistry*, 1982, **21**, 2738 (*cmr*)
Marunaka, T. *et al., Biomed. Mass Spectrom.*, 1982, **9**, 381 (*ms*)
Stavber, S. *et al., Tetrahedron*, 1990, **46**, 3093 (*synth*)
Tatsumura, T. *et al., Br. J. Cancer*, 1993, **68**, 1146; *CA*, **120**, 289545k
Ross, B.S. *et al., J. Het. Chem.*, 1994, **31**, 765 (*2′-O-Me*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1995, **43**, 2005 (*3′-deoxy*)
Fujita, K. *et al., J. Ferment. Bioeng.*, 1997, **77**, 696-699 (*enzymic synth, 5-phosphate*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, FMN000

Flurocitabine, BAN, INN, USAN F-19

7-Fluoro-2,3,3a,9a-tetrahydro-3-hydroxy-6-imino-6H-furo[2′,3′:4,5]oxazolo[3,2-a]pyrimidine-2-methanol, 9CI. 2,2′-Anhydro-5-fluoro-1-β-D-arabinofuranosylcytosine. Fluoroancitabine. AAFC. NSC 166641. Ro 21-0702
[37717-21-8]



$C_9H_{10}FN_3O_4$ 243.194
Antineoplastic agent. Never marketed

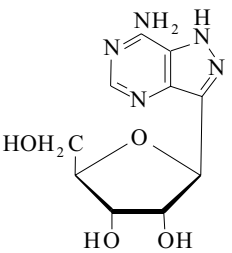
▶ HA5400000

Hydrochloride:
Cryst. (EtOH aq.). Mp 258-262° dec.

Kanai, T. *et al., J. Med. Chem.*, 1972, **15**, 1218 (*synth, pharmacol*)
Chou, T.-C. *et al., Cancer Treat. Rep.*, 1977, **61**, 617 (*metab*)
Mian, A.M. *et al., J. Med. Chem.*, 1979, **22**, 514 (*synth, pharmacol*)

Formycin A F-20

1-C-(7-Amino-1H-pyrazolo[4,3-d]pyrimidin-3-yl)-1,4-anhydro-D-ribitol, 9CI. Formycin. NSC 102811. Antibiotic 4-215
[6742-12-7]



$C_{10}H_{13}N_5O_4$ 267.244
Nucleoside-type antibiotic. Prod. by *Nocardia interforma, Streptomyces lavendulae* and *Streptomyces gunmaensis*. Shows limited antibacterial activity but possesses antitumour and antiviral props. Cryst. Sol. MeOH, H_2O, acids, bases; fairly sol. EtOH; poorly sol. Me_2CO, hexane.
Mp 153-155°. $[\alpha]_D^{25}$ -39.3 (c, 0.5 in 0.1*M* HCl). pK_{a1} 4.4; pK_{a2} 9.7 (H_2O). λ_{max} 295 (ε 10700) (H_2O) (Derep). λ_{max} 294 (E1%/1cm 390) (H_2O) (Berdy). λ_{max} 234 (E1%/1cm 280); 295 (E1%/1cm 340) (HCl) (Berdy). λ_{max} 235 (E1%/1cm 500); 305 (E1%/1cm 260) (NaOH) (Berdy).

▶ LD_{50} (mus, orl) 1000 mg/kg ; LD_{50} (mus, ivn) 250 - 350 mg/kg. UR0719000

4-Me:
$C_{11}H_{15}N_5O_4$ 281.271
Mp 268-269°.

6-Me:
$C_{11}H_{15}N_5O_4$ 281.271
Dihydrate. Mp 231-232°.

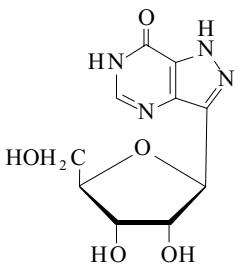
N^7*-Me:*
$C_{11}H_{15}N_5O_4$ 281.271
Mp 145° dec.

3′-Epimer: Xyloformycin
$C_{10}H_{13}N_5O_4$ 267.244
Synthetic. Shows no antiviral props. Cryst. Mp 138-140°. $[\alpha]_D$ -97.8 (c, 0.23 in H_2O).

Koyama, G. *et al., J. Antibiot., Ser. A*, 1965, **18**, 175 (*isol, ir, uv*)
Koyama, G. *et al., Tet. Lett.*, 1966, 597 (*ir, uv, pmr, cryst struct*)
Japan. Pat., 1967, 67 10 928; *CA*, **68**, 24552 (*isol*)
Japan. Pat., 1968, 68 6 996; *CA*, **69**, 34691 (*isol*)
Prusiner, P. *et al., Biochemistry*, 1973, **12**, 1196 (*cryst struct*)
Ochi, K. *et al., J. Antibiot.*, 1976, **29**, 638 (*biosynth*)
Chenon, M.-T. *et al., J.A.C.S.*, 1976, **98**, 4736 (*pmr, cmr*)
Kalvoda, L. *et al., Coll. Czech. Chem. Comm.*, 1978, **43**, 1431 (*synth*)
Lewis, A.F. *et al., J.A.C.S.*, 1980, **102**, 2817
Spiemulli, E.N. *et al., Cancer Treat. Rep.*, 1983, **67**, 267 (*pharmacol, tox*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1986, 1267 (*analogs*)
Cho, B.P. *et al., Nucleosides Nucleotides*, 1994, **13**, 481 (*pmr, cmr, tautom*)

Formycin B F-21

*1,4-Dihydro-3-β-D-ribofuranosyl-7*H*-pyrazolo[4,3-*d*]pyrimidin-7-one, 9CI. Laurusin. Ohyamycin. NSC 106486*
[13877-76-4]



$C_{10}H_{12}N_4O_5$ 268.229

Nucleoside-type antibiotic. Prod. by *Nocardia interforma, Streptomyces lavendulae* and *Streptomyces roseochromogenes-oyaensis*. Shows limited antibacterial activity; possesses antitumour and antiviral props. Nucleoside transporter substrate. Cryst. (H_2O). Mp 254-255°. $[\alpha]_D^{25}$ -52 (c, 0.5 in H_2O). pK_{a1} 8.8; pK_{a2} 10.4. λ_{max} 219 (ε 9330); 280 (ε 7880) (H_2O) (Derep).

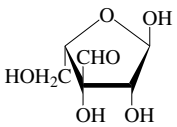
▶ LD_{50} (mus, ivn) 1000 mg/kg. UR0800000

Hydrobromide:
Prisms + H_2O (H_2O). Mp 180-180.5°.

Aizawa, S. *et al., Agric. Biol. Chem.*, 1965, **29**, 375; 377 (*isol*)
Koyama, G. *et al., J. Antibiot., Ser. A*, 1965, **18**, 175 (*isol, ir, uv*)
Japan. Pat., 1966, 66 13 792; *CA*, **65**, 19272 (*isol*)
Koyama, G. *et al., Tet. Lett.*, 1966, 597 (*uv, ir, nmr, cryst struct*)
Acton, E.M. *et al., Chem. Comm.*, 1971, 986 (*synth, nmr*)
Koyama, G. *et al., Acta Cryst. B*, 1976, **32**, 813 (*cryst struct*)
Chenon, M.-T. *et al., J.A.C.S.*, 1976, **98**, 4736 (*pmr, cmr*)
Kalvoda, L. *et al., Coll. Czech. Chem. Comm.*, 1978, **43**, 1431 (*synth*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1984, 2367 (*synth*)
Plagemann, P.G. *et al., Biochim. Biophys. Acta*, 1990, **1022**, 93-102; 103-109; **1028**, 289-298 (*pharmacol*)

3-*C*-Formyllyxose F-22

Oxystreptose. Hydroxystreptose



α-L-Furanose-*form*

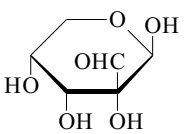
$C_6H_{10}O_6$ 178.141

L-*form*

Sugar component of Hydroxystreptomycin, H-197.

Stodola, F.H. *et al., J.A.C.S.*, 1951, **73**, 2290 (*struct*)
Shemyakin, M.M. *et al., Dokl. Akad. Nauk SSSR*, 1952, **85**, 1301; *CA*, **47**, 4292a (*struct*)

2-*C*-Formylribose F-23



$C_6H_{10}O_6$ 178.141

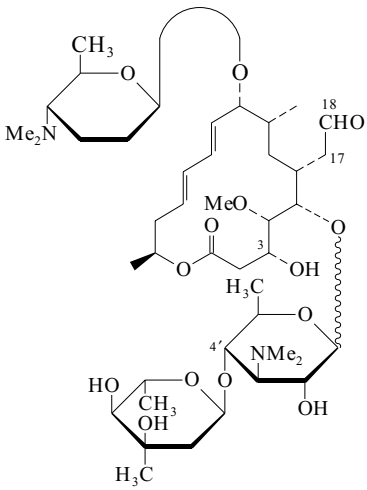
β-D-Pyranose-*form*

*Me glycoside, 3,4-isopropylidene: Methyl 2-C-formyl-3,4-*O*-isopropylidene-β-D-ribopyranoside*
[35522-72-6]
$C_{10}H_{16}O_6$ 232.233
Syrup. $[\alpha]_D^{24}$ -192 (c, 1 in MeOH).

Paulsen, H. *et al., Chem. Ber.*, 1972, **105**, 1978 (*synth*)
Paulsen, H. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 185 (*synth*)

Foromacidin A F-24

*9-*O*-[5-(Dimethylamino)tetrahydro-6-methyl-2*H*-pyran-2-yl]leucomycin V, 9CI. Spiramycin I, 8CI. Spiramycin A. Espiramicin*
[24916-50-5]



$C_{43}H_{74}N_2O_{14}$ 843.063

Macrolide antibiotic. Produced by a *Streptomyces ambofaciens*. Broad-spectrum antibiotic. Cryst. Sol. MeOH, Et_2O; fairly sol. hexane; poorly sol. H_2O. Mp 134-138°. $[\alpha]_D^{20}$ -96 (c, 0.34 in MeOH). Log P 0.92 (uncertain value) (calc). λ_{max} 232 (ε 26500) (MeOH) (Derep). λ_{max} 231 (E1%/1cm 322) (EtOH) (Berdy).

▶ LD_{50} (mus, scu) 1010 mg/kg ; LD_{50} (mus, ivn) 200 mg/kg , LD_{50} (mus, orl) 5000 mg/kg. WG9405000

Mixt. with Foromacidins B and C: ***Spiramycin, BAN, INN, USAN****. Foromacidin. NSC 55926. Many other names*
[8025-81-8]
$C_{43}H_{74}N_2O_{14}$ 843.063
Antibiotic complex. $[\alpha]_D^{20}$ -80 (MeOH).

▶ Gastro-intestinal and skin hypersensitivity reactions reported when used therapeutically. LD_{50} (rat, orl) 3550 mg/kg. Exp. reprod. effects. WG9400000

3-Ac: ***Foromacidin B****. Spiramycin II. Spiramycin B*
[24916-51-6]
$C_{45}H_{76}N_2O_{15}$ 885.1
Prod. by *Streptomyces ambofaciens*. Shows broad-spectrum antimicrobial props. Cryst. Sol. MeOH, Et_2O; fairly sol. C_6H_6, hexane; poorly sol. H_2O. Mp 130-133°. $[\alpha]_D$ -86 (c, 0.82 in EtOH). λ_{max} 231 (E1%/1cm 307) (EtOH) (Berdy).

▶ LD_{50} (mus, ivn) 250 mg/kg , LD_{50} (mus, scu) 1520 mg/kg. WG9413000

3,4″-Di-Ac: 4″-Acetylspiramycin B. 3,4″-Diacetylforomacidin A
[87111-42-0]
$C_{47}H_{78}N_2O_{16}$ 927.137
Prod. by *Streptomyces spiramyceticus* F21.

Tri-Ac:
Cryst. Mp 156-160° (140-142°). $[\alpha]_D^{20}$ -98.4 (-92.5).

3-Propanoyl: ***Foromacidin C****. Spiramycin III. Spiramycin C*
[24916-52-7]
$C_{46}H_{78}N_2O_{15}$ 899.127
Prod. by *Streptomyces ambofaciens*. Shows broad-spectrum antimicrobial props. Sol. MeOH, Et_2O; fairly sol. C_6H_6, hexane; poorly sol. H_2O.
Mp 128-131°. $[\alpha]_D^{90}$ -83 (c, 1.0 in EtOH). λ_{max} 231 (E1%/1cm 327) (EtOH) (Berdy).
▶ LD_{50} (mus, ivn) 250 mg/kg , LD_{50} (mus, scu) 2040 mg/kg. WG9415000

3-Propanoyl, 4″-Ac: 4″-Acetylspiramycin C
[112501-15-2]
$C_{48}H_{80}N_2O_{16}$ 941.164
Prod. by *Streptomyces spiramyceticus* F21.

4″-Propanoyl, 3-Ac: 4″-Propanoylspiramycin B. 4″-Propionylspiramycin B
[145191-83-9]
$C_{48}H_{80}N_2O_{16}$ 941.164
Prod. by *Streptomyces spiramyceticus* F21.

3,4″-Dipropanoyl: 4″-Propanoylspiramycin C. 4″-Propionylspiramycin C
[145191-82-8]
$C_{49}H_{82}N_2O_{16}$ 955.191
Prod. by *Streptomyces spiramyceticus* F21.

4″-Butanoyl, 3-Ac: 4″-Butanoylspiramycin B. 4″-Butyrylspiramycin B
[67055-88-3]
$C_{49}H_{82}N_2O_{16}$ 955.191
Prod. by *Streptomyces spiramyceticus* F21.

4″-Butanoyl, 3-propanoyl: ***4″-Butanoylforomacidin C****. 4″-Butanoylspiramycin III*
[267662-19-1]
[220152-25-0]
$C_{50}H_{84}N_2O_{16}$ 969.217
Prod. by *Streptomyces spiramyceticus* F21.

4″-(2-Methylpropanoyl), 3-Ac: 4″-(2-Methylpropanoyl)spiramycin B. 4″-Isobutyrylspiramycin B
[267662-21-5]
$C_{49}H_{82}N_2O_{16}$ 955.191
Prod. by *Streptomyces spiramyceticus* F21.

4″-(2-Methylpropanoyl), 3-propanoyl: ***4″-Isobutanoylforomacidin C****. 4″-Isobutanoylspiramycin III*
[267662-20-4]
[220152-26-1]
$C_{50}H_{84}N_2O_{16}$ 969.217
Prod. by *Streptomyces spiramyceticus* F21.

4″-(3-Methylbutanoyl): [267662-22-6]
$C_{48}H_{82}N_2O_{15}$ 927.18
Prod. by *Streptomyces spiramyceticus* F21.

4″-(3-Methylbutanoyl), 3-Ac: ***Shengjimycin B***
[67055-89-4]
$C_{50}H_{84}N_2O_{16}$ 969.217
Prod. by *Streptomyces spiramyceticus* F21.

4″-(3-Methylbutanoyl), 3-propanoyl: ***Shengjimycin A***
[212125-76-3]
$C_{51}H_{86}N_2O_{16}$ 983.244
Prod. by *Streptomyces spiramyceticus* F21.

18-Alcohol: ***Spiramycin IV****. Dihydrospiromycin I*
$C_{43}H_{76}N_2O_{14}$ 845.078
Prod. by *Streptomyces ambofaciens*. Powder. Sol. MeOH, C_6H_6; poorly sol. H_2O, hexane. λ_{max} 233 (ϵ 26500) (MeOH).

18-Deoxo: ***18-Deoxospiramycin I***
[177584-14-4]
$C_{43}H_{76}N_2O_{13}$ 829.079
Prod. by *Streptomyces ambofaciens*. Powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Incorrect struct. in CA to which CAS no. refers. λ_{max} 228 (MeOH) (Berdy).

4′-Deglycosyl: Neospiramycin I
[70253-62-2]
$C_{36}H_{62}N_2O_{11}$ 698.893
Hydrol. prod. of Foromacidin A. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Mp 119-120°. $[\alpha]_D^{20}$ -57 (c, 1 in MeOH).

4′-Deglycosyl, 3-Ac: Neospiramycin II
[2564-78-5]
$C_{38}H_{64}N_2O_{12}$ 740.93
Hydrol. prod. of Foromacidin B. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Mp 116-119°. $[\alpha]_D^{20}$ -56 (c, 1 in MeOH).

4′-Deglycosyl, 3-propanoyl: Neospiramycin III
[4617-99-6]
$C_{39}H_{66}N_2O_{12}$ 754.957
Hydrol. prod. of Foromacidin C. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Mp 117-118°. $[\alpha]_D^{20}$ -52 (c, 1 in MeOH).

17-Methylene: ***17-Methylenespiramycin I***
[177584-13-3]
$C_{44}H_{74}N_2O_{14}$ 855.074
Prod. by *Streptomyces ambofaciens*. Powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Incorrect struct. in CA to which CAS no. refers. λ_{max} 226 (MeOH) (Berdy).

Corbaz, R. *et al., Helv. Chim. Acta*, 1956, **39**, 304-317 (*Foromacidins, isol*)
Omura, S. *et al., J.A.C.S.*, 1969, **91**, 3401-3404; 1975, **97**, 4001 (*struct, ir, ms, pmr, cmr*)
Mitscher, A.L. *et al., J. Antibiot.*, 1973, **26**, 55-59 (*ms, struct*)
Freiberg, L.A. *et al., J.O.C.*, 1974, **39**, 2474-2477 (*synth*)
Omura, S. *et al., Chem. Pharm. Bull.*, 1979, **27**, 176-182 (*biosynth, ms*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 8238
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 202
Shida, Y. *et al., Tetrahedron*, 1993, **49**, 9221-9234 (*ms*)
Alam, P. *et al., Magn. Reson. Chem.*, 1995, **33**, 228-231 (*pmr, cmr*)
Liu, L. *et al., J. Antibiot.*, 1996, **49**, 398 (*17-methylene, 18-deoxo*)
Khan, S.I. *et al., Nat. Prod. Lett.*, 1998, **11**, 167-171 (*isol, hplc*)
Sun, C. *et al., Actinomycetologica*, 1999, **13**, 120-125 (*Shengjimycins*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SLC000

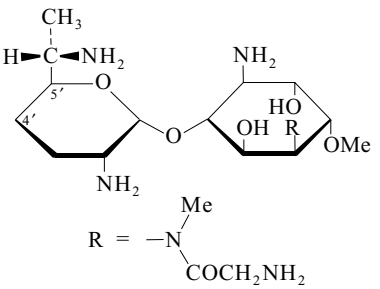
Forssman pentasaccharide F-25

(2-Acetamido-2-deoxy-α-D-galactopyranosyl)-(1→3)-(2-acetamido-2-deoxy-β-D-galactopyranosyl)-(1→3)-α-D-galactopyranosyl-(1→4)-β-D-galactopyranosyl-(1→4)-D-glucose. Forssman specific pentasaccharide
[71937-76-3]
α-D-Gal*p* *N*Ac-(1→3)-β-D-Gal*p* *N*Ac-(1→3)-α-D-Gal*p*-(1→4)-β-D-Gal*p*-(1→4)-D-Glc
$C_{34}H_{58}N_2O_{26}$ 910.83
Part of the Forssman antigen. $[\alpha]_D^{20}$ +134 (c, 0.25 in H_2O).

[155753-73-4]
Paulsen, H. *et al., Carbohydr. Res.*, 1982, **100**, 143 (*synth*)
Poppe, L. *et al., Biochem. Biophys. Res. Commun.*, 1989, **159**, 618; 1991, **174**, 1169 (*pmr, conformn*)
Nilsson, U. *et al., Carbohydr. Res.*, 1994, **252**, 137 (*synth*)
Grönberg, G. *et al., Carbohydr. Res.*, 1994, **257**, 35 (*conformn*)

Fortimicin A F-26

Astromicin, INN*. Abbott 44747. KW 1070. XK 70-1. Antibiotic KW 1070*
[55779-06-1]



$C_{17}H_{35}N_5O_6$ 405.493
Aminoglycoside antibiotic. Isol. from *Micromonospora* spp. Antibacterial agent. Launched 1985. Amorph. powder. Sol. H_2O; fairly sol. MeOH, Me_2CO, EtOH; poorly sol. butanol, hexane, EtOAc.
Mp 200° dec. $[\alpha]_D^{25}$ +87.5 (c, 0.1 in H_2O). Log P -2.99 (uncertain value) (calc).
▶ LD_{50} (mus, orl) 13600 mg/kg; LD_{50} (mus, ivn) 380 mg/kg. Exp. reprod. and teratogenic effects (large doses). NM7521490

Sulfate (2:1): ***Astromicin sulfate, JAN, USAN****. Fortimicin*
[77275-67-3]

N$^{\omega}$-Formyl: ***Antibiotic SF 1854****. SF 1854*
[74228-81-2]
$C_{18}H_{35}N_5O_7$ 433.504
From *Micromonospora* sp. SF-1854. Active against gram-positive and -negative bacteria. Sol. H_2O; poorly sol. butanol, hexane. $[\alpha]_D^{25}$ +67 (c, 1 in H_2O).

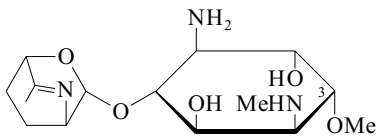
3-O-De-Me: ***3-O-Demethylfortimicin A***
[74842-47-0]
$C_{16}H_{33}N_5O_6$ 391.467
Isol. from *Micromonospora olivoasterospora*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.
▶ NM7521485

[66768-12-5]
Nara, T. *et al., J. Antibiot.*, 1977, **30**, 533 (*synth*)
Okachi, R. *et al., J. Antibiot.*, 1977, **30**, 541 (*isol*)
Egan, R.S. *et al., J. Antibiot.*, 1977, **30**, 552 (*struct, ir, ms, pmr*)
Martin, J.R. *et al., Antimicrob. Agents Chemother.*, 1980, **18**, 761 (*synth, deriv*)
Inouye, S. *et al., J. Antibiot.*, 1980, **33**, 510 (*deriv*)
Cho, N. *et al., Chemotherapy (Tokyo)*, Suppl. 2, 1981, **29**, (*pharmacol, tox, metab*)
U.S. Pat., 1982, 4 330 673; *CA*, **97**, 128007 (*synth, deriv*)

Neu, K.C. *et al., J. Antimicrob. Chemother.*, 1983, **11**, 181 (*props, deriv*)
Kunikatsu, O. *et al., Mol. Pharmacol.*, 1983, **23**, 127 (*conformn*)
Odakura, Y. *et al., J. Antibiot.*, 1984, **37**, 1670 (*biosynth, bibl*)
Kobayashi, S. *et al., J.O.C.*, 1990, **55**, 1169 (*synth*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 118
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, FOK000

Fortimicin AH F-27

[74918-32-4]



$C_{15}H_{27}N_3O_5$ 329.395

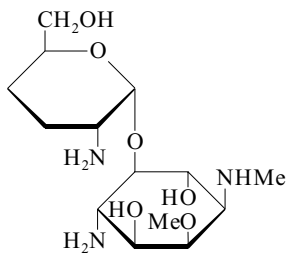
Aminocyclitol antibiotic. Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O.

3-Epimer: ***Fortimicin AI***
[75419-92-0]
$C_{15}H_{27}N_3O_5$ 329.395
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O.

McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*struct*)
U.S. Pat., 1980, 4 219 644; *CA*, **93**, 236932 (*isol*)
U.S. Pat., 1980, 4 213 972; *CA*, **94**, 6377 (*derivs*)

Fortimicin AK F-28

[74918-33-5]



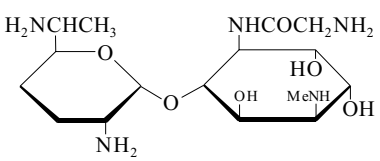
$C_{14}H_{29}N_3O_6$ 335.4

Aminoglycoside antibiotic. Prod. by *Micromonospora olivoasterospora*. Sol. H_2O.

McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295
U.S. Pat., 1980, 4 226 979; *CA*, **94**, 45586 (*isol, pmr*)

Fortimicin AN F-29

[74918-34-6]



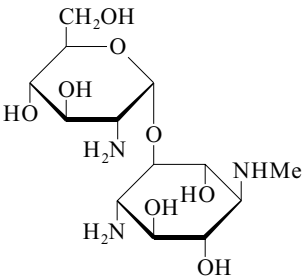
$C_{16}H_{33}N_5O_6$ 391.467

Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O.

U.S. Pat., 1980, 4 219 643; *CA*, **93**, 236933 (*isol*)
McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*struct*)

Fortimicin AO F-30

[74918-35-7]



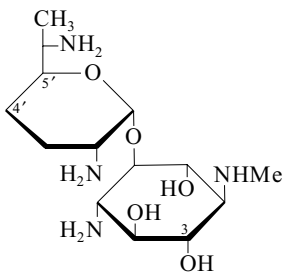
$C_{13}H_{27}N_3O_8$ 353.372

Aminoglycoside antibiotic. Prod. by *Micromonospora olivoasterospora*. Sol. H_2O.

McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295
U.S. Pat., 1980, 4 219 642; *CA*, **94**, 2935 (*isol, cmr*)

Fortimicin AP F-31

[74958-29-5]



$C_{14}H_{30}N_4O_5$ 334.415

Aminocyclitol antibiotic. Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O.

3-Epimer: ***Fortimicin AM***
[74958-28-4]
$C_{14}H_{30}N_4O_5$ 334.415
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O.

4′,5′-Didehydro: ***Fortimicin AL***
[74958-27-3]
$C_{14}H_{28}N_4O_5$ 332.399
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive bacteria. Sol. H_2O.

U.S. Pat., 1979, 4 214 078; 4 214 080; *CA*, **93**, 184277; 184278 (*isol*)
U.S. Pat., 1979, 4 214 079; 4 216 210; *CA*, **94**, 82160; 82178 (*derivs*)
McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*struct*)

Fortimicin B F-32

*4-Amino-1,4-dideoxy-3-*O*-(2,6-diamino-2,3,4,6,7-pentadeoxy-β-L-*lyxo*-hexopyranosyl)-6-*O*-methyl-1-(methylamino)-L-*chiro*-inositol, 9CI*
[54783-95-8]
As Fortimicin A, F-26 with R = NHMe

$C_{15}H_{32}N_4O_5$ 348.442

Aminoglycoside antibiotic. Isol. from *Micromonospora* spp. Amorph. powder. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane. Mp 101-103°. $[\alpha]_D^{25}$ +22.2 (c, 0.1 in H_2O). λ_{max} 265 (H_2O) (Berdy).

N^1-*Me:* ***Fortimicin AQ***
[70952-84-0]
$C_{16}H_{34}N_4O_5$ 362.468
Prod. by *Micromonospora olivoasterospora*.

N^1-*(2-Hydroxyethyl):* ***Fortimicin AS***
[66963-18-6]
$C_{17}H_{36}N_4O_6$ 392.495
Prod. by *Micromonospora olivoasterospora*.

N^1-*Aminoacetyl:* See Fortimicin A, F-26

O-*De-Me, 2′*-N-*glycyl:* ***2′-N-Glycyl-3-O-demethylfortimicin B***
[71640-65-8]
$C_{16}H_{33}N_5O_6$ 391.467
Prod. by *Micromonospora olivoasterospora*. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, butanol, hexane. $[\alpha]_D$ +57.4 (H_2O). λ_{max} 200 (H_2O).

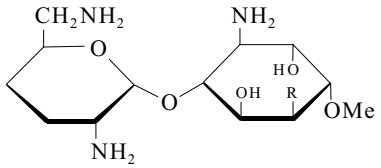
O-*De-Me, 2′*-N-*(*N-*carbamoylglycyl): 2′*-N-*Hydantoyl-3-*O-*demethylfortimicin B*
[74667-49-5]
$C_{17}H_{34}N_6O_7$ 434.492
Prod. by *Micromonospora olivoasterospora*. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, EtOAc, hexane. $[\alpha]_D$ +15.3 (H_2O). λ_{max} 200 (H_2O).

4′,5′-Didehydro: ***Fortimicin KG2****. 4′,5′-Dehydrofortimicin B*
[72541-30-1]
$C_{15}H_{30}N_4O_5$ 346.426
Minor prod. from *Micromonospora olivoasterospora*. Weakly active against gram-positive and -negative bacteria. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, hexane.
Mp 83-85°. $[\alpha]_D^{22}$ +30 (c, 0.76 in H_2O).

Japan. Pat., 1976, 79 66 679; *CA*, **91**, 156031 (*isol, props, deriv*)
Okachi, R. *et al., J. Antibiot.*, 1977, **30**, 541 (*isol*)
Egan, R.S. *et al., J. Antibiot.*, 1977, **30**, 552 (*struct, ir, ms, pmr*)
Hirayama, N. *et al., Acta Cryst. B*, 1978, **34**, 2648 (*cryst struct*)
Sato, M. *et al., J. Antibiot.*, 1979, **32**, 371 (*synth*)
McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*Fortimicin KG2, Fortimicin AS, Fortimicin AQ*)
Japan. Pat., 1980, 80 45 631; *CA*, **93**, 184262m (*N-glycyl derivs*)
Honda, Y. *et al., Bull. Chem. Soc. Jpn.*, 1982, **55**, 1156 (*synth*)

Fortimicin C F-33

[62874-51-5]



R = $NMeCOCH_2NHCONH_2$

$C_{17}H_{34}N_6O_7$ 434.492

Aminoglycoside-type antibiotic. Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, hexane, EtOAc.
Mp 160° dec. $[\alpha]_D^{25}$ +84 (c, 0.1 in H_2O).

Sato, M. *et al., J. Antibiot.*, 1979, **32**, 371 (*synth*)

Sugimoto, M. *et al., J. Antibiot.*, 1979, **32**, 868 (*isol*)

Iida, M. *et al., J. Antibiot.*, 1979, **32**, 1273 (*pmr, cmr, struct*)

Fortimicin D F-34

4-N-*Glycylfortimicin KE*
[67330-20-5]
As Fortimicin C, F-33 with
R = $NMeCOCH_2NH_2$

$C_{16}H_{33}N_5O_6$ 391.467

Aminoglycoside antibiotic. Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. $CHCl_3$, butanol, Et_2O, hexane, EtOAc.
Mp 109-114°. $[\alpha]_D^{25}$ +121 (c, 0.5 in H_2O).

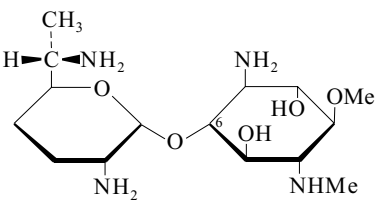
► LD_{50} (mus, ipr) 159 mg/kg. NM7521504

Sugimoto, M. *et al., J. Antibiot.*, 1979, **32**, 868 (*isol*)

Iida, M. *et al., J. Antibiot.*, 1979, **32**, 1273 (*pmr, cmr, struct*)

Fortimicin E F-35

1-Amino-1,4-dideoxy-2-O-*(2,6-diamino-2,3,4,6,7-pentadeoxy-β-L*-lyxo-*heptopyranosyl)-5*-O-*methyl-4-(methylamino)-D*-scyllo-*inositol, 9CI. Fortimicin KH. 3,4-Di*-epi-*fortimicin B*
[71772-09-3]



$C_{15}H_{32}N_4O_5$ 348.442

Aminocyclitol antibiotic. Minor prod. isol. from *Micromonospora olivoasterospora*. Weakly active against gram-positive and -negative bacteria. Powder. Sol. H_2O. $[\alpha]_D^{25}$ +88 (c, 1 in MeOH).

Hydrochloride (1:4): [71629-36-2]
$[\alpha]_D^{24}$ +56.5 (c, 1 in MeOH).

6-Epimer: ***Fortimicin AE***
[72843-38-0]
$C_{15}H_{32}N_4O_5$ 348.442
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Sol. H_2O.

Belg. Pat., 1979, 872 916; *CA*, **91**, 209359 (*isol, props*)

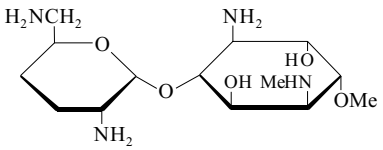
Kurath, P. *et al., J. Antibiot.*, 1979, **32**, 884 (*isol, props, pmr, cmr*)

Japan. Pat., 1979, 79 95 548; *CA*, **92**, 109099 (*isol*)

McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*struct*)

Fortimicin KE F-36

4-Amino-1,4-dideoxy-3-O-*(2,6-diamino-2,3,4,6-tetradeoxy-α-D-erythrohexopyranosyl)-6*-O-*methyl-1-(methylamino)-L*-chiro-*inositol, 9CI*
[67330-21-6]



$C_{14}H_{30}N_4O_5$ 334.415

Aminocyclitol antibiotic. Isol. from *Micromonospora olivoasterospora*. Weakly active against gram-positive and -negative bacteria. Amorph. powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. C_6H_6, butanol, hexane, EtOAc.
Mp 72-77°. $[\alpha]_D^{25}$ +28.5 (c, 0.5 in H_2O).

Ger. Pat., 1978, 2 748 530; *CA*, **89**, 105889 (*isol*)

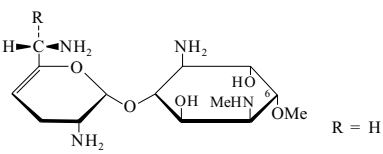
Sugimoto, M. *et al., J. Antibiot.*, 1979, **32**, 868 (*isol, props*)

Iida, T. *et al., J. Antibiot.*, 1979, **32**, 1273 (*isol, struct, pmr, cmr, ms*)

Shirhata, K. *et al., Carbohydr. Res.*, 1981, **92**, 169 (*cmr*)

Fortimicin KF F-37

4-Amino-3-O-*[3-amino-6-(aminomethyl)-3,4-dihydro-2*H-*pyran-2-yl]-1,4-dideoxy-6*-O-*methyl-1-(methylamino)-L*-chiro-*inositol, 9CI*
[71415-84-4]



R = H

$C_{14}H_{28}N_4O_5$ 332.399

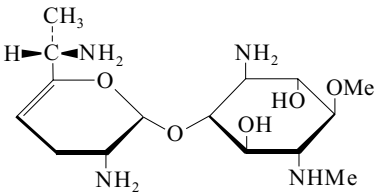
Aminocyclitol antibiotic. Isol. from *Micromonospora olivoasterospora*. Weakly active antibacterial agent. Powder + 1 H_2O. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. hexane, butanol, EtOAc.
Mp 69-72°. $[\alpha]_D^{24}$ +127 (c, 0.615 in H_2O).

Japan. Pat., 1979, 79 66 679; *CA*, **91**, 156031 (*isol, props*)

McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*struct*)

Fortimicin KG_1 F-38

[72541-31-2]



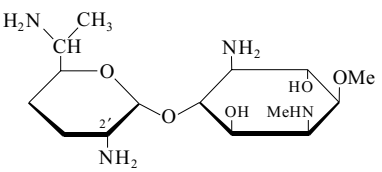
$C_{15}H_{30}N_4O_5$ 346.426

Aminocyclitol antibiotic. Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, hexane.
Mp 95-98°. $[\alpha]_D^{22}$ +58.3 (c, 0.66 in H_2O).

Ger. Pat., 1979, 2 908 150; *CA*, **92**, 74350 (*isol, props*)

Fortimicin KO_1 F-39

[73173-66-7]



$C_{15}H_{32}N_4O_5$ 348.442
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Powder. Sol. H_2O.
Mp 77-79°. $[\alpha]_D^{22}$ +79 (c, 0.3 in H_2O).

$N^{2'}$-*Aminoacetyl:* ***Fortimicin KO****. Isofortimicin*
[71241-90-2]
$C_{17}H_{35}N_5O_6$ 405.493
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Powder.
Mp 130-132°. $[\alpha]_D^{22}$ +93 (c, 0.3 in H_2O).

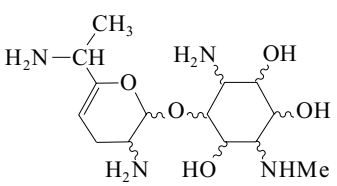
[71564-58-4]

Japan. Pat., 1979, 79 109 948; *CA*, **92**, 162176

McAlpine, J.B. *et al., ACS Symp. Ser.*, 1980, **125**, 295 (*isol*)

Fortimicin KQ F-40

[74667-51-9]

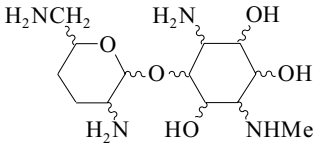


$C_{14}H_{28}N_4O_5$ 332.399
Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, EtOAc, hexane.
Mp 127-130°. $[\alpha]_D^{24}$ +15.5 (c, 0.11 in H_2O).

Japan. Pat., 1980, 80 45 631; *CA*, **93**, 184262 (*isol, props*)

Fortimicin KR$_1$ F-41

[74741-67-6]



$C_{13}H_{28}N_4O_5$ 320.388

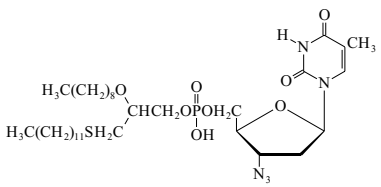
Aminocyclitol antibiotic. Isol. from *Micromonospora olivoasterospora*. Active against gram-positive and -negative bacteria. Powder.
Mp 125-128°. $[\alpha]_D^{24}$ +69.5 (c, 0.29 in H_2O).

Japan. Pat., 1980, 80 45 631; *CA*, **93**, 184262 (*isol, props*)

Fozivudine tidoxil, INN F-42

2-(Decyloxy)-3-(dodecylthio)propyl hydrogen 3′-azido-3′-deoxy-5′-thymidylate. BM 21.1290

[141790-23-0]



$C_{35}H_{64}N_5O_8PS$ 745.959

Antiviral agent. Solid. Mp 220-223° dec.

Ger. Pat., 1992, 4 026 265, (*Boehringer Mannheim*); *CA*, **117**, 8366d (*synth*)

Bogner, J.R. *et al., Antiviral Ther.*, 1997, **2**, 249-256; 257-264 (*pharmacol*)

Fructans F-43

A series of straight-chain and branched-chain glucose-fructose oligomers of which the simplest member is Sucrose, S-92. One straight-chain series consists of 6-Kestose, K-14 and higher members such as 6,6-Kestotetraose. The lower members of other series are exemplified by Neokestose, N-20, Nystose, N-87, Bifurcose, B-32 and 1-Kestose, K-13. All members characterised contain one terminal glucose residue and a variable number of fructose residues in a straight-chain or branching pattern. Accumulate during vegetative and reproductive growth of cereal grasses and other plants.

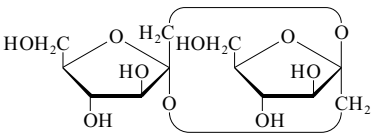
Chatterton, N.J. *et al., J. Plant Physiol.*, 1993, **142**, 552-556 (*bibl*)

Slaughter, L.H. *et al., Carbohydr. Res.*, 1994, **253**, 287-291 (*hplc*)

α-D-Fructofuranose β-D-fructofuranose 1,2′:2,1′-dianhydride, 9CI F-44

Di-D-fructofuranose 1,2′:2,1′-dianhydride. Difructose anhydride I

[97415-71-9]



$C_{12}H_{20}O_{10}$ 324.284

Formed by reversion of Fructose, F-84 in strong acid and during acid hydrol. of Inulin, I-38. Also by pyrolysis of Inulin I-38. Prod. from Inulin I-38 by *Aspergillus fumigatus*.
Mp 164° (160-162°). $[\alpha]_D^{20}$ +27 (c, 1.2 in H_2O).

Hexa-Ac: [97390-14-2]
$C_{24}H_{32}O_{16}$ 576.507
Dimorphic. Mp 124-125° Mp 135-136°. $[\alpha]_D^{20}$ -0.9 (c, 5.5 in $CHCl_3$). $[\alpha]_D$ +1.1 ($CHCl_3$).

6,6′-Dityityl, tetra-Ac: [161169-17-1]
$C_{58}H_{56}O_{14}$ 977.072
Mp 187-188°. $[\alpha]_D$ -1.9 (c, 20.8 in $CHCl_3$).

[3568-49-8]

Jackson, R.F. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1929, **3**, 27; 1930, **5**, 733

Haworth, W.N. *et al., Helv. Chim. Acta*, 1932, **15**, 693

Lemieux, R.U. *et al., Ann. Chim. Farm.*, 1964, **42**, 1270-1278 (*pmr*)

Tanaka, K. *et al., Carbohydr. Res.*, 1979, **75**, 340-344 (*enzymic synth*)

Defaye, J. *et al., Carbohydr. Res.*, 1985, **136**, 53-65 (*synth, cmr*)

Blize, A.E. *et al., Carbohydr. Res.*, 1994, **265**, 31-39 (*synth*)

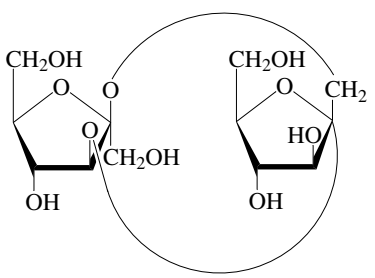
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **265**, 207-214 (*cryst struct, deriv*)

Fernandez, J.M.G. *et al., Carbohydr. Res.*, 1994, **265**, 249-269 (*synth*)

α-D-Fructofuranose β-D-fructofuranose 1′,2:2′,3-dianhydride, 9CI F-45

Difructose anhydride III

[81129-73-9]



$C_{12}H_{20}O_{10}$ 324.284

Formed by reversion of fructose in strong acid and during hydrol. of inulin. Also by pyrolysis of inulin and bacterial degradn. of inulin with *Arthrobacter ureafaciens*. Isol. from *Lycoris radiata*. Cryst. (EtOH).
Mp 162°. $[\alpha]_D^{20}$ +136 (c, 1.98 in H_2O).

Hexa-Me:
$C_{18}H_{32}O_{10}$ 408.445
Syrup. $[\alpha]_D$ +15.7 ($CHCl_3$).

Jackson, R.F. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1931, **6**, 709

McDonald, E.J. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1940, **24**, 181

Uchiyama, T. *et al., Carbohydr. Res.*, 1982, **101**, 138-140 (*cmr*)

Taniguchi, T. *et al., Carbohydr. Res.*, 1982, **107**, 255-262 (*cryst struct*)

Uchiyama, T. *et al., Agric. Biol. Chem.*, 1983, **47**, 437-439 (*synth, ir*)

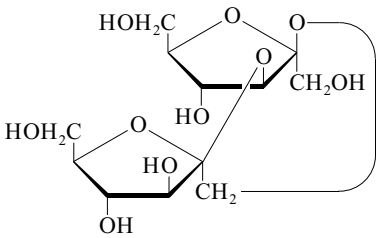
Blize, A.E. *et al., Carbohydr. Res.*, 1994, **265**, 31-39 (*synth, pmr, cmr*)

Li, H.Y. *et al., Carbohydr. Res.*, 1997, **299**, 301-305 (*isol, pmr, cmr*)

β-D-Fructofuranose β-D-fructofuranose 1,2′:2,3′-dianhydride F-46

Di-β-D-fructofuranose 1,2′:2,3′-dianhydride. Difructose anhydride II

[101623-07-8]



$C_{12}H_{20}O_{10}$ 324.284

Struct. formerly uncertain, settled in 1988. Formed by reversion of Fructose, F-84 in strong acid and during hydrol. of Inulin, I-38. Also by pyrolysis of inulin. Cryst. (EtOH). Mp 198° Mp 204.5-208°. $[\alpha]_D$ +13.8 (H_2O).

Hexa-Me:
$C_{18}H_{32}O_{10}$ 408.445
Mp 73°. $[\alpha]_D$ -28 ($CHCl_3$).

McDonald, E.J. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1940, **24**, 181

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 2867-2870 (*synth*)

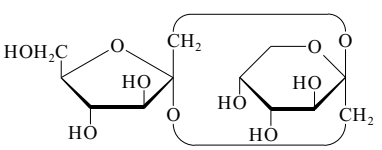
Taniguchi, T. *et al., Carbohydr. Res.*, 1988, **177**, 13-20 (*cryst struct*)

Blize, A.E. *et al., Carbohydr. Res.*, 1994, **265**, 31-39 (*synth, pmr, cmr*)

α-D-Fructofuranose β-D-fructopyranose 1,2′:2,1′-dianhydride, 9CI F-47

D-Fructofuranose D-fructopyranose 1,2′:2,1′-dianhydride. Diheterolevulosan II

[97415-70-8]



$C_{12}H_{20}O_{10}$ 324.284

Formed by reversion of fructose in strong acid and during acid hydrol. of inulin. Mp 257-260°. $[\alpha]_D^{20}$ -38 (c, 3.7 in H_2O).

Hexa-Ac: [97415-73-1]
$C_{24}H_{32}O_{16}$ 576.507
Mp 124-125°. $[\alpha]_D$ -41.5 ($CHCl_3$).

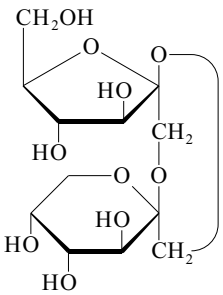
Hexa-Me:
$C_{18}H_{32}O_{10}$ 408.445
Mp 101-102°. $[\alpha]_D^{27}$ -22.5 (c, 1 in $CHCl_3$).

[70005-72-0]

Wolfrom, M.L. *et al., J.A.C.S.*, 1948, **70**, 2406; 1952, **74**, 2867
Lindberg, B. *et al., Acta Chem. Scand.*, 1953, **7**, 969
Defaye, J. *et al., Carbohydr. Res.*, 1985, **136**, 53 (*synth, cmr*)
Manley-Harris, M. *et al., Carbohydr. Res.*, 1992, **226**, 327 (*ms*)
Fernandez, J.M.G. *et al., Carbohydr. Res.*, 1994, **265**, 249 (*synth*)

β-D-Fructofuranose β-D-fructopyranose 1,2′:2,1′-dianhydride, 9CI F-48

Diheterolevulosan III
[50692-23-4]



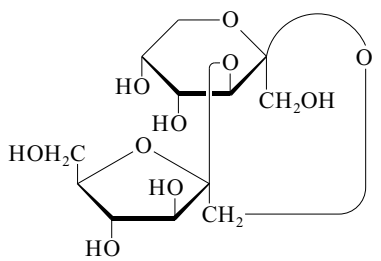
$C_{12}H_{20}O_{10}$ 324.284
Formed by reversion of fructose in strong acid and during acid hydrol. of inulin. Mp 240°. $[\alpha]_D^{20}$ -182 (c, 0.5 in H_2O).

Hexa-Ac: [50692-19-8]
$C_{24}H_{32}O_{16}$ 576.507
Mp 127.5-129°. $[\alpha]_D$ -155 (c, 1.1 in $CHCl_3$). Physical constants given in the early lit. may be incorrect.

Wolfrom, M.L. *et al., J.A.C.S.*, 1951, **73**, 3553
Wickberg, B. *et al., Acta Chem. Scand.*, 1954, **8**, 436
Defaye, J. *et al., Carbohydr. Res.*, 1985, **136**, 53 (*synth, cmr*)

β-D-Fructofuranose β-D-fructopyranose 1,2′:2,3′-dianhydride, 9CI F-49

[97398-95-3]



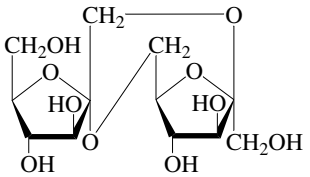
$C_{12}H_{20}O_{10}$ 324.284
Formed by reversion of fructose in strong acid and during acid hydrol. of inulin. Mp 206-207°. $[\alpha]_D^{20}$ -58.5 (c, 1.03 in H_2O).

Hexa-Ac: [97398-96-4]
$C_{24}H_{32}O_{16}$ 576.507
Mp 122-123°. $[\alpha]_D^{20}$ -86 (c, 1.4 in $CHCl_3$).

Defaye, J. *et al., Carbohydr. Res.*, 1985, **136**, 53 (*synth, cmr*)

α-D-Fructofuranose-β-D-fructofuranose 1,2′:2,6′-dianhydride F-50

[135463-09-1]



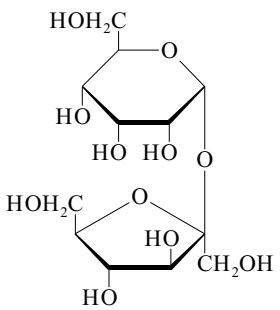
$C_{12}H_{20}O_{10}$ 324.284
Isol. from a culture of *Aspergillus fumigatus* grown on inulin. Cryst. (EtOH). Mp 201-203°. $[\alpha]_D^{20}$ +95.8 (c, 1.13 in H_2O).

Hexa-Ac: [135463-07-9]
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (EtOH). Mp 113°. $[\alpha]_D^{20}$ +47 (c, 0.40 in $CHCl_3$).

Matsuyama, J. *et al., Agric. Biol. Chem.*, 1991, **55**, 1413-1414 (*isol*)
Christian, T.J. *et al., J. Agric. Food Chem.*, 2000, **48**, 1823-1837 (*formn, cmr, pmr*)
Manley-Harris, M. *et al., J. Carbohydr. Chem.*, 2002, **22**, 1-8 (*cryst struct, hexa-Ac*)

β-D-Fructofuranosyl α-D-allopyranoside, 9CI F-51

[4217-76-9]



$C_{12}H_{22}O_{11}$ 342.299
Non-reducing sugar.

1,2′,3,3′,4,4′-Hexa-Ac: 1,3,4-Tri-O-acetyl-β-D-fructofuranosyl 2,3,4-tri-O-acetyl-α-D-allopyranoside
[75800-75-8]
$C_{24}H_{34}O_{17}$ 594.522
Syrup. $[\alpha]_D$ +36.5 (c, 0.3 in $CHCl_3$).

Octa-Ac: [75800-69-0]
$C_{28}H_{38}O_{19}$ 678.597
Syrup. $[\alpha]_D$ +39 (c, 1.45 in $CHCl_3$).

Octabenzoyl: [75800-70-3]
$C_{68}H_{54}O_{19}$ 1175.163
Mp 85-87°. $[\alpha]_D$ +70.1 (c, 0.33 in $CHCl_3$).

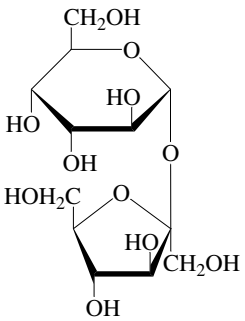
6,6′-Ditrityl, hexa-Ac: 1,3,4-Tri-O-acetyl-6-O-trityl-β-D-fructofuranosyl 2,3,4-tri-O-acetyl-6-O-trityl-α-D-allopyranoside
[75800-73-6]
$C_{62}H_{62}O_{17}$ 1079.162
Mp 175-177°. $[\alpha]_D$ +45.9 (c, 0.2 in $CHCl_3$).

1,6,6′-Tritrityl, penta-Ac: 3,4-Di-O-acetyl-1,6-di-O-trityl-β-D-fructofuranosyl 2,3,4-tri-O-acetyl-6-O-trityl-α-D-allopyranoside
[75800-72-5]
$C_{79}H_{74}O_{16}$ 1279.444
Mp 218°. $[\alpha]_D$ +54 (c, 0.3 in $CHCl_3$).

Hough, L. *et al., Carbohydr. Res.*, 1980, **84**, 95

β-D-Fructofuranosyl α-D-altropyranoside, 9CI F-52

altro-*Sucrose. α-D-Altropyranosyl β-D-fructofuranoside*

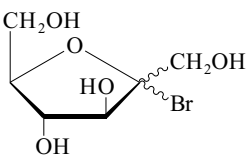


$C_{12}H_{22}O_{11}$ 342.299
Syrup. $[\alpha]_D^{20}$ +7 (c, 1 in H_2O). Not sweet.

Octa-Ac: [197716-05-5]
$C_{28}H_{38}O_{19}$ 678.597
Syrup. $[\alpha]_D^{20}$ -3.8 (c, 2.9 in $CHCl_3$).

Gurjar, M.K. *et al., Carbohydr. Res.*, 1986, **150**, 53 (*derivs*)
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1997, **303**, 293-302 (*synth, pmr, cmr*)

Fructofuranosyl bromide F-53



$C_6H_{11}BrO_5$ 243.054

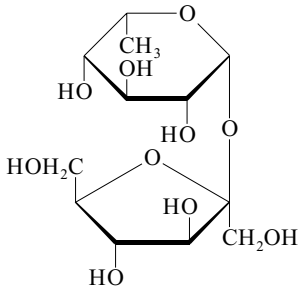
D-form

Tetrabenzoyl: 1,3,4,6-Tetra-O-benzoyl-D-fructofuranosyl bromide
[54401-13-7]
$C_{34}H_{27}BrO_9$ 659.486
Syrup. $[\alpha]_D^{20}$ +40.3 ($CHCl_3$).

Helferich, B. *et al., Chem. Ber.*, 1953, **86**, 651 (*tetrabenzoyl*)
Hrebabecky, H. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 2115 (*tetrabenzoyl*)
Chretien, F. *et al., J.C.S. Perkin 1*, 1988, 3297 (*use*)

β-D-Fructofuranosyl 6-deoxy-β-L-idopyranoside F-54

6-Deoxy-β-L-idopyranosyl β-D-fructofuranoside



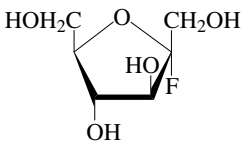
$C_{12}H_{22}O_{10}$ 326.3

Nonreducing disaccharide.

Hepta-Ac: [60117-40-0]
$C_{26}H_{36}O_{17}$ 620.56
Mp 176-179°. $[\alpha]_D$ -1.44 (c, 1.1 in $CHCl_3$).

Khan, R. *et al., Carbohydr. Res.*, 1976, **48**, 306

Fructofuranosyl fluoride F-55



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form*

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-α-D-fructofuranosyl fluoride*
[58634-84-7]
$C_{14}H_{19}FO_9$ 350.297
Syrup. $[\alpha]_D^{22}$ +45 ($CHCl_3$).

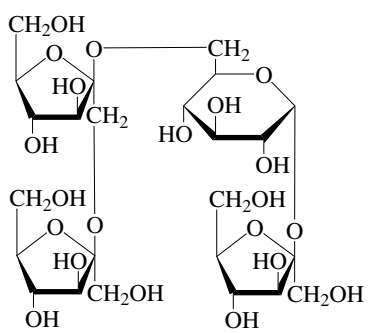
β-D-*form*

*Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-β-D-fructofuranosyl fluoride*
[475-02-5]
$C_{14}H_{19}FO_9$ 350.297
Syrup. $[\alpha]_D^{22}$ +36 ($CHCl_3$).

Erbing, B. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 12 (*tetra-Ac, cmr*)

β-D-Fructofuranosyl β-D-fructofuranosyl-(2→1)-β-D-fructofuranosyl-(2→6)-α-D-glucopyranoside F-56

[29837-38-5]



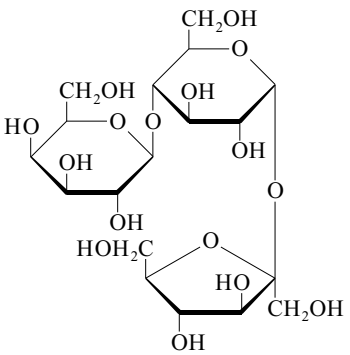
$C_{24}H_{42}O_{21}$ 666.583

A fructan. Isol. from the roots of *Asparagus officinalis* (asparagus).

Fukushi, E. *et al., Magn. Reson. Chem.*, 2000, **38**, 1005-1011 (*isol, pmr, cmr*)

β-D-Fructofuranosyl β-D-galactopyranosyl-(1→4)-α-D-glucopyranoside, 9CI F-57

*Lactosucrose. 4-*O*-β-D-Galactopyranosylsucrose*
[87419-56-5]



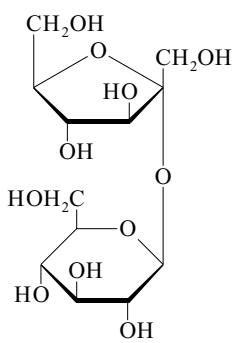
$C_{18}H_{32}O_{16}$ 504.441

Selectively enhances growth of bifidobacteria in human intestines. Cryst. V. sol. H_2O. Mp 181° (131°). $[\alpha]_D$ +59 (+44) (H_2O). Sweetness about 30% of sucrose.

Avigad, G. *et al., J. Biol. Chem.*, 1957, **229**, 121 (*enzymic synth*)
Tanaka, T. *et al., J. Biochem. (Tokyo)*, 1981, **90**, 521 (*enzymic synth*)
Minami, Y. *et al., Chem. Pharm. Bull.*, 1983, **31**, 1688 (*metab*)
Hara, K. *et al., CA*, 1991, **115**, 181572z (*use*)
Fujita, K. *et al., CA*, 1991, **115**, 181751g (*manuf*)
Eur. Pat., 1991, 382 355; *CA*, **114**, 163008v (*use*)

α-D-Fructofuranosyl β-D-glucopyranoside F-58

Isosucrose
[56086-34-1]



$C_{12}H_{22}O_{11}$ 342.299
$[\alpha]_D^{27}$ +52.3 (c, 0.9 in MeOH).

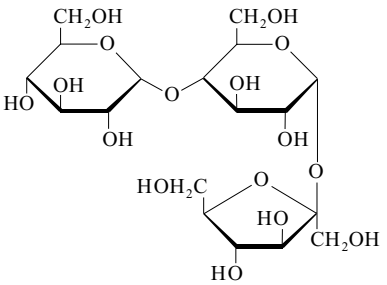
Octa-Ac: [27641-20-9]
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (Et_2O). Mp 129-130.5°. $[\alpha]_D^{20}$ +20 (c, 1 in $CHCl_3$).

Irvine, J.C. *et al., J.A.C.S.*, 1929, **51**, 1279 (*synth*)

Newkome, G.R. *et al., Carbohydr. Res.*, 1976, **48**, 1 (*synth, octa-Ac*)

β-D-Fructofuranosyl α-D-glucopyranosyl-(1→4)-D-glucopyranoside F-59

*α-Maltosylfructose. 4-*O*-α-D-Glucopyranosylsucrose. Erlose. Fructomaltose*



$C_{18}H_{32}O_{16}$ 504.441

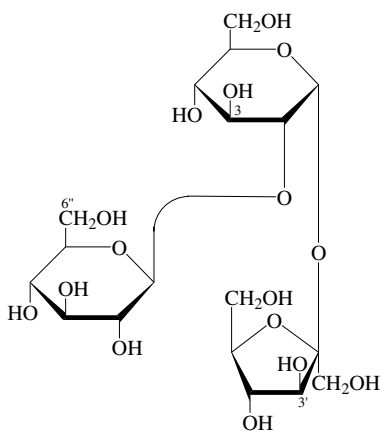
Occurs in *Aphis pemi* honeydew. Isol. from a honey invertase digest of sucrose. Shows anticarious props. Monohydrate or trihydrate.
Mp 118-124° dec. $[\alpha]_D^{25}$ +128.8 (c, 2.3 in H_2O).

Undeca-Ac: Mp 68-73°. $[\alpha]_D^{25}$ +86 (c, 1.2 in $CHCl_3$).

White, J.W. *et al., J.A.C.S.*, 1953, **75**, 1259 (*synth*)
Taga, T. *et al., Carbohydr. Res.*, 1993, **240**, 39; 1994, **251**, 203 (*cryst struct*)

β-D-Fructofuranosyl β-D-glucopyranosyl-(1→2)-α-D-glucopyranoside F-60

*2-*O*-β-D-Glucopyranosylsucrose*



$C_{18}H_{32}O_{16}$ 504.441

3′,4-Dibenzoyl: ***Telephiose C***
$C_{32}H_{40}O_{18}$ 712.657
Constit. of the roots of *Polygala telephioides*. Amorph. powder. $[\alpha]_D$ -19.5 (c, 0.48 in MeOH).

3′,4-Dibenzoyl, 1′,6-di-Ac: ***Telephiose A***
$C_{36}H_{44}O_{20}$ 796.732
Constit. of the roots of *Polygala telephioides*. Amorph. powder. $[\alpha]_D$ -11 (c, 0.45 in MeOH).

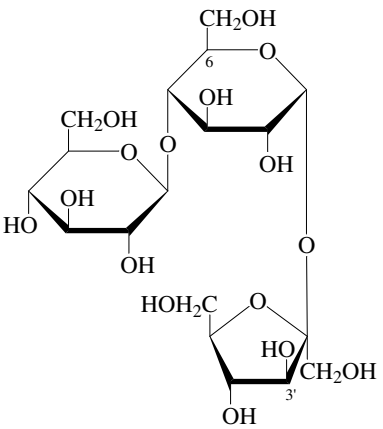
3′,4-Dibenzoyl, 1′,6″-di-Ac: ***Telephiose B***
$C_{36}H_{44}O_{20}$ 796.732

Constit. of the roots of *Polygala telephioides*. Amorph. powder. $[\alpha]_D$ -17.6 (c, 0.4 in MeOH).

Li, J.C. *et al., Chem. Pharm. Bull.*, 2000, **48**, 1223-1225 (*Telephioses*)

β-D-Fructofuranosyl β-D-glucopyranosyl-(1 →4)-α-D-glucopyranoside F-61

4-O-*β-D-Glucopyranosylsucrose*



$C_{18}H_{32}O_{16}$ 504.441

The structs. of the Arillatoses are not certain. Structs. shown as given here, but stated to have the isomeric glucosyl-(1 →3)-struct. in the text.

6-O-*(4-Hydroxy-3,5-dimethoxy*-E-*cinnamoyl):* ***Arillatose D***
[291744-65-5]
$C_{29}H_{42}O_{20}$ 710.639
Constit. of the roots of *Polygala arillata*. Amorph. powder. $[\alpha]_D^{27}$ +2 (c, 0.1 in MeOH). λ_{max} 239 (log ε 4.21); 330 (log ε 4.13) (MeOH).

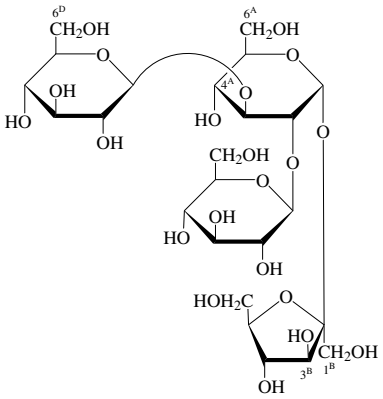
3′-O-*(4-Hydroxy-3,5-dimethoxy*-E-*cinnamoyl):* ***Arillatose F***
[291745-58-9]
$C_{29}H_{42}O_{20}$ 710.639
Constit. of the roots of *Polygala arillata*. Amorph. powder. $[\alpha]_D^{27}$ -4.5 (c, 0.1 in MeOH). λ_{max} 202 (log ε 4.5); 240 (log ε 4.17); 330 (log ε 4.12) (MeOH).

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl):* ***Arillatose C***
[291744-51-9]
$C_{28}H_{40}O_{19}$ 680.613
Constit. of the roots of *Polygala arillata*. Amorph. powder. $[\alpha]_D^{27}$ +15.8 (c, 0.13 in MeOH). λ_{max} 245 (log ε 3.81); 295 (log ε 3.75); 326 (log ε 3.83) (MeOH).

3′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl):* ***Arillatose E***
[291745-22-7]
$C_{28}H_{40}O_{19}$ 680.613
Constit. of the roots of *Polygala arillata*. Amorph. powder. $[\alpha]_D^{27}$ -20.6 (c, 0.09 in MeOH). λ_{max} 203 (log ε 4.44); 240 (log ε 4.05); 294 (log ε 3.94); 327 (log ε 4.01); 380 (log ε 3.35) (MeOH).

Kobayashi, W. *et al., J. Nat. Prod.*, 2000, **63**, 1066-1069

β-D-Fructofuranosyl β-D-glucopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →2)]-α-D-glucopyranoside F-62



$C_{24}H_{42}O_{21}$ 666.583

1^B,4^A-Bis(4-hydroxy-E-*cinnamoyl), 3^B-benzoyl, 6^A,6^D-di-Ac:* ***Reiniose G***
[162478-57-1]
$C_{53}H_{62}O_{28}$ 1147.056
Constit. of *Polygala reinii*. Powder + $7H_2O$. $[\alpha]_D^{20}$ -30.6 (c, 0.4 in MeOH).

1^B-(4-Hydroxy-3-methoxy-E-*cinnamoyl), 4^A-(4-hydroxy*-E-*cinnamoyl), 3^B-benzoyl, 6^A, 6^D-di-Ac:* ***Reiniose H***
[162478-58-2]
$C_{54}H_{64}O_{29}$ 1177.082
Constit. of *Polygala reinii*. Powder + $4H_2O$. $[\alpha]_D^{20}$ -15.7 (c, 1.1 in MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 4^A-(4-hydroxy-3-methoxy*-E-*cinnamoyl), 3^B-benzoyl, 6^A,6^D-di-Ac:* ***Glomeratose F***
$C_{54}H_{64}O_{29}$ 1177.082
Constit. of *Polygala glomerata*. Amorph. powder. $[\alpha]_D^{27}$ -5.9 (c, 1.3 in MeOH). λ_{max} 209 (sh) (log ε 4.39); 231 (log ε 4.49); 319 (log ε 4.49) (MeOH).

1^B,6^A-Bis(4-hydroxy-E-*cinnamoyl), 4^A-[β-D-glucopyranosyl-(1 →4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^D-Ac:* ***Glomeratose G***
$C_{67}H_{78}O_{35}$ 1443.332
Constit. of *Polygala glomerata*. Amorph. powder. $[\alpha]_D^{28}$ -15.5 (c, 0.4 in MeOH). λ_{max} 209 (log ε 4.75); 229 (log ε 4.7); 296 (sh) (log ε 4.67); 312 (log ε 4.71) (MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 4^A,6^D-bis(4-hydroxy-3-methoxy*-E-*cinnamoyl):* ***Dalmaisiose L***
$C_{53}H_{64}O_{29}$ 1165.071
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -19.9 (c, 0.47 in MeOH). λ_{max} 220 (log ε 4.6); 231 (log ε 4.62); 300 (log ε 4.64); 319 (log ε 4.73) (MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 4^A,6^D-bis(4-hydroxy-3-methoxy*-E-*cinnamoyl), 6^A-Ac:* ***Dalmaisiose M***
$C_{55}H_{66}O_{30}$ 1207.108
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -10.7 (c, 0.29 in MeOH). λ_{max} 220 (log ε 4.62); 231 (log ε 4.63); 300 (log ε 4.65); 320 (log ε 4.74) (MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1 →4)-4-hydroxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose D***
$C_{57}H_{70}O_{31}$ 1251.161
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -41.3 (c, 1 in MeOH). λ_{max} 228 (log ε 4.5); 300 (log ε 4.59); 309 (log ε 4.62) (MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1 →4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose E***
$C_{58}H_{72}O_{32}$ 1281.188
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -69 (c, 0.3 in MeOH). λ_{max} 230 (log ε 4.61); 299 (log ε 4.64); 313 (log ε 4.68) (MeOH).

1^B-(4-Hydroxy-3-methoxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1 →4)-4-hydroxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose F***
$C_{58}H_{72}O_{32}$ 1281.188
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -45.7 (c, 0.44 in MeOH). λ_{max} 229 (log ε 4.58); 298 (log ε 4.62); 310 (log ε 4.64) (MeOH).

1^B,6^D-Bis(4-hydroxy-E-*cinnamoyl), 4^A-(4-hydroxy-3-methoxy*-E-*cinnamoyl), 3^B-benzoyl:* ***Dalmaisiose J***
$C_{59}H_{66}O_{29}$ 1239.153
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -14.5 (c, 0.37 in MeOH). λ_{max} 230 (log ε 4.7); 301 (log ε 4.77); 316 (log ε 4.83) (MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1 →4)-4-hydroxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A,6^D-di-Ac:* ***Dalmaisiose B***
$C_{59}H_{72}O_{32}$ 1293.199
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -46 (c, 0.49 in MeOH). λ_{max} 210 (log ε 4.43); 228 (log ε 4.55); 300 (log ε 4.64); 309 (log ε 4.66) (MeOH).

1^B-(4-Hydroxy-3-methoxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1 →4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose G***
$C_{59}H_{74}O_{33}$ 1311.214
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -41.4 (c, 0.9 in MeOH). λ_{max} 219 (log ε 4.46); 233 (log ε 4.48); 297 (log ε 4.43); 323 (log ε 4.51) (MeOH).

1^B,4^A,6^D-Tris(4-hydroxy-E-*cinnamoyl), 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose H***
$C_{60}H_{66}O_{29}$ 1251.164
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -11.5 (c, 0.86 in MeOH). λ_{max} 211 (log ε 4.64); 229 (log ε 4.74); 300 (log ε 4.85); 313 (log ε 4.91) (MeOH).

1^B-(4-Hydroxy-3-methoxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1 →4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A,6^D-di-Ac:* ***Dalmaisiose C***
$C_{61}H_{76}O_{34}$ 1353.251

Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -67.8 (c, 0.2 in MeOH). λ_{max} 220 (log ε 4.53); 232 (log ε 4.54); 298 (log ε 4.48); 323 (log ε 4.54) (MeOH).

1^B,6^D-Bis(4-hydroxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1→4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose I***
$C_{67}H_{78}O_{34}$ 1427.333
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -66.2 (c, 1.07 in MeOH). λ_{max} 230 (log ε 4.73); 300 (log ε 4.8); 315 (log ε 4.84) (MeOH).

1^B,6^D-Bis(4-hydroxy-3-methoxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1→4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl:* ***Dalmaisiose P***
$C_{67}H_{80}O_{35}$ 1445.348
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -61.8 (c, 0.33 in MeOH). λ_{max} 219 (log ε 4.63); 232 (log ε 4.63); 298 (log ε 4.59); 323 (log ε 4.67) (MeOH).

1^B-(4-Hydroxy-E-*cinnamoyl), 6^D-(4-hydroxy-3-methoxy*-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1→4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose N***
$C_{68}H_{80}O_{35}$ 1457.359
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -67.9 (c, 0.4 in MeOH). λ_{max} 231 (log ε 4.58); 300 (log ε 4.57); 318 (log ε 4.63) (MeOH).

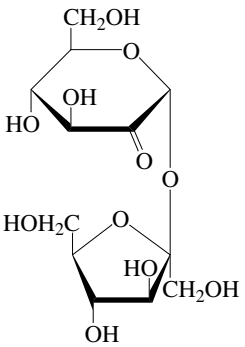
1^B-(4-Hydroxy-3-methoxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1→4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 6^D-(4-hydroxy*-E-*cinnamoyl), 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose K***
$C_{68}H_{80}O_{35}$ 1457.359
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -60.3 (c, 0.68 in MeOH). λ_{max} 220 (log ε 4.64); 231 (log ε 4.67); 300 (log ε 4.69); 318 (log ε 4.73) (MeOH).

1^B,6^D-Bis(4-hydroxy-3-methoxy-E-*cinnamoyl), 4^A-[α-L-rhamnopyranosyl-(1→4)-4-hydroxy-3-methoxy*-E-*cinnamoyl], 3^B-benzoyl, 6^A-Ac:* ***Dalmaisiose O***
$C_{69}H_{82}O_{36}$ 1487.385
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -61.5 (c, 1.2 in MeOH). λ_{max} 219 (log ε 4.68); 234 (log ε 4.69); 297 (log ε 4.65); 325 (log ε 4.75) (MeOH).

Saitoh, H. *et al., Chem. Pharm. Bull.*, 1994, **42**, 1879-1885
Zhang, D. *et al., Phytochemistry*, 1998, **47**, 45-52 (*Glomeratoses*)
Kobayashi, S. *et al., J. Nat. Prod.*, 2002, **65**, 319-328 (*Dalmaisioses*)

β-D-Fructofuranosyl α-D-*arabino*-hexopyranosid-2-ulose, 9CI F-63

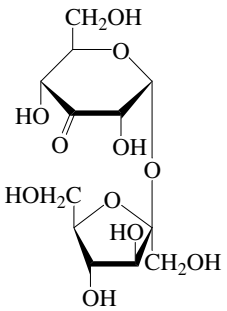
2-Ketosucrose
[78261-84-4]



$C_{12}H_{20}O_{11}$ 340.283
Produced from sucrose by *Agrobacterium tumefaciens*. Syrup. $[\alpha]_D$ +19.6 (c, 0.25 in H_2O).
Hough, L. *et al., Carbohydr. Res.*, 1981, **92**, 314-317 (*synth*)

β-D-Fructofuranosyl α-D-*ribo*-hexopyranosid-3-ulose, 9CI F-64

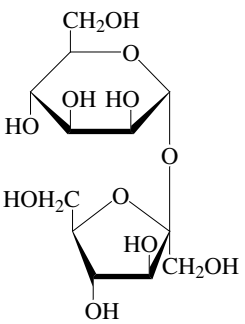
3-Ketosucrose
[1883-12-1]



$C_{12}H_{20}O_{11}$ 340.283
Produced from sucrose by *Agrobacterium tumefaciens*. $[\alpha]_D$ +22.5 (c, 0.2 in H_2O).
Kurowski, W.M. *et al., J. Appl. Chem. Biotechnol.*, 1978, **28**, 638-640 (*manuf*)
Hough, L. *et al., Carbohydr. Res.*, 1980, **84**, 95-102; 1981, **92**, 314-317 (*synth, purifn*)

β-D-Fructofuranosyl α-D-mannopyranoside, 9CI F-65

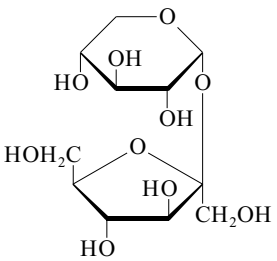
[79324-70-2]



$C_{12}H_{22}O_{11}$ 342.299
Syrup. $[\alpha]_D^{20}$ +19.1 (c, 1.2 in H_2O). 5 times less sweet than Sucrose, S-92.
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1997, **303**, 293-302 (*synth, pmr, cmr*)

β-D-Fructofuranosyl α-D-xylopyranoside, 9CI F-66

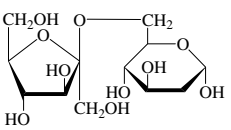
α-D-Xylopyranosyl β-D-fructofuranoside
[512-66-3]



$C_{11}H_{20}O_{10}$ 312.273
Non-reducing disaccharide. Synth. by the transferase action of *Aerobacter levanicum* levansucrase on raffinose in the presence of xylose. Also formed by the reversal of normal levan synthesis when *Bacillus subtilis* levansucrase acts on levan plus xylose.
$[\alpha]_D$ +62 (H_2O).
Avigad, G. *et al., Biochim. Biophys. Acta*, 1956, **22**, 196 (*synth*)
Peaud-Lenoel, C. *et al., Bull. Soc. Chim. Biol.*, 1957, **39**, 747
Tanaka, T. *et al., J. Biochem. (Tokyo)*, 1981, **90**, 521 (*synth*)

6-*O*-β-D-Fructofuranosyl-2-deoxy-D-glucose F-67

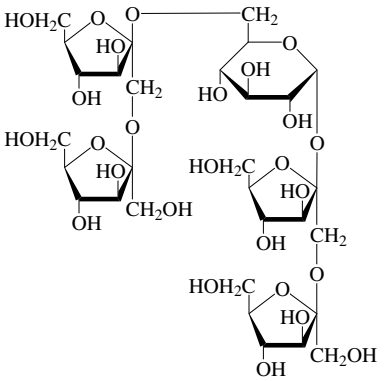
6-O-*β-D-Fructofuranosyl-2-deoxy-D*-arabino-*hexose, 9CI*
[57440-92-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Isolated from plants (tobacco, horseradish and peas) which had been fed 2-deoxyglucose.
$[\alpha]_D^{20}$ +28.2 (c, 0.91 in H_2O).
Barber, G.A. *et al., J.A.C.S.*, 1959, **81**, 3722 (*isol*)
Zemek, J. *et al., Z. Pflanzenphysiol.*, 1975, **76**, 114; *CA*, **84**, 13358g

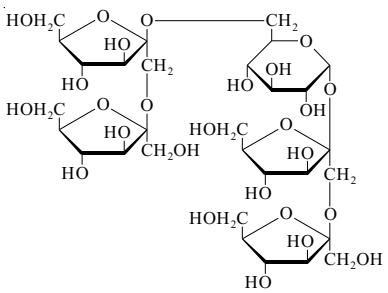
β-D-Fructofuranosyl-(2 →1)-β-D-fructofuranosyl β-D-fructofuranosyl-(2 →1)-β-D-fructofuranosyl-(2 →6)-α-D-glucopyranoside F-68



$C_{30}H_{52}O_{26}$ 828.725
Prod. by *Penicillium citrium*.

Yang, H. *et al., Magn. Reson. Chem.*, 2003, **41**, 223-226 (*isol, pmr, cmr*)

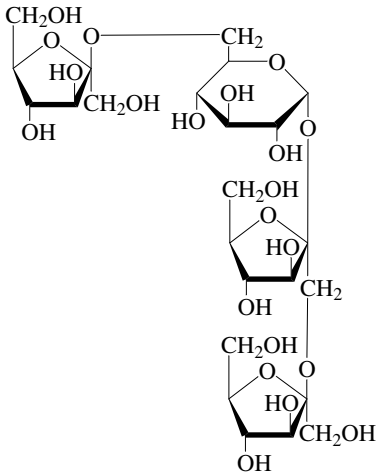
β-D-Fructofuranosyl-(2 →1)-β-D-fructofuranosyl β-D-fructofuranosyl-(2 →1)-β-D-fructofuranosyl-(2 →6)-α-D-glucopyranoside, 9CI F-69
β-D-Fructofuranosyl-(2 →1)-β-D-fructofuranosyl-(2 →6)-α-D-glucopyranosyl-(1 →2)-β-D-fructofuranosyl β-D-fructofuranoside
[71231-05-5]



$C_{30}H_{52}O_{26}$ 828.725
Isol. from the roots of asparagus (*Asparagus officinalis*).
$[\alpha]_D^{20}$ -6.6 (H_2O).

Shiomi, N. *et al., Agric. Biol. Chem.*, 1979, **43**, 1375 (*isol*)

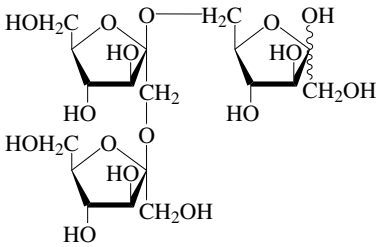
β-D-Fructofuranosyl-(2 →1)-β-D-fructofuranosyl β-D-fructofuranosyl-(2 →6)-α-D-glucopyranoside F-70
[29837-39-6]



$C_{24}H_{42}O_{21}$ 666.583
A fructan. Isol. from the roots of *Asparagus officinalis* (asparagus).

Fukushi, E. *et al., Magn. Reson. Chem.*, 2000, **38**, 1005-1011 (*isol, pmr, cmr*)

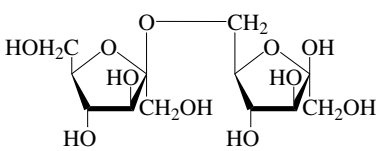
β-D-Fructofuranosyl-(2 →1)-β-D-fructofuranosyl-(2 →6)-D-fructose F-71
[380383-44-8]



$C_{18}H_{32}O_{16}$ 504.441
Isol. from chicory. Not obt. in pure state.

Timmermans, J.W. *et al., J. Carbohydr. Chem.*, 2001, **20**, 375-395 (*isol, pmr, cmr*)

6-*O*-β-D-Fructofuranosyl-D-fructose, 9CI, 8CI F-72
Levanbiose
[17669-60-2]



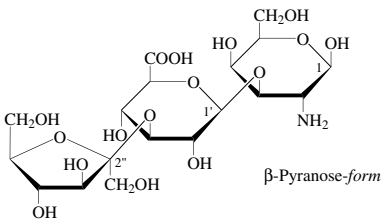
β-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from the hydrolysates of Levan, L-34. Present in chicory.
$[\alpha]_D^{17}$ -21 (H_2O).

Schlubach, H.H. *et al., Annalen*, 1955, **595**, 224 (*isol*)

Aspinall, G.O. *et al., J.C.S.*, 1955, 1106 (*isol*)
Avigad, G. *et al., Carbohydr. Res.*, 1967, **5**, 417 (*chromatog*)
Tanaka, T. *et al., J. Biochem. (Tokyo)*, 1981, **90**, 521 (*occur*)
Liu, J. *et al., Carbohydr. Res.*, 1992, **232**, 1 (*conformn*)
Timmermans, J.W. *et al., J. Carbohydr. Chem.*, 2001, **20**, 375-395 (*isol, pmr, cmr*)

β-D-Fructofuranosyl-(2 →3)-β-D-glucopyranuronosyl-(1 →3)-2-amino-2-deoxy-D-galactose F-73



β-Pyranose-*form*

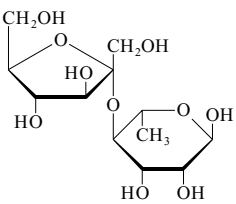
$C_{18}H_{31}NO_{16}$ 517.44
Repeat unit of the K4-specific capsular polysaccharide of *Escherichia coli* 05:K4:H4.

β-Pyranose-*form*

N-*Ac:* [117823-30-0]
$C_{20}H_{33}NO_{17}$ 559.477
Syrup.

Rodriguez, M.L. *et al., Eur. J. Biochem.*, 1988, **177**, 117 (*occur, pmr*)

4-*O*-α-D-Fructofuranosyl-L-rhamnose F-74
*6-Deoxy-4-*O*-α-D-fructofuranosyl-L-mannose*



α–Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3

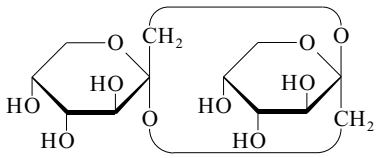
α-Pyranose-*form*

*Me glycoside, 2,3-*O*-isopropylidene, tetrabenzoyl:* [80763-59-3]
$C_{44}H_{44}O_{14}$ 796.823
$[\alpha]_D^{20}$ -11 (c, 1 in $CHCl_3$).

Bakinovskii, L.V. *et al., Carbohydr. Res.*, 1982, **99**, 189

α-D-Fructopyranose β-D-fructopyranose 1,2′:2,1′-dianhydride, 9CI F-75

Di-D-fructopyranose 1,2′:2,1′-dianhydride. Diheterolevulosan I
[97415-69-5]



$C_{12}H_{20}O_{10}$ 324.284
Formed by the reversion of fructose in strong acid and during acid hydrolysis of inulin. Mp 290° (266-267°). $[\alpha]_D^{20}$ -45 (c, 6 in H_2O).

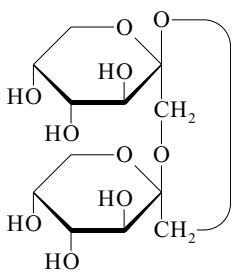
Hexa-Ac: [97415-72-0]
$C_{24}H_{32}O_{16}$ 576.507
Mp 171-173°. $[\alpha]_D$ -57 (c, 3.5 in $CHCl_3$).

[70051-51-3]

Lindberg, B. *et al., Acta Chem. Scand.*, 1953, **7**, 969
Boggs, L.A. *et al., J.A.C.S.*, 1956, **78**, 1878
Defaye, J. *et al., Carbohydr. Res.*, 1985, **136**, 53 (*synth, cmr*)
Manley-Harris, M. *et al., Carbohydr. Res.*, 1992, **226**, 327 (*ms*)

β-D-Fructopyranose β-D-fructopyranose 1,2′:2,1′-dianhydride F-76

Di-β-D-fructopyranose 1,2′:2,1′-dianhydride. Diheterolevulosan IV
[50692-24-5]



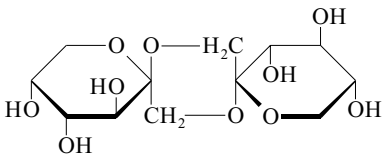
$C_{12}H_{20}O_{10}$ 324.284
Formed by reversion of fructose in strong acid and during acid hydrol. of inulin. Mp 275-277°. $[\alpha]_D^{20}$ -313 (c, 3.5 in H_2O).

Hexa-Ac: [50692-20-1]
$C_{24}H_{32}O_{16}$ 576.507
Mp 269-270°. $[\alpha]_D$ -195 (c, 1.1 in $CHCl_3$). Physical constants given in the early lit. may be incorrect.

Wickberg, B. *et al., Acta Chem. Scand.*, 1954, **8**, 436
Defaye, J. *et al., Carbohydr. Res.*, 1985, **136**, 53 (*synth, cmr*)

β-D-Fructopyranose α-D-sorbopyranose 1,2′:2,1′-dianhydride F-77

[137253-46-4]



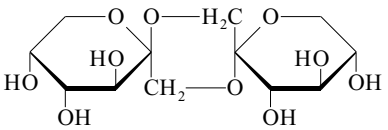
$C_{12}H_{20}O_{10}$ 324.284
Major prod. (57%) from a mixt. of D-sorbose + D-fructose + HF. Cryst. (EtOH aq.). Mp 210° dec. $[\alpha]_D^{20}$ -43 (c, 1.4 in H_2O).

Hexa-Ac: [137253-47-5]
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (CH_2Cl_2/EtOH). Mp 236-238°. $[\alpha]_D^{20}$ -42 (c, 2.2 in $CHCl_3$).

Bock, K. *et al., Carbohydr. Res.*, 1991, **216**, 141 (*synth, pmr, cmr*)

β-D-Fructopyranose α-L-sorbopyranose 1,2′:2,1′-dianhydride F-78

[137253-48-6]

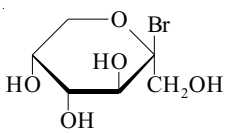


$C_{12}H_{20}O_{10}$ 324.284
Cryst. (MeOH/EtOH). Mp 194-196°. $[\alpha]_D^{20}$ -272 (c, 0.6 in H_2O).

Hexa-Ac: [137253-49-7]
$C_{24}H_{32}O_{16}$ 576.507
Mp 229-231°. $[\alpha]_D^{20}$ -157 (c, 1.1 in $CHCl_3$).

Bock, K. *et al., Carbohydr. Res.*, 1991, **216**, 141 (*synth, pmr, cmr*)

Fructopyranosyl bromide F-79



$C_6H_{11}BrO_5$ 243.054

β-D-*form*

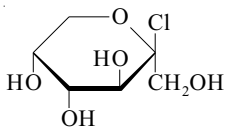
*Tetra-Ac: 1,3,4,5-Tetra-*O*-acetyl-β-D-fructopyranosyl bromide*
[14218-13-4]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (Et_2O). Mp 65°. $[\alpha]_D^{20}$ -189.1 ($CHCl_3$).

*1,4,5-Tribenzoyl, 3-mesyl: 1,4,5-Tri-*O*-benzoyl-3-*O*-mesyl-β-D-fructopyranosyl bromide*
$C_{28}H_{25}BrO_{10}S$ 633.469
Cryst. (Et_2O/pentane). Mp 157-158° dec. $[\alpha]_D^{20}$ -207 (c, 0.96 in CH_2Cl_2).

*Tetrakis(*p*-nitrobenzoyl):* [70551-21-2]
Cryst. (Et_2O/$CHCl_3$). Mp 162-163°. $[\alpha]_D^{25}$ -170 (c, 1.2 in $CHCl_3$).

Brauns, D.H. *et al., J.A.C.S.*, 1923, **45**, 2381 (*β-tetra-Ac*)
Yamana, S. *et al., J.O.C.*, 1966, **31**, 3698 (*β-tetra-Ac*)
Ness, R.K. *et al., J.O.C.*, 1968, **33**, 181 (*β-tribenzoyl*)
Steinlin, H. *et al., Helv. Chim. Acta*, 1979, **62**, 378 (*β-tetranitrobenzoyl, pmr, cmr*)

Fructopyranosyl chloride F-80



$C_6H_{11}ClO_5$ 198.603

β-D-*form*

*Tetra-Ac: 1,3,4,5-Tetra-*O*-acetyl-β-D-fructopyranosyl chloride*
[14262-86-3]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (EtOH). Mp 108°. $[\alpha]_D^{20}$ +45.3 ($CHCl_3$).

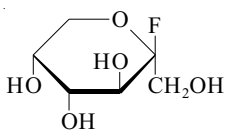
*1,4,5-Tribenzoyl, 3-mesyl: 1,4,5-Tri-*O*-benzoyl-3-*O*-mesyl-β-D-fructopyranosyl chloride*
[15080-06-5]
$C_{28}H_{25}ClO_{10}S$ 589.018
Cryst. (Et_2O/pentane). Mp 161-163°. $[\alpha]_D^{20}$ -178 (c, 0.98 in CH_2Cl_2).

*Tetrabenzoyl: 1,3,4,5-Tetra-*O*-benzoyl-β-D-fructopyranosyl chloride*
[70551-23-4]
$C_{34}H_{27}ClO_9$ 615.035
Liq. $[\alpha]_D^{25}$ -149.6 (c, 1.3 in $CHCl_3$).

*Tetrakis(*p*-nitrobenzoyl):* [70551-20-1]
Cryst. (CH_2Cl_2/Et_2O). Mp 200-203°. $[\alpha]_D^{25}$ -193 (c, 1 in $CHCl_3$).

Brauns, D.H. *et al., J.A.C.S.*, 1920, **42**, 1846 (*β-tetra-Ac*)
Ness, R.K. *et al., J.O.C.*, 1968, **33**, 181 (*β-tribenzoyl*)
Steinlin, H. *et al., Helv. Chim. Acta*, 1979, **62**, 378 (*β-tetrabenzoyl, ir, pmr, cmr*)

Fructopyranosyl fluoride F-81



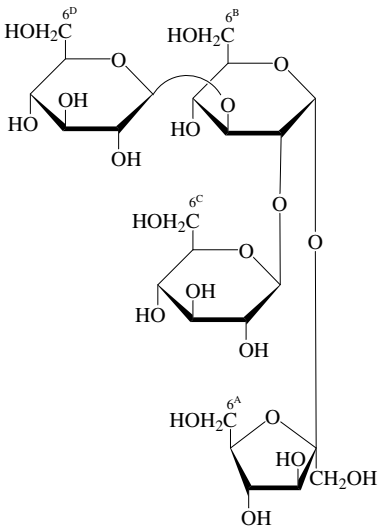
$C_6H_{11}FO_5$ 182.148

β-D-*form*

*Tetra-Ac: 1,3,4,5-Tetra-*O*-acetyl-β-D-fructopyranosyl fluoride*
[2823-45-2]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (EtOH). V. sol. $CHCl_3$; spar. sol. EtOH, petrol. Mp 112°. $[\alpha]_D^{20}$ -90.4 ($CHCl_3$). Stable at r.t.

Brauns, D.H. *et al., J.A.C.S.*, 1923, **45**, 2381 (*β-tetra-Ac*)
Yamana, S. *et al., J.O.C.*, 1966, **31**, 3698 (*β-tetra-Ac*)

β-D-Fructopyranosyl β-D-glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-β-D-glucopyranoside F-82



$C_{24}H_{42}O_{21}$ 666.583

4^B-(4-Hydroxycinnamoyl), 1^A,3^A-dibenzoyl, 6^B,6^D-di-Ac: ***Watterose H***
$C_{51}H_{60}O_{27}$ 1105.019
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -41.2 (c, 1.9 in MeOH). λ_{max} 230 (log ϵ 4.53); 283 (log ϵ 4.11); 301 (log ϵ 4.28); 314 (log ϵ 4.35) (MeOH).

1^A-(3,4-Dihydroxycinnamoyl), 4^B-(4-hydroxycinnamoyl), 3^A-benzoyl: ***Watterose D***
$C_{49}H_{58}O_{27}$ 1078.981
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ +17.5 (c, 1 in MeOH). λ_{max} 223 (log ϵ 4.57); 232 (log ϵ 4.61); 257 (log ϵ 4.31); 301 (log ϵ 4.51); 391 (log ϵ 4.6) (MeOH).

1^A-(3,4-Dihydroxycinnamoyl), 4^B-O-(4-hydroxycinnamoyl), 3^A-benzoyl, 6^D-Ac: ***Watterose C***
$C_{51}H_{60}O_{28}$ 1121.018
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -6.6 (c, 1.1 in MeOH). λ_{max} 223 (log ϵ 4.45); 230 (log ϵ 4.55); 300 (log ϵ 4.53); 321 (log ϵ 4.6) (MeOH).

4^B-(3,4-Dihydroxycinnamoyl),1^A,3^A-dibenzoyl, 6^D-Ac: ***Watterose I***
$C_{49}H_{58}O_{27}$ 1078.981
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -46.8 (c, 1 in MeOH). λ_{max} 224 (log ϵ 4.47); 231 (log ϵ 4.49); 284 (log ϵ 4.01); 301 (log ϵ 4.16); 328 (log ϵ 4.28) (MeOH).

1^A,6^B-Bis-(3,4-dihydroxycinnamoyl), 3^A-benzoyl, 6^D-Ac: ***Watterose J***
$C_{51}H_{60}O_{29}$ 1137.018
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{27}$ -39 (c, 1.2 in MeOH). λ_{max} 221 (log ϵ 4.57); 234 (log ϵ 4.52); 300 (log ϵ 4.44); 329 (log ϵ 4.55) (MeOH).

1^A,4^B-Bis-(3,4-dihydroxycinnamoyl), 3^A-benzoyl, 6^B,6^D-di-Ac: ***Watterose G***
$C_{53}H_{62}O_{30}$ 1179.055
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -12.1 (c, 1.3 in MeOH). λ_{max} 221 (log ϵ 4.47); 233 (log ϵ 4.43); 300 (log ϵ 4.33); 331 (log ϵ 4.48) (MeOH).

1^A-(3,4-Dihydroxycinnamoyl), 4^B-(4-hydroxycinnamoyl), 3^A-benzoyl, 6^B,6^D-di-Ac: ***Watterose B***
$C_{53}H_{62}O_{29}$ 1163.055
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -5 (c, 1 in MeOH). λ_{max} 222 (log ϵ 4.46); 231 (log ϵ 4.47); 301 (log ϵ 4.48); 319 (log ϵ 4.55) (MeOH).

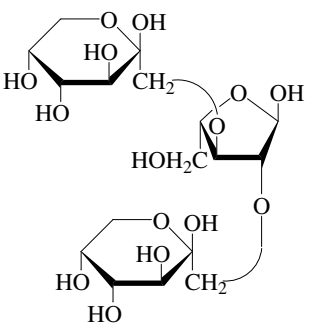
1^A-(4-Hydroxy-3-methoxycinnamoyl), 4^B-(4-hydroxycinnamoyl), 3^A-benzoyl, 6^D-Ac: ***Watterose A***
$C_{52}H_{62}O_{28}$ 1135.045
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -25.7 (c, 0.98 in MeOH). λ_{max} 221 (log ϵ 4.45); 231 (log ϵ 4.5); 300 (log ϵ 4.5); 320 (log ϵ 4.59) (MeOH).

4^B-(4-Hydroxy-3-methoxycinnamoyl), 1^A-(3,4-dihydroxycinnamoyl), 3^A-benzoyl, 6^D-Ac: ***Watterose F***
$C_{52}H_{62}O_{29}$ 1151.044
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -8 (c, 1 in MeOH). λ_{max} 221 (log ϵ 4.46); 233 (log ϵ 4.44); 300 (log ϵ 4.37); 329 (log ϵ 4.52) (MeOH).

4^B-(4-Hydroxy-3-methoxycinnamoyl), 1^A-(3,4-dihydroxycinnamoyl), 3^A-benzoyl, 6^B,6^D-di-Ac: ***Watterose E***
$C_{54}H_{64}O_{30}$ 1193.082
Constit. of *Polygala wattersii*. Amorph. powder. $[\alpha]_D^{23}$ -9.1 (c, 1.3 in MeOH). λ_{max} 221 (sh) (log ϵ 4.52); 233 (sh) (log ϵ 4.49); 300 (log ϵ 4.41); 329 (log ϵ 4.57) (MeOH).

Kobayashi, W. *et al., J. Nat. Prod.*, 2000, **63**, 1121-1126

β-D-Fructopyranosyl-(1 → 2)[β-D-fructopyranosyl-(1 →3)]-L-arabinose F-83



$C_{17}H_{30}O_{15}$ 474.415

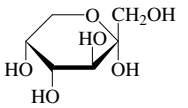
α-Furanose-*form*

Tris-Me glycoside:
$C_{20}H_{36}O_{15}$ 516.495
Constit. of the stems of *Epigynum aurilum*. Oil. $[\alpha]_D^{25}$ -79.3 (c, 0.95 in MeOH).

Cao, J.-X. *et al., Acta Chim. Sin. (Engl. edn.)*, 2003, **21**, 1665-1668 (*isol, pmr, cmr, ms*)

Fructose, 9CI, 8CI F-84

Levulose. arabino-*Hexulose. Fruit sugar. Laevulose. α-Acrose*
[30237-26-4]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

Equilib. difficult to study, but an aq. soln. prob. contains approx. 70-75% β-Pyr, 20-23% β-Fur, 5% α-Fur, 0-2% α-Pyr and 0-0.7% open-chain forms. In Py and DMSO soln. there are higher proportions of furanose forms. α-Acrose was apparently an old synonym for the racemate.

D-*form* [57-48-7]
Prepd. on large scale from invert sugar (hydrol. prod. of sucrose with dil. acid) or hydrolysed natural inulins. Fructose can be separated from glucose by precipitation of its Ca salt complex. Inulin from dandelion roots has also been used as a source. Occurs in honey, a large number of fruits, particularly apples and tomatoes, and detected in mammalian semen. Present in polymeric form in the inulins, the energy reserve polysaccharides of many plants, e.g. dahlia and Jerusalem artichoke tubers, and in Levan, L-34 which is found in grasses. Sucrose consists of fructofuranose glycosidically linked to the anomeric centre of D-glucopyranose. Fluid and nutrient replenisher, nutritive sweetener.
Mp 102-104°. $[\alpha]_D$ -133.5. $[\alpha]_D$ -92.4 (c, 4 in H_2O). pK_{a1} 12.03 (25°). Sweetness = 0.84 × sucrose (sometimes stated to be sweeter than sucrose).
▶ Gastrointestinal effects by ingestion (large dose).

Fe^{3+} complex: See Ferric fructose, F-2

p-*Nitrophenylhydrazone:* Mp 180-181°.

Anilide: Mp 147°. $[\alpha]_D$ -194 (EtOH).

1-Phosphate: See Fructose 1-dihydrogen phosphate, F-87

2-Phosphate: See Fructose 2-dihydrogen phosphate, F-88

6-Phosphate: See Fructose 6-dihydrogen phosphate, F-89

1,6-Diphosphate: See Fructose 1,6-bis(dihydrogen phosphate), F-85

1,3,4,5,6-Penta-Ac: 1,3,4,5,6-Penta-O-acetyl-D-fructose
[6341-07-7]
$C_{16}H_{22}O_{11}$ 390.343
Mp 68-69°. $[\alpha]_D$ +34.8 ($CHCl_3$).

1,3,4,5,6-Pentabenzoyl: 1,3,4,5,6-Penta-O-benzoyl-D-fructose
[83032-14-8]
$C_{41}H_{32}O_{11}$ 700.697
Mp 125°. $[\alpha]_D$ +40.9 ($CHCl_3$).

1-O-(3,4,5-Trihydroxybenzoyl): ***1-O-Galloylfructose***
[94356-19-1]

$C_{13}H_{16}O_{10}$ 332.263
Isol. from commercial rhubarb (*Rheum* sp.). Needles + ½H_2O (H_2O).
Mp 168-169°. $[\alpha]_D^{25}$ -41.2 (c, 0.59 in MeOH). Exists as an equilibrated mixt. of α- and β-furanose and β-pyranose-forms.

6-O-(3,4,5-Trihydroxybenzoyl): **6-O-*Galloylfructose***
[115713-47-8]
$C_{13}H_{16}O_{10}$ 332.263
Constit. of *Saxifraga stellaris*. Glass. $[\alpha]_D^{21}$ +30.8 (c, 0.1 in MeOH). Anomeric mixture of furanose forms.

Di-Et dithioacetal:
$C_{10}H_{22}O_5S_2$ 286.413
Mp 67°. $[\alpha]_D$ +35.8 (MeOH).

Di-Et dithioacetal, 1,3,4,5,6-penta-Ac:
[7621-93-4]
$C_{20}H_{32}O_{10}S_2$ 496.599
Mp 80-81°. $[\alpha]_D$ +20 ($CHCl_3$).

1,3,4,6-Tetrabenzyl: 1,3,4,6-Tetra-O-*benzyl-D-fructose*
[28697-72-5]
$C_{34}H_{36}O_6$ 540.655
Cryst. (diisopropyl ether/pentane). Mp 42-43°. $[\alpha]_D^{20}$ +6.5 → +8.7 (c, 1.4 in $CHCl_3$).

α-D-Pyranose-*form* [10489-81-3]

Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-α-D-fructopyranose*
[20764-62-9]
$C_{16}H_{22}O_{11}$ 390.343
Mp 122-123°. $[\alpha]_D$ +47.4 ($CHCl_3$).

Me glycoside: See Methyl fructopyranoside, M-182

β-D-Pyranose-*form* [7660-25-5]
► LS7000000

1,3,4,5-Tetra-Ac: 1,3,4,5-Tetra-O-*acetyl-β-D-fructopyranose*
[55221-54-0]
$C_{14}H_{20}O_{10}$ 348.306
Mp 131-132°. $[\alpha]_D$ -91.6 ($CHCl_3$).

Penta-Ac: 1,2,3,4,5-Penta-O-*acetyl-β-D-fructopyranose*
[20764-61-8]
$C_{16}H_{22}O_{11}$ 390.343
Mp 108-109°. $[\alpha]_D$ -120.9 ($CHCl_3$).

1,3,4,5-Tetrabenzoyl: 1,3,4,5-Tetra-O-*benzoyl-β-D-fructopyranose*
[7143-89-7]
$C_{34}H_{28}O_{10}$ 596.589
Cryst. (EtOH). Mp 174-175°. $[\alpha]_D^{20}$ -165 ($CHCl_3$).

1,3,4,5-Tetrabenzoyl, 2-Ac: 2-O-*Acetyl-1,3,4,5-tetra*-O-*benzoyl-β-D-fructopyranose*
$C_{36}H_{30}O_{11}$ 638.626
Mp 112-113°. $[\alpha]_D$ -160.7 ($CHCl_3$).

1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenefructose, I-62

1,2:4,5-Di-O-*isopropylidene:* See 1,2:4,5-Di-*O*-isopropylidenefructopyranose, D-714

1,2:4,5-Di-O-*cyclohexylidene: 1,2:4,5-Di*-O-*cyclohexylidene-β-D-fructopyranose*
[18608-92-9]
$C_{18}H_{28}O_6$ 340.416
Mp 142-145°. $[\alpha]_D$ -123 (Me_2CO).

2,3:4,5-Di-O-*isopropylidene:* See 2,3:4,5-Di-*O*-isopropylidenefructopyranose, D-715

2,3:4,5-Di-O-*benzylidene: 2,3:4,5-Di*-O-*benzylidene-β-D-fructopyranose*
[35521-92-7]
$C_{20}H_{20}O_6$ 356.374
Mp 160°. $[\alpha]_D$ -22.9 ($CHCl_3$).

2,3:4,5-Di-O-*benzylidene, 1-Ac: 1*-O-*Acetyl-2,3:4,5-di*-O-*benzylidene-β-D-fructopyranose*
[35521-93-8]
$C_{22}H_{22}O_7$ 398.412
Mp 145-146°. $[\alpha]_D^{20}$ -42.2 ($CHCl_3$).

2,3:4,5-Di-O-*benzylidene, 1-tosyl: 2,3:4,5-Di*-O-*benzylidene-1*-O-*tosyl-β-D-fructopyranose*
$C_{27}H_{26}O_8S$ 510.564
Mp 171°. $[\alpha]_D$ -34.9 ($CHCl_3$).

1-Me, 2,3:4,5-di-O-*benzylidene: 2,3:4,5-Di*-O-*benzylidene-1*-O-*methyl-β-D-fructopyranose*
[70802-03-8]
$C_{21}H_{22}O_6$ 370.401
Mp 113-114°. $[\alpha]_D$ -30.5 ($CHCl_3$).

Me glycoside: See Methyl fructopyranoside, M-182

Me glycoside, 2,3,4,5-tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-1*-O-*methyl-β-D-fructopyranose*
$C_{15}H_{22}O_{10}$ 362.333
Mp 99°. $[\alpha]_D$ -120 ($CHCl_3$).

Butyl glycoside: Butyl β-D-fructopyranoside
[67884-27-9]
$C_{10}H_{20}O_6$ 236.264
Constit. of *Cynomorium*, *Diospyros*, *Smilax*, *Liriope* and *Saussurea* spp. Needles (EtOAc), cryst. (EtOH).
Mp 156-158°. $[\alpha]_D$ -145 (MeOH).

2-Chloroethyl glycoside: 2-Chloroethyl-β-D-fructopyranoside
[84543-36-2]
$C_8H_{15}ClO_6$ 242.656
Cryst. (H_2O). Mp 146-147°. $[\alpha]_D^{23}$ -148 (c, 1 in H_2O).

2-Butyl: 2-D-Butyl-β-D-fuctopyranose
$C_{10}H_{20}O_6$ 236.264
Constit. of *Inula crithmoides*.

α-D-Furanose-*form* [10489-79-9]

Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-α-D-fructofuranose*
[58670-14-7]
$C_{16}H_{22}O_{11}$ 390.343
Amorph. $[\alpha]_D^{22}$ +58 (c, 1 in $CHCl_3$).

1,6-Ditosyl: 1,6-Di-O-*tosyl-α-D-fructofuranose*
$C_{20}H_{24}O_{10}S_2$ 488.536
Amorph. $[\alpha]_D$ +17.1 ($CHCl_3$).

1,3,4,6-Tetrabenzoyl: 1,3,4,6-Tetra-O-*benzoyl-α-D-fructofuranose*
[80763-56-0]
$C_{34}H_{28}O_{10}$ 596.589
Cryst. (MeOH). Mp 121-123°. $[\alpha]_D$ -3 (c, 1 in $CHCl_3$).

Me glycoside: See Methyl fructofuranoside, M-181

Butyl glycoside: Butyl α-D-fructofuranoside
[80971-59-1]
$C_{10}H_{20}O_6$ 236.264
Constit. of *Cynomorium songaricum* (Cynomoriaceae). Amorph. powder. $[\alpha]_D$ +96 (MeOH).

2-Butyl: 2-O-*Butyl-α-D-fructofuranose*
$C_{10}H_{20}O_6$ 236.264
Constit. of *Inula crithmoides*.

β-D-Furanose-*form* [470-23-5]

Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-β-D-fructofuranose*
[53717-02-5]
$C_{16}H_{22}O_{11}$ 390.343
Mp 57-58°. $[\alpha]_D^{22}$ -9 (c, 1 in $CHCl_3$).

1,3,4,6-Tetrabenzoyl, 2-Ac: 2-O-*Acetyl-1,3,4,6-tetra*-O-*benzoyl-β-D-fructofuranose*
[92588-03-9]
$C_{36}H_{30}O_{11}$ 638.626
Cryst. (EtOH). Mp 112-113°. $[\alpha]_D^{20}$ -160.7 ($CHCl_3$).

1-Tosyl: 1-O-*Tosyl-β-D-fructofuranose*
[40518-97-6]
$C_{13}H_{18}O_8S$ 334.346
Syrup. $[\alpha]_D$ -23 (MeOH).

3-Tosyl: 3-O-*Tosyl-β-D-fructofuranose*
$C_{13}H_{18}O_8S$ 334.346
Amorph. $[\alpha]_D$ -36.5 (MeOH).

1,2-O-*Isopropylidene:* See 2,3-*O*-Isopropylidenefructose, I-63

Me glycoside: See Methyl fructofuranoside, M-181

Butyl glycoside: Butyl β-D-fructofuranoside
[80971-60-4]
$C_{10}H_{20}O_6$ 236.264
Constit. of *Cynomorium songaricum*.
Amorph. $[\alpha]_D$ -28 (MeOH).

Pentyl glycoside: Pentyl β-D-fructofuranoside
[195379-74-9]
$C_{11}H_{22}O_6$ 250.291
Constit. of *Dendranthema morifolium*.

L-*form* [7776-48-9]
Mp 101-103°. $[\alpha]_D$ +128 → +98 (H_2O).

β-L-Pyranose-*form* [41847-69-2]

1,2:4,5-Di-O-*isopropylidene:* See 1,2:4,5-Di-*O*-isopropylidenefructopyranose, D-714

2,3:4,5-Di-O-*isopropylidene:* See 2,3:4,5-Di-*O*-isopropylidenefructopyranose, D-715

DL-*form*
Cryst. Mp 129-130°.

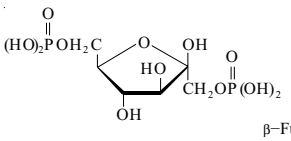
[8013-17-0, 25339-99-5, 27195-16-0, 41579-20-8, 41612-84-4, 41847-51-2, 92691-79-7, 92691-80-0]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 193D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 297A (*nmr*)
Brigl, P. *et al., Ber.*, 1933, **66**, 325 (*1,3,4,5-tetrabenzoyl*)
Barry, C.P. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 53 (*rev*)
Honeyman, J. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 116 (*β-D-form, isol*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 118 (*synth*)

Verstraeten, L.M.J. *et al., Adv. Carbohydr. Chem.*, 1967, **22**, 229 (***rev***)
Ness, R.K. *et al., Carbohydr. Res.*, 1970, **13**, 23 (*1,3,4,6-tetrabenzyl*)
Brady, R.F. *et al., Adv. Carbohydr. Chem.*, 1971, **26**, 197 (*rev, cyclic acetals*)
Kvernu, T.A.W. *et al., Carbohydr. Res.*, 1972, **21**, 455 (*pmr*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 617 (*occur, bibl*)
Kanters, J.A. *et al., Acta Cryst. B*, 1977, **33**, 665 (*cryst struct*)
Chen, M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 286 (*rev, metab*)
Mathlouthi, M. *et al., Carbohydr. Res.*, 1980, **78**, 225 (*Raman*)
Pfeffer, P.E. *et al., Carbohydr. Res.*, 1982, **102**, 11 (*cmr*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 145 (*cmr*)
Morgenlie, S. *et al., Carbohydr. Res.*, 1982, **107**, 137 (*synth,* DL*-form*)
Geigert, J. *et al., Carbohydr. Res.*, 1983, **113**, 159 (*synth*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Steele, D. *et al., Carbohydr. Res.*, 1984, **133**, 313 (*ir, Raman*)
Kashiwada, Y. *et al., Chem. Pharm. Bull.*, 1984, **32**, 3461 (*1-O-Galloylfructose*)
Chan, J.Y.C. *et al., J.C.S. Perkin 1*, 1985, 1447 (*chloroethyl glycoside*)
Dhawale, M.R. *et al., Carbohydr. Res.*, 1986, **155**, 262 (*synth,* L*-form*)
Cockman, M. *et al., J. Carbohydr. Chem.*, 1987, **6**, 181-201 (*equilib*)
Chen, C.C. *et al., Carbohydr. Res.*, 1988, **175**, 265 (*synth, bibl,* L*-form*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, LFI000
Yaylayan, V.A. *et al., J. Carbohydr. Chem.*, 1992, **11**, 149-158 (*ir, equilib*)
Krutosikova, A. *et al., Natural and Synthetic Sweet Substances*, Ellis Horwood, 1992, (*rev*)
Raaijmakers, H.W.C. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1993, **112**, 511 (*butyl glycosides*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 194-196
Gizaw, Y. *et al., Carbohydr. Res.*, 1995, **266**, 81-85 (*synth, bibl,* L*-form*)
Flood, A.E. *et al., Carbohydr. Res.*, 1996, **288**, 45-46 (*equilib*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1363
Zhang, C.-Z. *et al., Phytochemistry*, 1996, **41**, 975 (*butyl glycosides*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1127
Hu, L. *et al.*, , 1997, **39**, 181-184; *CA*, **127**, 231883x (*pentyl glycoside*)
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1998, **313**, 69-89 (*rev, use*)
Chevalley, I. *et al., Phytochemistry*, 1999, **50**, 151-154 (*6-O-Galloylfructose*)
El-Lakany, A.M. *et al., Pharmazie*, 2004, **58**, 940-942 (*2-Butyl ethers*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LFI000

Fructose 1,6-bis(dihydrogen phosphate), 9CI, 8CI F-85

Harden-Young ester. Hexose diphosphate. 1,6-Fructose diphosphoric acid. Fructose 1,6-diphosphate



β–Furanose–*form*

$C_6H_{14}O_{12}P_2$ 340.117

D-***form***

Fosfructose, INN

[488-69-7]

Prepared by action of yeasts on Glucose, Sucrose and Fructose; formed from Fructose 6-phosphate in the presence of $Mg^{2\oplus}$, ATP and the enzyme phosphohexokinase. Metabolic intermed. Cardioprotective agent. $[\alpha]_D^{17}$ +4.04 (c, 13.6 in H_2O). pK_{a1} 1.52; pK_{a2} 6.31 (25°). Reversibly cleaved in the presence of Aldolase to give 3-Phosphoglyceraldehyde and 1-Phosphodihydroxyacetone.

Di-Ca salt monohydrate: Candiolin
[34378-77-3]
Powder.

Di-Na salt: [26177-85-5] Constit. of tonics.

Tri-Na salt: ***Fosfructose trisodium, USAN. CPC 111***
[81028-91-3]

[6035-52-5, 38099-82-0]

Neuberg, C. *et al., Arch. Biochem. Biophys.*, 1944, **3**, 33 (*synth*)
Gray, G.R. *et al., Biochemistry*, 1971, **10**, 4705 (*nmr*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)
Koerner, T.A.W. *et al., CA*, 1976, **85**, 124249h (*synth, pmr*)
Narendra, N. *et al., Acta Cryst. C*, 1985, **41**, 31-34 (*fosfructose trisodium, cryst. struct*)
Eur. Pat., 1994, 606 853, (*Biomedica Foscama*); *CA*, **121**, 212974n (*Fosfructose trisodium, synth*)
Markov, A.K. *et al., Am. Heart J.*, 1997, **133**, 541-549 (*pharmacol*)

Fructose 2,6-bis(dihydrogen phosphate) F-86

$C_6H_{14}O_{12}P_2$ 340.117

D-***form***

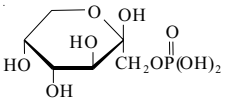
[77164-51-3, 79082-92-1] Isol. from rat liver. Stimulates activity of fructose 6-phosphate 1-kinase.

[105661-68-5]

Van Schaftingen, E. *et al., Biochem. J.*, 1980, **192**, 897 (*isol*)
Pilkis, S.J. *et al., J. Biol. Chem.*, 1981, **256**, 3171 (*occur, activity*)
Voll, R.J. *et al., Carbohydr. Res.*, 1990, **203**, 173 (*pmr, cmr, P-31 nmr*)

Fructose 1-dihydrogen phosphate, 9CI, 8CI F-87

Fructosyl phosphate. Fructose-1-phosphate



β–Pyranose–*form*

$C_6H_{13}O_9P$ 260.137

D-***form*** [15978-08-2]
$[\alpha]_D$ -64.2 (H_2O).

Ba salt: [53823-70-4]
$[\alpha]_D$ -39 (H_2O).

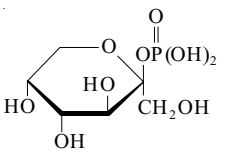
Brucine salt: $[\alpha]_D$ -52.1 (H_2O).

Hydrazone: Mp 96-97°. $[\alpha]_D$ -33.6 (1:1 Py/MeOH).

Tanko, B. *et al., Biochem. J.*, 1935, **29**, 961
Graham, D. *et al., Nature (London)*, 1965, **208**, 88
Harvey, D.J. *et al., J. Chromatogr.*, 1973, **76**, 51 (*glc, ms*)

Fructose 2-dihydrogen phosphate F-88

Fructose 2-phosphate



β–Pyranose–*form*

$C_6H_{13}O_9P$ 260.137

D-***form***

Ba salt: $[\alpha]_D^{20}$ -83.3 (H_2O).

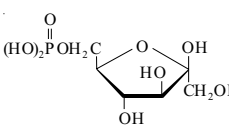
Na salt: $[\alpha]_D^{20}$ -53.6 (H_2O).

Dicyclohexylammonium salt: $[\alpha]_D^{24}$ -78 (c, 1.0 in H_2O).

Pontis, H.G. *et al., Biochem. J.*, 1963, **89**, 452 (*synth*)
MacDonald, D.L. *et al., J.O.C.*, 1966, **31**, 513 (*synth*)

Fructose 6-dihydrogen phosphate, 9CI, 8CI F-89

Neuberg ester. Fructose-6-phosphoric acid. Hexose monophosphate. Fructose 6-phosphate



β–Furanose–*form*

$C_6H_{13}O_9P$ 260.137

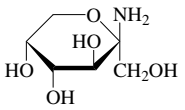
D-***form*** [643-13-0]
Present in animal tissues as an equilib. mixt. with Glucose 6-phosphate. Formed by the action of the enzyme phosphohexose isomerase on Glucose 6-phosphate. $[\alpha]_D$ +1.2 (c, 0.9 in H_2O). pK_{a1} 0.97; pK_{a2} 6.11.

Ba salt: [6035-54-7]
$[\alpha]_D$ +3.6 (H_2O).

[26177-86-6]

Neuberg, C. *et al., Arch. Biochem. Biophys.*, 1944, **3**, 33 (*synth*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, 253 (*rev*)
Beucamp, K. *et al., Methoden Enzym. Anal.*, 3rd Ed., 1984, **1**, 558 (*rev*)

Fructosylamine F-90



β-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form*

N-*Benzyl:*
$C_{13}H_{19}NO_5$ 269.297
Cryst. (Me_2CO). Mp 107-108°. $[\alpha]_D^{26}$ -42.6 (12 min) → +6.2 (2d) (MeOH).

N-*Benzyl, 4,5*-O-*isopropylidene:*
$C_{16}H_{23}NO_5$ 309.361
Mp 124-125° dec. $[\alpha]_D^{25.5}$ -64.5 → +14.6 (Py).

N-*Ph:*
$C_{12}H_{17}NO_5$ 255.27
Cryst. (EtOH). Mp 150°. $[\alpha]_D^{19}$ -203.6 → -161 (c, 2.0 in EtOH).

N-*Ph, hydrochloride:* [51009-13-3]
Cryst. Mp 132.5-134° dec. $[\alpha]_D^{25}$ -63.7 → -57.8 (c, 1.0 in H_2O).

N-*Ph, 1,3,4,5-tetra-Ac:*
$C_{20}H_{25}NO_9$ 423.419
Mp 151°. $[\alpha]_D$ -149.6 (c, 1.1 in $CHCl_3$).

N-*Ph, 1,3,4,5-tetrabenzoyl:*
$C_{40}H_{33}NO_9$ 671.702
Mp 100-102°. $[\alpha]_D^{20}$ -132 (c, 0.5 in $CHCl_3$).

N-*(4-Nitrophenyl):* $[\alpha]_D^{20}$ -181.1 (c, 1.1 in MeOH).

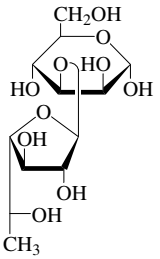
N-*(4-Methylphenyl):* [29355-13-3]
Mp 138° dec Mp 159-160° dec. $[\alpha]_D^{19}$ -207.7 → +176.9 (c, 0.3 in EtOH). $[\alpha]_D^{18}$ -200.4 → -167.3 (c, 1.3 in Py).

β-D-Pyranose-*form*

N-*Ph, 1,3,4,5-tetra-Ac:* [51009-14-4]
Cryst. (EtOH). Mp 155°. $[\alpha]_D^{25}$ +146.4 (c, 1.0 in $CHCl_3$).

Barry, C.P. *et al., J.C.S.*, 1952, 4147 (N-*aryl derivs*)
Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*rev*)
Carson, J.F. *et al., J.A.C.S.*, 1955, **77**, 1881; 1956, **78**, 3728 (N-*benzyl*)
Heyns, K. *et al., Chem. Ber.*, 1973, **106**, 2680; 2693 (N-*Ph*)
Gomez-Sanchez, A. *et al., Carbohydr. Res.*, 1986, **149**, 329

β-D-Fucofuranosyl-(1→3)-D-mannose F-91



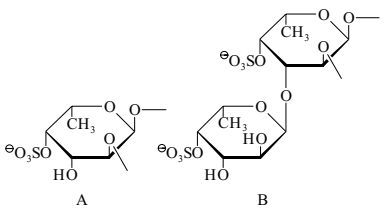
α-D-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Syrup. $[\alpha]_D$ -13 (c, 0.9 in H_2O).

Chiocconi, A. *et al., Carbohydr. Res.*, 2000, **323**, 7-13 (*synth, pmr, cmr*)

Fucoidin F-92

Fucoidan, 9CI, 8CI. Fucosidan
[9072-19-9]



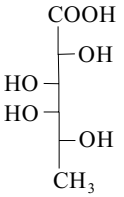
A B

A polysaccharide containing L-fucose and half sulphate ester. Small amounts of galactose, xylose and uronic acid are present. Two possible components are illustrated. The precise struct. of fucoidin in variants remains unclear (2000). Present in the intercellular tissues and surface exudates of Phaeophyceae, although the amount in some spp. is exceedingly small. The polysaccharide content varies with the depth at which the plant is located. *Pelvetia canaliculata* contains about 23% of the dry weight while in permanently submerged *Laminaria* it is <7%. V. hygroscopic, may prevent dehyd. of the plant upon long exp. Shows a range of biol. activities incl. antitumour and antiviral. $[\alpha]_D$ -118.

Conchie, J. *et al., J.C.S.*, 1950, 827
Black, W.A.P. *et al., J. Sci. Food Agric.*, 1954, **5**, 445 (*isol, occur*)
Percival, E. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1970, **2B**, 551 (*rev*)
Doner, L.W. *et al., Ind. Gums*, (Whistler, R.L., Ed.), 2nd Ed., Academic Press, New York, 1973, 115; *CA*, **81**, 27482t (*rev*)
Japan. Pat., 1975, 75 05 199; *CA*, **83**, 25277x (*manuf*)
Zvyagintseva, T.N. *et al., Carbohydr. Res.*, 1999, **322**, 32-39 (***isol, bibl***)
Marais, M.F. *et al., Carbohydr. Res.*, 2001, **336**, 155-159 (*isol, purifn*)
Lee, J.-B. *et al., Chem. Pharm. Bull.*, 2004, **52**, 1091-1094 (*isol, ms*)

Fuconic acid, 9CI, 8CI F-93

6-Deoxygalactonic acid
[30516-86-0]



D-*form*

$C_6H_{12}O_6$ 180.157

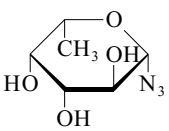
D-*form* [30923-13-8]
Produced by the action of L-*arabino*-aldose dehydrogenase on D-fucose. Mp 105.5°. $[\alpha]_D$ -76.3 → -29.1 (H_2O). These props. prob. refer to a lactone.
Phenylhydrazide: Mp 205-206°.

L-*form* [26372-13-4]
Mp 106-107°. $[\alpha]_D$ +78.3 (H_2O). Props. prob. refer to a lactone.
Phenylhydrazide: Mp 203-204°.

Müther, A. *et al., Ber.*, 1904, **37**, 306 (*L-form*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 175; 177
Dahms, A. *et al., J. Biol. Chem.*, 1972, **247**, 2228 (*D-form, enzymic synth*)
Szafranek, J. *et al., J. Chromatogr.*, 1974, **88**, 149 (*glc*)

Fucopyranosyl azide F-94

6-Deoxygalactopyranosyl azide



$C_6H_{11}N_3O_4$ 189.171

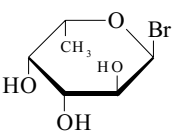
β-L-*form* [66347-26-0]
Cryst. (EtOAc/Et_2O/petrol). Mp 88.5-90°. $[\alpha]_D^{22}$ +10.8 (c, 0.25 in MeOH).

Tri-Ac: 2,3,4-Tri-O-*acetyl-6-deoxy-β-L-galactopyranosyl azide. 2,3,4-Tri*-O-*acetyl-β-L-fucopyranosyl azide*
[95581-07-0]
$C_{12}H_{17}N_3O_7$ 315.282
Cryst. Mp 121°. $[\alpha]_D^{22}$ -16.8 (c, 1 in EtOH).

Györgydeàk, Z. *et al., Annalen*, 1985, 103 (*synth*)

Fucopyranosyl bromide F-95

6-Deoxygalactopyranosyl bromide, 8CI



$C_6H_{11}BrO_4$ 227.054

α-L-*form*

2,3,4-Tri-Ac: 2,3,4-Tri-O-acetyl-α-L-fucopyranosyl bromide. 2,3,4-Tri-O-acetyl-6-deoxy-α-L-galactopyranosyl bromide. Acetobromofucose
[16741-27-8]
$C_{12}H_{17}BrO_7$ 353.166
$[\alpha]_D^{28}$ -160 (c, 2.3 in $CHCl_3$).

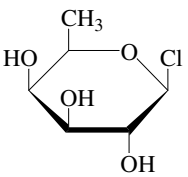
2,3,4-Tribenzyl: 2,3,4-Tri-O-benzyl-α-L-fucopyranosyl bromide. 2,3,4-Tri-O-benzyl-6-deoxy-α-L-galactopyranosyl bromide
[33639-77-9]
$C_{27}H_{29}BrO_4$ 497.428
Mp 72-73°. $[\alpha]_D^{20}$ -169 (c, 1.0 in CH_2Cl_2).

2-Benzyl, 3,4-bis-(4-nitrobenzoyl): $[\alpha]_D^{27}$ -272 (c, 1.0 in $CHCl_3$).

Flowers, H.M. *et al., Carbohydr. Res.*, 1967, **4**, 189 (*α-L-tri-Ac*)
Dejter-Juszyski, M. *et al., Carbohydr. Res.*, 1971, **18**, 219; 1972, **23**, 41 (*α-L-tribenzyl, α-L-benzyl bisnitrobenzoyl*)

Fucopyranosyl chloride F-96

6-Deoxygalactopyranosyl chloride



α-D-*form*

$C_6H_{11}ClO_4$ 182.603

α-D-*form*

3,4-Dibenzyl, 2-Ac: 2-O-Acetyl-3,4-di-O-benzyl-α-D-fucopyranosyl chloride
[172792-40-4]
$C_{22}H_{25}ClO_5$ 404.889
Syrup. $[\alpha]_D$ +138 (c, 4.3 in $CHCl_3$).

α-L-*form* [72864-48-3]
Oil (impure).

Tri-Ac: 2,3,4-Tri-O-acetyl-α-L-fucopyranosyl chloride
[24332-96-5]
$C_{12}H_{17}ClO_7$ 308.715
Cryst. (Et_2O/petrol). Mp 65°. $[\alpha]_D^{20}$ -215 (c, 1 in $CHCl_3$).

Tris(chlorosulfonyl): 2,3,4-Tri-O-chlorosulfonyl-α-L-fucopyranosyl chloride
[53729-80-9]
$C_6H_8Cl_4O_{10}S_3$ 478.132
Cryst. Mp 71-72°. $[\alpha]_D^{20}$ -171 (c, 0.93 in $CHCl_3$).

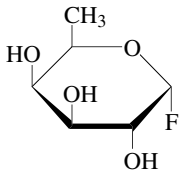
β-L-*form*

Tris(chlorosulfonyl): 2,3,4-Tri-O-chlorosulfonyl-β-L-fucopyranosyl chloride
[52194-61-3]
Cryst. ($CHCl_3$/petrol). Mp 111.5-112.5°. $[\alpha]_D$ -28 (c, 1.0 in $CHCl_3$).

Pougny, J.R. *et al., Carbohydr. Res.*, 1974, **34**, 351-360 (*α-L-form tris(chlorosulfonyl), β-L-form tris(chlorosulfonyl), synth, struct*)
Du, Y. *et al., Carbohydr. Res.*, 1995, **275**, 413-420 (*pmr*)
Benazza, M. *et al., Carbohydr. Res.*, 1995, **275**, 421-431 (*α-D-form 3,4-dibenzyl 2-Ac*)
Hubbard, R.E. *et al., Carbohydr. Res.*, 1996, **287**, 247-253 (*β-D-form tris(chlorosulfonyl), β-L-form tris(chlorosulfonyl)*)

Fucopyranosyl fluoride F-97

6-Deoxygalactopyranosyl fluoride, 9CI



α-D-*form*

$C_6H_{11}FO_4$ 166.149

α-D-*form*

Tribenzoyl: 2,3,4-Tri-O-benzoyl-α-D-fucopyranosyl fluoride
[141020-08-8]
$C_{27}H_{23}FO_7$ 478.473
$[\alpha]_D^{20}$ +250 (c, 1.0 in $CHCl_3$).

β-D-*form*

3,4-Dibenzyl, 2-Ac: 2-O-Acetyl-3,4-di-O-benzyl-β-D-fucopyranosyl fluoride
[172792-41-5]
$C_{22}H_{25}FO_5$ 388.435
Cryst. Mp 51-52°. $[\alpha]_D$ +9 (c, 0.4 in $CHCl_3$). Purifn. on silica column with petrol/EtOAc elution.

α-L-*form* [129864-98-8]
Cryst. (MeOH/Et_2O). Mp 237-239°. $[\alpha]_D^{20}$ -138 (c, 0.7 in MeOH).

Tri-Ac: 2,3,4-Tri-O-acetyl-α-L-fucopyranosyl fluoride
[129864-97-7]
$C_{12}H_{17}FO_7$ 292.261
Cryst. (petrol). Mp 80-81°. $[\alpha]_D^{20}$ -113 (c, 1 in $CHCl_3$).

2,3-Dibenzyl, 4-benzoyl: 4-O-Benzoyl-2,3-di-O-benzyl-α-L-fucopyranosyl fluoride
[167934-22-7]
$C_{27}H_{27}FO_5$ 450.506
$[\alpha]_D^{25}$ -79.4 (c, 0.77 in $CHCl_3$).

β-L-*form*

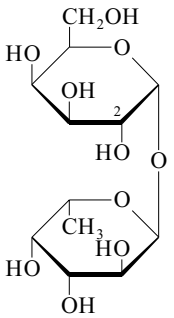
2,3-Dibenzyl, 4-benzoyl: 4-O-Benzoyl-2,3-di-O-benzyl-β-L-fucopyranosyl fluoride
[167934-23-8]
$C_{27}H_{27}FO_5$ 450.506
$[\alpha]_D^{25}$ -107.3 (c, 0.59 in $CHCl_3$).

[50474-40-3, 53729-80-9, 64694-23-1, 92470-37-6, 117800-75-6, 122291-77-4, 159169-46-7, 163439-79-0, 171613-32-4]

Svensson, S.C.T. *et al., Carbohydr. Res.*, 1990, **200**, 391 (*synth, pmr*)
Danishevsky, S.J. *et al., J.A.C.S.*, 1995, **117**, 1940-1953 (*derivs*)
Huang, H. *et al., J.O.C.*, 1995, **60**, 3100-3106 (*derivs*)

α-L-Fucopyranosyl α-D-galactopyranoside F-98

6-Deoxy-α-L-galactopyranosyl α-D-galactopyranoside, 9CI
[56941-75-4]



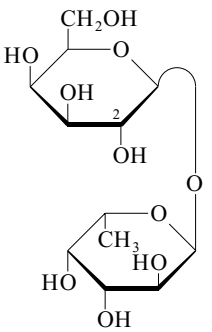
$C_{12}H_{22}O_{10}$ 326.3
Non-reducing disaccharide. Mp 231-233°. $[\alpha]_D^{23}$ +2.9 (c, 1 in H_2O).

2,3,4,6-Tetra-Ac: [56822-57-2]
$C_{20}H_{30}O_{14}$ 494.449
Cryst. (EtOH). Mp 134-135°. $[\alpha]_D^{23}$ +26.7 (c, 0.5 in H_2O).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056 (*synth*)

α-L-Fucopyranosyl β-D-galactopyranoside F-99

6-Deoxy-α-L-galactopyranosyl β-D-galactopyranoside
[56941-76-5]



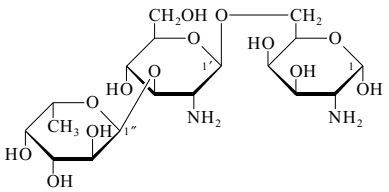
$C_{12}H_{22}O_{10}$ 326.3
Non-reducing disaccharide. $[\alpha]_D^{24}$ -125 (c, 0.9 in H_2O).

2,3,4,6-Tetra-Ac: [56906-87-7]
$C_{20}H_{30}O_{14}$ 494.449
Cryst. (MeOH). Mp 103-104°. $[\alpha]_D^{23}$ -95 (c, 1 in H_2O).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056

α-L-Fucopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-galactose F-100

6-Deoxy-α-L-galactopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-galactose



$C_{18}H_{34}N_2O_{13}$ 486.472

α-Pyranose-*form*

N,N′-*Di-Ac:* [124040-67-1]
$C_{22}H_{38}N_2O_{15}$ 570.547
Syrup. $[\alpha]_D$ -33.5 (c, 1.8 in DMSO).

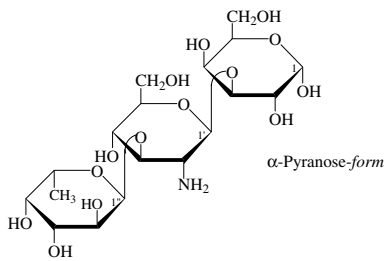
Benzyl glycoside, 2′′,3′′,4′′-tribenzyl, N,N′-*di-Ac:* [124040-66-0]
$C_{50}H_{62}N_2O_{15}$ 931.044
Amorph. $[\alpha]_D^{25}$ +28 (c, 0.2 in DMSO).

*Benzyl glycoside, 2′′,3′′,4′′-tribenzyl, 3,4:4′,6′-di-*O*-isopropylidene,* N,N′-*di-Ac:* [124040-65-9]
$C_{56}H_{70}N_2O_{15}$ 1011.173
Cryst. (CH_2Cl_2/Et_2O). Mp 154-156°.
$[\alpha]_D^{25}$ +6 (c, 0.9 in $CHCl_3$).

Thomas, R.L. *et al., Carbohydr. Res.*, 1989, **189**, 21 (*α-pyr di-Ac, α-benzyl pyr di-Ac derivs, pmr, cmr*)

α-L-Fucopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-D-galactose, 9CI F-101

6-Deoxy-α-L-galactopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457

α-Pyranose-*form*

1,2,2′N,2′′,3′′,4,4′,4′′,6,6′-Deca-Ac: [115921-24-9]
$C_{38}H_{53}NO_{24}$ 907.829
Solid. $[\alpha]_D^{26}$ +17.5 (c, 1.4 in $CHCl_3$).

β-Pyranose-*form*

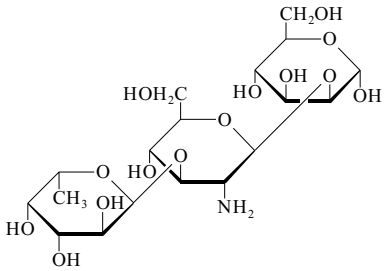
Me glycoside, nona-Ac: [115944-98-4]
$C_{37}H_{53}NO_{23}$ 879.819
Amorph. $[\alpha]_D^{26}$ -31 (c, 1.1 in $CHCl_3$).

[115921-27-2]

Jain, R.K. *et al., Carbohydr. Res.*, 1988, **173**, 297 (*α-pyr deca-Ac, β-Me pyr nona-Ac, pmr, cmr*)

α-L-Fucopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →2)-D-mannose F-102

6-Deoxy-α-L-galactopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →2)-D-mannose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457
Constit. of glycopeptides isol. from urine of patients with fucosidosis.

α-Pyranose-*form*

N-*Ac:* [95274-25-2]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. powder. $[\alpha]_D^{22}$ -100 (c, 0.4 in H_2O).

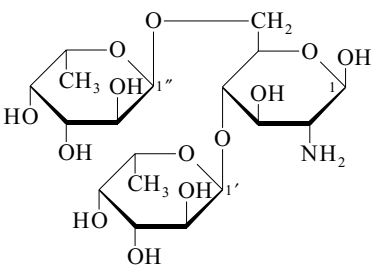
*Benzyl glycoside, 4′,6′-*O*-benzylidene, 2′′,3,3′′,4,4′′,6-hexabenzyl,* N-*Ac:* [99409-37-7]
$C_{76}H_{81}NO_{15}$ 1248.474
Syrup. $[\alpha]_D^{22}$ -32 (c, 1.1 in $CHCl_3$).

[99409-35-5]

Yamashita, K. *et al., J. Biol. Chem.*, 1979, **254**, 4820 (*isol*)
Lonn, H. *et al., Carbohydr. Res.*, 1985, **139**, 105 (*synth, pmr, cmr*)
Hardy, M.R. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1988, **85**, 3289 (*hplc*)

α-L-Fucopyranosyl-(1 →4)-[α-L-fucopyranosyl-(1 →6)]-2-amino-2-deoxy-D-glucose F-103

6-Deoxy-α-L-galactopyranosyl-(1 →4)-[6-deoxy-α-L-galactopyranosyl-(1 →6)]-2-amino-2-deoxy-D-glucose, 9CI



$C_{18}H_{33}NO_{13}$ 471.458

β-Pyranose-*form*

Me glycoside, N-*Ac:* [97242-91-6]
$C_{21}H_{37}NO_{14}$ 527.522
Amorph. solid. $[\alpha]_D^{26}$ -3.8 (c, 0.63 in H_2O).

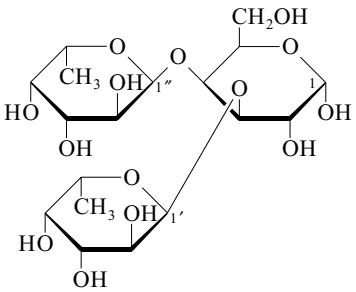
Me glycoside, 2′,2′′,3,3′,3′′,4′,4′′-heptabenzyl, N-*Ac:* [97242-90-5]
$C_{70}H_{79}NO_{14}$ 1158.392
Oil. $[\alpha]_D^{26}$ -41.5 (c, 1.0 in $CHCl_3$).

Me glycoside, N-*phthaloyl, heptabenzyl:* [97242-87-0]
Oil. $[\alpha]_D^{26}$ -38.2 (c, 0.6 in $CHCl_3$).

Schwartz, D.A. *et al., Can. J. Chem.*, 1985, **63**, 1073 (*α-Me pyr derivs, pmr*)

α-L-Fucopyranosyl-(1 →3)-[α-L-fucopyranosyl-(1 →4)]-D-galactose F-104

6-Deoxy-α-L-galactopyranosyl-(1 →3)-[6-deoxy-α-L-galactopyranosyl-(1 →4)]-D-galactose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

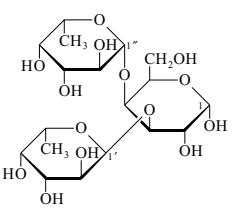
Me glycoside: [127563-95-5]
$C_{19}H_{34}O_{14}$ 486.469
Syrup. $[\alpha]_D^{22}$ -74 (c, 0.7 in H_2O).

Me glycoside, 2,2′,2′′,3′,3′′,4′,4′′,6-octabenzyl: [127563-85-3]
$C_{75}H_{82}O_{14}$ 1207.464
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr derivs, pmr, cmr, conformn*)

α-L-Fucopyranosyl-(1 →3)-[β-L-fucopyranosyl-(1 →4)]-D-galactose F-105

6-Deoxy-α-L-galactopyranosyl-(1 →3)-[6-deoxy-β-L-galactopyranosyl-(1 →4)]-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

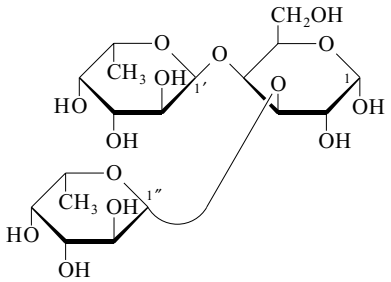
Me glycoside: [127641-10-5]
$C_{19}H_{34}O_{14}$ 486.469
Syrup. $[\alpha]_D^{22}$ +23 (c, 0.9 in H_2O).

Me glycoside, 2,2′,3′,4′,6-pentabenzyl, 2′′,3′′,4′′-tribenzoyl: [127563-86-4]
$C_{75}H_{76}O_{17}$ 1249.415
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr derivs, pmr, cmr, conformn*)

α-L-Fucopyranosyl-(1 →4)-[β-L-fucopyranosyl-(1 →3)]-D-galactose F-106

6-Deoxy-α-L-galactopyranosyl-(1 →4)-[6-deoxy-β-L-galactopyranosyl-(1 →3)]-D-galactose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

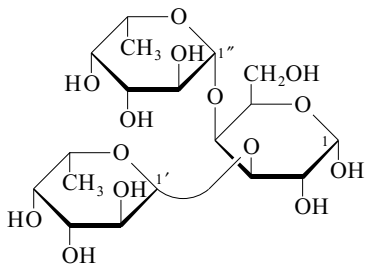
Me glycoside: [127641-11-6]
$C_{19}H_{34}O_{14}$ 486.469
Syrup. $[\alpha]_D^{22}$ +32 (c, 1.0 in H_2O).

[127563-87-5]

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr, pmr, cmr, conformn*)

β-L-Fucopyranosyl-(1 →3)-[β-L-fucopyranosyl-(1 →4)]-D-galactose F-107

6-Deoxy-β-L-galactopyranosyl-(1 →3)-[6-deoxy-β-L-galactopyranosyl-(1 →4)]-D-galactose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

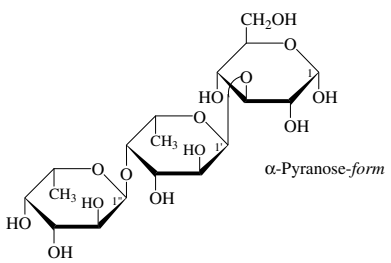
Me glycoside: [127563-96-6]
$C_{19}H_{34}O_{14}$ 486.469
Syrup. $[\alpha]_D^{22}$ +131 (c, 0.8 in H_2O).

[127563-88-6]

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr, pmr, cmr, conformn*)

α-L-Fucopyranosyl-(1 →4)-α-L-fucopyranosyl-(1 →3)-D-glucose F-108

6-Deoxy-α-L-galactopyranosyl-(1 →4)-6-deoxy-α-L-galactopyranosyl-(1 →3)-D-glucose



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

Me glycoside, 2,2′,3′,4,6-pentabenzyl:
$C_{54}H_{64}O_{14}$ 937.091
Syrup. $[\alpha]_D$ -86 (c, 1.5 in $CHCl_3$).

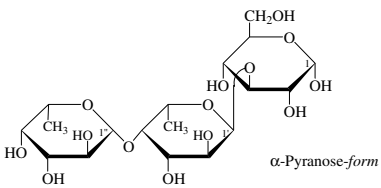
α-Furanose-*form*

*1,2:5,6-Di-*O*-isopropylidene, 2′,3′-dibenzyl:* [87735-52-2]
$C_{38}H_{52}O_{14}$ 732.82
Syrup. $[\alpha]_D$ -106.5 (c, 0.6 in $CHCl_3$).

Flowers, H.M. *et al., Carbohydr. Res.*, 1983, **119**, 75 (*α-Me pyr pentabenzyl, α-fur diisopropylidene dibenzyl, pmr*)

β-L-Fucopyranosyl-(1 →4)-α-L-fucopyranosyl-(1 →3)-D-glucose, 9CI F-109

6-Deoxy-β-L-galactopyranosyl-(1 →4)-6-deoxy-α-L-galactopyranosyl-(1 →3)-D-glucose
[87735-62-4]



$C_{18}H_{32}O_{14}$ 472.442
Syrup. $[\alpha]_D^{24}$ -60 (c, 1.2 in MeOH).

α-Pyranose-*form*

Me glycoside: [87757-39-9]
$C_{19}H_{34}O_{14}$ 486.469
Cryst. (EtOH). Mp 223-226°. $[\alpha]_D^{24}$ -24 (c, 1.0 in MeOH).

Me glycoside, 2,2′,3′,4,6-pentabenzyl:
$C_{54}H_{64}O_{14}$ 937.091
$[\alpha]_D^{24}$ -36 (c, 1.0 in $CHCl_3$).

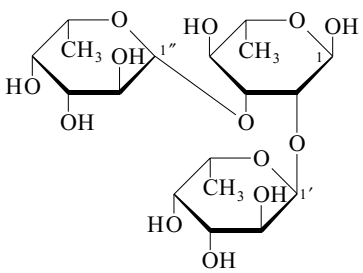
α-Furanose-*form*

*1,2:5,6-Di-*O*-isopropylidene, 2′,3′-dibenzyl:* [87735-53-3]
$C_{38}H_{52}O_{14}$ 732.82
Syrup. $[\alpha]_D$ -30.5 (c, 1.6 in $CHCl_3$).

Flowers, H.M. *et al., Carbohydr. Res.*, 1983, **119**, 75 (*synth, α-Me pyr derivs, α-fur diisopropylidene dibenzyl, pmr, cmr*)

α-L-Fucopyranosyl-(1 →2)-[β-L-fucopyranosyl-(1 →3)]-L-rhamnose F-110

6-Deoxy-α-L-galactopyranosyl-(1 →2)-[6-deoxy-β-L-galactopyranosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

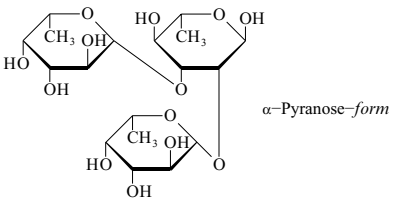
α-Pyranose-*form*

Me glycoside, heptabenzoyl: [135266-92-1]
$C_{68}H_{62}O_{20}$ 1199.226
Cryst. (EtOAc/hexane). Mp 164-167°.
$[\alpha]_D^{28}$ -202.1 (c, 0.7 in $CHCl_3$).

Nifantev, P.E. *et al., Bioorg. Khim.*, 1991, **17**, 517; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1991, **17**, 292 (*α-Me pyr heptabenzoyl, pmr, cmr*)

β-L-Fucopyranosyl-(1 →2)-[β-L-fucopyranosyl-(1 →3)]-L-rhamnose F-111

6-Deoxy-β-L-galactopyranosyl-(1 →2)-[6-deoxy-β-L-galactopyranosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

α-Pyranose-*form*

Me glycoside: [130143-20-3]
$C_{19}H_{34}O_{13}$ 470.47
Syrup. $[\alpha]_D^{30}$ +14.9 (c, 1.0 in $CHCl_3$).

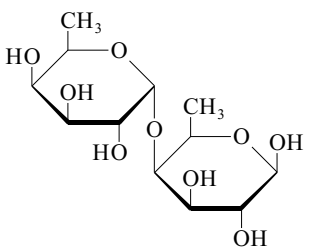
Me glycoside, heptabenzoyl: [135129-59-8]
$C_{68}H_{62}O_{20}$ 1199.226
Syrup. $[\alpha]_D^{28}$ -137 (c, 1.0 in $CHCl_3$).

Lipkind, G.M. *et al., Can. J. Chem.*, 1990, **68**, 1238 (*α-Me pyr, pmr, conformn*)

Nifantev, P.E. *et al., Bioorg. Khim.*, 1991, **17**, 517; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1991, **17**, 292 (*α-Me pyr heptabenzoyl, pmr, cmr*)

4-*O*-α-D-Fucopyranosyl-D-fucose F-112

*4-*O*-(6-Deoxy-α-D-galactopyranosyl)-6-deoxy-D-galactose. 6-Deoxy-4-*O*-(6-deoxy-α-D-galactopyranosyl)-D-galactose*



$C_{12}H_{22}O_9$ 310.3

β-Pyranose-*form*

Me glycoside:
$C_{13}H_{24}O_9$ 324.327
$[\alpha]_D$ +79 (c, 0.9 in H_2O).

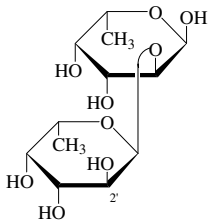
[96103-03-6]

Garegg, P.J. *et al., Carbohydr. Res.*, 1985, **137**, 270-275 (*Me gly*)

Kato, S. *et al., Bull. Chem. Soc. Jpn.*, 2000, **73**, 967-976 (*synth, pmr*)

2-*O*-α-L-Fucopyranosyl-L-fucose F-113

2-O-(6-Deoxy-α-L-galactopyranosyl)-6-deoxy-L-galactose, 9CI
[20237-62-1]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Isol. from the partial acetolysate of the seaweed polysaccharide Fucoidin, F-92.
Cryst. (EtOH).
Mp 193-195° (185-190°). $[\alpha]_D^{25}$ -168.5 (c, 0.78 in H_2O).

α-Pyranose-*form*

Benzyl glycoside, 2′-benzyl:
$C_{26}H_{34}O_9$ 490.549
Cryst. (EtOH). Mp 186-188°. $[\alpha]_D^{25}$ -186 (c, 0.77 in MeOH).

*Benzyl glycoside, 2′-benzyl, 3,4-*O*-isopropylidene:*
$C_{29}H_{38}O_9$ 530.614
Cryst. (EtOH). Mp 143-145°. $[\alpha]_D^{25}$ -218 (c, 1.4 in $CHCl_3$).

*Me glycoside: Methyl 2-*O*-α-L-fucopyranosyl-α-L-fucopyranoside*
[71731-83-4]
$C_{13}H_{24}O_9$ 324.327
Cryst. (EtOH). Mp 190-192°. $[\alpha]_D^{25}$ -227 (c, 0.57 in MeOH).

Me glycoside, 2′-benzyl: [71731-82-3]
$C_{20}H_{30}O_9$ 414.452
Cryst. (EtOH). Mp 192-194°. $[\alpha]_D^{25}$ -201.2 (c, 1.03 in MeOH).

*Me glycoside, 2′-benzyl, 3,4-*O*-isopropylidene:* [71731-87-8]
$C_{23}H_{34}O_9$ 454.516
Mp 155-157°. $[\alpha]_D^{25}$ -216 (c, 0.79 in $CHCl_3$).

β-Pyranose-*form*

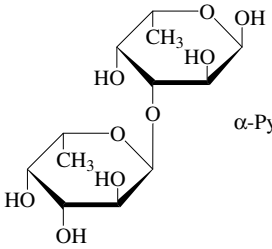
*Me glycoside: Methyl 2-*O*-α-L-fucopyranosyl-β-L-fucopyranoside*
$C_{13}H_{24}O_9$ 324.327
Cryst. (EtOH). Mp 210-212°. $[\alpha]_D^{25}$ -91.4 (c, 0.70 in MeOH).

Me glycoside, 2′-benzyl:
Cryst. (EtOH). Mp 193-195°. $[\alpha]_D^{25}$ -100 (c, 0.5 in MeOH).

O'Neill, A.N. *et al., J.A.C.S.*, 1954, **76**, 5074
Cote, R.H. *et al., J.C.S.*, 1959, 2248 (*isol*)
Percival, E. *et al., Carbohydr. Res.*, 1967, **4**, 441 (*glc*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1979, **74**, 177 (*synth, pmr, deriv*)

3-*O*-α-L-Fucopyranosyl-L-fucose F-114

*3-O-(6-Deoxy-α-L-galactopyranosyl)-6-deoxy-L-galactose, 8CI. 6-Deoxy-3-*O*-(6-deoxy-α-L-galactopyranosyl)-L-galactose*
[20237-63-2]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Reducing disaccharide. Isol. from partial acetolysate of Fucoidin, F-92. Cryst. (EtOH/$CHCl_3$).
Mp 200-202° (198-200°). $[\alpha]_D^{25}$ -190 (c, 0.9 in H_2O).

Hexa-Ac:
$C_{24}H_{34}O_{15}$ 562.524
Cryst. (EtOH). Mp 183-185°. $[\alpha]_D^{25}$ -160 (c, 0.9 in $CHCl_3$).

α-Pyranose-*form*

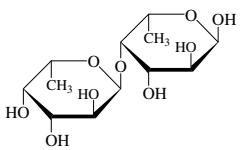
Me glycoside: [54187-60-9]
$C_{13}H_{24}O_9$ 324.327
Cryst. (EtOH). Mp 103-106°. $[\alpha]_D^{25}$ -272 (c, 0.9 in EtOH).

Me glycoside, 2,2′,4-tribenzyl: [54187-59-6]
$C_{34}H_{42}O_9$ 594.7
Cryst. (Et_2O). Mp 114-116°. $[\alpha]_D^{25}$ -134 (c, 1 in $CHCl_3$).

Cote, R.H. *et al., J.C.S.*, 1959, 2248 (*isol*)
Percival, E. *et al., Carbohydr. Res.*, 1967, **4**, 441 (*gc*)
Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1974, **37**, 75 (*synth, pmr, deriv*)

4-*O*-α-L-Fucopyranosyl-L-fucose, 8CI F-115

*4-O-(6-Deoxy-α-L-galactopyranosyl)-6-deoxy-L-galactose, 9CI. 6-Deoxy-4-*O*-(6-deoxy-α-L-galactopyranosyl)-L-galactose*
[20237-64-3]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Reducing disaccharide. Isol. from partial acetolysate of fucoidin. Constit. in the repeating unit of the extracellular polysaccharide from *Corynebacterium insidiosum*. Syrup. $[\alpha]_D^{25}$ -171 (c, 0.85 in H_2O).

2,2′-Di-Me:
$C_{14}H_{26}O_9$ 338.354
Cryst. (EtOH/Et_2O). Mp 93.5-94.5°. $[\alpha]_D^{20}$ -164 (3 min) → +184 (3h) (c, 0.9 in H_2O).

2,2′,3,3′-Tetra-Me:
$C_{16}H_{30}O_9$ 366.408
Cryst. (Et_2O/petrol). Mp 143.5-144.5°. $[\alpha]_D^{26}$ -188 (c, 1 in $CHCl_3$).

α-Pyranose-*form*

Me glycoside: [56883-89-7]
$C_{13}H_{24}O_9$ 324.327
Cryst. + ½ H_2O. Mp 102-104°. $[\alpha]_D^{25}$ -240 (c, 0.95 in H_2O).

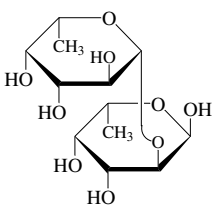
Me glycoside, penta-Ac: [56883-90-0]
$C_{23}H_{34}O_{14}$ 534.513
Cryst. (EtOH). Mp 90-93°. $[\alpha]_D^{25}$ -212 (c, 0.83 in $CHCl_3$).

Me glycoside, 2,3-dibenzyl: [56883-91-1]
$C_{27}H_{36}O_9$ 504.576
Cryst. (Me_2CO). Mp 172-174°. $[\alpha]_D^{24}$ -145.2 (c, 0.9 in $CHCl_3$).

Cote, R.H. *et al., J.C.S.*, 1959, 2248 (*isol*)
Percival, E. *et al., Carbohydr. Res.*, 1967, **4**, 441 (*gc*)
Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1975, **41**, 308 (*synth, pmr, deriv*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1980, **79**, 313 (*occur*)

2-*O*-β-L-Fucopyranosyl-L-fucose F-116

*2-O-(6-Deoxy-β-L-galactopyranosyl)-6-deoxy-L-galactose, 9CI. 6-Deoxy-2-*O*-(6-deoxy-β-L-galactopyranosyl)-L-galactose*
[71731-79-8]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Reducing disaccharide. Cryst. (EtOH).
Mp 152-154°. $[\alpha]_D^{25}$ -58.6 → +50.2 (20h) (c, 0.9 in H_2O).

α-Pyranose-*form*

*Me glycoside: Methyl 2-*O*-β-L-fucopyranosyl-α-L-fucopyranoside*
[66320-16-9]
$C_{13}H_{24}O_9$ 324.327
Cryst. (EtOH). Mp 236-238°. $[\alpha]_D^{25}$ -88.9 (c, 0.9 in MeOH).

Benzyl glycoside:
$C_{19}H_{28}O_9$ 400.425
Cryst. (EtOH). Mp 181-183°. $[\alpha]_D^{25}$ -140 (c, 0.69 in MeOH).

*Benzyl glycoside, 3,4-*O*-isopropylidene:*
$C_{22}H_{32}O_9$ 440.489
Oil. $[\alpha]_D^{25}$ -96 (c, 2.33 in $CHCl_3$).

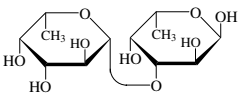
β-Pyranose-*form*

*Me glycoside: Methyl 2-*O*-β-L-fucopyranosyl-β-L-fucopyranoside*
$C_{13}H_{24}O_9$ 324.327
Cryst. (EtOH). Mp 188-190°. $[\alpha]_D^{25}$ -1.2 (c, 1 in MeOH).

Flowers, H.M. *et al., Carbohydr. Res.*, 1979, **74**, 177 (*synth*)

3-*O*-β-L-Fucopyranosyl-L-fucose F-117

3-O-(6-Deoxy-β-L-galactopyranosyl)-6-deoxy-L-galactose. 6-Deoxy-3-O-(6-deoxy-β-L-galactopyranosyl)-L-galactose



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

α-Pyranose-*form*

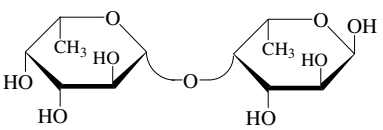
Me glycoside: [54187-63-2]
$C_{13}H_{24}O_9$ 324.327
$[\alpha]_D^{25}$ -123 (H_2O).

Me glycoside, 2,4-dibenzyl: [54187-62-1]
$C_{27}H_{36}O_9$ 504.576
Cryst. (EtOH). Mp 112-114°. $[\alpha]_D^{25}$ -40 (c, 1.02 in $CHCl_3$).

Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1974, **37**, 75

4-*O*-β-L-Fucopyranosyl-L-fucose F-118

4-O-(6-Deoxy-β-L-galactopyranosyl)-6-deoxy-L-galactose. 6-Deoxy-4-O-(6-deoxy-β-L-galactopyranosyl)-L-galactose



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. Constit. of the repeating unit of a mucous polysaccharide produced by enterobacteria.

α-Pyranose-*form*

Me glycoside: [56883-93-3]
$C_{13}H_{24}O_9$ 324.327
Needles (MeOH/diisopropyl ether). Mp 175-177°. $[\alpha]_D^{24}$ -132.5 (c, 1.05 in H_2O).

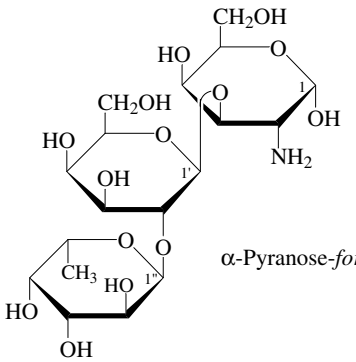
Me glycoside, 2,3-dibenzyl: [56883-92-2]
$C_{27}H_{36}O_9$ 504.576
Syrup. $[\alpha]_D^{24}$ -37.7 (c, 1.34 in $CHCl_3$).

Garegg, P.J. *et al., Acta Chem. Scand.*, 1971, **25**, 1185; 2103 (*occur*)

Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1975, **41**, 308 (*synth, Me gly*)

α-L-Fucopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose F-119

6-Deoxy-α-L-galactopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457
Constit. of the excretory-secretory antigens isol. from the culture media of *Toxxara canis* and *Toxxara catilarvae*.

2′′-Me, N-*Ac:* [136466-88-1]
$C_{21}H_{37}NO_{15}$ 543.521
Constit. of a parasitic nematode glycoprotein. Syrup.

2′′,4′-Di-Me, N-*Ac:* [136466-87-0]
$C_{22}H_{39}NO_{15}$ 557.548
Constit. of a parasitic nematode glycoprotein. Syrup.

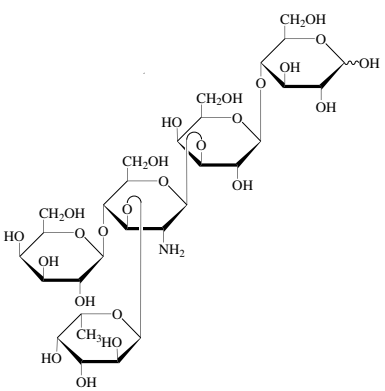
α-Pyranose-*form*

N-*Ac:* [108773-40-6]
$C_{20}H_{35}NO_{15}$ 529.494
Constit. of the submaxillary gland mucin. Amorph.

Gerken, T.A. *et al., Biochemistry*, 1987, **26**, 4689 (*pmr, conformn, occur*)

Khoo, K.H. *et al., Glycobiology*, 1991, **1**, 163; *CA*, **115**, 179713c (*isol, ms, occur*)

α-L-Fucopyranosyl-(1 →3)-[β-D-galactopyranosyl-(1 →4)]-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose F-120



$C_{30}H_{53}NO_{24}$ 811.741

N-*Ac: Lacto*-N-*fucopentaose III. Lacto*-N-*neofucopentaose II*
[25541-09-7]
$C_{32}H_{55}NO_{25}$ 853.778
Isol. from human milk. Involved in cellular development.

Kobata, A. *et al., J. Biol. Chem.*, 1969, **244**, 5496-5502 (*isol, N-Ac*)

Breg, J. *et al., Carbohydr. Res.*, 1988, **183**, 19-34 (*N-Ac, pmr, cmr*)

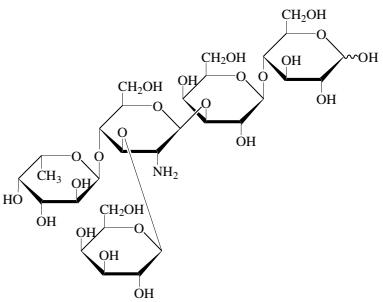
Wormald, M.R. *et al., Biochem. Biophys. Res. Commun.*, 1991, **180**, 1214-1221 (*conformn, N-Ac*)

Feizi, T. *et al., Biochemistry*, 1994, **33**, 6342-6349 (*activity, N-Ac*)

Zhang, Y. *et al., J. Carbohydr. Chem.*, 1999, **18**, 419-427 (*Me gly N-Ac, synth*)

α-L-Fucopyranosyl-(1 →4)-[β-D-galactopyranosyl-(1 →3)]-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose F-121

[116525-62-3]



$C_{30}H_{53}NO_{24}$ 811.741

N-*Ac: Lacto*-N-*fucopentaose II. LNF II. Blood group substance Le*^{a}*. Lewis A antigen pentasaccharide*
[21973-23-9]
$C_{32}H_{55}NO_{25}$ 853.778
Component of human milk, also urine of pregnant and lactating women. Cryst. (MeOH).
Mp 213-216°. $[\alpha]_D^{22}$ -28.4 (5 min) → -30.4 (equilib.) (c, 2.4 in H_2O).

Kuhn, R. *et al., Chem. Ber.*, 1956, **91**, 364-374; 2514-2523 (*N-Ac, isol, struct*)

Lennholm, H. *et al., Glycoconjugate J.*, 1987, **4**, 313-316 (*synth*)

Hounsell, E.F. *et al., Carbohydr. Res.*, 1988, **178**, 67-78 (*N-Ac, pmr*)

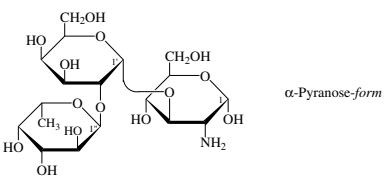
Donald, A.S.R. *et al., Carbohydr. Res.*, 1988, **178**, 79-91 (*N-Ac, isol, bibl*)

Reddy, G.P. *et al., Anal. Biochem.*, 1991, **198**, 278-284 (*N-Ac, hplc*)

Toepfer, A. *et al., J. Carbohydr. Chem.*, 1993, **12**, 809-822 (*N-Ac, synth*)

α-L-Fucopyranosyl-(1 →2)-α-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose F-122

6-Deoxy-α-L-galactopyranosyl-(1 →2)-α-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457

α-Pyranose-*form*

4-Nitrophenyl glycoside, 2N,2′′,3′,3′′,4′,4′′,6′-hepta-Ac:
Amorph. $[\alpha]_D$ +95.9 (c, 2.3 in MeOH).

β-Pyranose-*form*

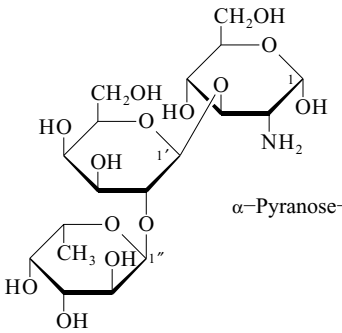
4-Nitrophenyl glycoside, N-Ac: [93496-51-6]
Cryst. Mp 262-264°. $[\alpha]_D$ +14.3 (c, 0.5 in DMSO).

4-Nitrophenyl glycoside, 2N,2′′,3′,3′′,4′,4′′,6′-hepta-Ac: [93496-50-5]
Amorph. $[\alpha]_D$ -4.7 (c, 0.9 in MeOH).

Matta, K.L. *et al., Carbohydr. Res.*, 1984, **131**, 247 (*synth, pmr, cmr*)

α-L-Fucopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose, 9CI F-123

6-Deoxy-α-L-galactopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose, 9CI



α−Pyranose−*form*

$C_{18}H_{33}NO_{14}$ 487.457
Constit. of the antigenic determinant of blood group substances A, B and H.

N-*Ac:* [66492-29-3]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. $[\alpha]_D^{20}$ -19.4 (c, 1.0 in MeOH) (-18°). $[\alpha]_D$ -30 (H_2O).

α-Pyranose-*form*

Benzyl glycoside, 4,6:4′,6′-di-O-benzylidene, 2′′,3′′,4′′-tribenzyl, N-*Ac:* [67673-38-5]
$C_{62}H_{67}NO_{15}$ 1066.209
Amorph. Mp 117°. $[\alpha]_D^{20}$ +20 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{20}$ +16.1 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 4,6:4′,6′-di-O-benzylidene, 2′′,3′′,4′′-tribenzyl, 3′-benzoyl, N-*Ac:* [67688-15-7]
$C_{69}H_{71}NO_{16}$ 1170.317
Cryst. Mp 114°. $[\alpha]_D^{23}$ +69.8 (c, 1.0 in $CHCl_3$).

2-Nitrophenyl glycoside, 2N,2′′,3′,3′′,4′,4′′,6′-hepta-Ac: [93496-57-2]
Amorph. $[\alpha]_D$ +55.4 (c, 1.5 in MeOH).

β-Pyranose-*form*

4-Nitrophenyl glycoside, N-*Ac:*
Amorph. $[\alpha]_D$ -52.5 (c, 0.5 in DMSO).

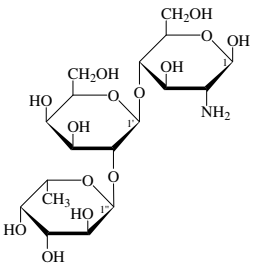
4-Nitrophenyl glycoside, 2N-2′′,3′,3′′,4′,4′′,6′-hepta-Ac: [93496-52-7]
Amorph. $[\alpha]_D$ -42.6 (c, 1.2 in MeOH).

[79781-72-9, 81243-84-7]

Paulsen, H. *et al., Chem. Ber.*, 1979, **112**, 3190 (*occur, N-Ac, α-benzyl pyr tribenzyl, 3′-benzoyl N-Ac deriv, pmr*)
Bovin, N.V. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1982, 1148; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1982, 1023 (*N-Ac, α-benzyl pyr tribenzyl N-Ac deriv*)
Bovin, N.V. *et al., Carbohydr. Res.*, 1983, **112**, 23 (*N-Ac, pmr*)
Matta, K.L. *et al., Carbohydr. Res.*, 1984, **131**, 247 (*nitrophenyl pyr derivs, pmr, cmr*)

α-L-Fucopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose F-124

6-Deoxy-α-L-galactopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457
Constit. of the antigenic determinant of human blood group B (type 2).

N-*Ac:* [60797-31-1]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. $[\alpha]_D$ -55.9 (-46.5) (H_2O).

α-Pyranose-*form*

Deca-Ac: [61820-08-4]
$C_{38}H_{53}NO_{24}$ 907.829
Cryst. Mp 126°. $[\alpha]_D$ -17 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2′′,3′,3′′,4′,4′′,6,6′-hepta-benzyl, 2N,3-di-Ac: [60920-96-9]
$C_{78}H_{85}NO_{16}$ 1292.527
Glass. $[\alpha]_D^{20}$ +2 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2′′,3′,3′′,4′,4′′,6,6′-hepta-benzyl, N-*Ac:* [60920-95-8]
$C_{76}H_{83}NO_{15}$ 1250.489
Glass. $[\alpha]_D^{20}$ +1.5 (c, 1.2 in $CHCl_3$).

Benzyl glycoside, 2,3,3′,3′′,4′,4′′,6,6′-octa-benzyl, N-*Ac:* [61820-07-3]
$C_{83}H_{89}NO_{15}$ 1340.614
Amorph. $[\alpha]_D^{20}$ +8.5 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 4′,6′-O-benzylidene, 2′′,3,3′′,4′′,6-pentabenzyl, N-*Ac:* [70209-58-4]
$C_{69}H_{75}NO_{15}$ 1158.349
Syrup. $[\alpha]_D^{20}$ +9.06 (c, 1.06 in $CHCl_3$). $[\alpha]_D$ +13 (c, 1.0 in $CHCl_3$).

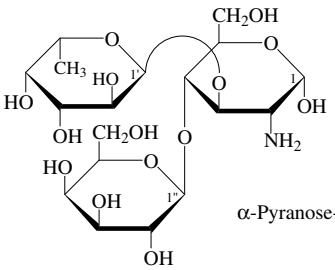
Benzyl glycoside, 4′,6′-O-benzylidene, 2′′,3,3′′,4′′,6-pentabenzyl, 3′-benzoyl, N-*Ac:* [70209-57-3]
$C_{76}H_{79}NO_{16}$ 1262.457
Syrup. $[\alpha]_D^{20}$ +38.4 (c, 0.99 in $CHCl_3$).

[47776-54-5, 60920-94-7, 61913-81-3]

Jacquinet, J.C. *et al., Tetrahedron*, 1976, **32**, 1693 (*N-Ac, α-deca-Ac, α-benzyl pyr octabenzyl N-Ac, ir, pmr*)
Jacquinet, J.C. *et al., J.O.C.*, 1977, **42**, 720 (*α-benzyl pyr heptabenzyl derivs, ir, pmr*)
Milat, M.L. *et al., Carbohydr. Res.*, 1981, **92**, 183 (*α-benzyl pyr pentabenzyl N-Ac, occur*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 306 (*N-Ac, α-benzyl pyr 3′-benzoyl N-Ac deriv, ir, pmr*)
Rana, S.S. *et al., J. Carbohydr. Chem.*, 1982, **1**, 261 (*N-Ac*)

α-L-Fucopyranosyl-(1 →3)-[β-D-galactopyranosyl-(1 →4)]-2-amino-2-deoxy-D-glucose F-125

6-Deoxy-α-L-galactopyranosyl-(1 →3)-[β-D-galactopyranosyl-(1 →4)]-2-amino-2-deoxy-D-glucose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457
Isol. from the degradn. of Le^a blood group specific glycoprotein of ovarian cyst fluid. Located at the non-reducing end of several glycoconjugates of human origin.

N-*Ac:* [71208-06-5]
$C_{20}H_{35}NO_{15}$ 529.494
Powder + H_2O. Mp 140-142°. $[\alpha]_D$ -33 (c, 1.0 in H_2O).

α-Pyranose-*form*

Deca-Ac: [71208-07-6]
$C_{38}H_{53}NO_{24}$ 907.829
Cryst. (EtOAc/Et_2O). Mp 241-242°. $[\alpha]_D^{23}$ -31 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2′,3′,4′-tribenzyl, 2N,2′′,3′′,4′′,6,6′′-hexa-Ac: [71208-04-3]
$C_{58}H_{69}NO_{20}$ 1100.178
Cryst. Mp 132-133°. $[\alpha]_D^{26}$ +15 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2′′,3′′,4′′,6-tetrabenzyl, N-*Ac:* [71208-05-4]
$C_{55}H_{65}NO_{15}$ 980.116
Cryst. + EtOAc (EtOAc/Et_2O). Mp 98-99°. $[\alpha]_D^{23}$ -8 (c, 1.0 in MeOH).

Benzyl glycoside, 2′,3′,4′,6-tetrabenzyl, 2N,2′′,3′′,4′′,6′′-penta-Ac: [71208-03-2]
$C_{63}H_{73}NO_{19}$ 1148.265
Cryst. (EtOAc/Et_2O). Mp 154-155°. $[\alpha]_D^{26}$ +6.5 (c, 1.0 in $CHCl_3$).

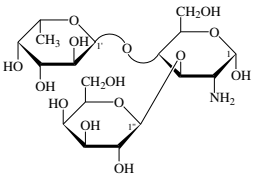
1-Phosphate:
$C_{18}H_{34}NO_{17}P$ 567.437
Isol. from human pregnancy urine.

Jacquinet, J.C. *et al., J.C.S. Perkin 1*, 1979, 314 (*N-Ac, α-deca-Ac, α-benzyl pyr derivs, pmr, occur*)
Derappe, C. *et al., Carbohydr. Res.*, 1986, **150**, 273 (*isol, phosphate*)

α-L-Fucopyranosyl-(1 →4)-[β-D-galactopyranosyl-(1 →3)]-2-amino-2-deoxy-D-glucose F-126

6-Deoxy-α-L-galactopyranosyl-(1 →4)-[β-D-galactopyranosyl-(1 →3)]-2-amino-2-deoxy-D-glucose, 9CI

[56602-25-6]



α-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457

Constit. of the human blood group Lewis a (Le^a) antigenic determinant.

N-*Ac:* [56570-03-7]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. $[\alpha]_D^{25}$ -45.1 (c, 1.0 in H_2O).

α-Pyranose-*form*

Me glycoside, N-*Ac:* [86782-04-9]
$C_{21}H_{37}NO_{15}$ 543.521
Amorph. solid + $2H_2O$. $[\alpha]_D$ -17.4 (c, 0.8 in H_2O).

Me glycoside, 2′,3′,4′,6-tetrabenzyl, N-*Ac:* [86782-03-8]
$C_{49}H_{61}NO_{15}$ 904.019
Cryst. (EtOAc). Mp 220-222°. $[\alpha]_D$ -35.8 (c, 1.9 in MeOH).

Me glycoside, 2′,3′,4′,6-tetrabenzyl, 2N,2′′,3′′,4′′,6′′-penta-Ac: [86782-02-7]
$C_{57}H_{69}NO_{19}$ 1072.167
Amorph. solid. $[\alpha]_D$ +3.2 (c, 0.8 in $CHCl_3$).

β-Pyranose-*form*

Benzyl glycoside, 2′,3′,4′,6-tetrabenzyl, N-*Ac:* [86833-33-2]
$C_{55}H_{65}NO_{15}$ 980.116
Amorph. solid + H_2O. $[\alpha]_D$ -81.6 (c, 1.6 in MeOH).

Benzyl glycoside, 2′,3′,4′,6-tetrabenzyl, 2N,2′′,3′′,4′′,6′′-penta-Ac: [86833-32-1]
$C_{63}H_{73}NO_{19}$ 1148.265
Cryst. (EtOAc/Et_2O/hexane). Mp 112-114°. $[\alpha]_D$ -74.9 (c, 1.0 in $CHCl_3$).

8-Ethoxycarbonyloctyl glycoside, 2′,3′,4′-tribenzyl, 2N,2′′,3′′,4′′,6,6′′-hexa-Ac: [56343-08-9]
$C_{62}H_{83}NO_{22}$ 1194.331
Syrup. $[\alpha]_D^{22}$ -54 (c, 1.1 in $CHCl_3$).

Ph glycoside, N-*Ac:* [81329-66-0]
$C_{26}H_{39}NO_{15}$ 605.592
Syrup. $[\alpha]_D$ -74.4 (MeOH).

Ph glycoside, 2′,3′,4′-tribenzyl, 2N,2′′,3′′,4′′,6,6′′-hexa-Ac: [84333-52-8]
$C_{57}H_{67}NO_{20}$ 1086.151
Cryst. Mp 183-184°. $[\alpha]_D$ -66.2 (c, 0.5 in $CHCl_3$).

[79951-60-3]

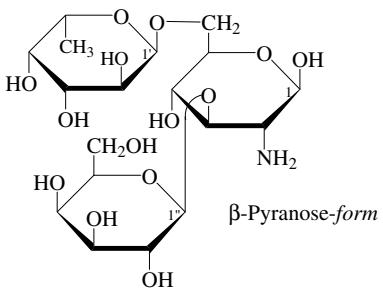
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4063; 4076 (*N-Ac, β-ethoxycarbonyloctyl pyr deriv, pmr, cmr*)

Sykes, D.E. *et al., Carbohydr. Res.*, 1983, **112**, 221 (*β-Ph pyr derivs, pmr*)

Rana, S.S. *et al., Carbohydr. Res.*, 1983, **117**, 101 (*α-Me pyr derivs, β-benzyl pyr derivs, pmr, cmr, occur*)

α-L-Fucopyranosyl-(1 →6)-[β-D-galactopyranosyl-(1 →3)]-2-amino-2-deoxy-D-glucose F-127

6-Deoxy-α-L-galactopyranosyl-(1 →6)-[β-D-galactopyranosyl-(1 →3)]-2-amino-2-deoxy-D-glucose, 9CI



β-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457

N-*Ac:* [56570-06-0]
$C_{20}H_{35}NO_{15}$ 529.494
Amorph. powder. $[\alpha]_D^{27}$ -43 (c, 1.0 in H_2O).

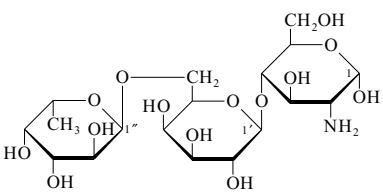
β-Pyranose-*form*

2,2,2-Trichloroethyl glycoside, 2′,3′,4′-tribenzyl, 2N,2′′,3′′,4′′,6′′-penta-Ac: [56570-07-1]
Cryst. (EtOAc). Mp 144-145°. $[\alpha]_D^{25}$ -26.5 (c, 1.0 in $CHCl_3$).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4063 (*N-Ac, β-trichloroethyl pyr penta-Ac deriv, cmr, pmr*)

α-L-Fucopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose F-128

6-Deoxy-α-L-galactopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457

α-Pyranose-*form*

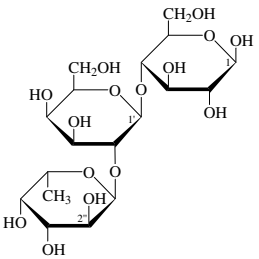
Benzyl glycoside, 2′′,3,3′′,4′′,6,6-pentabenzyl, 2N,2′,3′,4′-tetra-Ac: [64694-25-3]
$C_{68}H_{77}NO_{18}$ 1196.352
Syrup. $[\alpha]_D^{20}$ +19 (c, 1.0 in $CHCl_3$).

Pougny, J.R. *et al., J.A.C.S.*, 1977, **99**, 6762 (*α-benzyl pyr tetra-Ac deriv, pmr*)

α-L-Fucopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI, 8CI F-129

2′-Fucosyllactose

[41263-94-9]



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442

Present in the free state in human milk. Major trisaccharide of the milk of the brown bear *Ursus arctos yessoensis*. Solid (EtOH).

Mp 230-231°. $[\alpha]_D$ -53.5 → -57.5 (72h) (c, 2.0 in H_2O). $[\alpha]_D$ -43 → -48 (c, 0.47 in H_2O).

Phenylosazone: Mp 217°. $[\alpha]_D$ -29 (H_2O).

Pyranose-*form* [14843-73-3]

2′′,3′′,4′′-Tribenzyl: [77680-93-4]
$C_{39}H_{50}O_{15}$ 758.815
Cryst. (MeOH/Et_2O). Mp 122-125°. $[\alpha]_D$ -41 (c, 0.9 in $CHCl_3$/MeOH 2:1).

β-Pyranose-*form*

Benzyl glycoside, 3′,4′-isopropylidene, 2,2′′,3′′,4′′,6,6′-hexabenzyl: [109923-06-0]
$C_{70}H_{78}O_{15}$ 1159.377
Syrup. $[\alpha]_D^{20}$ -47 (c, 0.45 in $CHCl_3$).

Kuhn, R. *et al., Chem. Ber.*, 1955, **88**, 1135; 1956, **89**, 2513 (*isol*)

Malpress, F.H. *et al., Biochem. J.*, 1958, **68**, 708

Biswas, M. *et al., Biopolymers*, 1980, **19**, 1555 (*conformn*)

Abbas, S.A. *et al., Carbohydr. Res.*, 1981, **88**, 51 (*synth, pmr*)

Fernandez-Mayoralas, A. *et al., Carbohydr. Res.*, 1986, **154**, 93 (*synth, benzyl gly synth, cmr*)

Hansson, G.C. *et al., Biochemistry*, 1989, **28**, 6672 (*gc-ms*)

Thurl, S. *et al., J. Chromatogr.*, 1991, **568**, 291 (*anal*)

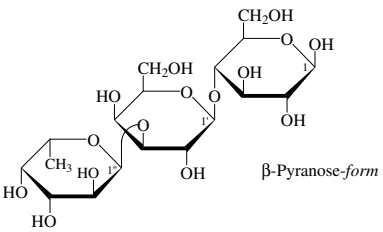
Urashima, T. *et al., Biochim. Biophys. Acta*, 1997, **1334**, 247-255 (*occur*)

Ishizuka, Y. *et al., J. Carbohydr. Chem.*, 1999, **18**, 523-533 (*pmr, cmr, conformn*)

Albermann, C. *et al., Carbohydr. Res.*, 2001, **334**, 97-103 (*enzymic synth, pmr, cmr*)

α-L-Fucopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI F-130

6-Deoxy-α-L-galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose. 3′-α-L-Fucopyranosyl-α-lactose
[75795-65-2]



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Isol. from faeces of blood group B human infants. Inhibits adhesion of *Streptococcus* pyogenes to epithelial pharyngeal cells. Patented for use in mouthrinses. Needles +0.5 H_2O (EtOH aq.).
Mp 255-257° dec. $[\alpha]_D^{20}$ -25.3 → -30 (c, 0.3 in H_2O). $[\alpha]_D$ -39 → -42.6 (H_2O).

Pyranose-*form*

2′′,3′′,4′′-Tribenzyl, 1,2,2′,3,6,6′-hexa-Ac: [75795-63-0]
$C_{51}H_{62}O_{21}$ 1011.038
Cryst. Mp 156-158° (softens at 125-130°). $[\alpha]_D$ -20.5 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

1,2,2′,2′′,3,3′′,4′,4′′,6′-Nona-Ac: [78880-09-8]
$C_{36}H_{50}O_{24}$ 866.777
Amorph. powder + 0.5 H_2O. $[\alpha]_D^{21}$ -58.3 (c, 0.5 in $CHCl_3$).

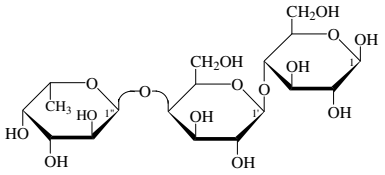
1,6-Anhydro: [78880-08-7]
$C_{18}H_{30}O_{14}$ 470.427
Hygroscopic amorph. powder + 2H_2O. $[\alpha]_D^{19}$ -89.4 (c, 0.9 in H_2O).

1,6-Anhydro, 4′,6′-O-benzylidene, 2,2′,3-tribenzyl, 2′′,3′′,4′′-tri-Ac: [78880-07-6]
$C_{52}H_{58}O_{17}$ 955.02
Amorph. powder. $[\alpha]_D^{22}$ -66.8 (c, 0.9 in $CHCl_3$).

Baer, H.H. *et al., Carbohydr. Res.*, 1980, **84**, 53 (*synth, tribenzyl hexa-Ac, β-nona-Ac, pmr*)
Takamura, T. *et al., Chem. Pharm. Bull.*, 1981, **29**, 1076 (*synth, anhydro derivs, pmr, cmr*)
Sabharwal, H. *et al., Carbohydr. Res.*, 1988, **178**, 145 (*isol*)
U.S. Pat., 1991, 5 002 759; *CA*, **115**, 142043h (*use*)

α-L-Fucopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-glucose F-131

6-Deoxy-α-L-galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI. 4′-α-L-Fucopyranosyllactose
[89435-95-0]



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Hygroscopic amorph. powder + 0.5H_2O. $[\alpha]_D^{17}$ -37.2 (c, 0.4 in H_2O).

β-Pyranose-*form*

1,6-Anhydro: [86462-06-8]
$C_{18}H_{30}O_{14}$ 470.427
Amorph. powder + 0.5H_2O. $[\alpha]_D^{20}$ -105.8 (c, 0.82 in H_2O).

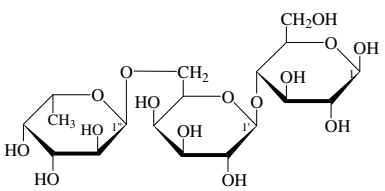
1,6-Anhydro, octa-Ac: [86462-07-9]
$C_{34}H_{46}O_{22}$ 806.724
Amorph. powder. $[\alpha]_D^{21}$ -104.6 (c, 0.7 in $CHCl_3$).

1,6-Anhydro, 2,2′,3,3′,6′-pentabenzyl, 2′′,3′′,4′′-tri-Ac:
$C_{59}H_{66}O_{17}$ 1047.16
Syrup + 0.5H_2O. $[\alpha]_D^{24}$ -52.5 (c, 1.0 in $CHCl_3$).

Chiba, T. *et al., Chem. Pharm. Bull.*, 1983, **31**, 75 (*synth, anhydro derivs, pmr*)

α-L-Fucopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI F-132

6-Deoxy-α-L-galactopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose. 6′-α-L-Fucopyranosyllactose
[80756-86-1]



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Lectin binding inhibitor. Hygroscopic solid + H_2O or glass. $[\alpha]_D^{25}$ -28.3 (c, 0.24 in MeOH). $[\alpha]_D^{25}$ -23 → -21 (c, 0.3 in H_2O).

β-Pyranose-*form*

2′′,3′′,4′′-Tribenzyl: [74800-97-8]
$C_{39}H_{50}O_{15}$ 758.815
Cryst. + 0.5H_2O (MeOH/Et_2O). Mp 160-162°. $[\alpha]_D^{25}$ -25 (c, 0.3 in $CHCl_3$).

2′′,3′′,4′′-Tribenzyl, hepta-Ac: [74800-96-7]
$C_{53}H_{64}O_{22}$ 1053.075
Cryst. (Et_2O/petrol). Mp 110-113°. $[\alpha]_D^{25}$ -36.4 (c, 1.0 in $CHCl_3$).

2′′,3′′,4′′-Tribenzyl, 1,2,2′,3,3′,6-hexa-Ac: [74800-95-6]
$C_{51}H_{62}O_{21}$ 1011.038
Cryst. (EtOAc/petrol). Mp 195-197°. $[\alpha]_D^{25}$ -26.5 (c, 0.5 in $CHCl_3$).

1,6-Anhydro: [86462-24-0]
$C_{18}H_{30}O_{14}$ 470.427
Hygroscopic amorph. powder + 0.5H_2O. $[\alpha]_D^{20}$ -59.3 (c, 0.32 in H_2O).

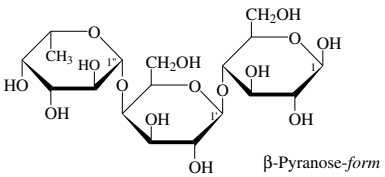
1,6-Anhydro, octa-Ac: [86462-25-1]
$C_{34}H_{46}O_{22}$ 806.724
Amorph. powder. $[\alpha]_D^{20}$ -88.3 (c, 1.2 in $CHCl_3$).

1,6-Anhydro, octabenzyl: [86462-23-9]
$C_{74}H_{78}O_{14}$ 1191.422
Syrup. $[\alpha]_D^{21}$ -49.7 (c, 1.0 in $CHCl_3$).

Baer, H.H. *et al., Carbohydr. Res.*, 1980, **83**, 146 (*synth, tribenzyl derivs, pmr*)
Chiba, T. *et al., Chem. Pharm. Bull.*, 1983, **31**, 75 (*anhydro derivs, pmr, cmr*)
Konami, Y. *et al., Chem. Pharm. Bull.*, 1989, **37**, 729 (*biochem*)

β-L-Fucopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI F-133

6-Deoxy-β-L-galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-glucose. 4′-β-L-Fucopyranosyllactose



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Hygroscopic amorph. powder + H_2O. $[\alpha]_D^{22}$ +36.8 (c, 0.84 in H_2O).

β-Pyranose-*form* [86462-15-9]

1,2,2′,2′′,3,3′,3′′,4′′,6-Nona-Ac: [86462-13-7]
$C_{36}H_{50}O_{24}$ 866.777
Amorph. powder. $[\alpha]_D^{20}$ +11.7 (c, 1.04 in $CHCl_3$).

1,6-Anhydro: [86462-11-5]
$C_{18}H_{30}O_{14}$ 470.427
Needles (EtOH aq.). Mp 257-260°. $[\alpha]_D^{21}$ -32.5 (c, 0.57 in H_2O).

1,6-Anhydro, octa-Ac: [86462-12-6]
$C_{34}H_{46}O_{22}$ 806.724
Needles (EtOAc/MeOH). Mp 246-247°. $[\alpha]_D^{25}$ +4.4 (c, 1.1 in $CHCl_3$).

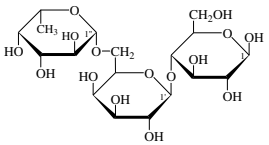
1,6-Anhydro, 2,2′,3,3′,6′-pentabenzyl: [86462-05-7]
$C_{53}H_{60}O_{14}$ 921.049
Syrup + 0.5H_2O. $[\alpha]_D^{26}$ -10.4 (c, 1.08 in $CHCl_3$).

[86462-14-8]

Chiba, T. *et al., Chem. Pharm. Bull.*, 1983, **31**, 75 (*synth, nona-Ac, anhydro derivs, pmr, cmr*)

β-L-Fucopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose F-134

6-Deoxy-β-L-galactopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI. 6′-β-L-Fucopyranosyllactose



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Hygroscopic amorph. powder + H_2O. $[\alpha]_D^{20}$ +48.4 (c, 1.6 in H_2O).

β-Pyranose-*form* [86462-22-8]

1,6-Anhydro: [86462-18-2]
$C_{18}H_{30}O_{14}$ 470.427
Hygroscopic needles (EtOH aq.). Mp 244-245°. $[\alpha]_D^{22}$ -28.4 (c, 1.0 in H_2O).

1,6-Anhydro, octa-Ac: [86462-19-3]
$C_{34}H_{46}O_{22}$ 806.724
Amorph. powder. $[\alpha]_D^{24}$ -32.2 (c, 1.1 in $CHCl_3$).

1,6-Anhydro, 2,2′,3,3′,4′-pentabenzyl: [86462-17-1]
$C_{53}H_{60}O_{14}$ 921.049
Amorph. powder + 0.5H_2O. $[\alpha]_D^{22}$ -23.1 (c, 1.2 in $CHCl_3$).

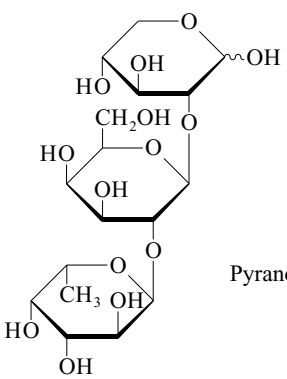
1,6-Anhydro, 2,2′,3,3′,4′-pentabenzyl, 2′′,3′′,4′′-tri-Ac: [86462-16-0]
$C_{59}H_{66}O_{17}$ 1047.16
Amorph. powder. $[\alpha]_D^{21}$ -15.8 (c, 1.0 in $CHCl_3$).

[86462-21-7]

Chiba, T. *et al., Chem. Pharm. Bull.*, 1983, **31**, 75 (*synth, anhydro derivs, pmr, cmr*)

α-L-Fucopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →2)-D-xylose F-135

6-Deoxy-α-L-galactopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →2)-D-xylose, 9CI
[130136-27-5]



Pyranose–*form*

$C_{17}H_{30}O_{14}$ 458.416
Isol. from the enzymic hydrolysate of a plant cell wall polysaccharide. Constit. in the cell wall material of scarlet runner bean (*Phaseolus coccineus*). Shows anti-auxin activity. Syrup.

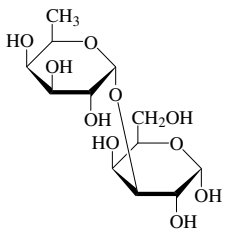
Octabenzyl: [130136-35-5]
$C_{73}H_{78}O_{14}$ 1179.411
Syrup.

[130136-79-7]

Kato, Y. *et al., Agric. Biol. Chem.*, 1980, **44**, 1751 (*constit*)
McDougall, G.J. *et al., Plant Physiol.*, 1989, **89**, 883 (*biol*)
Torgov, V.I. *et al., Bioorg. Khim.*, 1990, **16**, 854; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1990, **16**, 482 (*isol, pmr, cmr*)

3-*O*-α-D-Fucopyranosyl-D-galactose F-136

3-O-(6-Deoxy-α-D-galactopyranosyl)-D-galactose



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*

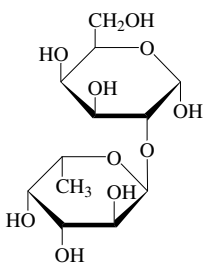
Me glycoside: Methyl 3-O-α-D-fucopyranosyl-α-D-galactopyranoside, 9CI
[116391-08-3]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{22}$ +241 (c, 1.0 in H_2O).

Me glycoside, 2,2′,3′,4′,6-pentabenzyl:
[116391-16-3]
$C_{48}H_{54}O_{10}$ 790.949
$[\alpha]_D^{22}$ +63 (c, 1.1 in $CHCl_3$).

Baumann, H. *et al., J.C.S. Perkin 1*, 1988, 209 (*synth, pmr, cmr, conformn*)

2-*O*-α-L-Fucopyranosyl-D-galactose F-137

2-O-(6-Deoxy-α-L-galactopyranosyl)-D-galactose, 9CI. Disaccharide H
[24656-24-4]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Isol. from milk oligosaccharides and from blood group substances. Antigenic determinant. $[\alpha]_D^{22}$ -56 (c, 1.2 in H_2O).

Benzylphenylhydrazone: Mp 163.5°.

α-Pyranose-*form*

Hepta-Ac: [52921-44-5]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH/petrol). Mp 172-174°. $[\alpha]_D^{23}$ -28.3 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 2-O-α-L-fucopyranosyl-α-D-galactopyranoside
[71731-89-0]
$C_{13}H_{24}O_{10}$ 340.327
Cryst. Mp 202-204°. $[\alpha]_D$ +2 (c, 0.1 in H_2O).

β-Pyranose-*form*

Me glycoside: Methyl 2-O-α-L-fucopyranosyl-β-D-galactopyranoside
[24656-23-3]
$C_{13}H_{24}O_{10}$ 340.327
Cryst. Mp 171°. $[\alpha]_D$ -112 (c, 0.5 in H_2O).

Me glycoside, hexa-Ac: [129864-99-9]
$C_{25}H_{36}O_{16}$ 592.55
Mp 148-150°. $[\alpha]_D^{20}$ -113 (c, 1.2 in $CHCl_3$).

1,6-Anhydro: 1,6-Anhydro-2-O-α-L-fucopyranosyl-β-D-galactopyranose
[120703-64-2]
$C_{12}H_{20}O_9$ 308.285
Mp 88-92°. $[\alpha]_D^{22}$ -120 (c, 0.5 in MeOH).

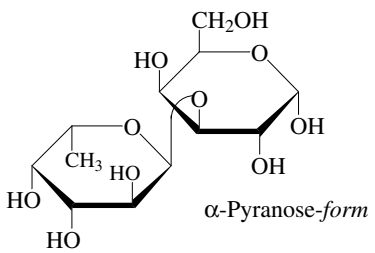
1,6-Anhydro, penta-Ac: [120703-63-1]
$C_{22}H_{30}O_{14}$ 518.471
Needles (EtOH). Mp 172-173°. $[\alpha]_D^{22}$ -123 (c, 1.0 in $CHCl_3$).

1,6-Anhydro, 2′,3′,4′-tribenzyl: [120703-61-9]
$C_{33}H_{38}O_9$ 578.658
Mp 49-50°. $[\alpha]_{578}^{22}$ -55.5 (c, 1.0 in $CHCl_3$).

Kuhn, R. *et al., Annalen*, 1958, **611**, 242-249 (*isol*)
Levy, A. *et al., Carbohydr. Res.*, 1967, **4**, 305-311 (*synth*)
Matta, K.L. *et al., Carbohydr. Res.*, 1973, **31**, 410-412 (*hepta-Ac*)
Jacquinet, J.C. *et al., Tetrahedron*, 1976, **32**, 1693-1697 (*synth*)
Wegmann, B. *et al., Carbohydr. Res.*, 1988, **184**, 254-261 (*synth*)
Nicotra, F. *et al., J. Carbohydr. Chem.*, 1992, **11**, 397-399 (***synth***)
Watt, D.K. *et al., Carbohydr. Res.*, 1996, **285**, 1-15 (*synth, pmr, cmr, cryst struct, Me α-gly, Me β-gly*)

3-*O*-α-L-Fucopyranosyl-D-galactose, 9CI F-138

[24667-49-0]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

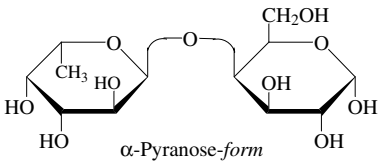
α-Pyranose-*form*

Me glycoside: Methyl 3-O-α-L-fucopyranosyl-α-D-galactopyranoside, 9CI
[110891-65-1]
$C_{13}H_{24}O_{10}$ 340.327
Amorph. powder. $[\alpha]_D^{22}$ +22 (c, 1.0 in H_2O).

Me glycoside, 2,2′,3′,4′,6-Pentabenzyl:
[116391-15-2]
$C_{48}H_{54}O_{10}$ 790.949
$[\alpha]_D^{22}$ -35.

Baumann, H. *et al., J.C.S. Perkin 1*, 1988, 209; 1989, 2153 (*synth, cmr*)

4-*O*-α-L-Fucopyranosyl-D-galactose F-139



α-Pyranose-*form*

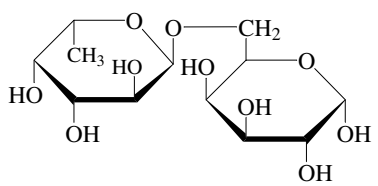
$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*

*Me glycoside: Methyl 4-*O*-α-L-fucopyranosyl-α-D-galactopyranoside, 9CI*
[127772-98-9]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{22}$ +18 (c, 1.0 in H_2O).
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145

6-*O*-α-L-Fucopyranosyl-D-galactose F-140

6-O-(6-Deoxy-α-L-galactopyranosyl)-D-galactose, 9CI
[52630-64-5]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Isol. from human blood group B substance from ovarian cyst-fluid. Amorph.
$[\alpha]_D^{25}$ -61.1 (c, 1.0 in H_2O).

2′-Benzyl:
$C_{19}H_{28}O_{10}$ 416.424
$[\alpha]_D^{25}$ -64.4 (c, 0.5 in 50% EtOH aq.).

α-Pyranose-*form*

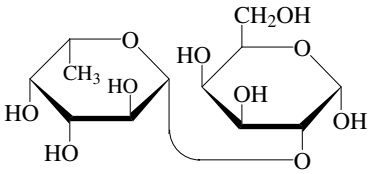
*Me glycoside: Methyl 6-*O*-α-L-fucopyranosyl-α-D-galactopyranoside, 9CI*
[137063-43-5]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{22}$ -8 (c, 0.8 in H_2O).

β-Pyranose-*form*

Me glycoside, hexa-Ac:
$C_{25}H_{36}O_{16}$ 592.55
Cryst. (hexane/Et_2O). Mp 164-166°.
$[\alpha]_D^{20}$ -102 (c, 1.0 in $CHCl_3$).
Matta, K.L. *et al., Carbohydr. Res.*, 1974, **32**, 418 (*isol*)
Baumann, H. *et al., J.C.S. Perkin 1*, 1991, 2229 (*Me gly, pmr, cmr*)

2-*O*-β-L-Fucopyranosyl-D-galactose F-141

2-O-(6-Deoxy-β-L-galactopyranosyl)-D-galactose, 9CI
[52921-46-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D^{23}$ +48.3 (c, 1.0 in H_2O).

α-Pyranose-*form*

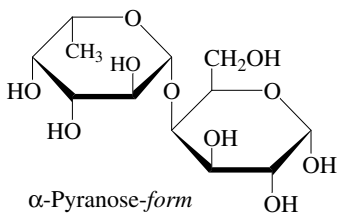
Hepta-Ac: [52921-45-6]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 222-224°. $[\alpha]_D^{23}$ +54.7 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

1,6-Anhydro, 3,4-di-Ac, 2′,3′,4′-tribenzyl:
$C_{37}H_{42}O_{11}$ 662.732
Oil. $[\alpha]_D^{22}$ +5 (c, 1.0 in $CHCl_3$).

*1,6-Anhydro, 3,4-*O*-isopropylidene, 2′,3′,4′-tribenzyl:*
$C_{36}H_{42}O_9$ 618.722
Oil. $[\alpha]_D^{25}$ -96.5 (c, 1.0 in $CHCl_3$).
Matta, K.L. *et al., Carbohydr. Res.*, 1973, **31**, 410 (*synth*)
Wegmann, B. *et al., Carbohydr. Res.*, 1988, **184**, 254 (*1,6-anhydro*)

4-*O*-β-L-Fucopyranosyl-D-galactose F-142



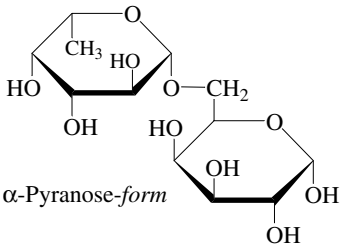
α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*

*Me glycoside: Methyl 4-*O*-β-L-fucopyranosyl-α-D-galactopyranoside, 9CI*
[127563-94-4]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{22}$ +127 (c, 1.0 in H_2O).
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145

6-*O*-β-L-Fucopyranosyl-D-galactose F-143



α-Pyranose-*form*

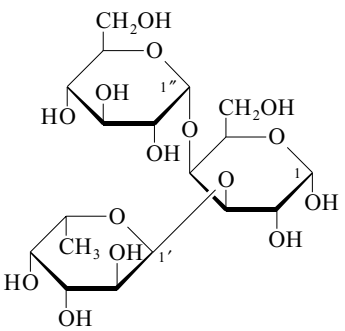
$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D^{25}$ +28 (H_2O).

α-Pyranose-*form*

*Me glycoside: Methyl 6-*O*-β-L-fucopyranosyl-α-D-galactopyranoside, 9CI*
[137063-44-6]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{22}$ +113 (c, 1.0 in H_2O).
Schiffman, A. *et al., J.A.C.S.*, 1960, **82**, 1122
Matta, K.L. *et al., Carbohydr. Res.*, 1974, **32**, 418
Baumann, H. *et al., J.C.S. Perkin 1*, 1991, 2229 (*pmr, cmr*)

α-L-Fucopyranosyl-(1→3)-[α-D-glucopyranosyl-(1→4)]-D-galactose F-144

6-Deoxy-α-L-galactopyranosyl-(1→3)-[α-D-glucopyranosyl-(1→4)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

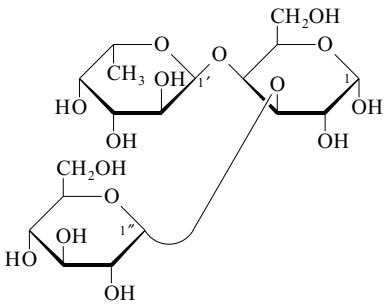
α-Pyranose-*form*

Me glycoside: [127592-66-9]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ +55 (c, 1.3 in H_2O).

Me glycoside, 2,2′,2″,3′,3″,4′,4″,6,6″-nonabenzyl: [127501-44-4]
$C_{82}H_{88}O_{15}$ 1313.588
Syrup.
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

α-L-Fucopyranosyl-(1 →4)-[α-D-glucopyranosyl-(1 →3)]-D-galactose F-145

6-Deoxy-α-L-galactopyranosyl-(1 →4)-[α-D-glucopyranosyl-(1 →3)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

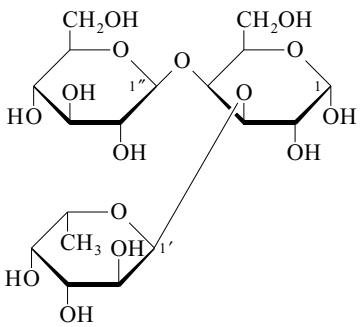
Me glycoside: [127593-38-8]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ +102 (c, 1.1 in H_2O).

Me glycoside, 2,2′,2″,3′,3″,4′,4″,6,6″-nonabenzyl: [127524-40-7]
$C_{82}H_{88}O_{15}$ 1313.588
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

α-L-Fucopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →4)]-D-galactose F-146

6-Deoxy-α-L-galactopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →4)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

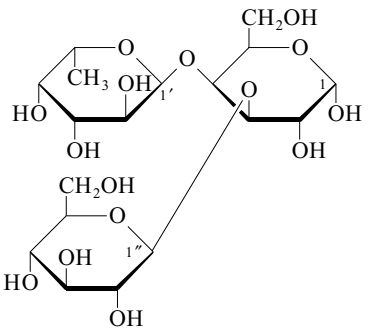
Me glycoside: [127592-67-0]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ -2 (c, 1.1 in H_2O).

Me glycoside, 2,2′,3′,4′,6-pentabenzyl, 2″,3″,4″,6″-tetrabenzoyl: [127501-45-5]
$C_{82}H_{80}O_{19}$ 1369.523
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

α-L-Fucopyranosyl-(1 →4)-[β-D-glucopyranosyl-(1 →3)]-D-galactose F-147

6-Deoxy-α-L-galactopyranosyl-(1 →4)-[β-D-glucopyranosyl-(1 →3)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

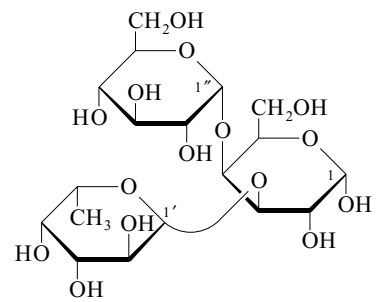
Me glycoside: [127592-70-5]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ +7 (c, 0.9 in H_2O).

Me glycoside, 2,2′,3′,4′,6-pentabenzyl, 2″,3″,4″,6″-tetrabenzoyl: [127501-48-8]
$C_{82}H_{80}O_{19}$ 1369.523
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

β-L-Fucopyranosyl-(1 →3)-[α-D-glucopyranosyl-(1 →4)]-D-galactose F-148

6-Deoxy-β-L-galactopyranosyl-(1 →3)-[α-D-glucopyranosyl-(1 →4)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

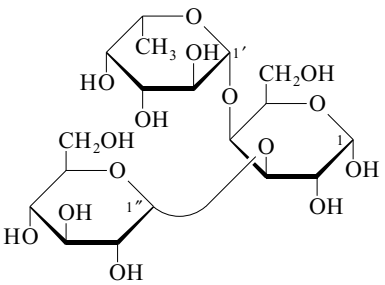
Me glycoside: [127592-68-1]
$C_{19}H_{34}O_{15}$ 502.469
$[\alpha]_D^{22}$ +188 (c, 1.1 in H_2O).

Me glycoside, 2,2″,3″,4″,6,6″-hexabenzyl: [127501-46-6]
$C_{61}H_{70}O_{15}$ 1043.215
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

β-L-Fucopyranosyl-(1 →4)-[α-D-glucopyranosyl-(1 →3)]-D-galactose F-149

6-Deoxy-β-L-galactopyranosyl-(1 →4)-[α-D-glucopyranosyl-(1 →3)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

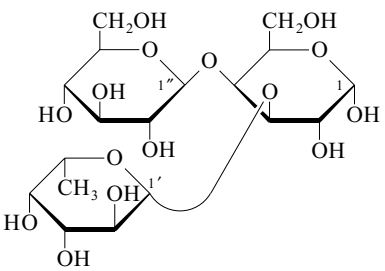
Me glycoside: [127501-40-0]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ +181 (c, 1.0 in H_2O).

Me glycoside, 2,2″,3″,4″,6,6″-hexabenzyl, 2′,3′,4′-tri-Ac: [127501-47-7]
$C_{67}H_{76}O_{18}$ 1169.327
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

β-L-Fucopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →4)]-D-galactose F-150

6-Deoxy-β-L-galactopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →4)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

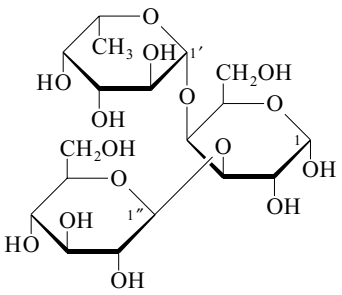
Me glycoside: [127592-69-2]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ +111 (c, 0.9 in H_2O).

Me glycoside, 2,2″,3″,4″,6,6″-hexabenzyl: [127592-72-7]
$C_{61}H_{70}O_{15}$ 1043.215
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

β-L-Fucopyranosyl-(1 →4)-[β-D-glucopyranosyl-(1 →3)]-D-galactose F-151

6-Deoxy-β-L-galactopyranosyl-(1 →4)-[β-D-glucopyranosyl-(1 →3)]-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

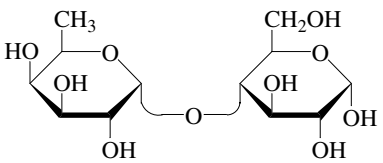
Me glycoside: [127592-71-6]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{22}$ +88 (c, 1.1 in H_2O).

Me glycoside, 2,6-dibenzyl, 2′,2″,3′,3″,4′,4″,6″-heptabenzoyl: [127524-41-8]
$C_{82}H_{74}O_{22}$ 1411.473
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2167 (*α-Me pyr derivs, pmr, cmr, conformn*)

4-*O*-α-D-Fucopyranosyl-D-glucose F-152

[56838-51-8]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

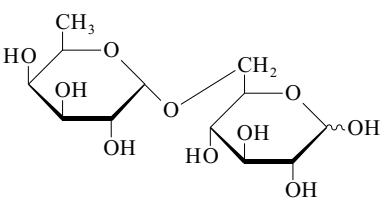
Reducing disaccharide. Hygroscopic amorph. powder. $[\alpha]_D^{27}$ +128.3 (c, 0.72 in H_2O).

α-Pyranose-*form*

Hepta-Ac: [56907-31-4]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 186-189°. $[\alpha]_D^{25}$ +137.5 (c, 1.1 in $CHCl_3$).

Mori, M. *et al., Chem. Pharm. Bull.*, 1975, **23**, 1480 (*synth*)

6-*O*-α-D-Fucopyranosyl-D-glucose F-153



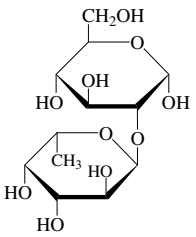
$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Prepared by the degradn. of 6-*O*-α-D-Galactopyranosyl-D-glucose, G-145. $[\alpha]_D$ +125 (H_2O).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1959, **37**, 1930

2-*O*-α-L-Fucopyranosyl-D-glucose F-154

[39848-55-0]



α-Pyranose-*form*

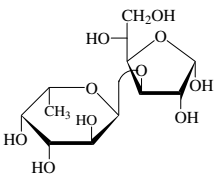
$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Isol. from urine. $[\alpha]_D^{20}$ -65.5 (c, 1.8 in H_2O).

Lundblad, A. *et al., Biochemistry*, 1973, **12**, 307 (*isol*)

3-*O*-α-L-Fucopyranosyl-D-glucose, 9CI F-155

[56822-52-7]



α-Furanose-*form*

$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Amorph. powder. $[\alpha]_D^{26}$ -86 (c, 1.0 in H_2O).

α-Furanose-*form*

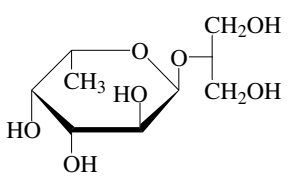
1,2:5,6-Di-O-*isopropylidene:* [56822-53-8]
$C_{18}H_{30}O_{10}$ 406.429
Mp 92-94°. $[\alpha]_D^{23}$ -122.5 (c, 1.4 in H_2O).

1,2:5,6-Di-O-*isopropylidene, tribenzyl:*
$C_{39}H_{48}O_{10}$ 676.802
Oil. $[\alpha]_D^{27}$ -97 (c, 2 in $CHCl_3$).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056

2-*O*-α-L-Fucopyranosylglycerol F-156

2-Hydroxy-1-(hydroxymethyl)ethyl 6-deoxy-α-L-galactopyranoside. Glycerol 2-α-L-fucopyranoside

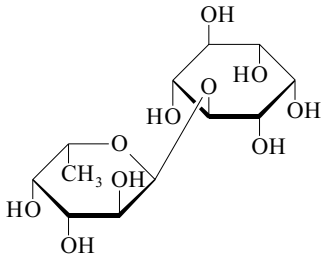


$C_9H_{18}O_7$ 238.237
Constit. of the fruit of *Cnidium monnieri*. Syrup. $[\alpha]_D^{23}$ -127 (c, 0.9 in MeOH).

Kitajima, J. *et al., Phytochemistry*, 2001, **58**, 641-644

4-*O*-α-L-Fucopyranosyl-*myo*-inositol F-157

4-O-*(6-Deoxy-α-L-galactopyranosyl)*-D-myo-*inositol*



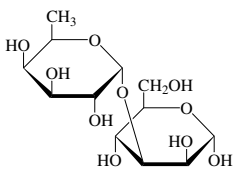
$C_{12}H_{22}O_{10}$ 326.3

1D-*form* [99044-50-5]
Isol. from human urine of (healthy) ABH-secretors.
Cryst. + $2H_2O$ (MeOH/2-propanol). Mp 241-243°. $[\alpha]_D^{22}$ -110 (c, 0.2 in H_2O).

Lennartson, G. *et al., Biochem. Biophys. Res. Commun.*, 1976, **69**, 920 (*isol*)

Garegg, P.J. *et al., Carbohydr. Res.*, 1985, **139**, 209 (*synth, abs config*)

3-*O*-α-D-Fucopyranosyl-D-mannose F-158



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*

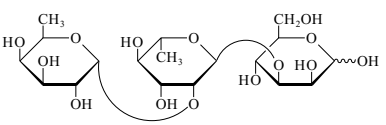
Me glycoside: Methyl 3-O-α-D-*fucopyranosyl-α-D-mannopyranoside*
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{22}$ +148 (c, 1.0 in H_2O).

Me glycoside, 4,6-O-*benzylidene, tetrabenzyl:*
$C_{48}H_{52}O_{10}$ 788.933
$[\alpha]_D^{22}$ +63 (c, 1.0 in $CHCl_3$).

Baumann, H. *et al., J.C.S. Perkin 1*, 1988, 209 (*synth, pmr, cmr*)

α-D-Fucopyranosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →3)-D-mannose F-159

6-Deoxy-α-D-galactopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →3)-D-mannose, 9CI
[135743-31-6]



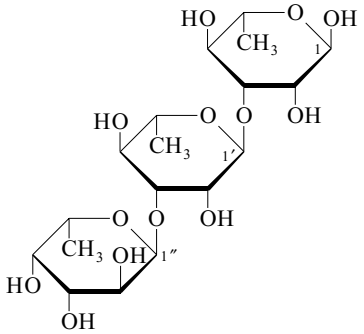
Pyranose–*form*

$C_{18}H_{32}O_{14}$ 472.442
Constit. of the repeating unit of the O-polysaccharide of *Pseudomonas gladioli allicola* strain 8494 (313).

Vinogradov, E.V. *et al., Carbohydr. Res.*, 1991, **212**, 313 (*occur, pmr, cmr*)

α-L-Fucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→3)-L-rhamnose F-160

6-Deoxy-α-L-galactopyranosyl-(1→3)-6-deoxy-α-L-mannopyranosyl-(1→3)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

α-Pyranose-*form*

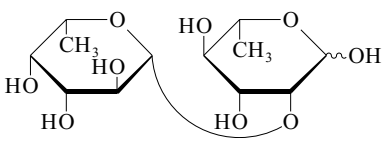
Me glycoside, 2,2′′,3′′,4′′-tetra-Me: [136963-57-0]
$C_{23}H_{42}O_{13}$ 526.577
Isol. as the trisaccharide segment of *Mycobacterium tuberculosis* strain Canetti. Syrup. $[\alpha]_D^{26}$ -136 (c, 0.22 in MeOH).

Me glycoside, 2′,4,4′-tribenzyl, 2,2′′,3′′,4′′-tetra-Me: [136933-85-2]
$C_{44}H_{60}O_{13}$ 796.95
Syrup. $[\alpha]_D^{26}$ -39.8 (c, 0.5 in $CHCl_3$).

Gurjar, M.K. *et al., J. Carbohydr. Chem.*, 1991, **10**, 481 (*occur, α-Me pyr tetra-Me derivs, pmr, cmr*)

2-*O*-β-L-Fucopyranosyl-L-rhamnose F-161

2-O-6-Deoxy-β-L-galactopyranosyl-L-rhamnose
[130009-30-2]

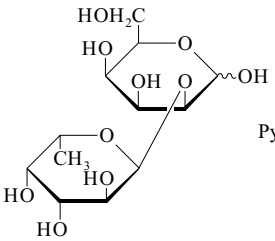


$C_{12}H_{22}O_9$ 310.3
Reducing disaccharide. $[\alpha]_D^{22}$ +9 (c, 0.7 in H_2O).

Jansson, P.E. *et al., J.C.S. Perkin 1*, 1990, 591 (*synth, pmr, cmr*)

2-*O*-α-L-Fucopyranosyl-D-talose F-162

2-O-(6-Deoxy-α-L-galactopyranosyl)-D-talose



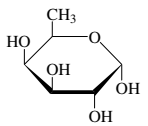
Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D$ -120 (H_2O).

Kuhn, R. *et al., Annalen*, 1958, **611**, 242 (*synth*)

Fucose F-163

6-Deoxygalactose. Rhodeose. Galactomethylose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 31°C contains 28% α-pyr, 67% β-pyr, =5% fur and 0.01% aldehyde.

D-*form* [3615-37-0]
Obtained from glycosides found in various spp. of Convolvulaceae.
Mp 140-143°. $[\alpha]_D^{22}$ +89 → +75.7 (H_2O).

Osazone: Mp 174-175°.

2-Me: 2-O-Methyl-D-fucose
[56192-98-4]
$C_7H_{14}O_5$ 178.185
Mp 150-153°. $[\alpha]_D^{25}$ +79 (c, 1 in H_2O).

3-Me: 6-Deoxy-3-O-methyl-D-galactose, 9CI. 3-O-Methyl-D-fucose. ***Digitalose***
[523-74-0]
[4481-08-7]
$C_7H_{14}O_5$ 178.185
Hydrol. prod. of the cardiac glycosides from Digitalinum verum and from the seeds of *Strophanthus eminii*. Also from many other steroidal glycosides. Cryst. (EtOAc).
Mp 104-106°. $[\alpha]_D$ +109 (c, 0.8 in H_2O).

4-Me: 4-O-Methyl-D-fucose. Curacose
[10592-43-5]
$C_7H_{14}O_5$ 178.185
Hydrol. prod. of Curamycin A, C-157, Everninomicin B, E-33 and Flambamycin, F-8. Prisms (EtOAc). Mp 131-132°. $[\alpha]_D^{24}$ +80.6 (c, 0.92 in H_2O).

2,4-Di-Me: 2,4-Di-O-methyl-D-fucose. Labilose
[10123-01-0]
$C_8H_{16}O_5$ 192.211
Mp 131.5-132°. $[\alpha]_D^{25}$ +146 → +100 (c, 1 in H_2O). $[\alpha]_D^{25}$ +94 → +186 (H_2O).

α-D-Pyranose-*form* [6189-71-5]
Plates (EtOH). Mp 139-142°. $[\alpha]_D^{20}$ +76.6 (c, 1 in H_2O).

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-α-D-fucopyranose
[34371-40-9]
$C_{14}H_{20}O_9$ 332.307
Mp 94°. $[\alpha]_D^{25}$ +122 (c, 1.04 in $CHCl_3$).

3,4-O-Isopropylidene: 3,4-O-Isopropylidene-α-D-fucopyranose
[56119-01-8]
$C_9H_{16}O_5$ 204.222
Mp 110-111°. $[\alpha]_D^{22}$ +86 → +71 (c, 2 in H_2O, 24h).

1,2:3,4-Di-O-isopropylidene: 1,2:3,4-Di-O-isopropylidene-α-D-fucopyranose
[4026-27-1]
$C_{12}H_{20}O_5$ 244.287
Syrup. $Bp_{0.2}$ 59-61°. $[\alpha]_D^{20}$ -62 ($CHCl_3$).

3-Me, 1,2,4-tri-Ac: 1,2,4-Tri-O-acetyl-3-O-methyl-α-D-fucopyranoside
$C_{13}H_{20}O_8$ 304.296
Needles. Mp 115-117°. $[\alpha]_D^{17}$ +160.8 ($CHCl_3$).

2-Benzyl: 2-O-Benzyl-α-D-fucopyranose
$C_{13}H_{18}O_5$ 254.282
Mp 164°. $[\alpha]_D$ +66.3 (H_2O). CAS No not found 8-14CI.

2,3,4-Tribenzyl: 2,3,4-Tri-O-benzyl-α-D-fucopyranose
[156719-47-0]
$C_{27}H_{30}O_5$ 434.531
Cryst. (Et_2O/hexane). Mp 94.5-95.6°. $[\alpha]_D^{20}$ +24 (c, 1.0 in $CHCl_3$).

2,3,4-Tribenzyl, 1-Ac: 1-O-Acetyl-2,3,4-tri-O-benzyl-α-D-fucopyranose
[156769-29-8]
$C_{29}H_{32}O_6$ 476.568
Cryst. (MeOH). Mp 119.6-120.6°. $[\alpha]_D^{20}$ +63.5 (c, 1.0 in $CHCl_3$).

Me glycoside: See Methyl fucopyranoside, M-183

β-D-Pyranose-*form* [28161-52-6]

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-β-D-fucopyranose
[34371-41-0]
$C_{14}H_{20}O_9$ 332.307
Gum. $[\alpha]_D^{24}$ +47 (c, 2.1 in $CHCl_3$).

3-Me, 1,2,4-tri-Ac: 1,2,4-Tri-O-acetyl-3-O-methyl-β-D-fucopyranoside
[67441-10-5]
$C_{13}H_{20}O_8$ 304.296
Rods (Et_2O/petrol). Mp 96-97°. $[\alpha]_D^{17}$ +50.4 ($CHCl_3$).

3,4-Di-Me, 1,2-di-Ac: 1,2-Di-O-acetyl-3,4-di-O-methyl-β-D-fucopyranose
[60551-16-8]
$C_{12}H_{20}O_7$ 276.286
Mp 99-100°.

α-D-Furanose-*form*

3-Me, 1,2-O-isopropylidene: 1,2-O-Isopropylidene-3-O-methyl-α-D-fucofuranose
[34685-34-2]
$C_{10}H_{18}O_5$ 218.249
Bp_{15} 110-115°. $[\alpha]_D$ -27.5 (c, 0.8 in $CHCl_3$).

Me glycoside: Methyl α-D-fucofuranoside
[60762-64-3]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 127-128° (124-125°). $[\alpha]_D$ +104.7 (c, 0.3 in MeOH).

Me glycoside, 2,3,5-tribenzyl: Methyl 2,3,5-tri-O-benzyl-α-D-fucofuranoside
[102935-32-0]
$C_{28}H_{32}O_5$ 448.558
$[\alpha]_D^{20}$ +20.2 (c, 1.2 in MeOH).

β-D-Furanose-*form* [91443-99-1]

2,3,5-Tribenzyl, 1-Ac: 1-O-Acetyl-2,3,5-tri-O-benzyl-β-D-fucofuranose
[102935-38-6]
$C_{29}H_{32}O_6$ 476.568
Syrup. $[\alpha]_D^{28}$ -36.9 (c, 1.5 in MeOH).

Me glycoside: Methyl β-D-fucofuranoside
[72813-19-5]
$C_7H_{14}O_5$ 178.185
Hygroscopic syrup. $[\alpha]_D^{28}$ -120.5 (c, 1.4 in MeOH).

Me glycoside, 2,3,5-tri-Ac: Methyl 2,3,5-tri-O-acetyl-β-D-fucofuranoside
[103002-26-2]
$C_{13}H_{20}O_8$ 304.296
$[\alpha]_D^{19}$ -61.8 (c, 1.3 in MeOH).

Me glycoside, 2,3,5-tri-Me: Methyl 2,3,5-tri-O-methyl-β-D-fucofuranoside
[102935-40-0]
$C_{10}H_{20}O_5$ 220.265
Oil. Bp_1 75-77°. $[\alpha]_D^{30}$ -111.4 (c, 0.6 in $CHCl_3$).

Me glycoside, 2,3,5-tribenzyl: Methyl 2,3,5-tri-O-benzyl-β-D-fucofuranoside
[102935-31-9]
$C_{28}H_{32}O_5$ 448.558
Syrup. $[\alpha]_D^{15}$ -63.8 (c, 1.8 in MeOH).

L-*form* [2438-80-4]
A constit. of the polysaccharides obt. from eggs of sea urchin, frog spawn, gum tragacanth and marine algae. Also found in glycoproteins obt. from mucins, blood group substances and milk.
Prisms (EtOH).
Mp 145° (140-141°). $[\alpha]_D^{17}$ -124 → -76 (c, 2.0 in H_2O).

Methylphenylhydrazone: Mp 180-182°. $[\alpha]_D^{23}$ +6 (c, 5.0 in Py).

2-Me: 2-O-Methyl-L-fucose
[34299-00-8]
$C_7H_{14}O_5$ 178.185
Present in plant polysaccharides, e.g. of *Prunus domestica* (plum).
Mp 150-152°. $[\alpha]_D^{23}$ -88 (c, 1.02 in H_2O).

3-Me: 6-Deoxy-3-O-methyl-L-galactose. 3-O-Methyl-L-fucose
[14064-39-2]
$C_7H_{14}O_5$ 178.185
Present in *Rhizobium* extracellular polysaccharides. Needles (EtOH/Et_2O).
Mp 116-118°. $[\alpha]_D^{23}$ -93 (c, 1.4 in H_2O).

4-Me: 4-O-Methyl-L-fucose
[42822-30-0]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{23}$ -76 (c, 1.12 in H_2O).

2,4-Di-Me: 2,4-Di-O-methyl-L-fucose
[93132-55-9]
$C_8H_{16}O_5$ 192.211
Mp 131-132°. $[\alpha]_D$ -85 (H_2O).

2,3-Dibenzyl: 2,3-Di-O-benzyl-L-fucose
[42822-45-7]
$C_{20}H_{24}O_5$ 344.407
Syrup. $[\alpha]_D^{23}$ +12 (c, 1.86 in $CHCl_3$).

3,4-Dibenzyl: 3,4-Di-O-benzyl-L-fucose
[42822-39-9]
$C_{20}H_{24}O_5$ 344.407
Syrup. $[\alpha]_D^{25}$ -72 (c, 1.41 in $CHCl_3$).

2,3,4-Tribenzyl: 2,3,4-Tri-O-benzyl-L-fucose
[60431-34-7]
$C_{27}H_{30}O_5$ 434.531
Mp 87-89°. $[\alpha]_D^{24}$ -29.7 (c, 1.7 in $CHCl_3$).

α-L-Pyranose-*form* [51348-50-6]
[6696-41-9]
Cryst. (EtOH aq.). Mp 143-144°.

2,3,4-Tri-Ac: 2,3,4-Tri-O-acetyl-α-L-fucopyranose
[40591-54-6]
$C_{12}H_{18}O_8$ 290.269
Mp 117°. $[\alpha]_D^{25}$ -118 (c, 1.0 in EtOH).

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-α-L-fucopyranose
[24332-95-4]
$C_{14}H_{20}O_9$ 332.307
Mp 93°. $[\alpha]_D$ -116 (c, 1.0 in $CHCl_3$).

2-Benzyl: 2-O-Benzyl-α-L-fucopyranose
[37776-55-9]
$C_{13}H_{18}O_5$ 254.282
Needles (H_2O). Mp 168-170°. $[\alpha]_D^{25}$ -64.5 (c, 1.0 in H_2O).

2,4-Dibenzyl: 2,4-Di-O-benzyl-α-L-fucopyranose
[42822-31-1]
$C_{20}H_{24}O_5$ 344.407
Needles (Me_2CO/Et_2O). Mp 133-135°. $[\alpha]_D^{25}$ -75.5 (c, 1.16 in $CHCl_3$).

2,3,4-Tribenzyl: 2,3,4-Tri-O-benzyl-α-L-fucopyranose
[33639-75-7]
$C_{27}H_{30}O_5$ 434.531
Cryst. (Et_2O/hexane). Mp 102-103°. $[\alpha]_D^{25}$ -26.5 (c, 1.0 in $CHCl_3$).

β-L-Pyranose-*form* [13224-93-6]

2,3,4-Tri-Ac: 2,3,4-Tri-O-acetyl-β-L-fucopyranose
[40591-53-5]
$C_{12}H_{18}O_8$ 290.269
Mp 102-103°. $[\alpha]_D^{25}$ -5.19 → -77 (c, 1.0 in EtOH).

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-β-L-fucopyranose
[50615-78-6]
$C_{14}H_{20}O_9$ 332.307
$[\alpha]_D$ -34.16 (c, 1.19 in $CHCl_3$).

α-L-Furanose-*form*

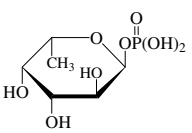
Me glycoside: Methyl α-L-fucofuranoside
[57472-02-3]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{25}$ -192 (c, 2.0 in H_2O).

[3713-31-3]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 188A; 190A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 291A (*nmr*)
Lamb, I.D. *et al., J.C.S.*, 1936, 442-447 (*Digitalose, isol*)
Schmidt, O.T. *et al., Annalen*, 1944, **556**, 179-186 (*Digitalose, synth*)
Tamm, C. *et al., Helv. Chim. Acta*, 1949, **32**, 163-172 (*Digitalose, synth, α-D-tri-Ac, β-D-tri-Ac*)
Andrews, P. *et al., Chem. Ind. (London)*, 1957, 1453 (*2-O-Me, isol*)
Galmarni, O.L. *et al., Tetrahedron*, 1961, **15**, 76-86 (*4-Me, isol*)
Schmidt, O.Th. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 191 (*D-form, synth*)
Percival, E. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 195 (*L-form, synth*)
Gros, E.G. *et al., Carbohydr. Res.*, 1966, **2**, 56-62 (*D-form, 4-Me, synth*)
Leaback, D.H. *et al., Biochemistry*, 1969, **8**, 1351-1359 (*α-L-pyr tetra-Ac*)
Binkley, W.W. *et al., Carbohydr. Res.*, 1969, **11**, 1-8 (*D-diisopropylidene*)
Izumi, K. *et al., Agric. Biol. Chem.*, 1971, **35**, 1816-1818 (*pmr*)
Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1971, **18**, 219-226; 1972, **23**, 41-45; 1973, **28**, 61-74; 144-146 (*L-form, α-L-pyr benzyl derivs*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 3762-3765 (*Digitalose, synth*)
Prihar, H.S. *et al., Biochemistry*, 1973, **12**, 997-1002 (*α-L-pyr tri-Ac, β-L-pyr tri-Ac*)
Dejter-Juszyinski, M. *et al., Carbohydr. Res.*, 1973, **28**, 61-78 (*L-3-Me*)
Longchambon, F. *et al., Acta Cryst. B*, 1975, **31**, 2623-2627 (*α-L-pyr, cryst struct*)
Gorin, P.J. *et al., Can. J. Chem.*, 1975, **53**, 1212-1223 (*pmr*)
Morgenlie, S. *et al., Carbohydr. Res.*, 1975, **41**, 77-83 (*α-D-pyr isopropylidene, α-D-pyr 2-Me*)
Montalvo, V.L. *et al., CA*, 1976, **84**, 74536k (*D-form, synth*)
Simon, P. *et al., Synthesis*, 1979, 951-952 (*α-D-pyr diisopropylidene*)
Kennedy, L.D. *et al., Carbohydr. Res.*, 1980, **87**, 156-160 (*L-3-Me, occur*)
Flowers, H.M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **39**, 279-345 (***rev***)
Defaye, J. *et al., Carbohydr. Res.*, 1981, **95**, 131-141; 1984, **126**, 165-169 (*L-form, synth*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Kinoshita, T. *et al., Carbohydr. Res.*, 1985, **143**, 249-255 (*α-D-fur derivs, β-D-fur derivs*)
Danishefsky, S.J. *et al., J.A.C.S.*, 1985, **107**, 1269-1274 (*DL-form, total synth*)
Kristen, H. *et al., J. Carbohydr. Chem.*, 1988, **7**, 277-281 (*L-form, synth*)
Aqeel, A. *et al., J. Carbohydr. Chem.*, 1989, **8**, 405-412 (*2,4-dibenzyl*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1993, **241**, 291-294 (*α-D-pyr tetra-Ac*)
Lai, W. *et al., Carbohydr. Res.*, 1993, **250**, 185-193 (*α-D-pyr 2,3,4-tribenzyl derivs*)
Sarbajna, S. *et al., Carbohydr. Res.*, 1995, **270**, 93-96 (*L-form, !synth*)
Takanashi, S. *et al., J.C.S. Perkin 1*, 1997, 607-612 (*L-form, synth, pmr, cmr*)

Fucose 1-dihydrogen phosphate F-164

Fucose 1-phosphate



α-L-Pyranose-*form*

$C_6H_{13}O_8P$ 244.138

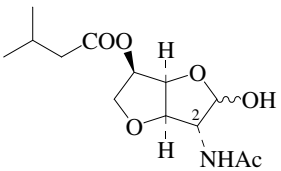
β-L-Pyranose-*form* [16562-59-7]
Solid (as dicyclohexylammonium salt). Mp 177-179° (browns before melting) (DCHA salt).

2,3,4-Tribenzoyl: [149300-29-8]
$C_{27}H_{25}O_{11}P$ 556.462
Foam (as triethylamine salt).

[40591-57-9]

Adelhorst, K. *et al., Carbohydr. Res.*, 1993, **242**, 69

Furanodictine A F-165



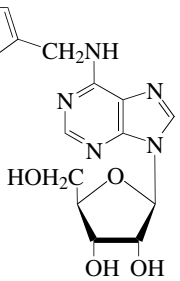
$C_{13}H_{21}NO_6$ 287.312
Prod. by *Dictyostelium discoideum*. Neuronal cell differentiation inducer. Oil. $[\alpha]_D^{25}$ +100.4 (c, 0.23 in $CHCl_3$).

2-Epimer: ***Furanodictine B***
$C_{13}H_{21}NO_6$ 287.312
Prod. by *Dictyostelium discoideum*. Oil. $[\alpha]_D^{25}$ +85.6 (c, 0.25 in $CHCl_3$).

Kikuchi, H. *et al., J.O.C.*, 2001, **66**, 6982-6987 (*isol*)
Yoda, H. *et al., Tet. Lett.*, 2004, **45**, 1599-1601 (*synth*)

N-(2-Furanylmethyl)adenosine, 9CI F-166

N-*Furfuryladenosine, 8CI. 6-Furylaminopurine*
[4338-47-0]



$C_{15}H_{17}N_5O_5$ 347.33
Plant growth stimulant. Mp 152-154°.
$[\alpha]_D^{22}$ -61.8 (c, 1 in EtOH).

Hampton, A. *et al., J.A.C.S.*, 1956, **78**, 5695 (*synth, uv, biochem*)
Conrad, K. *et al., Biochem. Biophys. Pflanz.*, 1971, **162**, 327-333 (*biochem*)
Sattsangi, P.D. *et al., J.A.C.S.*, 1980, **102**, 770-774 (*synth*)
van Staden, J. *et al., Plant Growth Regul.*, 1991, **10**, 109-115 (*biochem*)
Nicander, B. *et al., Planta*, 1993, **189**, 312-320 (*hplc*)

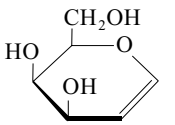
Furcelleran F-167

Furcelleran gum. Danish agar. Burtonitte 44
[9000-21-9]
A sulfated polysaccharide, the dominant hexose units of which are galactose, anhydrogalactose and their half-ester sulfates. Obt. by extraction of the red seaweed *Furcellaria fastigata* (Rhodophyceae).

Bjerre-Peterson, E *et al., Ind. Gums*, (ed. Whistler, R. L.), 2nd edn., Academic Press, 1973, 123-136 (*rev*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1135-1139 (*use, props, salts*)

Galactal, 8CI G-1

2,6-Anhydro-5-deoxy-arabino-*hex-5-enitol, 12CI. 1,5-Anhydro-2-deoxy*-lyxo-*hex-1-enitol, 9CI. 1,2-Dideoxy*-lyxo-*1-hexenopyranose. Talal*



Pyranose–*form*

$C_6H_{10}O_4$ 146.143

CAS name changed from 12CI. The *arabino* name strictly takes precedence under IUPAC rules. The enantiomer shown is D-*arabino* or D-*lyxo*-.

D-*form* [21193-75-9]
Mp 104° (93-94°). $[\alpha]_D$ -23 (c, 1 in MeOH). $[\alpha]_D$ +5 (c, 1.2 in MeOH). $[\alpha]_D^{22}$ -6 (c, 2.0 in H_2O).

Tri-Ac: 3,4,6-Tri-O-*acetyl-1,5-anhydro-2-deoxy-D*-lyxo-*hex-1-enitol*
[4098-06-0]
$C_{12}H_{16}O_7$ 272.254
Mp 30°. $Bp_{0.01}$ 125-130°. $[\alpha]_D^{23}$ -15 (c, 3.0 in $CHCl_3$).

3,6-Dibenzoyl: 1,5-Anhydro-3,6-di-O-*benzoyl-2-deoxy-D*-lyxo-*hex-1-enitol*
[130323-36-3]
$C_{20}H_{18}O_6$ 354.359
Mp 120-121°. $[\alpha]_D$ +106 (c, 1 in $CHCl_3$).

Tribenzoyl: 1,5-Anhydro-3,4,6-tri-O-*benzoyl-2-deoxy-D*-lyxo-*hex-1-enitol*
[34948-79-3]
$C_{27}H_{22}O_7$ 458.467
Syrup. $[\alpha]_D^{23}$ -106 (c, 0.8 in $CHCl_3$).

3,4-O-*Isopropylidene: 1,5-Anhydro-2-deoxy-3,4*-O-*isopropylidene-D*-lyxo-*hex-1-enitol*
$C_9H_{14}O_4$ 186.207
Cryst. (petrol). Mp 41-43°. $Bp_{0.1}$ 110-112°. $[\alpha]_D^{20}$ +14 (c, 1.62 in Me_2CO). $[\alpha]_D$ +28 (c, 1.9 in $CHCl_3$).

3,4-O-*Isopropylidene, 6-Ac: 6*-O-*Acetyl-1,5-anhydro-2-deoxy-3,4*-O-*isopropylidene-D*-lyxo-*hex-1-enitol*
$C_{11}H_{16}O_5$ 228.244
Syrup. $[\alpha]_D$ +16 (c, 1.2 in $CHCl_3$).

3,4-O-*Isopropylidene, 6-mesyl: 1,5-Anhydro-2-deoxy-3,4*-O-*isopropylidene-6*-O-*mesyl-D*-lyxo-*hex-1-enitol*
$C_{10}H_{16}O_6S$ 264.299
Needles (MeOH aq.). Mp 131-133°. $[\alpha]_D^{20}$ +16 (c, 1.6 in Me_2CO).

3,4-O-*Isopropylidene, 6-tosyl: 1,5-Anhydro-2-deoxy-3,4*-O-*isopropylidene-6*-O-*tosyl-D*-lyxo-*hex-1-enitol*
$C_{16}H_{20}O_6S$ 340.396
Needles (MeOH). Mp 81-83°. $[\alpha]_D^{24}$ +22 ($CHCl_3$).

4,6-O-*Isopropylidene: 1,5-Anhydro-2-deoxy-4,6*-O-*isopropylidene-D*-lyxo-*hex-1-enitol*
$C_9H_{14}O_4$ 186.207
Mp 48-50°. $[\alpha]_D$ +18 (c, 1.1 in $CHCl_3$).

4,6-O-*Benzylidene: 1,5-Anhydro-4,6*-O-*benzylidene-2-deoxy-D*-lyxo-*hex-1-enitol*
$C_{13}H_{14}O_4$ 234.251
Cryst. (EtOAc/hexane). Mp 151-152°. $[\alpha]_D$ +47 (c, 1.0 in $CHCl_3$).

6-Me, 3,4-O-*isopropylidene: 1,5-Anhydro-2-deoxy-3,4*-O-*isopropylidene-6*-O-*methyl-D*-lyxo-*hex-1-enitol*
$C_{10}H_{16}O_4$ 200.234
Syrup. $[\alpha]_D$ +19 (c, 1.7 in $CHCl_3$).

Tri-Me: 1,5-Anhydro-2-deoxy-3,4,6-tri-O-*methyl-D*-lyxo-*hex-1-enitol*
$C_9H_{16}O_4$ 188.223
$Bp_{0.001}$ 55-60°. $[\alpha]_D^{23}$ -36.8 (c, 2.1 in $CHCl_3$).

6-Benzyl, 3,4-O-*isopropylidene: 1,5-Anhydro-6*-O-*benzyl-2-deoxy-3,4*-O-*isopropylidene-D*-lyxo-*hex-1-enitol*
$C_{16}H_{20}O_4$ 276.332
Oil. Bp_3 150°. $[\alpha]_D$ +18 (c, 1.2 in $CHCl_3$).

3,4-Dibenzyl, 6-Ac: 6-O-*Acetyl-3,4-di*-O-*benzyl-D-galactal*
$C_{22}H_{24}O_5$ 368.429
Cryst. (Et_2O/hexane). Mp 47°. $[\alpha]_D^{20}$ -71 (c, 1.0 in $CHCl_3$).

3,6-Dibenzyl, 4-Ac: 4-O-*Acetyl-3,6-di*-O-*benzyl-D-galactal*
$C_{22}H_{24}O_5$ 368.429
Cryst. (Et_2O/hexane). Mp 51°. $[\alpha]_D$ -19 (c, 1.0 in $CHCl_3$).

4,6-Dibenzyl: 4,6-Di-O-*benzyl-D-galactal*
$C_{20}H_{22}O_4$ 326.391
Cryst. (Et_2O). Mp 68°. $[\alpha]_D^{20}$ -17 (c, 1.0 in $CHCl_3$).

4,6-Dibenzyl, 3-Ac: 3-O-*Acetyl-4,6-di*-O-*benzyl-D-galactal*
$C_{22}H_{24}O_5$ 368.429
Syrup. $[\alpha]_D^{20}$ -34 (c, 1.0 in $CHCl_3$).

Tribenzyl: 2,6-Anhydro-1,3,4-tri-O-*benzyl-5-deoxy-D*-arabino-*hex-5-enitol*
[80040-79-5]
$C_{27}H_{28}O_4$ 416.516
Mp 51° (47-48°). $[\alpha]_D$ -46 (c, 0.9 in $CHCl_3$).

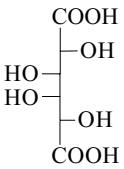
L-*form*

Tribenzyl: 2,6-Anhydro-1,3,4-tri-O-*benzyl-5-deoxy-L*-arabino-*hex-5-enitol*
[652972-16-2]
$C_{27}H_{28}O_4$ 416.516
Oil. $[\alpha]_D^{20}$ +42 (c, 1 in $CHCl_3$).

Foster, A.B. *et al., J.C.S.*, 1949, 2542 (*isopropylidene, isopropylidene mesyl, isopropylidene tosyl*)
Kuhn, R. *et al., Chem. Ber.*, 1955, **88**, 1537 (*D-form synth, tri-Ac, tri-Me*)
Shafizadeh, F. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 409 (*synth*)
Ferrier, R.J. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 67; 1969, **24**, 199 (*rev*)
Lundt, I. *et al., Acta Chem. Scand.*, 1971, **25**, 2749 (*tribenzoyl*)
Chalmers, A.A. *et al., J.C.S. Perkin 2*, 1974, 728 (*pmr*)
Bovin, N.V. *et al., J. Carbohydr. Chem.*, 1983, **2**, 249-262 (*benzyl derivs*)
Czernecki, S. *et al., J.O.C.*, 1986, **51**, 5472-5475 (*synth*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1990, **199**, 153-181 (*synth, pmr, cmr, 3,6-dibenzoyl*)
Shull, B.K. *et al., J. Carbohydr. Chem.*, 1996, **15**, 855-964 (*tri-Ac, !synth, ir, pmr, cmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1999, **72**, 765-777 (*synth, D-tribenzyl*)
Boulineau, F.P. *et al., J.O.C.*, 2004, **69**, 3391-3399 (*L-tribenzyl, synth, pmr, cmr*)

Galactaric acid, 9CI, 8CI G-2

1,2,3,4-Tetrahydroxy-1,4-butanedicarboxylic acid. Mucic acid. Tetrahydroxyadipic acid. Galactosaccharic acid
[526-99-8]



$C_6H_{10}O_8$ 210.14

A *meso*-compd., certain derivs. induce asymmetry. For stereoisomers see Glucaric acid, G-241, Allaric acid, A-74, Mannaric acid, M-23, Galactaric acid, G-2 and Idaric acid, I-1. Isol. from sporophylls of brown algae, various fruits and fungi. Used as 2% aq. soln. to form colour complexes with Fe, Co, Cr(*III*), Mn, U(*VI*). (pH 3-10). Cryst. Sol. alkalis; spar. sol. H_2O.
Mp 213° Mp 225° Mp 230° dec.

▶ LD_{50} (mus, orl) 8000 mg/kg. LW5180000

Ca salt: Calcium mucate
[28380-80-5]
Mp 213°.

Bisphenylhydrazide: Mp 240°.

Di-Me ester: Dimethyl galactarate
$C_8H_{14}O_8$ 238.194
Mp 205°.

Mono-Et ester((±)-):
$C_8H_{14}O_8$ 238.194
Mp 181-182°.

Di-Et ester: Diethyl galactarate
$C_{10}H_{18}O_8$ 266.247
Mp 171-172°.

Diamide: Galactaric diamide
$C_6H_{12}N_2O_6$ 208.171
Mp 220°.

2,3,4,5-Tetra-Ac: 2,3,4,5-Tetra-O-*acetylgalactaric acid*
$C_{14}H_{18}O_{12}$ 378.289
Mp 260° dec.

2,3,4,5-Tetra-Ac, di-Me ester:
$C_{16}H_{22}O_{12}$ 406.343
Mp 117° (110°).

2,3,4,5-Tetra-Ac, di-Et ester:
$C_{18}H_{26}O_{12}$ 434.396
Mp 195° (189°).

2,3,4,5-Tetra-Ac, dichloride:
$C_{14}H_{16}Cl_2O_{10}$ 415.18
Mp 189° (177°).

2,3,4,5-Tetra-Ac, diamide: 2,3,4,5-Tetra-O-*acetylgalactaric diamide*
$C_{14}H_{20}N_2O_{10}$ 376.319
Mp 290-292°.

2-O-*(3,4,5-Trihydroxybenzoyl):* ***2-O-Galloylgalactaric acid***. *2*-O-*Galloylmucic acid*
$C_{13}H_{14}O_{12}$ 362.246
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. off-white powder + $1^1/_2$ H_2O. $[\alpha]_D^{22}$ -25.3 (c, 0.28 in H_2O).

2-O-(3,4,5-Trihydroxybenzoyl), 1-Me ester:
$C_{14}H_{16}O_{12}$ 376.273
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 1 H_2O. $[\alpha]_D^{22}$ -38.1 (c, 0.22 in MeOH).

2-O-(3,4,5-Trihydroxybenzoyl), 6-Me ester:
$C_{14}H_{16}O_{12}$ 376.273
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 1½ H_2O. $[\alpha]_D^{22}$ -43.9 (c, 0.28 in MeOH).

2-O-(3,4,5-Trihydroxybenzoyl), di-Me ester:
$C_{15}H_{18}O_{12}$ 390.3
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 1¼ H_2O. $[\alpha]_D^{22}$ -51 (c, 0.41 in MeOH).

2,3:4,5-Di-O-methylene, di-Et ester:
[54929-03-2]
$C_{12}H_{18}O_8$ 290.269
Mp 107°.

2,5:3,4-Di-O-methylene, di-Et ester:
[54929-01-0]
$C_{12}H_{18}O_8$ 290.269
Mp 162-163°.

Di-O-isopropylidene, di-Et ester:
$C_{16}H_{26}O_8$ 346.377
Mp 85°.

2,3,5-Tri-Me(±)-: 2,3,5-Tri-O-methylgalactaric acid
$C_9H_{16}O_8$ 252.221
Mp 164°.

Tetra-Me: 2,3,4,5-Tetra-O-methylgalactaric acid
$C_{10}H_{18}O_8$ 266.247
Solid. Mp 151-153°.

1,4-Lactone, Et ester((±)-):
$C_8H_{12}O_7$ 220.179
Mp 103-104°.

1,4-Lactone, 2-O-(3,4,5-trihydroxybenzoyl): 2-O-Galloyl-1,4-galactarolactone
$C_{13}H_{12}O_{11}$ 344.231
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 1H_2O. $[\alpha]_D^{22}$ -9.5 (c, 0.26 in MeOH). This and the other *P. emblica* galactarolactones are chiral compds. but the information on their abs. config. in the lit. is confusing.

1,4-Lactone, 2-O-(3,4,5-trihydroxybenzoyl), Me ester:
$C_{14}H_{14}O_{11}$ 358.258
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 2 3/4 H_2O. $[\alpha]_D^{22}$ -13 (c, 0.19 in MeOH).

1,4-Lactone, 3-O-(3,4,5-trihydroxybenzoyl): 3-O-Galloyl-1,4-galactarolactone
$C_{13}H_{12}O_{11}$ 344.231
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 2H_2O. $[\alpha]_D^{22}$ -30.3 (c, 0.16 in MeOH). See note under 2-galloyl isomer.

1,4-Lactone, 5-O-(3,4,5-trihydroxybenzoyl): 5-O-Galloyl-1,4-galactarolactone
$C_{13}H_{12}O_{11}$ 344.231
Consist. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 1½H_2O. $[\alpha]_D^{22}$ -29.3 (c, 0.33 in MeOH). See note under 2-galloyl isomer.

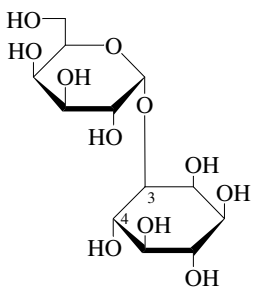
1,4-Lactone, 5-O-(3,4,5-trihydroxybenzoyl), Me ester:
$C_{14}H_{14}O_{11}$ 358.258
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 2½ H_2O. $[\alpha]_D^{22}$ -30.9 (c, 0.58 in MeOH).

1,4-Lactone, 3,5-bis-O-(3,4,5-trihydroxybenzoyl): 3,5-Di-O-galloyl-1,4-galactarolactone
$C_{20}H_{16}O_{15}$ 496.337
Constit. of the fruit of emblic (*Phyllanthus emblica*). Amorph. powder + 2½H_2O. $[\alpha]_D^{22}$ -96.5 (c, 0.2 in MeOH). See note under 2-*O*-galloyl deriv.

Aldrich Library of NMR Spectra, 2nd edn., 1983, **1**, 458B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 524A (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 359 (*rev, derivs*)
Anet, E.F.L.J. *et al., Nature (London)*, 1954, **174**, 930 (*isol*)
Togasawa, Y. *et al., CA*, 1955, **49**, 7064 (*isol*)
Tanner, H. *et al., CA*, 1961, **72**, 77441p (*Ca salt*)
Lewis, B.A. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 38 (*synth, di-Me ester, tetra-Ac, 2,3,5-tri-Me, tetra-Ac dichloride, di-Me ester tetra-Ac, di-Et ester derivs*)
Schormuellar, J. *et al., Z. Lebensm.-Unters. - Forsch.*, 1967, **132**, 270-276 (*formn, grapes*)
Burden, I.J. *et al., J.C.S. Perkin 1*, 1974, 863 (*pmr*)
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1982, **108**, 205 (*cryst struct*)
Gonzalez-Portal, A. *et al., Microchem. J.*, 1982, **27**, 357 (*use*)
Zhang, Y.-J. *et al., Chem. Pharm. Bull.*, 2001, **49**, 537-540 (*2-galloyl derivs*)
Mancera, M. *et al., Carbohydr. Res.*, 2003, **338**, 1115-1119 (*tetra-O-Me*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GAR000

Galactinol G-3

3-O-α-D-Galactopyranosyl-myo-*inositol, 8CI. 1-O-α-D-Galactopyranosyl*-myo-*inositol (incorr.)*
[3687-64-7]



$C_{12}H_{22}O_{11}$ 342.299
Frequently named as 1-*O*-galactosyl; see under *myo*-Inositol, I-32 for correct numbering. Constit. of sugar-beet juice, castor-oil seed meal, potatoes after cold storage, and cambial sap of beech. Present in plant families Bignoniaceae, Ericaceae, Labiatae and Onagraceae and esp. widespread in seeds of the Leguminosae. Galactosyl donor in formation of raffinose oligosaccharides in higher plants. Thought to function in legume seeds as protectant against desiccation.
Mp 113-114° (closed tube) Mp 220-222° (open tube) (dihydrate). $[\alpha]_D^{20}$ +135.6 (c, 2.0 in H_2O).

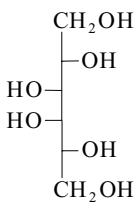
4-Me: 3-O-α-D-Galactopyranosyl-4-O-methyl-D-myo-*inositol. 3-O-α-D-Galactopyranosylononitol.* ***4-O-Methylgalactinol***
[75589-40-1]
$C_{13}H_{24}O_{11}$ 356.326
Powder. $[\alpha]_D^{20}$ +129.6 (c, 0.5 in H_2O).
Struct. revised in 1997.

Nona-Me:
Cryst. (pentane). Mp 96.5-98°. $[\alpha]_D$ +119 (c, 2.0 in H_2O).

Brown, R.J. *et al., J.A.C.S.*, 1953, **75**, 1040 (*synth*)
Kabat, E.A. *et al., J.A.C.S.*, 1953, **75**, 4507 (*struct, nona-Me*)
Senser, M. *et al., Phytochemistry*, 1967, **6**, 1533 (*occur*)
Schweizer, T.F. *et al., Carbohydr. Res.*, 1981, **95**, 61-71 (*cmr, ms*)
Kuo, T.M. *et al., J. Am. Oil Chem. Soc.*, 1992, **69**, 569-574 (*isol, hplc, bibl*)
Richter, A. *et al., J. Nat. Prod.*, 1997, **60**, 749-751 (*4-O-Methylgalactinol*)
Mayer, T.G. *et al., Liebigs Ann./Recl.*, 1997, 859 (*synth, pmr, cmr*)
Marinone, F. *et al., Phytochemistry*, 1999, **51**, 499-505 (*isol, pmr*)
Noguchi, K. *et al., Carbohydr. Res.*, 2000, **328**, 241-248 (*cryst struct*)

Galactitol G-4

galacto-*Hexitol. Dulcose. Dulcite. Melampyrin. Dulcitol. Euonymit. Melampyrum*
[608-66-2]



$C_6H_{14}O_6$ 182.173
Occurs in various mannas such as *Melampyrum nemorosum, Gymnosporia diflexa* and *Maylenus ebenifolia*. Also present in *Evonymus atropurpureus*, in seaweeds and in the pentose fermenting yeast *Torula utilis*. Shows some antitumour effect.
Mp 188.5°. Bp_1 275-280°. Log P -4.67 (calc). Opt. inactive, a *meso*-compd.

1,6-Di-Ac: 1,6-Di-O-acetylgalactitol
[20847-03-4]
$C_{10}H_{18}O_8$ 266.247
Mp 168°.

Hexa-Ac: Hexa-O-acetylgalactitol
$C_{18}H_{26}O_{12}$ 434.396
Mp 168-171°.

1,6-Dibenzoyl: 1,6-Di-O-benzoylgalactitol
[58917-44-5]
$C_{20}H_{22}O_8$ 390.389
Mp 206°.

Hexabenzoyl: Hexa-O-benzoylgalactitol
$C_{48}H_{38}O_{12}$ 806.821
Mp 189-191°.

Hexanitrate:
$C_6H_8N_6O_{18}$ 452.159
Mp 94-95°.

1,3:4,6-Dimethylene: 1,3:4,6-Di-O-methylenegalactitol
$C_8H_{14}O_6$ 206.195
Mp 249-250°.

1,3:4,6-Dibenzylidene: 1,3:4,6-Di-O-benzylidenegalactitol
$C_{20}H_{22}O_6$ 358.39
Mp 215-220°.

1,2:4,5-Di-O-isopropylidene: 1,2:4,5-Di-O-isopropylidenegalactitol
[20581-94-6]
$C_{12}H_{22}O_6$ 262.302
Prisms (95% EtOH). Mp 144-145°.

2,3,4,5-Tetra-Me: 2,3,4,5-Tetra-O-methylgalactitol
$C_{10}H_{22}O_6$ 238.28
Solid. Mp 60-62°.

1,6-Ditrityl: 1,6-Di-O-tritylgalactitol
$C_{44}H_{42}O_6$ 666.812
Solid. Mp 183-184°.

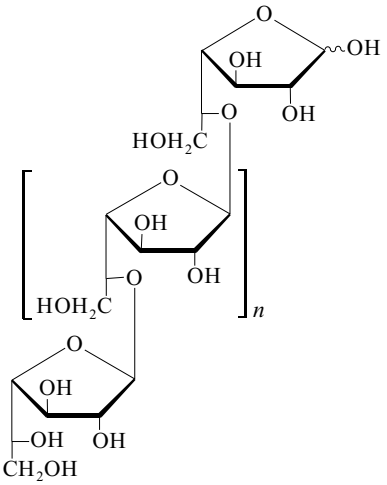
1,6-Ditrityl, 2,3,4,5-tetra-O-Me: 2,3,4,5-Tetra-O-methyl-1,6-di-O-tritylgalactitol
$C_{48}H_{50}O_6$ 722.919
Solid. Mp 180-182°.

[45007-61-2]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 186D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 290B (*nmr*)
Lespieau, M.R. *et al., Bull. Soc. Chim. Fr.*, 1934, 1374 (*synth*)
Lohmar, R. *et al., Adv. Carbohydr. Chem.*, 1949, **4**, 211 (*rev, derivs*)
Berman, H.M. *et al., Acta Cryst. B*, 1968, **24**, 435 (*cryst struct*)
Petersson, G. *et al., Tetrahedron*, 1969, **25**, 4437 (*ms*)
Bliss, C.A. *et al., Phytochemistry*, 1972, **11**, 1705 (*biosynth*)
Brimacombe, J.S. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 479 (*rev*)
Voelter, W. *et al., Tetrahedron*, 1973, **29**, 3845 (*conformn, cmr*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1992, **229**, 17 (*cryst struct, hexa-Ac*)
König, B. *et al., Acta Cryst. C*, 1998, **54**, 1471-1473 (*1,2:4,5-disopropylidene, cryst struct*)
Shirota, O. *et al., Nat. Med. (Tokyo)*, 1998, **52**, 184-186; *CA*, **129**, 193564a (*isol, activity*)
Mancera, M. *et al., Carbohydr. Res.*, 2003, **338**, 1115-1119 (*2,3,4,5-tetra-Me, 1,6-ditrityl, 1,6-ditrityl tetra-Me*)

Galactocarolose, 9CI, 8CI G-5

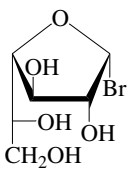
[60495-58-1]



β-D-(1 →5)-Linked polygalactofuranose with a chain length of about 9-10 units. An extracellular polysaccharide produced by *Penicillium charlesii*.
$[\alpha]_D$ -84 (H_2O).

Haworth, W.N. *et al., Biochem. J.*, 1937, **31**, 640 (*isol*)
Gorin, P.A. *et al., Can. J. Chem.*, 1959, **37**, 499
Trejo, A.G. *et al., Biochem. J.*, 1970, **117**, 637 (*biosynth*)
Bulman, R.A. *et al., Biochim. Biophys. Acta*, 1976, **444**, 202

Galactofuranosyl bromide G-6



α-D-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*

2,3-Dibenzoyl, 5-chloroacetyl, 6-pivaloyl:
[127501-12-6]
$C_{27}H_{28}BrClO_9$ 611.869
Oil. Unstable at ambient temp.

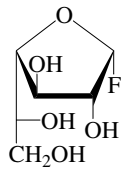
β-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-acetyl-β-D-galactofuranosyl bromide
[39698-24-3]
$C_{14}H_{19}BrO_9$ 411.203
Oil.

2,3-Dibenzyl, 5,6-bis-(4-nitrobenzoyl):
[55656-71-8]
$C_{34}H_{29}BrN_2O_{11}$ 721.514
Amorph. solid. $[\alpha]_D^{25}$ -59.4 (c, 1.2 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1041 (*β-tetra-Ac*)
Frechet, J.M.J. *et al., Can. J. Chem.*, 1975, **53**, 670 (*β-deriv*)
Veeneman, G.H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1989, **108**, 344 (*α-deriv, pmr, cmr*)

Galactofuranosyl fluoride G-7



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-acetyl-α-D-galactofuranosyl fluoride
[51785-55-8]
$C_{14}H_{19}FO_9$ 350.297
Syrup.

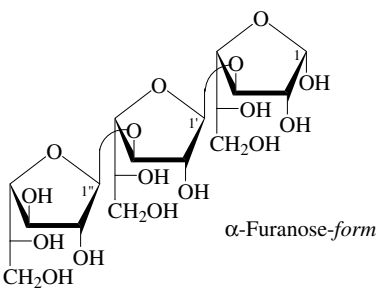
β-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-acetyl-β-D-galactofuranosyl fluoride
[51785-54-7]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O/pentane). Mp 76-77°. $[\alpha]_D^{24}$ -15.2 (c, 1.5 in $CHCl_3$).

Tetrabenzoyl: 2,3,5,6-Tetra-O-benzoyl-β-D-galactofuranosyl fluoride
[51785-56-9]
$C_{34}H_{27}FO_9$ 598.58
Cryst. Mp 110-111°. $[\alpha]_D^{24}$ +14.9 (c, 1.6 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand.*, 1973, **27**, 3586 (*α-tetra-Ac, β-tetra-Ac, β-tetrabenzoyl, pmr, F-19 nmr*)
Voznyi, Y.V. *et al., Bioorg. Khim.*, 1986, **12**, 521; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1986, **12**, 277 (*β-tetra-Ac*)

β-D-Galactofuranosyl-(1 →3)-β-D-galactofuranosyl-(1 →3)-D-galactose, 9CI G-8



α-Furanose-*form*

$C_{18}H_{32}O_{16}$ 504.441

α-Furanose-*form*

1,2-O-(1-Cyanoethylidene), 6″-trityl, 2′,2″,3″,5,5′,5″,6,6′-octabenzoyl:
[127348-46-3]
$C_{96}H_{79}NO_{24}$ 1630.672
Amorph. $[\alpha]_D$ -19 (c, 1.0 in $CHCl_3$).

β-Furanose-*form*

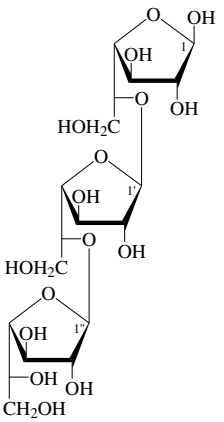
1,6″-Anhydro: [127367-72-0]
$C_{18}H_{30}O_{15}$ 486.426
Amorph. $[\alpha]_D$ -114 (c, 0.7 in H_2O).

1,6″-Anhydro, 2′,2″,3″,5,5′,5″,6,6′-octabenzoyl, 2-Ac: [127348-50-9]
$C_{76}H_{64}O_{24}$ 1361.327
Amorph. film. $[\alpha]_D$ -58 (c, 1.5 in $CHCl_3$).

[127348-49-6]

Nepogod'ev, S.A. *et al., Bioorg. Khim.*, 1989, **15**, 1555; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 855 (*α-cyanoethylidene deriv, β-cyclic anhydride derivs, synth, cmr, pmr*)

β-D-Galactofuranosyl-(1 →5)-β-D-galactofuranosyl-(1 →5)-D-galactose, 9CI G-9



β-Furanose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of an immunologically active component in the extracellular polysaccharide produced by *Aspergillus* and *Penicillium* spp.

β-Furanose-*form*

Me glycoside, 6,6′,6″-tripivaloyl, 2,2′,2″,3,3′,3″-hexabenzoyl: [130719-14-1]
$C_{76}H_{82}O_{25}$ 1395.469
Oil. $[\alpha]_D$ -5 (c, 1.0 in $CHCl_3$).

Me glycoside, 6,6′,6″-tripivaloyl, 2,2′,2″,3,3′,3″-hexabenzoyl, 5″-chloroacetyl: [130719-13-0]
$C_{78}H_{83}ClO_{26}$ 1471.951
Oil. $[\alpha]_D$ -3 (c, 1.0 in $CHCl_3$).

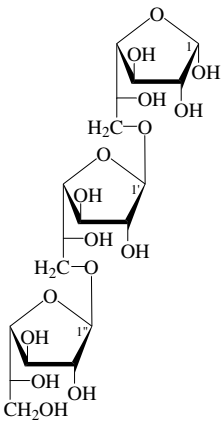
3-Aminopropyl glycoside: [127501-14-8]
$C_{21}H_{39}NO_{16}$ 561.536
Oil. $[\alpha]_D$ -74.5 (c, 1.0 in MeOH).

3-(Benzyloxycarbonylamino)propyl glycoside, 6,6′,6″-tripivaloyl, 2,2′,2″,3,3′,3″-hexabenzoyl: [111192-50-8]
$C_{86}H_{93}NO_{27}$ 1572.671
Oil. $[\alpha]_D$ -5.6 (c, 1.0 in $CHCl_3$).

Veeneman, G.H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1989, **108**, 344 (*β-aminopropyl fur derivs, synth, pmr, cmr*)

Zuurmond, H.M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1990, **109**, 437 (*β-Me fur derivs, pmr, cmr*)

β-D-Galactofuranosyl-(1 →6)-β-D-galactofuranosyl-(1 →6)-D-galactose, 9CI G-10



α-Furanose-*form*

$C_{18}H_{32}O_{16}$ 504.441

α-Furanose-*form*

1,2-O-(1-Cyanoethylidene), 6″-trityl, 2′,2″,3,3′,3″,5,5′,5″-octabenzoyl: [128596-91-8]
$C_{96}H_{79}NO_{24}$ 1630.672
Syrup. $[\alpha]_D$ -24.5 (c, 1.5 in $CHCl_3$).

β-Furanose-*form*

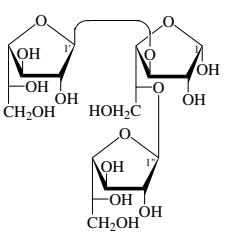
6″-Trityl, 1,3,3′,3″,5,5′,5″-heptabenzoyl, 2,2′,2″-tri-Ac: [128596-87-2]
$C_{92}H_{80}O_{26}$ 1601.628
Syrup. $[\alpha]_D$ -61 (c, 1.55 in $CHCl_3$).

1,6″-Anhydro: [128267-88-9]
$C_{18}H_{30}O_{15}$ 486.426
Syrup. $[\alpha]_D$ -78 (c, 1.2 in $CHCl_3$).

[128596-82-7, 128596-90-7]

Kochetkov, N.K. *et al., Tetrahedron*, 1990, **46**, 139 (*α-cyanoethylidene deriv, β-trityl heptabenzoyl tri-Ac, anhydro, pmr, cmr*)

β-D-Galactofuranosyl-(1 →3)-[β-D-galactofuranosyl-(1r5)]-D-galactose, 9CI G-11



α-Furanose-*form*

$C_{18}H_{32}O_{16}$ 504.441

α-Furanose-*form*

Undecabenzoyl: [129728-09-2]
$C_{95}H_{76}O_{27}$ 1649.629
Cryst. (EtOH). Mp 78-80°. $[\alpha]_D$ +19 (c, 1.0 in $CHCl_3$).

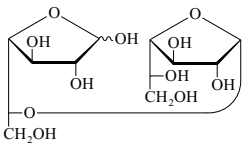
β-Furanose-*form* [129728-19-4]
Syrup. $[\alpha]_D$ -85 (c, 1.0 in H_2O).

Undecabenzoyl: [129728-08-1]
Cryst. (EtOH). Mp 88-89°. $[\alpha]_D$ -21 (c, 1.0 in $CHCl_3$).

De Lederkremer, R.M. *et al., Carbohydr. Res.*, 1990, **200**, 227 (*synth, α-undecabenzoyl, β-undecabenzoyl, pmr, cmr*)

5-*O*-α-D-Galactofuranosyl-D-galactose, 9CI G-12

[35467-37-9]

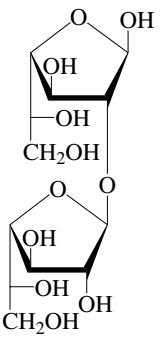


Furanose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of *Mycobacterium tuberculosis* cell-wall.
$[\alpha]_D$ -22 (H_2O).

Vilkas, E. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1971, **273**, 845

2-*O*-β-D-Galactofuranosyl-D-galactose, 9CI G-13



β-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the repeating unit of *Klebsiella* 09 antigen.

β-Furanose-*form*

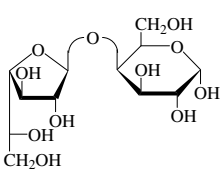
Me glycoside: Methyl 2-O-β-D-galactofuranosyl-β-D-galactofuranoside
[127501-22-8]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D$ -117.6 (c, 1.0 in MeOH).

Lindberg, B. *et al., Carbohydr. Res.*, 1972, **23**, 47 (*occur*)

Veeneman, G.H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1989, **108**, 344

3-*O*-β-D-Galactofuranosyl-D-galactose G-14

[119690-37-8]



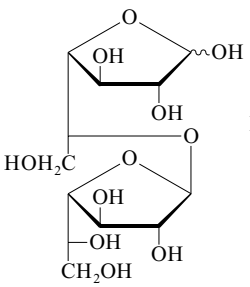
α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Free sugar exists in pyranose form, mixt. of anomers with β- predominating. Constit. of the repeating units of *Klebsiella* 08 antigen and *Streptococcus pneumoniae* type 29 antigen.
$[\alpha]_D$ +28.5 (c, 0.8 in H_2O).

β-Furanose-*form*

Me glycoside: Methyl 3-O-β-D-galactofuranosyl-β-D-galactofuranoside, 9CI
[127501-23-9]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D$ +135.4 (c, 1.0 in MeOH).
Rao, E.V. *et al., Biochem. J.*, 1969, **111**, 547 (*occur*)
Curvall, M. *et al., Acta Chem. Scand.*, 1973, **27**, 4019 (*occur*)
Veeneman, G.H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1989, **108**, 344
Wang, H. *et al., Carbohydr. Res.*, 2003, **338**, 1033-1037 (*synth*)

5-*O*-β-D-Galactofuranosyl-D-galactose G-15



Furanose–*form*

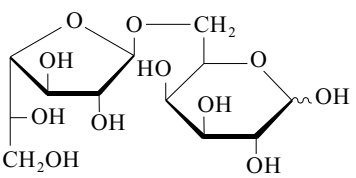
$C_{12}H_{22}O_{11}$ 342.299
Constit. of 31-G and 16-F. Component of the O-antigen of *Actinobacillus pleuropneumoniae* serotype 12. Syrup. $[\alpha]_D$ -74 (c, 2.0 in H_2O) (-64).

Furanose-*form*

Benzyl glycoside:
$C_{19}H_{28}O_{11}$ 432.424
Syrup. $[\alpha]_D$ -113 (c, 8.0 in MeOH).
Gorin, P.A.J. *et al., Can. J. Chem.*, 1959, **37**, 499 (*isol*)
Van Heeswijk, W.A.R. *et al., Carbohydr. Res.*, 1977, **59**, 81 (*synth*)
Jannson, P.E. *et al., Carbohydr. Res.*, 1980, **82**, 97 (*occur*)
Eur. Pat., 1989, 325 004; *CA*, **112**, 154854z
Beynon, L.M. *et al., Can. J. Chem.*, 1991, **69**, 218 (*occur*)

6-*O*-β-D-Galactofuranosyl-D-galactose, 9CI G-16

[25841-25-2]



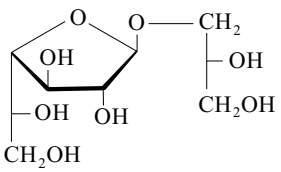
$C_{12}H_{22}O_{11}$ 342.299
Isol. from hydrolysate of polysaccharides from *Mycoplasma mycoides* and *Mycobacterium tuberculosis*.
Mp 170-174° dec. $[\alpha]_D^{20}$ -25 (c, 0.35 in H_2O).

α-Pyranose-form

1,2,3,4-Tetrabenzyl:
$C_{40}H_{46}O_{11}$ 702.797
Mp 98-99°. $[\alpha]_D^{20}$ +38 (c, 0.5 in MeOH).
1,2,3,4-Tetrabenzyl, 2′,3′,5′,6′-tetra-Ac:
$C_{48}H_{54}O_{15}$ 870.946
$[\alpha]_D^{20}$ +11.2 (c, 1.0 in $CHCl_3$).
Plackett, P. *et al., Biochem. J.*, 1964, **90**, 201 (*isol*)
Vilkas, E. *et al., Biochim. Biophys. Acta*, 1973, **297**, 423 (*glc, pmr, ms*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1974, **34**, 343 (*synth*)

1-*O*-β-D-Galactofuranosyl-D-glycerol G-17

(R)-2,3-Dihydroxypropyl β-D-galactofuranoside, 9CI. 1-Glyceryl β-D-galactofuranoside
[20196-73-0]

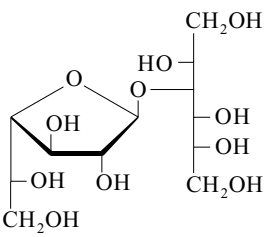


$C_9H_{18}O_8$ 254.236
Constit. of the lipids of *Bacteroides symbiosus* and *Mycoplasma mycoides*.
Syrup. $[\alpha]_D$ -78 (c, 1.0 in H_2O).

Hexabenzoyl:
$C_{51}H_{42}O_{14}$ 878.884
Mp 135-136.5°. $[\alpha]_D$ -6.8 (c, 1.0 in $CHCl_3$).
Beving, H.F.G. *et al., Acta Chem. Scand.*, 1967, **21**, 2083 (*synth*)
Plackett, P. *et al., Biochemistry*, 1967, **6**, 2746 (*isol*)
Boren, H. *et al., CA*, 1972, **77**, 102045a (*rev*)

3-*O*-β-D-Galactofuranosyl-D-mannitol, 8CI G-18

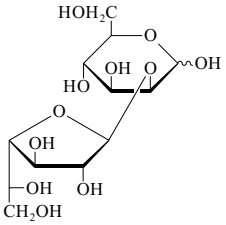
Peltigeroside
[4144-97-2]



$C_{12}H_{24}O_{11}$ 344.315
Isol. from the lichen *Peltigera horizontalis*.
Mp 161-163°. $[\alpha]_D$ -61 (c, 2.0 in H_2O).
Lindberg, B. *et al., Acta Chem. Scand.*, 1964, **18**, 213 (*isol*)
Holligan, P.M. *et al., CA*, 1971, **75**, 31241g (*glc*)

2-*O*-β-D-Galactofuranosyl-D-mannose, 9CI G-19

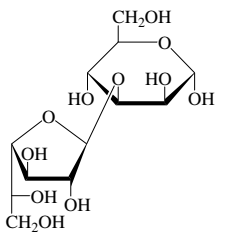
[76653-92-4]



Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from cells of the protozoan *Trypanosoma cruzi* (causative agent of chagas disease). Syrup. $[\alpha]_D^{25}$ -30 (c, 0.8 in H_2O).
Barreto-Bergter, E. *et al., ACS Symp. Ser.*, 1981, **150**, 149-159; 150 (*cmr*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1981, **88**, 177-188 (*isol, pmr*)

3-*O*-β-D-Galactofuranosyl-D-mannose G-20



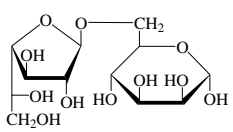
α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the galactomannan isol. from the cells of *Trypanosoma cruzi*, the causative agent of chagas disease.

α-Pyranose-*form*

Me glycoside: Methyl 3-O-β-D-galactofuranosyl-α-D-mannopyranoside, 9CI
[76653-91-3]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{25}$ -37 (c, 0.6 in H_2O).
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1981, **88**, 177

6-*O*-β-D-Galactofuranosyl-D-mannose G-21



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the galactomannan isol. from *Ceratocystis stenoceras*; tentatively assigned as a constit. of the galactomannans of *Sporothrix schenckii* and *Trichophyton interdigitale*.

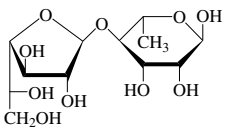
α-Pyranose-*form*

Me glycoside: Methyl 6-O-β-D-galactofuranosyl-α-D-mannopyranoside, 9CI
[76653-88-8]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{25}$ -13 (c, 1.2 in H_2O).

Bishop, C.T. *et al., Can. J. Chem.*, 1965, **43**, 30 (*occur*)
Mendonca, L. *et al., Biochemistry*, 1976, **15**, 2423 (*occur*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1981, **88**, 177 (*Me gly, cmr*)

4-*O*-β-D-Galactofuranosyl-L-rhamnose G-22

*6-Deoxy-4-*O*-β-D-galactofuranosyl-L-mannose*



α-Pyranose-*form*

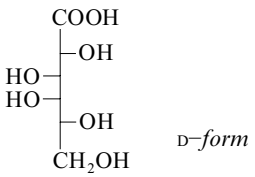
$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*

*Me glycoside, 2,3-*O*-isopropylidene, tetra-Ac:* [97321-42-1]
$C_{24}H_{36}O_{14}$ 548.54
Syrup. $[\alpha]_D$ -60.5 (c, 2.4 in $CHCl_3$).
Bakinovskii, L.V. *et al., Carbohydr. Res.*, 1985, **138**, 41 (*deriv, pmr*)

Galactonic acid G-23

galacto-*Hexonic acid*



D−*form*

$C_6H_{12}O_7$ 196.157

D-*form* [576-36-3]
Mp 122°. $[\alpha]_D$ -11.2 → -57.6 (H_2O, 23 d). Forms a hemihydrate, Mp 140-1°, $[\alpha]_D^{20}$ -12.2° (H_2O).

Ca salt:
Tetrahydrate. Mp 140° dec. $[\alpha]_D$ +2.9 (H_2O).

Brucine salt: Mp 170°. $[\alpha]_D^{20}$ -21 (H_2O).

Phenylhydrazide: Mp 203°. $[\alpha]_D^{20}$ +10.4 (H_2O).

Amide: D-Galactonamide
$C_6H_{13}NO_6$ 195.172
Mp 172-173°. $[\alpha]_D^{20}$ +30.2 (H_2O).

Anilide:
$C_{12}H_{17}NO_6$ 271.269
Mp 210°. $[\alpha]_D^{17}$ +62.6 (H_2O).

*6-Me: 6-*O*-Methyl-D-galactonic acid*
$C_7H_{14}O_7$ 210.183
Mp 156°. $[\alpha]_{578}^{18}$ -5.5 → -40.2 (H_2O, 8 d).

6-Me, phenylhydrazide: Mp 158-159°.

*2,3,4-Tri-Me: 2,3,4-Tri-*O*-methyl-D-galactonic acid*
$C_9H_{18}O_7$ 238.237
Mp 107-108°. $[\alpha]_D^{22}$ +29.8 (H_2O).

2,3,4-Tri-Me, phenylhydrazide: Mp 166-167°. $[\alpha]_D$ +29.5 (EtOH).

*2,3,4,6-Tetra-Me: 2,3,4,6-Tetra-*O*-methyl-D-galactonic acid*
$C_{10}H_{20}O_7$ 252.264
Mp 84°. $[\alpha]_D^{22}$ +24 → +26.3 (H_2O, 2 d).

2,3,4,6-Tetra-Me, phenylhydrazide: Mp 135-136°.

*2,3,4,6-Tetra-Me, amide: 2,3,4,6-Tetra-*O*-methyl-D-galactonamide*
$C_{10}H_{21}NO_6$ 251.279
Mp 120°. $[\alpha]_D$ +37.9 (Me_2CO).

*2,3,5,6-Tetra-Me, amide: 2,3,5,6-Tetra-*O*-methyl-D-galactonamide*
[16751-97-6]
$C_{10}H_{21}NO_6$ 251.279
Mp 153°. $[\alpha]_D$ +6.5 (H_2O).

*2,3,4,5,6-Penta-Ac: 2,3,4,5,6-Penta-*O*-acetyl-D-galactonic acid*
$C_{16}H_{22}O_{12}$ 406.343
Mp 131°. $[\alpha]_D$ +11.8.

*2,3,4,5,6-Penta-Ac, Et ester: Ethyl 2,3,4,5,6-penta-*O*-acetyl-D-galactonate*
[24876-99-1]
$C_{18}H_{26}O_{12}$ 434.396
Mp 100-102°.

*2,3,4,5,6-Penta-Ac, propyl ester: Propyl 2,3,4,5,6-penta-*O*-acetyl-D-galactonate*
$C_{19}H_{28}O_{12}$ 448.423
Mp 114°. $[\alpha]_D^{25}$ +14.8 (c, 2.0 in $CHCl_3$).

*2,3,4,5,6-Penta-Ac, isopropyl ester: Isopropyl 2,3,4,5,6-penta-*O*-acetyl-D-galactonate*
$C_{19}H_{28}O_{12}$ 448.423
Mp 99-100°. $[\alpha]_D^{25}$ +24.2 (c, 2.0 in $CHCl_3$).

1,4-Lactone: See 1,4-Galactonolactone, G-24

L-*form*

Amide: L-Galactonamide
$C_6H_{13}NO_6$ 195.172
Mp 175°. $[\alpha]_D$ -30 (H_2O).

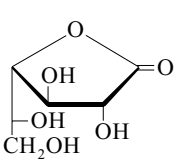
2,3,4,5-Tetra-Me, Me ester: [620609-65-6]
$C_{11}H_{22}O_7$ 266.291
Oil. $[\alpha]_D$ -10.5 (c, 0.9 in $CHCl_3$).

*2,3,4,5,6-Penta-Ac: 2,3,4,5,6-Penta-*O*-acetyl-L-galactonic acid*
$C_{16}H_{22}O_{12}$ 406.343
Mp 132-133°. $[\alpha]_D^{28}$ -14 ($CHCl_3$).

Brackenbury, J.M. *et al., J.A.C.S.*, 1933, **55**, 2512 (*synth*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, 4th edn., J.A. Barth, Leipzig, 1935, 354 (*rev*)
Jeffrey, G.A. *et al., Chem. Comm.*, 1966, 211 (*cryst struct*)
Humphlett, W.J. *et al., Carbohydr. Res.*, 1967, **4**, 157 (*D-penta-Ac esters*)
Zhadanov, Y.A. *et al., Zh. Obshch. Khim.*, 1969, **39**, 1128
Horton, D. *et al., Carbohydr. Res.*, 1983, **119**, 263 (*pmr, cmr, conformn*)
Carmen, L. *et al., Tetrahedron: Asymmetry*, 2003, **14**, 2579-2586 (*L-form, 2,3,4,5-tetra Me Me ester*)

1,4-Galactonolactone G-24

galacto-*Hexono-1,4-lactone*



D−*form*

$C_6H_{10}O_6$ 178.141

D-*form* [2782-07-2]
Mp 112° Mp 135° (hydrate 66°). $[\alpha]_D^{20}$ -73 → -63.7 (H_2O).

*2,3,6-Tri-Ac: 2,3,6-Tri-*O*-acetyl-D-galacto-no-1,4-lactone*
$C_{12}H_{16}O_9$ 304.253
$[\alpha]_D^{20}$ -28.7 (c, 1.0 in $CHCl_3$).

*2,6-Dibenzoyl: 2,6-Di-*O*-benzoyl-D-galactono-1,4-lactone*
$C_{20}H_{18}O_8$ 386.357
Cryst. (EtOH). Mp 194-195°. $[\alpha]_D$ +3 (c, 0.8 in Me_2CO).

*2,3,5-Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-D-galactono-1,4-lactone*
$C_{27}H_{22}O_9$ 490.465
$[\alpha]_D^{20}$ +6 (c, 1 in $CHCl_3$).

*Tetrabenzoyl: 2,3,5,6-Tetra-*O*-benzoyl-D-galactono-1,4-lactone*
[35556-50-4]
$C_{34}H_{26}O_{10}$ 594.573
$[\alpha]_D$ +22.3 (c, 1.0 in $CHCl_3$).

*5,6-Isopropylidene: 5,6-*O*-Isopropylidene-D-galactono-1,4-lactone*
[56710-46-4]
$C_9H_{14}O_6$ 218.206
Syrup. $[\alpha]_D^{22}$ -42 (c, 2.0 in Me_2CO).

*5-Me, 2,3,6-tri-Ac: 2,3,6-Tri-*O*-acetyl-5-O-methyl-D-galactono-1,4-lactone*
$C_{13}H_{18}O_9$ 318.28
$[\alpha]_D^{20}$ -38 (c, 1.0 in $CHCl_3$).

*Tetra-Me: 2,3,5,6-Tetra-*O*-methyl-D-galactono-1,4-lactone*
$C_{10}H_{18}O_6$ 234.249
$Bp_{0.02}$ 127-128°. $[\alpha]_D$ -28.5 (2 m) → -25.9 (H_2O).

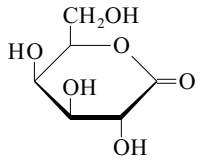
*6-Trityl, 2,3,5-tri-Ac: 2,3,5-Tri-*O*-acetyl-6-O-trityl-D-galactono-1,4-lactone*
$C_{31}H_{30}O_9$ 546.573
$[\alpha]_D^{20}$ -38.7 (c, 1.0 in $CHCl_3$).

*6-Trityl, 2,3,5-tribenzoyl: 2,3,5-Tri-*O*-benzoyl-6-*O*-trityl-D-galactono-1,4-lactone*
$C_{46}H_{36}O_9$ 732.785
Cryst. (EtOH). Mp 145-146°. $[\alpha]_D^{20}$ +8 (c, 1 in $CHCl_3$).

L-*form* [1668-08-2]
Mp 134-135°. $[\alpha]_D^{26}$ +77 (c, 4 in H_2O, initial).

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1933, **11**, 649 (*D-form, synth*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros., Inc., Ann Arbor, 1943, 354 (*D-form, rev*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5583 (*L-form*)
de Lederkremer, R.M. *et al., Carbohydr. Res.*, 1971, **20**, 442 (*D-tetrabenzoyl*)
Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 367 (*D-isopropylidene*)
Walaszek, Z. *et al., Carbohydr. Res.*, 1982, **105**, 131 (*pmr, cmr, conformn*)
Sznaidman, M.L. *et al., Carbohydr. Res.*, 1986, **146**, 233 (*D-tri-Ac, 5-Me tri-Ac, 6-trityl tri-Ac*)
Vekemans, J.A.J.M. *et al., J.O.C.*, 1987, **52**, 1093 (*D-isopropylidene*)
Du Mortier, C. *et al., Carbohydr. Res.*, 1989, **189**, 79 (*D-tribenzoyl, D-6-trityl tribenzoyl*)
De Lederkremer, R.M. *et al., Carbohydr. Res.*, 1990, **200**, 227 (*2,6-dibenzoyl*)

1,5-Galactonolactone G-25



$C_6H_{10}O_6$ 178.141

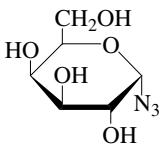
D-*form*

D-Galactonic acid δ-lactone, 9CI
[15892-28-1]
Solid. Thermodynamically unstable. Isomerises to 1,4-Galactonolactone, G-24 in aq. soln. Fairly stable in DMF soln.

*Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-D-galactono-1,5-lactone*
[82598-84-3]
$C_{34}H_{34}O_6$ 538.639
Syrup. $[\alpha]_D$ +75.2 (c, 1 in $CHCl_3$).

Overkleeft, H.S. *et al., Tetrahedron*, 1994, **50**, 4215 (*synth, pmr, cmr, tetrabenzyl*)
Xie, J. *et al., J. Carbohydr. Chem.*, 1999, **18**, 481-498 (*tetrabenzyl*)
Bierenstiehl, M. *et al., Eur. J. Org. Chem.*, 2004, 1474-1481 (*D-form, synth, pmr*)

Galactopyranosyl azide, 9CI G-26



α-D-*form*

$C_6H_{11}N_3O_5$ 205.1x7

α-D-*form* [106192-39-6]
Cryst. (MeCN). Mp 145-146°. $[\alpha]_D^{25}$ +215 (c, 0.288 in H_2O).

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-galactopyranosyl azide*
[94427-00-6]
$C_{14}H_{19}N_3O_9$ 373.319
Needles (Et_2O/petrol). Mp 77-78°. $[\alpha]_D$ +199 (c, 0.97 in $CHCl_3$).

β-D-*form* [35899-89-9]
Cryst. (MeCN). Mp 153.5-154°. $[\alpha]_D$ +8.5 (H_2O).

*2-Ac: 2-*O*-Acetyl-β-D-galactopyranosyl azide*
[171895-17-3]
$C_8H_{13}N_3O_6$ 247.207
Cryst. (MeCN). Mp 154-155.5°.

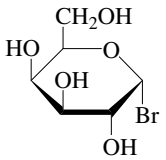
*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-β-D-galactopyranosyl azide*
[13992-26-2]
$C_{14}H_{19}N_3O_9$ 373.319
Cryst. (MeOH). Mp 103-104°. $[\alpha]_D$ -18 (c, 1.0 in $CHCl_3$).

*3,4-Isopropylidene: 3,4-*O*-Isopropylidene-β-D-galactopyranosyl azide*
[260365-10-4]
$C_9H_{15}N_3O_5$ 245.235
Cryst. (EtOAc/hexane). Mp 113.5-114°.

*4,6-Isopropylidene: 4,6-*O*-Isopropylidene-β-D-galactopyranosyl azide*
$C_9H_{15}N_3O_5$ 245.235
Cryst. (EtOAc/hexane). Mp 145-146°.

Szarek, W.A. *et al., Tetrahedron*, 1978, **34**, 1427-1433 (*β-D-form, synth, ir, uv*)
Szilagyi, L. *et al., Carbohydr. Res.*, 1985, **143**, 21-41 (*α-D-tetra-Ac, synth, ir, pmr, cmr*)
Gyorgydeak, Z. *et al., Annalen*, 1987, 235-241 (*synth, pmr*)
Tropper, F.D. *et al., Synth. Commun.*, 1992, 618-620 (*β-D-tetra-Ac, synth, pmr, cmr*)
Masuda, M. *et al., J. Carbohydr. Chem.*, 1998, **17**, 405-416 (*β-D-form tetra-Ac*)
Wittmann, V. *et al., Chem. Eur. J.*, 2000, **6**, 162-171 (*isopropylidene derivs*)

Galactopyranosyl bromide G-27



α-D-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*

*2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-galactopyranosyl bromide, 9CI, 8CI. Acetobromogalactose*
[3068-32-4]
$C_{14}H_{19}BrO_9$ 411.203
Mp 84-85°. $[\alpha]_D^{20}$ +217 ($CHCl_3$).

*6-Tosyl, 2,3,4-tri-Ac: 2,3,4-Tri-*O*-acetyl-6-*O*-tosyl-α-D-galactopyranosyl bromide*
[13046-90-7]
$C_{19}H_{23}BrO_{10}S$ 523.355
Mp 146-147°. $[\alpha]_D^{20}$ +157 ($CHCl_3$).

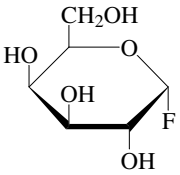
*4,6-*O*-Ethylidene, 2-Ac, 3-tosyl: 2-*O*-Acetyl-4,6-*O*-ethylidene-3-*O*-tosyl-α-D-galactopyranosyl bromide*
[13996-93-5]
$C_{17}H_{21}BrO_8S$ 465.318
Needles ($CHCl_3$/Et_2O). Mp 167° dec. $[\alpha]_D^{25}$ +240 (c, 0.8 in $CHCl_3$).

*2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-α-D-galactopyranosyl bromide, 9CI*
[53081-30-4]
$C_{34}H_{35}BrO_5$ 603.551
$[\alpha]_D^{25}$ +117 (c, 1.7 in $CHCl_3$).

*6-Bromo-6-deoxy, 2,3,4-tri-Ac: 2,3,4-Tri-*O*-acetyl-6-bromo-6-deoxy-α-D-galactopyranosyl bromide*
[53990-76-4]
$C_{12}H_{16}Br_2O_7$ 432.062
Mp 100°. $[\alpha]_D^{20}$ +203 ($CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1940, 620-632 (*tosyl tri-Ac*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*rev, derivs*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1966, **2**, 371 (*α-D-ethylidene Ac tosyl*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1969, **11**, 63 (*α-D-tri-Ac-2-deoxy-trifluoroacetamido*)
Kronzer, F.J. *et al., Carbohydr. Res.*, 1974, **33**, 273 (*α-D-tetrabenzyl*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 2992-3012 (*6-bromo-6-deoxy, tri-Ac*)
Kartha, K.P.R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 777-781 (*tetra-Ac, !synth*)
Mani, N.S. *et al., Synth. Commun.*, 1992, **22**, 2195 (*synth, α-D-tetra-Ac*)

Galactopyranosyl fluoride G-28



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form* [2021-84-3]
Cryst. ($MeOH/Et_2O$). Mp 75-76°. $[\alpha]_D^{20}$ +127 (c, 2.4 in H_2O).

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-galactopyranosyl fluoride*
[4163-44-4]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O/heptane). Mp 67-68°. $[\alpha]_D^{25}$ +106.6 (c, 0.84 in $CHCl_3$).

*2,3,6-Tribenzoyl: 2,3,6-Tri-*O*-benzoyl-α-D-galactopyranosyl fluoride*
$C_{27}H_{23}FO_8$ 494.472
Mp 157°. $[\alpha]_D$ +66.6 (c, 0.95 in $CHCl_3$).

*Tetrabenzoyl: 2,3,4,6-Tetra-*O*-benzoyl-α-D-galactopyranosyl fluoride*
$C_{34}H_{27}FO_9$ 598.58
Syrup. $[\alpha]_D$ +119.2 (c, 1.06 in $CHCl_3$).

*Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-α-D-galactopyranosyl fluoride*
[94898-43-8]
$C_{34}H_{35}FO_5$ 542.646
Syrup.

β-D-*form* [2021-62-7]
Solid. $[\alpha]_D^{25}$ -32.6 (c, 1.5 in H_2O).

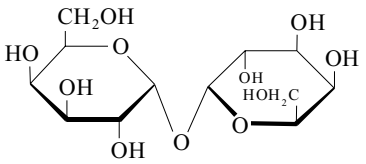
*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-β-D-galactopyranosyl fluoride*
[4163-45-5]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O). Mp 103-104° (98-99°). $[\alpha]_D^{18}$ +22 ($CHCl_3$).

[143615-35-4]

Barnett, J.E.G. *et al., Biochem. J.*, 1967, **105**, 669-672 (*α-D-form, synth*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 1 (*tetra-Ac, pmr, F-19 nmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 682 (*cmr, F-19 nmr*)
Voznij, Y.V. *et al., Carbohydr. Res.*, 1984, **132**, 339 (*tetra-Ac*)
Ger. Pat., 1987, 3 528 654; *CA*, **106**, 156814m (*tetra-Ac*)
Ger. Pat., 1987, 3 626 028; *CA*, **107**, 176407e (*tetra-Ac*)
Thiem, J. *et al., Synthesis*, 1988, 124 (*tetrabenzyl*)
Eur. Pat., 1989, 298 438; *CA*, **112**, 75339g (*synth*)
Thiem, J. *et al., Carbohydr. Res.*, 1993, **249**, 197 (*tribenzoyl, tetrabenzoyl*)
Takanashi, S. *et al., Liebigs Ann./Recl.*, 1997, 1081-1084 (*α-tetra-Ac*)
Fukase, K. *et al., Bull. Chem. Soc. Jpn.*, 2001, **74**, 1123-1128 (*β-D-form, synth*)

α-D-Galactopyranosyl α-D-galactopyranoside, 9CI, 8CI G-29

*α,α-Galactobiose. α,α-Galactotrehalose. α,α-*galacto-*Trehalose*
[28140-35-4]



$C_{12}H_{22}O_{11}$ 342.299
Mp 267-272°. $[\alpha]_D$ +244 (c, 0.6 in H_2O).

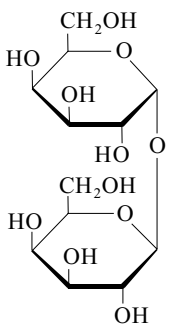
Octa-Ac: [28140-36-5]
$C_{28}H_{38}O_{19}$ 678.597
Mp 227-229°. $[\alpha]_D^{20}$ +173 (c, 1.2 in $CHCl_3$).

2,2′,3,3′,6,6′-Hexabenzoyl: [173543-51-6]
$C_{54}H_{46}O_{17}$ 966.947
Glass. $[\alpha]_D$ +204 (c, 0.3 in CH_2Cl_2).

Birch, G. *et al., J.C.S.(C)*, 1970, 749 (*synth*)
Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 3037 (*pmr*)
Linden, A. *et al., Acta Cryst. C*, 1995, **51**, 1012 (*cryst struct*)
Youssef, R.H. *et al., Carbohydr. Res.*, 1995, **277**, 347-351 (***synth***)

α-D-Galactopyranosyl β-D-galactopyranoside G-30

α,β-Galactobiose



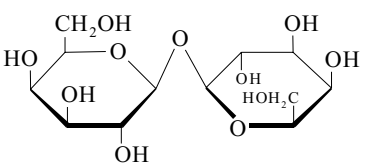
$C_{12}H_{22}O_{11}$ 342.299
Mp 122° (110°) dec. $[\alpha]_D^{20}$ +67.8 (+56) (H_2O).

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 85°. $[\alpha]_D^{20}$ +58 (c, 1.0 in $CHCl_3$).

Sharp, V.E. *et al., J.C.S.*, 1951, 285 (*synth*)

β-D-Galactopyranosyl β-D-galactopyranoside, 8CI G-31

β,β-Galactobiose
[14122-07-7]



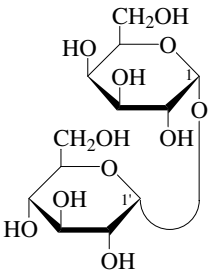
$C_{12}H_{22}O_{11}$ 342.299
Mp 108°. $[\alpha]_D^{20}$ +20 (H_2O).

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 164°. $[\alpha]_D^{20}$ -6 ($CHCl_3$).

Bredereck, H. *et al., Chem. Ber.*, 1953, **86**, 1277 (*synth*)
Boos, W. *et al., Eur. J. Biochem.*, 1967, **1**, 382

α-D-Galactopyranosyl α-D-glucopyranoside G-32

[61277-35-8]

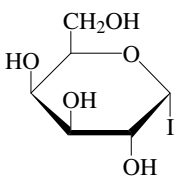


$C_{12}H_{22}O_{11}$ 342.299
Mp 65-70°. $[\alpha]_D^{22}$ +208 (c, 0.9 in H_2O).

2,3,4,6-Tetrabenzyl, 2′,3′,4′,6′-tetrabenzoyl: [162601-94-7]
$C_{68}H_{62}O_{15}$ 1119.229
Syrup. $[\alpha]_D^{22}$ +89.1 (c, 0.9 in $CHCl_3$).

Defaye, J. *et al., Carbohydr. Res.*, 1978, **63**, 41 (*synth*)
Ronnow, T.E.C.L. *et al., J. Carbohydr. Chem.*, 1995, **14**, 197-211 (*synth, tetrabenzyl tetrabenzoyl, pmr, cmr*)

Galactopyranosyl iodide G-33



$C_6H_{11}IO_5$ 290.054

α-D-form

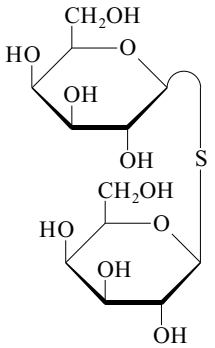
2,3,4,6-Tetra-Ac: [75801-94-4]
$C_{14}H_{19}IO_9$ 458.203
Oil. $[\alpha]_D^{25}$ +236.9 (c, 1.2 in $CHCl_3$).

2,3,4,6-Tetrabenzoyl:
$C_{34}H_{27}IO_9$ 706.486
Amorph. mass. $[\alpha]_D^{25}$ +138.5 (c, 1.2 in $CHCl_3$).

Thiem, J. *et al., Chem. Ber.*, 1980, **113**, 3075-3085 (*tetra-Ac*)
Caputo, R. *et al., Eur. J. Org. Chem.*, 1999, 3147-3150 (*tetra-Ac, tetrabenzoyl*)

β-D-Galactopyranosyl 1-thio-β-D-galactopyranoside, 8CI G-34

β-D-Galactosyl 1-thio-β-D-galactoside, 9CI, 8CI. Bis(β-D-galactopyranosyl)sulfide. Thiodigalactoside
[51555-87-4]



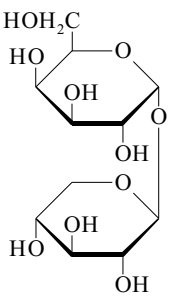
$C_{12}H_{22}O_{10}S$ 358.366
Used to study lectin binding and interactions. Mp 236-238°. $[\alpha]_D$ -40 (c, 0.44 in H_2O).

Octa-Ac: [18968-44-0]
$C_{28}H_{38}O_{18}S$ 694.663
Mp 201-202°. $[\alpha]_D^{20}$ -35.5 (c, 1 in $CHCl_3$).

Stanek, J. *et al., Coll. Czech. Chem. Comm.*, 1965, **30**, 2494-2497 (*synth, octa-Ac*)
Sakata, M. *et al., Carbohydr. Res.*, 1970, **13**, 379-390 (*synth, octa-Ac*)
Chrétien, F. *et al., J.C.S. Perkin 1*, 1988, 3297-3300 (*octa-Ac*)

α-D-Galactopyranosyl β-D-xylopyranoside G-35

β-D-Xylopyranosyl α-D-galactopyranoside



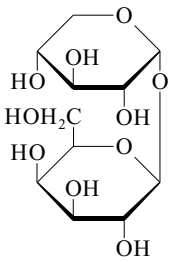
$C_{11}H_{20}O_{10}$ 312.273
Non-reducing disaccharide.

Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Mp 180-181°. $[\alpha]_D$ +140 ($CHCl_3$).

Helferich, B. *et al., Chem. Ber.*, 1958, **91**, 1794 (*synth*)

β-D-Galactopyranosyl α-D-xylopyranoside G-36

α-D-Xylopyranosyl β-D-galactopyranoside



$C_{11}H_{20}O_{10}$ 312.273

Non-reducing disaccharide.

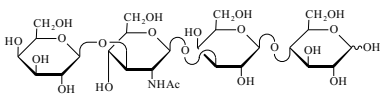
Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Mp 189-190°. $[\alpha]_D$ +156 ($CHCl_3$).

Helferich, B. *et al., Chem. Ber.*, 1958, **91**, 1794 (*synth*)

β-D-Galactopyranosyl-(1→3)-2-acetamido-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-D-glucose G-37

Lacto-N-*tetraose*. 3^2-*β-Galactosyllacto*-N-*triose II*

[14116-68-8]



Pyranose–*form*

$C_{26}H_{45}NO_{21}$ 707.636

Present in the free state in human milk. Obt. from the partial acid hydrolysates of the penta- and higher saccharides present in human milk.

$[\alpha]_D$ +25.5 (H_2O).

Phenylosazone: Mp 222-223°.

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 289; 1553; 1956, **89**, 504; 1027; 2514; 1958, **91**, 364; 1960, **93**, 647 (*isol, struct*)

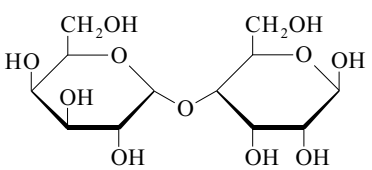
Malpress, F.H. *et al., Biochem. J.*, 1958, **68**, 708

Dua, V.K. *et al., Anal. Biochem.*, 1983, **133**, 1 (*isol, hplc*)

Subramaniam, S. *et al., J.A.C.S.*, 1986, **108**, 2068 (*pmr, cmr*)

Aly, M.R.E. *et al., Carbohydr. Res.*, 1999, **316**, 121-132 (*synth*)

4-*O*-α-D-Galactopyranosyl-D-allose G-38



$C_{12}H_{22}O_{11}$ 342.299

β-Pyranose-*form*

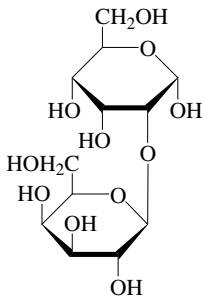
Me glycoside: Methyl 4-O-α-D-*galactopyranosyl-β-D-allopyranoside*
[66101-74-4]
$C_{13}H_{24}O_{11}$ 356.326
Cryst. (EtOH). Mp 215-216°. $[\alpha]_D^{24}$ +112.3 (c, 1.3 in H_2O).

Me glycoside, heptabenzoyl: [66073-22-1]
$C_{62}H_{52}O_{18}$ 1085.082
Amorph. powder. $[\alpha]_D^{24}$ +107 (c, 1 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1977, **59**, 379

2-*O*-β-D-Galactopyranosyl-D-allose, 9CI G-39

[82443-89-8]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Cryst. (EtOH aq.). Mp 178-179° Mp 214-216°. $[\alpha]_D$ +50.2 → +40 (c, 1.6 in H_2O). $[\alpha]_D$ -25.3 → -16.7 (c, 1.85 in H_2O).

α-Pyranose-*form*

Me glycoside: Methyl 2-O-*β-D-galactopyranosyl-α-D-allopyranoside, 9CI*
[82411-27-6]
$C_{13}H_{24}O_{11}$ 356.326
Mp 185-186°. $[\alpha]_D$ +55.8 (c, 2.5 in H_2O).

Me glycoside, hepta-Ac: Methyl 3,4,6-tri-O-*acetyl-2*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-galactopyranosyl)-α-D-allopyranoside*
[82430-50-0]
$C_{27}H_{38}O_{18}$ 650.586
Mp 144-145°. $[\alpha]_D$ +57.8 (c, 2.9 in $CHCl_3$).

β-Pyranose-*form*

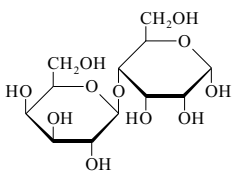
Octa-Ac: 1,3,4,6-Tetra-O-*acetyl-2*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-galactopyranosyl)-β-D-allopyranose*
[82443-90-1]
$C_{28}H_{38}O_{19}$ 678.597
Mp 153-154°. $[\alpha]_D$ +24.6 (c, 1.64 in $CHCl_3$).

Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*synth*)

Temeriusz, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1981, **55**, 783; *CA*, **97**, 56154y (*synth, deriv*)

4-*O*-β-D-Galactopyranosyl-D-allose G-40

[62742-61-4]



α–Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Mp 210-212°. $[\alpha]_D$ +49 (3 min.) → +50.2 (30 min.) (c, 1.0 in $CHCl_3$).

α-Pyranose-*form*

2,2′,3,3′,4′,6,6′-Heptabenzoyl, 1-Ac: 1-O-*Acetyl-4*-O-*(2,3,4,6-tetra*-O-*benzoyl-β-D-galactopyranosyl)-2,3,6-tri*-O-*benzoyl-α-D-allopyranose*
[62701-14-8]
Powder ($CHCl_3$/petrol). Mp 117-122°. $[\alpha]_D$ +51 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-galactopyranosyl)-β-D-allopyranose*
[62701-15-9]
$C_{28}H_{38}O_{19}$ 678.597
Needles (EtOH). Mp 104-106°. $[\alpha]_D$ +13 (c, 1.0 in $CHCl_3$).

2,2′,3,3′,4′,6,6′-Heptabenzoyl, 1-Ac: 1-O-*Acetyl-4*-O-*(2,3,4,6-tetra*-O-*benzoyl-β-D-galactopyranosyl)-2,3,6-tri*-O-*benzoyl-β-D-allopyranose*
[62701-13-7]
$C_{63}H_{52}O_{19}$ 1113.092
Mp 113-116°. $[\alpha]_D$ +33 (c, 1.0 in $CHCl_3$).

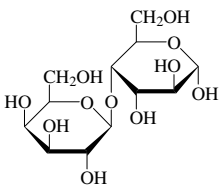
Me glycoside, heptabenzoyl: Methyl 2,3,6-tri-O-*benzoyl-4*-O-*(2,3,4,6-tetra*-O-*benzoyl-β-D-galactopyranosyl)-β-D-allopyranoside*
[62701-12-6]
$C_{62}H_{52}O_{18}$ 1085.082
Cryst. (2-propanol). Mp 107-109°. $[\alpha]_D$ +33 (c, 1.0 in $CHCl_3$).

Bhatt, R.S. *et al., Carbohydr. Res.*, 1976, **51**, 272 (*synth*)

4-*O*-β-D-Galactopyranosyl-D-altrose, 9CI, 8CI G-41

Neolactose

[490-36-8]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Prisms (MeOH). Mp 190° dec. $[\alpha]_D^{20}$ +34.6 → +35.5 (H_2O).

Phenylosazone:
Yellow cryst. (H_2O). Mp 195° dec.

α-Pyranose-*form*

2,2′,3,3′,4′,6,6′-Hepta-Ac: 2,3,6-Tri-O-*acetyl-4*-O-*(tetra*-O-*acetyl-β-D-glucopyranosyl)-α-D-altropyranose*
$C_{26}H_{36}O_{18}$ 636.56
Mp 85-95°. $[\alpha]_D^{20}$ +23.3 → +21 (3d) (c, 4.0 in $CHCl_3$).

Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(tetra*-O-*acetyl-β-D-glucopyranosyl)-α-D-altropyranose*
$C_{28}H_{38}O_{19}$ 678.597
Laminae (EtOH). Mp 178°. $[\alpha]_D^{24}$ +53.4 ($CHCl_3$).

β-Pyranose-*form*

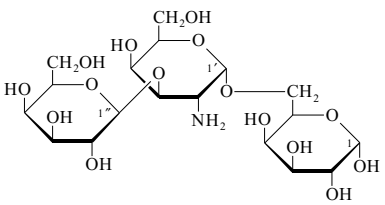
*2,2′,3,3′,4′,6,6′-Hepta-Ac: 2,3,6-Tri-*O*-acetyl-4-*O*-(tetra-*O*-acetyl-β-D-glucopyranosyl)-β-D-altropyranose*
$C_{26}H_{36}O_{18}$ 636.56
Mp 135-136°. $[\alpha]_D^{20}$ +10 → +21 (3d) (c, 4.0 in $CHCl_3$).

*Octa-Ac: 1,2,3,6-Tetra-*O*-acetyl-4-*O*-(tetra-*O*-acetyl-β-D-glucopyranosyl)-β-D-altropyranose*
$C_{28}H_{38}O_{19}$ 678.597
Plates (EtOH). Mp 148°. $[\alpha]_D^{23}$ -7.04 ($CHCl_3$).

[33983-53-8]

Kunz, A. *et al., J.A.C.S.*, 1926, **48**, 1978; 2435 (*struct, α-pyr octa-Ac, β-pyr octa-Ac*)
Richtmyer, N.K. *et al., J.A.C.S.*, 1935, **57**, 1716 (*synth, α-pyr hepta-Ac, β-pyr hepta-Ac*)
Haverkamp, J. *et al., J. Chromatogr.*, 1971, **59**, 281 (*glc*)
Kamerling, J. *et al., Tetrahedron*, 1971, **27**, 4275 (*ms*)

β-D-Galactopyranosyl-(1 →3)-2-amino-2-deoxy-α-D-galactopyranosyl-(1 →6)-D-galactose G-42



$C_{18}H_{33}NO_{15}$ 503.456

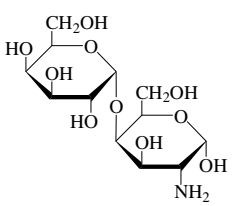
α-Pyranose-*form*

N-*Ac:* [85338-99-4]
$C_{20}H_{35}NO_{16}$ 545.494
Oil. $[\alpha]_D^{20}$ -10.1 (c, 0.3 in H_2O).

*1,2:3,4:4′,6′-Tri-*O*-isopropylidene, 2′*N*,2″,3″,4″,6″-penta-Ac:* [85338-96-1]
$C_{37}H_{55}NO_{20}$ 833.836
Cryst. Mp 102°. $[\alpha]_D^{20}$ +5.3 (c, 0.2 in $CHCl_3$).

Paulsen, H. *et al., Carbohydr. Res.*, 1983, **113**, 203 (*N-Ac, triisopropylidene penta-Ac, pmr*)

α-D-Galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-galactose G-43


α-Pyranose-*form*

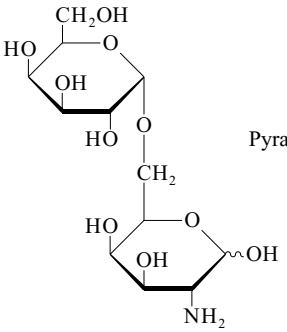
$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac:*
$C_{14}H_{25}NO_{11}$ 383.352
Component of NOR glycolipids and amphibian oviduct mucus.
$[\alpha]_D$ +143 (c, 0.6 in H_2O).

Westerlind, U. *et al., Carbohydr. Res.*, 2002, **337**, 1517-1522 (*synth, pmr, cmr*)

α-D-Galactopyranosyl-(1 →6)-2-amino-2-deoxy-D-galactose G-44

*2-Amino-2-deoxy-6-*O*-(α-D-galactopyranosyl)-D-galactose. 6-α-Galactosylgalactosamine*


Pyranose−*form*

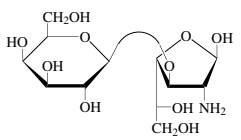
$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 2-Acetamido-2-deoxy-6-*O*-(α-D-galactopyranosyl)-D-galactose. 6-α-Galactosyl-*N*-acetylgalactosamine*
$C_{14}H_{25}NO_{11}$ 383.352
Synth. by the transferase action of *Trichomonas foetus* α-galactosidase on 6-*O*-α-D-Galactopyranosyl-D-glucose, G-145 in the presence of N-acetylgalactosamine. $[\alpha]_D$ +142 (H_2O).

Watkins, W.M. *et al., Nature (London)*, 1958, **181**, 117 (*isol*)

β-D-Galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose G-45

*2-Amino-2-deoxy-3-*O*-β-D-galactopyranosyl-D-galactose*


β-D-Furanose-*form*

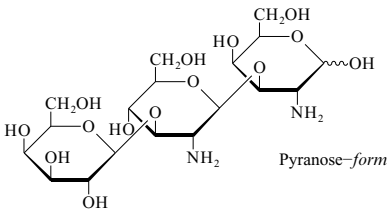
$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 2-Acetamido-2-deoxy-3-*O*-β-D-galactopyranosyl-D-galactose. β-D-Galactopyranosyl-(1 →3)-2-acetamido-2-deoxy-D-galactose*
[3554-90-3]
$C_{14}H_{25}NO_{11}$ 383.352
Isol. from the acid hydrolysate of human blood group A, B, H and Le substances. TF-antigenic disaccharide (Thomsen-Friedenreich). $[\alpha]_D^{35}$ +34.5 (c, 0.3 in H_2O).

*Me glycoside, 5,6-*O*-isopropylidene,* N-*Ac:*
[139747-11-8]
$C_{18}H_{31}NO_{11}$ 437.443
$[\alpha]_D^{35}$ -57.3 (c, 2.48 in H_2O).

Painter, T.J. *et al., Chem. Ind. (London)*, 1962, 1535-1536 (*N-Ac, isol*)
Flowers, H.M. *et al., J.O.C.*, 1965, **30**, 2041-2043 (*N-Ac, synth*)
Springer, G.F. *et al., Naturwissenschaften*, 1974, **61**, 457 (*biochem*)
Ghosh, R. *et al., J. Carbohydr. Chem.*, 1992, **11**, 71-75 (*N-Ac deriv, synth, pmr*)

β-D-Galactopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose, 9CI G-46

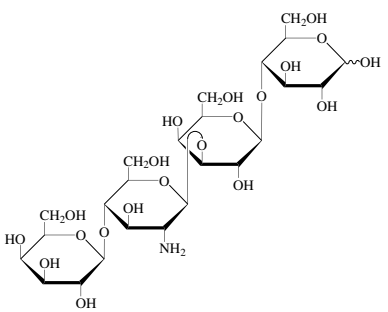

Pyranose−*form*

$C_{18}H_{34}N_2O_{14}$ 502.472
Constit. of the glycoprotein of human meconium.

N,N′-*Di-Ac:* [103460-19-1]
$C_{22}H_{38}N_2O_{16}$ 586.546
Amorph.

Capon, C. *et al., Eur. J. Biochem.*, 1989, **182**, 139 (*occur, struct, pmr*)

β-D-Galactopyranosyl-(1 →4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose G-47

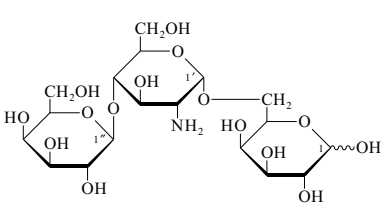


$C_{24}H_{43}NO_{20}$ 665.598

N-*Ac: Lacto-*N*-neotetraose. LNNT*
[13007-32-4]
$C_{26}H_{45}NO_{21}$ 707.636
Isol. from human milk. Aminogenesis-inducing agent.
Mp 214-218°. $[\alpha]_D^{22}$ +33 (6 min) → +27 (17 h) (c, 1.0 in H_2O).

Kuhn, R. *et al., Chem. Ber.*, 1962, **95**, 513-517; 518-522 (*isol*)
Sabesan, S. *et al., J.A.C.S.*, 1986, **108**, 2068-2080 (*N-Ac, synth, pmr, cmr, bibl*)
Yuen, C.T. *et al., J. Biol. Chem.*, 1994, **269**, 1595-1598 (*activity*)
Aly, M.R.E. *et al., Carbohydr. Res.*, 1999, **316**, 121-132 (*synth*)

β-D-Galactopyranosyl-(1 →4)-2-amino-2-deoxy-α-D-glucopyranosyl-(1 →6)-D-galactose, 9CI G-48



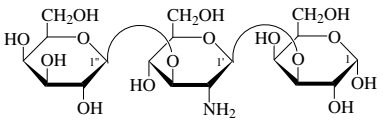
$C_{18}H_{33}NO_{15}$ 503.456

N-*Ac:* [98832-55-4]
$C_{20}H_{35}NO_{16}$ 545.494
Cryst. + $3H_2O$. Mp 170° dec. (sinters at *ca.*). $[\alpha]_D^{21}$ +92.9 (c, 0.5 in H_2O).

[98832-54-3]

Lichtenthaler, F.W. *et al., Annalen*, 1985, 1659 (*N-Ac, pmr, cmr*)

β-D-Galactopyranosyl-(1 →3)- G-49 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-D-galactose



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Core chain trisaccharide related to human blood group antigenic determinants. Constit. of a sulfated polysaccharide from an ovarian cyst glycoprotein exhibiting blood group A activity.

2′-N-*Ac: β-D-Glucopyranosyl-(1 →3)-2-acetamido-2-deoxy-β-D-glucopyranosyl-(1 →3)-D-galactose. Lacto*-N-*triose I*
$C_{20}H_{35}NO_{16}$ 545.494
Isol. from the partial acid hydrol. of human milk. Cryst. + $2H_2O$. Mp 202° (139-141° dec., 183-185°). $[\alpha]_D$ +19.3 (c, 2.0 in H_2O) (+13.6).

N-*Ac, phenylosazone:* Mp 230°.

α-Pyranose-*form*

Benzyl glycoside, 6-allyl, 2,4-dibenzyl, hepta-Ac:
$C_{56}H_{69}NO_{22}$ 1108.155
Amorph. $[\alpha]_D$ +18.8 (c, 1.27 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside, N-*Ac:* [93253-21-5]
$C_{21}H_{37}NO_{16}$ 559.52
Cryst. + H_2O. Mp 256-258°. $[\alpha]_D$ -2.5 (c, 0.7 in H_2O).

Me glycoside, 4′,6′-benzylidene, 2,4,6-tribenzyl, N-*Ac:* [93253-20-4]
$C_{49}H_{59}NO_{16}$ 918.002
Cryst. Mp 205-208°. $[\alpha]_D$ -25.9 (c, 1.6 in $CHCl_3$).

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [70874-54-3]
$C_{30}H_{53}NO_{18}$ 715.745
Used as a hapten for attachment to proteins. Amorph. powder. $[\alpha]_D^{23}$ -4.7 (c, 0.9 in H_2O).

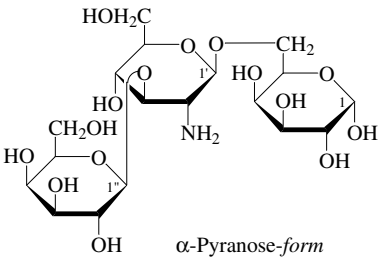
α-Furanose-*form*

*2′*N-*Phthaloyl, 1,2:5,6-di*-O-*isopropylidene, hexa-Ac:* [81414-98-4]
$C_{44}H_{55}NO_{23}$ 965.911
Cryst. Mp 106-109°. $[\alpha]_D^{25}$ -15.5 (c, 0.5 in $CHCl_3$).

[93303-80-1]

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 289; 1553; 1956, **89**, 504; 1027; 2514; 1958, **91**, 364; 1960, **93**, 647 (*isol*)
Malpress, F.H. *et al., Biochem. J.*, 1958, **68**, 708
Auge, C. *et al., J.C.S. Perkin 1*, 1977, 1343 (*N-Ac synth, α-pyr deriv synth, pmr*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1982, **60**, 68 (*methoxycarbonyloctyl gly synth, pmr, cmr*)
Kohata, K. *et al., Carbohydr. Res.*, 1984, **132**, 127 (*Me gly deriv, synth, pmr, cmr*)
Wu, S.S. *et al., Biochim. Biophys. Acta*, 1987, **924**, 420 (*isol, pmr, reactions*)

β-D-Galactopyranosyl-(1 →3)- G-50 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456

N-*Ac:* [69975-83-3]
$C_{20}H_{35}NO_{16}$ 545.494
Cryst. + H_2O (MeOH). Mp 177-184° (175-178°) dec. $[\alpha]_D^{20}$ -9.5 → -1.2 (c, 0.84 in H_2O).

α-Pyranose-*form*

1,2:3,4-Di-O-*isopropylidene,* N-*phthaloyl, hexa-Ac:* [81414-91-7]
$C_{44}H_{55}NO_{23}$ 965.911
Cryst. Mp 119-121°. $[\alpha]_D$ -39.1 ($CHCl_3$).

β-Pyranose-*form*

Benzyl glycoside, 2,4-dibenzyl, hepta-Ac: [72380-30-4]
$C_{53}H_{65}NO_{22}$ 1068.09
Foam. $[\alpha]_D^{20}$ -14 (c, 1.9 in $CHCl_3$).

Benzyl glycoside, 3-allyl, 2,4-dibenzyl, hepta-Ac: [72380-29-1]
$C_{56}H_{69}NO_{22}$ 1108.155
Foam. $[\alpha]_D^{20}$ -4 (c, 0.99 in $CHCl_3$).

4-Nitrophenyl glycoside, N-*Ac:* [62847-78-3]
Amorph. + $2H_2O$. $[\alpha]_D$ -53 (c, 0.5 in H_2O).

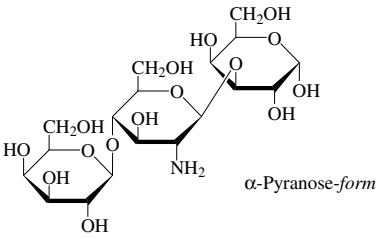
*4-Nitrophenyl glycoside, 2,2′*N*,2′′,3,3′′,4′,4′′,6′,6′′-nona-Ac:* [62847-76-1]
Cryst. Mp 140-142°. $[\alpha]_D$ -6.5 ($CHCl_3$).

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [70874-53-2]
$C_{30}H_{53}NO_{18}$ 715.745
Hapten for attachment to proteins. Powder + H_2O. Mp 185-188°. $[\alpha]_D$ -20.9 (c, 1.0 in H_2O).

8-Methoxycarbonyloctyl glycoside, deca-Ac: [81415-08-9]
$C_{48}H_{71}NO_{27}$ 1094.079
Amorph. $[\alpha]_D^{23}$ -13.7 (c, 0.7 in $CHCl_3$).

Matta, K.L. *et al., Carbohydr. Res.*, 1977, **53**, 209 (*β-nitrophenyl pyr derivs, pmr*)
Auge, C. *et al., Nouv. J. Chim.*, 1979, **3**, 491 (*N-Ac, β-benzyl pyr hepta-Ac derivs, pmr*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1982, **60**, 68 (*N-Ac, β-methoxycarbonyloctyl pyr, pmr*)
Amano, J. *et al., J. Biol. Chem.*, 1991, **266**, 11461 (*occur, struct*)

β-D-Galactopyranosyl-(1 →4)- G-51 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Isol. from hydrolysate of the lipopolysaccharides of *Neisseria meningitidis* serotype L5. Constit. of Asparagine-linked sugar chain of glucose transporter from human erythrocytes. Syrup.

N-*Ac:* [69975-81-1]
$C_{20}H_{35}NO_{16}$ 545.494
Amorph. + H_2O. $[\alpha]_D^{20}$ +19.5 (c, 0.62 in H_2O) (+17.5).

α-Pyranose-*form*

Undeca-Ac: [130648-56-5]
$C_{40}H_{55}NO_{26}$ 965.866
Amorph. solid (CH_2Cl_2/Et_2O/hexane). $[\alpha]_D^{26}$ +54 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside, N-*Ac:* [95795-79-2]
$C_{21}H_{37}NO_{16}$ 559.52
Syrup. $[\alpha]_D$ +4 (c, 0.6 in H_2O).

*Me glycoside, 2′*N*,2′′,3′′,4,4′′,6′,6′′-hepta-Ac:* [98151-11-2]
$C_{33}H_{49}NO_{22}$ 811.744
Syrup. $[\alpha]_D^{25}$ -5 (c, 0.8 in $CHCl_3$).

Me glycoside, 2,4,6-tribenzyl, hepta-Ac: [98151-10-1]
$C_{54}H_{67}NO_{22}$ 1082.117
Foam. $[\alpha]_D^{25}$ -14 (c, 1.0 in $CDCl_3$).

*Me glycoside, 2,3′,4,6,6′-pentabenzyl, 6′′-*tert*-butyldiphenylsilyl,* N-*Ac:* [130648-49-6]
$C_{72}H_{85}NO_{16}Si$ 1248.546
Amorph. $[\alpha]_D^{21}$ -4 (c, 1.1 in $CHCl_3$).

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [70874-51-0]
$C_{30}H_{53}NO_{18}$ 715.745
Amorph. powder + H_2O. $[\alpha]_D^{23}$ -3.8 (c, 1.0 in H_2O).

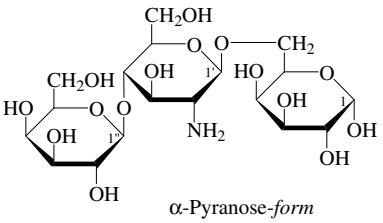
8-Methoxycarbonyloctyl glycoside, deca-Ac: [81425-11-8]
$C_{48}H_{71}NO_{27}$ 1094.079
Amorph. solid. $[\alpha]_D^{23}$ +4.6 (c, 0.75 in $CHCl_3$).

[81415-06-7, 81415-13-6]

Auge, C. *et al., Nouv. J. Chim.*, 1979, **3**, 491 (*N-Ac*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1982, **68**, 60 (*synth, β-methoxycarbonyloctyl pyr derivs, pmr, cmr*)
Dahmen, J. *et al., Carbohydr. Res.*, 1985, **138**, 17 (*β-Me pyr N-Ac, β-Me pyr hepta-Ac derivs, pmr, cmr*)
Endo, T. *et al., Biochemistry*, 1990, **29**, 9126 (*occur*)
Khan, S.H. *et al., Carbohydr. Res.*, 1990, **203**, 139 (*α-undeca Ac, β-Me pyr pentabenzyl deriv, pmr, cmr*)

Michon, F. *et al., J. Biol. Chem.*, 1990, **265**, 7243 (*isol, pmr*)

β-D-Galactopyranosyl-(1 →4)- G-52 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Syrup. $[\alpha]_D$ +4 (H_2O).

N-*Ac:* [20331-45-7]
$C_{20}H_{35}NO_{16}$ 545.494
Cryst. + H_2O. Mp 155-159° dec. $[\alpha]_D^{24}$ +9.6 (c, 0.5 in H_2O) (+4.0).

α-Pyranose-*form*

1,2:3,4-Di-O-*isopropylidene,* N-*phthaloyl, hexa-Ac:* [81414-95-1]
$C_{44}H_{55}NO_{23}$ 965.911
Cryst. Mp 201-202°. $[\alpha]_D$ -19.6 ($CHCl_3$).

β-Pyranose-*form*

*Benzyl glycoside, 3-allyl, 2,4-dibenzyl, 2′*N*,2″,3′,3″,4″,6′,6″-hepta-Ac:* [72380-32-6]
$C_{56}H_{69}NO_{22}$ 1108.155
Syrup. $[\alpha]_D$ -27 ($CHCl_3$).

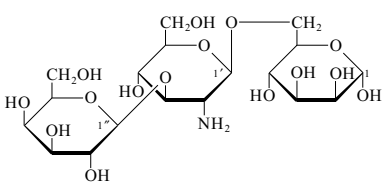
8-Methoxycarbonyloctyl glycoside, N-*Ac:* [70874-52-1]
$C_{30}H_{53}NO_{18}$ 715.745
Powder + H_2O. Mp 202-205°. $[\alpha]_D^{23}$ -15.7 (c, 0.8 in H_2O).

8-Methoxycarbonyloctyl glycoside, deca-Ac: [81415-10-3]
$C_{48}H_{71}NO_{27}$ 1094.079
Amorph. $[\alpha]_D^{23}$ -18.3 (c, 6.5 in $CHCl_3$).

[81415-09-0]

Auge, C. *et al., Nouv. J. Chim.*, 1979, **3**, 491 (*synth*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1982, **68**, 60 (*N-Ac, α-diisopropylidene deriv, β-methoxycarbonyl pyr derivs, pmr, cmr*)
Renkonen, O. *et al., Glycoconjugate J.*, 1989, **6**, 129 (*synth*)
Renkonen, O. *et al., Carbohydr. Res.*, 1991, **213**, 169 (*affinity chromatog*)

β-D-Galactopyranosyl-(1 →3)- G-53 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-D-mannose, 9CI



$C_{18}H_{33}NO_{15}$ 503.456

α-Pyranose-*form*

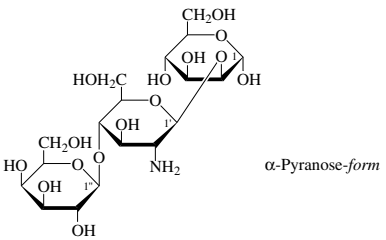
p-*Nitrophenyl glycoside,* N-*Ac:* [85193-91-5]
Amorph. + $2H_2O$. $[\alpha]_D^{20}$ +37.1 (c, 0.5 in H_2O).

p-*Nitrophenyl glycoside, 2′*N*,2″,3″,4′,4″,6′,6″-hepta-Ac:* [85193-90-4]
Amorph. + H_2O. $[\alpha]_D^{20}$ +41.2 (c, 1.3 in CH_2Cl_2).

Rana, S.S. *et al., Carbohydr. Res.*, 1983, **113**, 257 (*synth, pmr, cmr*)

β-D-Galactopyranosyl-(1 →4)- G-54 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →2)-D-mannose, 9CI

[62398-02-1]



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Constit. of the desialylated portion of the glycan chains isol. from an alpha subunit of normal human chorionic gonadotropin (hCG). Constit. of sialoglycopeptides from human O-MN-type erythrocytes.

α-Pyranose-*form*

*2′*N*, 2″,3,3′,3″,4,4″,6,6′,6″-Deca-Ac:* [129750-35-2]
$C_{38}H_{53}NO_{25}$ 923.828
Syrup.

Ethylthio glycoside, deca-Ac: [129750-34-1]
$C_{40}H_{57}NO_{25}S$ 983.948
Amorph. $[\alpha]_D^{20}$ +16 (c, 1.19 in $CHCl_3$).

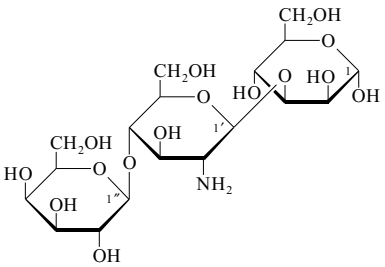
Me glycoside, N-*Ac:* [96691-77-9]
$C_{21}H_{37}NO_{16}$ 559.52
Syrup. $[\alpha]_D^{20}$ -13 (c, 0.7 in H_2O).

Propyl glycoside, N-*Ac:* [108425-21-4]
$C_{23}H_{41}NO_{16}$ 587.574
Syrup + 0.5 H_2O. $[\alpha]_D^{25}$ -4.5 (c, 1.0 in MeOH).

[129750-59-0]

Bock, K. *et al., Eur. J. Biochem.*, 1982, **129**, 171 (*conformn, pmr, cmr*)
Ogawa, T. *et al., Carbohydr. Res.*, 1983, **123**, C8 (*deca-Ac*)
Shinozuka, T. *et al., CA*, 1984, **100**, 189486k (*occur*)
Sadozai, K.K. *et al., Carbohydr. Res.*, 1986, **152**, 173 (*α-propyl pyr N-Ac, pmr, occur*)
Paulsen, H. *et al., Carbohydr. Res.*, 1990, **200**, 127 (*ethylthio gly derivs, synth, pmr*)
Augé, C. *et al., Carbohydr. Res.*, 1990, **200**, 257 (*α-Me pyr N-Ac, pmr*)

β-D-Galactopyranosyl-(1 →4)- G-55 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →3)-D-mannose, 9CI



$C_{18}H_{33}NO_{15}$ 503.456
Postulated trisaccharide of human erythrocyte membrane sialoglycoprotein.

α-Pyranose-*form*

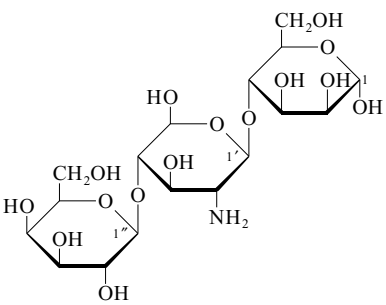
N-*Ac:* [77455-36-8]
$C_{20}H_{35}NO_{16}$ 545.494
Amorph. $[\alpha]_D^{20}$ -14 (c, 1.0 in H_2O).

*1,2,4-Tribenzyl, 2′*N*,2″,3′,3″,4″,6′,6″-hepta-Ac:* [77469-42-2]
$C_{53}H_{65}NO_{22}$ 1068.09
Amorph. $[\alpha]_D^{20}$ +14 (c, 0.64 in $CHCl_3$).

1,2,4-Tribenzyl, 6-allyl, hepta-Ac: [77455-35-7]
$C_{56}H_{69}NO_{22}$ 1108.155
Cryst. (Et_2O). Mp 120-121°. $[\alpha]_D^{20}$ +8 (c, 1.1 in $CHCl_3$).

Alais, J. *et al., J.C.S. Perkin 1*, 1981, 377 (*N-Ac, hepta-Ac derivs, pmr*)

β-D-Galactopyranosyl-(1 →4)- G-56 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-D-mannose, 9CI



$C_{18}H_{33}NO_{15}$ 503.456
Constit. of the anomalous biantennary glycan chain in human chorionic gonadotropin (hCG) isol. from the urine of a choriocarcinoma patient.

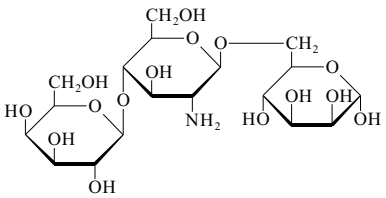
α-Pyranose-*form*

Propyl glycoside, N-*Ac:* [110212-49-2]
$C_{23}H_{41}NO_{16}$ 587.574
Syrup. $[\alpha]_D$ 0 (c, 0.45 in H_2O).

[110212-47-0, 110212-48-1]

Sadozai, K.K. *et al., Carbohydr. Res.*, 1986, **155**, 101 (*occur, α-propyl pyr N-Ac, pmr*)
Japan. Pat., 1991, 03 157 391; *CA*, **115**, 208459g (*α-propyl pyr N-Ac*)

β-D-Galactopyranosyl-(1 →4)- 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →6)-D-mannose, 9CI G-57



$C_{18}H_{33}NO_{15}$ 503.456
Constit. of blood group substance of human milk.

N-*Ac:* [82184-65-4]
$C_{20}H_{35}NO_{16}$ 545.494
Amorph. powder. $[\alpha]_D^{21}$ -10 (c, 1.0 in H_2O).

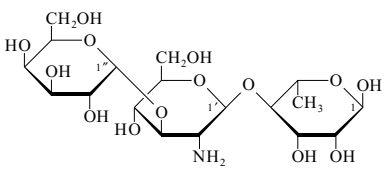
α-Pyranose-*form*

Benzyl glycoside, 2,3,4-tribenzyl, 2′N,2″,3′,3″,4″,6′,6″-hepta-Ac: [78561-23-6]
$C_{60}H_{71}NO_{22}$ 1158.214
Syrup. $[\alpha]_D^{21}$ +8 (c, 1.0 in $CHCl_3$).

[78561-25-8]

Arnarp, J. *et al., Carbohydr. Res.*, 1981, **98**, 154 (*N-Ac, α-benzyl pyr deriv, pmr, cmr*)
Bock, K. *et al., Eur. J. Biochem.*, 1982, **129**, 171 (*N-Ac, pmr, cmr, conformn*)
Gooi, H.C. *et al., Carbohydr. Res.*, 1983, **120**, 293 (*occur*)
Townsend, R.R. *et al., Anal. Biochem.*, 1988, **174**, 459 (*chromatog, anal*)

α-D-Galactopyranosyl-(1 →3)- 2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-L-rhamnose G-58
α-D-Galactopyranosyl-(1 →3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457

N-*Ac:*
$C_{20}H_{35}NO_{15}$ 529.494
Constit. of the group B streptococcal common antigen. Amorph.

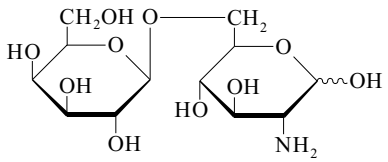
α-Pyranose-*form*

Me glycoside, N-*Ac:* [118281-86-0]
$C_{21}H_{37}NO_{15}$ 543.521
Amorph. $[\alpha]_D^{20}$ +34.3 (c, 0.7 in H_2O).

[118281-95-1, 118281-96-2]

Pozsgay, V. *et al., Carbohydr. Res.*, 1988, **179**, 61 (*occur, α-Me pyr N-Ac, pmr, cmr*)

β-D-Galactopyranosyl-(1 →6)- 2-amino-2-deoxy-D-glucose G-59
2-Amino-2-deoxy-6-O-(β-D-galactopyranosyl)-D-glucose. 6-β-Galactosylglucosamine



Pyranose–*form*

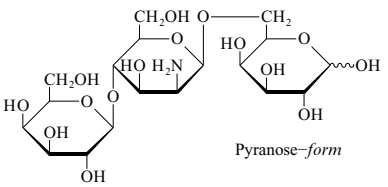
$C_{12}H_{23}NO_{10}$ 341.314

N-*Ac: 6-β-Galactosyl*-N-*acetylglucosamine*
[50787-10-5]
$C_{14}H_{25}NO_{11}$ 383.352
$[\alpha]_D$ +28 (H_2O).

[3757-90-2]

Zilliken, F. *et al., J. Biol. Chem.*, 1954, **208**, 299; 1955, **217**, 79
Kuhn, R. *et al., Chem. Ber.*, 1955, **88**, 1713 (*synth*)
Alessandrini, A. *et al., J. Biol. Chem.*, 1956, **220**, 71

β-D-Galactopyranosyl-(1 →4)- 2-amino-2-deoxy-β-D-mannopyranosyl-(1 →6)-D-galactose, 9CI G-60



Pyranose–*form*

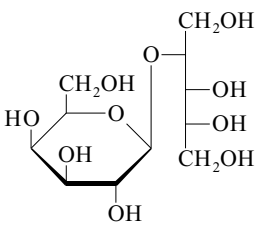
$C_{18}H_{33}NO_{15}$ 503.456

N-*Ac:* [98832-56-5]
$C_{20}H_{35}NO_{16}$ 545.494
Mp 162° dec. $[\alpha]_D^{20}$ +11 (c, 0.5 in H_2O).

[98832-51-0]

Lichtenthaler, F.W. *et al., Annalen*, 1985, 1659 (*N-Ac, pmr*)

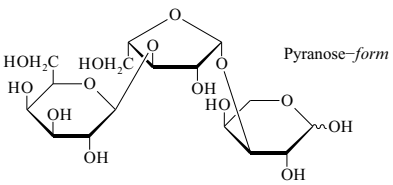
2-*O*-β-D-Galactopyranosyl-D-arabinitol G-61
4-O-β-D-Galactopyranosyl-D-lyxitol



$C_{11}H_{22}O_{10}$ 314.289
Mp 177-179°. $[\alpha]_D$ -7 (H_2O).

Charlson, J. *et al., Can. J. Chem.*, 1957, **35**, 365 (*synth*)

β-D-Galactopyranosyl-(1 →3)-β-L-arabinofuranosyl-(1 →3)-L-arabinose, 9CI G-62
[52287-02-2]

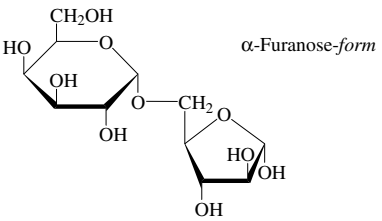


Pyranose–*form*

$C_{16}H_{28}O_{14}$ 444.389
Isol. from the hydrolysate of *Rhizophora mangle* gum.
$[\alpha]_D^{30}$ -60 (c, 0.5 in H_2O).

Sarkar, M. *et al., Indian J. Chem., Sect. B*, 1974, **11**, 1129; 1978, **16**, 369 (*isol*)

5-*O*-α-D-Galactopyranosyl-D-arabinose, 9CI G-63
[94062-89-2]



α-Furanose-*form*

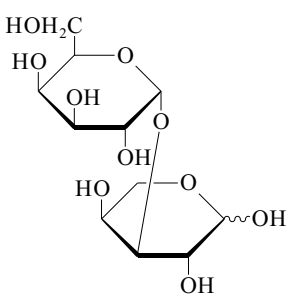
$C_{11}H_{20}O_{10}$ 312.273
$[\alpha]_D$ +82.2 (c, 1.0 in H_2O, equilib.). $[\alpha]_D^{23}$ +75.5 (H_2O).

α-Furanose-*form* [50711-15-4]
$[\alpha]_D^{20}$ +98 (10 min) → +82.1 (66h) (c, 0.8 in H_2O).

β-Furanose-*form* [50711-16-5]
$[\alpha]_D^{20}$ +76.1 (10 min) → +82.1 (96h) (c, 1.0 in H_2O).

Deferrari, J.O. *et al., Carbohydr. Res.*, 1973, **30**, 313
Gelpi, M.E. *et al., An. Asoc. Quim. Argent.*, 1974, **62**, 35; *CA*, **81**, 120883j
Bilik, V. *et al., Chem. Zvesti*, 1984, **38**, 499; *CA*, **102**, 24936k (*synth, cmr*)
Zuazo, B.N. *et al., Carbohydr. Res.*, 1988, **72**, 156 (*synth, pmr*)

3-*O*-α-D-Galactopyranosyl-L-arabinose, 9CI G-64
[72050-89-6]



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273

Isol. from partial acid hydrolysates of gum arabic, *Acacia cyanophylla, Acacia karroo* and *Acacia saligna* gums. Constit. of polysaccharides found in *Watsonia* corm-sacs. Cryst. (MeOH).
Mp 156°. $[\alpha]_D$ +152 (H_2O). $[\alpha]_D$ +197 (c, 1.0 in H_2O).

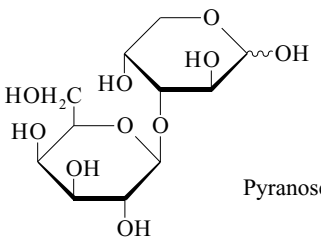
Phenylosazone: Mp 235°.

Hepta-Me:
$C_{18}H_{34}O_{10}$ 410.461
Mp 87-88°. $[\alpha]_D$ +162 ($CHCl_3$).

Smith, F. *et al., J.C.S.*, 1939, 744
Jones, J.K.N. *et al., J.C.S.*, 1953, 1672
Charlson, A.J. *et al., J.C.S.*, 1955, 269; 1428 (*isol*)
Shaw, D.H. *et al., J.C.S.*, 1965, 2287 (*isol*)
Pazur, J.H. *et al., J. Chromatogr.*, 1987, **396**, 139 (*glc, ms*)
Joao, H.I. *et al., Carbohydr. Res.*, 1988, **176**, 300 (*pmr, struct*)
Charlson, A.J. *et al., Can. J. Chem.*, 1990, **68**, 1004

3-*O*-β-D-Galactopyranosyl-D-arabinose, 9CI, 8CI G-65

[6057-48-3]



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Synth. chemically from lactose or from lactose derivatives. Mp 166-168° (163°). $[\alpha]_D$ -55 (H_2O).

Phenylosazone: Mp 235-240°. $[\alpha]_D$ -13.5 (H_2O).

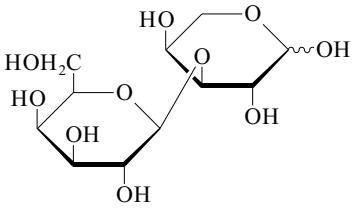
Hepta-Ac: [20869-31-2]
$C_{25}H_{34}O_{17}$ 606.533
Mp 157° (154°). $[\alpha]_D$ -80.8 ($CHCl_3$).

[130767-77-0, 130767-78-1]

Zilliken, F. *et al., Arch. Biochem. Biophys.*, 1955, **54**, 398 (*synth*)
Pazur, J.M. *et al., Arch. Biochem. Biophys.*, 1961, **94**, 142 (*synth*)
Whistler, R.L. *et al., J.O.C.*, 1961, **26**, 1050 (*synth*)
Bilik, V. *et al., Chem. Zvesti*, 1981, **35**, 829; *CA*, **96**, 123144q (*synth*)
Garozzo, D. *et al., Anal. Chem.*, 1990, **62**, 279 (*ms*)

3-*O*-β-D-Galactopyranosyl-L-arabinose, 9CI, 8CI G-66

[6055-00-1]



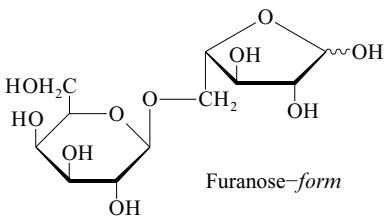
Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Isol. from partial acid hydrolysates of gum ghatti, *Rhizophora* mangle gum, *Aegle marmelos* gum (bael fruit), *Terminalia tomentosa* gum, *Anogeissus schimperi* gum, *Albizzia zygia* gum, and from the mucilage of *Opuntia ficus-indica* (Indian fig). Cryst. (MeOH/EtOH).
Mp 202-204° (192-194°). $[\alpha]_D$ +62 (in H_2O). $[\alpha]_D$ +57 (c, 0.2 in H_2O).

Aspinall, G.O. *et al., J.C.S.*, 1958, 4408; 1961, 3461 (*isol*)
Drummond, D.W. *et al., J.C.S.*, 1961, 3908
Gorin, P.A.J. *et al., Can. J. Chem.*, 1966, **44**, 2083 (*synth*)
Roy, A. *et al., Carbohydr. Res.*, 1975, **41**, 219
Audichya, T.D. *et al., Indian J. Chem., Sect. B*, 1976, **14**, 601
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol, struct*)

5-*O*-β-D-Galactopyranosyl-L-arabinose, 9CI G-67

[52287-01-1]



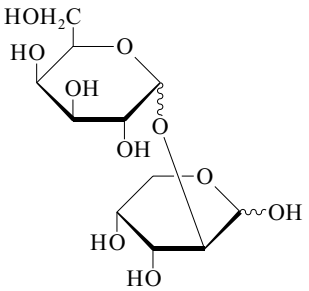
Furanose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Isolated from partial acid hydrolysate of corn-hull hemicellulose and *Rhizophora* mangle gum.
$[\alpha]_D$ -13 (H_2O). $[\alpha]_D^{30}$ -20 (c, 0.5 in H_2O).
α- and β- anomers have been characterised as 6-octyl derivs.

[129229-17-0, 131285-16-0, 131285-17-1, 131285-18-2, 131285-19-3]

Srivastava, H.C. *et al., J.A.C.S.*, 1957, **79**, 982 (*isol*)
Goldstein, I.J. *et al., J.A.C.S.*, 1957, **79**, 3558 (*synth*)
Sarkar, M. *et al., Indian J. Chem., Sect. B*, 1973, **11**, 1129 (*isol*)
Cabaret, D. *et al., Can. J. Chem.*, 1990, **68**, 2253 (*synth, pmr*)

2-*O*-D-Galactopyranosyl-D-arabinose G-68



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Unknown interglycosidic linkage. Mp 143-144°. $[\alpha]_D$ +34.4 (H_2O).

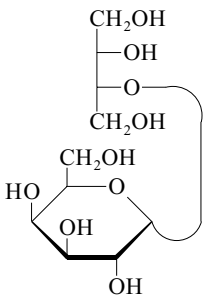
Phenylosazone: Mp 184-186°.

Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Mp 139-142°. $[\alpha]_D$ +40.6 ($CHCl_3$).

Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1952, **22**, 244; 247 (*synth*)

3-*O*-α-D-Galactopyranosyl-D-erythritol G-69

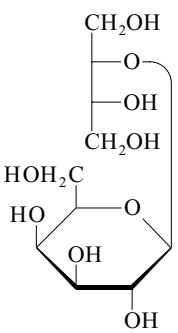
2-O-α-D-Galactopyranosyl-L-erythritol



$C_{10}H_{20}O_9$ 284.263
Mp 156-158°. $[\alpha]_D$ +145 (H_2O).

Venkataramah, R. *et al., Arch. Biochem. Biophys.*, 1958, **75**, 443 (*synth*)

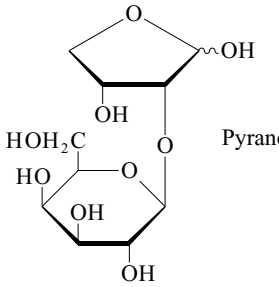
2-*O*-β-D-Galactopyranosyl-D-erythritol G-70



$C_{10}H_{20}O_9$ 284.263
Mp 184-187°. $[\alpha]_D$ +7 (H_2O).

Charlson, A.J. *et al., Can. J. Chem.*, 1956, **34**, 1811 (*synth*)

2-*O*-β-D-Galactopyranosyl-D-erythrose G-71



Pyranose–*form*

$C_{10}H_{18}O_9$ 282.247

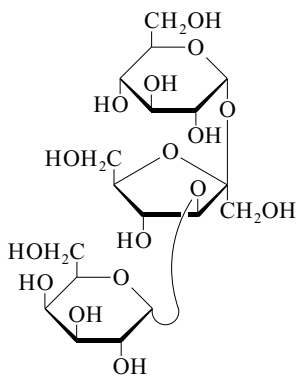
Reducing disaccharide. Mp 154°. $[\alpha]_D$ +1822 (H_2O).

Hexa-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 138-140°.

Zemplen, G. *et al., Ber.*, 1926, **59**, 2402
Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1950, **20**, 120 (*synth*)

α-D-Galactopyranosyl-(1→3)-β-D-fructofuranosyl α-D-glucopyranoside G-72

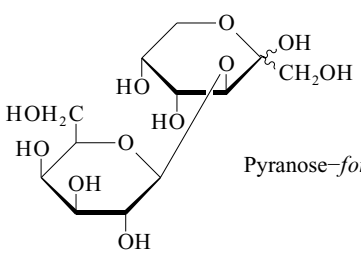
[15397-05-4]



$C_{18}H_{32}O_{16}$ 504.441
Isol. from the roots of *Silene inflata* and from *Lychnis dioica*.
$[\alpha]_D^{20}$ +98.5 (H_2O).

Courtois, J.E. *et al., Bull. Soc. Chim. Biol.*, 1959, **41**, 1261 (*isol*)
Davy, J. *et al., CA*, 1966, **67**, 91053s (*isol*)

3-*O*-β-D-Galactopyranosyl-D-fructose G-73



Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299

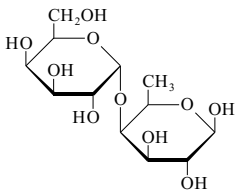
Reducing disaccharide. Synth. enzymically by the action of *Penicillium chrysogenum* β-galactosidase on a mixt. of Fructose, F-84 and Lactose, L-13. Mp 197-199°. $[\alpha]_D$ -33 (H_2O).

Phenylosazone: Mp 184-185°.

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 1560 (*synth*)
Ballio, A. *et al., J. Chromatogr.*, 1960, **4**, 117

4-*O*-α-D-Galactopyranosyl-D-fucose G-74

4-O-α-D-Galactopyranosyl-6-deoxy-D-galactose. 6-Deoxy-4-O-α-D-galactopyranosyl-D-galactose



β–Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3

β-Pyranose-*form*

Me glycoside: [96103-01-4]
$C_{13}H_{24}O_{10}$ 340.327
Amorph. $[\alpha]_D^{25}$ +109 (c, 0.7 in H_2O).

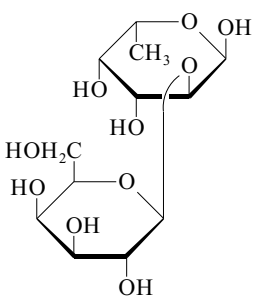
Me glycoside, 2′,3′,4′,6′-tetrabenzyl: [117124-68-2]
$C_{41}H_{48}O_{10}$ 700.824
Syrup. $[\alpha]_D^{25}$ +29.5 (c, 0.3 in $CHCl_3$).

Me glycoside, 2′,3′,4′,6′-tetrabenzyl, 2,3-dibenzoyl: [117124-67-1]
$C_{55}H_{56}O_{12}$ 909.04
Syrup. $[\alpha]_D^{25}$ +96 (c, 0.9 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1985, **137**, 270 (*benzylidene*)
Kihlberg, J. *et al., Carbohydr. Res.*, 1988, **176**, 271 (*Me gly*)

2-*O*-β-D-Galactopyranosyl-L-fucose G-75

2-O-β-D-Galactopyranosyl-6-deoxy-L-galactose. 6-Deoxy-2-O-β-D-galactopyranosyl-L-galactose



$C_{12}H_{22}O_{10}$ 326.3

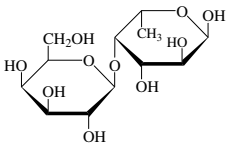
α-Pyranose-*form*

Me glycoside, 2′,3′,4′,6′-tetra-Ac: [86734-75-0]
$C_{21}H_{32}O_{14}$ 508.475
$[\alpha]_D^{22}$ -32 (c, 0.68 in $CHCl_3$).

Collins, P.M. *et al., J.C.S. Perkin 1*, 1983, 921

4-*O*-β-D-Galactopyranosyl-L-fucose G-76

4-O-β-D-Galactopyranosyl-6-deoxy-L-galactose, 9CI. 6-Deoxy-4-O-β-D-galactopyranosyl-L-galactose
[87735-61-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Constit. of the repeating unit of M-antigen, a mucous polysaccharide produced by enterobacteria. Needles (EtOH/MeOH). Mp 182-184°. $[\alpha]_D$ -39 (5 min) → +48 (18h) (c, 1 in H_2O).

α-Pyranose-*form*

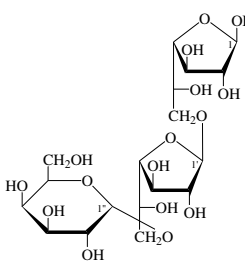
Hepta-Ac: [87761-13-5]
$C_{26}H_{36}O_{17}$ 620.56
Syrup. $[\alpha]_D$ -84 (c, 2 in CH_2Cl_2).

Me glycoside: [87735-55-5]
$C_{13}H_{24}O_{10}$ 340.327
Cryst. (EtOAc). Mp 150°. $[\alpha]_D$ -103 (c, 1.5 in MeOH).

Me glycoside, 2,3-dibenzoyl: [87735-54-4]
$C_{27}H_{36}O_{10}$ 520.575
Cryst. (EtOAc/Me_2CO). Mp 184-186°. $[\alpha]_D$ -86 (c, 1.1 in EtOH).

Garegg, P.J. *et al., Acta Chem. Scand.*, 1971, **25**, 1185; 2103 (*occur*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1983, **119**, 75

α-D-Galactopyranosyl-(1→6)-β-D-galactofuranosyl-(1→6)-D-galactose, 9CI G-77



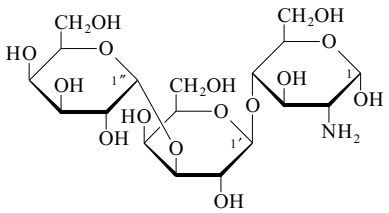
β-Furanose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Repeating unit in the *O*-specific polysaccharide of *Actinobacillus pleuropneumoniae* serotype 12.

β-Furanose-*form* [133957-37-6]
Syrup.

Beynon, L.M. *et al., Can. J. Chem.*, 1991, **69**, 218 (*occur, pmr, cmr, glc, ms*)

α-D-Galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose G-78



$C_{18}H_{33}NO_{15}$ 503.456
Isol. from the hydrolysate of a human blood group B-specific glycoprotein. Constit. of glycoproteins from membrane thyroid cells.

N-*Ac:* [77356-46-8]
$C_{20}H_{35}NO_{16}$ 545.494
Cryst. Mp 236-239° dec. $[\alpha]_D^{23}$ +104 → +100 (c, 1.0 in H_2O).

α-Pyranose-*form*

Benzyl glycoside, 2′,2″,3,3″,4″,6,6′,6″-octabenzyl, N-*Ac:* [77356-44-6]
$C_{83}H_{89}NO_{16}$ 1356.613
Cryst. (Et_2O/hexane). Mp 122-123°. $[\alpha]_D^{23}$ +63 (c, 1.0 in $CHCl_3$).

*Benzyl glycoside, 2′,2″,3,3″,4″,6,6′,6″-octabenzyl, 2*N,*4′-di-Ac:* [77356-45-7]
$C_{85}H_{91}NO_{17}$ 1398.65
Syrup. $[\alpha]_D^{23}$ +57 (c, 1.0 in $CHCl_3$).

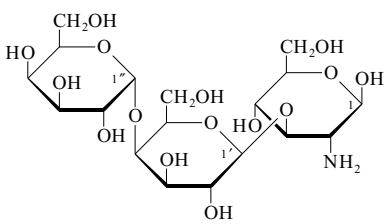
β-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [97205-12-4]
$C_{30}H_{53}NO_{18}$ 715.745
Syrup. $[\alpha]_D$ +49 (c, 0.6 in H_2O).

*8-Methoxycarbonyloctyl glycoside, 2″,3,3″,4″,6,6″-hexabenzyl, 2′,6′-dibenzoyl, 2*N,*4′-di-Ac:* [97205-11-3]
$C_{88}H_{99}NO_{21}$ 1506.744
Syrup. $[\alpha]_D$ +30 (c, 1.2 in $CHCl_3$).

Painter, T.J. *et al., Nature (London)*, 1963, **199**, 282 (*isol*)
Jacquinet, J.C. *et al., J.C.S. Perkin 1*, 1981, 326 (*N-Ac, α-benzyl pyr derivs, pmr*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1985, **136**, 207 (*β-methoxycarbonyloctyl pyr derivs, cmr*)
Thall, A. *et al., Biochemistry*, 1990, **29**, 3959 (*anal*)
Thall, A. *et al., Acta Endocrinol.*, 1991, **124**, 692; *CA*, **115**, 229881d (*occur*)

α-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →3)-2-amino-2-deoxy-D-glucose, 9CI G-79



$C_{18}H_{33}NO_{15}$ 503.456

β-Pyranose-*form*

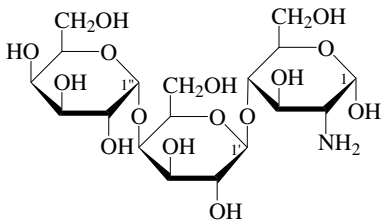
Propyl glycoside, N-*Ac:* [83562-63-4]
$C_{23}H_{41}NO_{16}$ 587.574
Amorph. solid + $5H_2O$. $[\alpha]_D^{25}$ +43.5 (c, 1.0 in MeOH).

Propyl glycoside, 2″,3′,3″,4,4″,6,6′,6″-octabenzyl, N-*Ac:* [83562-62-3]
$C_{79}H_{89}NO_{16}$ 1308.569
Amorph. solid. $[\alpha]_D^{25}$ +42.6 (c, 1.03 in $CHCl_3$).

Propyl glycoside, 2″,3′,3″,4,4″,6,6′,6″-octabenzyl, 2′-benzoyl, N-*Ac:* [83562-61-2]
$C_{86}H_{93}NO_{17}$ 1412.677
Syrup. $[\alpha]_D$ +50.9 (c, 0.75 in $CHCl_3$).

Nashed, M.A. *et al., J.A.C.S.*, 1982, **104**, 7282 (*β-propyl pyr derivs, pmr, cmr*)

α-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI G-80



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456

α-Pyranose-*form*

N-*Ac:* [88509-73-3]
$C_{20}H_{35}NO_{16}$ 545.494
Constit. of the human blood group P, antigenic determinant. Cryst. + $2H_2O$. Mp 179-180°. $[\alpha]_D^{23}$ +68 → +72 (c, 0.36 in MeOH aq.).

Benzyl glycoside, 2′,2″,3,3′,3″,4″,6,6′,6″-nonabenzyl, N-*Ac:* [88509-72-2]
$C_{90}H_{95}NO_{16}$ 1446.738
Amorph. $[\alpha]_D$ +59 (c, 1.5 in $CHCl_3$).

β-Pyranose-*form*

Allyl glycoside, 2″,3,3′,3″,4″,6,6′,6″-octabenzyl, N-*Ac:* [85395-70-6]
$C_{79}H_{87}NO_{16}$ 1306.553
Amorph. solid. $[\alpha]_D^{25}$ +42.7 (c, 0.3 in $CHCl_3$).

Et glycoside, N-*Ac:* [90232-54-5]
$C_{22}H_{39}NO_{16}$ 573.547
Oil. $[\alpha]_D^{22}$ +38 (c, 0.6 in H_2O).

Et glycoside, deca-Ac: [90232-53-4]
$C_{40}H_{57}NO_{25}$ 951.882
Cryst. Mp 130-133°. $[\alpha]_D^{22}$ +41 (c, 0.7 in $CHCl_3$).

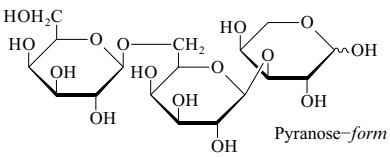
Propyl glycoside, N-*Ac:* [85395-71-7]
$C_{23}H_{41}NO_{16}$ 587.574
Amorph. solid + $2H_2O$. $[\alpha]_D^{25}$ +18.8 (MeOH) (anhyd.). $[\alpha]_D^{23}$ +32 (c, 1.3 in MeOH aq.) (dihydrate).

[85395-69-3, 88509-78-8, 88509-79-9, 101492-17-5]

Nashed, M.A. *et al., Carbohydr. Res.*, 1983, **114**, 43 (*β-allyl pyr octabenzyl N-Ac, β-propyl pyr N-Ac*)
Zollo, P.A. *et al., Carbohydr. Res.*, 1983, **122**, 201 (*α-N-Ac, β-propyl pyr N-Ac, α-benzyl pyr nonabenzyl N-Ac, β-allyl pyr octabenzyl N-Ac*)
Dahmen, J. *et al., Carbohydr. Res.*, 1984, **129**, 63 (*β-Et pyr derivs*)

β-D-Galactopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →3)-L-arabinose, 8CI G-81

[32694-83-0]



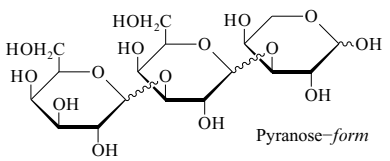
$C_{17}H_{30}O_{15}$ 474.415
Isol. from the hydrolysate of Marike gum from *Anogeissus schimperi* and from gum ghatti. Cryst. (EtOH aq.).
Mp 190-191°. $[\alpha]_D$ +39 (c, 0.91 in H_2O).

[101996-67-2]

Aspinall, G.O. *et al., J.C.S.*, 1958, 4408; 1961, 3461 (*isol*)
Karkkainen, J. *et al., Carbohydr. Res.*, 1971, **17**, 11 (*glc, ms*)
Gerali, G. *et al., Gazz. Chim. Ital.*, 1985, **115**, 523 (*ord*)

D-Galactopyranosyl-(1 →3)-D-galactopyranosyl-(1 →3)-L-arabinose, 9CI G-82

[79043-15-5]

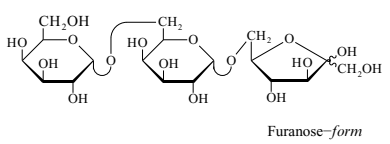


$C_{17}H_{30}O_{15}$ 474.415
Isol. from the hydrolysate of the gum of *Spondias dulcis* (ambarella) (Anacardiaceae). The exudate gum is used as an Indian medication. $[\alpha]_D^{24}$ +56 (c, 0.5 in H_2O).

Basu, S. *et al., Carbohydr. Res.*, 1981, **94**, 215

α-D-Galactopyranosyl-(1 →6)-α-D-galactopyranosyl-(1 →6)-D-fructose G-83

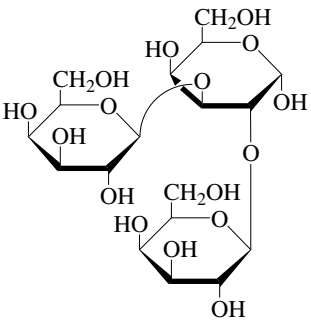
6-α-Galactosylplanteobiose



$C_{18}H_{32}O_{16}$ 504.441
Reducing trisaccharide. $[\alpha]_D$ +119 (H_2O).

De Grandchamp-Chaudun, A. *et al., Bull. Soc. Chim. Biol.*, 1960, **42**, 227 (*synth*)

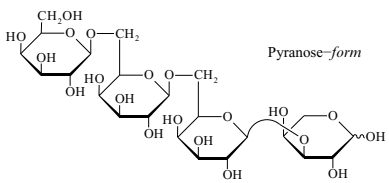
β-D-Galactopyranosyl-(1 →2)- G-84
***O*-[β-D-galactopyranosyl-(1 →3)]-α-D-galactopyranose, 9CI**
α-Kolomiktriose
[145265-22-1]



$C_{18}H_{32}O_{16}$ 504.441
Constit. of the roots of *Actinidia kolomikta*.

Li, P. *et al., CA*, 1993, **118**, 35868w (*isol*)

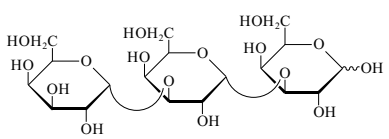
β-D-Galactopyranosyl-(1 →6)- G-85
β-D-galactopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →3)-L-arabinose



$C_{23}H_{40}O_{20}$ 636.557
Isol. from partial acid hydrolysates of ghatti and *Anogeissus schimperi* gums. Mp 171°. $[\alpha]_D$ +26 (H_2O).

Aspinall, G.O. *et al., J.C.S.*, 1961, 3461; 1958, 4408 (*isol*)

α-D-Galactopyranosyl-(1 →3)- G-86
α-D-galactopyranosyl-(1 →3)-D-galactose
[88262-62-8]



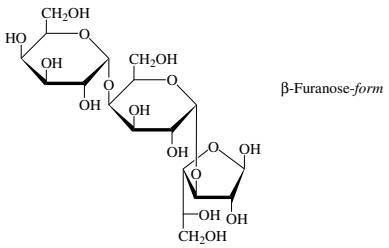
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isolated from the partial acetolysate of λ-carrageenan. Cryst. (MeOH aq.). Mp 237-239° dec. $[\alpha]_D^{25}$ +146 (c, 0.5 in H_2O).

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 275-277°. $[\alpha]_D$ +106 ($CHCl_3$).

Morgan, K. *et al., Can. J. Chem.*, 1959, **37**, 1201 (*isol*)

α-D-Galactopyranosyl-(1 →4)- G-87
α-D-galactopyranosyl-(1 →3)-D-galactose, 9CI



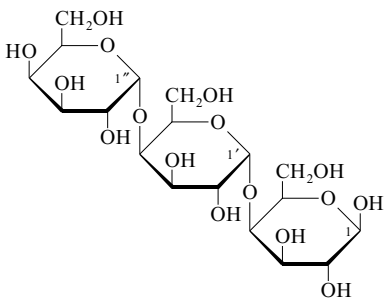
β-Furanose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Repeating unit in the *O*-specific polysaccharide of *Serratia marcescens* serogroups 024, 016 and in 020.

β-Furanose-*form* [125342-55-4]
Syrup.

Oxley, D. *et al., Carbohydr. Res.*, 1989, **195**, 117 (*isol, cmr*)

α-D-Galactopyranosyl-(1 →4)- G-88
α-D-galactopyranosyl-(1 →4)-D-galactose

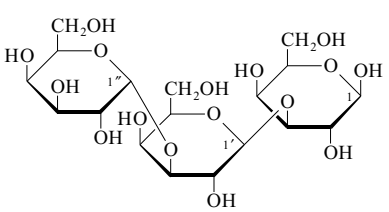


$C_{18}H_{32}O_{16}$ 504.441

β-Pyranose-*form*
tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl:* [129729-23-3]
$C_{83}H_{92}O_{16}Si$ 1373.716
Syrup. $[\alpha]_D^{20}$ +47 (c, 0.6 in $CHCl_3$).
tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl, 6,6′,6″-tri-Ac:* [129729-19-7]
$C_{89}H_{98}O_{19}Si$ 1499.827
Syrup. $[\alpha]_D^{20}$ +40 (c, 0.5 in $CHCl_3$).

Nakahara, Y. *et al., Carbohydr. Res.*, 1990, **200**, 363 (*β-silyl pyr derivs, pmr, cmr*)

α-D-Galactopyranosyl-(1 →3)- G-89
β-D-galactopyranosyl-(1 →3)-D-galactose, 9CI

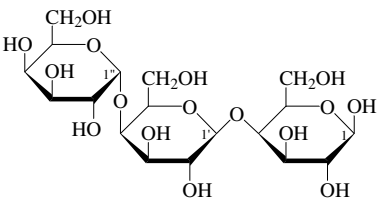


$C_{18}H_{32}O_{16}$ 504.441

β-Pyranose-*form*
Undecabenzoyl: [131057-54-0]
$C_{95}H_{76}O_{27}$ 1649.629
Syrup. $[\alpha]_D$ +87.3 (c, 0.6 in $CHCl_3$).
Me glycoside, 3″-benzyl, 2,2′,2″,4,4′,4″,6,6′,6″-nonabenzoyl: [99605-98-8]
$C_{89}H_{76}O_{25}$ 1545.564
Syrup. $[\alpha]_D$ +96 ($CHCl_3$).

Kovac, P. *et al., J.O.C.*, 1985, **50**, 5323 (*β-Me pyr deriv, cmr, pmr*)
Ziegler, T. *et al., J. Carbohydr. Chem.*, 1990, **9**, 135 (*β-undecabenzoyl, pmr, cmr*)

α-D-Galactopyranosyl-(1 →4)- G-90
β-D-galactopyranosyl-(1 →4)-D-galactose, 9CI



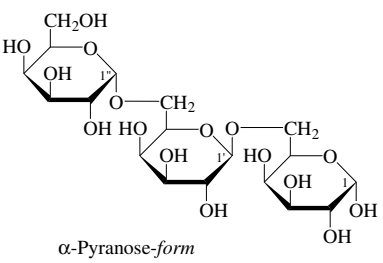
β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

β-Pyranose-*form*
tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl, 6,6′,6″-tri-Ac:* [129729-20-0]
$C_{89}H_{98}O_{19}Si$ 1499.827
Syrup + H_2O. $[\alpha]_D^{20}$ +37 (c, 0.4 in $CHCl_3$).

Nakahara, Y. *et al., Carbohydr. Res.*, 1990, **200**, 363 (*β-silyl pyr tri-Ac deriv, pmr, cmr*)

α-D-Galactopyranosyl-(1 →6)- G-91
β-D-galactopyranosyl-(1 →6)-D-galactose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

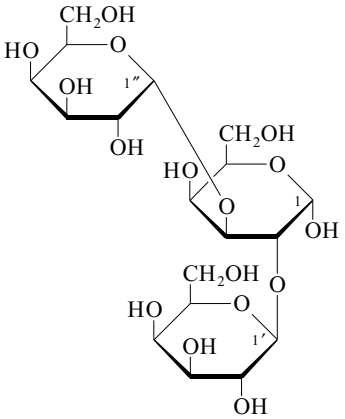
α-Pyranose-*form*
1,2:3,4:3′,4′-Tri-O-*isopropylidene, 2″,3″,4″,6″-tetrabenzyl, 2′-Ac:* [125392-64-5]
$C_{57}H_{70}O_{17}$ 1027.17
Syrup.

β-Pyranose-*form*
Allyl glycoside, deca-Ac: [110236-45-8]
$C_{41}H_{56}O_{26}$ 964.878
Syrup. $[\alpha]_D$ +44 ($CHCl_3$).

Nashed, E.M. *et al., Carbohydr. Res.*, 1986, **158**, 125 (*β-allyl pyr deca-Ac, pmr, cmr*)

Konradsson, P. *et al., Chem. Comm.*, 1989, 1124 (*α-triisopropylidene deriv*)

β-D-Galactopyranosyl-(1 →2)-[α-D-galactopyranosyl-(1 →3)]-D-galactose, 9CI G-92



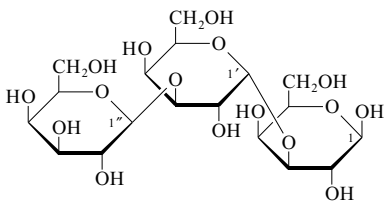
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

3-Methoxycarbonylpropyl glycoside: [86783-27-9]
$C_{23}H_{40}O_{18}$ 604.558
Cryst. + $3H_2O$. Mp 108-112°. $[\alpha]_D^{26}$ +131 (c, 0.9 in MeOH).

Collins, P.M. *et al., J.C.S. Perkin 1*, 1983, 927 (*α-methoxycarbonylpropyl pyr, pmr, cmr*)

β-D-Galactopyranosyl-(1 →3)-α-D-galactopyranosyl-(1 →3)-D-galactose, 9CI G-93



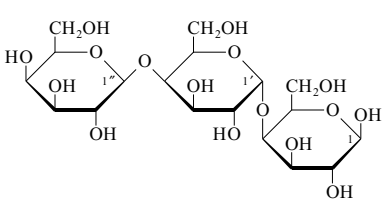
$C_{18}H_{32}O_{16}$ 504.441

β-Pyranose-*form*

Undecabenzoyl: [131057-53-9]
$C_{95}H_{76}O_{27}$ 1649.629
Syrup. $[\alpha]_D$ +87.3 (c, 0.6 in $CHCl_3$).

Ziegler, T. *et al., J. Carbohydr. Chem.*, 1900, **9**, 135 (*undecabenzoyl, pmr, cmr*)

β-D-Galactopyranosyl-(1 →4)-α-D-galactopyranosyl-(1 →4)-D-galactose, 9CI G-94



$C_{18}H_{32}O_{16}$ 504.441

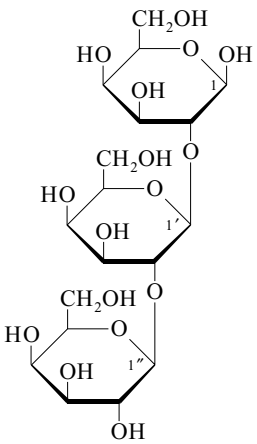
β-Pyranose-*form*

tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl:* [129729-27-7]
$C_{83}H_{92}O_{16}Si$ 1373.716
Syrup. $[\alpha]_D^{24}$ +45 (c, 0.6 in $CHCl_3$).

tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3′,3′,3″,4″-heptabenzyl, 6,6′,6″-tri-Ac:* [129729-21-1]
$C_{89}H_{98}O_{19}Si$ 1499.827
Syrup. $[\alpha]_D^{20}$ +39 (c, 1.3 in $CHCl_3$).

Nakahara, Y. *et al., Carbohydr. Res.*, 1990, **200**, 363 (*β-silyl pyr heptabenzyl derivs, pmr, cmr*)

β-D-Galactopyranosyl-(1 →2)-β-D-galactopyranosyl-(1 →2)-D-galactose, 9CI G-95



$C_{18}H_{32}O_{16}$ 504.441

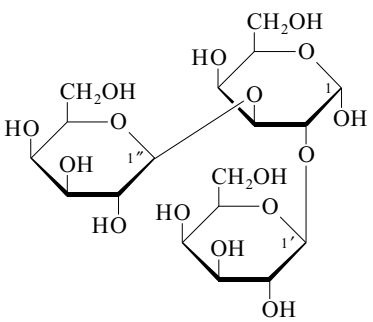
β-Pyranose-*form*

Me glycoside: [78120-16-8]
$C_{19}H_{34}O_{16}$ 518.468
Solid + $3H_2O$. $[\alpha]_D^{25}$ +19.3 (c, 1.0 in H_2O).

Me glycoside, nonabenzyl, 2″-benzoyl: [78130-00-4]
$C_{89}H_{92}O_{17}$ 1433.696
Oil. $[\alpha]_D^{25}$ +2.2 (c, 1.0 in $CHCl_3$).

Eby, R. *et al., Carbohydr. Res.*, 1981, **92**, 149 (*β-Me pyr derivs, cmr*)

β-D-Galactopyranosyl-(1 →2)-[β-D-galactopyranosyl-(1 →3)]-D-galactose, 9CI G-96



$C_{18}H_{32}O_{16}$ 504.441

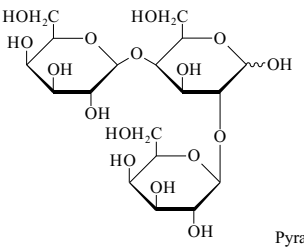
α-Pyranose-*form*

3-Methoxycarbonylpropyl glycoside: [86734-87-4]
$C_{23}H_{40}O_{18}$ 604.558
Cryst. + $3H_2O$. Mp 128-130°. $[\alpha]_D^{26}$ +57.9 (c, 0.7 in MeOH).

Collins, P.M. *et al., J.C.S. Perkin 1*, 1983, 927 (*α-methoxycarbonylpropyl pyr, pmr, cmr*)

β-D-Galactopyranosyl-(1 →2)-[β-D-galactopyranosyl-(1 →4)]-D-galactose, 9CI G-97

[83788-45-8]

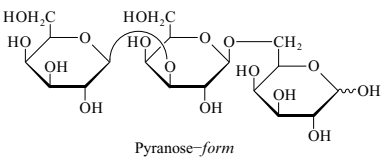


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isolated from the partial acid hydrolysate of cambium polysaccharides of Bael (*Aegle marmelos*).
$[\alpha]_D^{24}$ +45.4 (H_2O).

Basak, R.K. *et al., Carbohydr. Res.*, 1982, **110**, 145

β-D-Galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →6)-D-galactose, 9CI G-98



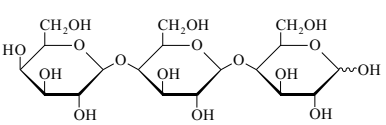
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysates of the gums of *Chorisia*, *Prunus persica* and *Opuntia ficus-indica* (Indian fig).
$[\alpha]_D$ +27.9 (c, 0.5 in H_2O).

Kubala, J. *et al., Coll. Czech. Chem. Comm.*, 1977, **42**, 2809
Kardosova, A. *et al., Coll. Czech. Chem. Comm.*, 1978, **43**, 3428 (*isol, glc, ms*)
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57
Difabio, J.L. *et al., Carbohydr. Res.*, 1982, **99**, 41 (*isol*)

β-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-galactose, 9CI G-99

[6118-87-2]



Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441

Isolated from the partial acid hydrolysate of Norwegian spruce (*Picea abies*) galactan and from the cambium polysaccharides of Bael (*Aegle marmelos*).
$[\alpha]_D$ +58 (+50) (H_2O).

α-Pyranose-*form*

Allyl glycoside, 3,3′,3″,6,6′,6″-hexabenzyl, 2,2′,2″-tribenzoyl, 4″-Ac: [93495-79-5]
$C_{86}H_{86}O_{20}$ 1439.613
Mp 126-127°. $[\alpha]_D$ +70.5 ($CHCl_3$).

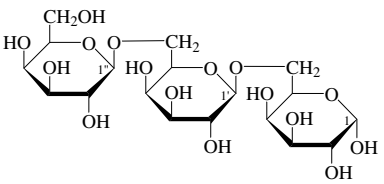
β-Pyranose-*form*

tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl, 6,6′,6″-tri-Ac:* [129729-22-2]
$C_{89}H_{98}O_{19}Si$ 1499.827
Syrup + H_2O. $[\alpha]_D^{24}$ +22.5 (c, 0.5 in $CHCl_3$).

Bouveng, H.O. *et al., Acta Chem. Scand.*, 1959, **13**, 1884
Basak, R.K. *et al., Carbohydr. Res.*, 1982, **110**, 145
El Shenawy, H.A. *et al., Carbohydr. Res.*, 1984, **131**, 239 (α-*allyl pyr, pmr, cmr*)
Nakano, H. *et al., Agric. Biol. Chem.*, 1986, **50**, 3005 (*enzymic synth*)
Nakahara, Y. *et al., Carbohydr. Res.*, 1990, **200**, 363 (*β-silyl pyr, pmr, cmr*)

β-D-Galactopyranosyl-(1 →6)- β-D-galactopyranosyl-(1 →6)-D-galactose, 9CI G-100

[28245-12-7]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Isolated from partial acid hydrolysates of *Virgilia oroboides*, *Anogeissus schimperi*, *Prunus persica*, *Opuntia ficus-indica* (Indian fig) gums and *Larix decidua* ε-galactan and *Larix laricina* arabogalactan. Needles (MeOH aq.).
Mp 158-163° (137-142°, 152-155°). $[\alpha]_D^{18}$ +22 (c, 0.5 in H_2O) (+13).

β-Pyranose-*form*

Me glycoside: [77735-11-6]
$C_{19}H_{34}O_{16}$ 518.468
Cryst. (EtOH aq.). Mp 203-205°. $[\alpha]_D$ +38.1 (c, 1.0 in H_2O). $[\alpha]_D$ -10 (c, 0.8 in H_2O).

Me glycoside, decabenzoyl: [109022-60-8]
$C_{89}H_{74}O_{26}$ 1559.548
Mp 250-251°. $[\alpha]_D$ +115 ($CHCl_3$).

Me glycoside, 6″-bromoacetyl, nonabenzoyl: [101802-84-0]
$C_{84}H_{71}BrO_{26}$ 1576.373
Cryst. (CH_2Cl_2/MeOH). Mp 233-234°. $[\alpha]_D$ +162 (c, 0.8 in $CHCl_3$).

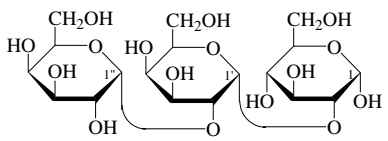
Me glycoside, 6″-chloroacetyl, nona-Ac: [100741-00-2]
$C_{39}H_{53}ClO_{26}$ 973.285
Foam. $[\alpha]_D$ -9 (c, 0.8 in $CHCl_3$).

Allyl glycoside, deca-Ac: [110236-46-9]
$C_{41}H_{56}O_{26}$ 964.878
Syrup. $[\alpha]_D$ -18.2 (c, 0.9 in $CHCl_3$).

Allyl glycoside, 6″-bromoacetyl, nona-Ac: [110236-47-0]
$C_{41}H_{55}BrO_{26}$ 1043.774
Syrup. $[\alpha]_D$ -13.5 (c, 1.0 in $CHCl_3$).

Aspinall, G.O. *et al., J.C.S.*, 1958, 4408; 1961, 3461; 1965, 2685
Bailey, R.W. *et al., Oligosaccharides*, Pergamon Press, London, 1965, 50 (*occur*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1970, **12**, 143
Kubala, J. *et al., Coll. Czech. Chem. Comm.*, 1977, **42**, 2809 (*isol*)
Srivastava, V.K. *et al., Carbohydr. Res.*, 1980, **86**, 203 (*Me gly, cmr*)
Asp, W.G. *et al., Food Chem.*, 1980, **5**, 147 (*synth*)
Bhattacharjee, A.K. *et al., Carbohydr. Res.*, 1981, **89**, 249 (*synth*)
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)
Kovac, P. *et al., Carbohydr. Res.*, 1985, **140**, 277; 1986, **153**, 237 (*Me gly, deriv, synth, pmr, cmr*)
Nashed, E.M. *et al., Carbohydr. Res.*, 1986, **158**, 125 (*allyl gly deriv, synth, pmr, cmr*)

α-D-Galactopyranosyl-(1 →2)- α-D-galactopyranosyl-(1 →2)-D-glucose, 9CI G-101



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of the outer core oligosaccharide which constitutes part of the *Shigella sonnei*, *Shigella flexneri* 6 and *Escherichia coli* C lipopolysaccharide.

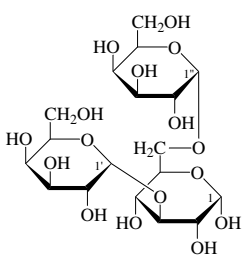
α-Pyranose-*form*

Undeca-Ac: [93495-97-7]
$C_{40}H_{54}O_{27}$ 966.85
Viscous syrup. $[\alpha]_D^{19}$ +149 (c, 1.0 in $CHCl_3$).

2″,3″,4″,6″-Tetrabenzyl, 1,3,3′,4,4′,6,6′-hepta-Ac: [93495-96-6]
$C_{60}H_{70}O_{23}$ 1159.199
Syrup. $[\alpha]_D^{19}$ +91 (c, 1.0 in $CHCl_3$).

Doboszewski, B. *et al., Carbohydr. Res.*, 1984, **132**, 29 (*undeca-Ac, hepta-Ac deriv, pmr, cmr*)

α-D-Galactopyranosyl-(1 →3)- [α-D-galactopyranosyl-(1 →6)]-D-glucose, 9CI G-102



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

Constit.of the lipopolysaccharide of *Salmonella* bacteria. Acts as a phage G13 carbohydrate receptor.

α-Pyranose-*form*

Me glycoside: [118349-66-9]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. $[\alpha]_D$ +214 (c, 1.0 in H_2O).

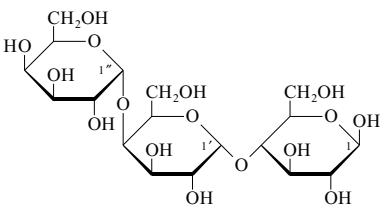
Me glycoside, 2,2′,2″,3′,3″,4′,4″,6′,6″-nonabenzyl, 4-Ac: [118349-64-7]
$C_{84}H_{90}O_{17}$ 1371.625
Syrup. $[\alpha]_D$ +49 (c, 1.0 in $CHCl_3$).

Octyl glycoside: [118349-67-0]
$C_{26}H_{48}O_{16}$ 616.656
Amorph. $[\alpha]_D$ +184 (c, 1.0 in H_2O).

8-Methoxycarbonyloctyl glycoside, decabenzyl: [81413-18-5]
$C_{98}H_{110}O_{18}$ 1575.936
$[\alpha]_D$ +53.1 (c, 1.4 in $CHCl_3$).

Iversen, T. *et al., Can. J. Chem.*, 1982, **60**, 299 (*methoxycarbonyl gly decabenzyl*)
Norberg, T. *et al., J. Carbohydr. Chem.*, 1988, **7**, 283 (α-*Me pyr derivs, α-octyl pyr, pmr, cmr*)
Wollin, R. *et al., J. Mol. Recognit.*, 1989, **2**, 37; *CA*, 1990, **112**, 4110q (*biochem*)

α-D-Galactopyranosyl-(1 →4)- α-D-galactopyranosyl-(1 →4)-D-glucose, 9CI G-103



$C_{18}H_{32}O_{16}$ 504.441

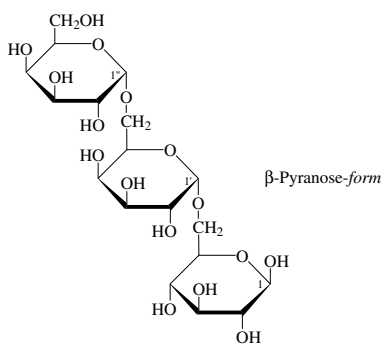
β-Pyranose-*form*

2-Bromoethyl glycoside, 2,3,6-tribenzyl, hepta-Ac: [90214-79-2]
$C_{55}H_{67}BrO_{23}$ 1176.024
Amorph. $[\alpha]_D^{21}$ +122 (c, 1.3 in $CHCl_3$).

Dahmen, J. *et al., Carbohydr. Res.*, 1984, **127**, 15 (*β-bromoethyl pyr deriv, pmr, cmr*)

α-D-Galactopyranosyl-(1 →6)- α-D-galactopyranosyl-(1 →6)-D-glucose G-104

Manninotriose. Mnt
[13382-86-0]



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

Synth. by the transferase action of yeast, bacterial and other α-galactosidases on melibiose. Formed by the action of α-galactosidase of *Absidia corymbifera* on 6-*O*-α-D-Galactopyranosyl-D-glucose, G-145. Found free in cocoa beans, hazelnuts and in various plant mannans. Selectively utilised by bifidobacteria in the intestine but hardly utilised by other microorganisms. Increases faecal bifidobacteria and decreases Clostridia. $[\alpha]_D$ +167 (H_2O).

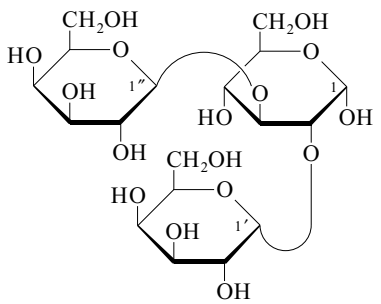
Phenylosazone: Mp 122°.

β-Pyranose-*form*

Undeca-Ac: [64544-38-3]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 106-107.5°. $[\alpha]_D^{21}$ +132.7 (c, 0.98 in $CHCl_3$).

French, D. *et al., Adv. Carbohydr. Chem.*, 1954, **4**, 149 (*synth*)
Bailey, R.W. *et al., Biochem. J.*, 1963, **85**, 509 (*synth*)
Lombard, A. *et al., CA*, 1976, **85**, 59634t (*isol*)
Adachi, R. *et al., Bull. Chem. Soc. Jpn.*, 1977, **50**, 1901 (*β-Ac synth, pmr*)
Aamen, P. *et al., J. Sci. Food Agric.*, 1979, **30**, 869 (*isol*)
Wight, A.W. *et al., Food Chem.*, 1986, **21**, 167 (*hplc*)
Sugawara, S. *et al., Agric. Biol. Chem.*, 1990, **54**, 211 (*enzym synth, cmr*)
Wada, K. *et al., CA*, 1991, **115**, 204361w (*synth*)

α-D-Galactopyranosyl-(1 →2)-[β-D-galactopyranosyl-(1 →3)]-D-glucose, 9CI G-105



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

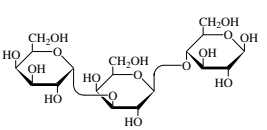
Me glycoside: [84049-74-1]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D^{25}$ +107 (c, 0.85 in H_2O).

Me glycoside, deca-Ac: [84039-38-3]
$C_{39}H_{54}O_{26}$ 938.84
Amorph. $[\alpha]_D^{25}$ +95 (c, 0.6 in $CHCl_3$).

Temeriusz, A. *et al., Carbohydr. Res.*, 1982, **108**, 298 (*α-Me pyr derivs, pmr*)

α-D-Galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose G-106

[41744-59-6]

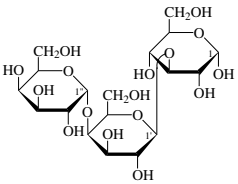


$C_{18}H_{32}O_{16}$ 504.441

Major component of the milk of the brown bear *Ursus arctos yessoensis* and constit. of colostrum of goat and sheep. $[\alpha]_D$ +79 (c, 0.7 in H_2O).

Sarkar, A.R. *et al., Carbohydr. Res.*, 1992, **233**, 245-250 (*pyr-form, synth*)
Urashima, T. *et al., Biochim. Biophys. Acta*, 1997, **1334**, 247-255 (*isol*)

α-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →3)-D-glucose, 9CI G-107



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Undeca-Ac: [69283-30-3]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (C_6H_6/diisopropyl ether). Mp 124° (sinters at 116°). $[\alpha]_D^{25}$ +135 (c, 1.0 in $CHCl_3$).

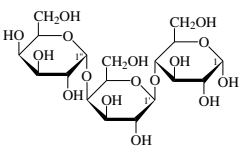
β-Pyranose-*form*

1,6-Anhydro, nona-Ac: [69283-25-6]
$C_{36}H_{48}O_{24}$ 864.761
Cryst. (diisopropyl ether/C_6H_6). Mp 105-108°. $[\alpha]_D^{25}$ +110 (c, 1.0 in $CHCl_3$).

Shapiro, D. *et al., Chem. Phys. Lipids*, 1978, **22**, 197 (*α-undeca-Ac, β-anhydro nona-Ac, pmr*)

α-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI G-108

Globotriose
[66580-68-5]



$C_{18}H_{32}O_{16}$ 504.441
Trisaccharide constit. of the human P^K-antigenic determinant. Sweetener in bakery and confectionery. P^K-antigen (trihexosylceramide) is associated with Fabrys disease and urinary tract infection. Amorph. $[\alpha]_D^{21}$ +101 (c, 0.5 in H_2O).

α-Pyranose-*form*

1,2,2′,3,3′,6,6′-Heptabenzoyl: [101561-37-9]
$C_{67}H_{60}O_{23}$ 1233.197
Amorph. $[\alpha]_D^{21}$ +124 (c, 1.0 in $CHCl_3$).

2′′,3′′,4′′,6′′-Tetrabenzyl, 1,2,2′,3,3′,6,6′-heptabenzoyl: [101615-02-5]
$C_{95}H_{84}O_{23}$ 1593.695
Amorph. $[\alpha]_D^{21}$ +93 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

1,2,2′,3,3′,6,6′-Heptabenzoyl: [101561-38-0]
Amorph. $[\alpha]_D^{21}$ +71 (c, 1.0 in $CHCl_3$).

Me glycoside: [67561-82-4]
$C_{19}H_{34}O_{16}$ 518.468
Glass. $[\alpha]_D^{21}$ +65 (c, 1.0 in H_2O). $[\alpha]_D^{20}$ +63 (c, 1.2 in H_2O).

Me glycoside, deca-Ac: [67561-85-7]
$C_{39}H_{54}O_{26}$ 938.84
Glass. $[\alpha]_D^{21}$ +42 (c, 0.85 in $CHCl_3$).

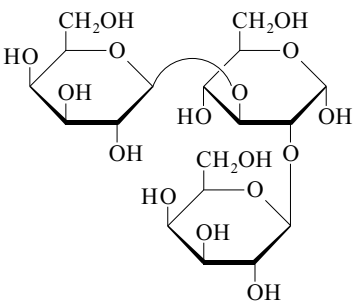
Me glycoside, decabenzoyl:
$C_{89}H_{74}O_{26}$ 1559.548
Cryst. (EtOH). Mp 223-224°. $[\alpha]_D$ +70 (c, 1.0 in $CHCl_3$).

Et glycoside: [90214-85-0]
$C_{20}H_{36}O_{16}$ 532.495
Syrup. $[\alpha]_D^{21}$ +71 (c, 0.5 in H_2O).

Et glycoside, deca-Ac: [90214-84-9]
$C_{40}H_{56}O_{26}$ 952.867
Amorph. $[\alpha]_D^{21}$ +41 (c, 1.0 in $CHCl_3$).

Cox, D.D. *et al., Carbohydr. Res.*, 1978, **63**, 139 (*β-Me pyr derivs, cmr*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1982, **110**, 261 (*β-Me pyr, cmr*)
Dahmen, J. *et al., Carbohydr. Res.*, 1984, **127**, 15 (*β-Et pyr, cmr, pmr*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1985, **143**, 143 (*synth, pmr*)
Koike, K. *et al., Carbohydr. Res.*, 1987, **163**, 189 (*synth*)
Karlsson, H. *et al., J. High Resolut. Chromatogr. Chromatogr. Commun.*, 1988, **11**, 820 (*glc, ms*)
Japan. Pat., 1989, 01 86 857; *CA*, **111**, 56168p (*use*)
Myers, R.L. *et al., Anal. Biochem.*, 1991, **192**, 156 (*hplc*)
Mueller, D. *et al., J.C.S. Perkin 1*, 1998, 2287-2294 (*synth, bibl*)
Zhang, J. *et al., Carbohydr. Res.*, 2002, **337**, 969-976 (*synth*)

β-D-Galactopyranosyl-(1 →2)-[β-D-galactopyranosyl-(1 →3)]-D-glucose, 9CI G-109



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form* [20184-06-9]

Me glycoside: [84039-40-7]
$C_{19}H_{34}O_{16}$ 518.468
Cryst. Mp 247°. $[\alpha]_D^{25}$ +60 (c, 0.85 in H_2O).

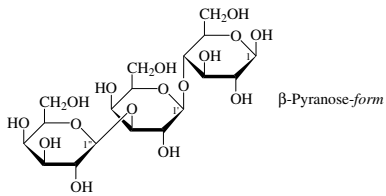
Me glycoside, deca-Ac: [84049-76-3]
$C_{39}H_{54}O_{26}$ 938.84
Amorph. $[\alpha]_D^{25}$ +22 (c, 1.36 in $CHCl_3$).

Temeriusz, A. *et al., Carbohydr. Res.*, 1982, **108**, 298 (*α-Me pyr derivs, pmr*)

β-D-Galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI G-110

3′-Galactosyllactose

[32694-82-9]



$C_{18}H_{32}O_{16}$ 504.441

Isol. from human milk, urine and from bovine colostrum. Prod. from lactose by *Streptococcus thermophilus* induced transgalactosylation. Solid (H_2O/EtOH/MeOH).

Mp 200-202° dec. $[\alpha]_D^{23}$ +48 (c, 0.75 in H_2O) (+26.1).

β-Pyranose-*form*

Undeca-Ac: [18404-80-3]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH aq.). Mp 108-110°. $[\alpha]_D^{15}$ +17.2 (c, 0.61 in $CHCl_3$).

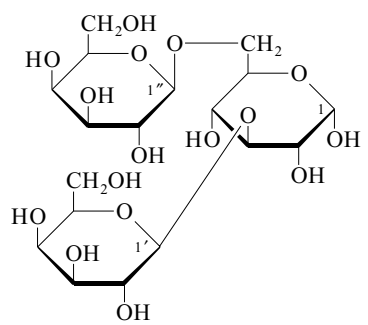
Benzyl glycoside: [18404-78-9]
$C_{25}H_{38}O_{16}$ 594.566
Hygroscopic powder + H_2O. $[\alpha]_D^{20}$ +17.9 (c, 0.95 in H_2O).

Benzyl glycoside, 2,2′,2″,3,3″,4″,6,6′,6″-nona-Ac: [18404-76-7]
$C_{43}H_{56}O_{25}$ 972.9
Syrup. $[\alpha]_D^{25}$ -5.2 (c, 0.81 in $CHCl_3$).

Benzyl glycoside, deca-Ac: [18404-77-8]
$C_{45}H_{58}O_{26}$ 1014.938
Syrup. $[\alpha]_D^{20}$ +3.6 (c, 0.99 in $CHCl_3$).

Beith-Halahmi, D. *et al., Carbohydr. Res.*, 1967, **5**, 25 (*β-undeca-Ac, β-benzyl pyr derivs*)
Saito, T. *et al., Carbohydr. Res.*, 1987, **165**, 43 (*isol, cmr*)
Donald, A.S.R. *et al., Carbohydr. Res.*, 1988, **178**, 79 (*isol*)
Dumortier, V. *et al., Carbohydr. Res.*, 1990, **201**, 115 (*isol, enzymic synth, chromatog*)
Perrin, V. *et al., Carbohydr. Res.*, 2000, **325**, 202-210 (*isol, pmr*)

β-D-Galactopyranosyl-(1 →3)-[β-D-galactopyranosyl-(1 →6)]-D-glucose, 9CI G-111



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Me glycoside: [84039-41-8]

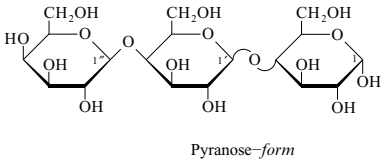
$C_{19}H_{34}O_{16}$ 518.468
Cryst. Mp 244-246°. $[\alpha]_D$ +60 (c, 1.0 in H_2O).

Temeriusz, A. *et al., Carbohydr. Res.*, 1982, **108**, 298 (*α-Me pyr, pmr*)

β-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-D-glucose G-112

4′-Galactosyllactose

[6587-31-1]



$C_{18}H_{32}O_{16}$ 504.441

Synth. by enzymic transglycosylation from lactose by immobilised cells of *Cryptococcus laurenti*. Sol. H_2O.

Mp 229-231°. Stable on heating for 15 min at pH 3 at 120°. Sweet taste (25% of sucrose).

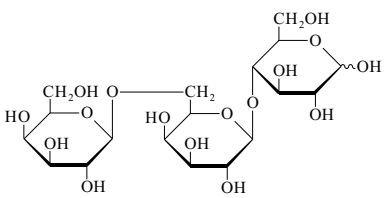
► LZ7170000

Ozawa, O. *et al., CA*, 1988, **109**, 169020m; 1991, **114**, 14149z (*synth, rev*)
Spengler, B. *et al., Anal. Chem.*, 1990, **62**, 1731 (*ms*)

β-D-Galactopyranosyl-(1 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose G-113

6′-Galactosyllactose

[32581-31-0]



$C_{18}H_{32}O_{16}$ 504.441

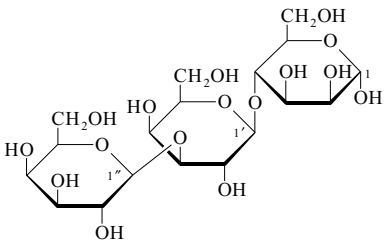
Formed by the transferase action on lactose of the β-galactosidases from *Saccharomyces fragilis*, *Aspergillus flavus* and *Penicillium chrysogenum*. Isol. from human milk and from the urine of blood group O, nonsecretor women during pregnancy and lactation. Powder.

Mp 187° (sinters at 167°). $[\alpha]_D^{22}$ +36 (c, 1.0 in H_2O).

Phenylosazone: [68067-46-9]
Yellow needles (EtOH aq.). Mp 229-231°.

Pazur, J.H. *et al., J. Biol. Chem.*, 1954, **208**, 439
Ballio, A. *et al., Tetrahedron*, 1960, **9**, 125 (*isol*)
Yamashita, K. *et al., Arch. Biochem. Biophys.*, 1974, **161**, 164 (*isol*)
Hallgren, P. *et al., J. Biol. Chem.*, 1977, **252**, 1014; 1034 (*isol*)
Chung, T.G. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2147 (*synth*)
Asp, N.G. *et al., Food Chem.*, 1980, **5**, 147 (*synth*)
Donald, A.S.R. *et al., Carbohydr. Res.*, 1988, **178**, 79 (*isol, struct*)
Urashima, T. *et al., Biochim. Biophys. Acta*, 1989, **992**, 375 (*cmr*)
Deya, E. *et al., CA*, 1991, **115**, 27841e (*enzymic synth*)

β-D-Galactopyranosyl-(1 →3)-β-D-galactopyranosyl-(1 →4)-D-mannose, 9CI G-114



$C_{18}H_{32}O_{16}$ 504.441

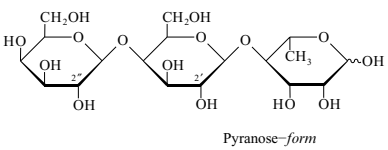
α-D-Pyranose-*form*

1-Phosphate: [130689-61-1]
$C_{18}H_{33}O_{19}P$ 584.421

Constit. of the heterogeneous lipophosphoglycan found as a major cell surface glyconjugate of the parasitic protozoan *Leishmania major*. Syrup.

McConville, M.J. *et al., J. Biol. Chem.*, 1990, **265**, 19611 (*occur, phosphate, pmr, cmr, ms*)

β-D-Galactopyranosyl-(1 →4)-β-D-galactopyranosyl-(1 →4)-L-rhamnose G-115



$C_{18}H_{32}O_{15}$ 488.442

*2′,2″-Di-*O*-Me: 3-*O*-Methyl-β-D-galactopyranosyl-(1 →4)-3-*O*-methyl-β-D-galactopyranosyl-(1 →4)-L-rhamnose*
[35949-94-1]
$C_{20}H_{36}O_{15}$ 516.495

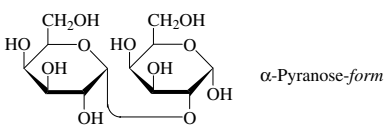
Constit. of the mucilaginous polysaccharide from the bark of *Ulmus fulva* (slippery elm).

$[\alpha]_D^{23}$ +13 (c, 1.0 in H_2O).

Beveridge, R.J. *et al., Carbohydr. Res.*, 1971, **9**, 107 (*isol, synth*)

2-*O*-α-D-Galactopyranosyl-D-galactose, 9CI G-116

[93601-68-4]



$C_{12}H_{22}O_{11}$ 342.299

Constit. of the repeating unit of *Streptococcus pneumoniae* type 15 antigen. Cryst. (EtOH aq.).

Mp 201-203° (173-175°). $[\alpha]_D$ +105 (c, 2.0 in H_2O). $[\alpha]_D^{20}$ +159.5 → +167.1 (c, 1.82 in H_2O).

2′,3,3′,4,4′,6,6′-Heptabenzyl: [93495-91-1]
$C_{61}H_{64}O_{11}$ 973.17
Cryst. (hexane/Et_2O). Mp 125.5-126.5°. $[\alpha]_D$ +50 (c, 1.0 in $CHCl_3$).

α-Pyranose-*form*

1,3,4,6-Tetra-Ac: [118646-78-9]
$C_{20}H_{30}O_{15}$ 510.448
$[\alpha]_D^{21}$ +154.4 (c, 1.0 in $CHCl_3$).

2′,3′,4′,6′-Tetrabenzyl, 1,3,4,6-tetra-Ac: [93495-92-2]
$C_{48}H_{54}O_{15}$ 870.946
Cryst. (EtOH aq.). Mp 109-110°. $[\alpha]_D^{20}$ +78.9 (c, 2.0 in $CHCl_3$).

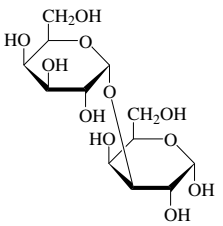
β-Pyranose-*form*

*Benzyl glycoside, 2′,3′,4′,6′-tetrabenzyl, 4,6-*O*-benzylidene, 3-benzoyl:*
$C_{61}H_{60}O_{12}$ 985.138
$[\alpha]_D^{20}$ +74 (c, 0.79 in $CHCl_3$).

Perry, M.B. *et al., Mol. Immunol.*, 1982, **19**, 235 (*occur*)
Doboszewski, B. *et al., Carbohydr. Res.*, 1984, **132**, 29 (*synth*)
Nilsson, K.G.I. *et al., Carbohydr. Res.*, 1987, **167**, 95 (*deriv*)
Takeo, K. *et al., J. Carbohydr. Chem.*, 1988, **7**, 309-316 (*synth, pmr, α-D-pyr tetra-Ac*)

3-*O*-α-D-Galactopyranosyl-D-galactose, 9CI, 8CI G-117

[13168-24-6]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from partial acetolysate of λ-carrageenan. Constit. of the products obt. by partial acetolysis of the algae galactans from *Aeodes ulvoidea* and *Pachymenia carnosa*. Constit. of the repeating unit of *Klebsiella* antigens.
$[\alpha]_D$ +184 (c, 1.25 in H_2O). $[\alpha]_D^{26}$ +149 (c, 1.0 in H_2O).

α-Pyranose-*form* [7313-98-6]

Octa-Ac: [56994-14-0]
$C_{28}H_{38}O_{19}$ 678.597
Mp 97-100°. $[\alpha]_D^{23}$ +137 (c, 2.0 in $CHCl_3$).

*Me glycoside: Methyl 3-*O*-α-D-galactopyranosyl-α-D-galactopyranoside, 9CI* [104420-77-1]
$C_{13}H_{24}O_{11}$ 356.326
Mp 227-228°. $[\alpha]_D^{21}$ +252 (c, 1.0 in H_2O).

4-Nitrophenyl glycoside: [110891-71-9]
Cryst + ½H_2O. Mp 217°. $[\alpha]_D^{21}$ +298 (c, 0.3 in MeOH aq.).

β-Pyranose-*form* [72597-57-0]

Octa-Ac: Mp 155-156°. $[\alpha]_D^{25}$ +110.8 (c, 0.71 in $CHCl_3$).

*Me glycoside: Methyl 3-*O*-α-D-galactopyranosyl-β-D-galactopyranoside, 9CI* [18449-79-1]
$C_{13}H_{24}O_{11}$ 356.326
Mp 199°. $[\alpha]_D^{21}$ +142 (c, 0.5 in H_2O).

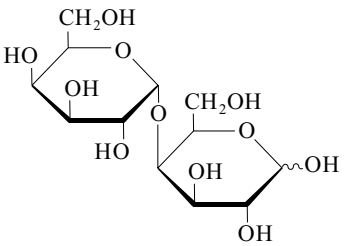
Me glycoside, heptabenzoyl:
$C_{62}H_{52}O_{18}$ 1085.082
$[\alpha]_D$ +131.9 (c, 0.9 in $CHCl_3$).

Morgan, K. *et al., Can. J. Chem.*, 1959, **37**, 1201
Farrant, A.J. *et al., Carbohydr. Res.*, 1972, **25**, 283; 1971, **19**, 161 (*occur*)
Alsobrook, A.J.R. *et al., Carbohydr. Res.*, 1975, **40**, 337 (*acetolysis*)
Chacon-Fuertes, M. *et al., Carbohydr. Res.*, 1975, **43**, 51 (*synth*)
Kenne, L. *et al., The Polysaccharides*, Acad. Press, London and New York (Ed. Aspinall, G.O.), 1983, **2**, 307; 323 (*occur*)
Nilsson, K.G.I. *et al., Carbohydr. Res.*, 1987, **167**, 95 (*Me gly*)
Takeo, K. *et al., J. Carbohydr. Chem.*, 1988, **7**, 309-316 (*synth*)
Stortz, C.A. *et al., J. Carbohydr. Chem.*, 1994, **13**, 235-247 (*conformn*)
Sakamoto, I. *et al., Biosci., Biotechnol., Biochem.*, 2000, **64**, 1974-1977 (*synth*)

4-*O*-α-D-Galactopyranosyl-D-galactose, 9CI, 8CI G-118

Galabiose. *Urobiose*

[13117-26-5]



$C_{12}H_{22}O_{11}$ 342.299
The terminal disaccharide of the ceramide trihexoside isol. from normal human kidney and erythrocytes; a degradn. prod. of mucilage from common okra (*Hibiscus esculentus*); formed by the action of β-galactosidase on D-galactose. The simplest structural unit capable of bacterial fimbriae binding associated with initiation of bacterial infections. Cryst. (MeOH/1-butanol/H_2O).
Mp 212-213°. $[\alpha]_D^{26}$ +170 (c, 1.0 in H_2O).

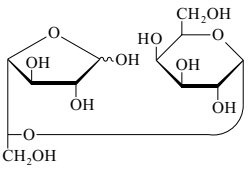
α-Pyranose-*form*

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (EtOH). Mp 153-154°. $[\alpha]_D^{24}$ +138 (c, 2.0 in $CHCl_3$).

Whistler, R.L. *et al., J.A.C.S.*, 1954, **76**, 1673 (*isol*)
Clancy, M.J. *et al., Arch. Biochem. Biophys.*, 1967, **118**, 724
Chacón-Fuertes, M.E. *et al., Carbohydr. Res.*, 1975, **43**, 51 (*synth*)
Dahmén, J. *et al., Carbohydr. Res.*, 1983, **113**, 219 (*synth*)
Svensson, G. *et al., Carbohydr. Res.*, 1986, **146**, 29 (*cryst struct*)
Frejd, T. *et al., Carbohydr. Res.*, 1988, **176**, 253; 271 (*pmr, cmr, conformn, derivs*)
Mueller, D. *et al., J.C.S. Perkin 1*, 1998, 2287-2294 (*synth*)

5-*O*-α-D-Galactopyranosyl-D-galactose, 8CI G-119

[13117-27-6]



Furanose–*form*

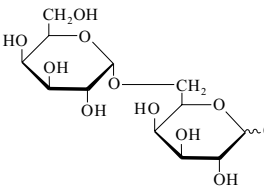
$C_{12}H_{22}O_{11}$ 342.299
$[\alpha]_D$ +133 (H_2O).

Clancy, M.J. *et al., Arch. Biochem. Biophys.*, 1967, **118**, 724

6-*O*-α-D-Galactopyranosyl-D-galactose, 9CI, 8CI G-120

Galactobiose. Swietenose

[13117-25-4]



Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Formed by the action of α-galactosidase of fresh brewer's yeast on D-galactose. Isol.reported from polysaccharides of *Schrebera swietenoides*. Hygroscopic powder.
Mp 83-84°. $[\alpha]_D^{20}$ +149 (c, 0.73 in H_2O).

Phenylosazone: Mp 183-185°.

α-Pyranose-*form*

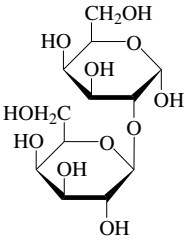
*Octa-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-*O*-(2,3,4,6-tetra-*O*-acetyl-α-D-galactopyranosyl)-α-D-galactopyranose. Octa-*O*-acetyl-α-galactobiose*
$C_{28}H_{38}O_{19}$ 678.597
Mp 223-227°. $[\alpha]_D^{20}$ +186 (c, 0.5 in $CHCl_3$).

β-Pyranose-*form*

*Octa-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-*O*-(2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranosyl)-β-D-galactopyranose. Octa-*O*-acetyl-β-galactobiose*
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D^{20}$ +111 (c, 0.5 in $CHCl_3$).

Turton, C.N. *et al., J.A.C.S.*, 1955, **77**, 2565 (*isol, α-pyr-octa-Ac*)
Ingle, T.R. *et al., J. Indian Chem. Soc.*, 1958, **35**, 516 (*isol*)
Clancy, M.J. *et al., Arch. Biochem. Biophys.*, 1967, **118**, 724 (*enzymic synth*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1973, **51**, 42 (*synth*)

2-*O*-β-D-Galactopyranosyl-D-galactose, 9CI G-121



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Plates (EtOH aq.). Mp 195-196° (164-167°). $[\alpha]_D^{13}$ +86.4 → +63 (c, 1.4 in H_2O). $[\alpha]_D^{22}$ +71.9 → +56.1 (c, 1.6 in H_2O).

α-Pyranose-*form*

2′,3′,4′,6′-Tetrabenzyl, 1,3,4,6-tetra-Ac: [93495-93-3]
$C_{48}H_{54}O_{15}$ 870.946
$[\alpha]_D$ +61 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

Benzyl glycoside:
$C_{19}H_{28}O_{11}$ 432.424
Mp 189-190°. $[\alpha]_D^{25}$ -1.3 (c, 1.5 in H_2O).

Benzyl glycoside, 4,6-O-benzylidene:
$C_{26}H_{32}O_{11}$ 520.532
Cryst. (EtOH). Mp 262-263°. $[\alpha]_D^{26}$ -5.9 (c, 1.0 in DMF).

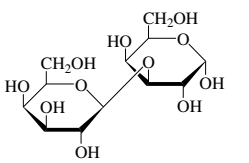
Benzyl glycoside, 4,6-O-benzylidene, penta-Ac:
$C_{36}H_{42}O_{16}$ 730.718
Needles or prisms (EtOH). Mp 120-130° Mp 193-194° (double Mp). $[\alpha]_D^{25}$ +14.7 (c, 1.9 in $CHCl_3$).

[72244-38-3]

Toba, T. *et al., Carbohydr. Res.*, 1979, **75**, C24 (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **112**, 158 (*benzyl gly*)
Doboszewski, B. *et al., Carbohydr. Res.*, 1984, **132**, 29

3-*O*-β-D-Galactopyranosyl-D-galactose, 9CI, 8CI G-122

[5188-48-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the hydrolysate of cashew nut shells and gums of an *Acacia* spp. (gum arabic) and *Rhizophora mangle*. Isol. from chondromucoprotein of bovine nasal septum.
Mp 225° (198-200°, 159-170°). $[\alpha]_D^{18}$ +50 (c, 0.2 in H_2O). $[\alpha]_D^{26}$ +71 → +62 (c, 1.0 in H_2O).

α-Pyranose-*form*

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (EtOAc). Mp 189-190°. $[\alpha]_D^{22}$ +53.8 (c, 0.4 in $CHCl_3$). β-Anomer also obt., probably noncryst.

β-Pyranose-*form*

Me glycoside: [81131-46-6]
$C_{13}H_{24}O_{11}$ 356.326
Mp 203-204°. $[\alpha]_D^{21}$ +25 (c, 0.9 in H_2O).

Me glycoside, hepta-Ac: [102854-37-5]
$C_{27}H_{38}O_{18}$ 650.586
Mp 189.5-190°. $[\alpha]_D$ -7.7 (c, 0.8 in $CHCl_3$).

Me glycoside, heptabenzoyl: [98056-61-2]
$C_{62}H_{52}O_{18}$ 1085.082
$[\alpha]_D$ +91 (c, 1.5 in $CHCl_3$).

2-Propenyl glycoside: [120094-96-4]
$C_{15}H_{26}O_{11}$ 382.364
Mp 213-215°. $[\alpha]_D^{21}$ +11 (c, 1.2 in H_2O).

Benzyl glycoside: [84553-71-9]
$C_{19}H_{28}O_{11}$ 432.424
Cryst. (MeOH). Mp 162-163°. $[\alpha]_D^{25}$ -4.2 (c, 1.8 in H_2O).

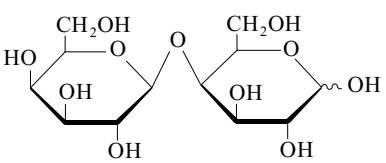
Benzyl glycoside, 4,6-O-benzylidene: [84553-70-8]
$C_{26}H_{32}O_{11}$ 520.532
Mp 263-264°. $[\alpha]_D^{25}$ +57 (c, 1.4 in DMF).

Benzyl glycoside, 4,6-O-benzylidene, penta-Ac: [84558-11-2]
$C_{36}H_{42}O_{16}$ 730.718
Cryst. (Et_2O/petrol). Mp 114-116°. $[\alpha]_D^{26}$ -13.4 (c, 1.5 in $CHCl_3$).

Hirst, E.L. *et al., J.C.S.*, 1954, 2622 (*isol*)
Rodén, L. *et al., J. Biol. Chem.*, 1966, **241**, 5949 (*isol*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1968, **7**, 421 (*isol*)
Sarkar, M. *et al., Indian J. Chem.*, 1974, **11**, 1129 (*isol*)
Chacón-Fuertes, M.E. *et al., Carbohydr. Res.*, 1975, **43**, 51 (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **112**, 158 (*benzyl gly*)
Nilsson, K.G.I. *et al., Carbohydr. Res.*, 1987, **167**, 95; 1988, **180**, 53 (*glycosides*)
Ziegler, T. *et al., J. Carbohydr. Chem.*, 1990, **9**, 135 (*Me gly*)
Wang, L.X. *et al., J. Carbohydr. Chem.*, 1991, **10**, 349-361 (*octa-Ac*)

4-*O*-β-D-Galactopyranosyl-D-galactose, 9CI, 8CI G-123

[6206-28-6]



$C_{12}H_{22}O_{11}$ 342.299
Obt. by hydrol. of galactan from white birch wood (*Betula papyrifera*), white lupin seeds (*Lupinus albus*), aeodan (*Aeodes orbitosa*), flowers of *Bombax malabaricum* and of soya beans (*Glycine max*).
Mp 204°. $[\alpha]_D^{20}$ +68 (c, 1.0 in H_2O).

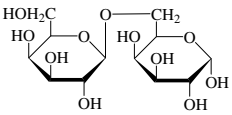
α-Pyranose-*form*

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 189-190°. $[\alpha]_D^{25}$ +54 (c, 1.8 in $CHCl_3$).

Curtis, E.J.C. *et al., Can. J. Chem.*, 1965, **43**, 2508 (*synth*)
Agrawal, G.D. *et al., Planta Med.*, 1972, **21**, 293; *CA*, **77**, 48734j (*isol*)
Chacon-Fuertes, M.E. *et al., Carbohydr. Res.*, 1975, **43**, 51 (*synth*)

6-*O*-β-D-Galactopyranosyl-D-galactose, 9CI, 8CI G-124

[5077-31-6]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from partial acid hydrolysates of the gums of *Anogeissus schimperi*, *Albizzia zygia*, *Virgilia oroboides*, *Spondias cytherea* (ambarella), *Opuntia ficus-indica* (Indian fig), *Prunus persica* and *Chorisia speciosa*. Also from the partial acid hydrolysates of snail-egg galactogen, *Larix decidua* ϵ-galactan and the arabinogalactans of *Larix laricina* and *Larix occidentalis*.
$[\alpha]_D$ +39 (c, 0.53 in H_2O).

Phenylosazone: Mp 180-182°.

α-Pyranose-*form*

1,2:3,4-Di-O-isopropylidene, tetra-Ac:
$C_{26}H_{38}O_{15}$ 590.577
Syrup. $[\alpha]_D$ -47 (c, 0.61 in $CHCl_3$).

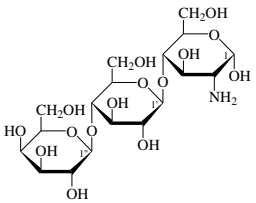
β-Pyranose-*form*

Allyl glycoside:
$C_{15}H_{26}O_{11}$ 382.364
Cryst. + H_2O. Mp 134-135°. $[\alpha]_D^{21}$ -14.5 (c, 1.0 in H_2O).

Benzyl glycoside: Benzyl 6-O-β-D-galactopyranosyl-β-D-galactopyranoside
$C_{19}H_{28}O_{11}$ 432.424
$[\alpha]_D^{21}$ -27 (c, 0.7 in 50% MeOH aq.).

Pazur, J.H. *et al., J.A.C.S.*, 1958, **80**, 119 (*synth*)
Aspinall, G.O. *et al., J.C.S.*, 1961, 3461; 1958, 593 (*isol*)
Bailey, R.W. *et al., Oligosaccharides*, Pergamon, London, 1965, 50 (*occur*)
Kochetkov, N.K. *et al., Tetrahedron*, 1967, **23**, 693 (*α-deriv*)
Hellerqvist, C.G. *et al., Acta Chem. Scand.*, 1971, **25**, 743 (*pmr*)
Kamerling, J.P. *et al., Tetrahedron*, 1971, **27**, 4275 (*ms*)
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)
Lipkind, G.M. *et al., Carbohydr. Res.*, 1988, **175**, 59 (*cmr*)
Nilsson, K.G.I. *et al., Carbohydr. Res.*, 1988, **180**, 53 (*β-deriv*)

β-D-Galactopyranosyl-(1 →4)- β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI G-125



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456

N-*Ac:* [67535-75-5]
$C_{20}H_{35}NO_{16}$ 545.494
Amorph. $[\alpha]_D^{21}$ +24 → +15 (c, 0.35 in H_2O).

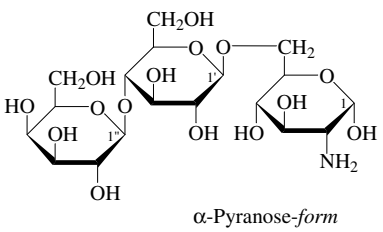
α-Pyranose-*form*

Benzyl glycoside, N-*Ac:* [67535-74-4]
$C_{27}H_{41}NO_{16}$ 635.618
Cryst. + H_2O (dec.). Mp 310-311°.
$[\alpha]_D^{21}$ +76 (c, 0.44 in H_2O).

Benzyl glycoside, deca-Ac: [67535-73-3]
$C_{45}H_{59}NO_{25}$ 1013.953
$[\alpha]_D^{21}$ +41 (c, 0.77 in $CHCl_3$).

Zurabyan, S.E. *et al., Bioorg. Khim.*, 1978, **4**, 654; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1978, **4**, 476 (*N-Ac, α-benzyl pyr derivs*)

β-D-Galactopyranosyl-(1 →4)- β-D-glucopyranosyl-(1 →6)-2-amino-2-deoxy-D-glucose, 9CI G-126



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Constit. of the repeating unit of the polysaccharide antigen isol. from type III group B *Streptococcus*.

α-Pyranose-*form*

Benzyl glycoside, 3-benzyl, nona-Ac:
[59541-15-0]
$C_{50}H_{63}NO_{24}$ 1062.04
Cryst. (EtOH). Mp 198-199°. $[\alpha]_D^{20}$ +34 (c, 0.77 in $CHCl_3$).

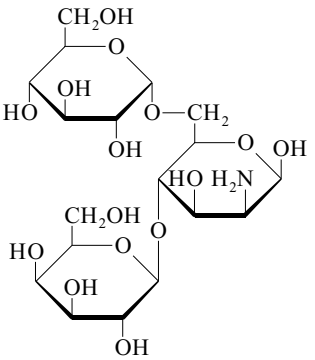
β-Pyranose-*form*

*(7-Methoxycarbonyl-3,6-dioxaheptyl) glycoside, 3-benzyl, 2*N*,2′,2″,3′,3″,4″,6′,6″-octa-Ac:* [106256-82-0]
$C_{48}H_{67}NO_{27}$ 1090.048
Spacer arm glycoside suitable for conjugation to proteins. Amorph. $[\alpha]_D$ -23 (c, 1.4 in $CHCl_3$).

Zurabyan, S.E. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1976, 1421; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1976, 1363 (*α-benzyl pyr benzyl nona-Ac*)

Amvam-Zollo, P.H. *et al., Carbohydr. Res.*, 1986, **150**, 199 (*β-methoxycarbonyl-dioxaheptyl pyr benzyl octa-Ac*)

β-D-Galactopyranosyl-(1 →4)- [α-D-glucopyranosyl-(1 →6)]-2-amino-2-deoxy-D-mannose, 9CI G-127



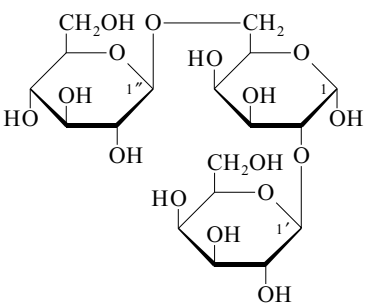
$C_{18}H_{33}NO_{15}$ 503.456

β-Pyranose-*form*

N-*Ac:* [133943-53-0]
$C_{20}H_{35}NO_{16}$ 545.494
Repeating unit of the glycan chain from the surface layer glycoprotein of *Bacillus alvei* CCM 2051. Liq.

Altman, E. *et al., Biochem. Cell Biol.*, 1991, **69**, 72 (*occur, pmr*>)

β-D-Galactopyranosyl-(1 →2)- [β-D-glucopyranosyl-(1 →6)]-D-galactose G-128



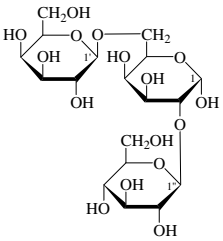
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

*Me glycoside, 3,4-*O*-isopropylidene, octa-Ac:*
$C_{38}H_{54}O_{24}$ 894.83
Cryst. (EtOH). Mp 201°. $[\alpha]_D^{20}$ +36.2 (c, 1.2 in $CHCl_3$).

Koeners, H.J. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1981, **100**, 65 (*α-Me pyr deriv, pmr, cmr*)

β-D-Galactopyranosyl-(1 →6)- [β-D-glucopyranosyl-(1 →2)]-D-galactose G-129



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

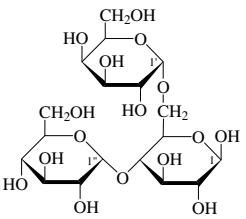
α-Pyranose-*form*

*Me glycoside, 3,4-*O*-isopropylidene, 2′,3′,3″,4′,4″,6′,6″-hepta-Ac:* [78283-71-3]
$C_{36}H_{52}O_{23}$ 852.793
Cryst. (Et_2O). Mp 108°. $[\alpha]_D$ +43.1 (c, 1.0 in $CHCl_3$).

Koeners, H.J. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1981, **100**, 118 (*α-Me pyr deriv, pmr*)

α-D-Galactopyranosyl-(1 →6)- [α-D-glucopyranosyl-(1 →4)]-D-glucose, 9CI G-130

[69428-64-4]



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Hygroscopic amorph. powder +H_2O. $[\alpha]_D^{21}$ +155 (c, 1.76 in MeOH).

β-Pyranose-*form*

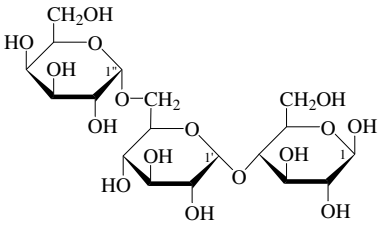
Undeca-Ac: [69359-19-9]
$C_{40}H_{54}O_{27}$ 966.85
Needles + 0.5H_2O (EtOH). Mp 148-149°. $[\alpha]_D^{22}$ +114.1 (c, 0.65 in $CHCl_3$).

2′,3′,4′,6′-Tetrabenzyl, hepta-Ac: [69359-18-8]
$C_{60}H_{70}O_{23}$ 1159.199
Amorph. powder. $[\alpha]_D^{22}$ +55.8 (c, 1.22 in $CHCl_3$).

Chung, T.G. *et al., Chem. Pharm. Bull.*, 1978, **26**, 3562 (*synth, undeca-Ac, hepta-Ac deriv, pmr*)

α-D-Galactopyranosyl-(1 →6)- α-D-glucopyranosyl-(1 →4)-D-glucose, 9CI G-131

[63425-95-6]



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Amorph. powder. $[\alpha]_D^{24}$ +159.2 (c, 0.85 in H_2O).

Pyranose-*form*

Undeca-Ac: [63492-74-0]
$C_{40}H_{54}O_{27}$ 966.85
Amorph. powder. $[\alpha]_D^{25}$ +131.9 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

1,6-Anhydro: [63425-93-4]
$C_{18}H_{30}O_{15}$ 486.426
Amorph. powder. $[\alpha]_D^{24}$ +148.4 (c, 1.0 in H_2O).

1,6-Anhydro, nona-Ac: [63425-92-3]
$C_{36}H_{48}O_{24}$ 864.761
Amorph. powder. $[\alpha]_D^{21}$ +83.1 (c, 1.0 in $CHCl_3$).

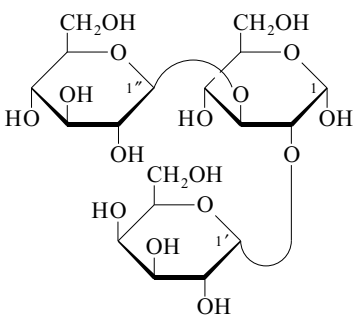
1,6-Anhydro, 2′′,3′′,4′′,6′′-tetrabenzyl, penta-Ac: [63425-91-2]
$C_{56}H_{64}O_{20}$ 1057.11
Cryst. Mp 59-60°. $[\alpha]_D^{22}$ +48.2 (c, 1.1 in $CHCl_3$).

1,6-Anhydro, nona-Me: [63425-94-5]
$C_{27}H_{48}O_{15}$ 612.667
Syrup. $[\alpha]_D^{25}$ +116.4 (c, 0.4 in $CHCl_3$).

[63640-29-9]

Gi, C.T. *et al., Chem. Pharm. Bull.*, 1977, **25**, 464 (*synth, anhydro derivs, pmr*)

α-D-Galactopyranosyl-(1 →2)- [β-D-glucopyranosyl-(1 →3)]-D-glucose, 9CI G-132



$C_{18}H_{32}O_{16}$ 504.441
Trisaccharide constit. of the R-1 core antigen of enterobacteria.

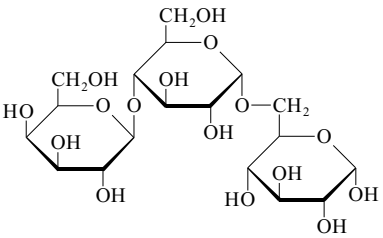
α-Pyranose-*form*

Me glycoside: [131614-86-3]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. powder. $[\alpha]_D^{30}$ +56 (c, 5.0 in H_2O).

Me glycoside, decabenzyl: [131550-12-4]
$C_{89}H_{94}O_{16}$ 1419.712
Syrup. $[\alpha]_D^{30}$ +36 (c, 4.0 in $CHCl_3$).

Basu, S. *et al., Carbohydr. Res.*, 1990, **208**, 241 (*α-Me pyr derivs, pmr, cmr*)

β-D-Galactopyranosyl-(1 →4)- α-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-133



$C_{18}H_{32}O_{16}$ 504.441

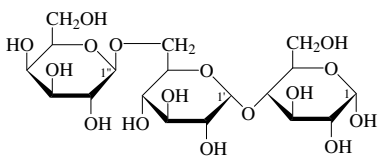
α-Pyranose-*form*

Undecabenzyl: [84396-53-2]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D$ +53 (c, 1.0 in $CHCl_3$).

Koto, S. *et al., Nippon Kagaku Kaishi*, 1982, 1651 (*undecabenzyl, pmr*)

β-D-Galactopyranosyl-(1 →6)- α-D-glucopyranosyl-(1 →4)-D-glucose, 9CI G-134

[63425-90-1]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Amorph. powder + $2H_2O$. $[\alpha]_D^{22}$ +85 (c, 0.8 in H_2O).

Pyranose-*form*

Undeca-Ac: [63492-73-9]
$C_{40}H_{54}O_{27}$ 966.85
Amorph. $[\alpha]_D^{21}$ +67 (c, 0.8 in $CHCl_3$).

α-Pyranose-*form*

Undeca-Ac: [63425-89-8]
Amorph. $[\alpha]_D^{25}$ +76.5 (c, 1.3 in $CHCl_3$).

β-Pyranose-*form*

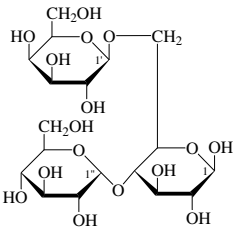
1,6-Anhydro: [63425-88-7]
$C_{18}H_{30}O_{15}$ 486.426
Amorph. powder. $[\alpha]_D^{27}$ +40 (c, 0.63 in H_2O).

1,6-Anhydro, nona-Ac: [63425-87-6]
$C_{36}H_{48}O_{24}$ 864.761
Cryst. (EtOH). Mp 217-218°. $[\alpha]_D^{22}$ +19.7 (c, 0.9 in $CHCl_3$).

Gi, C.T. *et al., Chem. Pharm. Bull.*, 1977, **25**, 464 (*synth, anhydro derivs, pmr*)

β-D-Galactopyranosyl-(1 →6)- [α-D-glucopyranosyl-(1 →4)]-D-glucose, 9CI G-135

[69401-49-6]



β-Pyranose-*form*

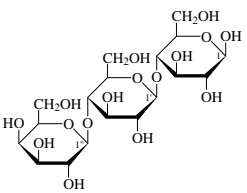
$C_{18}H_{32}O_{16}$ 504.441
Cryst. + $0.5H_2O$ (MeOH). Mp 168-170°. $[\alpha]_D^{22}$ +91 (c, 1.0 in H_2O).

β-Pyranose-*form*

Undeca-Ac: [69401-48-5]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH aq.). Mp 175-176°. $[\alpha]_D^{21}$ +46.2 (c, 2.4 in $CHCl_3$).

Chung, T. *et al., Chem. Pharm. Bull.*, 1978, **26**, 3562 (*synth, undeca-Ac, pmr*)

β-D-Galactopyranosyl-(1 →4)- β-D-glucopyranosyl-(1 →4)-D-glucose, 9CI G-136



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

β-Pyranose-*form*

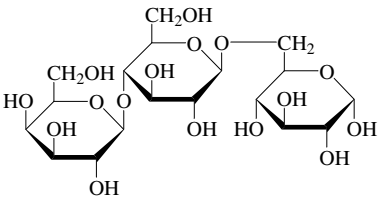
Benzyl glycoside, 2,3,6-tribenzyl, hepta-Ac: [107877-74-7]
$C_{60}H_{70}O_{23}$ 1159.199
Syrup. $[\alpha]_D$ -12 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, deca-Ac: [287731-80-0]
$C_{45}H_{58}O_{26}$ 1014.938
$[\alpha]_D^{25}$ -31.5 (c, 1.33 in $CHCl_3$).

Sato, S. *et al., Carbohydr. Res.*, 1986, **155**, C6 (*β-benzyl pyr deriv, pmr*)

Fort, S. *et al., J.A.C.S.*, 2000, **122**, 5429-5437 (*β-pyr benzyl glycoside deca-Ac, synth, cmr*)

β-D-Galactopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-137



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [84396-54-3]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +32 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

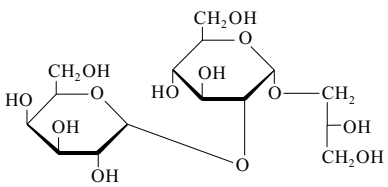
Benzyl glycoside: [87924-23-0]
$C_{25}H_{38}O_{16}$ 594.566
Cryst. Mp 144-145°. $[\alpha]_D$ -23.4 (c, 1.0 in H_2O).

Benzyl glycoside, 2,3,4-tribenzoyl, hepta-Ac: [87924-25-2]
$C_{60}H_{64}O_{26}$ 1201.15
Cryst. (EtOH). Mp 204-206°. $[\alpha]_D$ -25.5 (c, 1.18 in $CHCl_3$).

[87924-23-0]

Koto, S. *et al., Nippon Kagaku Kaishi*, 1982, 1651 (*α-benzyl pyr decabenzyl, cmr*)
Neszmelyi, A. *et al., Acta Chim. Hung.*, 1983, **113**, 431 (*β-benzyl pyr derivs*)

***O*-α-D-Galactopyranosyl-(1 →2)-*O*-α-D-glucopyranosyl-(1 →1)-D-glycerol** G-138
2,3-Dihydroxypropyl 2-O-*α-D-galactopyranosyl-(1 →1)-D-glucopyranoside*
[19427-29-3]

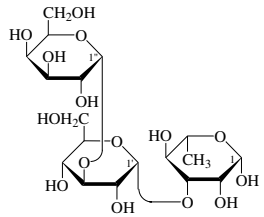


$C_{15}H_{28}O_{13}$ 416.378
Glycoside produced by deacylation of the main glycolipid from the rough strain of *Pneumococcus* Type 1. Constit. of the glycolipid of *Lactobacillus casei*.
Mp 171°. $[\alpha]_D$ +170 (c, 0.4 in H_2O).

Nona-Ac: Mp 97°. $[\alpha]_D$ +145 (c, 0.5 in $CHCl_3$).

Shaw, N. *et al., Biochem. J.*, 1968, **107**, 491 (*isol*)
Brundish, D.E. *et al., Carbohydr. Res.*, 1968, **8**, 308 (*synth*)

α-D-Galactopyranosyl-(1 →3)-α-D-glucopyranosyl-(1 →3)-L-rhamnose G-139
α-D-Galactopyranosyl-(1 →3)-α-D-glucopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Reducing trisaccharide. Constit. of the repeating unit of the capsular polysaccharide of *Streptococcus pneumoniae* types 6A and 6B.
$[\alpha]_D$ +1 (c, 1 in H_2O). Dihydrate.

α-Pyranose-*form*

2,2′,2″,3″,4,4′,4″,6′,6″-Nona-Ac: [131328-64-8]
$C_{36}H_{50}O_{24}$ 866.777
$[\alpha]_D$ +102 (c, 1 in $CHCl_3$).

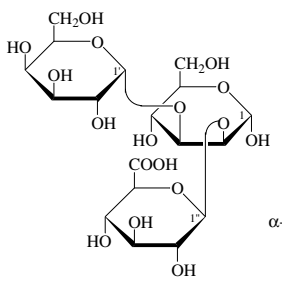
1,2,2′,2″,3″,4,4′,4″,6′,6″-Deca-Ac: [131328-63-7]
$C_{38}H_{52}O_{25}$ 908.814
$[\alpha]_D$ +97 (c, 1 in $CHCl_3$).

Benzyl glycoside, 2,2′,2″,3″,4,4′,4″,6′,6″-nonabenzyl: [131328-61-5]
$C_{88}H_{92}O_{15}$ 1389.686
Syrup. $[\alpha]_D^{20}$ +38 (c, 1.0 in $CHCl_3$).

[131328-62-6, 131328-73-9]

Slaghek, T.M. *et al., Carbohydr. Res.*, 1990, **207**, 237 (*deriv, synth, pmr, cmr*)

α-D-Galactopyranosyl-(1 →3)-[β-D-glucopyranuronosyl-(1 →2)]-D-mannose, 9CI G-140



α-Pyranose-*form*

$C_{18}H_{30}O_{17}$ 518.425
Constit. of the repeating unit of *Klebsiella* K-10 antigen.

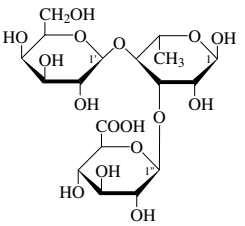
α-Pyranose-*form*

Me glycoside: [125365-17-5]
$C_{19}H_{32}O_{17}$ 532.452
Syrup. $[\alpha]_D^{25}$ +128 (c, 0.85 in H_2O).

Me glycoside, 2′,3′,4,4′,6,6′-hexabenzyl, 6″-Me, 2″,3″,4″-tri-Ac: [125365-16-4]
$C_{68}H_{76}O_{20}$ 1213.336
Cryst. (EtOH/EtOAc 9:1). Mp 141-142°. $[\alpha]_D^{25}$ +40 (c, 2.5 in $CHCl_3$).

Sarkar, A.K. *et al., Carbohydr. Res.*, 1989, **190**, 181 (*occur, α-Me pyr derivs, pmr*)

β-D-Galactopyranosyl-(1 →4)-[β-D-glucopyranuronosyl-(1 →3)]-L-rhamnose G-141
β-D-Galactopyranosyl-(1 →4)-[β-D-glucopyranuronosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



α-Pyranose-*form*

$C_{18}H_{30}O_{16}$ 502.425
Constit. of the repeating unit of *Klebsiella* K-47 antigen.

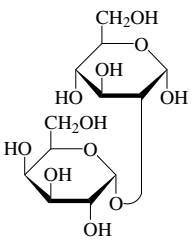
α-Pyranose-*form*

Me glycoside: [125362-81-4]
$C_{19}H_{32}O_{16}$ 516.452
Syrup. $[\alpha]_D^{24}$ -16.8 (c, 1.2 in H_2O).

Me glycoside, 2,2′,3′,4′,6′-pentabenzyl, 6″-Me, 2″,3″,4″-tri-Ac: [125338-90-1]
$C_{61}H_{70}O_{19}$ 1107.213
Cryst. (EtOH/EtOAc). Mp 180-182°.
$[\alpha]_D^{24}$ -36.6 (c, 1.1 in $CHCl_3$).

Bjorndat, H. *et al., Carbohydr. Res.*, 1973, **27**, 373 (*occur*)
Fugedi, P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 377 (*occur*)
Ray, A.K. *et al., J. Carbohydr. Chem.*, 1989, **8**, 357 (*α-Me pyr derivs, pmr*)

2-*O*-α-D-Galactopyranosyl-D-glucose G-142



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

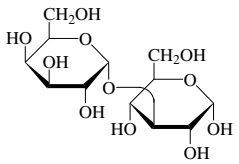
α-Pyranose-*form* [7286-57-9]
$[\alpha]_D$ +170 (c, 1 in H_2O).

Octa-Ac: [53777-20-1]
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (EtOH). Mp 175-177°. $[\alpha]_D$ +176 (c, 1 in $CHCl_3$).

Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*synth*)
Huh, K.T. *et al., Food Chem.*, 1991, **39**, 39

3-*O*-α-D-Galactopyranosyl-D-glucose, 9CI G-143

[40592-72-1]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

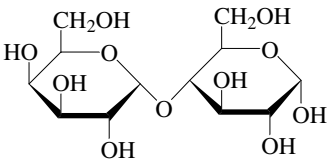
Reducing disaccharide. Amorph. powder. $[\alpha]_D^{22}$ +159 (c, 1 in H_2O).

Lemieux, R.U. *et al., Can. J. Chem.*, 1973, **51**, 42

Serge, D. *et al., J.C.S. Perkin 1*, 1976, 1831 (*synth, pmr*)

4-*O*-α-D-Galactopyranosyl-D-glucose G-144

[56907-30-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

Reducing disaccharide. Cryst. (MeOH) or powder. Mp 227-229° dec. $[\alpha]_D^{26}$ +159.6 (c, 1.02 in H_2O).

α-Pyranose-*form*

Octa-Ac: [56907-29-0]
$C_{28}H_{38}O_{19}$ 678.597
Amorph. powder. $[\alpha]_D^{27}$ +117 (c, 1.14 in $CHCl_3$).

β-Pyranose-*form*

1,6-Anhydro: [56907-28-9]
$C_{12}H_{20}O_{10}$ 324.284
Cryst. (MeOH/Me_2CO). Mp 197-200°. $[\alpha]_D^{26}$ +104.7 (c, 1.41 in H_2O).

1,6-Anhydro, hexa-Ac: [56907-27-8]
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (EtOH). Mp 132-133°. $[\alpha]_D^{23}$ +54.5 (c, 1.1 in $CHCl_3$).

Mori, M. *et al., Chem. Pharm. Bull.*, 1975, **23**, 1480 (*synth*)

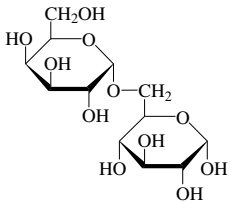
Oshima, R. *et al., J. Chromatogr.*, 1980, **192**, 452 (*hplc*)

Motawia, M.S. *et al., Carbohydr. Res.*, 2001, **330**, 309-318 (*synth, pmr, cmr*)

6-*O*-α-D-Galactopyranosyl-D-glucose, 9CI G-145

Melibiose, 8CI

[585-99-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

Occurs free in wild mallow. Also isol. from coffee beans, *Corylus* spp., *Aconitum napellus*, apple (*Pyrus malus*) and other plants. Sol. H_2O.

Mp 85° dec. (dihydrate) Mp 179-181° (monohydrate). Approx. one-third as sweet as sucrose. Dihydrate reported to be β-anomer; monohydrate the α-anomer.

▶ LD_{50} (mus, ivn) 1000-3000 mg/kg.

Phenylosazone: Mp 176-178°. $[\alpha]_D^{21}$ +43.2 (Py).

α-Pyranose-*form*

$[\alpha]_D^{20}$ +134 (c, 4 in H_2O).

Me glycoside, hepta-Me: Methyl hepta-O-methyl-α-D-galactopyranosyl-α-D-glucopyranoside
$C_{20}H_{38}O_{11}$ 454.514
Mp 122-123°.

1-Chloro-1-deoxy, hepta-Ac: Acetochloromelibiose
$C_{26}H_{35}ClO_{17}$ 655.005
Mp 127°. $[\alpha]_D^{20}$ +192.5 ($CHCl_3$).

1-Bromo-1-deoxy, hepta-Ac: Acetobromomelibiose
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 116°. $[\alpha]_D^{20}$ +209.9 ($CHCl_3$).

β-Pyranose-*form*

Octa-Ac: [29873-67-4]
$C_{28}H_{38}O_{19}$ 678.597
Mp 177°. $[\alpha]_D^{20}$ +102.5 ($CHCl_3$).

Me glycoside: Methyl β-melibioside
$C_{13}H_{24}O_{11}$ 356.326
Cryst. + $1H_2O$. Mp 102-105°. $[\alpha]_D^{21}$ +84 (c, 1.9 in H_2O).

Me glycoside, 2,3,4,2′,3′,4′-hexa-Ac:
$C_{25}H_{36}O_{17}$ 608.549
Cryst. (EtOH). Mp 160-161.5°. $[\alpha]_D^{27}$ +107 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Ac: Methyl hepta-O-acetyl-α-D-galactopyranosyl-β-D-glucopyranoside
$C_{27}H_{38}O_{18}$ 650.586
Cryst. (EtOH). Mp 150°. $[\alpha]_D^{23}$ +90.5 ($CHCl_3$).

Me glycoside, heptabenzoyl: Methyl hepta-O-benzoyl-α-D-galactopyranosyl-β-D-glucopyranoside
$C_{62}H_{52}O_{18}$ 1085.082
Cryst. (EtOH/EtOAc). Mp 165-166°. $[\alpha]_D^{27}$ +136 (c, 2.0 in $CHCl_3$).

Me glycoside, hepta-Me: Methyl hepta-O-methyl-α-D-galactopyranosyl-β-D-glucopyranoside
$C_{20}H_{38}O_{11}$ 454.514
Cryst. (petrol). Mp 106-107°. $[\alpha]_D$ +97.8 (c, 1.0 in H_2O).

Benzyl glycoside: Benzyl β-melibioside
$C_{19}H_{28}O_{11}$ 432.424
Monohydrate. $[\alpha]_D^{31}$ +44.9 (c, 1.0 in H_2O).

Benzyl glycoside, hepta-Ac: Benzyl hepta-O-acetyl-α-D-galactopyranosyl-β-D-glucopyranoside
$C_{33}H_{42}O_{18}$ 726.684
Glass. $[\alpha]_D^{31}$ +50.2 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, heptabenzoyl: Benzyl hepta-O-benzoyl-α-D-galactopyranosyl-β-D-glucopyranoside
$C_{68}H_{56}O_{18}$ 1161.18
Mp 143-146°. $[\alpha]_D^{29}$ +116 (c, 1.0 in $CHCl_3$).

[66009-10-7]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 309C (*nmr*)

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 196C (*ir*)

Pictet, A. *et al., Helv. Chim. Acta*, 1926, **9**, 806 (*synth, dihydrate, β-pyr octa-Ac*)

Charlton, W. *et al., J.C.S.*, 1927, 1527 (*struct, β-Me pyr hepta-Me*)

Helferich, B. *et al., Annalen*, 1928, **465**, 166 (*β-pyr-octa-Ac*)

Levene, P.A. *et al., J. Biol. Chem.*, 1930, **86**, 403 (*struct, β-pyr octa-Ac, β-Me pyr hepta-Ac, synth*)

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 460 (*rev*)

Witonsky, P. *et al., J.O.C.*, 1959, **24**, 124 (*monohydrate, synth*)

Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 366 (*enzymic synth*)

Breitmaier, E. *et al., Chimia*, 1971, **25**, 362 (*cmr*)

de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 407 (*pmr*)

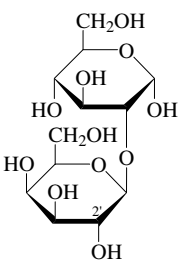
Kanters, J.A. *et al., Acta Cryst. B*, 1976, **32**, 2830 (*cryst struct*)

Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15 (*pmr*)

Otani, S. *et al., Carbohydr. Res.*, 1986, **156**, 218 (*Me, benzyl gly, synth, β-Me pyr heptabenzoyl, β-Me pyr, β-Me pyr hexa-Ac, β-benzyl glycosides, pmr*)

2-*O*-β-D-Galactopyranosyl-D-glucose G-146

[28447-37-2]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

Reducing disaccharide. Cryst. + H_2O. Mp 173°. $[\alpha]_D$ -12.5 (H_2O).

α-Pyranose-*form*

Me glycoside, 4,6-O-benzylidene, 2′,3′,4′,6′-tetra-Ac: [52560-14-2]
Mp 197-198°. $[\alpha]_D^{25}$ +50.1 (c, 0.55 in $CHCl_3$).

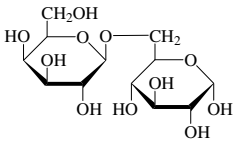
β-Pyranose-*form*

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (EtOH). Mp 150-151°. $[\alpha]_D^{25}$ +17.6 (c, 1 in $CHCl_3$).

Gakhokidze, A.M. *et al., CA*, 1956, **50**, 10657 (*synth*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*β-Ac*)
Hanessian, S. *et al., Carbohydr. Res.*, 1977, **53**, C13 (*Me gly*)

6-*O*-β-D-Galactopyranosyl-D-glucose G-147

Allolactose
[28447-39-4]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Isol. from human milk. Formed from lactose by microbial β-galactosidases. Isol. from *Phaseolus atropurpureum*. Cryst. (EtOH).
Mp 174-176° dec. $[\alpha]_D$ +30.7 (H_2O).

Phenylosazone:
Fine needles (H_2O). Mp 188-189° dec. $[\alpha]_D$ -51.6 (H_2O).

β-Pyranose-*form* [65207-30-9]

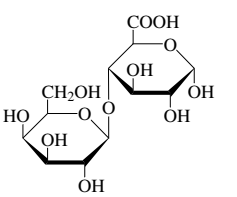
Octa-Ac: [41545-70-4]
$C_{28}H_{38}O_{19}$ 678.597
Mp 159-169°. $[\alpha]_D^{20}$ +1.8 (c, 1.9 in $CHCl_3$).

[645-03-4]

Polonowski, M. *et al., C. R. Hebd. Seances Acad. Sci.*, 1931, **192**, 1319 (*isol*)
Helferich, B. *et al., Ber.*, 1933, **66**, 806 (*synth*)
Zemplen, G. *et al., Acta Chim. Hung.*, 1951, **1**, 245; *CA*, **46**, 7053i
Kuhn, R. *et al., Chem. Ber.*, 1955, **88**, 1713 (*synth*)
Wallenfels, K. *et al., Adv. Carbohydr. Chem.*, 1961, **16**, 239 (*deriv*)
Pazur, J.H. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 303 (*enzymic synth*)
Ford, C.W. *et al., Aust. J. Chem.*, 1972, **25**, 889 (*isol*)
Suami, T. *et al., Carbohydr. Res.*, 1973, **26**, 234 (*synth*)
Kochetkov, N.K. *et al., Tet. Lett.*, 1977, **41**, 3681 (*deriv*)

4-*O*-β-D-Galactopyranosyl-D-glucuronic acid G-148

Pseudolactobiuronic acid



α-Pyranose-*form*

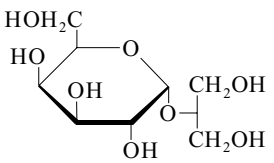
$C_{12}H_{20}O_{12}$ 356.283
Cryst. (MeOH/EtOH/H_2O). Mp 177-180° (159-160°). $[\alpha]_D$ +28.9 (c, 0.8 in H_2O). $[\alpha]_D$ +45.5 (c, 1.11 in H_2O). Obt. as a mixt. of anomers (α:β 45:55 before crystallisation).

Me ester:
$C_{13}H_{22}O_{12}$ 370.31
Syrup. $[\alpha]_D$ +38 (c, 1.0 in MeOH).
Approx. 1:1 mixt. of anomers.

Attolino, E. *et al., Carbohydr. Res.*, 2002, **337**, 991-996; 1791 (*synth, cmr, bibl*)

2-*O*-α-D-Galactopyranosyl-glycerol G-149

2-Hydroxy-1-(hydroxymethyl)ethyl α-D-galactopyranoside, 9CI. 2-Glyceryl α-D-galactopyranoside. ***Floridoside***
[534-68-9]



$C_9H_{18}O_8$ 254.236
Constit. of many red algae and the hydrolysate from *Bacillus coagulans* cell walls. The main reserve carbohydrate in most red algae. Prob. intracellular osmotic regulator.
Mp 128.5° Mp 86-87° (monohydrate). $[\alpha]_D$ +165 (c, 3.35 in H_2O).

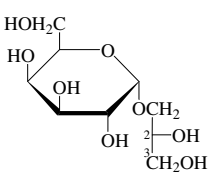
Hexa-Ac: [3879-82-1]
$C_{21}H_{30}O_{14}$ 506.46
Constit. of *Ruellia brittoniana*.
Mp 101°. $[\alpha]_D$ +114 (c, 3.0 in Me_2CO).

Hexa-Me:
$C_{15}H_{30}O_8$ 338.397
Syrup. $[\alpha]_D$ +156 (c, 2.86 in H_2O).

Putman, E.W. *et al., J.A.C.S.*, 1954, **76**, 2221 (*struct*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1955, **9**, 1097; 1323 (*isol*)
Aplin, R.T. *et al., J.C.S.(C)*, 1967, 1346 (*pmr, ms*)
London, R.E. *et al., J.A.C.S.*, 1975, **97**, 3565 (*cmr*)
Impellizzeri, G. *et al., Phytochemistry*, 1975, **14**, 1549 (*isol*)
Meng, J. *et al., Carbohydr. Res.*, 1987, **161**, 171 (*pmr, cmr, ms, glc*)
Ahmad, V.U. *et al., J. Nat. Prod.*, 1990, **53**, 960 (*isol, hexa-Ac, pmr, cmr, cryst struct*)
Abreu, P.M. *et al., Phytochemistry*, 1997, **45**, 1601 (*isol, pmr, cmr*)
Simon-Colin, C. *et al., Carbohydr. Res.*, 2002, **337**, 279-280; 2003, **338**, 2413-2416 (*purifn, pmr, cmr, cryst struct*)

1-*O*-Galactopyranosylglycerol G-150

2,3-Dihydroxypropyl galactopyranoside, 9CI. Glyceryl galactopyranoside
[7420-23-7]



α-D-(2*R*)-*form*

$C_9H_{18}O_8$ 254.236

α-D-(2*R*)-*form*
Isofloridoside
[23202-76-8]
Constit. of various marine red algae.
Cryst. (EtOH/MeOH).
Mp 150-152°. $[\alpha]_D^{20}$ +158 (c, 1.8 in H_2O).

β-D-(2*R*)-*form* [16232-91-0]
Isol. from wheat flour lipids and the brown alga *Sargassum thumbergii*.
Cryst. (MeOH).
Mp 140.5-141.5°. $[\alpha]_D^{15}$ -9 (c, 0.6 in H_2O).

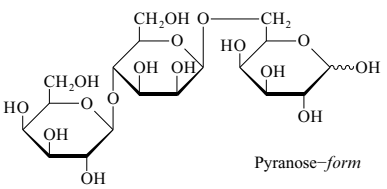
α-D-(2*S*)-*form* [38841-15-5]
Constit. of a red alga *Porphyra* sp.
Cryst.
Mp 104-107°. $[\alpha]_D^{20}$ +2 (c, 2 in H_2O).

[42869-31-8]

Carter, H.E. *et al., J.A.C.S.*, 1956, **78**, 3735-3738 (*β-D-2R-form, isol*)
Wickberg, B. *et al., Acta Chem. Scand.*, 1958, **12**, 1187-1201 (*β-D-2R-form, β-D-2S-form, synth, ir*)
Silhavy, T.J. *et al., J. Biol. Chem.*, 1973, **248**, 6571-6574 (*synth*)
Gent, P.A. *et al., J.C.S. Perkin 1*, 1975, 364-370 (*synth*)
Impellizzeri, G. *et al., Phytochemistry*, 1975, **14**, 1549-1557 (*isol*)
Beier, R.C. *et al., Can. J. Chem.*, 1980, **58**, 2800-2804 (*cmr*)
Beier, R.C. *et al., Carbohydr. Res.*, 1981, **93**, 141-143 (*synth*)
Boos, W. *et al., Methods Enzymol.*, 1982, **89D**, 59-64 (*synth*)
Michelsen, P. *et al., Chem. Scr.*, 1985, **25**, 217-218 (*ord, cd*)
Meng, J. *et al., Carbohydr. Res.*, 1987, **161**, 171-180 (*isol, pmr, cmr, abs config, bibl*)
Son, B.W. *et al., Bull. Korean Chem. Soc.*, 1992, **13**, 584-586 (*β-D-2R-form, isol*)

β-D-Galactopyranosyl-(1→4)-β-D-mannopyranosyl-(1→6)-D-galactose, 9CI G-151

[98832-48-5]

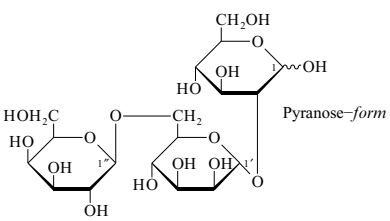


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Cryst. Mp 210° dec. $[\alpha]_D^{20}$ +17.7 (c, 1.0 in DMSO).

Lichtenthaler, F.W. *et al., Annalen*, 1985, 1659 (*synth, cmr, pmr*)

β-D-Galactopyranosyl-(1→6)-α-D-mannopyranosyl-(1→2)-D-glucose, 9CI G-152



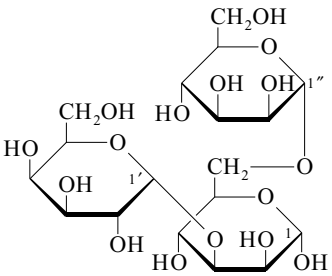
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of the cell membrane of halophilic bacteria e.g. *Halobacterium cutirubrum*, present as phytanylglyceryl deriv.

[83916-10-3, 95188-72-0]

Van Boeckel, C.A.A. *et al., Carbohydr. Res.*, 1984, **133**, 219 (*occur, cmr*)

α-D-Galactopyranosyl-(1 →3)- [α-D-mannopyranosyl-(1 →6)]-D-mannose, 9CI G-153



$C_{18}H_{32}O_{16}$ 504.441

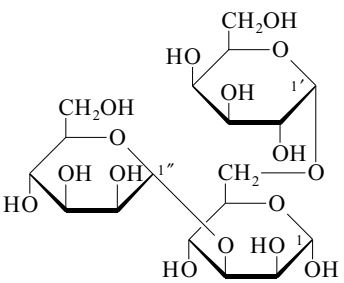
α-Pyranose-*form*

Me glycoside: [129939-86-2]
$C_{19}H_{34}O_{16}$ 518.468
Syrup + H_2O. $[\alpha]_D$ +118 (c, 1.1 in H_2O).

Me glycoside, 2′,3′,4′,6′-tetrabenzyl, 2″,3″,4″,6″-tetrabenzoyl, 2,4-di-Ac: [129870-12-8]
$C_{79}H_{78}O_{22}$ 1379.472
Syrup. $[\alpha]_D$ +4 (c, 1.0 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1990, **200**, 475 (*α-Me pyr derivs, cmr*)

α-D-Galactopyranosyl-(1 →6)- [α-D-mannopyranosyl-(1 →3)]-D-mannose, 9CI G-154



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

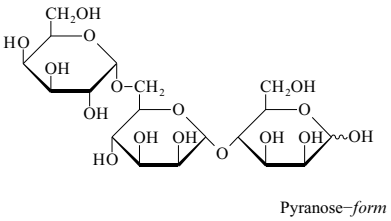
Me glycoside: [129939-88-4]
$C_{19}H_{34}O_{16}$ 518.468
Syrup + 1.5 H_2O. $[\alpha]_D$ +184 (c, 0.9 in H_2O).

Me glycoside, 2,2′,3′,4′,6′-pentabenzyl, 2″,3″,4″,6″-tetrabenzoyl: [129891-64-1]
$C_{82}H_{80}O_{20}$ 1385.522
Syrup. $[\alpha]_D$ +10 (c, 0.7 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1990, **200**, 475 (*α-Me pyr derivs, cmr*)

α-D-Galactopyranosyl-(1 →6)- α-D-mannopyranosyl-(1 →4)-D-mannose, 9CI G-155

[112159-73-6]



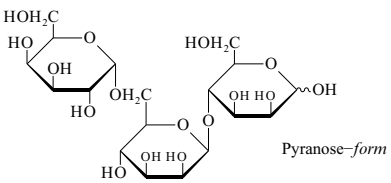
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from seeds of *Cassia auriculata*.
Syrup.

Srivastava, C.H. *et al., CA*, 1986, **108**, 38235s (*isol*)

α-D-Galactopyranosyl-(1 →6)- β-D-mannopyranosyl-(1 →4)-D-mannose G-156

Galactosylmannobiose
[50728-36-4]



Pyranose–*form*

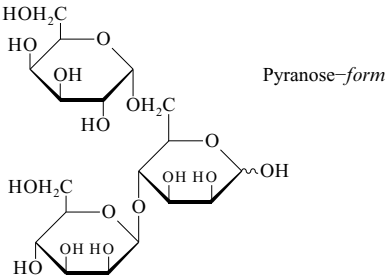
$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysates of galactomannans from guar (*Cyamopsis tetragonoloba*), *Cassia occidentalis, Sesbania aegyptiaca* and *Ipomoea fistulosa*. Isol. from seed galactomannan of *Cassia javanica, Cassia marylandica* and *Cassia auriculata*. Cryst. + H_2O (EtOH). Mp 227-230°. $[\alpha]_D^{25}$ +93 (c, 1.0 in H_2O). $[\alpha]_D^{24}$ +31 (c, 0.4 in H_2O). $[\alpha]_D^{25}$ +93.3 → +98.4 (c, 1.2 in H_2O, 12 hr).

[58214-47-4]

Whistler, R.L. *et al., J.A.C.S.*, 1952, **74**, 5140 (*isol*)
Gupta, D.S. *et al., Indian J. Chem.*, 1975, **13**, 1152
Gupta, O.C.D. *et al., Carbohydr. Res.*, 1979, **73**, 145
McCleary, B.V. *et al., Carbohydr. Res.*, 1982, **104**, 285 (*isol*)
Singh, R.B. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1983, **57**, 1263 (*isol*)
Srivastava, C.H. *et al., CA*, 1988, **108**, 38236t (*isol*)

α-D-Galactopyranosyl-(1 →6)- [β-D-mannopyranosyl-(1 →4)]-D-mannose, 9CI G-157

[61237-54-5]



Pyranose–*form*

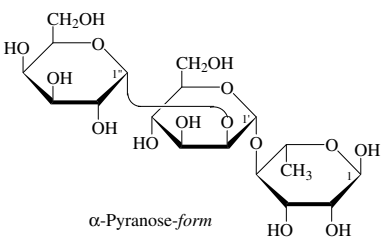
$C_{18}H_{32}O_{16}$ 504.441
Isol. from partial acid hydrolysates of *Cassia tora*, lucerne (*Medicago sativa*) and from the galactomannan of *Leucaena leucocephala*; from enzymatic hydrolysates of guar (*Cyamopsis tetragonoloba*), carob (*Ceratonia siliqua*) galactomannans.
Cryst. + $1\frac{1}{2}H_2O$ (MeOH).
Mp 182-184°. $[\alpha]_D$ +119 (c, 1.2 in H_2O).

[82220-78-8]

Varshney, S.C. *et al., J.C.S. Perkin 1*, 1976, 1621
Shimizu, K. *et al., Agric. Biol. Chem.*, 1983, **47**, 949
McCleary, B.V. *et al., Carbohydr. Res.*, 1983, **118**, 91; 1982, **104**, 285 (*occur, isol*)

α-D-Galactopyranosyl-(1 →2)- α-D-mannopyranosyl-(1 →4)-L-rhamnose G-158

α-D-Galactopyranosyl-(1 →2)-α-D-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Constit. of the O-specific determinant of *Salmonella* serogroup B.

α-Pyranose-*form*

p-*Nitrophenyl glycoside, 2,3*-O-*benzylidene, heptabenzyl:* [74801-30-2]
Syrup. $[\alpha]_D^{21}$ +16 (c, 1.1 in $CHCl_3$).

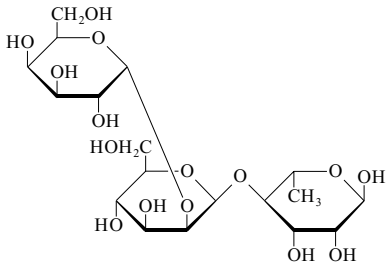
p-*Trifluoroacetamidophenyl glycoside:* [74801-31-3]
Syrup. $[\alpha]_D^{21}$ +36 (c, 0.9 in $CHCl_3$).

8-Methoxycarbonyloctyl glycoside, 3′,4′,6′-tribenzyl, 3″,4″-dibenzoyl, 2,2″,3,6″-tetra-Ac: [91887-38-6]
$C_{71}H_{84}O_{23}$ 1305.431
Syrup. $[\alpha]_D^{20}$ +76.2 (c, 1.6 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1980, **83**, 157 (*α-Ph pyr derivs*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 71 (*α-methoxycarbonyloctyl pyr tetra-Ac deriv, pmr*)

α-D-Galactopyranosyl-(1 →2)-β-D-mannopyranosyl-(1 →4)-L-rhamnose G-159

α-D-Galactopyranosyl-(1 →2)-β-D-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

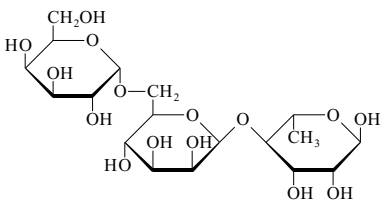
α-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside: [90662-49-0]
$C_{28}H_{50}O_{17}$ 658.693
Syrup. $[\alpha]_D^{23}$ +0.2 (c, 3.0 in H_2O).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1983, **37**, 775 (*α-methoxycarbonyloctyl pyr, cmr, pmr*)

α-D-Galactopyranosyl-(1 →6)-β-D-mannopyranosyl-(1 →4)-L-rhamnose G-160

α-D-Galactopyranosyl-(1 →6)-β-D-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

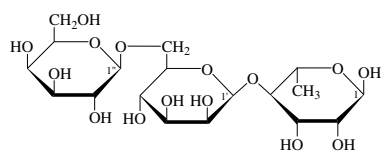
α-Pyranose-*form*

6″-Ac: [126713-00-6]
$C_{20}H_{34}O_{16}$ 530.479
Constit. of the O-specific polysaccharide of *Salmonella anatum*. Syrup.

L'vov, V.L. *et al., Bioorg. Khim.*, 1989, **15**, 1660; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 906 (*isol, pmr, cmr*)

β-D-Galactopyranosyl-(1 →6)-β-D-mannopyranosyl-(1 →4)-L-rhamnose G-161

β-D-Galactopyranosyl-(1 →6)-β-D-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Constit. of the O-antigenic polysaccharide attached to the cell wall of *Salmonella* bacteria serogroup E_2.

α-Pyranose-*form*

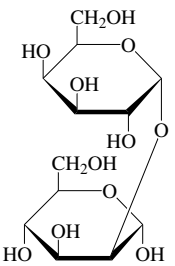
4-Trifluoroacetamidophenyl glycoside: [87757-40-2]
$C_{26}H_{36}F_3NO_{16}$ 675.563
Amorph. solid. $[\alpha]_D$ -68 (c, 0.5 in H_2O).

4-Trifluoroacetamidophenyl glycoside, 2,3-O-isopropylidene, 2′,3′,4′-tribenzyl, 2″,3″,4″,6″-tetrabenzoyl: [87735-65-7]
Syrup. $[\alpha]_D$ -16 (c, 0.5 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1983, **119**, 95 (*α-Ph pyr derivs, cmr*)

2-*O*-α-D-Galactopyranosyl-D-mannose, 9CI, 8CI G-162

[33530-07-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the lichen polysaccharide in *Cetraria islandica* (iceland moss), *Ramalina usnea* and in the seed galactomannan of *Cassia marylandica*.
$[\alpha]_D^{25}$ +70 (c, 0.4 in H_2O). $[\alpha]_D$ +76 (H_2O).

α-Pyranose-*form*

p-*Nitrophenyl glycoside:* [79580-50-0]
$C_{18}H_{25}NO_{13}$ 463.394
Syrup. $[\alpha]_D$ +129 (c, 1.0 in H_2O).

p-*Nitrophenyl glycoside, 4,6-O-benzylidene, 3-benzoyl, tetra-Ac:* [79580-53-3]
$C_{40}H_{41}NO_{18}$ 823.76
Cryst. (EtOH). Mp 112-114°. $[\alpha]_D$ +115 (c, 3.0 in $CHCl_3$).

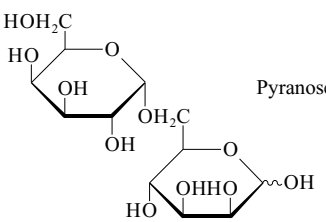
Gorin, P.A.J. *et al., Can. J. Chem.*, 1969, **47**, 3569

Williams, T.J. *et al., Arch. Biochem. Biophys.*, 1981, **209**, 555

Gorin, P.A.J. *et al., Carbohydr. Res.*, 1984, **128**, 119

6-*O*-α-D-Galactopyranosyl-D-mannose, 9CI, 8CI G-163

Epimelibiose
[17296-19-4]



Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Repeating unit in plant galactomannans. Isol. from partial acid hydrolysates of lucerne (*Medicago sativa*), fenugreek (*Trigonella foenum-graecum*), Palmyra palm nut (*Borassus flabellifer*), spruce-wood, seeds of *Anthyllis vulneraria*, *Sesbania aegyptiaca* and from the enzymic hydrolysate of guaran (*Cyamopsis tetragonoloba*). Cryst. (EtOH aq.).
Mp 201-202°. $[\alpha]_D^{23}$ +120 (c, 1.0 in H_2O). $[\alpha]_D^{30}$ +124 (H_2O).

Whistler, R.L. *et al., J.A.C.S.*, 1951, **73**, 4189; 1952, **74**, 3795 (*isol*)

Jones, J.K.N. *et al., J.C.S.*, 1954, 295 (*synth*)

Courtois, J.E. *et al., Bull. Soc. Chim. Biol.*, 1957, **39**, 715 (*isol*)

Meier, H. *et al., Acta Chem. Scand.*, 1960, **14**, 749 (*isol*)

Mukherjee, A.K. *et al., Can. J. Chem.*, 1961, **39**, 1408 (*isol*)

Somme, R. *et al., Acta Chem. Scand.*, 1967, **21**, 685 (*isol*)

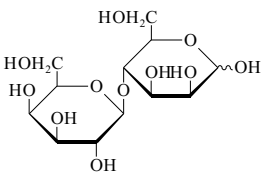
Helferich, B. *et al., Annalen*, 1974, 1514 (*synth*)

Voelter, W. *et al., Tet. Lett.*, 1974, 3597 (*synth*)

Bhattacharyya, S.B. *et al., Phytochemistry*, 1983, **22**, 161 (*isol*)

4-*O*-β-D-Galactopyranosyl-D-mannose, 9CI G-164

Epilactose
[50468-56-9]



Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Isolated from the acid hydrolysate of a polysaccharide from the seeds of *Caisas grandis*.
$[\alpha]_D^{30}$ +16.1 (c, 0.25 in H_2O). $[\alpha]_D^{23}$ +26.5 (c, 1.0 in H_2O) (3h). $[\alpha]_D$ +30 (H_2O).

α-Pyranose-*form*

Monohydrate. Mp 150-160°.

Me glycoside: Methyl 4-O-β-D-galactopyranosyl-α-D-mannopyranoside
$C_{13}H_{24}O_{11}$ 356.326
Mp 201°. $[\alpha]_D$ +66 (H_2O).

β-Pyranose-*form*

Mp 196-197°.

Haskins, W.T. *et al., J.A.C.S.*, 1942, **64**, 1852 (*synth*)

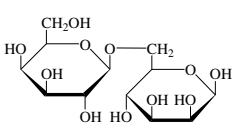
Voelter, W. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 2054 (*cmr*)

Bose, S. *et al., Indian J. Chem., Sect. B*, 1978, **16**, 966 (*isol, struct*)

Kovac, P. *et al., Chem. Zvesti*, 1979, **33**, 365 (*synth*)

6-*O*-β-D-Galactopyranosyl-D-mannose, 8CI G-165

[34097-00-2]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the cell-wall lipopolysaccharide of *Salmonella newington*.
$[\alpha]_D$ +6 (c, 1.0 in H_2O). $[\alpha]_D$ +9.3 (c, 3.3 in H_2O).

Pyranose-*form*

Benzyl glycoside: Benzyl 6-O-β-D-galactopyranosyl-D-mannopyranoside
$C_{19}H_{28}O_{11}$ 432.424
$[\alpha]_D$ +48 (c, 0.9 in H_2O).

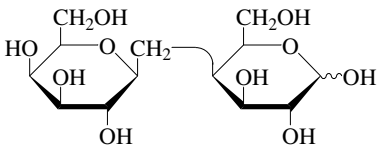
β-Pyranose-*form* [33428-65-8]
Cryst. (MeOH/EtOH). Mp 123-128° (softens at 112°). $[\alpha]_D^{20}$ +7 → +9.3 (equilib.) (c, 3.3 in H_2O).

Octa-Ac: 1,2,3,4-Tetra-O-acetyl-6-O-(2,3,4,6-tetra-O-acetyl-β-D-galactopyranosyl)-β-D-mannopyranose
[33585-14-7]
$C_{28}H_{38}O_{19}$ 678.597
Prisms (MeOH). Mp 162-163°. $[\alpha]_D^{20}$ -18 (c, 3.3 in $CHCl_3$).

Lonngren, J. *et al., Acta Chem. Scand.*, 1971, **25**, 1155 (*synth*)
Jeanloz, R.W. *et al., Biochemistry*, 1971, **10**, 1803 (*synth*)

β-D-Galactopyranosylmethyl-(1 →4)-4-deoxy-D-galactose G-166

4-C-(2,6-Anhydro-1-deoxy-D-glycero-L-manno-heptitol-1-yl)-4-deoxy-D-galactose



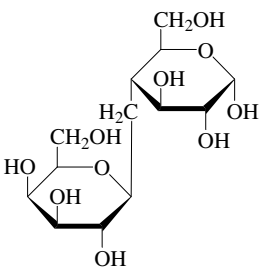
$C_{13}H_{24}O_{10}$ 340.327
The entry name used here is not strictly authentic but is simpler than the IUPAC name.

Octa-Ac:
$C_{29}H_{40}O_{18}$ 676.624
$[\alpha]_D$ +53.5 (c, 2.2 in EtOAc). Inseparable 1:1 mixt. of anomers.

Preuss, R. *et al., J. Carbohydr. Chem.*, 1991, **10**, 887-900 (*octa-Ac, synth, pmr*)

β-D-Galactopyranosylmethyl-(1 →4)-4-deoxy-D-glucose G-167

4-C-(2,6-Anhydro-7-deoxy-L-glycero-L-galacto-heptitol-7-yl)-4-deoxy-α-D-glucose. C-Lactose
[175656-65-2]



α-*form*

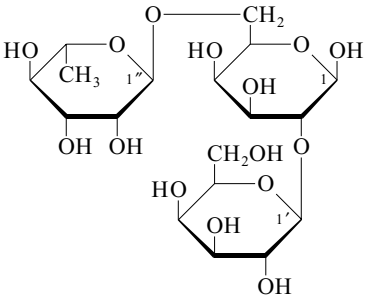
$C_{13}H_{24}O_{10}$ 340.327
The entry name used here is not strictly authentic but is simpler than the IUPAC name. Powder. $[\alpha]_D$ +33.5 (c, 1 in MeOH). Mixt. of anomers α:β 7:1.

Octa-Ac: [164323-37-9]
$C_{29}H_{40}O_{18}$ 676.624
Syrup. Mixt. of anomers α:β 1:2.
[164215-23-0, 164323-35-7]

Dietrich, H. *et al., Annalen*, 1994, 975 (*synth, pmr, octa-Ac*)
Espinosa, J.F. *et al., Angew. Chem., Int. Ed.*, 1996, **35**, 303

β-D-Galactopyranosyl-(1 →2)-[α-L-rhamnopyranosyl-(1 →6)]-D-galactose G-168

β-D-Galactopyranosyl-(1 →2)-[6-deoxy-α-L-mannopyranosyl-(1 →6)]-D-galactose



$C_{18}H_{32}O_{15}$ 488.442

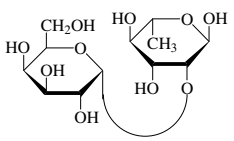
β-Pyranose-*form*

Benzyl glycoside, 2′,3,3′,4,4′,6′-hexabenzyl, 2″,3″,4″-tri-Ac: [64020-97-9]
$C_{73}H_{80}O_{18}$ 1245.424
Cryst. Mp 52°. $[\alpha]_D$ -34.1 (c, 1.0 in $CHCl_3$).

Liptak, A. *et al., Tet. Lett.*, 1977, 921 (*β-benzyl pyr tri-Ac deriv*)

2-*O*-α-D-Galactopyranosyl-L-rhamnose G-169

[67508-21-8]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Isol. from the gum of *Rhizophora* sp. Constit. in the repeating unit of the *O*-antigen from *Pseudomonas cepacia* (strain IMV 598/2).
$[\alpha]_D^{30}$ +105 (+94) (H_2O).

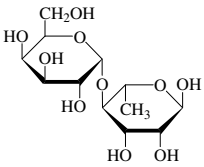
α-Pyranose-*form* [94061-76-4]

Benzyl glycoside, 3,4-dibenzoyl, tetrabenzyl: [105285-87-8]
$C_{61}H_{60}O_{12}$ 985.138
$[\alpha]_D$ +54 (c, 0.5 in $CHCl_3$).

Sarkar, M. *et al., Indian J. Chem., Sect. B*, 1978, **16**, 369 (*isol*)
Lipkind, G.M. *et al., Bioorg. Khim.*, 1984, **10**, 1670; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1984, **10**, 912 (*conformn, pmr*)
Norberg, T. *et al., Carbohydr. Res.*, 1986, **152**, 301 (*synth*)

4-*O*-α-D-Galactopyranosyl-L-rhamnose G-170

6-Deoxy-4-O-α-D-galactopyranosyl-L-mannose



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Constit. of the repeating unit of the *O*-antigen of *E. coli* 075 and of the type specific antigen of *Streptococcus pneumoniae* type 27.
Mp 138°. $[\alpha]_D^{20}$ +116.9 (c, 0.63 in H_2O).

α-Pyranose-*form* [74608-71-2]

Hepta-Ac: [79733-82-7]
$C_{26}H_{36}O_{17}$ 620.56
$[\alpha]_D^{20}$ +57.7 (c, 1.28 in $CHCl_3$).

Benzyl glycoside, 2,3-O-benzylidene, tetrabenzyl: [74545-17-8]
$C_{54}H_{56}O_{10}$ 865.03
Cryst. ($CHCl_3$/hexane). Mp 88-89°. $[\alpha]_D$ +15.5 (c, 2 in $CHCl_3$).

Benzyl glycoside, 2′-benzyl:
$C_{26}H_{34}O_{10}$ 506.549
$[\alpha]_D^{20}$ +37.5 (c, 1.26 in MeOH).

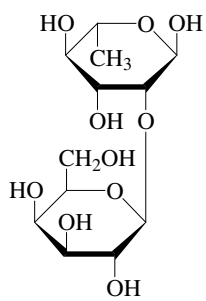
Benzyl glycoside, 2′,3,3′,4′,6′-pentabenzyl: [74545-18-9]
$C_{54}H_{58}O_{10}$ 867.046
Syrup. $[\alpha]_D$ +3 (c, 1 in $CHCl_3$).

[74608-72-3]

Erbing, C. *et al., Carbohydr. Res.*, 1978, **60**, 400 (*occur*)
Fugedi, P. *et al., Carbohydr. Res.*, 1980, **80**, 233 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3079 (*synth*)

2-*O*-β-D-Galactopyranosyl-L-rhamnose G-171

[13295-87-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Constit. of the repeating unit of the capsular antigen of *Klebsiella* K53. Syrup. $[\alpha]_D^{24}$ -7.5 (c, 2 in H_2O).

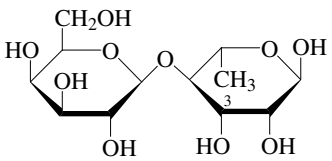
α-Pyranose-*form*

Benzyl glycoside, hexa-Ac: [55018-85-4]
$C_{31}H_{40}O_{16}$ 668.647
Cryst. (Et_2O). Mp 154-155°. $[\alpha]_D^{24}$ -54.2 (c, 1 in $CHCl_3$).

King, R.R. *et al., Can. J. Chem.*, 1974, **52**, 3913 (*synth*)
Colson, P. *et al., Carbohydr. Res.*, 1976, **47**, 1 (*cmr*)
Dutton, G.G.S. *et al., Carbohydr. Res.*, 1980, **87**, 107
Lipkind, G.M. *et al., Bioorg. Khim.*, 1984, **10**, 1670; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1984, **10**, 912 (*conformn*)

4-*O*-β-D-Galactopyranosyl-L-rhamnose G-172

6-Deoxy-4-O-β-D-galactopyranosyl-L-mannose
[52482-68-5]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Constit. of the repeating unit of the capsular antigen of *Klebsiella* K47, K83 and in the type specific antigen of *Streptococcus pneumoniae* type 23F.
$[\alpha]_D^{24}$ -4.2 (c, 2 in EtOH).

α-Pyranose-*form*

Hepta-Ac: [55057-36-8]
$C_{26}H_{36}O_{17}$ 620.56
$[\alpha]_D^{23}$ -55 (c, 2 in $CHCl_3$).

Me glycoside: [55018-75-2]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{23}$ -49 (c, 1.6 in MeOH).

Me glycoside, 2,3-O-isopropylidene, tetra-Ac: [55018-72-9]
$C_{24}H_{36}O_{14}$ 548.54
Cryst. (EtOH). Mp 192-193°. $[\alpha]_D^{23}$ -24.4 (c, 2.05 in $CHCl_3$).

Benzyl glycoside: [52482-73-2]
$C_{19}H_{28}O_{10}$ 416.424
Amorph. $[\alpha]_D^{24}$ -61.7 (c, 1 in Me_2CO).

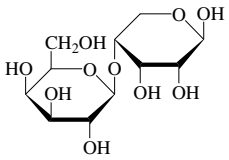
Benzyl glycoside, 2′,3′,4′,6′-tetra-Ac:
$C_{27}H_{36}O_{14}$ 584.573
Powder. $[\alpha]_D^{24}$ -38.2 (c, 1 in $CHCl_3$).

Benzyl glycoside, 2,3-O-isopropylidene, 2′,3′,4′,6′-tetra-Ac:
$C_{30}H_{40}O_{14}$ 624.638
Cryst. (Et_2O). Mp 132-134°. $[\alpha]_D^{24}$ -18.7 (c, 1 in $CHCl_3$).

3′-Me: 4-O-(3-O-Methyl-β-D-galactopyranosyl)-L-rhamnose
[35949-92-9]
$C_{13}H_{24}O_{10}$ 340.327
Constit. of the mucilaginous polysaccharide from the bark of *Ulmus fulva* (slippery elm).
$[\alpha]_D^{23}$ +8 (c, 0.7 in H_2O).

Beveridge, R.J. *et al., Carbohydr. Res.*, 1971, **19**, 107 (*3-Me*)
Lindberg, B. *et al., Carbohydr. Res.*, 1973, **27**, 373; 1976, **48**, 81 (*occur*)
Dutton, G.G.S. *et al., Can. J. Chem.*, 1974, **52**, 3844 (*synth*)
King, R.R. *et al., Carbohydr. Res.*, 1974, **32**, 239 (*benzyl gly*)
Colson, P. *et al., Carbohydr. Res.*, 1976, **47**, 1 (*cmr*)
Debruyn, A. *et al., Carbohydr. Res.*, 1976, **47**, 158 (*pmr*)

4-*O*-β-D-Galactopyranosyl-D-ribose G-173



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

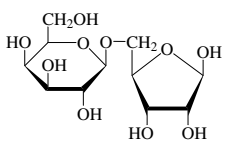
β-Pyranose-*form*

2,3-Anhydro, benzyl glycoside: Benzyl 2,3-anhydro-4-O-β-D-galactopyranosyl-β-D-ribopyranoside, 9CI
$C_{18}H_{24}O_9$ 384.383
Amorph. powder. $[\alpha]_D^{22}$ -8 (c, 0.5 in H_2O).

2,3-Anhydro, benzyl glycoside, 2′,3′,4′,6′-tetrabenzoyl: Benzyl 2,3-anhydro-4-O-(2,3,4,6-tetra-O-benzoyl-β-D-galactopyranosyl)-β-D-ribopyranoside, 9CI
[67412-72-0]
$C_{46}H_{40}O_{13}$ 800.814
Mp 152-153°. $[\alpha]_D^{22}$ +89 (c, 0.5 in $CHCl_3$).

Erbing, B. *et al., Acta Chem. Scand., Ser. B*, 1978, **32**, 308
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1979, **33**, 116 (*synth, tetrabenzoyl*)

5-*O*-β-D-Galactopyranosyl-D-ribose G-174



β-Furanose-*form*

$C_{11}H_{20}O_{10}$ 312.273

β-Furanose-*form*

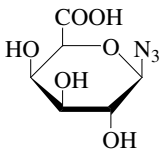
Hepta-Ac: [78416-61-2]
$C_{25}H_{34}O_{17}$ 606.533
Mp 121-122°. $[\alpha]_D^{20}$ -26 (c, 0.5 in $CHCl_3$).

Benzyl glycoside, 2,3-O-isopropylidene: Benzyl 5-O-β-D-galactopyranosyl-2,3-O-isopropylidene-β-D-ribofuranoside, 9CI
[78416-59-8]
$C_{21}H_{30}O_{10}$ 442.462
Needles (butanone). Mp 87-89°. $[\alpha]_D^{20}$ -50 (c, 0.8 in MeOH).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1966, **44**, 2083
Kraska, B. *et al., Chem. Ber.*, 1981, **114**, 1636 (*synth, deriv*)

Galactopyranosyluronic acid azide G-175

1-Deoxygalactopyranosyl azide uronic acid. (Galactopyranosyl axide)uronate



$C_6H_9N_3O_6$ 219.154

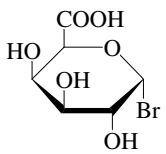
β-D-*form*

1-Azido-1-deoxy-β-D-galactopyranuronic acid
[362599-18-6]
Solid. $[\alpha]_D^{26}$ -31.9 (c, 0.8 in H_2O).

Ying, L. *et al., Carbohydr. Res.*, 2003, **338**, 835-841 (*β-D-form, synth, pmr, cmr*)

Galactopyranosyluronic acid bromide G-176

(Galactopyranosyl bromide)uronate. 1-Deoxygalactopyranosyl bromide uronic acid



$C_6H_9BrO_6$ 257.038

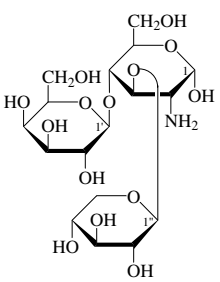
α-D-*form*

Tri-Ac, benzyl ester: Benzyl 2,3,4-tri-O-acetyl-1-bromo-1-deoxy-α-D-galactopyranuronate. Benzyl (2,3,4-tri-O-acetyl-α-D-galactopyranosyl bromide)uronate
[141990-01-4]
$C_{19}H_{21}BrO_9$ 473.274
Foam. $[\alpha]_D^{22}$ +179.2 (c, 0.55 in $CHCl_3$).

Vogel, C. *et al., J. Carbohydr. Chem.*, 1992, **11**, 287-303 (*D-form, tri-Ac benzyl ester, synth, pmr, cmr*)

β-D-Galactopyranosyl-(1 →4)-[β-D-xylopyranosyl-(1 →3)]-2-amino-2-deoxy-D-glucose, 9CI G-177

3-O-β-D-Xylopyranosyllactosamine



α-Pyranose-*form*

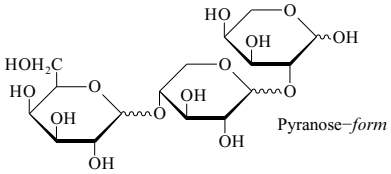
$C_{17}H_{31}NO_{14}$ 473.43

N-*Ac:* [73715-17-0]
$C_{19}H_{33}NO_{15}$ 515.467
Powder + H_2O ($MeOH/Me_2CO$).
$[\alpha]_D^{22}$ +23.8 (c, 0.2 in H_2O).

α-Pyranose-*form*

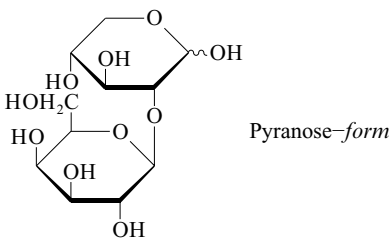
Benzyl glycoside, 6-benzoyl, octa-Ac:
[73706-06-6]
$C_{47}H_{57}NO_{23}$ 1003.96
Needles (MeOH). Mp 226-227.5°. $[\alpha]_D^{19}$ +14.1 (c, 0.94 in $CHCl_3$).
Oguri, S. *et al., Chem. Pharm. Bull.*, 1980, **28**, 35 (*N-Ac, α-benzyl pyr octa-Ac deriv, pmr*)

D-Galactopyranosyl-(1 →4)-D-xylopyranosyl-(1 →2)-L-arabinose G-178



$C_{16}H_{28}O_{14}$ 444.389
Isol. from the roots of perennial ryegrass (*Lolium perenne*).
$[\alpha]_D^{18}$ +20 (c, 0.2 in H_2O).
Aspinall, G.O. *et al., J.C.S.*, 1963, 1721 (*isol*)

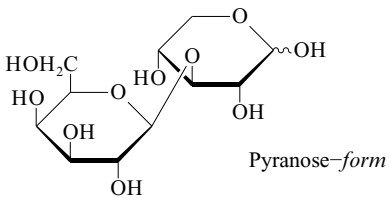
2-*O*-β-D-Galactopyranosyl-D-xylose G-179



$C_{11}H_{20}O_{10}$ 312.273
Isol. from the partial acid hydrolysate of *Tamarindus* amyloid and gum tragacanth, the exudate from various species of *Astragalus*.
$[\alpha]_D$ +30 (H_2O).
Kooiman, P. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1961, **80**, 849
Aspinall, G.O. *et al., J.C.S.*, 1963, 1702 (*isol*)
Aragón, J.J. *et al., Carbohydr. Res.*, 1996, **290**, 209-216 (*synth, pmr, cmr*)

3-*O*-β-D-Galactopyranosyl-D-xylose, 8CI G-180

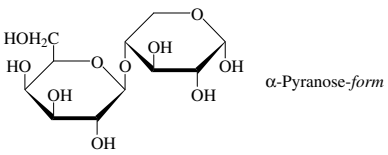
[14087-18-4]



$C_{11}H_{20}O_{10}$ 312.273
Cryst. (MeOH). Mp 194-197°. $[\alpha]_D^{20}$ +12 (c, 0.7 in H_2O) (equilb.).
Lindberg, B. *et al., Carbohydr. Res.*, 1966, **2**, 413
Aragón, J.J. *et al., Carbohydr. Res.*, 1996, **290**, 209-216 (*synth, pmr, cmr*)

4-*O*-β-D-Galactopyranosyl-D-xylose, 9CI G-181

[14087-31-1]



$C_{11}H_{20}O_{10}$ 312.273
Isol. from partial acid hydrolysate of corn-hull hemicellulose and from bean cell wall. Constit. of the oligosaccharides from the linkage region of chondroitin 4-sulfate.
Mp 201-211°. $[\alpha]_D^{22}$ +18 (c, 0.5 in H_2O) (+15).

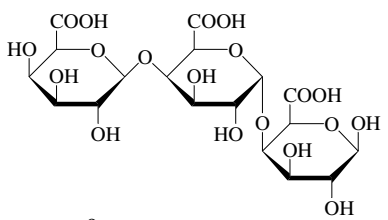
α-Pyranose-*form*

Benzyl glycoside: Benzyl 4-O-β-D-galacto-pyranosyl-α-D-xylopyranoside
$C_{18}H_{26}O_{10}$ 402.397
Solid. $[\alpha]_D^{20}$ +63.7 (c, 1.0 in H_2O).

β-Pyranose-*form*

Benzyl glycoside: Benzyl 4-O-β-D-galacto-pyranosyl-β-D-xylopyranoside
[67412-74-2]
$C_{18}H_{26}O_{10}$ 402.397
Mp 40-42°. $[\alpha]_D^{22}$ -38 (c, 0.5 in H_2O).
Montgomery, R. *et al., J.A.C.S.*, 1957, **79**, 698 (*isol*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 429
Lindberg, B. *et al., Carbohydr. Res.*, 1966, **2**, 413
Erbing, B. *et al., Acta Chem. Scand., Ser. B*, 1978, **32**, 308
Gunnarsson, A. *et al., Carbohydr. Res.*, 1984, **133**, 75
Aragón, J.J. *et al., Carbohydr. Res.*, 1996, **290**, 209-216 (*synth, pmr, cmr*)
Fessner, W.D. *et al., Can. J. Chem.*, 2002, **80**, 739-742 (*synth*)

β-D-Galactopyranuronosyl-(1 →4)-α-D-galactopyranuronosyl-(1 →4)-D-galactouronic acid G-182



$C_{18}H_{26}O_{19}$ 546.392

Pyranose-*form*
Syrup.

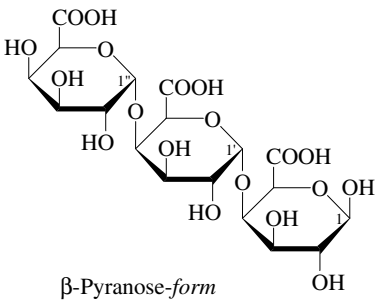
β-Pyranose-*form*

tert-*Butyldiphenylsilyl glycoside, 2,2′2″,3,3′,3″,4″-heptabenzyl:* [129729-28-8]
$C_{83}H_{86}O_{19}Si$ 1415.666
Syrup. $[\alpha]_D^{24}$ +75 (c, 1.1 in MeOH).

tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl, tri-Me ester:* [129729-29-9]
$C_{86}H_{92}O_{19}Si$ 1457.747
Syrup. $[\alpha]_D^{25}$ +73 (c, 0.6 in $CHCl_3$).
Nakahara, Y. *et al., Carbohydr. Res.*, 1990, **200**, 363 (*β-silyl pyr heptabenzyl derivs, pmr, cmr*)
Japan. Pat., 1991, 03 90 094; *CA*, **115**, 92833t (*β-silyl pyr heptabenzyl derivs*)

α-D-Galactopyranuronosyl-(1 →4)-α-D-galactopyranuronosyl-(1 →4)-D-galacturonic acid, 9CI, 8CI G-183

[6037-45-2]



$C_{18}H_{26}O_{19}$ 546.392
Isol. from enzymic hydrolysates (yeast or mould pectinases) of pectic acid. Also from partial acid hydrol. of *Medicago sativa* (lucerne) pectin. Possible plant wound hormone.
Mp 139-145° dec. $[\alpha]_D^{27}$ +185 (c, 0.12 in H_2O).

Pyranose-*form*

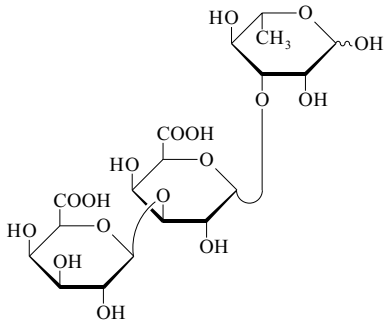
Ca salt:
Cryst. + 1 or 7H_2O. Mp 145-155° (monohydrate). $[\alpha]_D$ +154 (H_2O) (heptahydrate). Turns deep pink on melting.

β-Pyranose-*form*

tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl:* [129729-25-5]
Syrup + H_2O. $[\alpha]_D^{20}$ +93 (c, 0.3 in H_2O).

tert-*Butyldiphenylsilyl glycoside, 2,2′,2″,3,3′,3″,4″-heptabenzyl, tri-Me ester:* [129729-26-6]
Syrup + H_2O. $[\alpha]_D^{25}$ +66 (c, 0.8 in $CHCl_3$).
Phaff, H.J. *et al., Arch. Biochem. Biophys.*, 1954, **51**, 114; 1952, **36**, 231
McCready, R.M. *et al., J.A.C.S.*, 1954, **76**, 3035
Aspinall, G.O. *et al., J.C.S.*, 1961, 4215 (*isol*)
Jones, J.K.N. *et al., J.C.S.*, 1964, 1361
Banerji, N. *et al., Cellul. Chem. Technol.*, 1968, **2**, 655; *CA*, **71**, 82805h (*isol*)
Nakahara, Y. *et al., Carbohydr. Res.*, 1990, **200**, 1363 (*deriv, synth, pmr, cmr*)

β-D-Galactopyranuronosyl-(1 →3)-β-D-galactopyranuronosyl-(1 →3)-L-rhamnose G-184

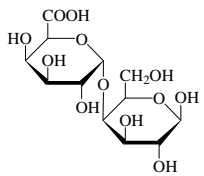


$C_{18}H_{28}O_{17}$ 516.409
Isol. from the hydrolysate of the gum of *Rhizophora mangle*.
$[\alpha]_D^{30}$ +120 (c, 0.1 in H_2O).

Sarkar, M. *et al., Indian J. Chem.*, 1973, **11**, 1129 (*isol*)

4-*O*-α-D-Galactopyranuronosyl-D-galactose, 9CI G-185

[5887-86-5]



β-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283
Constit. of *Sterculia urens* (karaya gum).

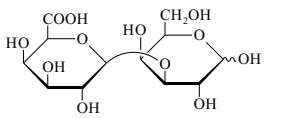
β-Pyranose-*form*

Me glycoside, 6′-Me ester, hexa-Ac:
Cryst. (EtOH). Mp 228.7-229.4°. $[\alpha]_D^{22.5}$ +95.9 (c, 0.73 in $CHCl_3$).

Bajpai, K.S. *et al., Indian J. Chem.*, 1970, **8**, 48 (*isol*)
Fujiwara, T. *et al., Carbohydr. Res.*, 1982, **101**, 305

3-*O*-β-D-Galactopyranuronosyl-D-galactose, 9CI G-186

[7268-75-9]



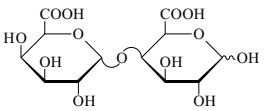
Pyranose–*form*

$C_{12}H_{20}O_{12}$ 356.283
Isol. from the partial acid hydrolysate of *Rhizophora mangle* gum and from *Spondias dulcis* (ambarella) gum (Anacardiaceae).
$[\alpha]_D$ +56.2 (H_2O).

Parikh, V.M. *et al., Can. J. Chem.*, 1966, **44**, 327
Sarkar, M. *et al., Indian J. Chem.*, 1974, **11**, 1129 (*isol*)
Roy, A. *et al., Carbohydr. Res.*, 1975, **41**, 219
Basu, S. *et al., Carbohydr. Res.*, 1981, **94**, 215 (*isol*)

4-*O*-α-D-Galactopyranuronosyl-D-galacturonic acid G-187

[5894-59-7]



Pyranose–*form*

$C_{12}H_{18}O_{13}$ 370.266
Prepd. from pectin by enzymic hydrol. using yeast or mould pectinases or by acid hydrol. Sole or major repeating unit of the pectin class of polysaccharides.

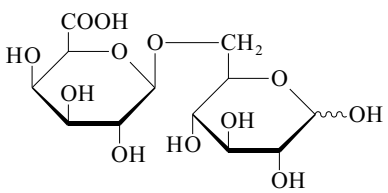
Ca salt:
Cryst. + $5H_2O$. Mp 130° (part. melt). $[\alpha]_D$ +119 (H_2O). Becomes dark pink at 130-140°.

Pyranose-*form*

Me glycoside, 6,6′-di-Me ester:
$C_{15}H_{24}O_{13}$ 412.347
Mp 120-122°. $[\alpha]_D$ +162 (H_2O).

Phaff, H.J. *et al., Arch. Biochem. Biophys.*, 1952, **36**, 231; 1954, **51**, 102
Derungs, R. *et al., Helv. Chim. Acta*, 1954, **37**, 657 (*isol*)
Gee, M. *et al., J.O.C.*, 1958, **23**, 620 (*Me gly*)
Aspinall, G.O. *et al., J.C.S.*, 1961, 4215 (*isol*)
Jones, J.K.N. *et al., J.C.S.*, 1964, 1361

6-*O*-β-D-Galactopyranuronosyl-D-glucose G-188



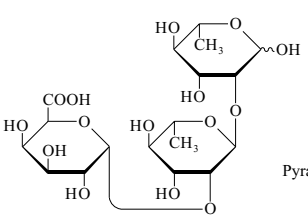
$C_{12}H_{20}O_{12}$ 356.283

β-Pyranose-*form*

Hepta-Ac, Me ester: [79291-98-8]
$C_{27}H_{36}O_{19}$ 664.57
$[\alpha]_D^{23}$ +14 (c, 2.7 in $CHCl_3$).

Aspinall, G.O. *et al., J.C.S.*, 1960, 2503 (*isol*)
Betaneli, V.I. *et al., Carbohydr. Res.*, 1981, **94**, C1 (*synth*)

α-D-Galactopyranuronosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose G-189



Pyranose–*form*

$C_{18}H_{30}O_{15}$ 486.426
Isol. from the partial acid hydrolysate of Panniculatan, a mucilaginous polysaccharide obt. from the inner bark of *Panniculata hydrangia*.

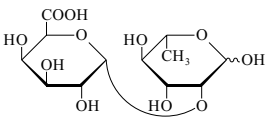
$[\alpha]_D^{20}$ +80.3 (c, 0.3 in H_2O).

[65562-06-3]

Tomoda, M. *et al., Chem. Pharm. Bull.*, 1977, **25**, 2910 (*isol*)

2-*O*-α-D-Galactopyranuronosyl-L-rhamnose G-190

Aldobiouronic acid B. 6-Deoxy-2-O-α-D-galactopyranuronosyl-L-mannose, 9CI
[6118-79-2]



Pyranose–*form*

$C_{12}H_{20}O_{11}$ 340.283
Reducing disaccharide. Widespread as the aldobiouronic acid unit of plant polysaccharides, particularly of plant mucilages and gums. e.g. isol. from or detected in partial acid hydrolysates of *Linum usitatissimum* (flax), *Ulmus fulya* (slippery elm), *Plantago* seed, *Hibiscus esculentus* (okra), *Salvia aegytica* mucilages and others. Amorph. $[\alpha]_D^{28}$ +50.8 (H_2O). $[\alpha]_D^{20}$ +96.1 (c, 0.4 in H_2O). $[\alpha]_D^{20}$ +105.5 (c, 1.06 in H_2O).

Ca salt: $[\alpha]_D$ +92 (H_2O).

Ba salt: [69842-92-8]
Powder. $[\alpha]_D^{20}$ +75.3 (c, 0.24 in H_2O).

Pyranose-*form* [16749-72-7]

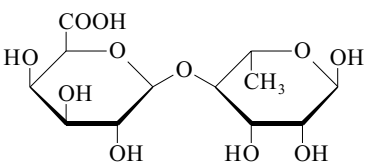
Me glycoside, penta-Me, Me ester:
$C_{19}H_{34}O_{11}$ 438.471
Mp 93-94°. $[\alpha]_D$ +129 ($CHCl_3$).

[65942-34-9]

Bailey, R.W. *et al., Oligosaccharides*, Pergamon Press, 1965, 132 (*occur*)
Bajpai, K.S. *et al., Indian J. Chem.*, 1969, **7**, 780 (*Me deriv*)
Sarkar, M. *et al., Indian J. Chem.*, 1973, **11**, 1129 (*isol*)
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1977, **25**, 2910; 1979, **27**, 1651 (*isol*)
Tomoda, M. *et al., Carbohydr. Res.*, 1986, **151**, 29; 1989, **190**, 323
Shigeru, E. *et al., Carbohydr. Res.*, 1986, **158**, 205

4-*O*-β-D-Galactopyranuronosyl-L-rhamnose G-191

6-Deoxy-4-O-β-D-galactopyranuronosyl-L-mannose



$C_{12}H_{20}O_{11}$ 340.283

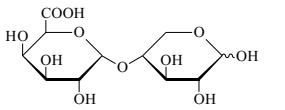
α-Pyranose-*form*

Me glycoside, 2,3-O-isopropylidene, tri-Ac, Me ester: [79292-00-5]
$C_{23}H_{34}O_{14}$ 534.513
Powder. $[\alpha]_D^{23}$ -8.9 (c, 2.5 in $CHCl_3$).

Betaneli, V.I. *et al., Carbohydr. Res.*, 1981, **94**, C1

4-*O*-α-D-Galactopyranuronosyl-D-xylose, 8CI G-192

Aldobiouronic acid D_2
[10347-13-4]



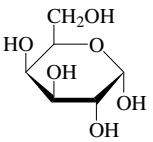
Pyranose–*form*

$C_{11}H_{18}O_{11}$ 326.257
Isol. from the partial acid hydrolysate of maritime pine (*Pinus pinaster*) hemicellulose.
$[\alpha]_D$ +67 (c, 0.37 in H_2O).

Roudier, A.J. *et al., Bull. Soc. Chim. Fr.*, 1960, **28**, 2074 (*isol*)
Kawabata, Y. *et al., Biosci., Biotechnol., Biochem.*, 1994, **58**, 1463 (*synth*)

Galactose, 9CI, 8CI, USAN G-193

Cerebrose
[26566-61-0]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157
An aq. soln. at 31° contains 30% α-pyr, 64% β-pyr, 2.5% α-fur, 3.5% β-fur and 0.02% aldehyde. Active ingredient of Levovist™, used in echo-enhancement in sonographic Doppler-B-mode imaging. Ultrasound contrast medium.

D-*form* [59-23-4]
The free sugar has been detected in ivy berries, some fruits and heartwood of *Chamaecyparis lawsonia*. It is a constit. of the oligosaccharides Lactose, L-13, 6-*O*-α-D-Galactopyranosyl-D-glucose, G-145 and Raffinose, R-1, the glycosides Idaein and Myritillin and the cerebrosides and gangliosides of brain and nerve tissue. It is one of the few sugars, other than D-Glucose and 2-Deoxy-D-ribose, found to any great extent in the animal kingdom, a common constit. of glycoproteins and the galactans of beef lung, frog spawn and snail (*Helix pomatia*) albumin gland. Polysaccharides agar, gum arabic, mesquite gum, western larch gum and many plant mucilages and gums contain galactose. Can be prepd. by acid hydrol. of lactose, being isol. after the glucose has been removed by yeast fermentation. Inexpensive starting material for synthesis.
Mp 118-120° (monohydrate). pK_{a1} 12.35 (25°). Sweet taste, sweetness = 0.33 × sucrose.
► Exp. reprod. and teratogenic effects (large doses). LW5490000

Phenylhydrazone: [18841-76-4]
Mp 159-160°. $[\alpha]_D$ -21.6 (H_2O).

Di-Et dithioacetal: See Galactose diethyl dithioacetal, G-195

1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-D-galactose*
[13996-89-9]
$C_{14}H_{20}O_{10}$ 348.306
$[\alpha]_D^{20}$ +63.9 (c, 1 in $CHCl_3$).

6-Tosyl: 6-O-*Tosyl-D-galactose*
$C_{13}H_{18}O_8S$ 334.346
Mp 130°. $[\alpha]_D^{18}$ +31 (c, 1.0 in Py).

3,4-O-*Isopropylidene: 3,4*-O-*Isopropylidene-D-galactose*
[56543-08-9]
$C_9H_{16}O_6$ 220.222
Cryst. (EtOAc). Mp 100-102°. $[\alpha]_D^{22}$ +86 (c, 0.5 in MeOH).

4,6-O-*Isopropylidene: 4,6*-O-*Isopropylidene-D-galactose*
[56543-09-0]
$C_9H_{16}O_6$ 220.222
Mp 141-143°. $[\alpha]_D^{22}$ +153 (c, 0.5 in MeOH).

5,6-O-*Isopropylidene: 5,6*-O-*Isopropylidene-D-galactose*
[56543-07-8]
$C_9H_{16}O_6$ 220.222
Mp 83-84°. $[\alpha]_D^{22}$ -23 (c, 2 in MeOH).

2,3:4,6-Di-O-*isopropylidene: 2,3:4,6-Di*-O-*Isopropylidene-D-galactopyranose*
$C_{12}H_{20}O_6$ 260.286
$[\alpha]_D$ -10.7 (c, 1.0 in $CHCl_3$).

2-Benzyl: 2-O-*Benzyl-D-galactose*
[53685-09-9]
$C_{13}H_{18}O_6$ 270.282
Mp 63-65° Mp 143-144° (dimorph.). $[\alpha]_D^{22}$ +58.5 → +61.5 (44 h) (c, 10.2 in H_2O) (low-melting form). $[\alpha]_D$ +47.1 → +64.4 (44 h) (c, 0.8 in H_2O) (high-melting form).

2-Benzyl, 1,3,4,6-tetrakis(4-nitrobenzoyl):
Mp 205-206°. $[\alpha]_D^{20}$ +75.4 (c, 0.8 in CH_2Cl_2).

2,3-Dibenzyl: 2,3-Di-O-*benzyl-D-galactose*
[53685-14-6]
$C_{20}H_{24}O_6$ 360.406
Mp 74-76°. $[\alpha]_D$ +5.3 (c, 2 in $CHCl_3$).

2,3,6-Tribenzyl: 2,3,6-Tri-O-*benzyl-D-galactose*
[55697-59-1]
$C_{27}H_{30}O_6$ 450.53
Syrup. $[\alpha]_D^{25}$ +13.5 (c, 2.7 in $CHCl_3$).

2,4,6-Tribenzyl: 2,4,6-Tri-O-*benzyl-D-galactose*
$C_{27}H_{30}O_6$ 450.53
Mp 123-124°. $[\alpha]_D^{22}$ +40.4 → +37.6 (24 h) (c, 1 in $CHCl_3$).

Dibenzyl dithioacetal, 4,5-O-*isopropylidene:* See Galactose dibenzyl dithioacetal, G-194

Phenylosazone: See Hexose phenylosazones, H-90

α-D-Pyranose-*form* [3646-73-9]
Mp 167°. $[\alpha]_D^{22}$ +150.7 → +80.2 (H_2O).

1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-α-D-galactopyranose*
$C_{14}H_{20}O_{10}$ 348.306
Mp 145-147°. $[\alpha]_D^{20}$ +145 ($CHCl_3$).

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-galactopyranose*
[22554-70-7]
$C_{14}H_{20}O_{10}$ 348.306
Mp 143-146° (133°). $[\alpha]_D^{22}$ +135 → +69.5 (48 h) (c, 2 in EtOH aq.).

Penta-Ac: See 1,2,3,4,6-Penta-*O*-acetylgalactose, P-16

1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenegalactopyranose, I-65

4,6-O-*Ethylidene: 4,6*-O-*Ethylidene-α-D-galactopyranose*
[13224-97-0]
$C_8H_{14}O_6$ 206.195
Cryst. (EtOH). Mp 185°. $[\alpha]_D^{23}$ +122 → +96 (c, 2.0 in H_2O).

1,2:3,4-Di-O-*cyclohexylidene, 6-tosyl: 1,2:3,4-Di*-O-*cyclohexylidene-6*-O-*tosyl-α-D-galactopyranose*
[33159-46-5]
$C_{25}H_{34}O_8S$ 494.605
Mp 45-60°. $[\alpha]_D$ -43.2 ($CHCl_3$).

4,6-O-*Benzylidene: 4,6*-O-*Benzylidene-α-D-galactopyranose*
[20771-09-9]
$C_{13}H_{16}O_6$ 268.266
Cryst. (butanone). Mp 192-194°. $[\alpha]_D$ +127.5 → +96.9 (6 h) (c, 0.5 in H_2O).

4,6-O-*Benzylidene, 2,3-dibenzyl: 2,3-Di*-O-*benzyl-4,6*-O-*benzylidene-α-D-galactopyranose*
$C_{27}H_{28}O_6$ 448.515
Needles (C_6H_6). Mp 153-155°. $[\alpha]_D$ +78.4 (c, 0.5 in $CHCl_3$).

2,3,4-Tribenzyl: 2,3,4-Tri-O-*benzyl-α-D-galactopyranose*
[42864-00-6]
$C_{27}H_{30}O_6$ 450.53
Mp 70-71°. $[\alpha]_D$ +72.5 (c, 0.8 in Et_2O).

2-Benzyl, 1,3,4,6-tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2*-O-*benzyl-α-D-galactopyranose*
[53872-77-8]
$C_{21}H_{26}O_{10}$ 438.43
$[\alpha]_D^{25}$ +87 (c, 0.83 in $CHCl_3$).

Me glycoside: See Methyl α-D-galactopyranoside, M-185

Ph glycoside: See Phenyl galactopyranoside, P-56

Allyl glycoside: See Allyl galactopyranoside, A-93

β-D-Pyranose-*form* [7296-64-2]
Mp 143-145°. $[\alpha]_D^{22}$ +52.8 → +80.2 (H_2O).

1-Ac: 1-O-*Acetyl-β-D-galactopyranose*
$C_8H_{14}O_7$ 222.194
Cryst. (MeOH/EtOAc). Mp 186-191° (partial dec.). $[\alpha]_D^{30}$ +15.6 (c, 1.5 in MeOH).

1,2,6-Tri-Ac: 1,2,6-Tri-O-*acetyl-β-D-galactopyranose*
[55639-96-8]
$C_{12}H_{18}O_9$ 306.269
Mp 100-120°. $[\alpha]_D^{20}$ +40 (c, 3.52 in $CHCl_3$).

1,2,3,6-Tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-β-D-galactopyranose*
[20721-61-3]
$C_{14}H_{20}O_{10}$ 348.306
Mp 139-140°. $[\alpha]_D$ +36 (c, 0.2 in $CHCl_3$).

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-galactopyranose*
$C_{14}H_{20}O_{10}$ 348.306
Cryst. or syrup. Mp 112°. $[\alpha]_D$ +31.1 → +79.9 ($CHCl_3$).

Penta-Ac: See 1,2,3,4,6-Penta-*O*-acetylgalactose, P-16

*2,3,4,6-Tetrabenzoyl, 1-Ac: 1-*O*-Acetyl-2,3,4,6-tetra-*O*-benzoyl-β-D-galactopyranose*
[50820-75-2]
$C_{36}H_{30}O_{11}$ 638.626
Syrup. $[\alpha]_D^{20}$ +62.3 (c, 2.16 in $CHCl_3$).

*2,6-Dibenzyl: 2,6-Di-*O*-benzyl-β-D-galactopyranose*
$C_{20}H_{24}O_6$ 360.406
Cryst. (CH_2Cl_2/MeOH). Mp 142-144°. $[\alpha]_D^{22}$ +18.9 → +22.9 (2 d) (c, 2.89 in MeOH).

2,3-Dibenzyl, 1,4,6-tris(4-nitrobenzoyl): Amorph. $[\alpha]_D$ -9.1 (c, 2.5 in $CHCl_3$).

2,3,4-Tribenzyl, 1,6-bis(4-nitrobenzoyl): Mp 152-153°. $[\alpha]_D$ -6.6 (c, 2 in $CHCl_3$).

Me glycoside: See Methyl β-D-galactopyranoside, M-186

Ph glycoside: See Phenyl galactopyranoside, P-56

Allyl glycoside: See Allyl galactopyranoside, A-93

Benzyl glycoside: See Benzyl galactopyranoside, B-15

α-D-Furanose-*form* [36468-82-3]

Penta-Ac: See 1,2,3,4,6-Penta-*O*-acetylgalactose, P-16

*Pentabenzoyl: 1,2,3,5,6-Penta-*O*-benzoyl-α-D-galactofuranose*
$C_{41}H_{32}O_{11}$ 700.697
Needles (MeOH/Me_2CO). Mp 168-169°. $[\alpha]_D$ +56 (c, 1 in $CHCl_3$). Formerly incorrectly descr. as penta-*O*-benzoyl-β-D-galactopyranose.

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylidenegalactofuranose, I-64

Me glycoside: See Methyl galactofuranoside, M-184

β-D-Furanose-*form* [7045-51-4]

Penta-Ac: See 1,2,3,4,6-Penta-*O*-acetylgalactose, P-16

2,3-Dibenzyl, tris(4-nitrobenzoyl): [55656-69-4]
Amorph. powder. $[\alpha]_D$ -5.5 (c, 2 in $CHCl_3$).

*Pentabenzoyl: 1,2,3,5,6-Penta-*O*-benzoyl-β-D-galactofuranose*
$C_{41}H_{32}O_{11}$ 700.697
Needles (Me_2CO). Mp 162-164°. $[\alpha]_D$ -30 (c, 1 in $CHCl_3$).

Me glycoside: See Methyl galactofuranoside, M-184

1-Phosphate: β-D-Galactofuranose 1-phosphate. β-D-Galactofuranose 1-(dihydrogenphosphate)
[39697-83-1]
$C_6H_{13}O_9P$ 260.137
Gum. $[\alpha]_D^{22}$ +15.5 (c, 1 in H_2O).

L-*form* [15572-79-9]
Occurs in agar-agar, chagual gum, red algae, flaxseed mucilage and a snail galactan. The L-galactose obt. from the hydrolysates of these polysaccharides can be freed from the enantiomer present by fermentation of the D-form.
Mp 163-165°. $[\alpha]_D^{22}$ -78 (H_2O).

Phenylhydrazone: Mp 158-160°. $[\alpha]_D$ +21.6 (H_2O).

2-Methyl-2-phenylhydrazone: Mp 189°. $[\alpha]_D$ -23 (MeOH).

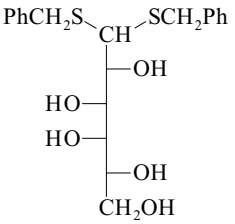
DL-*form*
Obt. by hydrol. of various polysaccharides.
Prisms. Mp 161°.

[4198-47-4, 41846-88-2, 41846-89-3, 42789-83-3]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 192A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 298B; 298C (*nmr*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 120 (*synth, D-form*)
Methods Carbohydr. Chem., 1962, **1**, 120; 122; 127 (*D-form, L-form*)
Araki, C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 122 (*synth, L-form*)
Frush, H.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 127 (*synth, L-form*)
Ball, D.H. *et al., J.O.C.*, 1966, **31**, 220 (*4,6-ethylidene-α-D-pyr*)
Grigg, R. *et al., J.C.S.(C)*, 1968, 1903 (*α-D-pyr benzylidene, α-D-pyr benzylidene dibenzyl*)
Jochims, J.C. *et al., Chem. Ber.*, 1970, **103**, 448 (*α-D-pyr diisopropylidene Ac, pmr, cmr*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1972, **25**, 35 (*β-D-fur phosphate*)
Stothers, J.B. *et al., Carbon-13 NMR Spectroscopy*, Academic Press, 1972,
Schaffer, R. *et al., The Carbohydrates*, 1972, **1A**, 69 (*occur*)
Schneider, J. *et al., Carbohydr. Res.*, 1974, **36**, 159 (*D-2-benzyl, β-D-2,6-dibenzyl*)
Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 367 (*D-pyr-4,6-isopropylidene, D-fur-5,6-isopropylidene, D-pyr-3,4-isopropylidene*)
Dmietriev, B.A. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1975, 142
D'Accorso, N.B. *et al., Carbohydr. Res.*, 1983, **124**, 177 (*α-D-fur pentabenzoyl, β-D-fur pentabenzoyl*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949 (*total synth, L-form*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib comp*)
Mikamo, M. *et al., Carbohydr. Res.*, 1989, **191**, 150 (*synth, bibl, α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
Sturgeon, R.J. *et al., Carbohydr. Res.*, 1990, **200**, 499 (*occur, enantiomers*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 774
Binch, H. *et al., Carbohydr. Res.*, 1998, **306**, 409-419 (*synth, L-form*)
Kroger, K. *et al., Eur. J. Ultrasound*, 1998, **8**, 17-24 (*use*)
Gómez, A.M. *et al., Carbohydr. Res.*, 1999, **320**, 138-142 (*2,3:4,6-diisopropylidene*)
Takeuchi, M. *et al., Synthesis*, 1999, 341-354 (*L-form, synth*)
Zinin, A.I. *et al., Carbohydr. Res.*, 2002, **337**, 635-642 (*β-D-pyr 1-Ac*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GAV000

Galactose dibenzyl dithioacetal G-194

Galactose dibenzyl mercaptal



$C_{20}H_{26}O_5S_2$ 410.554

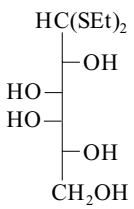
D-*form* [40733-07-1]
Cryst. (EtOH). Mp 144-146°. $[\alpha]_D^{20}$ -26.4 (Py).

*4,5-Isopropylidene: 4,5-*O*-Isopropylidene-D-galactose dibenzyl dithioacetal*
$C_{23}H_{30}O_5S_2$ 450.619
Needles (EtOH). Mp 102.5-103°. $[\alpha]_D^{20}$ +31 ($CHCl_3$).

Pacsu, E. *et al., Ber.*, 1929, **62**, 3008-3012 (*D-form, synth*)
Pacsu, E. *et al., J.A.C.S.*, 1939, **61**, 2444-2448 (*D-isopropylidene*)
Fernández Bolaños, J. *et al., An. Quim.*, 1973, **69**, 263-265 (*D-form, synth*)

Galactose diethyl dithioacetal G-195

Galactose diethylmercaptal, 8CI



$C_{10}H_{22}O_5S_2$ 286.413

D-*form* [5463-33-2]
Cryst. (H_2O). Mp 142-143°. $[\alpha]_D$ -4.8 (H_2O). $[\alpha]_D$ +6 (EtOH). $[\alpha]_D$ -3.5 (py).

*2,3,4,5,6-Penta-Ac: 2,3,4,5,6-Penta-*O*-acetyl-D-galactose diethyl dithioacetal*
[6935-10-0]
$C_{20}H_{32}O_{10}S_2$ 496.599
Mp 111-112°. $[\alpha]_D$ +13.6 ($CHCl_3$).

*5,6-*O*-Ethylidene: 5,6-*O*-Ethylidene-D-galactose diethyl dithioacetal*
[27539-51-1]
$C_{12}H_{24}O_5S_2$ 312.451
Mp 120°. $[\alpha]_D^{20}$ +72 (c, 1.3 in $CHCl_3$).

*4,5-Isopropylidene: 4,5-*O*-Isopropylidene-D-galadose diethyl dithioacetal*
[64609-11-6]
$C_{13}H_{26}O_5S_2$ 326.477
Mp 85-86.5° (82-83°). $[\alpha]_D^{24}$ +22 (c, 1.06 in MeOH) (+19).

*4,6-Isopropylidene: 4,6-*O*-Isopropylidene-D-galactose diethyl dithioacetal*
[99773-31-6]
$C_{13}H_{26}O_5S_2$ 326.477
Syrup. $[\alpha]_D^{24}$ +19 (c, 1.44 in $CHCl_3$).

*5,6-Isopropylidene: 5,6-*O*-Isopropylidene-D-galactose diethyl dithioacetal*
[99773-30-5]
$C_{13}H_{26}O_5S_2$ 326.477

Cryst. (CH_2Cl_2/petrol). Mp 84.5°. $[\alpha]_D^{24}$ +15 (c, 2.04 in MeOH).

*4,6-Cyclohexylidene: 4,6-*O*-Cyclohexylidene-D-galactose diethyl dithioacetal*
[99773-25-8]
$C_{16}H_{30}O_5S_2$ 366.542
Syrup. $[\alpha]_D^{25}$ -3 (c, 1.33 in $CHCl_3$).

*5,6-Cyclohexylidene: 5,6-*O*-Cyclohexylidene-D-galactose diethyl dithioacetal*
[99773-23-6]
$C_{16}H_{30}O_5S_2$ 366.542
Mp 101-101.5°. $[\alpha]_D^{24}$ +63 (c, 1.00 in $CHCl_3$).

*3,6-Cyclohexylidene: 3,6-*O*-Cyclohexylidene-D-galactose diethyl dithioacetal*
[99773-24-7]
$C_{16}H_{30}O_5S_2$ 366.542
Some nmr data presented. Obtained as a mixture of products.

*(*R*)-4,5-Benzylidene: (*R*)-4,5-*O*-Benzylidene-D-galactose diethyl dithioacetal*
[106450-95-7]
$C_{17}H_{26}O_5S_2$ 374.521
Cryst. (CH_2Cl_2/petrol). Mp 106-107°. $[\alpha]_D^{20}$ +5 (c, 3.72 in MeOH).

*(*S*)-4,5-Benzylidene: (*S*)-4,5-*O*-Benzylidene-D-galactose diethyl dithioacetal*
[106450-96-8]
$C_{17}H_{26}O_5S_2$ 374.521
Cryst. (CH_2Cl_2/petrol). Mp 85-86°. $[\alpha]_D^{20}$ +13 (c, 3.08 in MeOH).

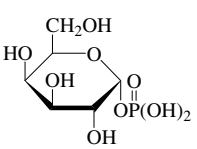
*5,6-Benzylidene: 5,6-*O*-Benzylidene-D-galactose diethyl dithioacetal*
[106450-87-7, 106450-88-8]
$C_{17}H_{26}O_5S_2$ 374.521
Cryst. (CH_2Cl_2/petrol). Mp 106-107°. $[\alpha]_D^{24}$ +66 (c, 3.53 in $CHCl_3$). Mixture of (*R*) and (*S*)-epimers.

*2,3:4,5-Diisopropylidene: 2,3:4,5-Di-*O*-isopropylidene-D-galactose diethyl dithioacetal*
[6207-30-3]
$C_{16}H_{30}O_5S_2$ 366.542
Syrup. $[\alpha]_D^{22}$ -67.7 (c, 3.9 in $CHCl_3$).

Fischer, E. *et al., Ber.*, 1894, **27**, 673-679 (*synth*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1930, **52**, 2464-2473 (*synth*)
Kochetkov, N.K. *et al., Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1962, 977-983 (*diisopropylidene*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1969, **11**, 547 (*ethylidene*)
Wander, J.D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **32**, 15-123 (*rev*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1985, **140**, 215 (*isopropylidene, cyclohexylidene derivs*)
Grindley, T.B. *et al., Can. J. Chem.*, 1986, **64**, 2388-2396; 2397-2403 (*benzylidene*)
Horton, D. *et al., Preparative Carbohydrate Chemistry*, (ed. Hanessian, S.), Dekker, 1997, 45

Galactose 1-dihydrogen phosphate, 8CI G-196

Galactose-1-phosphate



α-Pyranose-*form*

$C_6H_{13}O_9P$ 260.137

pK_{a1} 1; pK_{a2} 6.17.

α-D-Pyranose-*form* [2255-14-3]
Occurs in liver, milk, and yeasts. $[\alpha]_D^{25}$ +143 (H_2O). Yeast or bacterial preparations reversibly convert α-Galactose 1-phosphate into Glucose 6-phosphate *via* α-Glucose 1-phosphate.

Ba salt: $[\alpha]_D$ +92 (H_2O).

Di-K salt: [19046-60-7]
$[\alpha]_D^{22}$ +100 (c, 1.57 in H_2O).

Dicyclohexylammonium salt: Mp 147-153°. $[\alpha]_D^{26}$ +78.5 (H_2O).

β-D-Pyranose-*form* [2520-52-7]

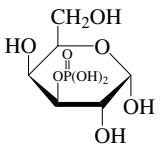
Ba salt: $[\alpha]_D$ +31.2 (H_2O).

Dicyclohexylammonium salt: Mp 145-151°. $[\alpha]_D^{26}$ +21 (H_2O).

Biochem. Prep., 1955, **4**, 1 (*synth*)
Putman, E.W. *et al., J.A.C.S.*, 1957, **79**, 5057
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)
Lee, C. *et al., Biochemistry*, 1976, **15**, 697 (*conformn, pmr*)

Galactose 3-dihydrogen phosphate G-197

Galactose-3-phosphate



α-D-Pyranose-*form*

$C_6H_{13}O_9P$ 260.137

D-*form*

Ba salt: [21063-51-4]
$[\alpha]_D^{22}$ +43.3 (c, 0.46 in H_2O).

Di-K salt: $[\alpha]_D^{18}$ +25.2 (c, 0.81 in H_2O).

α-D-Pyranose-*form*

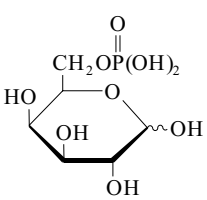
*1,2-*O*-Isopropylidene, 4,6-*O*-ethylidene:*
$C_{11}H_{19}O_9P$ 326.239
$[\alpha]_D^{18}$ -41.5 (c, 0.77 in H_2O).

*1,2-*O*-Isopropylidene, 4,6-*O*-ethylidene, Ba salt:* $[\alpha]_D^{20}$ -24 (c, 1.4 in H_2O).

Foster, A.B. *et al., J.C.S.*, 1951, 980
Chittenden, G.J.F. *et al., Biochem. J.*, 1968, **109**, 597 (*synth*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Galactose 6-dihydrogen phosphate, 9CI, 8CI G-198

Galactose-6-phosphate



Pyranose−*form*

$C_6H_{13}O_9P$ 260.137

D-*form* [6665-00-5] Metabolite or component of many organisms. $[\alpha]_D^{20}$ +36.5 (c, 0.6 in H_2O). Preparations have frequently contained the isomeric 3- and 5-phosphates as impurities; these were incorrectly identified as 6-phosphate furanose forms.

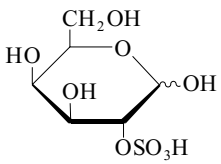
Ba salt: $[\alpha]_D^{25}$ +24.5 (H_2O).

α-D-Pyranose-*form*

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-*O*-isopropylidene-α-D-galactopyranose 6-dihydrogen phosphate*
$C_{12}H_{21}O_9P$ 340.266
$[\alpha]_D^{20}$ -17.9 (c, 1.6 in H_2O).

Foster, A.B. *et al., J.C.S.*, 1951, 980 (*synth*)
Todd, A.R. *et al., CA*, 1953, **47**, 6436 (*synth*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed. Academic Press, 1972, **1A**, 253 (*rev*)
Costello, A.J.R. *et al., Carbohydr. Res.*, 1975, **42**, 23 (*nmr*)
Wenger, W.C. *et al., Carbohydr. Res.*, 1981, **88**, 267 (*synth, purifn, bibl*)

Galactose 2-sulfate G-199



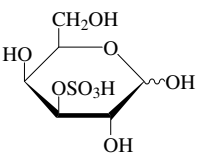
$C_6H_{12}O_9S$ 260.221

D-*form*

1,3,4,6-Tetra-Ac:
$C_{14}H_{20}O_{13}S$ 428.37
Mp 144-146°.

Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*synth, cmr*)

Galactose 3-sulfate G-200



α-D-Pyranose-*form*

$C_6H_{12}O_9S$ 260.221

D-*form* [17112-77-5]

*1,2:5,6-Di-*O*-isopropylidene:* [78880-28-1]
$C_{12}H_{20}O_9S$ 340.351
CAS no. refers to Ba salt.

Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177-190 (*1,2:5,6 diisopropylidene, synth, cmr*)
Koshy, K.M. *et al., Carbohydr. Res.*, 1997, **297**, 93-99 (*pmr, cmr, ir*)

Galactose 4-sulfate G-201

$C_6H_{12}O_9S$ 260.221

Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*cmr*)

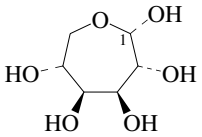
Galactose 6-sulfate G-202

$C_6H_{12}O_9S$ 260.221
The L-enantiomer is a component of the polysaccharides of *Porphyra umbilicalis*.

Peat, S. *et al., J.C.S.*, 1960, 4761 (*synth*)
Turvey, J.R. *et al., Nature (London)*, 1961, **189**, 831 (*isol*)

Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*cmr*)

Galactoseptanose G-203



α-D-*form*

$C_6H_{12}O_6$ 180.157

α-D-*form*

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-D-galactoseptanose*
$C_9H_{16}O_6$ 220.222
Prisms (C_6H_6/petrol). Mp 102-103°. $[\alpha]_D^{20}$ +18.9 (c, 0.5 in $CHCl_3$).

*1,2-*O*-Isopropylidene, tri-Ac: 3,4,5-Tri-*O*-acetyl-1,2-*O*-isopropylidene-α-D-galactoseptanose*
$C_{15}H_{22}O_9$ 346.333
Needles (petrol). Mp 103-104°. $[\alpha]_D$ +27.6 (c, 1.55 in $CHCl_3$).

*1,2:4,5-Di-*O*-isopropylidene, 3-Ac: 3-*O*-Acetyl-1,2:4,5-di-*O*-isopropylidene-α-D-galactoseptanose*
$C_{14}H_{22}O_7$ 302.324
Needles (petrol). Mp 118-121°. $[\alpha]_D^{23}$ -65.3 (c, 0.45 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene, 5-Ac: 5-*O*-Acetyl-1,2:3,4-di-*O*-isopropylidene-α-D-galactoseptanose*
$C_{14}H_{22}O_7$ 302.324
Cryst. or needles (petrol). Mp 103-104°.

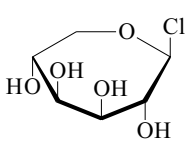
*Me glycoside, tetra-Ac: Methyl 2,3,4,5-tetra-*O*-acetyl-α-D-galactoseptanoside*
[74761-33-4]
$C_{15}H_{22}O_{10}$ 362.333
Needles (C_6H_6/petrol). Mp 110°. $[\alpha]_D^{23}$ +18 (c, 1.4 in $CHCl_3$).

β-D-*form*

*Me glycoside, tetra-Ac: Methyl 2,3,4,5-tetra-*O*-acetyl-β-D-galactoseptanoside*
[204331-85-1]
$C_{15}H_{22}O_{10}$ 362.333
Characterised spectroscopically.

Choong, W. *et al., Aust. J. Chem.*, 1980, **33**, 979-985 (*α-D-gly tetra-Ac, cryst struct*)
James, V.J. *et al., Carbohydr. Res.*, 1980, **82**, 167-174 (*1,2:3,4-diisopropylidene 5-Ac, cryst struct*)
McAuliffe, J.C. *et al., Synlett*, 1998, 307-309 (*β-D-Me gly tetra-Ac*)
Driver, G.E. *et al., Carbohydr. Res.*, 2001, **334**, 81-89 (*1,2-isopropylidene, 1,2-isopropylidene tri-Ac, 1,2:4,5-diisopropylidene 3-Ac*)

Galactoseptanosyl chloride G-204



$C_6H_{11}ClO_5$ 198.603
In view of the age of the work the reported struct. may be unreliable.

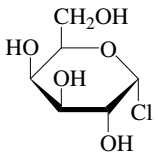
β-D-*form*

Syrup. $[\alpha]_D^{19}$ -79.5 ($CHCl_3$).

*Tetra-Ac: 2,3,4,5-Tetra-*O*-acetyl-β-D-galactoseptanosyl chloride*
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (Et_2O). Mp 108°. $[\alpha]_D^{20}$ +170 (c, 1.0 in $CHCl_3$).

Micheel, F. *et al., Annalen*, 1933, **507**, 138-143

Galactosyl chloride G-205



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-Pyranose-*form*

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-galactopyranosyl chloride*
$C_{12}H_{17}ClO_8$ 324.714
Mp 132°. $[\alpha]_D^{21}$ +207.8 ($CHCl_3$).

*3,4,6-Tri-Ac: 3,4,6-Tri-*O*-acetyl-α-D-galactopyranosyl chloride*
[51295-69-3]
$C_{12}H_{17}ClO_8$ 324.714
Syrup. $[\alpha]_D$ +157 (c, 1.0 in $CHCl_3$).

*2,3,4-Tri-Ac, 6-tosyl: 2,3,4-Tri-*O*-acetyl-6-O-tosyl-α-D-galactopyranosyl chloride*
$C_{19}H_{23}ClO_{10}S$ 478.903
Mp 120°. $[\alpha]_D^{19}$ +134.5 ($CHCl_3$).

3,4,6-Tri-Ac, 2-trichloroacetyl: 3,4,6-Tri-O-acetyl-2-O-(trichloroacetyl)-α-D-galactopyranosyl chloride
[51295-67-1]
$C_{14}H_{16}Cl_4O_9$ 470.086
$[\alpha]_D$ +132 (c, 1.0 in $CHCl_3$).

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-galactopyranosyl chloride*
[14227-87-3]
$C_{14}H_{19}ClO_9$ 366.751
Mp 75-76° (82-83°). $[\alpha]_D^{20}$ +212.3 ($CHCl_3$).

*2-Benzyl, 3,4,6-tri-Ac: 3,4,6-Tri-*O*-acetyl-2-O-benzyl-α-D-galactopyranosyl chloride*
[55287-61-1]
$C_{19}H_{23}ClO_8$ 414.839
Syrup. $[\alpha]_D^{23}$ +110.4 (c, 0.7 in $CHCl_3$).

*3,4,6-Tribenzyl, 2-Ac: 2-*O*-Acetyl-3,4,6-tri-O-benzyl-α-D-galactopyranosyl chloride*
$C_{29}H_{31}ClO_6$ 511.013
Syrup. $[\alpha]_D^{20}$ +126.5 (c, 0.82 in $CHCl_3$).

*Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzoyl-α-D-galactopyranosyl chloride*
[41110-63-8]
$C_{34}H_{35}ClO_5$ 559.1
$[\alpha]_D$ +147 (c, 2.0 in C_6H_6).

β-D-Pyranose-*form*

*3,4,6-Tri-Ac, 2-benzyl: 3,4,6-Tri-O-acetyl-2-*O*-benzyl-β-D-galactopyranosyl chloride*
[55287-66-6]
$C_{19}H_{23}ClO_8$ 414.839
$[\alpha]_D^{24}$ +45.8 (c, 0.6 in $CHCl_3$).

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-β-D-galactopyranosyl chloride*
[14227-88-4]
$C_{14}H_{19}ClO_9$ 366.751
Mp 93-94° dec. $[\alpha]_D^{20}$ +5.8 ($CHCl_3$).

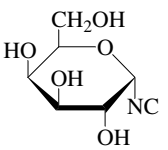
3,4,6-Tri-Ac, 2-(trichloroacetyl): [51295-68-2]
Needles (Et_2O/petrol). Mp 120-121°. $[\alpha]_D$ +14 (c, 1 in $CHCl_3$).

β-D-Furanose-*form*

*Tetra-Ac: 2,3,5,6-Tetra-*O*-acetyl-β-D-galactofuranosyl chloride*
[53765-89-2]
$C_{14}H_{19}ClO_9$ 366.751
Mp 67° dec. $[\alpha]_D^{20}$ -79.1 ($CHCl_3$).

Fischer, E. *et al., Ber.*, 1902, **35**, 836 (*α-tetra-Ac*)
Schlubach, H.H. *et al., Ber.*, 1930, **63**, 2295; 2298 (*β-pyr, β-fur, tetra-Ac*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1955, **10**, 207 (*rev*)
Austin, P.W. *et al., J.C.S.*, 1965, 1419
Suami, T. *et al., Carbohydr. Res.*, 1973, **26**, 234 (*tetrabenzyl*)
Collins, P.M. *et al., Carbohydr. Res.*, 1973, **31**, 1 (*α and β tri-Ac*)
Igarashi, K. *et al., Carbohydr. Res.*, 1974, **38**, 312
Kong, F. *et al., Carbohydr. Res.*, 1987, **162**, 217 (*tribenzyl*)

Galactosyl isocyanide G-206



α-D-Pyranose-*form*

$C_7H_{11}NO_5$ 189.168

α-D-Pyranose-*form*

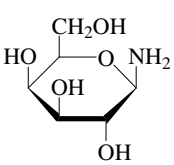
*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-galactopyranosyl isocyanide*
[66118-21-6]
$C_{15}H_{19}NO_9$ 357.316
Syrup.

β-D-Pyranose-*form*

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-β-D-galactopyranosyl isocyanide*
[66118-20-5]
$C_{15}H_{19}NO_9$ 357.316
Cryst. (MeOH). Mp 164-165°. $[\alpha]_D^{25}$ +32 (c, 1.5 in $CHCl_3$).

Martin-Lomas, M. *et al., Carbohydr. Res.*, 1977, **59**, 604-606 (*tetra-Ac*)
Witczak, Z.J. *et al., J. Carbohydr. Chem.*, 1984, **3**, 359-380 (*tetra-Ac, rev, bibl*)

Galactosylamine G-207



β-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [50444-86-5]
Mp 141° dec. $[\alpha]_D$ +64.1 → +58.1 (H_2O).

α-D-Pyranose-*form* [61138-98-5]

N-*Ac:* N-*Acetyl-α-D-galactopyranosylamine.* N-*α-D-galactopyranosylacetamide, 9CI*
[15354-92-4]
$C_8H_{15}NO_6$ 221.21
Mp 179-180°. $[\alpha]_D$ +194.9 (c, 2.0 in H_2O).

N,*2,3,4,6-Penta-Ac:* N-*Acetyl-2,3,4,6-tetra*-O-*acetyl-α-D-galactopyranosylamine*
[35923-05-8]
$C_{16}H_{23}NO_{10}$ 389.358
Cryst. (EtOH). Mp 172-173°. $[\alpha]_D$ +117.4 (c, 2.0 in $CHCl_3$).

N-*Ph:* N-*Phenyl-α-D-galactopyranosylamine*
$C_{12}H_{17}NO_5$ 255.27
Mp 141-143°. $[\alpha]_D$ -22.1 → -40.3 (MeOH).

N-*Ph, 2,3,4,6-tetra-Ac: 2,3,4,6-Tetra*-O-*acetyl*-N-*phenyl-α-D-galactopyranosylamine*
[42891-86-1]
$C_{20}H_{25}NO_9$ 423.419
Cryst. (MeOH). Mp 175-176°. $[\alpha]_D^{15}$ +202 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form* [6318-23-6]
Prisms. $[\alpha]_D$ +62.2 (c, 2.0 in H_2O).

N-*Ac:* N-*Acetyl-β-D-galactopyranosylamine.* N-*β-D-Galactopyranosylacetamide, 9CI*
[15354-93-5]
$C_8H_{15}NO_6$ 221.21
Mp 233°. $[\alpha]_D$ +9.8 (H_2O).

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-galactopyranosylamine*
[58484-22-3]
$C_{14}H_{21}NO_9$ 347.321
Mp 139°. $[\alpha]_D$ +26.7 (MeOH).

N,*2,3,4,6-Penta-Ac:* N-*Acetyl-2,3,4,6-tetra*-O-*acetyl-β-D-galactopyranosylamine*
[35923-06-9]
Cryst. (EtOH). Mp 173°. $[\alpha]_D$ +34.7 (c, 2.0 in $CHCl_3$).

N-*Ph:* N-*Phenyl-β-D-galactopyranosylamine*
[131176-28-8]
$C_{12}H_{17}NO_5$ 255.27
Mp 157-159°. $[\alpha]_D$ -114.7 → -56 (Py).

N-*Ph, 2,3,4,6-tetra-Ac: 2,3,4,6-Tetra*-O-*acetyl*-N-*phenyl-β-D-galactopyranosylamine*
[42891-47-4]
$C_{20}H_{25}NO_9$ 423.419
Mp 120-121°. $[\alpha]_D$ -31.4 ($CHCl_3$).

N-*(4-Methylphenyl):* [35946-71-5]
Mp 162-163°. $[\alpha]_D$ -46 → +10 (MeOH).

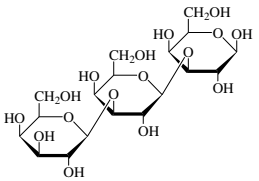
N-*(4-Nitrophenyl):* [25876-26-0]
Mp 218-219° dec. $[\alpha]_D^{26}$ -187 → -248 (c, 1.0 in Py).

N-*(4-Nitrophenyl), 2,3,4,6-tetra-Ac:*
[38730-24-4]
Mp 98-100°. $[\alpha]_D$ -68 (c, 1.1 in $CHCl_3$).

Butler, K. *et al., J.C.S.*, 1949, 3371 (*tetra-Ac anilides*)
Frush, H.L. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1951, **47**, 239 (*β-D-form, α-D-penta-Ac, β-D-penta-Ac*)
Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*β-D-form, derivs, rev*)
Magnin, A.A. *et al., Tetrahedron*, 1972, **28**, 3069 (*nitrophenyl tetra-Ac*)
Samudzi, C.T. *et al., Carbohydr. Res.*, 1985, **142**, 39 (*cryst struct*)
Lubineau, A. *et al., Carbohydr. Res.*, 1995, **266**, 211-219 (***synth***)
Isac-Garcia, J. *et al., Eur. J. Org. Chem.*, 2001, 383-390 (*α-D-penta-Ac, β-D-penta-Ac*)

Galactotriose G-208

O-*β-D-Galactopyranosyl-(1→3)*-O-*β-D-galactopyranosyl-(1→3)-D-galactose, 9CI*
[5077-30-5]



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Present in the partial hydrolysate of an arabinogalactan from Tamarack (*Larix laricina*); isol. from subabul (*Leucaena leucocephala*) gum. Constit. of the hydrolysate of a cashew-nut shell polysaccharide.
Mp 240-245° (216°). $[\alpha]_D$ +58 (+51) (H_2O).

α-Pyranose-*form*

Allyl glycoside, 2,4,4′,4″,6,6′,6″-heptabenzyl, 2′,2″,3″-tribenzoyl: [106238-79-3]
$C_{91}H_{90}O_{19}$ 1487.701
Syrup. $[\alpha]_{436}$ +1.7 ($CHCl_3$).

Allyl glycoside, 2,2′,4,4′,4″,6,6′,6″-octabenzyl, 2″,3″-dibenzoyl: [106375-17-1]
$C_{91}H_{92}O_{18}$ 1473.717
Syrup. $[\alpha]_D$ +26 ($CHCl_3$).

β-Pyranose-*form*

Undecabenzoyl: [130651-32-0]
$C_{95}H_{76}O_{27}$ 1649.629
Syrup. $[\alpha]_D$ +68.8 (c, 0.5 in $CHCl_3$).

Me glycoside: [99606-03-8]
$C_{19}H_{34}O_{16}$ 518.468
Cryst. Mp 233-235°. $[\alpha]_D$ +31.4 (H_2O).

Me glycoside, 3″-benzyl, nonabenzoyl:
[99605-99-9]
$C_{89}H_{76}O_{25}$ 1545.564
Syrup. $[\alpha]_D$ +58.3 ($CHCl_3$).

[71595-31-8]

Aspinall, G.O. *et al., J.C.S.*, 1958, 593
Bouveng, H.O. *et al., Acta Chem. Scand.*, 1959, **13**, 1884
Haq, S. *et al., Can. J. Chem.*, 1961, **39**, 1563
Bose, S. *et al., J. Indian Chem. Soc.*, 1972, **49**, 593
Honda, M.K. *et al., CA*, 1979, **91**, 153145e
Kovac, P. *et al., J.O.C.*, 1985, **50**, 5323 (*β-Me gly, synth, pmr, cmr*)
Chowdhary, M.S. *et al., Carbohydr. Res.*, 1986, **150**, 173 (*α-allyl gly, synth, pmr, cmr*)
Ziegler, T. *et al., J. Carbohydr. Chem.*, 1990, **9**, 135 (*undecabenzoyl synth, pmr, cmr*)
Soni, P.S. *et al., Indian J. Chem., Sect. B*, 1991, **30**, 843 (*isol*)

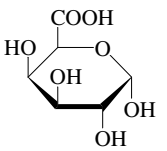
Galacturonan, 8CI G-209

Homogalacturonan
[9046-38-2]
[→4)-α-D-GalA*p*-(1→4)-α-D-GalA*p*-(1→4)-α-D-GalA*p*-(1→]
A polysaccharide contg. linear chains of (1→4)-linked α-D-galacturonic acid residues. Isol. as a subfraction of pectic acid preparations. Found as the major acidic polysaccharide in pectic complexes of sunflower heads. Occurs in pear juice (*Pyrus communis*), partly esterified.

Aspinall, G.O. *et al., The Carbohydrates*, 2nd edn. (Eds. Pigman W. *et al*), Academic Press, 1970, **2B**, 515 (*rev*)
Ovodov, Y.S. *et al., Khim. Prir. Soedin.*, 1975, **11**, 300; *Chem. Nat. Compd. (Engl. Transl.)*, 1975, **11**, 319 (*rev*)
Dick, A.J. *et al., Plant Physiol.*, 1989, **89**, 1394 (*occur*)

Galacturonic acid, 9CI, 8CI G-210

[14982-50-4]



α-D-Pyranose-*form*

$C_6H_{10}O_7$ 194.141

D-*form* [685-73-4]
Obt. from the hydrol. prods. of polymers of pectic substances.
Monohydrate.
Mp 156-159° dec. (sinters at 110°). $[\alpha]_D^{20}$ +98 → +50.9 (H_2O). Exists mostly in α-pyranose-form.

4-Bromophenylhydrazone: Mp 145-146°. $[\alpha]_D$ +9 (c, 0.7 in MeOH).

2,4-Dinitrophenylhydrazone: Mp 158° dec.

Me ester: Methyl D-galactopyranosuronate
[18486-47-0]
$C_7H_{12}O_7$ 208.168
Mp 147°. $[\alpha]_D^{25}$ +94 → +34 (c, 1.9 MeOH).

Di-Et dithioacetal:
$C_{10}H_{20}O_6S_2$ 300.396
Mp 132.5°. $[\alpha]_D^{27}$ +17 (MeOH).

2,3-Di-Me: 2,3-Di-O-*methyl-D-galacturonic acid*
[4060-32-6]
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D$ +62 (H_2O).

2,4-Di-Me: 2,4-Di-O-*methyl-D-galacturonic acid*
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D$ +93 (H_2O).

3,4-Di-Me: 3,4-Di-O-*methyl-D-galacturonic acid*
[58920-45-9]
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D$ +93 (H_2O). $[\alpha]_D$ +37 (EtOH).

Lactone: See 1,4-Galactonolactone, G-24

2,3,4-Tri-Me: 2,3,4-Tri-O-*methyl-D-galacturonic acid*
[4239-86-5]
$C_9H_{16}O_7$ 236.221

Mp 98-99° (hydrate). $[\alpha]_D$ +120 → +104 (H_2O).

α-D-Pyranose-*form* [6294-16-2]

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-α-D-galactopyranuronic acid*
$C_{14}H_{18}O_{11}$ 362.29
Cryst. (EtOAc/heptane). Mp 162-164°. $[\alpha]_D^{21}$ +124.9 (c, 1.0 in $CHCl_3$).

*1,2-*O*-Isopropylidene, Me ester:*
$C_{10}H_{16}O_7$ 248.232
Cryst. (EtOAc/heptane). Mp 92°. $[\alpha]_D^{22}$ -11.7 (c, 1.0 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene, Me ester: Methyl 1,2:3,4-di-*O*-isopropylidene-α-D-galactopyranosuronate*
[18524-41-9]
$C_{13}H_{20}O_7$ 288.297
Mp 54-58°.

*1,2:3,4-Di-*O*-benzylidene:* [17120-57-9]
$C_{20}H_{18}O_7$ 370.358
Mp 199-201°. CAS no. refers to Na salt (a syrup).

*1,2:3,4-Di-*O*-benzylidene, Me ester: Methyl 1,2:3,4-di-*O*-benzylidene-α-D-galactopyranosuronate*
[17120-58-0]
$C_{21}H_{20}O_7$ 384.385
Mp 148-150° (165°). $[\alpha]_D^{18}$ -168 ($CHCl_3$). $[\alpha]_D^{25}$ -126 (c, 1.0 in $CHCl_3$).

Me glycoside: See Methyl galactopyranosiduronic acid, M-187

β-D-Pyranose-*form* [18968-14-4]
Mp 160° dec. $[\alpha]_D^{20}$ +27 → +55.6 (H_2O).

Me glycoside: See Methyl galactopyranosiduronic acid, M-187

Benzyl glycoside: Benzyl β-D-galactopyranosuronide
$C_{13}H_{16}O_7$ 284.265
Powder. $[\alpha]_D^{22}$ -50.2 (c, 1.0 in MeOH).

*Benzyl glycoside, 2,3-dibenzyl: Benzyl 2,3-di-*O*-benzyl-β-D-galactopyranosiduronic acid*
[17120-54-6]
$C_{27}H_{28}O_7$ 464.514
Mp 150-152°. $[\alpha]_D^{25}$ -33.2 (c, 0.72 in $CHCl_3$).

*6→1-Lactone, tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-galactopyranurono-1,4-lactone*
$C_{12}H_{14}O_9$ 302.237
Cryst. (EtOH). Mp 99-100°. $[\alpha]_D^{20}$ -11.5 (c, 1.0 in $CHCl_3$).

β-D-Furanose-*form*

*Me glycoside, 2,3-di-Me, Me ester: Methyl (methyl 2,3-di-*O*-methyl-β-D-galactofuranosid)uronate*
$C_{10}H_{18}O_7$ 250.248
Syrup. $[\alpha]_D$ -64 (H_2O).

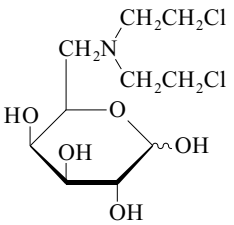
*Me glycoside, 2,3,5-tri-Me, Me ester: Methyl (methyl 2,3,5-tri-*O*-methyl-β-D-galactofuranosid)uronate*
$C_{11}H_{20}O_7$ 264.275
Mp 43°. $[\alpha]_D$ -129 (MeOH).

[17120-55-7]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 525C (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, 4th edn., J.A. Barth, Leipzig, 1935, 357 (*rev*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 131 (*Me ethers, rev*)
McCready, R.M. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 27; 57 (*α-D-pyr, α-D-pyr Me gly*)
Shah, R.H. *et al., Carbohydr. Res.*, 1967, **4**, 401 (*α-D-benzyl pyr 2,3-dibenzyl*)
David, S. *et al., Carbohydr. Res.*, 1967, **5**, 234 (*α-D-pyr diisopropylidene Me ester*)
Rees, D.A. *et al., J.C.S.(B)*, 1971, 1366 (*conformn, pmr*)
Vogel, C. *et al., J. Carbohydr. Chem.*, 1992, **11**, 287-303 (*6,1-lactone tri-Ac, synth, cryst struct*)
Vogel, C. *et al., Liebigs Ann./Recl.*, 1997, 737-743 (*α-D-pyr tetra-Ac, β-D-pyr benzyl gly*)
Vogel, C. *et al., Liebigs Ann./Recl.*, 1997, 1425-1428 (*Me ester isopropylidene*)
Tang, H.R. *et al., Carbohydr. Res.*, 2001, **330**, 391-399 (*cmr, cryst struct*)
Merck Index, 13th edn., 2001, No. 4358 (*bibl*)

Galamustine, INN G-211

6-[Bis(2-chloroethyl)amino]-6-deoxy-D-galactopyranose, 9CI. C6-Galactose mustard. C6-GLM
[105618-02-8]



$C_{10}H_{19}Cl_2NO_5$ 304.169
Antineoplastic agent (alkylating agent). Log P -1.57 (calc). Compd. exists as β-anomer chair conformn., α-anomer chair conformn. and several equilibrating boat conformns.

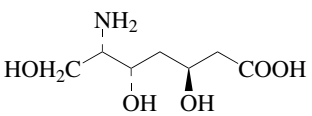
Hydrochloride: [107811-63-2]
Hygroscopic solid. $[\alpha]_D^{23}$ +53 → +57.
► LD_{10} (mus, ipr) 15.5 mg/kg. LW5437000

[103626-20-6, 103626-21-7]

Schein, P.S. *et al., Cancer Res.*, 1987, **47**, 696 (*pharmacol*)
Schein, P.S. *et al., J. Pharm. Sci.*, 1989, **78**, 918 (*synth, pmr, pharmacol*)

Galantinic acid G-212

6-Amino-2,4,6-trideoxy-L-xylo-heptonic acid, 9CI. 6-Amino-3,5,7-trihydroxyheptanoic acid
[78330-63-9]



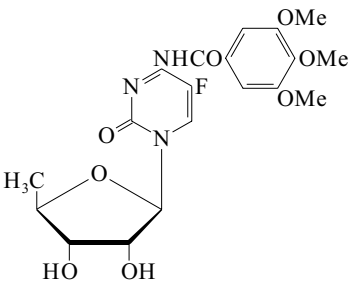
$C_7H_{15}NO_5$ 193.199
Formerly represented as cyclic anhydro ether. Struct. revised to acyclic form in 1990. Constit. amino acid of Galantin I.
Cryst. (MeOH aq.).
Mp 125-130° dec. $[\alpha]_D^{25}$ -29.4 (c, 0.5 in H_2O).

[130914-23-7]

Ando, T. *et al., Pept. Chem.*, 1980, 113
Wakamiya, T. *et al., Bull. Chem. Soc. Jpn.*, 1984, **57**, 142 (*isol, cd, pmr, cmr*)
Ohfune, Y. *et al., Tet. Lett.*, 1984, **25**, 1587 (*synth, pmr*)
Golebiowski, A. *et al., Tet. Lett.*, 1989, **30**, 7103 (*synth*)
Sakai, N. *et al., J.A.C.S.*, 1992, **114**, 998-1010 (*synth, struct*)
Kumar, J.S.R. *et al., Tet. Lett.*, 1999, **40**, 1381-1384 (*synth*)
Moreau, X. *et al., Tet. Lett.*, 2001, **42**, 4467-4469 (*synth*)
Pandey, S.K. *et al., Tet. Lett.*, 2004, **45**, 5877-5879 (*synth*)

Galocitabine, INN G-213

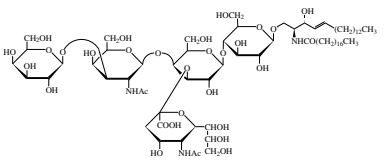
*5′-Deoxy-5-fluoro-*N*-(3,4,5-trimethoxybenzoyl)cytidine, 9CI. Ro 09-1390*
[124012-42-6]



$C_{19}H_{22}FN_3O_8$ 439.396
Antineoplastic agent. Cryst. (EtOAc/Et_2O). Mp 170-171°. Log P -1.56 (calc). Prodrug of 2′-Deoxy-5-fluorouridine, D-114.

Eur. Pat., 1989, 316 704, (*Hoffmann-La Roche*); *CA*, **112**, 7857z (*synth, pharmacol*)
Miwa, M. *et al., Chem. Pharm. Bull.*, 1990, **38**, 998 (*pharmacol*)
Nio, Y. *et al., Anti-Cancer Drugs*, 1992, **3**, 387 (*pharmacol*)
Funaki, T. *et al., J. Pharm. Biomed. Anal.*, 1993, **11**, 379 (*hplc*)

Gangliosides G-214



A large class of glycosphingolipids composed of hexoses, Sphingosine, fatty acids and sialic acids. The differences between the gangliosides are mainly in the carbohydrate moieties. Four major gangliosides referred to as GM_1 (illus.), DD_{1a}, GD_{1b}, GT_{1b}. Found in the CNS and widely distributed in other tissues. Gangliosides are the main cause of cell surface negative charge. They are also thought to be involved in many different cell functions e.g. metabolism, growth and malignant transformation.
A monoganglioside prepn. has been used in the treatment of cerebrovascular disorders.

Ganglioside GM_1

Ganglioside G_1. Siagoside. Sygen
[37758-47-7]
$C_{73}H_{131}N_3O_{31}$ 1546.839

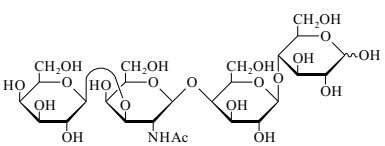
Isol. from bovine brain. Constit. of mammalian vertebrate cell membranes. Particularly abundant in the central and peripheral nervous systems. Used in the treatment of peripheral neuropathies, cerebrovascular disorders and spinal cord injury. Positive effects still need to be confirmed. Now used in the treatment of Parkinson's disease.

[19553-76-5, 19600-01-2, 54827-14-4, 59247-13-1, 62010-37-1, 69345-49-9, 71012-19-6, 85305-87-9, 85305-88-0, 89678-50-2]

Kuhn, R. *et al., Chem. Ber.*, 1963, **96**, 866-880 (*isol, struct*)
Klenk, E. *et al., Prog. Chem. Fats Other Lipids*, 1970, **10**, 411
Gigg, R.H. *et al., Rodd's Chem. Carbon Compd. (3rd edn.)*, 1976, **1E**, 394
Sillerud, L.O. *et al., Carbohydr. Res.*, 1983, **113**, 173-188 (*cmr*)
Fishman, P.H. *et al., Chem. Phys. Lipids*, 1986, **42**, 137-151 (*rev, props*)
Sonnino, S. *et al., Adv. Exp. Med. Biol.*, 1988, **228**, 437 (*rev*)
Jack, D.B. *et al., J. Clin. Pharm. Ther.*, 1990, **15**, 233 (*rev*)
Skaper, S.D. *et al., Adv. Exp. Med. Biol.*, 1991, **296**, 257-266 (*rev*)
Rost, K.L. *et al., Clin. Pharmacol. Ther. (St. Louis)*, 1991, **50**, 141-149 (*pharmacokinet*)
Rodden, F.A. *et al., J. Neurosurg.*, 1991, **74**, 606 (*rev*)
Sandhoff, K. *et al., Adv. Lipid Res.*, 1993, **26**, 119 (*rev, metab, biosynth*)
Hasegawa, A. *et al., J. Carbohydr. Chem.*, 1993, **12**, 703-718 (*synth, GM1*)
Walker, J.B. *et al., Neurosci. Lett.*, 1993, **161**, 174-178 (*bibl*)
Nobile-Orazio, E. *et al., Drugs*, 1994, **47**, 576-585 (*rev, struct, pharmacol, tox*)
Schneider, J.S. *et al., Neurology*, 1995, **45**, 1149-1154 (*anti-Parkinsonian pilot study*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1708
Ishida, H. *et al., J. Carbohydr. Chem.*, 1997, **16**, 413-428 (*synth*)
Duclos, R.I. *et al., Carbohydr. Res.*, 2000, **328**, 489-507 (*synth, GM3*)
Bhattacharya, S.K. *et al., J.O.C.*, 2000, **65**, 144-151 (*synth, GM1*)
Ito, H. *et al., J. Carbohydr. Chem.*, 2001, **20**, 207-225 (*synth*)

Gangliotetraose G-215

β-D-Galactopyranosyl-(1→3)-2-acetamido-2-deoxy-β-D-galactopyranosyl-(1→4)-β-D-galactopyranosyl-(1→4)-D-glucose. β-D-Galactopyranosyl-(1→3)-β-D-N-acetylgalactosamine-(1→4)-β-D-galactopyranosyl-(1→4)-D-glucose
[75645-24-8]

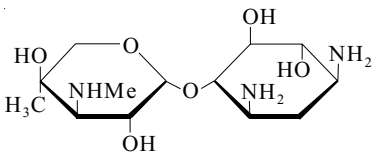


$C_{26}H_{45}NO_{21}$ 707.636
Principal neutral oligosaccharide of brain gangliosides in higher animals. Syrup. $[\alpha]_D^{24}$ +17 (c, 0.5 in MeOH).

Paulsen, H. *et al., Carbohydr. Res.*, 1985, **137**, 39 (*synth, pmr*)
Davidsson, P. *et al., J. Chromatogr.*, 1989, **496**, 279 (*gangliotetraose, gangliosides, anal*)
Pat. Coop. Treaty (WIPO), 1991, 9 108 748; *CA*, **115**, 270663x (*synth*)

Garamine G-216

2-Deoxy-6-O-[3-deoxy-4-C-methyl-3-(methylamino)-β-L-arabinopyranosyl]-D-streptamine, 9CI
[49751-51-1]

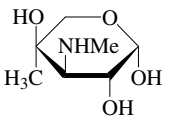


$C_{13}H_{27}N_3O_6$ 321.373
Component of Sisomicin, S-45. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{26}$ +135.4 (H_2O).
▶ LD_{50} (mus, ivn) 220 mg/kg.

Kugelman, M. *et al., J. Antibiot.*, 1973, **26**, 394
Umezawa, S. *et al., Adv. Carbohydr. Chem. Biochem.*, 1974, **30**, 111 (*rev*)
Daniels, P. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)

Garosamine G-217

3-Deoxy-4-C-methyl-3-(methylamino)-arabinose, 9CI, 8CI



β-L-Pyranose-*form*

$C_7H_{15}NO_4$ 177.2

L-form [29914-71-4]
Sugar component of Gentamicin C, G-227, an antibiotic complex isol. from fermentations of *Micromonospora*.

β-L-Pyranose-*form*

Me glycoside, N-*Ac:*
$C_{10}H_{19}NO_5$ 233.264
Cryst. (EtOH). Mp 190-196°. $[\alpha]_D^{26}$ +217 (c, 0.3 in H_2O).

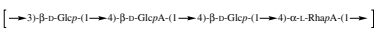
Me glycoside, N-*benzoyl:*
$C_{15}H_{21}NO_5$ 295.335
$[\alpha]_D^{20}$ +178.5 (c, 0.5 in $CHCl_3$).

Me glycoside: Methyl 3-deoxy-4-C-methyl-3-(methylamino)-β-L-arabinopyranoside. Methyl β-garosamide
$C_8H_{17}NO_4$ 191.227
$[\alpha]_D^{26}$ +209 (c, 0.3 in H_2O).

Cooper, D.J. *et al., J.C.S.(C)*, 1971, 960 (*struct, abs config, Me gly N-Ac*)
Morton, J.B. *et al., J.A.C.S.*, 1973, **95**, 7464 (*cmr*)
Wright, J.J. *et al., J.O.C.*, 1978, **43**, 1968 (*synth*)
Pauls, H.W. *et al., Can. J. Chem.*, 1984, **62**, 1532 (*synth*)

Gellan G-218

PS60. Gel-Gro. Gelrite. Kelcogel. Phytagel. E418
[71010-52-1]

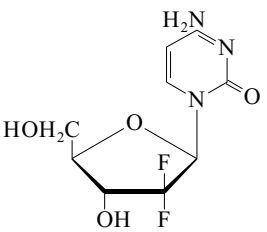


Polysaccharide. Struct. of backbone shown: also contains *ca.* 1Ac per repeating unit as well as some L-glycerate and poly(β-hydroxybutyrate) repeating units. Polysaccharide prod. by *Pseudomonas elodea*. Shows useful rheological props. Thickener and stabiliser for foods, also used in cell and tissue cultures.
Samples contain variable amounts of cations, props. vary with degree of salt formn.

O'Neill, M.A. *et al., Carbohydr. Res.*, 1983, **124**, 123
Jansson, P.E. *et al., Carbohydr. Res.*, 1983, **124**, 135
Talashek, T.A. *et al., Carbohydr. Res.*, 1987, **160**, 303 (*props*)
Chandrasekaran, R. *et al., Carbohydr. Res.*, 1988, **175**, 1; **181**, 23 (*cryst struct*)
Doner, L.W. *et al., Carbohydr. Res.*, 1995, **273**, 225-233 (*purifn, props*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1169-1170 (*props*)

Gemcitabine, BAN, INN, USAN G-219

2′-Deoxy-2′,2′-difluorocytidine, 9CI. LY 188011. dFdC
[95058-81-4]



$C_9H_{11}F_2N_3O_4$ 263.2
Antineoplastic agent (alkylating agent), antiviral agent, antimetabolite. Antineoplastic agent for treatment of lung and pancreatic tumours. Nucleoside transporter substrate. Launched 1995 (South Africa, Netherlands). Worldwide 66th best selling prescription drug as Gemzar ($0.88 bn, 2002) (Eli Lilly) (Med Ad News). Cryst. $[\alpha]_D$ +71.51 (c, 0.96 in MeOH). Log P -1.54 (calc).

Hydrochloride: ***Gemcitabine hydrochloride, USAN****. Gemzar*
[122111-03-9]
Cryst. (H_2O). Mp 287-292°.
▶ Exp. reprod. and fetotoxic effects.
HA3840000

[95058-85-8, 122111-03-9, 122111-04-0, 134790-42-4]

Hertel, L.W. *et al., J.O.C.*, 1988, **53**, 2406 (*synth, pmr, cmr*)
Plunkett, W. *et al., Nucleosides Nucleotides*, 1988, **8**, 775 (*rev*)
Baker, C.H. *et al., J. Med. Chem.*, 1991, **34**, 1879 (*pharmacol*)
Chou, T.S. *et al., Synthesis*, 1992, 565 (*synth, ir, uv, cmr, bibl*)
Lund, B. *et al., Cancer Treat. Rev.*, 1993, **19**, 45 (*use, rev*)
Huang, P. *et al., Cancer Chemother. Pharmacol.*, 1995, **36**, 181 (*pharmacol*)
Freeman, K.B. *et al., J. Chromatogr., B: Biomed. Appl.*, 1995, **665**, 171 (*hplc*)
Kawai, M. *et al., Xenobiotica*, 1995, **25**, 405 (*metab, rat, dog*)

Guchelaar, H.-J. *et al., Cancer Treat. Rev.*, 1996, **22**, 15 (*rev*)
Noble, S. *et al., Drugs*, 1997, **54**, 447-472 (***rev***)
Burke, T. *et al., J. Pharmacol. Exp. Ther.*, 1998, **286**, 1333-1340 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 538
Clarke's Analysis of Drugs and Poisons, 3rd edn., (eds. Moffat, A.C. *et al*), Pharmaceutical Press, 2004, 1075 (*props, hplc, uv, ir*)

Gentamicin A_1 G-220

Gentiomycin A_1
[55925-13-8]
As Gentamicin A, G-224 with R^1 = OH, R^2 = H, R^3 = NHMe, R^4 = OH, R^5 = NH_2

$C_{18}H_{36}N_4O_{10}$ 468.503

Isol. from *Micromonospora purpurea* and *Micromonospora echinospora*. Aminoglycoside antibiotic. Solid. Sol. H_2O; poorly sol. EtOH, hexane. $[\alpha]_D^{25}$ +141 (c, 0.44 in H_2O). Log P -6.66 (uncertain value) (calc).

▶ LD_{50} (mus, ivn) 330 mg/kg.

6′-Me: ***6′-Methylgentamicin A_1***
[66322-27-8]
$C_{19}H_{38}N_4O_{10}$ 482.53

From *Micromonospora purpurea-nigrescens*. Active against gram-positive and -negative bacteria, and mycobacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{20}$ +156 (H_2O).

▶ WK2132500

Nagabhushan, T.L. *et al., J.O.C.*, 1975, **40**, 2830 (*isol, ms, ir, pmr, cmr, struct*)
Nagabhushan, T.L. *et al., Tet. Lett.*, 1975, 747 (*cmr, abs config*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*deriv*)
Berdy, J. *et al., CA*, 1981, **95**, 78387 (*deriv*)

Gentamicin A_2 G-221

Gentiomycin A_2
[55715-66-7]
As Gentamicin A, G-224 with R_1 = H, R_2 = R_3 = R_4 = OH, R_5 = NH_2

$C_{17}H_{33}N_3O_{11}$ 455.461

Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea* and *Micromonospora echinospora*. Solid. Sol. H_2O; poorly sol. EtOH, hexane. $[\alpha]_D^{26}$ +141 (c, 0.4 in H_2O). Log P -7.18 (uncertain value) (calc).

▶ LD_{50} (mus, ivn) 560 mg/kg. WK2128000

Nagabhushan, T.L. *et al., J.O.C.*, 1975, **40**, 2830; 2835 (*isol, ir, ms, nmr, struct*)
Nagabhushan, T.L. *et al., Tet. Lett.*, 1975, 747 (*cmr, abs config*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)

Gentamicin A_3 G-222

Gentiomycin A_3
[55715-67-8]
As Gentamicin A, G-224 with R_1 = OH, R_2 = H, R_3 = NHMe, R_4 = NH_2, R_5 = OH

$C_{18}H_{36}N_4O_{10}$ 468.503

Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea* and *Micromonospora echinospora*. Sol. H_2O; poorly sol. EtOH, H_2O. Log P -6.64 (uncertain value) (calc).

▶ LD_{50} (mus, ivn) 300 mg/kg. WK1970700

Hydrochloride (1:4): $[\alpha]_D^{26}$ +130 (c, 0.1 in H_2O).

Nagabhushan, T.L. *et al., J.O.C.*, 1975, **40**, 2830 (*isol, ms, pmr, cmr, struct*)
Nagabhushan, T.L. *et al., Tet. Lett.*, 1975, 747 (*cmr, abs config*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)

Gentamicin A_4 G-223

Gentiomycin A_4
[55904-33-1]
As Gentamicin A, G-224 with R^1 = H, R^2 = OH, R^3 = NMeCHO, R^4 = OH, R^5 = NH_2

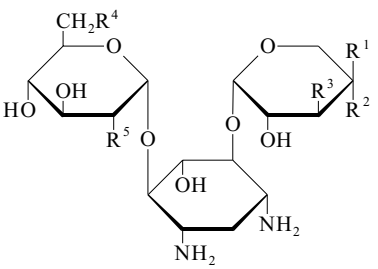
$C_{19}H_{36}N_4O_{11}$ 496.514

Isol. from *Micromonospora purpurea* and *Micromonospora echinospora*. Sol. H_2O; poorly sol. EtOH, hexane. $[\alpha]_D^{26}$ +130 (c, 0.1 in H_2O). Log P -6.91 (uncertain value) (calc).

Nagabhushan, T.L. *et al., J.O.C.*, 1975, **40**, 2830 (*isol, ms, pmr, cmr, struct*)
Nagabhushan, T.L. *et al., Tet. Lett.*, 1975, 747 (*cmr, abs config*)

Gentamicin A G-224

Gentiomycin A. KM 444B_{1a}. Antibiotic KM 444B_{1a}
[13291-74-2]



R^1 = H, R^2 = OH,
R^3 = NHMe, R^4 = OH,
R^5 = NH_2

$C_{18}H_{36}N_4O_{10}$ 468.503

Aminoglycoside antibiotic. Isol. from *Micromonospora* spp. Broad spectrum antibiotic. Prismatic needles + 1½ H_2O (MeOH aq.). Sol. H_2O, insol. EtOH; Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane.
Mp 200° dec. (sinters and loses H_2O at 151-154°). $[\alpha]_D^{23}$ +136 (c, 1.0 in H_2O). Log P -6.66 (uncertain value) (calc).

▶ LD_{50} (mus, ipr) 1750 mg/kg; LD_{50} (mus, ivn) 33I mg/kg , LD_{50} (mus, ipr) 1750 mg/kg , LD_{50} (mus, scu) 3000 mg/kg. WK1971000

6′-Me: ***6′-Methylgentamicin A***
[66277-09-6]
$C_{19}H_{38}N_4O_{10}$ 482.53

From *Micromonospora purpurea-nigrescens*. Active against gram-positive and -negative bacteria, and mycobacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D$ +140 (H_2O).

▶ LD_{50} (mus, ivn) 240 mg/kg.

[1405-41-0]

Maehr, H. *et al., J. Chromatogr.*, 1967, **30**, 572 (*isol*)
Maehr, H. *et al., J.A.C.S.*, 1970, **92**, 1697 (*struct, nmr, stereochem*)
Nagabhushan, T.L. *et al., J.O.C.*, 1975, **40**, 2830 (*struct, ms, pmr, cmr*)
Nagabhushan, T.L. *et al., Tet. Lett.*, 1975, 747 (*cmr, abs config*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*deriv*)
Shibata, M. *et al., Agric. Biol. Chem.*, 1980, **44**, 2507
Berdy, J. *et al., CA*, 1981, **95**, 78387 (*deriv*)

Gentamicin B_1 G-225

Gentiomycin B_1
[36889-16-4]
As Gentamicin B, G-226 with R^1 = NH_2, R^2 = CH_3, R^3 = OH

$C_{20}H_{40}N_4O_{10}$ 496.557

Aminoglycoside antibiotic. Minor metab. from *Micromonospora purpurea* and *Micromonospora echinospora*. Shows antibacterial activity similar to other Gentamicins. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ivn) 230 mg/kg , LD_{50} (mus, ipr) 1800 mg/kg.

3′,4′-Dideoxy: ***Gentoximicin B***
[78184-78-8]
$C_{20}H_{40}N_4O_8$ 464.558

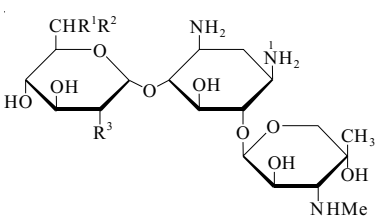
Prod. by *Micromonospora purpurea nigrescens*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ipr) 250 mg/kg.

Waitz, J.A. *et al., Antimicrob. Agents Chemother.*, 1972, **2**, 464
Ger. Pat., 1972, 2 130 113; *CA*, **77**, 18089k (*struct*)
Daniels, P.J. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)

Gentamicin B G-226

Betamicin, INN. *Gentiomycin B. Sch 14342. Antibiotic Sch 14342*
[36889-15-3]



R^1 = NH_2, R^2 = H, R^3 = OH

$C_{19}H_{38}N_4O_{10}$ 482.53

Aminoglycoside antibiotic. Prod. by *Micromonospora* spp. Shows broad-spectrum activity. Sol. H_2O, MeOH, Py, DMF; fairly sol. EtOH; poorly sol. butanol, hexane. $[\alpha]_D^{26}$ +155 (c, 0.3 in H_2O). Log P -6.12 (uncertain value) (calc).

▶ LD_{50} (mus, ivn) 278 mg/kg , LD_{50} (mus, ipr) 1750 mg/kg. WK1974000

Sulfate (1:x): ***Betamicin sulfate, USAN***
[43169-50-2]

▶ WK1974100Launched 1988

1-N-*[(S)-3-Amino-2-hydroxypropanoyl]:* ***Isepamicin, BAN, INN, USAN****. Isepacin. Sch 21420. Antibiotic Sch 21420. HAPA-B*
[58152-03-7]
$C_{22}H_{43}N_5O_{12}$ 569.608
Semisynthetic. Shows clinical potential; has increased activity with lower toxicity than Gentamicin B. Powder + $2H_2SO_4$. $[\alpha]_D^{26}$ +110.9 (c, 1 in H_2O). Log P -7 (uncertain value) (calc).

▶ LD_{50} (mus, ipr) 5000 mg/kg. WK1973000

3′,4′-Dideoxy: ***Gentoximicin A***
[67777-28-0]
$C_{19}H_{38}N_4O_8$ 450.531
Prod. by *Micromonospora purpurea nigrescens*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

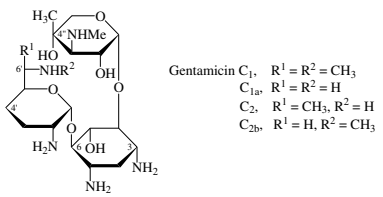
▶ LD_{50} (mus, ipr) 200 mg/kg.

[1405-41-0]

Waitz, J.A. *et al., Antimicrob. Agents Chemother.*, 1972, **2**, 464
U.S. Pat., 1975, 3 915; *CA*, **84**, 29191 (*synth, pharmacol*)
Finland, M. *et al., J. Infect. Dis.*, 1976, **134**, 57 (*pharmacol*)
Nagabhushan, T.L. *et al., J. Antibiot.*, 1978, **31**, 681; 688 (*deriv*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 174
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AKJ000

Gentamicin C G-227

Garamycin. Gentiomycin C



Aminoglycoside antibiotic complex. Consists of a mixt. of closely related and structurally similar components of which the most important are Gentamicins C_1, C_{1a}, C_2 and C_{2b}. Isol. from *Micromonospora* spp. Broad-spectrum antibiotic. Most extensively clinically used aminoglycoside antibiotic. Gentamicin, BAN, INN is a mixt. of components.

▶ Ototoxic, nephrotoxic effects and other adverse effects reported when used therapeutically.

Gentamicin C_1 [25876-10-2]
$C_{21}H_{43}N_5O_7$ 477.6
Sol. H_2O, Py, AcOH; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 94-100°. $[\alpha]_D^{25}$ +158 (H_2O).

▶ LD_{50} (mus, ivn) 88 mg/kg. LY2468000

Tri-Ac: Mp 206-225°. $[\alpha]_D^{25}$ +143 (MeOH).

4″-Demethyl: ***4″-Demethylgentamicin C_1***
[66322-28-9]
$C_{20}H_{41}N_5O_7$ 463.573
From *Micromonospora purpurea-nigrescens*. Active against gram-positive and -negative bacteria, and mycobacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D$ +142 (H_2O).

▶ LD_{50} (mus, ivn) 75 mg/kg. WK2191000

Gentamicin C_{1a} [26098-04-4]
$C_{19}H_{39}N_5O_7$ 449.546
Sol. H_2O, AcOH, Py; fairly sol. MeOH; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ivn) 70 mg/kg. WK2290000

1-N-*Et:* ***1*-N-*Ethylgentamicin C_{1a}***. *Antibiotic 89-07*
[59711-96-5]
$C_{21}H_{43}N_5O_7$ 477.6
Prod. by *Micromonospora echinospora*. Active against gram-positive and -negative bacteria. Powder. Sol. H_2O. λ_{max} 200 (H_2O).

3″-N-*De-Me:* ***3″*-N-*Demethylgentamicin C_{1a}***
[59864-29-8]
$C_{18}H_{37}N_5O_7$ 435.52
Prod. by *Micromonospora sagamiensis*. Active against gram-positive and -negative bacteria. Powder. Sol. H_2O. λ_{max} 200 (H_2O).

4″-Demethyl: ***4″-Demethylgentamicin C_{1a}***
[61769-70-8]
$C_{18}H_{37}N_5O_7$ 435.52
From *Micromonospora purpurea-nigrescens*. Active against gram-positive and -negative bacteria, and mycobacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D$ +144 (H_2O).

Gentamicin C_2 [25876-11-3]
$C_{20}H_{41}N_5O_7$ 463.573
Sol. H_2O, AcOH, Py; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 107-124°. $[\alpha]_D^{25}$ +160 (H_2O).

▶ LD_{50} (mus, ivn) 70 mg/kg. LY2840000

Tri-Ac: Mp 206-222°. $[\alpha]_D^{25}$ +151 (MeOH).

3″-N-*De-Me:* See Antibiotic Y 02077Hγ, A-780

6′-Epimer: ***Gentamicin C_{2a}***
[59751-72-3]
$C_{20}H_{41}N_5O_7$ 463.573
From *Micromonospora* spp. Sol. H_2O; poorly sol. Me_2CO, hexane.

4″-Demethyl: ***4″-Demethylgentamicin C_2***
[66277-10-9]
$C_{19}H_{39}N_5O_7$ 449.546
From *Micromonospora purpurea-nigrescens*. Active against gram-positive and -negative bacteria, and mycobacteria. $[\alpha]_D$ +148 (H_2O).

▶ WK2231100

Gentamicin C_{2b} ***Micronomicin, INN, JAN****. Sagamicin. Santemycin. KW 1062. XK 62-2. Antibiotic KW 1062. Antibiotic XK 62-2*
[52093-21-7]
$C_{20}H_{41}N_5O_7$ 463.573
Amorph. solid + $\frac{1}{2}H_2O$. Mp 260° dec. $[\alpha]_D$ +116 (c, 1 in H_2O). Log P -4.08 (uncertain value) (calc).

▶ LD_{50} (mus, orl) 15600 mg/kg. Exp. reprod. and teratogenic effects (large dose). WK2180000

Hemipentasulfate: ***Micronomicin sulfate***

3″-N-*De-Me:* ***3″*-N-*Demethylsagamicin****. XK 62-5. Antibiotic XK 62-5*
[59864-28-7]
$C_{19}H_{39}N_5O_7$ 449.546
From *Micromonospora sagamiensis nonreducans*. Powder. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. butanol, hexane.

5-Deoxy: ***5-Deoxygentamicin C_{2b}***
[88416-32-4]
$C_{20}H_{41}N_5O_6$ 447.574
Prod. by *Micromonospora purpurea* in the presence of D-Streptamine. Active against gram-positive and -negative bacteria. Sol. H_2O.

5-Deoxy, 6′-N-*Me:*
$C_{21}H_{43}N_5O_6$ 461.601
Prod. by *Micromonospora purpurea*. Active against gram-positive and -negative bacteria. Sol. H_2O.

2-Hydroxy: ***2-Hydroxysagamicin***
[77052-96-1]
$C_{20}H_{41}N_5O_8$ 479.573
Prod. by *Micromonospora sagamiensis* and *Micromonospora purpurea*. Shows broad spectrum antibacterial activity. Powder + H_2O.
Mp 102-112° dec. $[\alpha]_D^{25}$ +158 (c, 0.5 in H_2O).

▶ WK2195500

2-Hydroxy, 6′-N-*Me:* [88426-42-0]
$C_{21}H_{43}N_5O_8$ 493.599
Prod. by *Micromonospora purpurea* in the presence of D-Streptamine. Active against gram-positive and -negative bacteria. Solid + $1.75H_2SO_4$ + $4.5H_2O$.
Mp 244-246°.

[1403-66-3, 1405-41-0]

Weinstein, M.J. *et al., J. Med. Chem.*, 1963, **6**, 463 (*isol*)
Cooper, D.J. *et al., J.C.S.(C)*, 1971, 2876; 3126 (*isol, ms, nmr, struct*)
Morton, J.B. *et al., J.A.C.S.*, 1973, **95**, 7464 (*cmr*)
Okachi, R. *et al., J. Antibiot.*, 1974, **27**, 793 (*isol, uv, ir, pmr*)
Egan, R.S. *et al., J. Antibiot.*, 1975, **28**, 29 (*struct*)
Daniels, P.J.L. *et al., J. Antibiot.*, 1975, **28**, 35 (*isol, struct, ir, pmr*)
Testa, R.T. *et al., J. Antibiot.*, 1976, **29**, 140 (*isol, biosynth*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*deriv*)
Nagabhushan, T.L. *et al., J. Antibiot.*, 1978, **31**, 43 (*deriv*)
Rosenkrantz, B.E. *et al., Anal. Profiles Drug Subst.*, 1980, **9**, 295 (*rev*)
Japan. Pat., 1980, 80 50 896; *CA*, **93**, 184271 (*XK 62-5*)
Berdy, J. *et al., CA*, 1981, **95**, 78387 (*deriv*)
Davies, D.H. *et al., J.C.S. Perkin 1*, 1981, 2151 (*deriv*)
Japan. Pat., 1981, 81 01 892; *CA*, **95**, 40840s (*3″-N-Demethylgentamicin C1a*)
Ohkoshi, M. *et al., Jpn. J. Antibiot.*, 1982, **35**, 691 (*Micronomicin*)
Odakura, Y. *et al., J. Antibiot.*, 1983, **36**, 125 (*biosynth, isol*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 6413 (*synonyms*)
Shepherd, M.J. *et al., Food Contaminants: Sources and Surveillance*, Royal Society of Chemistry, London, 1991, 123 (*anal, rev*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **2**, 904 (*rev, aminoglycosides*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 169; 182

Lesniak, W. *et al., Carbohydr. Res.*, 2003, **338**, 2853-2862 (*purifn*)
Deubner, R. *et al., Magn. Reson. Chem.*, 2003, **41**, 589-598 (*pmr, cmr*)
Unwin, J. *et al., J. Antibiot.*, 2004, **57**, 436-445 (*biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MQS579

Gentamicin G 418 G-228

Geneticin. Gentiomycin G 418. G 418. Antibiotic G 418
[49863-47-0]
As Gentamicin B, G-226 with
R_1 = OH, R_2 = CH_3, R_3 = NH_2
$C_{20}H_{40}N_4O_{10}$ 496.557
Prod. by *Micromonospora* spp. Shows broad-spectrum activity. Amorph. powder. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.
Mp 138-144°. $[\alpha]_D^{26}$ +149 (c, 0.3 in H_2O).
▶ LD_{50} (mus, ivn) 140 mg/kg , LD_{50} (mus, ivn) 260 mg/kg , LD_{50} (mus, scu) 1000 mg/kg. WK2132600

[49662-05-7]

Wagman, G.H. *et al., Antimicrob. Agents Chemother.*, 1974, **6**, 144 (*struct*)
Testa, R.T. *et al., J. Antibiot.*, 1975, **28**, 573 (*struct*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Kase, H. *et al., J. Antibiot.*, 1982, **35**, 1 (*isol*)

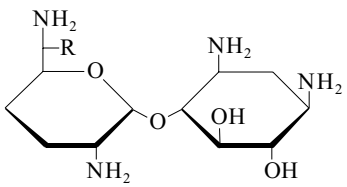
Gentamicin X_2 G-229

Gentiomycin X_2
[36889-17-5]
As Gentamicin B, G-226 with
R_1 = OH, R_2 = H, R_3 = NH_2
$C_{19}H_{38}N_4O_{10}$ 482.53
Aminoglycoside antibiotic. Prod. by *Micromonospora purpurea* and *Micromonospora echinospora*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{20}$ +77 (c, 0.78 in H_2O). Major component of Gentamicin X complex.
▶ LD_{50} (mus, ivn) 225 mg/kg , LD_{50} (mus, ipr) 1800 mg/kg. WK1973500

Waitz, J.A. *et al., Antimicrob. Agents Chemother.*, 1972, **2**, 464
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Kugelman, M. *et al., J.C.S. Perkin 1*, 1976, 1097 (*synth*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 322 (*synth*)
Kase, H. *et al., J. Antibiot.*, 1982, **35**, 1 (*isol*)

Gentamine C_{1a} G-230

3′,4′-Dideoxyneamine. 3′,4′-Dideoxyneomycin A. VII-6
[35025-95-7]



R = H

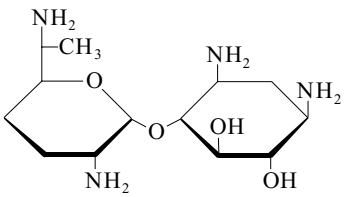
$C_{12}H_{26}N_4O_4$ 290.362

Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea-nigrescens*. Degradn. prod. of Gentamicin C_{1a}. Active against gram-positive bacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane. $[\alpha]_D^{20}$ +102 (c, 1 in H_2O).

Copper, D.J. *et al., J.C.S.(C)*, 1971, 3126 (*struct*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 3507 (*synth*)
Morton, J.B. *et al., J.A.C.S.*, 1973, **95**, 7464 (*cmr*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078; 1981, 2209 (*cmr, ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Reid, R.J. *et al., J. Med. Chem.*, 1981, **24**, 1487 (*synth, cmr*)
Barton, D.H.R. *et al., J. Carbohydr. Chem.*, 1982, **1**, 105 (*synth*)

Gentamine C_2 G-231

[51053-38-4]

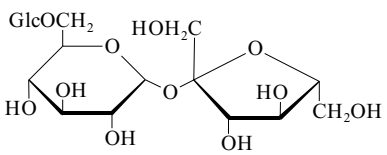


$C_{13}H_{28}N_4O_4$ 304.389
Aminoglycoside antibiotic. Isol. from *Micromonospora purpurea-nigrescens*. Degradn. prod. of Gentamicin C_2. Active against gram-positive bacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{20}$ +92 (H_2O).
▶ LD_{50} (mus, ivn) 225 mg/kg.
$N^{6'}$-*Me:* ***Gentamine C_1***
[51053-37-3]
$C_{14}H_{30}N_4O_4$ 318.415
Isol. from *Micromonospora purpurea-nigrescens*. Degradn. prod. of Gentamicin C_1. Active mainly against gram-positive bacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane. $[\alpha]_D^{20}$ +88 (H_2O).
▶ LD_{50} (mus, ivn) 250 mg/kg.

Copper, D.J. *et al., J.C.S.(C)*, 1971, 3126 (*struct*)
Morton, J.B. *et al., J.A.C.S.*, 1973, **95**, 7464 (*cmr*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078; 1981, 2209 (*cmr, ms*)
Berdy, J. *et al., J. Antibiot.*, 1977, **30**, 945 (*isol*)
Ikeda, D. *et al., J. Antibiot.*, 1979, **32**, 1357 (*synth*)

Gentianose G-232

β-D-Fructofuranosyl O-*β-D-glucopyranosyl-(1→6)-α-D-glucopyranoside, 9CI, 8CI. β-D-Glucopyranosyl-(1→6)-α-D-glucopyranosyl-(1→2)-β-D-fructofuranoside*
[25954-44-3]



$C_{18}H_{32}O_{16}$ 504.441

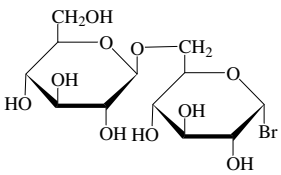
Occurs in roots of various spp. of gentian (*Gentiana lutea* (yellow gentian), *Gentiana purpurea, Gentiana asclepiadea, Gentiana punctata, Gentiana cruciata*). Formed by the action of levansucrase on 6-*O*-β-D-Glucopyranosyl-D-glucose, G-410 and Sucrose, S-92.
Mp 212°. $[\alpha]_D^{25}$ +30.8 (c, 0.5 in H_2O).

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 80-93°. $[\alpha]_D^{20}$ +32.2 (c, 0.85 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1923, 3120
Suami, T. *et al., Carbohydr. Res.*, 1972, **21**, 451 (*synth, pmr*)
Samuelson, O. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 66 (*chromatog*)

Gentiobiosyl bromide G-233

6-O-β-D-Glucopyranosyl-α-D-glucopyranosyl bromide



$C_{12}H_{21}BrO_{10}$ 405.196

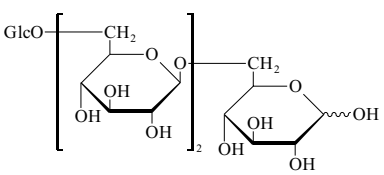
α-D-*form*

Hepta-Ac: Hepta-O-*acetylgentiobiosyl bromide. Acetobromogentiobiose*
[14187-83-8]
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 144°. $[\alpha]_D^{20}$ +108 (c, 1.25 in $CHCl_3$).

Takiura, K. *et al., Chem. Pharm. Bull.*, 1972, **20**, 438 (*synth*)
Excoffier, G. *et al., Carbohydr. Res.*, 1976, **46**, 207 (*synth, pmr*)

Gentiotetraose, 8CI G-234

β-D-Glucopyranosyl-(1→6)-[β-D-glucopyranosyl-(1→6)]$_2$-D-glucose, 9CI
[37796-39-7]



$C_{24}H_{42}O_{21}$ 666.583
Formed in the hydrolysates of Pustulan, P-112, lutean, gyrophoran and gentio-oligosaccharides.
$[\alpha]_D$ -14.5 (c, 2 in H_2O).

β-Pyranose-*form*

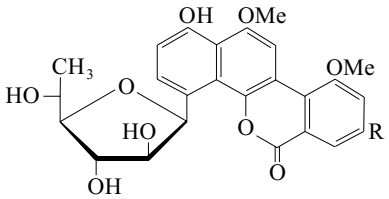
Tetradeca-Ac: Mp 211-213° (135°). $[\alpha]_D^{20}$ -10 (c, 1.0 in $CHCl_3$).

Trideca-Ac, 6‴-trichloroacetyl: Mp 176-177°. $[\alpha]_D^{20}$ -6 (c, 2.0 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1954, **8**, 985 (*isol*)
McGrath, D. *et al., Carbohydr. Res.*, 1969, **11**, 453
Shibata, Y. *et al., CA*, 1973, **79**, 14893m (*synth*)
Excoffier, G. *et al., Carbohydr. Res.*, 1976, **46**, 201 (*synth, pmr*)

Gilvocarcin E G-235

Toromycin C. Anandimycin C
[80937-34-4]



R= CH_2CH_3

$C_{27}H_{28}O_9$ 496.513

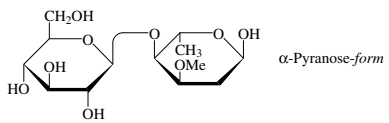
Glycoside antibiotic. Isol. from *Streptomyces anandii* ssp. *araffinosus*. Poorly sol. hexane.
Mp 210-212°. Strain also produces Gilvocarcins V and M. λ_{max} 243; 265; 274; 305; 327; 382 (MeOH) (Berdy).

Tetra-Ac: Mp 207-208°.

Balitz, D.M. *et al., J. Antibiot.*, 1981, **34**, 1544

Glaucobiose G-236

*4-O-β-D-Glucopyranosyl-2,6-dideoxy-3-O-methyl-L-*ribo*-hexose. 4-O-β-D-Glucopyranosyl-L-cymarose*
[85571-31-9]



α-Pyranose-*form*

$C_{13}H_{24}O_9$ 324.327
$[\alpha]_D$ -72.6 (c, 0.81 in H_2O) (-67.1).

α-Pyranose-*form*

Me glycoside: Methyl α-glaucobioside
[85571-33-1]
$C_{14}H_{26}O_9$ 338.354
Needles. Mp 143-145°. $[\alpha]_D$ -156 (c, 1 in MeOH).

β-Pyranose-*form*

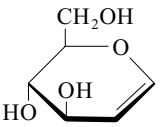
Me glycoside: Methyl β-glaucobioside
[85571-32-0]
$C_{14}H_{26}O_9$ 338.354
Needles. Mp 95-98°. $[\alpha]_D^{16}$ -30 (c, 0.36 in MeOH).

Penta-Ac: [85571-34-2]
$C_{23}H_{34}O_{14}$ 534.513
Mp 163-165.5°. $[\alpha]_D$ -33.2 (c, 1.71 in $CHCl_3$).

Nakagawa, T. *et al., Tet. Lett.*, 1982, **23**, 5431-5434 (*isol, Me glycosides, cmr*)
Nakagawa, T. *et al., Chem. Pharm. Bull.*, 1983, **31**, 2244-2253 (*isol, penta-Ac*)
Tsukamoto, S. *et al., Chem. Pharm. Bull.*, 1985, **33**, 4807-4814 (*isol, Me glycosides*)

Glucal G-237

*1,5-Anhydro-2-deoxy-*arabino*-hex-1-enitol, 9CI. 1,2-Dideoxy-*arabino*-hex-1-enopyranose, 8CI. Mannal*



$C_6H_{10}O_4$ 146.143

D-*form* [13265-84-4]

Cryst. Mp 57-59°. $[\alpha]_D^{20}$ -10.2 (c, 1.9 in H_2O).

*Tri-Ac: 3,4,6-Tri-*O*-acetyl-D-glucal*
[2873-29-2]
$C_{12}H_{16}O_7$ 272.254
Mp 54-55°. $[\alpha]_D$ -16 (EtOH).

Tripivaloyl: [104445-19-4]
$C_{21}H_{34}O_7$ 398.495
Mp 100-103°. $[\alpha]_D$ -31 (c, 1.01 in $CHCl_3$) (room temp.).

*Tribenzoyl: 3,4,6-Tri-*O*-benzoyl-D-glucal*
[13322-90-2]
$C_{27}H_{22}O_7$ 458.467
$[\alpha]_D^{22}$ -8.1 (c, 5 in $CHCl_3$).

*3-Me: 3-*O*-Methyl-D-glucal*
$C_7H_{12}O_4$ 160.169
Mp 62-63°. $[\alpha]_D$ +14 ($CHCl_3$).

*3-Me, 4,6-di-Ac: 4,6-Di-*O*-acetyl-3-O-methyl-D-glucal*
[60584-32-9]
$C_{11}H_{16}O_6$ 244.244
$[\alpha]_D$ -33 ($CHCl_3$).

*Tri-Me: 3,4,6-Tri-*O*-methyl-D-glucal*
[16740-98-0]
$C_9H_{16}O_4$ 188.223
$[\alpha]_D$ +20 (H_2O).

*Tribenzyl: 3,4,6-Tri-*O*-benzyl-D-glucal*
[55628-54-1]
$C_{27}H_{28}O_4$ 416.516
Mp 55°. $[\alpha]_D^{22}$ -2.7 (c, 16.5 in $CHCl_3$).

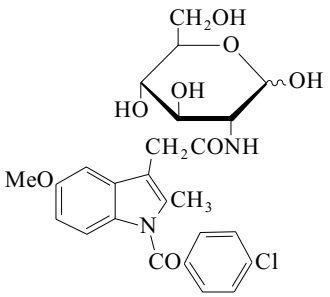
L-*form*

3,6-Dibenzyl: [547763-60-0]
$C_{20}H_{22}O_4$ 326.391
Oil. $[\alpha]_D^{20}$ +35 (c, 1 in $CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 625B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1057B; **2**, 213C (*nmr*)
Bergmann, M. *et al., Ber.*, 1921, **54**, 440-455 (*synth, struct*)
Levene, P.A. *et al., J. Biol. Chem.*, 1930, **88**, 513; 1931, **90**, 89 (*tri-Ac, 3-Me*)
Hirst, E.L. *et al., J.C.S.*, 1931, 1131-1137 (*struct*)
Lundt, I. *et al., Acta Chem. Scand.*, 1966, **20**, 1369-1375 (*D-tribenzoyl*)
Descotes, G. *et al., J. Het. Chem.*, 1975, **12**, 91-93 (*DL-tribenzyl*)
Guthrie, R.D. *et al., Aust. J. Chem.*, 1980, **33**, 1037 (*cmr*)
Yoelter, W. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 1042 (*cryst struct*)
Czernecki, S. *et al., J.O.C.*, 1986, **51**, 5472-5475 (*synth*)
Shull, B.K. *et al., J. Carbohydr. Chem.*, 1996, **15**, 955-964 (*tri-Ac, !synth*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1999, **72**, 751-756 (*D-tri-Ac, D-tribenzyl*)
Kovács, G. *et al., Tetrahedron*, 1999, **55**, 5253-5264 (*triesters, synth, pmr*)
Boulineau, F.P. *et al., J.O.C.*, 2004, **69**, 3391-3399 (*L-3,6-dibenzyl, synth, pmr, cmr*)

Glucametacin, INN G-238

*2-[[[1-(4-Chlorobenzoyl)-5-methoxy-2-methyl-1*H*-indol-3-yl]acetyl]amino]-2-deoxyglucose, 9CI. Indometacin glucosamide. Euminex. Eutrivan. Indicin. Indoglucin. Indosamide. Teorema. Teoremac. Teoremin*
[52443-21-7]



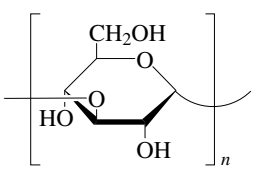
$C_{25}H_{27}ClN_2O_8$ 518.95
Antiinflammatory, antipyretic agent. Log P 1.13 (uncertain value) (calc).

▶ LZ6775000

Ger. Pat., 1973, 2 223 051; *CA*, **80**, 88529e (*synth, tox, pharmacol*)
Paroli, E. *et al., Arzneim.-Forsch.*, 1978, **28**, 819 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 17

α-D-(1 →3)-Glucan G-239

[9051-95-0]

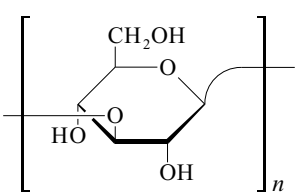


Prod. by *Streptococcus mutans*, the fungus *Piptoporus betulinus*, the bracket fungus *Laetiporus sulphureus*, the basidiomycete *Grifola frondosa*, the yeast *Schizosaccharomyces pombe* and many other bacteria, fungi and yeasts.

Manners, D.J. *et al., Carbohydr. Res.*, 1977, **57**, 189-203 (*isol*)
Ogawa, K. *et al., Carbohydr. Res.*, 1979, **75**, C13-C16 (*cryst struct*)
Kato, K. *et al., Carbohydr. Res.*, 1990, **198**, 149-152 (*isol*)
James, P.G. *et al., Carbohydr. Res.*, 1990, **206**, 167-172 (*isol, cmr, bibl*)
Tylianakis, M. *et al., Carbohydr. Res.*, 1999, **315**, 16-34 (*cmr*)

β-D-(1 →3)-Glucan G-240

Pachyman. Callose. Paramylon
[51052-65-4]



Isol. from many fungi, bacteria, plants and algae. A practical laboratory source is the fungus *Poria cocos* (94% of dry weight). Synthetic source of 3-*O*-β-D-Glucopyranosyl-D-glucose, G-408, Laminaritriose, L-22 and higher homologues. Sol. H_2O. Curdlan below is a well-studied variant having n = 540. Also closely related is Laminarin, L-20 which has a limited amount of chain branching.

Curdlan

Cerdlan. Kerdlan. TAK-N

[54724-00-4]

Extracellular polysaccharide prod. by *Alcaligenes faecalis* var. *myxogenes*, structural or reserve polysaccharide of yeasts, fungi and higher plants. Gelling agent for foods. Claimed to show anti-HIV activity by inhibiting attachment of the virus to T-cells. Insol. H_2O but absorbs H_2O. Suspensions heated >54° form a firm gel. Phase 1 clinical trials (1995)

Sulfate: ***Curdlan sulfate***

[115743-28-7] Semisynthetic polysaccharide. Used in the treatment of AIDS myelopathy, dementia.

Wheelan, W.J. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 330 (*isol, bibl*)

Harada, T. *et al., ACS Symp. Ser.*, 1977, **45**, 265 (*rev, synth, props, use*)

Marchenault, R.H. *et al., Carbohydr. Res.*, 1979, **75**, 231-242 (*struct*)

Deslandes, Y. *et al., Macromolecules*, 1980, **13**, 1466 (*cryst struct, bibl*)

Saito, H. *et al., Bull. Chem. Soc. Jpn.*, 1986, **59**, 2093; 1987, **60**, 4259; 1989, **62**, 392 (*conformn, cmr*)

Okuyama, K. *et al., J. Carbohydr. Chem.*, 1991, **10**, 645-656 (*Curdlan, struct*)

Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **16**, 595

Demleitner, S. *et al., Carbohydr. Res.*, 1992, **226**, 239; 247 (*synth, pharmacol*)

Kai, A. *et al., Carbohydr. Res.*, 1993, **240**, 153 (*bibl, biosynth*)

Gordon, M. *et al., J. Med. (Westbury, N.Y.)*, 1994, **25**, 163-180; 1995, **26**, 97-131; 1997, **28**, 108-128 (*pharmacol, curdlan sulfate*)

Yoshida, T. *et al., Carbohydr. Res.*, 1995, **276**, 425 (*curdlan sulfate*)

Alban, S. *et al., Thromb. Res.*, 1995, **78**, 201 (*curdlan sulfate*)

Kulicke, W.M. *et al., Carbohydr. Res.*, 1997, **297**, 135-143 (*struct, props*)

Müller, A. *et al., Carbohydr. Res.*, 1997, **299**, 203-208 (*isol, purifn*)

Masihi, K.N. *et al., Int. J. Immunopharmacol.*, 1997, **19**, 463-468 (*curdlan sulfate*)

Tylianakis, M. *et al., Carbohydr. Res.*, 1999, **315**, 16-34 (*cmr*)

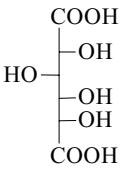
Shimizu, J. *et al., Biosci., Biotechnol., Biochem.*, 2001, **65**, 466-469 (*curdlan*)

Naito, T. *et al., J. Acquir. Immune Defic. Syndr.*, 2001, **26**, 512-513 (*curdlan sulfate*)

Glucaric acid, 9CI, 8CI G-241

Saccharic acid. Glucosaccharic acid. Hydroxalic acid. Metatartaric acid†. *Gularic acid*

[25525-21-7]



$C_6H_{10}O_8$ 210.14

For stereoisomers see Galactaric acid, G-2, Allaric acid, A-74, Idaric acid, I-1 and Mannaric acid, M-23.

D-form

D-Glucaric acid. L-Gularic acid

[87-73-0]

Readily obt. from glucose, obt. comly. by HNO_3 oxidn. (40%) yield).

A normal minor constit. of mammalian urine. Present in apples and grapefruit. Inexpensive starting material for industrial and laboratory synthesis, e.g. of biodegradable detergents. Used by glucuronyl transferase in glucuronidation pathway in mammals. Shows antitumour and hypocholesterolaemic props. V. sol. H_2O.

Mp 125-126°. $[\alpha]_D^{19}$ +6.9 → +20.6 (18 d) (H_2O). pK_a 5. Delequescent, free acid difficult to crystallise.

Mono-K salt: [576-42-1]

Mp 188° dec. $[\alpha]_D^{21}$ +5 (c, 1 in H_2O).

Di-K salt: [84864-60-8]

$[\alpha]_D$ +12.6 (H_2O).

Dicyclohexylammonium salt: [19139-85-6]

Cryst. (2-propanol aq.). Mp 191-192°.

Bisphenylhydrazide: [7404-38-8]

Mp 212°.

Di-Me ester: Dimethyl D-glucarate

[3868-17-5]

$C_8H_{14}O_8$ 238.194

Cryst. (EtOAc). Mp 162-163°. $[\alpha]_D^{20}$ +53 (c, 1.0 in MeOH).

Diamide: Glucaric diamide. Glucaramide

[6614-50-2]

$C_6H_{12}N_2O_6$ 208.171

Mp 172-173°. $[\alpha]_D^{20}$ +13.3 (H_2O).

Bis(methylamide): N,N′-*Dimethyl-D-glucaranide. Glucaric bis(methylamide)*

$C_8H_{16}N_2O_6$ 236.224

Solid. Mp 188-191°.

*Tetra-Ac, di-Me ester: Dimethyl 2,3,4,5-tetra-*O*-acetyl-D-glucarate*

$C_{16}H_{22}O_{12}$ 406.343

Cryst. (EtOH). Mp 112-114°. $[\alpha]_D^{20}$ +30 (c, 1.0 in MeOH).

*3,4-*O*-Isopropylidene, di-Me ester: Dimethyl 3,4-*O*-isopropylidene-D-glucarate*

$C_{11}H_{18}O_8$ 278.258

$[\alpha]_D$ +18.8 (c, 1.05 in $CHCl_3$).

*3,4-*O*-Isopropylidene, diamide: 3,4-*O*-Isopropylidene-D-glucaric diamide*

$C_9H_{16}N_2O_6$ 248.235

Mp 186-187°. $[\alpha]_D$ +28 (c, 2 in H_2O).

*2,4-*O*-Benzylidene, di-Me ester: Dimethyl 2,4-*O*-benzylidene-D-glucarate*

$C_{15}H_{18}O_8$ 326.302

Cryst. (EtOH). Mp 143-144°. $[\alpha]_D^{27}$ +72.6 (c, 1 in Py).

*2,4-*O*-Benzylidene, diamide: 2,4-*O*-Benzylidene-D-glucaric diamide*

$C_{13}H_{16}N_2O_6$ 296.279

Mp 214-216° dec.

*2,4-*O*-Benzylidene, 5-Ac, di-Me ester: Dimethyl 5-*O*-acetyl-2,4-*O*-benzylidene-D-glucarate*

[25873-87-4]

$C_{17}H_{20}O_9$ 368.34

Cryst. (EtOH). Mp 185-186°. $[\alpha]_D^{27}$ +34.3 (c, 1.05 in $CHCl_3$).

*2,4-*O*-Benzylidene, 3,5-di-Ac, di-Me ester: Dimethyl 3,5-di-*O*-acetyl-2,4-*O*-benzylidene-D-glucarate*

[25873-91-0]

$C_{19}H_{22}O_{10}$ 410.377

Cryst. (EtOH). Mp 150-151°. $[\alpha]_D^{27}$ +19.6 (c, 1.02 in $CHCl_3$).

*2,4-*O*-Benzylidene, 5-benzoyl, 3-Ac, di-Me ester: Dimethyl 3-*O*-acetyl-5-*O*-benzoyl-2,4-*O*-benzylidene-D-glucarate*

[25873-94-3]

$C_{24}H_{24}O_{10}$ 472.448

Cryst. (EtOH aq.). Mp 75-78°. $[\alpha]_D^{27}$ -28 (c, 1.01 in $CHCl_3$).

*2,3:4,5-Di-*O*-benzylidene, di-Me ester: Dimethyl 2,3:4,5-di-*O*-benzylidene-D-glucarate*

$C_{22}H_{22}O_8$ 414.411

Mp 135-144°. $[\alpha]_D$ +22 (c, 2.0 in Me_2CO).

*2,3,4,5-Tetra-Me, di-Me ester: Dimethyl 2,3,4,5-tetra-*O*-methyl-D-glucarate*

$C_{12}H_{22}O_8$ 294.301

Mp 77-78°. $[\alpha]_D$ +10.3 (H_2O).

*2,5-Di-Me, 3,4-*O*-isopropylidene, di-Me ester: Dimethyl 3,4-*O*-isopropylidene-2,5-di-*O*-methyl-D-glucarate*

$C_{13}H_{22}O_8$ 306.312

$Bp_{0.01}$ 105-110°. $[\alpha]_D$ +20 (c, 1.0 in $CHCl_3$).

*2,5-Di-Me, 3,4-*O*-benzylidene, di-Me ester: Dimethyl 3,4-*O*-benzylidene-2,5-di-*O*-methyl-D-glucarate*

$C_{17}H_{22}O_8$ 354.356

$Bp_{0.01}$ 174-178°. $[\alpha]_D$ +45.9 (c, 2.2 in $CHCl_3$).

*2,5-Di-Me, 3,4-*O*-isopropylidene, diamide: 3,4-*O*-Isopropylidene-2,5-di-*O*-methyl-D-glucaric diamide*

$C_{11}H_{20}N_2O_6$ 276.289

Mp 207-208°. $[\alpha]_D$ +24 (c, 2.2 in H_2O).

1,4-Lactone: See 1,4-Glucarolactone, G-244

1,4:6,3-Dilactone: See 1,4:6,3-Glucarodilactone, G-242

1,5:6,3-Dilactone: See 1,5:6,3-Glucarodilactone, G-243

[5793-88-4]

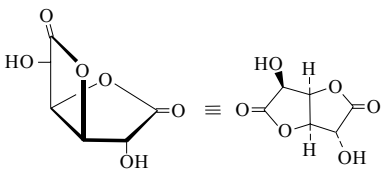
Aldrich Library of NMR Spectra, 2nd edn., 1983, **1**, 460A (*pmr*)

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 554B (*ir*)

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann Arbor, 1943, 288

Mehltretter, C.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 46 (*D-form, synth*)
Bird, T.P. *et al., J.C.S.*, 1964, 4512 (*D-di-Me ester isopropylidene, D-di-Me ester isopropylidene di-Me, D-di-Me ester benzylidene di-Me, diamide derivs*)
Hirasaka, Y. *et al., Chem. Pharm. Bull.*, 1965, **13**, 325 (*di-Me ester, tetra-Ac di-Me ester*)
Fish, D.C. *et al., Methods Enzymol.*, (Wood, W.A., Ed.), 1966, **9**, 53 (*D-dicyclohexylammonium salt*)
Ide, J. *et al., Yakugaku Zasshi*, 1966, **86**, 1057; *CA*, **66**, 85977j (*D-benzylidene diamide*)
Matsunaga, I. *et al., Chem. Pharm. Bull.*, 1969, **17**, 1383; 1972, **20**, 284 (*D-form, D-di-Me ester benzylidene, glc*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 95 (*pmr, cmr, conformn*)
Marsh, C.A. *et al., Carbohydr. Res.*, 1986, **153**, 119 (*biosynth*)
Merbouh, N. *et al., Carbohydr. Res.*, 2001, **336**, 75-78 (***synth***)
Ibert, M. *et al., Carbohydr. Res.*, 2002, **337**, 1059-1063 (*manuf, bibl*)
Styron, S.D. *et al., J. Carbohydr. Chem.*, 2002, **21**, 27-51 (*diamide, bismethylamide, conformn, cryst struct*)
Merbouh, N. *et al., J. Carbohydr. Chem.*, 2002, **21**, 65-77 (*synth*)

1,4:6,3-Glucarodilactone G-242



$C_6H_6O_6$ 174.11

D-*form* [826-91-5]
$[\alpha]_D^{18}$ +155 → +43.5 (32 hr.) (c, 1.0 in H_2O).

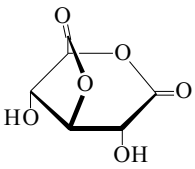
Di-Ac: 2,5-Di-O-acetyl-D-1,4:6,3-glucarodilactone. ***Aceglatone, INN, JAN.***
Glucaron
[642-83-1]
$C_{10}H_{10}O_8$ 258.184
β-Glucuronidase inhibitor, antiinflammatory action. Use experimentally to facilitate glucuronodation of carcinogens and inhibit neoplasm formation. Insol. H_2O. Mp 185-186°. Log P -1.04 (calc).

► LZ3990000

Di-Me: 2,5-Di-O-methyl-D-1,4:6,3-glucarodilactone
$C_8H_{10}O_6$ 202.163
Mp 50-51°. $[\alpha]_D$ +179 (5 m) → +62 (22 hr.) (6 d).

Smith, F. *et al., J.C.S.*, 1944, 633
Hirasaka, Y. *et al., Chem. Pharm. Bull.*, 1965, **13**, 325
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 95 (*pmr, cmr, conformn*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 454

1,5:6,3-Glucarodilactone G-243



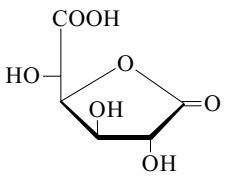
$C_6H_6O_6$ 174.11

D-*form*
Mp 133°. $[\alpha]_D^{26}$ +167 → +43.5 (90 hr.) (c, 1.0 in H_2O).

Smith, F. *et al., J.C.S.*, 1944, 633

1,4-Glucarolactone G-244

Saccharolactone



D-*form*

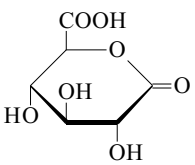
$C_6H_8O_7$ 192.125

D-*form* [389-36-6]
Strong inhibitor of β-glucuronidase. Has been used to treat bladder cancer. Mp 98° (sinters 85°). $[\alpha]_D^{20}$ +34 → +20 (22 d) (c, 1.5 in H_2O).

2,3,5-Tri-Me, Me ester:
$C_{10}H_{16}O_7$ 248.232
Mp 74-76° (79°). $[\alpha]_D$ -14.5 (H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1144C (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 706C (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edward Bros., Inc., Ann Arbor, 1943, 288 (*rev, derivs*)
Smith, F. *et al., J.C.S.*, 1944, 633 (*tri-Me, Me ester*)
Boyland, E. *et al., Biochem. J.*, 1956, **64**, 578 (*pharmacol*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 95 (*pmr, cmr, conformn*)

1,5-Glucarolactone G-245



$C_6H_8O_7$ 192.125

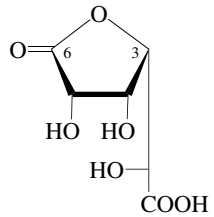
D-*form*
2,3,4-Tri-Me:
$C_9H_{14}O_7$ 234.205
$[\alpha]_D^{20}$ +69.2 → +51.2 (EtOH aq.).

6-Me ester, 2,3,4-tri-Me:
$C_{10}H_{16}O_7$ 248.232
Mp 107°. $[\alpha]_D^{22}$ +104.3 (EtOH). $[\alpha]_D^{22}$ +146.5 (C_6H_6).

6-Benzyl ester, 2,3,4-tribenzyl: [53754-28-2]
$C_{34}H_{32}O_7$ 552.623
$[\alpha]_D$ +45.2 ($CHCl_3$).

Pravdić, N. *et al., Carbohydr. Res.*, 1974, **36**, 167 (*benzyl ester tribenzyl*)

6,3-Glucarolactone G-246



$C_6H_8O_7$ 192.125

D-*form* [2782-04-9]
Cryst (Me_2CO/petrol). Mp 149°. $[\alpha]_D^{20}$ +45 → +32.4 (60d) (c, 0.9 in H_2O).

Na salt:
Solid. Mp 180° (dec.).

1-Me ester, 2,4-O-methylene:
$C_8H_{10}O_7$ 218.163
Mp 209-211°. $[\alpha]_D$ +134 (c, 0.87 in H_2O).

1-Me ester, 2,4-O-benzylidene:
$C_{14}H_{14}O_7$ 294.26
Mp 235-236°.

1-Me ester, 2,4-O-benzylidene, 5-Ac:
$C_{16}H_{16}O_8$ 336.298
Mp 210-211°.

1-Me ester, 2,4-O-benzylidene, 5-tosyl:
$C_{21}H_{20}O_9S$ 448.45
Cryst (MeOH). Mp 190-191°. $[\alpha]_D^{27}$ +119.6 (c, 1.02 in Py).

1-Et ester, 2,4-O-methylene:
$C_9H_{12}O_7$ 232.19
Mp 195-196°. $[\alpha]_D$ +143 → +137 (12d) (c, 1.0 in H_2O).

1-Et ester, 2,4-O-benzylidene:
$C_{15}H_{16}O_7$ 308.287
Mp 232-234°. $[\alpha]_D$ +147 (c, 0.5 in Py).

1-Et ester, 2,4-O-benzylidene, 5-Ac:
$C_{17}H_{18}O_8$ 350.324
Mp 233-235°.

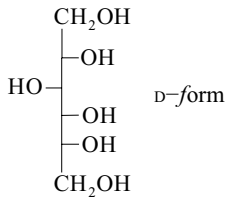
1-Et ester, 2,4-O-benzylidene, 5-benzoyl:
$C_{22}H_{20}O_8$ 412.395
Mp 146-148°.

1-Amide, 2,4-O-benzylidene:
$C_{13}H_{13}NO_6$ 279.249
Mp 229-231° dec.

Smith, F. *et al., J.C.S.*, 1944, 633
Mehltretter, C.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 46
Ide, J. *et al., Yakugaku Zasshi*, 1966, **86**, 1057; *CA*, **66**, 85977j (*Et ester benzylidene derivs, Me ester benzylidene, Me ester benzylidene Ac, amide benzylidene*)
Matsunaga, I. *et al., Chem. Pharm. Bull.*, 1969, **17**, 1383; 1972, **20**, 284 (*Me ester benzylidene tosyl, glc*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 95 (*pmr, cmr, conformn*)
Chen, L. *et al., J.O.C.*, 1996, **61**, 5847 (*synth, ir, pmr, cmr*)

Glucitol, 9CI, 8CI G-247

Sorbitol. Gulitol. gulo-*Hexitol.* gluco-*Hexitol. E420*
[26566-34-7]



$C_6H_{14}O_6$ 182.173

For stereoisomers see Allitol, A-75, Galactitol, G-4, Iditol, I-3, Mannitol, M-25 and Talitol, T-3. Sorbitol is a common trivial name for glucitol but is imprecise and should be discouraged. Reduction of sorbose can produce either glucitol or iditol. Furthermore, D-glucitol is usually referred to as D-sorbitol whereas reduction of D-sorbose gives L-glucitol.

D-*form*

D-Glucitol. L-Gulitol. FEMA 3029. Many other names
[50-70-4]
Occurs widely in plants ranging from algae to the higher orders. Fruits of the plant family Rosaceae, which include apples, pears, cherries, apricots, contain appreciable amounts. Rich sources are the fruits of the *Sorbus* and *Crataegus* spp. Used for manuf. of sorbose, propylene glycol, ascorbic acid, resins, plasticisers and as antifreeze mixts. with glycerol or glycol. Tablet diluent, sweetening agent and humectant, other food uses. Used in photometric detn. of Ru(*VI*) and Ru(*VIII*); in acid-base titration of borate.
Needles + ½ or $1H_2O$ (EtOH) with sweet taste (60% of sucrose). Freely sol. H_2O; fairly sol. hot EtOH; spar. sol. cold EtOH. Mp 92° (labile form) Mp 97° (stable form) Mp 110-112° (anhyd.). $[\alpha]_D$ +7 (borax). $[\alpha]_D$ +31 (molybdate). pK_a 13 (60°). The name D-Sorbitol has been used for this compound but should not be employed (see above). Several polymorphs known.
▶ Gastrointestinal effects by ingestion, LD_{50} (rat, orl) 15900 mg/kg. LZ4290000

*Fe(*III*) complex, compd. with citric acid:* ***Iron sorbitex, USAN****. Jectofer*
[1338-16-5] Haematinic. A colloidal soln. containing Fe(*III*), sorbitol and citrate stabilised with dextrin.
▶ NO8350000

*Hexa-Ac: 1,2,3,4,5,6-Hexa-*O*-acetyl-D-glucitol*
[7208-47-1]
$C_{18}H_{26}O_{12}$ 434.396
Mp 99° (120°). $[\alpha]_D^{18}$ +6.8 (Me_2CO).

Mono-9-octadecenoyl(Z-): Sorbitol oleate
[1333-68-2]
$C_{24}H_{46}O_7$ 446.623
Non-ionic surfactant, emulsifier. Isomer composition not specified, presumably a mixture.

*6-Benzoyl: 6-*O*-Benzoyl-D-glucitol. 1-*O*-Benzoyl-L-gulitol*
[14200-62-5]
$C_{13}H_{18}O_7$ 286.281
Cryst. (MeOH). Mp 141-143°. $[\alpha]_D^{29}$ +18.2 (c, 0.42 in H_2O).

*1,2,4,6-Tetrabenzoyl: 1,2,4,6-Tetra-*O*-benzoyl-D-glucitol*
[20869-36-7]
$C_{34}H_{30}O_{10}$ 598.605
Needles (EtOH). Mp 164-166°. $[\alpha]_D^{18}$ +16.8 (c, 1.08 in DMF).

*1,2,5,6-Tetrabenzoyl: 1,2,5,6-Tetra-*O*-benzoyl-D-glucitol*
[20963-95-5]
$C_{34}H_{30}O_{10}$ 598.605
Needles (EtOH). Mp 169-171°. $[\alpha]_D^{18}$ -27.6 (c, 0.87 in DMF).

*Hexabenzoyl: 1,2,3,4,5,6-Hexa-*O*-benzoyl-D-glucitol*
[20869-38-9]
$C_{48}H_{38}O_{12}$ 806.821
Mp 128-130°. $[\alpha]_D^{18}$ +28 (c, 1.1 in $CHCl_3$).

*1-*O*-(4-Hydroxy-3-methoxycinnamoyl): 1-Feruloyl-D-glucitol.* ***Sibirate***
[152338-47-1]
$C_{16}H_{22}O_9$ 358.344
Constit. of *Sibiraea angustata*.

Hexakis(3-pyridinecarboxylate): D-Glucitol hexanicotinate, 8CI. ***Sorbinicate, INN****. Nicosorbine. Nicosterolo*
[6184-06-1]
$C_{42}H_{32}N_6O_{12}$ 812.748
Drug for treatment of circulatory disorders. Coronary vasodilator. Mp 210-211.5°. Log P 1.71 (calc).

*1,3:2,4:5,6-Tri-*O*-methylene: 1,3:2,4:5,6-Tri-*O*-methylene-D-glucitol. 1,2:3,5:4,6-Tri-*O*-methylene-L-gulitol*
$C_9H_{14}O_6$ 218.206
Mp 212-216°. $[\alpha]_D$ -30.8 ($CHCl_3$).

*4,6-*O*-Ethylidene: 4,6-*O*-Ethylidene-D-glucitol. 1,3-*O*-Ethylidene-L-gulitol*
$C_8H_{16}O_6$ 208.211
Mp 99-100°. $[\alpha]_D$ -44.4 (H_2O).

*1,3:2,4-Di-*O*-ethylidene: 1,3:2,4-Di-*O*-ethylidene-D-glucitol*
$C_{10}H_{18}O_6$ 234.249
Mp 212-214°. $[\alpha]_D$ -11.1 (H_2O).

*3,4-Isopropylidene: 3,4-*O*-Isopropylidene-D-glucitol*
[33493-69-5]
$C_9H_{18}O_6$ 222.238
Cryst. (Me_2CO). Mp 88-90°. $[\alpha]_D^{20}$ +31 (c, 4.9 in MeOH).

*3,5-Isopropylidene: 3,5-*O*-Isopropylidene-D-glucitol*
[144664-16-4]
$C_9H_{18}O_6$ 222.238
Syrup. $[\alpha]_D^{20}$ -1.3 (c, 1.0 in MeOH).

*3,5-Isopropylidene, tetrabenzoyl: 1,2,4,6-Tetra-*O*-benzoyl-3,5-*O*-isopropylidene-D-glucitol*
[144522-52-1]
$C_{37}H_{34}O_{10}$ 638.67
$[\alpha]_D^{20}$ +12.5 (c, 1.0 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene: 1,2:5,6-Di-*O*-isopropylidene-D-glucitol*
$C_{12}H_{22}O_6$ 262.302
Hexagonal prisms (petrol). Mp 95-95.5°. $[\alpha]_D^{25}$ -0.25 (c, 1.0 in Py).

*2,3:5,6-Di-*O*-isopropylidene: 2,3:5,6-Di-*O*-isopropylidene-D-glucitol*
$C_{12}H_{22}O_6$ 262.302
Syrup. $[\alpha]_D^{20}$ -15.5 ($CHCl_3$).

*3,4:5,6-Di-*O*-isopropylidene: 3,4:5,6-Di-*O*-isopropylidene-D-glucitol. 1,2:3,4-Di-*O*-isopropylidene-L-gulitol*
[58846-25-6]
$C_{12}H_{22}O_6$ 262.302
Cryst. + ½H_2O (Et_2O/petrol). Mp 55-56°. $[\alpha]_D^{19}$ +25.2 (c, 1.4 in Et_2O).

*3,4:5,6-Di-*O*-isopropylidene, 1-tosyl: 3,4:5,6-Di-*O*-isopropylidene-1-*O*-tosyl-D-glucitol. 1,2:3,4-Di-*O*-isopropylidene-6-*O*-tosyl-L-gulitol*
[104527-46-0]
$C_{19}H_{28}O_8S$ 416.491
Cryst. (hexane/diisopropyl ether). Mp 66-68°. $[\alpha]_D^{20}$ 0 (c, 1 in $CHCl_3$).

*3,4:5,6-Di-*O*-isopropylidene, 2-tosyl: 3,4:5,6-Di-*O*-isopropylidene-2-*O*-tosyl-D-glucitol. 1,2:3,4-Di-*O*-isopropylidene-5-*O*-tosyl-L-gulitol*
[125126-05-8]
$C_{19}H_{28}O_8S$ 416.491
Cryst. (petrol/diisopropyl ether). Mp 97.5-105°. $[\alpha]_D^{20}$ +29 (c, 1 in $CHCl_3$).

*1,2:3,4:5,6-Tri-*O*-isopropylidene: 1,2:3,4:5,6-Tri-*O*-isopropylidene-D-glucitol*
[33377-66-1]
$C_{15}H_{26}O_6$ 302.367
Needles (Me_2CO aq./NH_3). Mp 48° (45-46°). $[\alpha]_D$ +14.3 (EtOH).

*2,4-Benzylidene(*S-*): 2,4-*O*-Benzylidene-D-glucitol*
[61340-09-8]
$C_{13}H_{18}O_6$ 270.282
Needles (EtOH). Mp 176-178°. $[\alpha]_D$ -1.1 (c, 1.0 in H_2O).

*4,6-Benzylidene: 4,6-*O*-Benzylidene-D-glucitol. 1,3-*O*-Benzylidene-L-gulitol*
[95341-76-7]
$C_{13}H_{18}O_6$ 270.282
Mp 132-133°. $[\alpha]_D$ -40.7 (H_2O).

*2,4:3,5-Dibenzylidene: 2,4:3,5-Di-*O*-benzylidene-D-glucitol*
[13265-76-4]
$C_{20}H_{22}O_6$ 358.39
Mp 208°. $[\alpha]_D$ -14.8 (Me_2CO).

*1,3:2,4-Di-*O*-benzylidene: 1,3:2,4-Di-*O*-benzylidene-D-glucitol. Denon YK1*
[19046-64-1]
[32647-67-9]
$C_{20}H_{22}O_6$ 358.39
Chiral gelator forming gels with a wide variety of org. solvs. Mp 220-221°. $[\alpha]_D$ +21.6 (Py).

*1,3:2,4:5,6-Tri-*O*-benzylidene: 1,3:2,4:5,6-Tri-*O*-benzylidene-D-glucitol. 1,2:3,5:4,6-Tri-*O*-benzylidene-L-gulitol*
[4148-67-8]
$C_{27}H_{26}O_6$ 446.499
Mp 185° (203°). $[\alpha]_D$ +30 ($CHCl_3$).

*2,4-Dibenzyl, 3,5-isopropylidene: 2,4-Di-*O*-benzyl-3,5-*O*-isopropylidene-D-glucitol*
$C_{23}H_{30}O_6$ 402.486
Mp 65°. $[\alpha]_D^{20}$ +6.1 (c, 1.0 in MeOH).

2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-O-benzyl-D-glucitol. 1,3,4,5-Tetra-O-benzyl-L-gulitol
[14233-48-8]
$C_{34}H_{38}O_6$ 542.671
Viscous oil. $[\alpha]_D^{25}$ +14.7 (c, 2.4 in $CHCl_3$).

1,3:2,4-Bis(4-methylbenzylidene): [81541-12-0]
$C_{22}H_{26}O_6$ 386.444
Cryst. nucleation agent for polymers. No phys. props. accessible.

L-*form*
L-Glucitol. L-Sorbitol. D-Gulitol
[6706-59-8]
Unknown in nature. Mp 89-91°. $[\alpha]_D$ +1.7 (H_2O).

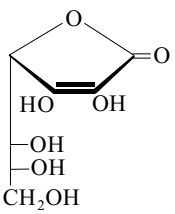
DL-*form*
Mp 136-138°.

[45007-61-2]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 186A; 624C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 289B; 1054B (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 275
Pressman, B.C. *et al., J.A.C.S.*, 1950, **72**, 2404 (*1,2:5,6-diisopropylidene*)
Barker, S.A. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 137 (*cyclic acetals and ketals, rev*)
Bourne, E.J. *et al., J.C.S.*, 1952, 1408 (*D-isopropylidene derivs*)
Tauro, C.S. *et al., Boll. Chim. Farm.*, 1961, **100**, 723 (*Sorbinicate*)
Lindvall, S. *et al., Br. J. Pharmacol. Chemother.*, 1961, **17**, 358 (*synth, pharmacol, iron sorbitex*)
Thiel, I.M.E. *et al., J.O.C.*, 1966, **31**, 3704 (*D-6-benzoyl*)
Matsui, M. *et al., Chem. Pharm. Bull.*, 1968, **16**, 1288 (*D-1,2,4,6-tetrabenzoyl, D-1,2,5,6-tetrabenzoyl, D-hexabenzoyl*)
Park, Y.J. *et al., Acta Cryst. B*, 1971, **27**, 2393 (*cryst struct*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1971, **24**, 1219 (*D-3,4-isopropylidene, D-triisopropylidene*)
Brimacombe, J.S. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 479 (*rev*)
Yankauskas, J.J. *et al., Zh. Anal. Khim.*, 1973, **28**, 333 (*detn, Ru*)
Menon, K.R. *et al., CA*, 1974, **83**, 125709h (*detn, B*)
Colson, P. *et al., Can. J. Chem.*, 1975, **53**, 1030 (*cmr*)
Heyns, K. *et al., Annalen*, 1976, 269 (*3,4:5,6-diisopropylidene*)
Brecknell, D.J. *et al., Aust. J. Chem.*, 1976, **29**, 1859 (*2,4-benzylidene*)
Subissi, A. *et al., Arzneim.-Forsch.*, 1978, **28**, 1143 (*Sorbinicate*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **1**, 754 (*rev*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1979, **74**, 187-197 (*2,3:5,6-diisopropylidene*)
Helleur, R. *et al., Carbohydr. Res.*, 1981, **89**, 83 (*2,3,4,6-tetrabenzyl*)
Pat. Coop. Treaty (WIPO), 1981, 81 03 331; *CA*, **96**, 181572p (*1,3:2,4-bis-4-methylbenzylidene*)
Giachetti, C. *et al., Arzneim.-Forsch.*, 1982, **32**, 1433 (*Sorbinicate*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1982, **108**, 81 (*isopropylidene derivs*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 571 (*synonyms*)
Regeling, H. *et al., Carbohydr. Res.*, 1989, **190**, 313 (*D-diisopropylidene tosyl*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, GEY000
Kopf, J. *et al., Acta Cryst. C*, 1991, **47**, 2425 (*cryst struct, hexaacetyl*)
Fujiyama, M. *et al., J. Appl. Polym. Sci.*, 1991, **42**, 2739-2747 (*1,3:2,4-bis-4-methylbenzylidene, use*)
Al-Kadir, *et al., Carbohydr. Res.*, 1992, **232**, 249 (*3,5-isopropylidene*)
Zhang, C.Z. *et al., Yaoxue Xuebao*, 1993, **28**, 798 (*Sibirate*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 477-480
Ducret, A. *et al., J. Am. Oil Chem. Soc.*, 1996, **73**, 109-113 (*Sorbitol oleate*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1314; 1369; 1375
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2624-2628 (*use, occur*)
Schouten, A. *et al., Carbohydr. Res.*, 1998, **312**, 131-137 (*cryst struct, polymorphism*)
Newman, A.W. *et al., Anal. Profiles Drug Subst.*, 1999, **26**, 459-502 (*rev*)
Matos, C.R.R. *et al., Synthesis*, 1999, 571-573 (*tetrabenzyl*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, IHL000; SKV200

Glucoascorbic acid G-248

arabino-*Hept-2-enonic acid 1,4-lactone, 9CI*



D−*form*

$C_7H_{10}O_7$ 206.152

D-*form* [528-88-1]
Monohydrate. Mp 101-105° Mp 140° (hydrate) Mp 192° dec. (anhyd.). $[\alpha]_D^{14}$ -37.8 (c, 2.41 in 0.01N HCl). $[\alpha]_D^{20}$ -22 (c, 1.0 in H_2O) (hydrate). pK_a 11.58.

3-Me: 3-O-Methyl-D-arabino-hept-2-enono-1,4-lactone
$C_8H_{12}O_7$ 220.179
Cryst. (Me_2CO/petrol). Mp 142°. $[\alpha]_D^{20}$ -25 (c, 0.8 in H_2O).

2,3-Di-Me: 2,3-Di-O-methyl-D-arabino-hept-2-enono-1,4-lactone
$C_9H_{14}O_7$ 234.205
Cryst. (Me_2CO/petrol). Mp 94°. $[\alpha]_D^{20}$ -22 (c, 4.0 in H_2O). $[\alpha]_D^{20}$ -7 (c, 0.8 in MeOH).

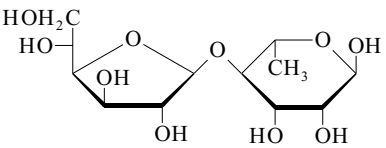
Penta-Me: 2,3,5,6,7-Penta-O-methyl-D-arabino-hept-2-enono-1,4-lactone
$C_{12}H_{20}O_7$ 276.286
Mp 80°. $[\alpha]_D^{21}$ -5 (MeOH). $[\alpha]_D^{21}$ +21 (CCl_4).

L-*form*
Mp 140° (hydrate). $[\alpha]_D^{22}$ +24 (c, 0.7 in H_2O).

[26566-39-2]

Reichstein, T. *et al., Helv. Chim. Acta*, 1934, **17**, 510 (*synth*)
Haworth, W.N. *et al., J.C.S.*, 1937, 549 (*synth, Me ethers*)

4-*O*-β-D-Glucofuranosyl-L-rhamnose G-249



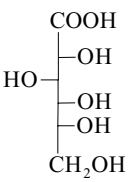
$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide.

α-Pyranose-*form*
Me glycoside, 2,3-O-isopropylidene, tetra-Ac: [97321-43-2]
$C_{24}H_{36}O_{14}$ 548.54
Syrup. $[\alpha]_D$ -57 (c, 1.8 in $CHCl_3$).

Bakinovskii, L.V. *et al., Carbohydr. Res.*, 1985, **138**, 41

Gluconic acid, 9CI, 8CI G-250

gluco-*Hexonic acid. E574*
[133-42-6]



$C_6H_{12}O_7$ 196.157

D-*form* [526-95-4]
Used as an aq. soln. for photometric detn. of Mn. Inexpensive synthetic starting material available on industrial scale. Dietary supplement.
Needles. Sol. H_2O. Mp 130-132°. $[\alpha]_D^{20}$ -6.7 → +11.7 (H_2O, 5 d). pK_a 3.76 (17°).

▶ LZ5057100
Na salt: Sodium gluconate. E576
[14906-97-9]
[527-07-1] Flavouring ingredient. Mp 206° dec. $[\alpha]_D^{23}$ +12.1 (c, 1.75 in H_2O).

▶ LZ5235000
K salt: Potassium gluconate. E577
[299-27-4] Dietary supplement. Mp 183° dec. $[\alpha]_D^{20}$ +11.7 (c, 1.2 in H_2O).

▶ LZ5230000
NH_4 salt: [2554-04-3] Sequestrant used in foods.
Deliquescent needles.

Mg salt: Magnesium gluconate. Almora. Ultra-Mg
[3632-91-5] Mg replenisher.
Hydrate. Mp 200° dec. $[\alpha]_D^{20}$ +11 (c, 1.8 in H_2O).

Ca salt: Calcium gluconate, USAN. Calcicol. Calglucon. E578
[299-28-5]
[66905-23-5]
Food additive: firming agent, sequestrant, stabiliser. Electrolyte replenisher. $[\alpha]_D^{20}$ +8.5 (c, 3.0 in H_2O). Component of Calcet.

▶ Human (infant) adverse systemic effects when used therapeutically. LD_{50} (mus, ipr) 2200 mg/kg. EW2100000

*Zn(*II*) salt: Bis(*D*-gluconato-O^1,O^2)zinc, 9CI. Zinc(*II*) gluconate*
[4468-02-4]
$C_{12}H_{22}O_{14}Zn$ 455.687
Dietary zinc supplement. Powder.

*Fe(*II*) salt: Ferrous gluconate, USAN. Bis(*D*-gluconato-O^1,O^2)iron. Iron(*II*) gluconate. Acroferon. Enteron. Fergon. Ferrose. Glucoferron. Haemex-G. Ironate. Neoferron. E579. Many other names*
[299-29-6]
[6047-12-7, 12389-15-0, 18829-42-0, 22830-45-1, 25126-39-0, 38658-53-6, 101197-68-6]
$C_{12}H_{22}FeO_{14}$ 446.144
Corrosion inhibitor, plasticiser. Haematinic. Dietary supplement. Yellow-grey powder + $2H_2O$. Sol. H_2O, insol. EtOH.

▶ LD_{50} (rat, orl) 2237 mg/kg. LZ5150000Approved by FDA (1999)

*Fe(*III*)-Na salt:* ***Sodium ferric gluconate complex, USAN****. Ferrlecit*
[34089-81-1] Dietary supplement. Used for the treatment of iron deficiency.

*Cu(*II*) salt: Bis(*D*-gluconato)copper. Copper(*II*) gluconate*
[527-09-3]
[13005-35-1] Mp 155-157°. $[\alpha]_D^{26}$ +15 (c, 1 in H_2O).

Mn(II) *salt:* [6485-39-8] Dietary supplement.
Slightly pink-coloured powder.

Antimonic acid ester, Na salt: Sodium [D-gluconato(4-)]antimonate(1-), 9CI. Sodium antimonyl gluconate. Triostam. Triostib
[12550-17-3]
$C_6H_8NaO_7Sb$ 336.865
Anthelmintic.

Antimonic acid diester, tri-Na salt: ***Sodium stibogluconate, BAN****. Pentostam. Solustibosan*
[16037-91-5]
[100817-46-7]
$C_{12}H_{17}Na_3O_{17}Sb_2$ 745.726
Antiprotozoal agent. Used clinically for the treatment of leishmaniasis. Nonahydrate. Reportedly a complex mixt.

*Polymer with D-glucitol, Fe(*III*) salt:* ***Glusoferron, INN***
[56959-18-3]

6-Phosphate: [921-62-0]
[2464-13-3, 37399-28-3, 53411-70-4, 65445-43-4, 74129-00-3, 108347-81-5]
$C_6H_{13}O_{10}P$ 276.137
Important intermed. in the pentose-phosphate cycle. Cryst. (EtOH aq.) (as tri-Na salt). $[\alpha]_D^{25}$ +1.9 (c, 5 in H_2O) (tri-Na salt). Other salts known.

Et ester: Ethyl D-gluconate
[74421-63-9]
$C_8H_{16}O_7$ 224.21
Mp 62-63°.

Amide: D-Gluconamide
[3118-85-2]
$C_6H_{13}NO_6$ 195.172
Mp 143-144°. $[\alpha]_D^{26}$ +31.2 (H_2O).

Phenylhydrazide: Mp 200°. $[\alpha]_D^{20}$ +12 (H_2O).

Nitrile: D-Gluconononitrile
[52387-29-8]
$C_6H_{11}NO_5$ 177.157
Mp 115-120°. $[\alpha]_D^{21}$ +8.8 (H_2O).

Lactone: See 1,5-Gluconolactone, G-252

*2,3,4,6-Tetra-Ac, Me ester: Methyl 2,3,4,6-tetra-*O*-acetyl-D-gluconate*
[6067-21-6]
$C_{15}H_{22}O_{11}$ 378.332
Cryst. (MeOH). Mp 114-116°. $[\alpha]_D^{21}$ +20.6 (c, 1 in $CHCl_3$).

*2,3,4,5,6-Penta-Ac: 2,3,4,5,6-Penta-*O*-acetyl-D-gluconic acid*
$C_{16}H_{22}O_{12}$ 406.343
Mp 109-111°. $[\alpha]_D$ +11.2.

*2,3,4,5,6-Penta-Ac, Me ester: Methyl 2,3,4,5,6-penta-*O*-acetyl-D-gluconate*
$C_{17}H_{24}O_{12}$ 420.369
Mp 124°.

*2,3,4,5,6-Penta-Ac, amide: 2,3,4,5,6-Penta-*O*-acetyl-D-gluconamide*
$C_{16}H_{23}NO_{11}$ 405.358
Cryst. (EtOH). Mp 184-185°. $[\alpha]_D^{25}$ +23.6 (c, 0.9 in $CHCl_3$).

*2,3,4,5,6-Penta-Ac, nitrile: 2,3,4,5,6-Penta-*O*-acetyl-D-glucononitrile*
[6272-51-1]
$C_{16}H_{21}NO_{10}$ 387.343
Mp 83-84°. $[\alpha]_D^{22}$ +46.2 ($CHCl_3$).

*2,3,4,6-Tetrabenzoyl, Me ester: Methyl 2,3,4,6-tetra-*O*-benzoyl-D-gluconate*
[29014-96-8]
$C_{35}H_{30}O_{11}$ 626.615
$[\alpha]_D^{23}$ +20.2 (c, 1.0 in $CHCl_3$).

*2,3,4,6-Tetrabenzoyl, Et ester: Ethyl 2,3,4,6-tetra-*O*-benzoyl-D-gluconate*
[29014-97-9]
$C_{36}H_{32}O_{11}$ 640.642
$[\alpha]_D^{20}$ +14.8 (c, 0.8 in $CHCl_3$).

*2,3,5,6-Tetrabenzoyl, Me ester: Methyl 2,3,5,6-tetra-*O*-benzoyl-D-gluconate*
[29014-98-0]
$C_{35}H_{30}O_{11}$ 626.615
Mp 182-183°. $[\alpha]_D^{20}$ +35.5 (c, 1.0 in $CHCl_3$).

*2,3,5,6-Tetrabenzoyl, Et ester: Ethyl 2,3,5,6-tetra-*O*-benzoyl-D-gluconate*
[29014-99-1]
$C_{36}H_{32}O_{11}$ 640.642
Mp 175°. $[\alpha]_D^{23}$ +30.7 (c, 0.8 in $CHCl_3$).

*2,3,4,5,6-Pentabenzoyl, amide: 2,3,4,5,6-Penta-*O*-benzoyl-D-gluconamide*
[29556-77-2]
$C_{41}H_{33}NO_{11}$ 715.712
Mp 101-102°. $[\alpha]_D^{20}$ +30.2 (c, 1.0 in $CHCl_3$).

*2,3,4,5,6-Pentabenzoyl, nitrile: 2,3,4,5,6-Penta-*O*-benzoyl-D-glucononitrile*
[29505-20-2]
$C_{41}H_{31}NO_{10}$ 697.697
Mp 116-117°. $[\alpha]_D^{20}$ +16.4 (c, 1.0 in $CHCl_3$).

*2,3,4,5-Tetra-Me: 2,3,4,5-Tetra-*O*-methyl-D-gluconic acid*
$C_{10}H_{20}O_7$ 252.264
Oil. $[\alpha]_D$ +25 (c, 1.2 in $CHCl_3$).

*2,3,4,5-Tetra-Me, 6-trityl: 2,3,4,5-Tetra-*O*-methyl-6-*O*-trityl-D-gluconic acid*
$C_{29}H_{34}O_7$ 494.583
Syrup. $[\alpha]_D$ -2 (c, 1.2 in $CHCl_3$).

*2,3,4,6-Tetra-Me, amide: 2,3,4,6-Tetra-*O*-methyl-D-gluconamide*
$C_{10}H_{21}NO_6$ 251.279
Mp 68°. $[\alpha]_D$ +60.4 (Me_2CO).

*2,3,4,6-Tetra-Me, nitrile: 2,3,4,6-Tetra-*O*-methyl-D-glucononitrile*
[155936-40-6]
$C_{10}H_{19}NO_5$ 233.264
Mp 68°. $[\alpha]_D$ +60.4 (Me_2CO).

*2,3,5,6-Tetra-Me, amide: 2,3,5,6-Tetra-*O*-methyl-D-gluconamide*
$C_{10}H_{21}NO_6$ 251.279
Mp 91°. $[\alpha]_D^{24}$ +39.2 (H_2O).

*2,3,5,6-Tetra-Me, nitrile: 2,3,5,6-Tetra-*O*-methyl-D-glucononitrile*
$C_{10}H_{19}NO_5$ 233.264
Mp 91°. $[\alpha]_D^{40}$ +39.2 (H_2O).

*3,4:5,6-Di-*O*-isopropylidene: 3,4:5,6-Di-*O*-isopropylidene-D-gluconic acid*
[52326-97-3]
$C_{12}H_{20}O_7$ 276.286
Cryst. (Et_2O/hexane). Mp 154-156°. $[\alpha]_D$ +13 (c, 1 in $CHCl_3$).

*3,4:5,6-Di-*O*-isopropylidene, Me ester: Methyl 3,4:5,6-di-*O*-isopropylidene-D-gluconate*
[114743-85-0]
$C_{13}H_{22}O_7$ 290.313
Syrup. $[\alpha]_D^{20}$ +10 (c, 1.0 in $CHCl_3$).

*3,4:5,6-Di-*O*-isopropylidene, 2-Ac, Me ester: Methyl 2-*O*-acetyl-3,4:5,6-di-*O*-isopropylidene-D-gluconate*
[114743-86-1]
$C_{15}H_{24}O_8$ 332.35
Mp 73-74°. $[\alpha]_D^{20}$ +15 (c, 1.0 in $CHCl_3$).

*3,4:5,6-Di-*O*-isopropylidene, 2-tosyl, Me ester: Methyl 3,4:5,6-di-*O*-isopropylidene-2-*O*-tosyl-D-gluconate*
[114743-87-2]
$C_{20}H_{28}O_9S$ 444.502
Mp 92-94°. $[\alpha]_D^{20}$ +34 (c, 1.0 in $CHCl_3$).

*1,2:3,4:5,6-Triisopropylidene: 1,2:3,4:5,6-Tri-*O*-isopropylidene-D-gluconic acid*
$C_{15}H_{24}O_7$ 316.35
Cryst. Mp 111°. $[\alpha]_D$ +37.5 (c, 0.2 in $CHCl_3$).

[921-62-0, 18016-24-5, 57775-17-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 553D; 554A; **2**, 1287B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 856B; 856C (*nmr*)
Robison, R. *et al., Biochem. J.*, 1931, **25**, 323 (*6-phosphate*)
Robbins, G.B. *et al., J.A.C.S.*, 1938, **60**, 1788 (*D-amide penta-Ac*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann Arbor, 1943, 285
Green, J.W. *et al., Adv. Carbohydr. Chem.*, 1948, **3**, 153 (*rev*)
Seegmüller, J.E. *et al., J. Biol. Chem.*, 1951, **192**, 175-180 (*6-phosphate salts, !synth*)
Org. Synth., Coll. Vol., 3, 1955, 690 (*D-nitrile penta-Ac*)
Scott, D.B.M. *et al., Biochem. J.*, 1957, **65**, 686 (*6-phosphate*)
Chyan, W.-H. *et al., CA*, 1958, **52**, 9963d (*triostam, synth*)
Tanabe, H. *et al., CA*, 1962, **58**, 8617ef (*Fe complexes*)
Frush, H.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 14 (*synth, Ca salt*)
Fisch, D.C. *et al., Methods Enzymol.*, 1966, **9**, 53 (*cyclohexylammonium salt*)

Humphlett, W.J. *et al., Carbohydr. Res.*, 1967, **4**, 175 (*esters*)
Zhadanov, Y.A. *et al., Zh. Obshch. Khim.*, 1969, **39**, 1128
Campello, A. *et al., Biochem. Pharmacol.*, 1970, **19**, 1615-1619 (*triostam, pharmacol*)
de Lederkremer, R.M. *et al., Carbohydr. Res.*, 1970, **13**, 9 (*D-tetrabenzoyl esters*)
Deferrari, J.O. *et al., Carbohydr. Res.*, 1970, **14**, 103 (*D-amide, D-amide pentabenzoyl*)
Schmitz, H. *et al., Arzneim.-Forsch.*, 1971, **21**, 509 (*Fe salt, pharmacol*)
Samochowiec, L. *et al., Clin. Ter. (Rome)*, 1971, **56**, 341; *CA*, **75**, 61780z (*metab*)
Bermejo Martinez, F. *et al., Mikrochim. Acta*, 1971, **1**, 489 (*detn, Mn*)
U.K. Pat., 1972, 1 269 023, (*Joh Benckiser*); *CA*, **77**, 34855n (*Fe salt, synth*)
Harvey, D.J. *et al., J. Chromatogr.*, 1973, **76**, 51 (*6-phosphate Na salt, ms, gc*)
Smith, G.D. *et al., Acta Cryst. B*, 1974, **30**, 1760-1766 (*6-phosphate, cryst struct*)
Lembeck, F. *et al., Arzneim.-Forsch.*, 1975, **25**, 1570 (*pharmacol*)
London, R.E. *et al., J. Magn. Reson.*, 1975, **18**, 557 (*6-phosphate, cmr*)
Horton, D. *et al., Carbohydr. Res.*, 1983, **119**, 263 (*pmr, cmr, conformn*)
Lis, T. *et al., Carbohydr. Res.*, 1983, **122**, 23 (*cryst struct*)
Regeling, H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1987, **106**, 461 (*D-diisopropylidene Me ester, pmr*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, CAS750
Herwalt, B.L. *et al., Am. J. Trop. Med. Hyg.*, 1992, **46**, 296-306 (*rev, Sodium stibogluconate*)
Olafsdottir, E.S. *et al., Phytochemistry*, 1992, **31**, 4129 (*biosynth*)
Jarosz, S. *et al., J. Carbohydr. Chem.*, 1993, **12**, 1223-1228 (*triisopropylidene*)
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Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, (*Fe salt, synonyms*)
Coldwell, S.E. *et al., Am. J. Physiol.*, 1996, **271**, R1-R10 (*Ferrlecit*)
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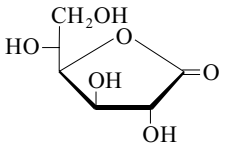
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 137; 386-388; 1110-1111; 1204-1205; 1623-1624; 1654-1655; 2297-2298; 2559-2560 (*salts, use*)
Köll, P. *et al., Carbohydr. Res.*, 1998, **305**, 147-154 (*cryst struct, penta-Ac*)
Nissenson, A.R. *et al., Am. J. Kidney Dis.*, 1999, **33**, 464-470; 471-482 (*Ferrlecit*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 578
Merck Index, 13th edn., 2001, No. 707; No. 4081; No. 4469 (*sodium stibogluconate, ferrous gluconate, bibl*)
Joseph, C.C. *et al., Tetrahedron*, 2002, **58**, 6907-6911 (*2,3,4,6-tetra-Ac Me ester*)
Molina Pinilla, I. *et al., Carbohydr. Res.*, 2003, **338**, 549-555 (*2,3,4,5-tetra Me, 2,3,4,5-tetra-Me-6-trityl*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, PLG800; SHK800

1,4-Gluconolactone G-251

Gluconic acid γ-lactone, 9CI



$C_6H_{10}O_6$ 178.141

D-*form* [1198-69-2]
Prod. from glucose by *Pseudomonas fragi*. Mp 132-135°. $[\alpha]_D^{20}$ +68 → +18 (14 d) (c, 5.0 in H_2O).

*2,3,5,6-Tetra-Ac: 2,3,5,6-Tetra-*O*-acetyl-D-glucono-1,4-lactone*
$C_{14}H_{18}O_{10}$ 346.29
Mp 103°. $[\alpha]_D^{20}$ +13.5 (MeOH) (Me_2CO aq.).

*2,3,5,6-Tetrabenzoyl: 2,3,5,6-Tetra-*O*-benzoyl-D-glucono-1,4-lactone*
[29014-95-7]
$C_{34}H_{26}O_{10}$ 594.573
$[\alpha]_D^{20}$ +44.5 (c, 0.6 in 90% Me_2CO aq.).

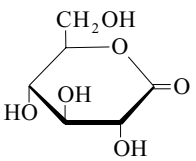
*2,3,5,6-Tetra-Me: 2,3,5,6-Tetra-*O*-methyl-D-glucono-1,4-lactone*
$C_{10}H_{18}O_6$ 234.249
Mp 26-27°. $Bp_{0.05}$ 97°. $[\alpha]_D^{16}$ +63.2 → +40.9 (20 d) (H_2O).

*3-Benzyl: 3-*O*-Benzyl-D-glucono-1,4-lactone*
$C_{13}H_{16}O_6$ 268.266
$[\alpha]_D^{20}$ +34.4 (c, 1.15 in MeOH).

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann Arbor, 1943, 279 (*derivs*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 17 (*D-form, synth*)
Sawyer, D.T. *et al., Anal. Chem.*, 1966, **38**, 192 (*pmr*)
de Lederkremer, R.M. *et al., Carbohydr. Res.*, 1970, **13**, 9 (*D-tetrabenzoyl*)
Walaszek, Z. *et al., Carbohydr. Res.*, 1987, **105**, 131 (*pmr, cmr, conformn*)
Long, D.D. *et al., J.C.S. Perkin 1*, 2002, 1982-1998 (*3-benzyl, synth, ir, pmr, cmr*)

1,5-Gluconolactone G-252

Gluconic acid δ-lactone, 9CI. E575



$C_6H_{10}O_6$ 178.141

D-*form*
Fujiglucon
[90-80-2]
A component of many coml. cleaning compds. Food additive uses include acidifier, pH control agent, sequestrant. Inexpensive starting material for synthesis. Chelating agent.
Mp 150-152°. $[\alpha]_D^{20}$ +66 → +9 (1 d) (c, 5.0 in H_2O).
► LZ5184000

6-Phosphate: [2641-81-8]
$C_6H_{11}O_9P$ 258.121
Formed by enzymic dehydrogenation of D-glucose-6-phosphate.

*2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-D-glucono-1,5-lactone*
$C_{14}H_{18}O_{10}$ 346.29
Syrup. $[\alpha]_D^{20}$ +64.4 → 0 (48 h) (MeOH aq.).

*2,3,4,6-Tetrabenzoyl: 2,3,4,6-Tetra-*O*-benzoyl-D-glucono-1,5-lactone*
[29014-94-6]
$C_{34}H_{26}O_{10}$ 594.573
Needles (C_6H_6). Mp 178-179°. $[\alpha]_D^{19}$ +112.9 (6 m) → +90 (4 h) (2 d).

*4,6-*O*-Ethylidene: 4,6-*O*-Ethylidene-D-glucono-1,5-lactone*
$C_8H_{12}O_6$ 204.179
Cryst. ($CHCl_3$). Mp 136-141°. $[\alpha]_D^{20}$ +19 (c, 0.5 in $CHCl_3$).

*4,6-*O*-Isopropylidene: 4,6-*O*-Isopropylidene-D-glucono-1,5-lactone*
$C_9H_{14}O_6$ 218.206
Amorph. solid. $[\alpha]_D^{20}$ +23 (c, 2 in $CHCl_3$).

*4,6-*O*-Benzylidene: 4,6-*O*-Benzylidene-D-glucono-1,5-lactone*
$C_{13}H_{14}O_6$ 266.25
Cryst. (EtOAc). Mp 190°. $[\alpha]_D$ +33 (c, 1.0 in Me_2CO).

*2,3,4,6-Tetra-Me: 2,3,4,6-Tetra-*O*-methyl-D-glucono-1,5-lactone*
$C_{10}H_{18}O_6$ 234.249
$Bp_{0.06}$ 101°. $[\alpha]_D^{18}$ +101.1 → +29.6 (8 hr.) (H_2O).

*Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-D-glucono-1,5-lactone*
[13096-62-3]
$C_{34}H_{34}O_6$ 538.639
Syrup. $[\alpha]_D^{25}$ +79 (c, 1 in $CHCl_3$).

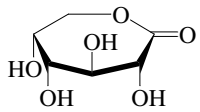
*Tetrakis(*tert*-butyldimethylsilyl): 2,3,4,6-Tetrakis(*tert*-butyldimethylsilyl)-D-glucono-1,5-lactone*
$C_{30}H_{66}O_6Si_4$ 635.19
$[\alpha]_D^{25}$ +55 (c, 5.4 in $CHCl_3$).

L-*form* [52153-09-0]
Mp 142-144°. $[\alpha]_D^{25}$ -54 (c, 1 in H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1153C (*nmr*)
Aldrich Library of Infrared Spectra, 3rd edn., 1981, 411H (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros., Ann Arbor, 1943, 279 (*rev, derivs*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 16 (*D-form, synth*)
Kuzuhara, H. *et al., J.O.C.*, 1967, **32**, 2531 (*tetrabenzyl*)
de Lederkremer, R.M. *et al., Carbohydr. Res.*, 1970, **13**, 9 (*D-tetrabenzoyl*)
Hackert, M.L. *et al., Acta Cryst. B*, 1971, **27**, 203 (*cryst struct*)
Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1977, **31**, 63 (*D-benzylidene, D-ethylidene, D-isopropylidene*)
Nelson, C.R. *et al., Carbohydr. Res.*, 1982, **106**, 155 (*synth, conformn, tetra-Ac*)
Walaszek, Z. *et al., Carbohydr. Res.*, 1982, **106**, 193 (*pmr, cmr, conformn*)
Bauer, H.P. *et al., Eur. J. Biochem.*, 1983, **133**, 163-168 (*6-phosphate*)
Rajanikanth, B. *et al., Tet. Lett.*, 1989, **30**, 755 (*tetrabenzyl*)
Fang, J.-M. *et al., J.C.S. Perkin 1*, 1995, 967 (*butyldimethylsilyl, pmr, cmr*)

Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1205-1207 (*props, use*)
Joseph, C.C. *et al., Tetrahedron*, 2002, **58**, 6907-6911 (*D-form, tetra-Ac*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GFA200

1,6-Gluconolactone G-253



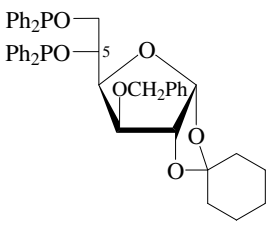
$C_6H_{10}O_6$ 178.141

D-form

Tetra-O-Me: 2,3,4,5-Tetra-O-methyl-D-glucono-1,6-lactone
[541550-97-4]
$C_{10}H_{18}O_6$ 234.249
Cryst. Mp 62-63°. $[\alpha]_D$ -12 (c, 1.2 in $CHCl_3$).
Molina Pinilla, I. *et al., Carbohydr. Res.*, 2003, **338**, 549-555 (*D-form, tetra-Me*)

Glucophinite G-254

3-O-Benzyl-1,2-O-cyclohexylidene-D-glucofuranose 5,6-bis(diphenylphosphinite)
[72206-42-9]

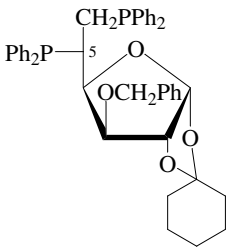


$C_{43}H_{44}O_6P_2$ 718.765
Ligand for Rh-catalysed asym. hydrogenations. Cryst. Mp 87-92°. $[\alpha]_D^{25}$ -21.5 (c, 0.4 in $CHCl_3$).

5-Epimer: 3-O-Benzyl-1,2-O-cyclohexylidene-α-L-idofuranose 5,6,7-bis(diphenylphosphinite). Idophinite
[72206-44-1]
$C_{43}H_{44}O_6P_2$ 718.765
Rh complex used in enantioselective hydrogenations. Cryst. (EtOH). Mp 103-105°. $[\alpha]_D^{25}$ +78.4 (c, 0.6 in $CHCl_3$).
Johnson, T.H. *et al., J. Mol. Catal.*, 1980, **9**, 307-311 (*Rh complex, use*)
Johnson, T.H. *et al., J.O.C.*, 1980, **45**, 62-65 (*synth, ir, pmr*)

Glucophos G-255

3-O-Benzyl-1,2-O-cyclohexylidene-5,6-dideoxy-5,6-bis(diphenylphosphino)-α-D-glucofuranose
[72206-46-3]

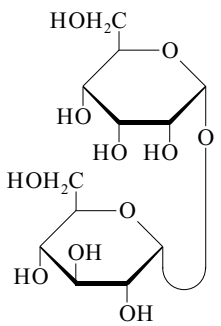


$C_{43}H_{44}O_4P_2$ 686.766
Rh complex used in asymmetric hydrogenations. Cryst. Mp 162-165°. $[\alpha]_D^{25}$ +112 (c, 0.4 in $CHCl_3$).

5-Epimer: 3-O-Benzyl-1,2-O-cyclohexylidene-5,6-dideoxy-5,6-bis(diphenylphosphino)-β-L-idofuranose. Idophos
[72206-41-8]
$C_{43}H_{44}O_4P_2$ 686.766
Cryst. (EtOH). Mp 104-108°. $[\alpha]_D^{25}$ +54.2 (c, 0.6 in $CHCl_3$).
Johnson, T.H. *et al., J.O.C.*, 1980, **45**, 62-65 (*synth, pmr, use*)

α-D-Glucopyranosyl α-D-allopyranoside, 9CI G-256

α-D-Allopyranosyl α-D-glucopyranoside
[58716-73-7]



$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide. Cryst. + $1\frac{1}{2}H_2O$. Mp 120-122° (anhyd.). $[\alpha]_D^{22}$ +151 (c, 1.0 in H_2O).

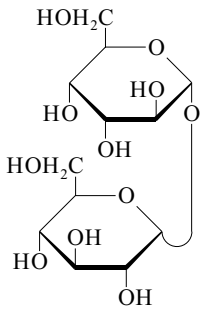
Bis-4,6-O-benzylidene, tri-Ac: [58691-33-1]
$C_{32}H_{36}O_{14}$ 644.628
Mp 114-115°. $[\alpha]_D^{22}$ +76 (c, 1.0 in $CHCl_3$).

Bis-4,6-O-benzylidene, tribenzoyl: [72173-50-3]
$C_{47}H_{42}O_{14}$ 830.84
Mp 215-217°. $[\alpha]_D$ +159 (c, 0.3 in $CHCl_3$).

Bis-4,6-O-benzylidene, dibenzoyl: [60967-07-9]
$C_{40}H_{38}O_{13}$ 726.732
Cryst. (EtOH). Mp 229-231°. $[\alpha]_D$ +153 (c, 0.34 in $CHCl_3$).
Bar-Guilloux, E. *et al., Carbohydr. Res.*, 1975, **45**, 217 (*synth*)
Birch, G.G. *et al., Carbohydr. Res.*, 1976, **49**, 153
Baer, H.H. *et al., Carbohydr. Res.*, 1979, **75**, 175

α-D-Glucopyranosyl α-D-altropyranoside G-257

α-D-Altropyranosyl α-D-glucopyranoside



$C_{12}H_{22}O_{11}$ 342.299

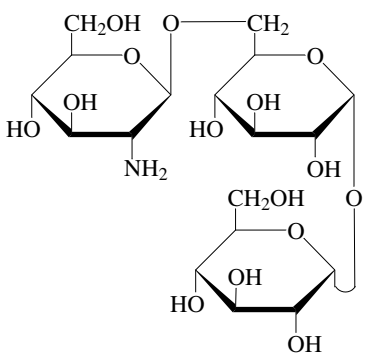
Bis-4,6-O-benzylidene:
$C_{26}H_{30}O_{11}$ 518.516
Cryst. (Me_2CO). Mp 247-251° dec. $[\alpha]_D^{25}$ +68 (c, 0.8 in $CHCl_3$).

Bis-4,6-O-benzylidene, 2,2′-di-O-benzyl:
$C_{40}H_{42}O_{11}$ 698.765
Cryst. (MeOH). Mp 197-199°. $[\alpha]_D$ +94.7 (c, 0.5 in $CHCl_3$).

Bis-4,6-O-benzylidene, 2′,3-di-O-benzyl:
$C_{40}H_{42}O_{11}$ 698.765
Cryst. (MeOH). Mp 190.5-192.5°. $[\alpha]_D$ +93.2 (c, 0.7 in $CHCl_3$).
Baer, H.H. *et al., Carbohydr. Res.*, 1984, **128**, 165; 1985, **136**, 335 (*synth, pmr*)

α-D-Glucopyranosyl 2-amino-2-deoxy-β-D-glucopyranosyl-(1→6)-α-D-glucopyranoside G-258

2-Amino-2-deoxy-β-D-glucopyranosyl-(1→6)-α,α-trehalose

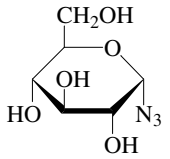


$C_{18}H_{33}NO_{15}$ 503.456

N-*Hydroxymethyl:* ***Lysodectose***. *Lysodektose*
[126077-90-5]
$C_{19}H_{35}NO_{16}$ 533.483
Prod. by *Micrococcus lysodeikticus*. Free radical forming substance.
Binyukov, V.I. *et al., BioFactors*, 1989, **2**, 95-97 (*isol, struct*)
Binyukov, V. *et al., Bioorg. Khim.*, 1990, **16**, 1073-1079 (*isol, pmr, cmr*)
Stepanov, S.I. *et al., Mikrobiologiya*, 1992, **61**, 369-376 (*props*)

Glucopyranosyl azide, 9CI G-259

[122407-77-6]



α-D-Pyranose-*form*

$C_6H_{11}N_3O_5$ 205.17

α-D-Pyranose-*form* [20379-60-6]
Cryst. (MeCN/EtOH). Mp 181.5-182.5° (176-178°). $[\alpha]_D^{22}$ +258 (c, 1.13 in H_2O).

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl azide*
[20379-61-7]
$C_{14}H_{19}N_3O_9$ 373.319
Cryst. (EtOH). Mp 100-101°. $[\alpha]_D^{21}$ +191.7 (c, 0.532 in $CHCl_3$).

2,3,4-Tribenzyl: 2,3,4-Tri-O-*benzyl-α-D-glucopyranosylazide*
[87216-68-0]
$C_{27}H_{29}N_3O_5$ 475.543
Mp 68-69°. $[\alpha]_D$ +96.87 (c, 2.6 in $CHCl_3$).

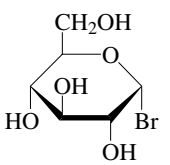
β-D-Pyranose-*form* [20379-59-3]
Cryst. Mp 89° (86-88°). $[\alpha]_D^{22}$ -28.5 (c, 1.34 in H_2O).

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl azide*
[13992-25-1]
$C_{14}H_{19}N_3O_9$ 373.319
Cryst. (diisopropyl ether). Mp 129-130° (124-125°). $[\alpha]_D^{24}$ -29 (c, 1 in $CHCl_3$).

Tetra-Me: 2,3,4,6-Tetra-O-*methyl-β-D-glucopyranosyl azide*
[155936-39-3]
$C_{10}H_{19}N_3O_5$ 261.277
$[\alpha]_D^{20}$ -22 (c, 2.0 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 1568 (*tetra-Ac, synth, pmr*)
Györgydeàk, Z. *et al., Annalen*, 1987, 235 (*synth, tetra-Ac*)
Fürstner, A. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 751 (*tetra-Me, pmr, cmr*)
Zhang, H. *et al., Liebigs Ann./Recl.*, 1997, 1871-1876 (*tribenzyl*)
Masuda, M. *et al., J. Carbohydr. Chem.*, 1998, **17**, 405-416 (*β-D-form tetra-Ac*)

Glucopyranosyl bromide G-260



α-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl bromide. Acetobromoglucose*
[572-09-8]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (Et_2O). Mp 88-89°. $[\alpha]_D^{20}$ +194 (c, 3.9 in $CHCl_3$).

2,3,4-Tribenzoyl: 2,3,4-Tri-O-*benzoyl-α-D-glucopyranosyl bromide*
[20226-69-1]
$C_{27}H_{23}BrO_8$ 555.378
Cryst. (Et_2O/petrol). Mp 163-164°. $[\alpha]_D^{25}$ +194 ($CHCl_3$).

2,3,4,6-Tetrabenzoyl: 2,3,4,6-Tetra-O-*benzoyl-α-D-glucopyranosyl bromide*
[14218-11-2]
$C_{34}H_{27}BrO_9$ 659.486
Cryst. (Et_2O/pentane). Mp 129°. $[\alpha]_D^{27}$ +123 ($CDCl_3$).

2,3,4,6-Tetra-Me: 2,3,4,6-Tetra-O-*methyl-α-D-glucopyranosyl bromide*
$C_{10}H_{19}BrO_5$ 299.161
$Bp_{0.5}$ 109°. $[\alpha]_D^{25}$ +205 (c, 1.0 in $CHCl_3$).

2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-α-D-glucopyranosyl bromide, 9CI*
[4196-35-4]
$C_{34}H_{35}BrO_5$ 603.551
$[\alpha]_D^{24}$ +105 (c, 2.7 in $CHCl_3$).

2-Benzyl, 3,4,6-tris-(4-nitrobenzoyl): 2-O-*Benzyl-3,4,6-tris*-O-*(4-nitrobenzoyl)-α-D-glucopyranosyl bromide*
[18933-77-2]
Cryst. (CH_2Cl_2/Et_2O). Mp 150-151°. $[\alpha]_D^{20}$ +72.9 (c, 2.0 in $CHCl_3$).

β-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl bromide*
[6919-96-6]
$C_{14}H_{19}BrO_9$ 411.203
Mp 92°. $[\alpha]_D^{20}$ -16 → +77 ($CHCl_3$).

2-Benzyl, 3,4,6-tris(4-nitrobenzoyl): 2-O-*Benzyl-3,4,6-tris*-O-*(4-nitrobenzoyl)-β-D-glucopyranosyl bromide*
[18933-70-5]
Plates (CH_2Cl_2/Et_2O). Mp 143-144°. $[\alpha]_D^{20}$ +2.4 (c, 2.1 in $CHCl_3$).

α-L-*form*

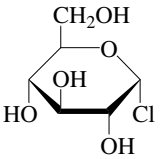
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-L-glucopyranosyl bromide*
$C_{14}H_{19}BrO_9$ 411.203
Mp 88°. $[\alpha]_D^{17.5}$ -192.7 (Et_2O).

α-DL-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-DL-glucopyranosyl bromide*
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (Et_2O). Mp 87°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **2**, 1284B (*nmr*)
Bárczai-Martos, M. *et al., Nature (London)*, 1950, **165**, 369 (*α-DL-tetra-Ac*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*tetra-Ac, rev*)
Weygand, F. *et al., Chem. Ber.*, 1958, **91**, 2534 (*α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
Rhind-Tutt, A.J. *et al., J.C.S.*, 1960, 4637 (*α-D-tetra-Me*)
Lemieux, R.U. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 221 (*α-D-tetra-Ac*)
Wadsworth, W.W. *et al., J.C.S.(C)*, 1968, 1008 (*α-D-tribenzoyl, α-D-tetrabenzoyl*)
Ishikawa, T. *et al., J.O.C.*, 1969, **34**, 563 (*α-D-benzyl trisnitrobenzoyl, β-D-benzyl trisnitrobenzoyl*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1041 (*pmr*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*cmr*)
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056 (*α-D-tetrabenzyl*)
Bates, H.A. *et al., J. Carbohydr. Chem.*, 1985, **4**, 273-275 (*tetra-Me, !synth*)
Kartha, K.P.R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 777-781 (***synth, bibl***)
Mani, N.S. *et al., Synth. Commun.*, 1992, **22**, 2175 (*α-D-tetra-Ac*)

Glucopyranosyl chloride G-261



α-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-*form*

3,4,6-Tri-Ac: 3,4,6-Tri-O-*acetyl-β-D-glucopyranosyl chloride*
[4451-37-0]
$C_{12}H_{17}ClO_8$ 324.714
Solid. Mp 156-158°. $[\alpha]_D^{20}$ +29 (c, 1 in $CHCl_3$).

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl chloride*
[4451-35-8]
$C_{14}H_{19}ClO_9$ 366.751
Mp 75-76°. $[\alpha]_D^{20}$ +166 ($CHCl_3$).

2,3,4,6-Tetrabenzoyl: 2,3,4,6-Tetra-O-*benzoyl-α-D-glucopyranosyl chloride*
[15067-04-6]
$C_{34}H_{27}ClO_9$ 615.035
Mp 116-118°. $[\alpha]_D^{20}$ +109 (c, 0.98 in $CHCl_3$).

2,3,4,6-Tetramesyl: 2,3,4,6-Tetra-O-*mesyl-α-D-glucopyranosyl chloride*
$C_{10}H_{19}ClO_{13}S_4$ 510.969
Mp 168-169°. $[\alpha]_D^{20}$ +110 (EtOAc).

2,3,4-Tribenzyl, 6-Ac: 6-O-*Acetyl-2,3,4-tri*-O-*benzyl-α-D-glucopyranosyl chloride*
$C_{29}H_{31}ClO_6$ 511.013
$[\alpha]_D^{23}$ +88.5 (c, 2.0 in $CHCl_3$).

2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-α-D-glucopyranosyl chloride*
[25320-59-6]
$C_{34}H_{35}ClO_5$ 559.1
$[\alpha]_D^{24}$ +93 (c, 3.2 in C_6H_6).

β-*form*

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl chloride*
[4451-36-9]
$C_{14}H_{19}ClO_9$ 366.751
Mp 98-99°. $[\alpha]_D^{23}$ -18.6 (CCl_4).

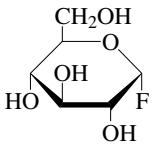
2,3,4,6-Tetrabenzoyl: 2,3,4,6-Tetra-O-*benzoyl-β-D-glucopyranosyl chloride*
[27530-87-6]
$C_{34}H_{27}ClO_9$ 615.035
Cryst. (Et_2O/petrol). Mp 109-111°. $[\alpha]_D$ +45.7 (MeCN).

2-O-*Trichloroacetyl, 3,4,6-tri-Ac: 3,4,6-Tri*-O-*acetyl-2*-O-*trichloroacetyl-β-D-glucopyranosyl chloride*
$C_{14}H_{16}Cl_4O_9$ 470.086
Mp 142°. $[\alpha]_D^{14}$ +3 (EtOAc).

Zemplén, G. *et al., Acta Chim. Acad. Sci. Hung.*, 1954, **4**, 73 (*β-D-tetra-Ac*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*rev, derivs*)
Lemieux, R.U. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 400 (*3,4,6-tri-Ac*)

Csuros, Z. *et al., Acta Chim. Acad. Sci. Hung.*, 1969, **62**, 121 (*β-D-tetrabenzoyl*)
Fréchet, J.M. *et al., J.A.C.S.*, 1972, **94**, 604 (*α-D-tribenzyl Ac*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*cmr*)
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056 (*α-D-tetrabenzyl*)
Granata, A. *et al., Carbohydr. Res.*, 1980, **86**, 305 (*α-D-tetrabenzyl*)

Glucopyranosyl fluoride G-262



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form* [2106-10-7]
Mp 118-125°. $[\alpha]_D^{24}$ +97.6 (c, 1.5 in H_2O).

2,3,4-Tri-Ac: 2,3,4-Tri-O-*acetyl-α-D-glucopyranosyl fluoride*
[181138-19-2]
$C_{12}H_{17}FO_8$ 308.26
Mp 93°. $[\alpha]_D$ +90.6 (c, 1.55 in $CHCl_3$).

2,3,6-Tri-Ac: 2,3,6-Tri-O-*acetyl-α-D-glucopyranosyl fluoride*
$C_{12}H_{17}FO_8$ 308.26
Syrup. $[\alpha]_D$ +67.1 (c, 1.42 in $CHCl_3$).

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl fluoride*
[3934-29-0]
$C_{14}H_{19}FO_9$ 350.297
Mp 108°. $[\alpha]_D^{20}$ +90.1 ($CHCl_3$).

Tetrabenzoyl: 2,3,4,6-Tetra-O-*benzoyl-α-D-glucopyranosyl fluoride*
[4163-39-7]
$C_{34}H_{27}FO_9$ 598.58
Mp 110-112°. $[\alpha]_D^{22}$ +110 (Py).

6-Trityl: 6-O-*Trityl-α-D-glucopyranosyl fluoride*
$C_{25}H_{25}FO_5$ 424.468
Mp 140°. $[\alpha]_D^{14}$ +58.4 ($CHCl_3$).

6-Trityl, tri-Ac: 2,3,4-Tri-O-*acetyl-6*-O-*trityl-α-D-glucopyranosyl fluoride*
$C_{31}H_{31}FO_8$ 550.579
Mp 147-148°. $[\alpha]_D^{20}$ +119.6 ($CHCl_3$).

6-Trityl, tribenzoyl: 2,3,4-Tri-O-*benzoyl-6*-O-*trityl-α-D-glucopyranosyl fluoride*
[179090-75-6]
$C_{46}H_{37}FO_8$ 736.792
Amorph. $[\alpha]_D^{18}$ +75.1 (Py).

β-D-*form* [7617-95-0]
$[\alpha]_D^{18}$ +33.3 (c, 0.5 in H_2O). $[\alpha]_D^{22}$ +25 (c, 1 in H_2O).

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl fluoride*
[2823-46-3]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O). Mp 98° (83-86°, 89°). $[\alpha]_D^{18}$ +21.9 ($CHCl_3$).

2,3,4-Tribenzyl: 2,3,4-Tri-O-*benzyl-α-D-glucopyranosyl fluoride*
[428816-53-9]
$C_{27}H_{29}FO_5$ 452.522
Solid. Mp 112-113°. $[\alpha]_D^{20}$ +27.3 (c, 1.0 in $CHCl_3$).

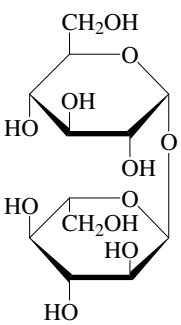
2,3,6-Tribenzyl: 2,3,6-Tri-O-*benzyl-β-D-glucopyranosyl fluoride, 8CI*
[24679-81-0]
$C_{27}H_{29}FO_5$ 452.521
Mp 62°. $[\alpha]_D^{18}$ +11.8 (c, 1.0 in $CHCl_3$).

Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-β-D-glucopyranosyl fluoride*
[78153-79-4]
$C_{34}H_{35}FO_5$ 542.646
Mp 42-44°. $[\alpha]_D^{24}$ +31 (c, 1.0 in $CHCl_3$).

Brauns, D.H. *et al., J.A.C.S.*, 1923, **45**, 833-835; (*α-tetra-Ac*)
Helferich, B. *et al., Annalen*, 1926, **447**, 27-37 (*synth*)
Sharp, V.E. *et al., J.C.S.*, 1951, 285-288 (*β-tetra-Ac*)
Micheel, F. *et al., Chem. Ber.*, 1952, **85**, 187-188 (*β-form*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1955, **10**, 207-255 (*rev*)
Micheel, F. *et al., Annalen*, 1969, **722**, 228-231 (*β-tribenzyl*)
Bock, K. *et al., Anal. Chem. Symp. Ser.*, 1973, **27**, 2701-2709; *Acta Chem. Scand.*, 1975, **29**, 682-686 (*pmr, cmr*)
Wray, V. *et al., J.C.S. Perkin 2*, 1976, 1598-1605 (*cmr*)
Mukaiyama, T. *et al., Chem. Lett.*, 1981, 431-432 (*β-tetrabenzyl*)
Kitahata, S. *et al., J. Biol. Chem.*, 1981, **256**, 6017-6026 (*synth*)
Thiem, J. *et al., Carbohydr. Res.*, 1993, **249**, 197-205 (*2,3,4-tri-Ac, 2,3,6-tri-Ac*)
Horneman, A.M. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1-6 (*α-form, synth, pmr, cmr, bibl*)
Caddick, S. *et al., Tetrahedron*, 1996, **52**, 149-156 (*tetra-Ac*)
Takanashi, S. *et al., Liebigs Ann./Recl.*, 1997, 1081-1084 (*α-tetra-Ac*)
Chiba, H. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1629-1644 (*α-D-2,3,4-tribenzyl*)

α-D-Glucopyranosyl α-L-glucopyranoside G-263

[74496-96-1]



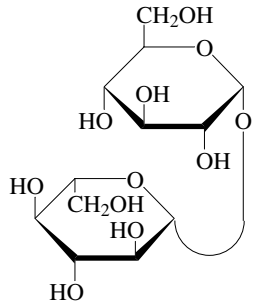
$C_{12}H_{22}O_{11}$ 342.299
Mp 279° dec. $[\alpha]_D^{22}$ 0 (c, 0.2 in H_2O).

Octa-Ac: [162601-97-0]
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (Et_2O/petrol). Mp 115-117°. $[\alpha]_D^{22}$ 0 (c, 0.8 in H_2O).

Ronnow, R.E.C.L. *et al., J. Carbohydr. Chem.*, 1995, **14**, 197-211 (*synth, pmr, cmr, octa-Ac*)

α-D-Glucopyranosyl β-L-glucopyranoside G-264

[74496-97-2]

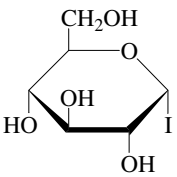


$C_{12}H_{22}O_{11}$ 342.299
Mp 128-132°. $[\alpha]_D^{22}$ +106 (c, 0.5 in H_2O).

Octa-Ac: [162601-96-9]
$C_{28}H_{38}O_{19}$ 678.597
Amorph. powder. Mp 68-70°. $[\alpha]_D^{22}$ +91.4 (c, 0.9 in $CHCl_3$). Incorrect MF given in the paper.

Ronnow, T.E.C.L. *et al., J. Carbohydr. Chem.*, 1995, **14**, 197-211 (*synth, pmr, cmr, octa-Ac*)

Glucopyranosyl iodide G-265



$C_6H_{11}IO_5$ 290.054

α-D-*form*

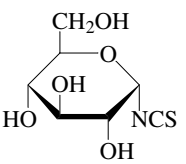
2,3,4,6-Tetra-Ac: [13035-49-9]
$C_{14}H_{19}IO_9$ 458.203
Solid (hexane/EtOAc). Mp 108°. $[\alpha]_D^{20}$ +233 (c, 1.0 in $CHCl_3$).

2,3,4,6-Tetrabenzoyl: [14262-85-2]
$C_{34}H_{27}IO_9$ 706.486
Cryst. (pentane/Et_2O). Mp 141-142° (132-134° dec.). $[\alpha]_D^{29}$ +169.2 (c, 1.1 in $CHCl_3$).

2,3,4,6-Tetrabenzyl: [53008-62-1]
$C_{34}H_{35}IO_5$ 650.552
Amorph. mass. $[\alpha]_D^{25}$ +100.4 (c, 1.2 in $CHCl_3$).

Ness, R.K. *et al., J.A.C.S.*, 1950, **72**, 2200-2205 (*tetrabenzoyl*)
Thiem, J. *et al., Chem. Ber.*, 1980, **113**, 3075-3085 (*tetra-Ac*)
Caputo, R. *et al., Eur. J. Org. Chem.*, 1999, 3147-3150 (*tetra-Ac, tetrabenzoyl, tetrabenzyl*)

Glucopyranosyl isothiocyanate G-266



α-D-*form*

$C_7H_{11}NO_5S$ 221.234

α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl isothiocyanate*
$C_{15}H_{19}NO_9S$ 389.382
Mp 92-94°. $[\alpha]_D$ +114.5 ($CHCl_3$).

β-D-*form*

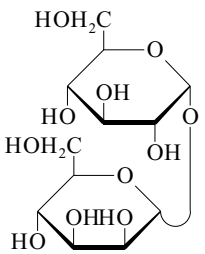
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl isothiocyanate. TAGIT*
[14152-97-7]
$C_{15}H_{19}NO_9S$ 389.382
Derivatisation reagent for the resoln. of amino acids by hplc. Mp 112-113°. $[\alpha]_D$ +5 (c, 1 in $CHCl_3$).

[18866-59-6]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1412B (*nmr*)
Muller, A. *et al., Ber.*, 1941, **74**, 698 (*synth*)
Nimura, N. *et al., J. Chromatogr.*, 1980, **202**, 375; 1981, **210**, 77; 1984, **316**, 547 (*use*)
Gal, J. *et al., J. Liq. Chromatogr.*, 1984, **7**, 2307; 1986, **9**, 673 (*use*)
Camarasa, M.J. *et al., Synthesis*, 1984, 509 (*synth*)
Lindhorst, T.K. *et al., Synthesis*, 1995, 1228 (*α-Tetra Ac pmr, cmr*)

α-D-Glucopyranosyl α-D-mannopyranoside G-267

α-D-Mannopyranosyl α-D-glucopyranoside, 9CI
[58769-00-9]



$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide. Mono- or hemihydrate. Mp 120-125° (monohydrate) Mp 126-134° (hemihydrate). $[\alpha]_D^{22}$ +110 (c, 1.0 in H_2O). $[\alpha]_D^{22}$ +162 (c, 0.5 in H_2O).

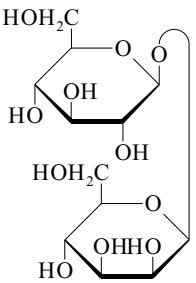
Octa-Ac: [58691-31-9]
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D^{22}$ +116 (c, 1.8 in $CHCl_3$).

*2,3-Anhydro, bis-4,6-*O-*benzylidene: 4,6-*O-*Benzylidene-α-D-glucopyranosyl 2,3-anhydro-4,6-*O-*benzylidene-α-D-mannopyranoside*
[32849-13-1]
$C_{26}H_{28}O_{10}$ 500.501
Cryst. (EtOH). Mp 152-155°. $[\alpha]_D$ +88.5 (c, 1.1 in $CHCl_3$).

Richardson, A.C. *et al., J.C.S.(C)*, 1971, 1090
Bar-Guilloux, E. *et al., Carbohydr. Res.*, 1975, **45**, 217 (*synth*)
Rønnow, T.E.C.L. *et al., J. Carbohydr. Chem.*, 1995, **14**, 197-211 (*synth, pmr, cmr*)

β-D-Glucopyranosyl β-D-mannopyranoside G-268

β-D-Mannopyranosyl β-D-glucopyranoside, 9CI
[58768-98-2]

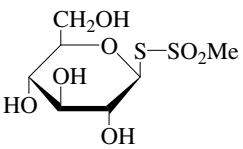


$C_{12}H_{22}O_{11}$ 342.299
Mp 122-128° (anhyd.). $[\alpha]_D^{22}$ +52 (c, 1.0 in H_2O) (+44).

Octa-Ac: [58691-32-0]
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D^{22}$ +40 (c, 0.5 in $CHCl_3$).

Bar-Guilloux, E. *et al., Carbohydr. Res.*, 1975, **45**, 217 (*synth*)

Glucopyranosyl methanethiosulfonate G-269



$C_7H_{14}O_7S_2$ 274.315

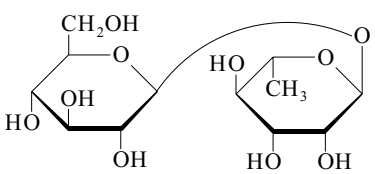
β-D-Pyranose-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl methanethiosulfonate*
[219668-45-8]
$C_{15}H_{22}O_{11}S_2$ 442.464
Reagent for glycosylation of proteins. Cryst. (Et_2O). Mp 151-152° dec.

Davis, B.G. *et al., Tetrahedron: Asymmetry*, 2000, **11**, 245-262 (*synth, pmr, cmr, use*)

β-D-Glucopyranosyl α-L-rhamnopyranoside G-270

[20337-19-3]

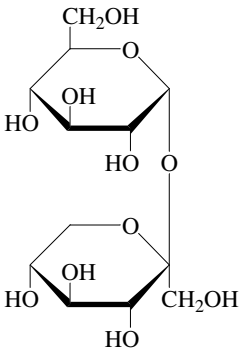


$C_{12}H_{22}O_{10}$ 326.3
Non-reducing disaccharide. Cryst. + $^1/_4H_2O$. Mp 285°. $[\alpha]_D^{20}$ -83.5 (c, 2.35 in H_2O).

Birkofer, L. *et al., Annalen*, 1973, 731 (*synth*)

α-D-Glucopyranosyl β-D-sorbopyranoside G-271

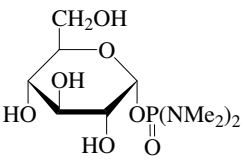
Digobiose



$C_{12}H_{22}O_{11}$ 342.299
Constit. of the fern *Macrothelypteris digophlebia* var. *elegans*. Cryst. (EtOH). Mp 180°. $[\alpha]_D^{23}$ +68.6 (c, 0.005 in H_2O).

Qiu, M.H. *et al., Chin. Chem. Lett.*, 2000, **11**, 1063-1064

Glucopyranosyl *N,N,N′,N′*-tetramethylphosphoramidate G-272



α-D-*form*

$C_{10}H_{23}N_2O_7P$ 314.275

α-D-*form*

Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-α-D-glucopyranosyl* N,N,N′,N′*-tetramethylphosphoramidate*
[143520-19-8]
$C_{38}H_{47}N_2O_7P$ 674.772
Glycosylating agent. Oil. $[\alpha]_D^{23}$ +62.3 (c, 1.05 in $CHCl_3$).

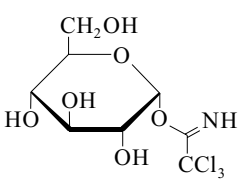
β-D-*form*

Tetrabenzyl: [143520-27-8]
$C_{38}H_{47}N_2O_7P$ 674.772
Glycosylating agent. Needles (hexane). Mp 93-94°. $[\alpha]_D^{23}$ +19.4 (c, 1.05 in $CHCl_3$).

Hashimoto, S. *et al., Tet. Lett.*, 1992, **33**, 3523 (*α-D-tetrabenzyl, β-D-tetrabenzyl*)

O-Glucopyranosyl trichloroacetimidate G-273

*1-*O-*Trichloroacetimidylglucopyranose*



$C_8H_{12}Cl_3NO_6$ 324.544

α-D-*form*

Derivs. are glucosyl donors in synth.

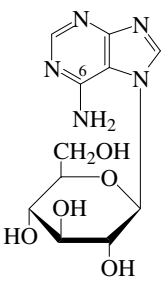
2,3,4,6-Tetra-Ac: O-*(2,3,4,6-Tetra*-O-*acetyl-α-D-glucopyranosyl)trichloroacetimidate*
[74808-10-9]
$C_{16}H_{20}Cl_3NO_{10}$ 492.693
$[\alpha]_{278}^{20}$ +103 (c, 1.2 in $CHCl_3$).

2,3,4,6-Tetrabenzyl: O-*(2,3,4,6-Tetra*-O-*benzyl-α-D-glucopyranosyl)trichloroacetimidate*
[74808-09-6]
$C_{36}H_{36}Cl_3NO_6$ 685.042
$[\alpha]_D^{20}$ +61.5 (c, 1.0 in $CHCl_3$).

Schmidt, R.R. *et al., Annalen*, 1983, 1249; 1984, 1343 (*synth, use*)
Schmidt, R.R. *et al., J. Carbohydr. Chem.*, 1985, **4**, 141-169 (*use*)

7-β-D-Glucopyranosyladenine, 9CI G-274

*7-β-D-Glucopyranosyl-7*H*-purin-6-amine, 9CI*
[67010-96-2]



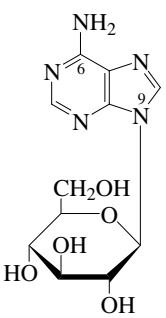
$C_{11}H_{15}N_5O_5$ 297.27
Cryst. (H_2O). Mp 299-300°.

6-N-*Benzyl:* [56159-42-3]
$C_{18}H_{21}N_5O_5$ 387.394
Widely distributed in plants. Cryst. (MeOH aq.).
Mp 308-310°.

Letham, D.S. *et al., Biochim. Biophys. Acta*, 1975, **399**, 61-70 (*N-benzyl, isol*)
Cowley, D.E. *et al., Aust. J. Chem.*, 1978, **31**, 1095-1111 (*synth, N-benzyl, uv, pmr, ms, bibl*)
Duke, C.C. *et al., Aust. J. Chem.*, 1978, **31**, 2219-2223 (*N-benzyl, cmr*)

9-β-D-Glucopyranosyladenine G-275

*9-β-D-Glucopyranosyl-9*H*-purin-6-amine, 9CI*
[3181-39-3]



$C_{11}H_{15}N_5O_5$ 297.27
Cryst. (H_2O). Mp 242-243°.

Picrate: Mp 252°.

Penta-Ac:
$C_{21}H_{25}N_5O_{10}$ 507.456
Cryst. (EtOH). Mp 226-229°.

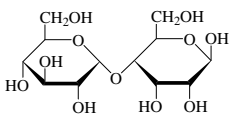
6-N-*Benzoyl; 2′,3′,4′,6′-tetra-Ac:* [3624-39-3]
$C_{26}H_{27}N_5O_{10}$ 569.527
Cryst. (Et_2O). Mp 176-179°.

6-N-*Benzyl:* [4294-17-1]
$C_{18}H_{21}N_5O_5$ 387.394
Widely distributed in plants. Cryst. (EtOH).
Mp 179-181°. $[\alpha]_D^{27}$ +1.4 (c, 5.0 in Me_2SO).

Davoll, J. *et al., J.A.C.S.*, 1951, **73**, 1650-1655 (*synth, penta-Ac*)
Prystas, M. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1472-1481 (*synth, N-benzoyl-tetra-Ac*)
Letham, D.S. *et al., Biochim. Biophys. Acta*, 1975, **399**, 61-70 (*N-benzyl, isol*)
Cowley, D.E. *et al., Aust. J. Chem.*, 1978, **31**, 1095-1111 (*N-benzyl, synth, uv, pmr, ms, bibl*)
Duke, C.C. *et al., Aust. J. Chem.*, 1978, **31**, 2219-2223 (*N-benzyl, cmr*)

4-*O*-α-D-Glucopyranosyl-D-allose, 9CI G-276

[66101-72-2]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Amorph. $[\alpha]_D^{24}$ +118.9 (c, 3.0 in H_2O).

β-Pyranose-*form*

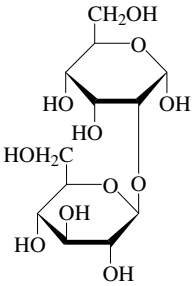
Octabenzoyl: [66101-71-1]
$C_{68}H_{54}O_{19}$ 1175.163
Cryst. (EtOH/Me_2CO). Mp 154-155°.
$[\alpha]_D^{24}$ +45.2 (c, 1.4 in $CHCl_3$).

Me glycoside, 3-benzoyl, hexa-Ac: Methyl 2,6-di-O-*acetyl-3*-O-*benzoyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-glucopyranosyl)-β-D-allopyranoside*
[52538-75-7]
$C_{32}H_{40}O_{18}$ 712.657
Cryst. (EtOH). Mp 75-78°. $[\alpha]_D^{24}$ +30 (c, 0.7 in $CHCl_3$).

Durette, P.L. *et al., J.C.S. Perkin 1*, 1974, 88
Takeo, K. *et al., Carbohydr. Res.*, 1977, **59**, 379 (*synth*)
Adelhurst, K. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 196 (*Me gly, cmr*)
Kitahata, S. *et al., Agric. Biol. Chem.*, 1989, **53**, 2661 (*synth*)

2-*O*-β-D-Glucopyranosyl-D-allose, 9CI G-277

[82443-88-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Syrup. $[\alpha]_D$ -22.5 (c, 1.03 in H_2O).

α-Pyranose-*form*

Me glycoside, hepta-Ac: Methyl 2-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-3,4,6-tri*-O-*acetyl-α-D-allopyranoside*
[82411-26-5]
$C_{27}H_{38}O_{18}$ 650.586
Mp 134-135°. $[\alpha]_D$ +42.5 (c, 0.94 in $CHCl_3$).

Me glycoside: Methyl 2-O-*β-D-glucopyranosyl-α-D-allopyranoside*
[82411-25-4]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. $[\alpha]_D$ +34.5 (c, 1.1 in H_2O).

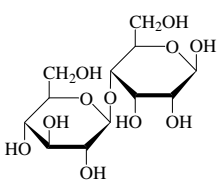
β-Pyranose-*form*

Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-2*-O-*β-D-glucopyranosyl-β-D-allopyranoside*
[84730-88-1]
$C_{20}H_{28}O_{11}$ 444.435
Cryst. (EtOH). Mp 233-234.5°. $[\alpha]_D^{20}$ -97 (c, 0.9 in Py).

Me glycoside, 4,6-O-*benzylidene, 3-benzoyl, 2′,3′4′,6′-tetra-Ac: Methyl 3*-O-*benzoyl-4,6-benzylidene-2*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-β-D-allopyranoside*
[84730-87-0]
$C_{35}H_{40}O_{16}$ 716.691
Amorph. $[\alpha]_D^{20}$ -38.4 (c, 0.8 in $CHCl_3$).

Temeriusz, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1981, **55**, 783; *CA*, **97**, 56154y (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **112**, 73

4-*O*-β-D-Glucopyranosyl-D-allose G-278



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

β-Pyranose-*form*

Me glycoside: Methyl 4-O-*β-D-glucopyranosyl-β-D-allopyranoside*
[66101-75-5]

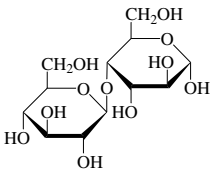
$C_{13}H_{24}O_{11}$ 356.326
Mp 208-209°. $[\alpha]_D^{24}$ -17.7 (c, 1.6 in H_2O).

Me glycoside, heptabenzoyl: [66073-31-2]
$C_{62}H_{52}O_{18}$ 1085.082
Mp 105-110° (softens). $[\alpha]_D^{24}$ -17.2 (c, 1.9 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1977, **59**, 379 (*synth*)

4-*O*-β-D-Glucopyranosyl-D-altrose G-279

Celltrobiose



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Mp 133-148° (hydrate). $[\alpha]_D$ +13.6 (H_2O).

α-Pyranose-*form*

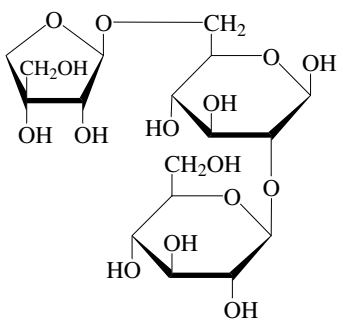
Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-α-D-altropyranoside*
$C_{28}H_{38}O_{19}$ 678.597
Mp 112° Mp 129-130°. $[\alpha]_D$ +48 ($CHCl_3$).

β-Pyranose-*form*

Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-β-D-altropyranoside*
$C_{28}H_{38}O_{19}$ 678.597
Mp 113-114° (103-105°). $[\alpha]_D$ -13 ($CHCl_3$).

Richtmyer, N.K. *et al., J.A.C.S.*, 1936, **58**, 2534 (*synth*)
Richtmyer, N.K. *et al., Adv. Carbohydr. Chem.*, 1945, **1**, 37 (*rev*)
Percy, A. *et al., Carbohydr. Res.*, 1998, **305**, 543-548 (*synth, pmr, cmr*)

β-D-Glucopyranosyl-(1→2)-[β-D-apiofuranosyl(1→6)]-D-glucose G-280



$C_{17}H_{30}O_{15}$ 474.415

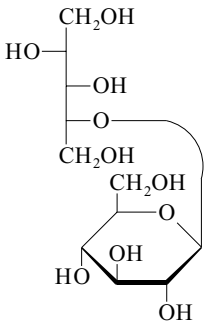
β-D-Pyranose-*form*

Benzyl glycoside:
$C_{24}H_{36}O_{15}$ 564.539
Constit. of *Pyrus bourgaeana*. Pale yellow powder. $[\alpha]_D$ -103.2 (c, 1.2 in MeOH).

Bilia, A.R. *et al., Planta Med.*, 1994, **60**, 568

4-*O*-β-D-Glucopyranosyl-L-arabinitol G-281

2-O-*β-D-Glucopyranosyl-D-lyxitol*



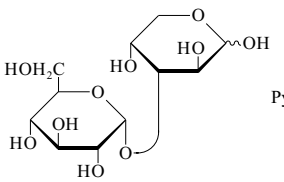
$C_{11}H_{22}O_{10}$ 314.289

Octa-Ac:
$C_{27}H_{38}O_{18}$ 650.586
Mp 108°. $[\alpha]_D$ -13 ($CHCl_3$).

Davidson, E.A. *et al., J.A.C.S.*, 1955, **77**, 4796 (*synth, Ac*)

3-*O*-α-D-Glucopyranosyl-D-arabinose, 9CI, 8CI G-282

[23103-02-8]



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
$[\alpha]_D^{20}$ +49 (c, 4.0 in H_2O).

Phenylosazone: Mp 195-200°.

α-Pyranose-*form* [23846-22-2]
Monohydrate. Mp 120-121°. $[\alpha]_D^{20}$ +53.7 → +47 (c, 4.0 in H_2O; equilib.).

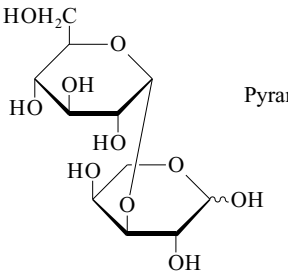
Hepta-Ac: 1,2,4-Tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-glucopyranosyl)-α-D-arabinopyranose, 9CI, 8CI*
[23846-24-4]
$C_{25}H_{34}O_{17}$ 606.533
Mp 127-128°. $[\alpha]_D^{20}$ +62.4 (c, 2.5 in $CHCl_3$).

β-Pyranose-*form* [126107-70-8]
Cryst. (MeOH/2-propanol). Mp 155-157°. $[\alpha]_D^{20}$ +14.2 → +49.2 (c, 4.0 in H_2O; equilib.).

Hepta-Ac: 1,2,4-Tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-glucopyranosyl)-β-D-arabinopyranose, 9CI, 8CI*
[23846-25-5]
$C_{25}H_{34}O_{17}$ 606.533
Mp 194.5-195.5°. $[\alpha]_D^{20}$ +13.4 (c, 2.5 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1954, **8**, 821 (*synth*)
Whistler, R.L. *et al., J.O.C.*, 1961, **26**, 1050 (*synth*)
Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.), Sect. A*, 1968, **72**, 769 (*synth*)
Furda, I. *et al., Can. J. Chem.*, 1969, **47**, 2891 (*synth*)
Bilik, V. *et al., Chem. Zvesti*, 1981, **35**, 829; *CA*, **96**, 123144q (*synth*)

3-*O*-α-D-Glucopyranosyl-L-arabinose G-283



Pyranose–*form*

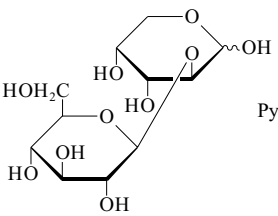
$C_{11}H_{20}O_{10}$ 312.273
Synth. by the action of *Pseudomonas saccharophila* phosphorylase on α-glucose 1-phosphate plus L-arabinose. Dihydrate. $[\alpha]_D$ +156 (c, 2.0 in H_2O).

Phenylosotriazole: Mp 126.5°. $[\alpha]_D$ +80 (c, 2.0 in H_2O).

Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
$[\alpha]_D$ +111 (c, 2.0 in $CHCl_3$).

Hassid, W.Z. *et al., J.A.C.S.*, 1948, **70**, 306

2-*O*-β-D-Glucopyranosyl-D-arabinose G-284



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Cryst. (MeOH). Mp 189-190°. $[\alpha]_D^{20}$ -96 → -67 (0.5h; c, 1.0 in H_2O).

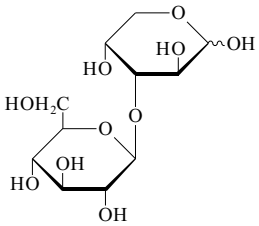
β-Pyranose-*form* [68070-16-6]

Benzyl glycoside, 3,4-O-*isopropylidene, 2′,3′,4′,6′-tetra-Ac: Benzyl 3,4*-O-*isopropylidene-2*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-β-D-arabinopyranoside*
[68044-28-0]
$C_{29}H_{38}O_{14}$ 610.611
Mp 154°. $[\alpha]_D^{20}$ -105 (c, 1.5 in $CHCl_3$).

Weissmann, B. *et al., J.A.C.S.*, 1954, **76**, 1753 (*synth*)
Sarfati, R.S. *et al., Carbohydr. Res.*, 1978, **65**, 11 (*synth*)

3-*O*-β-D-Glucopyranosyl-D-arabinose, 9CI G-285

[5077-26-9]



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
$[\alpha]_D$ -79 (c, 1.0 in H_2O). $[\alpha]_D$ -53.5 (c, 5.2 in H_2O). The early. lit. gives Mp 161° and $[\alpha]_D$ -94° (H_2O). These values are not found in the recent lit.

α-Furanose-*form*

Hepta-Ac: 1,2,5-Tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-α-D-arabinofuranose, 9CI*
[77790-36-4]
$C_{25}H_{34}O_{17}$ 606.533
Needles (2-propanol). Mp 127-128°. $[\alpha]_D$ -7.1 (c, 0.4 in $CHCl_3$).

β-Furanose-*form*

Hepta-Ac: 1,2,5-Tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-β-D-arabinofuranose*
[77735-23-0]
$C_{25}H_{34}O_{17}$ 606.533
Mp 154-155°. $[\alpha]_D$ -36 (c, 0.5 in $CHCl_3$).

α-Pyranose-*form*

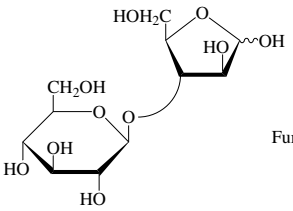
Hepta-Ac: 1,2,4-Tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-α-D-arabinopyranose, 9CI*
[77790-34-2]
$C_{25}H_{34}O_{17}$ 606.533
Rectangular plates or needles (MeOH). Mp 161-162° Mp 196-197° (double Mp). $[\alpha]_D^{20}$ -16.9 (c, 0.98 in $CHCl_3$) (lit. gives a temp. range).

β-Pyranose-*form*

Hepta-Ac: 1,2,4-Tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-β-D-arabinopyranose, 9CI*
[77790-35-3]
$C_{25}H_{34}O_{17}$ 606.533
Mp 139-140°. $[\alpha]_D$ -85.4 (c, 0.14 in $CHCl_3$).

Zemplen, G. *et al., Ber.*, 1926, **59**, 1254
Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1946, **16**, 1914
Szarek, W.A. *et al., Tetrahedron*, 1978, **34**, 1427 (*synth*)
Gelpi, M.E. *et al., Carbohydr. Res.*, 1981, **88**, 277 (*Ac, pmr*)
Bilik, V. *et al., Chem. Zvesti*, 1981, **35**, 829; *CA*, **96**, 123144q (*synth*)
Mizutani, K. *et al., Chem. Pharm. Bull.*, 1985, **33**, 2266

4-*O*-β-D-Glucopyranosyl-D-arabinose G-286

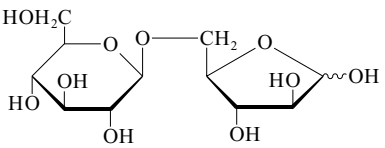


Furanose-*form*

$C_{11}H_{20}O_{10}$ 312.273

Percy, A. *et al., Carbohydr. Res.*, 1998, **305**, 543-548 (*synth, pmr, cmr*)

5-*O*-β-D-Glucopyranosyl-D-arabinose G-287



Furanose–*form*

$C_{11}H_{20}O_{10}$ 312.273

Furanose-*form*

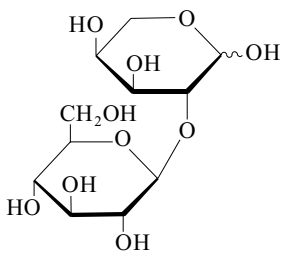
$[\alpha]_D$ -3.14 (H_2O).

Phenylosazone: Mp 209-210°.

McDonald, N.S. *et al., J.A.C.S.*, 1942, **64**, 2731 (*synth*)

2-*O*-β-D-Glucopyranosyl-L-arabinose, 9CI, 8CI G-288

[27539-70-4]



$C_{11}H_{20}O_{10}$ 312.273
Isol. from a *Malaxis* spp. (Orchidaceae). $[\alpha]_D^{20}$ +29 (c, 0.5 in H_2O).

α-Furanose-*form* [86049-24-3]

Me glycoside: Methyl 2-O-*β-D-glucopyranosyl-α-L-arabinofuranoside, 9CI*
[121949-60-8]
$C_{12}H_{22}O_{10}$ 326.3
Syrup. $[\alpha]_D^{21}$ -92.6 (c, 1.24 in H_2O).

β-Furanose-*form* [86049-25-4]

Me glycoside: Methyl 2-O-*β-D-glucopyranosyl-β-L-arabinofuranoside*
[121949-61-9]
$C_{12}H_{22}O_{10}$ 326.3
Syrup. $[\alpha]_D^{21}$ +16.3 (c, 1.0 in H_2O).

α-Pyranose-*form* [86117-06-8]

Me glycoside: Methyl 2-O-*β-D-glucopyranosyl-α-L-arabinopyranoside*
[89734-26-9]
$C_{12}H_{22}O_{10}$ 326.3
Needles (MeOH/EtOAc). Mp 193-194°. $[\alpha]_D^{20}$ -36.8 (c, 0.8 in H_2O).

tert-*Butyl glycoside:* tert-*Butyl 2*-O-*β-D-glucopyranosyl-α-L-arabinopyranoside, 9CI*
[101305-01-5]
$C_{15}H_{28}O_{10}$ 368.38
Powder. $[\alpha]_D^{15}$ -3.8 (c, 0.67 in Py).

β-Pyranose-*form* [86117-14-8]

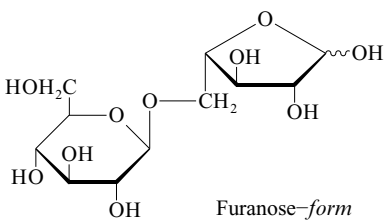
Me glycoside: Methyl 2-O-*β-D-glucopyranosyl-β-L-arabinopyranoside*
[89734-30-5]
Powder. $[\alpha]_D^{20}$ +91.7 (c, 0.69 in H_2O).

Benzyl glycoside: [27539-69-1]
$C_{18}H_{26}O_{10}$ 402.397
Mp 199-200° (194-195°). $[\alpha]_D^{22}$ +132 (H_2O).

[86049-04-9]

Ekborg, G. *et al., Acta Chem. Scand.*, 1969, **23**, 2914 (*synth, isol*)
Kamerling, J.P. *et al., Tetrahedron*, 1971, **27**, 4275 (*ms*)
Erbing, B. *et al., CA*, 1976, **84**, 122160g (*synth*)
Liptak, A. *et al., Tetrahedron*, 1982, **38**, 3489 (*synth, pmr, cmr, benzyl gly*)
Mizutani, K. *et al., Carbohydr. Res.*, 1984, **126**, 177; 1989, **185**, 27 (*Me fur, Me py, synth, pmr*)

5-*O*-β-D-Glucopyranosyl-L-arabinose G-289



Furanose–*form*

$C_{11}H_{20}O_{10}$ 312.273

α-Furanose-*form*

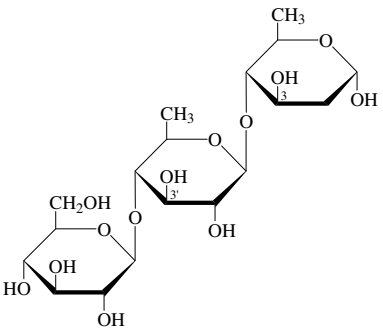
Me glycoside: Methyl 5-O-*β-D-glucopyranosyl-α-L-arabinofuranoside, 9CI*
[121949-56-2]
$C_{12}H_{22}O_{10}$ 326.3
Syrup. $[\alpha]_D^{21}$ -54.5 (c, 2.8 in H_2O).

β-Furanose-*form*

Me glycoside: Methyl 5-O-*β-D-glucopyranosyl-β-L-arabinofuranoside*
[121949-57-3]
$C_{12}H_{22}O_{10}$ 326.3
Powder. $[\alpha]_D^{21}$ +239.7 (c, 0.34 in H_2O).

Mizutani, K. *et al., Carbohydr. Res.*, 1989, **185**, 27 (*synth, pmr*)

β-D-Glucopyranosyl-(1 →4)-6-deoxy-β-D-glucopyranosyl-(1 →4)-2,6-dideoxy-D-*arabino*-hexose G-290



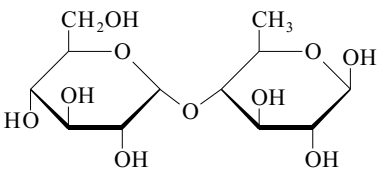
$C_{18}H_{32}O_{13}$ 456.443

α-Pyranose-*form*

Me glycoside, 3,3′-di-Me: ***Dresitrioside***
[130855-20-8]
$C_{21}H_{38}O_{13}$ 498.523
Constit. of the roots of *Dregea sinensis*.
Shen, X. *et al., Huaxue Xuebao*, 1990, **48**, 709; *CA*, **114**, 3446h (*isol*)

4-*O*-α-D-Glucopyranosyl-6-deoxy-D-glucose G-291

4-O-*α-D-Glucopyranosyl-D-quinovose*
[67831-17-8]



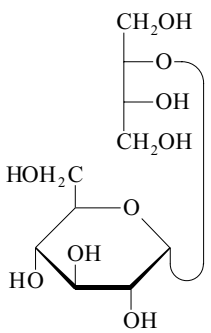
$C_{12}H_{22}O_{10}$ 326.3

β-Pyranose-*form*

Me glycoside: [69988-41-6]
$C_{13}H_{24}O_{10}$ 340.327
Cryst. (EtOH). Mp 194-195°. $[\alpha]_D^{24}$ +74.6 (c, 0.5 in H_2O).

Me glycoside, hexa-Ac: [25787-35-3]
$C_{25}H_{36}O_{16}$ 592.55
Cryst. (EtOH). Mp 121-122°. $[\alpha]_D^{24}$ +46.6 (c, 1.2 in $CHCl_3$).
Takeo, K. *et al., Carbohydr. Res.*, 1979, **69**, 272

2-*O*-α-D-Glucopyranosyl-D-erythritol G-292



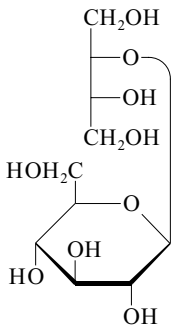
$C_{10}H_{20}O_9$ 284.263
Mp 147°. $[\alpha]_D$ +130 (H_2O).

Hepta-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Mp 97-98°. $[\alpha]_D$ +105 ($CHCl_3$).

[22160-28-7]

Charlson, A.J. *et al., Can. J. Chem.*, 1956, **34**, 1200 (*synth*)

2-*O*-β-D-Glucopyranosyl-D-erythritol G-293



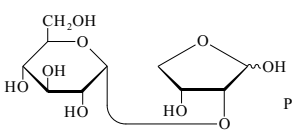
$C_{10}H_{20}O_9$ 284.263
Mp 185°. $[\alpha]_D$ -17 (H_2O).

Hepta-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Mp 116°. $[\alpha]_D$ -1.4 ($CHCl_3$).

[22263-58-7]

Conchie, J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 157 (*synth*)

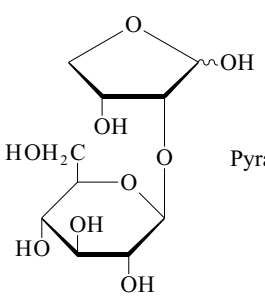
2-*O*-α-D-Glucopyranosyl-D-erythrose G-294



$C_{10}H_{18}O_9$ 282.247
Reducing disaccharide. Mp 141°. $[\alpha]_D$ +87.5 (H_2O).

Hexa-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 127°.
Haskins, W.T. *et al., J.A.C.S.*, 1942, **64**, 1852 (*synth*)

2-*O*-β-D-Glucopyranosyl-D-erythrose G-295

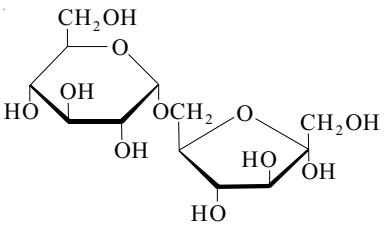


$C_{10}H_{18}O_9$ 282.247
Reducing disaccharide. Mp 149-150°. $[\alpha]_D$ +36.8 (H_2O).

Hexa-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 128-131°.
Montgomery, E.M. *et al., J.A.C.S.*, 1930, **52**, 2101
Curtis, E.J.C. *et al., Can. J. Chem.*, 1959, **37**, 358 (*synth*)

6-*O*-α-D-Glucopyranosyl-D-fructofuranose G-296

Isomaltulose. *Palatinose*
[13718-94-0]

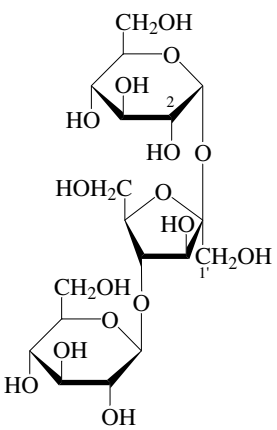


$C_{12}H_{22}O_{11}$ 342.299
An aq. soln. at 20° contains 19.7% α-fur and 80.3% β-fur forms. Isol. from *Streptococcus bovis*. Formed by the action of Enterobacteriaceae on sucrose. Inexpensive bulk-scale carbohydrate. $[\alpha]_D$ +97.2 (H_2O).

Phenylosazone: Mp 173-175°.

Bourne, E.J. *et al., Biochem. J.*, 1961, **79**, 549 (*isol*)
Whyte, J.N.C. *et al., Anal. Biochem.*, 1971, **42**, 476 (*pmr*)
Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 3037 (*pmr*)
Dreissig, W. *et al., Acta Cryst. B*, 1973, **29**, 514 (*cryst struct*)
Mauch, W. *et al., Z. Zuckerind.*, 1976, **26**, 21 (*synth*)
Jarrell, H.C. *et al., Carbohydr. Res.*, 1979, **76**, 45-47 (*cmr*)
Lichtenthaler, F.W. *et al., J.C.S. Perkin 2*, 1990, 1489 (*equilib*)
Tanaka, M. *et al., J. Carbohydr. Chem.*, 1993, **12**, 49-61 (*use, bibl*)
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1998, **313**, 69-89 (*rev, use*)

β-D-Glucopyranosyl-(1 →4)-β-D-fructofuranosyl α-D-glucopyranoside G-297

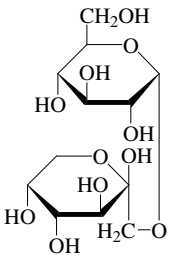


$C_{18}H_{32}O_{16}$ 504.441

3-O-*(4-Hydroxy*-E-*cinnamoyl), 2′*-O-E-*cinnamoyl, 6-Ac:* ***Dalmaisiose A***
$C_{38}H_{46}O_{20}$ 822.769
Constit. of the roots of *Polygala dalmaisiana*. Amorph. powder. $[\alpha]_D^{23}$ -5.8 (c, 0.77 in MeOH). λ_{max} 224 (log ϵ 4.43); 284 (log ϵ 4.46); 317 (log ϵ 4.29) (MeOH).
Kobayashi, S. *et al., J. Nat. Prod.*, 2002, **65**, 319-328 (*isol, pmr, cmr*)

1-*O*-α-D-Glucopyranosyl-D-fructose, 9CI G-298

Trehalulose
[51411-23-5]



β-Pyranose-*form*

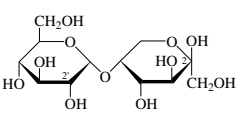
$C_{12}H_{22}O_{11}$ 342.299
Found (50% total carbohydrate content) in the honeydew produced by the sweet potato whitefly (*Bemisia tabaci*). Synthesised by the transferase action of yeast α-glucosidase on sucrose plus fructose. Anticaries sweetening agent. Amorph. powder.
Mp 90-95°. $[\alpha]_D^{20}$ +50 (c, 1.0 in H_2O).

β-Pyranose-*form* [90689-37-5]

2′,3′,4′,6′-Tetrabenzyl, 2,3:4,5-di-O-*isopropylidene:* [74024-22-9]
$C_{46}H_{54}O_{11}$ 782.926
$[\alpha]_D^{22}$ +22.5 (c, 1.3 in $CHCl_3$).
Avigad, G. *et al., Biochem. J.*, 1959, **73**, 587 (*synth*)
Pavia, A.A. *et al., Carbohydr. Res.*, 1980, **79**, 79 (*deriv*)
Munir, M. *et al., Carbohydr. Res.*, 1987, **164**, 477 (*synth*)
Bates, R.B. *et al., Carbohydr. Res.*, 1990, **201**, 342 (*isol, cmr, pmr*)

5-*O*-α-D-Glucopyranosyl-D-fructose, 9CI, 8CI G-299

Leucrose
[7158-70-5]



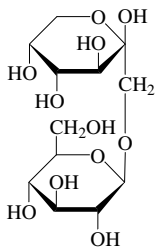
β-D-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
An aq. soln. at 20° conts. 1.9% α-pyr. and 98.1% β-pyr. forms. Produced by *Leuconostoc mesenteroides*. Also in pollen of *Typha latifolia*. Non-cariogenic sweetening agent with approx. 40-50% of the sweetening power of sucrose.
Mp 161-163° (156°). $[\alpha]_D^{25}$ -8.2 → +7.6 (c, 4 in H_2O).
Phenylosazone: Mp 186-188°.
Phenylosotriazole: Mp 108-109°.
Phenylosotriazole, hepta-Ac: Mp 150-151°.

β-Pyranose-*form*
Benzyl glycoside, 2′,3′,4′,6′-tetrabenzyl: Benzyl 5-O-*(2,3,4,6-tetra*-O-*benzyl*-α-D-*glucopyranosyl)*-β-D-*fructopyranoside*
$C_{47}H_{52}O_{11}$ 792.921
Syrup. $[\alpha]_D^{20}$ -8.5 (c, 0.7 in $CHCl_3$).
Benzyl glycoside, 1,3,4-tribenzoyl, 2′,3′,4′,6′-tetrabenzyl: Benzyl 1,3,4-tri-O-*benzoyl-5*-O-*(2,3,4,6-tetra*-O-*benzyl*-α-D-*glucopyranosyl)*-β-D-*fructopyranoside*
$C_{68}H_{64}O_{14}$ 1105.245
Mp 45°. $[\alpha]_D^{20}$ -56.5 (c, 1.0 in $CHCl_3$).
Stodola, F.H. *et al., J.A.C.S.*, 1952, **74**, 3202; 1956, **78**, 2514 (*isol, struct, synth*)
Watanabe, T. *et al., CA*, 1962, **56**, 5228 (*isol*)
Chiba, S. *et al., Agric. Biol. Chem.*, 1971, **35**, 1292 (*enzymatic synth*)
de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 799 (*pmr*)
Thiem, J. *et al., Carbohydr. Res.*, 1989, **189**, 65; 1990, **205**, 333 (*synth, cmr, cryst struct*)
Lichtenthaler, F.W. *et al., J.C.S. Perkin 2*, 1990, 1489 (*equilib*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1569-1570

1-*O*-β-D-Glucopyranosyl-D-fructose G-300

[20221-15-2]



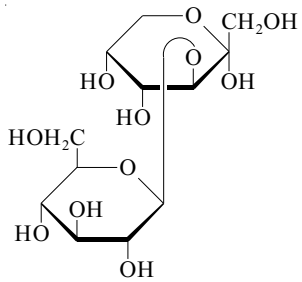
β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Cryst. + $2H_2O$. Mp 132-135°. $[\alpha]_D$ -59.2 (H_2O).

β-Pyranose-*form*
2,3:4,5-Di-O-*isopropylidene, 2′,3′,4′,6′-tetrabenzyl:* [74080-45-8]
$C_{46}H_{54}O_{11}$ 782.926
$[\alpha]_D^{22}$ -6.25 (c, 1.35 in $CHCl_3$).
Helferich, B. *et al., Chem. Ber.*, 1958, **91**, 1794 (*synth*)
Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 4375 (*ms*)
Pavia, A.A. *et al., Carbohydr. Res.*, 1980, **79**, 79 (*deriv*)

3-*O*-β-D-Glucopyranosyl-D-fructose, 9CI G-301

Laminarabiulose
[84986-84-5]

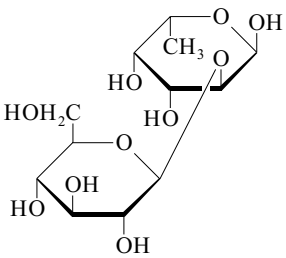


$C_{12}H_{22}O_{11}$ 342.299
Five tautomers possible; 2 furanoses and the β-pyranose detected at equilib. Present in polysaccharides of the fungus *Cyttaria johowii* (Discomycetes).
$[\alpha]_D^{20}$ -43 (c, 0.5 in H_2O).

β-Pyranose-*form*
1,2:4,5-Di-O-*isopropylidene:*
$C_{18}H_{30}O_{11}$ 422.428
Cryst. (C_6H_6). Mp 103-104°. $[\alpha]_D^{20}$ -112 (c, 0.7 in $CHCl_3$).
1,2:4,5-Di-O-*isopropylidene, tetra-Ac:*
$C_{26}H_{38}O_{15}$ 590.577
Cryst. (2-propanol). Mp 149-151°. $[\alpha]_D^{20}$ -81.5 (c, 0.8 in CH_2Cl_2).
De Lederkremer, R.M. *et al., Carbohydr. Res.*, 1983, **113**, 331; 1984, **126**, 313 (*isol, synth*)

2-*O*-β-D-Glucopyranosyl-L-fucose G-302

6-Deoxy-2-O-*β-D-glucopyranosyl-L-mannose. 2*-O-*β-D-Glucopyranosyl-6-deoxy-L-mannose*

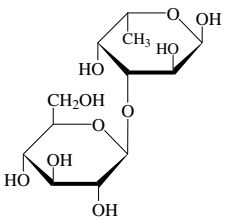


$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form*
Me glycoside, 2′,3′,4′,6′-tetra-Ac, 4-(2-nitrobenzoyl): [79258-26-7]
$[\alpha]_D^{22}$ +7 (c, 1.4 in $CHCl_3$).
Collins, P.M. *et al., J.C.S. Perkin 1*, 1983, 921

3-*O*-β-D-Glucopyranosyl-L-fucose G-303

3-O-β-D-Glucopyranosyl-6-deoxy-L-galactose. 6-Deoxy-3-O-β-D-glucopyranosyl-L-galactose



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

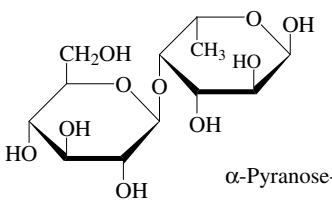
Reducing disaccharide. Constit. of the repeating unit of a mucous polysaccharide produced by enterobacteria.

2,2′,3′,4,4′,6′-Hexabenzyl: [62396-61-6]
$C_{54}H_{58}O_{10}$ 867.046
Syrup. $[\alpha]_D$ -9 (c, 0.5 in $CHCl_3$).

Garegg, P.J. *et al., Acta Chem. Scand.*, 1971, **25**, 1185; 2103 (*occur*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1976, **52**, 235

4-*O*-β-D-Glucopyranosyl-L-fucose G-304

6-Deoxy-4-O-β-D-glucopyranosyl-L-mannose. 4-O-β-D-Glucopyranosyl-6-deoxy-L-mannose



α-Pyranose-*form*

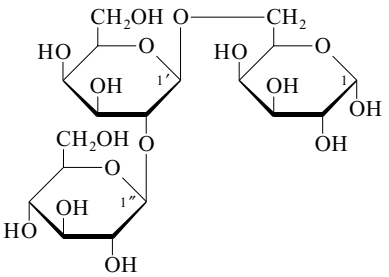
$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Isol. from the partial acid hydrolysate of the extracellular polysaccharide from *Corynebacterium insidiosum*.
$[\alpha]_D$ -71 (H_2O).

Hepta-Ac:
$C_{26}H_{36}O_{17}$ 620.56
Mp 228-230°. $[\alpha]_D$ -59 ($CHCl_3$).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 2275 (*isol*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1980, **79**, 313 (*occur*)
Percy, A. *et al., Carbohydr. Res.*, 1998, **305**, 543-548 (*synth, pmr, cmr*)

β-D-Glucopyranosyl-(1→2)-β-D-galactopyranosyl-(1→6)-D-galactose, 9CI G-305



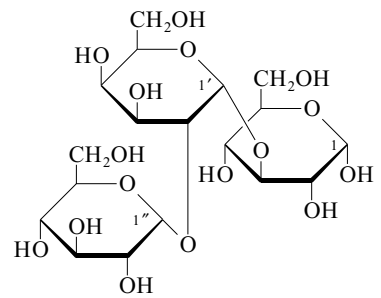
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

1,2:3,4-Di-O-isopropylidene, hepta-Ac:
[78174-48-8]
$C_{38}H_{54}O_{23}$ 878.831
Cryst. (2-propanol). Mp 156-160°. $[\alpha]_D^{20}$ -23 (c, 1.2 in $CHCl_3$).

Koeners, H.J. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1981, **100**, 65 (*diisopropylidene hepta-Ac, pmr*)

α-D-Glucopyranosyl-(1→2)-α-D-galactopyranosyl-(1→3)-D-glucose, 9CI G-306



$C_{18}H_{32}O_{16}$ 504.441
Used for probing the carbohydrate-binding specificity of bacteriophages.

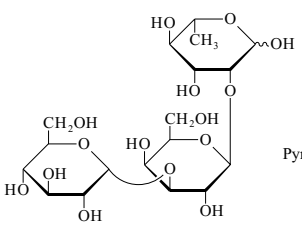
α-Pyranose-*form*

Me glycoside: [104992-71-4]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D$ +217 (c, 1.0 in H_2O).

Norberg, T. *et al., Glycoconjugate J.*, 1986, **3**, 135 (*α-Me pyr, cmr*)

α-D-Glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→2)-L-rhamnose G-307

[67109-67-5]

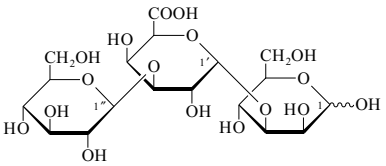


Pyranose–*form*

$C_{18}H_{32}O_{15}$ 488.442
Constit. of the repeating unit of the capsular antigen of *Klebsiella* serotype K70.
$[\alpha]_D$ +10 (H_2O).

Dutton, G.G.S. *et al., Carbohydr. Res.*, 1978, **62**, 321

β-D-Glucopyranosyl-(1→3)-α-D-galactopyranuronosyl-(1→3)-D-mannose, 9CI G-308



Pyranose–*form*

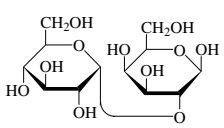
$C_{18}H_{30}O_{17}$ 518.425

4′-Ac: β-D-Glucopyranosyl-(1→3)-4-O-acetyl-α-D-galactopyranosyl-(1→3)-D-mannose, 9CI
[87810-45-5]
$C_{20}H_{32}O_{18}$ 560.462
Constit. of the repeating unit of an extracellular polysaccharide of *Rhizobium japonicum* strain 3I1b 138. May play a role in recognition place between the bacteria legumes in the establishment of nitrogen fixing symbiosis. Syrup.

Mort, A.J. *et al., J. Biol. Chem.*, 1982, **257**, 1870 (*struct, pmr, cmr, chromatog*)
Mort, A.J. *et al., Carbohydr. Res.*, 1983, **121**, 221 (*occur, pmr, cmr*)

2-*O*-α-D-Glucopyranosyl-D-galactose, 9CI, 8CI G-309

[23178-92-9]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from the body wall glycoprotein of the leech, *Hirudo medicinalis* and from the partial acid hydrolysate of the specific substance S34 of *Pneumococcus* type 34.

β-Pyranose-*form*

Me glycoside: Methyl 2-O-α-D-glucopyranosyl-β-D-galactopyranoside
[101072-32-6]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D$ +111 (c, 1.0 in H_2O).

Me glycoside, 2′,3′,4,4′,6,6′-hexabenzyl:
$C_{55}H_{60}O_{11}$ 897.072
Mp 148-149°. $[\alpha]_D^{24}$ +42 (c, 1.0 in $CHCl_3$).

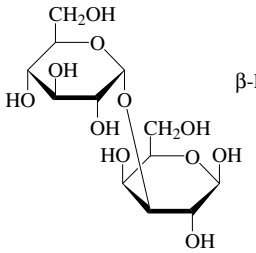
[7368-73-2]

Dixon, J.R. *et al., Carbohydr. Res.*, 1968, **8**, 262 (*isol*)
Biswas, T. *et al., Carbohydr. Res.*, 1978, **63**, 173 (*isol*)
Nechaev, O.A. *et al., Bioorg. Khim.*, 1988, **14**, 1224; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 666 (*Me gly*)

Lipkind, G.M. *et al., Bioorg. Khim.*, 1989, **15**, 1366; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 755 (*cmr, conformn*)

3-*O*-α-D-Glucopyranosyl-D-galactose, 9CI, 8CI G-310

[69854-70-2]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
$[\alpha]_D^{25}$ +138 (c, 1.29 in $H_{22}O$).

β-Pyranose-*form*

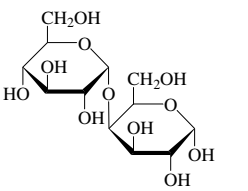
Me glycoside: Methyl 3-O-α-D-*glucopyranosyl-β-D-galactopyranoside, 9CI*
[101144-27-8]
$C_{13}H_{24}O_{11}$ 356.326
Mp 224-225°. $[\alpha]_D$ +104 (c, 0.5 in H_2O).

Me glycoside, hepta-Ac:
$C_{27}H_{38}O_{18}$ 650.586
$[\alpha]_D$ +8 (c, 1.1 in $CHCl_3$).

Flowers, H.M. *et al., Carbohydr. Res.*, 1971, **18**, 211 (*synth*)
Temeriusz, A. *et al., Carbohydr. Res.*, 1985, **142**, 146 (*Me gly*)
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2153 (*Me gly, pmr, cmr, conformn*)

4-*O*-α-D-Glucopyranosyl-D-galactose, 9CI G-311

[14722-76-0]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from the partial acid hydrolysate of type VIII Pneumococcus specific polysaccharide. Constit. of the repeating unit of the *O*-antigen of *Salmonella muenster* E_1 and of the *O*-antigen of *E. coli* serotype 0111.
$[\alpha]_D^{20}$ +118 (c, 1.0 in H_2O). $[\alpha]_D^{20}$ +74.5 (c, 8.0 in H_2O). $[\alpha]_D^{25}$ +140 (H_2O).

α-Pyranose-*form*

1-Phosphate:
$C_{12}H_{23}O_{14}P$ 422.279
$[\alpha]_D^{20}$ +121.5 (c, 3.3 in H_2O).

Me glycoside: Methyl 4-O-α-D-*glucopyranosyl-α-D-galactopyranoside*
[127253-90-1]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. powder. $[\alpha]_D^{20}$ +116 (H_2O).
$[\alpha]_D^{22}$ +210 (c, 1.0 in H_2O).

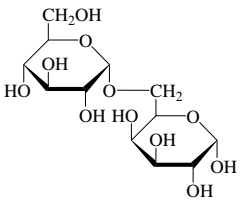
β-Pyranose-*form*

Benzyl glycoside, 2,2′,3′,4′,6,6′-hexabenzyl:
$C_{61}H_{64}O_{11}$ 973.17
$[\alpha]_D^{20}$ +30 (c, 1.0 in $CHCl_3$).

Jones, J.K.N. *et al., J.A.C.S.*, 1957, **79**, 2787 (*isol*)
Sloneker, J.H. *et al., Can. J. Chem.*, 1968, **46**, 3353
Kenne, L. *et al., The Polysaccharides*, Acad. Press, New York and London (Ed. Aspinall, G.O.), 1983, **2**, 300 (*occur*)
Torgov, V.I. *et al., Carbohydr. Res.*, 1987, **161**, 97 (*synth, deriv*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*cmr*)
Liotta, L.J. *et al., Carbohydr. Res.*, 2001, **331**, 247-253 (*Me α-gly, synth, pmr, cmr, bibl*)

6-*O*-α-D-Glucopyranosyl-D-galactose, 9CI G-312

[21216-58-0]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Needles (EtOH aq.). Mp 106-108°. $[\alpha]_D^{22}$ +127 (c, 0.69 in H_2O).

2′-Benzyl: 6-O-*(2*-O-*Benzyl-α-D-glucopyranosyl)-D-galactose*
[33801-72-8]
$C_{19}H_{28}O_{11}$ 432.424
Oil. $[\alpha]_D^{25}$ +68 (c, 0.96 in H_2O).

3′,6′-Anhydro: 6-O-*(3,6-Anhydro-α-D-glucopyranosyl)-D-galactose*
$C_{12}H_{20}O_{10}$ 324.284
$[\alpha]_D$ +75 (c, 0.4 in H_2O).

α-Pyranose-*form*

1,2:3,4-Di-O-*isopropylidene:*
$C_{18}H_{30}O_{11}$ 422.428
Oil. $[\alpha]_D^{25}$ +29.2 (c, 0.92 in $CHCl_3$).

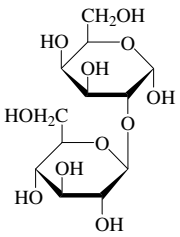
1,2:3,4-Di-O-*isopropylidene, tetra-Ac:*
$C_{26}H_{38}O_{15}$ 590.577
Oil. $[\alpha]_D^{25}$ +47 (c, 3.3 in $CHCl_3$).

[34674-94-7]

Flowers, H.M. *et al., Carbohydr. Res.*, 1971, **18**, 211 (*synth, 2′-benzyl*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1973, **51**, 42 (*α-pyr diisopropylidene, α-pyr diisopropylidene tetra-Ac*)
Helferich, B. *et al., Chem. Ber.*, 1973, **106**, 941 (*synth*)
Huh, K.T. *et al., Food Chem.*, 1991, **39**, 39 (*occur*)

2-*O*-β-D-Glucopyranosyl-D-galactose, 9CI G-313

[101144-30-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the repeating unit of the capsular antigen of *Klebsiella* K60.
Mp 163-164° (171-172°). $[\alpha]_D$ +52 → +33 (c, 0.5 in H_2O). $[\alpha]_D$ +42.6 (H_2O).

Phenylosazone: Mp 181°.

α-Pyranose-*form*

Octa-Ac: [101311-41-5]
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D$ +39 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside: Methyl 2-O-*β-D-glucopyranosyl-β-D-galactopyranoside, 9CI*
[101072-36-0]
$C_{13}H_{24}O_{11}$ 356.326
Mp 112-115°. $[\alpha]_D$ -13 (c, 1.0 in H_2O) (-6).

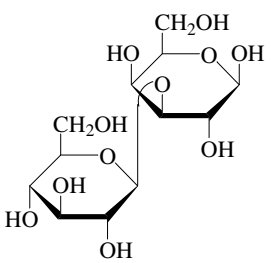
Me glycoside, hepta-Ac:
$C_{27}H_{38}O_{18}$ 650.586
Amorph. $[\alpha]_D$ -12 (c, 1.0 in $CHCl_3$).

Me glycoside, 2′,3′,4,4′,6,6′-hexabenzyl:
$C_{55}H_{60}O_{11}$ 897.072
Mp 92-93°. $[\alpha]_D^{24}$ -3 (c, 1.0 in $CHCl_3$).

Gakhokidze, A.M. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1952, **22**, 139 (*synth*)
Kawasako, T. *et al., Chem. Pharm. Bull.*, 1963, **11**, 1221
Dutton, G.G.S. *et al., Carbohydr. Res.*, 1980, **87**, 129 (*occur*)
Temeriusz, A. *et al., Carbohydr. Res.*, 1985, **142**, 146 (*synth*)
Nechaev, O.A. *et al., Bioorg. Khim.*, 1988, **14**, 1224; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1988, **14**, 666 (*Me gly, synth, cmr*)

3-*O*-β-D-Glucopyranosyl-D-galactose, 8CI G-314

Solabiose
[16741-21-2]



β-*form*

$C_{12}H_{22}O_{11}$ 342.299
From Solanidine. Also obt. by partial hydrol. of polysaccharides of *Xanthomonas stewartii*.
Mp 203-205°. $[\alpha]_D^{22}$ +40 (c, 0.8 in H_2O).

Phenylosazone: Mp 225° dec.

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 75°. $[\alpha]_D$ +27 (EtOH).

β-Pyranose-*form*

Me glycoside: [15038-72-9]
$C_{13}H_{24}O_{11}$ 356.326
Syrup. $[\alpha]_D^{25}$ +8.3 (c, 0.6 in MeOH).

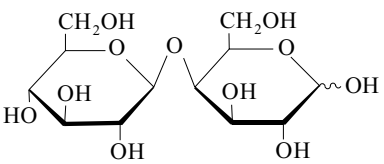
Me glycoside, hepta-Me:
$C_{20}H_{38}O_{11}$ 454.514
Cryst. (hexane). Mp 95-97°. $[\alpha]_D^{24}$ -7.4 (c, 0.6 in $CHCl_3$).

Benzyl glycoside: [16741-20-1]
$C_{19}H_{28}O_{11}$ 432.424
Needles (EtOH). Mp 200-202°. $[\alpha]_D^{25}$ -20.7 (c, 0.9 in H_2O).

Kühn, R. *et al., Chem. Ber.*, 1955, **88**, 1492 (*isol, phenylosazone, octa-Ac*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 2282 (*isol*)
Briggs, L.H. *et al., J.C.S.*, 1963, 2848 (*occur*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1967, **4**, 312 (*synth, β-benzyl gly*)
Stoffyn, A. *et al., J.O.C.*, 1967, **32**, 4001 (*β-Me gly, β-hepta-Me Me gly*)

4-*O*-β-D-Glucopyranosyl-D-galactose, 8CI G-315

Lycobiose
[22412-72-2]



$C_{12}H_{22}O_{11}$ 342.299
Occurs in polysaccharides of *Arthrobacter viscosus* and in partial hydrol. of α-tomatine.
Mp 246-247°. $[\alpha]_D^{20}$ +70 → +41.5 (c, 1 in H_2O). Crystallizes in α-form.

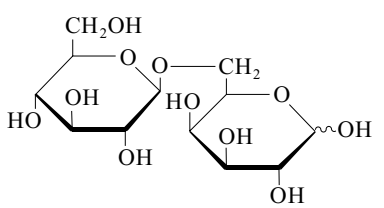
Phenylosazone: Mp 205-210° dec. (sinters at 140°).

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 165-166°. $[\alpha]_D^{20}$ +26.8 (EtOH).

Kuhn, R. *et al., Chem. Ber.*, 1953, **86**, 1027 (*isol, octa-Ac*)
Kuhn, R. *et al., Chem. Ber.*, 1957, **90**, 203 (*struct*)
Sloneker, J.M. *et al., Can. J. Chem.*, 1968, **46**, 3353 (*isol*)

6-*O*-β-D-Glucopyranosyl-D-galactose, 8CI G-316

[5188-47-6]



$C_{12}H_{22}O_{11}$ 342.299
Acid hydrol. prod. of the *Lactobacillus casei* cell wall polysaccharide; an enzymic prod. of *Aspergillus niger*. Also in plant polysaccharides, e.g. from *Acacia* sp.
$[\alpha]_D^{20}$ +15 (c, 2.0 in H_2O).

α-Pyranose-form

Also in plant polysaccharides, e.g. *Acacia* sp.

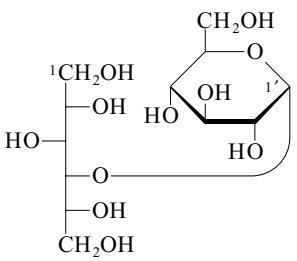
*1,2:3,4-Di-*O*-isopropylidene:*
$C_{18}H_{30}O_{11}$ 422.428
Mp 84-88°. $[\alpha]_D$ -67.5 (H_2O).

*1,2:3,4-Di-*O*-isopropylidene, tetra-Ac:*
$C_{26}H_{38}O_{15}$ 590.577
Mp 140-142°. $[\alpha]_D$ -54.5 (c, 0.46 in $CHCl_3$).

Freudenberg, K. *et al., Ber.*, 1928, **61**, 1743 (*synth*)
Knox, K.W. *et al., Biochem. J.*, 1965, **94**, 534 (*enzymic synth*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1971, **18**, 211 (*synth, pmr*)

4-*O*-α-D-Glucopyranosyl-D-glucitol, 9CI G-317

Maltitol. E965
[585-88-6]



$C_{12}H_{24}O_{11}$ 344.315
Used in blood preservatives, cosmetics emulsions and moisturisers, pharmaceuticals and adhesives for medical uses. Permitted bulk sweetener for foods.
Mp 149-152°. $[\alpha]_D^{21}$ +107 (c, 10 in H_2O). Use as bulk sweetener currently (1997) not permitted in USA.

► LZ4394000

Nona-Ac: [41897-24-9]
$C_{30}H_{42}O_{20}$ 722.65
$[\alpha]_D$ +8.6 (c, 1.0 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene:* [122204-87-9]
$C_{18}H_{32}O_{11}$ 424.444
Oil. $[\alpha]_D^{26}$ +62 (c, 0.2 in $CHCl_3$/MeOH 1:1).

*1,2:5,6-Di-*O*-isopropylidene, 2′,3,3′,4′,6′-penta-Ac:* [122204-91-5]
$C_{28}H_{42}O_{16}$ 634.63
Oil. $[\alpha]_D^{25}$ +85.3 (c, 1.0 in $CHCl_3$).

*2,3:5,6-Di-*O*-isopropylidene, 1,2′,3′,4′,6′-penta-Ac:* [122204-92-6]
$C_{28}H_{42}O_{16}$ 634.63
Oil. $[\alpha]_D^{24}$ +69.8 (c, 1.13 in $CHCl_3$).

*1,2:4′,6′:5,6-Tri-*O*-isopropylidene:* [122204-85-7]
$C_{21}H_{36}O_{11}$ 464.509
$[\alpha]_D^{21}$ +70.1 (c, 1.0 in $CHCl_3$).

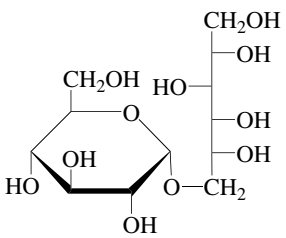
*2,3:4′,6′:5,6-Tri-*O*-isopropylidene:* [122204-86-8]
$C_{21}H_{36}O_{11}$ 464.509
$[\alpha]_D^{21}$ +55.4 (c, 1.0 in $CHCl_3$).

*2,3:4′,6′:5,6-Tri-*O*-isopropylidene, 1,2′,3′-tri-Ac:* [122204-90-4]
$C_{27}H_{42}O_{14}$ 590.62
Oil. $[\alpha]_D^{25}$ +56.9 (c, 0.76 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 308A (*nmr*)
Aldrich Library of NMR Spectra, **1**, 308A (*pmr*)
Karrer, P. *et al., Helv. Chim. Acta*, 1937, **20**, 88 (*synth*)
Hoffman, R.E. *et al., Magn. Reson. Chem.*, 1988, **26**, 425 (*pmr, cmr*)
Shinohara, Y. *et al., Yakugaku Zasshi*, 1988, **108**, 1046 (*synth, deriv*)
Japan. Pat., 1990, 0 242 997; *CA*, **113**, 4712h (*enzym synth*)
Paskach, T.J. *et al., Carbohydr. Res.*, 1991, **215**, 1 (*hplc*)
Hedin, P.A. *et al., J. Agric. Food Chem.*, 1991, **39**, 1106 (*ms*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 287-288
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1371
Schouten, A.. *et al., Carbohydr. Res.*, 1999, **322**, 298-302 (*cryst struct*)

6-*O*-α-D-Glucopyranosyl-D-glucitol, 9CI, 8CI G-318

*6-*O*-α-D-Glucopyranosyl-D-sorbitol.*
Isomaltitol. E953
[534-73-6]



$C_{12}H_{24}O_{11}$ 344.315
Prepd. on a large scale by hydrogenation of 6-*O*-α-D-Glucopyranosyl-D-fructofuranose, G-296 as a 1:1 mixture (isomalt) with its C-5 epimer. Mixts. with the epimer are known as Palatinit or Isomalt and used as reduced-calorie sugar substitutes. Low nutritive sweetener with half the sweetness of sucrose. Mixts. with the epimer are known as Palatinit or Isomalt and used as reduced-calorie sugar substitutes. Cryst. (MeOH) or needles.
Mp 165.5-167°. $[\alpha]_D^{28}$ +89 (c, 4 in H_2O).

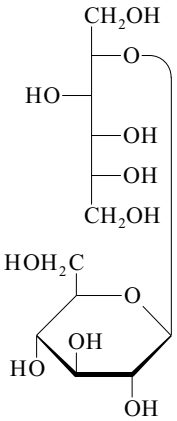
Nona-Ac: [41897-25-0]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (EtOH). Mp 114-115°. $[\alpha]_D^{29}$ +70 (c, 1 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 1062-1064 (*nona-O-Ac, synth*)
Manners, D.J. *et al., Carbohydr. Res.*, 1968, **7**, 291-298 (*synth*)
Hellerquist, C.G. *et al., Acta Chem. Scand.*, 1971, **25**, 243-244 (*synth, pmr*)
Govorchenko, V.I. *et al., Carbohydr. Res.*, 1973, **29**, 421-425 (*synth*)
Lichtenthaler, F.W. *et al., Annalen*, 1981, 2372-2383 (*cryst struct*)
Shimamura, A. *et al., Carbohydr. Res.*, 1991, **220**, 243-248 (*synth, cmr*)
Willibald-Ettle, I. *et al., Advances in Sweeteners*, (ed. Grenby, T.H.), Blackie, 1996, 134-149 (*rev, isomalt, use, props*)

Cataldi, T.R.I. *et al., J. Agric. Food Chem.*, 1999, **47**, 157-163

2-*O*-β-D-Glucopyranosyl-D-glucitol, 9CI G-319

Sophoritol
[31281-78-4]



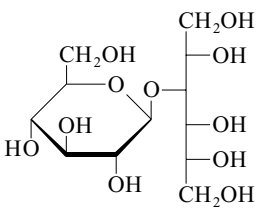
$C_{12}H_{24}O_{11}$ 344.315
Amorph. $[\alpha]_D^{26}$ -18.6 (c, 0.75 in H_2O).

Nona-Ac:
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (EtOH). Mp 151-152°. $[\alpha]_D^{20}$ -21 (c, 2.5 in $CHCl_3$).

Clancy, M.J. *et al., J.C.S.*, 1960, 4213 (*synth*)
Govorchenko, V.I. *et al., Carbohydr. Res.*, 1973, **29**, 421 (*nona-Ac*)
Angus, H.G.F. *et al., Carbohydr. Res.*, 1978, **66**, 25 (*chromatog*)
Helm, R.F. *et al., J. Carbohydr. Chem.*, 1987, **6**, 569 (*glc*)

3-*O*-β-D-Glucopyranosyl-D-glucitol, 9CI G-320

Laminaribiitol
[499-16-1]



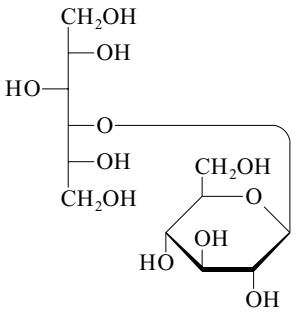
$C_{12}H_{24}O_{11}$ 344.315

Nona-Ac: [41897-23-8]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (EtOH). Mp 108-109°. $[\alpha]_D^{18}$ -10.8 (c, 0.53 in $CHCl_3$).

Peat, S. *et al., J.C.S.*, 1958, 729 (*synth, struct*)
Karkkainen, J. *et al., Carbohydr. Res.*, 1970, **14**, 27 (*ms*)
Ueno, Y. *et al., CA*, 1973, **79**, 18976p (*synth*)
Helm, R.F. *et al., J. Carbohydr. Chem.*, 1987, **6**, 569 (*glc*)

4-*O*-β-D-Glucopyranosyl-D-glucitol, 9CI G-321

2-O-*β-D-Glucopyranosyl-L-glucitol. Cellobiitol*
[535-94-4]

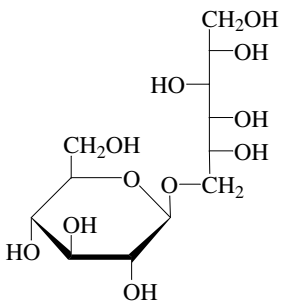


$C_{12}H_{24}O_{11}$ 344.315
Cryst. Mp 142-143°. $[\alpha]_D$ -8.3 (H_2O).

Wolfrom, M.L. *et al., Tappi*, 1958, **41**, 204; *CA*, **52**, 15066e (*synth*)
Gaykema, W.P.J. *et al., Acta Cryst. B*, 1979, **35**, 1156 (*cryst struct*)
Lowary, T.L. *et al., Carbohydr. Res.*, 1990, **198**, 79 (*synth, cmr*)

6-*O*-β-D-Glucopyranosyl-D-glucitol, 9CI G-322

6-O-*β-D-Glucopyranosyl-D-sorbitol. Gentiobitol*
[31282-09-4]



$C_{12}H_{24}O_{11}$ 344.315
Amorph. solid. Mp 90° (swells and browns). $[\alpha]_D^{25}$ -24 (c, 1.0 in H_2O).

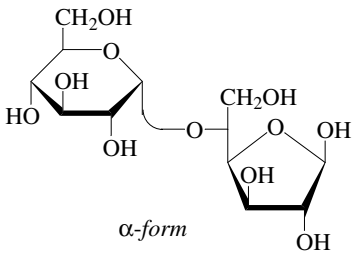
Nona-Ac: [37091-06-8]
$C_{30}H_{42}O_{20}$ 722.65
Needles (EtOH) or cryst. Mp 88-89.5° (80.5-81°). $[\alpha]_D^{26}$ -11 (c, 5.0 in $CHCl_3$).

6′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl): **Globularitol***
$C_{22}H_{32}O_{14}$ 520.486
Constit. of the undergound parts of *Globularia orientalis*. Amorph. yellow solid. $[\alpha]_D^{20}$ -22 (c, 0.1 in MeOH). λ_{max} 217; 235; 295 (sh); 323 (MeOH).

Wolfrom, M.L. *et al., J.A.C.S.*, 1943, **65**, 750 (*synth*)
Hellerquist, C.G. *et al., Acta Chem. Scand.*, 1971, **25**, 243-244
Govorchenko, V.I. *et al., Carbohydr. Res.*, 1973, **29**, 421-425 (*synth, nona-Ac*)
Lichtenthaler, F.W. *et al., Annalen*, 1981, 2372 (*conformn*)
Calis, I. *et al., Z. Naturforsch., C*, 2002, **57**, 591-596 (*Globularitol*)

5-*O*-α-D-Glucopyranosyl-D-glucofuranose G-323

[67006-26-2]



α-*form*

$C_{12}H_{22}O_{11}$ 342.299
$[\alpha]_D$ +69.5 (c, 2 in H_2O).

α-form

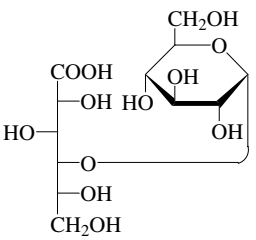
1,2-O-*Cyclopentylidene:* [67006-24-0]
$C_{17}H_{28}O_{11}$ 408.402
Amorph. $[\alpha]_D$ +81 (c, 1.5 in H_2O).

1,2-O-*Cyclopentylidene, 3,6,2′,3′,4′,6′-hexa-Ac:* [67006-22-8]
$C_{29}H_{40}O_{17}$ 660.625
Brittle foam. $[\alpha]_D$ +50 (c, 2.5 in $CHCl_3$).

[78339-99-8]

Van Heeswijk, W.A.R. *et al., Carbohydr. Res.*, 1978, **62**, 281 (*synth*)

4-*O*-Glucopyranosyl-D-gluconic acid, 9CI, 8CI G-324



α-D-*form*

$C_{12}H_{22}O_{12}$ 358.299

α-D-form

Maltobionic acid. Maltonic acid
[534-42-9]
Formed by oxidative enzymic action of *Pseudomonas graveolens* on maltose. Used as an additive in instant food preparations.
$[\alpha]_D^{20}$ +98.3 (H_2O).

Ca salt: $[\alpha]_D^{20}$ +97.5 (H_2O).

Octa-Me, Me ester: Methyl octa-O-*methylmaltobionate*
$C_{21}H_{40}O_{12}$ 484.54
$Bp_{0.05}$ 170-173°. $[\alpha]_D$ +120.8 ($CHCl_3$).

β-D-form *Cellobionic acid*
[534-41-8]
$[\alpha]_D^{22}$ -3.6 (c, 3 in H_2O). Ba salts also known.

Na salt (1:1): [55697-48-8]
Mp 158°.

Me ester: [43169-30-8]
$C_{13}H_{24}O_{12}$ 372.325
Syrup.

Octa-Ac: [105001-04-5]
$C_{28}H_{38}O_{20}$ 694.596
Cryst. ($CHCl_3$/petrol). Mp 138°. $[\alpha]_D$ +8.9 (c, 1.7 in $CHCl_3$).

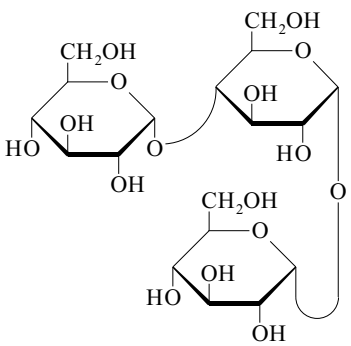
Octa-Ac, Me ester:
$C_{29}H_{40}O_{20}$ 708.623
Cryst. (EtOH). Mp 178.5-179.5°. $[\alpha]_D^{20}$ +6.

1,5-Lactone: [52762-22-8]
$C_{12}H_{20}O_{11}$ 340.283
Formed by microbial degradation of D-cellobiose. Potent inducer of cellulase in *Trichoderma reesei*. Cryst. (EtOH). Mp 204-205°. $[\alpha]_D^{20}$ +35.6 (extrapolated) → +33.2 (5 min). $[\alpha]_D^{20}$ +27.4 (20 min) → +0.8 (8 and 24h, equil) (c, 1 in H_2O).

[75348-32-2]

Glattfeld, J.K.E. *et al., J.A.C.S.*, 1918, **40**, 973 (*α-D-form, synth*)
Haworth, W.N. *et al., J.C.S.*, 1926, 3094 (*α-D-form, Me ester octa-Me*)
Leoene, P.A. *et al., J. Biol. Chem.*, 1928, **27**, 671-683 (*β-D-form, synth, salts*)
Antoniani, C. *et al., Biochem. Z.*, 1934, **273**, 219-222; *CA*, 1935, **29**, 189 (*β-D-form, synth*)
Bognar, R. *et al., Chem. Ber.*, 1963, **96**, 689 (*β-D-form, octa-Ac*)
Carlsson, B. *et al., Anal. Chim. Acta*, 1968, **43**, 47 (*α-D-form, chromatog*)
Govorchenko, V.I. *et al., Carbohydr. Res.*, 1973, **29**, 421-425 (*β-D-form, Me ester, synth*)
Japan. Pat., 1973, 20 314, (*Hayashibara*); *CA*, **80**, 26091g (*α-D-form, synth, use*)
Diehl, H.W. *et al., Carbohydr. Res.*, 1974, **38**, 364-368 (*β-D-form, 1,5-lactone*)
Dutta, S.K. *et al., Indian J. Chem.*, 1975, **13**, 192-193 (*β-D-form, synth*)
Higham, C.W. *et al., FEBS Lett.*, 1994, **351**, 128-132 (*β-D-form, 1,5-lactone, bibl*)
Moe, S.T. *et al., J. Carbohydr. Chem.*, 2002, **21**, 513-520 (*β-D-form, synth, pmr, cmr*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl α-D-glucopyranoside *Bemisiose* G-325

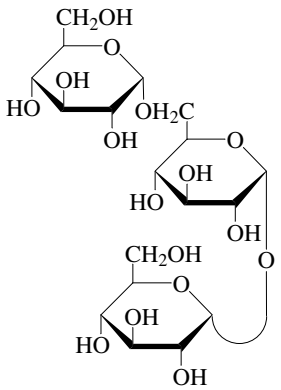


$C_{18}H_{32}O_{16}$ 504.441
Isol. from honeydew from the silverleaf whitefly *Bemisia argentifolii*.

Hendrix, D.L. *et al., Carbohydr. Res.*, 1994, **253**, 329 (*isol, struct*)

α-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl α-D-glucopyranoside *Isobemisiose* G-326

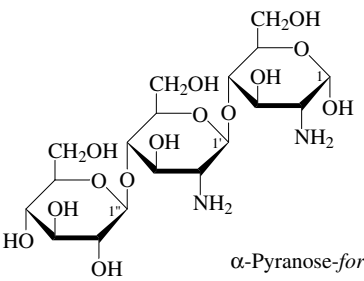
α-Isomaltosyl α-D-glucopyranoside.
[103130-74-1]



$C_{18}H_{32}O_{16}$ 504.441
Isol. from the silverleaf whitefly *Bemisia argentifolii*. Amorph. solid.

Ajisaka, K. *et al., Carbohydr. Res.*, 1990, **199**, 227-234 (*synth, cmr*)
Hendrix, D.L. *et al., J. Insect Physiol.*, 2001, **47**, 423-432 (*isol*)

β-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI G-327



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
N-*Ac:* [56981-21-6]
$C_{20}H_{35}NO_{16}$ 545.494
Amorph. $[\alpha]_D^{21}$ +30 (c, 0.29 in H_2O).

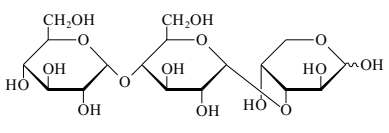
α-Pyranose-*form*

Benzyl glycoside, deca-Ac: [56981-20-5]
$C_{45}H_{59}NO_{25}$ 1013.953
Cryst. (Me_2CO/Et_2O/hexane). Mp 179-180°. $[\alpha]_D^{21}$ +35 ($CHCl_3$).

Khorlin, A.Y. *et al., Carbohydr. Res.*, 1975, **43**, 69 (*N-Ac, α-benzyl pyr deca-Ac*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →3)-D-arabinose, 9CI G-328

[119167-26-9]



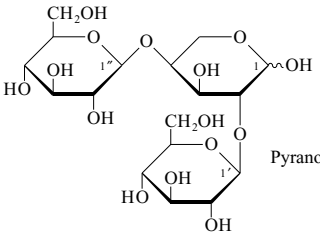
Pyranose−*form*

$C_{17}H_{30}O_{15}$ 474.415
Syrup.

Pazur, J.H. *et al., Anal. Biochem.*, 1988, **174**, 46 (*enzymic synth, glc, ms, chromatog*)

β-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →4)]-L-arabinose, 8CI G-329

Cyclamotriose B
[23655-52-9]



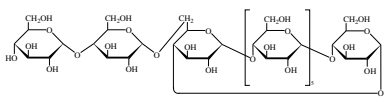
Pyranose−*form*

$C_{17}H_{30}O_{15}$ 474.415
Constit. of the triterpene glycoside Cyclamin, isol. from the bulbs of *Cyclamen europaeum*. Syrup.

Tschesche, R. *et al., Annalen*, 1969, **721**, 194 (*occur, isol, chromatog*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →6^{A})-β-cyclodextrin, 9CI G-330

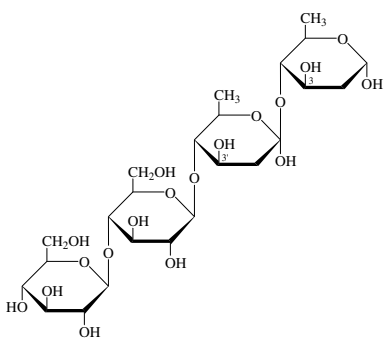
6-O-α-Maltosyl-β-cyclodextrin
[104723-60-6]



$C_{54}H_{90}O_{45}$ 1459.278
Cryst. (MeOH).

Abe, J. *et al., Carbohydr. Res.*, 1986, **154**, 81-92 (*synth, cmr*)
Koizuma, K. *et al., J. Chromatogr.*, 1986, **360**, 397-406 (*hplc, tlc*)
Shiraishi, T. *et al., Agric. Biol. Chem.*, 1989, **53**, 2181-2188 (*synth, bibl*)
Ishizuka, Y. *et al., J. Carbohydr. Chem.*, 1991, **10**, 583-592 (*pmr*)
Hizukuri, S. *et al., Methods Carbohydr. Chem.*, 1994, **10**, 277-284 (*synth, bibl*)

β-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-6-deoxy-β-D-glucopyranosyl-(1 →4)-2,6-dideoxy-D-*arabino*-hexose G-331

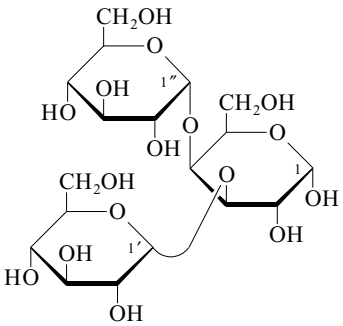


$C_{24}H_{42}O_{18}$ 618.585

α-D-Pyranose-*form*

Me glycoside, 3,3′-di-Me: ***Dresitetraoside***
[130774-27-5]
$C_{27}H_{48}O_{18}$ 660.665
Constit. of the roots of *Dregea sinensis*.
Shen, X. *et al., Huaxue Xuebao*, 1990, **48**, 709; *CA*, **114**, 3446h (*isol*)

α-D-Glucopyranosyl-(1 →3)- [α-D-glucopyranosyl-(1 →4)]-D-galactose, 9CI G-332

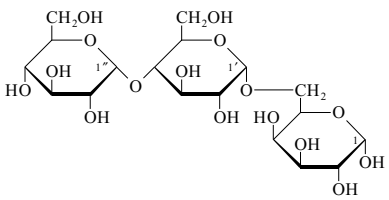


$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Me glycoside: [127641-12-7]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]^{22}_{Hg578}$ +22.3 (c, 0.9 in H_2O).
Me glycoside, 2,2′,2″,3′,3″,4′,4″,6,6′,6″-deca-Me:
$C_{29}H_{54}O_{16}$ 658.736
Syrup.
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr derivs, cmr, pmr, conformn*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →6)-D-galactose, 9CI G-333

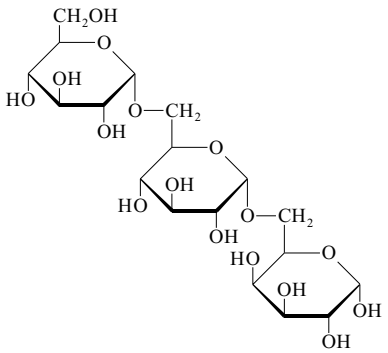


$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

*1,2:3,4-Di-*O*-isopropylidene, 2′,2″,3′,3″,4″,6′,6″-heptabenzyl:*
[136984-88-8]
$C_{73}H_{82}O_{16}$ 1215.441
Syrup. $[\alpha]^{25}_{D}$ +25.2 (c, 1.0 in $CHCl_3$).
Mereyala, H.B. *et al., Tetrahedron*, 1991, **47**, 6435 (*diisopropylidene heptabenzyl, pmr, cmr*)

α-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →6)-D-galactose, 9CI G-334

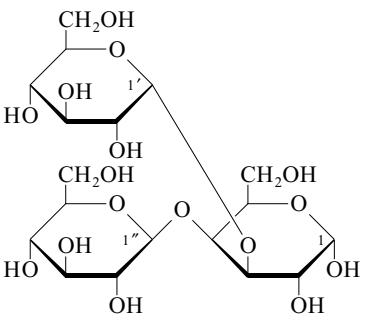


$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

*1,2:3,4-Di-*O*-isopropylidene, heptabenzyl:*
[115828-44-9]
$C_{73}H_{82}O_{16}$ 1215.441
Syrup.
Mootoo, D.R. *et al., J.A.C.S.*, 1988, **110**, 5583 (*diisopropylidene heptabenzyl*)

α-D-Glucopyranosyl-(1 →3)- [β-D-glucopyranosyl-(1 →4)]-D-galactose, 9CI G-335

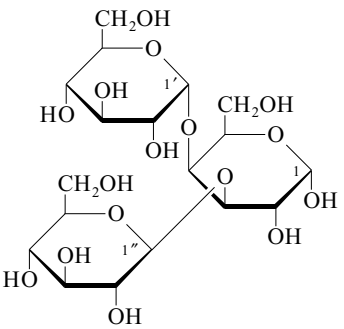


$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Me glycoside: [127641-13-8]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]^{22}_{D}$ +160 (c, 1.1 in H_2O).
Me glycoside, 2,2′,3′,4′,6,6′-hexabenzyl, 2″,3″,4″,6″-tetrabenzoyl: [127563-90-0]
$C_{89}H_{86}O_{20}$ 1475.646
Syrup.
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr derivs, cmr, pmr, conformn*)

α-D-Glucopyranosyl-(1 →4)- [β-D-glucopyranosyl-(1 →3)]-D-galactose, 9CI G-336

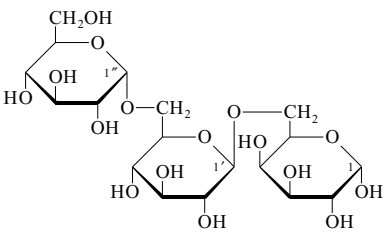


$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Me glycoside: [127641-14-9]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]^{22}_{D}$ +150 (c, 1.0 in H_2O).
Me glycoside, 2,2″,3″,4″,6,6″-hexabenzyl, 2′,3′,4′,6′-tetrabenzoyl: [127563-91-1]
$C_{89}H_{86}O_{20}$ 1475.646
Syrup.
Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr derivs, cmr, pmr, conformn*)

α-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →6)-D-galactose, 9CI G-337

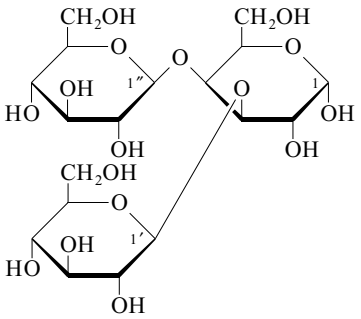


$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

*1,2:3,4-Di-*O*-isopropylidene, 2′,2″,3′,3″,4′,4″,6″-heptabenzyl:*
[115828-45-0]
$C_{73}H_{82}O_{16}$ 1215.441
Syrup.
Mootoo, D.R. *et al., J.A.C.S.*, 1988, **110**, 5583 (*diisopropylidene heptabenzyl, pmr*)

β-D-Glucopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →4)]-D-galactose, 9CI G-338



$C_{18}H_{32}O_{16}$ 504.441

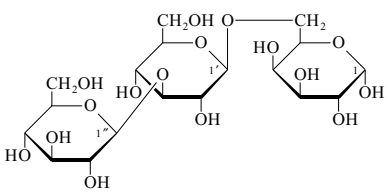
α-Pyranose-*form*

Me glycoside: [127641-15-0]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D^{22}$ +76 (c, 1.0 in H_2O).

Me glycoside, 2,6-dibenzyl, 2′,2″,3′,3″,4′,4″,6′,6″-octabenzoyl: [127563-92-2]
$C_{89}H_{78}O_{24}$ 1531.581
Syrup.

Baumann, H. *et al., J.C.S. Perkin 1*, 1989, 2145; 2153 (*α-Me pyr derivs, cmr, pmr, conformn*)

β-D-Glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →6)-D-galactose, 9CI G-339



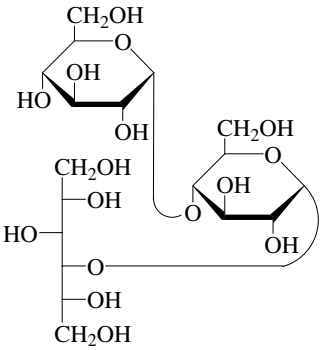
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

4′,6′-O-Ethylidene, 1,2:3,4-di-O-isopropylidene, 2′-benzoyl, 2″,3″,4″,6″-tetra-Ac: [116731-66-9]
$C_{41}H_{54}O_{21}$ 882.865
Syrup. $[\alpha]_D$ -8 ($CHCl_3$).

Collins, P.M. *et al., Chem. Comm.*, 1988, 272 (*ethylidene tetra-Ac deriv, pmr, cmr*)

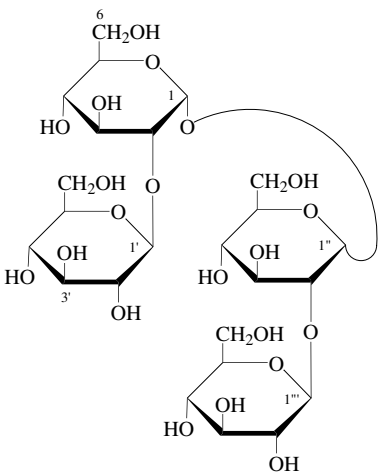
α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →4)-D-glucitol G-340
Maltotriitol



$C_{18}H_{34}O_{16}$ 506.457
Impurity in coml. maltitol, prod. by redn. of coml. high-maltose glucose syrups. Cryst. (H_2O). Mp 187-189°.

Schouten, A. *et al., Carbohydr. Res.*, 1999, **322**, 274-278 (*cryst struct, bibl*)

β-D-Glucopyranosyl-(1 →2)-α-D-glucopyranosyl-β-D-glucopyranosyl-(1 →2)-α-D-glucopyranoside G-341
2,2′-Di-β-D-glucopyranosyl-α,α-trehalose. Actinotetraose

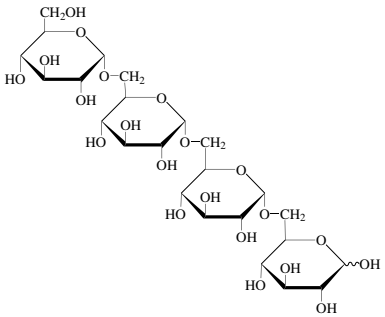


$C_{24}H_{42}O_{21}$ 666.583
Parent not known.

3′,3‴,4′,4‴,6,6″-Hexatigloyl: ***Tigloside***
[216590-44-2]
$C_{54}H_{78}O_{27}$ 1159.194
Metab. of *Amycolatopsis* sp. NN0 21702 and Actinomycete sp. A499. Amorph. solid + 1 H_2O. $[\alpha]_D^{24}$ +52 (c, 0.7 in MeOH). $[\alpha]_D^{23}$ +29.2 (c, 1 in CH_2Cl_2). λ_{max} 222 (no solvent reported).

Breinholt, J. *et al., Acta Chem. Scand.*, 1998, **52**, 1239-1242 (*isol, uv, ir, pmr, cmr*)
Rickards, R.W. *et al., J. Antibiot.*, 1998, **51**, 1093-1098 (*isol, pmr, cmr, ms*)

α-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →6)-D-glucose G-342
Isomaltotetraose
[35997-20-7]

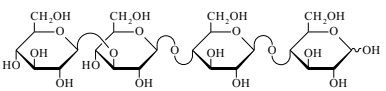


$C_{24}H_{42}O_{21}$ 666.583
Hygroscopic glass. $[\alpha]_D^{25}$ +148 (c, 0.5 in H_2O).

Tetradecabenzoyl:
$C_{122}H_{98}O_{35}$ 2124.095
Mp 140.5-145.5°. $[\alpha]_D^{25}$ +167 (c, 0.3 in $CHCl_3$).

Taylor, P.M. *et al., Biochem. Prep.*, 1963, **10**, 86-90 (*synth*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 2520-2523 (*synth*)
Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845-858 (*cmr*)

β-D-Glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-D-glucose G-343
3-β-Glucosylcellotriose. 4-β-Laminaribiosylcellobiose
[58484-04-1]

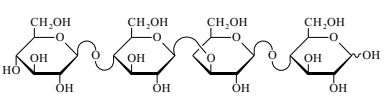


Pyranose–*form*

$C_{24}H_{42}O_{21}$ 666.583
Isol. from cellulase hydrolysates of lichenin and oat β-glucan (see Lichenan, L-39). Mp 221-224°. $[\alpha]_D$ +10.6 (in H_2O).
Dihydrate: Mp 187-188°.

Parrish, F.W. *et al., Can. J. Chem.*, 1960, **38**, 2094 (*isol*)
Perlin, A.S. *et al., Can. J. Chem.*, 1962, **40**, 50 (*isol*)
Luchsinger, W.W. *et al., Carbohydr. Res.*, 1976, **46**, 1
Takeo, K. *et al., Carbohydr. Res.*, 1986, **147**, 265 (*synth, pmr, cmr*)

β-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →4)-D-glucose G-344
3-β-Cellobiosylcellobiose
[103762-93-2]



Pyranose–*form*

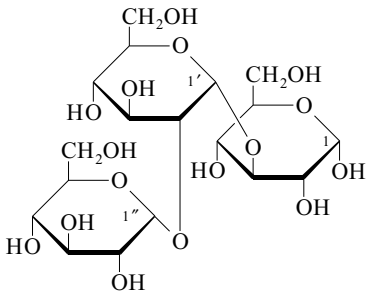
$C_{24}H_{42}O_{21}$ 666.583

Isol. from cellulase hydrolysates of lichenin and oat β-glucan (see Lichenan, L-39). Mp 223-226°. $[\alpha]_D$ +19.8 (H_2O).

Parrish, F.W. *et al., Can. J. Chem.*, 1960, **38**, 2094 (*isol*)
Perlin, A.S. *et al., Can. J. Chem.*, 1962, **40**, 50 (*isol*)
Takeo, K. *et al., Carbohydr. Res.*, 1986, **147**, 265 (*synth, pmr, cmr*)

α-D-Glucopyranosyl-(1 →2)-α-D-glucopyranosyl-(1 →3)-D-glucose, 9CI G-345

[112302-51-9]



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

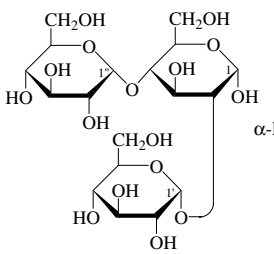
Me glycoside: [136597-19-8]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D^{22}$ +191 (c, 1.0 in H_2O).

Me glycoside, 4,6:4′,6′-di-O-benzylidene, 2,2′′,3′′,4′′,6′′-pentabenzyl, 3′-Ac: [136597-26-7]
$C_{70}H_{74}O_{17}$ 1187.344
Syrup. $[\alpha]_D^{22}$ +73 (c, 1.0 in $CHCl_3$).

Adeyeye, A. *et al., J.C.S. Perkin 2*, 1991, 963 (*α-Me pyr derivs, conformn, pmr, cmr*)

α-D-Glucopyranosyl-(1 →2)-[α-D-glucopyranosyl-(1 →4)]-D-glucose, 9CI G-346

Centose
[34174-65-7]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of honey. Patented for food use and caries prevention. $[\alpha]_D^{15}$ +142.3 (c, 0.59 in H_2O).

β-Pyranose-*form* [29581-60-0]

Undeca-Ac: [29581-59-7]
$C_{40}H_{54}O_{27}$ 966.85
$[\alpha]_D^{15}$ +103 (c, 2.5 in $CHCl_3$).

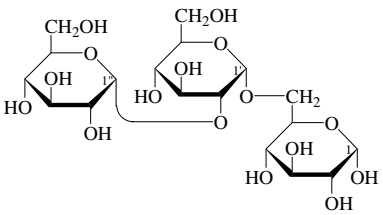
Undeca-Me:
$C_{29}H_{54}O_{16}$ 658.736
$[\alpha]_D^{25}$ +113 (c, 1.5 in $CHCl_3$).

[19774-14-2]

Siddiqui, I.R. *et al., Carbohydr. Res.*, 1968, **6**, 250 (*isol*)
Koeppen, B.H. *et al., Carbohydr. Res.*, 1970, **13**, 417 (*synth*)
Nishi, K. *et al., Agric. Biol. Chem.*, 1975, **39**, 737 (*synth*)
Japan. Pat., 1988, 63 240 756; 63 240 757; 63 261 492; *CA*, **110**, 74132f; 74133g; 152832a (*use, enzymic manuf*)

α-D-Glucopyranosyl-(1 →2)-α-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-347

6-α-Kojibiosylglucose
[40983-69-5]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from acetylated Dextran obt. from *Leuconostoc mesenteroides* strain NRRL B1397. Amorph. powder. $[\alpha]_D$ +150.5 (c, 0.8 in H_2O) (+144).

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-64-6]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +86 (c, 3.5 in $CHCl_3$).

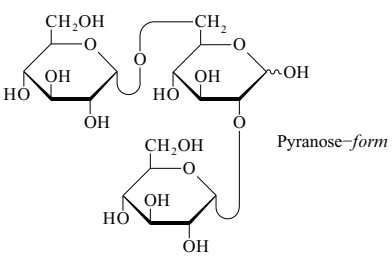
β-Pyranose-*form*

Benzyl glycoside, 2,3,4-tribenzyl, hepta-Ac: [71978-83-1]
$C_{60}H_{70}O_{23}$ 1159.199
Syrup. $[\alpha]_D$ +86.5 (c, 1.5 in $CHCl_3$).

Sakakibara, K. *et al., Carbohydr. Res.*, 1972, **25**, 443
Pozsgay, V. *et al., Carbohydr. Res.*, 1979, **75**, 310 (*synth, β-benzyl gly synth, cmr*)
Watanabe, T. *et al., Carbohydr. Res.*, 1980, **83**, 119
Morishima, N. *et al., Chem. Lett.*, 1983, 1982 (*α-benzyl gly*)

α-D-Glucopyranosyl-(1 →2)-[α-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI G-348

[40983-71-9]



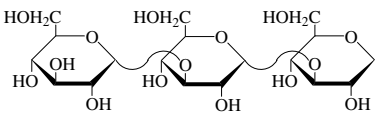
Pyranose−*form*

$C_{18}H_{32}O_{16}$ 504.441
Product from acetylated dextran obt. from *Leuconostoc mesenteroides* strain NRRL B1397.
$[\alpha]_D^{24}$ +153 (H_2O).

Sakakibara, K. *et al., Carbohydr. Res.*, 1972, **25**, 443
Watanabe, T. *et al., Carbohydr. Res.*, 1980, **83**, 119

α-D-Glucopyranosyl-(1 →3)-α-D-glucopyranosyl-(1 →3)-D-glucose, 8CI G-349

Nigerotriose
[23393-12-6]



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from the acetolysate of D-glucan from the bracket fungus *Leatiporus sulphureus* and from *Leuconostoc mesenteroides* B dextran. Amorph. powder. $[\alpha]_D^{17}$ +182.7 (c, 1.1 in H_2O). $[\alpha]_D^{14}$ +159 (c, 1.2 in H_2O).

β-Pyranose-*form*

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 188-189°. $[\alpha]_D^{22}$ +105.9 (c, 1.1 in $CHCl_3$).

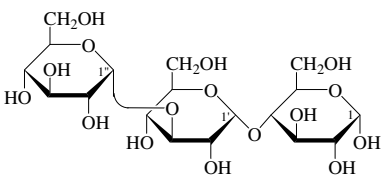
Me glycoside:
$C_{19}H_{34}O_{16}$ 518.468
Cryst. (EtOH). Mp 214-215°. $[\alpha]_D^{19}$ +137.6 (c, 1.6 in H_2O).

Me glycoside, deca-Ac:
$C_{39}H_{54}O_{26}$ 938.84
Cryst. (EtOH). Mp 183-186°. $[\alpha]_D^{19}$ +89.4 (c, 1.6 in $CHCl_3$).

Peat, S. *et al., J.C.S.*, 1961, 623
Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 103 (*isol*)
Shida, M. *et al., Carbohydr. Res.*, 1978, **60**, 117
Takeo, K. *et al., Carbohydr. Res.*, 1983, **113**, 281 (*isol, synth*)
Medakovic, D. *et al., Carbohydr. Res.*, 1990, **198**, 15 (***struct, synth***)

α-D-Glucopyranosyl-(1 →3)-α-D-glucopyranosyl-(1 →4)-D-glucose, 9CI G-350

[69924-34-1]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Formed by partial acid hydrolysis of nigeran and isolichenin and by enzymic hydrol. of elsinan. Possibly present in floridean starch. Powder. $[\alpha]_D^{25}$ +169.5 (c, 1.25 in H_2O).

α-Pyranose-*form*

Me glycoside: [114055-10-6]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. $[\alpha]_D^{26}$ +203.5 (c, 0.9 in H_2O).

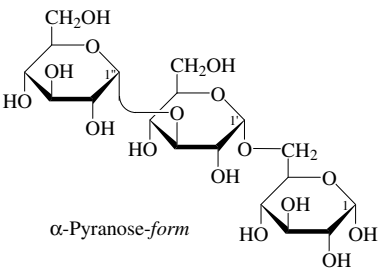
Me glycoside, deca-Ac: [114055-09-3]
$C_{39}H_{54}O_{26}$ 938.84
Amorph. powder. $[\alpha]_D^{26}$ +144 (c, 2.2 in $CHCl_3$).

Me glycoside, decabenzyl: [114055-08-2]
$C_{89}H_{94}O_{16}$ 1419.712
Syrup. $[\alpha]_D^{26}$ +57 (c, 1.2 in $CHCl_3$).

Barker, S.A. *et al., J.C.S.*, 1957, 2448
Peat, S. *et al., J.C.S.*, 1961, 623
Lukomskaya, I.S. *et al., Enzymologia*, 1962, **14**, 327 (*synth*)
Tsumuraya, Y. *et al., J. Appl. Biochem.*, 1979, **1**, 235 (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1987, **165**, 123 (*Me gly synth, cmr*)

α-D-Glucopyranosyl-(1 →3)-α-D-glucopyranosyl-(1 →6)-D-glucose, 8CI G-351

6-α-Nigerosylglucose
[23477-45-4]



$C_{18}H_{32}O_{16}$ 504.441
Formed by acetolysed fragmentation of a dextran from *Leuconostoc mesenteroides* B_4.
$[\alpha]_D^{14}$ +153 (c, 2.5 in H_2O).

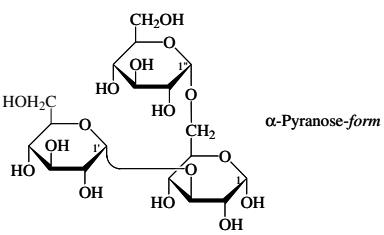
α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-67-9]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +80 (c, 3.9 in $CHCl_3$).

Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 103; 1295 (*isol*)
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*benzyl gly deriv synth*)

α-D-Glucopyranosyl-(1 →3)-[α-D-glucopyranosyl-(1 →6)]-D-glucose G-352

3,6-Di-α-glucosylglucose
[23393-11-5]



$C_{18}H_{32}O_{16}$ 504.441
Prod. formed by acetolysed fragmentation of a dextran from *Leuconostoc mesenteroides* B. Foam + $1\frac{1}{2}H_2O$. $[\alpha]_D^{14}$ +133 (c, 0.7 in H_2O) (+120).

α-Pyranose-*form*

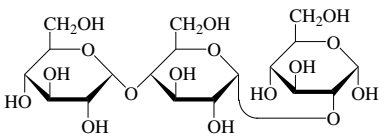
Benzyl glycoside, 2,2′,2″,3′,3″,4,4′,4″-octabenzyl: [85207-02-9]
$C_{81}H_{86}O_{16}$ 1315.561
Syrup. $[\alpha]_D^{25}$ +82.2 ($CHCl_3$).

Benzyl glycoside, decabenzyl: [83945-61-3]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +79 ($CHCl_3$).

Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 103 (*isol*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1982, **55**, 2995 (*synth, cmr*)
Ogawa, T. *et al., Carbohydr. Res.*, 1982, **110**, C12 (*di-Ac synth, cmr*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →2)-D-glucose G-353

4-α-Glucosylkojibiose
[58274-01-4]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of honey. Transglycosylation product formed when cyclodextrin glycosyltransferase from *Bacillus megaterium* strain 5 is grown in a kojibiose medium.
$[\alpha]_D^{22}$ +162 (c, 0.5 in H_2O).

α-Pyranose-*form*

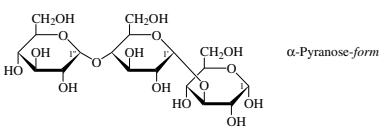
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 105-106°. $[\alpha]_D^{22}$ +163 (c, 0.5 in $CHCl_3$).

[21291-38-3]

Chiba, S. *et al., Agric. Biol. Chem.*, 1975, **39**, 2353

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →3)-D-glucose, 9CI G-354

3-α-Maltosylglucose
[69924-35-2]



$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysate of nigeran and isolichenin.

α-Pyranose-*form*

Me glycoside: [114055-07-1]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. powder. $[\alpha]_D^{26}$ +200.5 (c, 1.9 in H_2O).

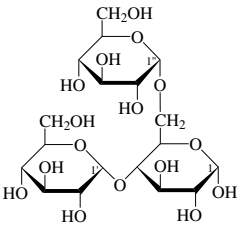
Me glycoside, deca-Ac: [114055-06-0]
$C_{39}H_{54}O_{26}$ 938.84
Amorph. $[\alpha]_D^{26}$ +150 (c, 1.7 in $CHCl_3$).

Me glycoside, decabenzyl: [114055-05-9]
$C_{89}H_{94}O_{16}$ 1419.712
Syrup. $[\alpha]_D^{26}$ +72 (c, 1.3 in $CHCl_3$).

Barker, S.A. *et al., J.C.S.*, 1957, 2448 (*isol*)
Peat, S. *et al., J.C.S.*, 1961, 623
Takeo, K. *et al., Carbohydr. Res.*, 1987, **165**, 123 (*Me gly, Me gly derivs, synth, cmr*)

α-D-Glucopyranosyl-(1 →4)-[α-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI G-355

4,6-Di-O-(α-D-glucopyranosyl)-D-glucose. 6-O-Glucosylmaltose
[25218-29-5]



$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysate of amylopectin (waxy rice starch). Syrup.
$[\alpha]_D^{22}$ +139 (c, 0.3 in H_2O) (+125).

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [82807-87-2]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +82 (c, 1.7 in $CHCl_3$).

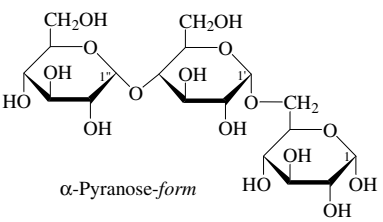
β-Pyranose-*form*

Me glycoside: [97672-52-1]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D$ +85.4 (H_2O).

de Souza, R. *et al., Tet. Lett.*, 1964, 1215 (*synth, struct*)
Ogawa, K. *et al., CA*, 1970, **72**, 117 680z (*isol*)
Eby, R. *et al., Carbohydr. Res.*, 1980, **79**, 53 (*synth*)
Morishima, N. *et al., Chem. Lett.*, 1982, 1039 (*benzyl gly deriv, cmr*)
Koto, S. *et al., Carbohydr. Res.*, 1984, **130**, 73 (*synth, cmr*)
Bock, K. *et al., J. Carbohydr. Chem.*, 1984, **3**, 581 (*Me gly, cmr*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →6)-D-glucose G-356

6-α-Maltosylglucose. Isopanose
[32581-33-2]



$C_{18}H_{32}O_{16}$ 504.441
Formed by acid or enzymatic hydrol. of, Glycogen, G-555, Pullulan, P-110 and floridean starch. Present in honey.
$[\alpha]_D$ +128 (H_2O).

α-Pyranose-*form*

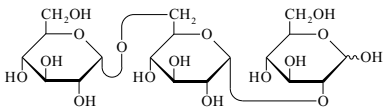
Benzyl glycoside, decabenzyl: [83921-71-5]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +74 (c, 1.0 in $CHCl_3$).

[3810-66-0]

Peat, S. *et al., J.C.S.*, 1959, 3223 (*isol*)
Pazur, J.H. *et al., J. Biol. Stand.*, 1960, **235**, 297 (*synth*)
Siddiqui, I.R. *et al., CA*, 1968, **69**, 95213h (*isol*)
Bethgate, G.N. *et al., Chem. Ind. (London)*, 1969, 520 (*isol*)
Ogawa, K. *et al., CA*, 1970, **72**, 117680z
Sakano, Y. *et al., Carbohydr. Res.*, 1978, **61**, 175
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*benzyl gly deriv*)

α-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →2)-D-glucose, 9CI G-357

2-α-Isomaltosylglucose
[40983-70-8]



Pyranose–*form*

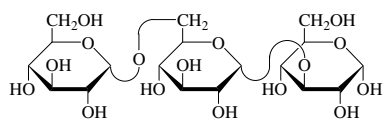
$C_{18}H_{32}O_{16}$ 504.441
Isol. from acetylated dextran obt. from *Leuconostoc mesenteroides* strain NRRL B1397. Isol. from sake. Formed when *Leuconostoc mesenteroides* was grown on a medium containing (1 →2) linked glucobiose.
$[\alpha]_D^{12}$ +148 (c, 1.8 in H_2O).

[25242-83-5, 55177-32-7]

Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 1295 (*synth*)
Sakakibara, K. *et al., Carbohydr. Res.*, 1972, **25**, 443 (*synth*)
Baba, S. *et al., CA*, 1975, **82**, 153725h (*isol*)
Watanabe, T. *et al., Carbohydr. Res.*, 1980, **83**, 119

α-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →3)-D-glucose, 8CI G-358

3-α-Isomaltosylglucose
[23393-10-4]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Formed by acetolysed fragmentation of *Leuconostoc mesenteroides* B dextran formed when *L. mesenteroides* NRRL B-512 was grown on a sucrose medium containing α(1 →3) linked glucobiose as an acceptor. Synth. enzymically by the action of potato T-enzyme on 3-*O*-α-D-Glucopyranosyl-D-glucose, G-405. Present in honey.
$[\alpha]_D^{12}$ +155 (c, 0.7 in H_2O).

α-Pyranose-*form*

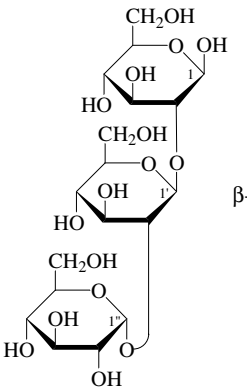
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 120°. $[\alpha]_D^{22}$ +111 (c, 2.3 in $CHCl_3$).

[21291-02-1]

Abdullah, M. *et al., J.C.S.*, 1962, 176 (*synth*)
Siddiqui, I.R. *et al., CA*, 1968, **69**, 95213h (*isol*)
Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 103; 1295 (*isol*)

α-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →2)-D-glucose, 9CI G-359

[76790-52-8]



β-Pyranose-*form*

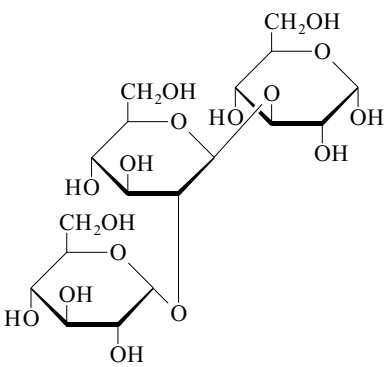
$C_{18}H_{32}O_{16}$ 504.441
Cryst. + H_2O (MeOH aq.). Mp 182-183° dec. $[\alpha]_D$ +78.5 → +72.8 (c, 1.4 in H_2O).

β-Pyranose-*form*

Undeca-Ac: [76790-51-7]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 179-180°. $[\alpha]_D^{25}$ +78.5 (c, 1.7 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1981, **88**, 158 (*synth, undeca-Ac*)

α-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →3)-D-glucose, 9CI G-360



$C_{18}H_{32}O_{16}$ 504.441

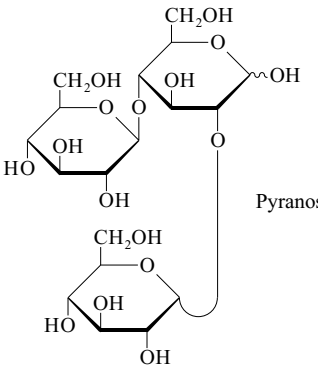
α-Pyranose-*form*

Me glycoside: [136597-20-1]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D^{22}$ +119 (c, 1.0 in H_2O).

Me glycoside, 4,6-O-benzylidene, octabenzyl: [136597-29-0]
$C_{82}H_{86}O_{16}$ 1327.572
Syrup. $[\alpha]_D^{22}$ +52 (c, 1.0 in $CHCl_3$).

Adeyee, A. *et al., J.C.S. Perkin 2*, 1991, 963 (*α-Me pyr derivs, conformn, pmr, cmr*)

α-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →4)-D-glucose G-361



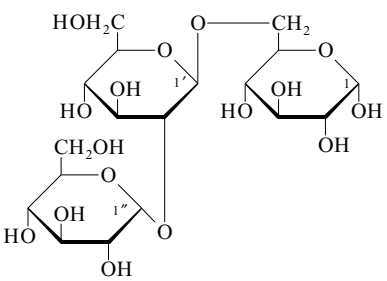
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Formed when *Leuconostoc mesenteroides* (NRRLB-512) was grown on a medium containing β(1 →4) linked glucobiose.
$[\alpha]_D^{12}$ +98 (c, 0.9 in H_2O).

[25193-54-8]

Bailey, R.W. *et al., J.C.S.*, 1958, 1895
Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 1295
Morales, M.A.A. *et al., Carbohydr. Res.*, 2001, **331**, 403-411 (*enzymic synth*)

α-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →6)-D-glucose G-362



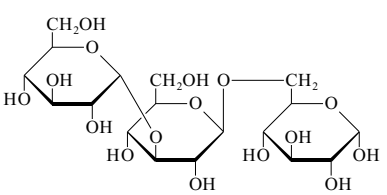
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-65-7]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +67 (c, 0.6 in $CHCl_3$).

Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*synth*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 120 (*α-benzyl pyr decabenzyl, pmr*)

α-D-Glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-363



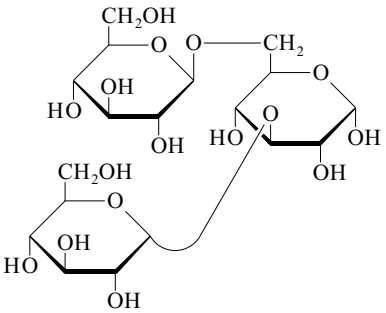
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-68-0]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +56 (c, 3.7 in $CHCl_3$).

Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl pyr decabenzyl*)

α-D-Glucopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI G-364



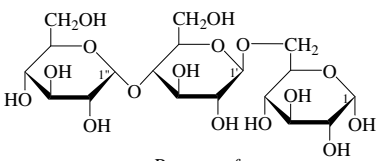
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [77988-18-2]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +59 (c, 1.4 in $CHCl_3$).

Koto, S. *et al., Can. J. Chem.*, 1981, **59**, 255 (*α-benzyl pyr decabenzyl, cmr*)

α-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-365



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Amorph. $[\alpha]_D$ +62 (H_2O).

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-72-6]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +51 (c, 0.5 in $CHCl_3$).

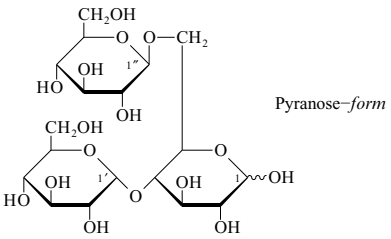
β-Pyranose-*form* [59685-19-7]

Undeca-Ac: [14260-09-4]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 242.7° (241°). $[\alpha]_D$ +42.5 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2,3,4-tribenzyl, hepta-Ac: [59647-87-9]
$C_{60}H_{70}O_{23}$ 1159.199
Cryst. Mp 146-147°. $[\alpha]_D$ +33.6 ($CHCl_3$).

Kochetkov, N.K. *et al., Tetrahedron*, 1967, **23**, 693 (*β-undeca-Ac*)
Nanasi, P. *et al., Acta Chim. Acad. Sci. Hung.*, 1976, **88**, 155 (*synth, β-benzyl pyr hepta-Ac deriv*)
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl pyr decabenzyl*)

α-D-Glucopyranosyl-(1 →4)-[β-D-glucopyranosyl-(1 →6)]-D-glucose G-366
[101541-07-5]

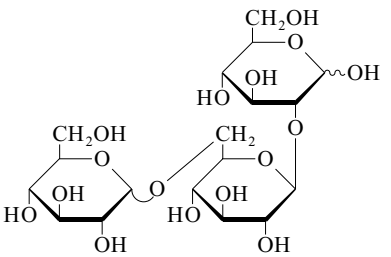


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Syrup. $[\alpha]_D^{20}$ +84 (+79) (H_2O).

Goldstein, I.J. *et al., Acta Chem. Scand.*, 1962, **16**, 383 (*synth*)
Cottaz, S. *et al., Synthesis*, 1989, 755 (*synth*)

α-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →2)-D-glucose G-367
2-β-Isomaltosylglucose



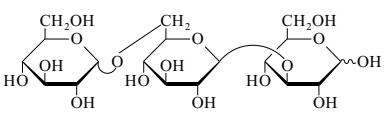
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Formed when *Leuconostoc mesenteroides* (NRRL B-512) was grown on a medium containing β(1 →2) linked glucobiose.
$[\alpha]_D^{12}$ +81 (c, 0.4 in H_2O).

[25193-52-6]

Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 1295

α-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →3)-D-glucose G-368
3-β-Isomaltosylglucose



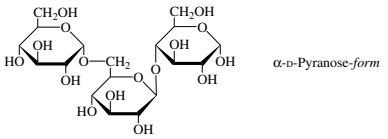
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Product formed when *Leuconostoc mesenteroides* (NRRL-B512) was grown on a medium containing β(1 →3) linked glucobiose. Trace component of hydrolysate of "insoluble" seaweed laminarin.
$[\alpha]_D^{12}$ +88 (c, 0.7 in H_2O) (+67).

[25242-84-6]

Peat, S. *et al., J.C.S.*, 1958, 729 (*isol*)
Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 1295 (*synth*)

α-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →4)-D-glucose G-369

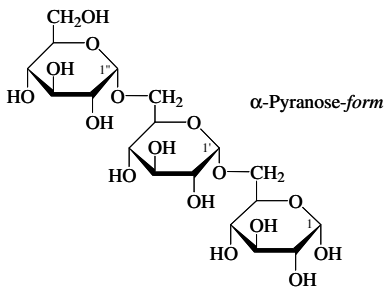


α-D-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Obt. by enzymic transglycosylation between Sucrose, S-92 and Cellobiose, C-38.

Morales, M.A.A. *et al., Carbohydr. Res.*, 2001, **331**, 403-411 (*synth, pmr, cmr*)

α-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-370
6-β-Isomaltosylglucose
[73912-50-2]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Product formed when *Leuconostoc mesenteroides* (NRRL B-512) was grown on a sucrose medium containing β(1 →6) linked glucobiose. Constit. of nephritogenic glycopeptide from rat glomerular basement membrane.
$[\alpha]_D^{12}$ +65 (c, 1.8 in H_2O).

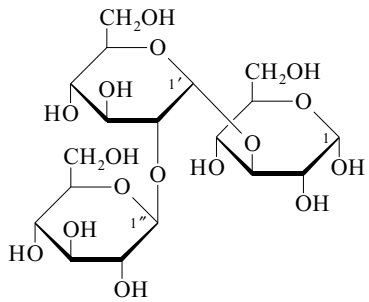
α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-76-0]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +58 (c, 1.0 in $CHCl_3$).

[25193-56-0]

Yamauchi, F. *et al., Agric. Biol. Chem.*, 1969, **33**, 1295 (*synth*)
Shibata, S. *et al., Carbohydr. Res.*, 1980, **81**, 345
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl gly synth*)
Ogawa, T. *et al., Agric. Biol. Chem.*, 1983, **47**, 1213 (*occur*)
Shibata, S. *et al., Nephron*, 1987, **47**, 101; *CA*, **108**, 20076f (*occur*)

β-D-Glucopyranosyl-(1 →2)-α-D-glucopyranosyl-(1 →3)-D-glucose, 9CI G-371



$C_{18}H_{32}O_{16}$ 504.441

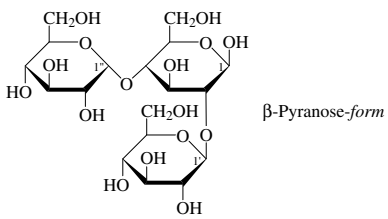
α-Pyranose-*form*

Me glycoside: [136597-21-2]
$C_{19}H_{34}O_{16}$ 518.468
Syrup.

Me glycoside, 4,6:4′,6′-di-O-benzylidene, 2-benzyl, 2′′,3′′,4′′,6′′-tetra-Ac: [136597-32-5]
$C_{48}H_{56}O_{20}$ 952.958
Syrup.

Adeyeye, A. *et al., J.C.S. Perkin 2*, 1991, 963 (*α-Me pyr derivs, pmr, cmr*)

β-D-Glucopyranosyl-(1 →2)-[α-D-glucopyranosyl-(1 →4)]-D-glucose, 9CI G-372



β-Pyranose-*form*

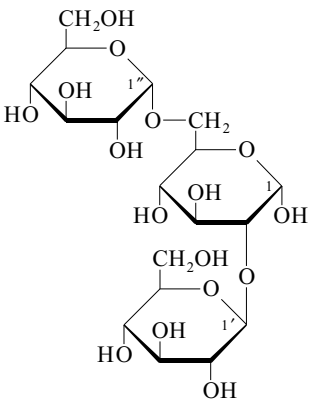
$C_{18}H_{32}O_{16}$ 504.441

β-Pyranose-*form*

Undeca-Ac: [29581-61-1]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. Mp 195-186°. $[\alpha]_D$ +46.5 ($CHCl_3$).

Koeppen, B.H. *et al., Carbohydr. Res.*, 1970, **13**, 417 (*undeca-Ac*)

β-D-Glucopyranosyl-(1 →2)-[α-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI G-373



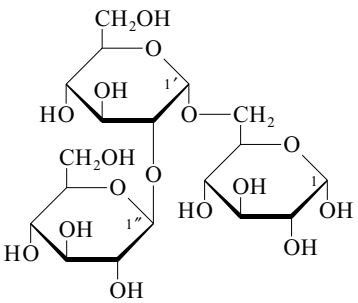
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Benzyl glycoside, 4-allyl, nonabenzyl: [120330-84-9]
$C_{91}H_{96}O_{16}$ 1445.75
Syrup. $[\alpha]_D^{20}$ +69 (c, 1.7 in $CHCl_3$).

Morishima, N. *et al., Chem. Lett.*, 1982, 1183 (*α-benzyl pyr deriv, cmr*)

β-D-Glucopyranosyl-(1 →2)-α-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-374



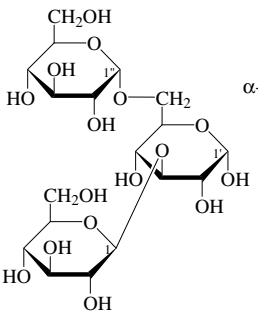
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83932-08-5]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D$ +59 (c, 1.0 in $CHCl_3$).

Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl pyr decabenzyl*)

β-D-Glucopyranosyl-(1 →3)-[α-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI G-375



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

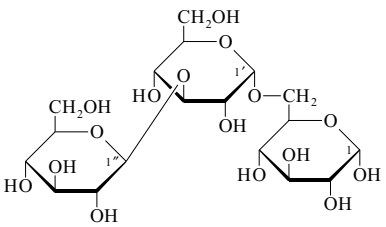
α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83945-62-4]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +66 (c, 0.7 in $CHCl_3$).

Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1982, **55**, 2995 (*α-benzyl pyr decabenzyl, cmr*)

β-D-Glucopyranosyl-(1 →3)-α-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-376

[84396-55-4]



$C_{18}H_{32}O_{16}$ 504.441
Cryst. Mp 149-150°. $[\alpha]_D$ +48 → +57 (H_2O).

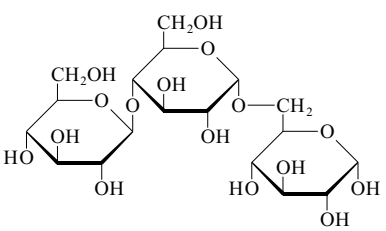
α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-69-1]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +67 ($CHCl_3$).

Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*synth, α-benzyl pyr decabenzyl*)

Koto, S. *et al., Nippon Kagaku Kaishi*, 1982, 1651 (*synth, α-benzyl pyr decabenzyl, cmr*)

β-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-377



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

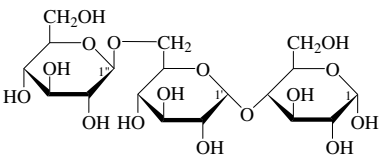
Benzyl glycoside, decabenzyl: [83921-73-7]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +62 (c, 1.7 in $CHCl_3$).

Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl pyr decabenzyl*)

Koto, S. *et al., Nippon Kagaku Kaishi*, 1982, 1651 (*α-benzyl pyr decabenzyl, pmr*)

β-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →4)-D-glucose, 9CI, 8CI — G-378

Sorborose
[7485-51-0]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Amorph. $[\alpha]_D^{20}$ +70 (c, 0.6 in H_2O).

α-Pyranose-*form*

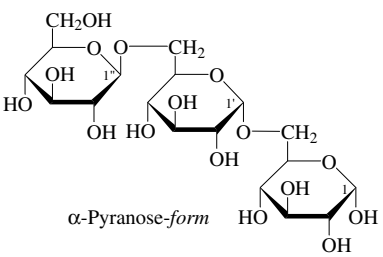
Benzyl glycoside, decabenzyl: [85011-48-9]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +57 (c, 1.0 in $CHCl_3$).

Wolfram, M.L. *et al., J.O.C.*, 1967, **32**, 656 (*synth*)

Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 188 (*α-benzyl pyr decabenzyl, pmr, cmr*)

β-D-Glucopyranosyl-(1 →6)-α-D-glucopyranosyl-(1 →6)-D-glucose, 9CI — G-379

[41897-94-3]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Syrup. $[\alpha]_D$ +71.9 (H_2O).

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [83921-77-1]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +53 (c, 2.3 in $CHCl_3$).

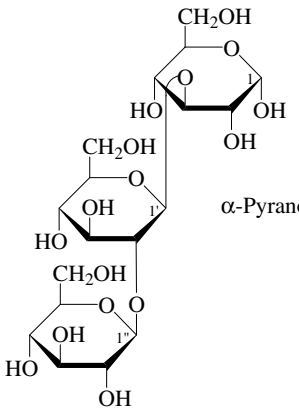
β-Pyranose-*form*

*2′′-Benzyl, 3′′,4′′,6′′-tris-(*p*-nitrobenzoyl), 1,2,2′,3,3′,4,4′-hepta-Ac:* [41897-91-0]
Syrup. $[\alpha]_D$ +46.5 (c, 1.29 in $CHCl_3$).

Takiura, K. *et al., Chem. Pharm. Bull.*, 1973, **21**, 523 (*synth, β-benzyl hepta-Ac deriv*)

Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl pyr decabenzyl*)

β-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →3)-D-glucose, 9CI — G-380



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

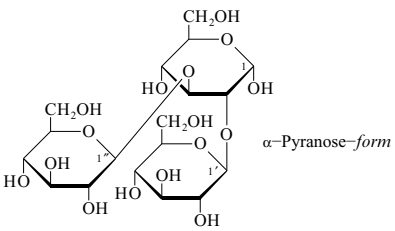
α-Pyranose-*form*

Me glycoside: [136597-22-3]
$C_{19}H_{34}O_{16}$ 518.468
Syrup.

*Me glycoside, 4,6-*O*-benzylidene, 2,3′,4′,6′-tetrabenzyl, tetrabenzoyl:* [136597-33-6]
$C_{82}H_{78}O_{20}$ 1383.506
Syrup. $[\alpha]^{22}_{Hg578}$ +15 (c, 1.0 in $CHCl_3$).

Adeyeye, A. *et al., J.C.S. Perkin 2*, 1991, 963 (*α-Me pyr derivs, pmr, cmr*)

β-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-D-glucose, 9CI — G-381



α–Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Me glycoside: [89016-56-8]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. powder. $[\alpha]_D$ +34.8 (H_2O).

β-Pyranose-*form*

Me glycoside: [76790-44-8]
Cryst. (EtOH). Mp 249-251°. $[\alpha]_D^{20}$ -32 (c, 1.0 in H_2O).

*Me glycoside, 4,6-*O*-benzylidene:* [76990-43-7]
$C_{26}H_{38}O_{16}$ 606.577
Cryst. (EtOH). Mp 280-282°. $[\alpha]_D^{20}$ -44.5 (c, 1.2 in DMF).

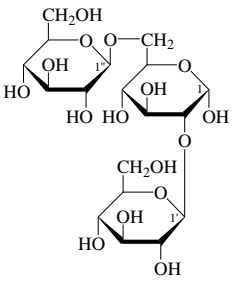
*Me glycoside, 4,6-*O*-benzylidene, octa-Ac:* [76790-42-6]
$C_{42}H_{54}O_{24}$ 942.874
Syrup. $[\alpha]_D^{20}$ -29.1 (c, 1.8 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1980, **87**, 147 (*β-Me pyr derivs, pmr*)

Temeriusz, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1982, **56**, 141 (*α-Me pyr, cmr*)

β-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI — G-382

Neopolitanose
[90366-13-5]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Present as glycosyl esters in stigmas of *Crocus neapolitanus*.

*1-*O*-Octanoyl:* [255904-23-5]
$C_{26}H_{46}O_{17}$ 630.639
Constit. of the fruit of Indian mulberry (*Morinda citrifolia*). Powder.

α-Pyranose-*form*

Undeca-Ac: [90332-61-9]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 188-190°.

Me glycoside: [88988-42-5]
$C_{19}H_{34}O_{16}$ 518.468
Cryst. Mp 262-265°. $[\alpha]_D$ +28.4 (H_2O).

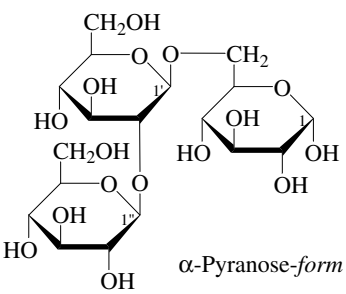
Temeriusz, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1982, **56**, 141 (*α-Me gly synth*)

Pychener, M. *et al., Helv. Chim. Acta*, 1984, **67**, 386 (*isol, pmr, ms*)

Wang, M. *et al., J. Agric. Food Chem.*, 1999, **47**, 4880-4882 (*1-octanoyl*)

β-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →6)-D-glucose — G-383

[96345-60-7]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Glass. $[\alpha]_D$ -1 (c, 1.0 in H_2O).

α-Pyranose-*form*

Benzyl glycoside, 2,3,3′,3′′,4,4′,4′′,6′,6′′-nonabenzyl, 2′′-Ac:
$C_{90}H_{94}O_{17}$ 1447.722
Syrup. $[\alpha]_D^{20}$ +28 (c, 3.4 in $CHCl_3$).

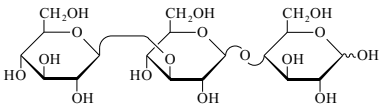
Benzyl glycoside, decabenzyl: [83921-66-8]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +34 (c, 2.6 in $CHCl_3$).

β-Pyranose-*form*

Undeca-Ac: [89945-12-0]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. Mp 188-189°. $[\alpha]_D$ +20.2 (c, 1.0 in $CHCl_3$).
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl gly*)
Rychener, M. *et al., Helv. Chim. Acta*, 1984, **67**, 378 (*β-undeca Ac, synth, pmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 120 (*α-benzyl gly, synth, cmr*)

β-D-Glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →4)-D-glucose, 9CI G-384

4-β-Laminaribiosylglucose
[32581-38-7]

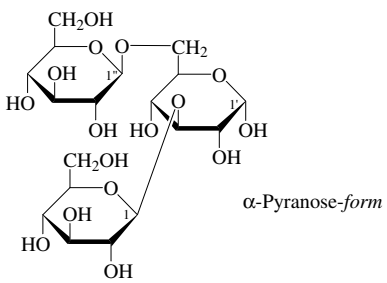


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Present in the partial acid hydrolysates of lichenin and oat β-glucan. Cryst. (EtOH aq.).
Mp 229-231°. $[\alpha]_D^{25}$ +13 (c, 1.4 in H_2O).

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 120-122°. $[\alpha]_D$ -20 ($CHCl_3$).
Peat, S. *et al., J.C.S.*, 1957, 3916
Parrish, F.W. *et al., Can. J. Chem.*, 1960, **38**, 2094 (*isol*)
Perlin, A.S. *et al., Can. J. Chem.*, 1962, **40**, 50 (*isol*)
Takeo, K. *et al., Carbohydr. Res.*, 1986, **147**, 265 (*synth*)

β-D-Glucopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →6)]-D-glucose, 9CI G-385



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of the repeating unit of the extracellular polysaccharides of *Sclerotinia libertiana, Porodisculus pendulus, Schizophyllum commune* and *Grifora umbellata*.
Powder (EtOH).
Mp 197-199° (183-188°). $[\alpha]_D$ -13 → +6.8 (H_2O). $[\alpha]_D^{20}$ -1.1 (c, 1.5 in H_2O) (-0.6).

Pyranose-*form*

Undeca-Ac: [78006-45-8]
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 233-235°. $[\alpha]_D^{20}$ -2.1 (c, 0.7 in $CHCl_3$).

α-Pyranose-*form* [78039-04-0]

Me glycoside: [82186-17-2]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. $[\alpha]_D^{25}$ +28.5 (c, 0.5 in MeOH).

Benzyl glycoside, 2,4-dibenzyl, octa-Ac: [82186-23-0]
$C_{55}H_{66}O_{24}$ 1111.112
Syrup. $[\alpha]_D^{25}$ +12.8 (c, 0.58 in $CHCl_3$).

Benzyl glycoside, decabenzyl: [78039-03-9]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +38 (c, 0.6 in $CHCl_3$).

β-Pyranose-*form* [78039-05-1]

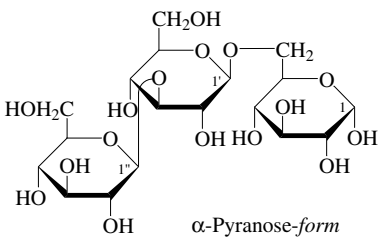
Me glycoside:
Cryst. Mp 144-146°. $[\alpha]_D$ -38.4 (H_2O).

Me glycoside, 2′,2″,3′,3″,4′,4″,6′,6″-octa-Ac: [72489-05-5]
$C_{35}H_{50}O_{24}$ 854.766
Cryst. Mp 226-228°. $[\alpha]_D$ -30.5 ($CHCl_3$).

Benzyl glycoside, 2,4-dibenzyl, octabenzoyl: [103078-29-1]
$C_{95}H_{82}O_{24}$ 1607.678
Syrup. $[\alpha]_D$ +7 ($CHCl_3$).
Klemer, A. *et al., Chem. Ber.*, 1961, **94**, 2747 (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1979, **7**, 131; 1986, **145**, 293 (*β-Me pyr derivs, β-benzyl pyr octabenzoyl deriv, cmr, occur*)
Ueno, Y. *et al., Carbohydr. Res.*, 1980, **85**, 151 (*isol*)
Koto, S. *et al., Can. J. Chem.*, 1981, **59**, 255 (*synth, α-benzyl pyr decabenzyl, cmr*)
Ogawa, T. *et al., Carbohydr. Res.*, 1982, **103**, 53 (*synth, α-Me pyr, α-benzyl pyr octa-Ac deriv, cmr, occur*)

β-D-Glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-386

6-β-Laminaribiosylglucose. 3-β-Glucosyl-gentiobiose
[32581-37-6]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from partial acid hydrol. of insoluble laminarin and yeast β-glucan. Amorph.
$[\alpha]_D$ -6 (H_2O).

α-Pyranose-*form*

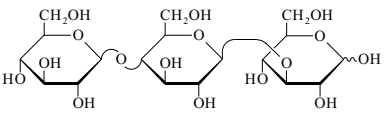
Benzyl glycoside, decabenzyl: [83921-70-4]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +42 (c, 2.0 in $CHCl_3$).

β-Pyranose-*form*

Undeca-Ac: [89367-11-3]
$C_{40}H_{54}O_{27}$ 966.85
Needles (EtOH). Mp 216-217°.
$[\alpha]_D$ -27.4 ($CHCl_3$).
Peat, S. *et al., J.C.S.*, 1958, 724; 3862; 1960, 175 (*isol, synth*)
Handa, N. *et al., Nature (London)*, 1961, **192**, 1078 (*isol*)
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl gly synth*)
Rychener, M. *et al., Helv. Chim. Acta*, 1984, **67**, 378 (*β-undeca-Ac synth, pmr*)
Ossowski, P. *et al., J. Biol. Chem.*, 1984, **259**, 11337 (*α-fur deriv synth*)

β-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →3)-D-glucose, 9CI, 8CI G-387

3-β-Cellobiosylglucose
[32581-36-5]

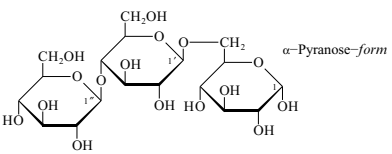


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Obtd. from partial acid and enzymic hydrol. of lichenin, oat β-glucan, barley β-glucan and from the cell-wall of bamboo. Cryst. (EtOH aq.).
Mp 236-239°. $[\alpha]_D^{25}$ +11.7 (c, 1.5 in H_2O).

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Cryst. Mp 108-110°. $[\alpha]_D$ -8.3 ($CHCl_3$).
Peat, S. *et al., J.C.S.*, 1957, 3916 (*isol*)
Moscatelli, E.A. *et al., J. Biol. Chem.*, 1961, **236**, 2858
Perlin, A.S. *et al., Can. J. Chem.*, 1962, **40**, 50 (*isol*)
Yamamoto, R. *et al., Carbohydr. Res.*, 1978, **67**, 275
Kato, Y. *et al., Carbohydr. Res.*, 1982, **109**, 233
Takeo, K. *et al., Carbohydr. Res.*, 1986, **147**, 265 (*synth*)

β-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-388



α–Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

Undeca-Ac: [55286-99-2]
$C_{40}H_{54}O_{27}$ 966.85
Needles (EtOH). Mp 190-191°.
$[\alpha]_D$ -17.5 (c, 2.5 in $CHCl_3$).

Benzyl glycoside, decabenzyl: [83921-74-8]
$C_{95}H_{98}O_{16}$ 1495.81
Cryst. Mp 122-123°. $[\alpha]_D^{20}$ +48 (c, 0.4 in $CHCl_3$).

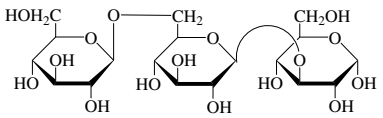
β-Pyranose-*form*

Undeca-Ac: [55287-00-8]
Needles (EtOH). Mp 245-247° (195-195.5°). $[\alpha]_D^{20}$ -9.7 (c, 1.0 in $CHCl_3$) (-30.9).
Hall, D.M. *et al., Carbohydr. Res.*, 1974, **38**, 359 (*α-undeca-Ac, β-undeca-Ac, pmr*)
Morishima, N. *et al., Chem. Lett.*, 1982, 1383 (*α-benzyl pyr decabenzyl*)

Koto, S. *et al., Nippon Kagaku Kaishi*, 1982, 1631 (*α-benzyl pyr decabenzyl*)
Rychener, M. *et al., Helv. Chim. Acta*, 1984, **67**, 378 (*β-undeca-Ac, pmr, ms*)

β-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →3)-D-glucose, 9CI G-389

3-β-Gentiobiosylglucose
[32581-32-1]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysates of sclerotia from *Sclerotinia libertiana*, laminarin, "insoluble" laminarin, and yeast β-glucan. Constit. in the carbohydrate moiety of a highly toxic saponin of Lucerne *Medicago sativa*. Repeating unit of the extracellular β-D-glucan from the fungus *Botrytis cinerea* responsible for clarification difficulties in wine technology. Prisms + $2H_2O$.
Mp 223-223° dec. $[\alpha]_D^{15}$ -4.35 → +1.58 (c, 1.0 in H_2O).

α-Pyranose-*form*

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Cryst. (EtOH). Mp 179-180°. $[\alpha]_D^{15}$ -11 ($CHCl_3$).

β-Pyranose-*form* [47751-20-2]

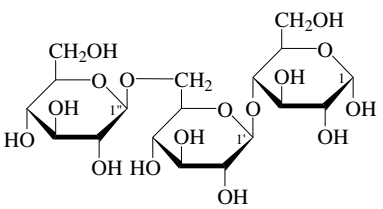
Undeca-Ac:
Prisms (EtOH). Mp 169-170°. $[\alpha]_D^{15}$ -27.9 ($CHCl_3$).

[34213-21-3]

Peat, S. *et al., J.C.S.*, 1960, 175; 1958, 3862 (*isol, synth*)
Turvey, J.R. *et al., J.C.S.*, 1960, 2366 (*synth*)
Handa, N. *et al., Nature (London)*, 1961, **192**, 1078 (*isol*)
Gestetner, B. *et al., Phytochemistry*, 1971, **10**, 2221 (*isol*)
Ueno, Y. *et al., Carbohydr. Res.*, 1973, **28**, 140 (*isol*)
Dubourdieu, D. *et al., Carbohydr. Res.*, 1981, **93**, 294 (*isol*)

β-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →4)-D-glucose G-390

4-β-Gentiobiosylglucose
[100676-05-9]



α-Pyranose-*form*

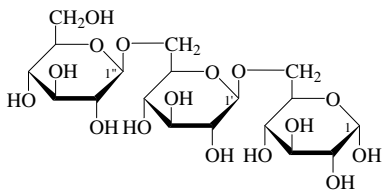
$C_{18}H_{32}O_{16}$ 504.441
Prod. by transferase action on cellobiose of β-glucosides of *Aspergillus niger*, barley (*Hordeum vulgare*) and *Neurospora crassa*. Constit. of exopolysaccharide from *Rhizobium* sp. strain ANU280. Host specificity determinant in *R.* sp. Claimed use as low-calorie flavouring agent in food, beverages, medicines. Promotes growth of beneficial intestinal flora. $[\alpha]_D$ +10.2 (H_2O).

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Cryst. Mp 205°. $[\alpha]_D$ -13 ($CHCl_3$).

Crook, E.M. *et al., Biochem. J.*, 1957, **65**, 1 (*isol*)
Anderson, F.B. *et al., Biochem. J.*, 1959, **71**, 407 (*isol*)
Berger, L.S. *et al., Biochem. Biophys. Res. Commun.*, 1961, **6**, 62 (*isol*)
Djordjevic, S.P. *et al., Carbohydr. Res.*, 1986, **148**, 87 (*isol, cmr*)
Eur. Pat., 1991, 415 720; *CA*, **115**, 181869b (*use*)

β-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →6)-D-glucose, 9CI G-391

Gentiotriose, 8CI
[32590-17-3]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial hydrol. of Pustulan, P-112. Low-calorie flavouring agent in food, beverages and medicines. Promotes growth of beneficial intestinal flora. $[\alpha]_D$ -6.5 (c, 2.0 in H_2O).

β-Pyranose-*form*

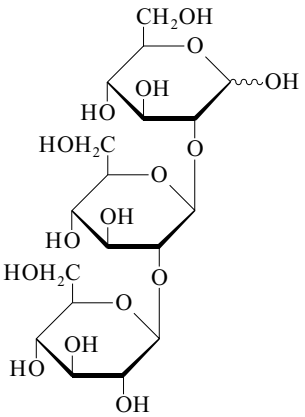
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 220-221°. $[\alpha]_D^{20}$ -7 (c, 1.0 in $CHCl_3$).

6‴-Trichloroacetyl, deca-Ac:
$C_{40}H_{51}Cl_3O_{27}$ 1070.185
Mp 200°. $[\alpha]_D^{20}$ -3 (c, 1.96 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1954, **8**, 985
McGrath, D. *et al., Carbohydr. Res.*, 1969, **11**, 453
Excoffier, G. *et al., Carbohydr. Res.*, 1976, **46**, 201 (*synth, pmr*)
Daniel, P.F. *et al., Methods Enzymol.*, 1987, **138**, 94 (*anal, hplc*)
Japan. Pat., 1989, 01 222 779; *CA*, **112**, 117369z (*manuf*)
Eur. Pat., 1991, 415 720; *CA*, **115**, 181869b (*use*)
Zhu, Y. *et al., Carbohydr. Res.*, 2001, **332**, 1-21 (*synth*)

β-D-Glucopyranosyl-(1 →2)-β-D-glucopyranosyl-(1 →2)-β-D-glucose, 9CI G-392

Sophorotriose
[32581-40-1]



$C_{18}H_{32}O_{16}$ 504.441
Constit. of glycosides from *Solanum* potato seed, *Pisum sativum* leaf and an extracellular polysaccharide of the pathogen *Agrobacterium radiobacter*. Present in major antigenic determinants on lipoglycens of *Acholeplasma granularum* and *Acholeplasma axanthum*. Inhibitor of haemogglutination in sheep. Cryst. (MeOH aq.).
Mp 218-223°. $[\alpha]_D$ +16 → +11 (c, 1.0 in H_2O, 18h).

β-Pyranose-*form*

1-O-(3,4-Dihydroxycinnamoyl): 1-O-Caffeoyl-β-sophorotriose
$C_{27}H_{38}O_{19}$ 666.586
Constit. of the moss *Mnium hornum*.

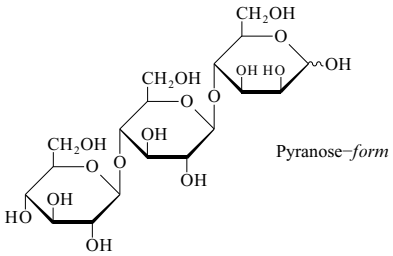
Allyl glycoside, 2″-Ac, nonabenzyl: [88988-49-2]
$C_{86}H_{92}O_{17}$ 1397.663
Syrup. $[\alpha]_D^{25}$ -0.56 (c, 1.0 in $CHCl_3$).

[50906-47-3]

Gorin, P.A.T. *et al., Can. J. Chem.*, 1961, **39**, 1067 (*constit*)
Furuya, M. *et al., Nature (London)*, 1962, **193**, 456 (*constit*)
Karkkainen, J. *et al., Carbohydr. Res.*, 1971, **17**, 11 (*glc, ms*)
Schmid, R.D. *et al., Phytochemistry*, 1973, **12**, 2269 (*isol, ms*)
Ogawa, T. *et al., Carbohydr. Res.*, 1983, **123**, C16 (*β-allyl gly*)
Al-Samarrai, T.H. *et al., Infect. Immun.*, 1983, **40**, 629 (*constit*)
Allen, P.Z. *et al., Mol. Immunol.*, 1988, **25**, 1011 (*immunol*)
Brinkmeier, E. *et al., Phytochemistry*, 1999, **52**, 297-302 (*Caffeoylsophorotriose*)

β-D-Glucopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-D-mannose, 9CI G-393

[28072-83-5]



$C_{18}H_{32}O_{16}$ 504.441

Isol. from the hydrolysates of konjac glucomannan (*Amorphophallus konjac*), mucous polysaccharides of *Bletilla striata* and the glucomannan in the tubers of *Arum maculatum*. Isol. from *Asparagus officinalis* seeds.

Mp 249-251° (257°). $[\alpha]_D$ +8.5 → -4.3 (c, 1.4 in H_2O).

Kato, K. *et al., Agric. Biol. Chem.*, 1969, **33**, 1446 (*isol*)

Takahashi, R. *et al., Agric. Biol. Chem.*, 1984, **48**, 2943 (*isol*)

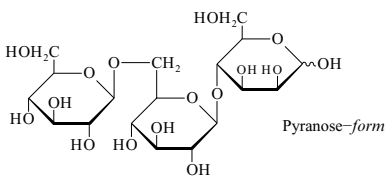
Koleva, M. *et al., CA*, 1984, **100**, 20436h

Kusakabe, I. *et al., Agric. Biol. Chem.*, 1988, **52**, 519 (*synth*)

Goldberg, R. *et al., Carbohydr. Res.*, 1991, **210**, 263 (*isol, pmr, hplc*)

β-D-Glucopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →4)-D-mannose, 9CI G-394

[61237-56-7]



$C_{18}H_{32}O_{16}$ 504.441

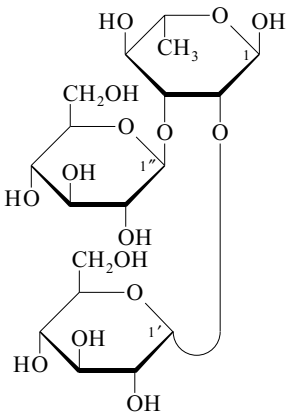
Isol. from partial acid hydrolysates of *Cassia tora* (charota).

Mp 176-180°. $[\alpha]_D$ -11.8 (c, 0.57 in H_2O).

Varshney, S.C. *et al., J.C.S. Perkin 1*, 1976, 1621

α-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-L-rhamnose G-395

α-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

Constit. of the repeating unit of the capsular polysaccharide of *Klebsiella* type 23.

α-Pyranose-*form*

Me glycoside: [128706-94-5]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{24}$ +34 (c, 1.1 in H_2O).

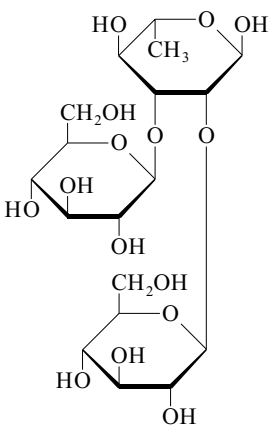
Me glycoside, 2′,2″,3′,3″,4,4′,4″,6″-octabenzyl: [128643-90-3]
$C_{75}H_{82}O_{15}$ 1223.464
Syrup. $[\alpha]_D^{24}$ +41 (c, 1.1 in $CHCl_3$).

Me glycoside, 2′,2″,3′,3″,4,4′,4″,6″-octabenzyl, 6′-Ac: [128643-89-0]
$C_{77}H_{84}O_{16}$ 1265.501
Cryst. (EtOH/EtOAc). Mp 156-157°.
$[\alpha]_D^{24}$ +25 (c, 1.2 in $CHCl_3$).

Ray, A.K. *et al., Carbohydr. Res.*, 1990, **196**, 95 (*isol, α-Me pyr derivs, pmr*)

β-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-L-rhamnose G-396

β-D-Glucopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

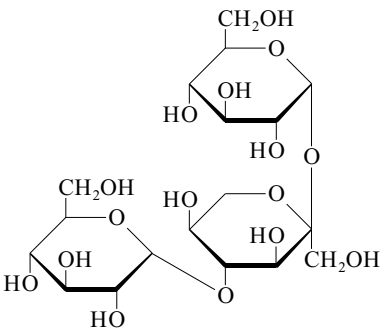
Me glycoside: [130062-85-0]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{28}$ -10 (c, 1.1 in $CHCl_3$).

Me glycoside, nonabenzoyl: [135129-58-7]
$C_{82}H_{70}O_{24}$ 1439.441
Syrup. $[\alpha]_D^{28}$ +26.5 (c, 1.65 in $CHCl_3$).

Nifantev, P.E. *et al., Bioorg. Khim.*, 1991, **17**, 517; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1991, **17**, 292 (*α-Me pyr derivs, pmr, cmr*)

α-D-Glucopyranosyl-(1 →2)-[α-D-glucopyranosyl-(1 →4)]-α-L-sorbopyranose G-397

[56287-12-8]

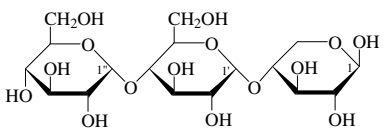


$C_{18}H_{32}O_{16}$ 504.441

Non-reducing trisaccharide. Formed by the transglucosylation reaction of brewers yeast α-glucosidase. $[\alpha]_D$ +96 (c, 0.5 in H_2O).

Matsusaka, K. *et al., Agric. Biol. Chem.*, 1975, **39**, 725

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →4)-D-xylose, 9CI G-398



$C_{17}H_{30}O_{15}$ 474.415

Pyranose-*form* [23259-52-1]
Amorph. $[\alpha]_D^{23}$ +141.5 (c, 1.1 in H_2O).

β-Pyranose-*form*

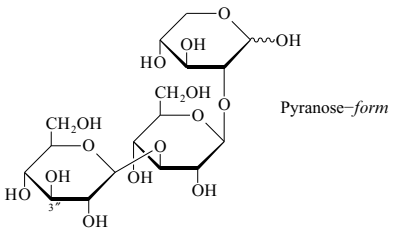
Benzyl glycoside, 2′,2″,3,3′,3″,4″,6′,6″-octabenzyl: [132627-99-7]
$C_{80}H_{84}O_{15}$ 1285.535
Syrup. $[\alpha]_D^{25}$ +33 (c, 1.5 in $CHCl_3$).

[132627-89-5]

Chirva, V.Y. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1968, 2541; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1968, 2405 (*occur*)

Tako, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, β-benzyl pyr octabenzyl, pmr, cmr*)

β-D-Glucopyranosyl-(1 →3)-β-D-glucopyranosyl-(1 →2)-D-xylose, 9CI G-399



$C_{17}H_{30}O_{15}$ 474.415
Constit. of Holotoxin A and B, isol. from sea cucumber *Stichopus japonicus*.

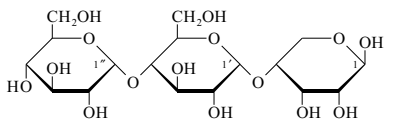
Pyranose-*form*

Me glycoside, nona-Me: [55727-75-8]
$C_{27}H_{50}O_{15}$ 614.683
Amorph. $[\alpha]_D^{28}$ +2 (c, 0.3 in $CHCl_3$).

3″-Me, nona-Ac: [55762-44-2]
$C_{36}H_{50}O_{24}$ 866.777
Amorph.

Kitagawa, I. *et al., Chem. Pharm. Bull.*, 1976, **24**, 275 (*constit, Me pyr deriv, nona-Ac deriv, ir, pmr*)

α-D-Glucopyranosyl-(1 →4)-α-D-glucopyransoyl-(1 →4)-D-ribose, 9CI G-400



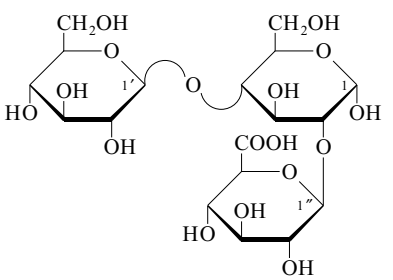
$C_{17}H_{30}O_{15}$ 474.415

β-Pyranose-*form*

Benzyl glycoside, 2,3-anhydro, heptabenzyl: [132627-98-6]
$C_{73}H_{76}O_{14}$ 1177.395
Syrup. $[\alpha]_D^{25}$ +52 (c, 1.2 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, cmr*)

β-D-Glucopyranosyl-(1 →4)-[β-D-glucopyranuronosyl-(1 →2)]-D-glucose, 8CI G-401



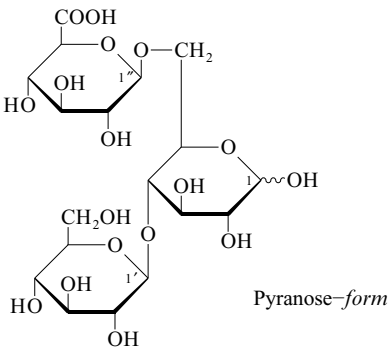
$C_{18}H_{30}O_{17}$ 518.425

α-Pyranose-*form*

Deca-Ac, Me ester: [21216-47-7]
$C_{39}H_{52}O_{27}$ 952.824
Cryst. Mp 272-276°. $[\alpha]_D$ +11.4 (c, 1.0 in $CHCl_3$).

Roy, N. *et al., Carbohydr. Res.*, 1968, **6**, 475 (*deca-Ac Me ester*)

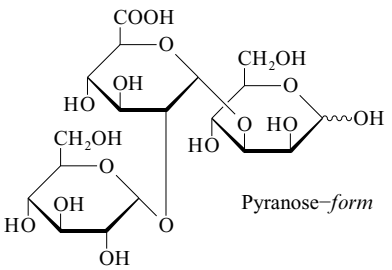
β-D-Glucopyranosyl-(1 →4)-[β-D-glucopyranuronosyl-(1 →6)]-D-glucose, 8CI G-402
[20429-77-0]



$C_{18}H_{30}O_{17}$ 518.425
Syrup. $[\alpha]_D^{25}$ +3.3 (c, 2.0 in H_2O).

Roy, N. *et al., Carbohydr. Res.*, 1968, **6**, 475 (*synth*)

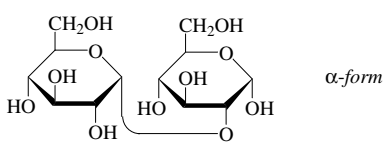
α-D-Glucopyranosyl-(1 →2)-α-D-glucopyranuronosyl-(1 →3)-D-mannose, 9CI G-403
[80264-79-5]



$C_{18}H_{30}O_{17}$ 518.425
Constit. of the repeating unit of the capsular polysaccharide of *Klebsiella* K4.
Syrup. $[\alpha]_D$ +48 (H_2O) (impure).

Merrifield, E.H. *et al., Carbohydr. Res.*, 1981, **96**, 113 (*occur, struct, pmr*)

2-*O*-α-D-Glucopyranosyl-D-glucose, 9CI, 8CI G-404
Kojibiose
[2140-29-6]



$C_{12}H_{22}O_{11}$ 342.299
Occurs in saké, honey and in the cell membrane of *Streptococcus faecalis*; formed by the action of glucosidase transglucosylation on starch. Prisms.
Mp 187-188°. $[\alpha]_D^{18}$ +162 → +137 (c, 2.1 in H_2O).

α-Pyranose-*form* [37169-66-7]

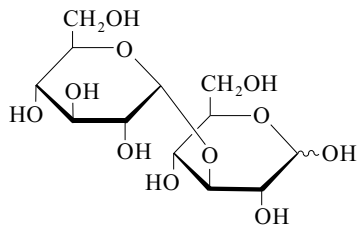
Octa-Ac:
[20970-96-1]
$C_{28}H_{38}O_{19}$ 678.597
Mp 167-168°. $[\alpha]_D^{17}$ +152 (c, 1.5 in $CHCl_3$).

β-Pyranose-*form* [37169-67-8]

Octa-Ac: [31873-02-6]
Mp 118°. $[\alpha]_D$ +112 ($CHCl_3$).

Yamauchi, F. *et al., Nature (London)*, 1961, **189**, 753 (*isol*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425-2432 (*cmr*)
Usui, T. *et al., Carbohydr. Res.*, 1974, **33**, 105-116 (*pmr*)
Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319-329 (*synth, octa-Ac*)
Ganfield, M.-C. *et al., J. Biol. Chem.*, 1975, **250**, 702-709 (*isol*)
Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15-24 (*pmr*)
Watanabe, T. *et al., Carbohydr. Res.*, 1982, **110**, 170-175 (*isol*)
Takeo, K. *et al., Carbohydr. Res.*, 1987, **162**, 95-109 (*α-octa-Ac*)

3-*O*-α-D-Glucopyranosyl-D-glucose, 9CI, 8CI G-405
Nigerose. Sakebiose
[497-48-3]



$C_{12}H_{22}O_{11}$ 342.299
A product of the partial hydrolysis of Nigeran, N-48. It has been detected in saké. Can be obt. preparatively by hydrol. of the D-glucan from fruiting bodies of the bracket fungus *Laetiporus sulphureus* (sulphur polypore) (Takeo *et al*).
Mp 156°. $[\alpha]_D^{20}$ +125 → +138 (c, 2 in H_2O).

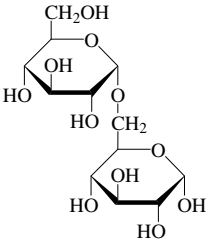
β-Pyranose-*form*

Octa-Ac: [22352-62-1]
$C_{28}H_{38}O_{19}$ 678.597
Needles (Et_2O). Mp 152-153°. $[\alpha]_D^{12}$ +83 (c, 2.1 in $CHCl_3$).

Stacey, M. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 339 (*isol*)
Yamanchi, F. *et al., Nature (London)*, 1964, **204**, 1088 (*isol*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1973, **51**, 42 (*α-D-pyr, synth*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 721 (*pmr*)
Igarashi, K. *et al., Carbohydr. Res.*, 1975, **39**, 341 (*β-D-pyr octa-Ac*)
Excoffier, G. *et al., Carbohydr. Res.*, 1976, **51**, 280 (*β-D-pyr octa-Ac, pmr*)
Neuman, A. *et al., Carbohydr. Res.*, 1980, **80**, 15 (*Me gly, cryst struct*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **113**, 281 (*isol*)

6-*O*-α-D-Glucopyranosyl-D-glucose, 9CI G-406

Isomaltose. *Brachiose*
[499-40-1]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isolated from partial hydrolysates of amylopectin and dextrans. Prod. by *Bacillus polymyxa* and *Streptomyces* spp. Active against *E. coli* only. Sol. H_2O; poorly sol. MeOH, C_6H_6, butanol. Mp 120°. $[\alpha]_D$ +120 (H_2O).

α-Pyranose-*form*

Me glycoside: Methyl α-maltoside
$C_{13}H_{24}O_{11}$ 356.326
Amorph. solid. $[\alpha]_D^{20}$ +107 (c, 0.18 in EtOH).

β-Pyranose-*form*

Octa-Ac: [22352-61-0]
$C_{28}H_{38}O_{19}$ 678.597
Prisms (EtOH). Mp 143-144°. $[\alpha]_D^{25}$ +97 (c, 2.7 in $CHCl_3$).

Octakis(4-nitrobenzoyl): Mp 188°. $[\alpha]_D$ +22 (2,5-hexanedione).

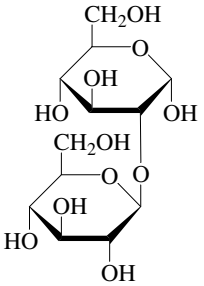
Me glycoside: Methyl β-isomaltoside
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{20}$ +53.2 (+50) (H_2O).

[24822-33-1]

Georges, L.W. *et al., J.A.C.S.*, 1947, **69**, 473 (*β-D-pyr-octa-Ac*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1949, **3**, 1355 (*β-D-pyr-octa-Ac*)
Montgomery, E.M. *et al., J.A.C.S.*, 1949, **71**, 1682 (*isol*)
Jeanes, A. *et al., J.A.C.S.*, 1953, **75**, 5911 (*isol*)
Takasawa, A. *et al., J. Antibiot., Ser. A*, 1954, **7**, 51 (*isol*)
Turvey, J.R. *et al., Biochem. J.*, 1957, **67**, 49 (*isol, β-octa-Ac*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 316; 1963, **2**, 341 (*synth*)
Pazur, J.H. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 319 (*synth*)
Ninomiya, E. *et al., CA*, 1971, **74**, 86374 (*isol*)
Takiura, K. *et al., Chem. Pharm. Bull.*, 1973, **21**, 523 (*synth*)
Helferich, B. *et al., Annalen*, 1974, 1514 (*synth*)
Berry, J.M. *et al., Carbohydr. Res.*, 1974, **38**, 339 (*synth*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081 (*conformn, cmr*)
Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15 (*pmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1982, **55**, 2995 (*cmr*)
Hamann, C.H. *et al., Carbohydr. Res.*, 1994, **265**, 1 (*Me glycosides*)

2-*O*-β-D-Glucopyranosyl-D-glucose, 9CI G-407

Sophorose
[534-46-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Disaccharide from *Sophora japonica*, obt. by hydrol. of Stevioside or Kaempferol-sophoroside. Also occurs as glycosides in *Torulopsis magnoliae* and prod. by various *Acetobacter* spp. Needles (MeOH aq.). Mp 196-198°. $[\alpha]_D^{20}$ +33 → +19.1 (c, 1.2 in H_2O).

α-Pyranose-*form* [20880-64-2]

*Octa-Ac: Octa-*O*-acetyl-α-sophoropyranose*
[38358-39-3]
$C_{28}H_{38}O_{19}$ 678.597
Mp 111°. $[\alpha]_D^{17}$ +45 ($CHCl_3$).

*Benzyl glycoside: Benzyl 2-*O*-β-D-glucopyranosyl-α-D-glucopyranoside. Benzyl α-D-sophoropyranoside*
$C_{19}H_{28}O_{11}$ 432.424
Cryst. (EtOH). Mp 214-215°. $[\alpha]_D^{25}$ +90.6 (c, 1.6 in H_2O).

1-Bromo, hepta-Ac: Acetobromosophorose
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 194° dec. $[\alpha]_D^{20}$ +95.6 ($CHCl_3$).

*6-*O*-(3,4-Dihydroxy-*E*-cinnamoyl): 6-*O*-Caffeoylsophorose*
$C_{21}H_{28}O_{14}$ 504.444
Isol. from red vinegar by fermented purple-fleshed sweet potato (*Ipomoea batatas*). α-Glucosidase inhibtitor. Antioxidant.

β-Pyranose-*form* [26887-94-5]

*Octa-Ac: Octa-*O*-acetyl-β-sophoropyranoside*
[20880-63-1]
$C_{28}H_{38}O_{19}$ 678.597
Mp 193-194°. $[\alpha]_D^{18}$ -3.2 (c, 2.5 in $CHCl_3$).

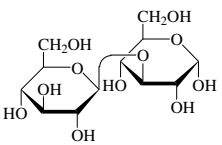
*Me glycoside: Methyl 2-*O*-β-D-glucopyranosyl-α-D-glucopyranoside. Methyl β-D-sophoropyranoside*
[16790-34-4]
$C_{13}H_{24}O_{11}$ 356.326
Mp 195-196° (189-190°). $[\alpha]_D$ -28 (c, 0.2 in H_2O). $[\alpha]_D$ -38.4 (c, 1.5 in H_2O).

*Benzyl glycoside: Benzyl 2-*O*-β-D-glucopyranosyl-β-D-glucopyranoside. Benzyl β-sophoropyranoside.* ***Zizybeoside I***
[76819-28-8]
$C_{19}H_{28}O_{11}$ 432.424
Isol. from *Zizyphus jujuba* (Chinese date). Needles (MeOH aq.).
Mp 192-193°. $[\alpha]_D^{23}$ -32.6 (c, 1.03 in H_2O).

Walker, T.K. *et al., Arch. Biochem. Biophys.*, 1959, **83**, 161 (*isol*)
Clancy, M.J. *et al., J.C.S.*, 1960, 4213 (*isol, β-pyr octa-Ac*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 846 (*isol*)
Coxon, B. *et al., J.O.C.*, 1961, **26**, 2893 (*synth, α-pyr-bromo hepta-Ac*)
Clancy, M.J. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 345 (*isol*)
Schmidt, O.T. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 349 (*isol, synth*)
Finan, P.A. *et al., J.C.S.*, 1963, 5229 (*synth, β-pyr octa-Ac, β-Me pyr*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
Dick, W.E. Jr. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*synth, β-pyr octa-Ac*)
de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 721 (*pmr*)
Takeo, K. *et al., Carbohydr. Res.*, 1980, **86**, 151 (*α-benzyl pyr, β-benzyl pyr*)
Okamura, N. *et al., Chem. Pharm. Bull.*, 1981, **29**, 3507 (*Zizybeoside I*)
Ikegami, M. *et al., Carbohydr. Res.*, 1995, **271**, 137-150 (*cryst struct, β-pyr octa-Ac, β-Me gly hepta-Ac*)
Andre, I. *et al., New J. Chem.*, 1995, **19**, 331 (*pmr, cmr, conformn*)
Matsui, T. *et al., Biosci., Biotechnol., Biochem.*, 2004, **68**, 2239-2246 (*6-Caffeoylsophorose*)

3-*O*-β-D-Glucopyranosyl-D-glucose, 9CI G-408

Laminaribiose, 8CI. *Laminarabiose*
[34980-39-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of pine needles, seeds of *Cycas revoluta*, laminaran, pachyman, yeast glucans and seaweed lichenans. Mp 205° (90°). $[\alpha]_D$ +18 (c, 2.0 in H_2O).

Phenylosazone: Mp 195°. $[\alpha]_D^{10}$ -79.6 (EtOH).

α-Pyranose-*form*

*Octa-Ac: 3-*O*-Tetra-*O*-acetyl-β-D-glucopyranosyl tetra-*O*-acetyl-α-D-glucopyranoside*
$C_{28}H_{38}O_{19}$ 678.597
Mp 77-78°. $[\alpha]_D$ +20 ($CHCl_3$).

*Benzyl glycoside: Benzyl 3-*O*-β-D-glucopyranosyl-α-D-glucopyranoside*
$C_{19}H_{28}O_{11}$ 432.424
$[\alpha]_D$ +77.2 (c, 1.8 in H_2O).

1-Bromo, 1-deoxy, hepta-Ac: Acetobromolaminaribiose
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 180.5-182°. $[\alpha]_D^{18}$ +85 ($CHCl_3$).

β-Pyranose-*form*

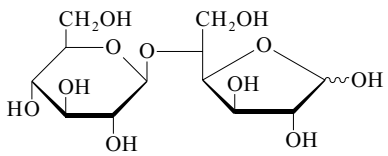
*Octa-Ac: 3-*O*-Tetra-*O*-acetyl-β-D-glucopyranosyl tetra-*O*-acetyl-β-D-glucopyranoside*
$C_{28}H_{38}O_{19}$ 678.597
Mp 161°. $[\alpha]_D^{18}$ -29 (c, 2.5 in $CHCl_3$).

*Me glycoside: Methyl 3-*O*-β-D-glucopyranosyl-β-D-glucopyranoside*
$C_{13}H_{24}O_{11}$ 356.326
Mp 165-166°. $[\alpha]_D$ -28 (H_2O).

Bächli, P. *et al., J.C.S.*, 1952, 1243 (*synth, β-pyr octa-Ac*)
Barry, V.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 328 (*isol*)
Pazur, J.H. *et al., The Carbohydrates*, Academic Press, 2nd Ed., 1970, 69 (*rev*)
Matsui, M. *et al., Chem. Pharm. Bull.*, 1971, **19**, 395 (*pmr*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081 (*cmr*)
Villa, T.G. *et al., Carbohydr. Res.*, 1979, **74**, 369-370 (*enzymic synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1979, **77**, 131; 245; 1980, **86**, 151; 1981, **93**, 157 (*synth, derivs*)
Lambda, D. *et al., Carbohydr. Res.*, 1986, **153**, 205 (*cryst struct, octa-Ac*)
Wang, L.X. *et al., Carbohydr. Res.*, 1991, **219**, 133 (*enzymic synth, octa-Ac*)
Noguchi, K. *et al., Carbohydr. Res.*, 1992, **237**, 33 (*cryst struct, β-Me gly*)
Ikegami, M. *et al., Carbohydr. Res.*, 1994, **253**, 29 (*cryst struct, α-Me gly hepta-Ac*)

5-*O*-β-D-Glucopyranosyl-D-glucose G-409

[67006-27-3]



$C_{12}H_{22}O_{11}$ 342.299

Reducing disaccharide. $[\alpha]_D$ -28 (c, 2 in H_2O).

4-Methylbenzenesulfonylhydrazone: Mp 178-179° dec. $[\alpha]_D$ -21 (60% Py aq.).

α-Furanose-*form*

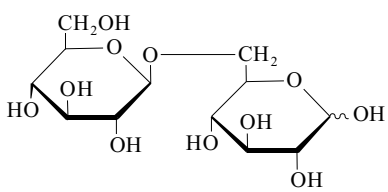
*1,2-*O*-Cyclopentylidene:* [67006-25-1]
$C_{17}H_{28}O_{11}$ 408.402
$[\alpha]_D$ +3 (c, 1.5 in H_2O).

*1,2-*O*-Cyclopentylidene, 3,6,2′,3′,4′,6′-hexa-Ac:* [67006-23-9]
$C_{29}H_{40}O_{17}$ 660.625
Cryst. (Et_2O). Mp 111-113°. $[\alpha]_D$ -16 (c, 3 in $CHCl_3$).

Van Heeswijk, W.A.R. *et al., Carbohydr. Res.*, 1978, **62**, 281 (*synth*)

6-*O*-β-D-Glucopyranosyl-D-glucose, 9CI G-410

Gentiobiose, 8CI. *Amygdalose*
[554-91-6]



$C_{12}H_{22}O_{11}$ 342.299
Formed by the hydrol. of Gentiatibetine, Crocetin and 2-Hydroxy-2-phenylacetonitrile. Occurs free in roots of *Gentiana* spp. and a few other plants, prod. by *Acetobacter* spp.

Phenylosazone: Mp 184-186° (162-167° dec.). $[\alpha]_D^{20}$ -14.8 (Py).

*1-*O*-(3,4-Dihydroxycinnamoyl):* ***1-O-Caffeoylgentiobiose***
$C_{21}H_{28}O_{14}$ 504.444
Isol. from flowers of *Petunia hybrida*. Anomeric config. not detd.

α-Pyranose-*form* [5995-99-3]
Mp 189-195° (anhyd.). $[\alpha]_D$ +31 → +9.6 (H_2O).

*Octa-Ac: Octa-*O*-acetyl-α-gentiobiose*
$C_{28}H_{38}O_{19}$ 678.597
Mp 188-189°. $[\alpha]_D^{20}$ +52.3 ($CHCl_3$).

Me glycoside: Methyl α-gentiobioside
[58462-70-7]
$C_{13}H_{24}O_{11}$ 356.326
Mp 102°. $[\alpha]_D^{23}$ +61.8 (H_2O).

*Me glycoside, hepta-Ac: Methyl hepta-*O*-acetyl-α-gentiobioside*
$C_{27}H_{38}O_{18}$ 650.586
Mp 82°. $[\alpha]_D^{20}$ -18.8 ($CHCl_3$).

1-Bromo, hepta-Ac: See Gentiobiosyl bromide, G-233

1-Chloro, hepta-Ac: Acetochlorogentiobiose
$C_{26}H_{35}ClO_{17}$ 655.005
Mp 142-143°. $[\alpha]_D^{20}$ +89.2 ($CHCl_3$).

β-Pyranose-*form* [5996-00-9]
Mp 190-195°. $[\alpha]_D^{22}$ -0.8 → +10 (c, 3.0 in H_2O).

*Octa-Ac: Octa-*O*-acetyl-β-gentiobiose*
[4613-78-9]
$C_{28}H_{38}O_{19}$ 678.597
Mp 196°. $[\alpha]_D^{20}$ -5.3 ($CHCl_3$).

*1,2-Bis-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl):* ***1,2-Disinapoylgentiobiose***
$C_{34}H_{42}O_{19}$ 754.694
Constit. of broccoli florets (*Brassica oleracea* var. *italica*). Oil. λ_{max} 227; 240; 262; 330 (No solvent reported).

*1-*O*-(4-Hydroxy-3,5-dimethoxycinnamoyl), 2-*O*-(4-hydroxy-3-methoxycinnamoyl):* ***2-Feruloyl-1-sinapoylgentiobiose***
$C_{33}H_{40}O_{18}$ 724.668
Constit. of broccoli florets (*Brassica oleracea* var. *italica*). Oil. λ_{max} 223; 241; 330 (no solvent reported).

*1,2′-Bis-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl), 2-*O*-(4-hydroxy-3-methoxycinnamoyl):* ***2-Feruloyl-1,2′-disinapoylgentiobiose***
$C_{44}H_{50}O_{22}$ 930.866
Constit. of broccoli florets (*Brassica oleracea* var. *italica*). Oil. λ_{max} 256; 268; 355 (No solvent reported).

*1,2,2′-Tris-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl):* ***1,2,2′-Trisinapoylgentiobioside***
[155380-01-1]
$C_{45}H_{52}O_{23}$ 960.892
Constit. of *Boreava orientalis* seeds and broccoli florets. Pale yellow powder. Mp 155-158°.

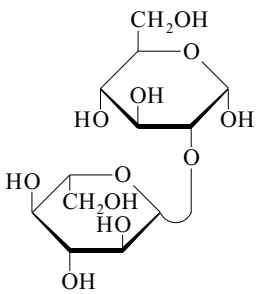
Me glycoside: Methyl β-gentiobioside
[52485-12-8]
$C_{13}H_{24}O_{11}$ 356.326
Mp 98°. $[\alpha]_D^{20}$ -36 ($CHCl_3$).

*Me glycoside, hepta-Ac: Methyl hepta-*O*-acetyl-β-gentiobioside*
$C_{27}H_{38}O_{18}$ 650.586
Mp 113-115°. $[\alpha]_D^{27}$ +2.9 ($CHCl_3$).

Harborne, J.B. *et al., Biochem. J.*, 1961, **81**, 242 (*1-O-Caffeoylgentiobiose*)

Stefanović, V. *et al., Chem. Ber.*, 1961, **94**, 2359 (*β-pyr form, synth*)
Goldstein, I.J. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 313 (*synth*)
Talley, E.A. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 337 (*synth*)
Badenhuizen, N. *et al., J.O.C.*, 1964, **29**, 2079 (*isol*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
Usui, T. *et al., Carbohydr. Res.*, 1974, **33**, 105 (*pmr*)
King, R.R. *et al., Can. J. Chem.*, 1975, **53**, 1970 (*synth*)
Piekarska, B. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1975, **49**, 1919 (*methyl gentiobioside*)
Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15 (*pmr*)
Rohrer, D.C. *et al., Acta Cryst. B*, 1980, **36**, 650 (*cryst struct*)
Melberg, S. *et al., Carbohydr. Res.*, 1980, **78**, 215 (*conformn, β-form*)
Sakushima, A. *et al., Phytochemistry*, 1994, **35**, 1481 (*Trisinapoylgentiobioside*)
Price, K.R. *et al., Phytochemistry*, 1997, **45**, 1683 (*cinnamoylgentiobioses*)
Zhu, Y. *et al., Carbohydr. Res.*, 2001, **332**, 1-21 (*synth*)

2-*O*-β-L-Glucopyranosyl-D-glucose G-411



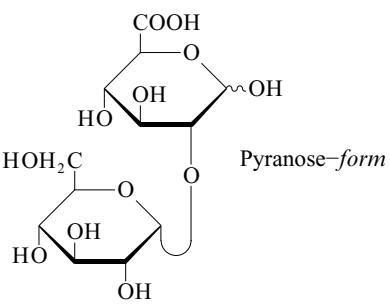
$C_{12}H_{22}O_{11}$ 342.299

α-Pyranose-*form*

Octa-Ac: [67337-80-8]
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (EtOH). Mp 198-200°. $[\alpha]_D^{13}$ -72 (c, 2 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1978, **42**, 941 (*synth, pmr*)

2-*O*-α-D-Glucopyranosyl-D-glucuronic acid G-412



Pyranose–*form*

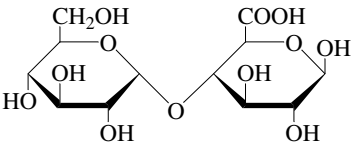
$C_{12}H_{20}O_{12}$ 356.283

Reducing disaccharide. Synth. in an *Aspergillus niger* culture containing Maltose, M-15 and Glucuronic acid, G-538 by transglucosidase action.

Na salt: $[\alpha]_D$ +89 (H_2O).
Barker, S.A. *et al., J.C.S.*, 1959, 3264

4-*O*-α-D-Glucopyranosyl-D-glucuronic acid G-413

Pseudomaltobiuronic acid

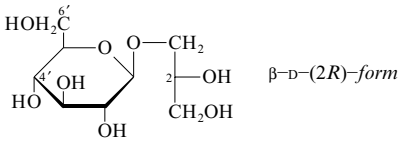


$C_{12}H_{20}O_{12}$ 356.283
Solid. Mp 126-129° dec. (as Na salt). $[\alpha]_D^{25}$ +73.5 (c, 0.3 in H_2O).

Yoshinobo, H. *et al., Chem. Pharm. Bull.*, 1965, **13**, 176 (*synth*)
Govorchenko, V.I. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1972, **8**, 257 (*synth*)

1-*O*-Glucopyranosylglycerol G-414

2,3-Dihydroxypropyl β-D-glucopyranoside, 9CI
[22160-25-4]



$C_9H_{18}O_8$ 254.236

β-D-(2*R*)-*form*

3-O-*β-D-Glucopyranosyl*-sn-*glycerol*.
Lilioside C
[23202-73-5]
Constit. of *Lilium lancifolium*.
Viscous oil. $[\alpha]_D^{25}$ -31.5 (c, 1.27 in H_2O).

3-Ac: ***Lilioside E***
[92122-76-4]
$C_{11}H_{20}O_9$ 296.274
Constit. of *Lilium japonicum*. Viscous film. $[\alpha]_D^{20}$ -23 (c, 0.43 in H_2O).

2′,3′,4′,6′-Tetra-Ac:
$C_{17}H_{26}O_{12}$ 422.385
Needles (hexane/Et_2O/Me_2CO). Mp 113-115° (107-109°). $[\alpha]_D^{20}$ -14.2 (c, 1.06 in $CHCl_3$). $[\alpha]_D^{25}$ -8.8 (c, 0.62 in $CHCl_3$).

Hexa-Ac: [23202-78-0]
$C_{21}H_{30}O_{14}$ 506.46
Needles (hexane/Et_2O). Mp 115-116°. $[\alpha]_D^{16}$ -14.9 (c, 0.47 in $CHCl_3$).

3′-O-*(3,4-Dihydroxycinnamoyl): 1*-O-*β-D-(3*-O-*Caffeoylglucopyranosyl)glycerol*
[151750-85-5]
$C_{18}H_{24}O_{11}$ 416.381
Constit. of *Frullania muscicola*. Tentative C-2 config.

4′-O-*(3,4-Dihydroxycinnamoyl): 1*-O-*β-D-(4*-O-*Caffeoylglucopyranosyl)glycerol*
[151750-84-4]
$C_{18}H_{24}O_{11}$ 416.381
Constit. of *Frullania muscicola*. Tentative C-2 config.

6′-O-*(3,4-Dihydroxycinnamoyl): 1*-O-*(6-*O-*Caffeoylglucopyranosyl)glycerol*
[151750-83-3]
$C_{18}H_{24}O_{11}$ 416.381
Constit. of *Frullania muscicola*. Tentative C-2 config.

α-D-(2*S*)-*form*

1-O-*β-D-Glucopyranosyl*-sn-*glycerol*.
Lilioside D
[23202-75-7]
Constit. of *Lilium japonicum*.
Viscous oil. $[\alpha]_D^{15}$ -30.1 (c, 1.23 in H_2O).

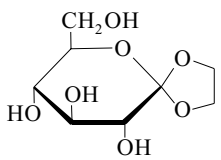
2′,3′,4′,6′-Tetra-Ac: [60619-59-2]
$C_{17}H_{26}O_{12}$ 422.385
Cryst. (EtOH/diisopropyl ether). Mp 75-76.5°. $[\alpha]_D^{20}$ -12.5 (c, 2.4 in $CHCl_3$).

2′,3′,4′,6′-Tetra-Ac, 3-O-*4-methylbenzenesulfonyl:* [130678-87-4]
Cryst. (EtOAc/petrol). Mp 125-126°. $[\alpha]_D$ -6.6 ($CHCl_3$).

Hexa-Ac: [42794-04-7]
Needles (hexane/Et_2O). Mp 107-108°. $[\alpha]_D^{25}$ -35.3 (c, 0.71 in $CHCl_3$).

Brundish, D.E. *et al., Carbohydr. Res.*, 1968, **8**, 308 (*synth*)
Batrakov, S.G. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1976, **25**, 643; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1976, **25**, 626 (*tetra-Ac, synth, ir*)
Kaneda, M. *et al., Phytochemistry*, 1982, **21**, 891; 1984, **23**, 795 (*Liliosides*)
Van Boeckel, C.A.A. *et al., Tetrahedron*, 1985, **41**, 4557 (*synth*)
Shimomura, H. *et al., Chem. Pharm. Bull.*, 1988, **36**, 4841 (*pmr, cmr*)
Rodriguez, E.B. *et al., Aust. J. Chem.*, 1990, **43**, 1391 (*synth*)
Gurjar, M.K. *et al., Tetrahedron: Asymmetry*, 1992, **3**, 21 (*synth*)
Kraut, L. *et al., Phytochemistry*, 1993, **34**, 211; 1999, **52**, 749 (*caffeoyl esters*)

1,2-*O*-(Glucopyranosylidene)ethanediol G-415



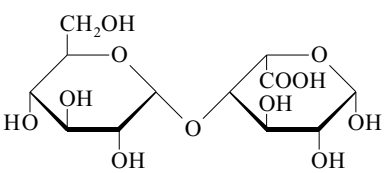
$C_8H_{14}O_7$ 222.194

D-*form*

2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-1,2*-O-*(D-glucopyranosylidene)ethanediol. 1,5-Anhydro-1,1*-C-*[1,2-ethanediylbis(oxy)]-2,3,4,6-tetrakis*-O-*(phenylmethyl)-D-glucitol, 9CI*
[77855-89-1]
$C_{36}H_{38}O_7$ 582.692
Mp 51-52°.

Horito, S. *et al., Carbohydr. Res.*, 1983, **121**, 175

4-*O*-α-D-Glucopyranosyl-α-L-idopyranosiduronic acid G-416



$C_{12}H_{20}O_{12}$ 356.283

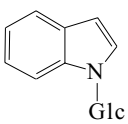
α-Pyranose-*form*

Me glycoside, 2,2′-disulfate: Methyl 2-O-*sulfo-4*-O-*(2′*-O-*sulfo-α-D-glucopyranosyl)-α-L-idopyranosiduronic acid*
$C_{13}H_{22}O_{18}S_2$ 530.438
$[\alpha]_D^{22}$ +28.1 (c, 0.26 in H_2O) (as tri-Na salt).

Me glycoside, 3,3′,4′,6′-tetra-Ac, Me ester: Methyl (methyl 3-O-*acetyl-4*-O-*(3,4,6-tri*-O-*acetyl-α-D-glucopyranosyl)-α-L-idopyranosid)uronate*
$C_{22}H_{32}O_{16}$ 552.485
$[\alpha]_D^{22}$ +61.7 (c, 0.9 in $CHCl_3$).

Davis, N.J. *et al., J.C.S. Perkin 1*, 1994, 359 (*synth, pmr, cmr*)

1-Glucopyranosyl-1*H*-indole, 9CI G-417



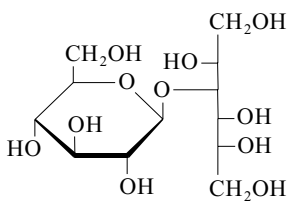
$C_{14}H_{17}NO_5$ 279.292

β-D-*form* [5059-37-0]
$[\alpha]_D$ -28 (c, 3.5 in H_2O). λ_{max} 288 (ε 3 000), 280 (4 600), 277 (4 900), 264 (6 000) and 218 nm (33 000) (H_2O).

Cushley, R.J. *et al., Chem. Comm.*, 1968, 1611 (*conform, pmr*)
Walton, E. *et al., J.O.C.*, 1968, **33**, 192 (*synth, pmr*)
Magnin, A.A. *et al., Tetrahedron*, 1970, **26**, 4019 (*ms*)
Jasinska, J. *et al., CA*, 1973, **78**, 97955m (*synth, struct*)

3-*O*-β-D-Glucopyranosyl-D-mannitol G-418

[33904-37-9]

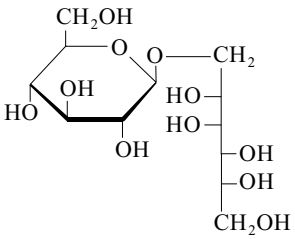


$C_{12}H_{24}O_{11}$ 344.315
Isol. from the lichens *Peltigera aphthosa* and *Peltigera nigripunctata*.
Mp 97-100°. $[\alpha]_D^{20}$ -6 (c, 2.0 in H_2O).

Lindberg, B. *et al., Acta Chem. Scand.*, 1963, **17**, 1348 (*isol, synth*)
Holligan, P.M. *et al., CA*, 1971, **75**, 31241g (*glc*)
Nishikawa, Y. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1014

1-*O*-D-Glucopyranosyl-D-mannitol, 8CI G-419

[28971-30-4]



$C_{12}H_{24}O_{11}$ 344.315

α-*form*

E953

[20942-99-8]

Prepd. on large scale from sucrose. Low nutritive sweetener with half sweetness of sucrose. Mp 122-125°. $[\alpha]_D^{20}$ +87.3 (c, 0.2 in H_2O).

β-*form*

Constit. of *Fucus vesiculosus* and other brown algae.

Mp 140-141°. $[\alpha]_D^{20}$ -18 (c, 2.0 in H_2O).

[64519-82-0]

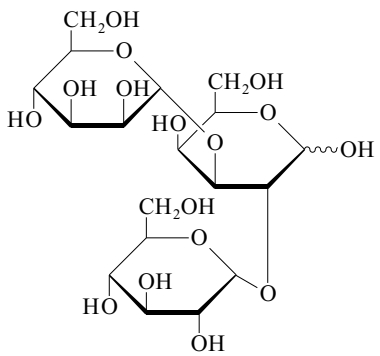
Lindberg, B. *et al., Acta Chem. Scand.*, 1953, **7**, 1119; 1218; 1954, **8**, 817; 1547; 1955, **9**, 168 (*isol, synth, β-form*)

Manners, D.J. *et al., Carbohydr. Res.*, 1968, **7**, 291-298 (*α-form, synth*)

Helferich, B. *et al., Chem. Ber.*, 1973, **106**, 2508-2512 (*α-form, synth*)

Lindner, H.J. *et al., Carbohydr. Res.*, 1981, **93**, 1315 (*cryst struct*)

α-D-Glucopyranosyl-(1→2)-[α-D-mannopyranosyl-(1→3)]-D-galactose, 9CI G-420



$C_{18}H_{32}O_{16}$ 504.441

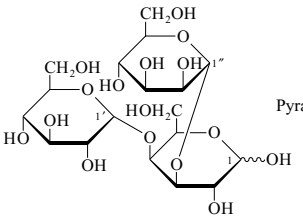
Pyranose-*form*

1-Dihydrogen phosphate: [118447-76-0]
$C_{18}H_{33}O_{19}P$ 584.421
Syrup.

Nechaev, O.A. *et al., Bioorg. Khim.*, 1988, **14**, 1290; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1988, **14**, 714 (*phosphate, cmr*)

α-D-Glucopyranosyl-(1→4)-[α-D-mannopyranosyl-(1→3)]-D-galactose, 9CI G-421

[105761-57-7]



Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Syrup. $[\alpha]_D^{20}$ +14.9 (c, 1.0 in H_2O).

Pyranose-*form*

Undeca-Ac: [111304-02-0]
$C_{40}H_{54}O_{27}$ 966.85
Syrup. $[\alpha]_D^{20}$ +74 (c, 1.0 in $CHCl_3$).

α-Pyranose-*form*

1-Dihydrogen phosphate: [105678-01-1]
$C_{18}H_{33}O_{19}P$ 584.421
Oil. $[\alpha]_D^{20}$ +115 (c, 1.2 in H_2O).

β-Pyranose-*form*

Benzyl glycoside, 2,2′,3′,3″,4′,4″,6,6′,6″-nonabenzyl: [105814-38-8]
$C_{88}H_{92}O_{16}$ 1405.685
Syrup. $[\alpha]_D^{20}$ +59 (c, 1.0 in $CHCl_3$).

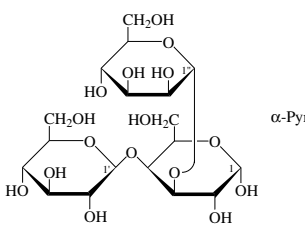
Benzyl glycoside, 2,2′,3′,3″,4′,4″,6,6′,6″-nonabenzyl, 2″-Ac: [105677-96-1]
$C_{90}H_{94}O_{17}$ 1447.722
Syrup. $[\alpha]_D^{20}$ +46 (c, 1.0 in $CHCl_3$).

[111407-86-4]

Torgov, V.I. *et al., Carbohydr. Res.*, 1987, **161**, 97 (*undeca-Ac, phosphate, β-benzyl pyr nonabenzyl derivs, pmr*)

β-D-Glucopyranosyl-(1→4)-[α-D-mannopyranosyl-(1→3)]-D-galactose, 9CI G-422

[105761-58-8]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Syrup. $[\alpha]_D^{20}$ +71 (c, 1.0 in H_2O).

Pyranose-*form*

Undeca-Ac: [111407-87-5]
$C_{40}H_{54}O_{27}$ 966.85
$[\alpha]_D^{20}$ +37 (c, 1.0 in $CHCl_3$).

α-Pyranose-*form*

1-Dihydrogen phosphate: [105761-62-4]
$C_{18}H_{33}O_{19}P$ 584.421
Syrup. $[\alpha]_D^{20}$ +68 (c, 4.8 in H_2O).

β-Pyranose-*form*

Benzyl glycoside, 2,2′,3′,3″,4′,4″,6,6′,6″-nonabenzyl: [105677-97-2]
$C_{88}H_{92}O_{16}$ 1405.685
Syrup. $[\alpha]_D^{20}$ +18 (c, 1.0 in $CHCl_3$).

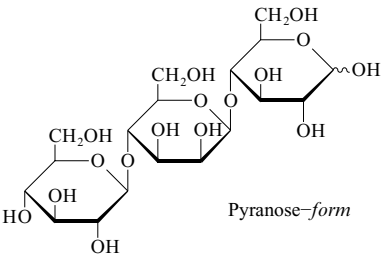
Benzyl glycoside, 2,2′,3,3″,4′,4″,6,6′,6″-nonabenzyl, 2″-Ac: [105761-55-5]
$C_{90}H_{94}O_{17}$ 1447.722
Syrup. $[\alpha]_D^{20}$ +15 (c, 1.0 in $CHCl_3$).

[111407-88-6]

Torgov, V.I. *et al., Carbohydr. Res.*, 1987, **161**, 97 (*undeca-Ac, phosphate, β-benzyl pyr nonabenzyl derivs, pmr*)

β-D-Glucopyranosyl-(1→4)-β-D-mannopyranosyl-(1→4)-D-glucose, 9CI G-423

[59905-64-5]

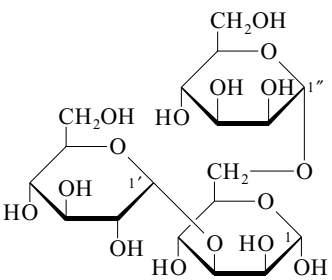


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from the glucomannan from the fibres of Sunn hemp (*Crotalaria juncea*). $[\alpha]_D^{30}$ -8 (c, 0.6 in H_2O).

Das-gupta, P.C. *et al., Carbohydr. Res.*, 1976, **48**, 73 (*isol*)

α-D-Glucopyranosyl-(1→3)-[α-D-mannopyranosyl-(1→6)]-D-mannose G-424



$C_{18}H_{32}O_{16}$ 504.441

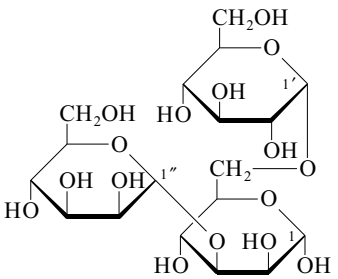
α-Pyranose-*form*

Me glycoside: [129939-87-3]
$C_{19}H_{34}O_{16}$ 518.468
Syrup. $[\alpha]_D$ +111 (c, 1.2 in H_2O).

Me glycoside, 2′,3′,4′,6′-tetrabenzyl, 2″,3″,4″,6″-tetrabenzoyl, 2,4-di-Ac: [129939-85-1]
$C_{79}H_{78}O_{22}$ 1379.472
Cryst. (toluene/petrol). Mp 78-79°. $[\alpha]_D$ +6 (c, 1.0 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1990, **200**, 475 (*α-Me pyr derivs, cmr*)

α-D-Glucopyranosyl-(1 →6)-[α-D-mannopyranosyl-(1 →3)]-D-mannose, 9CI G-425



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

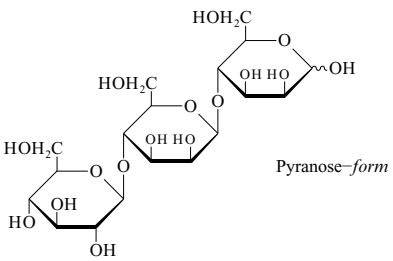
Me glycoside: [129939-89-5]
$C_{19}H_{34}O_{16}$ 518.468
Syrup + 0.5 H_2O. $[\alpha]_D$ +122 (c, 1.2 in H_2O).

Me glycoside, 2,2′,3′,4′,6′-pentabenzyl, 2′′,3′′,4′′,6′′-tetrabenzoyl: [129941-08-8]
$C_{82}H_{80}O_{20}$ 1385.522
Syrup. $[\alpha]_D$ +21 (c, 0.8 in $CHCl_3$).

Garegg, P.J. *et al., Carbohydr. Res.*, 1990, **200**, 475 (*α-Me pyr derivs, cmr*)

β-D-Glucopyranosyl-(1 →4)-β-D-mannopyranosyl-(1 →4)-D-mannose, 9CI, 8CI G-426

[28072-82-4]



Pyranose−*form*

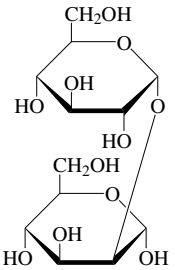
$C_{18}H_{32}O_{16}$ 504.441
Isol. from the hydrolysates of Larch wood glucomannan (*Larix decidua*), konjac glucomannan (*Amorphophallus konjac*), mucous polysaccharides of *Bletilla striata* and from the mucilage in the bulbs of Suisen (*Narcissus tazetta*). Isol. from *Nyctanthes arbor-tristis* seed glucomannan. Cryst. (MeOH).
Mp 174-176° (160-162°). $[\alpha]_D^{25}$ -16 (c, 0.5 in H_2O). $[\alpha]_D^{24}$ -7.8 (H_2O).

[94799-30-1]

Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815
Aspinall, G.O. *et al., J.C.S.*, 1962, 214
Kato, K. *et al., Carbohydr. Res.*, 1973, **29**, 469 (*struct*)
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1976, **24**, 1807 (*isol*)
Shimizu, K. *et al., Agric. Biol. Chem.*, 1983, **47**, 949 (*isol*)
Takahashi, R. *et al., Agric. Biol. Chem.*, 1984, **48**, 2943
Kusakabe, I. *et al., Agric. Biol. Chem.*, 1988, **52**, 519 (*synth*)
Singh, R.B. *et al., J. Indian Chem. Soc.*, 1989, **66**, 258 (*isol, struct*)

2-*O*-α-D-Glucopyranosyl-D-mannose, 8CI G-427

Episophorose
[42859-28-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the glucomannan isol. from the cells of the fungus *Ceratocystis brunnea*.
$[\alpha]_D^{20}$ +72 (H_2O).

α-Pyranose-*form*

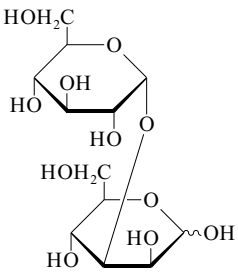
p-*Nitrophenyl glycoside:* [79580-51-1]
$C_{18}H_{25}NO_{13}$ 463.394
$[\alpha]_D$ +135 (c, 2.0 in H_2O).

p-*Nityrophenylglucoside, 3-benzoyl, tetra-Ac:* [79595-88-3]
$[\alpha]_D$ +108 (c, 2.0 in $CHCl_3$).

Gorin, P.A.J. *et al., Carbohydr. Res.*, 1970, **13**, 339 (*occur*)
Kawamura, S. *et al., Nippon Kagaku Kaishi*, 1973, **47**, 285; *CA*, **79**, 53680j (*synth*)
Williams, T.J. *et al., Arch. Biochem. Biophys.*, 1981, **209**, 555 (*deriv*)
Jansson, P.E. *et al., J.C.S. Perkin 1*, 1990, 2011 (*Me gly, cmr*)

3-*O*-α-D-Glucopyranosyl-D-mannose, 9CI, 8CI G-428

Epinigerose
[24808-66-0]



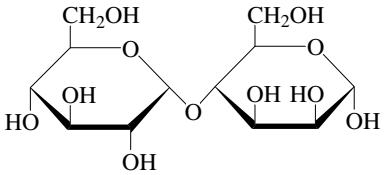
Pyranose−*form*

$C_{12}H_{22}O_{11}$ 342.299
Occurs in the hexasaccharide repeating unit in *Salmonella* serogroup C.
Mp 138-140°. $[\alpha]_D$ +87 (c, 0.2 in H_2O). $[\alpha]_D$ +96 (H_2O).

Phenylosazone: Mp 203-205°.

Chiba, S. *et al., Agric. Biol. Chem.*, 1969, **33**, 807 (*synth*)
Hellerqvist, C.G. *et al., Carbohydr. Res.*, 1970, **14**, 17 (*occur*)
Alfredsson, G. *et al., Acta Chem. Scand.*, 1972, **26**, 2531 (*synth*)

4-*O*-α-D-Glucopyranosyl-D-mannose G-429



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Mp 214-215°. $[\alpha]_D^{20}$ +113.8 (H_2O).

α-Pyranose-*form*

Octa-Ac: 4-O-*(2,3,4,6-Tetra-O-acetyl-α-D-glucopyranosyl)-1,2,3,6-tetra-O-acetyl-α-D-mannopyranose*
$C_{28}H_{38}O_{19}$ 678.597
Rods (EtOH). Mp 157°. $[\alpha]_D^{17}$ +117 (c, 1.2 in $CHCl_3$).

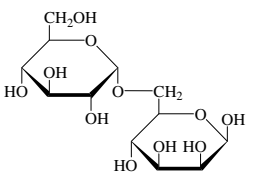
Ph glycoside: Phenyl 4-O-α-D-glucopyranosyl-α-D-mannopyranoside
[32345-15-6]
$C_{18}H_{26}O_{11}$ 418.397
Amorph. powder. $[\alpha]_D^{20}$ +166 (c, 1.07 in H_2O).

Ph glycoside, hepta-Ac: Phenyl 4-O-(2,3,4,6-tetra-O-acetyl-α-D-glucopyranosyl)-2,3,6-tri-O-acetyl-α-D-mannopyranoside
[32447-70-4]
$C_{32}H_{40}O_{18}$ 712.657
Amorph. powder. $[\alpha]_D^{20}$ +122 (c, 1.07 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1934, 302 (*synth*)
Hudson, C.S. *et al., J.O.C.*, 1944, **9**, 470 (*synth*)
Arita, H. *et al., J. Biochem. (Tokyo)*, 1971, **69**, 401 (*Ph gly*)
Voelter, W. *et al., Coll. Czech. Chem. Comm.*, 1973, **38**, 2054 (*config*)
Usui, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 863 (*cmr*)

6-*O*-α-D-Glucopyranosyl-D-mannose, 9CI, 8CI G-430

[4233-70-9]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the cell-wall proteoheteroglycan from *Piricularia oryzae*. Amorph. powder. $[\alpha]_D$ +76.5 (H_2O). $[\alpha]_D^{20}$ +96 (c, 0.5 in H_2O).

Phenylosazone: Mp 171-173° (160°).

Pyranose-*form*

Octa-Ac: [55286-92-5]
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D$ +74 (c, 3.1 in $CHCl_3$).

2-Benzyl, hepta-Ac:
$C_{33}H_{42}O_{18}$ 726.684
$[\alpha]_D^{22}$ +69 (c, 2.3 in $CHCl_3$).

β-Pyranose-*form*

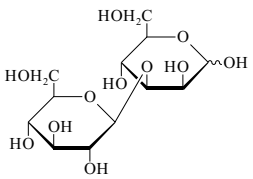
2-(Trichloroacetyl), hepta-Ac:
$C_{28}H_{35}Cl_3O_{18}$ 765.932
Mp 168°. $[\alpha]_D$ +65 (c, 1.69 in $CHCl_3$).

[95463-59-5]

Bredereck, H. *et al., Chem. Ber.*, 1962, **95**, 3064
Chiba, S. *et al., Agric. Biol. Chem.*, 1969, **33**, 807 (*synth*)
Helferich, B. *et al., Chem. Ber.*, 1973, **106**, 2508 (*synth*)
Berry, J.M. *et al., Carbohydr. Res.*, 1974, **38**, 339 (*synth*)
Nakajima, T. *et al., J. Biochem. (Tokyo)*, 1977, **82**, 1657 (*occur*)

3-*O*-β-D-Glucopyranosyl-D-mannose, 9CI G-431

[37085-18-0]



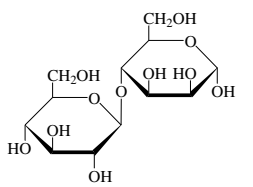
Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the capsular antigen of certain types of *Klebsiella* where the mannose unit contains a 4,6-pyruvic acetal, e.g. K5. Also present in the repeating unit of the acidic polysaccharide from *Mycobacterium lacticolum* where the mannose unit is substituted at O(4) by a (*S*)-1-carboxyethyl group.
Mp 195-197°. $[\alpha]_D$ -10.5 (5 min) → +26.2 (equilib.) (c, 2.0 in H_2O).

Landge, A.B. *et al., Indian J. Chem.*, 1970, **8**, 588
Alfredsson, G. *et al., Acta Chem. Scand.*, 1972, **26**, 3431 (*synth*)
Kenne, L. *et al., The Polysaccharides*, (Ed. Aspinall, G.O.), Academic Press, 1983, **2**, 317; 344 (*occur*)

4-*O*-β-D-Glucopyranosyl-D-mannose, 9CI, 8CI G-432

Epicellobiose. Glucosidomannose
[15761-61-2]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Structural unit in the glucomannans of plant hemicelluloses. Isol. from the partial acid hydrolysates of the glucomannans from *Amorphophallus* spp., white spruce (*Pinus glauca*), western hemlock (*Tsuga heterophylla*), red maple (*Acer rubrum*), eastern white pine (*Pinus strobus*), larch (*Larix decidua*), jack pine (*Pinus banksiana*) and from *Narcissus tazetta*; from hemicelluloses of lobolly pine (*Pinus taeda*) and in trace amounts from the acetolysates of the α-celluloses from white birch (*Betula papyrifera*) and slash pine (*Pinus caribaea*). Cryst.
Mp 135-138° (anhyd.) Mp 179-182°. $[\alpha]_D^{20}$ +11 → +6 (H_2O). $[\alpha]_D$ 0 (H_2O).

α-Pyranose-*form*

Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-α-D-mannopyranose*
$C_{28}H_{38}O_{19}$ 678.597
Mp 202-204°. $[\alpha]_D$ +36 ($CHCl_3$).

Me glycoside, hepta-Ac: Methyl 4-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-2,3,6-tri*-O-*acetyl-α-D-mannopyranoside*
$C_{27}H_{38}O_{18}$ 650.586
Mp 184°. $[\alpha]_D$ +30 ($CHCl_3$).

β-Pyranose-*form*

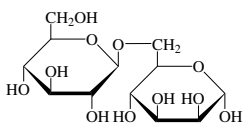
Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosyl)-β-D-mannopyranose*
$C_{28}H_{38}O_{19}$ 678.597
Mp 165°. $[\alpha]_D$ -13 ($CHCl_3$).

[94799-29-8, 102046-24-2]

Haworth, W.N. *et al., J.C.S.*, 1930, 2326; 2636 (*α,β-forms, Ac, synth*)
Haskins, W.T. *et al., J.A.C.S.*, 1941, **63**, 1724 (*synth*)
Smith, F. *et al., J.A.C.S.*, 1956, **78**, 1404 (*isol*)
Mian, J. *et al., Can. J. Chem.*, 1960, **38**, 1511 (*isol*)
Tyminski, A. *et al., J.A.C.S.*, 1960, **82**, 2823 (*isol*)
Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815 (*isol*)
Alexander, J.K. *et al., Arch. Biochem. Biophys.*, 1968, **123**, 240 (*synth*)
Kato, K. *et al., Carbohydr. Res.*, 1973, **29**, 469 (*struct*)
Das-Gupta, P.C. *et al., Carbohydr. Res.*, 1976, **48**, 73
Usui, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 863 (*cmr*)

6-*O*-β-D-Glucopyranosyl-D-mannose G-433

Epigentiobiose
[25538-26-5]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Occurs in the free state in various seaweeds, e.g. *Pelvetia canaliculata, Laminaria cloustoni* and *Fucus spiralis*. Also isol. from the partial acid hydrolysate of "insoluble laminarin". Cryst. + H_2O.
Mp 137-138°. $[\alpha]_D$ -11 (H_2O).

Phenylosazone: Mp 166-170°.

α-Pyranose-*form*

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 110-112°. $[\alpha]_D$ +26 ($CHCl_3$).

β-Pyranose-*form*

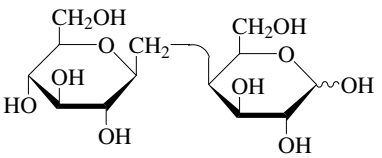
Octa-Ac: Mp 132-140°. $[\alpha]_D$ -20.6 ($CHCl_3$).

2-(Trichloroacetyl), hepta-Ac:
$C_{28}H_{35}Cl_3O_{18}$ 765.932
Mp 185°. $[\alpha]_D^{21}$ -7.2 (c, 1.2 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1953, **7**, 1218; 1218; 1954, **8**, 817; 1547 (*occur, synth*)
Bouveng, H.O. *et al., Acta Chem. Scand.*, 1955, **9**, 168 (*occur*)
Peat, S. *et al., J.C.S.*, 1958, 729; 1960, 175 (*isol, synth*)
Bredereck, H. *et al., Chem. Ber.*, 1960, **93**, 1201; 1962, **95**, 3064 (*synth, Ac*)

β-D-Glucopyranosylmethyl-(1→4)-4-deoxy-D-galactose G-434

4-C-*(2,6-Anhydro-1-deoxy-D*-glycero-*D*-gulo-*heptitol-1-yl)-4-deoxy-D-galactose.*
C-*Lycobiose*

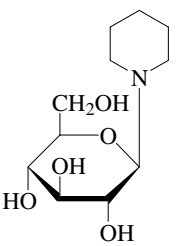


$C_{13}H_{24}O_{10}$ 340.327
The entry name used here is not strictly authentic but is simpler than the IUPAC name.

Octa-Ac:
[138709-54-3, 138809-34-4]
$C_{29}H_{40}O_{18}$ 676.624
$[\alpha]_D^{20}$ +49.5 (c, 1.0 in EtOAc). Inseparable mixt. of anomers.

Preuss, R. *et al., J. Carbohydr. Chem.*, 1991, **10**, 887-900 (*octa-Ac, synth, pmr*)

1-Glucopyranosylpiperidine G-435



β-D-*form*

$C_{11}H_{21}NO_5$ 247.291

D-*form*

Mp 115°. $[\alpha]_D$ -43 → -13 (Py).

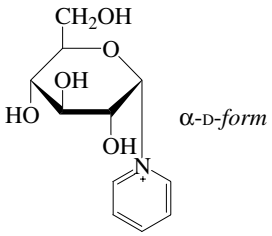
Tetra-Ac: 1-(2,3,4,6-Tetra-O-*acetyl-D-glucopyranosyl)piperidine*
$C_{19}H_{29}NO_9$ 415.439
Mp 123°.

β-D-*form*

3,4,6-Tri-Ac: 1-(3,4,6-Tri-O-*acetyl-β-D-glucopyranosyl)piperidine*
[52389-39-6]
$C_{17}H_{27}NO_8$ 373.402
Mp 125° dec. $[\alpha]_D$ +31.6 ($CHCl_3$).

Baker, J.W. *et al., J.C.S.*, 1929, 1205 (*tetra-Ac*)
Hodge, J.E. *et al., J.A.C.S.*, 1952, **74**, 1494; 1498 (*synth, tri-Ac*)

1-(Glucopyranosyl)pyridinium(1+) G-436



α-D-*form*

$C_{11}H_{16}NO_5^{\oplus}$ 242.251

α-D-*form*

Bromide:
$C_{11}H_{16}BrNO_5$ 322.155
Mp 145-147°. $[\alpha]_D$ +52.5 (c, 1 in H_2O).

2′,3′,4′,6′-Tetra-Ac:
$C_{19}H_{24}NO_9^{\oplus}$ 410.4
Cryst. (Et_2O/Me_2CO) (as bromide). Mp 127-128° (bromide). $[\alpha]_D$ +19.2 (c, 1 in $CHCl_3$).

4-Me:
$C_{12}H_{18}NO_5^{\oplus}$ 256.278
Mp 127-128° (as bromide). $[\alpha]_D$ +57.3 (c, 0.8 in H_2O).

4-Me, 2′,3′,4′,6′-tetra-Ac:
$C_{20}H_{26}NO_9^{\oplus}$ 424.427
Cryst. (EtOAc/EtOH) (as bromide). Mp 175° (168-169°) (bromide). $[\alpha]_D$ +43 (c, 1.0 in H_2O). $[\alpha]_D$ +25.3 (c, 1.0 in $CHCl_3$).

β-D-*form*

Bromide:
Cryst. (EtOH aq.). Mp 176-177°. $[\alpha]_D$ +45.5 (c, 1.2 in H_2O).

2′,3′,4′,6′-Tetra-Ac: [4768-55-2]
Mp 170° (as bromide). $[\alpha]_D$ -5.9 (c, 1.0 in H_2O).

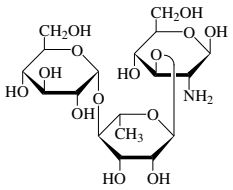
4-Me:
Cryst. (EtOH/EtOAc) (as bromide). Mp 162-162.5° (bromide). $[\alpha]_D$ +38.3 (c, 1.2 in MeOH).

4-Me, 2′,3′,4′,6′-tetra-Ac: Mp 207-208.5° (as bromide). $[\alpha]_D$ -10.2 (c, 1.0 in H_2O).

O-*Tetrabenzyl:*
$C_{39}H_{40}NO_5^{\oplus}$ 602.749
Mp 151-152° (as iodide) Mp 151-151.5° (as trifluoromethanesulfonate). $[\alpha]_D$ -19 (c, 3.1 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1965, **43**, 2205; 2214 (*synth, β-D-form, β-D-tetra-Ac, β-D-4-Me, β-D-4-Me tetra-Ac*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*cmr*)
Leroux, J. *et al., Carbohydr. Res.*, 1978, **67**, 163 (*tetrabenzyl*)
Hosie, L. *et al., J.C.S. Perkin 2*, 1984, 1121 (*α-D-form, α-D-tetra-Ac, α-D-4-Me, α-D-4-Me tetra-Ac*)

α-D-Glucopyranosyl-(1→4)-α-L-rhamnopyranosyl-(1→3)-2-amino-2-deoxyglucose G-437



β-Pyranose-*form*

$C_{18}H_{33}NO_{14}$ 487.457

N-*Ac:*
$C_{20}H_{35}NO_{15}$ 529.494
Fragment of *Shigella flexneri* serotype 2a *O*-antigen.

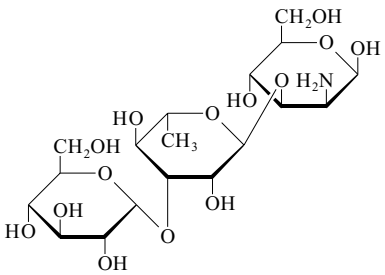
β-D-Pyranose-*form*

Me glycoside, N-*Ac:*
$C_{21}H_{37}NO_{15}$ 543.521
$[\alpha]_D$ +4 (c, 1.0 in H_2O).

Mulard, L.A. *et al., J. Carbohydr. Chem.*, 2000, **19**, 849-877 (*β-D-Me pyr N-Ac*)

α-D-Glucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→3)-2-amino-2-deoxy-D-mannose G-438

α-D-Glucopyranosyl-(1→3)-6-deoxy-α-L-mannopyranosyl-(1→3)-2-amino-2-deoxy-D-mannose, 9CI



$C_{18}H_{33}NO_{14}$ 487.457

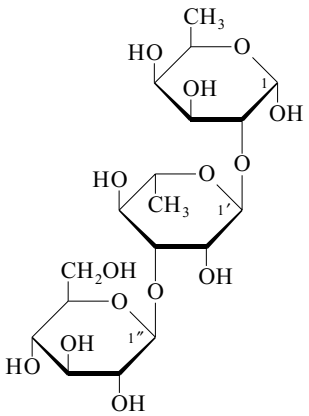
β-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, N-*Ac:*
$C_{30}H_{53}NO_{17}$ 699.745
Syrup. $[\alpha]_D$ -1.2 (c, 1.0 in MeOH).

Paulsen, H. *et al., Tet. Lett.*, 1985, 6043 (*β-methoxycarbonyloctyl pyr N-Ac*)

β-D-Glucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→2)-D-fucose G-439

β-D-Glucopyranosyl-(1→3)-6-deoxy-α-L-mannopyranosyl-(1→2)-6-deoxy-D-galactose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

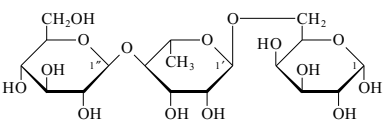
α-Pyranose-*form*

Me glycoside, 2′,2″,3,3″,4,4′,4″,6″-octa-Me: [96553-18-3]
$C_{27}H_{50}O_{14}$ 598.684
Syrup.

Higuchi, R. *et al., Phytochemistry*, 1987, **26**, 229 (*α-Me pyr octa-Me, ir, pmr*)

β-D-Glucopyranosyl-(1→4)-α-L-rhamnopyranosyl-(1→6)-D-galactose G-440

β-D-Glucopyranosyl-(1→4)-6-deoxy-α-L-mannopyranosyl-(1→6)-D-galactose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

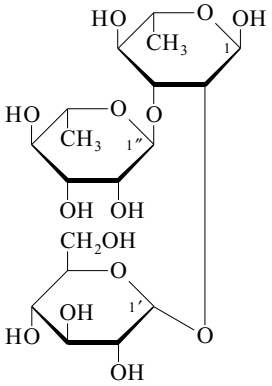
*1,2:3,4-Di-*O*-isopropylidene, hexa-Ac:* [55864-92-1]
$C_{36}H_{52}O_{21}$ 820.794
Syrup. $[\alpha]_D$ -57 ($CHCl_3$).

*1,2:2′,3′:3,4-Tri-*O*-isopropylidene, tetra-Ac:* [126841-32-5]
$C_{35}H_{52}O_{19}$ 776.784
Syrup.

Torgov, V.I. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1975, 445 (*diisopropylidene hexa-Ac, pmr*)
Collins, P.M. *et al., Tet. Lett.*, 1989, **30**, 4721 (*triisopropylidene tetra-Ac*)

α-D-Glucopyranosyl-(1 →2)-[α-L-rhamnopyranosyl-(1 →3)]-L-rhamnose G-441

6-Deoxy-α-L-mannopyranosyl-(1 →3)-[α-D-glucopyranosyl-(1 →2)]-6-deoxy-L-mannose



$C_{18}H_{32}O_{14}$ 472.442
Constit. of the antigenic repeating unit of *Streptococcus pneumoniae* type II.

α-Pyranose-*form*

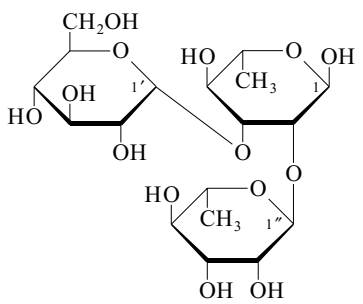
Me glycoside: [73113-85-6]
$C_{19}H_{34}O_{14}$ 486.469
Amorph. powder + 1.5 H_2O. Mp 157-158.5°. $[\alpha]_D^{20}$ +15.3 (c, 1.0 in H_2O).

Me glycoside, 2′,3′,4′,6′-tetrabenzyl, 2′′,3′′,4,4′′-tetra-Ac: [73113-83-4]
$C_{55}H_{66}O_{18}$ 1015.116
Syrup. $[\alpha]_D^{20}$ +2.4 (c, 1.1 in $CHCl_3$).

Schwarzenbach, D. *et al., Carbohydr. Res.*, 1979, **77**, C5; 1981, **90**, 193 (*α-Me pyr derivs*)

α-D-Glucopyranosyl-(1 →3)-[α-L-rhamnopyranosyl-(1 →2)]-L-rhamnose G-442

6-Deoxy-α-L-mannopyranosyl-(1 →2)-[α-D-glucopyranosyl-(1 →3)]-6-deoxy-L-mannose



$C_{18}H_{32}O_{14}$ 472.442
Constit. of *Shigella flexneri* O-specific polysaccharides of serotype 5a and 5b.

α-Pyranose-*form*

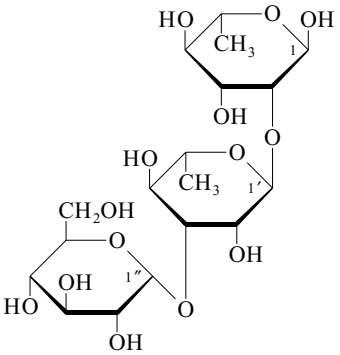
Me glycoside: [97859-05-7]
$C_{19}H_{34}O_{14}$ 486.469
Syrup. $[\alpha]_D^{20}$ +21.8 (c, 1.1 in MeOH).

Me glycoside, 2′,3′,4,4′,4′′,6′-hexabenzyl, 2′′,3′′-di-Ac: [90164-79-7]
$C_{65}H_{74}O_{16}$ 1111.29
Syrup. $[\alpha]_D^{20}$ +5.3 (c, 1.3 in $CHCl_3$).

Backinowsky, L.V. *et al., Bioorg. Khim.*, 1984, **10**, 79; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1984, **10**, 49 (*α-Me pyr derivs, pmr, cmr, occur*)

α-D-Glucopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose G-443

α-D-Glucopyranosyl-(1 →3)-6-deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442
Constit. of *Shigella flexneri* O-specific polysaccharide.

α-Pyranose-*form*

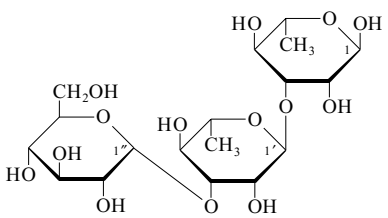
Me glycoside: [97837-50-8]
$C_{19}H_{34}O_{14}$ 486.469
Amorph. powder. $[\alpha]_D^{20}$ +34 (c, 0.8 in MeOH).

Me glycoside, 2′′,3′′,4,4′,4′′,6′′-hexabenzyl, 3-benzoyl, 2′-Ac: [97837-55-3]
$C_{70}H_{76}O_{16}$ 1173.361
Syrup. $[\alpha]_D^{20}$ +45 (c, 1.0 in $CHCl_3$).

Backinowsky, L.V. *et al., Bioorg. Khim.*, 1985, **11**, 254; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1985, **11**, 134 (*α-Me pyr derivs, occur*)

α-D-Glucopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →3)-L-rhamnose G-444

α-D-Glucopyranosyl-(1 →3)-6-deoxy-α-L-mannopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442
Constit. of the O-specific polysaccharides of *Shigella flexneri*.

α-Pyranose-*form*

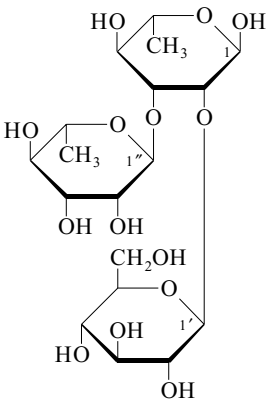
Me glycoside: [105213-49-8]
$C_{19}H_{34}O_{14}$ 486.469
Effective inhibitor of passive haemagglutination reaction in *S. flexneri O*-facter V-anti-V system. Amorph. powder. $[\alpha]_D^{20}$ +15 (c, 1.1 in MeOH).

Me glycoside, 2′′,3′′,4,4′,4′′,6′′-hexabenzyl, 2-benzoyl: [105213-56-7]
$C_{68}H_{74}O_{15}$ 1131.324
Syrup. $[\alpha]_D^{20}$ +45 (c, 1.2 in $CHCl_3$).

Backinowsky, L.V. *et al., Bioorg. Khim.*, 1985, **11**, 1562; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1985, **11**, 834 (*α-Me pyr derivs, pmr, cmr, occur*)

β-D-Glucopyranosyl-(1 →2)-[α-L-rhamnopyranosyl-(1 →3)]-L-rhamnose G-445

6-Deoxy-α-L-mannopyranosyl-(1 →3)-[β-D-glucopyranosyl-(1 →2)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

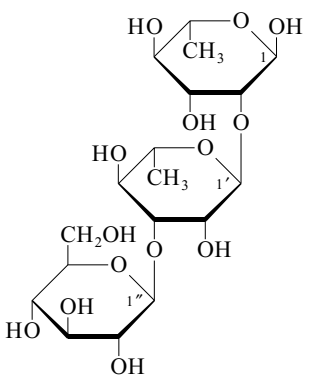
Me glycoside: [73174-65-9]
$C_{19}H_{34}O_{14}$ 486.469
Amorph. powder + 0.75H_2O. Mp 156-158°. $[\alpha]_D^{20}$ -31 (c, 0.9 in H_2O).

Me glycoside, 2′,3′,4′,6′-tetrabenzyl, 2′′,3′′,4,4′′-tetra-Ac: [73174-63-7]
$C_{55}H_{66}O_{18}$ 1015.116
Amorph. powder. Mp 49-50.5°. $[\alpha]_D$ -13.2 (c, 1.3 in $CHCl_3$).

Schwarzenbach, D. *et al., Carbohydr. Res.*, 1979, **77**, C5; 1981, **90**, 193 (*α-Me pyr derivs, pmr*)

β-D-Glucopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose G-446

β-D-Glucopyranosyl-(1 →3)-6-deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

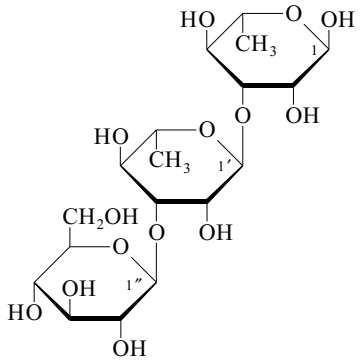
α-Pyranose-*form*

Me glycoside, 2′′,3′′,4,4′,4′′,6′′-hexabenzyl: [97837-58-6]
$C_{61}H_{70}O_{14}$ 1027.216
Syrup. $[\alpha]_D^{20}$ -13 (c, 1.2 in $CHCl_3$).

Backinowsky, L.V. *et al., Bioorg. Khim.*, 1985, **11**, 254; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1985, **11**, 134 (*α-Me pyr hexabenzyl, pmr, cmr*)

β-D-Glucopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →3)-L-rhamnose G-447

β-D-Glucopyranosyl-(1 →3)-6-deoxy-α-L-mannopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

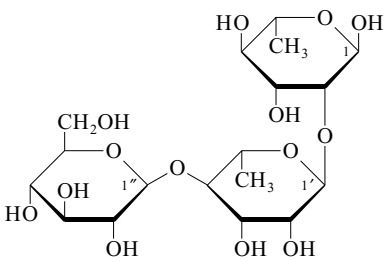
α-Pyranose-*form*

Me glycoside, 2′′,3′′,4,4′,4′′,6′′-hexabenzyl, 2-benzoyl: [105213-57-8]
$C_{68}H_{74}O_{15}$ 1131.324
Syrup. $[\alpha]_D^{20}$ +10 ($CHCl_3$).

Backinowsky, L.V. *et al., Bioorg. Khim.*, 1985, **11**, 1562; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1985, **11**, 834 (*α-Me pyr deriv, pmr, cmr*)

β-D-Glucopyranosyl-(1 →4)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose G-448

β-D-Glucopyranosyl-(1 →4)-6-deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

2′,3,3′-Tri-Me: [112288-88-7]
$C_{21}H_{38}O_{14}$ 514.523
Syrup.

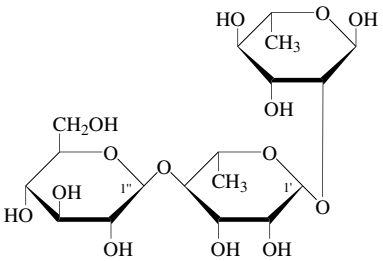
2′,3,3′,6′′-Tetra-Me: [112288-89-8]
$C_{22}H_{40}O_{14}$ 528.55
Syrup.

2′,3,3′,3′′,6′′-Penta-Me: [87317-93-9]
$C_{23}H_{42}O_{14}$ 542.576
Syrup. $[\alpha]_D^{20}$ -25.8 (c, 0.093 in MeOH).

Fujiwara, T. *et al., Carbohydr. Res.*, 1987, **163**, 41 (*Me derivs, pmr, cmr*)

β-D-Glucopyranosyl-(1 →4)-β-L-rhamnopyranosyl-(1 →2)-L-rhamnose G-449

β-D-Glucopyranosyl-(1 →4)-6-deoxy-β-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

2′,3,3′-Tri-Me: [112288-88-7]
$C_{21}H_{38}O_{14}$ 514.523
Syrup.

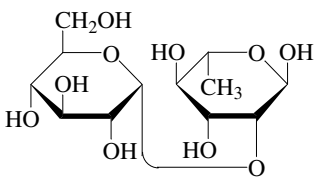
2′,3,3′,6′′-Tetra-Me: [112288-90-1]
$C_{22}H_{40}O_{14}$ 528.55
Syrup.

2′,3,3′,3′′,6′′-Penta-Me: [112327-78-3]
$C_{23}H_{42}O_{14}$ 542.576
Syrup. $[\alpha]_D^{20}$ +44.4 (c, 0.036 in MeOH).

Fujiwara, T. *et al., Carbohydr. Res.*, 1987, **163**, 41 (*synth, pmr, cmr*)

2-*O*-α-D-Glucopyranosyl-L-rhamnose G-450

[30868-26-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Isol. from a partial acid hydrolysate of *Brachychiton diversifolium (Sterculia caudata)* gum. $[\alpha]_D$ +84 (c, 0.7 in MeOH).

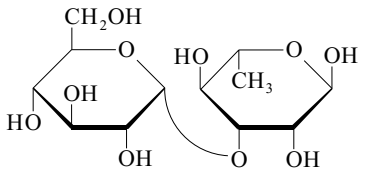
α-Pyranose-*form* [119720-47-7]

Benzyl glycoside, 3,4,2′,3′,4′-pentabenzyl: [128500-19-6]
$C_{54}H_{58}O_{10}$ 867.046
Oil. $[\alpha]_D^{25}$ +45.4 (c, 1.6 in $CHCl_3$).

Benzyl glycoside, pentabenzyl, 6′-Ac: [128500-18-5]
$C_{56}H_{60}O_{11}$ 909.083
Oil. $[\alpha]_D^{25}$ +46.2 (c, 1.3 in $CHCl_3$).

Hirst, E.L. *et al., J.C.S.*, 1958, 1942 (*isol*)
Ciuffreda, P. *et al., J. Carbohydr. Chem.*, 1989, **8**, 805 (*synth*)

3-*O*-α-D-Glucopyranosyl-L-rhamnose G-451



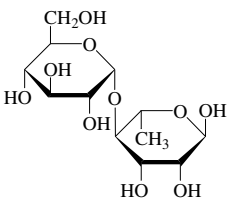
$C_{12}H_{22}O_{10}$ 326.3

α-Pyranose-*form* [69557-93-3]
Constit. of the capsular antigen of *Klebsiella* K12, K18, K41; type specific antigen of *Streptococcus pneumoniae* type 2, type 6A; *O*-antigen of *Serratia marcescens*; extracellular polysaccharide from *Mycobacterium album* B-88; in operculinic acid (see 3,12-Dihydroxyhexadecanoic acid) formed from the resin of *Ipomoea operculata*.

Kenne, L. *et al., The Carbohydrates*, Academic Press, Ed., Aspinall, G.O., 1983, **2**, 309 (*occur*)
Bock, K. *et al., J.C.S. Perkin 2*, 1986, 1711 (*cmr*)

4-*O*-α-D-Glucopyranosyl-L-rhamnose G-452

4-O-*α-D-Glucopyranosyl-6-deoxy-L-mannose. 6-Deoxy-4*-O-*α-D-glucopyranosyl-L-mannose*
[31007-98-4]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Fragment of *Shigella flexneri* antigen. $[\alpha]_D$ +10 (c, 1 in H_2O).

Pyranose-*form*

Hepta-Ac: [52389-40-9]
$C_{26}H_{36}O_{17}$ 620.56
Syrup. $[\alpha]_D$ +55 (c, 2 in $CHCl_3$).

α-Pyranose-*form* [69610-07-7]

Me glycoside: [52327-21-6]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D$ +43 (c, 1.2 in MeOH).

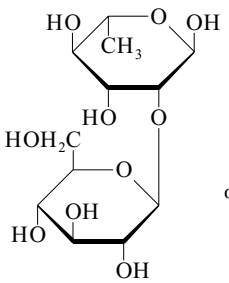
Me glycoside, 2,3-O-*isopropylidene:* [52327-20-5]
$C_{16}H_{28}O_{10}$ 380.391
$[\alpha]_D$ +73 (c, 2 in MeOH).

Me glycoside, hexa-Ac: [52327-23-8]
$C_{25}H_{36}O_{16}$ 592.55
Cryst. (EtOH). Mp 136-137°. $[\alpha]_D$ +62.3 (c, 2.6 in $CHCl_3$).

Berry, J.M. *et al., Can. J. Chem.*, 1974, **52**, 68 (*synth*)
Kenne, L. *et al., Eur. J. Biochem.*, 1978, **91**, 279
Mulard, L.A. *et al., J. Carbohydr. Chem.*, 2000, **19**, 849-877 (*Me α-gly, synth*)

2-*O*-β-D-Glucopyranosyl-L-rhamnose G-453

[55018-83-2]



α–Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Constit. in the repeating unit of the capsular antigen of *Klebsiella* K17.
$[\alpha]_D^{24}$ +9.5 (c, 2.0 in H_2O).

α-Pyranose-*form*

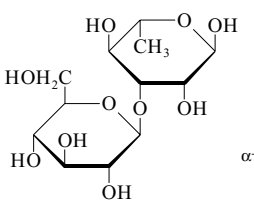
Benzyl glycoside: [55018-80-9]
$C_{19}H_{28}O_{10}$ 416.424
Syrup. $[\alpha]_D^{24}$ -48.8 (c, 1.0 in EtOH).

Benzyl glycoside, hexa-Ac:
$C_{31}H_{40}O_{16}$ 668.647
Mp 147-148°. $[\alpha]_D^{24}$ -46.6 (c, 1.0 in $CHCl_3$).

King, R.R. *et al., Can. J. Chem.*, 1974, **52**, 3913 (*synth*)
Colson, P. *et al., Carbohydr. Res.*, 1976, **47**, 1 (*cmr*)
Dutton, G.G.S. *et al., Carbohydr. Res.*, 1980, **80**, 147 (*occur*)
Eriksson, L. *et al., Acta Cryst. C*, 2002, **58**, o328-o329 (*Me glycoside, cryst struct*)

3-*O*-β-D-Glucopyranosyl-L-rhamnose G-454

[55018-84-3]



α–Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Constit. of the repeating unit of the capsular antigens of *Klebsiella* K23, K48 and in the repeating unit of a teichuronic acid isol. from the cell walls of *Bacillus megaterium*.
$[\alpha]_D^{24}$ -11.4 (c, 2.0 in H_2O).

α-Pyranose-*form*

Benzyl glycoside: [55018-78-5]
$C_{19}H_{28}O_{10}$ 416.424
Syrup. $[\alpha]_D^{24}$ -68.4 (c, 1.0 in EtOH).

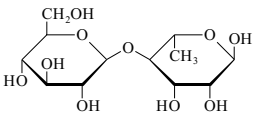
Benzyl glycoside, 2′,3′,4′,6′-tetra-Ac:
$C_{27}H_{36}O_{14}$ 584.573
Mp 138-139°. $[\alpha]_D^{24}$ -37.4 (c, 1.0 in $CHCl_3$).

[81689-25-0]

King, R.R. *et al., Can. J. Chem.*, 1974, **52**, 3913 (*synth*)
Colson, P. *et al., Carbohydr. Res.*, 1976, **47**, 1 (*cmr*)
Gagnaire, D.Y. *et al., Macromolecules*, 1982, **15**, 126 (*nmr*)
Kenne, L. *et al., The Polysaccharides*, Academic Press, ed. Aspinall, G.O., 1983, **2**, 320; 323; 340 (*occur*)
Shashakov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*conformn*)

4-*O*-β-D-Glucopyranosyl-L-rhamnose G-455

Scillabiose
[40525-07-3]



α–Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3
Isol. from the partial acid hydrolysate of glycosides from *Scilla maritima;* constit. in the repeating unit of the capsular antigen of *Klebsiella* K55.
$[\alpha]_D$ -24.2 (c, 1.1 in H_2O).

Phenylosazone: Mp 164°.

α-Pyranose-*form*

Hepta-Ac: [39687-44-0]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (2-propanol). Mp 139-140°. $[\alpha]_D$ -62.3 (c, 2.6 in $CHCl_3$).

Me glycoside: [39687-45-1]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D$ -57.5 (c, 1.5 in MeOH).

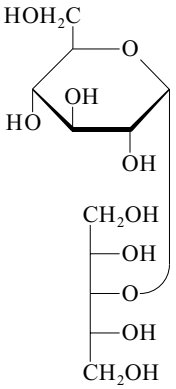
Me glycoside, 2,3-O-isopropylidene, tetra-Ac: [39687-43-9]
$C_{24}H_{36}O_{14}$ 548.54
Cryst. (EtOH). Mp 158.5-159°. $[\alpha]_D$ -30.6 (c, 1.7 in $CHCl_3$).

β-Pyranose-*form*

1,2-Methylorthoacetate, penta-Ac:
Cryst. (Et_2O/petrol). Mp 206°. $[\alpha]_D^{20}$ +1.03 (c, 1.65 in $CHCl_3$).

Stoll, A. *et al., Helv. Chim. Acta*, 1952, **35**, 2495 (*isol*)
Bebault, G.M. *et al., Can. J. Chem.*, 1972, **50**, 3373 (*synth*)
Torgov, V.I. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1975, 455; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1975, 385 (*β-form deriv*)
Bebault, G.M. *et al., Carbohydr. Res.*, 1978, **64**, 199 (*occur*)
Shashkov, A.S. *et al., Magn. Reson. Chem.*, 1988, **26**, 735 (*cmr*)

3-*O*-α-D-Glucopyranosylribitol G-456

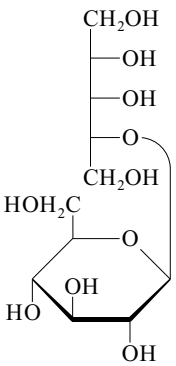


$C_{11}H_{22}O_{10}$ 314.289
Isol. from the hydrolysate (alkaline followed by phosphorylase) of *Lactobacillus arabinosaceous* techoic acid.
$[\alpha]_D$ +78 (H_2O).

Archibald, A.R. *et al., Biochem. J.*, 1961, **81**, 124 (*isol*)

4-*O*-β-D-Glucopyranosyl-D-ribitol, 9CI G-457

2-O-β-D-Glucopyranosyl-L-ribitol
[63526-06-7]

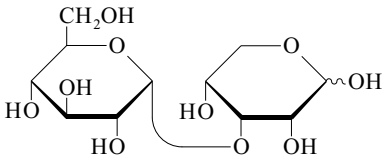


$C_{11}H_{22}O_{10}$ 314.289
Isol. from the hydrolysate (alkaline followed by phosphorylase) of *Bacillus subtilis* techoic acid. Constit. in the capsular antigen of *Haemophilus influenzae* type A.
Mp 137-138°. $[\alpha]_D$ -28.6 (H_2O).

Armstrong, J.J. *et al., Biochem. J.*, 1961, **80**, 254; 1960, **76**, 610 (*isol*)
Baddiley, J. *et al., J.C.S.*, 1961, 2180 (*synth*)
Branefors-Helander, P. *et al., Carbohydr. Res.*, 1977, **56**, 117
Tarelli, E. *et al., Carbohydr. Res.*, 1979, **75**, 31 (*cmr*)
Grzeszczyk, B. *et al., Carbohydr. Res.*, 1988, **175**, 215 (*synth*)

3-*O*-α-D-Glucopyranosyl-D-ribose, 8CI G-458

[25541-65-5]



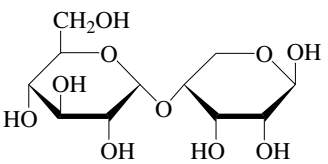
Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Syrup. $[\alpha]_D$ +90.5 (c, 3.0 in H_2O).

Hepta-Ac: [25541-68-8]
$C_{25}H_{34}O_{17}$ 606.533
$[\alpha]_D$ +77.2 (c, 1.2 in H_2O).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1966, **44**, 2083
Furda, I. *et al., Can. J. Chem.*, 1969, **47**, 2891 (*synth*)

4-*O*-α-D-Glucopyranosyl-D-ribose G-459



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

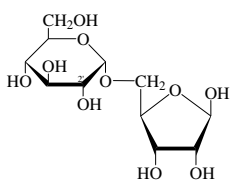
β-Pyranose-*form*

2,3-Anhydro, benzyl glycoside, 2′,3′,4′,6′-tetrabenzyl: Benzyl 2,3-anhydro-4-O-(2,3,4,6-tetra-O-benzyl-α-D-glucopyranosyl)-β-D-ribopyranoside, 9CI
[130738-61-3]
$C_{46}H_{48}O_9$ 744.88
Cryst. (Et_2O/hexane). Mp 83-84°. $[\alpha]_D^{25}$ +48 (c, 1.2 in $CHCl_3$).

Hashimoto, S. *et al., Tet. Lett.*, 1990, **31**, 4769 (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, pmr*)

5-*O*-α-D-Glucopyranosyl-D-ribose, 9CI G-460

[78416-64-5]



β-Furanose-*form*

$C_{11}H_{20}O_{10}$ 312.273

Furanose-*form*
$[\alpha]_D^{20}$ +74 (c, 0.5 in H_2O).

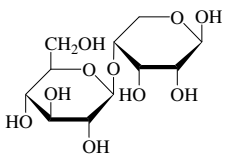
β-Furanose-*form* [61272-23-9]

Hepta-Ac: 1,2,3-Tri-O-acetyl-5-O-(2,3,4,6-tetra-O-acetyl-α-D-glucopyranosyl)-β-D-ribofuranose, 9CI
[78432-72-1]
$C_{25}H_{34}O_{17}$ 606.533
Needles (Et_2O). Mp 170-172°. $[\alpha]_D^{20}$ +61 (c, 0.5 in $CHCl_3$).

Benzyl glycoside, 2′-benzyl, 2,3,3′,4′,6′-penta-Ac: Benzyl 2,3-di-O-acetyl-5-O-(3,4,6-tri-O-acetyl-2-O-benzyl-α-D-glucopyranosyl)-β-D-ribofuranoside, 9CI
[78416-63-4]
$C_{35}H_{42}O_{15}$ 702.708
Syrup. $[\alpha]_D^{20}$ +64 (c, 0.8 in $CHCl_3$).

Sharma, N.K. *et al., J. Inst. Chem. (India)*, 1976, **48**, 129; *CA*, **86**, 16853s
Kraska, B. *et al., Chem. Ber.*, 1981, **114**, 1636 (*synth, pmr, cmr*)

4-*O*-β-D-Glucopyranosyl-D-ribose G-461



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

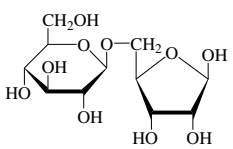
β-Pyranose-*form*

2,3-Anhydro, benzyl glycoside, 2′,3′,4′,6′-tetrabenzyl: Benzyl 2,3-anhydro-4-O-(2,3,4,6-tetra-O-benzyl-β-D-glucopyranosyl)-β-D-ribopyranoside, 9CI
[125325-75-9]
$C_{46}H_{48}O_9$ 744.88
Cryst. (EtOH). Mp 127-128°. $[\alpha]_D^{25}$ +6 (c, 1.0 in $CHCl_3$).

Hashimoto, S. *et al., Tet. Lett.*, 1990, **31**, 4769 (*synth*)
Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, pmr*)

5-*O*-β-D-Glucopyranosyl-D-ribose, 9CI G-462

[78416-58-7]



β-Furanose-*form*

$C_{11}H_{20}O_{10}$ 312.273

Furanose-*form*
Syrup. $[\alpha]_D^{20}$ +7 (c, 0.2 in H_2O).

β-Furanose-*form*

Hepta-Ac: 1,2,3-Tri-O-acetyl-5-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-β-D-ribofuranose, 9CI
[78416-57-6]
$C_{25}H_{34}O_{17}$ 606.533
Mp 101-102°. $[\alpha]_D^{20}$ -24 (c, 0.6 in $CHCl_3$).

Me glycoside, 2,3-O-isopropylidene: Methyl 5-O-β-D-glucopyranosyl-2,3-O-isopropylidene-β-D-ribofuranose
[95335-93-6]
$C_{15}H_{26}O_{10}$ 366.364
Hygroscopic oil (monohydrate). $[\alpha]_D^{20}$ -44.4 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-O-isopropylidene, 2′,3′,4′,6′-tetra-Ac: Methyl 2,3-O-isopropylidene-5-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-β-D-ribofuranoside, 9CI
[62774-23-6]
$C_{23}H_{34}O_{14}$ 534.513
Mp 108°. $[\alpha]_D^{20}$ -57.9 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-O-isopropylidene, 2′,3′,4′,6′-tetrabenzyl: Methyl 2,3-O-isopropylidene-5-O-(2,3,4,6-tetra-O-benzyl-β-D-glucopyranosyl)-β-D-ribofuranoside, 9CI
[67525-70-6]
$C_{43}H_{50}O_{10}$ 726.862
Mp 56°. $[\alpha]_D^{20}$ +15.6 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2,3-O-isopropylidene: Benzyl 5-O-β-D-glucopyranosyl-2,3-O-isopropylidene-β-D-ribofuranoside, 9CI
[78416-56-5]
$C_{21}H_{30}O_{10}$ 442.462
Needles. Mp 185-186°. $[\alpha]_D^{20}$ -76 (c, 0.75 in MeOH).

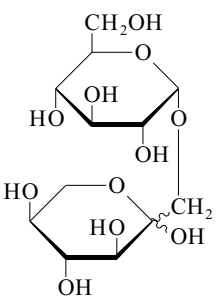
Benzyl glycoside, 2,3-O-isopropylidene, 2′,3′,4′,6′-tetra-Ac: Benzyl 2,3-O-isopropylidene-5-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-β-D-ribofuranoside, 9CI
[78416-55-4]
$C_{29}H_{38}O_{14}$ 610.611
Cryst. (Et_2O). Mp 107°. $[\alpha]_D^{20}$ -40 (c, 0.8 in $CHCl_3$).

Benzyl glycoside, hexa-Ac: Benzyl 2,3-di-O-acetyl-5-O-(2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl)-β-D-ribofuranoside, 9CI
[78420-93-6]
$C_{30}H_{38}O_{16}$ 654.621
Amorph. powder. $[\alpha]_D^{20}$ -40 (c, 0.5 in $CHCl_3$).

Kraska, B. *et al., Chem. Ber.*, 1981, **114**, 1636 (*benzyl gly*)
Schmidt, R.R. *et al., J. Carbohydr. Chem.*, 1984, **3**, 67 (*Me gly*)

1-*O*-α-D-Glucopyranosyl-L-sorbose, 9CI G-463

[35826-44-9]



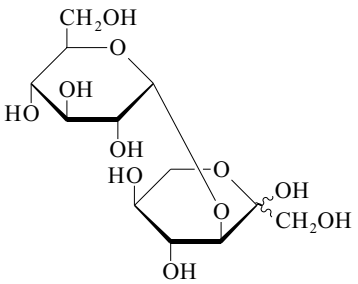
Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide. Formed by the transglucosidation reaction of brewers yeast α-glucosidase. Syrup. $[\alpha]_D$ +89 (c, 1 in H_2O) (+72).

Chiba, S. *et al., Agric. Biol. Chem.*, 1971, **35**, 1363
Fujii, S. *et al., CA*, 1986, **105**, 222353t

3-*O*-α-D-Glucopyranosyl-L-sorbose, 9CI G-464

[35752-39-7]



$C_{12}H_{22}O_{11}$ 342.299

Reducing disaccharide. $[\alpha]_D$ +69.1 (c, 1 in H_2O).

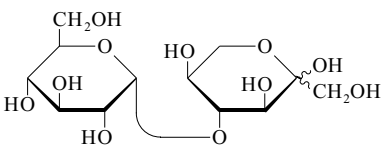
Phenylosazone: Mp 183-185°.

Chiba, S. *et al., Agric. Biol. Chem.*, 1971, **35**, 1363

Kitahara, S. *et al., J. Biochem. (Tokyo)*, 1976, **79**, 641

4-*O*-α-D-Glucopyranosyl-L-sorbose, 9CI G-465

[35752-40-0]



$C_{12}H_{22}O_{11}$ 342.299

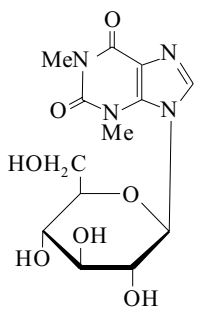
Reducing disaccharide. $[\alpha]_D$ +81 (c, 1 in H_2O).

Phenylosazone: Mp 194-196°.

Chiba, S. *et al., Agric. Biol. Chem.*, 1971, **35**, 1363

9-Glucopyranosyltheophylline, 8CI G-466

1,3-Dimethyl-9-glucopyranosylxanthine



$C_{13}H_{18}N_4O_7$ 342.308

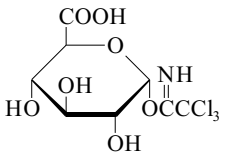
β-D-*form* [13922-68-4]

Mp 218-220°. $[\alpha]_D^{25}$ -42 (H_2O). λ_{max} 266 and 238 nm (H_2O).

Bühler, E. *et al., Angew. Chem., Int. Ed.*, 1964, **3**, 638

Bühler, E. *et al., Chem. Ber.*, 1967, **100**, 492 (*synth*)

(Glucopyranosyltrichloroacetimidate)uronic acid G-467



$C_8H_{10}Cl_3NO_7$ 338.528

α-D-*form*

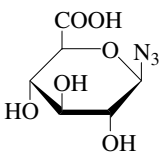
*Tri-Ac, Me ester: Methyl (2,3,4-tri-*O*-acetyl-α-D-glucopyranosyltrichloroacetimidate)uronate*
[92420-89-8]
$C_{15}H_{18}Cl_3NO_{10}$ 478.666
Mp 106-107°. $[\alpha]_D$ +93 (c, 1.0 in $CHCl_3$).

Jacquinet, J.-C. *et al., Carbohydr. Res.*, 1990, **199**, 153

Soliman, S.E. *et al., Carbohydr. Res.*, 2003, **338**, 2337-2340

Glucopyranosyluronic acid azide G-468

1-Deoxyglucopyranosyl azide uronic acid. (Glucopyranosyl azide)uronate



$C_6H_9N_3O_6$ 219.154

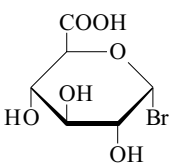
β-D-*form* [357981-14-7]

Solid. $[\alpha]_D^{26}$ -22.5 (c, 1.1 in H_2O).

Ying, L. *et al., Carbohydr. Res.*, 2003, **338**, 835-841 (*β-D-form, synth, pmr, cmr*)

Glucopyranosyluronic acid bromide G-469

(Glucopyranosyl bromide)uronate



$C_6H_9BrO_6$ 257.037

α-D-Pyranose-*form*

*Tri-Ac, Me ester: Methyl 2,3,4-tri-*O*-acetyl-1-bromo-1-deoxy-α-D-glucopyranuronate, 8CI. Methyl (2,3,4-tri-*O*-acetyl-α-D-glucopyranosyl)uronate bromide*
[21085-72-3]
$C_{13}H_{17}BrO_9$ 397.176
Glycosidation reagent in synth. of glucuronides. Cryst. (EtOH). Mp 106-107°. $[\alpha]_D^{25}$ +197 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form*

*Tri-Ac, Me ester: Methyl 2,3,4-tri-*O*-acetyl-1-bromo-1-deoxy-β-D-glucopyranuronate. Methyl (2,3,4-tri-*O*-acetyl-β-D-glucopyranosyl)uronate bromide*
$C_{13}H_{17}BrO_9$ 397.176
Cryst. Mp 138-140°. $[\alpha]_D^{20}$ -22 (c, 5.1 in C_6H_6).

Bollenback, G.N. *et al., J.A.C.S.*, 1955, **77**, 3310 (*synth*)

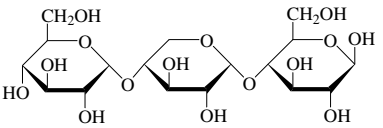
Heyns, K. *et al., Chem. Ber.*, 1966, **99**, 1183 (*synth*)

Emiliozzi, R. *et al., Bull. Soc. Chim. Fr.*, 1968, 738 (*synth*)

Doherty, R.M. *et al., Carbohydr. Res.*, 1983, **116**, 150 (*cryst struct*)

α-D-Glucopyranosyl-(1→4)-α-D-xylopyranosyl-(1→4)-D-glucose, 9CI G-470

[132627-90-8]



β-Pyranose-*form*

$C_{17}H_{30}O_{15}$ 474.415
Amorph. $[\alpha]_D^{25}$ +142 (c, 1.4 in H_2O).

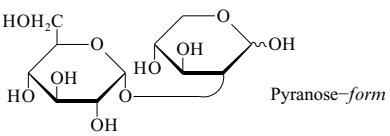
β-Pyranose-*form*

Benzyl glycoside, 2,2′′,3,3′,3′′,4′′,6,6′′-octabenzyl: [132628-08-1]
$C_{80}H_{84}O_{15}$ 1285.535
Syrup. $[\alpha]_D^{25}$ +21 (c, 1.4 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, β-benzyl pyr octabenzyl, pmr, cmr*)

2-*O*-α-D-Glucopyranosyl-D-xylose, 9CI G-471

[54173-01-2]



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
$[\alpha]_D^{23}$ +102.5 (c, 1.0 in H_2O).

*4-Me: 2-*O*-(4-*O*-Methyl-α-D-glucopyranosyl)-D-xylose*
[20550-20-3]
$C_{12}H_{22}O_{10}$ 326.3
Constit. of willow wood (*Salix viminalis*).
Cryst. + $3H_2O$.
Mp 95-105°. $[\alpha]_D^{26}$ +114 (c, 2.0 in H_2O).

[24807-62-3]

Adams, G.A. *et al., Can. J. Chem.*, 1959, **37**, 29

Timell, T.E. *et al., Can. J. Chem.*, 1959, **37**, 893

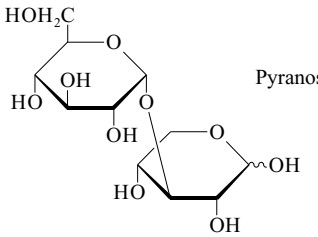
Timell, T.E. *et al., J.A.C.S.*, 1959, **81**, 4989

Das Gupta, P.C. *et al., J.C.S.*, 1961, 5262

Timell, T.E. *et al., Carbohydr. Res.*, 1966, **3**, 246 (*deriv*)

3-*O*-α-D-Glucopyranosyl-D-xylose, 8CI G-472

[24934-64-3]



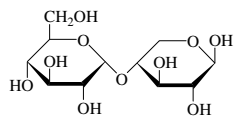
Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
$[\alpha]_D$ +101.6 (c, 1.5 in H_2O). $[\alpha]_D$ +87.5 (H_2O).

Barker, S.A. *et al., J.C.S.*, 1961, 3995
Barker, S.A. *et al., Nature (London)*, 1961, **189**, 138 (*synth*)
Chiba, S. *et al., Agric. Biol. Chem.*, 1969, **33**, 813 (*synth*)
Kitahata, S. *et al., J. Biochem. (Tokyo)*, 1976, **79**, 641

4-*O*-α-D-Glucopyranosyl-D-xylose, 9CI G-473

[24809-09-4]



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Amorph. powder. Mp 78°. $[\alpha]_D$ +95 (c, 0.6 in H_2O).

β-Pyranose-*form*

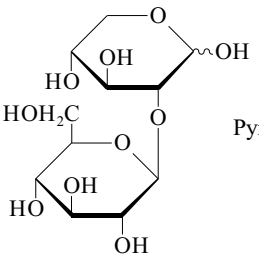
*Hepta-Ac: 4-*O*-(2,3,4,6-Tetra-*O*-acetyl-α-D-glucopyranosyl)-1,2,3-tri-*O*-acetyl-β-D-xylopyranose*
$C_{25}H_{34}O_{17}$ 606.533
Cryst. (MeOH). Mp 174-175°. $[\alpha]_D^{25}$ +62 (c, 1.6 in $CHCl_3$).

*Benzyl glycoside, 2′,3,3′,4′,6′-pentabenzyl: Benzyl 3-*O*-benzyl-4-*O*-(2,3,4,6-tetra-*O*-benzyl-α-D-glucopyranosyl)-β-D-xylopyranoside*
$C_{53}H_{56}O_{10}$ 853.019
Cryst. (Et_2O/hexane). Mp 83-85°. $[\alpha]_D^{25}$ +12 (c, 0.8 in $CHCl_3$).

[32352-61-7]

Putman, E.W. *et al., J.A.C.S.*, 1955, **77**, 4351 (*synth*)
Chiba, S. *et al., Agric. Biol. Chem.*, 1969, **33**, 813 (*synth*)
Kitahata, S. *et al., J. Biochem. (Tokyo)*, 1976, **79**, 641
Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*benzyl gly*)

2-*O*-β-D-Glucopyranosyl-D-xylose G-474



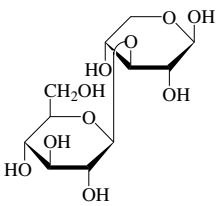
Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Mp 200-202°. $[\alpha]_D$ 0 (H_2O).

*Me glycoside: Methyl 2-*O*-β-D-glycopyranosyl-D-xylopyranoside*
$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D^{20}$ +47 (c, 0.4 in H_2O).

Jones, J.K.N. *et al., Can. J. Chem.*, 1960, **38**, 944 (*synth*)
Bowering, W.D.S. *et al., J.A.C.S.*, 1960, **82**, 2827 (*Me gly*)

3-*O*-β-D-Glucopyranosyl-D-xylose G-475



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Synth. by the transferase action of *Penicillium lilacinum* α-glucosidase on maltose plus xylose. Mp 120°. $[\alpha]_D$ -6.5 (H_2O) (-0.6, -3).

Phenylosazone: Mp 204-206°.

β-Pyranose-*form*

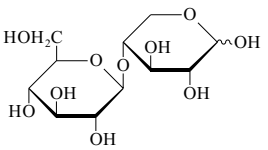
*Benzyl glycoside: Benzyl 3-*O*-β-D-glucopyranosyl-β-D-xylopyranoside*
$C_{18}H_{26}O_{10}$ 402.397
Cryst. (EtOAc/MeOH). Mp 169-170.5°. $[\alpha]_D$ -59 (EtOH).

*Benzyl glycoside, tetra-Ac: Benzyl 3-*O*-(2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranosyl)-β-D-xylopyranoside*
$C_{26}H_{34}O_{14}$ 570.546
Cryst. (EtOAc/petrol). Mp 145-145.5°. $[\alpha]_D$ -22 ($CHCl_3$).

Barker, S.A. *et al., J.C.S.*, 1957, 3541 (*synth*)
Duncan, W.A.M. *et al., Biochem. J.*, 1959, **73**, 295 (*synth*)
Ferrier, R.J. *et al., J.C.S.*, 1965, 7429

4-*O*-β-D-Glucopyranosyl-D-xylose, 8CI G-476

Securidabiose
[16462-45-6]



Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Constit. of securidaside, isol. from seeds of *Securigera securidaca*. Amorph. powder. $[\alpha]_D^{22}$ -27.3 (c, 1.18 in H_2O). Rapidly resinifies in the air.

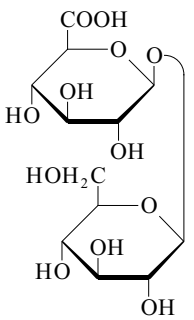
Osazone: Mp 178-179°.

Pyranose-*form* [18354-18-2]

*Hepta-Ac: 1,2,3-Tri-*O*-acetyl-4-*O*-(2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranosyl)-D-xylopyranose*
$C_{25}H_{34}O_{17}$ 606.533
Cryst. (Me_2CO). Mp 154-157°. $[\alpha]_D^{22}$ -18.2 (c, 0.98 in $CHCl_3$).

Zatula, V.V. *et al., Khim. Prir. Soedin.*, 1967, **3**, 167; *Chem. Nat. Compd. (Engl. Transl.)*, 1967, **3**, 138 (*isol*)
Alexander, J.K. *et al., Arch. Biochem. Biophys.*, 1968, **123**, 240 (*synth*)

β-D-Glucopyranuronosyl β-D-glucopyranoside G-477



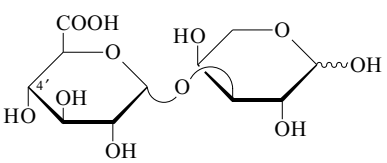
$C_{12}H_{20}O_{12}$ 356.283
Non-reducing disaccharide.

Hepta-Ac, Me ester:
$C_{27}H_{36}O_{19}$ 664.57
Mp 205°. $[\alpha]_D$ -22.5 ($CHCl_3$).

6′-Amide:
$C_{12}H_{21}NO_{11}$ 355.298
Mp 230-231°. $[\alpha]_D$ -58.8 (H_2O).

Helferich, B. *et al., Chem. Ber.*, 1957, **90**, 2492 (*synth*)

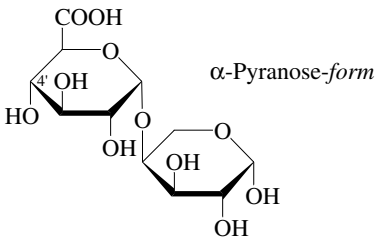
3-*O*-α-D-Glucopyranuronosyl-L-arabinose G-478



$C_{11}H_{18}O_{11}$ 326.257

O$^{4'}$-*Me: 3*-O-*(4*-O-*Methyl-α-D-glucopyranuronosyl)-L-arabinose*
$C_{12}H_{20}O_{11}$ 340.283
Isol. from the autohydrolysate of golden apple (*Spondias cytherea*) gum.
$[\alpha]_D$ +123 (H_2O).
Lindgren, B.O. *et al., Acta Chem. Scand.*, 1957, **11**, 1365 (*isol*)

4-*O*-α-D-Glucopyranuronosyl-L-arabinose G-479

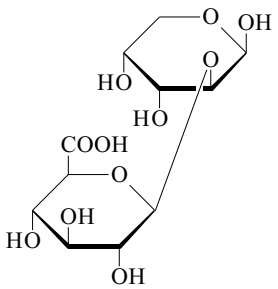


α-Pyranose-*form*

$C_{11}H_{18}O_{11}$ 326.257

4′-Me: 4-O-*(4*-O-*Methyl-α-D-glucopyranuronosyl)-L-arabinose*
$C_{12}H_{20}O_{11}$ 340.283
Isol. from the partial hydrolysates of lemon gum. Based on paper chromatographic evidence only, reported present in the hydrolysates of gums from several *Prunus* and *Citrus* spp.
$[\alpha]_D$ +134 (H_2O).
Andrews, P. *et al., J.C.S.*, 1954, 1724 (*isol*)
Guzman, E. *et al., Rev. Esp. Fisiol.*, 1960, **16**, 331

2-*O*-β-D-Glucopyranuronosyl-D-arabinose G-480



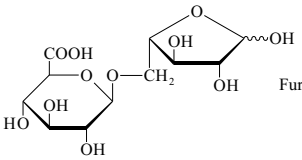
$C_{11}H_{18}O_{11}$ 326.257

β-Pyranose-*form*

NH_4 salt: [68070-17-7]
$C_{11}H_{21}NO_{11}$ 343.287
Cryst. + H_2O. $[\alpha]_D^{20}$ -78 (c, 0.7 in H_2O).
Sarfati, R.S. *et al., Carbohydr. Res.*, 1978, **65**, 11 (*synth*)

5-*O*-β-D-Glucopyranuronosyl-L-arabinose, 9CI G-481

[43179-88-0]

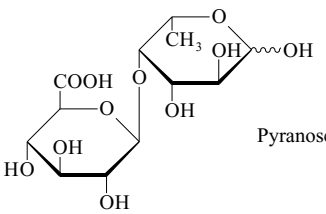


Furanose-*form*

$C_{11}H_{18}O_{11}$ 326.257
Reducing disaccharide. Isol. from the partial acid hydrolysate from *Plantago major*.
$[\alpha]_D^{20}$ +148.8 (c, 1 in H_2O).
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1973, **21**, 989 (*isol*)

4-*O*-β-D-Glucopyranuronosyl-L-fucose G-482

[16749-74-9]

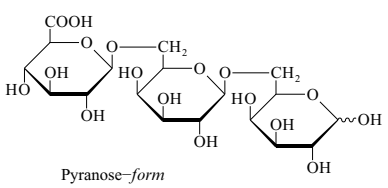


Pyranose-*form*

$C_{12}H_{20}O_{11}$ 340.283
Reducing disaccharide. Isol. from the partial acid hydrolysate of tragacanthic acid, the major polysaccharide component of tragacanth gum.
$[\alpha]_D$ -18 (c, 1.5 in H_2O).
Aspinall, G.O. *et al., J.C.S.(C)*, 1967, 1086 (*isol*)

β-D-Glucopyranuronosyl-(1→6)-β-D-galactopyranosyl-(1→6)-D-galactose, 9CI G-483

[7101-24-8]

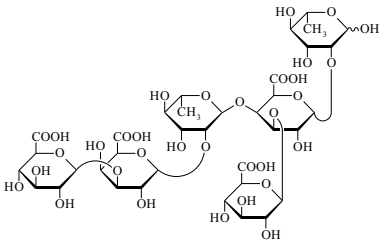


Pyranose-*form*

$C_{18}H_{30}O_{17}$ 518.425
Constituent of the gum exudate of *Chorisia speciosa* (Bombacaceae).
$[\alpha]_D$ -30 (H_2O).
DiFabio, J.L. *et al., Carbohydr. Res.*, 1982, **99**, 41

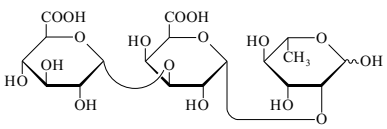
β-D-Glucopyranuronosyl-(1→3)-α-D-galactopyranuronosyl-(1→2)-α-L-rhamnopyranosyl-(1→4)-[β-D-glucopyranuronosyl-(1→3)]-α-D-galactopyranuronosyl-(1→2)-L-rhamnopyranose G-484

[71562-84-0]



$C_{36}H_{54}O_{33}$ 1014.803
Isol. from the hydrolysate of the mucilage in the roots of *Abelmoschus manihot* (aibika), *Althaea officinalis* (marsh mallow) and from the inner bark of *Hydrangea paniculata*. Powder.
Mp 172-176° dec. $[\alpha]_D^{20}$ +81.4 (c, 1.4 in H_2O).
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1977, **25**, 1357; 2910; 1979, **27**, 1651; 1980, **28**, 824

α-D-Glucopyranuronosyl-(1→3)-α-D-galactopyranuronosyl-(1→2)-L-rhamnose G-485



Pyranose-*form*

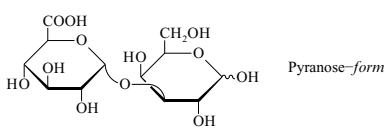
$C_{18}H_{28}O_{17}$ 516.409
Isol. from the partial acid hydrolysate of Panniculatan, a mucilaginous polysaccharide obt. from the inner bark of *Hydrangea paniculata*.
$[\alpha]_D^{20}$ +79.4 (c, 1.2 in H_2O).

[65562-08-5]

Tomoda, M. *et al., Chem. Pharm. Bull.*, 1977, **25**, 2910 (*isol*)

3-*O*-α-D-Glucopyranuronosyl-D-galactose, 9CI G-486

[96688-25-4]



Pyranose-*form*

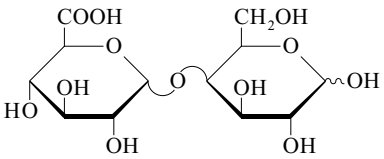
$C_{12}H_{20}O_{12}$ 356.283
Isol. from the partial acid hydrolysates of ketha (*Feronia elephantum*) gum and mesquite (*Prosopsis juliflora*) gum (probably present in the original polymer as a 4-Me deriv.).

Me glycoside, hexa-Me ether, Me ester: $Bp_{0.2}$ 175°.

White, E.V. *et al., J.A.C.S.*, 1947, **69**, 2264
Mathur, G.P. *et al., J. Sci. Ind. Res., Sect. B*, 1954, **13**, 452 (*isol*)

4-*O*-α-D-Glucopyranuronosyl-D-galactose G-487

[14402-41-6]



$C_{12}H_{20}O_{12}$ 356.283
Isol. from partial acid hydrolysates of *Acacia karoo*, neem (*Melia azadirachta*), *Terminalia tomentosa* gums and from tragacanthic acid, the major polysaccharide component of gum tragacanth.
$[\alpha]_D$ +87 (c, 1.4 in H_2O). $[\alpha]_D^{20}$ +58 (c, 1.2 in H_2O).

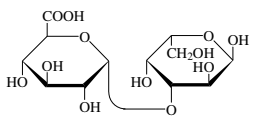
Ba salt: $[\alpha]_D$ +110 (+67) (H_2O).

Me glycoside, hexa-Me, Me ester:
$C_{20}H_{36}O_{12}$ 468.497
$Bp_{0.75}$ 195-225° (bath) (lit. gives a pressure range).

Mukherjee, S.H. *et al., J.A.C.S.*, 1955, **77**, 422
Charlson, A.J. *et al., J.C.S.*, 1955, 1428 (*isol*)
Aspinall, G.O. *et al., J.C.S.(C)*, 1967, 1086 (*isol*)
Audichya, J.D. *et al., Indian J. Chem., Sect. B*, 1976, **14**, 601 (*isol*)

3-*O*-α-D-Glucopyranuronosyl-L-galactose G-488

[62069-78-7]



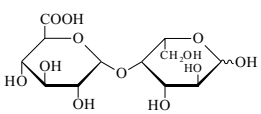
α-Pyranose-*from*

$C_{12}H_{20}O_{12}$ 356.283
Isol. from unicellular red alga *Rhodella reticulata* and of the polysaccharide of hornwort *Anthoceros caucasicus*. No phys. props. reported.

Jaseja, M. *et al., Carbohydr. Res.*, 1989, **186**, 313 (*pmr, cmr*)
Geresh, S. *et al., Carbohydr. Res.*, 1990, **208**, 301 (*Rhodella rediculata constit, isol, struct*)
Popper, Z.A. *et al., Phytochemistry*, 2003, **64**, 325-335 (*Anthoceros caucasicus constit, isol, pmr, cmr*)

4-*O*-α-D-Glucopyranuronosyl-L-galactose, 9CI G-489

[50692-51-8]



Pyranose–*form*

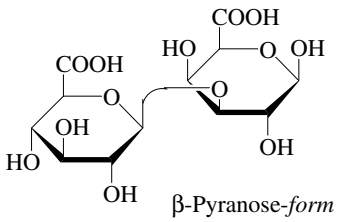
$C_{12}H_{20}O_{12}$ 356.283
Isol. from the partial acid hydrolysate of the polysaccharide from the red alga *Anatheca dentata*.

$[\alpha]_D^{20}$ +24 (c, 0.5 in H_2O).

Nunn, J.R. *et al., Carbohydr. Res.*, 1973, **29**, 281

3-*O*-β-D-Glucopyranuronosyl-D-galactose, 9CI, 8CI G-490

[14446-49-2]



β-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283
Constit. of Chondroitin sulfate, C-125 and isol. from the partial acid hydrolysate of the capsular polysaccharides of *Escherichia coli* K12, *Klebsiella* K type 20 and from *Terminalia tomentosa* gum.
$[\alpha]_D^{30}$ +11.8 (c, 1.7 in H_2O).

6′-Me ester: [16741-26-7]
Syrup. $[\alpha]_D^{25}$ -5.5 (c, 0.55 in H_2O).

β-Pyranose-*form*

Benzyl glycoside: [16741-24-5]
Prisms (EtOH). Mp 160-162° dec. $[\alpha]_D^{25}$ -41.3 (c, 1.0 in H_2O).

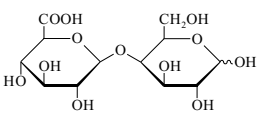
Benzyl glycoside, Me ester: [16741-23-4]
$C_{20}H_{28}O_{12}$ 460.434
Cryst. (EtOH). Mp 205-207°. $[\alpha]_D^{22}$ -38.5 (c, 1.0 in H_2O).

Benzyl glycoside, hexa-Ac, Me ester:
$C_{32}H_{40}O_{18}$ 712.657
Mp 154-155°. $[\alpha]_D^{30}$ -43.3 (c, 0.9 in $CHCl_3$).

[4343-50-4, 16741-22-3]

Roden, L. *et al., Biochim. Biophys. Acta*, 1966, **127**, 252 (*isol*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1967, **4**, 312 (*synth*)
Choy, Y.M. *et al., J. Bacteriol.*, 1972, **112**, 635 (*occur*)
Audichya, T.D. *et al., Indian J. Chem., Sect. B*, 1976, **14**, 601
Rohrmann, K. *et al., Eur. J. Biochem.*, 1985, **148**, 463 (*occur*)

4-*O*-β-D-Glucopyranuronosyl-D-galactose G-491



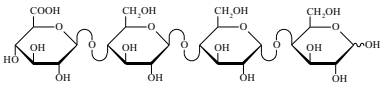
Pyranose–*form*

$C_{12}H_{20}O_{12}$ 356.283
Isol. from the partial acid hydrolysate of the extracellular polysaccharide from *Xanthomonas stewartii*.
$[\alpha]_D$ +15 (H_2O).

[29388-50-9]

Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 2282 (*isol*)
Bajpai, K.S. *et al., Carbohydr. Res.*, 1970, **14**, 259 (*ir*)

β-D-Glucopyranuronosyl-(1 → 4)-β-D-glucopyranosyl-(1 →4)-α-D-glucopyranosyl-(1 →4)-D-galactose G-492

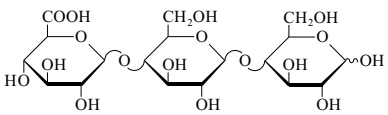


Pyranose–*form*

$C_{24}H_{40}O_{22}$ 680.567
Isol. from the partial acid hydrolysate of *Pneumococcus* type VIII capsular polysaccharide.
$[\alpha]_D$ +65 (H_2O).

Jones, J.K.N. *et al., J.A.C.S.*, 1957, **79**, 2787

β-D-Glucopyranuronosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-D-glucose G-493



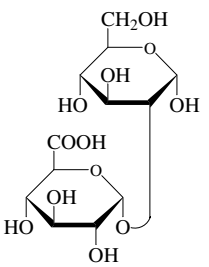
Pyranose–*form*

$C_{18}H_{30}O_{17}$ 518.425
Isol. from the partial acid hydrolysate of *Pneumococcus* type VIII capsular polysaccharide.
$[\alpha]_D$ +12 (H_2O).

Jones, J.K.N. *et al., J.A.C.S.*, 1957, **79**, 2787

2-*O*-α-D-Glucopyranuronosyl-D-glucose, 9CI G-494

Aldobiouronic acid I
[77881-19-7]



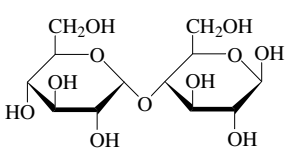
α-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283
Reducing disaccharide. Oxidn. product of a *Leuconostoc mesenteroides* dextran.
$[\alpha]_D^{25}$ +65 (H_2O).

Bhatnagar, R. *et al., Carbohydr. Res.*, 1981, **89**, 346

4-*O*-α-D-Glucopyranuronosyl-D-glucose G-495

Maltobiouronic acid, 8CI



β-*form*

$C_{12}H_{20}O_{12}$ 356.283

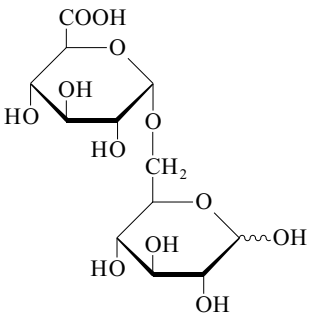
Cryst. + $1H_2O$. $[\alpha]_D$ +116 (c, 2.52 in H_2O).
Na salt: Mp 106-109° dec.
Hepta-Ac, Me ester:
$C_{27}H_{36}O_{19}$ 664.57
Mp 197-198°. $[\alpha]_D$ +77 (c, 0.54 in $CHCl_3$).

β-*form*

Benzyl glycoside, hexa-Ac, Me ester:
$C_{32}H_{40}O_{18}$ 712.657
Mp 164-165°. $[\alpha]_D$ +33.8 (c, 2.04 in $CHCl_3$).
Dutton, G.G.S. *et al., Can. J. Chem.*, 1964, **42**, 1110 (*synth*)
Japan. Pat., 1967, 67 7 372, (*Chugai Pharm*); *CA*, **67**, 82374v (*synth*)
Roy, N. *et al., J.O.C.*, 1968, **33**, 1559 (*synth*)
Govorchenko, V.I. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1972, **8**, 257 (*synth*)

6-*O*-α-D-Glucopyranuronosyl-D-glucose, 9CI G-496

Aldobiouronic acid II. Isomalturonic acid
[25520-30-3]



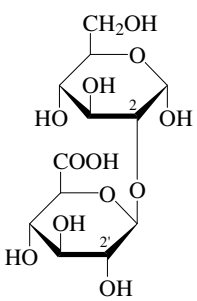
$C_{12}H_{20}O_{12}$ 356.283
Reducing disaccharide. Oxidn. product of a dextran synth. by *Leuconostoc mesenteroides*.
$[\alpha]_D^{25}$ +57 (H_2O).

α-Pyranose-*form*

Me glycoside, hexabenzyl, Me ester:
[75336-67-3]
$C_{56}H_{60}O_{12}$ 925.083
$[\alpha]_D^{24}$ +43.8 (c, 1 in $CHCl_3$).
Schmidt, R.R. *et al., Tet. Lett.*, 1980, **21**, 1421 (*synth*)
Bhatnagar, R. *et al., Carbohydr. Res.*, 1981, **89**, 346

2-*O*-β-D-Glucopyranuronosyl-D-glucose G-497

Sophorobiuronic acid
[20550-22-5]



α-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283
$[\alpha]_D^{25}$ -1.6 (c, 2.0 in H_2O).

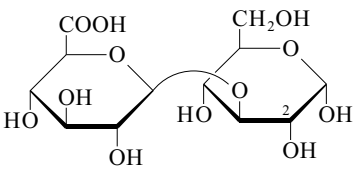
α-Pyranose-*form*

Me glycoside, 3-Me, 2′,3′,4′-tri-Ac, 6′-Me ester: [64951-60-6]
$C_{21}H_{32}O_{15}$ 524.475
Cryst. (Me_2CO). Mp 197-198°. $[\alpha]_D^{22}$ +26 (c, 1 in $CHCl_3$).

Me glycoside, 3,4,6-tri-Me, 2′,3′,4′-tri-Ac, 6′-Me ester: [64951-61-7]
$C_{23}H_{36}O_{15}$ 552.528
Cryst. (Et_2O). Mp 112.5-114.5°. $[\alpha]_D^{22}$ +26 (c, 1 in $CHCl_3$).

Me glycoside, 3,4,6,2′,3′,4′-hexa-Me, 6′-Me ester: [64650-01-7]
$C_{20}H_{36}O_{12}$ 468.497
Cryst. (hexane). Mp 70.5-72°. $[\alpha]_D^{23}$ +45 (c, 1 in $CHCl_3$).
Nirmolendu, R. *et al., Carbohydr. Res.*, 1968, **6**, 475; 488 (*synth*)
Kovac, P. *et al., Carbohydr. Res.*, 1977, **58**, 327 (*synth*)
Alfoldi, J. *et al., Chem. Zvesti*, 1984, **34**, 679; *CA*, 1981, **94**, 121835a (*cmr*)

3-*O*-β-D-Glucopyranuronosyl-D-glucose G-498



$C_{12}H_{20}O_{12}$ 356.283

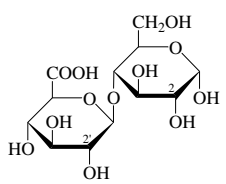
α-Pyranose-*form*

Me glycoside, 2,4,6-tri-Me, 2′,3′,4′-tri-Ac, Me ester: [64951-62-8]
$C_{23}H_{36}O_{15}$ 552.528
Cryst. (Et_2O). Mp 110.5-112.5°. $[\alpha]_D^{21}$ +46 ($CHCl_3$).

Me glycoside, 2,4,6,2′,3′,4′-hexa-Me, 6′-Me ester: [64850-66-4]
$C_{20}H_{36}O_{12}$ 468.497
Cryst. (Et_2O). Mp 110-111.5°. $[\alpha]_D^{22}$ +66 (c, 1.0 in $CHCl_3$).
Kovac, P. *et al., Carbohydr. Res.*, 1977, **58**, 327 (*synth*)
Alfoldi, J. *et al., Chem. Zvesti*, 1980, **34**, 679; *CA*, 1981, **94**, 121835a (*cmr*)

4-*O*-β-D-Glucopyranuronosyl-D-glucose, 9CI, 8CI G-499

Cellobiuronic acid
[5551-59-7]



α-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283
Reducing disaacharide. Isol. from the partical acid hydrolysates of *Pneumococcus* type III and type VIII capsular polysaccharides. Constit. of an extracellular polysaccharide of some *Rhizobium* spp.

Mp 189°. $[\alpha]_D$ +7.6 (H_2O). $[\alpha]_D$ +14.7 (H_2O).
Hepta-Ac:
$C_{26}H_{34}O_{19}$ 650.543
Mp 239°. $[\alpha]_D$ +32.9 (H_2O). $[\alpha]_D$ +52.9 ($CHCl_3$).
Hepta-Ac, Me ester:
$C_{27}H_{36}O_{19}$ 664.57
Mp 251-254°. $[\alpha]_D$ +42 ($CHCl_3$).
2,2′,3,3′,4′,6-Hexa-Me, Me ester:
$C_{19}H_{34}O_{12}$ 454.47
Mp 114°. $[\alpha]_D$ -32 (H_2O).

α-Pyranose-*form*

Me glycoside, 2,3,6-tri-Me, 2′,3′,4′-tri-Ac, Me ester: [64951-63-9]
$C_{23}H_{36}O_{15}$ 552.528
Cryst. (Et_2O). Mp 119.5-120.5°. $[\alpha]_D^{22}$ +58 (c, 1 in $CHCl_3$).

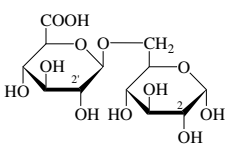
Me glycoside, 2,3,6,2′,3′,4′-hexa-Me, Me ester: [64850-67-5]
$C_{20}H_{36}O_{12}$ 468.497
Cryst. (diisopropyl ether). Mp 77.5-79.5°. $[\alpha]_D^{22}$ +68 (c, 1 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside, hexa-Me:
$C_{19}H_{34}O_{12}$ 454.47
Mp 113°. $[\alpha]_D$ -32 (H_2O).
Me glycoside, hexa-Me, Me ester: Mp 171-172°. $[\alpha]_D$ -32 ($CHCl_3$).
Goebel, W.F. *et al., J. Biol. Chem.*, 1935, **110**, 391 (*isol*)
Hotchkiss, R.D. *et al., J. Biol. Chem.*, 1937, **121**, 195 (*β-Me gly*)
Jones, J.K.N. *et al., J.A.C.S.*, 1957, **79**, 2787 (*isol*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1960, **14**, 1051 (*synth*)
Jayme, G. *et al., Chem. Ber.*, 1960, **95**, 356 (*synth*)
Soemme, R. *et al., Carbohydr. Res.*, 1975, **43**, 145 (*isol*)
Kovac, P. *et al., Carbohydr. Res.*, 1977, **58**, 327 (*α-Me gly*)
Mopper, K. *et al., Anal. Biochem.*, 1978, **86**, 597 (*chromatog*)
Alfoldi, J. *et al., Chem. Zvesti*, 1980, **34**, 679; *CA*, 1981, **94**, 121835a (*cmr, α-Me gly*)

6-*O*-β-D-Glucopyranuronosyl-D-glucose G-500

Gentiobiouronic acid



α-Pyranose-*form*

$C_{12}H_{20}O_{12}$ 356.283

α-Pyranose-*form*

Hepta-Ac, Me ester:
$C_{27}H_{36}O_{19}$ 664.57
Mp 201-202°. $[\alpha]_D$ +48.4 ($CHCl_3$).
Me glycoside, 2,3,4-tri-Me, 2′,3′,4′-tri-Ac, Me ester: [64951-64-0]
$C_{23}H_{36}O_{15}$ 552.528
Cryst. (Et_2O). Mp 124-126°. $[\alpha]_D^{24}$ +46 (c, 1 in $CHCl_3$).
Me glycoside, hexa-Me, Me ester: [64850-68-6]

$C_{20}H_{36}O_{12}$ 468.497
Cryst. (Et_2O/diisopropyl ether). Mp 108-109°. $[\alpha]_D^{22}$ +53 (c, 1 in $CHCl_3$).

β-Pyranose-*form*

Hepta-Ac, Me ester: [15811-31-1]
Mp 200-202° (198-199°). $[\alpha]_D^{23}$ -8.5 (c, 2.3 in $CHCl_3$). $[\alpha]_D^{20}$ -11 (c, 0.1 in $CHCl_3$).

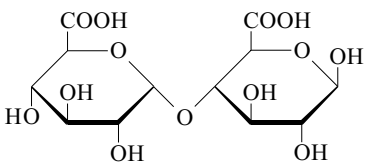
Me glycoside, hexa-Ac, Me ester: [78103-20-5]
Cryst. (EtOH). Mp 174-175°. $[\alpha]_D$ -23.8 (c, 3.2 in $CHCl_3$).

Me glycoside, hexa-Me: [78103-21-6]
$C_{19}H_{34}O_{12}$ 454.47
Cryst. (Et_2O-petrol). Mp 123-124°.

Me glycoside, hexa-Me, Me ester: [78112-05-7]
Cryst. (Et_2O/petrol). Mp 174-175°. $[\alpha]_D$ -44 (c, 0.85 in $CHCl_3$).

Helferich, B. *et al., Chem. Ber.*, 1957, **90**, 2492 (*synth*)
Kovac, P. *et al., Carbohydr. Res.*, 1977, **58**, 327 (*α-Me gly*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1981, **59**, 935 (*β-Me gly*)
Betaneli, V.I. *et al., Carbohydr. Res.*, 1981, **94**, C1 (*β-pyranose*)

4-*O*-α-D-Glucopyranuronosyl-D-glucuronic acid G-501



$C_{12}H_{18}O_{13}$ 370.266

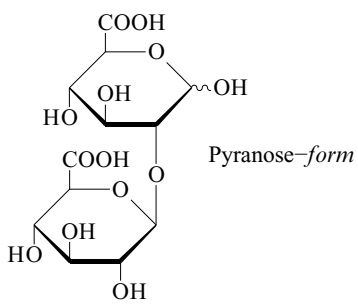
β-Pyranose-*form*

Cyclohexyl glycoside, 2,3,2′,3′,4′-penta-Ac:
$C_{28}H_{38}O_{18}$ 662.597
Mp 185-187°. $[\alpha]_D$ +47 ($CHCl_3$).

Lythgoe, B. *et al., J.C.S.*, 1950, 1983

2-*O*-β-D-Glucopyranuronosyl-D-glucuronic acid, 9CI G-502

[102865-75-8]



Pyranose–*form*

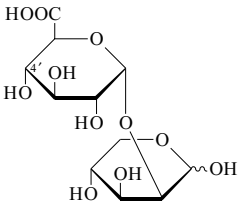
$C_{12}H_{18}O_{13}$ 370.266

Ba salt: $[\alpha]_D$ -5.2 (H_2O).

Me glycoside, 6,6′-di-Me ester:
$C_{15}H_{24}O_{13}$ 412.347
Mp 223°. $[\alpha]_D$ +26.5 (H_2O).

Voss, W. *et al., Ber.*, 1937, **70**, 132 (*Ba salt*)
Lythgoe, B. *et al., J.C.S.*, 1950, 1983 (*Me gly*)
Marsh, C.A. *et al., Biochem. J.*, 1956, **63**, 9

2-*O*-α-D-Glucopyranuronosyl-D-lyxose, 9CI G-503



Pyranose–*form*

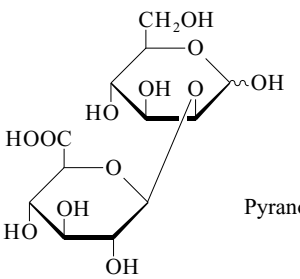
$C_{11}H_{18}O_{11}$ 326.257

4′-O-Me: 2-O-(4-O-Methyl-α-D-glucopyranuronosyl)-D-lyxose
[15408-01-2]
$C_{12}H_{20}O_{11}$ 340.283
Isol. from partial acid hydrolysates of maritime pine (*Pinus pinaster*), birch (*Betula verrucosa*) and scandinavian spruce (*Picea abies*) hemicelluloses.
$[\alpha]_D$ +60 (H_2O).

Roudier, A. *et al., Bull. Soc. Chim. Fr.*, 1960, **28**, 2074 (*isol*)
Samuelson, O. *et al., CA*, 1966, **66**, 47471g
Carlsson, B. *et al., CA*, 1970, **73**, 26781n
Johansson, M.H. *et al., Wood Sci. Technol.*, 1977, **11**, 251; *CA*, **88**, 154551j

2-*O*-β-D-Glucopyranuronosyl-D-mannose, 8CI G-504

[4539-91-7]



Pyranose–*form*

$C_{12}H_{20}O_{12}$ 356.283
Present as a structural unit in plant gums, e.g damson (*Prunus insitia*), cherry (*Prunus cerasus*), *Anogeissus lattifolia* (gum ghatti), *Anogeissus schimperi*, *Hakea acicularis, Virgilia oroboides, Albizzia zygia*, and *Asparagus filicinus*. Also isol. from the partial acid hydrolysates of the extracellular polysaccharides of *Xanthomonas oryzae* and *Xanthomonas campestris*.
$[\alpha]_D$ -32 (H_2O).

Ba salt: $[\alpha]_D$ -30 (H_2O).

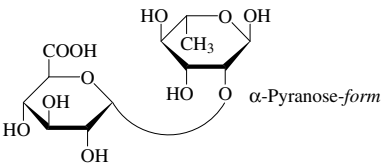
Me glycoside, hexa-Me, 6′-Me ester:
[70051-79-5]
$C_{20}H_{36}O_{12}$ 468.497
Mp 141°. $[\alpha]_D$ -22 ($CHCl_3$).

[52554-63-9, 52554-64-0]

Stephen, A.M. *et al., J.C.S.*, 1956, 4487
Drummond, D.W. *et al., J.C.S.*, 1961, 3908 (*isol*)
Smith, F. *et al., J.C.S.*, 1961, 4892 (*isol, Me gly*)
Sloneker, J.H. *et al., Can. J. Chem.*, 1962, **40**, 2066 (*isol*)
Misaki, A. *et al., Can. J. Chem.*, 1962, **40**, 2204 (*isol*)

2-*O*-α-D-Glucopyranuronosyl-L-rhamnose G-505

[56586-63-1]

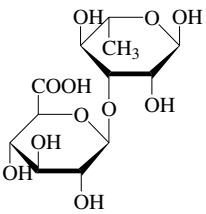


α-Pyranose-*form*

$C_{12}H_{20}O_{11}$ 340.283
Isol. from the gum exudate of *Brachychiton diversifolium* (*Sterculia caudata*).
$[\alpha]_D^{18}$ +63 (c, 1.5 in H_2O).

Hirst, E.L. *et al., J.C.S.*, 1958, 1942-1950 (*isol*)

3-*O*-β-D-Glucopyranuronosyl-L-rhamnose G-506



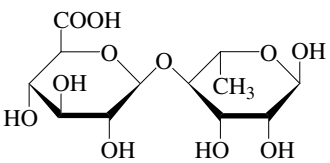
α-Pyranose-*form*

$C_{12}H_{20}O_{11}$ 340.283
Isol. from the K54 antigen polysaccharide of *Escherichia coli* O6:K54:H10.
$[\alpha]_D^{25}$ -41 (c, 0.06 in H_2O).

Hofmann, P. *et al., Carbohydr. Res.*, 1985, **139**, 261-271 (*isol, pmr, cmr*)

4-*O*-β-D-Glucopyranuronosyl-L-rhamnose G-507

[67109-66-4]



α-Pyranose-*form*

$C_{12}H_{20}O_{11}$ 340.283
Reducing disaccharide. Isol. from partial acid hydrolysate from the seaweeds *Acrosiphonia centralis* and *Ulva lactuca*. Constit. of the repeating unit of the capsular antigen of *Klebsiella* K70 and capsular antigen of *E. coli* 06:K54:H10.
$[\alpha]_D$ -41 (-30) (H_2O).

α-Pyranose-*form*

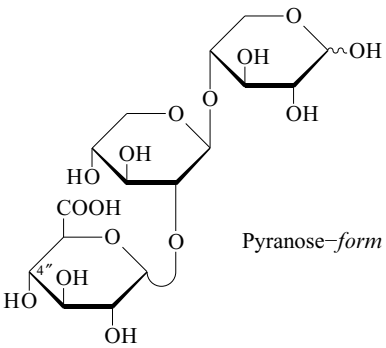
Me glycoside, 2,3-O-isopropylidene, tri-Ac, Me ester: [79291-99-9]
$C_{23}H_{34}O_{14}$ 534.513
Powder. $[\alpha]_D^{23}$ -33.5 (c, 2.1 in $CHCl_3$).

[84366-53-0]

O'Donnell, J.J. *et al., J.C.S.*, 1959, 2168 (*isol*)
McKinnell, P.J. *et al., J.C.S.*, 1962, 2082

Dutton, G.G.S. *et al., Carbohydr. Res.*, 1978, **62**, 321 (*isol, pmr*)
Betaneli, V.I. *et al., Carbohydr. Res.*, 1981, **94**, C1 (*deriv, cmr*)
Hofmann, P. *et al., Carbohydr. Res.*, 1985, **139**, 261 (*isol, cmr, pmr*)

α-D-Glucopyranuronosyl-(1 → 2)-β-D-xylopyranosyl-(1 →4)-D-xylose G-508



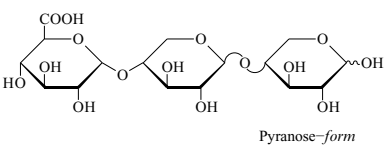
Pyranose−*form*

$C_{16}H_{26}O_{15}$ 458.372

O$^{4''}$-*Me: 4*-O-*Methyl-α-D-glucopyranosyl-(1 →2)-β-D-xylopyranosyl-(1 →4)-D-xylose*
[10365-86-3]
$C_{17}H_{28}O_{15}$ 472.399
Isol. from the partial acid hydrolysates of white spruce (*Picea glauca*), western hemlock (*Tsuga heterophylla*), jute fibre, maritime pine (*Pinus pinaster*), aspen (*Populus tremuloides*) hemicelluloses. Prob. also from white elm (*Ulmus americana*), milkweed (*Asclepias sysiaca*) floss and oat hull hemicelluloses. Cryst. + $3H_2O$.
Mp 180-187°. $[\alpha]_D$ +59 (H_2O).

Hamilton, J.K. *et al., J.A.C.S.*, 1957, **79**, 6464 (*isol*)
Roudier, A.J. *et al., Bull. Soc. Chim. Fr.*, 1960, **28**, 2074 (*isol*)
Srivastava, H.C. *et al., J.O.C.*, 1961, **26**, 3958 (*isol*)
Timell, T.E. *et al., J.O.C.*, 1962, **27**, 1804

α-D-Glucopyranuronosyl-(1 → 4)-β-D-xylopyranosyl-(1 →4)-D-xylose G-509



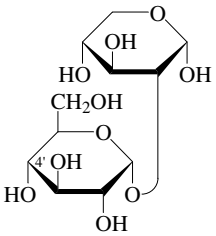
Pyranose−*form*

$C_{16}H_{26}O_{15}$ 458.372
Isol. from the partial acid hydrolysate of corn-hull hemicellulose.
$[\alpha]_D$ +38 (H_2O).

Whistler, R.L. *et al., J.A.C.S.*, 1955, **77**, 2212 (*isol*)

2-*O*-α-D-Glucopyranuronosyl-D-xylose, 9CI, 8CI G-510

Aldobiouronic acid D3
[17676-51-6]



α-Pyranose-*form*

$C_{11}H_{18}O_{11}$ 326.257
Isol. from partial acid hydrolysates of gum chagual (*Puya* spp.) and the hemicelluloses from corn hulls, wheat straw, wheat bran and maritime pine (*Pinus pinaster*). Amorph. $[\alpha]_D^{20}$ +101 (88) (H_2O).

Me glycoside, Me ester:
$C_{13}H_{22}O_{11}$ 354.31
Syrup. $[\alpha]_D^{22}$ +98.5 (c, 3.9 in MeOH).

Me glycoside, penta-Ac, Me ester:
$C_{23}H_{32}O_{16}$ 564.496
Mp 178°. $[\alpha]_D^{22}$ +163 (c, 1.0 in $CHCl_3$).

4′-Me: 2-O-*(4*-O-*Methyl-α-D-glucopyranuronosyl)-D-xylose, 9CI, 8CI*
[7382-52-7]
Important aldobiouronic acid that occurs as a structural unit of polysaccharides. Widely distributed in plant materials, found mainly in the woody tissues. Amorph. powder. $[\alpha]_D^{20}$ +108 (c, 1.0 in H_2O). Opt. rotns. reported vary between +70 and +110.

4′-Me, Me ester:
$C_{13}H_{22}O_{11}$ 354.31
Cryst. (EtOH). Mp 174-176°.

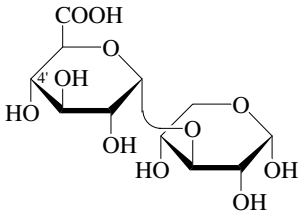
Me glycoside, 4′-Me, Me ester: [36205-30-8]
$C_{14}H_{24}O_{11}$ 368.337
Fluffy powder. $[\alpha]_D^{20}$ +77 (c, 1.5 in H_2O).

[1693-81-8, 29412-02-0]

Jones, J.K.N. *et al., J.C.S.*, 1952, 2750; 3389; 1957, 669; 1958, 1059 (*isol, 4′-Me*)
Dutton, G.G.S. *et al., J.A.C.S.*, 1956, **78**, 2505; 1958, **80**, 4420 (*isol*)
Montgomery, R. *et al., J.A.C.S.*, 1956, **78**, 2837; 6169 (*isol, penta-Ac Me gly Me ester*)
Adams, G.A. *et al., J.A.C.S.*, 1956, **78**, 2842 (*isol*)
Hamilton, J.K. *et al., J.A.C.S.*, 1957, **79**, 443 (*isol, Me gly Me ester*)
Timell, T.E. *et al., Can. J. Chem.*, 1959, **37**, 827 (*isol, 4′-Me, 4′-Me Me gly Me ester*)
Roudier, A.J. *et al., Bull. Soc. Chim. Fr.*, 1960, **28**, 2074 (*isol*)
Pazur, J.H. *et al., The Carbohydrates*, 1970, 120 (*4′-Me, rev*)
Maekawa, E. *et al., Agric. Biol. Chem.*, 1973, **37**, 2073 (*isol*)
Kováč, P. *et al., Carbohydr. Res.*, 1981, **93**, 144 (*4′-Me, 4′-Me Me ester, cmr*)

3-*O*-α-D-Glucopyranuronosyl-D-xylose, 9CI G-511

[85269-45-0]



α-Pyranose-*form*

$C_{11}H_{18}O_{11}$ 326.257
Isol. from partial acid hydrolysates of sunflower (*Helianthus annuus*) head hemicellulose, from pear cell-wall xylan, from various wheat-straw preparations and from corn hulls.
$[\alpha]_D$ +18 (H_2O).

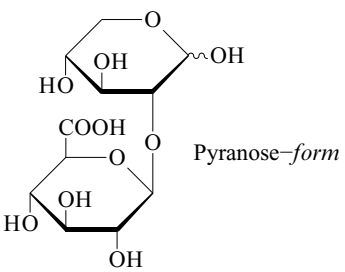
Pyranose-*form*

4′-Me: 3-O-*(4*-O-*Methyl-α-D-glucopyranuronosyl)-D-xylose, 9CI*
[66634-88-6]
$C_{12}H_{20}O_{11}$ 340.283
Minor component of *Pinus radiata* hemicellulose, may be present in trace amts. in other hemicelluloses.
$[\alpha]_D$ +65 (H_2O).

Hexa-Me:
$C_{17}H_{30}O_{11}$ 410.417
$[\alpha]_D$ +12.4 (H_2O).

Chanda, S.K. *et al., J.C.S.*, 1951, 1240
Adams, G.A. *et al., Can. J. Chem.*, 1952, **30**, 698; 1953, **31**, 134 (*isol*)
Bishop, C.T. *et al., Can. J. Chem.*, 1953, **31**, 134; 1955, **33**, 1521 (*isol*)
Aspinall, G.O. *et al., J.C.S.*, 1954, 1731 (*isol*)
Brasch, D.J. *et al., Tappi*, 1956, **39**, 581; 768 (*isol, deriv*)
Bailey, R.W. *et al., Oligosaccharides*, Pergamon, 1965, **4**, 137 (*occur, deriv*)
Yoshida, S. *et al., Agric. Biol. Chem.*, 1990, **54**, 1319 (*isol*)

2-*O*-β-D-Glucopyranuronosyl-D-xylose G-512

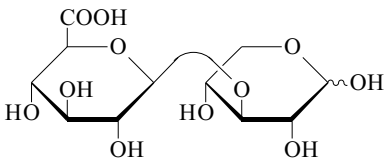


Pyranose−*form*

$C_{11}H_{18}O_{11}$ 326.257
Reducing disaccharide. $[\alpha]_D$ +5.7 (H_2O).

Bowering, W.D.S. *et al., J.A.C.S.*, 1960, **82**, 2827 (*synth*)

3-*O*-β-D-Glucopyranuronosyl-D-xylose G-513



Pyranose–*form*

$C_{11}H_{18}O_{11}$ 326.257

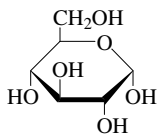
Reducing disaccharide. $[\alpha]_D$ +3.7 (in H_2O).

Pyranose-*form*

1,2,2′,3′,4,4′-Hexa-Me:
$C_{17}H_{30}O_{11}$ 410.417
$[\alpha]_D$ +4.8 (in $CHCl_3$).
Bishop, C.T. *et al., Can. J. Chem.*, 1953, **31**, 134 (*synth*)

Glucose, 9CI, 8CI G-514

Dextrose. Grape sugar. Blood sugar. Corn sugar. Cerelose



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

For septanose form see Glucoseptanose, G-527. An aq. soln. contains 37.3% α-pyr, 62.6% β-pyr, 0.1% β-fur and 0.002% aldehyde.

D-*form* [50-99-7]
[5996-10-1]
Most common sugar, abundant in free and combined form. Occurs free in blood, cerebrospinal fluid, lymph, urine of diabetic subjects, fruits, honey and plant juices. Major component of many oligosaccharides and polysaccharides. Occurs in sucrose combined with fructose. Comly. available by the acid hydrol. of potato starch (Europe) and cornstarch (USA). Fluid and nutrient replenisher. Food additive: nutritive sweetener, humectant. Tablet diluent. pK_{a1} 12.34 (25°). Sweet taste, sweetness = 0.46 × sucrose.

► Reacts violently with Na_2O_2 plus KNO_3, and other strong oxidants. LD_{50} (rat, orl) 25800 mg/kg. Human and exp. reprod. and teratogenic effects (large doses). LZ6600000

Phenylhydrazone: [3713-25-5]
$C_{12}H_{18}N_2O_5$ 270.285
Three forms obtainable. Mp 115° Mp 142° Mp 160°. $[\alpha]_D$ -47 (H_2O). $[\alpha]_D$ -2. $[\alpha]_D$ -87.

4-Bromophenylhydrazone: [18841-82-2]
Mp 143-146°.

1-Phosphate: See Glucose 1-dihydrogen phosphate, G-517

2-Phosphate: See Glucose 2-dihydrogen phosphate, G-518

3-Phosphate: See Glucose 3-dihydrogen phosphate, G-519

4-Phosphate: See Glucose 4-dihydrogen phosphate, G-520

6-Phosphate: See Glucose 6-dihydrogen phosphate, G-521

Di-Me dithioacetal: [16732-26-6]
$C_8H_{18}O_5S_2$ 258.359
Mp 161°. $[\alpha]_D^{24}$ -20.8 (1M NaOH).

Di-Et dithioacetal: See Glucose diethyl dithioacetal, G-516

Dibenzyl dithioacetal: See Glucose dibenzyl dithioacetal, G-515

*Penta-Ac: 2,3,4,5,6-Penta-*O*-acetyl-D-glucose. FEMA 2524*
[3891-59-6]
$C_{16}H_{22}O_{11}$ 390.343
Commercial product usually a mixture of 90% β-D and 10% α-D. Bitter flavour. Mp 114° (α-anomer) Mp 135° (β-anomer). $[\alpha]_D^{20}$ +102 (c, 1 in $CHCl_3$) (α-anomer). $[\alpha]_D^{20}$ +4.4 (c, 1 in $CHCl_3$) (β-anomer).

Penta-Ac, oxime:
$C_{16}H_{23}NO_{11}$ 405.358
Mp 99°. $[\alpha]_D^{24}$ +57.2 ($CHCl_3$).

Penta-Ac, di-Me dithioacetal: [74281-92-8]
$C_{18}H_{28}O_{10}S_2$ 468.545
Mp 83°. $[\alpha]_D^{20}$ +38.7 ($C_2H_2Cl_4$).

*2-Butanoyl: 2-*O*-Butanoyl-D-glucose*
[108535-21-3]
$C_{10}H_{18}O_7$ 250.248
No phys. props. reported.

*3-Butanoyl: 3-*O*-Butanoyl-D-glucose*
[108535-18-8]
$C_{10}H_{18}O_7$ 250.248
$[\alpha]_D^{30}$ +56.7 (c, 2.5 in H_2O).

*6-Butanoyl: 6-*O*-Butanoyl-D-glucose*
[104069-89-8]
$C_{10}H_{18}O_7$ 250.248
Mp 112-114°.

*2,6-Dibutanoyl: 2,6-Di-*O*-butanoyl-D-glucose*
[108535-13-3]
$C_{14}H_{24}O_8$ 320.339
Mp 82-85°. $[\alpha]_D^{30}$ +50.8 (c, 4.0 in H_2O).

*3,6-Dibutanoyl: 3,6-Di-*O*-butanoyl-D-glucose*
[108535-12-2]
$C_{14}H_{24}O_8$ 320.339
Mp 85-89°. $[\alpha]_D^{30}$ +56 (c, 1.0 in H_2O).

*Pentabenzoyl: 2,3,4,5,6-Penta-*O*-benzoyl-D-glucose*
[96810-52-5]
$C_{41}H_{32}O_{11}$ 700.697
Mp 71-81°. $[\alpha]_D^{17}$ +37.1 (EtOH).

*4,6-Isopropylidene: 4,6-*O*-Isopropylidene-D-glucose*
[53691-70-6]
$C_9H_{16}O_6$ 220.222
Cryst. (Me_2CO). Mp 174-175°. $[\alpha]_D^{23}$ +36 → -6.7 (c, 2 in H_2O). Anomeric mixt., α:β approx. 3:1.

*2,3:4,6-Di-*O*-isopropylidene: 2,3:4,6-Di-*O*-isopropylidene-D-glucopyranose*
$C_{12}H_{20}O_6$ 260.286
$[\alpha]_D$ -32.3 (c, 1.0 in $CHCl_3$).

2-Me: See 2-*O*-Methylglucose, M-255

3-Me: See 3-*O*-Methylglucose, M-256

4-Me: See 4-*O*-Methylglucose, M-257

6-Me: See 6-*O*-Methylglucose, M-259

2,3-Di-Me: See 2,3-Di-*O*-methylglucose, D-738

2,4-Di-Me: See 2,4-Di-*O*-methylglucose, D-739

2,6-Di-Me: See 2,6-Di-*O*-methylglucose, D-740

3,4-Di-Me: See 3,4-Di-*O*-methylglucose, D-741

3,6-Di-Me: See 3,6-Di-*O*-methylglucose, D-743

4,6-Di-Me: See 4,6-Di-*O*-methylglucose, D-744

2,3,4-Tri-Me: See 2,3,4-Tri-*O*-methylglucose, T-184

2,3,6-Tri-Me: See 2,3,6-Tri-*O*-methylglucose, T-186

2,4,6-Tri-Me: See 2,4,6-Tri-*O*-methylglucose, T-187

3,4,6-Tri-Me: See 3,4,6-Tri-*O*-methylglucose, T-188

2,3,4,6-Tetra-Me: See 2,3,4,6-Tetra-*O*-methylglucose, T-43

2,3,5,6-Tetra-Me: See 2,3,5,6-Tetra-*O*-methylglucose, T-44

2,3,4,5,6-Penta-Me: See 2,3,4,5,6-Penta-*O*-methylglucose, P-21

2-Benzyl: See 2-*O*-Benzylglucose, B-24

Phenylosazone: See Hexose phenylosazones, H-90

*1,2:3,4:5,6-Triisopropylidene: 1,2:3,4:5,6-Tri-*O*-isopropylidene-D-glucose*
$C_{15}H_{26}O_7$ 318.366
Obt. as a mixt. of C-1 epimers and characterised as the 1-Ac.

*Pentabenzyl: 1,2,3,4,6-Penta-*O*-benzyl-β-D-glucopyranose*
$C_{34}H_{36}O_5$ 524.655
Mp 75-78°. $[\alpha]_D$ -9.1 ($CHCl_3$).

D-Pyranose-*form*
Manuf. on a large scale from starch. Below 50°, α-D-glucose hydrate is the stable cryst. form while above 50° the anhyd. form is obt. At higher temp. β-D-glucose is formed.

6-Ac: See 6-*O*-Acetylglucose, A-19

*4,6-*O*-Benzylidene:* See 4,6-*O*-Benzylideneglucopyranose, B-26

2,3,4,6-Tetrabenzyl: See 2,3,4,6-Tetra-*O*-benzylglucose, T-22

*4,6-*O*-Ethylidene:* [13224-99-2]
$C_8H_{14}O_6$ 206.195
Cryst. (Me_2CO/EtOH). Mp 179-182° Mp 166-170°. $[\alpha]_D^{25}$ +47.3 (2 min.) → -0.2 (4h) (c, 1.79 in H_2O).

α-D-Pyranose-*form* [492-62-6]
[26655-34-5, 31178-74-2]
Cryst. (hot EtOH or H_2O). Mp 146° (anhyd.) Mp 83° (monohyd.). $[\alpha]_D^{20}$ +111.2 → +52.5 (c, 10 in H_2O).

*2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-glucopyranose*
[6207-76-7]
$C_{14}H_{20}O_{10}$ 348.306
Mp 113°. $[\alpha]_D$ +142 → +80.3 ($CHCl_3$).

Penta-Ac: See 1,2,3,4,6-Penta-*O*-acetylglucose, P-17

1-Benzoyl, 2,3,4,6-tetra-Ac: *2,3,4,6-Tetra*-O-*acetyl-1*-O-*benzoyl-α-D-glucopyranose*
[56225-80-0]
$C_{21}H_{24}O_{11}$ 452.414
Mp 60-63°. $[\alpha]_D^{18}$ +113.5 ($CHCl_3$).

2,3-Dibenzoyl, 1,4,6-tri-Ac: *1,4,6-Tri*-O-*acetyl-2,3-di*-O-*benzoyl-α-D-glucopyranose*
$C_{26}H_{26}O_{11}$ 514.485
Mp 167-168°. $[\alpha]_D$ +130.7 ($CHCl_3$).

Pentabenzoyl: *1,2,3,4,6-Penta*-O-*benzoyl-α-D-glucopyranose*
[22415-91-4]
$C_{41}H_{32}O_{11}$ 700.697
Mp 187°. $[\alpha]_D^{20}$ +138.5 ($CHCl_3$).

*1,2-*O-*Benzylidene:* See 1,2-*O*-Benzylideneglucose, B-27

1,2-Methyl orthoacetate: See 1,2-*O*-(1-Methoxyethylidene)glucopyranose, M-142

Me glycoside: See Methyl α-D-glucopyranoside, M-190

*Me glycoside, 4,6-*O-*benzylidene:* See Methyl 4,6-*O*-benzylidene-α-D-glucopyranoside, M-164

Et glycoside: See Ethyl glucoside, E-25

Allyl glycoside: See Allyl glucopyranoside, A-94

Benzyl glycoside: See Benzyl glucopyranoside, B-16

Ph glycoside: See Phenyl glucopyranoside, P-58

β-D-Pyranose-*form* [492-61-5]
[28905-12-6, 31258-47-6]
Cryst. (EtOH aq., Py at 0° or hot AcOH aq.). Mp 148-150° (anhyd.). $[\alpha]_D^{20}$ +17.5 → +52.5 (c, 10 in H_2O).

1,2,3,4-Tetra-Ac: *1,2,3,4-Tetra*-O-*acetyl-β-D-glucopyranose*
[13100-46-4]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. (Et_2O). Mp 128-129°. $[\alpha]_D^{16.5}$ +9.6 (c, 2 in $CHCl_3$).

1,2,3,6-Tetra-Ac: *1,2,3,6-Tetra*-O-*acetyl-β-D-glucopyranose*
[27086-15-3]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. (C_6H_6). Mp 131-133° (127-127.5°). $[\alpha]_D^{21.5}$ -33.5 (c, 2 in $CHCl_3$).

1,2,4,6-Tetra-Ac: *1,2,4,6-Tetra*-O-*acetyl-β-D-glucopyranose*
[27086-14-2]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. (CH_2Cl_2/Et_2O). Mp 126-127°. $[\alpha]_D^{16}$ -13 (c, 2 in $CHCl_3$).

1,3,4,6-Tetra-Ac: *1,3,4,6-Tetra*-O-*acetyl-β-D-glucopyranose*
[13036-15-2]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. (Et_2O). Mp 136-137°. $[\alpha]_D^{28}$ +35.5 (c, 2 in $CHCl_3$).

2,3,4,6-Tetra-Ac: *2,3,4,6-Tetra*-O-*acetyl-β-D-glucopyranose*
[3947-62-4]
$C_{14}H_{20}O_{10}$ 348.306
Mp 120°. $[\alpha]_D$ +2.2 → +82.7 ($CHCl_3$).

Penta-Ac: See 1,2,3,4,6-Penta-*O*-acetylglucose, P-17

1,6-Bis-O-*(3-methylbutanoyl):* *1,6-Diisopentanoylglucose*
[152502-35-7]
$C_{16}H_{28}O_8$ 348.392
Constit. of *Centaurea aspera* var. *subinermis*. Viscous gum. $[\alpha]_D^{21}$ -45 (c, 0.14 in $CHCl_3$).

1-Benzoyl: See 1-*O*-Benzoylglucose, B-8

6-Benzoyl, 1,2,3,4-tetra-Ac: *1,2,3,4-Tetra*-O-*acetyl-6*-O-*benzoyl-β-D-glucopyranose*
[71208-20-3]
$C_{21}H_{24}O_{11}$ 452.414
Mp 132°. $[\alpha]_D^{21}$ +32.9 ($CHCl_3$).

Pentabenzoyl: *1,2,3,4,6-Penta*-O-*benzoyl-β-D-glucopyranose*
[14679-57-3]
$C_{41}H_{32}O_{11}$ 700.697
Mp 157°. $[\alpha]_D^{20}$ +24 ($CHCl_3$).

*2-*O-*(4-Hydroxybenzoyl), 1*-O-*(4-hydroxy-3-methoxybenzoyl):* *2-(4-Hydroxybenzoyl)-1-vanilloyl-β-D-glucopyranose*
[208107-60-2]
$C_{21}H_{22}O_{11}$ 450.398
Constit. of the dried fruit of *Vitex rotundifolia*. Amorph. powder. λ_{max} 217 (sh); 225 (sh); 261; 299 (sh) (MeOH).

4-Tosyl, 1,2,3,6-tetra-Ac: *1,2,3,6-Tetra*-O-*acetyl-4*-O-*tosyl-β-D-glucopyranose*
$C_{21}H_{26}O_{12}S$ 502.495
Mp 117-118°. $[\alpha]_D^{18}$ -19.3 ($CHCl_3$).

6-Tosyl, 1,2,3,4- tetra-Ac: *1,2,3,4-Tetra*-O-*acetyl-6*-O-*tosyl-β-D-glucopyranose*
[6619-10-9]
$C_{21}H_{26}O_{12}S$ 502.495
Mp 203-205°. $[\alpha]_D^{20}$ +23.9 ($CHCl_3$).

Me glycoside: See Methyl β-D-glucopyranoside, M-191

*Me glycoside, 4,6-*O-*benzylidene:* See Methyl 4,6-*O*-benzylidene-α-D-glucopyranoside, M-164

Et glycoside: See Ethyl glucoside, E-25

Allyl glycoside: See Allyl glucopyranoside, A-94

Benzyl glycoside: See Benzyl glucopyranoside, B-16

Ph glycoside: See Phenyl glucopyranoside, P-58

D-Furanose-*form*

6-Ac: See 6-*O*-Acetylglucose, A-19

Et glycoside: See Ethyl glucoside, E-25

α-D-Furanose-*form* [36468-84-5]

1,2,3,5,6-Penta-O-*propanoyl:* *1,2,3,5,6-Penta*-O-*propanoyl-α-D-glucofuranose*
$C_{21}H_{32}O_{11}$ 460.477
Comly. available glucofuranosylating agent.

*1,2-*O-*Isopropylidene:* See 1,2-*O*-Isopropylideneglucofuranose, I-66

1,2:5,6-Di-O-*isopropylidene:* See 1,2:5,6-Di-*O*-isopropylideneglucofuranose, D-717

*1,2-*O-*Cyclohexylidene:* See 1,2-*O*-Cyclohexylideneglucofuranose, C-190

*1,2-*O-*Cyclohexylidene, 3-benzyl:* See 3-*O*-Benzyl-1,2-*O*-cyclohexylideneglucofuranose, B-23

*1,2-*O-*Isopropylidene, 3,5-*O-*benzylidene:* See 3,5-*O*-Benzylidene-1,2-*O*-isopropylideneglucofuranose, B-28

*1,2-*O-*Benzylidene:* See 1,2-*O*-Benzylideneglucose, B-27

Me glycoside: See Methyl glucofuranoside, M-189

Et glycoside: See Ethyl glucoside, E-25

β-D-Furanose-*form* [30412-16-9]

2,3,5,6-Tetrabenzoyl, 1-Ac: *1*-O-*Acetyl-2,3,5,6-tetra*-O-*benzoyl-β-D-glucofuranose*
[89825-82-1]
$C_{36}H_{30}O_{11}$ 638.626
Mp 130.5°. $[\alpha]_D$ -29.5 (c, 1 in $CHCl_3$).

Me glycoside: See Methyl glucofuranoside, M-189

Et glycoside: See Ethyl glucoside, E-25

L-*form* [921-60-8]
Isol. from flowers of *Grindelia robusta*. Mp 146-147° (141-143°). $[\alpha]_D^{20}$ -96 → -51.4 (H_2O).
▶ LZ6610000

Benzylphenylhydrazone: Mp 163-164°. $[\alpha]_D$ -48 (Py).

α-L-Pyranose-*form* [492-66-0]

Me glycoside: *Methyl α-L-glucopyranoside*
[36191-11-4]
$C_7H_{14}O_6$ 194.184
Mp 165-166°. $[\alpha]_D^{20}$ -157 (H_2O).

DL-*form* [58367-01-4]
Isol. from jute leaves.
Mp 113°.

[815-92-9, 8013-17-0, 39281-65-7, 41846-85-9, 41846-86-0, 53691-70-6, 53691-71-7]

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Schaffer, R. *et al., The Carbohydrates*, (Pigman, W. et al, Ed.), Academic Press, 2nd Ed., 1972, **1A**, 86 (*occur*)
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Wolfrom, M.L. *et al., Carbohydr. Res.*, 1974, **35**, 87-96 (*4,6-isopropylidene, D-pyr*)
Wander, J.D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **32**, 15-123 (*dithioacetals, rev*)
Vignon, M.R. *et al., Tet. Lett.*, 1976, 2445-2448 (*cmr*)
Mathlouthi, M. *et al., Carbohydr. Res.*, 1980, **81**, 203-212; 213-223 (*Raman*)
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Decoster, E. *et al., J. Carbohydr. Chem.*, 1983, **2**, 325-341 (*β-D-pyr pentabenzyl*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949-951 (*total synth, L-form*)
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Hajkó, J. *et al., Carbohydr. Res.*, 1999, **321**, 116-120 (*L-form, !synth*)
Takeuchi, M. *et al., Synthesis*, 1999, 351-354 (*D-form, synth*)
Ravindranathan, S. *et al., J.A.C.S.*, 2000, **122**, 1102-1215 (*cmr, comformn*)
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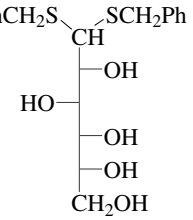
Funeaux, R.H. *et al., Carbohydr. Res.*, 2002, **337**, 1999-2004 (*α-D-fur pentapropanoyl, use*)Funeaux, R.H. *et al., J.C.S. Perkin 1*, 2002, 2011-2014 (*α-D-fur pentapropanoyl*)Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GFG000

Glucose dibenzyl dithioacetal G-515

Glucose dibenzyl mercaptal



$C_{20}H_{26}O_5S_2$ 410.554

D-*form* [6936-67-0]
Cryst. (EtOH). Mp 139°. $[\alpha]_D^{15}$ -98.4 (Py).

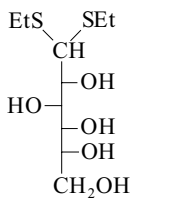
Penta-Ac:
$C_{30}H_{36}O_{10}S_2$ 620.74
Mp 64°. $[\alpha]_D^{22}$ +31.8 ($C_2H_2Cl_4$).

2,4-Benzylidene: 2,4-O-Benzylidene-D-glucose dibenzyl dithioacetal
$C_{27}H_{30}O_5S_2$ 498.663
Needles (EtOH or C_6H_6). Mp 149-150° (136°). $[\alpha]_D^{22}$ +5.2 (c, 0.99 in dioxan).

Pacsu, E. *et al., Ber.*, 1924, **57**, 849-853 (*D-form, synth*)
Zinner, H. *et al., Chem. Ber.*, 1960, **93**, 1597-1608 (*D-form, 2,4-benzylidene*)

Glucose diethyl dithioacetal G-516

Glucose diethylmercaptal, 9CI, 8CI
[1941-52-2]



$C_{10}H_{22}O_5S_2$ 286.413

D-*form*
Mp 127-128°. $[\alpha]_D$ -29.8 (H_2O).

Penta-Ac: 2,3,4,5,6-Penta-O-acetyl-D-glucose diethyl dithioacetal
[4984-72-9]
$C_{20}H_{32}O_{10}S_2$ 496.599
Mp 46-48°. $[\alpha]_D$ +10.9 ($CHCl_3$).

6-Benzoyl: 6-O-Benzoyl-D-glucose diethyl dithioacetal
[60405-33-6]
$C_{17}H_{26}O_6S_2$ 390.521
Cryst. (EtOAc). Mp 112-113°. $[\alpha]_D^{18}$ +44.2 (c, 2.2 in $CHCl_3$).

6-Benzoyl, 2,3:4,5-di-O-isopropylidene: 6-O-Benzoyl-2,3:4,5-di-O-isopropylidene-D-glucose diethyl dithioacetal
$C_{23}H_{34}O_6S_2$ 470.65
Cryst. (EtOH). Mp 70°. $[\alpha]_D^{20}$ -51.5 (c, 2.3 in $CHCl_3$).

3,5,6-Tribenzoyl: 3,5,6-Tri-O-benzoyl-D-glucose diethyl dithioacetal
[39727-32-7]
$C_{31}H_{34}O_8S_2$ 598.737
$[\alpha]_D$ -17 (c, 1.7 in $CHCl_3$).

3,4,5,6-Tetrabenzoyl: 3,4,5,6-Tetra-O-benzoyl-D-glucose diethyl dithioacetal
$C_{38}H_{38}O_9S_2$ 702.845
Cryst. ($CHCl_3$/EtOH). Mp 166-168°. $[\alpha]_D$ +23.5 (c, 1.5 in $CHCl_3$).

2,3-O-Isopropylidene: 2,3-O-Isopropylidene-D-glucose diethyl dithioacetal
[114857-36-2]
$C_{13}H_{26}O_5S_2$ 326.477
Needles (CH_2Cl_2/petrol). Mp 38-40°. $[\alpha]_D^{24}$ -40 (c, 2.11 in $CHCl_3$).

3,4-O-Isopropylidene: 3,4-O-Isopropylidene-D-glucose diethyl dithioacetal
[114857-35-1]
$C_{13}H_{26}O_5S_2$ 326.477
Syrup. $[\alpha]_D^{23}$ +29.7 (c, 2.05 in $CHCl_3$).

5,6-O-Isopropylidene: 5,6-O-Isopropylidene-D-glucose diethyl dithioacetal
[4258-03-1]
$C_{13}H_{26}O_5S_2$ 326.477
Needles (CH_2Cl_2/petrol). Mp 72-73°. $[\alpha]_D$ -11 (c, 1.01 in MeOH).

2,3:4,6-Di-O-isopropylidene: 2,3:4,6-Di-O-isopropylidene-D-glucose diethyl dithioacetal
[114857-37-3]
$C_{16}H_{30}O_5S_2$ 366.542
Syrup. $[\alpha]_D^{25}$ -53.2 (c, 1.165 in $CHCl_3$).

2,3:5,6-Di-O-isopropylidene: 2,3:5,6-Di-O-isopropylidene-D-glucose diethyl dithioacetal
[4258-02-0]
$C_{16}H_{30}O_5S_2$ 366.542
Syrup. $[\alpha]_D^{24}$ -51.2 (c, 2.54 in MeOH).

2,3:5,6-Di-O-isopropylidene, 4-Ac: 4-O-Acetyl-2,3:5,6-di-O-isopropylidene-D-glucose diethyl dithioacetal
[114952-80-6]
$C_{18}H_{32}O_6S_2$ 408.579
Syrup. $[\alpha]_D^{24}$ -34.8 (c, 1.05 in $CHCl_3$).

3,4:5,6-Di-O-isopropylidene: 3,4:5,6-Di-O-isopropylidene-D-glucose diethyl dithioacetal
[4435-02-3]
$C_{16}H_{30}O_5S_2$ 366.542
Syrup. $[\alpha]_D^{23}$ -10 (c, 1.025 in MeOH).

4,6-O-Benzylidene(R-): 4,6-O-Benzylidene-D-glucose diethyl dithioacetal
[106450-94-6]
$C_{17}H_{26}O_5S_2$ 374.521
Cryst. Mp 114-115°. $[\alpha]_D^{20}$ -9 (c, 2.09 in $CHCl_3$).

5,6-O-Benzylidene(R-): 5,6(R)-O-Benzylidene-D-glucose diethyl dithioacetal
[106450-88-8]
$C_{17}H_{26}O_5S_2$ 374.521
Flakes. Mp 108-109°. $[\alpha]_D^{24}$ +28 (c, 4.0 in $CHCl_3$).

5,6-O-Benzylidene(S-): 5,6(S)-O-Benzylidene-D-glucose diethyl dithioacetal
[106450-87-7]
$C_{17}H_{26}O_5S_2$ 374.521
Needles. Mp 91-92°. $[\alpha]_D^{24}$ +65 (c, 4.0 in $CHCl_3$).

6-Trityl: 6-O-Trityl-D-glucose diethyl dithioacetal
$C_{29}H_{36}O_5S_2$ 528.732
Solid. Mp 65-66°. $[\alpha]_D$ +25 (c, 1.2 in $CHCl_3$).

6-Trityl, 2,3,4,5-tetra-Me: 2,3,4,5-Tetra-O-methyl-6-O-trityl-D-glucose dimethyl dithioacetal
$C_{33}H_{44}O_5S_2$ 584.84
Oil. $[\alpha]_D$ -7 (c, 1.2 in $CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 276D (*ir*)
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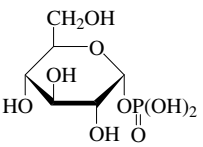
Bolliger, H.R. *et al., Helv. Chim. Acta*, 1951, **34**, 1671 (*D-tetrabenzoyl*)
Bolliger, H.R. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 186 (*D-tetrabenzoyl*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 427 (*D-form, synth, D-penta-Ac*)
Bethell, G.S. *et al., J.C.S. Perkin 1*, 1972, 2873 (*D-tribenzoyl*)
Horton, D. *et al., Carbohydr. Res.*, 1974, **36**, 75 (*ms*)
Wander, J.D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **32**, 15 (*rev*)
Ng, C.J. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 7 (*D-benzoyl, D-benzoyl diisopropylidene*)
Grindley, T.B. *et al., Can. J. Chem.*, 1986, **64**, 2388; 2397 (*D-benzylidene derivs*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1987, **167**, 105 (*D-isopropylidene derivs*)
Molina Pinilla, I. *et al., Carbohydr. Res.*, 2003, **338**, 549-555 (*6-trityl derivs*)

Glucose 1-dihydrogen phosphate G-517

Glucose-1-phosphate. Cori ester



α-D-Pyranose-*form*

$C_6H_{13}O_9P$ 260.137

D-*form* [59-56-3]
Found widely in both plants and animals. A precursor of starch in plants and of glycogen in animals.
$[\alpha]_D^{25}$ +120 (H_2O). pK_{a1} 1.11; pK_{a2} 6.13 (30°).

α-D-Pyranose-*form*
Ba salt: $[\alpha]_D^{25}$ +75 (c, 1.2 in H_2O). Forms a trihydrate.
Di-K salt: [29732-59-0]
[5996-14-5] $[\alpha]_D^{20}$ +78 (c, 4.0 in H_2O). Forms a dihydrate.

Brucine salt: $[\alpha]_D$ +0.5 (H_2O).

α-L-Pyranose-*form*
Ba salt: $[\alpha]_D$ -73.2 (c, 1.0 in H_2O).
Di-K salt: $[\alpha]_D$ -78.2 (c, 1.0 in H_2O).
Cori, C.F. *et al., J. Biol. Chem.*, 1937, **121**, 465 (*isol*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1942, **64**, 23 (*config*)
Beevers, C.A. *et al., Acta Cryst.*, 1965, **18**, 232 (*cryst struct*)
Ho, C. *et al., Biochemistry*, 1969, **8**, 2074 (*nmr*)
MacDonald, D.L. *et al., The Carbohydrates*, Academic Press, 2nd Ed., 1972, **1A**, 253 (*rev*)
Volkova, L.V. *et al., Carbohydr. Res.*, 1979, **32**, 165
Salam, M.A. *et al., Carbohydr. Res.*, 1981, **90**, 83
Sugawara, Y. *et al., Acta Cryst. C*, 1984, **40**, 389 (*cryst struct*)
Narendra, N. *et al., Acta Cryst. C*, 1984, **40**, 1338 (*cryst struct*)

Glucose 2-dihydrogen phosphate G-518

Glucose-2-phosphate

$C_6H_{13}O_9P$ 260.137

D-*form*
Di-K salt: $[\alpha]_D$ +15 (H_2O).
Farrar, K.R. *et al., J.C.S.*, 1949, 3131
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Glucose 3-dihydrogen phosphate, 9CI, 8CI G-519

Glucose-3-phosphate

$C_6H_{13}O_9P$ 260.137

D-*form* [20701-41-1]
$[\alpha]_D$ +39.5 (H_2O). pK_{a1} 0.84; pK_{a2} 5.67.
Ba salt: $[\alpha]_D$ +26.5 (H_2O).
Brucine salt: $[\alpha]_D$ -14.5 (Py aq.).
Levene, P.A. *et al., J. Biol. Chem.*, 1930, **89**, 479 (*synth*)
Tabata, S. *et al., CA*, 1972, **76**, 26622y
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Glucose 4-dihydrogen phosphate G-520

Glucose-4-phosphate

$C_6H_{13}O_9P$ 260.137

D-*form*
Brucine salt: $[\alpha]_D$ -45.3 (Py).
Raymond, A.L. *et al., J. Biol. Chem.*, 1936, **113**, 375
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Glucose 6-dihydrogen phosphate, 9CI, 8CI G-521

Glucose-6-phosphate. Robison ester

$C_6H_{13}O_9P$ 260.137

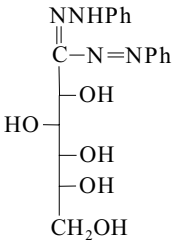
D-*form* [56-73-5]
[299-31-0, 15209-11-7]
Constit. of resting muscle and of the crude mixt. of hexose phosphates obt. by yeast fermentation.
Mp 204-207° dec. (as Na salt). $[\alpha]_D$ +35.1 (H_2O). pK_{a1} 1.5; pK_{a2} 6.22 (20°).
► LZ7160000
Ba salt: [5996-16-7]
[58823-95-3] $[\alpha]_D^{24}$ +17.9 (H_2O).

Di-K salt: [5996-17-8]
$[\alpha]_D^{24}$ +21.2 (c, 1.3 in H_2O).

[54010-71-8]

Robison, R. *et al., Biochem. J.*, 1931, **25**, 323 (*isol*)
Biochem. Prep., 1952, **2**, 39 (*synth*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)
Harvey, D.J. *et al., J. Chromatogr.*, 1973, **76**, 51 (*glc, ms*)
Lis, T. *et al., Carbohydr. Res.*, 1985, **135**, 187 (*cryst struct*)
Merck Index, 13th edn., 2001, No. 4475 (*rev*)

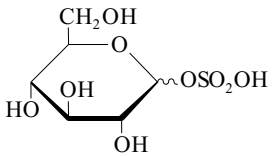
Glucose diphenylformazan G-522



$C_{18}H_{22}N_4O_5$ 374.396

D-*form*
Mp 177-178°.
Mester, L. *et al., J.A.C.S.*, 1956, **78**, 1403

Glucose 1-sulfate G-523



$C_6H_{12}O_9S$ 260.221

D-*form*
2,3,4,6-Tetra-O-*Ac:*
$C_{14}H_{20}O_{13}S$ 428.37
Mp 112-114° (as Py salt).
Penney, C.L. *et al., Carbohydr. Res.*, 1981, **93**, 241

Glucose 2-sulfate G-524

$C_6H_{12}O_9S$ 260.221

Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*cmr*)
Penney, C.L. *et al., Carbohydr. Res.*, 1981, **93**, 241

Glucose 3-sulfate G-525

$C_6H_{12}O_9S$ 260.221

D-*form*
1,2:5,6-Di-O-*isopropylidene:*
$C_{12}H_{20}O_9S$ 340.351
Obt. as Na salt. $[\alpha]_D$ 0 (c, 2 in H_2O).
Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*cmr*)
Penney, C.L. *et al., Carbohydr. Res.*, 1981, **93**, 241

Glucose 4-sulfate G-526

$C_6H_{12}O_9S$ 260.221

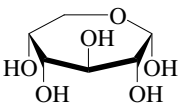
Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*cmr*)
Penney, C.L. *et al., Carbohydr. Res.*, 1981, **93**, 241

Glucose 6-sulfate G-527

$C_6H_{12}O_9S$ 260.221

Archbald, P.J. *et al., Carbohydr. Res.*, 1981, **93**, 177 (*cmr*)
Penney, C.L. *et al., Carbohydr. Res.*, 1981, **93**, 241

Glucoseptanose G-528



α-D-*form*

$C_6H_{12}O_6$ 180.157

α-D-*form* [41847-09-0]

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-α-D-glucoseptanose*
[26775-23-5]
$C_9H_{16}O_6$ 220.222
Mp 168-169°. $[\alpha]_D^{22}$ -55 (c, 1.09 in $CHCl_3$).

1,2-O-*Isopropylidene, 3,4,5-tri-Ac:* [55726-91-5]
$C_{15}H_{22}O_9$ 346.333
Mp 123-124°. $[\alpha]_D^{22}$ -25.3 (c, 0.9 in $CHCl_3$).

1,2-O-*Isopropylidene, 3,4,5-tribenzoyl: 3,4,5-Tri*-O-*benzoyl-1,2*-O-*isopropylidene-α-D-glucoseptanose*
[55726-92-6]
$C_{30}H_{28}O_9$ 532.546
Mp 136-137°. $[\alpha]_D^{22}$ -211 (c, 0.88 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-α-D-glucoseptanose*
[26775-21-3]
$C_{12}H_{20}O_6$ 260.286
Mp 146°. $[\alpha]_D^{22}$ -61.3 (c, 1.2 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene, 5-Ac: 5*-O-*Acetyl-1,2:3,4-di*-O-*isopropylidene-α-D-glucoseptanose*
[26775-24-6]
$C_{14}H_{22}O_7$ 302.324
Mp 150-151°. $[\alpha]_D^{23}$ -83.7 (c, 1.0 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene, 5-benzoyl: 5*-O-*Benzoyl-1,2:3,4-di*-O-*isopropylidene-α-D-glucoseptanose*
[55726-84-6]
$C_{19}H_{24}O_7$ 364.394
Mp 154-155°. $[\alpha]_D^{22}$ -123.8 (c, 1.1 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene, 5-(chloroacetyl):* [28642-33-3]
Mp 117-118°. $[\alpha]_D^{22}$ -83.4 (c, 1.0 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene, 5*-p-*nitrobenzoyl:* [55726-85-7]
Mp 205-206°. $[\alpha]_D^{22}$ -119.3 (c, 1.1 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene, 5-mesyl: 1,2:3,4-Di*-O-*isopropylidene-5*-O-*mesyl-α-D-glucoseptanose*
[55726-87-9]
$C_{13}H_{22}O_8S$ 338.378
Mp 125-126°. $[\alpha]_D^{22}$ -68.9 (c, 0.86 in $CHCl_3$).

1,2:3,4-Di-O-*isopropylidene, 5-tosyl: 1,2:3,4-Di*-O-*isopropylidene-5*-O-*tosyl-α-D-glucoseptanose*
[55726-86-8]
$C_{19}H_{26}O_8S$ 414.476
Mp 162-163°. $[\alpha]_D^{22}$ -64.5 (c, 1.34 in $CHCl_3$).

1,2:4,5-Di-O-*isopropylidene, 3-Ac: 3*-O-*Acetyl-1,2:4,5-di*-O-*isopropylidene-α-D-glucoseptanose*
[35280-88-7]
$C_{14}H_{22}O_7$ 302.324
Mp 159-160°. $[\alpha]_D^{22}$ -50.4 (c, 0.88 in $CHCl_3$).

2,3:4,5-Di-O-*isopropylidene, 1-Ac: 1*-O-*Acetyl-2,3:4,5-di*-O-*isopropylidene-α-D-glucoseptanose*
[55726-83-5]
$C_{14}H_{22}O_7$ 302.324
Mp 114-115°. $[\alpha]_D^{25}$ +121 (c, 1.6 in $CHCl_3$).

5-Me, 1,2:3,4-di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-5*-O-*methyl-α-D-glucoseptanose*
[55726-88-0]
$C_{13}H_{22}O_6$ 274.313
Mp 96-98°. $[\alpha]_D^{23}$ -72 (c, 0.82 in $CHCl_3$).

Me glycoside: Methyl α-D-glucoseptanoside
[55726-94-8]
$C_7H_{14}O_6$ 194.184
Mp 140-141°. $[\alpha]_D^{20}$ +19.5 (c, 0.9 in H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,5-tetra-O-*acetyl-α-D-glucoseptanoside*
[52461-65-1]
$C_{15}H_{22}O_{10}$ 362.333
Mp 137-138°. $[\alpha]_D^{22}$ +41.7 (c, 1.1 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-α-D-glucoseptanoside*
[178905-77-6]
$C_{10}H_{18}O_6$ 234.249
Syrup. $Bp_{0.05}$ 100° (bath). $[\alpha]_D^{23}$ +154.6 (c, 1.1 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, di-Ac: Methyl 4,5-di*-O-*acetyl-2,3*-O-*isopropylidene-α-D-glucoseptanoside*
[178905-78-7]
$C_{14}H_{22}O_8$ 318.323
Syrup. $Bp_{0.05}$ 120° (bath). $[\alpha]_D^{20}$ +121.4 (c, 0.8 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, dibenzoyl: Methyl 4,5-di*-O-*benzoyl-2,3*-O-*isopropylidene-α-D-glucoseptanoside*
[178905-79-8]
$C_{24}H_{26}O_8$ 442.465
Cryst. (C_6H_6/petrol). Mp 184.5°. $[\alpha]_D^{22}$ +100.2 (c, 0.8 in $CHCl_3$).

Me glycoside, 3,4-O-*isopropylidene: Methyl 3,4*-O-*isopropylidene-α-D-glucoseptanoside*
[178812-55-0]
$C_{10}H_{18}O_6$ 234.249
Prisms (EtOAc). Mp 132-133°. $[\alpha]_D^{22}$ -17.5 (c, 1.1 in H_2O).

Me glycoside, 3,4-O-*isopropylidene, di-Ac: Methyl 2,5-di*-O-*acetyl-3,4*-O-*isopropylidene-α-D-glucoseptanoside*
[178905-80-1]
$C_{14}H_{22}O_8$ 318.323
Needles (C_6H_6/petrol). Mp 85-86°.

Me glycoside, 3,4-O-*isopropylidene, dibenzoyl: Methyl 2,5-di*-O-*benzoyl-3,4*-O-*isopropylidene-α-D-glucoseptanoside*
[178812-56-1]
$C_{24}H_{26}O_8$ 442.465
Prisms (EtOAc/petrol). Mp 168°. $[\alpha]_D^{22}$ +25.3 (c, 0.8 in $CHCl_3$).

Me glycoside, 4,5-O-*isopropylidene: Methyl 4,5*-O-*isopropylidene-α-D-glucoseptanoside*
[55726-95-9]
$C_{10}H_{18}O_6$ 234.249
Needles (EtOAc/petrol). Mp 90-91°. $[\alpha]_D^{22}$ +119.4 (c, 2.1 in H_2O).

Me glycoside, 4,5-O-*isopropylidene, 2,3-di-Ac: Methyl 2,3-di*-O-*acetyl-4,5*-O-*isopropylidene-α-D-glucoseptanoside*
[55726-96-0]
$C_{14}H_{22}O_8$ 318.323
Mp 84-85°. $[\alpha]_D$ +81.9 (c, 1.04 in $CHCl_3$).

Me glycoside, 4,5-O-*isopropylidene, 2,3-dibenzoyl: Methyl 2,3-di*-O-*benzoyl-4,5*-O-*isopropylidene-α-D-glucoseptanoside*
[55726-97-1]
$C_{24}H_{26}O_8$ 442.465
Mp 162-163°. $[\alpha]_D^{22}$ +105.1 (c, 0.76 in $CHCl_3$).

Me glycoside, 2,3:4,5-di-O-*isopropylidene: Methyl 2,3:4,5-di*-O-*isopropylidene-α-D-glucoseptanoside*
[26784-78-1]
$C_{13}H_{22}O_6$ 274.313
Mp 64-65°. $[\alpha]_D^{22}$ +137 (c, 1.5 in $CHCl_3$).

5-Benzyl, 1,2-isopropylidene: 5-O-*Benzyl-1,2*-O-*isopropylidene-α-D-glucoseptanose*
$C_{16}H_{22}O_6$ 310.346
Needles (C_6H_6/petrol). Mp 120-122°. $[\alpha]_D^{23}$ -19.3 (c, 0.21 in $CHCl_3$).

5-Benzyl, 1,2:3,4-di-O-*isopropylidene: 5*-O-*Benzyl-1,2:3,4-di*-O-*isopropylidene-α-D-glucoseptanose*
$C_{19}H_{26}O_6$ 350.411
Needles. Mp 130-131°. $[\alpha]_D^{23}$ -47.1 (c, 1.3 in $CHCl_3$).

β-D-*form* [39963-90-1]

2,3:4,5-Di-O-*isopropylidene, 1-Ac: 1*-O-*Acetyl-2,3:4,5-di*-O-*isopropylidene-β-D-glucoseptanose*
[26784-77-0]
$C_{14}H_{22}O_7$ 302.324
Mp 99-100°. $[\alpha]_D^{22}$ -77.7 (c, 1.5 in $CHCl_3$).

Me glycoside: Methyl β-D-glucoseptanoside
[55726-98-2]
$C_7H_{14}O_6$ 194.184
Mp 124-126°. $[\alpha]_D^{20}$ -139 (c, 1.2 in H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,5-tetra-O-*acetyl-β-D-glucoseptanoside*
[33279-41-3]
$C_{15}H_{22}O_{10}$ 362.333
Mp 96-97°. $[\alpha]_D^{22}$ -82.7 (c, 1.1 in $CHCl_3$).

Me glycoside, 4,5-O-*isopropylidene, 3-benzoyl: Methyl 3*-O-*benzoyl-4,5*-O-*isopropylidene-β-D-glucoseptanoside*
[124030-43-9]
$C_{17}H_{22}O_7$ 338.357
Cryst. (C_6H_6). Mp 144°.

Me glycoside, 2,3:4,5-di-O-*isopropylidene: Methyl 2,3:4,5-di*-O-*isopropylidene-β-D-glucoseptanoside*
[26784-79-2]
$C_{13}H_{22}O_6$ 274.313
Mp 70-71°. $[\alpha]_D^{22}$ -112 (c, 2.0 in $CHCl_3$).

α-L-*form*

2,3:4,5-Di-O-*isopropylidene, 1-Ac:*
[144320-17-2]
$C_{14}H_{22}O_7$ 302.324
Characterised spectroscopically.

β-L-*form*

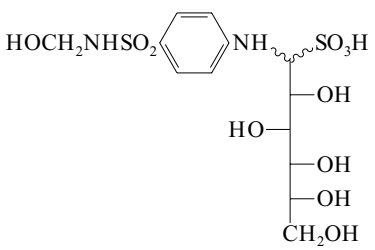
2,3:4,5-Di-O-*isopropylidene, 1-Ac:* *1*-O-*Acetyl-2,3:4,5-di*-O-*isopropylidene-β-L-glucoseptanose*
[144320-12-7]
$C_{14}H_{22}O_7$ 302.324
Foam. $[\alpha]_D^{22}$ +76 (c, 1.09 in $CHCl_3$).

[41846-84-8, 41847-07-8]

Stevens, J.D. *et al., J.C.S. Perkin 2*, 1974, 345 (*Me-α-D-gly, cryst struct*)
Stevens, J.D. *et al., Aust. J. Chem.*, 1975, **28**, 525-557 (*diisopropylidene derivs*)
Ng, C.J. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 7-14 (*Me α-D-gly, Me β-D-gly, synth*)
Foster, S.J. *et al., Acta Cryst. C*, 1983, **39**, 610-612 (*Me β-D-gly, cryst struct*)
Foster, S.J. *et al., Acta Cryst. C*, 1989, **45**, 1329-1333 (*β-D gly, 4,5-isopropylidene 3 benzoyl, β-D gly diisopropylidene, cryst struct*)
Contour, M.-O. *et al., Carbohydr. Res.*, 1990, **201**, 150-152 (*synth, pmr, Me gly diisopropylidene*)
Johnson, C.R. *et al., J.A.C.S.*, 1992, **114**, 9414-9418 (*β-L-isopropylidene, α-L-isopropylidene derivs*)
Ng, C.J. *et al., Carbohydr. Res.*, 1996, **284**, 241-248 (*isopropylidene derivs*)
Driver, G.E. *et al., Carbohydr. Res.*, 2001, **334**, 81-89 (*5-benzyl 1,2-isopropylidene, 5-benzyl diisopropylidene*)

Glucosulfamide, INN G-529

1-Deoxy-1-[[4-[[(hydroxymethyl)amino]-sulfonyl]phenyl]amino]-1-sulfoglucitol, 9CI. N^1*-(Hydroxymethyl)sulfanilamide-*N^4*-glucoside-1-sulfonic acid. Glucosulfaminol. Glycosulphamide. Ladogal†. Septimax*



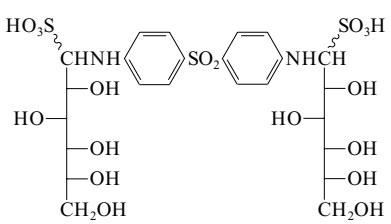
$C_{13}H_{22}N_2O_{11}S_2$ 446.456
Antibacterial agent. Log P -5.36 (uncertain value) (calc).

[7007-76-3, 40892-26-0]

Eiden, F. *et al., Pharm. Ztg.*, 1972, **117**, 1503; 1973, **118**, 638 (*anal*)

Glucosulfone, INN G-530

1,1′-[Sulfonylbis(4,1-phenyleneimino)]-bis[1-deoxy-1-sulfoglucitol]. Solfone. Protomin. Promin. Promanide. Angeli's sulfone. Aceprosol. Promamide. Tasmin. Theramin. SN 166



$C_{24}H_{36}N_2O_{18}S_3$ 736.749Log P -8.77 (uncertain value) (calc).

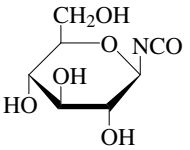
D-*form*

Di-Na salt: [554-18-7] Leprostatic agent. Amorph. sweet-tasting solid.
► LZ8100000

Swiss Pat., 1944, 234 108; *CA*, **43**, 4297a (*synth, pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AOO800

Glucosyl isocyanate G-531

[193465-48-4]



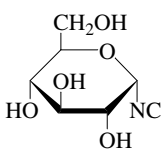
$C_7H_{11}NO_6$ 205.167

β-D-Pyranose-*form* [193465-42-8]

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl isocyanate*
[104974-80-3]
$C_{15}H_{19}NO_{10}$ 373.316
Cryst. (hexane/toluene or EtOAc/petrol). Mp 119-120°. $[\alpha]_D^{29}$ -6.7 (c, 1.0 in $CHCl_3$).

Fisher, E. *et al., Ber.*, 1914, **47**, 1377-1393 (*β-D-tetra-Ac, synth*)
Johnson, T.B. *et al., J.A.C.S.*, 1932, **54**, 3360-3363 (*β-D-tetra-Ac, synth*)
Piskala, A. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 2060-2076 (*β-D-tetra-Ac, synth*)
Ichikawa, Y. *et al., Eur. J. Org. Chem.*, 2004, 586-591 (*β-D-tetra-Ac, synth, ir, pmr, cmr*)

Glucosyl isocyanide G-532



α-D-Pyranose-*form*

$C_7H_{11}NO_5$ 189.168

α-D-Pyranose-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-glucopyranosyl isocyanide*
[66118-23-8]
$C_{15}H_{19}NO_9$ 357.316
Cryst. (EtOH). Mp 107-109°. $[\alpha]_D$ +99 (c, 0.12 in $CHCl_3$).

Tetrabenzoyl: 2,3,4,6-Tetra-O-*benzoyl-α-D-glucopyranosyl isocyanide*
[65375-78-2]
$C_{35}H_{27}NO_9$ 605.6
Solid. Mp 54-56°. $[\alpha]_D^{22}$ +70.4 (c, 1.5 in $CHCl_3$).

Tetra-Me: 2,3,4,6-Tetra-O-*methyl-α-D-glucopyranosyl isocyanide*
[71074-67-4]
$C_{11}H_{19}NO_5$ 245.275
$[\alpha]_D^{20}$ +28.1 (c, 1.8 in $CHCl_3$).

Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl-α-D-glucopyranosyl isocyanide*
[62131-06-0]
$C_{35}H_{35}NO_5$ 549.665
$[\alpha]_D^{26}$ +52.4 (c, 3.6 in $CHCl_3$).

β-D-Pyranose-*form* [65292-94-6]
Solid.

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosyl isocyanide*
[66118-22-7]
$C_{15}H_{19}NO_9$ 357.316
Cryst. (EtOH). Mp 104-105°. $[\alpha]_D^{20}$ +6.6 (c, 1.0 in $CHCl_3$). $[\alpha]_D$ +4 (c, 0.11 in $CHCl_3$).

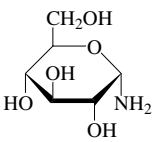
Tetrabenzoyl: 2,3,4,6-Tetra-O-*benzoyl-β-D-glucopyranosyl isocyanide*
[65375-79-3]
$C_{35}H_{27}NO_9$ 605.6
Solid. Mp 88-90°. $[\alpha]_D^{22}$ +44.7 (c, 2.5 in $CHCl_3$).

Tetra-Me: 2,3,4,6-Tetra-O-*methyl-β-D-glucopyranosyl isocyanide*
[71074-68-5]
$C_{11}H_{19}NO_5$ 245.275
Mp 85-86°. $[\alpha]_D^{20}$ +28.1 (c, 1.8 in $CHCl_3$). Identical opt. rotn. given in the lit. as for the α-anomer; presumed error.

Tetrabenzyl: 2,3,5,6-Tetra-O-*benzyl-β-D-glucopyranosyl isocyanide*
[62131-31-1]
$C_{35}H_{35}NO_5$ 549.665
$[\alpha]_D$ +22.5 (c, 2.5 in $CHCl_3$).

Martin-Lomas, M. *et al., Carbohydr. Res.*, 1977, **59**, 604-606 (*tetra-Ac*)
Nolte, R.J.M. *et al., J.O.C.*, 1978, **43**, 1972-1975 (*β-D-pyr, synth, ir, pmr, α-tetra-benzoyl, β-tetra-benzoyl*)
Boullanger, P. *et al., Tetrahedron*, 1979, **35**, 163-167 (*tetra-Me, tetrabenzyl*)
Witczak, Z.J. *et al., J. Carbohydr. Chem.*, 1984, **3**, 359-380 (*tetra-Ac, tetrabenzoyl, tetra-Me, tetrabenzyl, rev, bibl*)
Prosperi, D. *et al., Eur. J. Org. Chem.*, 2004, 395-405 (*β-D-tetra-Ac*)

Glucosylamine, 9CI G-533



α-D-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [30104-32-6]

N-*Butyl:* N-*Butyl-D-glucosylamine*
[29352-40-7]
$C_{10}H_{21}NO_5$ 235.28
Mp 88-90°. $[\alpha]_D$ -24.2 → +7.7 (H_2O).

N-*Benzyl:* N-*Benzyl-D-glucosylamine*
$C_{13}H_{19}NO_5$ 269.297
Mp 81-82°. $[\alpha]_D$ -42.7 → -22.7 (MeOH).

N-*Benzyl, 2,3,4,6-tetra-Ac: 2,3,4,6-Tetra*-O-*acetyl*-N-*benzyl-D-glucosylamine*
$C_{21}H_{27}NO_9$ 437.446
Mp 110°.

α-D-Pyranose-*form* [94131-70-1]
Syrup. $[\alpha]_D^{22}$ +112.5 (c, 0.5 in H_2O).

2,3,4,6-Tetra-Ac: [70128-27-7]
$C_{14}H_{21}NO_9$ 347.321
Mp 62.5-63°. $[\alpha]_D^{24}$ +108.7 (c, 7.5 in $CHCl_3$).

N-*Ph:* N-*Phenyl-α-D-glucopyranosylamine*
[4196-38-7]
[5154-10-9]

$C_{12}H_{17}NO_5$ 255.27
Mp 149-150°. $[\alpha]_D$ +237 (MeOH).

N-*Ph, 2,3,4,6-tetra-Ac: 2,3,4,6-Tetra*-O-*acetyl*-N-*phenyl α-D-glucopyranosylamine*
[3945-14-0]
$C_{20}H_{25}NO_9$ 423.419
Mp 149-150°. $[\alpha]_D$ +185 ($CHCl_3$).

N-*(4-Methylphenyl):* [4103-31-5]
$C_{13}H_{19}NO_5$ 269.297
Mp 140-141°. $[\alpha]_D^{20}$ +239 (MeOH).

N-*(4-Methylphenyl), 2,3,4,6-tetra-Ac:*
$C_{21}H_{27}NO_9$ 437.446
Mp 143-144°. $[\alpha]_D$ +177 ($CHCl_3$).

N-*(4-Nitrophenyl):* [4103-33-7]
$C_{12}H_{16}N_2O_7$ 300.268
Mp 193-194°. $[\alpha]_D$ +342 (MeOH).

N-*(4-Nitrophenyl), 2,3,4,6-tetra-Ac:*
$C_{20}H_{24}N_2O_{11}$ 468.416
Mp 168-169°. $[\alpha]_D$ +300 ($CHCl_3$).

β-D-Pyranose-*form* [7284-37-9]
Mp 128-129°. $[\alpha]_D^{20}$ +20.2 (H_2O).

N-*Formyl:* [65293-32-5]
$C_7H_{13}NO_6$ 207.183
Mp 182-183° dec. $[\alpha]_D^{20}$ -2 (c, 0.5 in H_2O).

N-*Ac:* N-*Acetyl-β-D-glucopyranosylamine.* N-*β-Glucopyranosylacetamide, 9CI*
[6983-36-4]
$C_8H_{15}NO_6$ 221.21
Mp 260° (256°). $[\alpha]_D$ -22.8 (H_2O).

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-glucopyranosylamine*
[51642-81-0]
$C_{14}H_{21}NO_9$ 347.321
Cryst. (EtOH). Mp 122-124°. $[\alpha]_D$ +18 (c, 0.5 in $CHCl_3$).

2,3,4,6-Tetra-Ac, N-*formyl: 2,3,4,6-Tetra*-O-*acetyl*-N-*formyl-β-D-glucosylamine*
$C_{15}H_{21}NO_{10}$ 375.332
Solid. Mp 146-148°. $[\alpha]_D^{20}$ +20.7 (c, 0.5 in $CHCl_3$).

N,*2,3,4,6-Penta-Ac:* N-*Acetyl-2,3,4,6-tetra*-O-*acetyl-β-D-glucopyranosylamine*
[6983-35-3]
$C_{16}H_{23}NO_{10}$ 389.358
Mp 163-164°. $[\alpha]_D$ +17.4 ($CHCl_3$).

N-*Benzoyl:* N-*β-D-Glucopyranosylbenzamide, 9CI*
[15354-97-9]
$C_{13}H_{17}NO_6$ 283.28
Prisms (EtOH). Mp 228°.

N-*Me:* [114761-39-6]
$C_7H_{15}NO_5$ 193.199
Mp 79-81°. $[\alpha]_D^{20}$ -11 (c, 0.5 in H_2O).

N-*Ph:* N-*Phenyl-β-D-glucopyranosylamine*
[4132-46-1]
$C_{12}H_{17}NO_5$ 255.27
Mp 135-136°. $[\alpha]_D$ -105 (MeOH).

N-*Ph, 2,3,4,6-tetra-Ac: 2,3,4,6-Tetra*-O-*acetyl*-N-*phenyl-β-D-glucopyranosylamine*
[42891-46-3]
$C_{20}H_{25}NO_9$ 423.419
Mp 93-94°. $[\alpha]_D$ -57.3 ($CHCl_3$).

N-*(4-Hydroxyphenyl):*
$C_{12}H_{17}NO_6$ 271.269
Mp 149-150°. $[\alpha]_D$ -102 (MeOH).

N-*(4-Methylphenyl):* [3228-62-4]
Mp 112-113°. $[\alpha]_D$ -102 (MeOH).

N-*(4-Methylphenyl), 2,3,4,6-tetra-Ac:* [3255-90-1]
Mp 150-151°. $[\alpha]_D$ -50.2 ($CHCl_3$).

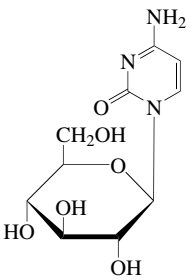
N-*(4-Nitrophenyl):* [4192-56-7]
Mp 160-161°. $[\alpha]_D$ -161 (MeOH).

N-*(4-Nitrophenyl), 2,3,4,6-tetra-Ac:* [26302-39-6]
Mp 180-181°. $[\alpha]_D$ -119 ($CHCl_3$).

Brigl, P. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1929, **180**, 38 (*D-penta-Ac*)
Pigman, W.W. *et al., J.A.C.S.*, 1951, **73**, 1976 (*D-form, synth*)
Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*rev, derivs*)
Onodera, K. *et al., J.O.C.*, 1960, **25**, 1322-1325 (*N-acyl derivs*)
Capon, B. *et al., J.C.S.*, 1965, 4492 (*N-aryl derivs*)
Takeda, T. *et al., Can. J. Chem.*, 1980, **58**, 2600-2603 (*α-D-tetra-Ac*)
Sawaki, M. *et al., Bull. Chem. Soc. Jpn.*, 1984, **32**, 3698-3701 (*α-D-pyr-form, synth, pmr, cmr*)
Caballero, R.B. *et al., Carbohydr. Res.*, 1986, **154**, 280-288 (*β-D-tetra-Ac*)
Lubineau, A. *et al., Carbohydr. Res.*, 1995, **266**, 211-219 (***synth, β-D-penta-Ac***)
Sriram, D. *et al., Acta Cryst. C*, 1997, **53**, 1075-1077 (*cryst struct, β-D-pyr N-Ac*)
Maunier, V. *et al., J. Carbohydr. Chem.*, 1997, **16**, 231-235 (*N-acyl derivs, synth*)
Sriram, D. *et al., Acta Cryst. C*, 1998, **54**, 1670-1672 (*β-D-Pyr N-benzoyl, synth, pmr, cmr, cryst struct*)
Avalos, M. *et al., Tetrahedron*, 1998, **54**, 615-628 (*β-D-Pyr-form, N-derivs, synth, nmr*)
Isac-Garcia, J. *et al., Eur. J. Org. Chem.*, 2001, 383-390 (*β-D-penta-Ac*)
Prosperi, D. *et al., Eur. J. Org. Chem.*, 2004, 395-405 (*β-D-Pyr tetra-Ac N-formyl*)

1-Glucosylcytosine G-534

*4-Amino-1-glucosyl-2(1*H*)-pyrimidinone, 9CI*



β-D-Pyranose-*form*

$C_{10}H_{15}N_3O_6$ 273.245

α-D-Pyranose-*form*
*4-Amino-1-α-D-glucopyranosyl-2(1*H*)-pyrimidinone*
[59906-10-4]
Mp 238-240°. $[\alpha]_D^{25}$ +69.2 (c, 0.7 in H_2O).

*4-*N,*2′,3′,4′,6′-Penta-Ac:* [59881-36-6]
$C_{20}H_{25}N_3O_{11}$ 483.431
Cryst. Mp 175-176°. $[\alpha]_D^{26}$ -25 (c, 0.3 in $CHCl_3$).

β-D-Pyranose-*form* *4-Amino-1-β-D-glucopyranosyl-2(1*H*)-pyrimidinone*
[3319-89-9]
Hygroscopic prisms (EtOH). Mp 194-195° Mp 197-199° (dimorph.). $[\alpha]_D^{21}$ +25.6 (c, 2.0 in H_2O).

Hydrochloride: Mp 200-201° (dec.). $[\alpha]_D^{26}$ +20.

Nitrate:
Cryst. + $1H_2O$ (EtOH aq.). Mp 143°. $[\alpha]_D^{23}$ +21.3 (c, 2.3 in H_2O).

Picrate:
Cryst. needles (EtOH). Mp 216-218° (dec.).

*4-*N,*2′,3′,4′,6′-Penta-Ac:* [3180-75-4]
Cryst. (EtOH). Mp 225°. $[\alpha]_D^{23}$ +38.1 (c, 1.7 in $CHCl_3$).

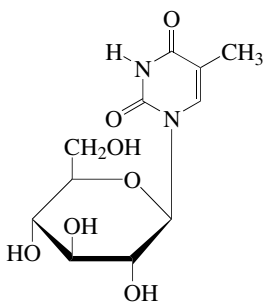
*4-*N-*Benzoyl:* [53989-91-6]
$C_{17}H_{19}N_3O_7$ 377.353
Cryst. (EtOH). Mp 191-192°. $[\alpha]_D^{20}$ +28 (c, 1 in DMF).

4′,6′-Benzylidene: [53928-66-8]
$C_{17}H_{19}N_3O_6$ 361.354
Cryst. (MeOH). Mp 270° (dec.). $[\alpha]_D^{20}$ -48 (c, 1 in $CHCl_3$).

Davall, J. *et al., J.C.S.*, 1946, 833 (*synth*)
Lichtenthaller, F.W. *et al., Bull. Chem. Soc. Jpn.*, 1974, **47**, 2304-2310 (*derivs*)
Stevens, C.L. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1976, **3**, 71-75 (*synth, penta-Ac, uv*)

1-Glucosylthymine G-535

*1-Glucosyl-5-methyl-2,4(1*H*,3*H*)-pyrimidinedione*



$C_{11}H_{16}N_2O_7$ 288.257

β-D-Pyranose-*form*
*1-β-D-Glucopyranosyl-5-methyl-2,4(1*H*,3*H*)-pyrimidinedione, 9CI*
[3180-78-7]
Cryst. (EtOH). Mp 271°. $[\alpha]_D$ +15.7 (c, 1.00 in H_2O).

2′,3′,4′,6′-Tetra-Ac: [3180-74-3]
$C_{19}H_{24}N_2O_{11}$ 456.405
Cryst. + ½ H_2O (EtOH/Et_2O). Mp 156-158° (hemihydrate). $[\alpha]_D^{20}$ -14.6 (c, 2.75 in $CHCl_3$). $[\alpha]_D^{30}$ -10 (c, 1.9 in $CHCl_3$).

6′-Tosyl: [59148-67-3]
$C_{18}H_{22}N_2O_9S$ 442.446
Cryst. (EtOH). Mp 213-214°.

2′,6′-Ditosyl: [59148-65-1]
$C_{25}H_{28}N_2O_{11}S_2$ 596.635
Cryst. (2-propanol). Mp 135°.

4′,6′-Isopropylidene: [139613-55-1]
$C_{14}H_{20}N_2O_7$ 328.321
Hemihydrate. Mp 105-107°. $[\alpha]_D^{20}$ +7.5 (c, 0.1 in MeOH).

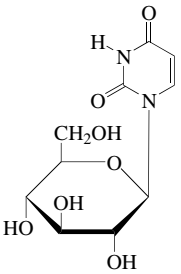
4′,6′-Benzylidene: [64096-48-6]
$C_{18}H_{20}N_2O_7$ 376.365
Mp 297-299° (dec.). $[\alpha]_D^{21}$ -12 (c, 1 in DMF).

Fox, J.J. *et al., J.A.C.S.*, 1956, **78**, 2117-2122 (*synth*)
Etzold, G. *et al., J. Phys. Chem.*, 1976, **318**, 79-86 (*acyl derivs*)

Chow, K. *et al., J.O.C.*, 1990, **55**, 4211 (*ms*)
Yamazaki, T. *et al., J.C.S. Perkin 1*, 1997, 1654-1659 (*β-D-pyr, synth, 4′,6′-benzylidene*)

1-Glucosyluracil G-536

1-Glucosyl-2,4(1H,3H)-pyrimidinedione, 9CI



β-D-Pyranose-*form*

$C_{10}H_{14}N_2O_7$ 274.23

α-D-Pyranose-*form*

1-α-D-Glucopyranosyl-2,4(1H,3H)-pyrimidinedione
[59906-11-5]
Cryst. Mp 208-210°. $[\alpha]_D^{25}$ +74.

β-D-Pyranose-*form*

1-β-D-Glucopyranosyl-2,4(1H,3H)-pyrimidinedione
[3180-77-6]
Prisms + ½H_2O (MeOH). Mp 207-209° (anhydr.) Mp *ca.*° 200 (hemihydrate). $[\alpha]_D^{15}$ +22.2 (c, 1.52 in H_2O). pK_a 9.15 (H_2O). pK_a 10 (50% aq. MeOH).

Picrate: Mp 214° (dec.).

2′,3′,4′,6′-Tetra-Ac: [3180-73-2]
$C_{18}H_{22}N_2O_{11}$ 442.379
Prisms (EtOH aq.). Mp 154-155°.

4′,6′-Isopropylidene:
$C_{13}H_{18}N_2O_7$ 314.294
Cryst. Mp 220-223°. $[\alpha]_D^{20}$ -2.5 (c, 0.1 in MeOH).

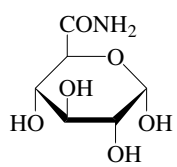
4′,6′-Benzylidene: [3493-02-5]
$C_{17}H_{18}N_2O_7$ 362.338
Needles (MeOH). Mp 278-281° (dec.). $[\alpha]_D^{22}$ -8 (c, 1.0 in DMF).

2′-Deoxy:
$C_{10}H_{14}N_2O_6$ 258.23
Mp 169-170°.

Fox, J.J. *et al., J.A.C.S.*, 1953, **75**, 4315-4317 (*synth*)
Stevens, C.L. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1976, **3**, 71-75 (*α-D-pyr*)
Vuilhorgne, M. *et al., Carbohydr. Res.*, 1981, **97**, 19-30 (*tetra-Ac*)

Glucuronamide, 9CI, BAN, INN G-537

[3789-97-7]



α-Pyranose-*form*

$C_6H_{11}NO_6$ 193.156

α-D-Pyranose-*form*

α-D-Glucopyranuronamide
[52305-42-7]

Me glycoside, 4-Me: Methyl 4-O-methyl-α-D-glucopyranosiduronamide
$C_8H_{15}NO_6$ 221.21
Mp 236°. $[\alpha]_D$ +150 (H_2O).

Me glycoside, 3,4-di-Me: Methyl 3,4-di-O-methyl-α-D-glucopyranosiduronamide
$C_9H_{17}NO_6$ 235.236
Mp 191-193°. $[\alpha]_D$ +100 (H_2O).

Me glycoside, 2,3,4-tri-Me: Methyl 2,3,4-tri-O-methyl-α-D-glucopyranosiduronamide
$C_{10}H_{19}NO_6$ 249.263
Mp 183°. $[\alpha]_D$ +137.5 (H_2O).

β-D-Pyranose-*form*

Guronamin. Rental. Startal
[61914-43-0] Detoxicant.
Cryst. + 1H_2O (MeOH). Mp 168-169° dec Mp 173-174° (anhydr.).

Me glycoside: Methyl β-D-glucopyranosiduronamide
$C_7H_{13}NO_6$ 207.183
$[\alpha]_D$ -72 (c, 0.4 in MeOH).

Me glycoside, 4-Me: Methyl 4-O-methyl-β-D-glucopyranosiduronamide
$C_8H_{15}NO_6$ 221.21
Mp 232°. $[\alpha]_D$ -50 (H_2O).

Me glycoside, 2,3,4-tri-Me: Methyl 2,3,4-tri-O-methyl-β-D-glucopyranosiduronamide
$C_{10}H_{19}NO_6$ 249.263
Mp 193°. $[\alpha]_D$ -47 (H_2O).

α-D-Furanose-*form*

1,2-O-Cyclohexylidene: 1,2-O-Cyclohexylidene-α-D-glucofuranuronamide
$C_{12}H_{19}NO_6$ 273.285
Cryst. (EtOH). Mp 168-169°. $[\alpha]_D^{20}$ -3.4 (c, 1.0 in MeOH).

1,2-O-Cyclohexylidene, 5-mesyl: 1,2-O-Cyclohexylidene-5-O-mesyl-α-D-glucofuranuronamide
$C_{13}H_{21}NO_8S$ 351.377
Cryst. (MeOH). Mp 154-157° dec. $[\alpha]_D^{20}$ -10.3 (c, 1.1 in MeOH).

1,2-O-Cyclohexylidene, 3,5-dimesyl: 1,2-O-Cyclohexylidene-3,5-di-O-mesyl-α-D-glucofuranuronamide
$C_{14}H_{23}NO_{10}S_2$ 429.468
Mp 153-154°. $[\alpha]_D^{20}$ -15 (c, 2.4 in MeOH).

Me glycoside, 2,5-di-Me: Methyl 2,5-di-O-methyl-α-D-glucofuranosiduronamide
$C_9H_{17}NO_6$ 235.236
Cryst. (EtOH/Et_2O/petrol). Mp 121°. $[\alpha]_D^{16}$ +149.5 (c, 1.2 in H_2O).

1,2-O-Isopropylidene, 3-Ac: 3-O-Acetyl-1,2-O-isopropylidene-α-D-glucofuranuronamide
[19322-09-9]
$C_{11}H_{17}NO_7$ 275.258
Cryst. (MeOH). Mp 181° dec. $[\alpha]_D^{22}$ +23.3 (c, 2 in Py).

β-D-Furanose-*form*

Me glycoside, 2,3-di-Ac: Methyl 2,3-di-O-acetyl-β-D-glucofuranosiduronamide
[19325-73-6]
$C_{11}H_{17}NO_8$ 291.257
Cryst. (EtOAc). Mp 141°. $[\alpha]_D^{22}$ -44.8 (c, 4 in $CHCl_3$).

Me glycoside, 2-mesyl: Methyl 2-O-mesyl-β-D-glucofuranosiduronamide
[19325-77-0]
$C_8H_{15}NO_8S$ 285.274
Cryst. (EtOAc). Mp 104°. $[\alpha]_D^{22}$ -45 (c, 2 in $CHCl_3$).

Me glycoside, 5-benzyl: Methyl 5-O-benzyl-β-D-glucofuranosiduronamide
[19322-05-5]
$C_{14}H_{19}NO_6$ 297.307
Cryst. (Me_2CO/diisopropyl ether). Mp 122°. $[\alpha]_D^{22}$ -74 (c, 1.6 in H_2O).

Me glycoside, 5-benzyl, 2-Ac: Methyl 2-O-acetyl-5-O-benzyl-β-D-glucofuranosiduronamide
[19322-06-6]
$C_{16}H_{21}NO_7$ 339.344
Cryst. (EtOAc). Mp 141°. $[\alpha]_D^{22}$ -32 (c, 2 in $CHCl_3$).

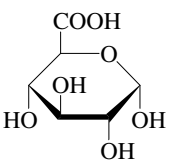
Me glycoside, 2,5-di-Me: Methyl 2,5-di-O-methyl-β-D-glucofuranosiduronamide
$C_9H_{17}NO_6$ 235.236
Mp 95°.

Me glycoside, 5-benzyl, 2,3-di-Ac: Methyl 2,3-di-O-acetyl-5-O-benzyl-β-D-glucofuranosiduronamide
[19322-08-8]
$C_{18}H_{23}NO_8$ 381.382
Cryst. (MeOH). Mp 164°. $[\alpha]_D^{22}$ -57.4 (c, 2 in $CHCl_3$).

Smith, F. *et al., J.C.S.*, 1944, 584 (*α-D-Me fur di-Me*)
Hardegger, E. *et al., Helv. Chim. Acta*, 1950, **33**, 337 (*β-D-Me pyr*)
Smith, F. *et al., J.C.S.*, 1951, 2646 (*α-D-Me pyr Me ethers, β-D-Me pyr Me ethers*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 131 (*Me ethers, rev*)
Fieser, M. *et al., J.A.C.S.*, 1956, **78**, 2825 (*β-D-pyr, synth*)
Paulsen, H. *et al., Chem. Ber.*, 1966, **99**, 908 (*α-D-fur-cyclohexylidene derivs*)
Della Pietra, G. *et al., Biochem. Pharmacol.*, 1967, **16**, 1571 (*rev, pharmacol*)
Weidmann, H. *et al., Monatsh. Chem.*, 1968, **99**, 509 (*1,2-Isopropylidene 3-Ac, Me furanoside 5-benzyl*)
Flippen, J.L. *et al., Acta Chem. Scand., Ser. B*, 1974, **30**, 537 (*α-D-pyr, cryst struct*)

Glucuronic acid, 9CI, 8CI G-538

Glycuronic acid



α-Pyranose-*form*

$C_6H_{10}O_7$ 194.141

D-*form* [6556-12-3]
Widely distributed in plants, where it occurs in gums, mucilages, saponins and flavone glycosides and in animals as a constit. of mucopolysaccharides. Glycosides are formed in the liver to detoxify poisonous hydroxyl-containing substances. Phenyl, cresyl and indoxyl glycosides are present in normal urine. Used in hplc to determine enantiomeric purity of dopamine agonists.

Mp 165° (146°). $[\alpha]_D^{24}$ +11.7 → +36.3 (2 d) (H_2O). pK_a 3.18 (20°).

Na salt: [14984-34-0]
Monohydrate. $[\alpha]_D^{20}$ -0.6 → +22.5 (H_2O).

Ba salt: [29600-83-7]
$[\alpha]_D^{20}$ +17.5 (H_2O).

Hydrazide:
$C_6H_{12}N_2O_6$ 208.171
$[\alpha]_D$ -50 (c, 0.5 in H_2O).

4-Nitrophenylhydrazone: Mp 224-225°.

Me ester: Methyl glucuronate. Methyl glucopyranuronate
[28905-07-9]
$C_7H_{12}O_7$ 208.168
Characterised as derivs.

Amide: See Glucuronamide, G-537

6,3-Lactone: See Glucurono-6,3-lactone, G-539

*1-Ac: 1-*O*-Acetyl-*D*-glucuronic acid*
$C_8H_{12}O_8$ 236.178
$[\alpha]_D$ +25 (c, 1 in H_2O).

*2,3,4-Tri-Ac, Me ester: Methyl (2,3,4-tri-*O*-acetyl-α-*D*-glucopyranosid)uronate*
Mp 98-100°. $[\alpha]_D^{20}$ +81.2 (c, 0.105 in $CHCl_3$).

*2-Me: 2-*O*-Methyl-*D*-glucuronic acid*
$C_7H_{12}O_7$ 208.168
Component of the glycolipids of *Flavobacterium columnare*.

*3-Me: 3-*O*-Methyl-*D*-glucuronic acid*
$C_7H_{12}O_7$ 208.168
$[\alpha]_D$ +6 (H_2O).

*4-Me: 4-*O*-Methyl-*D*-glucuronic acid*
[4120-73-4]
$C_7H_{12}O_7$ 208.168
Common component of plant polysaccharides.
$[\alpha]_D$ +45 (H_2O).

*2,3-Di-Me: 2,3-Di-*O*-methyl-*D*-glucuronic acid*
[16274-04-7]
$C_8H_{14}O_7$ 222.194
$[\alpha]_D$ +42 (H_2O).

*3,4-Di-Me: 3,4-Di-*O*-methyl-*D*-glucuronic acid*
$C_8H_{14}O_7$ 222.194
Mp 184°. $[\alpha]_D$ +60 (H_2O).

*2,3,4-Tri-Me: 2,3,4-Tri-*O*-methyl-*D*-glucuronic acid*
[20907-95-3]
$C_9H_{16}O_7$ 236.221
$[\alpha]_D$ +58 (H_2O).

*2,3,4-Tribenzyl, benzyl ester: Benzyl 2,3,4-tri-*O*-benzyl-*D*-glucuronate*
$C_{34}H_{34}O_7$ 554.638
Mp 124-125°. $[\alpha]_D$ -12.

α-D-*form*

*Tetra-Ac, Me ester: Methyl 1,2,3,4-tetra-*O*-acetyl-α-*D*-glucopyranuronate*
$C_{15}H_{20}O_{11}$ 376.316
Mp 111-112°. $[\alpha]_D^{24}$ +98 ($CHCl_3$).

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-*D*-glucuronic acid*
$C_9H_{14}O_7$ 234.205
Mp 146-147°. $[\alpha]_D^{20}$ -7.4 (c, 2.3 in H_2O).

*1,2-*O*-Isopropylidene, 3,4-dimesyl: 1,2-*O*-Isopropylidene-3,4-di-*O*-mesyl-α-*D*-glucuronic acid*
$C_{11}H_{18}O_{11}S_2$ 390.389
$[\alpha]_D^{20}$ -13.4 (c, 2.6 in MeOH).

*1,2-*O*-Isopropylidene, 3,4-*O*-benzylidene: 3,4-*O*-Benzylidene-1,2-*O*-isopropylidene-α-*D*-glucuronic acid*
$C_{16}H_{18}O_7$ 322.314
Mp 170°. $[\alpha]_D^{20}$ +30.3 (Me_2CO).

*1,2-*O*-Isopropylidene, 3,5-*O*-benzylidene, benzyl ester: Benzyl 3,5-*O*-benzylidene-1,2-*O*-isopropylidene-α-*D*-gluconate*
$C_{23}H_{24}O_7$ 412.438
Cryst. (cyclohexane). Mp 138-139°. $[\alpha]_D^{20}$ +16.8 (c, 2 in $CHCl_3$).

Me glycoside: See Methyl glucopyranosiduronic acid, M-192

β-D-Pyranose-*form*

β-D-Glucopyranuronic acid

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-β-D-glucopyranuronate*
$C_{14}H_{18}O_{11}$ 362.29
Fine powder.

*Tetra-Ac, Me ester: Methyl 1,2,3,4-tetra-*O*-acetyl-β-D-glucopyranuronate*
[7355-18-2]
$C_{15}H_{20}O_{11}$ 376.316
Mp 178°. $[\alpha]_D^{24}$ +8.7 ($CHCl_3$).

Me glycoside: See Methyl glucopyranosiduronic acid, M-192

Benzyl glycoside: See Benzyl glucopyranosiduronic acid, B-17

*6→1 Lactone, tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-glucopyranurono-6,1-lactone*
$C_{12}H_{14}O_9$ 302.237
Cryst. (EtOH). Mp 127°. $[\alpha]_D^{20}$ -66 (c, 2 in $CHCl_3$).

α-D-Furanose-*form*

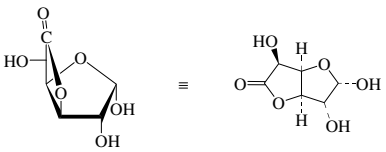
α-D-Glucofuranuronic acid

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-D-glucofuranuronic acid*
$C_9H_{14}O_7$ 234.205
Mp 145-146° (140-142°).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 817B (*nmr*)
Zervas, L. *et al., Ber.*, 1933, **66**, 1326 (*D-isopropylidene-benzylidene*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 282; 285 (*rev*)
Mehltretter, C.L. *et al., J.A.C.S.*, 1951, **73**, 2424 (*D-form, D-isopropylidene salts*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 131 (*D-Me ethers, rev*)
Teague, R.S. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 185 (*α-D-tetra-Ac, β-D-tetra-Ac, conjugates, rev*)
Pravdić, N. *et al., Tetrahedron*, 1965, **21**, 1897 (*esters, D-form benzyl ester tribenzyl*)
Glucuronic Acid, Free Comb., (Dutton, G.J., Ed.), Academic Press, New York, 1966, 629 (*book*)
Timpe, W. *et al., Carbohydr. Res.*, 1975, **39**, 53 (*D-isopropylidene-benzylidene benzyl ester*)
Keglević, D. *et al., Carbohydr. Res.*, 1978, **64**, 319 (*D-form benzyl ester tribenzyl*)
Kegelević, D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1979, **36**, 57 (*rev, glucosiduronic acids*)
Compernolle, F. *et al., Carbohydr. Res.*, 1980, **83**, 135 (*D-Ac*)
Baggett, N. *et al., Carbohydr. Res.*, 1982, **108**, 59 (*α-D-fur isopropylidene*)
Tajmir-Riahi, H. *et al., Carbohydr. Res.*, 1983, **122**, 241; 1984, **125**, 13 (*cryst struct, ir*)
Gerding, T.K. *et al., J. Chromatogr.*, 1989, **487**, 125 (*use*)
Vogel, C. *et al., J. Carbohydr. Chem.*, 1992, **11**, 287-303 (*6,1-lactone tri-Ac*)
Davis, N.J. *et al., Tet. Lett.*, 1993, **34**, 1181 (*synth, Me ester*)
Trynda, A. *et al., Carbohydr. Res.*, 2000, **329**, 249-252 (*tri-Ac, Me ester, synth, cryst struct, pmr, cmr*)
Malkinson, J.P. *et al., J.O.C.*, 2000, **65**, 5249-5252 (*tetra-Ac, synth, ms, pmr*)
Root, Y.Y. *et al., Carbohydr. Res.*, 2002, **337**, 2343-2346 (*β-D-Pyr tetra-Ac Me ester, cryst struct*)
Vinogradov, E. *et al., Carbohydr. Res.*, 2003, **338**, 2653-2658 (*2-Me, occur*)

Glucurono-6,3-lactone, 9CI, 8CI G-539

Glucurolactone, INN. *Glucuronolactone. Dicurone. Glucoxyguronsan. Glucurone. Many other names*
[63-29-6]



α-D-Furanose-*form*

$C_6H_8O_6$ 176.126
Antiarthritic drug, detoxicant.

D-*form* [32449-92-6]
Found in many plant gums in polymeric combination with other carbohydrates. Important structural constituent of practically all fibrous and connective tissues in the animal organism. Readily obt. from glucose. Inexpensive starting material for synthesis.
Mp 177°. $[\alpha]_D^{22}$ +19.4 (H_2O).
▶ LD_{50} (rat, orl) 10700 mg/kg. LZ8930000

Oxime:
$C_6H_9NO_6$ 191.14
Mp 151°. $[\alpha]_D$ +14.4 (H_2O).

*5-Benzyl: 5-*O*-Benzyl-D-glucurono-6,3-lactone*
$C_{13}H_{14}O_6$ 266.25
Mp 98-99.5°. $[\alpha]_D^{20}$ -3 (c, 2.0 in Py) (5 min.).

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-D-glucofuranurono-6,3-lactone*
[20513-98-8]
Needles (Et_2O/petrol). Mp 120°. $[\alpha]_D^{18}$ +70 (c, 1.0 in H_2O).

*5-Pivaloyl, 1,2-isopropylidene: 1,2-*O*-Isopropylidene-5-O-pivaloyl-α-D-glucofuranurono-6,3-lactone*
$C_{14}H_{20}O_7$ 300.308
$[\alpha]_D$ +90 (c, 1 in MeOH).

α-D-*form*

*1,2,5-Tri-Ac: 1,2,5-Tri-*O*-acetyl-α-D-glucurono-6,3-lactone*
$C_{12}H_{14}O_9$ 302.237
Mp 110-112°. $[\alpha]_D^{24}$ +203.6 ($CHCl_3$).

*1,2-*O*-Cyclohexylidene: 1,2-*O*-Cyclohexylidene-α-D-glucurono-6,3-lactone*
$C_{12}H_{16}O_6$ 256.255
Cryst. (EtOAc). Mp 148-149°. $[\alpha]_D^{20}$ +48.1 (c, 2.0 in $CHCl_3$).

1,2-O-Cyclohexylidene, 5-mesyl: 1,2-O-Cyclohexylidene-5-O-mesyl-α-D-glucurono-1,5-lactone
$C_{13}H_{18}O_8S$ 334.346
Mp 139-140°. $[\alpha]_D^{20}$ +43.4 (c, 2.1 in $CHCl_3$).

1,2-O-Cyclohexylidene, 5-benzyl: 5-O-Benzyl-1,2-O-cyclohexylidene-α-D-glucurono-1,5-lactone
$C_{19}H_{22}O_6$ 346.379
Cryst. (cyclohexane). Mp 94-95°. $[\alpha]_D^{20}$ +48.5 (c, 2.0 in $CHCl_3$).

β-D-*form*

1,2,5-Tri-Ac: 1,2,5-Tri-O-acetyl-β-D-glucurono-6,3-lactone
$C_{12}H_{14}O_9$ 302.237
Mp 194-195°. $[\alpha]_D^{23}$ +84.1 ($CHCl_3$).

α-D-Furanose-*form*

Me glycoside: Methyl α-D-glucofuranosidurono-6,3-lactone
$C_7H_{10}O_6$ 190.152
Mp 148°. $[\alpha]_D^{23}$ +149 (H_2O). $[\alpha]_D^{23}$ +167 (EtOH).

Me glycoside, 5-benzyl, 2-Me: Methyl 5-O-benzyl-2-O-methyl-α-D-glucofuranosidurono-6,3-lactone
$C_{15}H_{18}O_6$ 294.304
Mp 117-118°. $[\alpha]_D^{20}$ +107.1 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,5-di-Me: Methyl 2,5-di-O-methyl-α-D-glucofuranosidurono-6,3-lactone
$C_9H_{14}O_6$ 218.206
Mp 129-130°. $[\alpha]_D^{24}$ +151 (c, 0.4 in $CHCl_3$).

β-D-Furanose-*form*

Me glycoside: Methyl β-D-glucofuranosidurono-6,3-lactone
$C_7H_{10}O_6$ 190.152
Mp 139°. $[\alpha]_D^{23}$ -59 (H_2O). $[\alpha]_D^{23}$ -61 (EtOH).

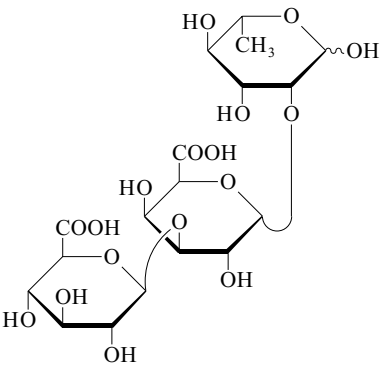
Me glycoside, 5-benzyl, 2-Me: Methyl 5-O-benzyl-2-O-methyl-β-D-glucofuranosidurono-6,3-lactone
$C_{15}H_{18}O_6$ 294.304
Syrup. $[\alpha]_D^{20}$ -7.5 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,5-di-Me: Methyl 2,5-di-O-methyl-β-D-glucofuranosidurono-6,3-lactone
$C_9H_{14}O_6$ 218.206
Mp 90-91°. $[\alpha]_D^{24}$ -2.3 (c, 0.9 in $CHCl_3$). $[\alpha]_D^{24}$ +2 (c, 1.0 inH_2O).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 705C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1139B (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 282
Reeves, R.E. *et al., J.A.C.S.*, 1940, **62**, 1616 (*β-D-fur Me gly di-Me*)
Owen, L.N. *et al., J.C.S.*, 1941, 339 (*α-D-1,2-isopropylidene, synth*)
Teague, R.S. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 185 (*D-oxime, α-D-tri-Ac, β-D-tri-Ac, α-D-fur Me gly, β-D-fur Me gly, rev*)
Paulsen, H. *et al., Chem. Ber.*, 1966, **99**, 908 (*α-D-fur cyclohexylidene, α-D-fur cyclohexylidene mesyl*)
Jeffrey, G.A. *et al., Chem. Comm.*, 1966, 211 (*cryst struct*)
Timpe, W. *et al., Carbohydr. Res.*, 1975, **39**, 53 (*D-benzyl, α-D-fur cyclohexylidene benzyl, α-D-fur Me gly derivs, β-D-fur Me gly derivs*)
Kegeleviic, D. *et al., Carbohydr. Res.*, 1981, **92**, 51 (*5-pivaloyl-1,2-isopropylidene*)
Driguez, H. *et al., Tet. Lett.*, 1981, **22**, 5061 (*α-D-1,2-isopropylidene*)
Litvak, M.M. *et al., Bioorg. Khim.*, 1982, **8**, 1133 (*β-D-fur Me gly*)
Salam, M.A. *et al., Carbohydr. Res.*, 1982, **101**, 255
Ružic-Toroš, Z. *et al., Carbohydr. Res.*, 1986, **152**, 21 (*cryst struct, derivs*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 463
Madaj, J. *et al., Carbohydr. Res.*, 1998, **308**, 431-433 (*Me β-D-gly, cryst struct, pmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GFM000

β-D-Glucuronopyranosyl-(1 → 3)-α-D-galacturonopyranosyl-(1 →2)-L-rhamnose G-540

β-D-Glucopyranuronosyl-(1 →3)-α-D-galactopyranuronosyl-(1 →2)-6-deoxy-L-mannose, 9CI
[122620-32-0]

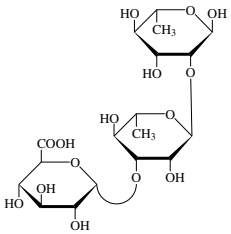


$C_{18}H_{28}O_{17}$ 516.409
Isol. from the partial acid hydrolsates of bark of the kapok tree (*Ceiba pentandra*), bark of *Hydrangia paniculata*, mucilage of *Abelmoschus manihot* (aibika) and gums of *Sterculia setigera* and *Sterculia caudata*. Also from Okra mucilage R in fruits and roots of *Abelmoschus esculentus* and Hibiscus mucilages SL and SF from leaf and flower buds of *Hibiscus syriacus*. $[\alpha]_D$ +85.4 (H_2O).

Aspinall, G.O. *et al., J.C.S.*, 1965, 4325
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1979, **27**, 1651 (*isol*)
Tomoda, M. *et al., Carbohydr. Res.*, 1986, **151**, 29; 1989, **190**, 323 (*isol*)
Raju, T.S. *et al., Carbohydr. Res.*, 1989, **191**, 321 (*isol*)

α-D-Glucuronopyranosyl-(1 → 3)-α-L-rhamnopyranosyl-(1 →2)-α-L-rhamnopyranose G-541

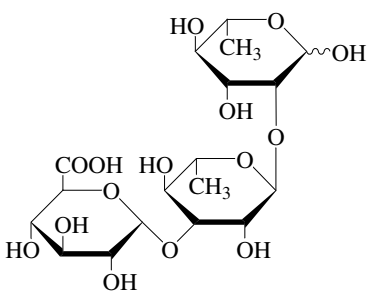
[256374-54-6]



$C_{18}H_{30}O_{15}$ 486.426
Constit. of the cells of *Chlorella vulgaris* K-22. Solid.
Mp 166-176° dec. $[\alpha]_D^{24}$ +46 (c, 0.3 in H_2O).

Ogawa, K. *et al., Carbohydr. Res.*, 1999, **321**, 128-131

α-D-Glucuronopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose G-542

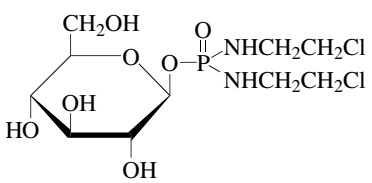


$C_{18}H_{30}O_{15}$ 486.426
Isol. by hydrol. of glucuronorhamnan polysaccharide from *Chlorella vulgaris*. Solid.
Mp 166-176° dec. $[\alpha]_D^{24}$ +46 (c, 0.3 in H_2O) (nat.). $[\alpha]_D$ +12.1 (c, 0.32 in H_2O) (equilib.) (synthetic).

Ogawa, K. *et al., Carbohydr. Res.*, 1999, **321**, 128-131 (*isol, struct*)
Sajtos, F. *et al., Carbohydr. Res.*, 2001, **334**, 253-259 (*synth*)

Glufosfamide, INN G-543

Glucopyranose 1-[N,N′-bis(2-chloroethyl)-phosphorodiamidate]. D 19575

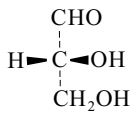


$C_{10}H_{21}Cl_2N_2O_7P$ 383.164
Antineoplastic agent. Granted fast track status by FDA (2004) for treatment of pancreatic cancer. Glucose deriv. of Ifosfamide.

β-D-*form* [132682-98-5]
No. phys. props. reported.
Ger. Pat., 1990, 3 835 772, (*Deutsches Krebsforschungszentrum*); *CA*, **114**, 143900b (*synth, pharmacol*)
Pohl, J. *et al., Cancer Chemother. Pharmacol.*, 1995, **35**, 364-370; 1996, **38**, 355-365 (*pharmacol*)
Kutz, M.E. *et al., Cancer Chemother. Pharmacol.*, 1997, **40**, 167-171 (*pharmacol*)
Veyhl, M. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1998, **95**, 2914-2919 (*pharmacol*)
Briasoulis, E. *et al., Eur. J. Cancer*, 2003, **39**, 2334-2340; 2004, **40**, 667-672 (*clin trial*)

Glyceraldehyde, 8CI G-544

2,3-Dihydroxypropanal, 9CI. Glycerose. Triose. Glyeral
[367-47-5]


(*R*)−*form*

$C_3H_6O_3$ 90.079
The simplest aldose. Configurational standard for carbohydrates. In aq. soln., undergoes equilibration with dimers and with 1,3-Dihydroxy-2-propanone, D-710 via the enediol tautomer.
► MA6200000

(*R*)-*form*
D-*form*
[453-17-8]
Syrup. $[\alpha]_D$ +8.7 (c, 2 in H_2O). Readily polymerises.
Semicarbazone: Mp 133°.
Di-Ac: [92175-31-0]
$C_7H_{10}O_5$ 174.153
Syrup. $[\alpha]_D^{29}$ +36 (c, 2 in $CHCl_3$).
Dibenzoyl:
$C_{17}H_{14}O_5$ 298.295
Mp 88-89°.
Di-Me acetal: 3,3-Dimethoxy-1,2-propanediol, 9CI
[18376-33-5]
$C_5H_{12}O_4$ 136.147
Liq. Bp_{17} 127-129° $Bp_{0.15}$ 62°. $[\alpha]_D^{20}$ +28.7 (c, 1.2 in $CDCl_3$).
Di-Et acetal: 3,3-Diethoxy-1,2-propanediol, 9CI
[114882-91-6]
$C_7H_{16}O_4$ 164.201
Oil. $Bp_{0.5}$ 85°. $[\alpha]_D^{28}$ +30.3 (c, 1.04 in EtOH).
*2,3-*O*-Isopropylidene:* See 2,2-Dimethyl-1,3-dioxolane-4-carboxaldehyde in *The Combined Chemical Dictionary.*
Di-Me ether: 2,3-Dimethoxypropanal, 9CI
[77049-47-9]
$C_5H_{10}O_3$ 118.132
Liq. Bp_{14} 47-48°. $[\alpha]_D^{23}$ +108 (c, 2 in C_6H_6).

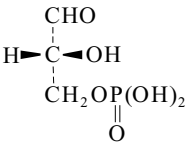
(*S*)-*form* L-*form*
[497-09-6]
Syrup. $[\alpha]_D$ -8.7 (c, 2 in H_2O). Readily polymerises.
2,4-Dinitrophenylhydrazone: [67010-03-1]
Needles (EtOH aq.). Mp 147-148°.
Di-Me acetal: [84984-53-2]
Liq. Bp_{18} 126-129°. $[\alpha]_D^{26}$ -21 (c, 9.22 in H_2O).
*2,3-*O*-Isopropylidene:* See 2,2-Dimethyl-1,3-dioxolane-4-carboxaldehyde in *The Combined Chemical Dictionary.*
Di-Me ether: [84984-56-5]
Liq. Bp_{16} 49-50°. $[\alpha]_D^{21}$ -107 (c, 2 in C_6H_6).
Dibenzyl ether: [102728-48-3]
$C_{17}H_{18}O_3$ 270.327
$[\alpha]_D^{25}$ -37.6 (c, 1.1 in $CHCl_3$).

(±)-*form* [56-82-6]
[23147-59-3]
Cryst. (EtOH/Et_2O). Mp 145°. $Bp_{0.8}$ 140-150° (bath). Said to polymerise less readily than the (*R*)- or (*S*)-forms. Forms dimer in crystalline state. Mp dependent on rate of heating and technique.
► MA6475000
2,4-Dinitrophenylhydrazone: [38996-31-5]
Cryst. (EtOAc). Mp 170°.
Di-Ac: Bp_3 154-156°.
Di-Me acetal: [85027-37-8]
Liq. Bp_{22} 133-133.5°.
Di-Et acetal: [10487-05-5]
Liq. Bp_8 120-121°.
2-Me ether: 3-Hydroxy-2-methoxypropanal
$C_4H_8O_3$ 104.105
Prisms (as dimer). Mp 120-121°.
[26793-98-6]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 479B; 479C (*ir*)
Fischer, H.O.L. *et al., Ber.*, 1927, **60**, 479; 1930, **63**, 1749
Baer, E. *et al., J.A.C.S.*, 1939, **61**, 761; 2607 (*R-form, S-form, synth*)
Org. Synth., Coll. Vol., 2, 1943, 305 (*synth, (±)-form*)
Gresham, W.F. *et al., J.O.C.*, 1949, **14**, 1103
Brewster, P. *et al., Nature (London)*, 1950, **166**, 178 (*abs config*)
Perlin, A.S. *et al., Methods Carbohydr. Chem.*, Academic Press, 1962, **1**, 61 (*R-form, S-form, (±)-form, synth*)
Brittain, E.F.H. *et al., J.C.S.(B)*, 1971, 2414 (*ms*)
Mimaki, K. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2620 (*synth, (±)-form, (±)-dinitrophenylhydrazone*)
Kobayashi, Y. *et al., J. Mol. Struct.*, 1976, **35**, 85 (*ir, Raman*)
Bystrický, S. *et al., Coll. Czech. Chem. Comm.*, 1981, **46**, 240 (*uv*)
Morgenlie, S. *et al., Carbohydr. Res.*, 1982, **107**, 137 (*S-form, synth*)
Glushonok, G.K. *et al., Zh. Fiz. Khim.*, 1984, **55**, 111; *Russ. J. Phys. Chem. (Engl. Transl.)*, 1984, **55**, 59 (*pmr*)
Jurczak, J. *et al., Carbohydr. Res.*, 1987, **164**, 493 (*di-Ac*)
Bischofberger, N. *et al., J.O.C.*, 1988, **53**, 3457 (*derivs, synth, R-form, di-Et acetal*)
Yaylayan, V.A. *et al., Carbohydr. Res.*, 1999, **318**, 20-25 (*equilib*)
Badorrey, R. *et al., Tetrahedron*, 2002, **58**, 341-354 (*S-form, dibenzyl ether*)

Glyceraldehyde-3-phosphate G-545

2-Hydroxy-3-(phosphonoxy)propanal, 9CI. 3-Phosphoglyceraldehyde. Glyceraldehyde 3-dihydrogen phosphate. Fischer-Baer ester
[142-10-9]
[591-59-3]


(*R*)−*form*

$C_3H_7O_6P$ 170.058

(*R*)-*form*
D-*form*
[591-57-1] Key 3-carbon intermed. in alcoholic fermentation and glycolysis. Shows bacterial props., inhibitor of phosphoglyceride biosynthesis.
[20283-52-7, 27177-94-2]

Nisselbaum, J.S. *et al., Adv. Enzyme Regul.*, 1972, **10**, 273 (*rev*)
Fahey, R.C. *et al., Anal. Biochem.*, 1974, **57**, 547 (*cd*)
Hofer, H.W. *et al., Anal. Biochem.*, 1974, **61**, 54
Hall, A. *et al., Biochemistry*, 1975, **14**, 4348 (*props*)
Tang, C.-T. *et al., Antimicrob. Agents Chemother.*, 1977, **11**, 147 (*props*)
Triantophylides, C. *et al., J.C.S. Perkin 2*, 1977, 1719 (*deriv, glc*)
Seriani, A. *et al., Biochemistry*, 1979, **18**, 1192 (*synth, cmr*)
Rendina, A.R. *et al., Anal. Biochem.*, 1981, **117**, 213 (*purifn*)
Duke, C.C. *et al., Carbohydr. Res.*, 1981, **95**, 1 (*pmr, cmr*)
Wong, C.-H. *et al., J.O.C.*, 1983, **48**, 3199 (*synth*)

Glycerol, INN G-546

1,2,3-Propanetriol, 9CI. Glycerin, JAN, USAN. Glyceritol. Amylac. Babylax. Bulboid. Cristal. Dagralax. Glyrol. Luxoral. Meprolax. Osmoglyn. E422. FEMA 2525. Many other names
[56-81-5]
$HOCH_2CH(OH)CH_2OH$
$C_3H_8O_3$ 92.094
Many acyl derivs. (glycerides) have separate entries. Obt. on large scale by alkaline hydrol. of fats during soap manuf. and by other routes. Found extensively in esterified form in animal and plant glycerides. Humectant, emollient and solvent, used in cosmetics and pharmaceutical products, foods, tobacco processing and extensively in numerous industrial and domestic prods. Component of alkyd resins and polyurethanes. Used for detn. of B; photometric detn. of Co. Mild laxative and diuretic. Syrup with sweet taste. Misc. H_2O, EtOH; insol. C_6H_6, $CHCl_3$, CCl_4. d_{15}^{15} 1.27.
Mp 17.8°. Bp 290° part. dec. Bp_{20} 182°. n_D^{20} 1.4720. pK_{a1} 14.4. V. hygroscopic. Steam-volatile.
► Fl. p. 160°, autoignition temp. 370/393°. Reacts violently or explosively with many oxid. agents. OES: long-term 10 mg m^{-3}

(mist). Skin and eye irritant. Ingestion can cause headache and vomiting. Exp. reprod. effects. MA8050000

Bi salt: Bismutoral
[17140-54-4] Oral antiseptic.

Complex with aluminium hydroxide: ***Glucalox, INN****. Glycalox, BAN. Manalox AG*
[12182-48-8] Antacid.

1-Phosphate: See Glycerol 1-monophosphate, G-550

2-Phosphate: See Glycerol 2-monophosphate, G-551

1-O-β-D-Glucopyranoside: See 1-*O*-Glucopyranosylglycerol, G-414

1-Ac: See Glycerol 1-acetate, G-547

Other 1-acyl derivs.: See Glycerol 1-alkanoates in *The Combined Chemical Dictionary.*

2-Ac: See Glycerol 2-acetate, G-548

Other 2-acyl derivs.: See Glycerol 2-alkanoates in *The Combined Chemical Dictionary.*

1,2-Di-Ac: See Glycerol 1,2-diacetate, G-549

Other 1,2-diacyl derivs.: See Glycerol 1,2-dialkanoates in *The Combined Chemical Dictionary.*

1,3-Di-Ac: See Glycerol 1,3-diacetate in *The Combined Chemical Dictionary.*

Other 1,3-diacyl derivs.: See Glycerol 1,3-dialkanoates in *The Combined Chemical Dictionary.*

Tri-Ac: See Glycerol triacetate in *The Combined Chemical Dictionary.*

1-Benzoyl: [3376-59-8]
$C_{10}H_{12}O_4$ 196.202
Cryst. (Et_2O/petrol). Mp 36°. Chiral, known also in opt. active form.

2-Benzoyl: [3376-49-6]
$C_{10}H_{12}O_4$ 196.202
Leaflets (H_2O). Mp 72.5°.

1,2-Dibenzoyl:
$C_{17}H_{16}O_5$ 300.31
Cryst. (Et_2O/petrol). Mp 59°.

1,3-Dibenzoyl: [40593-13-3]
$C_{17}H_{16}O_5$ 300.31
Cryst. (Et_2O/petrol). Mp 50-51°.

Tribenzoyl: Glycerol tribenzoate. FEMA 3398
[614-33-5]
$C_{24}H_{20}O_6$ 404.418
Flavouring ingredient. Mp 76° (72°).

1-(2,4-Dihydroxybenzoyl): 1-(2,4-Dihydroxybenzoyl)glycerol. Glycerol 1-(2,4-dihydroxybenzoate)
[270250-13-0]
$C_{10}H_{12}O_6$ 228.201
Constit. of the seeds of *Nigella damascena*. Red syrup. Racemic.

Tris(4-nitrobenzoyl): Mp 197.5°.

1,2-Bis(4-hydroxycinnamoyl): See 1,2-Dicoumaroylglycerol in *The Combined Chemical Dictionary.*

1,3-Bis(4-hydroxycinnamoyl): See 1,3-Dicoumaroylglycerol in *The Combined Chemical Dictionary.*

Trinitrate: See Glycerol trinitrate in *The Combined Chemical Dictionary.*

1-Me ether: 3-Methoxy-1,2-propanediol
[623-39-2]
$C_4H_{10}O_3$ 106.121
Bp 220° Bp_{40} 136°.

▶TY8170000

2-Me ether: 2-Methoxy-1,3-propanediol
[761-06-8]
$C_4H_{10}O_3$ 106.121
Bp 232° Bp_{40} 148°.

1,2-Di-Me ether: 2,3-Dimethoxy-1-propanol
[40453-77-8]
$C_5H_{12}O_3$ 120.148
Bp 180° Bp_{40} 100°.

1,3-Di-Me ether: 1,3-Dimethoxy-2-propanol
[623-69-8]
$C_5H_{12}O_3$ 120.148
Bp 169° Bp_{40} 88°.

Tri-Me ether: 1,2,3-Trimethoxypropane
[20637-49-4]
$C_6H_{14}O_3$ 134.175
Bp 148°.

▶TZ9625000

1-Et ether: 3-Ethoxy-1,2-propanediol
[1874-62-0]
$C_5H_{12}O_3$ 120.148
Bp 222°. n_D^{20} 1.4410.

▶TY6400000

1,3-Di-Et ether: See 1,3-Diethoxy-2-propanol in *The Combined Chemical Dictionary.*

1-(2-Propenyl) ether: 3-Allyloxy-1,2-propanediol
[123-34-2] Cross-linking comonomer for polyurethanes. Bp_{28} 142°.

▶TY2700000

1,3-Dibutyl ether: See 1,3-Dibutoxy-2-propanol in *The Combined Chemical Dictionary.*

1-Octyl ether: 3-(Octyloxy)-1,2-propanediol. Octadiol
[10438-94-5]
$C_{11}H_{24}O_3$ 204.309
Compd. with liq. cryst. props. Low-melting solid. Mp 21.6-24.2°. Bp_3 140-141.5°. n_D^{20} 1.4517.

1-Tridecyl ether: See 3-Tridecyloxy-1,2-propanediol in *The Combined Chemical Dictionary.*

1-Hexadecyl ether: See 3-Hexadecyloxy-1,2-propanediol in *The Combined Chemical Dictionary.*

2-Hexadecyl ether: 2-(Hexadecyloxy)-1,3-propanediol. β-Chimyl alcohol
[1931-78-8]
$C_{19}H_{40}O_3$ 316.523
Cryst. (EtOH). Mp 63°.

1-(10-Methylhexadecyl) ether, 2-O-[β-D-glucopyranosyl-(1→2)-β-D-glucopyranoside], 3-O-β-D-xylopyranoside: ***Myrmekioside B***
$C_{37}H_{70}O_{17}$ 786.95
Constit. of the marine sponge *Myrmekioderma* sp. Amorph. solid. $[\alpha]_D^{22}$ -19.5 (c, 0.5 in MeOH). Possesses 2*R*-config.

1-Octadecyl ether: See 3-(Octadecyloxy)-1,2-propanediol in *The Combined Chemical Dictionary.*

2-Benzyl ether: See 2-Benzyloxy-1,3-propanediol in *The Combined Chemical Dictionary.*

1-Ph ether: 3-Phenoxy-1,2-propanediol
[538-43-2]
$C_9H_{12}O_3$ 168.192
Mp 54-56°. Bp 315°.

▶TZ1050000

1-Ph ether, 3-(2-propenoyl): 2-Hydroxy-3-phenoxypropyl 2-propenoate. 2-Hydroxy-3-phenoxypropyl acryate
[16969-10-1]
$C_{12}H_{14}O_4$ 222.24
Monomer for photocurable compositions. Not well documented.

1,3-Bis(triphenylmethyl): 1,3-Di-O-trityl-glycerol
$C_{41}H_{36}O_3$ 576.734
Mp 181-182° (170-171°).

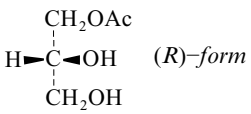
[6990-26-7, 18673-08-0, 28959-04-8, 36887-04-4, 51432-61-2, 69790-27-8, 117591-83-0, 117591-84-1]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 183A; 224D; 225D; 1157C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 283C; 341A; **2**, 397C (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 262A; 295A; 296C (*ir*)
Welcher, F.J. *et al., Organic Analytical Reagents*, Van Nostrand, New York, 1947, **1**, 91 (*use*)
Gidez, L.I. *et al., J.A.C.S.*, 1952, **74**, 2413 (*synth*)
Miner, C.S. *et al., Glycerol, Am. Chem. Soc. Monograph No. 117*, N.Y., 1953, (*rev*)
Nessonova, G.D. *et al., Zavod. Lab.*, 1959, **25**, 786 (*detn, Co*)
Bevan, T.H. *et al., J.C.S.*, 1960, 350 (*2-hexadecyl ether*)
Ulbrich, V. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 1466 (*2-octyl ether*)
U.S. Pat., 1967, 3 352 895, (*Chattem Drug and Chemical Co*); *CA*, **68**, 33186x (*synth, Glucalox*)
Newman, A.A. *et al., Glycerol, Am. Chem. Soc. Monograph No. 117*, Morgan-Grampian, London, 1968, (*rev*)
Voelter, W. *et al., Angew. Chem., Int. Ed.*, 1970, **9**, 803 (*cmr*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 139
Van de Sande, C.C. *et al., J.A.C.S.*, 1975, **97**, 4613 (*ms*)
Budden, R. *et al., Arzneim.-Forsch.*, 1978, **28**, 1579 (*pharmacol*)
Carmaniu, S. *et al., Arch. Int. Physiol. Biochim.*, 1980, **88**, 255 (*metab*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1981, **91**, 85 (*synth, 2-Me*)
Frank, M.S. *et al., Pharmacotherapy (Carlisle, Mass.)*, 1981, **1**, 147 (*rev, pharmacol*)
Hronowski, L.J.J. *et al., Carbohydr. Res.*, 1989, **190**, 203 (*1,3-ditrityl*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, GGA000; GGU000
Guivisdalsky, P.N. *et al., J.A.C.S.*, 1989, **111**, 3077 (*derivs*)
Van Doren, H.A. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1990, **109**, 197 (*2-octyl ether*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **12**, 681 (*rev*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 204-206

Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 169 (*synonyms*)
Fenaroli's Handbook of Flavor Ingredients, 3rd edn., (ed. Burdock, G.A.), CRC Press, 1995, **2**, 123
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1711
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1218-1221 (*use*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1230 (*tribenzoyl*)
Aoki, S. *et al., Tetrahedron*, 1999, **55**, 14865-14870 (*Myrmekioside B*)
Fico, G. *et al., Pharm. Biol.*, 2000, **38**, 371-373 (*2,4-Dihydroxybenzoylglycerol*)
Walker, L.F. *et al., J.C.S. Perkin 1*, 2002, 965-981 (*1,3-di-Me ether, synth, ir, pmr, cmr, ms*)
Bretherick, L. *et al., Handbook of Reactive Chemical Hazards, 4th edn., Butterworths*, 1990, 1209
Luxon, S.G. *et al., Hazards in the Chemical Laboratory, 5th edn., Royal Society of Chemistry*, 1992, 648
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AGP500; EFF000; GGA000; GGU000

Glycerol 1-acetate G-547

1,2,3-Propanetriol 1-acetate, 9CI. 3-Acetoxy-1,2-propanediol. α-Monoacetin
[106-61-6]



(R)−form

$C_5H_{10}O_4$ 134.132

►AK3600000

(R)-form
L-form
[57416-04-3]
$[\alpha]_D$ -10.5 (dry Py).

(±)-*form* [93713-40-7]
Used in manuf. of smokeless powder and dynamite, solvent of low tox. for basic dyes and tanning leather. d_4^{20} 1.21. Bp_4 134-135° $Bp_{0.4}$ 103°. n_D^{20} 1.4157.

Bis(4-nitrobenzoyl): Mp 129-130°.

Di-Me ether:
$C_7H_{14}O_4$ 162.185
Bp_{18} 100-110°.

[26446-35-5, 105498-20-2]

Baer, E. *et al., J.A.C.S.*, 1945, **67**, 2031 (*synth, abs config*)
Williams, P.H. *et al., J.A.C.S.*, 1960, **82**, 4883 (*synth*)
Ger. Pat., 1969, 1 810 568; *CA*, **71**, 90859 (*synth*)
Dahlhoff, W.V. *et al., Annalen*, 1975, 1914 (*synth*)
Gronowitz, S. *et al., Chem. Phys. Lipids*, 1976, **17**, 244 (*synth, cd*)
Suemune, H. *et al., Chem. Pharm. Bull.*, 1986, **34**, 3440 (*synth*)
Patty's Ind. Hyg. Toxicol. (3rd Rev. edn.), Vol. 2, Wiley, 1980, 2320
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GGO000

Glycerol 2-acetate G-548

1,2,3-Propanetriol 2-acetate, 9CI. 2-Monoacetin, 8CI. 2-Acetoxy-1,3-propanediol. β-Monoacetin
[100-78-7]
$HOCH_2CH(OAc)CH_2OH$
$C_5H_{10}O_4$ 134.132
Viscous oil. $Bp_{0.3}$ 177-178°.

1,3-Benzylidene:
$C_{12}H_{14}O_4$ 222.24
Mp 101°.

[26446-35-5]

Averill, H.P. *et al., J.A.C.S.*, 1929, **51**, 866 (*synth*)
Bergmann, M. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1930, **191**, 211 (*synth*)
McElroy, O.E. *et al., J.A.C.S.*, 1934, **56**, 1191 (*synth*)
Artamonova, N. *et al., CA*, 1979, **91**, 56320 (*synth*)

Glycerol 1,2-diacetate G-549

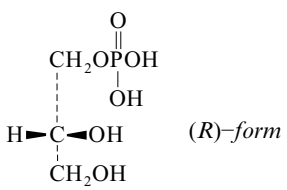
1,2-Diacetylglycerol. 1,2,3-Propanetriol 1,2-diacetate. 1,2-Diacetin
[102-62-5]
[25395-31-7]
$AcOCH_2CH(OAc)CH_2OH$
$C_7H_{12}O_5$ 176.169
►AK3500000

(±)-*form* [101364-64-1]
Plasticiser, solv.; used for decaffeinating coffee, low acute toxicity.
Hygroscopic liq. Sol. H_2O. d_4^{15} 1.12. Bp_{12} 140-142°. Component of coml. Diacetin (Diacetylglycerol), a mixt. with Glycerol 1,3-diacetate.

Wegscheider, R. *et al., Monatsh. Chem.*, 1913, **34**, 1067; 1081 (*synth*)
Wahl, A. *et al., Bull. Soc. Chim. Fr.*, 1925, **37**, 713 (*bibl*)
Golendeev, V.P. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1936, **6**, 1841 (*synth*)
Japan. Pat., 1977, 78 98 920; *CA*, **90**, 22339c (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DBF600

Glycerol 1-monophosphate G-550

1,2,3-Propanetriol 1-(dihydrogen phosphate), 9CI. Glycerol 1-phosphate. α-Glycerophosphoric acid
[57-03-4]
[27082-31-1]



(R)−form

$C_3H_9O_6P$ 172.074

Natural glycerophosphoric acid obt. from biol. sources is a mixt. of ca. 25% Glycerol 1-monophosphate, G-550 and 75% Glycerol 2-monophosphate, G-551, $[\alpha]_D$ ca. -0.5°. Synthetic glycerophosphoric acid prepd. by phosphorylation of glycerol has varying isomeric composition.

(R)-form
L-form
[5746-57-6]
Syrup. Dec. on dist. Slowly hydrol. by H_2O.

Ba salt (2:1): $[\alpha]_D$ -1.45 (c, 10.3 in 2*N* HCl).

Di-Me ether:
$C_5H_{13}O_6P$ 200.128
$[\alpha]_D$ -7.2 (as Na salt).

Di-Me ether, di-Me ester:
$C_7H_{17}O_6P$ 228.181
$[\alpha]_D$ -4.78 (EtOH).

(S)-form *D-form*
[17989-41-2]
Syrup. Dec. on dist. Slowly hydrol. by H_2O.

Li salt: $[\alpha]_D^{28}$ +3.51 (H_2O).

Di-Me ether, di-Me ester: $[\alpha]_D$ +5.1.

(±)-*form* [1509-81-5]
Syrup. pK_{a2} 6.66 (25°). Dec. on dist. Slowly hydrol. by H_2O.

K salt (1:2): [1319-69-3]
[1319-70-6]
$C_3H_7K_2O_6P$ 248.255
Dietary supplement. Pale yellow, syrupy liq. or aq. soln. (+ $3H_2O$). The K salt may be of either α- or β-glycerophosphoric acid for food use. CAS no. refers to trihydrate.

Mg salt (1:1): [927-20-8]
$C_3H_7MgO_6P$ 194.364
Plasticiser for food packaging materials. Powder.

Mn salt (1:1): [1320-46-3]
$C_3H_7MnO_6P$ 224.997
Dietary supplement. White or pinkish white powder. The Mn salt may be of either α- or β-glycerophosphoric acid for food use.

Quinine salt: Mp 155°.

[1334-74-3, 17603-42-8, 27214-00-2]

Biochem. Prep., 1952, **2**, 31 (*synth, bibl*)
Hossel, L.W. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1954, **73**, 150 (*derivs*)
Baer, E. *et al., J. Biol. Chem.*, 1955, **212**, 39 (*synth*)
Taga, T. *et al., Chem. Comm.*, 1972, 465 (*cryst struct*)
Harvey, D.J. *et al., J.C.S. Perkin 1*, 1972, 1074 (*trimethylsilyl, ms*)
Taguchi, Y. *et al., Chem. Pharm. Bull.*, 1975, **23**, 1586 (*synth*)
Yeagle, P.L. *et al., J.A.C.S.*, 1975, **97**, 7175 (*cmr*)
Rios-Mercadillo, V.M. *et al., J.A.C.S.*, 1979, **101**, 5828 (*enzymic synth*)
McAlister, J. *et al., Acta Cryst. B*, 1980, **36**, 1652 (*cryst struct*)
Weissman, J.D. *et al., J. Biol. Chem.*, 1982, **257**, 3618 (*synth*)
Gerothanassis, I.P. *et al., J. Magn. Reson.*, 1982, **46**, 423 (*O nmr*)
Crans, D.C. *et al., J.A.C.S.*, 1985, **107**, 7019 (*synth*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1624; 1655; 2298 (*salts, use*)

Glycerol 2-monophosphate G-551

β-Glycerophosphoric acid. Glycerol 2-phosphate
[17181-54-3]
[27082-31-1]

$(HOCH_2)_2CHOP(O)(OH)_2$

$C_3H_9O_6P$ 172.074

Natural glycerophosphoric acid obt. from biol. sources is a mixt. of *ca*. 25% Glycerol 1-monophosphate, G-550 and 75% Glycerol 2-monophosphate. $[\alpha]_D$*ca*. -0.5°. Synthetic glycerophosphoric acid prepd. by phosphorylation of glycerol has varying isomeric composition. Syrup. pK_{a2} 6 (25°, 1.0*M* KCl). Hygroscopic, dec. on dist.

Mono-Na salt: Cariostatic used in mouthwashes.

Di-Na salt: [819-83-0]
Cryst. + $5H_2O$ (H_2O). Mp 100-102°.

Ca salt: [55701-23-0]
Cryst. + $1H_2O$.

Di-Ph ether:
$C_{15}H_{17}O_6P$ 324.269
Cryst. (EtOH/petrol). Mp 137-137.5°.

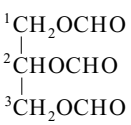
Di-Ph ether, Na salt:
Cryst. + $10H_2O$. Mp 54°.

[927-20-8, 1319-69-3, 1319-70-6, 1320-46-3, 1334-74-3, 27214-00-2]

Baer, G. *et al., J. Biol. Chem.*, 1940, **135**, 321 (*synth*)
Cherbuliez, E. *et al., Helv. Chim. Acta*, 1946, **29**, 2006 (*synth*)
Mazhar-Ul-Haque, *et al., Chem. Comm.*, 1966, 214 (*cryst struct*)
Harvey, D.J. *et al., J.C.S. Perkin 1*, 1972, 1074 (*trimethylsilyl, ms*)
Greenwald, J. *et al., J.C.S. Perkin 2*, 1972, 1095 (*uv, props*)
Nakagaki, M. *et al., Chem. Pharm. Bull.*, 1979, **27**, 1887 (*conformn*)
Inoue, M. *et al., Chem. Pharm. Bull.*, 1980, **28**, 1491 (*struct*)

Glycerol triformate G-552

1,2,3-Propanetriol triformate, 9CI. Triformin, 8CI
[32765-69-8]

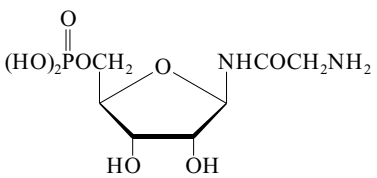


$C_6H_8O_6$ 176.126
Insol. cold H_2O. Mp 18°. Bp_{762} 266°. Hydrolysed by hot H_2O.

v. Romburgh, P. *et al., Z. Phys. Chem.*, 1910, **70**, 459 (*synth*)

Glycinamide ribonucleotide G-553

*2-Amino-*N*-(5-*O*-phosphono-β-*D*-ribofuranosyl)acetamide, 9CI. 2-Amino-*N*-β-*D*-ribofuranosylacetamide 5′-(dihydrogen phosphate), 8CI. GAR*
[10074-18-7]



$C_7H_{15}N_2O_8P$ 286.178

Isol. from avian liver extracts. An intermed. in the *de novo* biosynthesis of purine nucleotides.

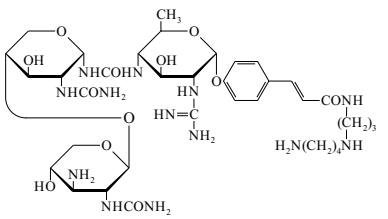
Ba salt: Mp 112-114° dec.

[73650-37-0, 92379-77-6]

Goldthwait, D.A. *et al., J. Biol. Chem.*, 1956, **221**, 555; 569; 1071 (*isol, struct*)
Kazuo, I. *et al., Biochim. Biophys. Acta*, 1963, **68**, 152 (*isol*)
Chettur, G. *et al., Carbohydr. Res.*, 1977, **56**, 75 (*synth*)
Schendel, F.J. *et al., Biochemistry*, 1986, **25**, 2256 (*synth*)
Boschelli, D.H. *et al., Tet. Lett.*, 1989, **30**, 1599 (*synth*)

Glycocinnaspermicidin A G-554

LL-BM 123β$_1$. BM 123β$_1$. Antibiotic BM 123β$_1$. Antibiotic LL-BM 123β$_1$
[62251-27-8]



$C_{36}H_{61}N_{13}O_{12}$ 867.958

Glycolipid antibiotic. Related to Cinodine I, C-133. Isol. from *Nocardia* spp. Active against gram-positive and -negative bacteria and exp. infections in mice. Amorph. powder (as hydrochloride). Sol. H_2O; fairly sol. MeOH; poorly sol. Et_2O, hexane, butanol. $[\alpha]_D^{25}$ +67 (c, 1 in H_2O). Hydrochloride dec. at ca. 200°. λ_{max} 286 (E1%/1cm 200) (MeOH) (Berdy). λ_{max} 286 (E1%/1cm 260) (H_2O) (Berdy). λ_{max} 286 (HCl) (Berdy).

*4′-*O*-Deglycosyl:* ***Glycocinnaspermicidin D***
[99260-73-8]
$C_{30}H_{50}N_{10}O_9$ 694.787
Glycolipid antibiotic. Isol. from *Nocardia* sp. M9615-7F6. Possesses a broad antibacterial spectrum; also active against leukaemia L-1210 cells. Powder. Sol. H_2O; poorly sol. Me_2CO, hexane. Mp 300° dec. $[\alpha]_D^{18}$ +88 (c, 0.5 in H_2O). λ_{max} 218 (ε 13500); 287 (ε 21900) (H_2O) (Derep). λ_{max} 218 (ε 10750); 287 (ε 21900) (H_2O) (Berdy).

▶ LD_{50} (mus, ivn) 25 - 50 mg/kg.
UC6230000

Tresner, H. *et al., J. Antibiot.*, 1978, **31**, 394 (*isol*)
Martin, J.H. *et al., J. Antibiot.*, 1978, **31**, 398 (*isol*)
Ellestad, G.A. *et al., J.A.C.S.*, 1978, **100**, 2515 (*struct*)
Araki, K. *et al., Tet. Lett.*, 1982, **23**, 1705 (*synth*)
Dobashi, K. *et al., J. Antibiot.*, 1985, **38**, 1166 (*Glycocinnaspermicidin D*)

Glycogen, 9CI, 8CI G-555

Animal starch. Liver starch
[9005-79-2]

$C_6H_{10}O_5$ 162.142

Reserve carbohydrate of animal organisms. High mol. wt. polymer (2.7×10^5 to 3.5×10^6) of (1→4)-α-linked glucopyranose residues branched through (1→6)-α-bonds to other chains, the average chain length being approx. 4-8 glucose residues. Polymeric. Minimum formula given. Distributed in the cell protoplasm. Found especially in the liver and rested muscle. Also occurs in insects and lower plants, e.g. fungi, yeasts. White powder. Sol. H_2O with opalescence. $[\alpha]_D$ +182 (H_2O) (depending on origin).

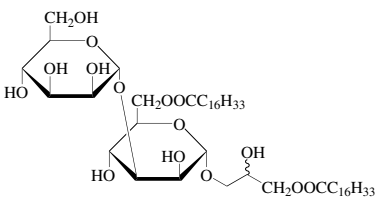
▶ MC2700000

"Triacetate": [95916-96-4]
$[\alpha]_D^{20}$ +170 ($CHCl_3$). Dec. at 177°.

"Trimethyl deriv.": [72067-11-9]
Mp 147° (softens at 135°). $[\alpha]_D^{20}$ +209 ($CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 199B (*ir*)
Manners, D.J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 261
Be Miller, J.N. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 138 (*synth*)
Leloir, L.F. *et al., Encycl. Polym. Sci. Technol.*, 1967, **7**, 462
Dreyfus, J.C. *et al., Pathobiol. Annu.*, 1974, **4**, 289
Dais, P. *et al., Carbohydr. Res.*, 1982, **100**, 103 (*cmr*)
Snyder, A.P. *et al., Anal. Chem.*, 1987, **59**, 1945 (*ms*)
Encyclopaedia of Polymer Science and Engineering, 1987, **7**, 545 (*rev*)
Manners, D.J. *et al., Carbohydr. Polym.*, 1991, **16**, 37 (*struct, rev*)
Zang, L.-H. *et al., Carbohydr. Res.*, 1991, **220**, 1 (*pmr*)

Saccharopolyspora Glycolipid G-556 1



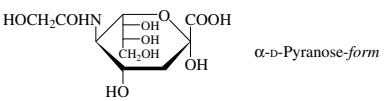
$C_{49}H_{92}O_{15}$ 921.257

The C_{17} residues appear to be mainly monomethyl branched. Isol. from *Saccharpolyspora hirsuta*, *Saccharpolyspora rectivirgula* and *Saccharpolyspora erythraea*.

Gamian, A. *et al., Carbohydr. Res.*, 1996, **296**, 55-67 (*isol*)

N-Glycolylneuraminic acid G-557

*3,5-Dideoxy-5-[(hydroxyacetyl)amino]-*D*-glycero-*D*-galacto-2-nonulosonic acid, 9CI. Porcine sialic acid. NGNA*
[1113-83-3]



$C_{11}H_{19}NO_{10}$ 325.272

Isol. from hog submaxillary mucin. Also found together with *N*-Acetylneuraminic acid in certain gangliosides and sialoproteins of other animal spp., e.g. horse erythrocytes, horse kidney and beef serum. Mp 185-187°. $[\alpha]_D$ -32 (H_2O). $[\alpha]_D^{22}$ -26.9 (c, 1.34 in H_2O) (1h, equilib.).

Blix, G. *et al., Nature (London)*, 1955, **175**, 340 (*isol*)
Zilliken, F. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 237 (*rev*)
Gottschalk, A. *et al., The Chemistry and Biology of Sialic Acids and Related Substances*, Cambridge Univ. Press, 1960, (*rev*)
Schoop, H.J. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1969, **350**, 155
Schauer, R. *et al., Angew. Chem., Int. Ed.*, 1973, **12**, 127
Corfield, A.P. *et al., Eur. J. Biochem.*, 1976, **68**, 597 (*biosynth*)
Codington, J.F. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 226 (*occur, purifn*)
Kuboki, A. *et al., Tetrahedron*, 1997, **53**, 2387-2400 (*synth, pmr, cmr*)

Glyoxal, 8CI G-558

Ethanedial, 9CI. Biformyl. Diformyl. Glyoxylaldehyde. Oxalaldehyde. Oxaldehyde. Glyfix CS 50
[107-22-2]
OHCCHO
$C_2H_2O_2$ 58.037
Manuf. by oxidn. of acetaldehyde or ethylene glycol. Intermed. in synth. of quinoxalines and quinones. Monomer for glyoxal resins. Disinfectant for surgical instruments. Yellow prisms. d_4^{20} 1.29. Mp 15°. Bp 51°. n_D^{20} 1.3826. Vapour has green colour and burns with violet flame. Polym. readily to form complex polymeric structs. Reacts with H_2O to give a complex mixt. of linear and cyclic oligomers. Aq. solns. behave chemically as the monomer.

▶ Violent reaction with some materials. Eye, skin and mucous membrane irritant. LD_{50} (rat, orl) 1100 mg/kg. MD2625000

Sodium bisulfite addn. compd.: [517-21-5] Convenient, non-aqueous form of glyoxal. Mp 193° dec. (as hydrate).

Dioxime: See Glyoxime in *The Combined Chemical Dictionary.*

Hydrazone: See Ethanedial dihydrazone in *The Combined Chemical Dictionary.*

Semicarbazone: Mp 273°.

Di-Ac: Diacetoxyacetaldehyde
$C_6H_8O_5$ 160.126
Bp_6 92-93°.

Di-Ac, 2,4-dinitrophenylhydrazone: Mp 143-144°.

Mono-Et hemiacetal: 2-Ethoxy-2-hydroxyacetaldehyde
[20036-59-3]
$C_4H_8O_3$ 104.105
Bp_9 53-54°.

Tetra-Et acetal: 1,1,2,2-Tetraethoxyethane, 9CI
[3975-14-2]
$C_{10}H_{22}O_4$ 206.281
Bp 180° Bp_{14} 88-89°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 480D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 749B (*nmr*)
Hantszch, A. *et al., Annalen*, 1896, **289**, 293 (*synth*)
Ger. Pat., 1926, 521 722; *CA*, **25**, 3363 (*synth*)
Org. Synth., Coll. Vol., 3, 1955, 438 (*synth*)
Zief, M. *et al., Chem. Ind. (London)*, 1964, 234 (*synth*)
Hay, J.M. *et al., J. Polym. Sci., Part B*, 1965, **3**, 19 (*polym*)
Pappas, J.J. *et al., Tet. Lett.*, 1966, 4273 (*synth*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1967, **1**, 413 (*use*)
Ullmanns Encykl. Tech. Chem., 4. Aufl., 1976, **12**, 377 (*rev*)
Sauter, H. *et al., Chem. Ber.*, 1977, **110**, 1382 (*props*)
Guette, J.P. *et al., Actual. Chim.*, 1982, 23 (*rev*)
Verheijdt, P.L. *et al., J.C.S. Perkin 2*, 1982, 1541 (*uv*)
Chastrette, F. *et al., Bull. Soc. Chim. Fr.*, Part II, 1983, 33 (*struct*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 796
Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **4**, 2616-2619 (*use*)
Bretherick, L. *et al., Handbook of Reactive Chemical Hazards, 4th edn., Butterworths*, 1990, 0681
Luxon, S.G. *et al., Hazards in the Chemical Laboratory, 5th edn., Royal Society of Chemistry*, 1992, 575
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GIK000

Glyoxylic acid, 8CI G-559

Oxoacetic acid, 9CI. Glyoxalic acid. Aldehydoformic acid. Formylformic acid. Oxalaldehydic acid
[298-12-4]
[6000-59-5]
OHCCOOH
$C_2H_2O_3$ 74.036
Found in plant and animal tissues. Prod. by *Aspergillus niger* and other microorganisms. Can replace HCHO in Mannich reactions and ozonolyses. The acetal polymer Na salt is used as a detergent builder. V. deliquescent prisms giving yellow aq. soln. V. sol. H_2O; spar. sol. EtOH, Et_2O.
Mp 104-107° (sinters from 94°). pK_a 2.32. Slowly reduces $NH_3.AgNO_3$. Forms a monohydrate, Mp 50°, and a hemihydrate, Mp 70-75°. Available coml. as an aq. soln.

▶ Eye, skin and mucous membrane irritant. MD4550000

Oxime: See Hydroxyiminoacetic acid in *The Combined Chemical Dictionary.*

Semicarbazone: [928-73-4]
Mp 240° dec.

Thiosemicarbazone: [(Aminothioxomethyl)hydrazono]acetic acid, 9CI
[928-74-5]
$C_3H_5N_3O_2S$ 147.157
Used as 0.5m*M* aq. soln. for catalytic detn. of Rh(*III*). Cryst. Sol. H_2O, EtOH.

Me ester: Methyl glyoxylate
[922-68-9]
$C_3H_4O_3$ 88.063
Bp_{201} 45-50°. Has been polym. to give an acetal polymer.

▶ AJ1453500

Me ester, 2,4-dinitrophenylhydrazone:
[28833-53-6]
Mp 148-149°.

Et ester: Ethyl glyoxylate
[924-44-7]
$C_4H_6O_3$ 102.09
Bp_{35} 49° Bp 130°.

Et ester, 2,4-dinitrophenylhydrazone:
[13217-17-9]
Mp 124.5-125.5°.

Et ester, semicarbazone: Mp 228°.

Isopropyl ester: Isopropyl glyoxylate
[924-53-8]
$C_5H_8O_3$ 116.116
Bp_{18} 34-36°.

Butyl ester: [6295-06-3]
$C_6H_{10}O_3$ 130.143
Oil. d_4^{25} 1.09. Bp_5 68-69°. n_D^{20} 1.4420.

tert-*Butyl ester:* [7633-32-1]
$C_6H_{10}O_3$ 130.143
Viscous oil. Bp_{12} 49°.

Benzyl ester: [52709-42-9]
$C_9H_8O_3$ 164.16
Viscous liq. $Bp_{0.1}$ 90° (Kugelrohr).

4-Nitrobenzyl ester: p-*Nitrobenzyl glyoxylate*
[64370-35-0]
$C_9H_7NO_5$ 209.158
Solid + 1 H_2O. Mp 80-88° (monohydroate).

Chloride: See Chloroglyoxal in *The Combined Chemical Dictionary.*

Amide: 2-Oxoacetamide, 9CI. Glyoxylamide
[60939-21-1]
$C_2H_3NO_2$ 73.051
Hygroscopic cryst. + $3H_2O$ (EtOH). Mp 134°. Little descr., struct. not fully establ.

*Anilide: 2-Oxo-*N*-phenylacetamide, 9CI. Oxanilaldehyde*
[32331-75-2]
$C_8H_7NO_2$ 149.149
Mp 77-78°.

Anilide, 2,4-dinitrophenylhydrazone: Mp 171-172°.

Nitrile: See Formyl cyanide in *The Combined Chemical Dictionary.*

Di-Me acetal: Dimethoxyacetic acid, 9CI
[73569-40-1]
$C_4H_8O_4$ 120.105
Mp 69-70°.

Di-Me acetal, Me ester: Methyl dimethoxyacetate
[89-91-8]
$C_5H_{10}O_4$ 134.132
Bp_{18} 67°.

Di-Et acetal: Diethoxyacetic acid
[20461-86-3]
$C_6H_{12}O_4$ 148.158
Bp_{11} 108-110°.

Di-Et acetal, Et ester: [6065-82-3]
$C_8H_{16}O_4$ 176.212
Bp 199° Bp_{13} 83-85°.

Di-Et acetal, amide: [61189-99-9]
$C_6H_{13}NO_3$ 147.174
Subl. 81.5.

Di-Et acetal, nitrile: Cyanodiethoxymethane
[6136-93-2]
$C_6H_{11}NO_2$ 129.158
Bp_{12} 55-56°.

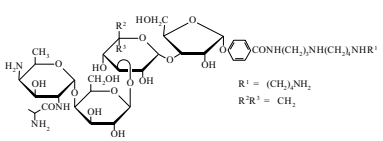
Di-Et mercaptal, Et ester: Ethyl bis(ethylthio)acetate
[20461-95-4]
$C_8H_{16}O_2S_2$ 208.345
Used for synthesis of 1,4-dicarbonyl compds. Liq. $Bp_{0.1}$ 70°. n_D^{20} 1.4970.

[563-96-2, 2706-75-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 521D; 667B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1049B; 1049C; 1225C; 1375B (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 723D; 724A (*ir*)
Scheibler, H. *et al., Ber.*, 1934, **67**, 1507 (*amide*)
Eisenbraun, A.A. *et al., Can. J. Chem.*, 1960, **38**, 622 (*synth*)
Org. Synth., Coll. Vol., 4, 1963, 124; 427 (*synth*)
Org. Synth., Coll. Vol., 4, 1963, 124-125 (*butyl ester*)
Blake, J. *et al., J.A.C.S.*, 1966, **88**, 4061 (*tert-butyl ester*)
Pappas, J.J. *et al., Tet. Lett.*, 1966, 4273 (*synth*)
Kelly, T.R. *et al., Synthesis*, 1972, 544 (*synth*)
Ullmanns Encykl. Tech. Chem., 4. Aufl., 1976, 1976 (*rev*)
Brain, E.G. *et al., J.C.S. Perkin 1*, 1977, 2479-2487 (*4-nitrobenzyl ester*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1979, **7**, 162; 1981, **9**, 228 (*use*)
Huet, F. *et al., Synthesis*, 1979, 33 (*Di-Me acetal*)
U.S. Pat., 1979, 4 140 676; *CA*, **90**, 188904h (*polymers*)
Lissel, M. *et al., Annalen*, 1982, 1589 (*di-Et mercaptal, Et ester*)
Ezerskaya, N.A. *et al., Zh. Anal. Khim.*, 1988, **43**, 846 (*synth, detn, Rh*)
Bishop, J.E. *et al., J.O.C.*, 1991, **56**, 5079 (*benzyl, tert-butyl esters*)
Seip, J.E. *et al., J.O.C.*, 1993, **58**, 2253 (*manuf*)
Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **4**, 2424-2425 (*Me ester di-Me acetal, Et ester di-Et acetal, use*)
Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **4**, 2620-2622 (*use*)
Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **5**, 3505-3509 (*esters, use*)
O'Brien, P. *et al., J.C.S. Perkin 1*, 1996, 2117 (*Me ester, synth, pmr*)
Brimble, M.A. *et al., Synth. Commun.*, 1996, **26**, 243 (*butyl ester*)
Merck Index, 13th edn., 2001, No. 4524 (*bibl*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GIQ000; MKI550

Glysperin A G-560

BU 2349A. Antibiotic BU 2349A
[78213-56-6]



$C_{44}H_{75}N_7O_{18}$ 990.113
Glycoside antibiotic. Isol. from *Bacillus cereus*. Active against gram-negative and -positive bacteria. Sol. H_2O; fairly sol. MeOH, DMF, DMSO, EtOH; poorlysol. Me_2CO, hexane. λ_{max} 247 (E1%/1cm 131) (H_2O) (Berdy). λ_{max} 247 (HCl) (Berdy). λ_{max} 247 (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) 35 mg/kg , LD_{50} (mus, ims) 285 mg/kg. MD4787000
Carbonate (1:2):
Amorph. powder. Mp 132-137°. $[\alpha]_D^{25}$ +113 (c, 0.5 in H_2O).
Kawaguchi, H. *et al., J. Antibiot.*, 1981, **34**, 381 (*isol*)
Tsuno, T. *et al., J. Antibiot.*, 1981, **34**, 390 (*struct*)

Glysperin B G-561

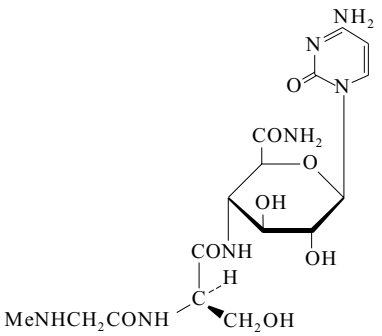
Antibiotic BU 2349B. BU 2349B
[78213-55-5]
As Glysperin A, G-560 with R^1 = H, R^2R^3 = CH_2
$C_{40}H_{66}N_6O_{18}$ 918.991
Glycoside antibiotic. Isol. from *Bacillus cereus*. Active against gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane. λ_{max} 247 (E1%/1cm 148) (H_2O) (Berdy). λ_{max} 247 (HCl) (Berdy). λ_{max} 247 (NaOH) (Berdy).
Carbonate (1:1.5):
Amorph. powder. Mp 166° dec. $[\alpha]_D^{25}$ +132 (c, 0.5 in H_2O).
Kawaguchi, H. *et al., J. Antibiot.*, 1981, **34**, 381 (*isol*)
Tsuno, T. *et al., J. Antibiot.*, 1981, **34**, 390 (*struct*)

Glysperin C G-562

BU 2349C. Antibiotic BU 2349C
[78213-54-4]
As Glysperin A, G-560 with R^1 = $(CH_2)_4NH_2$, R^2 = CH_2OH, R^3 = H
$C_{44}H_{77}N_7O_{19}$ 1008.128
Glycoside antibiotic. Isol. from *Bacillus cereus*. Sol. H_2O; fairly sol. MeOH, EtOH, DMF, DMSO; poorly sol. butanol, hexane. λ_{max} 247 (E1%/1cm 133) (H_2O) (Berdy). λ_{max} 247 (HCl) (Berdy). λ_{max} 247 (NaOH) (Berdy).
Carbonate (1:2):
Amorph. powder. Mp 140-145°. $[\alpha]_D^{25}$ +157 (c, 0.5 in H_2O).
Kawaguchi, H. *et al., J. Antibiot.*, 1981, **34**, 381 (*isol*)
Tsuno, T. *et al., J. Antibiot.*, 1981, **34**, 390 (*struct*)

Gougerotin G-563

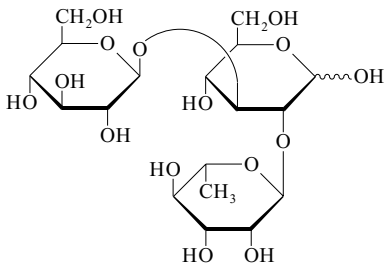
1-(4-Amino-2-oxo-1(2H)-pyrimidinyl)-1,4-dideoxy-4-[[3-hydroxy-2-[[(methylamino)acetyl]amino]-1-oxopropyl]amino]-β-D-glucopyranuronamide, 9CI. 1-Cytosinyl-4-sarcosyl-D-serylamino-1,4-dideoxy-β-D-glucopyranuronamide. Asteromycin. Aspiculamycin. Qingfengmycin. Yungumycin
[2096-42-6]



$C_{16}H_{25}N_7O_8$ 443.416
Nucleoside antibiotic. Isol. from *Streptomyces gougerotii*, *Streptomyces toyocaensis, Streptomyces quingfengmyceticus, Streptomyces puniceus doliceus* and *Streptomyces ahygroscopicus*. Shows antibacterial and antiviral activity inhibiting peptide bond formation. Shows antitumour activity. Needles (MeOH). Mp 211-217° dec. $[\alpha]_D^{27}$ +53 (c, 0.8 in H_2O). λ_{max} 276 (ε 13300) (0.1*N* HCl) (Derep). λ_{max} 228 (ε 8900); 269 (ε 9400) (0.1*N* NaOH) (Derep). λ_{max} 236 (ε 8250); 268 (ε 8600) (H_2O at pH 11) (Derep). λ_{max} 231 (ε 8900); 268 (ε 9400) (H_2O at pH 7) (Derep). λ_{max} 236 (ε 8250); 268 (ε 8600) (H_2O at pH 6.8) (Derep). λ_{max} 276 (ε 11300) (H_2O at pH 3) (Derep).
▶ LZ6572500
Fox, J.J. *et al., Tet. Lett.*, 1968, 6029 (*struct*)
Watanabe, K.A. *et al., J.A.C.S.*, 1972, **94**, 3272 (*synth, ir, uv*)
Haneishi, T. *et al., J. Antibiot.*, 1974, **27**, 334 (*ir, uv, nmr*)
Lichtenthaler, F.W. *et al., Tet. Lett.*, 1975, 3527 (*synth, ir, uv, nmr*)
Dolak, L. *et al., J. Antibiot.*, 1979, **32**, 1364 (*cmr*)
Hu, J. *et al., Kangshengsu*, 1998, **23**, 100-103; *CA*, **130**, 231994w (*activity*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ARP000

Gracillimatriose G-564

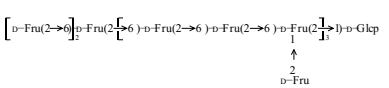
6-Deoxy-α-L-mannopyranosyl(1→2)-[β-D-glucopyranosyl(1→3)]-D-glucose, 9CI. α-L-Rhamnopyranosyl(1→2)[β-D-glucopyranosyl(1→3)]-D-glucose
[64313-64-0]



$C_{18}H_{32}O_{15}$ 488.442
The sugar moiety of Gracillin (see under Spirost-5-en-3-ol) and of a heteroside of *Populus yunnanensis*.
Mp 169-170° dec. $[\alpha]_D^{20}$ -8.2 (c, 2.08 in H_2O).

Kawasaki, T. *et al., Chem. Pharm. Bull.*, 1962, **10**, 698; 703 (*isol, struct*)
Sosa, F. *et al., Phytochemistry*, 1970, **9**, 441 (*isol*)

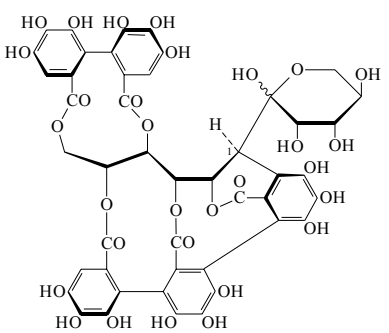
Graminin B G-565



A polyfructosan attached to a single glucose unit. Isol. from rye spikes. $[\alpha]_D^{20}$ -31.7 (c, 1.0 in H_2O).
Poly-Ac: $[\alpha]_D^{20}$ +7.9 (c, 1.0 in $CHCl_3$).
Poly-Me: $[\alpha]_D^{20}$ -35.7 (c, 0.8 in $CHCl_3$).
Schlubach, H.H. *et al., Annalen*, 1952, **578**, 198; 1958, **614**, 123 (*isol*)

Grandinin G-566

[115166-32-0]



$C_{46}H_{34}O_{30}$ 1066.757
In equilib. with the furanose isomer. A major tannin in a number of species of Myrtaceae, Fagaceae and Lythraceae. Pale brown amorph. powder + $6H_2O$. $[\alpha]_D^{24}$ -33 (c, 1.2 in 50% Me_2CO aq.). λ_{max} 220; 280 (MeOH) (Berdy).
1-Deglycosyl, 1α-hydroxy: ***Castalagin***
[24312-00-3]
$C_{41}H_{26}O_{26}$ 934.641
Isol. from *Quercus sessiliflora, Quercus stenophylla* and *Castanea sativa* (sweet chestnut). Off-white amorph. powder. $[\alpha]_D^{26}$ -99.9 (c, 0.52 in MeOH).
1-Deglycosyl, 1α-(3,4,5-trihydroxybenzoyloxy): ***1-O-Galloylcastalagin***
[108449-60-1]
$C_{48}H_{30}O_{30}$ 1086.747
Elagitannin from leaves of *Eugenia grandis*. Needles + $7H_2O$ (H_2O).
Mp 230° dec. $[\alpha]_D^{28}$ -105 (c, 1.0 in MeOH).
1-Deglycosyl, 1β-hydroxy: ***Vescalagin***
[36001-47-5]
$C_{41}H_{26}O_{26}$ 934.641
Isol. from sweet chestnut *Castanea sativa* and oak *Quercus sessiliflora*. Prisms (H_2O).
Mp 200° dec. $[\alpha]_D^{25}$ -109.6 (c, 2 in H_2O).
1-Deglycosyl, 1β-carboxy: ***Vescalagincarboxylic acid***
[118964-19-5]
$C_{42}H_{26}O_{27}$ 962.651
Isol. from the bark of *Quercus mongolica* var. *grosseserrata*. Needles + $1\frac{1}{2}H_2O$.
Mp 180° dec. $[\alpha]_D^{23}$ -59.3 (c, 0.60 in MeOH aq.).
Mayer, W. *et al., Annalen*, 1967, **707**, 177; 1969, **721**, 186; 1971, **751**, 60 (*isol, struct, pmr*)
Nonaka, G. *et al., J.C.S. Perkin 1*, 1985, 165 (*pmr, cmr*)
Nonaka, G.-I. *et al., Chem. Pharm. Bull.*, 1987, **35**, 217; 1989, **37**, 2071; 1990, **38**, 2151 (*struct, pmr, cmr, synth*)
Ishimaru, K. *et al., Chem. Pharm. Bull.*, 1988, **36**, 3319 (*Vescalagincarboxylic acid*)
Vivas, N. *et al., Phytochemistry*, 1995, **39**, 1193 (*Castalagin, Vescalagin*)

Grifolan 7N G-567

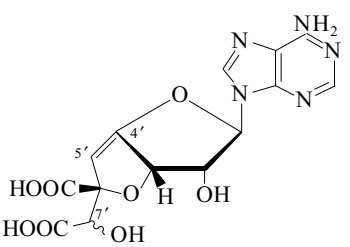
[98037-03-7]
A (1→3)-β-D-glucan having a β-D-glucopyranosyl group attached to the 6-position of almost every third backbone unit. MW *ca*. 1,200,000. Other similar polymers of smaller size isol. from this sp. Isol. from *Grifola frondosa* (maitake). Shows potent activity against Sarcoma 180 solid tumour. $[\alpha]_D$ +1.8 (c, 1 in H_2O).

[37361-00-5, 100358-66-5, 104074-36-4, 113189-33-6]

Iino, K. *et al., Carbohydr. Res.*, 1985, **141**, 111-119 (*isol*)

Griseolic acid G-568

1-(6-Amino-9H-purin-9-yl)-3,6-anhydro-6-C-carboxy-1,5-dideoxy-α-L-talo-oct-4-enofuranuronic acid, 9CI
[79030-08-3]

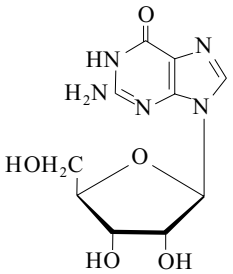


$C_{14}H_{13}N_5O_8$ 379.285
Nucleoside antibiotic. Prod. by *Streptomyces griseoaurantiacus*. Inhibits cyclic-AMP phosphodiesterase. Powder. Sol. H_2O; poorly sol. hexane, butanol. Mp 220° dec. $[\alpha]_D^{20}$ +6.9 (c, 0.1 in DMSO). λ_{max} 256 (ε 11500) (0.1*N* HCl) (Derep). λ_{max} 260 (ε 11800) (0.1*N* NaOH) (Derep). λ_{max} 256 (ε 11500) (0.1*N* HCl) (Derep).
▶ LD_{50} 100-200 mg/kg. RH3080000
Ca salt: $[\alpha]_D^{20}$ -7.4 (c, 1 in DMSO).
Di-Me ester: Mp 130-132°.
7′-Deoxy: ***Griseolic acid B***. *7′-Desoxygriseolic acid*
[98890-01-8]
$C_{14}H_{13}N_5O_7$ 363.286
From *Streptomyces griseoaurantiacus*. Inhibits cyclic-AMP phosphodiesterase. Cryst. Sol. H_2O, MeOH.
Mp 160° dec. $[\alpha]_D^{20}$ +13.2 (c, 1.1 in DMSO). λ_{max} 256 (ε 11500) (0.1*N* HCl) (Derep). λ_{max} 260 (ε 11800) (0.1*N* NaOH) (Derep). λ_{max} 256 (ε 11500) (0.1*N* HCl) (Derep).
4′α,5′-Dihydro, 7′-deoxy: ***Griseolic acid C***. *Dihydrodesoxygriseolic acid*
[100242-49-7]
$C_{14}H_{15}N_5O_7$ 365.302
From *Streptomyces griseoaurantiacus*. Inhibits various cyclic nucelotide phosphodiesterases. Less toxic than Griseolic acid. Cryst. $+2H_2O$. Sol. H_2O.
Mp 160° dec. $[\alpha]_D^{20}$ -50.7 (c, 1 in DMSO). λ_{max} 256 (ε 11500) (0.1*N* HCl) (Derep). λ_{max} 260 (ε 11800) (0.1*N* NaOH) (Derep). λ_{max} 256 (ε 11500) (0.1*N* HCl) (Derep). λ_{max} 260 (MeOH) (Berdy). λ_{max} 260 (H_2O) (Berdy).
Japan. Pat., 1981, 81 68 695; *CA*, **95**, 148721
Eur. Pat., 1985, 162 715; *CA*, **104**, 67509 (*Dihydrodesoxygriseolic acid*)
Iijima, Y. *et al., FEBS Lett.*, 1985, **192**, 179 (*props*)
Nakagawa, F. *et al., J. Antibiot.*, 1985, **38**, 823 (*isol, props*)
Takahashi, S. *et al., J. Antibiot.*, 1985, **38**, 830; 1988, **41**, 705 (*structs, derivs*)
Japan. Pat., 1985, 85 149 394; *CA*, **104**, 4660 (*7′-Deoxygriseolic acid*)
Murofushi, Y. *et al., Chem. Pharm. Bull.*, 1987, **35**, 1036
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Tulshian, D.B. *et al., J.A.C.S.*, 1995, **117**, 7009-7010 (*synth*)
Knapp, S. *et al., Org. Lett.*, 2001, **3**, 3583-3585 (*Griseolic acid B, synth*)

Guanosine G-569

*2-Amino-9-β-D-ribofuranosyl-9*H*-purin-6(1*H*)-one, 9CI, 8CI. 9-β-D-Ribofuranosylguanine. Vernine. Guanine riboside. 2-Aminoinosine*

[118-00-3]



$C_{10}H_{13}N_5O_5$ 283.243

Constit. of nucleic acids. One of the four principal nucleosides involved in Watson-Crick base pairing in both DNA and RNA.

Mp 239° dec. $[\alpha]_D^{20}$ -64 (0.1*M* NaOH). pK_{a1} 1.9; pK_{a2} 9.25; pK_{a3} 12.33 (25°). λ_{max} 253 (ϵ 13600) (H_2O, pH 7).

► Exp. teratogen. LD_{50} (mus, ipr) 500 mg/kg. MF8750000

5′-Ac: [28220-16-8]
$C_{12}H_{15}N_5O_6$ 325.28
Mp 192-193°.

2′,3′,5′-Tri-Ac: [6979-94-8]
$C_{16}H_{19}N_5O_8$ 409.355
Mp 232°. $[\alpha]_D^{20}$ -28.4 (EtOH).

5′-Tosyl: [39947-33-6]
Mp 288-289°. $[\alpha]_D^{30}$ +36 (DMF).

2′,3′,5′-Tribenzoyl: [66048-53-1]
$C_{31}H_{25}N_5O_8$ 595.567
Mp 259-261°. $[\alpha]_D^{22}$ -51 (Py).

N,O$^{2′}$,O$^{3′}$,O$^{5′}$*-Tetrabenzoyl:* [28288-50-8]
$C_{38}H_{29}N_5O_9$ 699.675
Mp 168-169°. λ_{max} 233 (ϵ 54300); 267 (ϵ 17100); 285 (ϵ 15200) (95% EtOH).

*2′,3′-*O*-Isopropylidene:* [362-76-5]
$C_{13}H_{17}N_5O_5$ 323.308
Mp 299° dec. $[\alpha]_D^{18}$ -36.3 (DMF).

*2′,3′-*O*-Benzylidene:* [14042-37-6]
$C_{17}H_{17}N_5O_5$ 371.352
Mp 296° dec. $[\alpha]_D^{18}$ -98.5 (Py).

*2′,3′-*O*-Benzylidene, 5′-Ac:*
$C_{19}H_{19}N_5O_6$ 413.389
Mp 253-254°.

5′-Trityl: [27552-66-5]
$C_{29}H_{27}N_5O_5$ 525.563
Mp 278-279°. $[\alpha]_D^{18}$ +63.6 (Py).

3′-Phosphate: See 3′-Guanylic acid, G-577

5′-Phosphate: See 5′-Guanylic acid, G-578

5′-Diphosphate: See Guanosine 5′-diphosphate, G-572

5′-Triphosphate: See Guanosine 5′-triphosphate, G-576

3′,5′-Cyclic phosphate: See Cyclic GMP, C-164

2′-Me: See 2′-*O*-Methylguanosine, M-261

*2-*N*-Me:* N-*Methylguanosine, 9CI*
[2140-77-4]
$C_{11}H_{15}N_5O_5$ 297.27
Isol. from *Triticum* sp. Cryst. $+1H_2O$ (H_2O).
Mp 200° dec. $[\alpha]_D^{20}$ -34.6 (c, 1.01 in DMSO/EtOH 1:1). Softens *ca.* 179°, gradual dec. to *ca.* 230°.

N^2,N^2*-Di-Me:* N,N-*Dimethylguanosine, 9CI*
[2140-67-2]
$C_{12}H_{17}N_5O_5$ 311.297
Isol. from *Triticum* sp. Needles (H_2O). Sol. H_2O.
Mp 242° dec. (238-239°). $[\alpha]_D^{26}$ -35.6 (c, 1.07 in DMSO/EtOH 1:1). λ_{max} 265 (pH 7 buffer) (Berdy). λ_{max} 258 (ϵ 7500) (HCl) (Berdy). λ_{max} 263 (NaOH) (Berdy). λ_{max} 265 (H_2O, pH1).

1-Amino: 1-Aminoguanosine
[19029-68-6]
$C_{10}H_{14}N_6O_5$ 298.258
Mp 270° dec. λ_{max} 256 (ϵ 16400); 270 (MeOH). λ_{max} 257 (ϵ 11600); 278 (pH1). λ_{max} 255 (ϵ 14300) (pH11).

*3′-*O*-(4-*O*-Acetyl-α-L-fucopyranosyl), 2′,5′-di-*O*-sulfate: **HF 7***
[158118-41-3]
$C_{18}H_{25}N_5O_{16}S_2$ 631.551
Isol. from the funnel-web spider *Hololena curta*. Neuroactive agent.

*5′-*O*-Sulfate: Guanosine 5′-sulfate*
$C_{10}H_{13}N_5O_8S$ 363.307
Isol. from the venom of the spider *Tegenaria agrestis*.

*3′-*O*-α-L-Fucopyranosyl, 5′-*O*-sulfate:*
$C_{16}H_{23}N_5O_{12}S$ 509.45
Isol. from the venom of the spider *Tegenaria agrestis*.

*3′-*O*-β-L-Fucopyranosyl, 5′-*O*-sulfate:*
$C_{16}H_{23}N_5O_{12}S$ 509.45
Isol. from the venom of the spider *Tegenaria agrestis*. Tentative struct. assigned.

*3′-*O*-α-L-Fucopranosyl, 2′,5′-di-*O*-sulfate:*
$C_{16}H_{23}N_5O_{15}S_2$ 589.514
Isol. from the venom of the spider *Tegenaria agrestis*. Tentative struct. assigned.

*3′-*O*-β-L-Fucopyranosyl, 2′,5′-di-*O*-sulfate:*
$C_{16}H_{23}N_5O_{15}S_2$ 589.514
Isol. from the venom of the spider *Tegenaria agrestis*. Tentative struct. assigned.

*3′-*O*-[α-L-Fucopyranosyl-(1→3)-α-L-fucopyranosyl], 5′-*O*-sulfate:*
$C_{22}H_{33}N_5O_{16}S$ 655.593
Isol. from the venom of the spider *Tegenaria agrestis*.

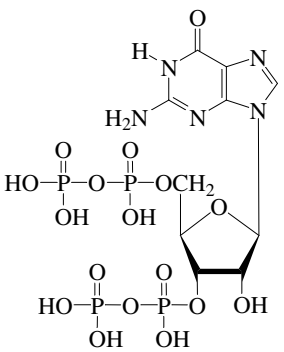
[26578-09-6]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 720D; 721C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 223B; 226A (*nmr*)
Michelson, A.M. *et al., J.C.S.*, 1949, 2476 (*derivs*)
Montgomery, J.A. *et al., Adv. Carbohydr. Chem.*, 1962, **17**, 301 (*rev*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1967, **23**, 2315 (*synth*)
Bugg, C.E. *et al., Biochem. Biophys. Res. Commun.*, 1968, **33**, 436 (*cryst struct*)
Brown, A.D. *et al., J.O.C.*, 1969, **34**, 1025 (*synth, pmr*)
Jones, A.J. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 27; *CA*, **72**, 96682j (*cmr*)
Basic Princ. Nucleic Acid Chem., (Ts'O, P.O.P., Ed.), Academic Press, Vol. 1, 1974, (*rev*)
Wilson, C.C. *et al., Acta Cryst. C*, 1985, **41**, 1123 (*cryst struct*)
Low, J.N. *et al., Acta Cryst. C*, 1986, **42**, 700 (*cryst struct, tri-Ac*)
Mathlouth, M. *et al., Carbohydr. Res.*, 1986, **146**, 15 (*ir, Raman*)
Renaud, G. *et al., Tetrahedron*, 1986, **42**, 4057 (*pmr, props*)
Garner, P. *et al., J.O.C.*, 1988, **53**, 1294 (*synth, uv, ir, pmr, cmr*)
Sekine, M. *et al., J.O.C.*, 1991, **56**, 1224 (*2-N-Me*)
Alhede, B. *et al., J.O.C.*, 1991, **56**, 2139 (*synth*)
Toyama, A. *et al., J. Raman Spectrosc.*, 1999, **30**, 623-630 (*Raman*)
McCormick, J.L. *et al., J.A.C.S.*, 1999, **121**, 5661-5665 (*HF 7*)
Moyroud, E. *et al., Tetrahedron*, 1999, **55**, 1277-1284 (*L-form, synth, pmr, cmr*)
Taggi, A.E. *et al., J.A.C.S.*, 2004, **126**, 10364-10369 (*Tegenaria agrestis nucleosides*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GLS000

Guanosine 3′,5′-bis(diphosphate) G-570

Guanosine 3′-(trihydrogen diphosphate) 5′-(trihydrogen diphosphate), 9CI. Guanosine tetraphosphate. ppGpp

[32452-17-8]



$C_{10}H_{17}N_5O_{17}P_4$ 603.163

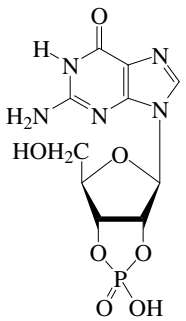
Occurs in prokaryotes and in lower eukaryotes. Involved in control of bacterial RNA synthesis. An alarmon.

[103213-27-0]

Que, L. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1973, **70**, 2563-2566 (*cmr*)
Cashel, M. *et al., Annu. Rev. Microbiol.*, 1975, **29**, 301-318 (*biochem, rev*)
Gallant, J.A. *et al., Ann. Rev. Genet.*, 1979, **13**, 393-415 (*biochem, rev*)
Silverman, R.H. *et al., Microbiol. Rev.*, 1979, **43**, 27-41 (*occur, rev*)
Fischer, M. *et al., Anal. Biochem.*, 1982, **121**, 135-139 (*hplc*)
Little, R. *et al., Anal. Biochem.*, 1982, **126**, 381-388 (*hplc*)
Krohn, M. *et al., Anal. Biochem.*, 1995, **225**, 188-190 (*isol, purifn*)
Bremer, H. *et al., Biochim. Biophys. Acta*, 1995, **1262**, 15-36 (*biochem, rev*)

Guanosine cyclic 2′,3′-(hydrogen phosphate), 9CI G-571

2′,3′-GMP
[634-02-6]

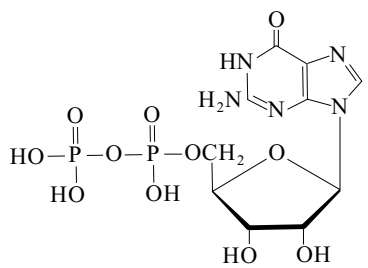


$C_{10}H_{12}N_5O_7P$ 345.208

Markham, R. *et al., Biochem. J.*, 1952, **52**, 552-557 (*synth*)
Jardetsky, C.D. *et al., J.A.C.S.*, 1960, **82**, 222-229 (*pmr*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1966, **31**, 1528-1534 (*synth*)
Tomasz, J. *et al., Nucleic Acid Chem.*, 1978, **2**, 875-879 (*synth*)

Guanosine 5′-diphosphate G-572

Guanosine 5′-(trihydrogen diphosphate), 9CI. Guanosine 5′-diphosphoric acid. GDP
[146-91-8]

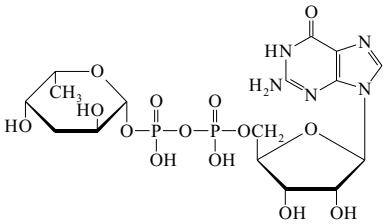


$C_{10}H_{15}N_5O_{11}P_2$ 443.203
Constit. of many plant and animal tissues. Intermediate in biosynth. of RNA by polynucleotide phosphorylase. Amorph. pK_a 2 (25°). λ_{max} 256 (ϵ 11800) (0.01*M* HCl).

Ayengar, P. *et al., J. Biol. Chem.*, 1956, **218**, 521-533 (*isol*)
Michelson, A.M. *et al., Biochim. Biophys. Acta*, 1964, **91**, 1-13 (*synth*)
Lee, C. *et al., Biochemistry*, 1976, **15**, 697-704 (*conformn, pmr*)
Labotka, R.J. *et al., J.A.C.S.*, 1976, **98**, 3699-3704 (*P-31 nmr*)

Guanosine diphosphate colitose G-573

GDP-colitose
[14264-50-7]

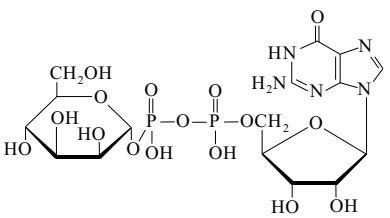


$C_{16}H_{25}N_5O_{14}P_2$ 573.346
Isol. from *Escherichia coli*.

Heath, E.C. *et al., Biochim. Biophys. Acta*, 1960, **39**, 377 (*isol*)
Heath, E.C. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1962, **48**, 1209 (*synth*)
Elbein, A.D. *et al., Methods Enzymol.*, 1966, **8**, 300 (*synth*)

Guanosine diphosphate mannose G-574

Guanosine 5′-(trihydrogen diphosphate)-mono-α-D-mannopyranosyl ester, 9CI. Guanosine 5′-(trihydrogen pyrophosphate)mono-α-D-mannopyranosyl ester, 8CI. GDP-mannose
[3123-67-9]



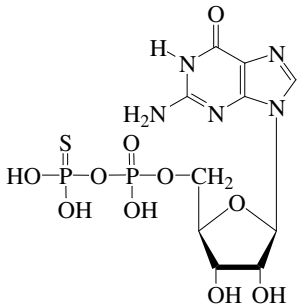
$C_{16}H_{25}N_5O_{16}P_2$ 605.345
Present in egg white. Presumed intermed. in formation of mannan in yeast. Also isol. from green gram (*Phaseolus aureus*) seedlings. Cofactor in the biosynth. of mannose-containing oligosaccharides. λ_{max} 260; 280 (H_2O).

K salt: λ_{max} 252 (ϵ 13700) (H_2O)).

Cabib, E. *et al., J. Biol. Chem.*, 1954, **206**, 779
Munch-Petersen, A. *et al., Arch. Biochem. Biophys.*, 1955, **55**, 592 (*synth*)
Grégoire, J. *et al., C. R. Hebd. Seances Acad. Sci.*, 1963, **257**, 3508 (*isol*)
Donovan, J.W. *et al., Arch. Biochem. Biophys.*, 1967, **122**, 17
Braell, W.A. *et al., Anal. Biochem.*, 1976, **74**, 484 (*synth*)
Lee, C. *et al., Biochemistry*, 1976, **15**, 697 (*conformn, pmr*)
Pallanca, J.E. *et al., J.C.S. Perkin 1*, 1993, 3017

Guanosine 5′-*O*-(2-thiodiphosphate) G-575

5′-Guanylic acid monoanhydride with phosphorothioic acid, 9CI. GDPβS
[71376-97-1]

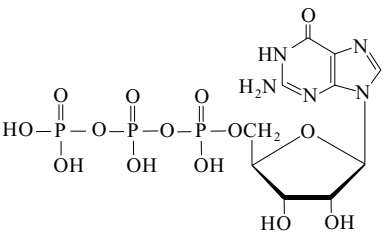


$C_{10}H_{15}N_5O_{10}P_2S$ 459.27
Inhibits stimulation of adenylate cyclase by GTP.

Eckstein, F. *et al., J. Biol. Chem.*, 1979, **254**, 9829-9834 (*use*)

Guanosine 5′-triphosphate G-576

Guanosine 5′-(tetrahydrogen triphosphate), 9CI, 8CI. GTP. Guanosine 5′-triphosphoric acid
[86-01-1]



$C_{10}H_{16}N_5O_{14}P_3$ 523.183
Occurs in many animal and plant tissues. Isol. from yeast. Amorph. pK_{a5} 7.65; pK_{a6} 10.1 (25°). λ_{max} 256 nm (pH 1).

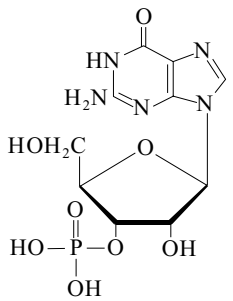
▶ MF8793000

[56001-37-7]

Ayengar, P. *et al., J. Biol. Chem.*, 1956, **218**, 521 (*isol*)
Kawaguchi, K. *et al., Agric. Biol. Chem.*, 1970, **34**, 908 (*synth*)
Chan, S.I. *et al., Jerusalem Symp. Quantum Chem. Biochem.*, 1972, **4**, 277; *CA*, **80**, 129365d (*rev, pmr*)
Labotka, R.J. *et al., J.A.C.S.*, 1976, **98**, 3699 (*nmr*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711 (*synth*)

3′-Guanylic acid, 9CI, 8CI G-577

Guanosine 3′-(dihydrogen phosphate), 9CI. Guanylic acid b
[117-68-0]



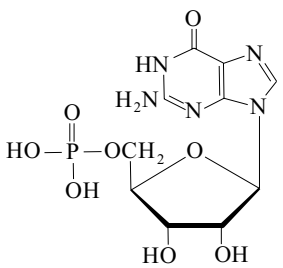
$C_{10}H_{14}N_5O_8P$ 363.223
Occurs in yeast nucleic acid. Cryst. + $2H_2O$.
Mp 180° dec. (208°). $[\alpha]_D^{25}$ -8 (c, 2.0 in H_2O).

Brucine salt:
Cryst. + $7H_2O$. Mp 233-240° dec. (anhyd.). $[\alpha]_D^{20}$ -26 (EtOH).

Levene, P.A. *et al., J. Biol. Chem.*, 1932, **98**, 9 (*struct*)
Cohn, W.E. *et al., Biochem. Prep.*, 1957, **5**, 40 (*isol*)
Ts'O, P.O.P. *et al., Biochemistry*, 1969, **8**, 997
Japan. Pat., 1971, 71 34 195; *CA*, **76**, 2550x (*synth*)
Tran, D. *et al., Nucleic Acids Res.*, 1975, **2**, 873 (*pmr, conformn*)

5′-Guanylic acid, 9CI, 8CI G-578

Guanosine 5′-(dihydrogen phosphate). Guanosine monophosphate. Guanosine 5′-phosphoric acid. GMP. E626
[85-32-5]
[661-20-1]



$C_{10}H_{14}N_5O_8P$ 363.223
Widely distributed in plants and animals, occurs in the hydrolysates of RNA.
Mp 190-200° dec. pK_{a3} 6.66 (25°). λ_{max} 256 (ε 12400) (aq. buffer) (pH 2). λ_{max} 260 (ε 12100) (aq. buffer) (pH 12).

▶ MF9283000

Di-Na salt: Disodium guanylate. E628
[5550-12-9] Flavour enhancer. Hygroscopic monohydrate. Mp 250° dec.

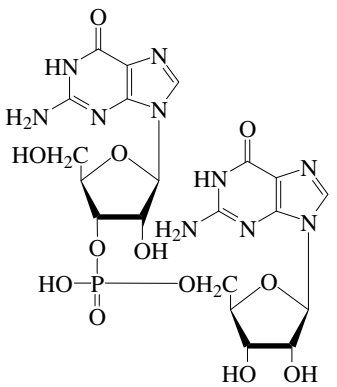
▶ LD_{50} (mus, orl) 15000 mg/kg. MF9290000

Ba salt:
Powder + $8H_2O$.

Chambers, R.W. *et al., J.A.C.S.*, 1957, **79**, 3747 (*synth*)
Tener, G.M. *et al., J.A.C.S.*, 1961, **83**, 159
Takaku, O. *et al., Agric. Biol. Chem.*, 1975, **39**, 2373 (*pmr*)
Simoncsits, A. *et al., Biochim. Biophys. Acta*, 1975, **395**, 74 (*synth*)
Norton, R.S. *et al., J.A.C.S.*, 1976, **98**, 1007 (*cmr*)
Barnes, C.L. *et al., Acta Cryst. B*, 1982, **38**, 812 (*cryst struct*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, GLS800
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1362
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 892 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, GLS800

Guanylyl-(3′→5′)-guanosine, 9CI G-579

GpG
[3353-33-1]

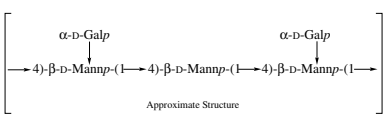


$C_{20}H_{25}N_{10}O_{12}P$ 628.451

Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 829-833 (*synth, uv*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Neilson, T. *et al., Can. J. Chem.*, 1973, **51**, 1068-1074 (*synth*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)

Guar gum G-580

Guar flour. Cyanopsis gum. Burtonite V-7-E. Dealea TPI. Decorpa. Galactasol. Glucotard. Guarina. Guarem. E412. Many other names
[9000-30-0]



Obt. from the ground endosperms of *Cyamopsis tetragonolobus*. Thickener, emulsifier, coagulant, flocculant, water binding agent and tablet disintegrant. Used in foodstuffs, cosmetics, pharmaceuticals, paper making, explosives, water treatment, mining ore concentration and as a tobacco humectant. Hypocholesterolaemic agent, used orally in control of diabetes.
Yellowish-white to white powder. Sol. H_2O; insol. org. solvs.

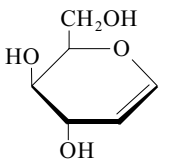
[2-Hydroxy-3-(trimethylammonio)propyl] ether: Hi-Care® 1000
[65497-29-2] Used in hair conditioning and skin cleansing products.

2-Hydroxypropyl ether: Jaguar® HP-11
[39421-75-5] Used in oil-well fracturing fluids and liq. slurry explosives.

Goldstein, A.M. *et al., Ind. Gums*, 2nd edn., (eds. Whistler, R.L. *et al*), Academic Press, 1973, 303-321 (*rev*)
Busch, P. *et al., Parfuem. Kosmet.*, 1984, **65**, 756; 758-760 (*2-hydroxy-3-(trimethylammonio)propyl ether*)
Prabhanjan, H. *et al., Carbohydr. Polym.*, 1989, **11**, 279-292 (*2-hydroxypropyl ether*)
Todd, P.A. *et al., Drugs*, 1990, **39**, 917-928 (*rev, clinical use*)
Food Chemicals Codex, 4th edn., *National Academy Press*, 1996, 187-188 (*use, props*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 349
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1250-1255
Merck Index, 13th edn., 2001, No. 4588

Gulal G-581

1,5-Anhydro-2-deoxy-xylo-*hex-1-enitol. 1,2-Dideoxy*-xylo-*hex-1-enopyranose. Idal*



D-*form*

$C_6H_{10}O_4$ 146.143

D-*form*

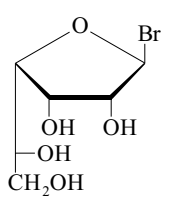
D-Gulal. L-Idal
[81275-42-5]

*3,4,6-Tri-Ac: 3,4,6-Tri-*O*-acetyl-D-gulal*
[6586-65-8]
$C_{12}H_{16}O_7$ 272.254
Mp 97-98°. $[\alpha]_D$ +248 ($CHCl_3$).

*4,6-*O*-Benzylidene: 4,6-*O*-Benzylidene-1,2-dideoxy-D-*xylo*-hex-1-enopyranose. 4,6-*O*-Benzylidene-D-gulal*
$C_{13}H_{14}O_4$ 234.251
Cryst. (Et_2O/hexane). Mp 129°. $[\alpha]_D^{25}$ +192 (c, 1.4 in $CHCl_3$). Indexed as D-*arabino*- in CAS.

Ciment, D.M. *et al., J.C.S.(C)*, 1966, 441 (*D-tri-Ac*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 61 (*D-benzylidene, pmr*)

Gulofuranosyl bromide G-582

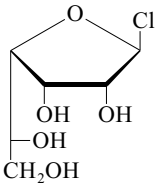


$C_6H_{11}BrO_5$ 243.054

β-D-*form*

2,3:5,6-Di-O-*(ethylboranediyl):* [81975-74-8]
$C_{10}H_{17}B_2BrO_5$ 318.767
Pale yellow syrup.
Dahlhoff, W.V. *et al., Heterocycles*, 1982, **18**, 421 (*deriv, ms, cmr, B-11 nmr*)

Gulofuranosyl chloride G-583



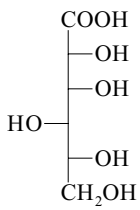
$C_6H_{11}ClO_5$ 198.603

β-D-*form*

2,3:5,6-Di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-β-D-gulofuranosyl chloride*
[16136-64-4]
$C_{12}H_{19}ClO_5$ 278.732
Viscous oil. $Bp_{2.6}$ 127°. $[\alpha]_D^{25}$ -40.2 (c, 9.6 in $CHCl_3$).
Lerner, L.M. *et al., J.O.C.*, 1968, **33**, 1780 (*diisopropylidene, pmr*)

Gulonic acid, 9CI, 8CI G-584

gulo-*Hexonic acid*
[20246-53-1]



D–*form*

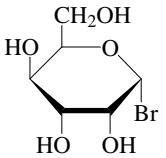
$C_6H_{12}O_7$ 196.157

D-*form* [20246-33-7]
$[\alpha]_D$ -1.6 (H_2O). Forms the 1,4-lactone spontaneously.
Ca salt: $[\alpha]_D^{16}$ -14.5 (c, 1.73 in H_2O).
Phenylhydrazide: Mp 147-149° (142-144° dec.). $[\alpha]_D^{20}$ +13.45 (H_2O). $[\alpha]_D^{16}$ +30.6 (H_2O).
Amide: D-Gulonamide
$C_6H_{13}NO_6$ 195.172
Mp 122-123°. $[\alpha]_D^{20}$ +15.2 (H_2O).
1,4-Lactone: D-Gulono-1,4-lactone. D-gulo-*Hexono-1,4-lactone*
[6322-07-2]
$C_6H_{10}O_6$ 178.141
Prisms. Mp 182-185°. $[\alpha]_D^{20}$ -57.1 (H_2O).
1,4-Lactone, 2,3-O-*isopropylidene: 2,3*-O-*Isopropylidene-D-gulono-1,4-lactone*
[23843-32-5]
$C_9H_{14}O_6$ 218.206
Needles (EtOAc). Mp 142-143.5°. $[\alpha]_D^{24}$ -74.5 (c, 2.75 in Me_2CO).
1,4-Lactone, 2,3:5,6-di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-D-gulono-1,4-lactone*
[67642-42-6]
$C_{12}H_{18}O_6$ 258.271
Mp 150-151°. $[\alpha]_D^{25}$ -67.8 (c, 4.16 in $CHCl_3$).

L-*form* [526-97-6]
Phenylhydrazide: Mp 147-148° (dec. at 195°).
3,4:5,6-Di-O-*benzylidene, Et ester: Ethyl 3,4;5,6-di*-O-*benzylidene-L-gluconate*
[70373-43-2]
$C_{22}H_{24}O_7$ 400.427
Mp 203-204°.
1,4-Lactone: L-Gulono-1,4-lactone
[1128-23-0]
$C_6H_{10}O_6$ 178.141
Cryst. (MeOH/EtOAc). Mp 182-183.5°. $[\alpha]_D^{23}$ +55.3 (H_2O).
1,4-Lactone, 2,3-O-*isopropylidene: 2,3*-O-*Isopropylidene-L-gulono-1,4-lactone*
[94840-08-1]
$C_9H_{14}O_6$ 218.206
Cryst. (EtOAc). Mp 139-141°. $[\alpha]_D^{20}$ +76.2 (c, 1 in Me_2CO).
1,4-Lactone, 2,3:5,6-di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-L-gulono-1,4-lactone*
[7306-64-1]
$C_{12}H_{18}O_6$ 258.271
Mp 153-154°. $[\alpha]_D^{24}$ +68.4 (c, 1 in Me_2CO).
1,4-Lactone, 3,5-O-*benzylidene: 3,5*-O-*Benzylidene-L-gulono-1,4-lactone*
[7306-61-8]
$C_{13}H_{14}O_6$ 266.25
Cryst. (EtOH). Mp 188-189°. $[\alpha]_D^{23}$ +61.1 (DMF).

DL-*form*
Phenylhydrazide: Mp 153-155°.
[3327-64-8]
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1137A; 1137B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 706B (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 327; 328 (*rev*)
Org. Synth., Coll. Vol., 4, 1963, 506 (*D-lactone*)
Lerner, L.M. *et al., J.O.C.*, 1968, **33**, 1780 (*D-lactone diisopropylidene*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1969, **9**, 1 (*D-lactone isopropylidene*)
Berman, H.M. *et al., Acta Cryst. B*, 1971, **27**, 7 (*D-lactone cryst struct*)
Ogura, H. *et al., J.O.C.*, 1972, **37**, 72 (*L-lactone diisopropylidene*)
U.S. Pat., 1977, 4 111 958, (*Pfizer*); *CA*, **90**, 138150p (*L-lactone benzylidene*)
Crawford, T.C. *et al., Chem. Comm.*, 1979, 388 (*L-lactone benzylidene*)
Crawford, T.C. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **38**, 287 (***rev, lactone***)
Andrews, G.C. *et al., J.O.C.*, 1981, **46**, 2976 (*L-lactone, pmr, cmr*)
Walaszek, Z. *et al., Carbohydr. Res.*, 1982, **105**, 131 (*pmr, cmr, conformn*)
Vekemans, J.A.J.M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1985, **104**, 266 (*L-lactone, pmr, synth*)
Fleet, G.W.J. *et al., Tetrahedron*, 1989, **45**, 319 (*lactone 2,3-isopropylidene, diisopropylidene*)
Sotofte, I. *et al., Acta Cryst. C*, 1994, **50**, 941 (*cryst struct, lactone deriv*)
Soriano, D.S. *et al., Synth. Commun.*, 1995, **25**, 3263 (*lactone*)

Gulopyranosyl bromide G-585



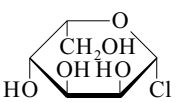
α-D-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-gulopyranosyl bromide*
[72002-90-5]
$C_{14}H_{19}BrO_9$ 411.203
Syrup.

β-L-*form*
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-L-gulopyranosyl bromide*
[78418-57-2]
$C_{14}H_{19}BrO_9$ 411.203
Syrup.
Shah, R.H. *et al., Carbohydr. Res.*, 1979, **74**, 105 (*α-tetra-Ac, reactions*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 163 (*α-tetra-Ac*)
Pozsgay, V. *et al., J.O.C.*, 1981, **46**, 3761 (*β-tetra-Ac*)

Gulopyranosyl chloride G-586

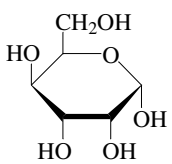


$C_6H_{11}ClO_5$ 198.603

β-L-*form*
3,4,6-Tribenzyl, 2-Ac: 2-O-*Acetyl-3,4,6-tri*-O-*benzyl-β-L-gulopyranosyl chloride*
[78355-27-8]
$C_{29}H_{31}ClO_6$ 511.013
Plates. Mp 79-80°. $[\alpha]_D^{25}$ +58.4 (c, 0.5 in $CHCl_3$).
Pozsgay, V. *et al., J.O.C.*, 1981, **46**, 3761 (*tribenzyl deriv*)
Katano, K. *et al., J.O.C.*, 1985, **50**, 5807 (*tribenzyl deriv, pmr*)

Gulose, 8CI G-587

[19163-87-2]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157
An aq. soln. at 22° contains 16% α-pyr, 81% β-pyr, and 3% β-fur.

D-*form* [4205-23-6]
Syrup. $[\alpha]_D^{20}$ -20.4 (H_2O). Sweet taste. Usually isol. as a complex with $CaCl_2$, $[\alpha]_D$ +38° →-15°.
Phenylhydrazone: [6027-88-9]
Mp 143°.

N-*Benzyl*-N-*phenylhydrazone:* Mp 124°.

Phenylosazone: See Hexose phenylosazones, H-90

α-D-Pyranose-*form* [7282-78-2]

Penta-Ac: Penta-O-*acetyl*-α-D-*gulopyranose*
[4163-61-5]
$C_{16}H_{22}O_{11}$ 390.343
Mp 106°. $[\alpha]_D$ +86.2 ($CHCl_3$).

1,2-O-*Isopropylidene, 4,6*-O-*ethylidene: 4,6*-O-*Ethylidene-1,2*-O-*isopropylidene*-α-D-*gulopyranose*
[20880-85-7]
$C_{11}H_{18}O_6$ 246.26
Mp 133-134°. $[\alpha]_D$ -19 ($CHCl_3$).

1,2-O-*Isopropylidene, 4,6*-O-*ethylidene, 3-tosyl: 4,6*-O-*Ethylidene-1,2*-O-*isopropylidene-3*-O-*tosyl*-α-D-*gulopyranose*
[20880-87-9]
$C_{18}H_{24}O_8S$ 400.449
Mp 138-139°. $[\alpha]_D$ +34.6 (DMF).

1,2-O-*Isopropylidene, 4,6*-O-*ethylidene, 3-benzoyl: 3*-O-*Benzoyl-4,6*-O-*ethylidene-1,2*-O-*isopropylidene*-α-D-*gulopyranose*
[30607-95-5]
$C_{18}H_{22}O_7$ 350.368
Mp 117-118°. $[\alpha]_D$ +61 (CH_2Cl_2).

Me glycoside: See Methyl gulopyranoside, M-194

α-D-Furanose-*form* [36574-19-3]

1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenegulofuranose, I-68

1,2:5,6-Di-O-*isopropylidene:* See 1,2:5,6-Di-*O*-isopropylidenegulofuranose, D-718

β-D-Furanose-*form* [41847-50-1]

2,3:5,6-Di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropyidene*-β-D-*gulofuranose*
$C_{12}H_{20}O_6$ 260.286
Cryst. Mp 111-113°. $[\alpha]_D^{20}$ -1.54 (c, 1 in Me_2CO).

Me glycoside, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene*-β-D-*gulofuranoside*
[55520-70-2]
$C_{10}H_{18}O_6$ 234.249
Mp 77-79.5°. $[\alpha]_D$ -83.6 (MeOH).

Me glycoside, 2,3:5,6-di-O-*isopropylidene: Methyl 2,3:5,6-di*-O-*isopropylidene*-β-D-*gulofuranoside*
[55520-69-9]
$C_{13}H_{22}O_6$ 274.313
Mp 78.5-79°. $[\alpha]_D$ -44.9 ($CHCl_3$).

L-*form* [6027-89-0]
Syrup. $[\alpha]_D^{23}$ +20 (c, 13.6 in H_2O). Freq. isol. as $CaCl_2$ complex.

N-*Benzyl*-N-*phenylhydrazone:* Mp 130-131°. $[\alpha]_D^{20}$ +29 (MeOH).

2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-O-*benzyl*-L-*gulose*
[270062-45-8]
$C_{34}H_{36}O_6$ 540.655
$[\alpha]_D^{24}$ -8.2 (c, 1.48 in $CHCl_3$).

α-L-Pyranose-*form* [39281-66-8]
$[\alpha]_D^{24}$ -8.2 (c, 1.48 in $CHCl_3$).

Me glycoside: See Methyl gulopyranoside, M-194

α-L-Furanose-*form*

3,5,6-Tribenzyl, 1,2-di-Ac: 1,2-Di-O-*Acetyl-3,5,6-tri*-O-*benzyl*-α-L-*gulofuranose*
$C_{31}H_{34}O_8$ 534.605
$[\alpha]_D$ +31.4 (c, 1.3 in $CHCl_3$).

β-L-Furanose-*form* [41847-48-7]

Me glycoside, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene*-β-L-*gulofuranoside*
[50692-26-7]
$C_{10}H_{18}O_6$ 234.249
Mp 76-77°. $[\alpha]_D$ +82.3 (MeOH).

Me glycoside, 2,3-O-*isopropylidene, 5,6-di-Ac: Methyl 5,6-di*-O-*acetyl-2,3*-O-*isopropylidene*-β-L-*gulofuranoside*
[50692-27-8]
$C_{14}H_{22}O_8$ 318.323
Mp 54-55°. $[\alpha]_D$ +58 ($CHCl_3$).

Me glycoside, 2,3:5,6-di-O-*isopropylidene: Methyl 2,3:5,6-di*-O-*isopropylidene*-β-L-*gulofuranoside*
[50692-29-0]
$C_{13}H_{22}O_6$ 274.313
Mp 76-77°. $[\alpha]_D$ +41.9 ($CHCl_3$).

Me glycoside, 3,5,6-tribenzyl: Methyl 3,5,6-tri-O-*benzyl*-β-L-*gulofuranoside*
[180471-92-5]
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D$ +2.1 (c, 0.8 in $CHCl_3$).

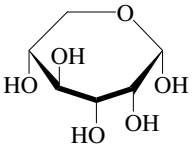
DL-*form*

Phenylhydrazone: Mp 143°.

[7283-08-1, 39281-67-9, 40461-80-1, 41847-32-9, 41847-34-1, 41847-35-2, 41939-33-7]

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 326; 328 (*rev*)
Frush, H.L. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1945, **35**, 111-124 (α-D-*pyr penta-Ac*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 135-136 (*synth, D-form*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 137-139 (*synth, L-form*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1972, **25**, 1695-1710 (*pmr*)
Meyer zu Reckendorf, W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 129-131 (*D-form*)
Evans, M.E. *et al., Carbohydr. Res.*, 1973, **28**, 359-364 (*L-form*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 234 (*rev*)
Evans, M.E. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 173-176 (*synth, L-form, β-L-Me fur 2,3-isopropylidene*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 37; 41 (*pmr, cmr*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949-951 (*total synth, L-form*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
González, F.S. *et al., Carbohydr. Res.*, 1990, **202**, 33-47 (*synth, L-form*)
Ding, X. *et al., Carbohydr. Res.*, 1996, **286**, 161-166 (*β-L-Me fur tribenzyl, α-L-fur tribenzyl tri-Ac*)
Dondoni, A. *et al., J.O.C.*, 1997, **62**, 6261-6267 (*L-form, synth*)
Horneman, A.M. *et al., Synthesis*, 1999, 317-325 (*D-form, synth*)
Takeuchi, M. *et al., Synthesis*, 1999, 341-354 (*L-form, synth*)
Takahashi, H. *et al., J.A.C.S.*, 2000, **122**, 2995-3000 (*L-form, tetrabenzyl*)
Hricoviniova, Z. *et al., Synthesis*, 2001, 751-754 (*β-D-fur-2,3:5,6-diisopropylidene*)
Yang, W.-B. *et al., Tetrahedron*, 2002, **58**, 253-259 (*L-form, synth*)

Guloseptanose G-588



α-D-*form*

$C_6H_{12}O_6$ 180.157

α-D-*form*

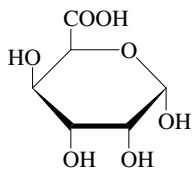
3-Me, 1,2-O-*Isopropylidene, 4,5-di-Ac: 4,5-Di*-O-*acetyl-1,2*-O-*isopropylidene-3*-O-*methyl*-α-D-*guloseptanose*
$C_{14}H_{24}O_8$ 320.339
Cryst. (C_6H_6/petrol). Mp 114-116°. $[\alpha]_D^{22}$ +35 (c, 1.45 in $CHCl_3$).

5-Benzyl, 3-Me, 1,2-O-*isopropylidene, 4-Ac: 4*-O-*Acetyl-5*-O-*benzyl-1,2*-O-*isopropylidene-3*-O-*methyl*-α-D-*guloseptanose*
$C_{19}H_{26}O_7$ 366.41
Needles (C_6H_6/petrol). Mp 105-106°. $[\alpha]_D^{22}$ -2 (c, 1.75 in $CHCl_3$).

Driver, G.E. *et al., Carbohydr. Res.*, 2001, **334**, 81-89 (*3-Me 1,2-isopropylidene di-Ac, 5-benzyl 3-Me 1,2-isopropylidene 4-Ac*)

Guluronic acid, 9CI, 8CI G-589

[1986-15-8]



α-D-Pyranose-*form*

$C_6H_{10}O_7$ 194.141

D-*form*

Cryst. + $1H_2O$ (as Na salt). $[\alpha]_D^{23}$ +31 (3 min.) → +48 (16 min., equilib.). Prepared and used as Na or brucine salt; Na salt shows no definite Mp.

L-*form* [56688-68-7]
Occurs in alginic acids from seaweed. Syrup.

Na salt: [51433-33-1]
Needles. $[\alpha]_D^{23}$ +31 → +48 (c, 2 in H_2O). Mp indefinite (as hydrate).

2,3:4,5-Diisopropylidene, Me ester: Methyl 2,3:4,5-di-O-*isopropylidene*-L-*guluronate*
$C_{13}H_{20}O_7$ 288.297
Syrup. $[\alpha]_D^{23}$ -82 (c, 0.64 in $CHCl_3$).

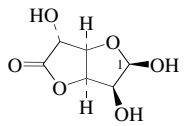
[15769-56-9, 21675-52-5]

Sutter, M. *et al., Helv. Chim. Acta*, 1938, **21**, 1210 (*synth*)
Whistler, R.L. *et al., J.A.C.S.*, 1958, **80**, 5701 (*isol*)
Drummond, D.W. *et al., J.C.S.*, 1962, 1208 (*isol*)
Anthonsen, T. *et al., Acta Chem. Scand.*, 1973, **27**, 2671 (*pmr*)

Atkins, E.D. *et al., Biopolymers*, 1973, **12**, 1879 (*cryst struct*)
Morris, E.R. *et al., J.C.S. Perkin 2*, 1975, 1418 (*cd, conformn*)
Siddiqui, I.R. *et al., Carbohydr. Res.*, 1978, **63**, 312; 1980, **80**, 343 (*isol, L-form, Na salt, synth*)
Mo, F. *et al., Carbohydr. Res.*, 1985, **145**, 13 (*cryst struct, L-form, Na salt*)
Grasdalen, H. *et al., Carbohydr. Res.*, 1990, **203**, 281 (*pmr, cmr*)
Chida, N. *et al., J. Carbohydr. Chem.*, 1992, **11**, 137-148 (*2,3:4,5-diisopropylidene, Me ester*)

Gulurono-6,3-lactone G-590

Guluronic acid γ-lactone, 9CI. Gulurone
[28630-71-9]
[14474-04-5]



α-L-Furanose-*form*

$C_6H_8O_6$ 176.126

α-L-Furanose-*form*

Me glycoside: Methyl α-L-gulofuranosiduronic acid γ-lactone. Methyl α-L-gulofuranosidurono-6,3-lactone
[72521-46-1]
$C_7H_{10}O_6$ 190.152
Mp 140-143°. $[\alpha]_D^{20}$ -27 (c, 0.9 in Me_2CO).

β-L-Furanose-*form*

Me glycoside: Methyl β-L-gulofuranosiduronic acid γ-lactone. Methyl β-L-gulofuranosidurono-6,3-lactone
[72521-45-0]
$C_7H_{10}O_6$ 190.152
Syrup. $[\alpha]_D^{20}$ +111.5 (c, 3.7 in H_2O).
Macher, I. *et al., Carbohydr. Res.*, 1979, **77**, 225-230

Gum ghatti G-591

Ghatti gum. Indian gum. FEMA 2519
[9000-28-6]
A water-sol. polysaccharide made up of Ca and Mg salts of L-arabinose, D-galactose, D-mannose, D-xylose and D-glucuronic acids. Isol. from the tree *Anogeissus latifolia*. Emulsifier for foods.
Merck Index, 12th edn., 1996, 4424
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1199-1201

Gum karaya G-592

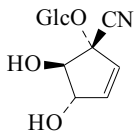
Karaya gum. Sterculia gum. FEMA 2605
[9000-36-6]
A partially acetylated polysaccharide containing D-galactouronic acid, D-galactose and L-rhamnose units. The dried exudate of the tree *Sterculia urens*. Emulsifier, thickener, flavouring and gelling agent in food manuf.
Merck Index, 12th edn., 1996, 5296
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1510-1517

Gum tragacanth G-593

Tragacanth gum. FEMA 3079
[9000-65-1]
Complex mixt. of polysaccharides; contains two primary constituents, water-sol. Tragacanthin and water-insol. Bassorin. Dried exudate from *Astralagus gummifer* and other *Astralagus* species. Stabiliser, thickener and emulsifier in food manuf.
Merck Index, 12th edn., 1996, 4609
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2818-2822

Gynocardin G-594

1-(β-D-Glucopyranosyloxy)-4,5-dihydroxy-2-cyclopentene-1-carbonitrile, 8CI
[14332-17-3]



$C_{12}H_{17}NO_8$ 303.268
Glucoside from seeds of *Gynocardia odorata* and from *Pangium edule* (football fruit). Prismatic needles + $1\frac{1}{2}$ H_2O (H_2O). Mp 165-166° (anhyd.). $[\alpha]_D^{28}$ +72.9 (c, 0.96 in H_2O).

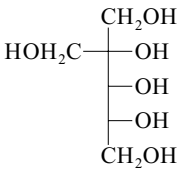
Hexa-Ac: Mp 119-120°. $[\alpha]_D^{25}$ +40.2 (c, 1.69 in $CHCl_3$).

Hexa-Me ether:
Oil. $[\alpha]_D^{27}$ +87.1 (c, 1.54 in $CHCl_3$).

Coburn, R.A. *et al., J.O.C.*, 1966, **31**, 4312 (*isol, struct*)
Kim, H.S. *et al., Chem. Comm.*, 1970, 381 (*cryst struct*)

Hamamelitol H-1

2-C-(Hydroxymethyl)-erythro-*pentitol, 9CI. 2-(Hydroxymethyl)ribitol, 8CI*



$C_6H_{14}O_6$ 182.173

Note that C(2) is not a chiral centre in the parent compd.

D-*form* [17298-09-8]

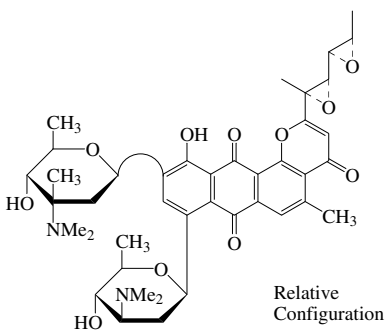
Found in leaves of numerous plant spp.; high levels in leaves of *Hedera helix*. Syrup. $[\alpha]_D^{20}$ +23 (c, 1 in MeOH).

Hexabenzoyl: Hexabenzoyl-D-hamamelitol
$C_{48}H_{38}O_{12}$ 806.821
Cryst. (C_6H_6/petrol). Mp 136°. $[\alpha]_D$ +13.7 (c, 1 in Me_2CO).

Sellmair, J. *et al., Z. Pflanzenphysiol.*, 1968, **59**, 70 (*isol, synth, hexabenzoyl*)
Szarek, W.A. *et al., Carbohydr. Res.*, 1977, **53**, 101 (*synth*)
Yanagihara, R. *et al., Bull. Chem. Soc. Jpn.*, 1995, **68**, 237 (*synth*)
Moore, B.D. *et al., Planta*, 1995, **195**, 418 (*occur, purifn, ms, bibl*)

Hedamycin, 8CI H-2

NSC 70929D
[11048-97-8]



$C_{41}H_{50}N_2O_{11}$ 746.853

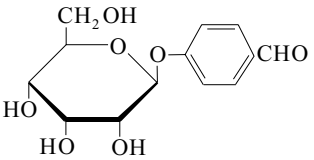
Anthracycline-type antibiotic. Isol. from *Streptomyces griseoruber*. Antitumour agent. Needles. Sol. C_6H_6, Py, CCl_4, THF, EtOAc, $CHCl_3$, acids; fairly sol. MeOH, Et_2O, EtOH, Me_2CO; poorly sol. H_2O, hexane.
Mp 243-245°. Similar to Kidamycin and Pluramycin. λ_{max} 254 (ε 37300); 330 (ε 10000); 535 (ε 6500) (MeOH/NaOH) (Derep). λ_{max} 213 (ε 34300); 243 (ε 48000); 265 (sh) (ε); 268 (ε 27200); 432 (ε 8800) (MeOH) (Derep). λ_{max} 243 ; 265 ; 430 (MeOH) (Berdy). λ_{max} 245 (E1%/1cm 500); 430 (HCl) (Berdy). λ_{max} 254 (E1%/1cm 500); 324 (E1%/1cm 170); 495 (NaOH) (Berdy).

▶ LD_{50} (mus, ipr) .3 mg/kg. CB4584400

Séquin, U. *et al., Tetrahedron*, 1978, **34**, 761 (*struct*)
Zehnder, M. *et al., Helv. Chim. Acta*, 1979, **62**, 2525 (*cryst struct*)
Ceroni, M. *et al., Helv. Chim. Acta*, 1982, **65**, 302 (*struct*)

Helicide H-3

4-Formylphenyl β-allopyranoside
[80154-34-3]



$C_{13}H_{16}O_7$ 284.265

Obt. from seeds of *Helicia erratica*. Cryst. (MeOH).
Mp 188-190°. $[\alpha]_D^{20}$ -92 (H_2O).

Wei-shin, C. *et al., Annalen*, 1981, 1893

Heparan sulfate H-4

Heparitin sulfate
[9050-30-0]

The struct. is similar to that of Heparin, H-5 but distinguished from it by different sulfate and acetyl contents. There may also be less uronosyl units present with the L-*ido*-config. Glycosaminoglycan. Widespread in mammalian connective tissue. Found for example in amniotic fluid, aorta, arterial tissue, blood leucocytes, brain, kidney, liver, skin and uterus. Fibrinolytic agent, anticoagulant. $[\alpha]_D$ +38 (H_2O).

▶ MI0880000

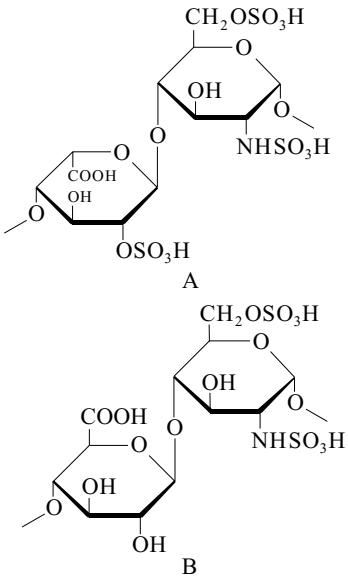
Na salt (1:3): ***Suleparoid sodium, INN****. Arteven. Clarema. Hemorasal. Leparan. Tavidan. Tronan. Vasorema. Vas 40*
[57459-72-0]

[83513-48-8]

Day, C.E. *et al., Artery (Leonidas, Mich.)*, 1975, **1**, 126 (*pharmacol*)
Elloway, H.F. *et al., Biochem. J.*, 1977, **161**, 495 (*conformn*)
Lindahl, U. *et al., Annu. Rev. Biochem.*, 1978, **47**, 385
Kennedy, J.F. *et al., Proteoglycans-Biological and Chemical Aspects in Human Life*, Elsevier, 1979,
Dietrich, C.P. *et al., Haemostaseologie (Stuttgart)*, 1986, **6**, 193 (*rev, struct, props, pharmacol*)
Conrad, H.E. *et al., Ann. N.Y. Acad. Sci.*, 1989, **556**, 18 (*struct, metab, rev*)
Lindahl, U. *et al., Ann. N.Y. Acad. Sci.*, 1989, **556**, 36 (*rev, biosynth*)
Adv. Exp. Med. Biol., 1992, **313**, 1 (*issue*)
Gallagher, J.T. *et al., Glycobiology*, 1992, **2**, 523 (*rev*)
Gallagher, J.T. *et al., Int. J. Biochem.*, 1992, **24**, 553 (*struct, rev*)
Callas, D.D. *et al., Thromb. Res.*, 1993, **69**, 369 (*pharmacol*)
Griffin, C.C. *et al., Carbohydr. Res.*, 1995, **276**, 183-197 (*isol, props*)
Yeung, B.K.S. *et al., J. Carbohydr. Chem.*, 2002, **21**, 799-865 (*rev, synth*)

Heparin, 9CI, 8CI, BAN, USAN H-5

Heparinic acid. Fragmin. Pabryn. Many other names
[9005-49-6]



A polymer composed mainly of two disaccharide repeating units A and B. A is L-Iduronic acid 2-sulfate linked α-(1→4) to 2-Deoxy-2-sulfamido-D-glucose 6-sulfate while B is D-Glucuronic acid β-(1→4) linked to 2-Deoxy-2-sulfamido-D-glucose 6-sulfate. MW 5000-15000. See also 2-Amino-2-deoxy-α-D-glucopyranosyl-(1→4)-β-D-glucopyranosyluronic acid-(1→4)-2-amino-2-deoxy-α-D-glucopyranosyl-(1→4)-α-L-idopyranosyluronic acid-(1→4)-2-amino-2-deoxy-D-glucopyranose, A-255. Occurs in the blood, skin, aorta, umbilical cord and in most tissues and is supposedly manuf. by the mast cells. Has anticoagulant and thrombolytic action. Used in the manuf. of blood-compatible polymers for use as prosthetic materials. $[\alpha]_D$ +44 (H_2O). A variable fraction of the heparin chains are linked to serine or small peptides and contain the specific carbohydrate-protein linkage region (→ GlcUA → Gal → Gal → Xyl → Ser) identical with that found in several other connective tissue polysaccharides. The presence of this linkage region suggests that Heparin is synthesised *in vivo* as a proteoglycan. Na salt of depolymerised heparin obtained by nitrous acid degradn. of heparin from pork intestinal mucosa known as minolteparin sodium, INN, a low MW heparin.

▶ LD_{50} (rat, orl) 1950 mg/kg. MI0700000

Na salt: ***Heparin sodium, BAN, INN, USAN****. Hepsal. Liquaemin sodium. Monoparin. Uniparin*
[9041-08-1]
$[\alpha]_D^{25}$ +47 (c, 1.5 in H_2O). Component of numerous preparations.

▶ Human systemic effects by subcutaneous route (altered perception, haemorrhages,

skin reactions *inter alia*). Exp. reprod. effects. MI0850000

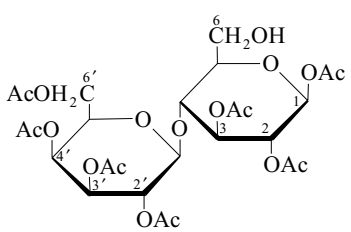
Ca salt: Calciparin. Heparin calcium. Minihep calcium
[37270-89-6] Component of numerous preparations.

▶ MI0800000

[9045-22-1]

Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 150 (*synth*)
Wolfrom, M.L. *et al., J.O.C.*, 1966, **31**, 1173 (*config*)
Biochem. Prep., 1968, **12**, 12 (*purifn*)
Helting, T. *et al., Acta Chem. Scand.*, 1972, **26**, 3515 (*biosynth*)
Perlin, A.S. *et al., Can. J. Chem.*, 1972, **50**, 2437 (*cmr*)
Montgomery, R. *et al., MTP Int. Rev. Sci.: Org. Chem., Ser. One*, (Aspinall, G.O., Ed.), University Park Press, USA and Canada, 1973, **7**, 242 (*rev*)
Falb, R.D. *et al., Polym. Sci. Technol. (Plenum)*, 1975, **8**, 77 (*rev, use*)
Lindahl, U. *et al., Annu. Rev. Biochem.*, 1978, **47**, 385
Roden, L. *et al., The Biochemistry of Glycoproteins and Proteoglycans*, (Lennarz, W.J., Ed.), Plenum Press, New York and London, 1980, 321 (*rev*)
Meyer, B. *et al., Carbohydr. Res.*, 1981, **88**, C1 (*pmr*)
Huckerby, T.N. *et al., Carbohydr. Res.*, 1982, **103**, 141 (*pmr*)
Nachtmann, F. *et al., Anal. Profiles Drug Subst.*, 1983, **12**, 215 (*rev, pharmacol, metab, anal*)
Witt, I. *et al., Heparin: New Biochem. Med. Aspects, Proc. Symp. Dtsch. Ges. Klin. Chem.*, Ed., Walter de Gruyter, Berlin, 1983, (*book*)
Sinay, P. *et al., Carbohydr. Res.*, 1984, **132**, C5 (*synth*)
Cocchetto, D.M. *et al., Pharm. Int.*, 1984, **5**, 7 (*rev, pharmacol*)
Engelberg, H. *et al., Pharmacol. Rev.*, 1984, **36**, 91 (*rev, pharmacol*)
Casu, B. *et al., Adv. Carbohydr. Chem. Biochem.*, 1985, **43**, 51 (*rev*)
Boettiger, L.E. *et al., Acta Med. Scand.*, 1987, **222**, 195 (*rev*)
Mulloy, B. *et al., Carbohydr. Res.*, 1987, **170**, 151 (*pmr*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 7214
Hirsh, J. *et al., Blood*, 1992, **79**, 1 (*rev*)
van Boeckel, C.A.A. *et al., Angew. Chem., Int. Ed.*, 1993, **32**, 1671 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 227; 229
Yeung, B.K.S. *et al., J. Carbohydr. Chem.*, 2002, **21**, 799-865 (*rev, synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, HAQ500; HAQ550

1,2,2′,3,3′,4′,6′-Hepta-*O*-acetyllactose H-6



$C_{26}H_{36}O_{18}$ 636.56

D-*form* [34394-99-5]
Mp 191-192°. $[\alpha]_D^{22}$ -12.5 (c, 2.24 in $CHCl_3$).

6-Mesyl: Mp 110-111°. $[\alpha]_D^{18}$ -5 (c, 2.11 in $CHCl_3$).

6-Tosyl: [34674-97-0]
Mp 129-131°. $[\alpha]_D^{19}$ -1 (c, 3.54 in $CHCl_3$).

6-Deoxy, 6-iodo: 1,2,2′,3,3′,4′,6′-Hepta-O-*acetyl-6-deoxy-6-iodo*-D-*lactose*
$C_{26}H_{35}IO_{17}$ 746.457
Mp 220°. $[\alpha]_D^{19}$ -9 (c, 2.80 in $CHCl_3$).

Montgomery, E.M. *et al., J.A.C.S.*, 1943, **65**, 1848
Tejina, S. *et al., Carbohydr. Res.*, 1971, **20**, 123 (*pmr*)

2,2′,3,3′,4′,6,6′-Hepta-*O*-acetyllactose H-7

$C_{26}H_{36}O_{18}$ 636.56

α-D-*form*

Glycosyl 1-bromide: Hepta-O-*acetyl*-α-D-*lactosyl bromide*
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 143-144°. $[\alpha]_D^{22}$ +104.9 ($CHCl_3$).

Phenyl glycoside: Phenyl 2,2′,3,3′,4′,6,6′-hepta-O-*acetyl*-α-D-*lactoside*
$C_{32}H_{40}O_{18}$ 712.657
Mp 170°. $[\alpha]_D^{19}$ +49 (c, 2.53 in $CHCl_3$).

β-D-*form*

Phenyl glycoside: Phenyl 2,2′,3,3′,4′,6,6′-hepta-O-*acetyl*-β-D-*lactoside*
$C_{32}H_{40}O_{18}$ 712.657
Mp 165°. $[\alpha]_D^{25}$ -22.7 (c, 1.58 in $CHCl_3$).

Montgomery, E.M. *et al., J.A.C.S.*, 1943, **65**, 1848
Tejina, S. *et al., Carbohydr. Res.*, 1971, **20**, 123 (*pmr*)

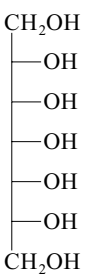
6-Heptenyl glucosinolate H-8

*1-Thio-*β-D-*glucopyranose 1-[*N-*(sulfooxy)-7-octenimidate]*
$H_2C{=}CH(CH_2)_5C(SGlc){=}NOSO_3H$
$C_{14}H_{25}NO_9S_2$ 415.485
Present in Japanese horseradish (*Wasabia japonica*).

Kojima, M. *et al., Yakugaku Zasshi*, 1973, **93**, 453; *CA*, **80**, 130475w (*occur*)

D-*glycero*-D-*allo*-Heptitol, 9CI H-9

[1068-99-1]

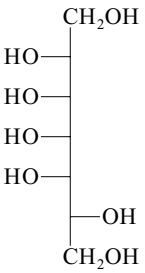


$C_7H_{16}O_7$ 212.199
Prismatic rods (EtOH). Mp 144.5-146°. Opt. inactive (*meso*-).

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 6326 (*synth*)
Okahira, A. *et al., CA*, 1982, **97**, 103649a, (*glc, struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1984, **126**, 15 (*conformn, cmr*)
Köll, P. *et al., Carbohydr. Res.*, 1993, **248**, 45 (*cryst struct*)

D-*glycero*-L-*allo*-Heptitol, 9CI H-10

D-glycero-D-altro-*Heptitol*
[1068-96-8]



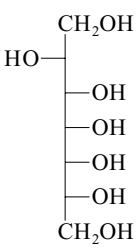
$C_7H_{16}O_7$ 212.199
Needles. Mp 125-128°. $[\alpha]_D^{20}$ -0.3 (c, 1.2 in H_2O). $[\alpha]_D^{20}$ +53.2 (c, 0.4 in 5% ammonium molybdate).

[6893-84-1]

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 6326 (*synth*)
Young, R. *et al., Can. J. Chem.*, 1966, **44**, 32 (*synth*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1984, **126**, 15; 1986, **150**, 7 (*cmr, conformn, cryst struct, pmr*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1989, 1763 (*conformn, pmr*)

D-*glycero*-D-*altro*-Heptitol H-11

D-glycero-L-allo-*Heptitol*

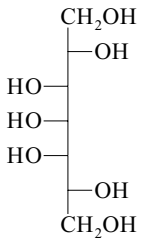


$C_7H_{16}O_7$ 212.199
Minute needles. Mp 125-128°. $[\alpha]_D$ -0.3 (H_2O). $[\alpha]_D$ +53.2 (5% ammonium molybdate).

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 6326 (*synth*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1984, **126**, 15; 1986, **150**, 7 (*cmr, cryst struct*)

D-*glycero*-L-*altro*-Heptitol H-12

meso-glycero-altro-*Heptitol*
[6893-83-0]



$C_7H_{16}O_7$ 212.199

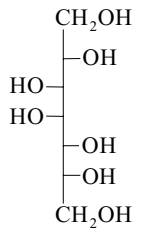
A *meso*-compd. Syrup.

Hepta-Ac: [7011-03-2]
$C_{21}H_{30}O_{14}$ 506.46
Cryst. (Et_2O/petrol). Mp 70°.

Young, R. *et al., Can. J. Chem.*, 1966, **44**, 32 (*synth, hepta-Ac*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1989, 1763 (*pmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1994, **262**, 9 (*cryst struct*)

D-*glycero*-D-*galacto*-Heptitol, 9CI, 8CI H-13

Perseitol. Persitol. α-Mannoheptitol. L-glycero-D-manno-*Heptitol*
[527-06-0]



$C_7H_{16}O_7$ 212.199

Isol. from leaves, fruit and particularly seeds of the avocado *Persea gratissima* or *Persea dymifolia*. Isol. (as K complex) from leaves of *Scurrula fusca*. Needles. Mp 187-188°. $[\alpha]_D^{20}$ +1 (H_2O). Oxidised by *B. xylinum*.

Hepta-Ac: [19147-10-5]
$C_{21}H_{30}O_{14}$ 506.46
Mp 119°. $[\alpha]_D^{20}$ -13.4 ($CHCl_3$).

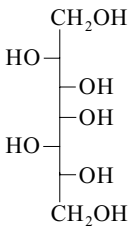
1,2:4,5:6,7-Tri-O-*isopropylidene:*
$C_{16}H_{28}O_7$ 332.393
Mp 58-60°. $[\alpha]_D^{20}$ -7 (c, 2.4 in $CHCl_3$).

[30635-52-0]

Peirce, G. *et al., J. Biol. Chem.*, 1915, **23**, 327
Hann, R.M. *et al., J.A.C.S.*, 1939, **61**, 336 (*struct*)
Szafranek, J. *et al., Anal. Lett.*, 1973, **6**, 479 (*glc*)
Okuda, T. *et al., Carbohydr. Res.*, 1975, **39**, 237 (*synth*)
Angyal, S. *et al., Carbohydr. Res.*, 1984, **126**, 15 (*cmr*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **150**, 35 (*synth*)
Kanters, J.A. *et al., Acta Cryst. C*, 1990, **46**, 71 (*cryst struct*)
Kopf, J. *et al., Acta Cryst. C*, 1991, **47**, 2186 (*cryst struct*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4630-4634 (*synth, cmr*)
Ishizu, T. *et al., Tet. Lett.*, 2001, **42**, 6887-6889 (*isol*)
Ishizu, T. *et al., Chem. Pharm. Bull.*, 2002, **50**, 489-492 (*pmr, cmr, struct*)

D-*glycero*-L-*galacto*-Heptitol, 8CI H-14

D-glycero-L-gluco-*Heptitol. β-Galaheptitol.* D-gulo-L-gala-*Heptitol (obsol.).* D-gala-L-gluco-*Heptitol (obsol.)*
[30636-42-1]



$C_7H_{16}O_7$ 212.199
Mp 141-142°. $[\alpha]_D$ +2.4 (H_2O).

Hepta-Ac: Hepta-O-*acetyl*-D-glycero-L-galacto-*heptitol*
$C_{21}H_{30}O_{14}$ 506.46
Mp 118°. $[\alpha]_D$ +11.4 ($CHCl_3$).

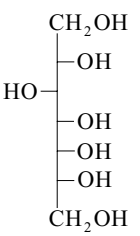
1-Deoxy-1-nitro: 1-Deoxy-1-nitro-D-glycero-L-galacto-*heptitol*
$C_7H_{15}NO_8$ 241.197
Cryst. (EtOH). Mp 152-153°. $[\alpha]_D^{20}$ +7.8 (c, 4 in H_2O).

[30635-52-0]

Hann, R.M. *et al., J.A.C.S.*, 1939, **61**, 336 (*synth, hepta-Ac*)
Sowden, J.C. *et al., J.A.C.S.*, 1960, **82**, 954 (*deoxy nitro deriv*)
Angyal, S. *et al., Carbohydr. Res.*, 1984, **126**, 15 (*cmr*)
Kopf, J. *et al., Acta Cryst. C*, 1991, **47**, 1503 (*cryst struct*)
Kopf, J. *et al., Carbohydr. Res.*, 1994, **262**, 9 (*cryst struct, hepta-Ac*)

D-*glycero*-D-*gluco*-Heptitol, 9CI, 8CI H-15

β-Sedoheptitol. D-altro-D-gluco-*Heptitol (obsol.).* L-gulo-D-talo-*Heptitol (obsol.)*
[608-61-7]



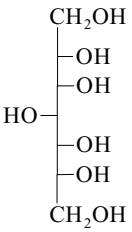
$C_7H_{16}O_7$ 212.199
Isol. in trace amts. from *Sedum* spp. Prisms (EtOH aq.).
Mp 128-129°. $[\alpha]_D^{20}$ -0.8 (c, 4.1 in H_2O).

[30635-52-0]

Merrill, A.T. *et al., J.A.C.S.*, 1947, **69**, 70 (*synth*)
Charlson, A.J. *et al., J.A.C.S.*, 1960, **82**, 3428 (*isol*)
Szafranek, J. *et al., Anal. Lett.*, 1973, **6**, 479 (*glc*)
Mills, J.A. *et al., Aust. J. Chem.*, 1974, **27**, 1433 (*conformn*)
Angyal, S. *et al., Carbohydr. Res.*, 1984, **126**, 15 (*cmr*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **150**, 35 (*synth*)
Köll, P. *et al., Carbohydr. Res.*, 1991, **218**, 55 (*cryst struct*)

D-*glycero*-D-*gulo*-Heptitol H-16

α-*Guloheptitol.* L-gluco-L-gulo-*Heptitol (obsol.).* D-gluco-D-gulo-*Heptitol (obsol.)*
[1069-00-7]



$C_7H_{16}O_7$ 212.199
Cryst. (MeOH). V. sol. H_2O; spar. sol. hot EtOH. Mp 127-128°. Opt. inactive (*meso*-).

Hepta-Ac:
$C_{21}H_{30}O_{14}$ 506.46
Cryst. (EtOAc). Mp 118-119° (113-115°).

1,2:4,5:6,7-Tri-O-*isopropylidene:*
$C_{16}H_{28}O_7$ 332.393
Cryst. (hexane). Mp 42-43°.

1,2:4,5:6,7-Tri-O-*isopropylidene, 3-(*p-*nitrobenzoyl):*
Cryst. (Et_2O). Mp 155-157°.

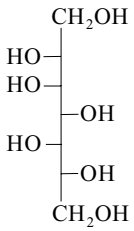
3,4,5,7-Tetrabenzyl:
$C_{35}H_{40}O_7$ 572.697
Syrup. $[\alpha]_D^{23}$ -0.7 (c, 4.4 in $CHCl_3$).

Heptabenzyl:
$C_{56}H_{58}O_7$ 843.07
Syrup.

Fischer, E. *et al., Annalen*, 1892, **270**, 64 (*synth*)
Maclay, W.D. *et al., J.A.C.S.*, 1942, **64**, 1606 (*synth*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1951, **73**, 2933 (*synth*)
Mills, J.A. *et al., Aust. J. Chem.*, 1974, **27**, 1433 (*conformn*)
Okuda, T. *et al., Carbohydr. Res.*, 1975, **39**, 237 (*synth, triisopropylidene deriv*)
Nimgirawath, K. *et al., J.C.S. Perkin 2*, 1976, 349 (*cryst struct*)
Angyal, S. *et al., Carbohydr. Res.*, 1984, **126**, 15 (*cmr*)
Köll, P. *et al., Carbohydr. Res.*, 1993, **247**, 111 (*cryst struct, hepta-Ac*)
Saavedra, O.M. *et al., J.O.C.*, 1996, **61**, 6987-6993 (*tetrabenzyl, heptabenzyl, synth, cmr, ir, pmr*)

D-*glycero*-L-*gulo*-Heptitol, 9CI H-17

D-glycero-D-ido-*Heptitol. Glucoheptitol. Glucoheptite*
[3343-95-1]



$C_7H_{16}O_7$ 212.199
Formed by the action of *Pichia miso* (yeast) isol. from miso paste, when cultivated in presence of D-xylose. Platelets (MeOH aq.). Mp 130-131° (128-129°). $[\alpha]_D^{20}$ +1.2 (H_2O).

Heptabenzoyl:
$C_{56}H_{44}O_{14}$ 940.955
Mp 181-182°. $[\alpha]_D^{20}$ +25.1 ($CHCl_3$).

1,2:4,5:6,7-Tri-O-*isopropylidene:*
[68127-26-4]
$C_{16}H_{28}O_7$ 332.393
Oil. $[\alpha]_D^{20}$ -7.4 (c, 2.0 in $CHCl_3$).

2,3:4,5:6,7-Tri-O-*isopropylidene:*
[68044-67-7]
$C_{16}H_{28}O_7$ 332.393
Oil. $[\alpha]_D^{20}$ -3 (c, 2.5 in $CHCl_3$).

2,6-Anhydro, penta-Ac: [113889-65-9]
$C_{17}H_{24}O_{11}$ 404.37
Oil. $[\alpha]_D^{25}$ +48.8 (c, 0.7 in $CHCl_3$).

2,6-Anhydro, pentabenzyl: [113889-64-8]
$C_{42}H_{44}O_6$ 644.806
Oil. $[\alpha]_D^{25}$ +19.5 (c, 1.63 in $CHCl_3$).

1,3,4,5-Tetra-O-*benzyl:* [182265-87-8]
$C_{35}H_{40}O_7$ 572.697
Syrup. $[\alpha]_D^{22}$ -3.7 (c, 3.8 in $CHCl_3$).

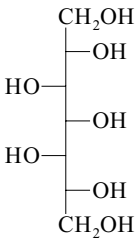
Hepta-O-*benzyl:* [182124-70-5]
$C_{56}H_{58}O_7$ 843.07
Syrup. $[\alpha]_D^{23}$ -4.5 (c, 2.4 in $CHCl_3$).

[30635-52-0]

Maclay, W.D. *et al., J.A.C.S.*, 1942, **64**, 1606 (*synth, heptabenzoyl*)
Pratt, J.W. *et al., J.A.C.S.*, 1952, **74**, 2210 (*synth*)
Onishi, H. *et al., Can. J. Microbiol.*, 1965, **11**, 929 (*synth, benzoyl*)
Szafranek, J. *et al., Anal. Lett.*, 1973, **6**, 479 (*glc*)
Mills, J.A. *et al., Aust. J. Chem.*, 1974, **27**, 1433 (*conformn*)
Okuda, T. *et al., Carbohydr. Res.*, 1978, **65**, 183 (*triisopropylidene*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1984, **126**, 15; 1986, **150**, 7 (*cmr, conformn*)
Lewis, D. *et al., J.C.S. Perkin 2*, 1991, 197 (*conformn*)
Köll, P. *et al., Carbohydr. Res.*, 1993, **248**, 45 (*cryst struct*)
Saavedra, O.M. *et al., J.O.C.*, 1996, **61**, 6987-6993 (*tetrabenzyl, heptabenzyl, synth, cmr, ir, pmr*)

D-*glycero*-L-*ido*-Heptitol H-18

meso-glycero-ido-*Heptitol*
[2204-11-7]

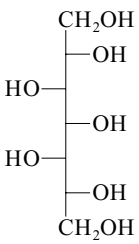


$C_7H_{16}O_7$ 212.199
A *meso*-compd.

Lewis, D. *et al., J.C.S. Perkin 2*, 1989, 1763 (*pmr*)
Kopf, J. *et al., Carbohydr. Res.*, 1994, **262**, 9 (*cryst struct*)

D-*glycero*-L-*ido*-Heptitol H-19

ido-ido-*Heptitol*



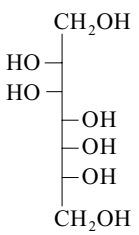
$C_7H_{16}O_7$ 212.199
Meso-. Mp 110-112°.

Hepta-Ac:
$C_{21}H_{30}O_{14}$ 506.46
Mp 175-176°.

Pratt, J.W. *et al., J.A.C.S.*, 1952, **74**, 2210

D-*glycero*-D-*manno*-Heptitol, 9CI, 8CI H-20

D-glycero-D-talo-*Heptitol. Volemitol. α-Sedoheptitol. β-Mannoheptitol*
[488-38-0]



$C_7H_{16}O_7$ 212.199
Occurs in the edible chichitake mushroom (*Lactarius volemus*), in roots of Primulae and in lipopolysaccharides from *E. coli*. Also in red algae. Widely distributed in plants. Needles (EtOH).
Mp 152-153°. $[\alpha]_D^{20}$ +2.2 (H_2O).

Hepta-Ac: 1,2,3,4,5,6,7-Hepta-O-*acetyl*-D-glycero-D-manno-*heptitol*
$C_{21}H_{30}O_{14}$ 506.46
Mp 63°. $[\alpha]_D^{20}$ +36.1 (c, 2 in $CHCl_3$).

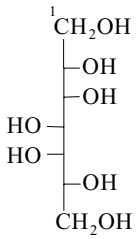
Tri-O-*benzylidene:*
$C_{28}H_{28}O_7$ 476.525
Needles. Mp 214-215°. $[\alpha]_D^{20}$ +1.7 ($CHCl_3$). Exact struct. apparently not detd.

[30635-52-0]

La Forge, F.B. *et al., J. Biol. Chem.*, 1917, **30**, 61; 1920, **42**, 375; 1928, **79**, 1 (*isol, tribenzylidene*)
Maclay, W.D. *et al., J.O.C.*, 1944, **9**, 293 (*occur, synth, hepta-Ac*)
Merrill, A.T. *et al., J.A.C.S.*, 1947, **69**, 70 (*synth, hepta-Ac*)
Adams, G.A. *et al., Can. J. Microbiol.*, 1967, **13**, 1605 (*isol, glc*)
Mills, J.A. *et al., Aust. J. Chem.*, 1974, **27**, 1433 (*conformn*)
Angyal, S. *et al., Carbohydr. Res.*, 1984, **126**, 15 (*cmr*)
Brimacome, J.S. *et al., Carbohydr. Res.*, 1986, **150**, 35 (*synth*)
Köll, P. *et al., Carbohydr. Res.*, 1991, **218**, 55; 1993, **247**, 111 (*cryst struct, hepta-Ac*)

D-*glycero*-L-*manno*-Heptitol H-21

L-glycero-L-galacto-*Heptitol, 9CI*
[30636-43-2]



$C_7H_{16}O_7$ 212.199
Numbering changes direction according to the name used. Mp 187-188°. $[\alpha]_D$ +1.1 (H_2O).

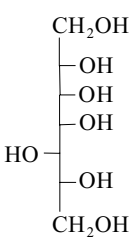
Hepta-Ac:
$C_{21}H_{30}O_{14}$ 506.46
Mp 119°. $[\alpha]_D$ +13.4 ($CHCl_3$).

1-Deoxy-1-nitro: 6-Deoxy-6-nitro-L-glycero-L-galacto-*heptitol*
$C_7H_{15}NO_8$ 241.197
Mp 165-166°. $[\alpha]_D^{20}$ +6.3 (c, 4 in H_2O).

[30635-52-0]

Peirce, G. *et al., J. Biol. Chem.*, 1915, **23**, 327 (*synth*)
Sowden, J.C. *et al., J.A.C.S.*, 1960, **82**, 954 (*deoxy-nitro*)

D-*glycero*-L-*talo*-Heptitol H-22



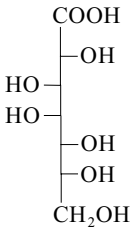
$C_7H_{16}O_7$ 212.199
Mp 128-129°. $[\alpha]_D^{22}$ +1 (H_2O).

Merrill, A.T. *et al., J.A.C.S.*, 1947, **69**, 70 (*synth*)

Webber, J.M. *et al., Adv. Carbohydr. Chem.*, 1962, **17**, 15 (*rev*)

D-*glycero*-D-*galacto*-Heptonic acid, 9CI, 8CI H-23

α-D-Mannoheptonic acid



$C_7H_{14}O_8$ 226.183
Mp 175°.

K salt: $[\alpha]_D^{20}$ +5.4 (c, 4 in H_2O).

Amide: D-glycero-D-galacto-*Heptonamide*
$C_7H_{15}NO_7$ 225.198
Cryst. (H_2O). Mp 193°. $[\alpha]_D^{20}$ +28 (c, 1 in H_2O).

1,4-Lactone: D-glycero-D-galacto-*Heptono-1,4-lactone*
[15397-08-7]
$C_7H_{12}O_7$ 208.168
Mp 150°. $[\alpha]_D^{20}$ +61.5 (c, 0.2 in H_2O).

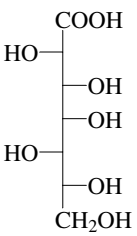
tert-*Butyl ester:*
$C_{11}H_{22}O_8$ 282.29
Cryst. (H_2O). Mp 175-177°. $[\alpha]_D$ -7.91 (c, 1 in MeOH).

[2782-86-7]

Fischer, E. *et al., Ber.*, 1889, **22**, 365 (*synth, lactone*)
Hudson, C.S. *et al., J.A.C.S.*, 1919, **41**, 1140 (*amide*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 400 (*rev*)
Isbell, H.J. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1938, **20**, 97 (*K salt*)
Kjolberg, O. *et al., Acta Chem. Scand.*, 1966, **20**, 2081 (*lactone*)
Perry, M.B. *et al., J. Chromatogr.*, 1969, **44**, 614 (*glc*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4625-4627 (*lactone, synth, pmr, cmr*)

D-*glycero*-L-*galacto*-Heptonic acid H-24

β-d-*Guloheptonic acid (obsol.)*
[35784-84-0]



$C_7H_{14}O_8$ 226.183
Plates. Mp 135°. $[\alpha]_D^{20}$ +12.8 (c, 4 in H_2O).

Ba salt: $[\alpha]_D$ +1.4 (c, 1 in H_2O).

Phenylhydrazide:
Cryst. (EtOH aq.). Mp 193-194°. $[\alpha]_D^{20}$ -12 (c, 1 in H_2O).

tert-*Butyl ester:*
$C_{11}H_{22}O_8$ 282.29
Cryst. (EtOH). Mp 130-132°. $[\alpha]_D$ +2.5 (c, 1 in H_2O).

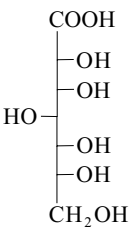
*1,4-Lactone, 5,6-*O*-isopropylidene: 5,6-*O*-Isopropylidene-D-*glycero-L-*galacto-heptono-1,4-lactone*
[221129-04-0]
$C_{10}H_{16}O_7$ 248.232
Cryst. (EtOAc/hexane). Mp 98-100°. $[\alpha]_D^{20}$ +59 (c, 1.0 in EtOH).

*1,5-Lactone, 3,4:6,7-di-*O*-isopropylidene: 3,4:6,7-Di-*O*-isopropylidene-D-*glycero-L-*galacto-heptono-1,5-lactone*
[137126-27-3]
$C_{13}H_{20}O_7$ 288.297
Mp 134-136°. $[\alpha]_D^{20}$ -92.4 (c, 1.0 in $CHCl_3$).

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1937, **19**, 639-650 (*synth*)
Merrill, A.T. *et al., J.A.C.S.*, 1947, **69**, 70-73 (*phenylhydrazide*)
Beacham, A.R. *et al., Tetrahedron: Asymmetry*, 1991, **3**, 883-900 (*diisopropylidene lactone*)
Horneman, A.M. *et al., Synthesis*, 1999, 317-325 (*isopropylidene lactone*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4625-4629 (tert-*butyl ester, synth, pmr, cmr*)

D-*glycero*-D-*gulo*-Heptonic acid, 9CI, 8CI H-25

α-d-*Glucoheptonic acid (obsol.)*
[87-74-1]
[23351-51-1]



$C_7H_{14}O_8$ 226.183
Readily obt. from glucose. Inexpensive starting material for synth. of chiral molecules. $[\alpha]_D^{20}$ -8.7 → -42.4 (H_2O).

*2,3,4,5,6,7-Hexa-Ac, nitrile: 2,3,4,5,6,7-Hexa-*O*-acetyl-D-*glycero-D-*gulo-heptononitrile*
$C_{19}H_{25}NO_{12}$ 459.406
Prisms (EtOH). Mp 86-88°. $[\alpha]_D^{20}$ +24.3 (c, 3.9 in $CHCl_3$).

1,4-Lactone: D-glycero-D-gulo-*Heptono-1,4-lactone*
[89-67-8]
[79703-26-7]
$C_7H_{12}O_7$ 208.168
Sol. H_2O. Mp 148°. $[\alpha]_D^{20}$ -56 → -50 (c, 2 in H_2O) (equilib.).

1,4-Lactone, Na salt: [10094-62-9]
$[\alpha]_D^{20}$ +3.98 (c, 2 in H_2O).

*1,4-Lactone, penta-Ac: 2,3,5,6,7-Penta-*O*-acetyl-D-*glycero-D-*gulo-heptono-1,4-lactone*
[114682-37-0]
$C_{17}H_{22}O_{12}$ 418.354
Cryst. (EtOH). Mp 131-132°. $[\alpha]_D^{27}$ -29 (c, 1.0 in $CHCl_3$).

*1,4-Lactone, pentabenzoyl: 2,3,5,6,7-Penta-*O*-benzoyl-D-*glycero-D-*gulo-1,4-heptonolactone*
$C_{42}H_{32}O_{12}$ 728.708
Feathery needles (EtOH/$CHCl_3$). Mp 153°. $[\alpha]_D^{21}$ -38.9 (c, 4.7 in $CHCl_3$).

*1,4-Lactone, 2,7-ditosyl: 2,7-Di-*O*-tosyl-D-*glycero-D-*gulo-1,4-heptonolactone*
[146820-62-4]
$C_{21}H_{24}O_{11}S_2$ 516.546
Mp 146-147°. $[\alpha]_D^{20}$ -38 (c, 2.0 in Me_2CO).

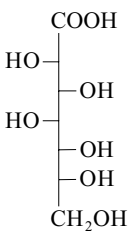
*1,4-Lactone, 2,3,5,6,7-penta-Me: 2,3,5,6,7-Penta-*O*-methyl-D-*glycero-D-*gulo-1,4-heptonolactone*
$C_{12}H_{22}O_7$ 278.302
Pyramidal rods (Et_2O/petrol). Mp 104°. $[\alpha]_D^{20}$ +41 (c, 2.2 in $CHCl_3$).

[2782-86-7, 60046-25-5]

Levene, P.A. *et al., J. Biol. Chem.*, 1924, **60**, 173 (*lactone*)
Haworth, W.N. *et al., J.C.S.*, 1932, 2481 (*lactone, penta-Me*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 398 (*rev, derivs*)
Hockett, R.C. *et al., J.A.C.S.*, 1944, **66**, 957 (*nitrile, hexa-Ac*)
Kjolberg, O. *et al., Acta Chem. Scand.*, 1966, **20**, 2081 (*lactone*)
Kohn, P. *et al., J.O.C.*, 1966, **31**, 1503 (*lactone pentabenzoyl*)
Perry, M.B. *et al., J. Chromatogr.*, 1969, **44**, 614 (*glc*)
Jeroncic, L.O. *et al., Carbohydr. Res.*, 1987, **167**, 175 (*penta-Ac*)
Czech. Pat., 1989, 257 827; *CA*, **112**, 77864y (*manuf*)
Lundt, I. *et al., Synthesis*, 1992, 1129 (*lactone ditosyl*)
Sotofte, I. *et al., Acta Cryst. C*, 1994, **50**, 938 (*cryst struct, lactone*)

D-*glycero*-D-*ido*-Heptonic acid, 9CI, 8CI H-26

β-d-*Glucoheptonic acid (obsol.)*
[488-36-8]
[23351-51-1]



$C_7H_{14}O_8$ 226.183
Mp 134-135°. $[\alpha]_D^{20}$ +1.4 → -35.3 (H_2O).

Phenylhydrazide: Mp 150-152°.

1,4-Lactone: D-glycero-D-ido-*Heptono-1,4-lactone*
[15397-07-6]
$C_7H_{12}O_7$ 208.168
Cryst. Mp 152°. $[\alpha]_D^{20}$ -74.9 (c, 0.2 in H_2O) (-39.3 in H_2O).

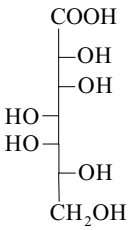
[2782-86-7, 31138-65-5]

Fischer, E. *et al., Annalen*, 1892, **270**, 64 (*synth, lactone*)

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 399 (*rev*)
Kjolberg, O. *et al., Acta Chem. Scand.*, 1966, **20**, 2081 (*lactone*)

D-*glycero*-L-*manno*-Heptonic acid, 8CI H-27

α-d-*Galactoheptonic acid (obsol.)*



$C_7H_{14}O_8$ 226.183
Mp 149-150°.

Amide: D-glycero-L-manno-*Heptonamide*
$C_7H_{15}NO_7$ 225.198
Mp 206°. $[\alpha]_D^{20}$ +14.3 (H_2O).

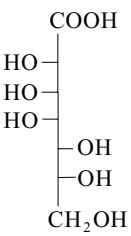
1,4-Lactone: D-glycero-L-manno-*Heptono-1,4-lactone*
$C_7H_{12}O_7$ 208.168
Mp 145-147°. $[\alpha]_D^{20}$ -52.2 (H_2O).

[2782-86-7]

Kiliani, H. *et al., Ber.*, 1888, **21**, 915 (*synth*)
Hudson, C.S. *et al., J.A.C.S.*, 1919, **41**, 1141 (*amide*)
Kiliani, H. *et al., Ber.*, 1922, **55**, 75; 493 (*lactone*)

D-*glycero*-D-*talo*-Heptonic acid H-28

β-d-*Mannoheptonic acid (obsol.)*



$C_7H_{14}O_8$ 226.183
$[\alpha]_D^{20}$ +6.1 → -25 (c, 4 in H_2O).

K salt: $[\alpha]_D^{21}$ +0.3 (c, 4 in H_2O).

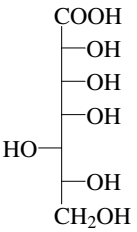
1,4-Lactone: D-glycero-D-talo-*Heptono-1,4-lactone*
[15397-09-8]
$C_7H_{12}O_7$ 208.168
Mp 152°. $[\alpha]_D^{20}$ +35.3 (c, 0.2 in H_2O).

[2782-86-7]

Isbell, H.J. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1938, **20**, 97 (*synth*)
Kjolberg, O. *et al., Acta Chem. Scand.*, 1966, **20**, 2081 (D-*lactone*)
Perry, M.B. *et al., J. Chromatogr.*, 1969, **44**, 614 (*glc*)

D-*glycero*-L-*talo*-Heptonic acid H-29

α-d-*Guloheptonic acid (obsol.)*



$C_7H_{14}O_8$ 226.183
Prisms (AcOH aq.). Mp 128°. $[\alpha]_D^{20}$ -12.6 (c, 4 in H_2O).

Phenylhydrazide:
Cryst. (EtOH aq.). Mp 156-157°. $[\alpha]_D^{20}$ +31.4 (c, 1.2 in H_2O).

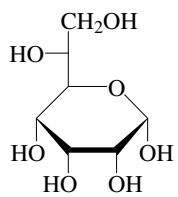
1,4-Lactone: D-glycero-L-talo-*Heptono-1,4-lactone*
[221129-03-9]
$C_7H_{12}O_7$ 208.168
Cryst. (EtOH). Mp 139-141°. $[\alpha]_D^{20}$ +25.4 (c, 4 in H_2O).

*1,5-Lactone, 3,4:6,7-di-*O*-isopropylidene:* *3,4:6,7-Di-*O*-isopropylidene-D-*glycero-L-talo-*heptono-1,5-lactone*
[137126-26-2]
$C_{13}H_{20}O_7$ 288.297
Mp 174-176°. $[\alpha]_D^{20}$ -66.4 (c, 0.5 in Me_2CO).

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1937, **19**, 639-650 (*synth, lactone*)
Merrill, A.T. *et al., J.A.C.S.*, 1947, **69**, 70-73 (*phenylhydrazide*)
Beacham, A.R. *et al., Tetrahedron: Asymmetry*, 1991, **2**, 883-900 (*diisopropylidene lactone*)
Horneman, A.M. *et al., Synthesis*, 1999, 317-325 (*lactone*)

D-*glycero*-D-*allo*-Heptose, 9CI H-30

[22224-55-1]



α-Pyranose-*form*

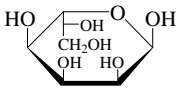
$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 14.0% α-Pyr, 74.0% β-Pyr, 5.0% α-Fur and 7.0% β-Pyr. Cryst. + $1H_2O$ (EtOH aq.). Mp 95-98° (effervesces). $[\alpha]_D$ +7.2 (3 min) → +12.68 (equilib.) (c, 4.6 in H_2O).

[87172-44-9, 87172-45-0, 87172-46-1 87172-47-2]

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 6326-6328 (*synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1983, **36**, 937-946 (*cmr, equilib*)

D-*glycero*-L-*allo*-Heptose, 9CI, 8CI H-31

[7011-04-3]



α-Pyranose-*form*

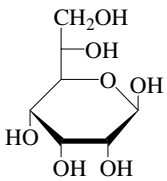
$C_7H_{14}O_7$ 210.183
$[\alpha]_D$ -10 (c, 1.9 in H_2O).

Hexa-Ac:
$C_{19}H_{26}O_{13}$ 462.407
Cryst. (Et_2O/petrol). Mp 142°. $[\alpha]_D$ +32 (c, 1.24 in $CHCl_3$).

Young, R. *et al., Can. J. Chem.*, 1966, **44**, 32-36 (*synth, hexa-Ac*)

L-*glycero*-D-*allo*-Heptose, 9CI, 8CI H-32

[321187-62-6]



β-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
$[\alpha]_D$ +8.9 (c, 1.77 in H_2O).

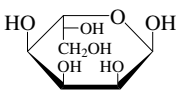
β-Pyranose-*form*

*Me glycoside, 2,3,4-tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-L-*glycero-*β-D-*allo-*heptopyranoside*
[321142-44-3]
$C_{29}H_{34}O_7$ 494.583
$[\alpha]_D$ +1 (c, 1 in $CHCl_3$).

*Me glycoside, pentabenzyl: Methyl 2,3,4,6,7-penta-*O*-benzyl-L-*glycero-*β-D-*allo-*heptopyranoside*
[321142-45-4]
$C_{43}H_{46}O_7$ 674.832
Oil. $[\alpha]_D$ +11.7 (c, 1.2 in $CHCl_3$).

Kim, M. *et al., Tetrahedron*, 2000, **56**, 9319-9337 (*synth, Me pyr benzyl derivs*)

L-*glycero*-L-*allo*-Heptose, 9CI H-33



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

β-Furanose-*form*

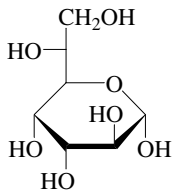
*Me glycoside, 2,3:6,7-di-*O*-isopropylidene: Methyl 2,3:6,7-di-*O*-isopropylidene-L-*glycero-*β-L-*allo-*heptofuranoside*
[115435-34-2]
$C_{14}H_{24}O_7$ 304.339
Mp 39-41°. $[\alpha]_D$ +53 (c, 1.3 in $CHCl_3$).

[108182-74-7]

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1987, **169**, 234-240 (*β-Me fur isopropylidene*)

D-*glycero*-D-*altro*-Heptose, 9CI H-34

[77842-58-1]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
Component of O antigen chains in lipopolysaccharides from *Campylobacter jejuni* serotypes O23 and O36.

α-Pyranose-*form* No CAS reg no. to 14CI.

Me glycoside: [155154-56-6]
$C_8H_{16}O_7$ 224.21
$[\alpha]_D^{20}$ +68 (c, 1.0 in MeOH).

Me glycoside, penta-Ac: [155154-57-7]
$C_{18}H_{26}O_{12}$ 434.396
$[\alpha]_D^{20}$ +50 (c, 1.0 in $CHCl_3$).

*Me glycoside, 3-*O*-Me:* [155021-06-0]
$C_9H_{18}O_7$ 238.237
$[\alpha]_D^{20}$ +92 (c, 1.0 in MeOH).

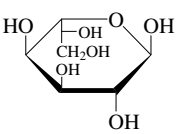
*Me glucoside, 3-*O*-Me, tetra-Ac:* [155020-97-6]
$C_{17}H_{26}O_{11}$ 406.386
$[\alpha]_D^{20}$ +86 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene:* [155021-02-6]
$C_{15}H_{20}O_7$ 312.319
Cryst. (Et_2O/MeOH). Mp 209-211°.
$[\alpha]_D^{20}$ +92 (c, 1.0 in MeOH).

Angyal, S.J. *et al., Can. J. Chem.*, 1981, **59**, 379-383 (*conformn*)
Khare, N.K. *et al., Can. J. Chem.*, 1994, **72**, 237-246 (*synth, cmr, pmr*)

D-*glycero*-L-*altro*-Heptose, 9CI, 8CI H-35

[7011-02-1]



α-Pyranose-*form*

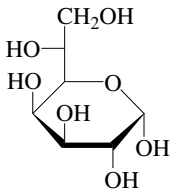
$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 29.0% α-Pyr, 41.0% β-Pyr, 17.0% α-Fur and 13.0% β-Fur. Cryst. (EtOH aq.). Mp 132-134°. $[\alpha]_D^{22}$ -31.6 (1 min) → -29.4 (3h) (c, 1.35 in H_2O).

Hexa-Ac:
$C_{19}H_{26}O_{13}$ 462.407
Cryst. + 2MeOH (MeOH). Mp 221°.
$[\alpha]_D$ +52 (c, 0.95 in $CHCl_3$).

Young, R. *et al., Can. J. Chem.*, 1966, **44**, 32-36 (*synth*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)

D-*glycero*-D-*galacto*-Heptose, 9CI, 8CI H-36

D-*Manno*-D-gala-*heptose.* α-D-*Mannoheptose.* d-α-*Mannoheptose (obsol.)*
[5328-64-3]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 28% α-pyr, 67% β-pyr, 2% α-fur, 3% β-fur and 0.01% aldehyde. Component of the specific polysaccharide of *Chromobacterium violaceum* and of homopolysaccharide from *Eubacterium saburreum*. $[\alpha]_D$ +54 (c, 0.35 in MeOH) (equilib.).

Di-Et dithioacetal: [135585-61-4]
$C_{11}H_{24}O_6S_2$ 316.439
Cryst. (H_2O). Mp 188-190°. $[\alpha]_D^{20}$ -11.9 (c, 0.4 in H_2O).

Di-Et dithioacetal, 2,3,4,5,6,7-hexa-Ac:
$C_{23}H_{36}O_{12}S_2$ 568.662
Plates (MeOH aq.). Mp 77°. $[\alpha]_D^{20}$ -2.2 (c, 2.6 in $CHCl_3$).

α-*form* [87172-44-9]
Cryst. (monohydrate). Mp 115-120° (hydrate) Mp 145°. $[\alpha]_D^{20}$ +124 → +69 (c, 4 in H_2O).

α-Pyranose-*form* [87172-52-9]

*1,2:3,4:6,7-Tri-*O*-isopropylidene:* *1,2:3,4:6,7-Tri-*O*-isopropylidene-D-*glycero-D-galacto-α-*heptopyranose*
[56808-71-0]
$C_{16}H_{26}O_7$ 330.377
Syrup. $[\alpha]_D^{20}$ -62 (c, 3 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene, 6,7-di-Ac:* *6,7-Di-*O*-acetyl-1,2:3,4-di-*O*-isopropylidene-D-*glycero-D-galacto-α-*heptopyranose*
[59401-70-6]
$C_{17}H_{26}O_9$ 374.387
Cryst. (pentane). Mp 50-52°. $[\alpha]_D^{20}$ -44 (c, 3.2 in $CHCl_3$).

Me glycoside: Methyl D-glycero-D-galacto-*α-heptopyranoside*
[52571-86-5]
$C_8H_{16}O_7$ 224.21
Cryst. (MeOH). Mp 141°. $[\alpha]_D^{20}$ +178 (H_2O).

α-D-Pyranose-*form*

*Me glycoside, 2,3,4,7-tetrabenzyl: Methyl 2,3,4,7-tetra-*O*-benzyl-D-*glycero-α-D-galacto-*heptopyranoside*
[321142-26-1]
$C_{36}H_{40}O_7$ 584.708
Oil. $[\alpha]_D$ +32 (c, 1.64 in $CHCl_3$).

β-*form* [87172-53-0]
Cryst. (monohydrate). Mp 104° (hydrate). $[\alpha]_D^{20}$ +48.7 → +63.4 (c, 4 in H_2O).

β-Pyranose-*form*

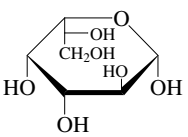
Me glycoside: Methyl D-glycero-β-D-galacto-*heptopyranoside*
$C_8H_{16}O_7$ 224.21
Cryst. (MeOH). Mp 168°. $[\alpha]_D^{20}$ -5.1 (c, 2 in H_2O).

[87172-45-0]

Montgomery, E. *et al., J.A.C.S.*, 1934, **56**, 2463-2464 (*di-Et dithioacetal, di-Et dithioacetal hexa-Ac*)
Montgomery, E.M. *et al., J.A.C.S.*, 1942, **64**, 247-254 (*α-form, β-form, α-Me pyr, β-Me pyr*)
MacLennan, A.P. *et al., Biochem. J.*, 1957, **66**, 562-567 (*isol*)
Dmitriev, B.A. *et al., Carbohydr. Res.*, 1976, **47**, 25-34 (*α-pyr triisopropylidene, α-pyr diisopropylidene di-Ac*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
Prenner, R.H. *et al., Annalen*, 1994, 73-78 (*synth*)
Grzeszczyk, B. *et al., Coll. Czech. Chem. Comm.*, 2000, **65**, 610-620 (*α-D-pyr Me glycoside tri-Ac O-allyl*)
Kim, M. *et al., Tetrahedron*, 2000, **56**, 9319-9337 (*α-D-pyr Me glycoside tetrabenzyl*)

D-*glycero*-L-*galacto*-Heptose, 9CI H-37

α-D-*Guloheptose (obsol.)*
[1949-76-4]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 36% α-pyr, 57% β-pyr, 3% α-fur, 4% β-fur and 0.02% aldehyde. Mp 185-187°. $[\alpha]_D^{20}$ -120.5 → -65.5 (H_2O).

*Hexa-Ac: 1,2,3,4,6,7-Hexa-*O*-acetyl-D-*glycero-L-galacto-*heptose*
$C_{19}H_{26}O_{13}$ 462.407
Mp 117-118°. $[\alpha]_D^{20}$ -65 ($CHCl_3$).

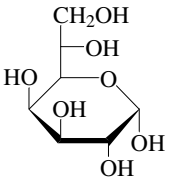
β-Pyranose-*form* [87172-57-4]

*1,2:3,4:6,7-Tri-*O*-isopropylidene:* *1,2:3,4:6,7-Tri-*O*-isopropylidene-D-*glycero-L-galacto-β-*heptopyranose*
[35784-86-2]
$C_{16}H_{26}O_7$ 330.377
Cryst. (hexane). Mp 78-79°. $[\alpha]_D^{20}$ +65.5 (c, 1.9 in MeOH).

La Forge, F.B. *et al., J. Biol. Chem.*, 1920, **41**, 251-256 (*synth*)
Frush, H.L. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1945, **35**, 111-124 (*struct*)
Dmitriev, B.A. *et al., Carbohydr. Res.*, 1976, **47**, 25-34 (*triisopropylidene*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1983, **36**, 937-946 (*cmr, equilib*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
Prenner, R.H. *et al., Annalen*, 1994, 73-78 (*synth, pmr, cmr*)

L-*glycero*-D-*galacto*-Heptose, 9CI H-38

[22617-40-9]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
Cryst. (MeOH). Mp 178-182°. $[\alpha]_{578}^{20}$ +106 (7 min) → +66 (equil.) (c, 0.25 in H_2O).

Hexa-Ac: 1,2,3,4,6,7-Hexa-O-*acetyl*-L-glycero-D-galacto-*heptose*
[22617-41-0]
$C_{19}H_{26}O_{13}$ 462.407
Cryst. (EtOH). Mp 115-122°.

α-Pyranose-*form*

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene*-L-glycero-α-D-galacto-*heptopyranose*
[22738-75-6]
$C_{13}H_{22}O_7$ 290.313
Mp 98-100°.

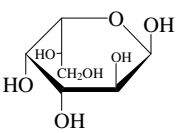
7-Benzyl, 1,2:3,4-di-O-*isopropylidene: 7*-O-*Benzyl-1,2:3,4-di*-O-*isopropylidene*-L-glycero-α-D-galacto-*heptopyranose*
[321142-34-1]
$C_{20}H_{28}O_7$ 380.437
Oil. $[\alpha]_D$ -44 (c, 2.22 in $CHCl_3$).

Me glycoside, 2,3,4,6,7-penta-Ac: Methyl 2,3,4,6,7-penta-O-*acetyl*-L-glycero-α-D-galacto-*heptopyranoside*
[287477-95-6]
$C_{18}H_{26}O_{12}$ 434.396
$[\alpha]_D$ +87 (c, 0.44 in $CHCl_3$).

David, S. *et al., Carbohydr. Res.*, 1968, **8**, 350-353 (*synth*)
Khare, N.K. *et al., Can. J. Chem.*, 1994, **72**, 237-246 (α-*pyr diisopropylidene*)
Grzeszczyk, B. *et al., Coll. Czech. Chem. Comm.*, 2000, **65**, 610-620 (α-*pyr acetates*)

L-*glycero*-L-*galacto*-Heptose, 9CI, 8CI H-39

[20585-65-3]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
A Py soln. at r.t. contains 44.9% α-Pyr, 39.6% β-Pyr, 9.4% α-Fur and 6.1% β-Fur. Cryst. + H_2O (H_2O/MeOH/EtOH). Mp 131-134° (monohydrate). $[\alpha]_D^{21}$ -115.5 → -62 (equlib.) (c, 3 in H_2O). $[\alpha]_D^{25}$ -68 (c, 1.12 in H_2O) (24h).

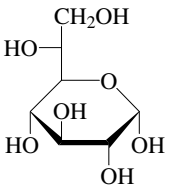
Phenylhydrazone:
Needles (H_2O). Mp 195-196° dec.

Phenylosazone:
Needles (EtOH aq.). Mp 200° dec.

Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1964, 669-677; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1964, 622-627 (*synth*)
Bilik, V. *et al., Chem. Zvesti*, 1974, **28**, 668-672 (*synth*)

D-*glycero*-D-*gluco*-Heptose, 9CI H-40

D-altro-D-gluco-*Heptose*
[1949-75-3]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
Found in roots of *Primula officinalis*.
Cryst. (MeOH).
Mp 156-157°. $[\alpha]_D^{20}$ +17 → +46 (c, 2.4 in H_2O).

α-Pyranose-*form*

Hexa-Ac:
$C_{19}H_{26}O_{13}$ 462.407
Prisms ($CHCl_3$/Et_2O). Mp 181-182°. $[\alpha]_D^{20}$ +107 (c, 2 in $CHCl_3$).

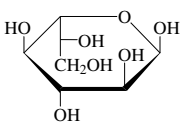
β-Pyranose-*form*

Hexa-Ac:
$C_{19}H_{26}O_{13}$ 462.407
Prisms (CH_2Cl_2/pentane). Mp 133-134°. $[\alpha]_D^{20}$ +19.6 (c, 1 in $CHCl_3$).

Rosenfeld, D.A. *et al., J.A.C.S.*, 1951, **73**, 4907-4910 (*synth, α-hexa-Ac*)
Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272-288 (*isol, β-hexa-Ac*)

D-*glycero*-L-*gluco*-Heptose, 9CI, 8CI H-41

β-d-*Galaheptose (obsol.)*
[23102-92-3]



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 43% α-pyr and 57% β-pyr.

Di-Et dithioacetal:
$C_{11}H_{24}O_6S_2$ 316.439
Mp 133°. $[\alpha]_D^{20}$ +37.8 (H_2O).

Dibenzyl dithioacetal:
$C_{21}H_{28}O_6S_2$ 440.581
Mp 146-147°. $[\alpha]_D^{20}$ +73.8 (Py).

α-Pyranose-*form* [87247-39-0]
Mp 196-197°. $[\alpha]_D^{20}$ -19 → -54 (H_2O).

Me glycoside: Methyl D-glycero-α-L-*glucoheptopyranoside*
$C_8H_{16}O_7$ 224.21
Cryst. (MeOH). Mp 182-183°. $[\alpha]_D^{20}$ +36 (c, 2 in H_2O).

β-Pyranose-*form*
Mp 100-101°. $[\alpha]_D^{20}$ -55.8 (H_2O).

Me glycoside: Methyl D-glycero-β-L-gluco-*heptopyranoside*
$C_8H_{16}O_7$ 224.21
$[\alpha]_D^{70}$ +74.

β-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene*-D-glycero-L-gluco-β-*heptofuranose*
[56808-72-1]
$C_{13}H_{22}O_7$ 290.313
Syrup. $[\alpha]_D^{20}$ +15 (c, 2.2 in $CHCl_3$).

1,2:5,6-Di-O-*isopropylidene, 3,7-di-Ac: 3,7-Di*-O-*acetyl-1,2:5,6-di*-O-*isopropylidene*-D-glycero-L-gluco-β-*heptofuranose*
[56808-75-4]
$C_{17}H_{26}O_9$ 374.387
Syrup. $[\alpha]_D^{20}$ +37 (c, 2.2 in $CHCl_3$).

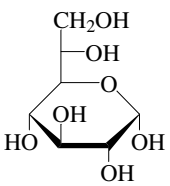
1,2:6,7-Di-O-*isopropylidene: 1,2:6,7-Di*-O-*isopropylidene*-D-glycero-L-gluco-β-*heptofuranose*
[56808-73-2]
$C_{13}H_{22}O_7$ 290.313
Cryst. (hexane). Mp 85-87°. $[\alpha]_D^{18}$ +9 (c, 2.2 in $CHCl_3$).

1,2:6,7-Di-O-*isopropylidene, 3,5-di-Ac: 3,5-Di*-O-*acetyl-1,2:6,7-di*-O-*isopropylidene*-D-glycero-L-gluco-β-*heptofuranose*
[56808-76-5]
$C_{17}H_{26}O_9$ 374.387
Cryst. (heptane). Mp 114-116°. $[\alpha]_D^{18}$ -3 (c, 2.6 in $CHCl_3$).

Hann, R.M. *et al., J.A.C.S.*, 1937, **59**, 548-551 (*struct, α-Me pmr*)
Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1940, **24**, 125 (*β-Me pyr*)
Dmitriev, B.A. *et al., Carbohydr. Res.*, 1976, **47**, 25-34 (*β-fur isopropylidene derivs, pmr*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **150**, 35 (*synth, enantiomer*)

L-*glycero*-D-*gluco*-Heptose, 9CI, 8CI H-42

[84142-51-8]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
Cryst. (EtOH aq.). Mp 193-194°. $[\alpha]_D$ +24 (10 min) → +52 (final) (c, 1.9 in H_2O).

α-Pyranose-*form*

Me glycoside: Methyl L-glycero-α-D-gluco-*heptopyranoside*
[66781-93-9]
$C_8H_{16}O_7$ 224.21
Mp 153-155°. $[\alpha]_D$ +157 (c, 1.0 in MeOH).

Me glycoside, 2,3,4-tribenzyl: Methyl 2,3,4-tri-O-*benzyl*-L-glycero-α-D-gluco-*heptopyranoside*
[103597-24-6]
$C_{29}H_{34}O_7$ 494.583
Cryst. (MeOH/hexane). Mp 105-106°. $[\alpha]_D$ +53 (c, 1.0 in $CHCl_3$). $[\alpha]_D$ +18.2 (c, 1.0 in $CHCl_3$).

β-Furanose-*form*

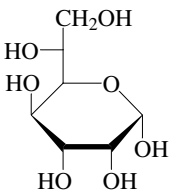
1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-β*-L-glycero-D-gluco-*heptofuranose*
[108267-49-8]
$C_{10}H_{18}O_7$ 250.248
Cryst. (MeOH/EtOAc). Mp 163-165°. $[\alpha]_D$ -9 (c, 0.5 in MeOH).

[108182-64-5]

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **150**, 35-51 (*synth, 1,2-isopropylidene, β-fur*)
Khare, N.K. *et al., Can. J. Chem.*, 1994, **72**, 237-246 (*Me-α-pyr tribenzyl*)

D-*glycero*-D-*gulo*-Heptose, 9CI, 8CI H-43

α-Glucoheptose (obsol.)
[3146-50-7]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 15% α-pyr, 80% β-pyr =2% α-fur, 3% β-fur, and 0.02% aldehyde. Cryst. (H_2O). Mp 193°. $[\alpha]_D^{20}$ -28.7 → -20.2 (H_2O).

7-Tosyl:
$C_{14}H_{20}O_9S$ 364.373
Cryst. (EtOH). Mp 132-134° dec. $[\alpha]_D^{20}$ -13 (H_2O).

Di-Et dithioacetal:
$C_{11}H_{24}O_6S_2$ 316.439
Needles (EtOH). Mp 155-156°. $[\alpha]_D^{20}$ -30.5 (H_2O). $[\alpha]_D^{20}$ -7.7 (Py).

Di-Et dithioacetal, hexa-Ac:
$C_{23}H_{36}O_{12}S_2$ 568.662
Cryst. (MeOH aq.). Mp 99-100°. $[\alpha]_D$ -12 (c, 4 in $CHCl_3$).

α-Pyranose-*form* [84708-91-8]

Me glycoside: Methyl D-glycero-D-gulo-*α-heptopyranoside*
[52571-81-0]
$C_8H_{16}O_7$ 224.21
Cryst. (EtOH/2-propanol). Mp 106-107°. $[\alpha]_D^{24}$ +112 (c, 1.0 in H_2O).

β-Pyranose-*form* [13405-44-2]

Me glycoside: Methyl D-glycero-D-gulo-*β-heptopyranoside*
[5349-39-3]
$C_8H_{16}O_7$ 224.21
Cryst. (EtOH). Mp 169-170°. $[\alpha]_D^{24}$ -75 (c, 1.0 in H_2O).

α-Furanose-*form* [87172-61-0]

Me glycoside: Methyl D-glycero-D-gulo-*α-heptofuranoside*
[56654-37-6]
$C_8H_{16}O_7$ 224.21
Syrup. $[\alpha]_D^{24}$ +73.5 (c, 1.3 in H_2O).

β-Furanose-*form* [87173-38-4]

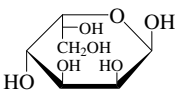
2,3:6,7-Diisopropylidene: 2,3:5,6-Di-O-*isopropylidene*-D-glycero-D-gulo-*heptofuranose*
[34685-44-4]
$C_{13}H_{22}O_7$ 290.313
Chiron for prostaglandin synth.
Mp 99-100°. $[\alpha]_D$ -31 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl D-glycero-D-gulo-*β-heptofuranoside*
[56654-38-7]
$C_8H_{16}O_7$ 224.21
Syrup. $[\alpha]_D^{24}$ -90.3 (c, 1.7 in H_2O).

[69008-91-9]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 903A (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 194A (*ir*)
Haworth, W.N. *et al., J.C.S.*, 1931, 2864-2872 (*synth*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1940, **62**, 2343-2349 (*di-Et dithioacetal hexa-Ac*)
Zissis, E. *et al., J.A.C.S.*, 1951, **73**, 4714-4719 (*di-Et dithioacetal*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 160-167 (*synth*)
Micheel, F. *et al., Carbohydr. Res.*, 1967, **3**, 283-294 (*7-tosyl*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 562-567 (*Diisopropylidene*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1975, **28**, 1541-1549 (*α-Me pyr, β-Me pyr, α-M e fur, β-Me fur*)
Stork, G. *et al., J.A.C.S.*, 1978, **100**, 8272-8273 (*synth, diisopropylidene*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)

L-*glycero*-L-*gulo*-Heptose, 9CI, 8CI H-44



α-Pyranose-*form*

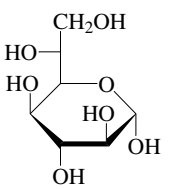
$C_7H_{14}O_7$ 210.183

Di-Et dithioacetal: [201788-55-8]
$C_{11}H_{24}O_6S_2$ 316.439
Mp 154-155°. $[\alpha]_D$ +7.7 (c, 0.88 in Py).

Stepowska, H. *et al., Carbohydr. Res.*, 1997, **304**, 347-355 (*di-Et dithioacetal*)

D-*glycero*-D-*ido*-Heptose H-45

[23102-94-5]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains 24.4% α-Pyr, 50.8% β-Pyr, 8.7% α-Fur and 15.5% β-Fur. Cryst. (EtOH aq.). Mp 121°. $[\alpha]_D^{20}$ -0.1 → -6 (18m) (c, 5 in H_2O) (24h, equilib.).

Dibenzyl dithioacetal: [7599-15-7]
$C_{21}H_{28}O_6S_2$ 440.581
Shiny hexagonal platelets (EtOH). Mp 130-131°. $[\alpha]_D^{20}$ +71 (Py).

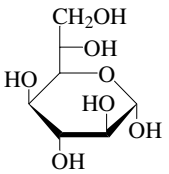
Phenylosazone: Mp 197-198°.

[52571-82-1, 52571-83-2, 87172-63-2]

Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 160-168 (*synth*)
Williams, D.T. *et al., Can. J. Chem.*, 1969, **47**, 2763-2765 (*synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1983, **36**, 937-946 (*cmr, equilib*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1991, **49**, 19-35 (*equilib*)

L-*glycero*-D-*ido*-Heptose, 9CI H-46

[172274-80-5]



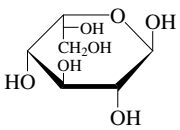
α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
Constit. of core lipopolysaccharide of *Campylobacter jejuni* serotype 0:3 cell wall. Identified by degradative methods.

Aspinall, G.O. *et al., Eur. J. Biochem.*, 1995, **231**, 570-578 (*isol*)

L-*glycero*-L-*ido*-Heptose, 9CI, 8CI H-47

[20585-67-5]



α-Pyranose-*form*

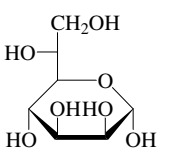
$C_7H_{14}O_7$ 210.183
$[\alpha]_D^{20}$ +2.2 (c, 0.5 in H_2O).

Dibenzyl dithioacetal: [3960-52-9]
$C_{21}H_{28}O_6S_2$ 440.581
Cryst. (EtOH). Mp 128°. $[\alpha]_D^{18}$ -78.5 (c, 1.58 in Py).

Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1964, 669-677; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1964, 622-627 (*synth*)

D-*glycero*-D-*manno*-Heptose, 9CI, 8CI H-48

D-altro-D-manno-*Heptose*
[1961-73-5]



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
Found combined in baker's yeast, in the cell wall lipopolysaccharides of enterobacteria and the roots of *Primula officinalis*. A homopolymer occurs in the lipopolysaccharide of *Helicobacter pylori* strain D4.
$[\alpha]_D^{22}$ +21.5 (c, 3.2 in MeOH).

Phenylosazone: Mp 194-195°. $[\alpha]_D^{20}$ -69 → +23 (c, 0.4 in Py/EtOH).

Di-Et dithioacetal: [95707-88-3]
$C_{11}H_{24}O_6S_2$ 316.439
Mp 151-153° (155-156°). $[\alpha]_D^{20}$ +31 (c, 1.8 in H_2O).

Hexa-Ac: [130404-55-6]
$C_{19}H_{26}O_{13}$ 462.407
Prisms ($CHCl_3$/pentane). Mp 138-139°. $[\alpha]_D^{20}$ +66.5 (c, 2.5 in $CHCl_3$).

1-(Hydrogen methylphosphonate):
[158924-09-5]
$C_8H_{17}O_9P$ 288.191
$[\alpha]_D^{20}$ -0.8 (c, 1 in H_2O) (Na salt).

α-Pyranose-*form*

*Me glycoside, 6,7-*O*-isopropylidene, 4-Ac:*
[82883-20-3]
$C_{13}H_{22}O_8$ 306.312
Mp 89-90°. $[\alpha]_D^{22}$ +52 (c, 1 in $CHCl_3$).

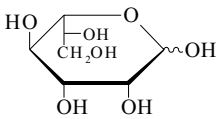
α-Furanose-*form*

Me glycoside: Methyl D-glycero-α-D-manno-*heptofuranoside*
[201788-50-3]
$C_8H_{16}O_7$ 224.21
$[\alpha]_D$ +41.5 (c, 1.6 in MeOH).

Rosenfeld, D.A. *et al., J.A.C.S.*, 1951, **73**, 4907-4910 (*synth, hexa-Ac*)
Ginsberg, V. *et al., J. Biol. Chem.*, 1962, **237**, 497-499 (*occur*)
Hulyalbar, R.K. *et al., Can. J. Chem.*, 1963, **41**, 1490-1492 (*synth, thioacetal*)
Bagdien, G. *et al., Biochem. Z.*, 1966, **344**, 197-211 (*occur*)
Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272-288 (*isol, hexa-Ac*)
Dziewiszek, K. *et al., Carbohydr. Res.*, 1982, **104**, C1-C3 (*α-Me pyr deriv*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **152**, 329-334 (*synth*)
Paulsen, H. *et al., Annalen*, 1994, 389-397 (*methylphosphonate, synth*)
Stêpowska, H. *et al., Carbohydr. Res.*, 1997, **304**, 347-355 (*α-D-fur Me glycoside, synth, cmr*)
Senchenkova, S.N. *et al., Carbohydr. Res.*, 2001, **331**, 219-224 (*homopolymer, occur*)

D-*glycero*-L-*manno*-Heptose, 9CI, 8CI H-49

β-D-*α-Galaheptose (obsol.)*
[1883-14-3]



Pyranose–*form*

$C_7H_{14}O_7$ 210.183

Enantiomer of L-*glycero*-D-*manno*-Heptose, H-50. An aq. soln. at 22° contains 70% α-pyr and 30% β-pyr. Prod. by *Pasteurella septica* and *Neisseria* spp.
Mp 77-78° (monohydrate).
$[\alpha]_D^{20}$ -26 → -15 (H_2O).

2,3,4,5,6,7-Hexa-Ac:
$C_{19}H_{26}O_{13}$ 462.407
Cryst. (Me_2CO). Mp 173-174°. $[\alpha]_D^{20}$ +27 ($CHCl_3$).

Di-Et dithioacetal:
$C_{11}H_{24}O_6S_2$ 316.439
Plates (H_2O). Mp 204-205°. $[\alpha]_D^{20}$ -9.7 (c, 1.6 in Py).

Di-Et dithioacetal, 2,3,4,5,6-penta-Ac:
[14536-92-6]
$C_{21}H_{34}O_{11}S_2$ 526.625
Cryst. (C_6H_6/petrol). Mp 110°. $[\alpha]_D^{20}$ -12 (c, 7 in $CHCl_3$).

Dibenzyl dithioacetal:
$C_{21}H_{28}O_6S_2$ 440.581
Mp 191°. $[\alpha]_D^{20}$ +30.3 (Py).

β-Pyranose-*form* [87172-67-6]

1,2,3,4,6-Pentabenzoyl: [53372-70-6]
$C_{42}H_{34}O_{12}$ 730.723
Cryst. (EtOAc/hexane). Mp 188-190°. $[\alpha]_D^{22}$ -14 (c, 2 in $CHCl_3$).

7-Trityl, 1,2,3,4,6-pentabenzoyl:
[53372-67-1]
$C_{61}H_{48}O_{12}$ 973.043
Cryst. (EtOAc/EtOH). Mp 235-236°. $[\alpha]_D^{24}$ -21 (c, 2 in $CHCl_3$).

*Me glycoside: Methyl β-D-*glycero-*L-*manno-*heptopyranoside*
$C_8H_{16}O_7$ 224.21
Prisms (EtOH). Mp 132°. $[\alpha]_D^{20}$ -70.2 (H_2O).

*Et glycoside: Ethyl β-D-*glycero-*L-*manno-*heptopyranoside*
$C_9H_{18}O_7$ 238.237
Plates (EtOH). Mp 138°. $[\alpha]_D^{20}$ -65.4 (H_2O).

β-Furanose-*form*

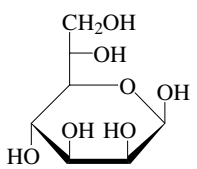
*2,3:6,7-Di-*O*-isopropylidene: 2,3:6,7-Di-*O*-isopropylidene-β-D-*glycero*-L-*manno*-heptofuranose*
[56846-41-4]
$C_{13}H_{22}O_7$ 290.313
Mp 117-119°. $[\alpha]_D^{21}$ -15 (c, 1.3 in $CHCl_3$).

*2,3:6,7-Di-*O*-isopropylidene, 1,5-di-Ac: 1,5-Di-*O*-acetyl-2,3:6,7-di-*O*-isopropylidene-β-D-*glycero*-L-*manno*-heptofuranose*
[59401-73-9]
$C_{17}H_{26}O_9$ 374.387
Mp 85-86°. $[\alpha]_D^{22}$ -17 (c, 3.4 in $CHCl_3$).

Hann, R.M. *et al., J.A.C.S.*, 1934, **56**, 1644; 1935, **57**, 2100-2103; 1937, **59**, 1898-1900 (*synth, hexa-Ac, di-Et dithioacetal, β-Me pyr, β-Et pyr*)
MacLennan, A.P. *et al., Nature (London)*, 1957, **180**, 1045-1046 (*isol*)
Micheel, F. *et al., Carbohydr. Res.*, 1966, **3**, 283-294 (*di-Et dithioacetal penta-Ac*)
Szabó, P. *et al., J.C.S. Perkin 1*, 1974, 920-923 (*β-pyr pentabenzoyl, β-pyr pentabenzoyl trityl*)
Dmitriev, B.A. *et al., Carbohydr. Res.*, 1976, **47**, 25-34 (*β-fur-diisopropylidene, β-fur-diisopropylidene di-Ac*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
Matulova, M. *et al., Carbohydr. Res.*, 1996, **287**, 37-48 (*cmr, nmr, complexes*)

L-*glycero*-D-*manno*-Heptose, 9CI, 8CI H-50

[4305-74-2]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

Enantiomer of D-*glycero*-L-*manno*-Heptose, H-49. Constit. of the cell wall of *Escherichia coli* and of the *O*-antigenic lipopolysaccharide isol. from group F *Vibrio* spp. Component of many other bacterial polysaccharides. Hygroscopic syrup. $[\alpha]_D^{26}$ +15.2 (c, 2.7 in H_2O) (+14).

Di-Et dithioacetal: [20787-12-6]
$C_{11}H_{24}O_6S_2$ 316.439
Cryst. (H_2O). Mp 202-203°. $[\alpha]_D^{26}$ +10.2 (c, 1.19 in Py).

1-Phosphate: [20787-13-7]
$C_7H_{15}O_{10}P$ 290.163
Needles (EtOH aq.) (as dicyclohexylammonium salt). Mp 140-142° (dicyclohexylammonium salt). $[\alpha]_D^{26}$ +32 (c, 5.0 in H_2O). CAS no. refers to DCHA salt.

*7-*O*-Carbamoyl:* [174827-91-9]
$C_8H_{15}NO_8$ 253.208
Constit. of the lipopolysaccharide of *Pseudomonas aeruginosa*. Isol. as permethylated deriv. CAS no. refers to permethylated deriv.

β-Pyranose-*form*

*Benzyl glycoside, 2,3,4-tribenzyl: Benzyl 2,3,4-tri-*O*-benzyl-L-*glycero*-β-D-*manno*-heptopyranoside*
[134404-07-2]
$C_{35}H_{38}O_7$ 570.681
$[\alpha]_D^{20}$ +42.4 (c, 1.2 in $CHCl_3$).

α-D-Furanose-*form*

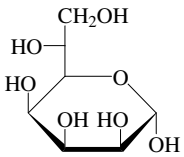
*Me glycoside: Methyl L-*glycero-α-D-*manno*-heptofuranoside*
[201788-49-0]
$C_8H_{16}O_7$ 224.21
Oil. $[\alpha]_D$ +52.3 (c, 1.3 in MeOH).

[122622-12-2]

Weidel, W. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1955, **299**, 253-257 (*isol*)
Bagdian, G. *et al., Biochem. Z.*, 1966, **344**, 197-211 (*occur*)
Teuber, M. *et al., Biochemistry*, 1968, **7**, 3303-3308 (*synth, di-Et dithioacetal, phosphate*)
Kondo, S. *et al., Biochem. Biophys. Res. Commun.*, 1980, **97**, 437-442 (*isol*)
Dziewiszek, K. *et al., Carbohydr. Res.*, 1986, **150**, 163-171 (*synth*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **152**, 329-334 (*synth*)
Boons, G.J.P.H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1988, **107**, 507-508 (*Benzyl-β-Pyr-tribenzyl*)
Zych, K. *et al., Carbohydr. Res.*, 1989, **188**, 105-111 (*occur*)
Beckmann, F. *et al., Carbohydr. Res.*, 1995, **267**, C3-C7 (*7-carbamoyl*)
Grzeszczyk, B. *et al., Carbohydr. Res.*, 1996, **290**, 1-15 (*synth, phosphates*)
Stêpowska, H. *et al., Carbohydr. Res.*, 1997, **304**, 347-355 (*α-D-fur Me glycoside*)
Grzeszczyk, B. *et al., Coll. Czech. Chem. Comm.*, 2000, **65**, 610-620 (*α-D-pyr Me glycoside*)
Yamasaki, R. *et al., J. Carbohydr. Chem.*, 2001, **20**, 171-180 (*synth*)
Vinogradov, E.V. *et al., Carbohydr. Res.*, 2002, **337**, 775-777 (*occur*)

D-*glycero*-D-*talo*-Heptose, 9CI, 8CI H-51

[10589-31-8]



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

An equilib. soln. at 22° contains 43% α-Pyr, 34% β-Pyr, 13% α-Fur and 10% β-Fur.

α-Pyranose-*form*

Me glycoside: Methyl D-glycero-α-D-talo-*heptopyranoside*
[52571-84-3]
$C_8H_{16}O_7$ 224.21
Mp 196-197°. $[\alpha]_D^{20}$ +83.6 (H_2O).

β-Pyranose-*form*

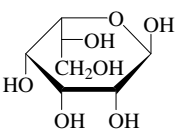
Me glycoside: Methyl D-glycero-β-D-talo-*heptopyranoside*
$C_8H_{16}O_7$ 224.21
Mp 136.5-138°. $[\alpha]_D^{20}$ -48 (H_2O).

[156045-98-6]

Petterson, B. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 29-35 (α-*Me pyr,* β-*Me pyr*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1983, **36**, 937-946 (*equilib*)

D-*glycero*-L-*talo*-Heptose, 9CI H-52

α-d-α-*Guloheptose (obsol.)*
[23102-93-4]



α-Pyranose-*form*

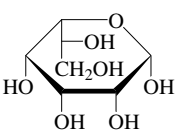
$C_7H_{14}O_7$ 210.183

An aq. soln. at 22° contains 33.0% α-Pyr, 30.0% β-Pyr, 22.0% α-Fur and 15.0% β-Fur. Cryst. (EtOH). Mp 127°. $[\alpha]_D^{20}$ -45.7 → -16.9 (equilib.) (c, 4 in H_2O).

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1937, **19**, 639-650 (*synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1983, **36**, 937-946 (*cmr, equilib*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)

L-*glycero*-L-*talo*-Heptose, 9CI, 8CI H-53

[54676-20-9]



α-Pyranose-*form*

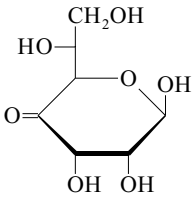
$C_7H_{14}O_7$ 210.183
Cryst. (MeOH/AcOH). Mp 108-110°. $[\alpha]_D^{21}$ -43 → -13.3 (equilib.) (c, 3 in H_2O).

α-Pyranose-*form*

3,4:6,7-Di-O-*isopropylidene, 1,2-di-Ac: 1,2-Di*-O-*acetyl-3,4:6,7-di*-O-*isopropylidene-*L-glycero-α-L-talo-*heptopyranose*
[153580-57-5]
$C_{17}H_{26}O_9$ 374.387
$[\alpha]_D$ -78.7.

Bilik, V. *et al., Chem. Zvesti*, 1974, **25**, 668-672 (*synth*)
Duan, J.J.-W. *et al., Tet. Lett.*, 1993, **34**, 7541-7544 (*diisopropylidene di-Ac*)

allo-Heptos-4-ulose H-54



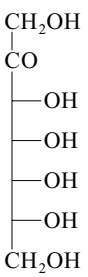
$C_7H_{12}O_7$ 208.168

β-D-Pyranose-*form*

Me glycoside, 2,3:6,7-di-O-*isopropylidene: Methyl 2,3:6,7-di*-O-*isopropylidene-β-D-*allo-*heptopyranos-4-uloside*
[40010-38-6]
$C_{14}H_{22}O_7$ 302.324
Cryst. (heptane). Mp 132-133°. $[\alpha]_D^{20}$ +53.5 (c, 2.03 in $CHCl_3$).

Dmitriev, B.A. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1972, 2298; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1972, 2230 (*diisopropylidene, ir*)

allo-2-Heptulose H-55



D–*form*

$C_7H_{14}O_7$ 210.183

D-*form* [7101-28-2]
Isol. from *Primula officinalis*.
Mp 130-132°. $[\alpha]_D^{20}$ +52.8 (c, 0.2 in H_2O).

β-D-Pyranose-*form*

2,7-Anhydro: [29514-20-3]
$C_7H_{12}O_6$ 192.168
Syrup. $[\alpha]_D^{20}$ -79 (c, 0.81 in H_2O).

2,7-Anhydro, 1,3,4,5-tetra-Ac: [16526-57-1]
$C_{15}H_{20}O_{10}$ 360.317
Cryst. (EtOH). Mp 114-115°. $[\alpha]_D^{20}$ -57.1 (c, 1 in $CHCl_3$).

L-*form*

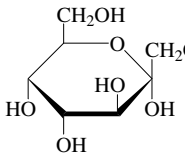
Mp 130-132°. $[\alpha]_D^{20}$ -52.1 (H_2O).

Hydrate:
Cryst. (EtOH aq.).
Mp 74-76°.
$[\alpha]_D^{20}$ -46.6 (c, 1.5 in H_2O).

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 6326-6328 (L-*form,* D-*form, synth*)
Schaffer, R. *et al., J.O.C.*, 1964, **29**, 1471-1473 (*synth*)
Verstraeten, L.M.J. *et al., Carbohydr. Res.*, 1966, **1**, 481-484 (*ir*)
Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272-288 (D-*form, isol*)
Heyns, K. *et al., Chem. Ber.*, 1973, **106**, 1668-1677 (β-D-*pyr-2,7-anhydro*)

altro-2-Heptulose, 9CI, 8CI H-56

Sedoheptulose. Volemulose. Altroheptulose. Volemose. Sedoheptose



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183
An aq. soln. at 22°C contains 17% α-pyr, 6% β-pyr, 13% α-fur, and 64% β-fur.

D-*form* [3019-74-7]
Occurs in the common herbaceous perennial *Sedum spectabile* and probably present as a photosynthesis intermed. in all plants. Formed post mortem in mammalian tissues.
Cryst. + 1H_2O (EtOH aq.) or syrup. Mp 100-102° (126°). $[\alpha]_D$ +2.5 (c, 10 in H_2O).

Phenylosazone: Mp 197°.

7-Phosphate: [2646-35-7]
$C_7H_{15}O_{10}P$ 290.163
Intermed. in photosynthetic pathway.

1,7-Diphosphate: [815-91-8]
$C_7H_{16}O_{13}P_2$ 370.143
No phys. props. reported.

7-(3,4,5-Trihydroxybenzoyl): ***1*-O-*Galloyl-D-sedoheptulose***
[233690-85-2]
$C_{14}H_{18}O_{11}$ 362.29
Constit. of the fruit of *Cornus officinalis*. Mp 192-194°. $[\alpha]_D$ +16.2 (c, 0.4 in MeOH). λ_{max} 218 (log ε 4.71); 275 (log ε 4.33) (MeOH).

1,7-Bis(3,4,5-trihydroxybenzoyl): ***1,7-Di*-O-*galloyl-D-sedoheptulose***
[126622-78-4]
$C_{21}H_{22}O_{15}$ 514.396
Constit. of *Cornus officinalis*. Light-tan amorph. powder + 2H_2O. $[\alpha]_D^{20}$ +0.4 (c, 0.8 in MeOH).

*7-(3,4-Dihydroxy-*E*-cinnamoyl):* ***7*-O-*Caffeoylsedoheptulose***
[288141-05-9]
$C_{16}H_{20}O_{10}$ 372.328
Constit. of the wood of *Nyssa sylvatica*. Amorph. powder. $[\alpha]_D^{25}$ +13.9 (c, 0.42 in MeOH).

β-D-Pyranose-*form*

*2,7-Anhydro: 2,7-Anhydro-β-D-*altro-*2-heptulopyranose. Sedoheptulosan*
[469-90-9]
$C_7H_{12}O_6$ 192.168
Formed in equilib. with sedoheptulose

in aq. acid soln. (80-90% anhydride). Mp 155-156°. $[\alpha]_D^{20}$ -146 (H_2O).

2,7-Anhydro, monohydrate: Mp 101-102°. $[\alpha]_D^{20}$ -134 (H_2O).

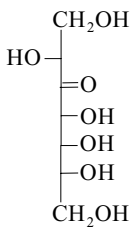
*2,7-Anhydro, 4,5-*O*-isopropylidene: 2,7-Anhydro-4,5-*O*-isopropylidene-β-D-*altro*-2-heptulopyranose*
[43139-45-3]
$C_{10}H_{16}O_6$ 232.233
Mp 226-227°. $[\alpha]_D^{20}$ -124 (c, 0.9 in H_2O).

*2,7-Anhydro, 4,5-*O*-isopropylidene, 1,3-di-Ac: 1,3-Di-*O*-acetyl-2,7-anhydro-4,5-*O*-isopropylidene-β-D-*altro*-2-heptulopyranose*
[43139-49-7]
$C_{14}H_{20}O_8$ 316.307
Mp 98°. $[\alpha]_D^{20}$ -138 (c, 1 in $CHCl_3$).

Ettel, V. *et al., Coll. Czech. Chem. Comm.*, 1932, **4**, 504 (*struct*)
Pratt, J.W. *et al., J.A.C.S.*, 1952, **74**, 2200 (*isol*)
Hough, L. *et al., J.C.S.*, 1953, 342 (*synth*)
Richtmyer, N.K. *et al., J.A.C.S.*, 1956, **78**, 4717 (*isol*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 167 (*isol*)
Tsolas, O. *et al., Methods Enzymol., Part B*, 1975, **41**, 77-79 (*1,7-diphosphate*)
Hipps, P.P. *et al., Carbohydr. Res.*, 1981, **96**, 1 (*occur*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Franke, F.P. *et al., Carbohydr. Res.*, 1984, **125**, 177 (*synth, cmr, 7-phosphate*)
Lee, S.H. *et al., Phytochemistry*, 1989, **28**, 3469 (*Digalloylsedoheptulose*)
Hricoviniová-Bíliková, Z. *et al., Carbohydr. Res.*, 1999, **320**, 31-36 (*synth*)
Zhang, Y. *et al., Yaoxue Xuebao*, 1999, **34**, 153-155 (*7-Galloylsedoheptulose*)
Li, X.-C. *et al., Phytochemistry*, 2000, **53**, 1033-1037 (*7-Caffeoylsedoheptulose*)

altro-3-Heptulose H-57

Coriose



$C_7H_{14}O_7$ 210.183

D-*form* [13059-96-6]
Constit. of *Coriaria japonica, Coriaria nepalensis, Coriaria ruscifolia, Coriaria thymifolia* and *Coriaria intermedia*. Also from roots of *Primula officinalis*.
Mp 169-171°. $[\alpha]_D^{27}$ +21.7 (H_2O).

Pentabenzoyl: [27216-49-5]
$C_{42}H_{34}O_{12}$ 730.723
Needles (MeOH). Mp 100-102°.

1,2,4,5,6,7-Hexakis(trimethylsilyl):
[54027-08-6]
$[\alpha]_D^{20}$ -17.6 (c, 0.7 in hexane).

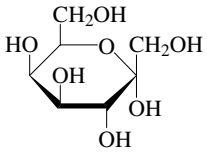
α-D-Furanose-*form*

1,2,3,4,5,7-Hexakis(trimethylsilyl): $[\alpha]_D^{20}$ +51.7 (c, 0.4 in hexane).

Okuda, T. *et al., Tetrahedron*, 1968, **24**, 6907 (*isol, struct, synth*)
Taga, T. *et al., Acta Cryst. B*, 1970, **26**, 991 (*cryst struct*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1239 (*cmr*)
Okuda, T. *et al., Phytochemistry*, 1977, **16**, 600 (*ms*)

galacto-2-Heptulose H-58

Perseulose. Galactoheptulose



α-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

An aq. soln. at 22°C contains 78% α-pyr, 16% α-fur, and 6% β-fur.

D-*form* [13403-16-2]
Mp 102-103°. $[\alpha]_D^{25}$ +90.6 → +75.3 (c, 2.2 in H_2O).

*Hexa-Ac: 1,3,4,5,6,7-Hexa-*O*-acetyl-D-*galacto*-2-heptulose*
$C_{19}H_{26}O_{13}$ 462.407
Mp 102°. $[\alpha]_D^{27}$ -1.6 (c, 3. in $CHCl_3$).

L-*form* [29325-35-7]
Isol. from leaves of *Medicago sativa* (alfalfa).
Mp 110-115°.

Phenylosazone: Mp 190-202° dec. $[\alpha]_D^{20}$ -114 → -35 (c, 1 in Py).

Phenylosazone, 3,4,5,6,7-penta-Ac: Mp 117-118°. $[\alpha]_D^{20}$ -86.8 (c, 1.2 in $CHCl_3$).

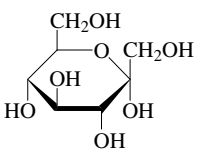
β-L-Pyranose-*form*

2,7-Anhydro:
$C_7H_{12}O_6$ 192.168
Fluffy needles (Me_2CO aq.). Mp 134-135°. $[\alpha]_D^{20}$ -20.7 (c, 1.8 in H_2O).

Bertrand, G. *et al., Bull. Soc. Chim. Fr.*, 1928, **43**, 663
Hann, R.M. *et al., J.A.C.S.*, 1939, **61**, 336-340 (*struct*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1943, **65**, 1021-1027 (*D-form, synth*)
McComb, E.A. *et al., Arch. Biochem. Biophys.*, 1961, **95**, 316; 1962, **99**, 409 (*isol, biosynth*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 171 (*synth, L-form*)
Stewart, L.C. *et al., J.O.C.*, 1963, **28**, 1842-1844 (*β-L-pyr-2,7-anhydro*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)

gluco-2-Heptulose, 9CI H-59

Glucoheptulose



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

An aq. soln. at 22°C contains 100% α-pyr.

D-*form* [5349-37-1]
Prisms (EtOH aq.). Mp 171-174°. $[\alpha]_D^{20}$ +67.3 (H_2O).

Phenylosazone: Mp 209-210°.

α-D-Pyranose-*form* [20197-43-7]

*1,2,3,4,5,7-Hexa-Ac: 1,2,3,4,5,7-Hexa-*O*-acetyl-α-D-*gluco*-2-heptulopyranose*
[112047-90-2]
$C_{19}H_{26}O_{13}$ 462.407
Mp 115-117°. $[\alpha]_D^{22}$ +87 ($CHCl_3$).

*Me glycoside: Methyl α-D-*gluco*-2-heptulopyranoside*
$C_8H_{16}O_7$ 224.21
Cryst. ($MeOH/Me_2CO$). Mp 138-140°. $[\alpha]_D^{20}$ +108.5 (H_2O) (lit. gives a temp. range).

*3,4,5,7-Tetrabenzyl: 3,4,5,7-Tetra-*O*-benzyl-α-D-*gluco*-2-heptulopyranose*
$C_{35}H_{38}O_7$ 570.681
Powder (H_2O). Mp 111-111.5°. $[\alpha]_D^{20}$ +13.6 (c, 1.4 in $CHCl_3$).

β-D-Pyranose-*form*

*2,7-Anhydro: 2,7-Anhydro-β-D-*gluco*-2-heptulopyranose*
[29514-21-4]
$C_7H_{12}O_6$ 192.168
Monohydrate. Mp 83-84°. $[\alpha]_D^{20}$ -57.4 (H_2O).

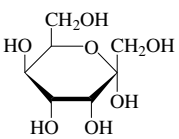
*2,7-Anhydro, 1,3,4,5-tetra-Ac: 1,3,4,5-Tetra-*O*-acetyl-2,7-anhydro-β-D-*gluco*-2-heptulopyranose*
[29514-27-0]
$C_{15}H_{20}O_{10}$ 360.317
Mp 145-146°. $[\alpha]_D^{20}$ -59.1 ($CHCl_3$).

*2,7-Anhydro, 1,3,4,5-tetrabenzoyl: 2,7-Anhydro-1,3,4,5-tetra-*O*-benzoyl-β-D-*gluco*-2-heptulopyranose*
$C_{35}H_{28}O_{10}$ 608.6
Mp 119-122°. $[\alpha]_D^{20}$ -50.4 ($CHCl_3$).

Austin, W.C. *et al., J.A.C.S.*, 1930, **52**, 2106; 1932, **54**, 1925 (*D-form, synth, α-D-pyr hexa-Ac, α-D-Me pyr*)
Stewart, L.C. *et al., Chem. Ber.*, 1956, **89**, 535 (*β-D-pyr anhydro, β-D-pyr anhydro tetra-Ac, β-D-pyr anhydro tetrabenzoyl*)
Sowden, J.C. *et al., J.A.C.S.*, 1958, **80**, 2532, (*D-form, synth*)
Lindberg, B. *et al., Carbohydr. Res.*, 1967, **5**, 286 (*synth*)
Jochims, J.C. *et al., Tet. Lett.*, 1967, 4363 (*pmr*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Fang, J.-M. *et al., J.C.S. Perkin 1*, 1995, 967 (*pmr, cmr*)
Paterson, D.E. *et al., Eur. J. Org. Chem.*, 2002, 1323-1336 (*α-D-Pyr tetrabenzyl*)

gulo-2-Heptulose H-60

Guloheptulose



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

D-*form* [158647-12-2]
$[\alpha]_D^{20}$ +23.7 (c, 0.5 in H_2O).

Phenylosazone: Mp 195-198° dec. $[\alpha]_D$ -102 (55 min) → -63.7 (10 d) (c, 0.41 in Py).

*1-Benzyl: 1-*O*-Benzyl-D-*gulo*-heptulose*
$C_{14}H_{20}O_7$ 300.308
Syrup.

L-*form* [22224-53-9]
$[\alpha]_D^{20}$ -28 (c, 0.8 in H_2O).

Phenylosazone: $[\alpha]_D$ +111 (6 min) → +40.7 (92 d) (c, 0.40 in Py).

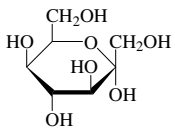
β-L-Pyranose-*form*

2,7-Anhydro:
$C_7H_{12}O_6$ 192.168
Prisms (EtOH aq.). Mp 113-115°. $[\alpha]_D^{20}$ -39.7 (c, 5 in H_2O). Readily hydrated in moist air.

Stewart, L.C. *et al., J.A.C.S.*, 1952, **74**, 2206-2210 (*L-form, β-L-pyr 2,7-anhydro*)
Bols, M. *et al., Carbohydr. Res.*, 1994, **253**, 195-205 (*D-form*)

ido-2-Heptulose H-61

Idoheptulose. Kamusol



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

D-*form* [22224-54-0]
Syrup. $[\alpha]_D^{20}$ -20 (H_2O). Erroneously drawn in the paper with the D-*talo*-config.

Phenylosazone:
Fine yellow needles. Mp 178-179° dec. Erroneously called idoheptose phenylosazone.

β-D-Pyranose-*form*
Unstable. Readily dehydrated in acid soln. to 2,7-anhydro deriv.

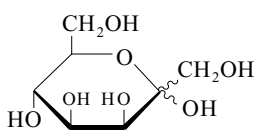
2,7-Anhydro: D-Idoheptulosan
[7575-38-4]
$C_7H_{12}O_6$ 192.168
Cryst. (EtOH). Mp 117-118°
Mp 172-173°. $[\alpha]_D^{20}$ -41 (c, 1 in H_2O).

α-L-Pyranose-*form* [36660-76-1]
[11090-72-5] Prod. by *Aspergillus sulphureus*.
Cryst. Sol. H_2O.

Pratt, J.W. *et al., J.A.C.S.*, 1952, **74**, 2210-2214 (*D-form, synth, β-D-pyr-2,7-anhydro*)
Kamal, A. *et al., Pak. J. Sci. Res.*, 1971, **14**, 63-67; 68-70 (*α-L-pyr-form, isol, uv, pmr, ms*)
Hricovinova, Z. *et al., Synthesis*, 2001, 751-754 (*β-D-pyr-2,7-anhydro*)

manno-2-Heptulose, 9CI H-62

Mannoheptulose. Mannoketoheptose
[654-29-5]



$C_7H_{14}O_7$ 210.183
An aq. soln. at 22° contains >99% α-pyr.

D-*form* [3615-44-9]
Occurs in *Persea gratissima* (avocado) and *Medicago sativa* (alfalfa).
Mp 151-152°. $[\alpha]_D^{20}$ +29.7 (c, 4 in H_2O).

Phenylosazone: Mp 200°.

Hexa-Ac:
$C_{19}H_{26}O_{13}$ 462.407
Prisms (Et_2O). Mp 110°. $[\alpha]_D^{20}$ +39 (c, 2 in $CHCl_3$).

5,6-O-Ethylidene: 5,6-O-Ethylidene-D-manno-2-heptulose
$C_9H_{16}O_7$ 236.221
Mp 201°. $[\alpha]_D^{20}$ +4.4 (c, 3 in H_2O).

3,4:6,7-Di-O-isopropylidene: [541548-42-9]
$C_{13}H_{22}O_7$ 290.313
Solid (toluene/pentane). Mp 85°. $[\alpha]_D^{25}$ +25 (c, 1 in $CHCl_3$).

1-Deoxy: [35016-85-4]
$C_7H_{14}O_6$ 194.184
Cryst. (EtOH/petrol). Mp 110-112°. $[\alpha]_D^{25}$ +27.1 (c, 2 in H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl α-D-manno-2-heptulopyranoside
$C_8H_{16}O_7$ 224.21
Prisms (MeOH). Mp 142°. $[\alpha]_D^{20}$ +69 (c, 2 in H_2O).

Me glycoside, penta-Ac: Methyl penta-O-acetyl-α-D-manno-2-heptulopyranoside
$C_{18}H_{26}O_{12}$ 434.396
Needle-like prisms (Et_2O). Mp 64°. $[\alpha]_D^{20}$ +49.5 (c, 2 in $CHCl_3$).

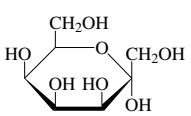
β-D-Pyranose-*form*

2,7-Anhydro: 2,7-Anhydro-β-D-manno-2-heptulopyranoside
[7739-21-1]
$C_7H_{12}O_6$ 192.168
Prisms (EtOH aq.). Mp 159-160°. $[\alpha]_D^{20}$ -80.4 (c, 2 in H_2O).

La Forge, F.B. *et al., J. Biol. Chem.*, 1916, **28**, 511 (*isol*)
Montgomery, E.M. *et al., J.A.C.S.*, 1939, **61**, 1654 (*isol, synth, α-D-Me pyr, α-D-Me pyr penta-Ac, hexa-Ac*)
Zissis, E. *et al., J.A.C.S.*, 1957, **79**, 2593-2597 (*anhydro*)
Sowden, J.C. *et al., J.A.C.S.*, 1958, **80**, 2532 (*synth*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 173 (*isol*)
Montgomery, E.M. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 175 (*synth*)
Rendig, V.V. *et al., J. Agric. Food Chem.*, 1964, **12**, 421 (*isol*)
Kampf, A. *et al., Carbohydr. Res.*, 1972, **21**, 1 (*1-deoxy*)
Kanters, J.A. *et al., Acta Cryst. B*, 1979, **35**, 1152 (*cryst struct*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Bessières, B. *et al., J.O.C.*, 2003, **68**, 4100-4103 (*3,4:6,7-diisopropylidene, synth, pmr, cmr*)

talo-2-Heptulose H-63

Taloheptulose



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

D-*form* [31297-62-8]
Cryst. (EtOH aq.). Mp 135-137°. $[\alpha]_D^{20}$ +47.4 (2 min) → +12.9 (equilib.) (c, 1.6 in H_2O).

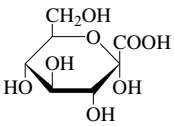
β-D-Pyranose-*form*

2,7-Anhydro: [29514-22-5]
$C_7H_{12}O_6$ 192.168
Cryst. (MeOH). Mp 129-130°. $[\alpha]_D^{20}$ -42.3 (c, 1.7 in H_2O).

[60426-76-8]

Pratt, J.W. *et al., J.A.C.S.*, 1955, **77**, 6326-6328 (*D-form, synth*)
Sowden, J.C. *et al., J.A.C.S.*, 1958, **80**, 2532-2533 (*D-form, synth*)
Heyns, K. *et al., Chem. Ber.*, 1973, **106**, 623-631 (*β-D-pyr-2,7-anhydro*)

gluco-2-Heptulosonic acid H-64



α-D-Pyranose-*form*

$C_7H_{12}O_8$ 224.167

α-D-Pyranose-*form*

α-D-gluco-2-Heptulopyranosonic acid, 9CI
[404377-22-6]
Solid + $2H_2O$. $[\alpha]_D^{25}$ +35.5 (c, 1.0 in H_2O).

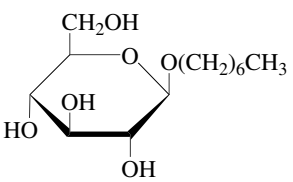
Penta-Ac, Me ester: Methyl 2,3,4,5,7-penta-O-acetyl-α-gluco-2-heptulopyranosonate
[404377-34-0]
$C_{18}H_{24}O_{13}$ 448.38
Syrup. $[\alpha]_D^{23}$ +60 (c, 0.1 in $CHCl_3$).

4,5,7-Tribenzyl, Me ester: Methyl 4,5,7-tri-O-benzyl-α-D-gluco-2-heptulopyranosonate
[136305-59-4]
$C_{29}H_{32}O_8$ 508.567
Cryst. (Et_2O/petrol). Mp 97-99°. $[\alpha]_D^{20}$ +51.3 (c, 1 in $CHCl_3$).

Benzyl glucoside, 4,5,7-tribenzyl, Me ester: Methyl (benzyl 4,5,7-tri-O-benzyl-α-D-gluco-2-heptulopyranosid)onate
[404377-28-2]
$C_{36}H_{38}O_8$ 598.691
Syrup. $[\alpha]_D^{25}$ +30.6 (c, 0.5 in $CHCl_3$).

Crich, D. *et al., J.C.S. Perkin 1*, 1991, 2209-2214 (*α-D-4,5,7-tribenzyl Me ester*)
Reiner, M. *et al., Eur. J. Org. Chem.*, 2002, 57-60 (*α-D-Pyr form, synth, pmr, cmr*)

Heptyl glucoside, 9CI H-65



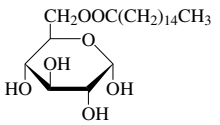
$C_{13}H_{26}O_6$ 278.345

β-D-Pyranose-*form* [78617-12-6]
Cryst. (Me_2CO). Mp 76-78°. $[\alpha]_D^{20}$ -34.2 (H_2O).

Tetra-Ac: Heptyl 2,3,4,6-tetra-O-acetyl-β-D-glucopyranoside
[28245-00-3]
$C_{21}H_{34}O_{10}$ 446.494
Needles. Mp 76-78°. $[\alpha]_D^{20}$ -20.5 (H_2O).

Pigman, W.W. *et al., J.A.C.S.*, 1942, **64**, 369-374 (*synth*)
Kreider, L.C. *et al., J.A.C.S.*, 1942, **64**, 1482-1483 (*synth*)
Shinoyama, H. *et al., Agric. Biol. Chem.*, 1991, **55**, 1679-1681 (*synth*)

6-*O*-Hexadecanoylglucose H-66



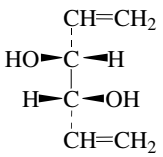
α-D-Pyranose-*form*

$C_{22}H_{42}O_7$ 418.57

D-*form*
Constit. of *Munronia henryi*.
Mp 106-107°. $[\alpha]_D^{19}$ +67.7 (c, 0.2 in Py).
Qi, S.-H. *et al., J. Asian Nat. Prod. Res.*, 2003, **5**, 215-221

1,5-Hexadiene-3,4-diol, 9CI H-67

Divinylethylene glycol. 1,2-Divinylglycol
[1069-23-4]



(3*R*,4*R*)-*form*

$C_6H_{10}O_2$ 114.144
Used in the synth. of bioadhesive cross-linked acrylic polymers.
► LD_{50} (rat, orl) 1620 mg/kg; LD_{50} (rbt, skn) 400 mg/kg. MM2100000

(3*R*,4*R*)-*form*
Oil. $[\alpha]_D$ +32.6 (c, 0.98 in $CHCl_3$).
Monobenzoyl:
$C_{13}H_{16}O_2$ 204.268
Oil. $[\alpha]_D$ +2.9 (c, 1.2 in $CHCl_3$).
Dibenzoyl:
$C_{20}H_{18}O_4$ 322.36
Oil. $[\alpha]_D$ +13.1 (c, 3.3 in $CHCl_3$).

(3*RS*,4*RS*)-*form*
(±)-*form*
[19700-97-1]
Mp 21.7°. Bp_8 90.5°.

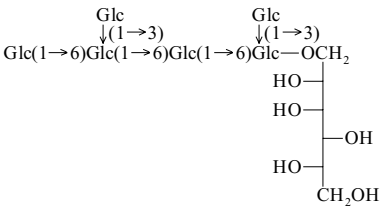
(3*RS*,4*SR*)-*form*
meso-*form*
[19700-96-0]
Cryst. (petrol). Mp 88°.
Di-Et ether: 3,4-Diethoxy-1,5-hexadiene
$C_{10}H_{18}O_2$ 170.251
Bp 224-226° Bp_{10} 111-113°.

[58208-04-1]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 223A (*nmr*)
Young, W.G. *et al., J.A.C.S.*, 1943, **65**, 1245 (*synth*)
Braun, R.A. *et al., J.O.C.*, 1963, **28**, 1383 (*synth*)
Wiemann, J. *et al., Bull. Soc. Chim. Fr.*, 1967, 3293 (*synth*)
Galaj, S. *et al., Bull. Soc. Chim. Fr.*, 1972, 3979 (*synth*)
Ching, H.S. *et al., J. Pharm. Sci.*, 1985, **74**, 399 (*use*)
Rao, A.V.R. *et al., Tet. Lett.*, 1987, **28**, 2183 (*synth*)
Yadav, J.S. *et al., J. Carbohydr. Chem.*, 1990, **9**, 307-316 (*3R,4R-form*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DMU000

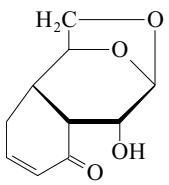
Hexa-β-D-glucopyranosyl-D-glucitol H-68

[93289-76-0]



$C_{42}H_{72}O_{36}$ 1153.009
Misleading name. Isol. from the mycelial walls of *Phytophthora megasperma* f.sp. *glycinea*. Stimulates formation of phytoalexins in soybean (*Glycine max*).
Sharp, J.K. *et al., J. Biol. Chem.*, 1984, **269**, 11312; 11321; 11341 (*isol, struct*)

1,2,5,5*a*,9,9*a*-Hexahydro-5-hydroxy-1,4-epoxy-3-benzoxepin-6(4*H*)-one, 9CI H-69

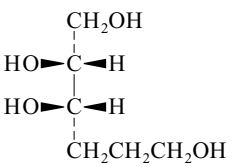


$C_{10}H_{12}O_4$ 196.202

(5*aR*,9*aS*)-*form*
D-allo-*form. 1,6-Anhydro-3,4-dideoxy-3,4-(1-oxo-2-butene-1,4-diyl)-β-D-allopyranose*
[113965-06-3]
Carbohydrate-derived synthon.
Cryst. (CH_2Cl_2/hexane). Mp 179°. $[\alpha]_D$ +223.8 (c, 1.0 in $CHCl_3$).
Isobe, M. *et al., Heterocycles*, 1987, **25**, 521 (*synth, pmr, cmr*)

1,2,3,6-Hexanetetrol H-70

2,3-Dideoxyhexitol

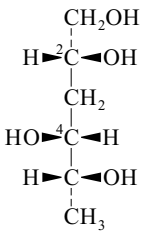


$C_6H_{14}O_4$ 150.174
Numbering as a dideoxyhexitol is from the other end of the chain.

(2*R*,3*S*)-*form*
D-erythro-*form*
Glass or syrup. $[\alpha]_D$ -7.1 (H_2O) (-4.9).
Tetrabenzoyl:
$C_{34}H_{30}O_8$ 566.606
Mp 99-100°. $[\alpha]_D^{27}$ +22.2 (c, 0.9 in $CHCl_3$).
1,2-O-Isopropylidene: 2,3-Dideoxy-5,6-O-isopropylidene-D-erythro-hexitol
$C_9H_{18}O_4$ 190.239
Mp 53-55°. $[\alpha]_D$ +12.9 (c, 1.1 in $CHCl_3$).
1,2-O-Isopropylidene, dibenzoyl: 1,4-Di-O-benzoyl-2,3-dideoxy-5,6-O-isopropylidene-D-erythro-hexitol
$C_{23}H_{26}O_6$ 398.455
Cryst. (CCl_4). Mp 90.5-91.5°. $[\alpha]_D^{27}$ +2.4 (c, 1.0 in $CHCl_3$).
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 931 (*synth, derivs*)
Regeling, H. *et al., Carbohydr. Res.*, 1990, **205**, 261 (*synth*)

1,2,4,5-Hexanetetrol H-71

3,6-Dideoxyhexitol



(2*R*,4*R*,5*R*)−*form*

$C_6H_{14}O_4$ 150.174
Care needed with naming and numbering (application of special rules for carbohydrate nomenclature).

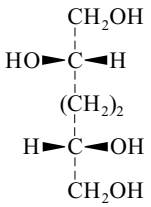
(2*R*,4*R*,5*R*)-*form*
D-xylo-*form. 3,6-Dideoxy-D-xylo-hexitol. 1,4-Dideoxy-L-xylo-hexitol. Abequitol*
[20585-20-0]
Component of the *O*-specific polysaccharide of *Salmonella kentucky* strain 1S98.
Cryst. (EtOH).
Mp 90°. $[\alpha]_D^{20}$ +52 (c, 2.0 in H_2O).

(2*S*,4*S*,5*S*)-*form*
L-xylo-*form. 1,4-Dideoxy-D-xylo-hexitol. 3,6-Dideoxy-L-xylo-hexitol. Colititol*
Mp 92-94°. $[\alpha]_D$ -51.

(2*R*,4*S*,5*R*)-*form*
3,6-Dideoxy-D-ribo-hexitol. 1,4-Dideoxy-L-ribo-hexitol. D-ribo-form
Mp 67-69°. $[\alpha]_D^{22}$ -23 (c, 0.03 in H_2O).
Fouquey, C. *et al., C. R. Hebd. Seances Acad. Sci.*, 1958, **246**, 2417 (*synth*)
Westphal, O. *et al., Annalen*, 1959, **620**, 8 (*synth*)
Copeland, C. *et al., Aust. J. Chem.*, 1977, **30**, 1269 (*synth*)
Patroni, J.J. *et al., Aust. J. Chem.*, 1978, **31**, 445 (*D-ribo-form*)
Torgov, V.I. *et al., Carbohydr. Res.*, 1990, **208**, 293 (*occur*)

1,2,5,6-Hexanetetrol, 9CI H-72

3,4-Dideoxyhexitol
[5581-21-5]



(2*S*,5*S*)−*form*

$C_6H_{14}O_4$ 150.174

(2*S*,5*S*)-*form*
D-threo
[24211-51-6]
Prisms (EtOH/$CHCl_3$). Mp 93-94° (84°). $[\alpha]_D^{26}$ -24 (c, 1.19 in MeOH). $[\alpha]_D^{20}$ -12 (H_2O).

1,6-Di-Me ether: [251459-12-8]
$C_8H_{18}O_4$ 178.228
Pale yellow syrup. $[\alpha]_D^{23}$ -7.2 (c, 1.09 in MeOH).

*1,6-Di-Me ether, 2,5-*O*-isopropylidene:*
[251459-11-7]
$C_{11}H_{22}O_4$ 218.292
Syrup. $[\alpha]_D^{23}$ -32.8 (c, 1.01 in $CHCl_3$).

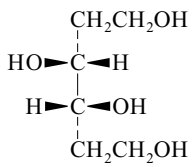
(2*RS*,5*SR*)-*form*
meso-*form*. erythro-*form*
[20221-50-5]
Cryst. (EtOH). Mp 97-97.5°.

Tetra-Ac: [74862-82-1]
$C_{14}H_{22}O_8$ 318.323
Cryst. (MeOH). Mp 79-80°.

Wagner, G. *et al., Ber.*, 1888, **21**, 3343 (*synth*)
Brettle, R. *et al., J.C.S.(C)*, 1968, 906 (*synth, ir*)
Deane, C.C. *et al., Chem. Comm.*, 1969, 813 (*synth*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1980, **83**, 63 (*synth*)
Machinaga, N. *et al., J.O.C.*, 1992, **57**, 5178 (*synth, pmr, cmr*)
Fitremann, J. *et al., Tetrahedron*, 1995, **51**, 9581 (*synth, derivs*)
Maier, M.E. *et al., Liebigs Ann./Recl.*, 1997, 2043-2046 (*2S,5S-form, synth, pmr, cmr*)
Holz, J. *et al., Eur. J. Org. Chem.*, 2001, 4615-4624 (*2S,5S-di-Me ether, 2S,5S-isopropylidene*)

1,3,4,6-Hexanetetrol H-73

2,5-Dideoxyhexitol, 9CI



(3*R*,4*R*)−*form*

$C_6H_{14}O_4$ 150.174

(3*R*,4*R*)-*form*
D-threo-*form*
[93688-73-4]
$[\alpha]_D^{20}$ +13.2 (c, 3.8 in H_2O).

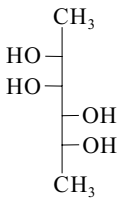
*3,4-*O*-Isopropylidene:* [173239-11-7]
$C_9H_{18}O_4$ 190.239
Low-melting solid. $[\alpha]_D^{25}$ +22 (c, 3.4 in $CHCl_3$).

(3*RS*,4*SR*)-*form*
erythro-*form*
Elongated prisms (EtOH/petrol). V. sol. H_2O. Mp 121-122°.

Wolfrom, M.L. *et al., J.A.C.S.*, 1946, **68**, 1443 (*synth*)
Kochetkov, N.K. *et al., Tetrahedron*, 1963, **19**, 973 (*synth*)
Saravanan, P. *et al., Synth. Commun.*, 2001, **31**, 1383-1388 (*3,4-O-isopropylidene*)

2,3,4,5-Hexanetetrol, 9CI H-74

1,6-Dideoxyhexitol



$C_6H_{14}O_4$ 150.174

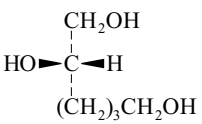
(2*R*,3*R*,4*R*,5*R*)-*form*
1,6-Dideoxy-D-mannitol
Cryst. (EtOH/Et_2O). Mp 150°. $[\alpha]_D^{15}$ -17.6 ($CHCl_3$).

Tetra-Ac: [328899-83-8]
$C_{14}H_{22}O_8$ 318.323
Cryst. (petrol). Mp 79°. $[\alpha]_D^{25}$ -30.5 (c, 1.08 in $CHCl_3$).

Micheel, F. *et al., Annalen*, 1932, **496**, 77 (*synth*)
Hamamura, Y. *et al., CA*, 1935, **29**, 1070 (*synth*)
Pereda-Miranda, R. *et al., Tetrahedron*, 2001, **57**, 47-53 (*tetra-Ac, synth, pmr, cmr, ord*)

1,2,6-Hexanetriol, 9CI H-75

2,3,4-Trideoxyhexitol
[106-69-4]
[25323-24-4]



(*S*)−*form*

$C_6H_{14}O_3$ 134.175
Diuretic ointment base. Low oral toxicity.
▶ MO4650000

(*S*)-*form* [130232-56-3]
Component of alkyd resins, inks etc.. Oil. d 1.11. Mp 25° (approx.). $[\alpha]_D$ -3.4. n_D^{20} 1.4760 (approx.).
▶ LD_{50} (rat, orl) 15500 mg/kg.

Tris(4-nitrobenzoyl):
Cryst. (EtOH/EtOAc). Mp 120-121°. $[\alpha]_D$ +8.6 ($CHCl_3$).

(±)-*form* [112254-74-7]
Misc. H_2O. d^{20} 1.03. $Bp_{1.5}$ 155-159°.
▶ Eye and skin irritant, fl. p. 191° (oc).

Tri-Ac: [923-87-5]
$C_{12}H_{20}O_6$ 260.286
d^{20} 1.1. $Bp_{2.3}$ 157-158° (lit. gives a pressure range).

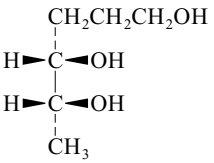
Tris(mercaptoacetyl): [19759-80-9]
$C_{12}H_{20}O_6S_3$ 356.484
Chelating agent which imparts corrosion resistance to galvanised steel. d 1.21. n_D^{20} 1.5260.

[112254-74-7, 130232-56-3]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 285C (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 183D (*ir*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 263A (*ir*)
U.S. Pat., 1953, 2 639 297; *CA*, **48**, 3996
Fr. Pat., 1969, 1 559 112; *CA*, **72**, 42757u
Regeling, H. *et al., Carbohydr. Res.*, 1991, **216**, 79 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, HES500

1,4,5-Hexanetriol H-76

2,3,6-Trideoxyhexitol
[25323-24-4]



(4*S*,5*R*)−*form*

$C_6H_{14}O_3$ 134.175

(4*S*,5*R*)-*form*
(-)-erythro-*form*
[124917-51-7]
Oil. $[\alpha]_D^{25}$ -18.2 (c, 1.4 in MeOH).

(4*S*,5*S*)-*form*
(-)-threo-*form*. ***Narbosine E***
[124917-52-8]
Metab. of *Streptomyces* spp. Antiviral agent. Sol. MeOH. $[\alpha]_D^{20}$ -23.8 (c, 0.84 in Me_2CO).

(4*RS*,5*RS*)-*form*
(±)-threo-*form*
[32346-52-4] Bp_{20} 189°.

Tri-Ac: [32346-59-1]
$C_{12}H_{20}O_6$ 260.286
Bp_{25} 175°.

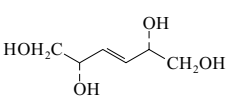
(4*RS*,5*SR*)-*form*
(±)-erythro-*form*
[32346-51-3] Bp_{25} 194°.

Tri-Ac: [32346-58-0] Bp_{26} 178°.

Lebouc, A. *et al., Bull. Soc. Chim. Fr.*, 1970, 4099 (*synth*)
Bastard, J. *et al., Bull. Soc. Chim. Fr.*, 1975, 1617 (*synth*)
Marco, J.L. *et al., Synth. Commun.*, 1989, **19**, 485 (*synth, ir, pmr*)
Henkel, T. *et al., Annalen*, 1991, 575 (*isol, pmr, cmr, ms*)

3-Hexene-1,2,5,6-tetrol H-77

3,4-Dideoxyhex-3-enitol



(2*S*,3*E*,4*S*)−*form*

$C_6H_{12}O_4$ 148.158

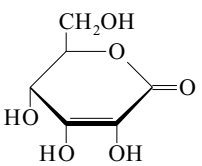
(2*S*,3*E*,4*S*)-*form*
D-threo-trans-*form*
1,2:5,6-Diisopropylidene: 3,4-Dideoxy-1,2:5,6-di-O-*isopropylidene*-D-threo-*hex-3*E-*enitol*
[3427-24-5]
$C_{12}H_{20}O_4$ 228.288
Cryst. Mp 78-80°. $[\alpha]_D^{20}$ +56.1 (c, 1.1 in $CHCl_3$).

(2*S*,3*Z*,4*S*)-*form*
D-threo-cis-*form*
1,2:5,6-Diisopropylidene: 3,4-Dideoxy-1,2:5,6-di-O-*isopropylidene*-D-threo-*hex-3Z-enitol*
[4578-27-2]
$C_{12}H_{20}O_4$ 228.288
Syrup. $[\alpha]_D^{20}$ -2.9 (c, 0.4 in $CHCl_3$).

(2*RS*,3*E*,5*SR*)-*form*
erythro-trans-*form*
1,2:5,6-Diisopropylidene: 3,4-Dideoxy-1,2:5,6-di-O-*isopropylidene*-DL-erythro-*hex-3*E-*enitol*
[53777-25-6]
$C_{12}H_{20}O_4$ 228.288
Light yellow needles (MeOH aq.). Mp 69-71°. *Meso*-.

(2*RS*,3*Z*,5*SR*)-*form*
erythro-cis-*form*
1,2:5,6-Diisopropylidene: 3,4-Dideoxy-1,2:5,6-di-O-*isopropylidene*-DL-erythro-*hex-3Z-enitol*
[105929-80-4]
$C_{12}H_{20}O_4$ 228.288
Syrup. $[\alpha]_D^{20}$ +0.2 (c, 0.3 in $CHCl_3$).
Aspinall, G.O. *et al., Carbohydr. Res.*, 1974, **36**, 257 (*synth, pmr*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1980, **83**, 63 (*synth*)
Köll, P. *et al., Annalen*, 1987, 199 (*synth, pmr*)
Marzi, M. *et al., Tet. Lett.*, 1989, **30**, 6075 (*synth*)

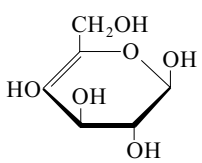
erythro-Hex-2-enono-1,5-lactone H-78



$C_6H_8O_6$ 176.126
Unisolated enediol.

D-*form*
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl*-D-erythro-*hex-2-enono-1,5-lactone*
$C_{14}H_{16}O_{10}$ 344.274
$[\alpha]_D$ +165 (c, 1.0 in $CHCl_3$).
Jarglis, P. *et al., Tet. Lett.*, 1982, **23**, 3781

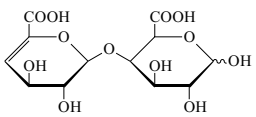
threo-Hex-4-enopyranose H-79



$C_6H_{10}O_6$ 178.141
Unisolated enol.

α-L-*form*
Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl*-α-L-threo-*hex-4-enopyranose*
[75860-74-1]
$C_{16}H_{20}O_{11}$ 388.327
Cryst. (EtOH). Mp 99-100°. $[\alpha]_D$ +50 (c, 1.0 in $CHCl_3$).
Pentabenzoyl: 1,2,3,4,6-Penta-O-*benzoyl*-α-L-threo-*hex-4-enopyranose*
[69534-69-6]
$C_{41}H_{30}O_{11}$ 698.681
Mp 72-74°. $[\alpha]_D$ +29 (c, 1.0 in $CHCl_3$).
4-Deoxy, tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-4-deoxy*-α-L-threo-*hex-4-enopyranose*
[75860-50-3]
$C_{14}H_{18}O_9$ 330.291
Mp 81-82°. $[\alpha]_D$ +20.5 (c, 1.0 in $CHCl_3$).
4-Deoxy, tetrabenzoyl: 1,2,3,6-Tetra-O-*benzoyl-4-deoxy*-α-L-threo-*hex-4-enopyranose*
[69534-71-0]
$C_{34}H_{26}O_9$ 578.574
Syrup. $[\alpha]_D$ -34 (c, 1.0 in $CHCl_3$).
Ferrier, R.J. *et al., Chem. Comm.*, 1978, 1019, (*α-L-pentabenzoyl, α-L-tetrabenzoyl 4-deoxy*)
Blattner, R. *et al., J.C.S. Perkin 1*, 1980, 1523; 1535 (*α-L-penta-Ac, α-L-pentabenzoyl, α-L-tetra-Ac 4-deoxy*)

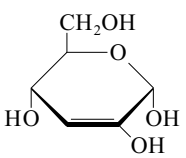
α-L-*threo*-4-Hex-4-enopyranuronosyl-D-galacturonic acid H-80



Pyranose–*form*

$C_{12}H_{16}O_{12}$ 352.251
Isol. from the enzymic hydrolysate of pectin produced by the pectin-trans eliminase from *Bacillus polymyxa* or commercial pectinase.
$[\alpha]_D$ +177.8 (H_2O).
Albersheim, P. *et al., Helv. Chim. Acta*, 1960, **43**, 1422 (*isol*)
Nagel, C.W. *et al., Arch. Biochem. Biophys.*, 1961, **94**, 328 (*isol*)
Hasegawa, S. *et al., J. Biol. Chem.*, 1962, **237**, 619 (*isol*)

erythro-Hex-2-enose H-81



Unisolated enol form of 3-Deoxy-*erythro*-hexos-2-ulose, D-214.

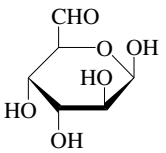
α-D-Pyranose-*form*
tert-*Butyl glycoside, tri-Ac:* tert-*Butyl 2,4,6-tri*-O-*acetyl*-α-D-erythro-*hex-2-enopyranoside*
[79698-71-8]
$C_{16}H_{24}O_8$ 344.361
Cryst. Mp 63-63.5°. $[\alpha]_D$ +84.3.
Hanessian, S. *et al., Tet. Lett.*, 1981, **22**, 4583 (*synth*)

5-Hexenyl glucosinolate H-82

*1-Thio-β-D-glucopyranose 1-[*N-*(sulfooxy)-6-heptenimidate]*
[76265-24-2]
$H_2C{=}CH(CH_2)_4C(SGlc){=}NOSO_3H$
$C_{13}H_{23}NO_9S_2$ 401.458
Present in horseradish (*Armoracia lapathifolia*) and Japanese horseradish (*Wasabia japonica*).
Kojima, M. *et al., Yakugaku Zasshi*, 1973, **93**, 453; *CA*, **80**, 130475w (*occur*)
Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)

altro-Hexodialdose H-83

talo-*Hexodialdose*



β-D-Pyranose-*form*

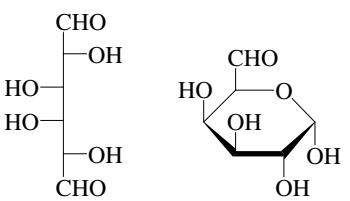
$C_6H_{10}O_6$ 178.141

β-D-Pyranose-*form* [26548-39-0]
1,2:3,4-Diisopropylidene: 1,2:3,4-Di-O-*isopropylidene*-β-D-altro-*hexodialdopyranose*
[78654-58-7]
$C_{12}H_{18}O_6$ 258.271
Syrup.

α-L-Furanose-*form*
Me glycoside, 2,3-O-*isopropylidene, 1′,3′-propanediyl dithioacetal:* [104833-40-1]
$C_{13}H_{22}O_5S_2$ 322.446
Cryst. (Et_2O/hexane). Mp 84-85°. $[\alpha]_D^{21}$ -42.4 (c, 1.86 in MeOH).

[26548-39-0]
Martinez, E. *et al., An. Quim., Ser. C*, 1980, **76**, 230 (*β-D-pyr diisopropylidene*)
Boyd, F.L. *et al., Chem. Comm.*, 1986, **5**, 257, (*α-L-Me fur isopropylidene deriv*)

galacto-Hexodialdose, 8CI H-84



D-*form* α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141
The parent compd. is *meso*-. Exists in soln. mainly as a mixt. of bicyclic hemiacetals.

α-D-Pyranose-*form*
1,2:3,4-Diisopropylidene: 1,2:3,4-Di-O-*isopropylidene*-α-D-galacto-*hexodialdo-1,5-pyranose*
[4933-77-1]

$C_{12}H_{18}O_6$ 258.271
$Bp_{0.5}$ 104-105°. $[\alpha]_D^{20}$ -131 (c, 0.9 in $CHCl_3$) (-99, -111).

1,2:3,4-Diisopropylidene, oxime: [20581-76-4]
$C_{12}H_{19}NO_6$ 273.285
Cryst. (hexane). Mp 107-108° Mp 114-115°. $[\alpha]_D^{20}$ -116 (c, 0.35 in $CHCl_3$). $[\alpha]_D^{21}$ -132 (c, 2.3 in $CHCl_3$).

1,2:3,4-Diisopropylidene, p-*nitrophenylhydrazone:* [20581-77-5]
Yellow needles (C_6H_6/EtOH). Mp 208-209° Mp 214-215°. $[\alpha]_D^{23}$ -90 (c, 1.5 in $CHCl_3$).

*Me glycoside: Methyl α-D-*galacto-*hexodialdo-1,5-pyranoside*
[35094-55-4]
$C_7H_{12}O_6$ 192.168
$[\alpha]_D^{20}$ +132 (H_2O).

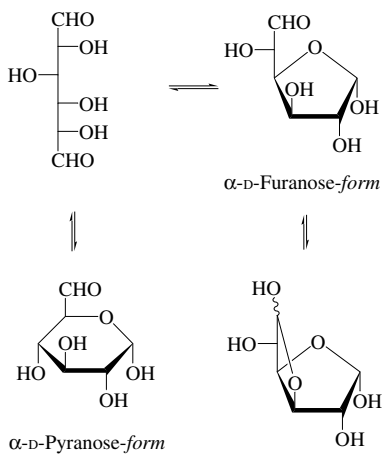
β-D-Pyranose-*form*

*Me glycoside: Methyl β-D-*galacto-*hexodialdo-1,5-pyranoside*
[52571-76-3]
$C_7H_{12}O_6$ 192.168
$[\alpha]_D^{20}$ +8 (H_2O).

Horton, D. *et al., Carbohydr. Res.*, 1968, **7**, 56; 1973, **26**, 441 (*α-D-form, synth, α-D-oxime, α-D-nitrophenylhydrazone, α-D-pyr diisopropylidene*)
Howarth, G.B. *et al., Can. J. Chem.*, 1969, **47**, 75 (*α-D-form, synth, α-D-oxime*)
Ward, D.J. *et al., Carbohydr. Res.*, 1972, **21**, 305 (*α-D-form, synth, α-D-nitrophenylhydrazone*)
Pettersson, B. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 29 (*-a-D-Me pyr, β-D-Me pyr*)
Lee, H.H. *et al., Carbohydr. Res.*, 1988, **176**, 59 (*α-D-pyr diisopropylidene, !synth*)
Schoevaart, R. *et al., Carbohydr. Res.*, 2001, **334**, 1-6 (*enzymic synth, cmr, struct*)

gluco-Hexodialdose H-85

gulo-*Hexodialdose*



$C_6H_{10}O_6$ 178.141

D-*form*

*D-*gluco-*Hexodialdose. L-*gulo-*Hexodialdose*
[3056-44-8]
Mp 90-92° (88-90°). $[\alpha]_D$ +49.6 (c, 2.3 in H_2O).

Bis(di-Et mercaptal): [25531-73-1]
$C_{14}H_{30}O_4S_4$ 390.653
Cryst. (EtOH aq.). Mp 82-83° (73°). $[\alpha]_D^{20}$ +9.5 (c, 1.0 in Me_2CO).

Tetra-Ac, bis(di-Et mercaptal):
[33471-26-0]
$C_{22}H_{38}O_8S_4$ 558.801
Cryst. (pentane). Mp 70.5-71.5° (70-71°). $[\alpha]_D^{20}$ -14.6 (c, 2.0 in MeOH).

α-D-Pyranose-*form*

*Me glycoside: Methyl α-D-*gluco-*hexodialdopyranoside*
[119998-30-0]
$C_7H_{12}O_6$ 192.168
Amorph. solid (as covalent hydrate). $[\alpha]_D^{21}$ +107.6 (c, 2.09 in H_2O).

Me glycoside, 6-oxime: [120142-43-0]
$C_7H_{13}NO_6$ 207.183
Amorph. hygroscopic solid. $[\alpha]_D^{22}$ +118.2 (c, 0.85 in MeOH).

Me glycoside, 6-di-Me acetal: [119998-31-1]
$C_9H_{18}O_7$ 238.237
Viscous oil. $[\alpha]_D^{22.5}$ +126.3 (c, 0.52 in MeOH).

β-D-Pyranose-*form*

*Me glycoside: Methyl β-D-*gluco-*hexodialdopyranoside*
[74774-18-8]
$C_7H_{12}O_6$ 192.168
$[\alpha]_D^{22}$ -71 (c, 0.5 in H_2O) (as covalent hydrate).

*Me glycoside, 3-Me: Methyl 3-*O-*methyl-β-D-*gluco-*hexodialdopyranoside*
$C_8H_{14}O_6$ 206.195
Syrup. $[\alpha]_D^{20}$ -13 (c, 1.0 in H_2O).

*Me glycoside, 6-di-Me acetal, tribenzoyl: Methyl 2,3,4-tri-*O-*benzoyl-β-D-*gluco-*hexodialdopyranoside 6-dimethyl acetal*
[119998-34-4]
$C_{30}H_{30}O_{10}$ 550.561
Cryst. (MeOH). Mp 147-148°.

α-D-Furanose-*form* [20585-83-5]

*1,2-*O-*Isopropylidene: 1,2-*O-*Isopropylidene-α-D-*gluco-*hexodialdo-1,4-furanose*
[25531-72-0]
$C_9H_{14}O_6$ 218.206
Cryst. (EtOAc). Mp 125-126°. $[\alpha]_D^{21}$ +27 → +34 (c, 0.5 in H_2O).

*1,2-*O-*Isopropylidene, phenylhydrazone:*
[20585-85-7]
Cryst. (EtOH). Mp 145° dec Mp 169-171° dec. $[\alpha]_D^{20}$ -46 (c, 1.0 in EtOH).

*1,2-*O-*Isopropylidene, 5-tosyl: 1,2-*O-*Isopropylidene-5-*O-*tosyl-α-D-*gluco-*hexodialdo-1,4-furanose*
[30694-75-8]
$C_{16}H_{20}O_8S$ 372.395
$[\alpha]_D^{20}$ +57.5 → +35 (c, 1.2 in $CHCl_3$).

*1,2-*O-*Isopropylidene, 5-tosyl, benzoyl (*R-*): 3-*O-*(*R*)-Benzoyl-1,2-*O-*isopropylidene-5-*O-*tosyl-α-D-*gluco-*hexodialdo-1,4-furanose*
[73892-50-9]
$C_{23}H_{24}O_9S$ 476.503
Cryst. (EtOH). Mp 179-181° dec. $[\alpha]_D^{20}$ +118 (c, 1.2 in $CHCl_3$).

*1,2-*O-*Isopropylidene, 5-tosyl, 6-benzoyl (*S-*): 3-*O-*(*S*)-Benzoyl-1,2-*O-*isopropylidene-5-*O-*tosyl-α-D-*gluco-*hexodialdo-1,4-furanose*
[73925-70-9]
$C_{23}H_{24}O_9S$ 476.503
Cryst. (EtOH). Mp 149-151° dec. $[\alpha]_D^{20}$ -23 (c, 1.0 in $CHCl_3$).

*1,2-*O-*Benzylidene, 5-tosyl, 6-benzoyl (*R-*): 3-*O-*(*R*)-Benzoyl-1,2-*O-*benzylidene-5-*O-*tosyl-α-D-*gluco-*hexodialdo-1,4-furanose*
[73892-51-0]
$C_{27}H_{24}O_9S$ 524.547
Cryst. (EtOH/Me_2CO). Mp 172-173°. $[\alpha]_D^{20}$ +129 (c, 1.25 in Me_2CO).

*1,2-*O-*Benzylidene, 5-tosyl, 6-benzoyl (*S-*): 3-*O-*(*S*)-Benzoyl-1,2-*O-*benzylidene-5-*O-*tosyl-α-D-*gluco-*hexodialdo-1,4-furanose*
[73925-73-2]
$C_{27}H_{24}O_9S$ 524.547
Cryst. (EtOH/Me_2CO). Mp 187-188°. $[\alpha]_D^{20}$ -2 (c, 1.5 in Me_2CO).

α-L-Pyranose-*form*

*Me glycoside: Methyl α-L-*gluco-*hexodialdopyranoside*
[19165-10-7]
$C_7H_{12}O_6$ 192.168
$[\alpha]_D^{20}$ -120 (H_2O).

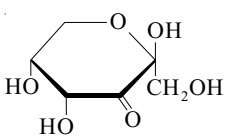
β-L-Pyranose-*form*

*Me glycoside: Methyl β-L-*gluco-*hexodialdopyranoside*
$C_7H_{12}O_6$ 192.168
$[\alpha]_D^{20}$ +40 (c, 1.0 in H_2O).

[20585-83-5]

Theander, O. *et al., Acta Chem. Scand.*, 1963, **17**, 1751 (*α-D-fur-isopropylidene*)
Hanisch, G. *et al., Chem. Ber.*, 1968, **101**, 2074 (*α-D-fur isopropylidene phenylhydrazone*)
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1969, **102**, 2977 (*α-D-fur isopropylidene, D-bisdi-Et mercaptal*)
Clode, D.M. *et al., Carbohydr. Res.*, 1971, **17**, 365 (*D-bis di-Et mercaptal tetra-Ac*)
Pettersson, B. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 29 (*β-D-Me pyr Me, α-L-Me pyr, β-L-Me pyr*)
Macher, I. *et al., Carbohydr. Res.*, 1980, **80**, 45 (*α-D-fur isopropylidene tosyl benzoyl, α-D-fur benzylidene tosyl benzoyl*)
Koster, R. *et al., Synthesis*, 1982, 650 (*synth*)
Den Drijver, L. *et al., Carbohydr. Res.*, 1987, **161**, 65 (*synth, D-form*)
Singh, S. *et al., J.O.C.*, 1989, **54**, 2300 (*α-D-Me pyr, α-D-Me pyr di-Me acetal, β-D-Me pyr, β-D-Me pyrdi-Me acetal tribenzoyl*)
Heusinger, H. *et al., Carbohydr. Res.*, 1991, **209**, 109 (*D-form*)

erythro-2,3-Hexodiulose H-86



$C_6H_{10}O_6$ 178.141

β-D-2,6-Pyranose-*form*

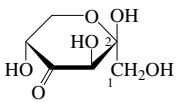
*1,2-*O-*Isopropylidene: 1,2-*O-*Isopropylidene-β-D-*erythro-*hexo-2,3-diulose-2,6-pyranose*
[20789-62-2]
$C_9H_{14}O_6$ 218.206
Mp 96-101°.

1,2:4,5-Di-O-*isopropylidene: 1,2:4,5-Di*-O-*isopropylidene-β-D*-erythro-*hexo-2,3-diulose-2,6-pyranose*
[18422-53-2]
$C_{12}H_{18}O_6$ 258.271
Highly enantioselective catalyst for epoxidation. Needles (petrol). Mp 102-103°. $[\alpha]_D^{20}$ -126.4 (c, 1.0 in $CHCl_3$).

1,2:4,5-Di-O-*cyclohexylidene: 1,2:4,5-Di*-O-*cyclohexylidene-β-D*-erythro-*hexo-2,3-diulose-2,6-pyranose*
$C_{18}H_{26}O_6$ 338.4
Cryst. (Et_2O). Mp 152-153°. $[\alpha]_D^{20}$ -90 (c, 1.0 in $CHCl_3$).

James, K. *et al., J.C.S.(C)*, 1967, 2681, (*β-D-dicyclohexylidene, β-D-diisopropylidene*)
Cree, G.M. *et al., Can. J. Biochem.*, 1968, **46**, 765 (*β-D-isopropylidene*)
Fayet, C. *et al., Carbohydr. Res.*, 1986, **155**, 99 (*β-D-diisopropylidene*)
Org. Synth., 2003, **80**, 1-8 (*β-D-diisopropylidene, synth, ir, cmr, pmr*)

threo-2,4-Hexodiulose H-87



β-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

D-*form* [102831-06-1]
Amorph. powder. $[\alpha]_D^{19}$ -39 (c, 0.36 in MeOH).

Tetra-Ac, di-O-*benzyloxime:* [108529-35-7]
Cryst. (Et_2O/hexane). Mp 98-100°. $[\alpha]_D^{20}$ -19 (c, 1.2 in $CHCl_3$).

β-D-Pyranose-*form*

1,2-Isopropylidene: 1,2-O-*Isopropylidene-β-D*-threo-*2,4-hexodiulo-2,6-pyranose*
[108529-27-7]
$C_9H_{14}O_6$ 218.206
Cryst. (EtOAc/hexane). Mp 156-158°. $[\alpha]_D^{21}$ -65 (c, 1.6 in $CHCl_3$).

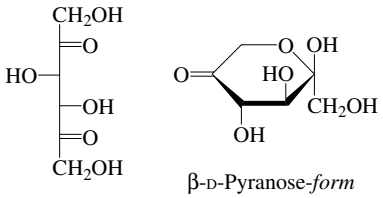
2,3-Isopropylidene: 2,3-O-*Isopropylidene-β-D*-threo-*2,4-hexodiulopyranose*
[58238-47-4]
$C_9H_{14}O_6$ 218.206
Cryst. (Et_2O). Mp 135-137°. $[\alpha]_D^{20}$ -47 (c, 2 in MeOH).

*2,3-Isopropylidene, oxime(*E-*):* [109200-64-8]
$C_9H_{15}NO_6$ 233.221
Cryst. (Et_2O/hexane). Mp 169-171°. $[\alpha]_D^{20}$ -70 (c, 2.3 in MeOH).

Den Drijver, L. *et al., Carbohydr. Res.*, 1986, **155**, 141 (*β-D-pyr-isopropylidene, cryst struct, deriv*)
Holzapfel, C.W. *et al., S. Afr. J. Chem.*, 1987, **40**, 77 (*D-form, synth, β-D-pyr 1,2-isopropylidene*)

threo-2,5-Hexodiulose, 9CI, 8CI H-88

5-Ketofructose
[5729-73-7]



β-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141
Exists as a monomer in soln. and as a dimer in the solid state.

D-*form* [1684-29-3]
Formed by the action of *Acetobacter suboxydans* on Glucitol, G-247, *Gluconobacter* on Fructose, F-84 and by *Pseudomonas convexa* on Sorbose, S-60.
Mp 157-158°
Mp 175-176°. $[\alpha]_D^{18}$ -86.8 (c, 1.0 in H_2O).

Bisphenylhydrazone:
Yellow cryst. Mp 123-124° Mp 141°. $[\alpha]_D^{20}$ -138.5 (c, 0.25 in Py).

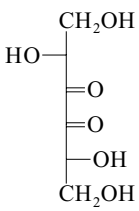
1,3:4,6-Dibenzylidene: 1,3:5,6-Di-O-*benzylidene*-threo-*hexo-2,5-diulose*
$C_{20}H_{18}O_6$ 354.359
Cryst. Mp 195-196°. $[\alpha]_D$ -93 (c, 1.7 in $CHCl_3$).

β-D-Pyranose-*form*

1,2-Isopropylidene: 1,2-O-*Isopropylidene-β-D*-threo-*2,5-hexodiulopyranose*
$C_9H_{14}O_6$ 218.206
Cryst. (EtOAc/$CHCl_3$). Mp 174-176°. $[\alpha]_D^{20}$ -65 (c, 1.6 in MeOH).

Weidenhagen, R. *et al., Chem. Ber.*, 1960, **93**, 2924
Whiting, G.C. *et al., Chem. Ind. (London)*, 1963, 1925 (*synth, pmr*)
Avigad, G. *et al., Methods Enzymol.*, 1975, **41**, 84 (*rev*)
Hansen, L.K. *et al., Chem. Comm.*, 1976, 572 (*cryst struct*)
Baggett, N. *et al., Carbohydr. Res.*, 1981, **96**, 41 (*dibenzylidene*)
Brewer, C.F. *et al., Carbohydr. Res.*, 1982, **102**, 294 (*cmr*)
Den Driver, L. *et al., Carbohydr. Res.*, 1986, **155**, 141 (*1,2-Isopropylidene*)

threo-3,4-Hexodiulose H-89



$C_6H_{10}O_6$ 178.141
Dimeric in cryst. struct. and in soln. Mixt. of stereoisomers of the dimer in soln.

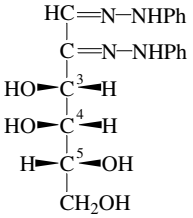
D-*form*

1,2:5,6-Diisopropylidene: 1,2:5,6-Di-O-*isopropylidene-D*-threo-*3,4-hexodiulose*
$C_{12}H_{18}O_6$ 258.271
Mp 124-126°. $[\alpha]_D^{20}$ +113 (c, 1 in $CHCl_3$).

Kuszmann, J. *et al., Carbohydr. Res.*, 1987, **164**, 459 (*synth*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1989, **194**, 21 (*cryst struct, struct, pmr*)

Hexose phenylosazones H-90

Hexos-2-ulose bis(phenylhydrazones), 9CI. 1,2-Aldodiose bis(phenylhydrazones). Hexosazones



(3*R*,4*R*,5*R*)-*form*

$C_{18}H_{22}N_4O_4$ 358.396
Formed from aldohexoses by treatment with phenylhydrazine. The reaction involves a formal oxidation step involving destruction of the chiral centre at C-2. The eight (enantiomeric pairs of) hexoses therefore form a total of four different osazones. In addition, the four ketohexoses form the same osazones by formal oxidation at C-1. Key compds. for historical characterisation of the hexoses and their configurational interconversion (Fischer, 1889). Readily converted into osotriazoles which can be used for further characterisation.

(3*R*,4*R*,5*R*)-*form*

D-lyxo-*form*. *D-Galactosazone*. *D-Talosazone*. *D-Tagatosazone*
[3879-35-4]
Yellow needles (EtOH/Et_2O). Mp 188° (185-187°). $[\alpha]_D^{20}$ +80 (168h) → +18 (c, 0.84 in Py/EtOH 2:3).

Phenylosotriazole: D-Galactose phenylosotriazole. D-Talose phenylosotriazole . D-Tagatose phenylosotriazole
$C_{12}H_{15}N_3O_4$ 265.268
Cryst. (H_2O). Mp 110°. $[\alpha]_D^{20}$ -30.6 (c, 0.3 in Py).

(3*R*,4*R*,5*S*)-*form*

L-ribo-*form*. *L-Allosazone*. *L-Altrosazone*. *L-Psicosazone*
Yellow cryst. (EtOH aq.). Mp 173-174°. $[\alpha]_D^{20}$ +78.6 (15 min) → +82.2 (c, 2 in Py).

(3*R*,4*S*,5*R*)-*form*

D-lyxo-*form*. *D-Glucosazone*. *D-Mannosazone*. *D-Fructosazone*
[534-97-4]
Fine yellow needles. Mp 208-209°. $[\alpha]_D^{20}$ -72.5 (48h) → -40 (c, 0.88 in Py/EtOH 2:3).

Phenylosotriazole: D-Glucose phenylosotriazole. D-Mannose phenylosotriazole. D-Fructose phenylosotriazole
$C_{12}H_{15}N_3O_4$ 265.268
Cryst. (H_2O). Mp 195-196°. $[\alpha]_D^{20}$ -81.6 (c, 0.8 in Py).

(3*R*,4*S*,5*S*)-*form*
L-xylo-*form*. L-*Gulosazone*. L-*Idosazone*. L-*Sorbosazone*
[5934-57-6]
Yellow needles (Me_2CO/Et_2O). Mp 170-172° (167°). $[\alpha]_D$ -13.8 (c, 1 in Py/EtOH 1:1).

Phenylosotriazole: L-*Gulose phenylozotriazole*. L-*Idose phenylosotriazole*. L-*Sorbose phenylosotriazole*
$C_{12}H_{15}N_3O_4$ 265.268
Cryst. (H_2O). Mp 158-159°. $[\alpha]_D^{20}$ -46.7 (c, 0.8 in Py).

(3*S*,4*R*,5*R*)-*form*
D-xylo-*form*. D-*Gulosazone*. D-*Idosazone*. D-*Sorbosazone*
[5978-96-1]
Fine needles (EtOH). Mp 168°. $[\alpha]_D$ +6 (MeOH). $[\alpha]_D$ -8 (48h) → -43 (c, 0.84 in Py/EtOH 2:3).

Phenylosotriazole: D-*Gulose phenylosotriazole*. D-*Idose phenylosotriazole*. D-*Sorbose phenylosotriazole*
$C_{12}H_{15}N_3O_4$ 265.268
Cryst. (H_2O). Mp 158.5-159°. $[\alpha]_D^{25}$ +47 (Py).

(3*S*,4*R*,5*S*)-*form*
L-arabino-*form*. L-*Glucosazone*. L-*Mannosazone*. L-*Fructosazone*
[6032-23-1]
Yellow needles. Mp 205-206°. $[\alpha]_D^{16}$ +57 (24h) → +36 (c, 1 in Py/EtOH 2:3).

Phenylosotriazole: L-*Glucose phenylosotriazole*. L-*Mannose phenylosotriazole*. L-*Fructose phenylosotriazole*
$C_{12}H_{15}N_3O_4$ 265.268
Cryst. (MeOH aq.). Mp 196-197°. $[\alpha]_D^{25}$ +82 (c, 0.8 in Py).

(3*S*,4*S*,5*R*)-*form*
D-ribo-*form*. D-*Allosazone*. D-*Altrosazone*. D-*Psicosazone*
Mp 173-174° (162-163° dec.). $[\alpha]_D^{20}$ -19.2 (c, 1 in EtOH). $[\alpha]_D$ -78 → -67 (Py). $[\alpha]_D^{20}$ -38 (3h) → -48 (c, 0.82 in Py/EtOH 2:3).

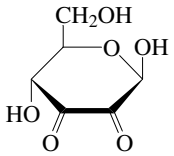
Phenylosotriazole: D-*Allose phenylosotriazole*. D-*Altrose phenylosotriazole*. D-*Psicose phenylosotriazole*
$C_{12}H_{15}N_3O_4$ 265.268
Cryst. (H_2O). Mp 134-135°. $[\alpha]_D^{20}$ +28 (c, 0.8 in Py).

(3*S*,4*S*,5*S*)-*form*
L-lyxo-*form*. L-*Galactosazone*. L-*Talosazone*. L-*Tagatosazone*
[81872-41-5]
Mp 192-195° dec.

Fischer, E. *et al., Ber.*, 1888, **21**, 2631-2634; 1889, **22**, 365-376 (*synth*)
Haskins, W.T. *et al., J.A.C.S.*, 1945, **67**, 939-941 (*phenylosatriazoles*)
Percival, E.G.V. *et al., Adv. Carbohydr. Chem.*, 1948, **3**, 23-44 (*rev, bibl*)
Bayne, S. *et al., Adv. Carbohydr. Chem.*, 1956, **11**, 43-96 (*rev*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 127-131 (*synth, bibl*)
Hough, L. *et al., Rodd's Chem. Carbon Compd. (2nd edn.)*, 1967, **1F**, 440-446 (*rev*)
Ho, T. *et al., Agric. Biol. Chem.*, 1969, **33**, 1217-1219 (*ms*)
Schnarr, G.W. *et al., J.C.S. Perkin 1*, 1979, 496-503 (*cmr*)
Lichtenthaler, F.W. *et al., Angew. Chem., Int. Ed.*, 1992, **31**, 1541-1556 (*rev*)

erythro-Hexose-2,3-diulose H-91

2,3-Diketoglucose



$C_6H_8O_6$ 176.126

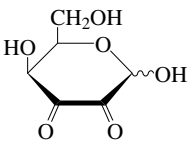
β-D-Pyranose-*form*
erythro-*Hexopyranose-2,3-diulose, 9CI*

2,3-Bis(covalent hydrate): [188575-80-6]
$C_6H_{12}O_8$ 212.156
Prisms. Mp 158-164° dec.

3,4-Dihydroxyphenethyl glycoside: Dopaol 2,3-diketoglycoside
$C_{14}H_{16}O_8$ 312.276
Constit. of the flowering stems of *Chelona obliqua*. Glass. First natural occurrence of a diketo sugar. In equilib. with covalent tetrahydrate.

Sedmera, P. *et al., Carbohydr. Res.*, 1997, **297**, 375-378 (*synth, pmr, cmr*)
Franzyk, H. *et al., J. Nat. Prod.*, 2004, **67**, 1052-1054 (*Dopaol 2,3-diketoglucoside*)

threo-2,3-Hexosediulose H-92



D-Pyranose-*form*

$C_6H_8O_6$ 176.126

D-*form* [591760-00-8]
Obt. by oxidn. of D-galactose by pyranose oxidase from *Trametes versicolor* and *Oudemansiella mucida*. Readily undergoes nonenzymic decarboxylation into D-*threo-pentos-2-ulos threo*-Pentos-2-ulose, P-45.

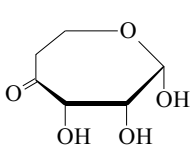
1,2-Bis(diphenylhydrazone): [591759-97-6]
$C_{30}H_{28}N_4O_4$ 508.576
Orange syrup.

1,3-Bis(diphenylhydrazone): [591759-98-7]
$C_{30}H_{28}N_4O_4$ 508.576
Yellow syrup.

1,2,3-Tris(diphenylhydrazone):
[591759-99-8]
$C_{42}H_{38}N_6O_3$ 674.801
Orange solid.

Volc, J. *et al., J. Carbohydr. Chem.*, 2003, **22**, 207-216 (*enzymic synth, hydrazones*)

erythro-Hexoseptanos-4-ulose H-93



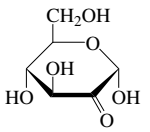
$C_6H_{10}O_5$ 162.142

α-D-*form*
*1,2-O-Isopropylidene, 3-Ac: 3-O-Acetyl-5-deoxy-1,2-O-isopropylidene-α-D-*erythro-*hexoseptanos-4-ulose, 9CI*
[110537-95-6]
$C_{11}H_{16}O_6$ 244.244
Mp 80-82°. $[\alpha]_D^{20}$ +173 (c, 1.3 in $CHCl_3$).

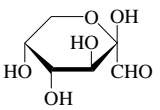
Csuk, R. *et al., Carbohydr. Res.*, 1986, **157**, 235 (*synth, pmr, cmr*)

arabino-Hexos-2-ulose H-94

Glucosone. Fructosone. Mannosone



α-D-Pyranose-*form*



β-D-2,6-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

D-*form* [26345-59-5]
Formed during sterilisation of foods by irradiation. $[\alpha]_D^{20}$ -9.8.

6-Phosphate:
$C_6H_{11}O_9P$ 258.121
Yellowish-brown solid.

α-D-Pyranose-*form*
*4,6-Di-Me, 1,3-di-Ac: 1,3-Di-O-acetyl-4,6-di-O-methyl-α-D-*arabino-*hexopyranos-2-ulose*
[41107-37-3]
$C_{12}H_{18}O_8$ 290.269
Cryst. (petrol). Mp 62-63°. $[\alpha]_D$ +47.7 (c, 1.3 in $CHCl_3$).

*Me glycoside: Methyl α-D-*arabino-*hexopyranosid-2-ulose, 9CI*
[39687-01-9]
$C_7H_{12}O_6$ 192.168
Cryst. Mp 151-153°. $[\alpha]_D^{20}$ +141 (c, 0.5 in H_2O).

*Me glycoside, 3-benzoyl: Methyl 3-O-benzoyl-α-D-*arabino-*hexopyranosid-2-ulose*
[61403-88-1]
$C_{14}H_{16}O_7$ 296.276
Platelets. Mp 64°. $[\alpha]_D^{20}$ +46 (c, 0.8 in $CHCl_3$).

*Me glycoside, 3,4,6-tribenzoyl: Methyl 3,4,6-tri-O-benzoyl-α-D-*arabino-*hexopyranosid-2-ulose*
[10579-00-7]
$C_{28}H_{24}O_9$ 504.492
Prismatic needles. Mp 150-151°. $[\alpha]_D^{22}$ +53 (c, 0.8 in $CHCl_3$).

β-D-Pyranose-*form*
*Me glycoside, 3,4,6-tri-Ac: Methyl 3,4,6-tri-O-acetyl-β-D-*arabino-*hexopyranosid-2-ulose*
[51295-64-8]
$C_{13}H_{18}O_9$ 318.28
$[\alpha]_D$ +179 ($CHCl_3$).

*1,3,4,6-Tetrabenzoyl: 1,3,4,6-Tetra-O-benzoyl-β-D-*arabino-*hexopyranos-2-ulose*
$C_{34}H_{26}O_{10}$ 594.573
Cryst. ($CHCl_3$/pentane). Mp 127-129°. $[\alpha]_D^{23}$ -9.3 (c, 1.0 in $CHCl_3$).

3,4-Dihydroxyphenethyl glycoside: ***Dopaol β-D-2-ketoglucoside***
$C_{14}H_{18}O_8$ 314.291
Constit. of the flowering stems of *Chelona obliqua*. Not obt. completely pure. Rare occurrence of a natural 2-ketosugar although a few other examples are known.

β-D-2,6-Pyranose-*form* [1854-25-7]

2,3:4,5-Di-O-*isopropylidene: 2,3:4,5-Di*-O-*isopropylidene-β-D*-arabino-*hexos-2-ulo-2,6-pyranose*
[32786-02-0]
$C_{12}H_{18}O_6$ 258.271
$Bp_{0.15}$ 95-96°. $[\alpha]_D$ -72 (c, 0.44 in $CHCl_3$).

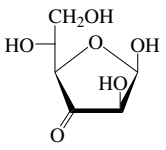
2,3:4,5-Di-O-*isopropylidene, oxime:*
[50257-24-4]
$C_{12}H_{19}NO_6$ 273.285
Needles ($CHCl_3$/petrol). Mp 137-138°. $[\alpha]_D$ -138 (c, 1.0 in $CHCl_3$).

2,3:4,5-Di-O-*isopropylidene, 4-nitrophenylhydrazone:* [41670-90-0]
Orange needles ($EtOH/C_6H_6$). Mp 176-177°. $[\alpha]_D^{25}$ -121 (c, 1.0 in $CHCl_3$).

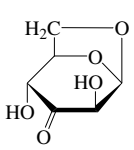
2,3:4,5-Di-O-*isopropylidene, 2,4-dinitrophenylhydrazone:* [50257-25-5]
Yellow needles (EtOH). Mp 180-181°. $[\alpha]_D$ -100 (c, 1.1 in $CHCl_3$).

Bayne, S. *et al., Adv. Carbohydr. Chem.*, 1956, **11**, 43 (*rev*)
De Belder, A.N. *et al., Carbohydr. Res.*, 1972, **24**, 166 (*α-D-Me pyr*)
Aspinal, G.O. *et al., Can. J. Chem.*, 1973, **51**, 388 (*α-D-pyr di-Ac di-Me*)
Arrick, R.E. *et al., Carbohydr. Res.*, 1973, **26**, 441 (*2,6-pyranose derivs*)
Lowe, R.W. *et al., Carbohydr. Res.*, 1973, **28**, 281 (*2,6-pyranose derivs*)
Collins, P.M. *et al., Carbohydr. Res.*, 1973, **31**, 1 (*β-D-Me pyr tri-Ac*)
Lundt, I. *et al., Carbohydr. Res.*, 1974, **35**, 187 (*β-D-tetrabenzoyl*)
Lichtenthaler, F. *et al., Carbohydr. Res.*, 1976, **49**, 57 (*α-D-Me pyr benzoyl, α-D-Me pyr tribenzoyl*)
Brinkley, R.W. *et al., J.O.C.*, 1977, **42**, 1216 (*2,6-pyranose derivs*)
Liu, T.E. *et al., Carbohydr. Res.*, 1983, **113**, 151 (*D-form, enzymic synth*)
Holzapfel, C.W. *et al., Acta Cryst. C*, 1987, **43**, 372 (*cryst struct, triisopropylidene*)
Koths, K. *et al., Carbohydr. Res.*, 1992, **232**, 59 (*enzymic synth*)
Freimund, S. *et al., Carbohydr. Res.*, 2002, **337**, 1585-1587 (*6-phosphate*)
Franzyk, H. *et al., J. Nat. Prod.*, 2004, **67**, 1052-1054 (*Dopaol 2-ketoglucoside*)

arabino-Hexos-3-ulose H-95



β-D-Furanose-*form*



1,6-Anhydro-β-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

α-D-*Pyranose-form*

*Me pyranoside, 4,6-*O-*ethylidene, 2-Me: Methyl 4,6-*O-*ethylidene-2-*O-*methyl-α-D-*arabino-*hexopyranosid-3-ulose*
[38088-52-7]
$C_{10}H_{16}O_6$ 232.233
Mp 82°. $[\alpha]_D$ +126.

*Me pyranoside, 4,6-*O-*benzylidene, 2-benzoyl, oxime: Methyl 2-*O-*benzoyl-4,6-*O-*benzylidene-α-D-*arabino-*hexopyranosid-3-ulose oxime*
[27826-80-8]
Mp 183-184°. $[\alpha]_D^{25}$ -32 (c, 0.8 in $CHCl_3$).

β-D-*Pyranose-form*

*Benzyl glycoside, 4,6-*O-*benzylidene: Benzyl 4,6-*O-*benzylidene-β-D-*arabino-*hexopyranosid-3-ulose*
$C_{20}H_{20}O_6$ 356.374
Mp 156-158°.

*1,6-Anhydro: 1,6-Anhydro-β-D-*arabino-*hexopyranos-3-ulose*
$C_6H_8O_5$ 160.126
Mp 167-169°. $[\alpha]_D^{20}$ -161 (c, 1.0 in H_2O).

*1,6-Anhydro, 2,4-ditosyl: 1,6-Anhydro-2,4-di-*O-*tosyl-β-D-*arabino-*hexopyranos-3-ulose*
[20183-66-8]
Mp 125-135°. $[\alpha]_D$ -129 (c, 0.6 in $CHCl_3$).

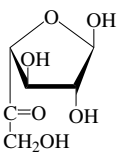
*1,6-Anhydro, 4-benzyl, 2-tosyl: 1,6-Anhydro-4-*O-*benzyl-2-*O-*tosyl-β-D-*arabino-*hexopyranos-3-ulose*
Mp 86°. $[\alpha]_D$ +17 (c, 1.0 in $CHCl_3$).

β-D-*Furanose-form*

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-β-D-*arabino-*hexofuranos-3-ulose*
[26623-14-3]
$C_{12}H_{18}O_6$ 258.271
Mp 31-32°. $Bp_{0.7}$ 102-108°. $[\alpha]_D$ +25.5 (c, 0.49 in H_2O). $[\alpha]_D$ -25 (c, 0.9 in Me_2CO).

Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2317
Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1143
Slessor, K.N. *et al., Can. J. Chem.*, 1969, **47**, 3989
Szarek, W.A. *et al., Tet. Lett.*, 1969, 4867
Brimacombe, J. *et al., Carbohydr. Res.*, 1970, **12**, 1
Collins, P.M. *et al., J.C.S. Perkin 1*, 1972, 1670
David, S. *et al., J.C.S. Perkin 1*, 1979, 1568

arabino-Hexos-5-ulose H-96



α-L-1,4-Furanose-*form*

$C_6H_{10}O_6$ 178.141

L-1,4-Furanose-*form*

2,6-Di-Me: 2,6-Di-O-*methyl-L*-arabino-*hexofuranos-5-ulose*
[125459-14-5]
$C_8H_{14}O_6$ 206.195
$[\alpha]_D$ -6.8 (c, 1.2 in $CHCl_3$). Mixt. of anomers.

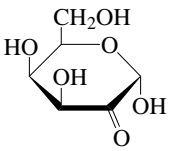
2,6-Di-Me, 1,3-di-Ac: 1,3-Di-O-*acetyl-2,6-di-*O-*methyl-L*-arabino-*hexofuranos-5-ulose*
$C_{12}H_{18}O_8$ 290.269
Oil. $[\alpha]_D$ -40 (c, 1.8 in $CHCl_3$). Mixt. of anomers.

[125459-16-7, 134039-12-6, 158478-04-7]

Barili, P.L. *et al., Carbohydr. Res.*, 1989, **190**, 13 (*α-L-fur di-Me, α-L-fur di-Me di-Ac*)
Barili, P.L. *et al., Tet. Lett.*, 1991, **32**, 959, (*L-form*)

lyxo-Hexos-2-ulose H-97

Galactosone



α-D-Pyranose-*form*

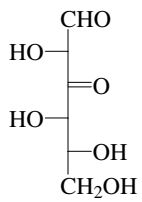
$C_6H_{10}O_6$ 178.141

D-*form* [54142-77-7]
Mp 89.9° dec.

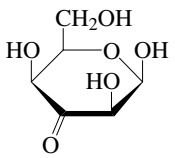
Ruiz, G. *et al., Can. J. Chem.*, 1984, **62**, 561-564 (*synth, uv*)
Somogyi, L. *et al., Carbohydr. Res.*, 1988, **175**, 183-192 (*phenylhydrazone*)
Kopper, S. *et al., Helv. Chim. Acta*, 2003, **86**, 827-843 (*synth, pmr, cmr*)

lyxo-Hexos-3-ulose H-98

Tagatosone
[26187-86-0]



D-*form*



β-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

β-D-Pyranose-*form*

*1,6-Anhydro: 1,6-Anhydro-β-D-*lyxo-*hexopyranos-3-ulose*
[23094-53-3]
$C_6H_8O_5$ 160.126
Mp 166-168° dec. $[\alpha]_D^{26}$ -97.5 (c, 1 in H_2O).

1,6-Anhydro, 2,4-di-Ac: 2,4-Di-O-*acetyl-1,6-anhydro-β-D-*lyxo-*hexopyranos-3-ulose*
[34626-90-9]
$C_{10}H_{12}O_7$ 244.201
Cryst. (Et_2O). Mp 168-169°. $[\alpha]_D^{20}$ -84.1 (c, 1 in $CHCl_3$).

*1,6-Anhydro, 2,4-dibenzoyl: 1,6-Anhydro-2,4-di-*O-*benzoyl-β-D-*lyxo-*hexopyranos-3-ulose*
[20183-71-5]
$C_{20}H_{16}O_7$ 368.342
Mp 100-101° Mp 145-147°. $[\alpha]_D$ -65 (c, 1.5 in $CHCl_3$).

1,6-Anhydro, 2,4-ditosyl: 1,6-Anhydro-2,4-di-O-*tosyl-β-D*-lyxo-*hexopyranos-3-ulose*
[20183-67-9]
$C_{20}H_{20}O_9S_2$ 468.505
Mp 141-142°. $[\alpha]_D^{22}$ -51 (c, 0.65 in $CHCl_3$).

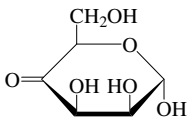
1,6-Anhydro, 2,4-dibenzyl: 1,6-Anhydro-2,4-di-O-*benzyl-β-D*-lyxo-*hexopyranos-3-ulose*
$C_{20}H_{20}O_5$ 340.375
Cryst. ($CHCl_3$/petrol). Mp 107-109°. $[\alpha]_D^{22}$ -54 (c, 0.6 in $CHCl_3$).

β-D-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-β-D*-lyxo-*hexofuranos-3-ulose*
$C_{12}H_{18}O_6$ 258.271
Cryst. (petrol). Mp 88°. $[\alpha]_D^{20}$ -21 (c, 0.4 in H_2O).

Heyns, K. *et al., Chem. Ber.*, 1967, **100**, 2317; 1971, **104**, 3096 (*β-D-pyr anhydro, β-D-pyr anhydro di-Ac*)
Černý, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 1143 (*β-D-pyr anhydro dibenzoyl, β-D-pyr anhydro ditosyl, β-D-pyr anhydro dibenzyl*)
Slessor, K.N. *et al., Can. J. Chem.*, 1969, **47**, 3989 (*β-D-fur*)

lyxo-Hexos-4-ulose H-99



α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

α-D-Pyranose-*form*

Me glycoside, 2,3-O-*isopropylidene, 6-mesyl: Methyl 2,3*-O-*isopropylidene-6*-O-*mesyl-α-D*-lyxo-*hexopyranosid-4-ulose*
$C_{11}H_{18}O_8S$ 310.324
Cryst. (2-propanol). Mp 100-102°. $[\alpha]_D^{22}$ +39 (c, 0.6 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, 6-Me: Methyl 2,3*-O-*isopropylidene-6*-O-*methyl-α-D*-lyxo-*hexopyranosid-4-ulose*
$C_{11}H_{18}O_6$ 246.26
Syrup. $[\alpha]_D^{21}$ +109.5 (c, 1.3 in $CHCl_3$).

β-D-Pyranose-*form*

1,6-Anhydro: See 1,6-Anhydro-*lyxo*-hexopyranos-4-ulose, A-649

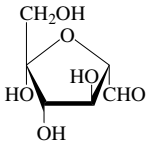
α-L-Pyranose-*form*

6-Deoxy, benzyl glycoside, 2,3-O-*isopropylidene: Benzyl 6-deoxy-2,3*-O-*isopropylidene-α-L*-lyxo-*hexopyranosid-4-ulose*
$C_{16}H_{20}O_5$ 292.331
$[\alpha]_D^{22}$ -76.5 (c, 1.0 in $CHCl_3$).

Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1970, **53**, 364 (*α-D-Me pyr isopropylidene Me*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1980, 779 (*α-D-Me pyr isopropylidene mesyl, α-L-benzyl pyr 6-deoxy isopropylidene*)
Aspinall, G.O. *et al., Carbohydr. Res.*, 1983, **121**, 61 (*α-L-benzyl pyr 6-deoxy isopropylidene*)

lyxo-Hexos-5-ulose H-100

6-Aldofructose. 5-Ketomannose



β-D-5,2-Furanose-*form*

$C_6H_{10}O_6$ 178.141
Shows complex equilib. in aq. soln. with the covalent hydrate of the form illus. predominating (52%) and six other tautomers detected.

D-*form* [80451-84-9]
Prod. by bacterial dehydrogenation of D-fructose.
Prismatic needles (EtOH). Mp 156-158°. $[\alpha]_D^{19}$ -85 (c, 1 in H_2O).

Bis(phenylhydrazone):
Pale yellow-green prismatic cryst. Mp 123-124°. $[\alpha]_D^{20}$ -138.5 (c, 0.25 in Py).

β-D-Furanose-*form*

5,6-Isopropylidene: 5,6-O-*Isopropylidene-β-D*-lyxo-*hexos-5-ulo-5,2-furanose*
[111462-72-7]
$C_9H_{14}O_6$ 218.206
Oil. $[\alpha]_D^{20}$ -15 (c, 0.8 in MeOH).

5,6-Isopropylidene, oxime: [111462-74-9]
$C_9H_{15}NO_6$ 233.221
Cryst. (Et_2O/hexane). Mp 124-126°. $[\alpha]_D^{20}$ -52 (c, 1.2 in MeOH).

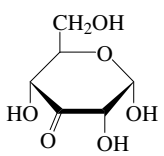
L-*form* [216577-79-6]
$[\alpha]_D$ +18.8 (c, 1.3 in H_2O) (equilib.).

2,6-Dibenzyl: 2,6-Di-O-*benzyl-L*-lyxo-*hexos-5-ulose*
[216590-22-6]
$C_{20}H_{22}O_6$ 358.39
Solid. Mp 85-90°. $[\alpha]_D^{20}$ +15.1 (c, 0.96 in $CHCl_3$) (equilib.). Mixt. of anomers.

Weidenhagen, R. *et al., Chem. Ber.*, 1960, **93**, 2924 (*synth*)
Den Drijver, L. *et al., Carbohydr. Res.*, 1987, **161**, 65 (*β-D-fur isopropylidene, synth*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1159-1177 (*synth, pmr, cmr, equilib*)
Barili, P.L. *et al., J. Carbohydr. Chem.*, 1998, **17**, 1167-1180 (*L-form*)

ribo-Hexos-3-ulose, 9CI, 8CI H-101

3-Ketoglucose. 3-Oxoglucose



α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141
Complex equilib. in soln. with at least 10 species present. Main forms in fresh D_2O soln. are α-D-Pyr (44%), β-D-Pyr (22%) and β-D-Pyr covalent hydrate (12%).

D-*form* [2092-61-7]
Constit. of the disaccharide from the culture media of the crown gall tumour inducing organism *Agrobacterium tumefaciens*.
Mp 58-60° (hydrate). $[\alpha]_D^{26}$ +14.8 (c, 1.0 in H_2O). $[\alpha]_D$ +55.6 (H_2O). Readily forms a hydrate, degrades in aq. soln. at 60°.

α-D-Pyranose-*form*

1,2-O-*Propylidene, 4,6*-O-*benzylidene: 4,6*-O-*Benzylidene-1,2*-O-*propylidene-α-D*-ribo-*hexopyranos-3-ulose*
$C_{16}H_{18}O_6$ 306.315
Cryst. (EtOH). Mp 129-130°.

1,2-O-*Isopropylidene, 4,6*-O-*ethylidene: 4,6*-O-*Ethylidene-1,2*-O-*isopropylidene-α-D*-ribo-*hexopyranos-3-ulose*
$C_{11}H_{16}O_6$ 244.244
Mp 76-78°. $[\alpha]_D^{20}$ +95 (c, 1.0 in $CHCl_3$).

1,2-O-*Isopropylidene, 4,6*-O-*benzylidene: 4,6*-O-*Benzylidene-1,2*-O-*isopropylidene-α-D*-ribo-*hexopyranos-3-ulose*
$C_{16}H_{18}O_6$ 306.315
Mp 165-166°. $[\alpha]_D^{20}$ +84 (c, 1 in $CHCl_3$).

Me glycoside: Methyl α-D-ribo-*hexopyranos-3-uloside*
$C_7H_{12}O_6$ 192.168
Cryst. (butanone). Mp 91-92°. $[\alpha]_D^{25}$ +155 (c, 2.6 in H_2O).

Me glycoside, 4-benzoyl, 2-Ac: Methyl 2-O-*acetyl-4*-O-*benzoyl-α-D*-ribo-*hexopyranosid-3-ulose*
$C_{16}H_{18}O_8$ 338.313
Needles ($CHCl_3$/petrol). Mp 151-153°.

Me glycoside, 4,6-O-*benzylidene:* See Methyl 4,6-*O*-benzylidene-*ribo*-hexopyranosid-3-ulose, M-167

α-D-Furanose-*form*

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-α-D*-ribo-*hexofuranos-3-ulose*
$C_9H_{14}O_6$ 218.206
Cryst. (C_6H_6). Mp 80-81°. $[\alpha]_D$ +29.9 → +36.7 (H_2O).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-α-D*-ribo-*hexofuranos-3-ulose*
[2847-00-9]
$C_{12}H_{18}O_6$ 258.271
Mp 39-40°. $Bp_{0.01}$ 97° $Bp_{0.01}$ 97°. $[\alpha]_D$ +107 ($CHCl_3$).

1,2:5,6-Di-O-*isopropylidene, covalent hydrate:* [10578-85-5]
$C_{12}H_{20}O_7$ 276.286
Mp 112-114°. $[\alpha]_D$ +44.5 (H_2O).

1,2:5,6-Di-O-*isopropylidene, oxime:* [10578-95-7]
$C_{12}H_{19}NO_6$ 273.285
Cryst. (Et_2O/petrol). Mp 103-104°. $[\alpha]_D$ +180 (c, 1 in $CHCl_3$).

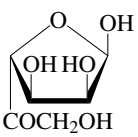
1,2-O-*Cyclohexylidene: 1,2*-O-*Cyclohexylidene-α-D*-ribo-*hexofuranos-3-ulose*
$C_{12}H_{18}O_6$ 258.271
Cryst. (petrol). Mp 108-110°. $[\alpha]_D^{16}$ +41.2 (c, 1.0 in MeOH).

1,2:5,6-Di-O-*cyclohexylidene: 1,2:5,6-Di*-O-*cyclohexylidene-α-D*-ribo-*hexofuranos-3-ulose*
[18546-21-9]
$C_{18}H_{26}O_6$ 338.4
Mp 66-67° Mp 122-124°. $[\alpha]_D$ +96.7 (c, 0.3 in $CHCl_3$).

1,2:5,6-Di-O-*cyclohexylidene, oxime:*
$C_{18}H_{27}NO_6$ 353.414
Mp 111-113° Mp 143-147°. $[\alpha]_D$ +133 (c, 1.0 in MeOH).

Theander, O. *et al., Acta Chem. Scand.*, 1963, **17**, 1751; 1964, **18**, 2209 (α-D-*isopropylidene, α-D-diisopropylidene, α-D-diisopropylidene hydrate*)
Fukui, S. *et al., J.A.C.S.*, 1963, **85**, 1697 (*isol*)
Beynon, P.J. *et al., J.C.S.(C)*, 1966, 1131, (α-D-*diisopropylidene, α-D-diisopropylidene hydrate, α-D-diisopropylidene oxime*)
Lindberg, B. *et al., Acta Chem. Scand.*, 1967, **21**, 910 (*Me α-D-gly*)
James, K. *et al., J.C.S.(C)*, 1967, 2681, (α-D-*dicyclohexylidene*)
Onodera, K. *et al., Carbohydr. Res.*, 1968, **6**, 276; 1972, **21**, 159 (α-D-*diisopropylidene hydrate, α-D-dicyclohexylidene, α-D-dicyclohexylidene oxime*)
Christensen, J.E. *et al., Carbohydr. Res.*, 1968, **7**, 510 (*synth*)
Szarek, W.A. *et al., Can. J. Chem.*, 1969, **47**, 4473 (α-D-*diisopropylidene*)
Humphries, H.P. *et al., Acta Chem. Scand.*, 1971, **25**, 883 (D-*form*)
Hall, L.D. *et al., Can. J. Chem.*, 1972, **50**, 1912 (*pmr*)
Onodera, K. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 331 (α-D-*diisopropylidene, α-D-diisopropylidene oxime*)
Hayano, K. *et al., J. Bacteriol.*, 1973, **113**, 652 (*occur*)
Shashkov, A.S. *et al., Bioorg. Khim.*, 1977, **3**, 1021 (*cmr*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1977, 2423 (α-D-*pyr propylidene benzylidene, α-D-pyr isopropylidene ethylidene, pmr*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1978, **67**, 267 (α-D-*diisopropylidene*)
De Wit, G. *et al., Carbohydr. Res.*, 1980, **86**, 33 (*uv, pmr, bibl, Me α-D-gly*)
Box, V.G.S. *et al., Carbohydr. Res.*, 1982, **102**, 308 (*Me α-D-gly 4-benzoyl-2-Ac*)
Lichtenthaler, F.W. *et al., Annalen*, 1989, 1163 (*equilib*)
Morris, P.E. *et al., J. Carbohydr. Chem.*, 1989, **8**, 515-530 (*pmr, equilib*)
de Wit, D. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1991, **110**, 271 (D-*form*)
Lankin, D.C. *et al., Carbohydr. Res.*, 1992, **229**, 245; 1993, **244**, 49 (α-D-*diisopropylidene*)

ribo-Hexos-5-ulose H-102



α-L-1,4-Furanose-*form*

$C_6H_{10}O_6$ 178.141

Shows complex tautomeric equilib. in soln., with 5 tautomers detected.

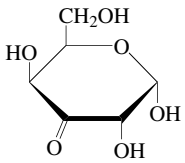
L-*form*

Syrup. $[\alpha]_D$ +2.3 (c, 1.9 in D_2O).

2,6-Dibenzyl: 2,6-Di-O-*benzyl*-L-ribo-*hexos-5-ulose*
Amorph. solid. Mp 120-124°. $[\alpha]_D$ -20.5 (c, 0.7 in $CHCl_3$). Shows tautomeric equilib. between α- and β-1,4-furanose forms.

Barili, P.L. *et al., J. Carbohydr. Chem.*, 1999, **18**, 1037-1049 (*synth, pmr, cmr*)

xylo-Hexos-3-ulose H-103



α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

α-D-Pyranose-*form*

4,6-O-*Ethylidene, 1,2*-O-*isopropylidene: 4,6*-O-*Ethylidene-1,2*-O-*isopropylidene-α-D*-xylo-*hexopyranos-3-ulose*
$C_{11}H_{16}O_6$ 244.244
Mp 62-63°. $[\alpha]_D^{21}$ -47 (c, 0.6 in $CHCl_3$).

1,2:4,6-Di-O-*isopropylidene: 1,2:4,6-Di*-O-*isopropylidene-α-D*-xylo-*hexopyranos-3-ulose*
$C_{12}H_{18}O_6$ 258.271
Mp 62-63°. $[\alpha]_D^{21}$ -47 (c, 0.6 in $CHCl_3$).

Me glycoside, 4,6-O-*benzylidene, 2-Ac: Methyl 2*-O-*acetyl-4,6*-O-*benzylidene-α-D*-xylo-*hexopyranosid-3-ulose*
$C_{16}H_{18}O_7$ 322.314
Mp 117-118°. $[\alpha]_D^{25}$ +194 (c, 1.5 in $CHCl_3$).

α-D-Furanose-*form*

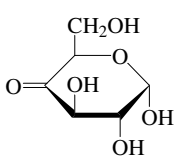
1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-α-D*-xylo-*hexofuranos-3-ulose*
[26623-13-2]
$C_{12}H_{18}O_6$ 258.271
Cryst. (petrol). Mp 76-77°. $[\alpha]_D$ -58.5 (c, 0.4 in H_2O).

β-D-Pyranose-*form*

Benzyl glycoside, 4,6-O-*benzylidene: Benzyl 4,6*-O-*benzylidene-β-D*-xylo-*hexopyranosid-3-ulose*
[72045-25-1]
$C_{20}H_{20}O_6$ 356.374
Mp 156-157°.

Chittenden, G.J.F. *et al., Chem. Comm.*, 1968, 779 (α-D-*pyr ethylidene isopropylidene*)
Slessor, K.N. *et al., Can. J. Chem.*, 1969, **47**, 3989 (α-D-*fur diisopropylidene*)
Chittenden, G. *et al., Carbohydr. Res.*, 1970, **15**, 101 (α-D-*pyr ethylidene isopropylidene*)
Defaye, J. *et al., Carbohydr. Res.*, 1975, **42**, 373 (α-D-*Me pyr benzylidene Ac*)
David, S. *et al., J.C.S. Perkin 1*, 1979, 1568, (β-D-*benzyl pyr benzylidene*)

xylo-Hexos-4-ulose H-104



α-D-Pyranose-*form*

$C_6H_{10}O_6$ 178.141

α-D-Pyranose-*form*

Me glycoside, O-*methyloxime: Methyl α-D*-xylo-*hexopyranosid-4-ulose* O-*methyloxime*
Mp 69-75°. $[\alpha]_D^{20}$ +66 (c, 0.3 in EtOH).

Me glycoside, 2,3,6-tribenzoyl: Methyl 2,3,6-tri-O-*benzoyl-α-D*-xylo-*hexopyranosid-4-ulose*
$C_{28}H_{24}O_9$ 504.492
Mp 136-138°. $[\alpha]_D$ +172 ($CHCl_3$).

Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-O-*benzyl-α-D*-xylo-*hexopyranosid-4-ulose*
$C_{21}H_{24}O_6$ 372.417
Syrup. $[\alpha]_D$ +75 (c, 1.5 in $CHCl_3$).

Me glycoside, 2,3-dibenzyl, 6-trityl: Methyl 2,3-di-O-*benzyl-6*-O-*trityl-α-D*-xylo-*hexopyranosid-4-ulose*
$C_{40}H_{38}O_6$ 614.737
$[\alpha]_D$ +47.1 (c, 1.2 in $CHCl_3$).

Me glycoside, 2,6-dibenzyl: Methyl 2,6-di-O-*benzyl-α-D*-xylo-*hexopyranosid-4-ulose*
$C_{21}H_{24}O_6$ 372.417
Syrup.

Me glycoside, tribenzyl: Methyl 2,3,6-tri-O-*benzyl-α-D*-xylo-*hexopyranosid-4-ulose, 9CI*
[98807-61-5]
$C_{28}H_{30}O_6$ 462.541
$[\alpha]_D^{22}$ +62 (c, 1 in $CHCl_3$).

Me glycoside, 2,3-di-Me, 6-trityl: Methyl 2,3-di-O-*methyl-6*-O-*trityl-α-D*-xylo-*hexopyranosid-4-ulose*
$C_{28}H_{30}O_6$ 462.541
$[\alpha]_D^{27}$ +123 (c, 0.6 in $CHCl_3$).

Benzyl glycoside, 2,3-dibenzyl: Benzyl 2,3-di-O-*benzyl-α-D*-xylo-*hexopyranosid-4-ulose*
[72045-22-8]
$C_{27}H_{28}O_6$ 448.515
Characterised by pmr.

Benzyl glycoside, 2,3-dibenzyl, 6-trityl: Benzyl 2,3-di-O-*benzyl-6*-O-*trityl-α-D*-xylo-*hexopyranosid-4-ulose*
$C_{46}H_{42}O_6$ 690.834
Cryst. (EtOH). Mp 131-136°. $[\alpha]_D$ +41.5 (c, 1.42 in $CHCl_3$).

Benzyl glycoside, 2,6-dibenzyl: Benzyl 2,6-di-O-*benzyl-α-D*-xylo-*hexopyranosid-4-ulose*
[72045-26-2]
$C_{27}H_{28}O_6$ 448.515
Syrup.

β-D-Pyranose-*form*

Me glycoside: Methyl β-D-xylo-*hexopyranosid-4-ulose*
$C_7H_{12}O_6$ 192.168
Mp 61-65°. $[\alpha]_D^{20}$ -29 (c, 0.4 in H_2O).

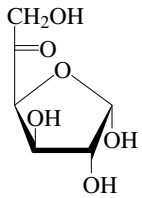
Me glycoside, 2,3-di-Me, 6-trityl: Methyl 2,3-di-O-*methyl-6*-O-*trityl-β-D*-xylo-*hexopyranosid-4-ulose*
$C_{28}H_{30}O_6$ 462.541
Needles (diisopropyl ether). Mp 100-102°.

David, S. *et al., J.C.S. Perkin 1*, 1974, 1568 (*benzyl α-D-gly dibenzyl*)
Miljković, M. *et al., J.O.C.*, 1974, **39**, 1379 (α-D-*Me pyr di-Me trityl, β-D-Me pyr di-Me trityl*)
Batey, J.F. *et al., Carbohydr. Res.*, 1975, **40**, 275 (α-D-*Me pyr tribenzoyl*)
Larm, O. *et al., Carbohydr. Res.*, 1976, **49**, 69 (α-D-*Me pyr methyloxime, β-D-Me pyr*)
David, S. *et al., J.C.S. Perkin 1*, 1979, 1568 (*Benzyl gly 2,6-dibenzyl, benzyl gly tribenzyl*)
Matsuzawa, M. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 2169 (α-D-*benzyl pyr dibenzyl trityl*)

Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **99**, C1 (α-D-*Me pyr dibenzyl trityl*)
Preuss, R. *et al., Annalen*, 1992, 377 (*Me gly tribenzyl*)
Söderman, P *et al., Carbohydr. Res.*, 1999, **316**, 184-186 (*Me α-D-pyr dibenzyls*)

xylo-Hexos-5-ulose H-105

5-Ketoglucose



α-D-Furanose-*form*

$C_6H_{10}O_6$ 178.141

At least six forms present in solution; pyranos-5-ulose (67%), 1,6-anhydro form (18%) and smaller amounts of furanoses.

D-*form* [19684-22-1]
Glass. $[\alpha]_D^{20}$ -14.6 (c, 3.1 in H_2O). Dec. on storage at r.t. Aq. solns. stable at -5°.

α-D-Furanose-*form*

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-α-D*-xylo-*hexofuranos-5-ulose*
[19684-32-3]
$C_9H_{14}O_6$ 218.206
Cryst. (C_6H_6). Mp 114.5-116°. $[\alpha]_D^{21}$ -63.2 (c, 2.0 in H_2O).

1,2-O-*Isopropylidene, di-Me acetal, 6-phosphate:* [17278-22-7]
Cryst. (EtOH) (as bis(cyclohexylammonium) salt). Mp 158-160° (bis(cyclohexylammonium) salt). $[\alpha]_D^{20}$ +1 (c, 3.0 in H_2O).

3-Me, 1,2-O-*isopropylidene, 6-tosyl:* [32579-96-7]
$C_{17}H_{22}O_8S$ 386.422
Syrup. $[\alpha]_D$ -62 (c, 5.6 in $CHCl_3$).

3-Benzyl, 1,2-O-*isopropylidene: 3*-O-*Benzyl-1,2*-O-*isopropylidene-α-D*-xylo-*hexofuranos-5-ulose, 8CI*
[17231-20-8]
$C_{16}H_{20}O_6$ 308.33
Cryst. + ½H_2O (C_6H_6/heptane). Mp 115-116°. $[\alpha]_D^{20}$ -110.5 (c, 1.1 in $CHCl_3$).

3-Benzyl, 1,2-O-*isopropylidene, di-Me acetal:* [17231-21-9]
Syrup. $[\alpha]_D^{20}$ -62.5 (c, 0.80 in $CHCl_3$).

3-Benzyl, 1,2-O-*isopropylidene, 6-trityl: 3*-O-*Benzyl-1,2*-O-*isopropylidene-6*-O-*trityl-α-D*-xylo-*hexofuranos-5-ulose*
[17278-21-6]
$C_{35}H_{34}O_6$ 550.65
Cryst. (C_6H_6/hexane). Mp 169-171°. $[\alpha]_D^{20}$ -17.8 (c, 1.5 in $CHCl_3$).

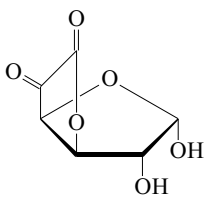
3,6-Dibenzyl, 1,2-O-*isopropylidene: 3,6-Di*-O-*benzyl-1,2*-O-*isopropylidene-α-D*-xylo-*hexofuranos-5-ulose*
[59541-28-5]
$C_{23}H_{26}O_6$ 398.455
Syrup. $Bp_{0.05}$ 110°. $[\alpha]_D^{25}$ -51 (c, 1.1 in $CHCl_3$).

2,3,6-Tribenzyl: [192372-93-3]
$C_{27}H_{28}O_6$ 448.515
Syrup. $[\alpha]_D^{20}$ -9.4 (c, 0.5 in $CHCl_3$). Data refers to a 55:45 mixt. of α- and β-anomers. CAS no. refers to α-anomer.

Kiely, D.E. *et al., J.O.C.*, 1968, **33**, 3723; 1969, **34**, 1386 (*D-form, α-D-fur isopropylidene, α-D-fur isopropylidene derivs*)
Zhdanov, Yu.A. *et al., Carbohydr. Res.*, 1971, **16**, 466 (*α-D-fur isopropylidene Me tosyl*)
Yoshimura, J. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 3207 (*α-D-fur isopropylidene Me trityl, α-D-fur isopropylidene Me benzyl*)
Andersson, R. *et al., Carbohydr. Res.*, 1980, **78**, 257 (*α-D-fur isopropylidene methyloxime*)
Yamamoto, H. *et al., Carbohydr. Res.*, 1982, **102**, 159 (*α-D-fur isopropylidene dibenzyl*)
Riordan, J.M. *et al., J. Carbohydr. Chem.*, 1993, **12**, 865-879 (*pmr, cmr, equilib*)
Barili, P.L. *et al., Tetrahedron*, 1997, **53**, 8665-8674 (*D-form, α-D-fur 2,3,6-tribenzyl, synth, cmr*)

xylo-Hex-5-ulofuranurono-6,3-lactone H-106

xylo-*Hex-5-ulosefuranuronic acid γ-lactone*



$C_6H_6O_6$ 174.11

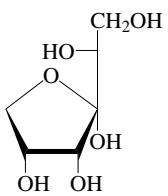
α-D-*form*

1,2-Isopropylidene: 1,2-O-*Isopropylidene*-xylo-*hex-5-ulofuranurono-6,3-lactone*
[5040-08-4]
$C_9H_{10}O_6$ 214.174
Needles (H_2O). Mp 146-148°. $[\alpha]_D^{26}$ +88 (c, 1.0 in DMSO).

Onodera, K. *et al., Carbohydr. Res.*, 1968, **6**, 276 (*synth, pmr*)
Onodera, K. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 331 (*synth*)

arabino-3-Hexulose H-107

[83349-34-2]



α-D-Furanose-*form*

$C_6H_{12}O_6$ 180.157

D-*form*
Syrup. $[\alpha]_D^{20}$ -31 (c, 1 in H_2O).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-D*-arabino-*3-hexulose*
$C_{12}H_{20}O_6$ 260.286
Mp 84-85°. $[\alpha]_D^{20}$ -41 (c, 2 in $CHCl_3$).

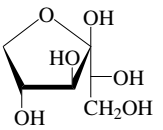
α-D-Furanose-*form* [53989-88-1]

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-α-D*-arabino-*3-hexulofuranose*
[37106-11-9]
$C_{12}H_{20}O_6$ 260.286
Cryst. (hexane). Mp 78.5-79.5°.
$[\alpha]_D$ -16.58 (c, 1.96 in $CHCl_3$).

Angyal, S.J. *et al., Aust. J. Chem.*, 1972, **25**, 1495-1512 (*α-D-fur 1,2:3,4-diisopropylidene*)
Brockamp, H.-P. *et al., Annalen*, 1993, 621-624 (*D-form, synth, pmr, cmr*)
Ekeberg, D. *et al., Carbohydr. Res.*, 2001, **335**, 141-146 (*D-form, synth, 1,2:5,6-diisopropylidene, bibl*)

lyxo-3-Hexulose H-108

[83746-51-4]



β-D-Furanose-*form*

$C_6H_{12}O_6$ 180.157

β-D-Furanose-*form*

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-D*-lyxo-*3-hexulofuranose*
[85506-52-1]
$C_{12}H_{20}O_6$ 260.286
Cryst. Mp 119-122°. $[\alpha]_D^{20}$ +10 (c, 2 in $CHCl_3$).

L-*form*

Penta-Ac: 1,2,4,5,6-Penta-O-*acetyl-L*-lyxo-*3-hexulose*
[37106-01-7]
$C_{16}H_{22}O_{11}$ 390.343
Syrup. $[\alpha]_D$ -67.5 (c, 3.35 in $CHCl_3$).

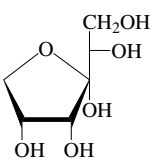
β-L-Furanose-*form*

1,2:3,4-Di-O-*isopropylidene: 1,2;3,4-Di*-O-*isopropylidene-β-L*-lyxo-*3-hexulofuranose*
$C_{12}H_{20}O_6$ 260.286
Cryst. (hexane). Mp 122-123°. $[\alpha]_D$ -14.71 (c, 2.08 in $CHCl_3$).

Angyal, S.J. *et al., Aust. J. Chem.*, 1972, **25**, 1495-1512 (*L-penta-Ac, β-L-fur-1,2:3,4-diisopropylidene*)
Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1982, **36**, 725-727 (*β-D-Fur-1,2:3,4-diisopropylidene*)

ribo-3-Hexulose H-109

[29884-67-1]



α-D-Furanose-*form*

$C_6H_{12}O_6$ 180.157

D-*form* [32848-85-4]
Syrup. $[\alpha]_D^{22}$ -32 (c, 0.45 in H_2O) (-29).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-D*-ribo-*3-hexulose*
$C_{12}H_{20}O_6$ 260.286
Syrup. $[\alpha]_D^{20}$ -75 (c, 0.5 in $CHCl_3$).

α-D-Furanose-*form*

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-α-D*-ribo-*3-hexulofuranose*
[37106-06-2]
$C_{12}H_{20}O_6$ 260.286
Cryst. (hexane). Mp 111-112°. $[\alpha]_D$ -5.8 (c, 1.15 in $CHCl_3$).

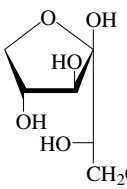
β-D-Furanose-*form*

2,3:4,5-Di-O-*isopropylidene: 2,3:4,5-Di*-O-*isopropylidene-β-D*-ribo-*3-hexulofuranose*
[37106-09-5]
$C_{12}H_{20}O_6$ 260.286
Cryst. (hexane). Mp 107.5-108.5°. $[\alpha]_D$ -127.1 (c, 0.67 in $CHCl_3$).

Humphries, H.P. *et al., Carbohydr. Res.*, 1971, **16**, 317-325 (*D-form, synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1972, **25**, 1495-1512 (*α-D-fur 1,2:3,4-diisopropylidene, β-D-fur 2,3:4,5-diisopropylidene*)
Ekeberg, D. *et al., Carbohydr. Res.*, 2001, **335**, 141-146 (*D-form, 1,2:5,6-diisopropylidene*)

xylo-3-Hexulose H-110

[85506-53-2]



β-D-Furanose-*form*

$C_6H_{12}O_6$ 180.157

β-D-Furanose-*form*

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-D*-xylo-*3-hexulose*
[85506-51-0]
$C_{12}H_{20}O_6$ 260.286
Cryst. (hexane). Mp 103-105°. $[\alpha]_D^{20}$ +12 (c, 2 in $CHCl_3$).

L-*form* [53989-89-2]
Syrup. $[\alpha]_D$ +10 (c, 0.5 in H_2O).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-L*-xylo-*3-hexulose*
$C_{12}H_{20}O_6$ 260.286
Syrup. $[\alpha]_D^{20}$ +19 (c, 1.5 in $CHCl_3$).

β-L-Furanose-*form*

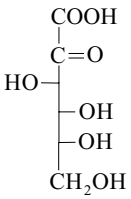
1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-L*-xylo-*3-hexulose*
[28412-65-9]
$C_{12}H_{20}O_6$ 260.286
Cryst. (hexane). Mp 122-123°. $[\alpha]_D$ -16.6 (c, 1.75 in $CHCl_3$).

DL-*form* [83946-52-5]
Cryst. (EtOH). Mp 123-124°.

Yuen, G.U. *et al., J.O.C.*, 1961, **26**, 1598-1601 (*synth*)
Jackson, K.G.A. *et al., Can. J. Chem.*, 1969, **47**, 2498-2501 (*L-form, synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1972, **25**, 1495-1512 (*β-L-fur 1,2:3,4-diisopropylidene*)
Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1982, **36**, 725-727 (*β-D-fur 1,2:3,4-diisopropylidene*)
Ekeberg, D. *et al., Carbohydr. Res.*, 2001, **335**, 141-146 (*L-form, 1,2:5,6-diisopropylidene*)

arabino-2-Hexulosonic acid, 9CI, 8CI H-111

2-Ketogluconic acid. 2-Oxogluconic acid. Fructuronic acid. 2-Ketomannonic acid. Glucosonic acid



$C_6H_{10}O_7$ 194.141
Sol. H_2O; poorly sol. $CHCl_3$, EtOAc.

D-*form* [669-90-9]
Metab. of *Pseudomonas* spp. grown on D-glucose and of many other bacteria. Isol. as a trihydrated Ca salt. $[\alpha]_D$ -99.6. $[\alpha]_D^{20}$ -82.6.

2-Thiosemicarbazone: [20258-30-4]
Cryst. (H_2O). Mp 177-179°. $[\alpha]_D^{25}$ +61.3 (c, 0.2 in DMF).

Quinoxaline deriv.:
Cryst. (H_2O). Mp 199-200°. $[\alpha]_D^{20}$ -87.5 (c, 2.0 in *M* NaOH).

Me ester: Methyl D-arabino-*hex-2-ulosonate*
$C_7H_{12}O_7$ 208.168
Mp 173° dec. $[\alpha]_D^{20}$ -82.08 (mutarotates).

Me ester, phenylhydrazone: Mp 163°. $[\alpha]_D^{20}$ -124.1.

Me ester, 3,4,5,6-tetra-Ac: Methyl 3,4,5,6-tetra-O-*acetyl-D*-arabino-*hex-2-ulosonate*
$C_{15}H_{20}O_{11}$ 376.316
$Bp_{0.3}$ 199-203°. $[\alpha]_D^{18}$ -38.8 ($CHCl_3$).

Et ester: Ethyl D-arabino-*hex-2-ulosonate*
$C_8H_{14}O_7$ 222.194
Mp 123-124°. $[\alpha]_D^{17}$ -66.6 (H_2O).

3,4:5,6-Di-O-*isopropylidene: 3,4:5,6-Di*-O-*isopropylidene-D*-arabino-*hex-2-ulosonic acid*
$C_{12}H_{18}O_7$ 274.27
Mp 99-100°. $[\alpha]_D^{18}$ -49.35 ($CHCl_3$).

3,4:5,6-Di-O-*isopropylidene, Me ester:*
$C_{13}H_{20}O_7$ 288.297
Mp 52°. $[\alpha]_D^{20}$ -44.7 ($CHCl_3$).

3,4:5,6-Di-O-*isopropylidene, amide:*
$C_{12}H_{19}NO_6$ 273.285
Cryst. (petrol/C_6H_6). Mp 98-99°. $[\alpha]_D^{17}$ -50.6 (c, 6.0 in $CHCl_3$).

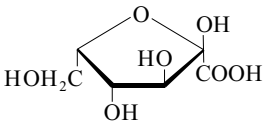
β-D-Pyranose-*form*

Me glycoside, Me ester: Methyl (methyl β-D-arabino-*hex-2-ulopyranosid)onate*
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D^{20}$ -90.9 (c, 1.0 in MeOH).

Ohle, H. *et al., Ber.*, 1930, **63**, 843, (*D-diisopropylidene, D-diisopropylidene Me ester, D-Me ester, D-Et ester, D-amide diisopropylidene*)
Lockwood, L.B. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 51 (*isol, quinoxaline deriv*)
Bobek, M. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 3572 (*thiosemicarbazone*)
Whyte, J.N.C. *et al., J. Chromatogr.*, 1973, **87**, 163 (*glc*)
Geigert, J. *et al., Carbohydr. Res.*, 1983, **113**, 163 (*D-form, enzymic synth*)
Bouwman, E. *et al., Acta Cryst. C*, 1991, **47**, 1155 (*cryst struct*)
Aoki, M. *et al., Agric. Biol. Chem.*, 1991, **55**, 715-722 (*isol, ir, pmr, cmr*)
Kirrbach, S. *et al., J. Prakt. Chem.*, 1992, **334**, 537 (*synth*)
Schämann, M. *et al., Eur. J. Org. Chem.*, 2003, 351-358 (*β-D-Me pyr, Me ester*)

xylo-2-Hexulosonic acid H-112

2-Ketogulonic acid
[16533-48-5]



$C_6H_{10}O_7$ 194.141

L-*form* [526-98-7]
Intermed. in vitamin C biosynth. in higher plants.

2,3:4,6-Di-O-*isopropylidene: 2,3:4,6-Di*-O-*isopropylidene-α-L*-xylo-*2-hexulosonic acid. Dikegulac, ANSI, BSI, ISO.* ***Diprogulic acid, INN****. Lipostem*
[18467-77-1]
$C_{12}H_{18}O_7$ 274.27
Never marketed
Synthesised commercially from glucose. Used in amine resolution and as a precursor in vitamin C synth. Inexpensive starting material for chiral syntheses. Antilipidaemic, low acute mammalian toxicity. Monohydrate. Mp 103° dec. $[\alpha]_D^{25}$ -21.6 (c, 2.28 in MeOH). Log P 0.34 (calc).

2,3:4,6-Di-O-*isopropylidene, Na salt: Dikegulac sodium. Atrinal*
[52508-35-7] Plant growth regulator. V. sol. H_2O. Mp 300°.
▶ LD_{50} (rat, orl) 18000-31000 mg/kg.
MQ3570000

β-L-Pyranose-*form*

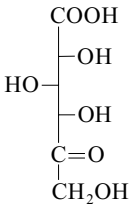
Me glucoside, Me ester: Methyl (methyl β-L-xylo-*2-hexulopyranosid)onate*
$C_8H_{14}O_7$ 222.194
Solid. Mp 193°. $[\alpha]_D^{20}$ -25.2 (c, 0.98 in MeOH).

[27708-72-1, 68539-16-2]

Reichstein, T. *et al., Helv. Chim. Acta*, 1934, **17**, 311 (*synth*)
Heyns, K. *et al., Angew. Chem.*, 1957, **69**, 600 (*synth*)
U.K. Pat., 1972, 1 425 643; *CA*, **81**, 558k (*use*)
Org. Synth., 1976, **55**, 80 (*use*)
Takagi, S. *et al., Acta Cryst. B*, 1978, **34**, 2932 (*cryst struct*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1979, **7**, 113 (*use*)
Pesticide Manual, 9th edn., 1991, No. 4810 (*dikegulac*)
Agrochemicals Handbook, 3rd edn., Royal Society of Chemistry, 1992, A149
Schämann, M. *et al., Eur. J. Org. Chem.*, 2003, 351-358 (*β-L-Me pyr Me ester*)

xylo-5-Hexulosonic acid, 9CI, 8CI H-113

5-Ketogluconic acid



$C_6H_{10}O_7$ 194.141

D-*form* [5287-64-9]
Metab. of *Acetobacter suboxydans* grown on D-glucose.
Syrup. $[\alpha]_D$ -14 (c, 2 in H_2O). Isol. as a trihydrated Ca salt.

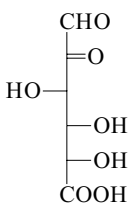
Oxime: [19131-00-1]
$C_6H_{11}NO_7$ 209.155
Mp 148-149° dec. (as K salt). $[\alpha]_D^{23}$ -4.6 (H_2O).

2,3,4,6-Tetra-Ac, Me ester: Methyl 2,3,4,6-tetra-O-*acetyl*-D-xylo-*hex-5-ulosonate*
[24916-35-6]
$C_{15}H_{20}O_{11}$ 376.316
Cryst. (Et_2O). Mp 59-60°. $[\alpha]_D^{24}$ -5.8 (c, 1.65 in $CHCl_3$).

Lockwood, L.B. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 54 (*isol*)
Inouye, S. *et al., Tetrahedron*, 1968, **24**, 2125, (*D-oxime*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1970, **23**, 1209; 1223 (*D-Me ester tetra-Ac, pmr*)
Whyte, J.N.C. *et al., J. Chromatogr.*, 1973, **87**, 163 (*glc*)

arabino-2-Hexulosuronic acid, 9CI H-114

2-Oxoglucuronic acid
[4746-26-3]



$C_6H_8O_7$ 192.125

D-*form*

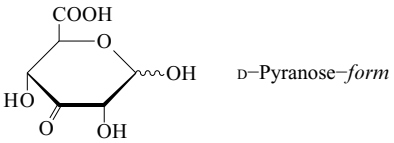
Bis(phenylhydrazone): [99562-94-4]
Orange-yellow cryst.

Nitrile: [52387-27-6]
$C_6H_7NO_5$ 173.125
Syrup.

Imai, Y. *et al., Yakugaku Zasshi*, 1961, **81**, 1109; *CA*, 1962, **56**, 1656a (*synth*)
Kulish, F. *et al., Zh. Fiz. Khim.*, 1974, **48**, 122; 67 (*nitrile*)
Zemek, J. *et al., CA*, 1985, **103**, 157192g (*synth*)

ribo-3-Hexulosuronic acid, 9CI H-115

3-Oxoglucuronic acid. 3-Ketoglucuronic acid
[4746-27-4]



$C_6H_8O_7$ 192.125

D-Pyranose-*form* [14131-71-6]
Cryst. as dioxan solvate (MeOH/dioxan). Mp 97-98°. $[\alpha]_D^{25}$ +50 → -40 (H_2O).

D-Furanose-*form*

Me glycoside, Me ester: Methyl (methyl D-ribo-*hexofuranosid)uronate*
[2671-17-2]
$C_8H_{12}O_7$ 220.179
Cryst. (Me_2CO). Mp 119-120°. $[\alpha]_D^{25}$ +302 (c, 1.0 in H_2O).

α-D-Furanose-*form*

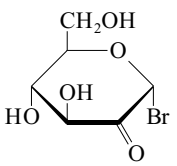
1,2-Isopropylidene: 1,2-O-*Isopropylidene-α-D*-ribo-*hexulosofuranuronic acid*
[13964-30-2]
$C_9H_{12}O_7$ 232.19
Yellow powder (as Ba salt). CAS no. refers to Ba salt.

1,2-O-*Isopropylidene, 5-Ac, Me ester:*
[13964-29-9]
$C_{12}H_{16}O_8$ 288.254
Cryst. Mp 102-103° (diisopropyl ether). $[\alpha]_D^{20}$ +132 (c, 1.0 in $CHCl_3$).

[13964-25-5]

Ishidate, M. *et al., Chem. Pharm. Bull.*, 1962, **10**, 1258 (*α-D-fur isopropylidene derivs, synth, ir*)
Kinoshita, T. *et al., Chem. Pharm. Bull.*, 1966, **14**, 986; 991 (*synth, ir, α-D-fur isopropylidene derivs*)
Japan. Pat., 1968, 6 803 763; *CA*, **69**, 87408k (*synth*)

arabino-Hex-2-ulosyl bromide H-116



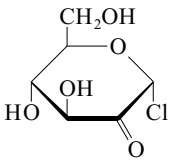
$C_6H_9BrO_5$ 241.038

α-D-Pyranose-*form*

Tribenzoyl: 3,4,6-Tri-O-*benzoyl-α-D*-arabino-*hexopyranos-2-ulosyl bromide*
[82469-69-0]
$C_{27}H_{21}BrO_8$ 553.362
Needles (EtOAc). Mp 179-180°. $[\alpha]_D^{21}$ +208.2 (c, 1.1 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Annalen*, 1983, 1959 (*synth, pmr*)
Lichtenhaler, F.W. *et al., Carbohydr. Res.*, 1994, **258**, 77 (*synth*)

arabino-Hex-2-ulosyl chloride H-117



$C_6H_9ClO_5$ 196.587

α-D-Pyranose-*form*

Tri-Ac: 3,4,6-Tri-O-*acetyl-α-D*-arabino-*hexopyranos-2-ulosyl chloride*
[51295-59-1]
$C_{12}H_{15}ClO_8$ 322.698
Mp 85-86°. $[\alpha]_D$ +179 (c, 1.0 in $CHCl_3$).

Collins, P.M. *et al., Carbohydr. Res.*, 1973, **31**, 1

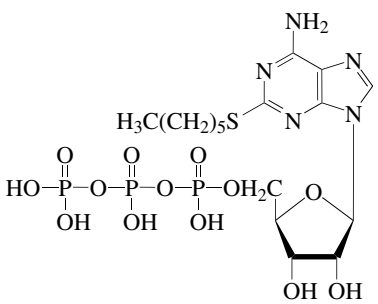
Hexyl glucosinolate H-118

*1-Thio-β-D-glucopyranose 1-[*N-*(sulfooxy)heptanimidate], 9CI*
[127929-25-3]
$H_3C(CH_2)_5C(SGlc)=NOSO_3H$
$C_{13}H_{25}NO_9S_2$ 403.474
Present in radish (*Raphanus sativus*) and in kohlrabi aroma.

Kjaer, A. *et al., Agric. Biol. Chem.*, 1978, **42**, 1715 (*occur*)
Macleod, G. *et al., Phytochemistry*, 1990, **29**, 1183 (*occur*)

2-Hexylthioadenosine 5′-(tetrahydrogen triphosphate), 9CI H-119

2-HexylthioATP
[148527-76-8]

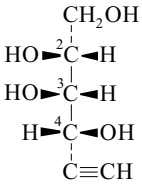


$C_{16}H_{28}N_5O_{13}P_3S$ 623.41
Purinoceptor P_{2Y}-agonist. Characterised by ms.

Fischer, B. *et al., J. Med. Chem.*, 1993, **36**, 3937-3946 (*synth, pharmacol*)
Zimmet, J. *et al., Nucleosides Nucleotides*, 1993, **12**, 1 (*synth, pharmacol*)
Bo, X. *et al., Br. J. Pharmacol.*, 1994, **112**, 1151-1159 (*pharmacol*)
Boyer, J.L. *et al., Br. J. Pharmacol.*, 1995, **116**, 2611-2616 (*pharmacol*)

5-Hexyne-1,2,3,4-tetrol H-120

1,2-Dideoxyhex-1-ynitol



$C_6H_{10}O_4$ 146.143

(2*R*,3*S*,4*R*)-*form*

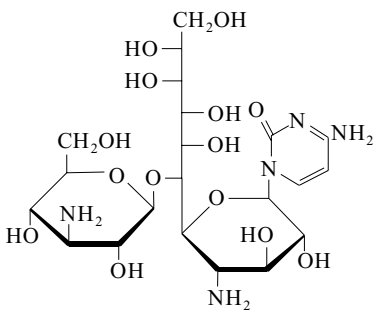
1,2-Dideoxy-D-arabino-*hex-1-ynitol*
Needles (EtOH). Mp 134.5-135.5°. $[\alpha]_D$ -10.1 (c, 7 in H_2O).

Tetra-Ac:
$C_{14}H_{18}O_8$ 314.291
Cryst. (Et_2O/pentane). Mp 64-66°. $[\alpha]_D$ -10.9 (c, 6.0 in $CHCl_3$).

Hurd, C.D. *et al., Carbohydr. Res.*, 1966, **2**, 240 (*synth*)

Hikizimycin H-121

Anthelmycin, 8CI, USAN. ***Antelmycin, INN.*** *L 33876. Antibiotic L 33876*
[12706-94-4]



$C_{21}H_{37}N_5O_{14}$ 583.548

Nucleoside antibiotic. Isol. from *Streptomyces hikiziensis* and *Streptomyces longissimus*. Anthelmintic. Active against phytopathogenic fungi. Never marketed. Cryst.
Mp 200° (dec.). $[\alpha]_D$ +17.5 (c, 1.58 in H_2O). Log P -10.1 (uncertain value) (calc). λ_{max} 274 (ϵ 11500) (0.1*N* HCl) (Derep). λ_{max} 234 (ϵ 7400); 235 (sh) (ϵ); 267 (ϵ 7900) (0.1*N* NaOH) (Derep). λ_{max} 234 (ϵ 7400); 267 (ϵ 7900) (pH 7 phosphate buffer) (Derep).

► LD_{50} (mus, orl) 125 mg/kg. UW7350200

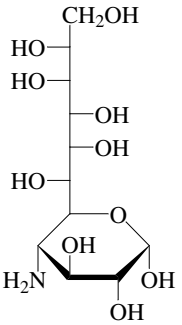
Hydrobromide: Mp 214-215°. $[\alpha]_D^{23.5}$ -40.6 (c, 1 in H_2O).

[1402-84-2]

Uchida, K. *et al., J. Antibiot.*, 1971, **24**, 259 (*isol, ir, nmr*)
Uchida, K. *et al., Tetrahedron*, 1975, **31**, 2315 (*cmr*)
Uchida, K. *et al., Agric. Biol. Chem.*, 1976, **40**, 395 (*ms, ir, nmr*)
Ennifar, S. *et al., Chem. Comm.*, 1977, 41 (*struct, pmr, cmr, ms*)
Vuilhorgne, M. *et al., Carbohydr. Res.*, 1981, **97**, 19 (*cmr, conformn*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Ikemoto, N. *et al., J.A.C.S.*, 1992, **114**, 2524 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, APF000

Hikosamine H-122

4-Amino-4-deoxy-D-glycero-*D*-galacto-*D*-gluco-*undecose, 9CI*
[50886-67-4]



α-Pyranose-*form*

$C_{11}H_{23}NO_{10}$ 329.303
A component of Hikizimycin, H-121.

α-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-α-D*-glycero-*D*-galacto-*D*-gluco-*undecopyranoside*
$C_{14}H_{27}NO_{11}$ 385.367
Hygroscopic. $[\alpha]_D^{20}$ +139.1 (c, 1.0 in H_2O).

Me glycoside, N-*Ac, octa-Ac:*
$C_{30}H_{43}NO_{19}$ 721.665
Mp 181-182°. $[\alpha]_D^{20}$ +85 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

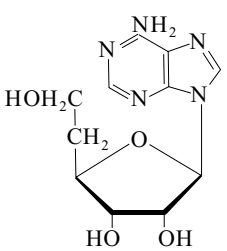
Me glycoside, N-*Ac: Methyl 4-acetamido-4-deoxy-β-D*-glycero-*D*-galacto-*D*-gluco-*undecopyranoside*
$C_{14}H_{27}NO_{11}$ 385.367
Mp 229°. $[\alpha]_D^{20}$ -8.5 (c, 2.0 in H_2O).

Me glycoside, N-*Ac, octa-Ac:* Mp 169-170°. $[\alpha]_D^{20}$ +15.6 (c, 1.0 in $CHCl_3$).

Uchida, K. *et al., Biochimie*, 1973, **55**, 635 (*struct, α-Me gly N-Ac octa-Ac, β-Me gly N-Ac octa-Ac, α-Me gly N-Ac, β-Me gly N-Ac*)
Ennifar, S. *et al., Chem. Comm.*, 1977, 41 (*occur*)
Secrist, J.A. *et al., J.O.C.*, 1980, **45**, 4526 (*synth, α-Me gly N-Ac octa-Ac*)

Homoadenosine H-123

1-(5-Deoxy-β-D-ribo-*hexofuranosyl)-1H-purin-6-amine, 9CI. 9-(5-Deoxy-β-D*-ribo-*hexofuranosyl)adenine, 8CI*
[22415-88-9]



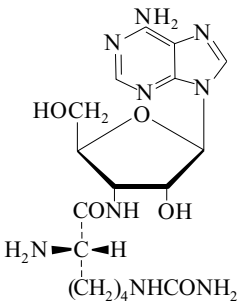
$C_{11}H_{15}N_5O_4$ 281.271

Inhibitor of adenosine kinase and purine metab. in Ehrlich ascites tumor cells *in vitro*. Mp 231.8-232.5°. $[\alpha]_D^{25}$ -16.4 (c, 0.4 in EtOH). λ_{max} 260 (ϵ 15 400) (pH 7), 257 (14 600) (pH 1), 260 nm (15 000) (pH 14).

Ryan, K. *et al., J.A.C.S.*, 1964, **86**, 2503 (*synth, pmr*)
Shaw, S.J. *et al., J.A.C.S.*, 1970, **92**, 2510 (*ms*)
Caldwell, I.C. *et al., Cancer Chemother. Rep., Part 2*, 1971, **2**, 237; *CA*, **75**, 108070u
Lau, K.F. *et al., Cancer Chemother. Rep., Part 2*, 1973, **3**, 95; *CA*, **79**, 13415v
Bennett, L.L. *et al., Mol. Pharmacol.*, 1975, **11**, 803

Homocitrullylaminoadenosine H-124

3′-Homocitrullylamino-3′-deoxyadenosine
[59204-62-5]



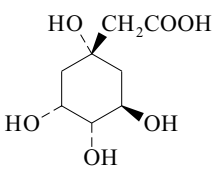
$C_{17}H_{27}N_9O_5$ 437.458

Nucleoside antibiotic. Isol. from *Cordyceps militaris*. Exhibits inhibition of poly(U) directed polyphenylalanine synth. Amorph. solid + $1H_2O$ (MeOH). Sol. H_2O.
Mp 177-179°. $[\alpha]_D^{25}$ -20.2 (c, 0.5 in H_2O). λ_{max} 260 (MeOH) (Berdy). λ_{max} 260 (H_2O) (Berdy).

Kredich, N.M. *et al., J. Biol. Chem.*, 1961, **236**, 3300 (*isol*)
Guarino, A.J. *et al., Biochim. Biophys. Acta*, 1963, **72**, 62 (*props*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1979, **112**, 2588 (*synth, pmr, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Homoquinic acid H-125

1,3,4,5-Tetrahydroxycyclohexaneacetic acid



$C_8H_{14}O_6$ 206.195

Tetra-Ac:
$C_{16}H_{22}O_{10}$ 374.344
Mp 117°. $[\alpha]_D^{25}$ -29 (c, 1 in H_2O).

Amide, 1,3,4,5-tetra-Ac:
$C_{16}H_{23}NO_9$ 373.359
Mp 180-181°. $[\alpha]_D^{27}$ -40 (c, 2.5 in MeOH).

Nitrile:
$C_8H_{13}NO_4$ 187.195
Mp 146°. $[\alpha]_D^{26}$ -41 (c, 2 in EtOH).

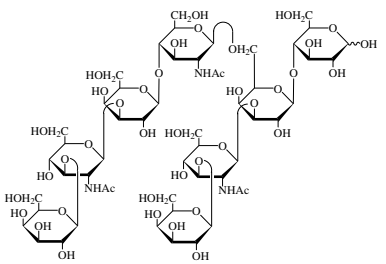
Nitrile, tetra-Ac:
$C_{16}H_{21}NO_8$ 355.344

Mp 155°. $[\alpha]_D^{26}$ -42 (c, 2 in EtOH).

Nitrile, 3,4,5-tribenzoyl:
$C_{29}H_{25}NO_7$ 499.519
Mp 171°. $[\alpha]_D^{25}$ -147 (c, 4 in $CHCl_3$).

Grewe, R. *et al., Annalen*, 1952, **575**, 1

Human milk octasaccharide H-126

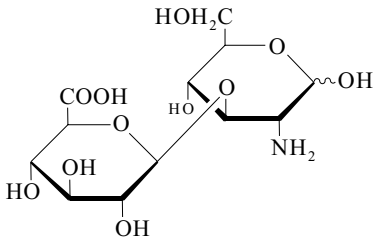


$C_{54}H_{91}N_3O_{41}$ 1438.308
Isol. from human milk. Solid. $[\alpha]_D$ +18 (c, 0.5 in MeOH/$CHCl_3$).

Knuhr, P. *et al., Eur. J. Org. Chem.*, 2001, 4239-4246 (*synth*)

Hyalbiuronic acid H-127

2-Amino-2-deoxy-3-O-β-D-glucopyranuronosyl-D-glucose, 9CI, 8CI. Hyalobiuronic acid. β-D-Glucopyranuronosyl-(1→3)-2-amino-2-deoxy-D-glucose
[499-15-0]



$C_{12}H_{21}NO_{11}$ 355.298
Unit disaccharide of Hyaluronic acid, H-128. Rectangular prisms (monohydrate). Pract. insol. H_2O, AcOH, MeOH, EtOH, Py. $[\alpha]_D^{20}$ +34 → +30 (c, 1.08 in 0.1N HCl). pK_a 2.67. Darkens at 190°.

N-*Ac:*
$C_{14}H_{23}NO_{12}$ 397.335
$[\alpha]_D^{24}$ -32 (c, 2.0 in H_2O). pK_a 3.3.

α-Pyranose-*form*

Me glycoside, N-*Ac:*
$C_{15}H_{25}NO_{12}$ 411.362
Mp 207-210°. $[\alpha]_D$ +31 (c, 0.74 in MeOH).

Me glycoside, N-*Ac, Me ester:*
$C_{16}H_{27}NO_{12}$ 425.389
Mp 223-225°. $[\alpha]_D^{23}$ +16 (c, 1.09 in MeOH).

Me glycoside, hexa-Ac, Me ester:
$C_{26}H_{37}NO_{17}$ 635.575
Mp 236-238°. $[\alpha]_D^{26}$ +30 (c, 0.68 in $CHCl_3$).

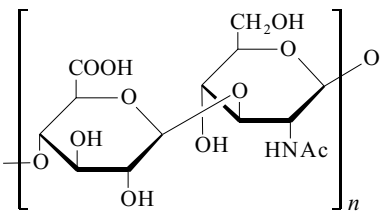
Hepta-Ac, Me ester:
$C_{27}H_{37}NO_{18}$ 663.585
Mp 120°. $[\alpha]_D^{24}$ +25 (c, 2.0 in $CHCl_3$).

Me glycoside, 4,6,2′,3′,6′-penta-Me, 4-Ac, Me ester:
$C_{21}H_{37}NO_{13}$ 511.522
Prisms melting or needles (dimorph.) (Et_2O/pentane). Mp 95-115° (prisms) Mp 149-153° (needles). $[\alpha]_D^{25}$ +65 (c, 0.93 in $CHCl_3$).

Weissmann, B. *et al., J.A.C.S.*, 1954, **76**, 1753 (*struct, N-Ac, α-D-Me ester hepta-Ac*)
Whistler, R.L. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 299 (*rev*)
Takanashi, S. *et al., J.A.C.S.*, 1962, **84**, 3029 (*synth*)
Jeanloz, R.W. *et al., J.A.C.S.*, 1962, **84**, 3030, (*α-D-Me pyr N-Ac, α-D-Me pyr Me ester N-Ac, α-D-Me pyr Me ester hexa Ac, isol, struct*)
Jeanloz, R.W. *et al., Carbohydr. Res.*, 1982, **99**, 51 (*α-D-Me pyr penta-Me Ac Me ester*)

Hyaluronic acid, 9CI, BAN H-128

Hyaluronan. Fermathron
[9004-61-9]



$C_{14}H_{21}NO_{11}$ 379.32
A mucopolysaccharide composed of *N*-Acetylglucosamine and D-Glucuronic acid. MW= 1 −8 × 10^6. Polymeric. Minimum formula given. Found in the extracellular matrix of all higher animals, esp. in soft connective tissues. Isol. from synovial fluid, amniotic fluid, etc. Functions as a joint lubricant and shock absorber; used in the treatment of synovitis and osteoarthritis. Approved for clinical use in the EU (1999)$[\alpha]_D^{27}$ -68.2 (c, 1.0 in H_2O).

Na salt: ***Hyaluronate sodium, USAN.*** *Sodium hyaluronate. Amvisc. Healon. Hyalgan. Hyladerm. Pandermin*
[9067-32-7]
$[\alpha]_D^{25}$ -74 (c, 0.25 in H_2O). $[\alpha]_D$ -67 (H_2O).

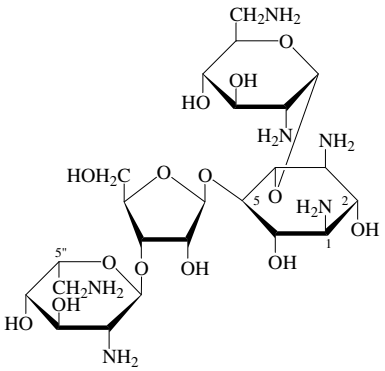
▶ MT7250000

[31799-91-4]

Rapport, M.M. *et al., J.A.C.S.*, 1951, **73**, 2416
Jeanloz, R.W. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 154 (*isol*)
Danishefsky, I. *et al., J. Biol. Chem.*, 1966, **241**, 143
Winter, W.T. *et al., J. Mol. Biol.*, 1975, **99**, 219 (*struct*)
Darke, A. *et al., J. Mol. Biol.*, 1975, **99**, 477 (*pmr*)
Lindahl, U. *et al., Annu. Rev. Biochem.*, 1978, **47**, 385
Matsubara, C. *et al., Chem. Pharm. Bull.*, 1991, **39**, 2446 (*isol, cmr, biosynth*)
Siciňska, W. *et al., Carbohydr. Res.*, 1993, **242**, 29 (*pmr, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1414
Carter, M.B. *et al., Carbohydr. Res.*, 1994, **258**, 299 (*synth*)
Yeung, B.K.S. *et al., J. Carbohydr. Chem.*, 2002, **21**, 799-865 (*rev, synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, HGN600

Hybrimycin A_1, 8CI H-129

[22332-07-6]



$C_{23}H_{46}N_6O_{14}$ 630.648
Aminoglycoside antibiotic. Isol. from *Streptomyces fradiae* 3535. Active against gram-positive bacteria, fungi and yeasts. Sol. H_2O. $[\alpha]_D^{24}$ +44.6 (c, 0.01 in H_2O).

1-Deamino, 1-hydroxy: ***1-Deamino-1-hydroxyhybrimycin A.*** *LL-BM 434α. Antibiotic LL-BM 434α*
[83480-60-8]
$C_{23}H_{45}N_5O_{15}$ 631.633
Prod. by *Streptomyces* sp. LL-BM434. Powder. A mixt. of C-5′′′-epimers, i.e. Hybrimycin A_1 and A_2 analogues.

6′′′-Deamino, 6′′′-hydroxy: ***Hybrimycin C_1***
[38965-79-6]
$C_{23}H_{45}N_5O_{15}$ 631.633
Prod. by *Streptomyces fradiae* and *Streptomyces rimosus*.
$[\alpha]_D^{19.5}$ +60.6 (c, 0.01 in H_2O) (as penta-*N*-Ac).

2-Epimer: ***Hybrimycin B_1***
[22332-08-7]
$C_{23}H_{46}N_6O_{14}$ 630.648
Prod. by *Streptomyces fradiae* 3535.
$[\alpha]_D^{24}$ +52 (c, 0.01 in H_2O).

5′′-Epimer: ***Hybrimycin A_2***
[22400-60-8]
$C_{23}H_{46}N_6O_{14}$ 630.648
Prod. by *Streptomyces fradiae* 3535.
$[\alpha]_D^{24}$ +80.5 (c, 0.01 in H_2O).

5′′-Epimer, 6′′′-deamino, 6′′′-hydroxy: ***Hybrimycin C_2***
[39004-63-2]
$C_{23}H_{45}N_5O_{15}$ 631.633
Prod. by *Streptomyces fradiae* and *Streptomyces rimosus*.
$[\alpha]_D^{19.5}$ +81.9 (c, 0.01 in H_2O) (as penta-*N*-Ac).

2,5′′-Diepimer: ***Hybrimycin B_2***
[27425-78-1]
$C_{23}H_{46}N_6O_{14}$ 630.648
Prod. by *Streptomyces fradiae* 3535.
$[\alpha]_D^{24}$ +94.4 (c, 0.01 in H_2O) (as *N*-Ac).

5-O-Deglycosyl: Hybrimycin A_3
[25150-78-1]
$C_{12}H_{26}N_4O_7$ 338.36
Hydrol. prod. of Hybrimycins A_1 and A_2.

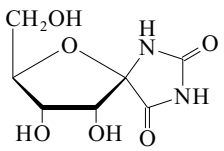
5-O-Deglycosyl, 6‴-deamino, 6‴-hydroxy: Hybrimycin C_3
[56312-86-8]
$C_{12}H_{25}N_3O_8$ 339.345
Hydrol. prod. of Hybrimycins C_1 and C_2.

5-O-Deglycosyl, 2-epimer: Hybrimycin B_3
[25150-79-2]
$C_{12}H_{26}N_4O_7$ 338.36
Hydrol. prod. of Hybrimycins B_1 and B_2.

Shier, W. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1969, **63**, 198 (*isol*)
U.S. Pat., 1969, 3 833 556; *CA*, **82**, 41859 (*synth, Hybrimycin C*)
Davies, J. *et al., Biochim. Biophys. Acta*, 1970, **222**, 674 (*props*)
Shier, W.T. *et al., J. Antibiot.*, 1970, **23**, 51 (*Hybrimycin A_3, Hybrimycin B_3*)
Benveniste, R. *et al., Antimicrob. Agents Chemother.*, 1973, **4**, 402 (*isol, struct*)
Shier, W. *et al., Biochemistry*, 1974, **13**, 5073 (*struct, pmr, ms, Hybrimycin C*)
Borders, D.B. *et al., J. Antibiot.*, 1982, **35**, 1107-1110 (*1-Deamino-1-hydroxyhybrimycin A*)

Hydantocidin H-130

8,9-Dihydroxy-7-(hydroxymethyl)-6-oxa-1,3-diazaspiro[4.4]nonane-2,4-dione, 9CI
[130607-26-0]



$C_7H_{10}N_2O_6$ 218.166
Prod. by *Streptomyces hygroscopicus*. Potentially useful against glyphosate-resistant weeds but high cost of production inhibits coml. use (2002). Inhibits adenylosuccinate synthetase. Shows herbicidal activity. Needles (Me_2CO). Sol. H_2O, EtOH, MeOH; fairly sol. Me_2CO; poorly sol. EtOAc, hexane. Mp 187-189°. $[\alpha]_D^{25}$ +28.8 (c, 1.04 in H_2O).

[129744-33-8, 129829-44-3, 129829-48-7, 130607-01-1, 130607-05-5, 130607-07-7, 130607-13-5, 130607-17-9, 130607-18-0, 130607-25-9, 130607-33-9, 130607-34-0, 130607-40-8, 130607-41-9]

Nakajima, N. *et al., J. Antibiot.*, 1991, **44**, 293-300 (*isol, props*)
Haruyama, H. *et al., J.C.S. Perkin 1*, 1991, 1637-1640 (*pmr, ms, conformn*)
Mio, S. *et al., Tetrahedron*, 1991, **47**, 2111-2120; 2121-2132; 2133-2144; 2145-2154 (*synth*)
Ger. Pat., 1992, 4 129 616 (*isol, activity*)
Sano, H. *et al., Tetrahedron: Asymmetry*, 1995, **6**, 1143-1150 (*synth*)
Nakajima, N. *et al., Tetrahedron*, 1996, **52**, 1177-1194 (*synth*)
Shiozaki, M. *et al., Carbohydr. Res.*, 2002, **337**, 2077-2088 (*synth*)

Hydroxyacetaldehyde, 9CI H-131

Glycolaldehyde, 8CI. Hydroxyethanal. Glycollic aldehyde. Diose
[141-46-8]
$HOCH_2CHO \Leftrightarrow HOCH{=}CHOH$
$C_2H_4O_2$ 60.052
In acid and alkaline media is in equilib. with enediol form. Fresh aq. solns. contain dimer which becomes monomolecular after 24h. Reduces Fehling's soln. Occasional isolate from biol. systems, e.g. tomato volatiles, *Aspergillus niger* autolysate. Plates. Sol. H_2O, hot EtOH; spar. sol. Et_2O.
Mp 96-97°.
▶ LD_{50} (rat, ipr) 280 mg/kg. MC2980000

Covalent hydrate: See 1,1,2-Ethanetriol in *The Combined Chemical Dictionary.*

Phenylhydrazone:
Cryst. Mp *ca.* ° 162.

2,4-Dinitrophenylhydrazone: Mp 155-156°.

Ac: Acetoxyacetaldehyde
[5371-49-3]
$C_4H_6O_3$ 102.09
Liq. Bp_{50} 77° Bp_{38} 72°. Unstable in pure state.

Ac, oxime:
$C_4H_7NO_3$ 117.104
Bp_5 85°. Mixt. of *E*- and *Z*-form.

Benzoyl: [64904-47-8]
$C_9H_8O_3$ 164.16
Mp 32-34°. Bp_9 124-126°.

Benzoyl, oxime: [18420-42-3]
$C_9H_9NO_3$ 179.175
Mp 78-81°.

Benzoyl, semicarbazone: [3158-40-5]
Mp 209°.

Di-Me acetal: 2,2-Dimethoxyethanol
[30934-97-5]
$C_4H_{10}O_3$ 106.121
Bp 158-159°.

Di-Me acetal, Ac: [80079-18-1]
$C_6H_{12}O_4$ 148.158
Bp_{38} 95°.

Di-Et acetal: 2,2-Diethoxyethanol
[621-63-6]
$C_6H_{14}O_3$ 134.175
Bp 167°.

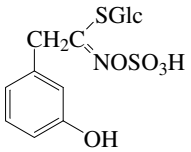
Dimer: See 1,4-Dioxane-2,5-diol in *The Combined Chemical Dictionary.*

[52856-11-8, 52856-12-9]

Biochem. Prep., 1955, **4**, 56 (*synth*)
Gebhardt, B. *et al., Z. Chem.*, 1964, **4**, 189 (*synth*)
George, W.O. *et al., J.C.S.(B)*, 1971, 1352 (*pmr*)
Brittain, E.F.H. *et al., J.C.S.(B)*, 1971, 2414 (*ms*)
Kobayashi, Y. *et al., J. Mol. Struct.*, 1976, **32**, 235 (*ir*)
Roth, J.A. *et al., J. Organomet. Chem.*, 1979, **172**, C27 (*synth*)
Fedoronko, M. *et al., Carbohydr. Res.*, 1980, **87**, 35 (*equilib*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1990, **15**, 162 (*use*)
Rothermel, R. *et al., Annalen*, 1991, 1013 (*Acetoxyacetaldehyde*)

3-Hydroxybenzyl glucosinolate H-132

1-Thio-β-D-glucopyranose 1-[3-hydroxy-N-(sulfooxy)benzeneethanimidate], 9CI. ***Glucolepigramin***
[59204-64-7]



$C_{14}H_{19}NO_{10}S_2$ 425.437
Present in *Lepidium graminifolium* and *Reseda media*.

Me ether: 3-Methoxybenzyl glucosinolate. ***Glucolimnanthin***
[111810-95-8]
$C_{15}H_{21}NO_{10}S_2$ 439.464
Present in *Lepidium graminifolium* and *Limnanthes douglasii*.

Ettlinger, M.G. *et al., J.A.C.S.*, 1956, **78**, 1952 (*isol*)
Friis, P. *et al., Acta Chem. Scand.*, 1963, **17**, 1515 (*isol*)
Olsen, O. *et al., Phytochemistry*, 1980, **19**, 1783 (*isol, cmr, pmr*)

4-Hydroxybenzyl glucosinolate H-133

1-Thio-β-D-glucopyranose 1-[4-hydroxy-N-(sulfooxy)benzeneethanimidate]. ***Glucosinalbin***. *Glucosinalbate*
[19253-84-0]
[20643-28-1]

$C_{14}H_{19}NO_{10}S_2$ 425.437
Isol. from *Brassica* seeds and many other plant spp. Prisms (EtOH)(as tetramethylammonium salt).
Mp 191-192° (tetramethylammonium salt). $[\alpha]_D^{24}$ -20 (c, 2 in H_2O).

Salt with Sinapine: ***Sinalbine***. *Sinapinyl glucosinalbate*
[20196-67-2]
Isol. from mustard seed (*Sinapis alba*) and other crucifers. Acid base indicator (pH range: 6.2-8.4; colour change: colourless → yellow).
Cryst. + $5H_2O$.
Mp 83-84° (hydrate) Mp 139° (anhyd.).
$[\alpha]_D$ -8.23 (H_2O).

4-O-α-L-Rhamnopyranoside: ***4-O-α-L-Rhamnopyranosylglucosinalbin***
[74542-19-1]
$C_{20}H_{29}NO_{14}S_2$ 571.579
Constit. of *Moringa oleifera* (horseradish tree) and *Moringa peregrina*.
$[\alpha]_D$ -47 (c, 1 in H_2O).

4-(4-O-Acetyl-α-L-rhamnopyranoside):
$C_{22}H_{31}NO_{15}S_2$ 613.617
Constit. of *Moringa oleifera* (horseradish tree) and *Moringa peregrina*.

4-Me ether: 4-Methoxybenzyl glucosinolate. ***Glucoaubrietin***
[499-27-4]
[21290-06-2]
$C_{15}H_{21}NO_{10}S_2$ 439.464
Isol. from *Aubretia* sp. Prisms (EtOH aq.)(as tetramethylammonium salt).

Mp 187-189° (tetramethylammonium salt). $[\alpha]_D^{27}$ -21 (c, 2 in H_2O).

4-Me ether, tetra-Ac: [21412-37-3]
Needles (EtOH) (as K salt).
Mp 187-190° (173-174°) (K salt). $[\alpha]_D^{27}$ -7 (c, 0.93 in H_2O).

[16411-05-5, 27299-07-6]

Harrison, K. *et al., Biochem. J.*, 1932, **26**, 88 (*Sinalbine, use*)
Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 26; 1968, **22**, 2 (*isol, deriv*)
Ettlinger, M.G. *et al., J.A.C.S.*, 1956, **78**, 4172 (*struct*)
Kindl, H. *et al., Monatsh. Chem.*, 1964, **95**, 439; 1965, **96**, 527; 1969, **100**, 1773 (*biosynth*)
Benn, M.H. *et al., Can. J. Chem.*, 1965, **43**, 1 (*synth*)
Bishop, E. *et al., Indicators*, Pergamon, Oxford, 1972, (*Sinalbine, use*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*pmr, cmr*)
Gueyrard, D. *et al., Tet. Lett.*, 2000, **41**, 8307-8309 (*4-rhamnoside*)
Fahey, J.W. *et al., Phytochemistry*, 2001, **56**, 5-51 (*rev, occur*)

3-Hydroxybutyl glucosinolate H-134

1-Thio-β-D-glucopyranose 1-[4-hydroxy-N-(sulfooxy)pentanimidate], 9CI
[35535-43-4]
$H_3CCH(OH)CH_2CH_2C(SGlc)=NOSO_3H$
$C_{11}H_{21}NO_{10}S_2$ 391.42
Present in leaves of *Capparis flexuosa*.

Kjaer, A. *et al., Phytochemistry*, 1971, **10**, 3155 (*occur*)

4-Hydroxybutyl glucosinolate H-135

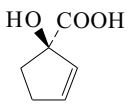
1-Thio-β-D-glucopyranose 1-[5-hydroxy-N-(sulfooxy)pentanimidate], 9CI
[35610-41-4]
$HOCH_2(CH_2)_3C(SGlc)=NOSO_3H$
$C_{11}H_{21}NO_{10}S_2$ 391.42
Present in leaves of *Capparis flexuosa* and in *Arabidopsis thaliana*.

4-Benzoyl: 4-(Benzoyloxy)butyl glucosinolate
[80667-69-2]
$C_{18}H_{25}NO_{11}S_2$ 495.528
Present in *Arabidopsis thaliana*.

4,6′-Dibenzoyl: 6′-O-Benzoyl-4-(benzoyloxy)butyl glucosinolate
$C_{25}H_{29}NO_{12}S_2$ 599.636
Constit. of *Arabidopsis thaliana*.

Kjaer, A. *et al., Phytochemistry*, 1971, **10**, 3155 (*occur*)
Eagles, J. *et al., Biomed. Mass Spectrom.*, 1981, **8**, 278 (*occur*)
Hogge, L.R. *et al., J. Chromatogr. Sci.*, 1986, **26**, 551 (*occur*)
Reichelt, M. *et al., Phytochemistry*, 2002, **59**, 663-671 (*isol, pmr, cmr*)

1-Hydroxy-2-cyclopentene-1-carboxylic acid H-136



(*R*)-form

$C_6H_8O_3$ 128.127

(*R*)-form

Nitrile, O-β-D-glucopyranoside: 1-(β-D-Glucopyranosyloxy)-2-cyclopentene-1-carbonitrile, 9CI. 3-Cyano-3-β-D-glucosyloxy-1-cyclopentene. ***Deidaclin, 8CI****. Deidamin*
[88824-26-4]
$C_{12}H_{17}NO_6$ 271.269
Isol. from *Deidamia clematoides* (*Efulensia clematoides*), *Turnera ulmifolia* and *Adenia globosa*. Cyanogenic glucoside.
Mp 127-128°. $[\alpha]_D^{27}$ -20.4 (c, 1 in H_2O).

Nitrile, O-β-D-glucopyranoside, tetra-Ac:
[101072-81-5]
Mp 131-132°.

(*S*)-form

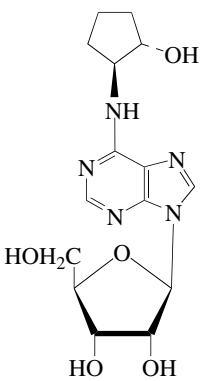
Nitrile, O-β-D-glucopyranoside: ***Tetraphyllin A***
[34323-06-3]
$C_{12}H_{17}NO_6$ 271.269
Found in *Adenia globosa* and *Tetrapathaea tetrandra*.
Mp 119-120° (116-118°). $[\alpha]_D$ -14 (c, 1 in H_2O).

Nitrile, O-β-D-glucopyranoside, tetra-Ac:
[101072-82-6]
Mp 108-110°.

Clapp, R.C. *et al., J.A.C.S.*, 1970, **92**, 6378 (*isol, struct, pmr, ms*)
Russell, G.B. *et al., Phytochemistry*, 1971, **10**, 1373 (*Tetraphyllin*)
Seigler, D.S. *et al., Phytochemistry*, 1975, **14**, 9
Jaroszewski, J.W. *et al., Acta Chem. Scand., Ser. B*, 1985, **39**, 867 (*cryst struct, pmr, cmr*)
Olafsdottir, E.S. *et al., Phytochemistry*, 1992, **31**, 4129 (*biosynth*)

N-(2-Hydroxycyclopentyl) adenosine, 9CI H-137

GR 79236
[124555-18-6]



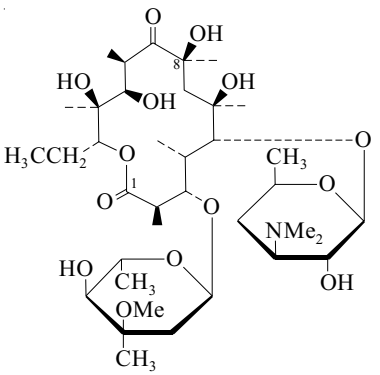
$C_{15}H_{21}N_5O_5$ 351.361
Selective adenosine A_1 agonist. Antilipolytic agent. Reduces heart rate and mean arterial pressure and produces decreased plasma lipids, fatty acids and glucose levels in rats. Stereochem. at cyclopentyl ring is (1*S*, 2*S*).

[124600-51-7, 124600-53-9]

Eur. Pat., 1989, 322 242, (*(Glaxo)*); *CA*, **112**, 119352n (*synth, pharmacol*)
Gurden, M.F. *et al., Br. J. Pharmacol.*, 1993, **109**, 693 (*pharmacol*)
Reeves, J.J. *et al., Br. J. Pharmacol.*, 1993, **110**, 1255 (*pharmacol*)
Anderson, R. *et al., Br. J. Pharmacol.*, 1994, **113**, 1386; 1995, **114**, 999 (*pharmacol*)
Gardner, C.J. *et al., Eur. J. Pharmacol.*, 1994, **257**, 117-121 (*pharmacol*)
Merkel, L.A. *et al., Pharmacology*, 1995, **51**, 224-236 (*pharmacol*)
Qu, X. *et al., Eur. J. Pharmacol.*, 1997, **338**, 269-276 (*pharmacol*)
Carley, D.W. *et al., Sleep (N.Y.)*, 1997, **20**, 1093-1098 (*pharmacol*)

8-Hydroxyerythromycin, 9CI H-138

[51433-35-3]



$C_{37}H_{67}NO_{14}$ 749.935
Macrolide antibiotic. Semisynthetic. Half as active as Erythromycin, E-18. $[\alpha]_D^{24}$ -52 (c, 1.06 in MeOH). Exists as a mixt. of the hydroxyketone and either the 6,9- or the 9,12-hemiacetal.

8-Epimer: 8-Epi-8-hydroxyerythromycin
[51433-36-4]
$C_{37}H_{67}NO_{14}$ 749.935
Needles (MeOH). Mp 138-141°. Exists predominantly as the hemiacetal.

Krowicki, K. *et al., J. Antibiot.*, 1973, **26**, 575; 582; 587 (*synth*)
Tadanier, J. *et al., Helv. Chim. Acta*, 1973, **56**, 2711 (*synth, pmr*)

2-Hydroxyethyl glucosinolate H-139

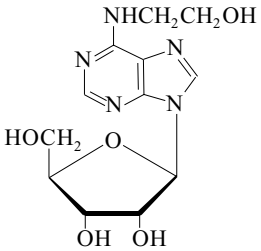
1-Thio-β-D-glucopyranose 1-[3-hydroxy-N-(sulfooxy)propanimidate], 9CI
[12772-58-6]
$HOCH_2CH_2C(SGlc)=NOSO_3H$
$C_9H_{17}NO_{10}S_2$ 363.366
Isol. from the seeds of *Capparis masaikai*.
Cryst. (EtOH aq.) (as K salt).
Mp 145° (K salt).

Benzoyl: ***2-(Benzoyloxy)ethyl glucosinolate***
$C_{16}H_{21}NO_{11}S_2$ 467.474
Constit. of *Arabidopsis thaliana* and *Moricandia arvensis*.

Hu, Z. *et al., Phytochemistry*, 1989, **28**, 1252 (*isol, pmr, cmr*)
Daxenbichler, M.E. *et al., Phytochemistry*, 1991, **30**, 2623-2628 (*benzoyl*)

N^6-(2-Hydroxyethyl)adenosine H-140

[4338-48-1]



$C_{12}H_{17}N_5O_5$ 311.297

Nucleoside antibiotic. Prod. by *Cordyceps pruinosa, Cordyceps coccidiocola, Isaria japonica* and other *Isaria* sp. Shows Ca^{2+} antagonist and muscle contracting activity. Needles (MeOH). Sol. H_2O, MeOH.

Mp 193°. λ_{max} 214 (ϵ 15500); 267 (ϵ 15800) (EtOH) (Derep). λ_{max} 213 (ϵ 15490); 267 (ϵ 15850) (EtOH) (Berdy).

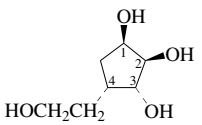
► LD_{50} (mus, ipr) 650 mg/kg.

Takagi, Y. *et al., Chem. Pharm. Bull.*, 1970, **18**, 2514 (*synth, props*)

Furuya, T. *et al., Phytochemistry*, 1983, **22**, 2509 (*isol, nmr, ms, ir, hplc*)

4-(2-Hydroxyethyl)-1,2,3-cyclopentanetriol H-141

5-Deoxycarbahexofuranose



(1*R*,2*R*,3*R*,4*R*)-*form*

$C_7H_{14}O_4$ 162.185

Precursors of carbocyclic nucleosides.

(1*R*,2*R*,3*R*,4*R*)-*form*

α-L-xylo-*form*

[172824-65-6]

Cryst. (Me_2CO). Mp 76-77°. $[\alpha]_D^{20}$ -14 (c, 1.0 in MeOH).

(1*R*,2*R*,3*S*,4*R*)-*form*

α-L-ribo-*form*

[145741-48-6]

Hygroscopic solid. $[\alpha]_D^{26}$ -46.3 (c, 0.23 in MeOH).

2,3-O-*Isopropylidene:*

$C_{10}H_{18}O_4$ 202.25

Oil. $[\alpha]_D$ +14.9 (c, 2.9 in $CHCl_3$).

(1*R*,2*R*,3*S*,4*S*)-*form* β-D-lyxo-*form*

[165874-94-2]

Syrup. $[\alpha]_D^{20}$ -17.6 (c, 0.3 in MeOH).

Tetra-Ac: [165874-93-1]

$C_{15}H_{22}O_8$ 330.334

Oil. $[\alpha]_D^{20}$ -3.4 (c, 0.7 in CH_2Cl_2).

(1*R*,2*S*,3*R*,4*R*)-*form* α-L-lyxo-*form*

[191033-18-8]

Cryst. ($EtOH/Me_2CO$). Mp 70-72°. $[\alpha]_D^{20}$ -36 (c, 3.3 in MeOH).

(1*R*,2*S*,3*R*,4*S*)-*form* β-D-ribo-*form*

[165874-83-9]

Oil. $[\alpha]_D^{20}$ +22.2 (c, 3.9 in MeOH).

Tetra-Ac: [165392-84-7]

Oil. $[\alpha]_D^{20}$ +1.2 (c, 3.7 in CH_2Cl_2).

(1*S*,2*R*,3*R*,4*R*)-*form* β-L-xylo-*form*

[220589-25-3] Inhibits α-mannosidase.

Oil. $[\alpha]_D$ +24 (c, 1.39 in H_2O).

Tetra-Ac: [221618-20-8]

Oil. $[\alpha]_D$ +27.3 (c, 4.06 in H_2O).

(1*S*,2*R*,3*S*,4*S*)-*form* α-D-lyxo-*form*

[165874-89-5]

Foam. $[\alpha]_D^{20}$ +14.7 (c, 3.2 in MeOH).

Tetra-Ac: [165874-88-4]

Oil. $[\alpha]_D^{20}$ +38.4 (c, 3.4 in CH_2Cl_2).

(1*S*,2*S*,3*R*,4*S*)-*form* α-D-ribo-*form*

[145840-34-2]

Oil. $[\alpha]_D^{24}$ +49.1 (c, 0.74 in MeOH).

Tetra-Ac: [165874-85-1]

Oil. $[\alpha]_D^{20}$ +29 (c, 2.3 in CH_2Cl_2).

2,3-O-*Isopropylidene:* [150132-27-7]

Oil. $[\alpha]_D$ -15.1 (c, 0.7 in $CHCl_3$).

Roberts, S.M. *et al., J.C.S. Perkin 1*, 1992, 2625-2632 (α-D-*ribo*, α-L-*ribo*)

Marschner, C. *et al., J.O.C.*, 1995, **60**, 5224-5235 (α-D-*ribo*, β-D-*ribo*, α-D-*lyxo*, β-D-*lyxo*)

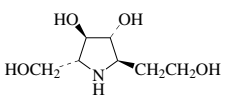
Horneman, A.M. *et al., Tetrahedron*, 1997, **53**, 6879-6892 (α-L-*xylo*, α-L-*lyxo*)

Johansen, S.K. *et al., Synthesis*, 1999, 171-177 (β-L-*xylo*)

Gallos, J.K. *et al., Eur. J. Org. Chem.*, 2001, 79-82 (*2,3*-O-*isopropylidene*-D-*ribo*)

2-(2-Hydroxyethyl)-5-(hydroxymethyl)-3,4-pyrrolidinediol, 9CI H-142

3,4-Dihydroxy-5-(hydroxymethyl)-1-pyrrolidineethanol. 2,5-Imino-2,5,6-trideoxyheptitol. 3,4-Dihydroxy-2-(2-hydroxyethyl)-5-(hydroxymethyl)pyrrolidine



(2*R*,3*R*,4*R*,5*R*)-*form*

$C_7H_{15}NO_4$ 177.2

(2*R*,3*R*,4*R*,5*R*)-*form*

D-manno-*form. 2,5,6-Trideoxy-2,5-imino*-D-manno-*heptitol*

[205762-20-5]

Alkaloid from the bulbs of *Hyacinthus orientalis* and *Scilla sibirica*. Inhibitor of α-glucosidase. $[\alpha]_D$ +98.5 (c, 1.13 in H_2O). $[\alpha]_D$ +46 (c, 1.15 in H_2O). Significantly lower α_D recorded for the synthetic product.

3-O-β-D-*Mannopyranoside:*

$C_{13}H_{25}NO_9$ 339.342

Alkaloid from the bulbs of *Scilla sibirica*. Inhibitor of α-fucosidase.

Powder. $[\alpha]_D$ +2 (c, 0.32 in H_2O).

3-O-*[β-D-Mannopyranosyl-(1→4)-β-D-mannopyranoside]:*

$C_{19}H_{35}NO_{14}$ 501.484

Alkaloid from the bulbs of *Scilla sibirica*. Inhibitor of α-fucosidase.

Powder. $[\alpha]_D$ +10.4 (c, 0.69 in H_2O).

(2*R*,3*S*,4*S*,5*S*)-*form* D-gulo-*form. 2,5,6-Trideoxy-2,5-imino*-D-gulo-*heptitol*

[205762-22-7]

Alkaloid from the bulbs of *Hyacinthus orientalis* and *Scilla sibirica*. Inhibitor of α-fucosidase. $[\alpha]_D$ +41.4 (c, 0.56 in H_2O).

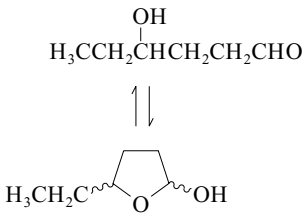
Asano, N. *et al., J. Nat. Prod.*, 1998, **61**, 625-628 (*isol, pmr, cmr*)

Yamashita, T. *et al., J. Nat. Prod.*, 2002, **65**, 1875-1881 (*Scilla sibirica alkaloids*)

Behr, J.-B. *et al., Tetrahedron: Asymmetry*, 2002, **13**, 111-113 (D-*manno-form,* D-*gulo-form, synth, pmr, cmr*)

4-Hydroxyhexanal, 9CI H-143

2-Ethyltetrahydro-5-hydroxyfuran. 4-Hydroxycaproaldehyde



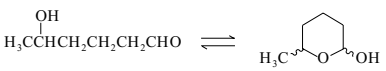
$C_6H_{12}O_2$ 116.16

Tautomeric. Spar. sol. H_2O. d_4^{18} 1. Bp_{11} 77-80°. n_D^{18} 1.4368.

Helferich, B. *et al., Ber.*, 1919, **52**, 1811 (*synth*)

5-Hydroxyhexanal, 9CI H-144

Tetrahydro-2-hydroxy-6-methylpyran. 5-Hydroxycaproaldehyde



$C_6H_{12}O_2$ 116.16

Tautomeric. Spar. sol. H_2O. d_4^{18} 1.01. Bp_{11} 71-78°. n_D^{18} 1.4452.

Helferich, B. *et al., Ber.*, 1922, **55**, 706 (*synth*)

6-Hydroxyhexanal, 9CI H-145

6-Hydroxycaproaldehyde

[34067-76-0]

$HOCH_2(CH_2)_4CHO$

$C_6H_{12}O_2$ 116.16

$Bp_{0.9}$ 73°.

2,4-Dinitrophenylhydrazone: Mp 104-105°.

Me ether: 6-Methoxyhexanal

$C_7H_{14}O_2$ 130.186

Bp_{18} 82°. n_D^{22} 1.4205.

Monobenzyl ether: 6-Benzyloxyhexanal

[101492-91-5]

$C_{13}H_{18}O_2$ 206.284

Oil. Bp_{10} 124-126°.

Hurd, C.D. *et al., J.A.C.S.*, 1952, **74**, 5324-5239 (*synth, Me ether*)

Carvalho, J.F. *et al., J.O.C.*, 1984, **49**, 1251 (*synth*)

Hamilton, L. *et al., J.C.S. Perkin 1*, 1996, 139 (*benzyl ether, synth, ir, pmr*)

6-Hydroxyhexyl glucosinolate H-146

$HOCH_2(CH_2)_5C(SGlc)=NOSO_3H$

$C_{13}H_{25}NO_{10}S_2$ 419.473

O^6-*Benzoyl: 6-(Benzoyloxy)hexyl glucosinolate*

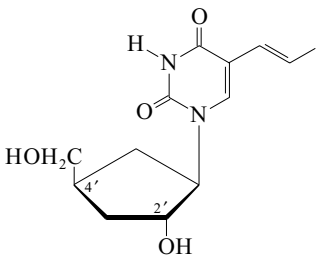
[118609-03-3]

$C_{20}H_{29}NO_{11}S_2$ 523.581

Isol. from *Arabidopsis thaliana*.

Hogge, L.R. *et al., J. Chromatogr. Sci.*, 1988, **26**, 551 (*isol*)

1-[2-Hydroxy-4-(hydroxymethyl)cyclopentyl]-5-(1-propenyl)-2,4(1*H*,3*H*)-pyrimidinedione, 9CI H-147

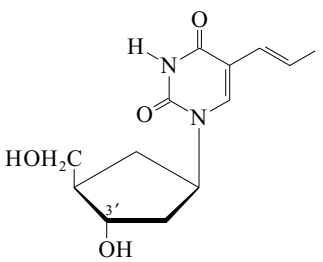


$C_{13}H_{18}N_2O_4$ 266.296

(2′RS,4′SR,E)-form [109001-66-3]
Cryst. (EtOAc). Mp 198.5-199° dec.

Goodchild, J. *et al., Nucleosides Nucleotides*, 1986, **5**, 571 (*synth, pharmacol*)

1-[3-Hydroxy-4-(hydroxymethyl)cyclopentyl]-5-(1-propenyl)-2,4(1*H*,3*H*)-pyrimidinedione, 9CI H-148



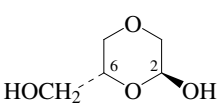
$C_{13}H_{18}N_2O_4$ 266.296
Carbocyclic nucleoside which shows significant activity against herpes simplex virus. Log P -2.03 (uncertain value) (calc).

(3′RS,4′RS,E)-form [109001-65-2]
Cryst. (EtOAc). Mp 165-168°.

Goodchild, J. *et al., Nucleosides Nucleotides*, 1986, **5**, 571 (*synth, pharmacol*)

2-Hydroxy-6-(hydroxymethyl)-1,4-dioxan H-149

6-Hydroxy-1,4-dioxan-2-methanol, 9CI. 6-(Hydroxymethyl)-1,4-dioxan-2-ol. 3-Oxa-2,3,4-trideoxyhexopyranose



(2*R*,6*R*)-*form*

$C_5H_{10}O_4$ 134.132
Numbered in the ref. using nonstandard (3-oxasugar) nomenclature.

(2R,6R)-form
α-D-glycero-*form*
[107171-25-5]

2-Me ether: 6-Methoxy-1,4-dioxan-2-methanol. 2-(Hydroxymethyl)-6-methoxy-1,4-dioxan
[179533-25-6]
$C_6H_{12}O_4$ 148.158
$[\alpha]_D$ +149 (c, 1 in $CHCl_3$).

(2R,6S)-form β-L-glycero-*form*
2-Me ether: [179797-22-9]
$[\alpha]_D^{22}$ +104 (c, 1 in $CHCl_3$).

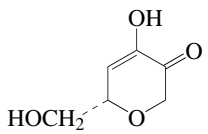
(2S,6R)-form β-D-glycero-*form*
2-Me ether: [179797-21-8]
$[\alpha]_D^{25}$ -96 (c, 1 in $CHCl_3$).

(2S,5S)-form α-L-glycero-*form*
2-Me ether: [179797-20-7]
$[\alpha]_D^{22}$ -140 (c, 1 in $CHCl_3$).

Kuwahara, R. *et al., Carbohydr. Res.*, 1996, **286**, 107-122

4-Hydroxy-6-hydroxymethyl-2*H*-pyran-3(6*H*)-one, 9CI H-150

1,5-Anhydro-4-deoxyhex-3-enos-2-ulopyranose



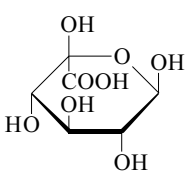
(*S*)-*form*

$C_6H_8O_4$ 144.127
Enol.

(S)-form
D-glycero-*form*
Di-Ac: [211800-60-1]
$C_{10}H_{12}O_6$ 228.201
Syrup. $[\alpha]_D$ -43.7 (c, 1.71 in $CHCl_3$).
Dibenzoyl: [75414-38-9]
$C_{20}H_{16}O_6$ 352.343
Synth. from D-glucose in 2 steps. Cryst. (MeOH). Mp 104-105°. $[\alpha]_D$ -16 (c, 1 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Tet. Lett.*, 1980, **21**, 1429-1432 (*dibenzoyl, synth, pmr*)
Brehm, M. *et al., Angew. Chem., Int. Ed.*, 1987, **26**, 1271-1273 (*dibenzoyl, !synth*)
Andersen, S.M. *et al., J. Carbohydr. Chem.*, 1998, **17**, 1027-1035 (*di-Ac*)

5-*C*-Hydroxyidopyranuronic acid H-151



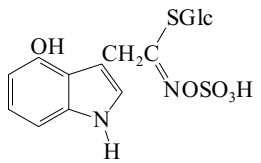
$C_6H_{10}O_8$ 210.14

α-L-Pyranose-*form*
Penta-Ac, Me ester: Methyl 5-C-acetoxy-tetra-O-acetyl-α-L-idopyranuronate
[65615-68-1]
$C_{17}H_{22}O_{13}$ 434.353
Cryst. (MeOH). Mp 113-114°. $[\alpha]_D$ +13 ($CHCl_3$).

Ferrier, R.J. *et al., J.C.S. Perkin 1*, 1977, 1996 (*synth, pmr*)

4-Hydroxyindol-3-ylmethyl glucosinolate H-152

*1-Thio-β-D-glucopyranose 1-[4-hydroxy-N-(sulfooxy)-1H-indole-3-ethanimidate], 9CI. **4-Hydroxyglucobrassicin***
[83327-20-2]



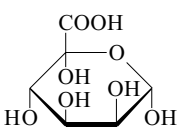
$C_{16}H_{20}N_2O_{10}S_2$ 464.473
Formulated as the 5-hydroxy isomer by Goetz *et al*. Isol. from *Brassica* sp. and other crucifers. Readily oxidises in the presence of air and light. λ_{max} 267 ; 284 ; 293 (MeOH).

*Me ether: 4-Methoxyindol-3-ylmethyl glucosinolate. **4-Methoxyglucobrassicin***
[83327-21-3]
$C_{17}H_{22}N_2O_{10}S_2$ 478.5
Isol. from *Brassica* sp. and other crucifers. Gummy solid. λ_{max} 267 ; 282 ; 292 (MeOH).

[87592-99-2, 87593-00-8, 96828-26-1 96828-27-2]

Truscott, R.J.W. *et al., Biochem. Biophys. Res. Commun.*, 1982, **107**, 1258; 1368 (*isol, struct*)
Truscott, R.J.W. *et al., J. Sci. Food Agric.*, 1983, **34**, 247 (*isol*)
Goetz, J.K. *et al., Phytochemistry*, 1983, **22**, 905 (*isol*)
Hanley, A.P. *et al., Phytochemistry*, 1985, **24**, 598 (*isol, struct*)

5-*C*-Hydroxymannopyranuronic acid H-153



α–D–Pyranose–*form*

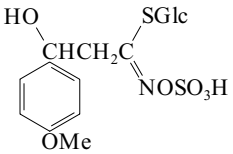
$C_6H_{10}O_8$ 210.14

D-Pyranose-*form*
Isol. from holocellulose of *Sphagnum* moss, possibly present in other plants. Hygroscopic cryst. (EtOH aq.) (as Ca salt). $[\alpha]_D^{22}$ +25 (c, 3.25 in H_2O, equilib.). Not well characterised. Unprecedented type of struct. but see 5-*C*-Hydroxyidopyranuronic acid, H-151.

Painter, T.J. *et al., Carbohydr. Res.*, 1983, **124**, C18

2-Hydroxy-2-[(4-methoxyphenyl)ethyl]glucosinolate H-154

β-Hydroxy-4-methoxyphenethyl glucosinolate

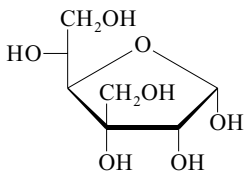


$C_{16}H_{23}NO_{11}S_2$ 469.49

Present in seeds of *Arabis hirsuta*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1972, **26**, 8 (*isol*)

3-*C*-(Hydroxymethyl)allose H-155



$C_7H_{14}O_7$ 210.183

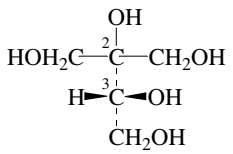
α-D-Furanose-*form*

1,2:5,6-Diisopropylidene: 3-C-*(Hydroxymethyl)-1,2:5,6-di*-O-*isopropylidene-α-D-allofuranose*
[52082-65-2]
$C_{13}H_{22}O_7$ 290.313
Oil, cryst. on standing. $[\alpha]_D^{22}$ +20 (c, 1.3 in $CHCl_3$).

Blackstock, W.P. *et al., Helv. Chim. Acta*, 1974, **57**, 1003 (*D-diisopropylidene*)

2-(Hydroxymethyl)-1,2,3,4-butanetetrol, 9CI H-156

2-C-*(Hydroxymethyl)*-glycero-*tetritol. 3*-C-*(Hydroxymethyl)erythritol. 3*-C-*(Hydroxymethyl)threitol. Apiitol*
[89615-91-8]



(*R*)-*form*

$C_5H_{12}O_5$ 152.147

Numbering reverses if named as a deoxytetritol. C-2 is not a chiral centre.

(*R*)-*form*

L-form
[217975-02-5]
Constit. of the fruit of *Foeniculum vulgare* (fennel) and *Torilis japonica*.
Syrup. $[\alpha]_D^{25}$ +4.4 (c, 0.5 in MeOH).

(*S*)-*form*

D-form
[10592-17-3]
Syrup.

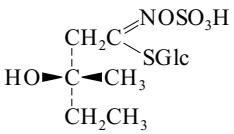
2,3-Isopropylidene:
$C_8H_{16}O_5$ 192.211
Cryst. ($CHCl_3$). Mp 86-88°. $[\alpha]_D^{20}$ 0 (c, 1.2 in MeOH).

2,3-Isopropylidene, tribenzoyl:
$C_{29}H_{28}O_8$ 504.535
Mp 102-104°.

Witczak, Z.J. *et al., Carbohydr. Res.*, 1984, **133**, 235 (*synth, pmr, cmr*)
Kindel, P.K. *et al., Carbohydr. Res.*, 1990, **199**, 55 (*acetal derivs*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1998, **46**, 1583-1586 (*isol*)

2-Hydroxy-2-methylbutyl glucosinolate H-157

1-Thio-β-D-glucopyranose 1-[3-hydroxy-3-methyl-N-*(sulfooxy)pentanimidate], 9CI.*
Glucocleomin
[36286-64-3]



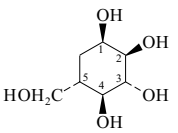
$C_{12}H_{23}NO_{10}S_2$ 405.446

Isol. from seeds of *Cleome spinosa* and from capers (*Capparis spinosa* and *Capparis ovata*).

Kjaer, A. *et al., Acta Chem. Scand.*, 1962, **16**, 591; 1963, **17**, 279 (*isol, struct, abs config*)
Ahmed, Z.F. *et al., Phytochemistry*, 1972, **11**, 251 (*isol*)

5-(Hydroxymethyl)-1,2,3,4-cyclohexanetetrol H-158

1,2-Dideoxy-2-(hydroxymethyl)inositol. 2,3,4,5-Tetrahydroxycyclohexanemethanol



(1*R*,2*R*,3*R*,4*S*,5*S*)–*form*

$C_7H_{14}O_5$ 178.185

16 Racemates are possible and all have been synthesised.

(1*R*,2*R*,3*R*,4*S*,5*S*)-*form*

Pseudo-α-L-glucopyranose. 1,2-Dideoxy-2-(hydroxymethyl)-L-chiro-*inositol, 9CI*
[108867-09-0]
Syrup. $[\alpha]_D^{21}$ -67 (c, 1.5 in MeOH).

2,3,4,5-Tetra-O-*Ac:*
$C_{15}H_{22}O_9$ 346.333
$[\alpha]_D^{20}$ -56 (c, 1.1 in $CHCl_3$).

(1*R*,2*S*,3*R*,4*R*,5*R*)-*form*

4,5-Dideoxy-4-(hydroxymethyl)-D-myo-*inositol, 9CI. Pseudo-β-D-allopyranose*
[156619-26-0]
Glassy solid. $[\alpha]_D^{20}$ +3.1 (c, 0.32 in MeOH).

(1*R*,2*S*,3*R*,4*S*,5*R*)-*form*

2,3-Dideoxy-3-(hydroxymethyl)-D-allo-*inositol. Pseudo-β-D-gulopyranose*
[305384-20-7]
Glassy solid. $[\alpha]_D^{20}$ -60.9 (c, 2.3 in MeOH).

Penta-Ac:
$C_{17}H_{24}O_{10}$ 388.371
Solid. Mp 95-96°. $[\alpha]_D^{20}$ -19.3 (c, 3.4 in $CHCl_3$).

(1*R*,2*S*,3*S*,4*R*,5*R*)-*form*

Pseudo-β-D-glucopyranose. 2,3-Dideoxy-3-(hydroxymethyl)-D-myo-*inositol, 9CI. 1L-(1,3,5/2,4)-5*-C-*Hydroxymethyl-1,2,3,4-cyclohexanetetrol*
[86117-82-0]
Oil. $[\alpha]_D^{20}$ +13 (c, 2.1 in H_2O).

Monohydrate: $[\alpha]_D^{20}$ +10.9 (c, 0.83 in H_2O).

Penta-Ac: [90695-22-0]
Mp 115-116°. $[\alpha]_D^{20}$ +8.9 (c, 1.01 in $CHCl_3$). $[\alpha]_D^{20}$ +13.8 (c, 1 in $CHCl_3$).

(1*R*,2*S*,3*S*,4*R*,5*S*)-*form*

Pseudo-α-L-idopyranose. 1,6-Dideoxy-1-(hydroxymethyl)-L-chiro-*inositol, 9CI. 1L-(1,2,4/3,5)-1*-C-*Hydroxymethyl-2,3,4,5-cyclohexanetetrol*
[105017-74-1]
Cryst. + $1H_2O$ (EtOH). Mp 127-128°. $[\alpha]_D^{20}$ -45.7 (c, 1.1 in H_2O).

Penta-Ac: [105017-73-0]
Cryst. (EtOAc/petrol). Mp 86-87°. $[\alpha]_D^{20}$ -36.1 (c, 1.08 in $CHCl_3$).

(1*S*,2*R*,3*S*,4*R*,5*S*)-*form*

Pseudo-β-L-glucopyranose. 2,3-Dideoxy-2-(hydroxymethyl)-D-allo-*inositol, 9CI. 1D-(1,2,4,5/3)-5*-C-*Hydroxymethyl-1,2,3,4-cyclohexanetetrol*
[156619-09-9]
Syrup.

Penta-Ac: [156619-10-2]
Cryst. $[\alpha]_D^{21}$ -18.7 (c, 0.4 in $CHCl_3$).

Penta-Ac: $[\alpha]_D^{20}$ +37 (c, 0.79 in $CHCl_3$).

(1*S*,2*S*,3*R*,4*S*,5*S*)-*form*

1,2-Dideoxy-1-(hydroxymethyl)-D-epi-*inositol, 9CI. Pseudo-β-L-mannopyranose*
Needles. Mp 218-219°. $[\alpha]_D^{20}$ -10.7 (c, 0.6 in H_2O).

(1*S*,2*S*,3*S*,4*R*,5*R*)-*form*

Pseudo-α-D-glucopyranose. 1,2-Dideoxy-2-(hydroxymethyl)-D-chiro-*inositol, 9CI. 1D-(1,2,4/3,5)-5*-C-*Hydroxymethyl-1,2,3,4-cyclohexanetetrol*
[94943-08-5]
Syrup. $[\alpha]_D$ +67 (c, 0.5 in MeOH) (+30).

2,3,4,5-Tetra-O-*Ac:*
Syrup. $[\alpha]_D$ +57 (c, 0.9 in $CHCl_3$) (+37).

Penta-Ac: [94943-06-3]
$[\alpha]_D^{20}$ +6.3 (c, 1 in $CHCl_3$). $[\alpha]_D^{20}$ +37 (c, 0.79 in $CHCl_3$).

(1*S*,2*S*,3*S*,4*S*,5*R*)-*form*

Pseudo-α-D-galactopyranose. 1,2-Dideoxy-2-(hydroxymethyl)-D-allo-*inositol, 9CI*
[52079-85-3]
Prod. by *Streptomyces* sp. MA-4145. Shows weak antibiotic props. Sol. H_2O; poorly sol. Me_2CO, hexane.
Mp 164°. $[\alpha]_D$ +61.5.

(1*S*,2*S*,3*S*,4*S*,5*R*)-*form*

$[\alpha]_D^{23}$ +66.3 (c, 1.48 in H_2O).

Penta-Ac: [52079-86-4]
Prisms (EtOH). Mp 143-144°. $[\alpha]_D^{21}$ +35.8 (c, 0.4 in $CHCl_3$).

(1*RS*,2*RS*,3*RS*,4*RS*,5*SR*)-*form*

Pseudo-α-DL-galactopyranose. 1,2-Dideoxy-2-(hydroxymethyl)-DL-allo-*inositol, 9CI*
[16802-98-5]

Cryst. (EtOH). Mp 169-170.5°.

(1*RS*,2*RS*,3*RS*,4*SR*,5*SR*)-*form*
Pseudo-α-DL-glucopyranose
[95043-48-4]
Penta-Ac: [77209-45-1]
Cryst. (EtOH/Et_2O). Mp 110-111°.

(1*RS*,2*RS*,3*SR*,4*RS*,5*RS*)-*form*
*Pseudo-β-DL-mannopyranose. 1,2-Dideoxy-1-(hydroxymethyl)-DL-*epi*-inositol, 9CI*
[74561-10-7]
Cryst. (EtOH aq.). Mp 198-199°.
Penta-Ac: [74561-11-8]
Prisms (EtOH). Mp 123-125°.

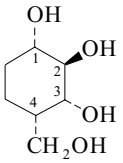
(1*RS*,2*SR*,3*RS*,4*SR*,5*SR*)-*form*
*Pseudo-α-DL-mannopyranose. 2,3-Dideoxy-3-(hydroxymethyl)-DL-*chiro*-inositol, 9CI*
[74561-03-8]
Syrup.
Penta-Ac: [74561-02-7]
Prisms (EtOH). Mp 99.5-100°.

(1*RS*,2*SR*,3*SR*,4*RS*,5*RS*)-*form*
*Pseudo-β-DL-glucopyranose. 1,2-Dideoxy-1-(hydroxymethyl)-DL-*myo*-inositol, 9CI*
[64625-68-9]
Syrup.
Penta-Ac: [64625-67-8]
Cryst. (EtOH). Mp 111-112°.

(1*RS*,2*SR*,3*SR*,4*RS*,5*SR*)-*form*
*Pseudo-α-DL-idopyranose. 1,6-Dideoxy-1-(hydroxymethyl)-DL-*chiro*-inositol, 9CI*
[74560-71-7]
Cryst. (EtOH). Mp 155-156°.
Penta-Ac: [74560-70-6]
Mp 106°.

(1*RS*,2*SR*,3*SR*,4*SR*,5*RS*)-*form*
Pseudo-β-DL-galactopyranose
Cryst. (EtOH). Mp 173-174°.
Miller, P.W. *et al., Biotechnol. Bioeng.*, 1973, **15**, 1075 (*isol*)
Suami, T. *et al., Carbohydr. Res.*, 1977, **58**, 240-244 (*pseud-β-DL-glucopyranose*)
Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1980, **53**, 1121-1126; 1986, **59**, 2956-2958 (*synth, pmr*)
Paulsen, H. *et al., Annalen*, 1984, 433; 1987, 125; 133 (*synth, pmr*)
Ogawa, S. *et al., Chem. Lett.*, 1984, 355; 1919 (*synth*)
Ogawa, S. *et al., Carbohydr. Res.*, 1985, **136**, 77; 1986, **153**, 25 (*synth, bibl*)
Ogawa, S. *et al., J.C.S. Perkin 1*, 1985, 903-906 (*pseudo-α-D-galactopyranose, pseudo-β-D-glucopyranosyl*)
Watkins, S.F. *et al., Carbohydr. Res.*, 1986, **158**, 7 (*cryst struct, penta-Ac*)
Tadano, K. *et al., J. Carbohydr. Chem.*, 1987, **6**, 231-234 (*synth*)
Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 354 (*pmr, cmr, bibl*)
Yoshikawa, M. *et al., Chem. Pharm. Bull.*, 1993, **41**, 1197 (*synth*)
Rassu, G. *et al., J.O.C.*, 2000, **65**, 6307-6318 (*synth, pmr, cmr*)
Zanardi, F. *et al., Eur. J. Org. Chem.*, 2002, 1956-1965 (*pseudo-β-D-allopyranose, pseudo-β-D-gulopyranose, pseudo-β-L-mannopyranose*)
Gómez, A.M. *et al., Eur. J. Org. Chem.*, 2004, 1830-1840 (*penta-Ac*)

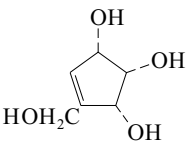
4-(Hydroxymethyl)l-1,2,3-cyclohexanetriol H-159



$C_7H_{14}O_4$ 162.185

(1*S*,2*R*,3*R*,4*S*)-*form*
Validatol
[32780-33-9]
Constit. and hydrol. prod. of Validoxylamine G, V-4.
Cryst.
Mp 119-121°. $[\alpha]_D$ -39 (c, 1 in H_2O).
Horii, S. *et al., J. Antibiot.*, 1971, **24**, 57; 59 (*isol*)
Horii, S. *et al., Chem. Comm.*, 1972, 747 (*abs config*)

4-(Hydroxymethyl)-4-cyclopentene-1,2,3-triol H-160

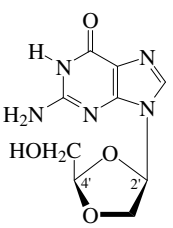


$C_6H_{10}O_4$ 146.143

(1*S*,2*S*,3*R*)-*form* [150074-37-6]
Prod. by *Streptomyces citricolor*. Likely precursor of Aristeromycin, A-864.
Oil.
Roberts, S.M. *et al., Tet. Lett.*, 1993, **34**, 4083
Ziegler, F.E. *et al., Synlett*, Spec. Issue, 1995, 493-494 (*synth*)

9-[2-(Hydroxymethyl)-1,3-dioxolan-4-yl]guanine H-161

*2-Amino-1,9-dihydro-9-[2-(hydroxymethyl)-1,3-dioxolan-4-yl]-6*H*-purin-6-one, 9CI. DXG*



(2*R*,4*R*)-*form*

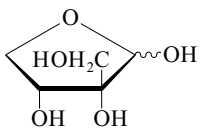
$C_9H_{11}N_5O_4$ 253.217
Anti-HIV agent.

(2*R′*,4*R′*)-*form* [145514-01-8]
Cryst. (MeOH). Mp 280° (dec.). $[\alpha]_D^{25}$ -110 (c, 0.25 in H_2O). Pharmacol. active isomer.

(2*S′*,4*R′*)-*form* [147060-50-2]
Cryst. (H_2O). Mp 259-260°. $[\alpha]_D^{25}$ -101.6 (c, 0.25 in NH_4OH).

(2*S′*,4*S′*)-*form* [147060-49-9]
Solid. Mp 280° dec.
[151282-99-4]
Kim, H.O. *et al., J. Med. Chem.*, 1993, **36**, 30-37; 519-528 (*synth, isomers, pharmacol*)
Pat. Coop. Treaty (WIPO), 1994, 94 09 793, ((*Emory Univ.*)); *CA*, **121**, 99776j (*synth, activity*)
Chen, H. *et al., Antimicrob. Agents Chemother.*, 1996, **40**, 2332-2336; 2000, **44**, 1783-1788 (*activity*)

2-*C*-(Hydroxymethyl)erythrose H-162



$C_5H_{10}O_5$ 150.131

D-*form*
$[\alpha]_D$ -3.2 (c, 1 in H_2O) (24h). Exists mostly in furanose form.

D-Furanose-*form*
*2,3-Ethylidene: 2,3-*O*-Ethylidene-2-*C*-(hydroxymethyl)-D-erythrofuranose. 4,5-Bis(hydroxymethyl)-2-methyl-1,3-dioxolane-4-carboxaldehyde. Dihydro-4-hydroxy-2-methylfuro[3,4-*d*]-1,3-dioxole-3a(4*H*)-methanol*
[74510-65-9]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D$ -40.5 (c, 6.0 in $CHCl_3$).
[68123-97-7]
Ho, P.-T. *et al., Tet. Lett.*, 1978, 1623 (*synth, pmr, cmr*)
Ho, P.-T. *et al., Can. J. Chem.*, 1980, **58**, 858 (*tosyl*)
Hricoviniová, Z. *et al., J. Carbohydr. Chem.*, 2000, **19**, 827-836 (*synth*)

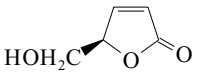
2-Hydroxy-1-methylethyl glucosinolate H-163

*1-Thio-β-D-glucopyranose 1-[3-hydroxy-2-methyl-*N*-(sulfooxy)propanimidate], 9CI.*
Glucosisymbrin
[30688-62-1]
$HOCH_2CH(CH_3)C(SGlc)=NOSO_3H$
$C_{10}H_{19}NO_{10}S_2$ 377.393
Isol. from seeds of *Sisymbrium austriacum*. Amorph.

Benzoyl: 2-(Benzoyloxy)-1-methylethyl glucosinolate. ***Glucobenzosisymbrin***
$C_{17}H_{23}NO_{11}S_2$ 481.501
Isol. from the seeds of *Sisymbrium austriacum*.
[536-02-7]
Kjaer, A. *et al., Acta Chem. Scand.*, 1959, **13**, 1575; 1961, **15**, 1477 (*isol*)

5-Hydroxymethyl-2(5*H*)-furanone, 9CI H-164

5-Hydroxymethyl-2-butenolide. 5-Hydroxy-2-penten-4-olide. 5-Hydroxymethyl-3-oxolen-2-one. 2,3-Dideoxy-glycero-*pent-2-enono-1,4-lactone*



(*R*)–*form*

$C_5H_6O_3$ 114.101

(*R*)-*form*

L-form

[112837-17-9]

Cryst. (CH_2Cl_2/Et_2O). Mp 37-39°. $Bp_{0.01}$ 88°. $[\alpha]_D^{25}$ +136.09 (c, 1.69 in H_2O).

(*S*)-*form*

D-form

[78508-96-0]

Intermed. in synth. of Zidovudine, Z-4. Oil which solidifies on standing. Mp 42-43° (36.5-38.5°). $Bp_{0.9}$ 130°. $[\alpha]_D^{20}$ -155.4 (c, 1.15 in H_2O). $[\alpha]_D^{24}$ -136.3 (c, 0.25 in H_2O).

β-D-Glucopyranoside: ***Ranunculin***

[644-69-9]

$C_{11}H_{16}O_8$ 276.243

Common in Ranunculaceae, e.g. *Ranunculus, Anemone* and *Pulsatilla* spp. Cryst. (MeOH).

Mp 140-141°. $[\alpha]_D^{20}$ -81 (c, 2 in H_2O).

*Ac: 5-Acetoxymethyl-2(5*H*)-furanone. 5-*O*-Acetyl-2,3-dideoxy-D-*glycero-*pent-2-enono-1,4-lactone*

[85846-83-9]

$C_7H_8O_4$ 156.138

Liq. $[\alpha]_D^{20}$ -150.9 (c, 3.41 in $CHCl_3$).

*Tosyl: 2,3-Dideoxy-5-*O*-tosyl-D-*glycero-*pent-2-enono-1,4-lactone*

$C_{12}H_{12}O_5S$ 268.29

Mp 54.5-55°. $[\alpha]_D$ -52 (c, 1.8 in $CHCl_3$).

*Trityl: 2,3-Dideoxy-5-*O*-trityl-D-*glycero-*pent-2-enono-1,4-lactone*

[76236-32-3]

$C_{24}H_{20}O_3$ 356.42

Cryst. (EtOAc/hexane). Mp 151-153°. $[\alpha]_D^{20}$ -95.1 (c, 3.4 in $CHCl_3$) (-50.2).

(±)-*form*

Bp_1 140°.

[78508-79-9, 78508-96-0, 85881-41-0]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1148B (*nmr*)

Ruijgrok, H.W.L. *et al., Planta Med.*, 1963, **11**, 338 (*occur*)

Boll, M. *et al., Acta Chem. Scand.*, 1968, **22**, 3245 (*synth*)

Benn, M.H. *et al., Can. J. Chem.*, 1968, **46**, 729 (*abs config*)

Cardellach, J. *et al., Tetrahedron*, 1982, **38**, 2377 (*synth*)

Camps, P. *et al., Tetrahedron*, 1982, **38**, 2395 (*synth, ir, ms, pmr*)

Ireland, R.E. *et al., J.A.C.S.*, 1983, **105**, 1988 (*trityl*)

Takano, S. *et al., Synthesis*, 1986, 403 (*synth*)

Danilova, G.A. *et al., Tet. Lett.*, 1986, **27**, 2491 (*synth*)

Häfele, B. *et al., Annalen*, 1987, 85 (*synth, ir, pmr, cmr*)

Ortuño, R.M. *et al., Tetrahedron*, 1987, **43**, 2199 (*synth, pmr*)

Vekemans, J.A.J.M. *et al., J.O.C.*, 1988, **53**, 627 (*synth, pmr*)

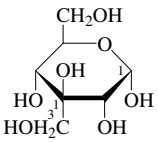
Chu, C.K. *et al., Tet. Lett.*, 1988, **29**, 5349 (*use*)

Koseki, K. *et al., Heterocycles*, 1990, **31**, 423 (*synth*)

Honda, I. *et al., Heterocycles*, 1993, **36**, 149 (*synth*)

Butler, P.I. *et al., J.C.S. Perkin 1*, 1994, 1503 (*tosyl*)

3-*C*-(Hydroxymethyl)glucose H-165



α-D-Pyranose-*form*

$C_7H_{14}O_7$ 210.183

Mixt. of Pyr and Fur forms and anhydrides in aq. soln.

D-*form* [136950-08-8]

Syrup. $[\alpha]_D^{24}$ +10.3 (c, 2.8 in H_2O).

α-D-Pyranose-*form*

*1,3^1-Anhydro: 1,3^1-Anhydro-3-*C*-hydroxymethyl-α-D-glucopyranose*

[136950-04-4]

$C_7H_{12}O_6$ 192.168

Cryst. (EtOH/EtOAc). Mp 159°. $[\alpha]_D^{24}$ +13.2 (c, 1.0 in H_2O).

*1,3^1-Anhydro, tetra-Ac: 2,3,5,6-Tetra-*O*-acetyl-1,3^1-anhydro-3-*C*-hydroxymethyl-α-D-glucopyranose*

[136950-07-7]

$C_{15}H_{20}O_{10}$ 360.317

Cryst. (EtOH). Mp 122-123°. $[\alpha]_D^{24}$ +21 (c, 1.4 in $CHCl_3$).

α-D-Furanose-*form*

*1,2:5,6-Di-*O*-isopropylidene: 3-*C*-(Hydroxymethyl)-1,2:5,6-di-*O*-isopropylidene-α-D-glucofuranose*

[32453-83-1]

$C_{13}H_{22}O_7$ 290.313

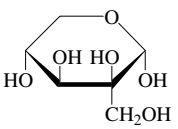
Mp 86-87°. $[\alpha]_D$ +25 (c, 0.9 in $CHCl_3$).

Dahlman, O. *et al., Acta Chem. Scand., Ser. B*, 1986, **40**, 15 (*synth, pmr, cmr*)

Angyal, S.J. *et al., Carbohydr. Res.*, 1991, **216**, 171 (*D-form, anhydride, synth, pmr, cmr*)

Funabashi, M. *et al., Org. Prep. Proced. Int.*, 2002, **34**, 432-435 (*α-D-fur-diisopropylidene*)

2-*C*-(Hydroxymethyl)lyxose H-166



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

L-*form* [161970-47-4]

Obt. in 1 step from Sorbose, S-60 in 9% yield.

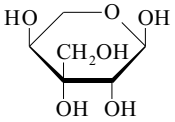
Syrup. $[\alpha]_D$ -3.1 (24h) → -2.6 (c, 1 in H_2O).

Yanagihara, R. *et al., Bull. Chem. Soc. Jpn.*, 1995, **68**, 237-242 (*L-form, synth*)

Hricovíniová-Bíliková, Z. *et al., Carbohydr. Res.*, 1999, **319**, 38-46 (*synth, pmr, cmr*)

3-*C*-(Hydroxymethyl)lyxose H-167

Dihydrohydroxystreptose



α–L–Pyranose–*form*

$C_6H_{12}O_6$ 180.157

L-*form* [99247-35-5]

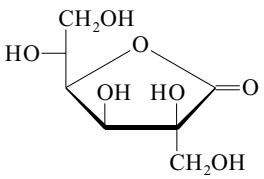
Isol. from hydrolysates of *Coxiella burnettii* lipopolysaccharide.

$[\alpha]_D$ +18.7 (c, 1.4 in H_2O) (+16).

Dahlman, O. *et al., Acta Chem. Scand., Ser. B*, 1986, **40**, 15

Toman, R. *et al., Carbohydr. Res.*, 1998, **306**, 291-296 (*isol, pmr*)

2-*C*-(Hydroxymethyl)-1,4-mannonolactone H-168



$C_7H_{12}O_7$ 208.168

D-*form*

*2,3:5,6-Diisopropylidene: 2-*C*-(Hydroxymethyl)-2,3:5,6-di-*O*-isopropylidene-D-mannono-1,4-lactone*

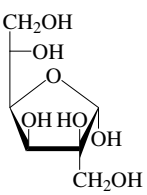
[70147-48-7]

$C_{13}H_{20}O_7$ 288.297

Cryst. Mp 106°. $[\alpha]_D$ +34 (c, 2.6 in $CHCl_3$).

Ho, P.-T. *et al., Can. J. Chem.*, 1979, **57**, 381 (*synth, pmr*)

2-*C*-(Hydroxymethyl)mannose H-169



α-D-Furanose-*form*

$C_7H_{14}O_6$ 194.184

D-Furanose-*form*

*2,3:5,6-Di-isopropylidene: 2-*C*-(Hydroxymethyl)-2,3:5,6-di-*O*-isopropylidene-D-mannofuranose*

[91738-34-0]

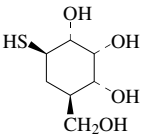
$C_{13}H_{22}O_7$ 290.313

Syrup. $[\alpha]_D$ +11 (c, 1.2 in MeOH).

[70147-46-5]

Ho, P.-T. *et al., Can. J. Chem.*, 1979, **57**, 381 (*synth, pmr*)

4-(Hydroxymethyl)-6-mercapto-1,2,3-cyclohexanetriol H-170



(1*R*,2*R*,3*R*,4*R*,6*R*)-*form*

$C_7H_{14}O_4S$ 194.251

(1*R*,2*R*,3*R*,4*R*,6*R*)-*form*

*1-Thio-5*a*-carba-β-D-allopyranose. 1-Thiopseudo-β-D-allopyranose*

Glassy solid. $[\alpha]_D^{20}$ -34.2 (c, 1.1 in MeOH).

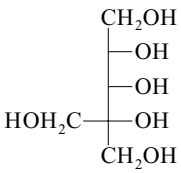
(1*R*,2*R*,3*S*,4*R*,6*R*)-*form*

*1-Thio-5*a*-carba-β-D-gulopyranose. 1-Thiopseudo-β-D-gulopyranose*

Solid. $[\alpha]_D$ -28.4 (c, 0.8 in MeOH).

Zanardi, F. *et al., Eur. J. Org. Chem.*, 2002, 1956-1965 (*1-thiopseudo-β-D-allopyranose, 1-thiopseudo-β-D-gulopyranose*)

4-*C*-(Hydroxymethyl)-*erythro*-pentitol H-171



$C_6H_{14}O_6$ 182.173

C-4 is not a chiral centre.

D-*form*

*1,2:3,4-Diisopropylidene: 4-*C*-(Hydroxymethyl)-1,2:3,4-di-*O*-isopropylidene-D-*erythro*-pentitol*

[100759-93-1]

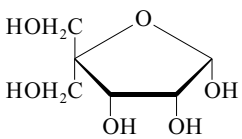
$C_{12}H_{22}O_6$ 262.302

Cryst. Mp 91-92°. $[\alpha]_D$ +14 (c, 2.0 in MeOH).

Williams, D.T. *et al., Can. J. Chem.*, 1964, **42**, 69 (*synth*)

Koóš, M. *et al., Coll. Czech. Chem. Comm.*, 1985, **50**, 1994 (*synth, pmr*)

4-*C*-(Hydroxymethyl)-*erythro*-pentofuranose H-172



α–D–*form*

$C_6H_{12}O_6$ 180.157

α-D-*form*

*1,2-Isopropylidene: 4-*C*-(Hydroxymethyl)-1,2-*O*-isopropylidene-α-D-*erythro-*pentofuranose*

[55797-65-4]

$C_9H_{16}O_6$ 220.222

Cryst. ($CHCl_3$/Et_2O). Mp 113-114°. $[\alpha]_D^{23}$ +17.2 (c, 0.3 in EtOH).

β-D-*form*

*Me glycoside, 2,3-isopropylidene: Methyl 4-*C*-(hydroxymethyl)-2,3-*O*-isopropylidene-β-D-*erythro*-pentofuranoside*

[55797-67-6]

$C_{10}H_{18}O_6$ 234.249

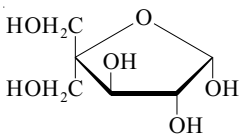
Cryst. (cyclohexane). Mp 97-98°. $[\alpha]_D^{25}$ -40.7 (c, 1 in $CHCl_3$).

Leland, D.L. *et al., Carbohydr. Res.*, 1974, **38**, C9 (*synth, pmr, α-isopropylidene*)

Youssefyeh, R.D. *et al., J.O.C.*, 1979, **44**, 1301 (*synth, cmr, α-isopropylidene*)

Jones, G.H. *et al., J.O.C.*, 1979, **44**, 1309 (*synth, pmr, β-Me gly isopropylidene*)

4-*C*-(Hydroxymethyl)-*threo*-pentofuranose H-173



$C_6H_{12}O_6$ 180.157

β-L-*form*

*1,2-Isopropylidene: 4-*C*-(Hydroxymethyl)-1,2-*O*-isopropylidene-β-L-*threo-*pentofuranose*

$C_9H_{16}O_6$ 220.222

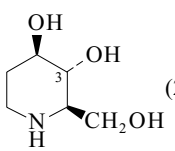
Cryst. ($CHCl_3$). Mp 98-100°.

Leland, D.L. *et al., Carbohydr. Res.*, 1974, **38**, C9 (*synth, pmr*)

Youssefyeh, R.D. *et al., J.O.C.*, 1979, **44**, 1301 (*synth, cmr*)

2-(Hydroxymethyl)-3,4-piperidinediol, 9CI H-174

3,4-Dihydroxy-2-(hydroxymethyl)piperidine. 3,4-Dihydroxy-2-piperidinemethanol. 1,2,5-Trideoxy-1,5-iminohexitol



(2*R*,3*R*,4*R*)–*form*

$C_6H_{13}NO_3$ 147.174

Care needed with numbering; if named as an iminosugar the numbering is different.

(2*R*,3*R*,4*R*)-*form*

Fagomine

[53185-12-9]

Alkaloid from buckwheat seeds (*Fagopyrum esculentum*) (Polygonaceae). Also from seeds of *Castanospermum australe* and *Xanthocercis zambesiaca* (Leguminosae).

Needles (MeOH/EtOH).

Mp 186-188°. $[\alpha]_D^{11}$ +23 (c, 1 in H_2O). $[\alpha]_D^{11}$ +37 (c, 1 in 0.1*M* HCl).

Hydrochloride: Mp 176-177°.

*3-*O*-β-D-Glucopyranosyl:* ***3-O-β-D-Glucopyranosylfagomine***

$C_{12}H_{23}NO_8$ 309.316

Alkaloid from the seeds of *Xanthocercis zambesiaca* (Leguminosae). Cryst. (MeOH/EtOH/Me_2CO).

Mp 232-233° dec. $[\alpha]_D^{20}$ -3.1 (c, 1.2 in H_2O). Can also be named as 4-glucopyranosylfagomine (confusion with 4-isomer below).

*4-*O*-β-D-Glucopyranosyl:* ***4-O-β-D-Glucopyranosylfagomine***

$C_{12}H_{23}NO_8$ 309.316

Alkaloid from leaves and roots of *Xanthocercis zambesiaca*.

$[\alpha]_D$ -18.2 (c, 0.48 in H_2O). Can also be numbered as the 3-isomer (see above).

(2*R*,3*R*,4*S*)-*form*

4-Epifagomine*. 3-Epifagomine*

Alkaloid from roots of *Morus alba* (white mulberry) (Moraceae) and from leaves and roots of *Xanthocercis zambesiaca* (Leguminosae).

Solid.

Mp 220-222° synthetic. $[\alpha]_D$ +69 (c, 0.5 in H_2O). Numbering systems vary.

(2*R*,3*S*,4*S*)-*form*

3,4-Diepifagomine

Alkaloid from leaves of *Xanthocercis zambesiaca*.

$[\alpha]_D$ -8.7 (c, 0.3 in H_2O) (natural). $[\alpha]_D^{25}$ +13.4 (c, 0.32 in H_2O) (synthetic).

Koyama, M. *et al., Agric. Biol. Chem.*, 1974, **38**, 1111 (*ir, pmr, ms, struct*)

Evans, S.V. *et al., Tet. Lett.*, 1985, **26**, 1465 (*deriv*)

Fleet, G.W.J. *et al., Tet. Lett.*, 1985, **26**, 1469 (*abs config, synth*)

Molyneux, R.J. *et al., J. Nat. Prod.*, 1988, **51**, 1198-1206 (*isol*)

Asano, N. *et al., Carbohydr. Res.*, 1994, **259**, 243 (*3-Epifagomine*)

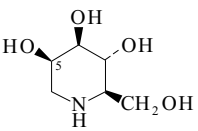
Kato, A. *et al., J. Nat. Prod.*, 1997, **60**, 312-314 (*glucoside, diepimer*)

Schneider, C. *et al., Eur. J. Org. Chem.*, 1998, 1155-1159 (*synth*)

Takahata, H. *et al., J.O.C.*, 2003, **68**, 3603-3607 (*synth*)

2-(Hydroxymethyl)-3,4,5-piperidinetriol, 12CI H-175

3,4,5-Trihydroxy-2-piperidinemethanol. 3,4,5-Trihydroxy-2-hydroxymethylpiperidine. 1,5-Dideoxy-1,5-iminohexitol



(2*R*,3*R*,4*R*,5*R*)–*form*

$C_6H_{13}NO_4$ 163.173

CAS name was changed for 12CI period. Different numbering systems depending on whether named as a piperidine or as an iminosugar.

(2*R*,3*R*,4*R*,5*R*)-*form*

1,5-Dideoxy-1,5-imino-D-mannitol, 9CI. ***Deoxymannojirimycin****. LU 1. Antibiotic LU 1*

[84444-90-6]

Alkaloid from the seeds of *Lonchocarpus sericeus*, *Lonchocarpus costaricensis* (Leguminosae), *Commelina communis* and *Streptomyces lavendulae*. Mannosidase inhibitor. α-Glucosidase inhibitor.

Cryst. (MeOH/Et_2O).

Mp 187-188°. $[\alpha]_D^{20}$ -26.7 (c, 0.12 in MeOH). $[\alpha]_D^{24}$ -45.5 (c, 1.02 in H_2O).

Hydrochloride: [73465-43-7]
Mp 175-180°. $[\alpha]_D^{20}$ -10.9 (c, 0.3 in H_2O).

1′-O-α-L-Rhamnopyranoside: ***6-O-α-L-Rhamnopyranosyldeoxymannojirimycin***
[330594-47-3]
$C_{12}H_{23}NO_8$ 309.316
Alkaloid from the bark of *Angylocalyx pynaertii*.
$[\alpha]_D$ -42.6 (c, 0.33 in H_2O).

(2*R*,3*R*,4*R*,5*S*)-*form*
1,5-Dideoxy-1,5-imino-D-glucitol, 9CI. ***Moranoline****. 1-Deoxynojirimycin. S-GI. Antibiotic S-GI*
[19130-96-2]
Alkaloid from *Morus* spp. (Moraceae), *Jacobinia suberecta* and *Commelina communis*. Also prod. by various *Bacillus* spp. and *Streptomyces lavendulae* ssp. *trehalostaticus*. α-Glucosidase inhibitor. Animal feedstuff additive. Shows anti-HIV activity. Antihyperglycaemic activity *in vivo*.
Cryst. (MeOH).
Mp 206° (195-197°). $[\alpha]_D^{22}$ +44.7 (c, 1 in H_2O). $[\alpha]_D^{20}$ -34.9 (c, 5 in H_2O). pK_a 6.6. Log P -2.85 (calc).

Hydrochloride: [73285-50-4]
Amorph. powder. Mp 196-198°. $[\alpha]_D^{22}$ +38 (c, 1 in H_2O).

1′-O-α-D-Galactopyranoside: ***6-O-α-D-Galactopyranosyl-1-deoxynojirimycin***
[156639-78-0]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry). Powder. $[\alpha]_D$ +107 (c, 0.1 in H_2O).

5-O-α-D-Galactopyranoside: ***2-O-α-D-Galactopyranosyl-1-deoxynojirimycin***
[155168-05-1]
$C_{12}H_{23}NO_9$ 325.315
From leaves of *Morus bombycis* and from *Morus alba* (white mulberry). Powder. $[\alpha]_D$ +118.8 (c, 0.1 in H_2O).

1′-O-β-D-Glucopyranoside: ***6-O-β-D-Glucopyranosyl-1-deoxynojirimycin***
[156714-96-4]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry). Powder.

3-O-α-D-Glucopyranoside: ***4-O-α-D-Glucopyranosyl-1-deoxynojirimycin****. 4-O-α-D-Glucopyranosylmoranoline*
[80312-32-9]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry). Needles (H_2O).
Mp 189-192°. $[\alpha]_D^{24}$ +128.6 (c, 1 in H_2O).

3-O-β-D-Glucopyranoside: ***4-O-β-D-Glucopyranosyl-1-deoxynojirimycin***
[152375-46-7]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry). $[\alpha]_D$ +25 (c, 0.42 in H_2O).

4-O-α-D-Glucopyranoside: ***3-O-α-D-Glucopyranosyl-1-deoxynojirimycin***
[156714-94-2]
[150447-77-1]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry) and *Scilla sibirica*.
$[\alpha]_D$ +137.5 (c, 0.52 in H_2O).

4-O-β-D-Glucopyranoside: ***3-O-β-D-Glucopyranosyl-1-deoxynojirimycin***
[143900-42-9]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry). Powder. $[\alpha]_D$ +18.1 (c, 0.74 in H_2O).

5-O-α-D-Glucopyranoside: ***2-O-α-D-Glucopyranosyl-1-deoxynojirimycin***
[156714-93-1]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry). $[\alpha]_D$ +127.6 (c, 0.61 in H_2O).

5-O-β-D-Glucopyranoside: ***2-O-β-D-Glucopyranosyl-1-deoxynojirimycin***
[156714-95-3]
$C_{12}H_{23}NO_9$ 325.315
Alkaloid from *Morus alba* (white mulberry).
$[\alpha]_D$ -0.8 (c, 0.51 in H_2O).

N-*Me: 1,5-Dideoxy-1,5-(methylimino)-D-glucitol, 9CI.* **N-*Methyl-1-deoxynojirimycin*.** N-*Methylmoranoline*
[69567-10-8]
$C_7H_{15}NO_4$ 177.2
Alkaloid from *Morus alba* (white mulberry) and *Morus bombycis*. Isol. from a *Streptomyces* sp. Cryst. (EtOH).
Mp 141-142°. $[\alpha]_D^{24}$ +15.5 (H_2O).

N-*Butyl:* N-*Butyldeoxynojirimycin*. ***Miglustat, BAN, INN, USAN****. Vevesca. Zavesca. Butyl-DNJ. OXAIDS. OGT 918. SC 48334*
[72599-27-0]
$C_{10}H_{21}NO_4$ 219.28
In clinical trials (1989). Approved by FDA (Aug 2003) for the treatment of type 1 Gaucher's disease
Ceramide-specific glucosyltransferase inhibitor. Inhibits biosynthesis of glucosphingolipids. Antiviral activity, of potential use against HIV infections. A substrate balance (deprivation) therapy for the treatment of Gaucher's disease and other lysosomal storage disorders.
Log P -0.4 (calc).

(2*R*,3*R*,4*S*,5*R*)-*form*
1,5-Dideoxy-1,5-imino-D-altritol. 1-Deoxy-D-altronojirimycin
[135395-59-4]
Alkaloid from the bark of *Angylocalyx pynaertii* and the bulbs of *Scilla sibirica*.
Mp 175°. $[\alpha]_D^{20}$ -30.7 (c, 0.13 in MeOH) (synthetic). $[\alpha]_D$ +19.1 (c, 0.74 in H_2O) (natural).

(2*R*,3*S*,4*R*,5*R*)-*form*
1,5-Dideoxy-1,5-imino-D-talitol. 1-Deoxy-D-talonojirimycin
[143406-74-0]
Mp 150-151°. $[\alpha]_D^{20}$ +30.4 (c, 0.3 in EtOH). $[\alpha]_D^{23}$ -22.4 (c, 1.6 in MeOH).

(2*R*,3*S*,4*R*,5*S*)-*form*
1,5-Dideoxy-1,5-imino-D-galactitol. 1-Deoxy-D-galactonojirimycin. 1-Deoxy-D-galactostatin
[108147-54-2]
Irregular prisms (EtOH aq.) (as hydrochloride). Mp 240-241.5° dec. (hydrochloride). $[\alpha]_D^{23}$ +52.8 (c, 1 in H_2O). $[\alpha]_D$ +61.3 (c, 0.4 in H_2O).

(2*R*,3*S*,4*S*,5*S*)-*form*
1-Deoxy-D-gulonojirimycin
[254104-05-7]
Mp 148-148.6°. $[\alpha]_D^{20}$ -16.2 (c, 0.3 in EtOH).

(2*R*,3*S*,4*S*,5*R*)-*form*
1,5-Dideoxy-1,5-imino-D-iditol. 1-Deoxy-D-idonojirimycin
Cryst. (MeOH/Et_2O). Mp 137-139°. $[\alpha]_D^{25}$ +28 (c, 0.5 in H_2O).

(2*S*,3*R*,4*R*,5*R*)-*form*
1,5-Dideoxy-1,5-imino-L-gulitol. 1-Deoxy-L-gulonojirimycin
[84518-54-7]
Alkaloid from the bark of *Angylocalyx pynaertii*.
Oil. $[\alpha]_D^{21}$ +8.8 (c, 0.25 in H_2O) (synthetic). $[\alpha]_D$ +14 (c, 0.56 in H_2O) (natural). Abs. config. of natural product was revised in 2005.

(2*S*,3*R*,4*R*,5*S*)-*form*
1,5-Dideoxy-1,5-imino-L-iditol. 1-Deoxy-L-idonojirimycin
[16647-80-6]
Cryst. (MeOH/Et_2O). Mp 137-139°. $[\alpha]_D^{25}$ -27 (c, 0.33 in H_2O).

Hydrochloride: [210223-32-8]
Cryst. (MeOH aq.). $[\alpha]_D^{20}$ +32.3 (c, 1.0 in H_2O).

(2*S*,3*R*,4*S*,5*R*)-*form*
1,5-Dideoxy-1,5-imino-L-galactitol
[126663-71-6]
$[\alpha]_D^{20}$ -48.3 (c, 1.06 in H_2O).

Hydrochloride: [126663-84-1]
Mp 225-230°. $[\alpha]_D^{20}$ -54.1 (c, 1.0 in H_2O).

(2*S*,3*S*,4*R*,5*S*)-*form*
1,5-Dideoxy-1,5-imino-L-altritol. ***1-Deoxy-L-altronojirimycin***
[188779-13-7]
Oil. $[\alpha]_D$ -7 (c, 0.4 in MeOH). $[\alpha]_D^{20}$ -34.6 (c, 0.3 in H_2O).

(2*S*,3*S*,4*S*,5*R*)-*form*
1,5-Dideoxy-1,5-imino-L-glucitol
[146747-37-7]
Mp 193-195°. $[\alpha]_D^{25}$ -46 (c, 0.3 in H_2O).

(2*S*,3*S*,4*S*,5*S*)-*form*
1,5-Dideoxy-1,5-imino-L-mannitol
[117821-07-5]
$[\alpha]_D^{22}$ +26.6 (H_2O).

Hydrochloride: [118464-54-3]
Mp 184-186°. $[\alpha]_D^{20}$ +12.6 (H_2O).

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Murao, S. *et al., Agric. Biol. Chem.*, 1980, **44**, 219 (*isol*)
Legler, G. *et al., Carbohydr. Res.*, 1984, **61**, 128 (*Deoxymannojirimycin, synth*)
Bernotas, R.C. *et al., Tet. Lett.*, 1984, **25**, 165; 1985, **26**, 1123 (*Deoxymannojirimycin*)
Ezure, Y. *et al., Agric. Biol. Chem.*, 1985, **49**, 2159-2165 (*4-Glucosyl-1-deoxynojirimycin, synth*)
Fleet, G.W.J. *et al., Tet. Lett.*, 1985, **26**, 1469; 1988, **29**, 2817 (*D-manno, L-manno, synth*)
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Ziegler, T. *et al., Angew. Chem., Int. Ed.*, 1988, **27**, 716 (*Deoxymannojirimycin*)
Paulsen, H. *et al., Annalen*, 1988, 1121 (*synth, L-galacto*)
Fleet, G.W.J. *et al., FEBS Lett.*, 1988, **237**, 128 (*N-butyl, synth*)
Ezure, Y. *et al., J. Antibiot.*, 1988, **41**, 1142 (*Deoxymannojirimycin, isol*)
Cole, M.D. *et al., J. Chromatogr.*, 1988, **445**, 295 (*hplc*)
Karpas, A. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1988, **85**, 9229 (*pharmacol, N-butyl*)
Furumoto, T. *et al., J. Antibiot.*, 1989, **42**, 1302 (*Deoxymannojirimycin*)
Von der Ostern, C.H. *et al., J.A.C.S.*, 1989, **111**, 3924 (*enzymatic synth*)
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Ermert, P. *et al., Helv. Chim. Acta*, 1991, **74**, 2043 (*Moranoline, synth*)
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Chida, N. *et al., Carbohydr. Res.*, 1992, **237**, 185 (*Deoxynojirimycin, synth*)
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Hardick, D.J. *et al., Tetrahedron*, 1992, **48**, 6285 (*biosynth*)
Oshiro, Y. *et al., Toxicol. Lett.*, 1992, **60**, 275 (*N-butyl, tox*)
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Fowler, P.A. *et al., Carbohydr. Res.*, 1993, **246**, 377 (*L-ido*)
Hempel, A. *et al., J. Med. Chem.*, 1993, **36**, 4082 (*Deoxynojirimycin, cryst struct*)
Asano, N. *et al., Carbohydr. Res.*, 1994, **253**, 235-245; **259**, 243-255 (*N-Methyl-1-deoxynojirimycin, glycosides, 2-O-α-D-Galactopyranosyl-1-deoxynojirimycin*)
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Hughes, A.B. *et al., Nat. Prod. Rep.*, 1994, **11**, 135 (*rev, Moranoline*)
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Ikota, N. *et al., Heterocycles*, 1997, **46**, 637-643 (*synth, Moraniline*)
Xu, J.-M. *et al., J.C.S. Perkin 1*, 1997, 741-746
Schaller, C. *et al., Carbohydr. Res.*, 1998, **314**, 25-35 (*D-gluco, L-gluco, D-ido, L-ido*)
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McCormack, P.L. *et al., Drugs*, 2003, **63**, 2427-2434 (*miglustat, rev*)
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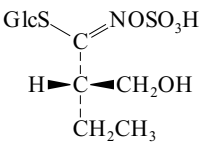
Somfai, P. *et al., Tetrahedron*, 2003, **59**, 1293-1299 (*Deoxynojirimycin, synth*)
Pyun, S.-J. *et al., Heterocycles*, 2004, **62**, 333-341 (*Deoxygalactonojirimycin, synth*)
Amat, M. *et al., Tet. Lett.*, 2004, **45**, 5355-5358 (*D-gulo-form, synth*)
Pyun, S.-J. *et al., Tetrahedron*, 2005, **61**, 1413-1416 (*Deoxygulonojirimycin, synth, abs cofig*)

1-[(Hydroxymethyl)propyl] glucosinolate H-176

1-Thio-β-D-glucopyranose 1-[2-(hydroxymethyl)-N-*(sulfooxy)butanimidate], 9CI.* ***Glucosisaustricin***

[74542-15-7]



$C_{11}H_{21}NO_{10}S_2$ 391.42

Present in seeds of *Sisymbrium austriacum*.

O-*Benzoyl: 1-[(Benzoyloxymethyl)propyl] glucosinolate.* ***Glucobenzsisaustricin***

$C_{18}H_{25}NO_{11}S_2$ 495.528

Present in seeds of *Sisymbrium austriacum*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1962, **16**, 71; 83 (*isol, struct*)

2-Hydroxy-2-methylpropyl glucosinolate H-177

1-Thio-β-D-glucopyranose 1-[3-hydroxy-3-methyl-N-*(sulfooxy)butanimidate].* ***Glucoconringiin***

[28463-28-7]

$(H_3C)_2C(OH)CH_2C(SGlc){=}NOSO_3H$

$C_{11}H_{21}NO_{10}S_2$ 391.42

Isol. from *Conringia orientalis* (hare's ear mustard), *Cochlearia* sp. and *Reseda alba*.

Needles (EtOH aq.) (as K salt).

Mp 168° dec. (K salt). $[\alpha]_D^{21}$ -10.87 (c, 3.68 in H_2O).

Tetra-Ac:

Needles (EtOH aq.) (as K salt). Mp 152° dec. (K salt). $[\alpha]_D^{24}$ -5.3 (c, 5.3 in H_2O).

[73519-00-3]

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 432 (*isol*)
Gmelin, R. *et al., Acta Chem. Scand.*, 1959, **13**, 1718 (*isol*)
Gmelin, R. *et al., Phytochemistry*, 1970, **9**, 599 (*isol*)
Underhill, E.W. *et al., Phytochemistry*, 1972, **11**, 2085 (*biosynth*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)

3-Hydroxy-2-methyl-4*H*-pyran-4-one, 9CI H-178

3-Hydroxy-2-methyl-γ-pyrone. ***Maltol.*** *Laricin†. Laricinic acid. Larixinic acid. Veltol. FEMA 2656*

[118-71-8]

$C_6H_6O_3$ 126.112

Produced by alkaline hydrol. of Streptomycin, S-83. Found in larch trees (*Larix decidua*), pine needles, chicory. Also from ferns *Arachniodes maximowiczii* and *Macrothelypteris torresiana*. Used as metal indicator (e.g. for Fe(*III*)). Flavour enhancer and flavouring agent, used in foods and pharmaceutical formulations. Needles or prisms (toluene or $CHCl_3$) with odour of caramel/butterscotch. Mod. sol. H_2O; sol. EtOH.

Mp 161-162°. λ_{max} 318 (MeOH) (Berdy). λ_{max} 274 (ε 8400) (HCl) (Berdy). λ_{max} 317 (ε 7300) (NaOH) (Berdy).

▶ Skin irritant. LD_{50} (rat, orl) 2330 mg/kg. UQ1050000

O-*β-D-Glucopyranoside:* ***Dianthoside.*** *Maltol glucoside*

[20847-13-6]

$C_{12}H_{16}O_8$ 288.254

Isol. from *Dianthus* sp. and other plants, e.g. from ferns *Arachniodes maximowiczii, Macrothelypteris torresiana, Parathelypteris* spp. *Metathelypteris laxa*. Cryst. (EtOH/EtOAc).

Mp 132°. $[\alpha]_D$ -52.8 (H_2O).

O-*(6-O-Acetyl-β-D-glucopyranoside):*

$C_{14}H_{18}O_9$ 330.291

Constit. of *Prangos pabularia*.

$[\alpha]_D^{25}$ -31.9 (c, 0.27 in MeOH). λ_{max} 216 (log ε 3.8); 256 (log ε 3.8); 324 (log ε 3) (MeOH).

O-*[3-Methylbutanoyl-(→6)-β-D-glucopyranoside]:*

$C_{17}H_{24}O_9$ 372.371

Constit. of *Prangos tschimganica*. Oil.

$[\alpha]_D^{25}$ -19.2 (c, 0.5 in MeOH). λ_{max} 256 (log ε 4.7) (MeOH).

O-*[3,4,5-Trihydroxybenzoyl-(→6)-β-D-glucopyranoside]:*

$C_{19}H_{20}O_{12}$ 440.36

Constit. of the leaves of *Gordonia axillaris*. Off-white amorph. powder.

O-*[4-Hydroxycinnamoyl-(→6)-β-D-glucopyranoside]:* ***Innovanoside.*** *Evodiopanax*

[28876-17-7]

$C_{21}H_{22}O_{10}$ 434.399

Constit. of the leaves of *Erodiopanax innovans*.

Mp 122-128°. $[\alpha]_D^{15}$ -132 (c, 1.1 in MeOH).

O-*[3,4-Dihydroxy*-E-*cinnamoyl-(→6)-β-D-glucopyranoside]:*

$C_{21}H_{22}O_{11}$ 450.398

Constit. of *Prangos tschimganica*. Pale yellow oil. $[\alpha]_D^{25}$ -57 (c, 1 in MeOH). λ_{max} 250 (log ε 4.6); 301 (log ε 4.5); 329 (log ε 4.6) (MeOH).

O-*[4-Hydroxy-3-methoxy*-E-*cinnamoyl-(→6)-β-D-glucopyranoside]:*

$C_{22}H_{24}O_{11}$ 464.425

Constit. of *Prangos tschimganica*. Pale yellow oil. $[\alpha]_D^{25}$ -75 (c, 1.2 in MeOH). λ_{max} 246 (log ϵ 4.6); 300 (log ϵ 4.5); 326 (log ϵ 4.6) (MeOH).

O-*[4-Hydroxy-3-methoxy-Z-cinnamoyl-(→6)-β-D-glucopyranoside]:*
$C_{22}H_{24}O_{11}$ 464.425
Constit. of *Prangos tschimganica*. Pale yellow oil. $[\alpha]_D^{25}$ -62 (c, 0.7 in MeOH). λ_{max} 247 (log ϵ 4.6); 299 (log ϵ 4.5); 326 (log ϵ 4.6) (MeOH).

O-*[4-Carboxy-3-hydroxy-3-methylbutanoyl-(→6)-β-D-glucopyranoside]:* ***Licoagroside B***
$C_{18}H_{24}O_{12}$ 432.38
Isol. from hairy root cultures of *Glycyrrhiza glabra* (licorice). Powder. $[\alpha]_D^{24}$ -61.4 (c, 0.6 in MeOH). λ_{max} 210 (log ϵ 4.04); 254 (log ϵ 4.07) (MeOH).

Propanoyl: Maltol propionate. FEMA 3941
[68555-63-5]
$C_9H_{10}O_4$ 182.176
Flavouring agent.

*2-Methylpropanoyl: 2-Methyl-4-oxo-4*H*-pyran-3-yl 2-methylpropanoate, 10CI. Maltol isobutyrate. FEMA 3462*
[65416-14-0]
$C_{10}H_{12}O_4$ 196.202
Flavouring ingredient. Liq. with sweet, strawberry-like flavour. $Bp_{0.01}$ 100°. Poorly documented.

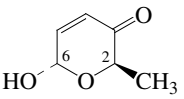
Benzoyl:
$C_{13}H_{10}O_4$ 230.22
Needles (EtOH aq.). Mp 115-116°.

Benzyl ether:
$C_{13}H_{12}O_3$ 216.236
Needles (Et_2O). Mp 56-57°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 457A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 724A (*nmr*)
Spielman, M.A. *et al., J.A.C.S.*, 1947, **69**, 2908 (*synth*)
Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1964, **258**, 1099 (*Dianthoside*)
Shimizu, Y. *et al., Agric. Biol. Chem.*, 1970, **34**, 845 (*isol, ir, ms*)
Yasue, M. *et al., Chem. Pharm. Bull.*, 1970, **18**, 856 (*Innovanoside*)
Food Chemicals Codex, 2nd Ed., 1972, 487 (*anal*)
Bishop, E. *et al., Indicators*, Pergamon, Oxford, 1972,
Chawla, R.K. *et al., J.O.C.*, 1974, **39**, 3281 (*synth, ir, pmr*)
Opdyke, D.L.J. *et al., Food Cosmet. Toxicol.*, 1975, **13**, 841 (*rev, tox*)
Torri, S. *et al., Chem. Lett.*, 1976, 495 (*synth*)
Shono, T. *et al., Tet. Lett.*, 1976, 1363 (*synth*)
Looker, J.H. *et al., J. Carbohydr. Chem.*, 1985, **4**, 38 (*synth, pmr, cmr, Dianthoside*)
Tanaka, N. *et al., Chem. Pharm. Bull.*, 1986, **34**, 1015 (*isol*)
Arnarp, J. *et al., Acta Chem. Scand.*, 1990, **44**, 916 (*ms*)
Geordiadis, M. *et al., Org. Prep. Proced. Int.*, 1992, **24**, 95 (***synth***)
Chang, C. *et al., Chem. Pharm. Bull.*, 1994, **42**, 1922 (*6-galloylglucoside*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 292-293
Fenaroli's Handbook of Flavor Ingredients, 3rd edn., (ed. Burdock, G.A.), CRC Press, 1995, **2**, 440
Burgess, J. *et al., Acta Cryst. C*, 1996, **52**, 2917 (*cryst struct*)
Atta-ur-Rahman, *et al., J. Nat. Prod.*, 1997, **60**, 472 (*isol, cryst struct*)
Rai, B.L. *et al., J. Med. Chem.*, 1998, **41**, 3347-3359 (*benzyl ether*)
Li, W. *et al., Phytochemistry*, 2000, **55**, 447-456 (*Licoagroside B*)
Shikishima, Y. *et al., Phytochemistry*, 2001, **57**, 135-141 (*Prangos acylglucosides*)
Tada, Y. *et al., Phytochemistry*, 2002, **59**, 649-654 (*6-Acetylglucoside*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MAO350

6-Hydroxy-2-methyl-2*H*-pyran-3(6*H*)-one, 9CI, 8CI H-179

2,6-Dihydro-6-hydroxy-2-methyl-3-pyranone. 2,3,6-Trideoxyhex-2-enos-4-ulose. 2,3,6-Trideoxy-glycero-*hex-2-enopyranos-4-ulose. Aculose*
[41728-14-7]



(2*R*,6*S*)-*form*

$C_6H_8O_3$ 128.127
Aliphatic numbering shown. If named as a sugar, 2 becomes 5 and 6 becomes 1. The parent compd. is a sugar capable of showing anomeric equilibration at C-6.

(2*R*)-*form*
D-*form*
$[\alpha]_D^{25}$ -44.9 (c, 1.4 in $CHCl_3$).

(2*S*)-*form*
L-*form*
Component of the aglycones of Vineomycin A_1, Vineomycin B_2, V-20 and Aclacinomycin Y.
Cryst. (Et_2O).
Mp 62-65° (59-60°). $[\alpha]_D^{23}$ +62 (c, 1.05 in $CHCl_3$). λ_{max} 215 (ϵ 6995) (EtOH).

(2*R*,6*S*)-*form*
α-D-*form*
[33647-76-6]
*Me ether: 6-Methoxy-2-methyl-2*H*-pyran-3(6*H*)-one. Methyl α-D-aculoside*
[33647-82-4]
$C_7H_{10}O_3$ 142.154
Mp 48°. $[\alpha]_D^{20}$ +19.8 (c, 2 in MeOH).

(2*S*,6*R*)-*form*
α-L-*form*
[138809-74-2]
Me ether: Methyl α-L-aculoside
[55102-46-0]
$C_7H_{10}O_3$ 142.154
Cryst. (hexane). Mp 50-52° (40-45°). $[\alpha]_D^{24}$ -16.6 ($CHCl_3$). $[\alpha]_D^{20}$ -18 (c, 2.3 in MeOH).

(2*S*,6*S*)-*form*
β-L-*form*
Me ether: Methyl β-L-aculoside
$C_7H_{10}O_3$ 142.154
Oil. Bp_{17} 78-80°. $[\alpha]_D^{20}$ +49.5 (c, 1.7 in $CHCl_3$).

(2*RS*,6*RS*)-*form*
(±)-cis-*form*. β-DL-*form*
[137693-70-0]
Oil. Not obt. pure.
Ac: [89824-88-4]
$C_8H_{10}O_4$ 170.165
Cryst. (Et_2O/hexane). Mp 26-28°.

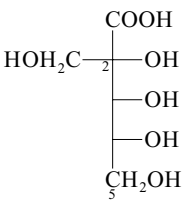
(2*RS*,6*SR*)-*form*
(±)-trans-*form*
[137693-69-7]
Needles (Et_2O/hexane). Mp 62-63°. $Bp_{0.35}$ 120°.
Ac: [86707-88-2]
Cryst. (Et_2O/hexane). Mp 36-37°.

[41728-10-3, 71049-76-8, 71049-77-9, 89575-95-1, 89575-96-2, 97372-42-4, 116502-24-0]

Achmatowicz, O. *et al., Tetrahedron*, 1971, **27**, 1973-1996 (*synth*)
Koga, K. *et al., Carbohydr. Res.*, 1974, **36**, C9-C11 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 2127-2145 (*Me glycosides, synth, pmr*)
Ohzeki, M. *et al., Chem. Pharm. Bull.*, 1977, **25**, 2676-2680 (*synth, pmr*)
Achmatowicz, O. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1979, **53**, 265-276 (*Me glycosides, cmr*)
Ohta, K. *et al., Chem. Pharm. Bull.*, 1984, **32**, 4350-4359 (*isol, pmr, uv, bibl*)
Sammes, P.G. *et al., Chem. Comm.*, 1985, 352-353 (*Me glycosides, 2S-form, synth*)
Constantinou-Kokotou, V. *et al., J. Carbohydr. Chem.*, 1991, **10**, 749-756 (*synth*)
Georgiadis, M.P. *et al., J. Het. Chem.*, 1991, **28**, 1325-1337 (*synth, pmr*)

2-*C*-(Hydroxymethyl)ribonic acid, 9CI H-180

2-Carboxyarabinitol. Hamamelonic acid



D–*form*

$C_6H_{12}O_7$ 196.157

D-*form* [469-09-0]
Constit. of numerous plant spp.
Needles (MeOH aq.) (as NH_4 salt). Mp 152° (NH_4 salt). $[\alpha]_D$ -3.9 (c, 10 in H_2O).
5-O-Phosphate: [112160-91-5]
$C_6H_{13}O_{10}P$ 276.136
Isol. from the leaves of *Phaseolus vulgaris* (kidney bean). Inhibitor of ribulose 1,5-bisphosphate carboxylase.

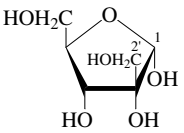
L-*form*
Needles (MeOH aq.) (as NH_4 salt). Mp 151-152° (NH_4 salt). $[\alpha]_D$ +4.8 (c, 1.2 in 1*M* NH_4OH).
γ-Lactone:
$C_6H_{10}O_6$ 178.141
Plates (MeCN/$CHCl_3$). Mp 88-89°. $[\alpha]_D$ -74 (c, 2.1 in H_2O).
γ-Lactone, tetra-Ac:
$C_{14}H_{18}O_{10}$ 346.29
Cryst. (EtOH). Mp 103-104°. $[\alpha]_D$ -102 (c, 1.6 in $CHCl_3$).

[98587-21-4, 122907-93-1]

Ferrier, R.J. *et al., J.C.S.*, 1962, 3544 (*synth*)
Burton, J.S. *et al., J.C.S.*, 1965, 3433 (*synth*)
Thanbichler, A. *et al., Z. Naturforsch., B*, 1971, **26**, 912 (*synth*)
Gutteridge, S. *et al., Biochem. J.*, 1989, **260**, 711 (*synth*)
Beck, E. *et al., Plant Physiol.*, 1989, **90**, 13 (*pmr, cmr*)
Moore, B.D. *et al., Phytochemistry*, 1993, **34**, 703 (*occur*)

2-*C*-Hydroxymethylribose H-181

Hamamelose



α-D-Furanose-*form*

$C_6H_{12}O_6$ 180.157

D-*form* [4573-78-8]
Cryst. (MeOH). Mp 110-111°. $[\alpha]_D^{21}$ +7.7 → -7 (H_2O).

4-Nitrophenylhydrazone:
Yellow needles (EtOH). Mp 161-163°.

4-Methylbenzenesulfonylhydrazone:
Cryst. (MeOH). Mp 146-147°. $[\alpha]_D^{21}$ +90 → +52 (c, 0.7 in Py).

D-Pyranose-*form*

*2′,4-Bis(3,4,5-trihydroxybenzoyl): 2′,4-Di-*O*-galloyl-D-hamamelopyranose*
$C_{20}H_{20}O_{14}$ 484.37
Constit. of *Hamamelis virginiana* (Hamamelidaceae). Config. of anomeric centre undetermined.

β-D-Pyranose-*form*

*Me glycoside: Methyl 2-*C*-hydroxymethyl-β-D-ribopyranoside*
[4175-93-3]
$C_7H_{14}O_6$ 194.184
Prisms (EtOH). Mp 131-133°. $Bp_{0.001}$ 120°. $[\alpha]_D$ -148 (c, 1.0 in H_2O).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 2-*C*-hydroxymethyl-3,4-*O*-isopropylidene-β-D-ribopyranoside*
$C_{10}H_{18}O_6$ 234.249
Syrup. $[\alpha]_D^{24}$ -149.3 (c, 1.0 in MeOH).

D-Furanose-*form*

*5-*O*-(3,4,5-Trihydroxybenzoyl): 5-*O*-Galloylhamamelofuranose*
[90275-97-1]
$C_{13}H_{16}O_{10}$ 332.263
Isol. from *Castanea crenata* (Japanese chestnut). Amorph. powder. $[\alpha]_D^{19}$ +19.9 (c, 1.0 in H_2O). Exists as an equilibrated mixt. of α- and β-anomers.

*1,2′-Bis(3,4,5-trihydroxybenzoyl): 1,2′-Di-*O*-galloylhamamelofuranose*
[90275-98-2]
$C_{20}H_{20}O_{14}$ 484.37
Isol. from the bark of *Castanea crenata* (Japanese chestnut). Needles + H_2O (H_2O).
Mp 216°. $[\alpha]_D^{27}$ -26.1 (c, 1.0 in Me_2CO aq.). The configuration of the anomeric centre unknown.

*1,2′,5-Tris(3,4,5-trihydroxybenzoyl): 1,2′,5-Tri-*O*-galloylhamamelofuranose*
[90275-99-3]
$C_{27}H_{24}O_{18}$ 636.476
Isol. from the bark of *Castanea crenata* (Japanese chestnut). Needles + $^3/_2H_2O$ (H_2O).
Mp 230°. $[\alpha]_D^{20}$ -60 (c, 0.9 in Me_2CO aq.). Config. of the anomeric centre unknown.

*2,2′,5-Tris(3,4,5-trihydroxybenzoyl): 2,2′,5-Tri-*O*-galloylhamamelofuranose.* ***Kurigalin***
[91573-80-7]
$C_{27}H_{24}O_{18}$ 636.476
A gallotannin isol. from the bark of *Castanea crenata* (Japanese chestnut). Amorph. powder + $2^1/_2H_2O$. $[\alpha]_D^{21}$ +26.3 (c, 1.30 in H_2O). Exists as an equilibrated mixt. of α- and β-anomers.

*2′,3,5-Tris(3,4,5-trihydroxybenzoyl): 2′,3,5-Tri-*O*-galloylhamamelofuranose.* ***3-O-Galloylhamamelitannin***
[86588-94-5]
$C_{27}H_{24}O_{18}$ 636.476
Isol. from *Castanea crenata* (Japanese chestnut), *Sanguisorba officinalis* (burnet bloodwort) and *Cercidiphyllum japonicum*. Needles +H_2O (H_2O).
Mp 209-210°. $[\alpha]_D^{23}$ +38.8 (c, 0.79 in Me_2CO aq.). Exists as an equilibrated mixt. of α- and β-anomers.

*1,2′,3,5-Tetrakis(3,4,5-trihydroxybenzoyl): 1,2′,3,5-Tetra-*O*-galloylhamamelofuranose*
[90276-00-9]
$C_{34}H_{28}O_{22}$ 788.582
Isol. from the bark of *Castanea crenata* (Japanese chestnut). Needles + $^3/_2H_2O$ (H_2O).
Mp 290°. $[\alpha]_D^{22}$ -47.7 (c, 0.45 in Me_2CO aq.). Config. of the anomeric centre unknown.

*2,3-Isopropylidene: 2-*C*-(Hydroxymethyl)-2,3-*O*-isopropylidene-D-ribofuranose*
[68124-02-7]
$C_9H_{16}O_6$ 220.222
$[\alpha]_D$ +9.3 (c, 3.0 in H_2O).

*2,3-Isopropylidene, 2′,5-dibenzoyl: 2-*C*-(Benzoyloxymethyl)-5-*O*-benzoyl-2,3-*O*-isopropylidene-D-ribofuranose*
[70147-42-1]
$C_{23}H_{24}O_8$ 428.438
Cryst. (Et_2O). Mp 116°. $[\alpha]_D$ -2.5 (c, 2.2 in $CHCl_3$).

*2,3-Isopropylidene, 2′,5-ditosyl: 2,3-Isopropylidene-5-*O*-tosyl-2-*C*-[(tosyloxy)-methyl]-D-ribofuranose*
[110808-30-5]
$C_{23}H_{28}O_{10}S_2$ 528.6
Syrup. $[\alpha]_D^{21}$ +30.8 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

*2′,3,5-Tris(3,4,5-trihydroxybenzoyl): 2′,3,5-Tri-*O*-galloyl-α-D-hamamelofuranose*
$C_{27}H_{24}O_{18}$ 636.476
Constit. of *Hamamelis virginiana* (Hamamelidaceae).

4-Hydroxybenzoyl glycoside, 2′,3,5-tris(3,4,5-trihydroxybenzoyl):
$C_{34}H_{28}O_{20}$ 756.583
Constit. of *Hamamelis virginiana* (Hamamelidaceae).

β-D-Furanose-*form*

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 2-*C*-hydroxymethyl-2,3-*O*-isopropylidene-β-D-ribofuranoside*
$C_{10}H_{18}O_6$ 234.249
Cryst. (C_6H_6). Mp 117-120°. $[\alpha]_D$ -61 (c, 0.6 in $CHCl_3$).

2′,5-Bis(3,4,5-trihydroxybenzoyl): 2′,5-Di-galloylhamamelofuranose. ***Hamamelitannin***
[469-32-9]
$C_{20}H_{20}O_{14}$ 484.37
Tannin from witch hazel *Hamamelis virginiana*. Also in *Quercus rubra* and *Castanea sativa* (sweet chestnut). Prisms or needles + $^1/_2H_2O$ (H_2O).
Mp 146-147°. $[\alpha]_D^{19}$ +33 (c, 1.24 in H_2O).

4-Hydroxybenzoyl glycoside, 2′,3,5-tris(3,4,5-trihydroxybenzoyl):
$C_{34}H_{28}O_{20}$ 756.583
Constit. of *Hamamelis virginiana* (Hamamelidaceae).

L-*form*

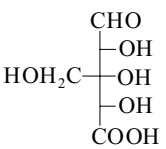
Mp 108-109°. $[\alpha]_D^{22}$ +1.3 → +7.1 (c, 2.0 in H_2O).

*4-Nitrophenylhydrazone:*Mp 163-164°. $[\alpha]_D^{22}$ -145 (c, 0.29 in Py).

*4-Methylbenzenesulfonylhydrazone:*Mp 155-156°. $[\alpha]_D^{22}$ -78.1 (c, 0.3 in Py).

Shafizadeh, F. *et al., Adv. Carbohydr. Chem.*, 1956, **11**, 263 (*rev*)
Foster, A.B. *et al., J.C.S.*, 1964, 948 (*D-form, config, β-D-Me fur isopropylidene*)
Mayer, W. *et al., Annalen*, 1965, **688**, 232 (*struct, Hamamelitannin*)
Burton, J.S. *et al., J.C.S.*, 1965, 3433 (*L-form, synth*)
Overend, W.G. *et al., J.C.S.*, 1965, 3446, (*D-form, synth*)
van Scherpenberg, H. *et al., CA*, 1966, **64**, 20207 (*isol, biosynth*)
Ezekiel, A.D. *et al., Carbohydr. Res.*, 1969, **11**, 233 (*synth, Hamamelitannin*)
Paulsen, H. *et al., Chem. Ber.*, 1972, **105**, 1978 (*D-form, synth*)
Gilck, H. *et al., Carbohydr. Res.*, 1975, **39**, 160 (*D-form, isol*)
Schilling, G. *et al., Annalen*, 1977, 1475 (*pmr*)
Ho, P.T. *et al., Tet. Lett.*, 1978, 1623 (*2,3-isopropylidene*)
Ho, P.T. *et al., Can. J. Chem.*, 1979, **57**, 384 (*2,3-isopropylidene dibenzoyl*)
Ozawa, T. *et al., Agric. Biol. Chem.*, 1984, **48**, 1411 (*Kurigalin*)
Nonaka, G. *et al., Chem. Pharm. Bull.*, 1984, **32**, 483 (*gallates*)
Ohrui, H. *et al., Agric. Biol. Chem.*, 1987, **51**, 81 (*2,3-isopropylidene ditosyl*)
Haberland, C. *et al., Phytochemistry*, 1994, **60**, 464 (*gallates*)
Hartisch, C. *et al., Phytochemistry*, 1996, **42**, 191 (*gallates*)
Hricoviniová-Bilicová, Z. *et al., Carbohydr. Res.*, 1999, **319**, 38-46 (*D-form, synth*)

3-*C*-Hydroxymethylriburonic acid H-182



$C_6H_{10}O_7$ 194.141

D-*form* [53766-67-9]
Syrup. $[\alpha]_D^{20}$ -28 (c, 5 in H_2O).

α-D-Furanose-*form*

1,2-O-Isopropylidene, 5,3′-lactone:
[52562-65-9]
(Et_2O/pentane). Mp 134°. $[\alpha]_D^{20}$ +57 (c, 1.0 in $CHCl_3$).

Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 3020

3-Hydroxy-6-(methylthio)hexyl glucosinolate H-183

$MeSCH_2CH_2CH_2CH(OH)CH_2CH_2C(S\text{-}Glc)=NOSO_3H$

$C_{14}H_{27}NO_{10}S_3$ 465.566
Present in seeds of *Erysimum rhaeticum*.

S-*Oxide: 3-Hydroxy-6-(methylsulfinyl)-hexyl glucosinolate*
$C_{14}H_{27}NO_{11}S_3$ 481.565
Constit. of *Erysimum rhaeticum*.

S,S-*Dioxide: 3-Hydroxy-6-(methylsulfonyl)hexyl glucosinolate*
$C_{14}H_{27}NO_{12}S_3$ 497.565
Constit. of *Erysimum rhaeticum*.

Kjaer, A. *et al., Phytochemistry*, 1973, **12**, 929 (*occur*)
Daxenbichler, M.E. *et al., Phytochemistry*, 1991, **30**, 2623-2628 (*isol*)

3-Hydroxy-5-(methylthio)pentyl glucosinolate H-184

[29611-02-7]

$MeSCH_2CH_2CH(OH)CH_2CH_2C(SGlc)=NOSO_3H$

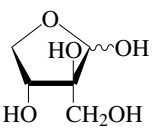
$C_{13}H_{25}NO_{10}S_3$ 451.539
Isol. from seeds of *Erysimum hieracifolium*.

S-*Oxide: 3-Hydroxy-5-(methylsulfinyl)-pentyl glucosinolate*
[29432-54-0]
$C_{13}H_{25}NO_{11}S_3$ 467.539
Isol. from seeds of *Erysimum hieracifolium*.

S,S-*Dioxide: 3-Hydroxy-5-(methylsulfonyl)pentyl glucosinolate*
[29432-55-1]
$C_{13}H_{25}NO_{12}S_3$ 483.538
Isol. from seeds of *Erysimum hieracifolium*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1970, **24**, 1631 (*isol*)

2-*C*-(Hydroxymethyl)threose H-185



D-Furanose-*form*

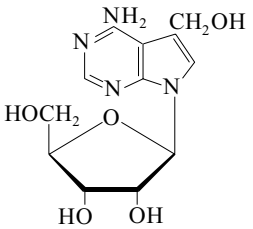
$C_5H_{10}O_5$ 150.131

D-*form* [311806-43-6]
$[\alpha]_D^{20}$ -7.9 (c, 1 in H_2O). Exists mainly in furanose form.

Hricoviniová, Z. *et al., J. Carbohydr. Chem.*, 2000, **19**, 827-836 (*synth, pmr, cmr*)

5-Hydroxymethyltubercidin H-186

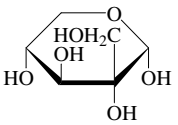
4-Amino-7-β-D-ribofuranosyl-7H-pyrrolo[2,3-d]pyrimidine-5-methanol, 9CI
[49558-38-5]



$C_{12}H_{16}N_4O_5$ 296.282
Cryst. (H_2O). Mp 229-230°.

Uematsu, T. *et al., J. Med. Chem.*, 1973, **16**, 1405 (*synth, props*)
Bergstrom, D.E. *et al., J.O.C.*, 1981, **46**, 1423 (*synth, pmr, cmr*)

2-*C*-(Hydroxymethyl)xylose H-187



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

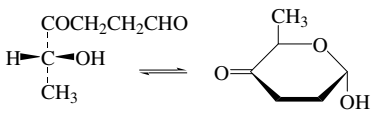
D-*form* [161970-48-5]
The 1999 ref. gives a one-step synth. from Sorbose, S-60, though in only 0.5% yield.
Cryst. (EtOH). Mp 108-110°. $[\alpha]_D$ +29.6 (24h) → +16.5 (c, 1 in H_2O).

2,5-Dichlorophenylhydrazone:
Plates (EtOH). Mp 162-162.5°.
$[\alpha]_D^{22.7}$ -9.75 (c, 4.1 in Py).

Woods, R.J. *et al., Can. J. Chem.*, 1954, **32**, 404-414 (*D-form, synth*)
Yanagihara, R. *et al., Bull. Chem. Soc. Jpn.*, 1995, **68**, 237-242 (*D-form, synth*)
Hricoviniová-Bíliková, Z. *et al., Carbohydr. Res.*, 1999, **319**, 38-46 (*D-form, synth, pmr, cmr*)

5-Hydroxy-4-oxohexanal, 9CI H-188

Cinerulose A. 2,3,6-Trideoxyhexos-1,4-diulose



(*R*)-*form* α-Pyranose-*form*

$C_6H_{10}O_3$ 130.143

(*R*)-*form*
D-glycero-*form*
[33980-83-5]

α-Me glycoside: Methyl 2,3,6-trideoxy-α-D-glycero-hexos-1,4-diulopyranoside
$C_7H_{12}O_3$ 144.17
Syrup. Bp_{16} 80°. $[\alpha]_D^{23}$ -149.9 (c, 1.3 in $CHCl_3$). $[\alpha]_D^{20}$ -232 (c, 0.72 in $CHCl_3$). $[\alpha]_D$ -305.4 ($CHCl_3$). Unstable.

α-Me glycoside, 4-(p-nitrophenylhydrazone):
Yellow needles (EtOH aq.). Mp 158-159°. $[\alpha]_D^{20}$ -198.7 (c, 0.60 in $CHCl_3$).

(*S*)-*form*
Component of Vineomycin A_1.

α-Me glycoside, 4-(p-nitrophenylhydrazone): $[\alpha]_D^{20}$ +347 (c, 0.6 in $CHCl_3$).

Suzuki, T. *et al., Chem. Lett.*, 1973, 789
Bartner, P. *et al., J.C.S. Perkin 1*, 1979, 1600
Ohta, K. *et al., Chem. Pharm. Bull.*, 1984, **32**, 4350 (*pmr, Me gly*)

5-Hydroxypentanal, 9CI H-189

5-Hydroxyvaleraldehyde
[4221-03-8]
$HOCH_2CH_2CH_2CH_2CHO$

$C_5H_{10}O_2$ 102.133
Exists as an equilib. mixt. with Tetrahydro-2*H*-pyran-2-ol, T-30, contg. 95% cyclic form at r.t. Oil. Bp_6 66-67°.

Oxime: [60222-90-4]
$C_5H_{11}NO_2$ 117.147
Mp 92-93°.

Benzoyl: [55162-83-9]
$C_{12}H_{14}O_3$ 206.241
Liq. $Bp_{0.1}$ 100-110°.

2,4-Dinitrophenylhydrazone: Mp 79° Mp 109°.

Di-Me acetal: 5,5-Dimethoxy-1-pentanol
[79898-65-0]
$C_7H_{16}O_3$ 148.202
Oil. Bp_{34} 112-113°.

Triphenylmethyl ether: [258331-72-5]
$C_{24}H_{24}O_2$ 344.452
Cryst. (hexane). Mp 41°.

[61862-52-0, 62042-74-4]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 488C (*nmr*)
Schneipp, L.F. *et al., J.A.C.S.*, 1946, **68**, 1646 (*synth*)
Org. Synth., Coll. Vol., 3, 1955, 470
de Hoog, A.J. *et al., Org. Magn. Reson.*, 1974, **6**, 233 (*cmr*)
Potekhin, A.A. *et al., Zh. Org. Khim.*, 1976, **12**, 2090 (*derivs*)
Boeckman, R.K. *et al., J.A.C.S.*, 1982, **104**, 1033 (*synth, pmr, acetal*)
Vinczer, P. *et al., Org. Prep. Proced. Int.*, 1989, **21**, 344 (***synth***)
Kalaus, G. *et al., Annalen*, 1995, 1245 (*di-Me acetal, benzoyl*)
Angehrn, P. *et al., J. Med. Chem.*, 2004, **47**, 1487-1513 (*trityl ether, pmr*)

2-Hydroxy-4-pentenyl glucosinolate H-190

1-Thio-β-D-glucopyranose 1-[3-hydroxy-N-(sulfooxy)-5-hexenimidate], 9CI.
Gluconapoleiferin
[19764-03-5]
$H_2C=CHCH_2CH(OH)CH_2C(SGlc)=NOSO_3H$

$C_{12}H_{21}NO_{10}S_2$ 403.431
Isol. from *Brassica* seeds.

[107657-50-1]

Tapper, B.A. *et al., Phytochemistry*, 1967, **6**, 749 (*occur*)
Josefsson, E. *et al., Acta Agric. Scand.*, 1968, **18**, 97; *CA*, **69**, 57420r (*isol*)

2-Hydroxypentyl glucosinolate H-191

1-Thio-β-D-glucopyranose 1-[3-hydroxy-N-(sulfooxy)hexanimidate], 9CI

[76265-23-1]

$H_3CCH_2CH_2CH(OH)CH_2C(SGlc)=NOSO_3H$

$C_{12}H_{23}NO_{10}S_2$ 405.446

Present in horseradish (*Armoracia lapathifolia*).

Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)

5-Hydroxypentyl glucosinolate H-192

$HOCH_2(CH_2)_4C(SGlc)=NOSO_3H$

$C_{12}H_{23}NO_{10}S_2$ 405.446

O^5-Benzoyl: 5-Benzoyloxypentyl glucosinolate. 1-[6-(Benzoyloxy)-N-(sulfooxy)-hexanimidate], 9CI

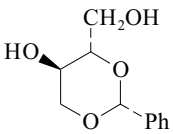
[118609-02-2]

$C_{19}H_{27}NO_{11}S_2$ 509.554

Isol. from *Arabidopsis thaliana*.

Hogge, L.R. *et al., J. Chromatogr. Sci.*, 1988, **26**, 551 (*isol*)

5-Hydroxy-2-phenyl-1,3-dioxane-4-methanol, 9CI H-193



$C_{11}H_{14}O_4$ 210.229

(2R,4S,5R)-form

1,3-O-Benzylidene-L-erythritol

[117122-84-6]

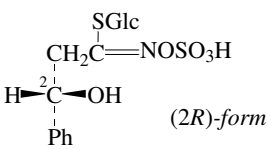
Cryst. (C_6H_6/petrol). Mp 135-137°. $[\alpha]_D$ -14 (c, 0.5 in $CHCl_3$).

Foster, A.B. *et al., J.C.S.*, 1961, 5005 (*synth*)

2-Hydroxy-2-phenylethyl glucosinolate H-194

1-Thio-β-D-glucopyranose 1-[β-hydroxy-N-(sulfooxy)benzenepropanimidate]. β-Hydroxyphenethyl glucosinolate. ***Glucobarbarin***

[30688-64-3]



(2*R*)-*form*

$C_{15}H_{21}NO_{10}S_2$ 439.464

(2R)-form

Constit. of *Barbarea vulgaris* (winter cress).

(2S)-form [37913-31-8]

Constit. of *Reseda luteola* and *Barbarea vulgaris* (winter cress).

2-O-α-L-Arabinopyranoside: 2-(α-L-Arabinopyranosyloxy)-2-phenylethyl glucosinolate

[80754-95-6]

$C_{20}H_{29}NO_{14}S_2$ 571.579

Isol. from *Sesamoides canescens* and *Sesamoides pygmaea*. (*S*)-Config. not certain for this deriv.

[73519-01-4]

Kjaer, A. *et al., Acta Chem. Scand.*, 1957, **11**, 906; 1958, **12**, 1693 (*occur*)

Underhill, E.W. *et al., Phytochemistry*, 1972, **11**, 1973 (*biosynth*)

Olsen, O. *et al., Phytochemistry*, 1981, **30**, 1857 (*arabinoside*)

Agerbirk, N. *et al., Phytochemistry*, 2001, **58**, 91-100 (*isol, pmr*)

2-Hydroxypropyl glucosinolate H-195

1-Thio-β-D-glucopyranose 1-[3-hydroxy-N-(sulfooxy)butanimidate], 9CI

[76265-21-9]

$H_3CCH(OH)CH_2C(SGlc)=NOSO_3H$

$C_{10}H_{19}NO_{10}S_2$ 377.393

Present in horseradish (*Armoracia lapathifolia*) and in *Arabidopsis thaliana*.

Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)

Hogge, L.R. *et al., J. Chromatogr. Sci.*, 1986, **26**, 551 (*occur*)

3-Hydroxypropyl glucosinolate H-196

1-Thio-β-D-glucopyranose 1-[4-hydroxy-N-(sulfooxy)butanimidate], 9CI

[75272-75-2]

$HOCH_2CH_2CH_2C(SGlc)=NOSO_3H$

$C_{10}H_{19}NO_{10}S_2$ 377.393

Isol. from seeds of *Erysimum hieracifolium*.

Benzoyl: 3-(Benzoyloxy)propyl glucosinolate. ***Glucomalcolmiin***

[75331-11-2]

$C_{17}H_{23}NO_{11}S_2$ 481.501

Isol. from *Malcolmia maritima*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 1192 (*Glucomalcolmiin*)

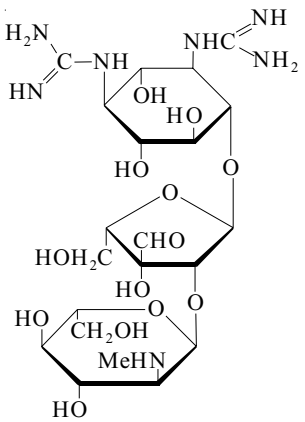
Daxenbichler, M.E. *et al., Phytochemistry*, 1980, **19**, 813 (*isol*)

Eagles, J. *et al., Biomed. Mass Spectrom.*, 1981, **8**, 278 (*isol, ms*)

Hydroxystreptomycin H-197

Streptomycin C. Reticulin†. D 212. NA 232NI. Antibiotic D 212. Antibiotic NA 232NI

[6835-00-3]



$C_{21}H_{39}N_7O_{13}$ 597.578

Aminoglycoside antibiotic. From *Streptomyces griseocarneus, Streptomyces reticuli* and *Streptomyces subrutilus*. Shows broad spectrum activity.

Hydrochloride (1:3):

Cryst. Sol. H_2O, MeOH; poorly sol. EtOH, hexane. $[\alpha]_D^{28}$ -91 (c, 1 in H_2O).

▶ LD_{50} (mus, ivn) 154 mg/kg , LD_{50} (mus, scu) 865 mg/kg.

Helianthate:

Red-brown cryst. Mp 200° dec.

[485-19-8]

Hosoya, S. *et al., Jpn. J. Exp. Med.*, 1949, **20**, 327; *CA*, **45**, 3459i (*isol*)

Benedict, R.G. *et al., Science (Washington, D.C.)*, 1950, **112**, 77

Stodola, F.H. *et al., J.A.C.S.*, 1951, **73**, 2290

Hosoya, S. *et al., Jpn. J. Exp. Med.*, 1952, **22**, 303; *CA*, **48**, 3477a

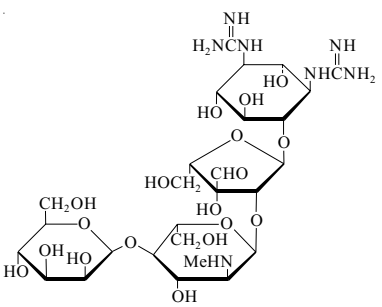
Wallace, B.W. *et al., Antibiotics (N.Y.)*, 1979, **5**, 272 (*rev*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SLX500

Hydroxystreptomycin B H-198

Mannosidohydroxystreptomycin

[28979-71-7]



$C_{27}H_{49}N_7O_{18}$ 759.72

Aminoglycoside antibiotic. Isol. from *Nocardia apis* and *Streptomyces flavovirens*. Sol. H_2O; fairly sol. MeOH; poorly sol. EtOH, hexane. Mp 182-184°.

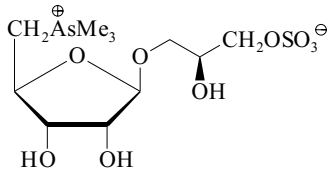
► WK2260000

Sulfate: $[\alpha]_D^{22}$ -46 (H_2O). Dec. >210°.

U.K. Pat., 1963, 955 762; *CA*, **61**, 2440 (*isol*)
Arcamone, F. *et al., Experientia*, 1968, **24**, 441 (*isol*)

2-Hydroxy-3-(sulfooxy)propyl-5-deoxy-5-(trimethylarsonio)-β-D-ribofuranoside, 9CI H-199

[138382-73-7]



$C_{11}H_{23}AsO_9S$ 406.285
Constit. of the kidney of the giant clam *Tridacna maxima*. Also from *Chaetoceros gracilis* and *Sargassum thunbergii*. Solid.

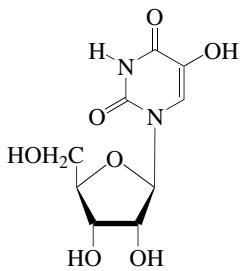
[88216-77-7, 115299-23-5]

Francesconi, K.A. *et al., J.C.S. Perkin 1*, 1991, 2707; 1992, 1349 (*isol*)
Edmonds, J.S. *et al., Nat. Prod. Rep.*, 1993, **10**, 421 (*rev*)

5-Hydroxyuridine, 9CI H-200

1-β-D-Ribofuranosylisobarbituric acid, 8CI. Isobarbituridine

[957-77-7]



$C_9H_{12}N_2O_7$ 260.203
Component of RNA. Cryst. (EtOH). Mp 230-232° (224-225°) Mp 238-241°. λ_{max} 280 (no solvent reported).

5-O-*Me:* ***5-Methoxyuridine***

[35542-01-9]
$C_{10}H_{14}N_2O_7$ 274.23
Modified nucleoside found in tRNA's. Prisms (H_2O). λ_{max} 206 ; 278 (no solvent reported).

5-O-*(Carboxymethyl): Uridine-5-oxyacetic acid*
[28144-25-4]
$C_{11}H_{14}N_2O_9$ 318.24
Modified nucleoside found in tRNA's.

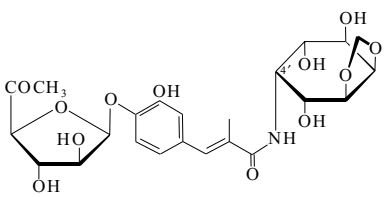
5-O-*(Methoxycarbonylmethyl): Methyl uridine-5-oxyacetate*
[66536-81-0]
[54795-90-3]
$C_{12}H_{16}N_2O_9$ 332.266
Modified nucleoside found in tRNA's. Cryst. (MeOH). λ_{max} 208 ; 275 (no solvent reported).

Morikawa, K. *et al., Acta Cryst. B*, 1975, **31**, 1004-1007 (*Me ester, cryst struct*)
Tompson, J.G. *et al., Biochemistry*, 1979, **18**, 2079-2085 (*isol, cmr*)
Yokoyama, S. *et al., FEBS Lett.*, 1980, **119**, 77-80 (*isol, cmr*)
Egert, E. *et al., J.A.C.S.*, 1980, **102**, 3707-3713 (*pmr, conformn*)
Birnbaum, G.I. *et al., Can. J. Chem.*, 1983, **61**, 2299-2304 (*Methoxyuridine, cryst struct, conformn*)
Uhl, W. *et al., Nucleic Acids Res.*, 1983, **11**, 1167-1180 (*pmr, conformn*)
Crow, F.W. *et al., Anal. Biochem.*, 1984, **139**, 243-262 (*Me ester, ms*)
McCrery, D.A. *et al., Anal. Chim. Acta*, 1985, **178**, 91-103 (*ms*)
Sierzputowska-Gracz, H. *et al., J.A.C.S.*, 1987, **109**, 7171-7177 (*synth, uv, cmr*)

Hygromycin A H-201

Homomycin. Hygromix. Totomycin. XK 43-2. WS 1627B. Antibiotic XK 43-2. Antibiotic 51086. Compound 51086

[6379-56-2]



$C_{23}H_{29}NO_{12}$ 511.482

Prod. by *Streptomyces hygroscopicus, Streptomyces noboritoensis* and *Corynebacterium equi*. Active against gram-positive and -negative bacteria incl. mycobacteria, endomoeba and leptospira. Anthelmintic. Amorph. solid.
Mp 105-109° dec. $[\alpha]_D^{25}$ -126 (c, 1 in H_2O). pK_a 8.9. Log P -3.22 (uncertain value) (calc). λ_{max} 214 (ϵ 19400); 272 (ϵ 15000); 302 (sh) (ϵ 10000) (dil HCl) (Derep). λ_{max} 254 (ϵ 17900); 285 (sh) (ϵ); 286 (ϵ 9910); 323 (ϵ 5930) (dil. NaOH) (Derep). λ_{max} 215 (ϵ 19000); 272 (ϵ 14900); 302 (sh) (ϵ 10000) (H_2O) (Derep).

► LD_{50} (mus, ipr) 1067 mg/kg. NG8859000

2,4-Dinitrophenylhydrazone:
Red cryst. (H_2O). Mp 154-156°.

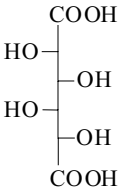
4'-Epimer: ***Epihygromycin***. *WS 1627D. Antibiotic WS 1627D*
[75081-92-4]
$C_{23}H_{29}NO_{12}$ 511.482
From *Streptomyces noboritoensis* and *Corynebacterium equi* sp. Weakly active against gram-positive bacteria. Sesquihydrate.
Mp 114-117°. $[\alpha]_D^{20}$ -91.1 (c, 1 in H_2O). λ_{max} 214 (ϵ 19400); 272 (ϵ 15000); 302 (sh) (ϵ 10000) (dil HCl) (Derep). λ_{max} 254 (ϵ 17900); 285 (sh) (ϵ); 286 (ϵ 9910); 323 (ϵ 5930) (dil. NaOH) (Derep). λ_{max} 215 (ϵ 19000); 272 (ϵ 14900); 302 (sh) (ϵ 10000) (H_2O) (Derep).

[11049-00-6]

Isono, K. *et al., J. Antibiot., Ser. A*, 1957, **10**, 160 (*struct, ir, uv*)
Mann, R.L. *et al., J.A.C.S.*, 1957, **79**, 120 (*uv, ir, struct*)
Kakinuma, K. *et al., Agric. Biol. Chem.*, 1978, **42**, 279 (*pmr, cmr, struct, abs config*)
Wakisaka, Y. *et al., J. Antibiot.*, 1980, **33**, 695 (*Epihygromycin*)
Chida, N. *et al., J.O.C.*, 1991, **56**, 2976 (*synth, bibl*)
Jaynes, B.H. *et al., J.O.C.*, 1994, **59**, 1224 (*synth*)
Kang, H.-C. *et al., CA*, 2000, **132**, 10585c (*Antibiotic 51086*)
Trost, B.M. *et al., Chem. Eur. J.*, 2002, **8**, 259-268 (*synth*)

Idaric acid, 8CI I-1

Idosaccharic acid
[5768-54-7]



$C_6H_{10}O_8$ 210.14

D-*form* [33012-63-4]
Isol. from *Lespedeza cuneata*. Leaf-closing factor (as K salt).
Mp 151-154°. $[\alpha]_D^{14}$ +15.6 (c, 1.02 in H_2O).
Phenylhydrazide: Mp 217-218° dec.

*2,4:3,5-Di-*O*-benzylidene: 2,4:3,5-Di-*O*-benzylidene-D-idaric acid*
$C_{20}H_{18}O_8$ 386.357
Mp 230-233°.

*2,4:3,5-Di-*O*-benzylidene, di-Me ester: Dimethyl 2,4:3,5-di-*O*-benzylidene-D-idarate*
$C_{22}H_{22}O_8$ 414.411
Mp 266-267°. $[\alpha]_D^{14}$ -77.3 ($CHCl_3$).

L-*form* [80876-58-0]
[189759-76-0] $[\alpha]_D^{22}$ -5.6 (c, 0.1 in H_2O) (as K salt).

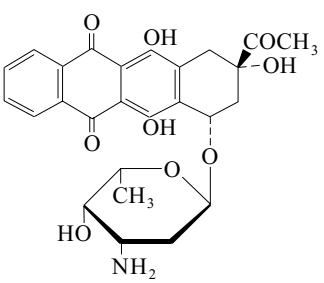
1,4-Lactone: L-Idaro-1,4-lactone
[80876-59-1]
$C_6H_8O_7$ 192.125

*2,4:3,5-Di-*O*-methylene: 2,4:3,5-Di-*O*-methylene-L-idaric acid*
[7437-69-6]
$C_8H_{10}O_8$ 234.162
Mp 297-299°. $[\alpha]_D^{16}$ +73.7 (c, 3.75 in H_2O).

Behrend, R. *et al., Annalen*, 1919, **418**, 294-316 (*synth*)
Seebeck, E. *et al., Helv. Chim. Acta*, 1945, **28**, 934-940 (*D-form, di-O-benzylidene, synth*)
Jansen, L. *et al., J. Chromatogr.*, 1971, **57**, 353-364 (*glc, ion exch*)
Herd, J.K. *et al., Carbohydr. Res.*, 1982, **99**, 33-39 (*L-form, 1,4-lactone, di-O-methylene, synth*)
Ohnuki, T. *et al., Tetrahedron*, 1998, **54**, 12173-12184 (*D-form, L-form, synth, isol, pmr, cmr, props*)

Idarubicin, BAN, INN I-2

4-Demethoxydaunomycin. IMI 30. NSC 256439
[58957-92-9]



$C_{26}H_{27}NO_9$ 497.501

Antineoplastic agent. Launched 1990. Log P -0.86 (uncertain value) (calc).

▶ HB7876000

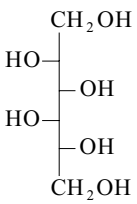
Hydrochloride: ***Idarubicin hydrochloride, USAN.*** *Idamycin. Zavedos*
[57852-57-0]
Bright orange solid. Mp 172-174° (183-185°). $[\alpha]_D^{20}$ +187 (c, 0.1 in MeOH).

▶ HB7877000

Kelly, T.R. *et al., Tet. Lett.*, 1978, 4457 (*synth, bibl*)
Broadhurst, M.J. *et al., J.C.S. Perkin 1*, 1982, 2249 (*synth*)
Rao, A.V.R. *et al., Chem. Comm.*, 1984, 453 (*synth, isom*)
Zini, G. *et al., Cancer Chemother. Pharmacol.*, 1986, **16**, 107 (*metab*)
Weiss, R.B. *et al., Cancer Chemother. Pharmacol.*, 1986, **18**, 185 (*rev, pharmacol, tox*)
Ganzina, F. *et al., Invest. New Drugs*, 1986, **4**, 85 (*rev, pharmacol*)
Hollingshead, L.M. *et al., Drugs*, 1991, **42**, 690 (*rev*)
Cersosimo, R.J. *et al., Clin. Pharm.*, 1992, **11**, 152 (*rev*)
Kunick, C. *et al., Pharm. Ztg.*, 1992, **137**, 30; 34; 36 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 483
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DAN000

Iditol, 9CI, 8CI I-3

Sorbieritol. ido-*Hexitol*
[24557-79-7]



D-*form*

$C_6H_{14}O_6$ 182.173

D-*form* [25878-23-3]
Mp 73-74°. $[\alpha]_D^{20}$ +3.5 (H_2O).

*Hexa-Ac: 1,2,3,4,5,6-Hexa-*O*-acetyl-D-iditol*
$C_{18}H_{26}O_{12}$ 434.396
Mp 120°. $[\alpha]_D^{20}$ +25.3 ($CHCl_3$).

L-*form* [488-45-9]
Occurs with D-glucitol in the berry of mountain ash (*Sorbus aucuparia*) and in other plants.
Mp 73.5°. $[\alpha]_D^{20}$ -3.5 (c, 1.0 in H_2O).

*Hexa-Ac: 1,2,3,4,5,6-Hexa-*O*-acetyl-L-iditol*
[13443-46-4]
Mp 122°. $[\alpha]_D^{23}$ -25.9 (c, 1.4 in $CHCl_3$).

*Hexabenzoyl: 1,2,3,4,5,6-Hexa-*O*-benzoyl-L-iditol*
[21238-34-6]
$C_{48}H_{38}O_{12}$ 806.821
Prisms. Mp 142-143°. $[\alpha]_D^{19}$ +48.5 (c, 1.8 in $CHCl_3$).

*3,4-*O*-Isopropylidene: 3,4-*O*-Isopropylidene-L-iditol*
$C_9H_{18}O_6$ 222.238
Mp 90-91°. $[\alpha]_D^{20}$ +41.7 (c, 3.5 in MeOH).

*1,2;3,4;5,6-Tri-*O*-isopropylidene: 1,2:3,4:5,6-Tri-*O*-isopropylidene-L-iditol*
$C_{15}H_{26}O_6$ 302.367
Mp 57-58°. $[\alpha]_D^{16}$ +5.8 (c, 5.5 in $CHCl_3$). $[\alpha]_D^{18}$ +12.2 (c, 3.3 in EtOH).

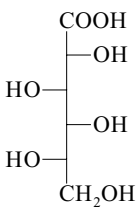
*2,3:4,5-Di-*O*-benzylidene: 2,3:4,5-Di-*O*-benzylidene-L-iditol*
$C_{20}H_{22}O_6$ 358.39
Needles (Me_2CO/hexane). Mp 207°
Mp 229-231°.

[45007-61-2]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 290A; 1054C (*nmr*)
Jones, W.G.M. *et al., J.C.S.*, 1944, 363 (*synth*)
Meyer, A.S. *et al., Helv. Chim. Acta*, 1946, **29**, 152 (*L-hexa-Ac*)
Bourne, E.J. *et al., J.C.S.*, 1952, 2542 (*L-isopropylidene, L-hexa-Ac, L-hexabenzoyl*)
Sicé, J. *et al., J.A.C.S.*, 1954, **76**, 1661 (*L-benzylidene*)
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1970, **14**, 207 (*conformn*)
Azarnia, N. *et al., Acta Cryst. B*, 1972, **28**, 1007 (*cryst struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
Herd, J.K. *et al., Carbohydr. Res.*, 1982, **99**, 33 (*synth*)
Kopf, J. *et al., Acta Cryst. C*, 1992, **48**, 339 (*cryst struct*)
Kopf, J. *et al., Carbohydr. Res.*, 1992, **229**, 17 (*cryst struct, hexa-Ac*)
Wachmeister, J. *et al., Tetrahedron*, 2000, **56**, 3219-3225 (*hexa-Ac, synth, pmr*)
Mills, S.J. *et al., Can. J. Chem.*, 2003, **9**, 6207-6214 (*hexa-Ac, synth, pmr, cmr*)

Idonic acid, 9CI, 8CI I-4

ido-*Hexonic acid*



$C_6H_{12}O_7$ 196.157

L-*form* [1114-17-6]
Manuf. by the action of *Pseudomonas aeruginosa* on Sorbose and *Brevibacterium ketosoreductum* on 5-Oxo-D-gluconic acid. $[\alpha]_D^{20}$ +5.2 → -13.7 (H_2O).

Na salt: [5135-28-4]
$[\alpha]_D^{20}$ -9.5 (H_2O).

Ba salt:
Dihydrate. $[\alpha]_D^{20}$ -3.5 (H_2O).

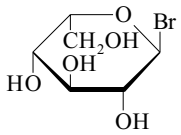
*Penta-Ac, Me ester: Methyl 2,3,4,5,6-penta-*O*-acetyl-L-idonate*
[28436-40-0]
$C_{17}H_{24}O_{12}$ 420.369
Cryst. (EtOH/petrol). Mp 77-79°. $[\alpha]_D^{22}$ -38.6 (c, 1.4 in $CHCl_3$).

1,4-Lactone: L-Idono-1,4-lactone
[18404-70-1]
$C_6H_{10}O_6$ 178.141
Mp 174°. $[\alpha]_D^{20}$ -52.6 (H_2O).

Mochizuki, K. *et al., CA*, 1969, **71**, 37484c (*enzymic synth*)

Angyal, S.J. *et al., Aust. J. Chem.*, 1970, **23**, 1209 (*Me ester penta-Ac*)
Abola, E.E. *et al., CA*, 1974, **81**, 55360r (*cryst struct*)
Sonoyama, T. *et al., CA*, 1975, **82**, 153797h (*enzymic synth*)

Idopyranosyl bromide I-5



$C_6H_{11}BrO_5$ 243.054

α-L-*form*

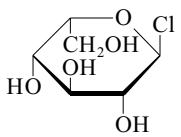
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-L-idopyranosyl bromide*
[14795-18-7]
$C_{14}H_{19}BrO_9$ 411.203
Cryst. (CH_2Cl_2/Et_2O/pentane). Mp 126-127°. $[\alpha]_D$ -120 (c, 0.75 in $CHCl_3$).

*2,3,4-Tribenzoyl, 6-Ac: 6-*O*-Acetyl-2,3,4-tri-*O*-benzoyl-α-L-idopyranosyl bromide*
[117129-63-2]
$C_{29}H_{25}BrO_9$ 597.415
Syrup.

3-Benzyl, tri-Ac: 2,4,6-Tri-O-*acetyl-3*-O-*benzyl-α-L-idopyranosyl bromide*
[103703-02-2]
$C_{19}H_{23}BrO_8$ 459.29
Syrup.

Eur. Pat., 1983, 84 999; *CA*, **100**, 7066t (*tetra-Ac*)
Van Boeckel, C.A.A. *et al., J. Carbohydr. Chem.*, 1985, **4**, 293 (*tri-Ac*)
Petitou, M. *et al., Tet. Lett.*, 1988, **29**, 1389 (*tribenzoyl*)

Idopyranosyl chloride I-6

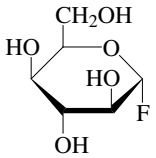


$C_6H_{11}ClO_5$ 198.603

α-L-*form*

2,3,4-Tribenzyl, 6-(chloroacetyl): 2,3,4-Tri-O-*benzyl-6*-O-*chloroacetyl-α-L-idopyranosyl chloride*
[109914-66-1]
$C_{29}H_{30}Cl_2O_6$ 545.458
Syrup. $[\alpha]_D^{20}$ -41 (c, 1 in $CHCl_3$) (lit. gives a temp. range). Unstable at ambient temp.
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1987, **159**, 229 (*tribenzyl deriv, pmr*)

Idopyranosyl fluoride I-7



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-idopyranosyl fluoride*
[51897-77-9]
$C_{14}H_{19}FO_9$ 350.297
Syrup. $[\alpha]_D^{24}$ +15.8 (c, 1.5 in $CHCl_3$).

α-L-*form*

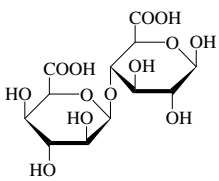
3-Benzyl, tri-Ac: 2,4,6-Tri-O-*acetyl-3*-O-*benzyl-α-L-idopyranosyl fluoride*
[117326-11-1]
$C_{19}H_{23}FO_8$ 398.384
Syrup.

3-Benzyl, 2,4,6-tribenzoyl: 2,4,6-Tri-O-*benzoyl-3*-O-*benzyl-α-L-idopyranosyl fluoride*
[135362-92-4]
$C_{34}H_{29}FO_8$ 584.597
Syrup.

Bock, K. *et al., Acta Chem. Scand.*, 1973, **27**, 2701 (*α-D-tetra-Ac, pmr, F-19 nmr*)
Van Boeckel, C.A.A. *et al., Tet. Lett.*, 1988, **29**, 803 (*α-L-benzyl tri-Ac, pmr*)
Petitou, M. *et al., Bioorg. Med. Chem. Lett.*, 1991, **1**, 95 (*α-L-benzyl tribenzoyl, pmr*)

4-*O*-β-D-Idopyranosyl-D-glucose, 9CI I-8

[64550-93-2]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Hygroscopic amorph. powder + ½ H_2O. $[\alpha]_D^{24}$ +31 (c, 1.1 in H_2O).

4-Methylbenzenesulfonylhydrazone: Hygroscopic cryst. (MeOH/EtOH) + 1.5 H_2O. Mp 138-139° dec. $[\alpha]_D^{19}$ -31 (c, 1.0 in Py).

3′-Me: [69538-27-8]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. powder + ½ H_2O. $[\alpha]_D^{21}$ +23.3 (c, 0.8 in H_2O).

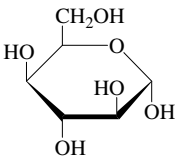
β-Pyranose-*form*

1,2,3,2′,3′,4′,6′-Hepta-Ac: [61278-04-4]
$C_{26}H_{36}O_{18}$ 636.56
Cryst. (EtOH). Mp 173-175°. $[\alpha]_D^{22}$ -33 (c, 1.1 in $CHCl_3$).

3′-Me, 1,2,3,2′,4′,6′-hexa-Ac: [69538-26-7]
$C_{25}H_{36}O_{17}$ 608.549
Needles (EtOH). Mp 156-157°. $[\alpha]_D^{24}$ -31.2 (c, 0.95 in $CHCl_3$).

3′-Me, 2,3,2′-tri-Ac:
$C_{19}H_{30}O_{14}$ 482.438
Mp 154-156°. $[\alpha]_D^{27}$ -87.1 (c, 1.13 in $CHCl_3$).
Chiba, T. *et al., Chem. Pharm. Bull.*, 1977, **25**, 1049; 1978, **26**, 3426

Idose, 9CI I-9



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157
An aq. soln. at 31° contains 38.5% α-pyr, 36% β-pyr, 11.5% α-fur, 14% β-fur, and 0.2% aldehyde. Readily forms 1,6-anhydride. For septanose-form see Idoseptanose, I-10.

D-*form* [5978-95-0]
Syrup. $[\alpha]_D^{13}$ +15.8 (c, 2.3 in H_2O).

Pentabenzyl: 1,2,3,4,5-Penta-O-*benzyl-D-idose*
[158420-42-9]
$C_{41}H_{42}O_6$ 630.779
Oil. $[\alpha]_D^{20}$ -4.3 (c, 0.58 in $CHCl_3$).

Phenylosazone: See Hexose phenylosazones, H-90

α-D-Pyranose-*form* [7282-82-8]

1,2,3,6-Tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-α-D-idopyranose*
[18977-21-4]
$C_{14}H_{20}O_{10}$ 348.306
Mp 103-104°. $[\alpha]_D^{20}$ +63 (c, 1.0 in $CHCl_3$).

1,2,3,4,6-Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-α-D-idopyranose*
[16299-15-3]
$C_{16}H_{22}O_{11}$ 390.343
Mp 94-95°. $[\alpha]_D$ +55.2 (c, 0.8 in $CHCl_3$).

1,2,3,4,6-Pentabenzoyl: 1,2,3,4,6-Penta-O-*benzoyl-α-D-idopyranose*
[29884-70-6]
$C_{41}H_{32}O_{11}$ 700.697
Mp 233-234°. $[\alpha]_D^{20}$ +15 (c, 2.0 in $CHCl_3$).

*4,6-*O-*Ethylidene, 1,2,3-tri-Ac: 1,2,3-Tri*-O-*acetyl-4,6*-O-*ethylidene-α-D-idopyranose*
[19510-61-3]
$C_{14}H_{20}O_9$ 332.307
Mp 123-124°. $[\alpha]_D^{20}$ +55 (c, 2.0 in $CHCl_3$).

Me glycoside: Methyl α-D-idopyranoside
[35437-40-2]
$C_7H_{14}O_6$ 194.184
Syrup. $[\alpha]_D^{20}$ +101 (c, 2.8 in H_2O).

Me glycoside, 2,3,4,6-tetra-Ac: Methyl 2,3,4,6-tetra-O-*acetyl-α-D-idopyranoside*
[92619-79-9]
$C_{15}H_{22}O_{10}$ 362.333
Mp 112-113°. $[\alpha]_D^{20}$ -64.1 (c, 1.56 in $CHCl_3$).

Me glycoside, 4,6-benzylidene: See Methyl 4,6-*O*-benzylideneidopyranoside, M-168

β-D-Pyranose-*form* [7283-02-5]

Me glycoside: Methyl β-D-idopyranoside
[35437-43-5]
$C_7H_{14}O_6$ 194.184
$[\alpha]_D^{20}$ -49.2 (c, 2.5 in H_2O).

L-*form* [5934-56-5]
$[\alpha]_D^{29}$ -12.35 (c, 1.0 in H_2O).

*2,3,4,6-Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-L-idose*
[78184-89-1]
$C_{34}H_{36}O_6$ 540.655
$[\alpha]_D$ -1 (c, 2.4 in $CHCl_3$).

α-L-Pyranose-*form* [39281-68-0]
Syrup. $[\alpha]_D^{20}$ -17.4 (c, 3.6 in H_2O).

Me glycoside: Methyl α-L-idopyranoside
[58650-83-2]
$C_7H_{14}O_6$ 194.184
$[\alpha]_D^{22}$ -75.5 (c, 0.9 in H_2O).

β-L-Pyranose-*form* [12773-33-0]

Me glycoside: Methyl β-L-idopyranoside
[58650-82-1]
$C_7H_{14}O_6$ 194.184
$[\alpha]_D^{22}$ +88 (c, 1.4 in Me_2CO).

*Me glycoside, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-β-L-idopyranoside*
[87392-25-4]
$C_{21}H_{26}O_6$ 374.433
$[\alpha]_D^{22}$ +86 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-dibenzyl, 4-benzoyl: Methyl 4-*O*-benzoyl-2,3-di-*O*-benzyl-β-L-idopyranoside*
[87326-93-0]
$C_{28}H_{30}O_7$ 478.541
$[\alpha]_D^{22}$ -9 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3-dibenzyl, 6-trityl, 4-benzoyl: Methyl 2,3-di-*O*-benzyl-4-*O*-benzoyl-6-*O*-trityl-β-L-idopyranoside*
[87326-92-9]
$C_{47}H_{44}O_7$ 720.86
$[\alpha]_D^{22}$ +37 (c, 1.5 in $CHCl_3$).

β-D-Furanose-*form* [40461-75-4]

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylideneidose, I-69

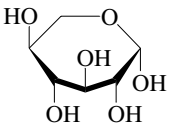
β-L-Furanose-*form* [36574-15-9]

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylideneidose, I-69

[41847-65-8, 41847-67-0]

Wiggins, L.F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 140 (*synth, D-form*)
Shafizadeh, F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 144 (*synth, L-form*)
Paulsen, H. *et al., Chem. Ber.*, 1967, **100**, 2822-2836 (*synth, penta-Ac, pmr*)
Paulsen, H. *et al., Chem. Ber.*, 1970, **103**, 2450-2462 (*pentabenzoyl*)
Perlin, A.S. *et al., Carbohydr. Res.*, 1972, **21**, 123-132 (*glycosides*)
Parrish, F.W. *et al., Carbohydr. Res.*, 1975, **45**, 73-83 (*L-form*)
Helleur, R. *et al., Carbohydr. Res.*, 1981, **89**, 83-90 (*L-form, L-tetrabenzyl, α-L-Me pyr, β-L-Me pyr*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949-951 (*total synth, L-form*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
Snyder, J.R. *et al., J.O.C.*, 1986, **51**, 2694-2702 (*conformn, pmr*)
Chiba, T. *et al., Carbohydr. Res.*, 1988, **174**, 253-264 (*2,3-dibenzyl derivs*)
Hirota, K. *et al., Chem. Pharm. Bull.*, 1991, **39**, 2702-2705 (*synth*)
Krülle, T. *et al., Carbohydr. Res.*, 1994, **254**, 141-156 (*pentabenzyl*)
Dondoni, A. *et al., J.O.C.*, 1997, **62**, 6261-6267 (*L-form, synth*)
Dromowicz, M. *et al., Carbohydr. Res.*, 1998, **308**, 169-171 (*D-form, synth*)
Takeuchi, M. *et al., Synthesis*, 1999, 341-354 (*L-form, synth*)
Tobiason, F.L. *et al., J. Carbohydr. Chem.*, 2000, **19**, 959-974 (*nmr, conformn*)

Idoseptanose, 9CI I-10



β-L-*form*

$C_6H_{12}O_6$ 180.157

β-L-*form*

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-β-L-idoseptanose*
[132677-31-7]
$C_9H_{16}O_6$ 220.222
Cryst. (MeOH). Mp 165-166°. $[\alpha]_D^{24}$ -13.4 (c, 0.85 in H_2O).

*1,2-*O*-Isopropylidene, tri-Ac: 3,4,5-Tri-*O*-acetyl-1,2-*O*-isopropylidene-β-L-idoseptanose*
[132677-32-8]
$C_{15}H_{22}O_9$ 346.333
Plates (MeOH aq.). Mp 138-139°. $[\alpha]_D^{22}$ +35.7 (c, 1.1 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-O-isopropylidene-β-L-idoseptanose*
[70056-88-1]
$C_{12}H_{20}O_6$ 260.286
Cryst. (EtOAc). Mp 179-180°. $[\alpha]_D^{22}$ -20.4 (c, 1.2 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene; 5-Ac: 5-*O*-Acetyl-1,2:3,4-di-*O*-isopropylidene-β-L-idoseptanose*
[70056-90-5]
$C_{14}H_{22}O_7$ 302.324
Prisms (C_6H_6/petrol). Mp 163-164°. $[\alpha]_D^{22}$ +4.9 (c, 1.2 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene, 5-benzoyl: 5-*O*-Benzoyl-1,2:3,4-di-*O*-isopropylidene-β-L-idoseptanose*
[132677-28-2]
$C_{19}H_{24}O_7$ 364.394
Plates (petrol). Mp 155-156°. $[\alpha]_D^{26}$ +37.6 (c, 0.95 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene, 5-tosyl: 1,2:3,4-Di-*O*-isopropylidene-5-tosyl-β-L-idoseptanose*
[132677-30-6]
$C_{19}H_{26}O_8S$ 414.476
Needles (C_6H_6/petrol). Mp 109-110°. $[\alpha]_D$ +15.8 (c, 1.47 in $CHCl_3$).

*1,2:4,5-Di-*O*-isopropylidene: 1,2:4,5-Di-O-isopropylidene-β-L-idoseptanose*
[132677-35-1]
$C_{12}H_{20}O_6$ 260.286
Cryst. (C_6H_6/petrol). Mp 157-159°. $[\alpha]_D^{20}$ -2.3 (c, 1 in $CHCl_3$).

*1,2:4,5-Di-*O*-isopropylidene, 3-Ac: 3-*O*-Acetyl-1,2:4,5-di-*O*-isopropylidene-β-L-idoseptanose*
[132677-36-2]
$C_{14}H_{22}O_7$ 302.324
Needles (C_6H_6). Mp 121-122°. $[\alpha]_D^{22}$ +34.1 (c, 0.4 in $CHCl_3$).

Me glycoside: Methyl β-L-idoseptanoside
[178812-65-2]
$C_7H_{14}O_6$ 194.184
Viscous syrup.

*Me glycoside, tetra-Ac: Methyl 2,3,4,5-tetra-*O*-acetyl-β-L-idoseptanoside*
[178812-66-3]
$C_{15}H_{22}O_{10}$ 362.333
Syrup. $Bp_{0.1}$ 120° (bath). $[\alpha]_D^{22}$ +118.1 (c, 0.8 in $CHCl_3$).

*Me glycoside, tetrabenzoyl: Methyl 2,3,4,5-tetra-*O*-benzoyl-β-L-idoseptanoside*
[178812-67-4]
$C_{35}H_{30}O_{10}$ 610.616
Needles (MeOH). Mp 129-130°. $[\alpha]_D^{22}$ +120.4 (c, 1.6 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 3,4-*O*-isopropylidene-β-L-idoseptanoside*
[178812-60-7]
$C_{10}H_{18}O_6$ 234.249
Prisms (EtOAc). Mp 162°. $[\alpha]_D^{22}$ +76.5 (c, 1.1 in H_2O).

*Me glycoside, 3,4-*O*-isopropylidene, di-Ac: Methyl 2,5-di-*O*-acetyl-3,4-*O*-isopropylidene-β-L-idoseptanoside*
[178812-61-8]
$C_{14}H_{22}O_8$ 318.323
Needles (C_6H_6/petrol). Mp 75-76°. $[\alpha]_D^{22}$ +137.9 (c, 0.8 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene, 2-benzoyl: Methyl 2-*O*-benzoyl-3,4-*O*-isopropylidene-β-L-idoseptanoside*
[178812-62-9]
$C_{17}H_{22}O_7$ 338.357
Cryst. (EtOAc/petrol). Mp 125°. $[\alpha]_D^{22}$ +90 (c, 1.4 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene, dibenzoyl: Methyl 2,5-di-*O*-benzoyl-3,4-*O*-isopropylidene-β-L-idoseptanoside*
[178812-63-0]
$C_{24}H_{26}O_8$ 442.465
Needles (EtOH). Mp 182-188°. $[\alpha]_D^{21}$ +141.2 (c, 0.8 in $CHCl_3$).

*Me glycoside, 2,3:4,5-di-*O*-isopropylidene: Methyl 2,3:4,5-di-*O*-isopropylidene-β-L-idoseptanoside*
[178812-68-5]
$C_{13}H_{22}O_6$ 274.313
Cryst. (petrol). Mp 90°. $[\alpha]_D^{23}$ +106.8 (c, 0.8 in $CHCl_3$).

α-L-*form*

*Me glycoside, 2,3,4,5-tetra-Ac: Methyl 2,3,4,5-tetra-*O*-acetyl-α-L-idoseptanoside*
[86651-68-5]
$C_{15}H_{22}O_{10}$ 362.333

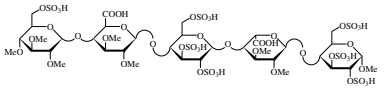
[178812-70-9, 178812-71-0, 178812-72-1]

James, V.J. *et al., Cryst. Struct. Commun.*, 1982, **11**, 1933-1938 (*Me α-L-pyr tetra Ac, cryst struct*)
Driver, G.E. *et al., Aust. J. Chem.*, 1990, **43**, 2063-2081 (*β-L isopropylidene derivs*)

Craig, D.C. *et al., Carbohydr. Res.*, 1996, **284**, 249-263; 265-270 (*synth, pmr, cmr, cryst struct, β-L-Me gly derivs*)

Idraparinux I-11

SR 34006. SanOrg 34006
[162610-17-5]



$C_{38}H_{64}O_{49}S_7$ 1529.356

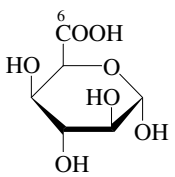
Synth. pentasaccharide. Antithrombotic agent. Factor Xa inhibitor. Sulfated polysaccharide related to SR 90107.

Nona-Na salt: ***Idraparinux sodium, INN***
[149920-56-9]
$[\alpha]_D^{20}$ +55 (c, 1 in H_2O).

Eur. Pat., 1993, 529 715, (*AKZO, Elf Sanofi*); *CA*, **119**, 160723s (*synth, activity*)
Westerduin, P. *et al., Bioorg. Med. Chem.*, 1994, **2**, 1267-1280 (*synth, activity*)
Herbert, J.M. *et al., Blood*, 1998, **91**, 4197-4205 (*pharmacol*)
Bootsma, J. *et al., Magn. Reson. Chem.*, 2001, **39**, 288-293 (*pmr, cmr, conformn, bibl*)
Diaz-Ricart, M. *et al., Drugs of the Future*, 2002, **27**, 639-644 (*rev*)

Iduronic acid I-12

[3402-98-0]



α-D-Pyranose-*form*

$C_6H_{10}O_7$ 194.141

D-*form* [21675-53-6]
$[\alpha]_D$ -32 (H_2O).

6,3-Lactone: D-Idurono-1,4-lactone. D-Idurone
$C_6H_8O_6$ 176.126
$[\alpha]_D^{21}$ -30 (c, 1.5 in H_2O).

α-D-Pyranose-*form*

Me glycoside, Me ester: Methyl (methyl α-D-idopyranosid)uronate
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D^{22}$ +61 (c, 1.5 in MeOH).

β-D-Pyranose-*form*

Me glycoside, Me ester: Methyl (methyl β-D-idopyranosid)uronate
$C_8H_{14}O_7$ 222.194
Cryst. (EtOH/hexane). Mp 168-170°.
$[\alpha]_D^{22}$ -86 (c, 1.1 in MeOH).

L-*form*

Constit. of Heparin, Dermatan sulfate and the type-specific polysaccharide of *Clostridium perfringens*. Also a component of Protuberic acid, P-100.
Cryst. (MeOH/EtOAc).
Mp 131-132°. $[\alpha]_D^{22}$ +37 → +33 (c, 3.0 in H_2O).

*Brucine salt:*Mp 160-161° dec.

6,3-Lactone: L-Idurono-1,4-lactone. L-Idurone
$C_6H_8O_6$ 176.126
$[\alpha]_D^{25}$ +30 (c, 1.0 in H_2O).

*6,3-Lactone, 1,2-*O*-isopropylidene: 1,2-*O*-Isopropylidene-L-idurono-1,4-lactone*
$C_9H_{12}O_6$ 216.19
Cryst. (EtOAc/petrol). Mp 137-138°.
$[\alpha]_D^{26}$ +91 (c, 1.82 in Me_2CO).

L-Pyranose-*form*

*3-Benzyl, Me ester: Methyl 3-*O*-benzyl-L-idopyranuronate*
$C_{14}H_{18}O_7$ 298.292
Cryst. (EtOAc). Mp 127-129°. $[\alpha]_D^{23}$ +13 (c, 1 in MeOH).

α-L-Pyranose-*form*

*Tetra-Ac, Me ester: Methyl 1,2,3,4-tetra-*O*-acetyl-α-L-idopyranuronate*
$C_{15}H_{20}O_{11}$ 376.316
Cryst. (EtOH). Mp 118-119°. $[\alpha]_D$ -88 (c, 1.00 in $CHCl_3$).

Me glycoside, Me ester: Methyl (methyl α-L-idopyranosid)uronate
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D^{22}$ -59 (c, 1.4 in MeOH).

*Me glycoside, tri-Ac, Me ester: Methyl (methyl 2,3,4-tri-*O*-acetyl-α-L-idopyranosid)uronate*
$C_{14}H_{20}O_{10}$ 348.306
$[\alpha]_D$ -56.5 ($CHCl_3$).

*Me glycoside, tri-Me, Me ester: Methyl (methyl 2,3,4-tri-*O*-methyl-α-L-idopyranosid)uronate*
$C_{11}H_{20}O_7$ 264.275
$[\alpha]_D$ -54 (c, 0.30 in $CHCl_3$).

β-L-Pyranose-*form*

*Tetra-Ac, Me ester: Methyl 1,2,3,4-tetra-*O*-acetyl-β-L-idopyranuronate*
$C_{15}H_{20}O_{11}$ 376.316
$[\alpha]_D$ +12.3 (c, 0.5 in $CHCl_3$).

*Me glycoside, 2,3-dibenzyl, Me ester: Methyl (methyl 2,3-di-*O*-benzyl-β-L-idopyranosid)uronate*
$C_{22}H_{26}O_7$ 402.443
Amorph. $[\alpha]_D$ +109 (c, 2.7 in $CHCl_3$).

Me glycoside, Me ester: Methyl (β-L-idopyranosid)uronate
$C_8H_{14}O_7$ 222.194
Cryst. (EtOH). Mp 170-172°. $[\alpha]_D^{22}$ +90 (c, 0.46 in MeOH).

*Me glycoside, tri-Ac, Me ester: Methyl (methyl 2,3,4-tri-*O*-acetyl-β-L-idopyranosid)uronate*
$C_{14}H_{20}O_{10}$ 348.306
Plates ($CHCl_3$/toluene). Mp 120-126°.
$[\alpha]_D$ +90 (c, 0.4 in $CHCl_3$).

α-L-Furanose-*form*

*3-Benzyl, tri-Ac, Me ester: Methyl 1,2,5-tri-*O*-acetyl-3-*O*-benzyl-α-L-idofuranuronate*
$C_{20}H_{24}O_{10}$ 424.404
Syrup. $[\alpha]_D^{23}$ +5 (c, 1 in $CHCl_3$).

β-L-Furanose-*form*

*3-Benzyl, tri-Ac, Me ester: Methyl 1,2,5-tri-*O*-acetyl-3-*O*-benzyl-β-L-idofuranuronate*
$C_{20}H_{24}O_{10}$ 424.404
$[\alpha]_D$ +88 (c, 1 in $CHCl_3$).

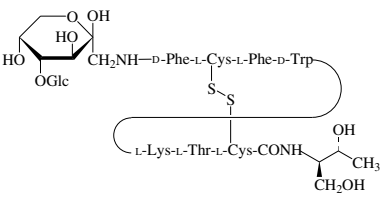
*1,2-Isopropylidene, 3-benzyl, Me ester: Methyl 3-*O*-benzyl-1,2-*O*-isopropylidene-β-L-idofuranuronate*
$C_{17}H_{22}O_7$ 338.357
Amorph. $[\alpha]_D^{23}$ -33 (c, 1.9 in $CHCl_3$).

[32449-81-3]

Shafizadeh, F. *et al., J.A.C.S.*, 1955, **77**, 2568 (*L-form, synth, L-lactone isopropylidene*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1969, **10**, 259 (*L-form, isol*)
Sowa, W. *et al., Can. J. Chem.*, 1971, **49**, 1176 (*D-lactone, L-lactone*)
Lee, L. *et al., Carbohydr. Res.*, 1974, **33**, 387 (*L-form, occur*)
Malmstrom, A. *et al., J. Biol. Chem.*, 1975, **250**, 3419 (*biosynth*)
Miyazaki, T. *et al., Carbohydr. Res.*, 1979, **77**, 281-284 (*occur*)
Baggett, N. *et al., Carbohydr. Res.*, 1982, **108**, 59 (*β-L-fur derivs*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1984, **130**, 221 (*L-Me pyr benzyl, L-fur derivs*)
Chiba, T. *et al., Carbohydr. Res.*, 1986, **151**, 379 (*α-L-pyr derivs, β-L-pyr derivs*)
Chida, N. *et al., J. Carbohydr. Chem.*, 1988, **7**, 555-570 (*Me glycoside Me esters*)
Whitfield, D.H. *et al., J. Carbohydr. Chem.*, 1991, **10**, 329-348 (*Me β-L Pyr tri-Ac Me ester, synth, cryst struct*)
Medaković, D. *et al., Carbohydr. Res.*, 1994, **253**, 299 (*β-L-tetra-Ac Me ester*)
Dilhas, A. *et al., Carbohydr. Res.*, 2003, **338**, 681-686 (*3-benzyl derivs, bibl*)

Ilatreotide, INN I-13

SDZ CO 611
[119719-11-8]



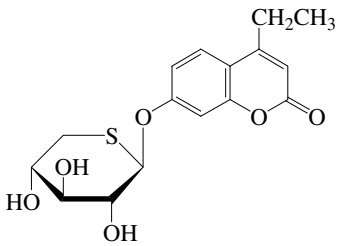
$C_{61}H_{86}N_{10}O_{20}S_2$ 1343.537
Orally active pituitary and gut hormonal secretolytic agent. Potential role in treating gastroenteropancreatic tumours. Glycated analogue of Somatostatin.

Ac: [119785-17-0]
Solid. $[\alpha]_D^{20}$ -7.9 (c, 0.71 in AcOH).

Pat. Coop. Treaty (WIPO), 1988, 88 02 756, (*Sandoz*); *CA*, **110**, 213349x (*synth, activity*)
Albert, R. *et al., Life Sci.*, 1993, **53**, 517 (*synth, pharmacol*)
Shiratori, K. *et al., Pancreas*, 1993, **8**, 471 (*pharmacol*)
Fricker, G. *et al., Hepatology (St. Louis)*, 1994, **20**, 191 (*pharmacokinet*)
Nelson-Piercy, C. *et al., J. Clin. Endocrinol. Metab.*, 1994, **78**, 329 (*pharmacol, man*)

Iliparcil I-14

*4-Ethyl-7-[(5-thio-β-D-xylopyranosyl)oxy]-2*H*-1-benzopyran-2-one, 9CI.*
4-Ethyl-7-[(5-thio-β-D-xylopyranosyl)oxy]coumarin
[137214-72-3]



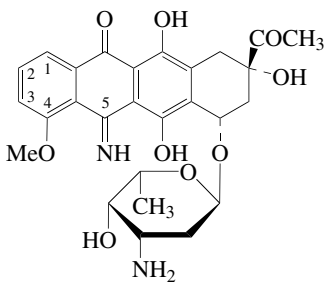
$C_{16}H_{18}O_6S$ 338.381
Antithrombotic agent.

Tri-O-*Ac:* [137214-73-4]
$C_{22}H_{24}O_9S$ 464.492
Cryst. (EtOAc/Et_2O). Mp 186-188°.
$[\alpha]_D$ -63 (c, 0.8 in CH_2Cl_2).

Eur. Pat., 1991, 421 829, (*Fournier Innovation et Synergie*); *CA*, **115**, 256557j (*synth, pharmacol*)
Bellamy, F. *et al., Eur. J. Med. Chem. (Chim. Ther.)*, Suppl., 1995, **30**, 101s-115s (*synth, pharmacol*)
Chicaud, P. *et al., Haemostasis*, 1998, **28**, 313-320 (*pharmacol*)
Collette, Y. *et al., Carbohydr. Res.*, 1999, **318**, 162-166 (*tri-Ac, synth*)

5-Iminodaunomycin I-15

*8-Acetyl-10-[(3-amino-2,3,6-trideoxy-α-L-lyxo-hexopyranosyl)oxy]-7,9,10,12-tetrahydro-6,8,11-trihydroxy-12-imino-1-methoxy-5(8*H*)-naphthacenone, 9CI.*
5-Iminodaunorubicin
[72983-78-9]
[67324-99-6]

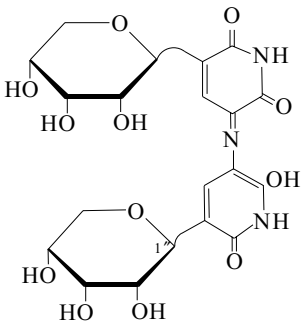


$C_{27}H_{30}N_2O_9$ 526.542
Various numbering systems in use.
Anthracycline compd. with antitumour activity, having less cardiotoxicity than daunomycin. Blue-violet powder + $1H_2O$ (as hydrochloride). Mp 175-178° (dec.) (hydrochloride monohydrate).

Tong, G.L. *et al., J. Med. Chem.*, 1979, **22**, 36-39 (*synth, uv, pmr, cmr*)

Indochrome A I-16

[24723-51-1]



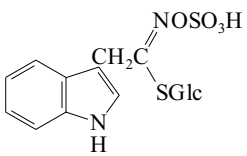
$C_{20}H_{23}N_3O_{12}$ 497.415
Nucleoside-type antibiotic. Main component of blue pigment Amylocyanin from *Streptomyces coelicolor*. Also isol. from *Arthrobacter polychromogenes*. Sol. H_2O, DMF; poorly sol. MeOH, hexane. Mp 330°. Minor components of Indochrome are the isomers Indochrome BI which has one α-D-ribopyranosyl residue, and Indochrome BII which has one β-D-ribofuranosyl residue. λ_{max} 255; 340; 586 (H_2O) (Berdy). λ_{max} 255; 340; 596 (pH 13 buffer) (Berdy). λ_{max} 240; 255; 570 (pH 2 buffer) (Berdy).

[24723-52-2, 24723-53-3]

Knackmuss, H.J. *et al., Eur. J. Biochem.*, 1969, **10**, 90 (*isol*)
Knackmuss, H.J. *et al., Annalen*, 1970, **736**, 68 (*synth, struct*)
Christ, B.G. *et al., Z. Naturforsch., B*, 1977, **32**, 1195 (*isol, struct*)

3-Indolylmethyl glucosinolate I-17

Glucobrassicin
[4356-52-9]



$C_{16}H_{20}N_2O_9S_2$ 448.474
Constit. of *Brassica* and *Raphanus* spp., e.g. rape (*Brassica napus* var. *napus*) and Brussels sprouts (*Brassica oleracea* var. *gemmifera*). Minor constit. of *Moricandia arvensis* (Cruciferae).
Mp 149-150° (as Me_4N salt). $[\alpha]_D^{22}$ -13.3 (Me_4N salt).

N-*Ac: (1-Acetyl-1*H*-indol-3-yl)methyl glucosinolate.* **N-*Acetylglucobrassicin***
[103951-50-4]
$C_{18}H_{22}N_2O_{10}S_2$ 490.511
Present in *Tovaria pendulata* seedlings.

N-*Sulfonic acid: (1-Sulfo-1*H*-indol-3-yl)-methyl glucosinolate, 9CI.* ***Sulfoglucobrassicin***
[29702-28-1]
$C_{16}H_{20}N_2O_{12}S_3$ 528.538
Isol. from woad (*Isatis tinctoria*). Cryst. (EtOH aq.) (as Me_4N salt).
Mp 156° dec. (Me_4N salt).

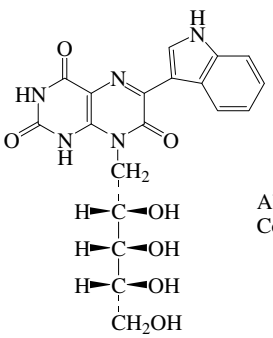
N-*Methoxy:* ***Neoglucobrassicin***. N-*Methoxyglucobrassicin*
[5187-84-8]
$C_{17}H_{22}N_2O_{10}S_2$ 478.5
Widespread in *Brassica* spp. and found in the Cruciferae, Tovariaceae, Capparidaceae and Resedaceae.
Mp 175° dec. (as brucine salt).

N,*4-Dimethoxy:* ***1,4-Dimethoxyglucobrassicin***
$C_{18}H_{24}N_2O_{11}S_2$ 508.526
Isol. from the roots of *Barbarea vulgaris* ssp. *arcuata*.

Gmelin, R. *et al., Suom. Kemistil. B*, 1961, **34**, 15 (*isol*)
Gmelin, R. *et al., Acta Chem. Scand.*, 1962, **16**, 1378 (*Neoglucobrassicin*)
Gmelin, R. *et al., CA*, 1965, **63**, 5584
Schraudolf, H. *et al., Experientia*, 1965, **21**, 520 (*occur*)
Elliott, M.C. *et al., Phytochemistry*, 1970, **9**, 1629 (*sulfonic acid*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410 (*ms*)
Hanley, A.B. *et al., J. Sci. Food Agric.*, 1983, **34**, 869 (*isol*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*cmr, pmr*)
Schraudolf, H. *et al., Z. Naturforsch., C*, 1986, **41**, 526 (*acetyl*)
Belkhiri, A. *et al., Phytochemistry*, 1990, **29**, 1315 (*isol, uv, pmr*)
Viaud, M.C. *et al., Tet. Lett.*, 1990, **31**, 1417 (*synth*)
Agerbirk, N. *et al., J. Agric. Food Chem.*, 2001, **49**, 1502-1507 (*1,4-Dimethoxyglucobrassicin*)

6-(1*H*-Indol-3-yl)-8-(2,3,4,5-tetrahydroxypentyl)-2,4,7-(1*H*,3*H*,8*H*)-pteridinetrione, 9CI I-18

[23140-55-8]



Absolute Configuration

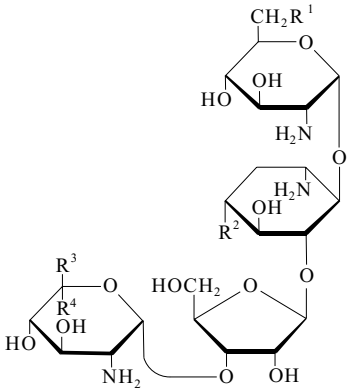
$C_{19}H_{19}N_5O_7$ 429.388

D-*ribo*-*form*
Isol. from *Pseudomonas ovalis*.
Yellow cryst. (AcOH aq.).
Mp 285-286° dec.

Macnult, W.S. *et al., Biochemistry*, 1969, **8**, 1370
Suzuki, Z. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 1869

Inosamycin A I-19

1-Deamino-1-hydroxyneomycin B. BMY 28162. BU 2659. Antibiotic BMY 28162. Antibiotic Bu 2659
[91421-97-5]



$R^1 = NH_2$, $R^2 = OH$, $R^3 = H$, $R^4 = CH_2NH_2$

$C_{23}H_{45}N_5O_{14}$ 615.634

Aminoglycoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Shows broad spectrum of antibacterial activity. Sol. H_2O, MeOH; poorly sol. butanol, hexane. Similar to Neomycin B, N-23.

▶ LD_{50} (mus, ivn) 110 mg/kg , LD_{50} (mus, ipr) 460 mg/kg , LD_{50} (mus, scu) 720 mg/kg. NM7524400

Sulfate (1:2.5):
Amorph. + $2H_2O$. Mp 210-215° dec. $[\alpha]_D^{25}$ +52 (c, 0.6 in H_2O).

Penta-N-*Ac:*
Cryst. (Me_2CO). Mp 166-174°. $[\alpha]_D^{26.5}$ +41 (c, 0.6 in MeOH).

Tsunakawa, M. *et al., J. Antibiot.*, 1985, **38**, 1302; 1313 (*isol, struct, props*)

Inosamycin B I-20

BMY 28163. Antibiotic BMY 28163
[91465-52-0]
As Inosamycin A, I-19 with $R^1 = NH_2$, $R^2 = OH$, $R^3 = CH_2NH_2$, $R^4 = H$

$C_{23}H_{45}N_5O_{14}$ 615.634

Aminoglycoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Shows broad spectrum antibacterial activity. Amorph. solid + $2.5H_2O$ (as sulfate salt). Sol. H_2O, MeOH; poorly sol. butanol, hexane.
Mp 200-206° dec. (sulfate). $[\alpha]_D^{25}$ +73 (c, 0.6 in H_2O).

▶ LD_{50} (mus, scu) 720 mg/kg.

Tsunakawa, M. *et al., J. Antibiot.*, 1985, **38**, 1302; 1313 (*isol, struct, props*)

Inosamycin C I-21

BMY 28164. Antibiotic BMY 28164. 1-Deamino-1-hydroxyparomomycin B
[91421-96-4]
As Inosamycin A, I-19 with $R^1 = R^2 = OH$, $R^3 = H$, $R^4 = CH_2NH_2$

$C_{23}H_{44}N_4O_{15}$ 616.618

Aminoglycoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Shows broad spectrum antibacterial activity. Amorph. solid + $3H_2O$ (as sulfate salt). Sol. H_2O, MeOH; poorly sol. butanol, hexane.
Mp 195-201° dec. (sulfate). Similar to Paromomycin, P-13.

Tsunakawa, M. *et al., J. Antibiot.*, 1985, **38**, 1302; 1313 (*isol, struct, props*)

Inosamycin D I-22

BMY 28165. Antibiotic BMY 28165
[91421-98-6]
As Inosamycin A, I-19 with $R^1 = NH_2$, $R^2 = OH$, $R^3 = H$, $R^4 = CH_2OH$

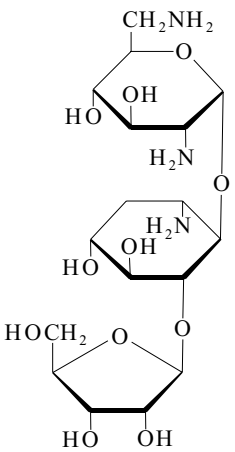
$C_{23}H_{44}N_4O_{15}$ 616.618

Aminoglycoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Shows broad spectrum antibacterial activity. Amorph. solid + $3H_2O$ (disulfate salt). Sol. H_2O, MeOH; poorly sol. butanol, hexane.
Mp 193-204° dec. (disulfate). $[\alpha]_D^{25}$ +52.5 (c, 0.6 in H_2O).

Tsunakawa, M. *et al., J. Antibiot.*, 1985, **38**, 1302; 1313 (*isol, struct, props*)

Inosamycin E I-23

1-Deamino-1-hydroxyribostamycin
[91465-53-1]



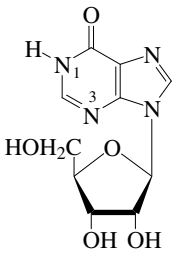
$C_{17}H_{33}N_3O_{11}$ 455.461

Aminoglycoside antibiotic. Prod. by *Streptomyces hygroscopicus*. Shows broad spectrum of antibacterial activity. Amorph. solid + $2\frac{1}{2}H_2O$ (sesquisulfate salt). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.
Mp 195-218° dec. (sulfate). $[\alpha]_D^{25}$ +47 (c, 0.37 in H_2O). Related to Ribostamycin, R-143.

Tsunakawa, M. *et al., J. Antibiot.*, 1985, **38**, 1302; 1313 (*isol, struct, props*)

Inosine, 9CI, INN, JAN I-24

1,9-Dihydro-9-β-D-ribofuranosyl-6H-purin-6-one, 9CI. 9-β-D-Ribofuranosylhypoxanthine, 8CI. Hypoxanthine riboside. Hypoxanthosine. Aminosin†. Carnine. Delimmun. Inosie. Oxiamine. Trophicardyl
[58-63-9]



1*H-form*

$C_{10}H_{12}N_4O_5$ 268.229
Present in meat extracts and sugar beet. Also prod. by microorganisms, e.g. *Bacillus subtilis, E. coli, Saccharomyces cerevisiae, Fusarium* spp. A minor constit. of *t*-RNA's. Activates cellular functions. Cardiotonic. Suggested to be capable of forming base pairs with Adenine, Cytosine or Uracil thus contributing to genetic code degeneracy by causing stable mispairings. Used to treat cardiac disorders.
Mp 215° dec. $[\alpha]_D^{18}$ -49.2 (c, 0.9 in H_2O). pK_{a1} 1.5; pK_{a2} 8.85; pK_{a3} 12.5 (25°). Log P -3.76 (calc). λ_{max} 249 (ε 12200) (H_2O) (pH 6).

▶ Probable mutagen. Exp. reprod. effects (very high dose) LD_{50} (mus, ivn) 3000 mg/kg. NM7460000

Salt with 1-(dimethylamino)-2-propanol 4-acetamidobenzoate: ***Inosine pranobex, BAN, JAN****. Imunovir. Inosiplex. Isoprinosine. Methisoprinol. Prinosine. Many other names*
[36703-88-5] Antiviral, immunostimulant. Used in the treatment of HIV infection.

▶ NM7461240

5′-Phosphate: See Inosinic acid, I-26

5′-Diphosphate: [86-04-4]
[71672-86-1]
$C_{10}H_{14}N_4O_{11}P_2$ 428.188
Mp 230-231° dec. (as tri-Na salt).

5′-Triphosphate: Inosine 5′-(tetrahydrogen triphosphate). Inosine triphosphate. ITP
[132-06-9]
$C_{10}H_{15}N_4O_{14}P_3$ 508.168
No phys. props. reported.

3′-Ac: [28224-91-1]
$C_{12}H_{14}N_4O_6$ 310.266
Cryst. (MeOH). Mp 208.5-210°.

5′-Ac: [28526-32-1]
$C_{12}H_{14}N_4O_6$ 310.266
Solid (MeOH). Mp 228-230°.

2′,3′-Di-Ac: [4152-78-7]
$C_{14}H_{16}N_4O_7$ 352.303
Cryst. (MeOH). Mp 212-213°.
$[\alpha]_D^{45}$ -38.6 (c, 1 in MeOH).

2′,3′,5′-Tri-Ac: [3181-38-2]
$C_{16}H_{18}N_4O_8$ 394.34
Mp 194-195° Mp 236°.

2′,3′-O-*Isopropylidene:* [2140-11-6]
$C_{13}H_{16}N_4O_5$ 308.293
Mp 274°.

5′-Trityl:
$C_{29}H_{26}N_4O_5$ 510.548
Mp 199-200° Mp 253-254°.

3′-O-*α-D-Glucopyranosyl:* ***3′*-O-*α*-D-Glucopyranosylinosine***
$C_{16}H_{22}N_4O_{10}$ 430.371
Isol. from the crustacean *Ligia exotica*. Amorph. solid. $[\alpha]_D^{20}$ +38 (c, 0.34 in H_2O). λ_{max} 248 (ϵ 8400) (H_2O).

1*H*-form

1-Me: 1-Methylinosine
[2140-73-0]
$C_{11}H_{14}N_4O_5$ 282.255
Isol. from yeast t-RNA.
Mp 211-212°. λ_{max} 249 (H_2O).

1-Amino: 1-Aminoinosine, 9CI, 8CI
[19029-66-4]
$C_{10}H_{13}N_5O_5$ 283.243
Mp 235-237°. λ_{max} 251; 266 (MeOH). λ_{max} 250 (ϵ 9900) (aq. acid) (pH 1). λ_{max} 251 (ϵ 9900) (aq. alkali) (pH 11).

3*H*-form

3-Me: 3-Methylinosine
$C_{11}H_{14}N_4O_5$ 282.255
Mp 172-173° (monohydrate). $[\alpha]_D^{26}$ -44.1 (c, 0.37 in H_2O). Unstable at pH 1 and 13. λ_{max} 259 (ϵ 13900) (H_2O) (pH 1).

3-Me, 2′,3′,5′-tri-Ac:
$C_{17}H_{20}N_4O_8$ 408.367
Mp 161.5-162.5°. λ_{max} 253 (ϵ 11500); 259 (ϵ 13000) (aq. acid) (pH 1).

***OH*-form**

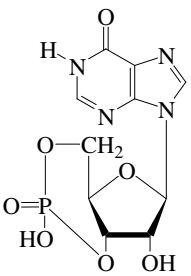
6-O-*[2-Hydroxy-1-(hydroxymethyl)-ethyl]:* ***6*-O-*(1,3-Dihydroxyisopropyl)*-inosine***
[193889-60-0]
$C_{13}H_{18}N_4O_7$ 342.308
Constit. of *Pedicularis longiflora*.

[35908-31-7]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 712B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 215C (*nmr*)
Gulland, J.M. *et al., J.C.S.*, 1936, 765 (*struct*)
Kleinzeller, A. *et al., Biochem. J.*, 1942, **36**, 729 (*triphosphate*)
Hall, R.H. *et al., Biochem. Biophys. Res. Commun.*, 1963, **13**, 394 (*isol, deriv*)
Kinichi, I. *et al., Chem. Pharm. Bull.*, 1966, **14**, 1377 (*synth*)
Japan. Pat., 1968, 68 13 215; *CA*, **70**, 47808 (*synth, isopropylidene*)
Broom, A.D. *et al., J.O.C.*, 1969, **34**, 1025 (*1-Aminoinosine*)
Munns, A.R.I. *et al., Acta Cryst. B*, 1970, **26**, 1114 (*cryst struct*)
Green, D.P.L. *et al., Tetrahedron*, 1970, **26**, 1031 (*3′-Ac*)
Ger. Pat., 1972, 2038262; *CA*, **76**, 99993e (*synth*)
Smith, C.M. *et al., Biochem. Pharmacol.*, 1974, **23**, 2727; *CA*, **82**, 106228p (*1-Aminoinosine*)
Chenon, M.T. *et al., J.A.C.S.*, 1975, **97**, 4627 (*cmr*)
Westhof, E. *et al., Z. Naturforsch., C*, 1975, **30**, 131 (*pmr*)
Tran Dinh Son, *et al., Biochim. Biophys. Acta*, 1977, **500**, 405-418 (*pmr, conformn, triphosphate*)
Hawkes, G.E. *et al., J.C.S. Perkin 2*, 1977, 1268 (*N-15 nmr*)
Yamazaki, A. *et al., J. Het. Chem.*, 1978, **15**, 353 (*rev, synth*)
Itaya, T. *et al., Tet. Lett.*, 1978, 4047 (*3-Me*)
Aviado, D.M. *et al., J. Pharmacol.*, 1983, **14**, 47 (*rev, pharmacol*)
Campoli-Richards, D.M. *et al., Drugs*, 1986, **32**, 383 (*rev, Inosine pranobex*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 1551
Reily, M.D. *et al., J.A.C.S.*, 1988, **110**, 2999-3007 (*pmr, P-31 nmr, triphosphate*)
De Simone, C. *et al., Int. J. Immunopharmacol.*, 1991, **13**, 19 (*rev, Inosine pranobex*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 548; 1379
Huhn, G.F. *et al., Sep. Sci. Technol.*, 1993, **28**, 1959-1970 (*5′-diphosphate, purifn*)
Partridge, B.L. *et al., Acta Cryst. C*, 1995, **51**, 1929 (*cryst struct, 1-Me*)
Wang, C. *et al., CA*, 1997, **127**, 173867g (*Dihydroxyisopropylinosine*)
Kim, S.H. *et al., J. Nat. Prod.*, 2000, **63**, 1188-1191 (*3′-α-D-glucosyl*)
Ciuffreda, P. *et al., Tetrahedron*, 2000, **56**, 3239-3243 (*2′,3′-di-Ac, synth, pmr*)
Ciuffreda, P. *et al., Eur. J. Org. Chem.*, 2003, 4748-4751 (*5′-Ac*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, IDE000

Inosine cyclic 3′,5′-phosphate, 8CI I-25

Inosine cyclic 3′,5′-(hydrogen phosphate), 9CI. 3′,5′-cIMP
[3545-76-4]
[82203-20-1]



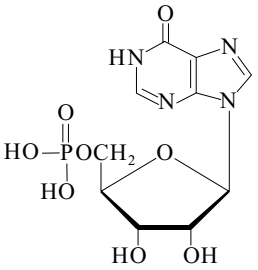
$C_{10}H_{11}N_4O_7P$ 330.193
Large cryst. + $1H_2O$ (H_2O).

[26918-08-1, 34245-77-7, 40732-46-5, 41092-64-2]

Lipkin, D. *et al., J.A.C.S.*, 1959, **81**, 6198 (*synth*)
Rudolph, S.A. *et al., J. Biol. Chem.*, 1971, **246**, 1271 (*uv*)
Meyer, R.B. *et al., Biochemistry*, 1972, **11**, 2704 (*synth*)
Eto, M. *et al., Agric. Biol. Chem.*, 1974, **38**, 2081 (*synth, uv, pmr*)
Kainosho, M. *et al., J.A.C.S.*, 1975, **97**, 6839 (*conformn, cmr, pmr*)
Dutta, S. *et al., Anal. Biochem.*, 1976, **75**, 649 (*hplc*)
Fazakerley, G.V. *et al., Eur. J. Biochem.*, 1977, **76**, 601 (*conformn, pmr*)
Sundaralingam, M. *et al., Acta Cryst. B*, 1982, **38**, 1536 (*cryst, struct*)
Geuieser, H.G. *et al., Synthesis*, 1989, 53 (*synth, pmr, P-31 nmr*)

Inosinic acid, 8CI I-26

5′-Inosinic acid, 9CI. Inosine 5′-dihydrogen phosphate. Inosine 5′-monophosphate. Inosine 5′-phosphate. Inosine 5′-phosphoric acid. IMP. E630
[131-99-7]



$C_{10}H_{13}N_4O_8P$ 348.208
Isol. from yeast and other microorganisms. Syrup which solidifies to a glass on drying. $[\alpha]_D^{20}$ -18.5 (c, 3.0, Ba salt in 2.5% HCl). pK_{a1} 2.4; pK_{a2} 6.4.

▶ LD_{50} (rat, orl) 16000 mg/kg. NM7519000

Di-Na salt: Disodium inosinate. E631
[4691-65-0] Used in enzyme analysis; flavour enhancer. Mp 175° dec. (as monohydrate).

▶ NM7519500

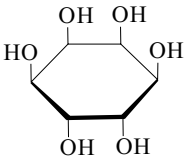
Homopolymer, complex with 5′-cytidylic acid polymer with 5′-uridylic acid (1:1): ***Ampligen****. Oragen. Poly (I): Poly ($C_{12}U$)*
[38640-92-5] Antiviral agent and immunomodulator. Potentially useful in the treatment of chronic fatigue syndrome. Synth. mismatched, double stranded RNA. Phase III clinical trials (USA 1998)

Levene, P.A. *et al., J. Biol. Chem.*, 1935, **111**, 313
Kalckar, H.M. *et al., J. Biol. Chem.*, 1947, **167**, 429
Korn, E.D. *et al., J. Biol. Chem.*, 1955, **217**, 875 (*synth*)
Kallenbach, N.R. *et al., Biopolymers*, 1972, **11**, 1613-1620 (*ampligen, formn, kinetics*)
Takaku, H. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1844 (*synth*)
Nagashima, N. *et al., Acta Cryst. B*, 1974, **30**, 320 (*cryst struct*)
Evans, F.E. *et al., J.A.C.S.*, 1975, **97**, 3215 (*conformn, pmr*)
Williams, T.J. *et al., Arch. Biochem. Biophys.*, 1976, **172**, 490 (*cmr*)
Ts'O, P.O.P *et al., Mol. Pharmacol.*, 1976, **12**, 299-312; 440-453 (*ampligen, pharmacol*)
Brown, E.A. *et al., Acta Cryst. B*, 1980, **36**, 2597 (*cryst struct*)
Watanabe, E. *et al., Anal. Chim. Acta*, 1984, **164**, 139
Montefiori, D.C. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1987, **84**, 2985-2989 (*ampligen, pharmacol*)
Carter, W.A. *et al., J. Immunopharmacol.*, 1991, **13**, 69-76 (*ampligen, rev*)
Carter, W.A. *et al., Ann. N.Y. Acad. Sci.*, 1993, **685**, 758-761 (*ampligen, rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1362
Ablashi, D.V. *et al., In Vivo*, 1994, **8**, 587-592 (*ampligen, pharmacol*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 895
Essey, R.J. *et al., Antiviral Res.*, 2001, **51**, 189-202 (*activity, ampligen*)

Drugs RD, 2002, **3**, 132-138 (*rev, ampligen*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DXE500; IDE200

allo-Inositol, 9CI, 8CI I-27

(1α,2α,3α,4α,5β,6β)-Cyclohexanehexol. 1,2,3,4/5,6-Inositol. Alloinositol
[643-10-7]



$C_6H_{12}O_6$ 180.157

The inositols are stereoisomeric cyclohexanehexols. There are nine isomers, seven *meso*-forms and one DL-pair. For the other isomers, see separate entries. First synthesised in 1939 but results were not fully publ. until 1987 (Dangschat *et al*). Mp 270-280° (320°) dec. Opt. inactive (*meso*-).

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl*-allo-*inositol*
[29267-04-7]
$C_{18}H_{24}O_{12}$ 432.38
Cryst. (CH_2Cl_2/hexane). Mp 144°.

1,2:3,4:5,6-Tri-O-*isopropylidene: 1,2:3,4:5,6-Tri*-O-*isopropylidene*-allo-*inositol*
$C_{15}H_{24}O_6$ 300.351
Mp 107°.

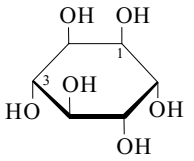
1,4-Anhydro, 2,3,5,6-tetra-Ac: 2,3,5,6-Tetra-O-*acetyl-1,4-anhydro*-allo-*inositol*
[36912-06-8]
$C_{14}H_{18}O_9$ 330.291
Mp 128°.

[40461-73-2]

Angyal, S.J. *et al., J.C.S.*, 1962, 2985-2991 (*triisopropylidene*)
Posternak, T. *et al., The Cyclitols*, Holden-Day, 1965,
Anderson, L. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 520 (*rev*)
Kowarski, C.R. *et al., J.O.C.*, 1973, **38**, 117-119 (*synth, 1,4-anhydro*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43 (*cmr*)
Dangschat, G. *et al., Carbohydr. Res.*, 1987, **164**, 343 (*synth, config*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052 (*synth, pmr*)
Hudlicky, T. *et al., J.C.S. Perkin 1*, 1993, 741; 1537 (*synth*)
Desjardins, M. *et al., Carbohydr. Res.*, 1997, **304**, 39-42 (***synth***)
Podeschwa, M. *et al., Eur. J. Org. Chem.*, 2003, 1958-1972 (*synth*)

chiro-Inositol, 9CI, 8CI I-28

(1α,2α,3β,4α,5β,6β)-Cyclohexanehexol. 1,2,4/3,5,6-Inositol. Chiroinositol



D–*form*

$C_6H_{12}O_6$ 180.157

D-*form*

d-*Inositol. Matezodambose*
[643-12-9]
Component of Kasugamycin, K-6.
Mp 248°. $[\alpha]_D$ +65 (H_2O).

2-O-*α-D-Galactopyranoside: 2*-O-*α-D-Galactopyranosyl-D*-chiro-*inositol.* ***Fagopyritol B$_1$***
[79391-04-1]
$C_{12}H_{22}O_{11}$ 342.299
Isol. from soya beans (*Glycine max*) and jojoba beans (*Simmondsia chinensis*) and also from *Fagopyrum esculentum* (buckwheat). Powder.
Mp 165-170° dec. $[\alpha]_D$ +170. $[\alpha]_D^{24}$ +130 (c, 0.5 in H_2O).

2-O-*[α-D-Galactopyranosyl-(1→6)-α-D-galactopyranoside]:* ***Fagopyritol B$_2$***
[116261-02-0]
$C_{18}H_{32}O_{16}$ 504.441
Constit. of sugar beet (*Beta vulgaris*) and buckwheat (*Fagopyrum esculentum*) and *Lupinus albus*.
$[\alpha]_D^{20}$ +177.2.

2-O-*[α-D-Galactopyranosyl-(1→6)-α-D-galactopyranosyl-(1→6)-α-D-galactopyranoside]:* ***Fagopyritol B$_3$***
[208708-11-6]
$C_{24}H_{42}O_{21}$ 666.583
Constit. of buckwheat (*Fagopyrum esculentum*). Proposed struct.

1-Me: 1-O-*Methyl-D*-chiro-*inositol*
[58769-21-4]
$C_7H_{14}O_6$ 194.184
Present in *Afrormosia elata*.
Mp 207-208°. $[\alpha]_D^{20}$ +60.7 (c, 2 in H_2O).

1-Me, penta-Ac: 2,3,4,5,6-Penta-O-*acetyl-1*-O-*methyl-D*-chiro-*inositol*
[135267-03-7]
$C_{17}H_{24}O_{11}$ 404.37
Mp 111-112°. $[\alpha]_D^{19}$ +29.1 (c, 2 in $CHCl_3$).

3-Me: 3-O-*Methyl-D*-chiro-*inositol.* ***D-Pinitol****. Matezitol. Sennitol. Cathartomannitol*
[10284-63-6]
$C_7H_{14}O_6$ 194.184
Widely distributed in plants. Produced on a large scale from the heartwood of *Pinus lambertiana*. Chiral synthetic precursor. Shows hypoglycaemic and antidiabetic activity. Feeding stimulant for larvae of butterfly *Eurema hecabe mandarina*, inhibitor of *Heliothis zea* larval growth.
Mp 185-186°. $[\alpha]_D^{20}$ +67 (c, 2.5 in H_2O).

3-Me, 2-O-*[α-D-galactopyranosyl-(1→6)-α-D-galactopyranosyl-(1→6)-α-D-galactopyranoside]:* [136788-71-1]
$C_{25}H_{44}O_{21}$ 680.61
Constit. of the seeds of *Mimosa scabrella* and *Vicia villosa*.

3-Me, 1,2:5,6-di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-3*-O-*methyl-D*-chiro-*inositol*
[57819-56-4]
$C_{13}H_{22}O_6$ 274.313
Mp 105-106°. $[\alpha]_D^{23}$ -45.4 ($CHCl_3$).

4-Me, 2-O-*α-D-galactopyranoside:* ***Galactopinitol A***
[64290-91-1]
$C_{13}H_{24}O_{11}$ 356.326
Constit. of soya bean seeds and numerous other plant spp. in the Leguminosae.
Viscous syrup. $[\alpha]_D^{25}$ +180 (c, 0.2 in H_2O).

4-Me, 2-O-*β-D-galactopyranoside:* ***Galactopinitol B***
[88199-72-8]
$C_{13}H_{24}O_{11}$ 356.326
Constit. of soya beans and *Lupinus albus*.

3-Me, 2-O-*α-D-galactopyranoside: 2*-O-*α-D-Galactopyranosyl-3*-O-*methyl-D*-chiro-*inositol*
[79391-03-0]
$C_{13}H_{24}O_{11}$ 356.326
Isol. from soya bean (*Glycine max*) seeds and jojoba meal (*Simmondsia chinensis*).
Powder. $[\alpha]_D$ +159.

4-Me, 2-O-*[α-D-galactopyranosyl-(1→6)-α-D-galactopyranoside]:* ***Ciceritol***
[88167-26-4]
$C_{19}H_{34}O_{16}$ 518.468
Constit. of chick pea seeds (*Cicer arietinum*), lentil seeds (*Lens esculenta*) and other plant spp. in the Leguminosae.

4-Me, 2-O-*[α-D-galactopyranosyl-(1→6)-α-D-galactopyranosyl-(1→6)-α-D-galactopyranoside]:* ***6''-O-α-D-Galactopyranosylciceritol***
[92675-08-6]
$C_{25}H_{44}O_{21}$ 680.61
Constit. of *Cicer arietinum*.

1,4-Di-Me: 1,4-Di-O-*methyl-D*-chiro-*inositol.* ***Pinopollitol***
[56246-31-2]
$C_8H_{16}O_6$ 208.211
Constit. of the pollen of *Pinus radiata*.
Hygroscopic syrup. $[\alpha]_D^{22.5}$ +50 (c, 0.79 in MeOH).

1,4-Di-Me, 2,3:5,6-di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-1,4-di*-O-*methyl-D*-chiro-*inositol*
$C_{14}H_{24}O_6$ 288.34
Needles. Mp 96-98°. $[\alpha]_D^{22.5}$ +65.8 (c, 0.64 in MeOH).

3,4-Di-Me: 3,4-Di-O-*methyl-D*-chiro-*inositol*
[40617-59-2]
$C_8H_{16}O_6$ 208.211
Mp 191-193°. $[\alpha]_D^{20}$ +73 (c, 2.0 in H_2O).

3-O-*α-D-Galactopyranoside: 3*-O-*α-D-Galactopyranosyl-D*-chiro-*inositol.* ***Fagopyritol A$_1$***
[209287-65-0]
$C_{12}H_{22}O_{11}$ 342.299
Isol. from buckwheat seeds (*Fagopyrum esculentum*).

3-Me, 5-O-α-D-*galactopyranoside: 5*-O-α-D-*Galactopyranosyl-3*-O-*methyl*-D-chiro-*inositol*
$C_{13}H_{24}O_{11}$ 356.326
Constit. of jojoba meal, *Simmondsia chinensis*.

3-O-*[*α-D-*Galactopyranosyl-(1→6)*-α-D-*galactopyranoside]:* **Fagopyritol A_2**
$C_{18}H_{32}O_{16}$ 504.441
Constit. of *Fagopyrum esculentum*.

3-O-*[*α-D-*Galactopyranosyl-(1→6)*-α-D-*galactopyranosyl-(1→6)*-α-D-*galactopyranoside]:* **Fagopyritol A_3**
$C_{24}H_{42}O_{21}$ 666.583
Constit. of *Fagopyrum esculentum* (buckwheat).

L-*form*

l-*Inositol. Laevoinositol. Levoinositol*
[551-72-4]
Widely distributed in higher plants predominantly as its monomethyl ether.
Mp 246°. $[\alpha]_D$ -65 (H_2O).

1,2,3,5-Tetra-O-*angeloyl:* [82668-02-8]
$C_{26}H_{36}O_{10}$ 508.564
Constit. of *Inula cappa*. Gum. $[\alpha]_D^{24}$ +4.4 (c, 1 in $CHCl_3$).

1,2,4,5-Tetra-O-*angeloyl:* [82668-03-9]
$C_{26}H_{36}O_{10}$ 508.564
Constit. of *Inula cappa*.

1,5-Bis(4-hydroxyphenylacetyl): **1,5-Bis(4-hydroxyphenylacetyl)-L-chiro-*inositol***
[245043-95-2]
$C_{22}H_{24}O_{10}$ 448.426
Constit. of *Taraxacum linearisquameum*. Cryst.
Mp 190-193° dec. $[\alpha]_D^{20}$ -20 (c, 0.13 in H_2O).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene*-L-chiro-*inositol*
[65556-81-2]
$C_{12}H_{20}O_6$ 260.286
Mp 153°. $[\alpha]_D^{20}$ -4.7 (c, 1.2 in EtOH).

1,2:5,6-Di-O-*isopropylidene, 3,4-di-Ac: 3,4-Di*-O-*acetyl-1,2:5,6-di*-O-*isopropylidene*-L-chiro-*inositol*
[39110-60-6]
$C_{16}H_{24}O_8$ 344.361
Mp 129°. $[\alpha]_D^{22}$ -116.5 (c, 2.1 in $CHCl_3$).

1,2:5,6-Di-O-*isopropylidene, 3,4-ditosyl: 1,2:5,6-Di*-O-*isopropylidene-3,4-di*-O-*tosyl*-L-chiro-*inositol*
[18391-46-3]
$C_{26}H_{32}O_{10}S_2$ 568.665
Mp 146-147°. $[\alpha]_D^{14}$ -79.5 (c, 2.6 in $CHCl_3$).

1,2:3,4:5,6-Tri-O-*isopropylidene: 1,2:3,4:5,6-Tri*-O-*isopropylidene*-L-chiro-*inositol*
[90694-04-5]
$C_{15}H_{24}O_6$ 300.351
Mp 213-214°. $[\alpha]_D^{25}$ +38.1 (c, 1.0 in $CHCl_3$).

1-Me: 1-O-*Methyl*-L-chiro-*inositol*
[17405-65-1]
$C_7H_{14}O_6$ 194.184
Mp 207°. $[\alpha]_D^{18}$ -58 (c, 1.5 in H_2O).

1-Me, penta-Ac: 2,3,4,5,6-Penta-O-*acetyl-1*-O-*methyl*-L-chiro-*inositol*
[17230-39-6]
$C_{17}H_{24}O_{11}$ 404.37
Mp 111°. $[\alpha]_D^{18}$ -31 (c, 3.8 in EtOH).

2-Me: 2-O-*Methyl*-L-chiro-*inositol.* **L-*Quebrachitol***. *Brahol*
[642-38-6]
$C_7H_{14}O_6$ 194.184
Widely distributed in plants, isol. from rubber latex. Prod. on large scale from *Hevea brasiliensis*. Synth. precursor.
Mp 191°. $[\alpha]_D^{20}$ -80.3 (H_2O). Struct. of Brahol revised in 2004.

2-Me, 5,6-O-*isopropylidene: 5*-O-*Methyl-1,2*-O-*isopropylidene*-L-chiro-*inositol, 9CI. 5,6*-O-*Isopropylidene-2*-O-*methyl*-L-chiro-*inositol*
[17230-37-4]
$C_{10}H_{18}O_6$ 234.249
Mp 134-135°. $[\alpha]_D^{23}$ -88.8 (c, 1.6 in H_2O).

2-Me, 3,4:5,6-di-O-*isopropylidene: 3,4:5,6-Di*-O-*isopropylidene-2*-O-*methyl*-L-chiro-*inositol*
[58769-23-6]
$C_{13}H_{22}O_6$ 274.313
Mp 72°. $[\alpha]_D^{20}$ -8.2 (c, 2 in $CHCl_3$).

3-Me: 3-O-*Methyl*-L-chiro-*inositol.* **L-*Pinitol***
[3559-00-0]
$C_7H_{14}O_6$ 194.184
Present in tarragon (*Artemisia dracunculus*) and other *Artemisia* spp. Shows antifungal activity.
Mp 186°. $[\alpha]_D$ -65 (c, 2 in H_2O).

1-O-*(2-Methylbutanoyl), 2*-O-*(2-methylpropanoyl), 6-Ac:* [132536-75-5]
$C_{17}H_{28}O_9$ 376.403
Constit. of *Hymenoxys biennis*. Gum. Tentative identification of substits.

1,2-Bis-O-*(2-methylbutanoyl), 6-Ac:*
[132536-76-6]
$C_{18}H_{30}O_9$ 390.43
Constit. of *Hymenoxys biennis*. Gum. Tentative identification of substits.

5-O-*(3-Methyl-2-butenoyl), 3*-O-*(2-methylbutanoyl), 1*-O-*(2-methylpropanoyl):* [129744-03-2]
$C_{20}H_{32}O_9$ 416.467
Constit. of *Hymenoxys texana*.

5-O-*(3-Methyl-2-butenoyl), 1,3-bis*-O-*(2-methylbutanoyl):*
$C_{21}H_{34}O_9$ 430.494
Constit. of *Hymenoxys texana*.

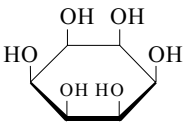
(±)-*form*

Hexa-Ac: Hexa-O-*acetyl*-DL-chiro-*inositol*
[70878-34-1]
$C_{18}H_{24}O_{12}$ 432.38
Cryst. (Et_2O/hexane). Mp 113-114°.

Anderson, A.B. *et al., J.A.C.S.*, 1952, **74**, 1479-1480 (D-*Pinitol, struct*)
Angyal, S.J. *et al., J.C.S.*, 1952, 686-695 (*Pinitol, Quebrachitol, struct*)
Angyal, S.J. *et al., J.A.C.S.*, 1955, **77**, 4343-4346 (L-*form 1-Me, synth*)
Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1956, **243**, 1913-1915 (L-*Pinitol, isol*)
Angyal, S.J. *et al., J.C.S.*, 1962, 2985-2991 (*Quebrachitol*)
Foxall, C.D. *et al., J.C.S.*, 1963, 5573-5575 (D-*form 1-Me, isol*)
Kindl, H. *et al., Prog. Chem. Org. Nat. Prod.*, 1966, **24**, 149-205 (*rev*)
Dorman, D.E. *et al., J.A.C.S.*, 1970, **92**, 1351-1354 (*cmr*)
McConnell, J.F. *et al., J.C.S. Perkin 2*, 1972, 2039-2044 (L-*form, 1,2:5,6-di-O-isopropylidene 3,4-ditosyl, cryst struct*)
Gallagher, R.T. *et al., Phytochemistry*, 1975, **14**, 755 (*Pinopollitol, isol, ms*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 219 (*Pinopollitol, synth, struct, pmr*)
Blunt, J.W. *et al., Aust. J. Chem.*, 1976, **29**, 1115 (*Pinopollitol, conformn, cmr*)
Beverage, R.J. *et al., Aust. J. Chem.*, 1977, **30**, 1583-1590 (*Galactosylpinitol*)
Paulsen, H. *et al., Annalen*, 1981, 2180-2203 (L-*form 2-Me isopropylidene derivs*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1981, **90**, 61-69 (*Galactosylpinitol*)
Schweizer, T.F. *et al., Carbohydr. Res.*, 1981, **95**, 61-71 (*2-galactoside, 4-Me 5-galactoside*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)
Bohlmann, F. *et al., Phytochemistry*, 1982, **21**, 780-783 (*angelates*)
Quemener, B. *et al., Phytochemistry*, 1983, **22**, 1745-1751 (*Ciceritol*)
Nicolas, P. *et al., Carbohydr. Res.*, 1984, **131**, 331-334 (*6″-α-D-Galactosylciceritol*)
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1987, **159**, 211-216 (L-*form, cryst struct*)
Shiomi, N. *et al., Agric. Biol. Chem.*, 1988, **52**, 1587-1588 (*Fagopyritol B_2*)
Chida, N. *et al., J. Carbohydr. Chem.*, 1989, **8**, 319-332 (*Quebrachitol, isol, use*)
Ley, S.V. *et al., Tetrahedron*, 1989, **45**, 3463-3476 (*Pinitol, synth*)
Gao, F. *et al., Phytochemistry*, 1990, **29**, 2273-2276; 3875-3880 (*Hymenoxys esters*)
Ganter, J. *et al., Plant Physiol. Biochem. (Paris)*, 1991, **29**, 139-146 (*Mimosa scabrella glycoside*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052-1060 (*synth, pmr, cmr*)
Mondal, D.N. *et al., J. Indian Chem. Soc.*, 1993, **70**, 651-652 (*Pinitol, config, pmr*)
Mandel, M. *et al., J.O.C.*, 1993, **58**, 2331-2333 (D-*form, synth*)
Agrawal, P.K. *et al., Indian J. Chem., Sect. B*, 1994, **33**, 803-805 (*Quebrachitol, isol, pmr, cmr*)
Huang, K.F. *et al., J. Chin. Chem. Soc. (Taipei)*, 1994, **41**, 115-117 (*cryst struct, Quebrachitol*)
Kiddle, J.J. *et al., Chem. Rev.*, 1995, **95**, 2189-2202 (*rev, Quebrachitol*)
Acena, J.L. *et al., Tetrahedron: Asymmetry*, 1996, **7**, 3535-3544 (D-*Pinitol, synth*)
Ogawa, K. *et al., Carbohydr. Res.*, 1997, **302**, 219-221 (*Galactosylpinitol*)
Kornienko, A. *et al., Carbohydr. Res.*, 1998, **310**, 141-144 (*galactosyl, synth*)
Kim, K.S. *et al., Chem. Comm.*, 1998, 1945-1946 (D-*form, synth*)
Takahashi, H. *et al., Tet. Lett.*, 1998, **39**, 9707-9710 (D-*form,* L-*form, synth*)
Zidorn, C. *et al., Phytochemistry*, 1999, **51**, 991-994; 2000, **53**, 317; **54**, 349 (*1,5-bis-4-hydroxyphenylacetate*)
Tan, R.X. *et al., Planta Med.*, 1999, **65**, 64-67 (*Pinitol, activity*)
Obendorf, R.L. *et al., Carbohydr. Res.*, 2000, **328**, 623-627 (*Fagopyritol A_1*)
Szczecinski, P. *et al., J. Agric. Food Chem.*, 2000, **48**, 2717-2720 (*trigalactosylpinitol*)
Steadman, K.J. *et al., Carbohydr. Res.*, 2001, **331**, 19-25 (*Fagopyritols A_2, A_3*)
Van Boven, M. *et al., J. Agric. Food Chem.*, 2001, **49**, 4278-4283 (*3-Me 2-,5-galactosides*)
Miethchen, R. *et al., Carbohydr. Res.*, 2002, **337**, 1-9 (*derivs, synth*)
Dowd, M.K. *et al., J. Carbohydr. Chem.*, 2002, **21**, 373-383 (D-*Pinitol,* L-*Quebrachitol, cryst struct*)
Podeschwa, M. *et al., Eur. J. Org. Chem.*, 2003, 1958-1972 (*synth*)
Larner, J. *et al., J. Med. Chem.*, 2003, **46**, 3283-3291 (*bis-isopropylidene, 3-Me, synth*)
Sureshan, K.M. *et al., Tet. Lett.*, 2004, **45**, 3197-3201 (*Brahol*)

cis-Inositol, 9CI, 8CI I-29

(1α,2α,3α,4α,5α,6α)-Cyclohexanehexol
[576-63-6]



$C_6H_{12}O_6$ 180.157
Flat needles (EtOH aq.). Mp 377° (part melts at 206-210°). Opt. inactive (*meso*-).

Hexa-Ac: Hexa-O-*acetyl*-cis-*inositol*
[29307-62-8]
$C_{18}H_{24}O_{12}$ 432.38
Mp 210-212°.

Hexabenzoyl: 1,2,3,4,5,6-Hexa-O-*benzoyl*-cis-*inositol*
$C_{48}H_{36}O_{12}$ 804.805
Mp 252°.

1,2:3,4-Di-O-*cyclohexylidene: 1,2:3,4-Di*-O-*cyclohexylidene*-cis-*inositol*
[34395-04-5]
$C_{18}H_{28}O_6$ 340.416
Mp 147-149°.

1,2:3,4-Di-O-*cyclohexylidene, 5-benzoyl: 1*-O-*Benzoyl-2,3:4,5-di*-O-*cyclohexylidene*-cis-*inositol*
[34361-63-2]
$C_{25}H_{32}O_7$ 444.524
Mp 197-198°.

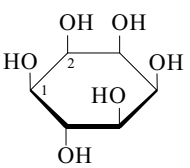
1,4-Anhydro, 2,3,5,6-tetra-Ac: 1,2,4,5-Tetra-O-*acetyl-3,6-anhydro*-cis-*inositol*
[36912-10-4]
$C_{14}H_{18}O_9$ 330.291
Mp 188-190°.

[41546-36-5]

Angyal, S.J. *et al., Carbohydr. Res.*, 1971, **20**, 97-104; 1982, **100**, 43-54; 1995, **266**, 143-146 (*synth, cmr*)
Kowarski, C.R. *et al., J.O.C.*, 1973, **38**, 117-119 (*1,4-anhydro*)

epi-Inositol, 9CI I-30

(1α,2α,3α,4α,5α,6β)-Cyclohexanehexol. 1,2,3,4,5/6-Inositol. Epiinositol
[488-58-4]



$C_6H_{12}O_6$ 180.157
Mp 304° dec. Opt. inactive (*meso*-).

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl*-epi-*inositol*
[20108-71-8]
$C_{18}H_{24}O_{12}$ 432.38
Mp 188°.

1,2:3,4-Di-O-*cyclohexylidene: 1,2:3,4-Di*-O-*cyclohexylidene*-epi-*inositol*
[34361-61-0]
$C_{18}H_{28}O_6$ 340.416
Mp 182-183°.

1,2:3,4-Di-O-*cyclohexylidene, 5-benzoyl:*
[34361-62-1]
$C_{25}H_{32}O_7$ 444.524
Mp 228-231°.

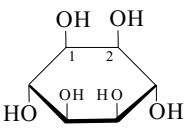
1,2:3,4:5,6-Tri-O-*cyclohexylidene: 1,2:3,4:5,6-Tri*-O-*cyclohexylidene*-epi-*inositol*
[34361-59-6]
$C_{24}H_{36}O_6$ 420.545
Mp 156-157°.

[41546-35-4]

Posternak, T. *et al., Helv. Chim. Acta*, 1946, **29**, 1991 (*synth*)
Jeffrey, G.A. *et al., Acta Cryst. B*, 1971, **27**, 1812 (*cryst struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1971, **20**, 97-104; 1982, **100**, 43 (*synth, cmr, derivs*)
Kowarski, C.R. *et al., J.O.C.*, 1973, **38**, 117-119 (*synth*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052 (*synth, pmr*)
Salazar-Pereda, V. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1479-1507 (*pmr, cmr, conformn*)

muco-Inositol, 9CI, 8CI I-31

(1α,2α,3β,4α,5α,6β)-Cyclohexanehexol. 1,2,4,5/3,6-Inositol. Mucoinositol
[488-55-1]



$C_6H_{12}O_6$ 180.157
First synthesised in 1939 but results were not fully publ. until 1987 (Dangschat *et al*). Cryst. (EtOH aq.). Mp 285-290°. Opt. inactive (*meso*-).

3,6-Di-Ac: 3,6-Di-O-*acetyl*-muco-*inositol*
[18779-71-0]
$C_{10}H_{16}O_8$ 264.232
Mp 201-202°.

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl*-muco-*inositol*
[18779-57-2]
$C_{18}H_{24}O_{12}$ 432.38
Mp 177-178°.

3,6-Dimesyl: 3,6-Di-O-*mesyl*-muco-*inositol*
[18779-59-4]
$C_8H_{16}O_{10}S_2$ 336.34
Mp 191-193°.

1,2:4,5-Di-O-*isopropylidene: 1,2:4,5-Di*-O-*isopropylidene*-muco-*inositol*
[51548-88-0]
$C_{12}H_{20}O_6$ 260.286
Mp 184°.

1,2:4,5-Di-O-*isopropylidene, 3-(4-bromobenzensulfonyl):* [58706-28-8]
$C_{12}H_{15}BrO_8S$ 399.216
Mp 114-115°.

1-Me: 1-O-*Methyl*-muco-*inositol*
[74560-60-4]
$C_7H_{14}O_6$ 194.184
Occurs in Conifers (exc. Pinaceae), *Taxopsida*, Cistaceae.
$[\alpha]_D^{20}$ -53 (EtOH).

1,2-Di-Me: 1,2-Di-O-*methyl*-muco-*inositol, 9CI.* ***Viscumitol***
[145680-48-4]
$C_8H_{16}O_6$ 208.211
Constit. of *Viscum album*. Cryst. (1-butanol aq.).
Mp 118-120°.

3-Benzyl, 1,2:4,5-di-O-*isopropylidene: 3*-O-*Benzyl-1,2:4,5-di*-O-*isopropylidene*-muco-*inositol*
[58706-24-4]
$C_{19}H_{26}O_6$ 350.411
Mp 121-122°.

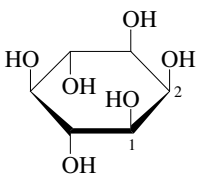
3,6-Dibenzyl: 3,6-Di-O-*benzyl*-muco-*inositol*
[58769-24-7]
$C_{20}H_{24}O_6$ 360.406
Mp 147-148°.

[41546-34-3]

Angyal, S.J. *et al., J.C.S.*, 1962, 2985-2991 (*diisopropylidene*)
Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 1488-1495 (*synth*)
Espelie, K.E. *et al., Carbohydr. Res.*, 1976, **46**, 53-66 (*dibenzyl*)
Craig, D.C. *et al., Cryst. Struct. Commun.*, 1979, **8**, 629 (*cryst struct*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **80**, 203; 1982, **100**, 43 (*synth, cmr*)
Dangschat, G. *et al., Carbohydr. Res.*, 1987, **164**, 343 (*synth, config*)
Richter, A. *et al., Phytochemistry*, 1992, **31**, 3925 (*Viscumitol*)
Hudlicky, J. *et al., J.C.S. Perkin 1*, 1994, 1553-1567 (*synth*)
Miethchen, R. *et al., Carbohydr. Res.*, 2002, **337**, 1-9 (*derivs, synth*)

myo-Inositol, 9CI, 8CI I-32

(1α,2α,3α,4β,5α,6β)-Cyclohexanehexol. meso-*Inositol. Dambose. Nucitol. 1,2,3,5/4,6-Inositol.* i-*Inositol. Inositol. Mesoinositol. Phaseomannitol. Myoinositol. Isoinositol. Many other names*
[87-89-8]
[6917-35-7]



$C_6H_{12}O_6$ 180.157
The parent compd. exhibits a plane of symmetry (C(2)/C(5)). Unsymmetrically substituted derivs. on C(1), C(3), C(4), C(6) are chiral and care is necessary. The direction of numbering (1- vs. 3-) specifies the absolute configuration, The numbering shown above is for D-*myo*-inositol acc. to IUPAC convention, but the opposite scheme has been used in the past. Of common occurrence in plants and animals. Obt. comly. from phytic acid in corn steep liquor. The most widely distributed of the inositols. Growth factor for animals and microorganisms. Lipotropic agent. The phosphates are important cellular second messengers.
Mp 225°.

▶ Toxic.

1-Phosphate: [15421-51-9]
[32739-43-8, 37170-04-0]
$C_6H_{13}O_9P$ 260.137
Wheat bran phytase hydrol. prod. of sodium phytate.
$[\alpha]_D^{25}$ +9.3 (H_2O). Chiral, D-form.

1-Phosphate, (±): [53797-24-3]
$C_6H_{13}O_9P$ 260.137
Cryst. (Me_2CO aq.)(as bis(cyclohexylammonium) salt). Mp 210-215° (205-207°) dec. (as bis(cyclohexylammonium) salt). Also the racemate of the 3-phosphate.

2-Phosphate: [7336-80-3]
$C_6H_{13}O_9P$ 260.137
Hexagonal plates (EtOH aq.). Mp 198-200° dec. *Meso*-.

2-Phosphate, bis(cyclohexylammonium) salt:
Needles (MeOH aq.). Mp 215-220° (211-213°).

3-Phosphate: [2831-74-5]
[27294-69-5]
$C_6H_{13}O_9P$ 260.137
$[\alpha]_D^{25}$ -9.8 (c, 3 in H_2O). Enantiomer of the 1-phosphate.

4-Phosphate: [69256-52-6]
[16006-20-5, 126722-33-6]
$C_6H_{13}O_9P$ 260.137
Cryst. (Me_2CO aq.) (as bis(cyclohexylammonium) salt). $[\alpha]_D^{20}$ +1.1 (c, 5 in H_2O (pH 9)). Chiral compd.; props refer to the D-form.

4-Phosphate, (±): [125356-28-7]
[46495-39-0]
$C_6H_{13}O_9P$ 260.137
Cryst. (Me_2CO aq.)(as bis(cyclohexylammonium) salt). Mp 206-207° dec. (133-134°)(bis(cyclohexylammonium) salt). Racemate of the 6-phosphate also.

5-Phosphate: [84414-08-4]
$C_6H_{13}O_9P$ 260.137
Cryst. (Me_2CO aq.)(as bis(cyclohexylammonium) salt). Mp 209-211° dec. (bis(cyclohexylammonium) salt). *Meso*-.

6-Phosphate: [111901-84-9]
[114884-35-4]
$C_6H_{13}O_9P$ 260.137
Cryst. (Me_2CO aq.)(as bis(cyclohexylammonium) salt). $[\alpha]_D^{20}$ -1.3 (c, 5 in H_2O (pH 9)). Enantiomer of the 4-phosphate.

1,4-Diphosphate: [47055-78-7]
[27216-57-5, 74465-19-3]
$C_6H_{14}O_{12}P_2$ 340.117
Mp 206-207° (as bis(cyclohexylammonium) salt). $[\alpha]_D$ +3.6 (c, 0.5 in H_2O) (tetra-K salt). Chiral, D-form.

1,2,3-Triphosphate: [41613-02-9]
[27121-73-9]
$C_6H_{15}O_{15}P_3$ 420.097
Isol. as hexakis(cyclohexylammonium) salt. *Meso*-.

1,2,6-Triphosphate: myo-*Inositol-1,2,6-triphosphate*. ***Atrinositol, INN***. α-*Trinositol*
[28841-62-5]
[27121-73-9]
$C_6H_{15}O_{15}P_3$ 420.097
Neuropeptide antagonist. Shows antiinflammatory activity. Cryst. + H_2O (EtOH aq.)(as penta-Na salt). $[\alpha]_D^{25}$ -26.9 (H_2O) (as Na salt, >97% ee). Chiral, D-form.

1,3,4-Triphosphate: [93133-76-7]
[27121-73-9, 98102-63-7]
$C_6H_{15}O_{15}P_3$ 420.097
Cellular second messenger. $[\alpha]_D^{23}$ +13.6 (c, 2 in H_2O) (as hexa-K salt at pH 8.2). Chiral, D-form.

1,4,5-Triphosphate: [85166-31-0]
[27121-73-9, 88269-39-0]
$C_6H_{15}O_{15}P_3$ 420.097
Prod. *in vivo* by hydrol. of phosphatidylinositol 4,5-diphosphate. Present in mammalian brain tissue. Important cellular second messenger. Controls $Ca^{2\oplus}$ release from intracellular stores. Cryst. (MeOH aq.) (as tri-Na salt). $[\alpha]_D^{23}$ -11.1 (c, 0.9 in H_2O) (tri-Na salt). Mp >270° (as tri-Na salt). Chiral, D-form.

1,4,6-Triphosphate:
[27121-73-9]
$C_6H_{15}O_{15}P_3$ 420.097
$[\alpha]_D$ -29.1 (0.26 in trimethylammonium bicarbonate, pH 8.6) (D-form). Chiral, D-form. L- and DL-forms also prepd.

2,4,5-Triphosphate: [91840-07-2]
[27121-73-9, 99212-45-0]
$C_6H_{15}O_{15}P_3$ 420.097
Causes $Ca^{2\oplus}$ release from tissues. $[\alpha]_D$ -7.9 (c, 1.52 in MeOH) (as triethylammonium salt). Nat. occurrence not yet documented. Chiral.

1,2,4,5-Tetraphosphate:
$C_6H_{16}O_{18}P_4$ 500.077
$[\alpha]_D$ -27.2 (c, 0.5 in phosphate buffer, pH 8.6).

1,3,4,5-Tetraphosphate: [99610-76-1]
[27121-72-8, 102850-29-3]
$C_6H_{16}O_{18}P_4$ 500.077
Cellular second messenger formed *in vivo* from the 1,4,5-triphosphate. Cryst. (as tetra-K or cyclohexylammonium salt). Mp 173.7-175.7° (cyclohexylammonium salt). $[\alpha]_D^{20}$ -3.85 (c, 1 in H_2O). Enantiomer of the 1,3,5,6-tetraphosphate. Racemate also known.

1,3,5,6-Tetraphosphate:
[27121-72-8]
$C_6H_{16}O_{18}P_4$ 500.077
Cryst. (as pentakis(cyclohexylammonium) salt). Mp 169.8-171.8° (cyclohexylammonium salt). $[\alpha]_D$ +2.6 (c, 1 in H_2O). Chiral. Enantiomer (L-form) of the 1,3,4,5-tetraphosphate.

1,4,5,6-Tetraphosphate: [109837-24-3]
$C_6H_{16}O_{18}P_4$ 500.077
$[\alpha]_D^{20}$ -7.9 (c, 1.4 in MeOH).

3,4,5,6-Tetraphosphate: [112791-61-4]
$C_6H_{16}O_{18}P_4$ 500.077
$[\alpha]_D^{20}$ +8.1 (c, 1.72 in MeOH). Enantiomer of the 1,4,5,6-tetraphosphate.

1,2,3,4,5-Pentaphosphate: [114418-96-1]
[25663-09-6]
$C_6H_{17}O_{21}P_5$ 580.057
$[\alpha]_D^{24}$ -4 (c, 0.23 in H_2O). Chiral, D-form.

1,2,3,4,6-Pentaphosphate: [20298-97-9]
[25663-09-6]
$C_6H_{17}O_{21}P_5$ 580.057
Solid. Achiral.

1,2,3,5,6-Pentaphosphate: [26326-85-2]
[25663-09-6]
$C_6H_{17}O_{21}P_5$ 580.057
Solid. $[\alpha]_D^{24}$ +4.3 (c, 0.43 in H_2O, pH 1.6). Enantiomer (L-form) of the 1,2,3,4,5-pentaphosphate.

1,2,4,5,6-Pentaphosphate: [26326-86-3]
[25663-09-6]
$C_6H_{17}O_{21}P_5$ 580.057
Solid. $[\alpha]_D^{24}$ -7.1 (c, 0.83 in H_2O). Enantiomer of the 2,3,4,5,6-pentaphosphate, but both have been reported with the same sign of opt. rotn. (Rudolf *et al*, 1997).

1,3,4,5,6-Pentaphosphate: [20298-95-7]
[25663-09-6]
$C_6H_{17}O_{21}P_5$ 580.057
Solid. Achiral.

2,3,4,5,6-Pentaphosphate: [134176-37-7]
[25663-09-6]
$C_6H_{17}O_{21}P_5$ 580.057
Solid. $[\alpha]_D^{24}$ -6.2 (c, 0.96 in H_2O). Enantiomer (L-form) of 1,2,4,5,6-pentaphosphate.

Hexaphosphate: myo-*Inositol hexakis(phosphate)*. ***Phytic acid***. *Fytic acid, INN. Alkalovert. Phytin. Phyton*
[83-86-3]
[7776-28-5, 14306-25-3, 70981-46-3]
$C_6H_{18}O_{24}P_6$ 660.036
Widely distributed in the Gramineae and seeds of many other higher plants. Complexing agent for the removal of traces of heavy metals. Therapeutic hypocalcaemic agent, freq. employed as nona-Na salt (Sodium phytate, USAN). Straw-coloured syrup. Other salts also documented.

▶ NM7525000

4-O-α-D-Glucopyranoside: 4-O-α-D-Glucopyranosyl-myo-*inositol*
$C_{12}H_{22}O_{11}$ 342.299
Prod. of enzymic transglycosylation from cycloextrin to *myo*-inositol. Shown not to be its enantiomer the 6-glucoside.

1-O-β-D-Glucopyranoside: 1-O-β-D-Glucopyranosyl-myo-*inositol*. ***Glucinol***
[4539-73-5]
$C_{12}H_{22}O_{11}$ 342.299
Occurs in vascular tissues of higher plants. Mp 252-260°. $[\alpha]_D^{25}$ -17.5 (H_2O).

1-O-β-D-Glucopyranoside, nona-Me:
$C_{21}H_{40}O_{11}$ 468.54
Mp 95-98°. $[\alpha]_D^{25}$ -10 (c, 1 in EtOH).

3-O-β-D-Glucopyranoside: See Galactinol, G-3

3-O-α-D-Galactopyranoside: See Galactinol, G-3

2-O-α-D-Mannopyranoside: 2-O-α-D-Mannopyranosyl-myo-*inositol*
[21024-29-3]
$C_{12}H_{22}O_{11}$ 342.299
Constit. of a phosphatide present in tubercle bacilli.
Mp 178-180° (as nona-Ac). $[\alpha]_D^{23}$ +20.5 ($CHCl_3$) (nona-Ac). CAS no. refers to nona-Ac.

2-O-[α-D-Mannopyranosyl-(1→4)-α-D-glucuronopyranoside]: α-D-Mannopyranosyl-(1→4)-α-D-glucuronopyranosyl-(1→2)-myo-*inositol. MGI*

$C_{18}H_{30}O_{17}$ 518.425
Isol. from cell cultures of *Rosa* sp.

2-Ac: 2-O-*Acetyl*-myo-*inositol*. ***Campanulitol***. *Campanulite*
[41929-24-2]
$C_8H_{14}O_7$ 222.194
Isol. from *Campanula cephalotes*. Prismatic cryst. (H_2O). Mp 193-195°. Achiral.

1,4,5,6-Tetra-Ac: 1,4,5,6-Tetra-O-*acetyl*-myo-*inositol*
[108032-48-0]
[90366-30-6]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. ($CHCl_3$/Et_2O). Mp 143-144° (hemihydrate). $[\alpha]_D^{20}$ +5 (c, 0.9 in $CHCl_3$). Chiral D-form. Racemate also known (Mp 138-140°, as hemihydrate).

3,4,5,6-Tetra-Ac: [80953-32-8]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. ($CHCl_3$/Et_2O). Mp 143-144°. $[\alpha]_D^{20}$ -6.7 (c, 3.0 in $CHCl_3$). Chiral, D-form.

1,2,3,4,6-Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl*-myo-*inositol*
$C_{16}H_{22}O_{11}$ 390.343
Mp 178°. *Meso*-.

1,3,4,5,6-Penta-Ac: [52389-41-0]
$C_{16}H_{22}O_{11}$ 390.343
Prisms (EtOH). Mp 170-173°. *Meso*-.

Hexa-Ac: Hexa-O-*acetyl*-myo-*inositol*
[1254-38-2]
$C_{18}H_{24}O_{12}$ 432.38
Mp 216-217°. *Meso*-.

1,2,4,5-Tetra-O-*angeloyl:* [82729-35-9]
$C_{26}H_{36}O_{10}$ 508.564
Constit. of *Inula cappa*.

1,2,4,6-Tetra-O-*angeloyl:* [82729-36-0]
$C_{26}H_{36}O_{10}$ 508.564
Constit. of *Inula cappa*. Gum. $[\alpha]_D^{24}$ +3.4 (c, 0.7 in $CHCl_3$).

2-O-*(2-Methylbutanoyl), 1*-O-*angeloyl:*
[129744-02-1]
$C_{16}H_{26}O_8$ 346.377
Constit. of *Hymenoxys texana*.

6-O-*(2-Methylbutanoyl), 1*-O-*angeloyl, 2,3-di-Ac:* [129744-00-9]
$C_{20}H_{30}O_{10}$ 430.451
Constit. of *Hymenoxys texana*.

6-O-*(2-Methylbutanoyl) 1*-O-*angeloyl, 3*-O-*(3-methyl-2-butenoyl), 2-Ac:*
[129744-01-0]
$C_{23}H_{34}O_{10}$ 470.516
Constit. of *Hymenoxys texana*.

2,3-Bis-O-*(2-methylbutanoyl), 6*-O-*angeloyl: 6-Angeloyl-2,3-bis(2-methylbutanoyl)*-myo-*inositol*
$C_{21}H_{34}O_9$ 430.494
Constit. of *Viguiera quinqueremis*.

1,4-Dibenzoyl:
$C_{20}H_{20}O_8$ 388.373
Cryst. (DMF aq.). Mp 253-254°.

1,6-Dibenzoyl: [162062-54-6]
$C_{20}H_{20}O_8$ 388.373
Cryst. (2-propanol). Mp 101-103°.

Hexabenzoyl: Hexa-O-*benzoyl*-myo-*inositol*
[4099-90-5]
$C_{48}H_{36}O_{12}$ 804.805
Mp 258°. *Meso*-.

6-O-*(4-Hydroxy*-Z-*cinnamoyl):* ***6-O-cis-p-Coumaroyl*-myo-*inositol***
$C_{15}H_{18}O_8$ 326.302
Constit. of the seeds of *Taxus mairei*. Amorph. powder.

Hexakis(3-pyridinecarbonyl): ***Inositol nicotinate, BAN, INN***. *Inositol niacinate, USAN. Inositol hexanicotinate, JAN. Hexanicotinoylinositol. Hexopal. Linodil. Lipoflavonoid. Mesonex. Palohex. NSC 49506. Win 9154. Many other names*
[6556-11-2]
$C_{42}H_{30}N_6O_{12}$ 810.732
Peripheral vasodilator, antilipidaemic agent. Mp 254-255°. Log P 1.77 (calc). *Meso*-.
▶ LD_{50} (rat, scu) 1180 mg/kg. NM7535400

1,2-Ethylidene: 1,2-O-*Ethylidene*-myo-*inositol*
$C_8H_{14}O_6$ 206.195
Mp 120-122°. DL-form.

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene*-myo-*inositol*
[26276-97-1]
$C_9H_{16}O_6$ 220.222
Cryst. (EtOH). Mp 182-184°. *Meso*-.

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene*-myo-*inositol*
[115116-20-6]
$C_{12}H_{20}O_6$ 260.286
Solid (petrol/EtOAc). Mp 150-152°. Chiral compd.; props. refer to racemate.

1,2:3,4-Di-O-*isopropylidene, di-Ac: 4,5-Di*-O-*acetyl-1,2:3,6-di*-O-*isopropylidene*-myo-*inositol*
[115116-25-1]
$C_{16}H_{24}O_8$ 344.361
Mp 140-142°. Chiral compd.; props. refer to racemate.

1,2:4,5-Di-O-*isopropylidene: 1,2:4,5-Di*-O-*isopropylidene*-myo-*inositol*
[98974-89-1]
$C_{12}H_{20}O_6$ 260.286
Mp 174°. Chiral compd.; props. refer to racemate.

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene*-myo-*inositol*
[115116-18-2]
$C_{12}H_{20}O_6$ 260.286
Mp 172-175°. Chiral compd.; props. refer to racemate.

1,2:5,6-Di-O-*isopropylidene, di-Ac: 1,6-Di*-O-*acetyl-2,3:4,5-di*-O-*isopropylidene*-myo-*inositol*
[115116-19-3]
$C_{16}H_{24}O_8$ 344.361
Mp 165-168°. Chiral compd.; props. refer to racemate.

1,2:5,6-Di-O-*isopropylidene, dibenzoyl: 1,6-Di*-O-*benzoyl-2,3:4,5-di*-O-*isopropylidene*-myo-*inositol*
[115072-66-7]
$C_{26}H_{28}O_8$ 468.502
Solid (MeOH). Mp 197-200°. Chiral compd.; props. refer to racemate.

1,2-O-*Cyclohexylidene: 1,2*-O-*Cyclohexylidene*-myo-*inositol*
[6763-47-9]
$C_{12}H_{20}O_6$ 260.286
Solid (EtOH/Et_2O). Mp 179°. Chiral compd.; props. refer to racemate.

1,2:5,6-Di-O-*cyclohexylidene: 1,2:5,6-Di*-O-*cyclohexylidene*-myo-*inositol*
[33021-17-9]
$C_{18}H_{28}O_6$ 340.416
Mp 153-156°. $[\alpha]_D^{20}$ -7.4 (c, 0.5 in C_6H_6). Chiral compd. Racemate Mp 133°.

1,3,5-O-*Methylidyne:* myo-*Inositol monoorthoformate*
[98510-20-4]
$C_7H_{10}O_6$ 190.152
Cryst. (MeOH). Mp 300-302° (sealed tube). *Meso*-.

4-Benzyl:
$C_{13}H_{18}O_6$ 270.282
Cryst. (EtOH). Mp 173°. $[\alpha]_D^{24}$ +6.1 (c, 0.5 in MeOH).

5-Benzyl: [92217-63-5]
$C_{13}H_{18}O_6$ 270.282
Cryst. (EtOH). Mp 286°. *Meso*-compd.

3,6-Dibenzyl:
$C_{20}H_{24}O_6$ 360.406
Cryst. (EtOH). Mp 172-173°. $[\alpha]_D$ +16 (c, 1 in MeOH).

4,6-Dibenzyl: 4,6-Di-O-*benzyl*-myo-*inositol*
$C_{20}H_{24}O_6$ 360.406
Cryst. Mp 124-125°.

1,2,5-Tribenzyl: 1,2,5-Tri-O-*benzyl*-myo-*inositol*
[185021-63-0]
$C_{27}H_{30}O_6$ 450.53
Cryst. (EtOAc/hexane). Mp 176-177°. $[\alpha]_D$ -34 (c, 1 in CH_2Cl_2). Chiral compd. Racemate Mp 161-162°.

2,3,5-Tribenzyl: [185020-93-3]
$C_{27}H_{30}O_6$ 450.53
Cryst. (EtOAc/hexane). Mp 176-177°. $[\alpha]_D$ +34 (c, 1 in CH_2Cl_2). Chiral compd.; props. refer to D-form.

2,4,6-Tribenzyl, 1,3,5-O-*methylidyne:*
[114847-11-9]
$C_{28}H_{28}O_6$ 460.526
Cryst. (petrol). Mp 102-104°. *Meso*-.

3,4,5-Tribenzyl: 3,4,5-Tri-O-*benzyl*-myo-*inositol*
$C_{27}H_{30}O_6$ 450.53
Powder. $[\alpha]_D^{25}$ -13.1 (c, 0.22 in THF). Chiral compd.

1,2,3,4-Tetrabenzyl: 1,2,3,4-Tetra-O-*benzyl*-myo-*inositol*
[109584-31-8]
$C_{34}H_{36}O_6$ 540.655
Solid (Et_2O). Mp 87-89°. Chiral compd.; props. refer to racemate.

1,2,3,4-Tetrabenzyl, di-Ac: 4,5-Di-O-*acetyl-1,2,3,6-tetra*-O-*benzyl*-myo-*inositol*
[111392-21-3]
$C_{38}H_{40}O_8$ 624.729
Mp 132-134°. Chiral compd.; props. refer to racemate.

1,2,5,6-Tetrabenzyl: 1,2,5,6-Tetra-O-*benzyl*-myo-*inositol*
[115116-22-8]
$C_{34}H_{36}O_6$ 540.655
Solid (EtOH). Mp 169-170°. Chiral compd.; props. refer to racemate.

1,2,5,6-Tetrabenzyl, di-Ac: 1,6-Di-O-*acetyl-2,3,4,5-tetra*-O-*benzyl*-myo-*inositol*
[115116-23-9]
$C_{38}H_{40}O_8$ 624.729

Solid (petrol). Mp 106-108°. Chiral compd.; props. refer to DL-form.

1,4,5,6-Tetrabenzyl: 1,4,5,6-Tetra-O-*benzyl*-myo-*inositol*
[28140-40-1]
$C_{34}H_{36}O_6$ 540.655
Solid (EtOAc/petrol). Mp 148-149°. $[\alpha]_D^{25}$ +19.8 (c, 1 in $CHCl_3$). Chiral compd.; props refer to D-form.

2,3,5,6-Tetrabenzyl: [141193-60-4]
$C_{34}H_{36}O_6$ 540.655
Cryst. (Et_2O). Mp 103-105°. $[\alpha]_D$ +4 (c, 1 in CH_2Cl_2). Chiral compd.; props refer to the D-form (equivalent to 1,2,4,5-tetra-*O*-benzyl-L-*myo*-inositol).

1-Me: See 1-*O*-Methyl-*myo*-inositol, M-265

2-Me: See 2-*O*-Methyl-*myo*-inositol, M-266

4-Me: See 4-*O*-Methyl-*myo*-inositol, M-267

5-Me: See Sequoyitol, S-30

1,3-Di-Me: See 1,3-Di-*O*-methyl-*myo*-inositol, D-746

1,4-Di-Me: See 1,4-Di-*O*-methyl-*myo*-inositol, D-747

[3615-82-5, 7205-52-9, 17211-15-3, 21667-10-7, 23784-11-4, 39907-99-8, 56083-79-5, 68247-19-8, 105182-27-2]

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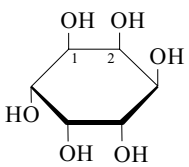
Mills, S.J. *et al., J.O.C.*, 1996, **61**, 8980-8987 (*1,4,6-triphosphate, 1,2,5-tribenzyl, 2,3,5,6-tetrabenzyl*)
Riley, A.M. *et al., Angew. Chem., Int. Ed.*, 1997, **36**, 1472-1473 (*1,3,4,5-tetraphosphate, !synth, (+)-form, (-)-form*)
Blum, C. *et al., Carbohydr. Res.*, 1997, **302**, 163-168 (*3,4,5-tribenzyl, 1,2,6-triphosphate*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 416-417; 1394-1395
Salazar-Pereda, V. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1479-1507 (*derivs, cmr, cryst struct*)
Mills, S.J. *et al., J.C.S. Perkin 1*, 1997, 1279-1286 (*1,2,4,5-tetraphosphate, 3,6-dibenzoyl, 3,6-dibenzyl*)
Rudolf, M.T. *et al., Liebigs Ann./Recl.*, 1997, 1861-1869 (*benzyl ethers, pentaphosphates*)
Leung, L.W. *et al., Carbohydr. Res.*, 1998, **305**, 171-179 (*1,4,5-triphosphate*)
Chung, S.K. *et al., J. Carbohydr. Chem.*, 1998, **17**, 369-384; 385-390 (*diphosphates, triphosphates, synth*)
Laumen, K. *et al., Biosci., Biotechnol., Biochem.*, 1999, **63**, 1374-1377 (*tetraphosphate*)
Smith, C.K. *et al., Phytochemistry*, 1999, **52**, 387-396 (*MGI*)
Bauman, A.T. *et al., Tet. Lett.*, 1999, **40**, 4489-4492 (*Phytic acid, pmr, conformn*)
Shen, Y.-C. *et al., Chem. Pharm. Bull.*, 2000, **48**, 1344-1346 (*cis-Coumaroylinositol*)
Tarelli, E. *et al., J. Carbohydr. Chem.*, 2000, **19**, 233-241 (*monophosphates, synth*)
Sahai, P. *et al., J.C.S. Perkin 1*, 2000, 1283-1290 (*biosynth, synth*)
Zhu, W. *et al., Synth. Commun.*, 2000, **30**, 3823-3828 (*1,2-ethylidene*)
Praveen, T. *et al., Carbohydr. Res.*, 2001, **330**, 409-411 (*4,6-dibenzyl*)
Sculimbrene, B. *et al., J.A.C.S.*, 2001, **123**, 10125-10126; 2002, **124**, 11653-11656 (*1-phosphate, 3-phosphate, !synth*)
Gaffney, P.R.J. *et al., J.C.S. Perkin 1*, 2001, 192-205 (*1,4,5,6-tetrabenzyl*)
Takahashi, H. *et al., J.O.C.*, 2001, **66**, 2705-2716 (*1,4,5-triphosphate, 1,3,4,5-tetraphosphate, synth*)
Spring, O. *et al., Phytochemistry*, 2001, **57**, 267-272 (*6-angeloylbis-2-methylbutanoyl*)
Hosoda, A. *et al., Bioorg. Med. Chem.*, 2002, **10**, 1855-1863 (*1,3,4,5,6-penta-Ac*)
Mills, S.J. *et al., Carbohydr. Res.*, 2002, 1795-1801 (*2,4,5-triphosphate*)
Khersonsky, S.M. *et al., Carbohydr. Res.*, 2002, **337**, 75-78 (*1,2:4,5-diisopropylidene, synth*)
Mills, S.J. *et al., Chem. Eur. J.*, 2003, **9**, 6207-6214 (*1,4,5,6-tetraphosphate, 3,4,5,6-tetraphosphate, synth, pmr, P-31 nmr*)
Podeschwa, M. *et al., Eur. J. Org. Chem.*, 2003, 1958-1972 (*synth*)
Raboy, V. *et al., Phytochemistry*, 2003, **64**, 1033-1043 (*Phytic acid, rev*)
Mietchen, R. *et al., Eur. J. Org. Chem.*, 2004, 2010-2018 (*3,4-dibenzoyl*)
Billington, D.C. *et al., The Inositol Phosphates*, VCH, Weinheim, (*1,3,4,5-tetraphosphate, book*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, HFG550; PIB250; IDE300

neo-Inositol, 9CI, 8CI **I-33**

(1α,2α,3α,4β,5β,6β)-Cyclohexanehexol. 1,2,3/4,5,6-Inositol. Neoinositol
[488-54-0]



$C_6H_{12}O_6$ 180.157
Isol. from *Croton celtidifolius* and calf brain tissue. Present in various mammalian tissues. V. spar. sol. H_2O (0.1% at r.t.). Mp 315° (dec., subl.). Opt. inactive (*meso*-).

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl*-neo-*inositol*
[20097-40-9]
$C_{18}H_{24}O_{12}$ 432.38
Mp 262°.

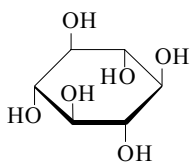
1,4-Bis(4-hydroxyphenylacetyl): 1,4-Bis(4-hydroxyphenylacetyl)-neo-*inositol*
[37098-48-9]
$C_{22}H_{24}O_{10}$ 448.426
Constit. of *Taraxacum linearisquameum*. Cryst.
Mp 108-110° dec. $[\alpha]_D^{20}$ -20 (c, 0.12 in H_2O). D-form. CA incorrectly indexes this compound as an *allo*-inositol deriv.

[41546-33-2]

Angyal, S.J. *et al., J.C.S.*, 1965, 1807-1816 (*hexa-Ac*)
Sherman, W.R. *et al., Biochemistry*, 1971, **10**, 3491-3499 (*occur*)
Lichtenthaler, F.W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 250
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)
Mukherjee, R. *et al., Phytochemistry*, 1984, **23**, 2682-2684 (*isol*)
Tschamber, T. *et al., Helv. Chim. Acta*, 1992, **75**, 1052-1060 (*synth, pmr, cmr*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1994, **263**, 149-154 (*cryst struct*)
Hudlicky, T. *et al., J.C.S. Perkin 1*, 1994, 1553-1567 (*synth*)
Riley, A.M. *et al., Carbohydr. Res.*, 1998, **314**, 277-281 (***synth***)
Zidorn, C. *et al., Phytochemistry*, 1999, **51**, 991-994; 2000, **53**, 317 (*1,4-bis-4-hydroxyphenylacetyl*)
Hudlicky, T. *et al., Carbohydr. Res.*, 2000, **324**, 200-203 (*synth*)
Podeschwa, M. *et al., Eur. J. Org. Chem.*, 2003, 1958-1972 (*synth*)

scyllo-Inositol I-34

(1α,2β,3α,4β,5α,6β)-Cyclohexanehexol. Scyllitol. 1,3,5/2,4,6-Inositol. Quercin. Scylloinositol. Cocositol
[488-59-5]



$C_6H_{12}O_6$ 180.157
Occurs in animals, notably plagiostomous fish, plants such as flowering dogwood; detected in insects and mammalian urine.
Mp 350-354°. Opt. inactive (*meso*-).

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl*-scyllo-*inositol*
[20108-52-5]
$C_{18}H_{24}O_{12}$ 432.38
Mp 300-301°.

Mono-Me ether: 1-O-*Methyl*-scyllo-*inositol*
[23887-12-9]
$C_7H_{14}O_6$ 194.184
Cryst. (EtOH aq.). Mp 239-242°.

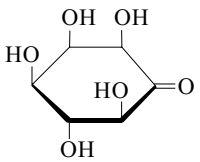
Hexa-Me ether: 1,2,3,4,5,6-Hexa-O-*methyl*-scyllo-*inositol*
[148906-41-6]
$C_{12}H_{24}O_6$ 264.318
Cryst. (petrol). V. sol. all common solvs.
Mp 114-115°.

[41546-32-1]

Anderson, R.C. *et al., J.A.C.S.*, 1948, **70**, 2931-2935 (*synth*)
Anderson, L. *et al., Arch. Biochem. Biophys.*, 1958, **78**, 518-531 (*mono-Me ether*)
Kindl, H. *et al., Prog. Chem. Org. Nat. Prod.*, 1966, **24**, 149 (*rev*)
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1968, **7**, 121-137 (*pmr*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 290 (*occur*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)
Kohne, B. *et al., Annalen*, 1985, 866-868 (*synth*)
Anderson, J.E. *et al., Carbohydr. Res.*, 1995, **272**, 141-148 (*synth, cryst struct, hexa-Me ether*)
Salazar-Pereda, V. *et al., J. Carbohydr. Chem.*, 1997, **16**, 1479-1507 (*cryst struct, cmr, conformn*)
Husson, C. *et al., Carbohydr. Res.*, 1998, **307**, 163-165 (*synth*)
Takahashi, H. *et al., Tet. Lett.*, 1998, **39**, 9707-9710 (*synth*)
Chung, S.K. *et al., Bioorg. Med. Chem.*, 1999, **7**, 2577-2589 (*synth, pmr*)
Sarmah, M.P. *et al., Carbohydr. Res.*, 2003, **338**, 999-1001 (*synth*)
Podeschwa, M. *et al., Eur. J. Org. Chem.*, 2003, 1958-1972 (*synth*)

epi-Inosose 2, 9CI I-35

2,3,4,6/5-Pentahydroxycyclohexanone. Epiinosose 2. Epimesoinosose. meso-*Inosose-6*. myo-*Inosose-6*. epi-*Inosose*
[6623-68-3]



(+)–*form*

$C_6H_{10}O_6$ 178.141

(+)-*form*
Mp 198-200°.
2,4-Dinitrophenylhydrazone: Mp 270°.
Semicarbazone: Mp 207°.

Penta-Ac: Penta-O-*acetyl-(+)*-epi-*inosose*
$C_{16}H_{20}O_{11}$ 388.327
Mp 106-108°.

Pentabenzoyl: Penta-O-*benzoyl-(+)*-epi-*inosose*
$C_{41}H_{30}O_{11}$ 698.681
Mp 144°.

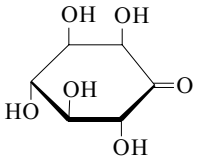
(-)-*form*
Mp 198° dec. $[\alpha]_D$ -4.5 (H_2O).

Pentabenzoyl: Penta-O-*benzoyl-(-)*-epi-*inosose*
$C_{41}H_{30}O_{11}$ 698.681
Mp 134-136°. Opt. active.

Posternak, T. *et al., Helv. Chim. Acta*, 1936, **19**, 1333
Biochem. Prep., 1952, **2**, 57
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1959, **14**, 135 (*rev*)
Posternak, T. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 289 (*synth*)
De Wit, G. *et al., Carbohydr. Res.*, 1980, **86**, 33 (*uv, pmr, cmr*)

myo-Inosose 1, 8CI I-36

2,3,5/4,6-Pentahydroxycyclohexanone. vibo-*Inosose*
[488-66-4]



(+)–*form*

$C_6H_{10}O_6$ 178.141

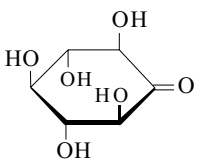
(+)-*form*
D-*Inosose*
Cryst. (hemihydrate). Mp 138-139°. $[\alpha]_D^{26}$ +20 (H_2O).
Phenylhydrazone: Mp 196-197°. $[\alpha]_D^{25}$ -55.3 (Py/EtOH).

(-)-*form*
Mp 138-139°. $[\alpha]_D$ -17 (H_2O).
Phenylhydrazone: Mp 196-197°.

Magasanik, B. *et al., J. Biol. Chem.*, 1948, **175**, 929
Angyal, S.J. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 135 (*rev*)

myo-Inosose 2, 9CI I-37

2,4,6/3,5-Pentahydroxycyclohexanone. scyllo-*Inosose. Scylloinosose. Bioinosose. Scyllomesoinosose.* bio-*Inosose.* scyllo-meso-*Inosose*
[488-64-2]



$C_6H_{10}O_6$ 178.141
Found in animal tissue and in *Streptomyces griseus*.
Mp 200° dec. Opt. inactive (*meso*-).

Phenylhydrazone: [7045-48-9]
Mp 184°.

Diethyl dithioacetal:
$C_{10}H_{20}O_5S_2$ 284.397
Mp 186-187°.

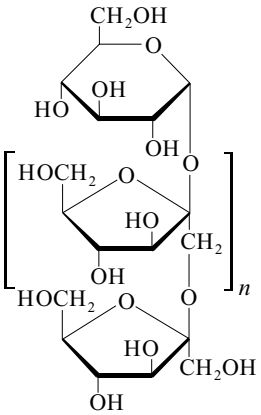
Penta-Ac: [20097-56-7]
$C_{16}H_{20}O_{11}$ 388.327
Mp 211-212°.

Pentabenzoyl:
$C_{41}H_{30}O_{11}$ 698.681
Mp 286°.

Biochem. Prep., 1952, **2**, 57
MacDonald, D.L. *et al., J.A.C.S.*, 1955, **77**, 4348
McCasland, G.E. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 291 (*synth*)
Posternak, T. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 294 (*synth*)
Anderson, L. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 520 (*rev*)

Inulin, 9CI, 8CI, BAN, USAN I-38

Dahlin. Plant starch
[9005-80-5]



n approx. 30, MW approx. 5000. Contains Inulobiose, I-39 as a repeating structural unit with mostly glucose as terminal group. Yields D-Fructose and D-Glucose on acid hydrol. Replaces starch as a reserve food in Jerusalem artichoke (*Helianthus tuberosus*) and in other members of Compositae. Also present in a few Campanulaceae and Lobeliaceae. Diagnostic aid for kidney function. $[\alpha]_D^{20}$ -40 (c, 2.0 in H_2O). Log P -7.77 (uncertain value) (calc). For other related storage polysaccharides see Levan, L-34, Sinistrin, S-44 and Phlean, P-66. Other storage polysaccharides which have been isol. from various species and given trivial names include Secalin and Asparagosin from asparagus.

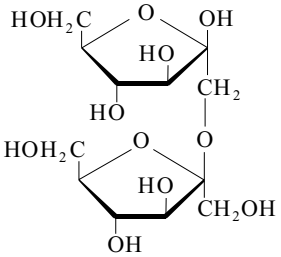
Per-Ac: [59818-02-9]
$[\alpha]_D^{20}$ -34 (c, 1.6 in $CHCl_3$).

Per-Me: Mp 140°. $[\alpha]_D^{20}$ -55 (c, 1.0 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1932, 2384
McDonald, E.J. *et al., Adv. Carbohydr. Chem.*, 1946, **2**, 254 (*isol*)
Bacon, J.S.D. *et al., Biochem. J.*, 1951, **48**, 114
Percival, E.G.V. *et al., Structural Carbohydr. Chem.*, 2nd Ed., 1962, 274 (*struct*)
Aspinall, G.O. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 157 (*synth*)
Ovodov, Yu.S. *et al., Dokl. Akad. Nauk SSSR*, 1968, **178**, 1338; *CA*, **69**, 44141a (*pmr*)
Kennedy, J.F. *et al., Carbohydr. Res.*, 1973, **26**, 401
Hultman, E. *et al., Clin. Biochem. Princ. Methods*, (Eds., Curtius, H. *et al*), Berlin, 1974, **2**, 908; *CA*, **82**, 13173b (*rev*)
Newkome, G.R. *et al., Carbohydr. Res.*, 1976, **48**, 1
Jarrell, H.C. *et al., Carbohydr. Res.*, 1979, **76**, 45-57 (*cmr*)
Marchessault, R.H. *et al., Can. J. Chem.*, 1980, **58**, 2415 (*cryst struct*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 776
Van Loo, J. *et al., Crit. Rev. Food Sci. Nutr.*, 1995, **35**, 525-552 (*rev*)
Heyer, A.G. *et al., Carbohydr. Res.*, 1998, **313**, 165-174 (*enzymic synth*)

Inulobiose I-39

1-O-β-D-Fructofuranosyl-D-fructose. Difructan
[470-58-6]



$C_{12}H_{22}O_{11}$ 342.299
Formed by partial acid hydrol. of Inulin, I-38 and by the action of purified yeast invertase on Fructose; a constit. of *Artemisia absinthium* (wormwood) leaves and *Artemisia dracunculus* (tarragon) roots.
$[\alpha]_D^{20}$ -72.4 (c, 2.7 in H_2O) (-32.5). Sweeter than sucrose.

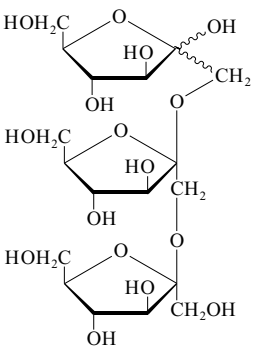
β-Furanose-*form*

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D^{20}$ -14.2 (c, 1.5 in $CHCl_3$) (-6.5).

Pazur, J.H. *et al., J.A.C.S.*, 1953, **75**, 3458 (*synth, octa-Ac*)
Schlubach, H.H. *et al., Annalen*, 1954, **588**, 192 (*isol*)
Andersen, B. *et al., Acta Chem. Scand.*, 1967, **21**, 828 (*occur*)
Lombard, A. *et al., CA*, 1976, **85**, 74938p (*occur*)
Senda, T. *et al., CA*, 1990, **113**, 170368v (*synth*)
Calub, T.M. *et al., Carbohydr. Res.*, 1990, **207**, 221 (*conformn*)

Inulotriose I-40

β-D-Fructofuranosyl-(2→1)-β-D-fructofuranosyl-(2→1)-D-fructose, 9CI
[58208-59-6]



Furanose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from partial acid hydrolysate of inulin and from a partial hydrolysate of lycorisin obt. from *Lycoris radiata* bulbs. Occurs in inulin polymers and is present as the structural unit in the fructosylsucroses formed by the action of invertase on sucrose.
Mp 109-110°. $[\alpha]_D$ -58.4 (-41) (H_2O).

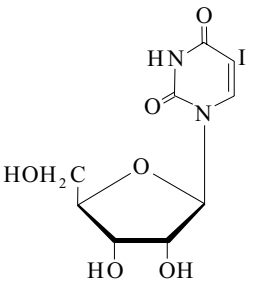
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 73-74°. $[\alpha]_D$ -40 (in $CHCl_3$).

Undeca-Me:
$C_{29}H_{54}O_{16}$ 658.736
Mp 89-91°. $[\alpha]_D$ -69.7 (in $CHCl_3$).

Feingold, D.A. *et al., Biochim. Biophys. Acta*, 1956, **22**, 196 (*isol*)
Mizuno, T. *et al., CA*, 1961, **55**, 27099 (*isol, deriv*)
Uchiyama, T. *et al., Biochim. Biophys. Acta*, 1975, **397**, 153 (*enzymic synth*)
Soler, A. *et al., CA*, 1979, **90**, 168857s (*formn*)
Das, M.K. *et al., Mol. Immunol.*, 1979, **16**, 91; *CA*, 1979, **91**, 106419n (*biochem*)
Gettins, P. *et al., Biochemistry*, 1981, **20**, 7463 (*pmr*)

5-Iodouridine, 9CI, 8CI I-41

[1024-99-3]



$C_9H_{11}IN_2O_6$ 370.1
Mp 203-204.5° dec. $[\alpha]_D^{25}$ -27.5 (c, 0.13 in H_2O).

▶ YU8060000

2′,3′,5′-Tribenzoyl: [2880-91-3]
$C_{30}H_{23}IN_2O_9$ 682.424
Mp 183-184°. $[\alpha]_D$ -112.5 (c, 0.5 in $CHCl_3$).

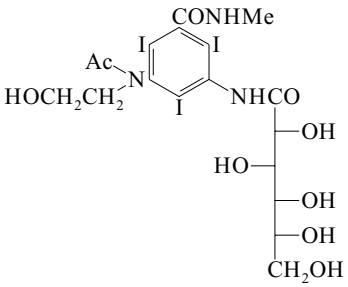
2′,3′-O-Isopropylidene: [19556-58-2]
$C_{12}H_{15}IN_2O_6$ 410.165
Cryst. (EtOH aq.). Mp 225-227°.

2′-O-Me: [34218-84-3]
$C_{10}H_{13}IN_2O_6$ 384.127
Mp 242-245° dec. $[\alpha]_D^{25}$ -24.5 (c, 1.0 in 50% DMF aq.).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 372B (*nmr*)
Aldrich Library of Infrared Spectra, 3rd edn., 1981, 1357B (*ir*)
Prusoff, W.H. *et al., Cancer Res.*, 1953, **13**, 221-225 (*synth*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 2956-2970 (*synth*)
Otter, B.A. *et al., J.O.C.*, 1969, **34**, 1390-1396 (*isopropylidene*)
Rahman, A. *et al., Acta Cryst. B*, 1970, **26**, 1765-1775 (*cryst struct*)
Niedballa, U. *et al., Angew. Chem., Int. Ed.*, 1970, **9**, 461-462 (*tribenzoyl*)
Robins, M.J. *et al., Biochemistry*, 1971, **10**, 3591-3597 (*2′-O-Me*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497-508 (*pmr*)
Asakura, J. *et al., J.O.C.*, 1990, **55**, 4928-4933 (*synth, pmr, uv*)
Paolini, L. *et al., Synthesis*, 2003, 1039-1042 (*synth, pmr*)

Ioglucol, INN, USAN I-42

N-*[3-[Acetyl(2-hydroxyethyl)amino]-2,4,6-triiodo-5-[(methylamino)carbonyl]-phenyl]gluconamide, 9CI. 3′-[N-(2-Hydroxyethyl)acetamido]-2′,4′,6′-triiodo-5′-(methylcarbamoyl)gluconanilide. MP-6026*
[63941-73-1]

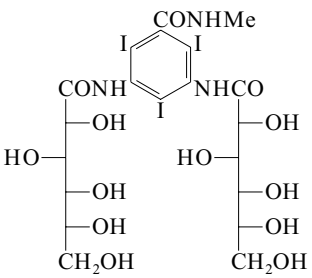


$C_{18}H_{24}I_3N_3O_9$ 807.116
Diagnostic aid (radioopaque medium). Mp 165-174°. Log P -5.93 (calc).

Ger. Pat., 1977, 2 643 841, (*Mallinckrodt*); *CA*, **87**, 136300b (*synth, pharmacol*)

Ioglucomide, INN, USAN I-43

N,N′-*[2,4,6-Triiodo-5-[(methylamino)carbonyl]-1,3-phenyl]bisgluconamide, 10CI. MP-8000*
[63941-74-2]



$C_{20}H_{28}I_3N_3O_{13}$ 899.167
Diagnostic aid (radioopaque medium). Investigated as a method for myelography. Mp 144-148°. Log P -11.4 (calc).

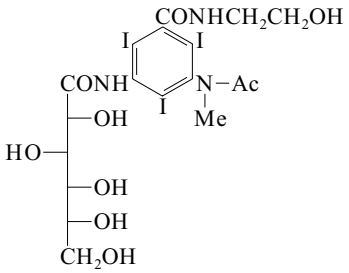
► LD_{50} (rat, ivn) 15600 mg/kg. LZ5055000

Ger. Pat., 1977, 2 643 841, (*Mallinckrodt*); *CA*, **87**, 136300b (*synth, pharmacol*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, IFS400

Ioglunide, INN I-44

N-*[3-(Acetylmethylamino)-5-[[(2-hydroxyethyl)amino]carbonyl]-2,4,6-triiodophenyl]gluconamide, 9CI. 3′-[(2-Hydroxyethyl)carbamoyl]-2′,4′,6′-triiodo-5′-(*N*-methylacetamido)glucoanilide. P-297*
[56562-79-9]



$C_{18}H_{24}I_3N_3O_9$ 807.116
Diagnostic aid (radioopaque medium). Investigated as a method for myelography and cisternography. Log P -6.06 (calc).

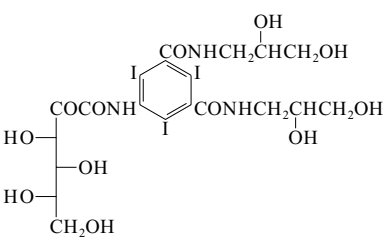
Ger. Pat., 1975, 2 456 685, (*Laboratoires Andre Guerbet*); *CA*, **83**, 114021b (*synth, tox, pharmacol*)

Gonsette, R.E. *et al., Am. J. Neuroradiol.*, 1983, **4**, 304 (*use*)

Caillé, J.-M. *et al., Am. J. Neuroradiol.*, 1983, **4**, 1185 (*use*)

Iogulamide, USAN I-45

N,N′-*Bis(2,3-dihydroxypropyl)-5-[(*L*-xylo-hexulosonyl)amino]-2,4,6-triiodo-1,3-benzenedicarboxamide, 9CI.* N,N′-*Bis(2,3-dihydroxypropyl)-5-*L*-xylo-2-hexulosonamido-2,4,6-triiodoisophthalamide. MP 10013*
[75751-89-2]



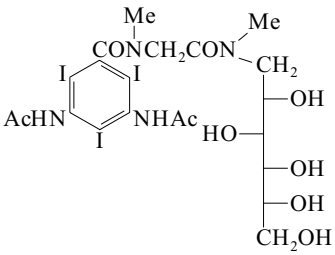
$C_{20}H_{26}I_3N_3O_{12}$ 881.152
Diagnostic aid (radioopaque medium).

Ger. Pat., 1980, 3 010 153, (*Mallinckrodt*); *CA*, **94**, 103783c (*synth, pharmacol, tlc, glc*)

Adams, M.D. *et al., Invest. Radiol.*, (Suppl. 1), 1988, **23**, S217-S219 (*pharmacol*)

Iosarcol, INN I-46

1-[[[[3,5-Bis(acetylamino)-2,4,6-triiodobenzoyl]methylamino]acetyl]methylamino]-1-deoxyglucitol, 9CI
[97702-82-4]



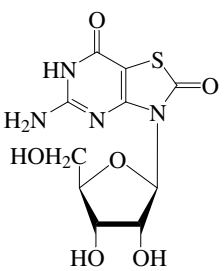
$C_{21}H_{29}I_3N_4O_9$ 862.195
Radiopaque medium. Diagnostic aid. Log P -5.07 (calc).

Ger. Pat., 1985, 3 407 473, (*Dr Franz Koehler Chemie*); *CA*, **105**, 60940 (*synth, use*)

Kinawi, A. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1990, **323**, 443

Isatoribine, BAN, INN, USAN I-47

*5-Amino-3-β-*D*-ribofuranosylthiazolo-[4,5-*d*]pyrimidine-2,7(3*H*,4*H*)-dione, 9CI. ICN 10146. N 10146. NARI 10146*
[122970-40-5]



$C_{10}H_{12}N_4O_6S$ 316.294
Immunomodulator. Powder (H_2O). Mp 238° (dec.).

[198832-38-1]

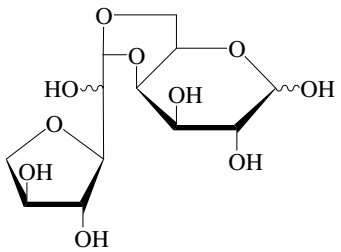
Pat. Coop. Treaty (WIPO), 1989, 89 05 649, (*Brigham Young Univ.*); *CA*, **112**, 56584s (*synth, pharmacol*)

Nagahara, K. *et al., J. Med. Chem.*, 1990, **33**, 407-415 (*synth, pharmacol*)

Smee, D.F. *et al., Antimicrob. Agents Chemother.*, 1991, **35**, 152-157 (*pharmacol*)

Isoagarobiose I-48

4,6-O-[2-Hydroxy-2-(tetrahydro-3,4-dihydroxy-2-furanyl)ethylidene]-D-galacto-pyranose, 9CI
[18424-01-6]

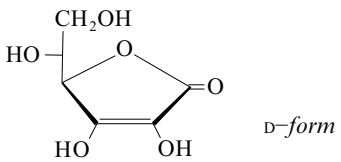


$C_{12}H_{20}O_{10}$ 324.284
Isol. from hydrolysed commercial agar. Syrup. $[\alpha]_D^{30}$ +42.4 (H_2O).

Araki, C. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 1452-1456

Isoascorbic acid I-49

erythro-*Hex-2-enonic acid 1,4-lactone, 9CI, 8CI. Araboascorbic acid. Isovitamin C. Erythorbic acid. Saccharosonic acid. Erycorbin. Glucosaccharonic acid*



D-*form*

$C_6H_8O_6$ 176.126

D-*form*
E315. FEMA 2410
[89-65-6]
Prod. from glucose by *Penicillium* spp. Inexpensive starting material for synthesis. Shows approx. 5% of the vitamin activity of Ascorbic acid, A-868. Antioxidant for foods and soft drinks. Flavouring ingredient; colouring preservative/antioxidant in fruit and meat products. Strong reducing agent with some industrial applications.
Mp 168° dec. $[\alpha]_D^{20}$ -22 (H_2O).
► KF3015000

Na salt: Sodium erythorbate. E316
[6381-77-7] Used in food industry. Cryst. powder. $[\alpha]_D^{25}$ +95.5 → +98 (H_2O).

2-Phosphate:
$C_6H_8O_9P$ 255.098
Fine needles (as tricyclohexylammonium salt). Mp 142-144° (tricyclohexylammonium salt).

*5,6-O-Isopropylidene: 5,6-O-Isopropylidene-D-*erythro-*hex-2-enono-1,4-lactone*
$C_9H_{12}O_6$ 216.19
Mp 187-189°. $[\alpha]_D^{25}$ +26.5 (c, 1.0 in H_2O).

*5,6-O-Cyclohexylidene: 5,6-O-Cyclohexylidene-D-*erythro-*hex-2-enono-1,4-lactone*
$C_{12}H_{16}O_6$ 256.255
Mp 176-178°. $[\alpha]_D^{25}$ -17.8 (c, 1.0 in Me_2CO) (>98% ee).

L-*form* [26094-91-7]
Prisms (Me_2CO/MeOH/petrol). Mp 168° dec. $[\alpha]_D^{20}$ +19 (c, 0.9 in H_2O). $[\alpha]_D^{20}$ +17 (c, 0.6 in MeOH).

Na salt:
Cryst. powder. $[\alpha]_D^{20}$ -94 (c, 0.7 in H_2O).

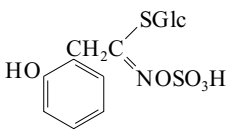
*3-Me: 3-O-Methyl-L-*erythro-*hex-2-enono-1,4-lactone*
$C_7H_{10}O_6$ 190.152
Needles (MeOH/Et_2O). Mp 120-122°. $[\alpha]_D^{19}$ +42 (c, 0.72 in MeOH).

[7378-23-6, 63524-04-9]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 707A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1150B (*nmr*)
Maurer, K. *et al., Ber.*, 1934, **67**, 1239-1241 (*D-form, synth*)
Reichstein, T. *et al., Helv. Chim. Acta*, 1934, **17**, 510-520 (*D-form, L-form, L-Me*)
Baird, D.K. *et al., J.C.S.*, 1934, 62-67 (*L-form, synth*)
Esselen, W.B. *et al., Ind. Eng. Chem.*, 1945, **37**, 295-306 (*rev, use*)
Takahashi, T. *et al., Nature (London)*, 1960, **188**, 411-412 (*isol*)
Takahashi, T. *et al., Biochim. Biophys. Acta*, 1961, **51**, 410-412 (*biosynth*)
Azarnia, N. *et al., Acta Cryst. B*, 1972, **28**, 2157-2161 (*D-form, cryst struct*)
Yang, H. *et al., J. Carbohydr. Chem.*, 1992, **11**, 485-498 (*2-phosphate, bibl*)
Carlsen, P.H.J. *et al., Acta Chem. Scand.*, 1995, **49**, 297-300 (*isopropylidene, cyclohexylidene*)
Fenaroli's Handbook of Flavor Ingredients, 3rd edn., (ed. Burdock, G.A.), CRC Press, 1995, 209
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 931-932; 2554-2555 (*use, props*)

Isoglucosinalbin I-50

*1-Thio-β-D-glucopyranose 1-[2-hydroxy-*N*-(sulfooxy)benzeneethanimidate], 9CI. 2-Hydroxybenzyl glucosinolate*



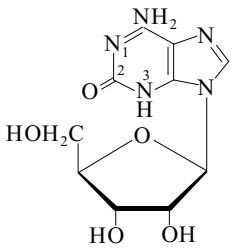
$C_{14}H_{19}NO_{10}S_2$ 425.437

O-α-L-Rhamnopyranoside: 2-(α-L-Rhamnopyranosyloxy)benzyl glucosinolate
[73518-99-7]
$C_{20}H_{29}NO_{14}S_2$ 571.579
Isol. from *Reseda odorata*. λ_{max} 270; 276 (no solvent reported).

Olsen, O. *et al., Phytochemistry*, 1979, **18**, 1547-1552 (*isol, cmr, pmr*)

Isoguanosine I-51

*6-Amino-9-β-D-ribofuranosyl-9*H*-purin-2(1*H*)-one, 8CI. 9-β-D-Ribofuranosylisoguanine. Crotonoside. 2-Hydroxyadenosine*
[1818-71-9]



$C_{10}H_{13}N_5O_5$ 283.243
Occurs in the seeds of *Croton tiglium*. Also isol. from the nudibranch *Diaulula sandiegensis*. Incorporated into mammalian nucleic acids. Stimulates cyclic AMP incorporation into brain tissue, inhibitor of inosine monophosphate pyrophosphonylase and glutamic acid dehydrogenase. Cryst. (H_2O). Sol. H_2O. Mp 243-245° (237-252°) dec. $[\alpha]_D^{26}$ -71 (c, 1.1 in 0.1*M* NaOH). λ_{max} 235 (ε 6140); 283 (ε 12700) (0.05*N* HCl) (Derep). λ_{max} 251 (ε 6890); 285 (ε 10600) (0.05*N* NaOH) (Derep). λ_{max} 247 (ε 8930); 293 (ε 11100) (H_2O) (Derep).

*6*N*-Me:* [23605-76-7]
$C_{11}H_{15}N_5O_5$ 297.27
Mp 188-190° dec. $[\alpha]_D^{26}$ -63.1 (c, 0.9 in 0.1*M* NaOH).

*6*N*-Et:*
$C_{12}H_{17}N_5O_5$ 311.297
Mp 212° dec. $[\alpha]_D^{26}$ -68.2 (c, 0.97 in 0.1*M* NaOH).

*6*N*-Di-Me:* [24386-79-6]
$C_{12}H_{17}N_5O_5$ 311.297
Mp 184-186° (220°) dec. $[\alpha]_D^{26}$ -52 (c, 0.07 in 0.1*M* NaOH).

1-Me: See Doridosine, D-773

3-Me: 3-Methylisoguanosine. 2,3-Dihydro-3-methyl-2-oxoadenosine
$C_{11}H_{15}N_5O_5$ 297.27
Needles + $1H_2O$ (H_2O). Mp 175-178° dec. $[\alpha]_D^{17}$ -44 (c, 0.129 in H_2O). pK_a 4.57 (25°).

O^2*-Me:* See 2-Methoxyadenosine, M-137

2′-Deoxy: 2′-Deoxyisoguanosine
[106449-56-3]
$C_{10}H_{13}N_5O_4$ 267.244
Cryst. (EtOH). Mp 230° dec.

2′-Deoxy, 5′-triphosphate: [150668-64-7]
$C_{10}H_{16}N_5O_{13}P_3$ 507.184
λ_{max} 247; 292 (H_2O).

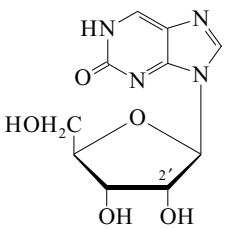
2′-Deoxy, 3′,5′-di-Ac: [173098-07-2]
$C_{14}H_{17}N_5O_6$ 351.318
Needles (EtOAc). Mp 235-237°.

Cherbuliez, E. *et al., Helv. Chim. Acta*, 1932, **15**, 464; 978 (*isol*)
Spies, J.R. *et al., J.A.C.S.*, 1939, **61**, 350 (*occur*)
Davoll, J. *et al., J.A.C.S.*, 1951, **73**, 3174 (*synth, isol*)
Yamazaki, A. *et al., Chem. Pharm. Bull.*, 1968, **16**, 2172 (*synth*)
South African Pat., 1968, 6 707 630, (*Boehringer*); *CA*, **70**, 88212z (*6N-Me*)

Miura, K. *et al., Chem. Pharm. Bull.*, 1975, **23**, 2064 (*synth*)
Sepiol, J. *et al., Z. Naturforsch., C*, 1976, **37**, 361 (*uv*)
Fuhrmann, F.A. *et al., Science (Washington, D.C.)*, 1981, **212**, 557 (*isol*)
Nair, V. *et al., J.O.C.*, 1985, **50**, 406 (*synth, pmr*)
Itaya, T. *et al., Chem. Pharm. Bull.*, 1990, **38**, 2971 (*3-Methylisoguanosine*)
Kazimierczuk, Z. *et al., Helv. Chim. Acta*, 1991, **74**, 1742 (*2′-Deoxyisoguanosine*)
Seela, F. *et al., Helv. Chim. Acta*, 1991, **74**, 1742-1748; 1994, **77**, 622-630; 1995, **78**, 1843-1854 (***synth, uv, pmr, cmr, 2′-Deoxyisoguanosine***)
Divakar, K.J. *et al., J.C.S. Perkin 1*, 1991, 771 (*synth, uv, pmr, cmr*)
Chern, J.-W. *et al., J.O.C.*, 1991, **56**, 4213 (*synth*)
De Napoli, L. *et al., J.C.S. Perkin 1*, 1995, 15 (***synth, bibl***)
Jurczyk, S.C. *et al., Helv. Chim. Acta*, 1999, **82**, 1005-1015 (*2′-Deoxyguanosine 5′-triphosphate*)

Isoinosine I-52

*1,9-Dihydro-9-β-D-ribofuranosyl-2*H*-purin-2-one, 9CI. 9-(β-D-Ribofuranosyl)-2-hydroxypurine*
[72346-26-0]



$C_{10}H_{12}N_4O_5$ 268.229

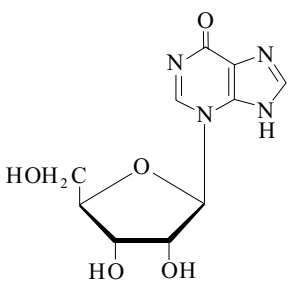
Not the same as 3-Isoinosine, I-53.
Constit. of bark of *Acanthopanax giraldii hispidus*. Cryst. (MeOH/Et_2O).

2-Deoxy:
$C_{10}H_{12}N_4O_4$ 252.229
Powder (MeOH/Et_2O).

Holý, A. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 2846 (*synth, uv*)
Seela, F. *et al., Helv. Chim. Acta*, 1994, **77**, 194 (*2′-deoxyisoinosine*)

3-Isoinosine I-53

*3,7-Dihydro-3-β-D-ribofuranosyl-6*H*-purin-6-one, 9CI. 3-(β-D-Ribofuranosyl)-hypoxanthine*
[6835-54-7]



$C_{10}H_{12}N_4O_5$ 268.229

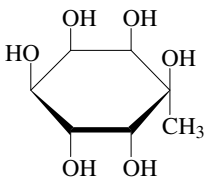
Mp 183.5° (218° dec.). $[\alpha]_D^{25}$ -35.2 (c, 1.0 in H_2O). λ_{max} 265 (ε 13 200) (H_2O), 254 (10 950) (0.1*M* HCl), 270 nm (10 950) (0.1*M* NaOH).

2′,3′,5′-Tribenzoyl:
$C_{31}H_{24}N_4O_8$ 580.553
Mp 118-119°. $[\alpha]_D^{25}$ -64.2 (c, 1.0 in $CHCl_3$).

Wolfenden, R. *et al., J.A.C.S.*, 1966, **88**, 185 (*synth*)
Tindall, C.G. *et al., J.O.C.*, 1972, **37**, 3985 (*synth, pmr*)
Kumar, S. *et al., Acta Cryst. C*, 1989, **45**, 1394 (*cryst struct*)

Isolaminitol I-54

4-C-Methyl-epi-*inositol*



$C_7H_{14}O_6$ 194.184

4-*C*-Methyl-*epi*-inositol is the enantiomer of 2-*C*-methyl-*epi*-inositol.

(+)-*form*
Cryst. (EtOH aq.). Mp 192-193°. $[\alpha]_D^{21}$ +3.7 (c, 1 in H_2O).

Hexa-Ac:
$C_{19}H_{26}O_{12}$ 446.407
Cryst. (EtOH). Mp 133-134°.

(±)-*form*
Cryst. (EtOH aq.). Mp 210-212°.

Hexa-Ac:
Cryst. (EtOH). Mp 133-134°.

1,5,6-Tribenzyl: [190059-22-4]
$C_{28}H_{32}O_6$ 464.557
Cryst. (EtOAc/petrol). Mp 106-108°.

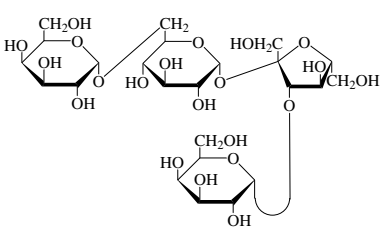
*1,5,6-Tribenzyl, 2,3-*O*-isopropylidene:*
[190059-31-5]
$C_{31}H_{36}O_6$ 504.622
Oil.

[190059-15-5]

Posternak, T. *et al., Helv. Chim. Acta*, 1960, **43**, 2142-2147 (*(+)-form, (±)-form, synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1974, **27**, 1075-1086 (*(±)-form, synth, pmr*)
Gigg, J. *et al., Carbohydr. Res.*, 1997, **299**, 77-83 (*1,5,6-tribenzyl, 2,3-isopropylidene*)

Isolychnose I-55

α-D-Galactopyranosyl-(1→3)-β-D-fructofuranosyl α-D-galactopyranosyl-(1→6)-α-D-glucopyranoside, 9CI
[546-35-0]



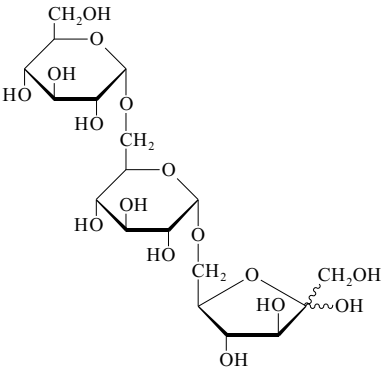
$C_{24}H_{42}O_{21}$ 666.583

Constit. of *Cerastium arvense*, *Dianthus lumnitzeri*, *Lychis dioica* and *Silene inflata*.

Wickstrom, A. *et al., Bull. Soc. Chim. Fr.*, 1959, 871-878 (*isol*)
Koenigshofer, H. *et al., Z. Pflanzenphysiol.*, 1979, **92**, 449-453 (*isol*)
Hopf, H. *et al., Planta*, 1984, **162**, 283-288 (*isol, biosynth*)

Isomaltotriulose I-56

α-D-Glucopyranosyl(1→6)-α-D-glucopyranosyl(1→6)-D-fructose



$C_{18}H_{32}O_{16}$ 504.441
Isol. from a culture medium of *Streptococcus bovis*. Amorph. $[\alpha]_D^{22}$ +118 (H_2O).

Avigad, A. *et al., Biochem. J.*, 1959, **73**, 587 (*enzymic synth*)
Bourne, E.J. *et al., Biochem. J.*, 1961, **79**, 549 (*isol*)

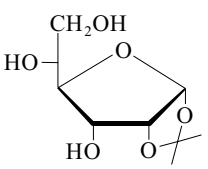
Isopropyl glucosinolate I-57

*1-Thio-β-D-glucopyranose 1-[*N*-(sulfooxy)-2-methylpropanimidate], 9CI.*
Glucoputranjivin
[18432-16-1]
$(H_3C)_2CHC(SGlc)=NOSO_3H$
$C_{10}H_{19}NO_9S_2$ 361.393
Isol. from seeds of *Lunaria annua* and other Cruciferae.

Tetra-Ac:
Fine needles (EtOH aq.) (as K salt). Mp 180.5-182° (K salt). $[\alpha]_D^{25}$ -18.3 (c, 1.6 in H_2O).

Putambekar, S.V. *et al., Proc. - Indian Acad. Sci., Sect. A*, 1950, **32**, 114 (*isol*)
Kjaer, A. *et al., Acta Chem. Scand.*, 1959, **13**, 851 (*isol*)
Benn, M.H. *et al., Can. J. Chem.*, 1965, **43**, 1874 (*synth, biosynth*)

1,2-*O*-Isopropylideneallose, 9CI, 8CI I-58



$C_9H_{16}O_6$ 220.222

α-D-Furanose-*form* [4495-04-9]
Cryst. (EtOAc). Mp 129-130°. $[\alpha]_D^{20}$ +47.8 (c, 1.4 in H_2O).

3-Ac: 3-O-*Acetyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[51433-05-7]
$C_{11}H_{18}O_7$ 262.259
Syrup. $[\alpha]_D^{25}$ +294.3 (c, 0.9 in $CHCl_3$).

5,6-Di-Ac: 5,6-Di-O-*acetyl-1,2*-O-*isopropylidene-α-D-allofuranose*
$C_{13}H_{20}O_8$ 304.296
Oil. $[\alpha]_D^{20}$ +90 (c, 1.0 in $CHCl_3$).

3,5,6-Tri-Ac: 3,5,6-Tri-O-*acetyl-1,2*-O-*isopropylidene-α-D-allofuranose*
$C_{15}H_{22}O_9$ 346.333
Cryst. (Et_2O/petrol). Mp 79-80°. $[\alpha]_D^{20}$ +111.1 (c, 1.8 in $CHCl_3$).

3-Benzoyl: 3-O-*Benzoyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[31795-13-8]
$C_{16}H_{20}O_7$ 324.33
Mp 107-109°. $[\alpha]_D^{22}$ +117 (c, 1.5 in $CHCl_3$).

5-Benzoyl: 5-O-*Benzoyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[60480-35-5]
$C_{16}H_{20}O_7$ 324.33
Mp 94-95°. $[\alpha]_D^{25}$ +26.7 (c, 0.50 in $CHCl_3$).

3,5-Dibenzoyl: 3,5-Di-O-*benzoyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[52443-42-2]
$C_{23}H_{24}O_8$ 428.438
Mp 106-108°. $[\alpha]_D^{25}$ +125 (c, 0.5 in $CHCl_3$).

3,5,6-Tribenzoyl: 3,5,6-Tri-O-*benzoyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[35506-60-6]
$C_{30}H_{28}O_9$ 532.546
Cryst. (EtOH). Mp 116-118°. $[\alpha]_D^{20}$ +107.9 (c, 2.4 in $CHCl_3$).

3,5-Dimesyl: 1,2-O-*Isopropylidene-3,5-di*-O-*mesyl-α-D-allofuranose*
$C_{11}H_{20}O_{10}S_2$ 376.405
Amorph. $[\alpha]_D^{20}$ +43 (c, 0.9 in $CHCl_3$).

5,6-Dimesyl, 3-benzoyl: 3-O-*Benzoyl-1,2*-O-*isopropylidene-5,6-di*-O-*mesyl-α-D-allofuranose*
$C_{18}H_{24}O_{11}S_2$ 480.513
Mp 102-104°. $[\alpha]_D^{22}$ +102 (c, 1.5 in $CHCl_3$).

3,5,6-Trimesyl: 1,2-O-*Isopropylidene-3,5,6-tri*-O-*mesyl-α-D-allofuranose*
[23537-38-4]
$C_{12}H_{22}O_{12}S_3$ 454.497
Syrup. $[\alpha]_D^{20}$ +69.5 (c, 1.6 in $CHCl_3$).

3-Tosyl: 1,2-O-*Isopropylidene-3*-O-*tosyl-α-D-allofuranose*
[28251-83-4]
$C_{16}H_{22}O_8S$ 374.411
Mp 130°. $[\alpha]_D^{24}$ +56 (c, 0.3 in Me_2CO).

3-Tosyl, 5,6-di-Ac: 5,6-Di-O-*acetyl-1,2*-O-*isopropylidene-3*-O-*tosyl-α-D-allofuranose*
[28251-88-9]
$C_{20}H_{26}O_{10}S$ 458.485
Mp 91°. $[\alpha]_D^{22}$ +89 (c, 1.0 in $CHCl_3$).

6-Tosyl: 1,2-O-*Isopropylidene-6*-O-*tosyl-α-D-allofuranose*
[24384-93-8]
$C_{16}H_{22}O_8S$ 374.411
Mp 117-119°. $[\alpha]_D^{21}$ +31.2 (c, 0.81 in $CHCl_3$).

3,6-Ditosyl: 1,2-O-*Isopropylidene-3,6-di*-O-*tosyl-α-D-allofuranose*
[28251-84-5]
$C_{23}H_{28}O_{10}S_2$ 528.6
Mp 117-118°. $[\alpha]_D^{21}$ +70 (c, 0.7 in EtOH).

5,6-O-*Isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-α-D-allofuranose*
[2595-05-3]
$C_{12}H_{20}O_6$ 260.286
Mp 75-76° Mp 89-91°. $[\alpha]_D^{22}$ +38 ($CHCl_3$).

5,6-O-*Isopropylidene, 3-Ac: 3*-O-*Acetyl-1,2:5,6-di*-O-*isopropylidene-α-D-allofuranose*
[29474-72-4]
$C_{14}H_{22}O_7$ 302.324
Cryst. (Et_2O/hexane). Mp 74-75°. $[\alpha]_D^{22}$ +100.6 (c, 0.73 in $CHCl_3$).

5,6-O-*Isopropylidene, 3-benzoyl: 3*-O-*Benzoyl-1,2:5,6-di*-O-*isopropylidene-α-D-allofuranose*
[29474-73-5]
$C_{19}H_{24}O_7$ 364.394
Mp 75-76°. $[\alpha]_D^{22}$ +116 (c, 1.0 in Me_2CO).

5,6-O-*Isopropylidene, 3-tosyl: 1,2:5,6-Di*-O-*isopropylidene-3*-O-*tosyl-α-D-allofuranose*
[30923-27-4]
$C_{19}H_{26}O_8S$ 414.476
Mp 121° Mp 148.5-150°. $[\alpha]_D^{28}$ +88 (c, 1.0 in $CHCl_3$). $[\alpha]_D^{20}$ +68.3 (c, 0.8 in EtOH).

3-Me: 1,2-O-*Isopropylidene-3*-O-*methyl-α-D-allofuranose*
[18968-50-8]
$C_{10}H_{18}O_6$ 234.249
Cryst. (EtOH/toluene). Mp 120-121°. $[\alpha]_D^{20}$ +108.8 (c, 1.0 in $CHCl_3$).

3-Me, 5,6-dimesyl: 1,2-O-*Isopropylidene-5,6-di*-O-*mesyl-3*-O-*methyl-α-D-allofuranose*
[32166-82-8]
$C_{12}H_{22}O_{10}S_2$ 390.432
Mp 102-103°. $[\alpha]_D$ +72 (c, 1.0 in $CHCl_3$).

3-Me, 5-tosyl, 6-benzoyl: 6-O-*Benzoyl-1,2*-O-*isopropylidene-3*-O-*methyl-5*-O-*tosyl-α-D-allofuranose*
$C_{24}H_{28}O_9S$ 492.546
Mp 121-122°. $[\alpha]_D$ +66 (c, 1.0 in $CHCl_3$).

3-Me, 5,6-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-3*-O-*methyl-α-D-allofuranose*
[18968-49-5]
$C_{13}H_{22}O_6$ 274.313
$Bp_{0.01}$ 120-125°. $[\alpha]_D^{20}$ +90 (c, 1.4 in $CHCl_3$).

3,5,6-Tri-Me: 1,2-O-*Isopropylidene-3,5,6-tri*-O-*methyl-α-D-allofuranose*
[57099-07-7]
$C_{12}H_{22}O_6$ 262.302
Syrup. Bp_{12} 172°.

3-Benzyl: 3-O-*Benzyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[57099-04-4]
$C_{16}H_{22}O_6$ 310.346
$[\alpha]_D$ +103 (c, 0.6 in MeOH).

3-Benzyl, 5,6-dimesyl: 3-O-*Benzyl-1,2*-O-*isopropylidene-5,6-di*-O-*mesyl-α-D-allofuranose*
$C_{18}H_{26}O_{10}S_2$ 466.529
Mp 107-108°. $[\alpha]_D$ +78 (c, 0.8 in $CHCl_3$).

3-Benzyl, 5,6-di-Ac: 5,6-Di-O-*acetyl-3*-O-*benzyl-1,2*-O-*isopropylidene-α-D-allofuranose*
[30788-69-3]
$C_{20}H_{26}O_8$ 394.421
Mp 66.5-67°. $[\alpha]_D^{20}$ +98 (c, 2.0 in $CHCl_3$).

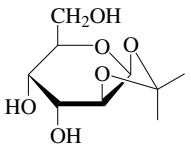
3-Benzyl, 5,6-O-*isopropylidene: 3*-O-*Benzyl-1,2:5,6-di*-O-*isopropylidene-α-D-allofuranose*
[22331-21-1]
$C_{19}H_{26}O_6$ 350.411
Mp 64-65°. $[\alpha]_D$ +110 (c, 1.0 in MeOH).

6-Trityl: 1,2-O-*Isopropylidene-6*-O-*trityl-α-D-allofuranose*
[26532-02-5]
$C_{28}H_{30}O_6$ 462.541
Syrup. $[\alpha]_D^{20}$ +16.8 (c, 0.8 in $CHCl_3$).

6-Trityl, 3,5-dimesyl: 1,2-O-*Isopropylidene-3,5-di*-O-*mesyl-6*-O-*trityl-α-D-allofuranose*
[26798-46-9]
$C_{30}H_{34}O_{10}S_2$ 618.725
Amorph. $[\alpha]_D^{20}$ +43 (c, 0.9 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 408A (*nmr*)
Horton, D. *et al., Carbohydr. Res.*, 1970, **15**, 215 (*α-D-isopropylidene 3-benzyl, α-D-3-benzyl, α-D-di-Ac benzyl*)
Haga, M. *et al., Carbohydr. Res.*, 1972, **21**, 440 (*α-D-form, synth, α-D-tri-Ac, α-D-tribenzoyl, α-D-Me, α-D-isopropylidene Me*)
Baker, D.C. *et al., Carbohydr. Res.*, 1972, **24**, 192 (*α-D-isopropylidene*)
Stevens, J.D. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 123 (*α-D-isopropylidene*)
Whistler, R.L. *et al., Carbohydr. Res.*, 1973, **31**, 237 (*α-D-3-Ac, α-D-isopropylidene 3-Ac*)
Baker, D.C. *et al., Carbohydr. Res.*, 1974, **32**, 299
Vyas, D.M. *et al., Can. J. Chem.*, 1975, **53**, 2748 (*α-D-form, α-D-isopropylidene, cmr*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 1775 (*α-D-tri-Me*)
de Bruyn, A. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1975, **2**, 263 (*pmr*)
Kolvoda, L. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 800 (*α-D-dibenzoyl*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 1426 (*α-D-5-benzoyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1977, **34**, 179 (*rev, derivs*)
Sheldrick, B. *et al., Acta Cryst. C*, 1988, **44**, 1687 (*α-D-form, cryst struct*)
Lee, E. *et al., Carbohydr. Res.*, 1992, **226**, 175 (*cryst struct, α-D-3-Me, α-D-isopropylidene 3-Me*)
Pitsch, S. *et al., Helv. Chim. Acta*, 1997, **80**, 2286-2314 (*α-D-5,6-isopropylidene 3-benzoyl*)
Christensen, S.M. *et al., Org. Process Res. Dev.*, 2004, **8**, 744-753 (*α-D-5,6-isopropylidene*)

1,2-*O*-Isopropylidenealtrose I-59



β-D-Pyranose-*form*

$C_9H_{16}O_6$ 220.222

β-D-Pyranose-*form*
Cryst. (EtOAc). Mp 128-129°.

3,4-O-*Isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-D-altropyranose*
[27108-09-4]
$C_{12}H_{20}O_6$ 260.286
Mp 64-65°. $[\alpha]_D$ +68 (c, 0.96 in $CHCl_3$).

β-D-Furanose-*form* [27108-10-7]
Mp 129-130°. $[\alpha]_D$ +23 (c, 0.64 in MeOH).

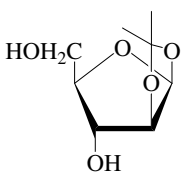
5,6-O-*Isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-β-D-altrofuranose*
[38166-58-4]
$C_{12}H_{20}O_6$ 260.286
Mp 87-88°. $[\alpha]_D$ +28.5 (c, 0.4 in Me_2CO).

5,6-O-*Isopropylidene, 3-Ac: 3*-O-*Acetyl-1,2:5,6-di*-O-*isopropylidene-β-D-altrofuranose*
[38166-66-4]
$C_{14}H_{22}O_7$ 302.324
Mp 92-93°. $[\alpha]_D^{22}$ +14.4 (c, 0.68 in $CHCl_3$).

5,6-O-*Isopropylidene, 3-tosyl: 1,2:5,6-Di*-O-*isopropylidene-3*-O-*tosyl-β-D-altrofuranose*
$C_{19}H_{26}O_8S$ 414.476
Mp 101-102°. $[\alpha]_D$ +29 (c, 0.5 in $CHCl_3$).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1970, **12**, 1 (*β-D-pyr, β-D-isopropylidene, β-D-fur, β-D-fur isopropylidene, β-D-fur isopropylidene tosyl*)
Hall, L.D. *et al., Can. J. Chem.*, 1972, **50**, 1912 (*β-D-fur isopropylidene Ac, pmr*)

1,2-*O*-Isopropylidenearabinose, 9CI I-60



β-D-*form*

$C_8H_{14}O_5$ 190.196

β-D-Furanose-*form* [43138-39-2]

5-Tosyl: 1,2-O-*Isopropylidene-5*-O-*tosyl-β-D-arabinofuranose*
[40429-51-4]
$C_{15}H_{20}O_7S$ 344.385
Mp 127-130°.

3-Benzyl: 3-O-*Benzyl-1,2*-O-*isopropylidene-β-D-arabinofuranose*
[59358-33-7]
$C_{15}H_{20}O_5$ 280.32
Mp 79-80°. $[\alpha]_D^{25}$ +23.2 (c, 0.5 in $CHCl_3$).

3-Benzyl, 5-benzoyl: 5-O-*Benzoyl-3*-O-*benzyl-1,2*-O-*isopropylidene-β-D-arabinofuranose*
[59358-34-8]
$C_{22}H_{24}O_6$ 384.428
Mp 78-79°. $[\alpha]_D^{25}$ +20.1 (c, 0.5 in $CHCl_3$).

3-Benzyl, 5-tosyl: 3-O-*Benzyl-1,2*-O-*isopropylidene-5*-O-*tosyl-β-D-arabinofuranose*
[40429-53-6]
$C_{22}H_{26}O_7S$ 434.509
Mp 60°. $[\alpha]_D^{25}$ +20.2 (c, 0.5 in $CHCl_3$).

β-L-Furanose-*form*
Cryst. (EtOAc). Mp 113-115°. $[\alpha]_D$ -28.9 (H_2O).

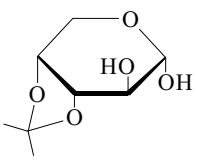
5-Tosyl: 1,2-O-*Isopropylidene-5*-O-*tosyl-β-L-arabinofuranose*
[6893-65-8]
$C_{15}H_{20}O_7S$ 344.385
Mp 129-130°. $[\alpha]_D$ -34.8 ($CHCl_3$).

3,5-Ditosyl: 1,2-O-*Isopropylidene-3,5-di*-O-*tosyl-β-L-arabinofuranose*
$C_{22}H_{26}O_9S_2$ 498.574
Mp 96°. $[\alpha]_D$ -34.7 ($CHCl_3$).

3-Tosyl, 5-benzoyl: 5-O-*Benzoyl-1,2*-O-*isopropylidene-3*-O-*tosyl-β-L-arabinofuranose*
$C_{22}H_{24}O_8S$ 448.493
Mp 83°. $[\alpha]_D$ -6 ($CHCl_3$).

Levene, P.A. *et al., J. Biol. Chem.*, 1936, **116**, 189 (*β-L-form, β-L-tosyl*)
Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, 324 (*rev, derivs*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179
Morgenlie, S. *et al., Acta Chem. Scand.*, 1973, **27**, 3609 (*β-L-form*)
Kalvoda, L. *et al., Coll. Czech. Chem. Comm.*, 1976, **41**, 788 (*α-D-tosyl, α-D-benzyl, α-D-benzyl benzoyl, α-D-benzyl tosyl*)

3,4-*O*-Isopropylidenearabinose, 9CI I-61



α−D−*form*

$C_8H_{14}O_5$ 190.196

α-D-Pyranose-*form*

1,2-Di-Ac: 1,2-Di-O-*acetyl-3,4*-O-*isopropylidene-α-D-arabinopyranose*
[58645-41-3]
$C_{12}H_{18}O_7$ 274.27
Mp 118-119°. $[\alpha]_D$ -49 (c, 1.0 in $CHCl_3$).

2-Me: 3,4-O-*Isopropylidene-2*-O-*methyl-α-D-arabinopyranose*
$C_9H_{16}O_5$ 204.222
Mp 115-117°.

β-D-Pyranose-*form* [58645-40-2]
Mp 82-85° (78°). $[\alpha]_D$ -156 → -111 (24 hr.) (c, 1.1 in H_2O).

2-Benzoyl: 2-O-*Benzoyl-3,4*-O-*isopropylidene-β-D-arabinopyranose*
$C_{15}H_{18}O_6$ 294.304
Mp 120-121°. $[\alpha]_D$ -145 (MeOH).

1,2-O-*Isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-D-arabinopyranose*
[20881-03-2]
$C_{11}H_{18}O_5$ 230.26
Mp 40-41°. $[\alpha]_D$ -4 (H_2O).

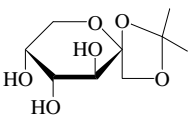
β-L-Pyranose-*form* [40031-36-5]
Mp 80°. $[\alpha]_D$ +128.8 (H_2O).

1,2-O-*Isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-β-L-arabinopyranose*
[27820-98-0]
$C_{11}H_{18}O_5$ 230.26
Mp 41-43°. $[\alpha]_D$ +5.4 (H_2O).

Me glycoside: See Methyl 3,4-*O*-isopropylidenearabinopyranoside, M-197

Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, 324 (*rev, derivs*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179
Gelas, J. *et al., Carbohydr. Res.*, 1975, **45**, 181 (*β-D-form, β-D-isopropylidene, α-D-di-Ac*)

1,2-*O*-Isopropylidenefructose, 8CI I-62



β-D-Pyranose-*form*

$C_9H_{16}O_6$ 220.222

β-D-Pyranose-*form* [66900-93-4]
Mp 121°. $[\alpha]_D$ -158.9 (H_2O).

3-Ac: 3-O-*Acetyl-1,2*-O-*isopropylidene-β-D-fructopyranose*
$C_{11}H_{18}O_7$ 262.259
Mp 154-155°. $[\alpha]_D$ -180.6 (EtOH).

3,4,5-Tri-Ac: 3,4,5-Tri-O-*acetyl-1,2*-O-*isopropylidene-β-D-fructopyranose*
[26388-66-9]
$C_{15}H_{22}O_9$ 346.333
Mp 99-100°. $[\alpha]_D$ -135.7 (EtOH).

3-Benzoyl: 3-O-*Benzoyl-1,2*-O-*isopropylidene-β-D-fructopyranose*
$C_{16}H_{20}O_7$ 324.33
Mp 202-204°. $[\alpha]_D$ -152.3 (EtOH).

3-Benzoyl, 4,5-di-Ac: 4,5-Di-O-*acetyl-3*-O-*benzoyl-1,2*-O-*isopropylidene-β-D-fructopyranose*
$C_{20}H_{24}O_9$ 408.404
Mp 77-78°. $[\alpha]_D$ -132.5 (EtOH).

4,5-Dibenzoyl, 3-Ac: 3-O-*Acetyl-4,5-di*-O-*benzoyl-1,2*-O-*isopropylidene-β-D-fructopyranose*
$C_{25}H_{26}O_9$ 470.475
Mp 108-109°. $[\alpha]_D$ -269.4 (EtOH).

3-Mesyl: 1,2-O-*Isopropylidene-3*-O-*mesyl-β-D-fructopyranose*
$C_{10}H_{18}O_8S$ 298.313
Mp 133° dec. $[\alpha]_D$ -138 (Me_2CO).

3,4,5-Trimesyl: 1,2-O-*Isopropylidene-3,4,5-tri*-O-*mesyl-β-D-fructopyranose*
$C_{12}H_{22}O_{12}S_3$ 454.497
Mp 128-130°. $[\alpha]_D$ -115 ($CHCl_3$).

3-Tosyl: 1,2-O-*Isopropylidene-3*-O-*tosyl-β-D-fructopyranose*
[41342-40-9]
$C_{16}H_{22}O_8S$ 374.411
Cryst. (H_2O). Mp 124°. $[\alpha]_D^{20}$ -113 (c, 3.1 in $CHCl_3$).

*3,4-Dimesyl, 5-Ac: 5-*O*-Acetyl-1,2-*O*-isopropylidene-3,4-di-*O*-mesyl-β-D-fructopyranose*
$C_{13}H_{22}O_{11}S_2$ 418.442
Mp 84-86°.

*3-Tosyl, 4,5-di-Ac: 4,5-Di-*O*-acetyl-1,2-*O*-isopropylidene-3-*O*-tosyl-β-D-fructopyranose*
$C_{20}H_{26}O_{10}S$ 458.485
Mp 97°. $[\alpha]_D$ -133 ($CHCl_3$).

*4,5-Ditosyl, 3-Ac: 3-*O*-Acetyl-1,2-*O*-isopropylidene-4,5-di-*O*-tosyl-β-D-fructopyranose*
$C_{25}H_{30}O_{11}S_2$ 570.637
Mp 127-128°. $[\alpha]_D$ -119.5 ($CHCl_3$).

*3-Tosyl, 4,5-dibenzoyl: 4,5-Di-*O*-benzoyl-1,2-*O*-isopropylidene-3-*O*-tosyl-β-D-fructopyranose*
$C_{30}H_{30}O_{10}S$ 582.627
Mp 144°. $[\alpha]_D$ -316.2 ($CHCl_3$).

*4,5-Ditosyl, 3-benzoyl: 3-*O*-Benzoyl-1,2-*O*-isopropylidene-4,5-di-*O*-tosyl-β-D-fructopyranose*
$C_{30}H_{32}O_{11}S_2$ 632.708
Mp 164-165°. $[\alpha]_D$ -175 ($CHCl_3$).

*3,4,5-Tritosyl: 1,2-*O*-Isopropylidene-3,4,5-tri-*O*-tosyl-β-D-fructopyranose*
$C_{30}H_{34}O_{12}S_3$ 682.789
Mp 125°. $[\alpha]_D$ -121.4 ($CHCl_3$).

*4,5-*O*-Isopropylidene:* See 1,2:4,5-Di-*O*-isopropylidenefructopyranose, D-714

*3,4,5-Tri-Me: 1,2-*O*-Isopropylidene-3,4,5-tri-*O*-methyl-β-D-fructopyranose*
$C_{12}H_{22}O_6$ 262.302
$[\alpha]_D$ -147.9 (H_2O).

β-D-Furanose-*form*
Syrup. $[\alpha]_D^{22}$ -40 (MeOH) (-38).

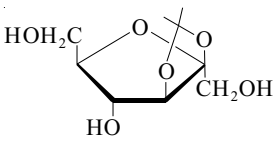
*3,4,5-Tri-Ac: 3,4,5-Tri-*O*-acetyl-1,2-*O*-isopropylidene-β-D-fructofuranose*
$C_{15}H_{22}O_9$ 346.333
Mp 120-122°.

*3,4,6-Tri-Ac: 3,4,6-Tri-*O*-acetyl-1,2-*O*-isopropylidene-β-D-fructofuranose*
$C_{15}H_{22}O_9$ 346.333
Cryst. (EtOAc/hexane). Mp 82-84°. $[\alpha]_D^{20}$ -45 (c, 1.8 in 1,2-dimethoxyethane).

*6-Benzoyl: 6-*O*-Benzoyl-1,2-*O*-isopropylidene-β-D-fructofuranose*
$C_{16}H_{20}O_7$ 324.33
Cryst. (Et_2O/hexane). Mp 83-84°. $[\alpha]_D^{19}$ -14 (c, 2 in MeOH).

Irvine, J.C. *et al., J.C.S.*, 1922, **121**, 2146 (*β-D-pyr*)
Ohle, H. *et al., Ber.*, 1930, **63**, 2912 (*β-D-pyr*)
Ohle, H. *et al., Ber.*, 1935, **68**, 601 (*β-D-di-Ac tosyl, β-D-dibenzoyl tosyl, β-D-tosyl, β-D-tritosyl, β-D-tri-Me*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 375
Ohle, H. *et al., Ber.*, 1938, **71**, 2302 (*β-D-Ac, β-D-Ac ditosyl, β-D-tri-Ac, β-D-benzoyl, β-D-benzoyl ditosyl*)
Verstraeten, L.M.J. *et al., Adv. Carbohydr. Chem.*, 1967, **22**, 229 (*rev, derivs*)
Sarel-Imber, M. *et al., Carbohydr. Res.*, 1973, **27**, 73 (*β-D-tosyl*)
Szarek, W.A. *et al., Tet. Lett.*, 1986, **27**, 3827
Den Drijver, L. *et al., Carbohydr. Res.*, 1987, **161**, 65 (*β-D-Fur derivs, cryst struct, β-D-Fur-6-benzoyl*)

2,3-*O*-Isopropylidenefructose, 8CI I-63



$C_9H_{16}O_6$ 220.222

β-D-Furanose-*form*
Mp 80°. $[\alpha]_D$ +18.9 (H_2O). Referred to incorrectly as α-D by Zervas.

*1,4,6-Tri-Ac: 1,4,6-Tri-*O*-acetyl-2,3-*O*-isopropylidene-β-D-fructofuranose*
$C_{15}H_{22}O_9$ 346.333
Mp 55°. $[\alpha]_D$ -8 (EtOH).

*1,4,6-Tribenzoyl: 1,4,6-Tri-*O*-benzoyl-2,3-*O*-isopropylidene-β-D-fructofuranose*
$C_{30}H_{28}O_9$ 532.546
Mp 137°. $[\alpha]_D^{21}$ -9.1 (Me_2CO).

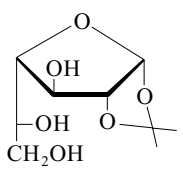
*1,6-Ditosyl: 2,3-*O*-Isopropylidene-1,6-di-*O*-tosyl-β-D-fructofuranose*
[32087-61-9]
$C_{23}H_{28}O_{10}S_2$ 528.6
Mp 132-133°. $[\alpha]_D^{20}$ +14.5 (c, 1.24 in EtOH).

*Tri-Me: 2,3-*O*-Isopropylidene-1,4,6-tri-*O*-methyl-β-D-fructofuranose*
$C_{12}H_{22}O_6$ 262.302
$[\alpha]_D$ +10 (EtOH).

*1,6-Ditrityl: 2,3-*O*-Isopropylidene-1,6-di-*O*-trityl-β-D-fructofuranose*
$C_{47}H_{44}O_6$ 704.861
Mp 155°. $[\alpha]_D$ -5.2 (Py).

Zervas, L. *et al., Ber.*, 1933, **66**, 1698 (*β-D-form, β-D-tri-Ac, β-D-tribenzoyl, β-D-ditrityl*)
Morgan, W.Th.J. *et al., Helv. Chim. Acta*, 1938, **21**, 1023 (*β-D-ditosyl*)
Verstraeten, L.M.J. *et al., Adv. Carbohydr. Chem.*, 1967, **22**, 229 (*rev*)
Al-Jobore, A.A.H. *et al., Carbohydr. Res.*, 1971, **16**, 474 (*β-D-ditosyl, pmr*)

1,2-*O*-Isopropylidenegalactofuranose, 9CI, 8CI I-64



$C_9H_{16}O_6$ 220.222

α-D-*form* [51921-42-7]
Cryst. (EtOAc). Mp 102-103°. $[\alpha]_D$ -27 (c, 2.0 in H_2O).

*Tri-Ac: 3,5,6-Tri-*O*-acetyl-1,2-*O*-isopropylidene-α-D-galactofuranose*
[14297-97-3]
$C_{15}H_{22}O_9$ 346.333
$[\alpha]_D^{20}$ +25.5 (c, 1.0 in $CHCl_3$).

*3-Benzoyl: 3-*O*-Benzoyl-1,2-*O*-isopropylidene-α-D-galactofuranose*
[53942-36-2]
$C_{16}H_{20}O_7$ 324.33
Cryst. (MeOH aq.). Mp 105-107°. $[\alpha]_D^{20}$ +41 (c, 1.0 in $CHCl_3$).

*6-Benzoyl: 6-*O*-Benzoyl-1,2-*O*-isopropylidene-α-D-galactofuranose*
$C_{16}H_{20}O_7$ 324.33
Cryst. ($CHCl_3$/petrol). Mp 93-95°. $[\alpha]_D^{20}$ -13.8 (c, 0.6 in $CHCl_3$).

*3,6-Dibenzoyl: 3,6-Di-*O*-benzoyl-1,2-*O*-isopropylidene-α-D-galactofuranose*
[53942-38-4]
$C_{23}H_{24}O_8$ 428.438
Cryst. (Et_2O/petrol). Mp 127-129°. $[\alpha]_D^{20}$ +10.2 (c, 1 in $CHCl_3$).

*5,6-*O*-Isopropylidene: 1,2:5,6-Di-*O*-isopropylidene-α-D-galactofuranose*
[10368-86-2]
$C_{12}H_{20}O_6$ 260.286
Cryst. (cyclohexane). Mp 97-98°. $[\alpha]_D$ -34 (c, 1.0 in MeOH).

*5,6-*O*-Isopropylidene, 3-Ac: 3-*O*-Acetyl-1,2:5,6-di-*O*-isopropylidene-α-D-galactofuranose*
$C_{14}H_{22}O_7$ 302.324
Syrup. $[\alpha]_D$ -7.5 (c, 1.47 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 3-benzoyl: 3-*O*-Benzoyl-1,2:5,6-di-*O*-isopropylidene-α-D-galactofuranose*
[19131-07-8]
$C_{19}H_{24}O_7$ 364.394
Mp 85-88°. $[\alpha]_D^{20}$ 0 (c, 5.0 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 3-tosyl: 1,2:5,6-Di-*O*-isopropylidene-3-*O*-tosyl-α-D-galactofuranose*
[28140-21-8]
$C_{19}H_{26}O_8S$ 414.476
Cryst. (EtOH). Mp 95°. $[\alpha]_D^{25}$ -14 (c, 0.5 in $CHCl_3$).

*3-Me: 1,2-*O*-Isopropylidene-3-*O*-methyl-α-D-galactofuranose*
[36215-54-0]
$C_{10}H_{18}O_6$ 234.249
$Bp_{0.2}$ 110-112°. $[\alpha]_D$ -31 (c, 0.9 in $CHCl_3$).

*3-Me, 6-benzoyl: 6-*O*-Benzoyl-1,2-*O*-isopropylidene-3-*O*-methyl-α-D-galactofuranose*
[34727-39-4]
$C_{17}H_{22}O_7$ 338.357
$[\alpha]_D$ -20 (c, 1.0 in $CHCl_3$).

*3-Me, 6-benzoyl, 5-mesyl: 6-*O*-Benzoyl-1,2-*O*-isopropylidene-5-*O*-mesyl-3-*O*-methyl-α-D-galactofuranose*
[34685-29-5]
$C_{18}H_{24}O_9S$ 416.448
Cryst. (Et_2O/petrol). Mp 98-98.5°. $[\alpha]_D$ -18 (c, 1.0 in $CHCl_3$).

*3-Me, 6-tosyl: 1,2-*O*-Isopropylidene-3-*O*-methyl-6-*O*-tosyl-α-D-galactofuranose*
[36215-56-2]
$C_{17}H_{24}O_8S$ 388.438
$[\alpha]_D$ -20 (c, 0.9 in $CHCl_3$).

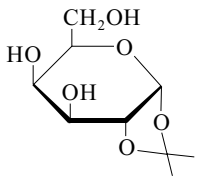
*3-Me, 5,6-*O*-isopropylidene: 1,2:5,6-Di-*O*-isopropylidene-3-*O*-methyl-α-D-galactofuranose*
[32087-37-9]
$C_{13}H_{22}O_6$ 274.313
Mp 43.5-45°. $Bp_{0.1}$ 100°. $[\alpha]_D$ -38 (c, 1.0 in $CHCl_3$).

Heap, J.M. *et al., J.C.S.(C)*, 1970, 712 (*α-D-isopropylidene tosyl*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 1363; 3762 (*α-D-isopropylidene Me, α-D-Me, α-D-Me benzoyl, α-D-Me tosyl, α-D-Me benzoyl mesyl, pmr*)

Hall, L.D. *et al., Can. J. Chem.*, 1972, **50**, 1912 (*α-D-isopropylidene 3-Ac*)
Morgenlie, S. *et al., Acta Chem. Scand.*, 1973, **27**, 3609 (*α-D-form, α-D-isopropylidene*)
Brewer, C.L. *et al., Carbohydr. Res.*, 1974, **36**, 188 (*α-D-isopropylidene benzoyl, α-D-3-benzoyl, α-D-6-benzoyl, α-D-dibenzoyl*)
Lemieux, R.U. *et al., Aust. J. Chem.*, 1975, **28**, 1799 (*α-D-isopropylidene, α-D-isopropylidene benzoyl*)
Wang, H. *et al., J.O.C.*, 2003, **68**, 2521-2524 (*5,6-isopropylidene, 3-benzoyl, synth, pmr*)

1,2-*O*-Isopropylidenegalacto-pyranose I-65

*1,2-*O*-(1-Methylethylidene)galactopyranose, 9CI*



$C_9H_{16}O_6$ 220.222

α-D-*form* [60945-40-6]
Mp 156-157° (92-93°). $[\alpha]_D$ -11.3 (EtOH).

*3,4-*O*-Ethylidene: 3,4-*O*-Ethylidene-1,2-*O*-isopropylidene-α-D-galactopyranose*
$C_{11}H_{18}O_6$ 246.26
$[\alpha]_D$ -55.7 ($CHCl_3$).

*3,4-*O*-Ethylidene, 6-mesyl:* Mp 98-99°.
$[\alpha]_D$ -52.9 ($CHCl_3$).

*3,4-*O*-Ethylidene, 6-tosyl:* Mp 106-107°.
$[\alpha]_D$ -67.3 ($CHCl_3$).

*4,6-*O*-Ethylidene: 4,6-*O*-Ethylidene-1,2-*O*-isopropylidene-α-D-galactopyranose*
[6207-24-5]
$C_{11}H_{18}O_6$ 246.26
Mp 71-73°. $[\alpha]_D^{21}$ +57 (c, 1.4 in $CHCl_3$).

*4,6-*O*-Ethylidene, 3-benzoyl:* [3006-46-0]
$C_{18}H_{22}O_7$ 350.368
Mp 175.5-176°. $[\alpha]_D^{21}$ +120 (c, 1.0 in $CHCl_3$).

*4,6-*O*-Ethylidene, 3-mesyl:* Mp 97-99°.
$[\alpha]_D$ +109 (EtOH).

*4,6-*O*-Ethylidene, 3-tosyl:* [14960-50-0]
Mp 115-116°. $[\alpha]_D^{20}$ +117 (c, 0.7 in $CHCl_3$).

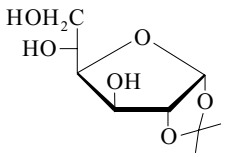
*4,6-*O*-Ethylidene, 3-benzyl:* [13996-88-8]
$C_{18}H_{24}O_6$ 336.384
Mp 116-118°. $[\alpha]_D^{25}$ +19 (c, 1.5 in $CHCl_3$).

*4,6-*O*-Ethylidene, 3-(methylthiomethyl):* $Bp_{0.5}$ 148-152°. $[\alpha]_D^{21}$ +15.5 (c, 0.8 in $CHCl_3$).

*3,4,6-Tri-Me: 1,2-*O*-Isopropylidene-3,4,6-tri-*O*-methyl-α-D-galactopyranose*
$C_{12}H_{22}O_6$ 262.302
$Bp_{0.3}$ 105°. $[\alpha]_D$ -31.4 (MeOH).

Levene, P.A. *et al., J. Biol. Chem.*, 1931, **92**, 257 (*1,2-O-isopropylidene, tri-Me*)
Foster, A.B. *et al., J.C.S.*, 1951, 980 (*3,4-O-ethylidene, 6-mesyl, 6-tosyl*)
Ball, D.H. *et al., J.C.S.*, 1958, 905 (*3-tosyl*)
Tipson, R.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1959, **62**, 257 (*1,2-O-isopropylidene*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 220; *Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 179 (*rev*)
Ball, D.H. *et al., J.O.C.*, 1966, **31**, 220 (*4,6-O-ethylidene, 3-mesyl*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1970, **15**, 101 (*4,6-O-ethylidene, 3-benzoyl, 3-tosyl, 3-thiomethyl*)
Stacey, B.E. *et al., Carbohydr. Res.*, 1976, **49**, 129 (*1,2-O-isopropylidene, pmr, ms*)

1,2-*O*-Isopropylideneglucofuranose, 8CI I-66



$C_9H_{16}O_6$ 220.222

α-D-*form* [18549-40-1]
Needles (MeOH/Et_2O). Mp 161-162.5°. $[\alpha]_D^{20}$ -11.8 (H_2O).

*3-Ac: 3-*O*-Acetyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
[24807-96-3]
$C_{11}H_{18}O_7$ 262.259
Mp 125-126°. $[\alpha]_D^{20}$ -20.1 (H_2O).

*6-Ac: 6-*O*-Acetyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
[32754-29-3]
$C_{11}H_{18}O_7$ 262.259
Mp 144-146°. $[\alpha]_D$ -6.3 (EtOH).

*3,6-Di-Ac: 3,6-Di-*O*-acetyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{13}H_{20}O_8$ 304.296
Mp 96°. $[\alpha]_D$ +10.7 ($CHCl_3$).

*3,5,6-Tri-Ac: 3,5,6-Tri-*O*-acetyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
[29364-56-5]
$C_{15}H_{22}O_9$ 346.333
Mp 75°. $[\alpha]_D^{20}$ +24.6 ($CHCl_3$).

*3-Benzoyl: 3-*O*-Benzoyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
[37614-73-6]
$C_{16}H_{20}O_7$ 324.33
Syrup. $[\alpha]_D$ -26 (EtOH).

*3-Benzoyl, 5,6-di-Ac: 5,6-Di-*O*-acetyl-3-*O*-benzoyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{20}H_{24}O_9$ 408.404
Mp 77-78°. $[\alpha]_D$ -26.7 ($CHCl_3$).

*6-Benzoyl: 6-*O*-Benzoyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
[3254-32-8]
$C_{16}H_{20}O_7$ 324.33
Mp 195-197°. $[\alpha]_D$ +7.4 (EtOH).

*6-Benzoyl, 3,5-di-Ac: 3,5-Di-*O*-acetyl-6-*O*-benzoyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{20}H_{24}O_9$ 408.404
Mp 108°. $[\alpha]_D$ +7.1 ($CHCl_3$).

*3,6-Dibenzoyl: 3,6-Di-*O*-benzoyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
[55169-76-1]
$C_{23}H_{24}O_8$ 428.438
Mp 108-109°. $[\alpha]_D$ -4.6 ($CHCl_3$).

*5,6-Dibenzoyl, 3-Ac: 3-*O*-Acetyl-5,6-di-*O*-benzoyl-1,2-*O*-isopropylidene-α-D-glucofuranose*
$C_{25}H_{26}O_9$ 470.475
Mp 90°. $[\alpha]_D$ -26.6 ($CHCl_3$).

*3,5,6-Tribenzoyl: 3,5,6-Tri-*O*-benzoyl-1,2-O-isopropylidene-α-D-glucofuranose*
[6339-03-3]
$C_{30}H_{28}O_9$ 532.546
Mp 120-121°. $[\alpha]_D$ -94.2 ($CHCl_3$).

*6-Mesyl: 1,2-*O*-Isopropylidene-6-*O*-mesyl-α-D-glucofuranose*
$C_{10}H_{18}O_8S$ 298.313
Mp 99°. $[\alpha]_D$ -10 (MeOH).

*3-Tosyl: 1,2-*O*-Isopropylidene-3-*O*-tosyl-α-D-glucofuranose*
[2946-01-2]
$C_{16}H_{22}O_8S$ 374.411
Syrup. $[\alpha]_D$ -12.2 ($CHCl_3$).

*6-Tosyl: 1,2-*O*-Isopropylidene-6-*O*-tosyl-α-D-glucofuranose*
[26275-20-7]
$C_{16}H_{22}O_8S$ 374.411
Mp 108°. $[\alpha]_D^{20}$ -9.3 (c, 2 in $CHCl_3$).

*3,6-Ditosyl: 1,2-*O*-Isopropylidene-3,6-di-*O*-tosyl-α-D-glucofuranose*
$C_{23}H_{28}O_{10}S_2$ 528.6
Syrup. $[\alpha]_D$ -4.9 ($CHCl_3$).

*5,6-Ditosyl: 1,2-*O*-Isopropylidene-5,6-di-*O*-tosyl-α-D-glucofuranose*
$C_{23}H_{28}O_{10}S_2$ 528.6
Mp 160°. $[\alpha]_D$ -6.4 ($CHCl_3$).

*3,5,6-Tritosyl: 1,2-*O*-Isopropylidene-3,5,6-tri-*O*-tosyl-α-D-glucofuranose*
[7022-86-8]
$C_{30}H_{34}O_{12}S_3$ 682.789
Mp 95-96° Mp 129°. $[\alpha]_D$ -5.2 ($CHCl_3$).

*5-Tosyl, 6-Ac: 6-*O*-Acetyl-1,2-*O*-isopropylidene-5-*O*-tosyl-α-D-glucofuranose*
$C_{18}H_{24}O_9S$ 416.448
Mp 133°. $[\alpha]_D$ +16.7 ($CHCl_3$).

*5,6-Ditosyl, 3-Ac: 3-*O*-Acetyl-1,2-*O*-isopropylidene-5,6-di-*O*-tosyl-α-D-glucofuranose*
$C_{25}H_{30}O_{11}S_2$ 570.637
Mp 92°. $[\alpha]_D$ -28.8 ($CHCl_3$).

*5-Tosyl, 6-benzoyl, 3-Ac: 3-*O*-Acetyl-6-*O*-benzoyl-1,2-*O*-isopropylidene-5-*O*-tosyl-α-D-glucofuranose*
$C_{25}H_{28}O_{10}S$ 520.556
Mp 151°. $[\alpha]_D$ +0.98 ($CHCl_3$).

*5,6-Carbonate: 1,2-*O*-Isopropylidene-α-D-glucofuranose 5,6-carbonate*
[2875-90-3]
$C_{10}H_{14}O_7$ 246.216
Cryst. (EtOH aq.). Mp 228-230°. $[\alpha]_D^{20}$ -36 (Me_2CO).

*5,6-Thiocarbonate: 1,2-*O*-Isopropylidene-α-D-glucofuranose 5,6-thiocarbonate*
[2816-87-7]
$C_{10}H_{14}O_6S$ 262.283
Cryst. (EtOH). Mp 206-208°. $[\alpha]_D^{20}$ -16 (c, 3 in Me_2CO).

*5,6-*O*-Isopropylidene:* See 1,2:5,6-Di-*O*-isopropylideneglucofuranose, D-717

*3,5-*O*-Benzylidene:* See 3,5-*O*-Benzylidene-1,2-*O*-isopropylideneglucofuranose, B-28

3-Me: See 3-*O*-Methylglucose, M-256

5-Me: 1,2-O-*Isopropylidene-5*-O-*methyl-α-D-glucofuranose*
$C_{10}H_{18}O_6$ 234.249
Mp 71-72°. $[\alpha]_D$ -6.4 ($CHCl_3$).

3,5-Di-Me: 1,2-O-*Isopropylidene-3,5-di*-O-*methyl-α-D-glucofuranose*
$C_{11}H_{20}O_6$ 248.275
$Bp_{0.01}$ 89-90°.

3,6-Di-Me: 1,2-O-*Isopropylidene-3,6-di*-O-*methyl-α-D-glucofuranose*
$C_{11}H_{20}O_6$ 248.275
Syrup. $[\alpha]_D$ -45.9 ($CHCl_3$).

3-Allyl: [91882-92-7]
$C_{12}H_{20}O_6$ 260.286
Syrup or oil. $[\alpha]_D^{20}$ -48 (c, 0.5 in $CHCl_3$).

3-Allyl, 6-tosyl: [134311-87-8]
$C_{19}H_{26}O_8S$ 414.476
Oil.

3-Allyl, 5-mesyl, 6-benzoyl: [161045-46-1]
$C_{20}H_{26}O_9S$ 442.486
Solid (Et_2O/hexane). Mp 132-133° (130-132°). $[\alpha]_D^{26}$ -10.9 (c, 1.25 in $CHCl_3$).

3-Benzyl: 3-O-*Benzyl-1,2*-O-*isopropylidene-α-D-glucofuranose*
[22529-61-9]
$C_{16}H_{22}O_6$ 310.346
Syrup. $[\alpha]_D$ -50.5 (c, 1.7 in $CHCl_3$).

6-Benzyl: 6-O-*Benzyl-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{16}H_{22}O_6$ 310.346
Mp 78.5-79°. $[\alpha]_D$ +2 ($CHCl_3$).

3-Benzyl, 6-benzoyl, 5-Ac: 5-O-*Acetyl-6*-O-*benzoyl-3*-O-*benzyl-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{25}H_{28}O_8$ 456.491
Mp 95-96°. $[\alpha]_D$ -67.1 ($CHCl_3$).

3,6-Dibenzyl: 3,6-Di-O-*benzyl-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{23}H_{28}O_6$ 400.471
Syrup. $[\alpha]_D$ -21.8 (c, 1.2 in $CHCl_3$) (-17.2).

Tribenzyl: 3,5,6-Tri-O-*benzyl-1,2*-O-*isopropylidene-α-D-glucofuranose*
$C_{30}H_{34}O_6$ 490.595
$Bp_{0.05}$ 240-245°. $[\alpha]_D$ -61.8 (c, 0.3 in $CHCl_3$) (-55.1).

6-Trityl, 3-benzyl, 5-Ac: 5-O-*Acetyl-3*-O-*benzyl-1,2*-O-*isopropylidene-6*-O-*trityl-α-D-glucofuranose*
$C_{37}H_{38}O_7$ 594.703
$[\alpha]_D^{23}$ -49 (c, 1.0 in $CHCl_3$).

6-Trityl, 3,5-di-Ac: 3,5-Di-O-*acetyl-1,2*-O-*isopropylidene-6*-O-*trityl-α-D-glucofuranose*
$C_{32}H_{34}O_8$ 546.616
Mp 64°. $[\alpha]_D$ +5 ($CHCl_3$).

3-O-*Hexyl:* See Seprilose, S-28

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 200C (*ir*)

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 314C; 1059A (*nmr*)

Ohle, H. *et al., Ber.*, 1925, **58**, 2593; 1929, **62**, 2435; 2885 (*α-D-3-Ac, 6-Ac derivs,α-D-3-benzoyl, 6-benzoyl derivs, α-D-3-benzoyl, α-D-6-benzoyl, α-D-3-Ac, α-D-3-Ac benzoyl tosyl, α-D-3-Ac derivs, α-D-6-Ac derivs*)

Brigl, P. *et al., Ber.*, 1933, **66**, 1977 (*α-D-3-benzoyl, α-D-dibenzoyl*)

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros., Inc., Ann Arbor, 1943, 253 (*rev, derivs*)

Schmidt, O.T. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 218 (*α-D-form, synth*)

de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)

Doane, W.M. *et al., J.O.C.*, 1965, **30**, 162 (*5,6-thiocarbonate*)

Shasha, B.S. *et al., Carbohydr. Res.*, 1967, **5**, 346 (*carbonate*)

Hanisch, G. *et al., Chem. Ber.*, 1967, **100**, 3225 (*carbonate*)

Vyas, D.M. *et al., Can. J. Chem.*, 1975, **53**, 2748 (*cmr*)

Takagi, S. *et al., Acta Cryst. B*, 1979, **35**, 1522 (*cryst struct*)

Jacquinet, J.C. *et al., Carbohydr. Res.*, 1984, **130**, 221 (*6-Trityl-3-benzyl-5-Ac*)

Smith, A.B. *et al., J.A.C.S.*, 1991, **113**, 2092-2112 (*3-allyl, 3-allyl 6-tosyl, synth, ir, pmr*)

Stepowska, H. *et al., Carbohydr. Res.*, 1994, **265**, 133 (*benzyl derivs*)

Bouchra, M. *et al., Synthesis*, 1995, 561 (*6-Ac, pmr, cmr*)

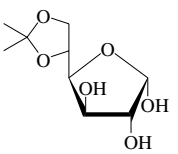
Bozo, E. *et al., Carbohydr. Res.*, 1996, **290**, 159-173 (*3-allyl, 3-allyl 5-mesyl 6-benzoyl, synth, pmr, cmr*)

Cioletti, A.G. *et al., Synth. Commun.*, 2000, **30**, 2019-2028 (*α-D-form, synth*)

Takahashi, S. *et al., Tetrahedron*, 2001, **57**, 6915-6926 (*3-allyl 5-mesyl 6-benzoyl, synth, ir, pmr*)

Goud, P.M. *et al., Synth. Commun.*, 2003, **33**, 1185-1193 (*α-D-form, synth, pmr, α-D-3-benzyl*)

5,6-*O*-Isopropylideneglucose I-67



α-D-Furanose-*form*

$C_9H_{16}O_6$ 220.222

D-Furanose-*form* [138343-46-1]
Needles (EtOAc). Mp 124-125° (117-118°). $[\alpha]_D^{22}$ +1 (c, 4.5 in MeOH). $[\alpha]_D$ +7 (H_2O). Mixt. of anomers.

Tri-Ac: 1,2,3-Tri-O-*acetyl-5,6*-O-*isopropylidene-D-glucofuranose*
[62410-13-3]
$C_{15}H_{22}O_9$ 346.333
Syrup. $[\alpha]_D^{25}$ +33 (c, 1.7 in $CHCl_3$).
α; β-ratio 5:1.

1,2-Isopropylidene: See 1,2:5,6-Di-*O*-isopropylideneglucofuranose, D-717

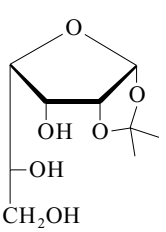
[4258-04-2]

Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 278 (*synth*)

Kiso, M. *et al., Carbohydr. Res.*, 1976, **52**, 87 (*synth, tri-Ac*)

Ewing, D.F. *et al., Carbohydr. Res.*, 1991, **218**, 233 (***synth, pmr, cmr, ms, tri-Ac***)

1,2-*O*-Isopropylidenegulofuranose I-68



$C_9H_{16}O_6$ 220.222

α-D-*form*

3,5,6-Tri-Ac: 3,5,6-Tri-O-*acetyl-1,2*-O-*isopropylidene-α-D-gulofuranose*
$C_{15}H_{22}O_9$ 346.333
Cryst. (Et_2O). Mp 100-101°. $[\alpha]_D^{23}$ +57.7 (c, 0.1 in $CHCl_3$).

3-Me: 1,2-O-*Isopropylidene-3*-O-*methyl-α-D-gulofuranose*
$C_{10}H_{18}O_6$ 234.249
$Bp_{0.15}$ 60-65° (bath) (lit. gives a pressure range). $[\alpha]_D$ +37 (c, 0.7 in $CHCl_3$).

3-Me, 6-benzoyl: 6-O-*Benzoyl-1,2*-O-*isopropylidene-3*-O-*methyl-α-D-gulofuranose*
$C_{17}H_{22}O_7$ 338.357
Cryst. ($CHCl_3$/petrol). Mp 152-153°. $[\alpha]_D$ +25 (c, 1.0 in $CHCl_3$).

3-Me, 5-mesyl: 1,2-O-*Isopropylidene-5*-O-*mesyl-3*-O-*methyl-α-D-gulofuranose*
$C_{11}H_{20}O_8S$ 312.34
Cryst. (Et_2O/petrol). Mp 83-84°. $[\alpha]_D$ -24.5 (c, 1.0 in $CHCl_3$).

3-Me, 5-mesyl, 6-benzoyl: 6-O-*Benzoyl-1,2*-O-*isopropylidene-5*-O-*mesyl-3*-O-*methyl-α-D-gulofuranose*
$C_{18}H_{24}O_9S$ 416.448
Cryst. ($CHCl_3$/petrol). Mp 124-125° dec. $[\alpha]_D$ -5 (c, 1.0 in $CHCl_3$).

3-Me, 6-mesyl: 1,2-O-*Isopropylidene-6*-O-*mesyl-3*-O-*methyl-α-D-gulofuranose*
$C_{11}H_{20}O_8S$ 312.34
Cryst. ($CHCl_3$/petrol). Mp 81-82°. $[\alpha]_D$ +31 (c, 1 in $CHCl_3$).

3-Me, 5,6-dimesyl: 1,2-O-*Isopropylidene-5,6-di*-O-*mesyl-3*-O-*methyl-α-D-gulofuranose*
$C_{12}H_{22}O_{10}S_2$ 390.432
Cryst. ($CHCl_3$/petrol). Mp 114° dec. $[\alpha]_D$ -17 (c, 1.0 in $CHCl_3$).

3-Benzyl: 3-O-*Benzyl-1,2*-O-*isopropylidene-α-D-gulofuranose*
$C_{16}H_{22}O_6$ 310.346
Mp 77-81°. $[\alpha]_D^{22}$ +47 (c, 1.0 in $CHCl_3$).

3-Benzyl, 5,6-di-Ac: 5,6-Di-O-*acetyl-3*-O-*benzyl-1,2*-O-*isopropylidene-α-D-gulofuranose*
$C_{20}H_{26}O_8$ 394.421
Mp 61-63°. $[\alpha]_D^{22}$ +15.6 (c, 0.6 in $CHCl_3$).

5,6-Anhydro, 3-Me: 5,6-Anhydro-1,2-O-*isopropylidene-3*-O-*methyl-α-D-gulofuranose*
$C_{10}H_{16}O_5$ 216.233
Mp 56-57°. $[\alpha]_D$ +21.5 (c, 1.0 in $CHCl_3$).

5,6-O-*Isopropylidene:* See 1,2:5,6-Di-*O*-isopropylidenegulofuranose, D-718

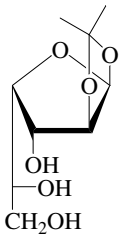
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1970, **14**, 420 (*α-D-benzoyl Me, α-D-benzoyl mesyl Me, α-D-5-mesyl Me, α-D-Me*)

Brimacombe, J.S. *et al., Chem. Ind. (London)*, 1970, 655 (*α-D-6-mesyl Me, α-D-Me anhydro, synth*)

Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1971, **54**, 1580 (*α-D-tri-Ac, α-D-benzyl, α-D-di-Ac benzyl*)

Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 613 (*α-D-benzoyl Me, α-D-benzoyl mesyl Me, α-D-mesyl derivs, α-D-dimesyl Me, α-D-Me anhydro*)

1,2-*O*-Isopropylideneidose I-69



β-D-Furanose-*form*

$C_9H_{16}O_6$ 220.222

β-D-Furanose-*form*

Cryst. ($CHCl_3$). Mp 81-82°. $[\alpha]_D^{15}$ +35 (H_2O).

5,6-O-Isopropylidene: 1,2:5,6-Di-O-isopropylidene-β-D-idofuranose
[38166-60-8]
$C_{12}H_{20}O_6$ 260.286
Mp 151-152°. $[\alpha]_D^{15}$ +36 (Me_2CO).

5,6-O-Isopropylidine, 3-Ac: 3-O-Acetyl-1,2:5,6-di-O-isopropylidene-β-D-idofuranose
[38166-68-6]
$C_{14}H_{22}O_7$ 302.324
Mp 75-76.5°. $[\alpha]_D^{22}$ +16.6 (c, 0.67 in $CHCl_3$).

β-L-Furanose-*form* [29747-91-9]
Cryst. (EtOAc). Mp 113-114°. $[\alpha]_D^{26}$ -20 (c, 2.7 in MeOH).

6-Benzoyl: 6-O-Benzoyl-1,2-O-isopropylidene-β-L-idofuranose
[28642-62-8]
$C_{16}H_{20}O_7$ 324.33
Mp 109.5-110.5°. $[\alpha]_D$ -6.4 ($CHCl_3$).

3-Mesyl: 1,2-O-Isopropylidene-3-O-mesyl-β-L-idofuranose
$C_{10}H_{18}O_8S$ 298.313
Cryst. (CH_2Cl_2/hexane). Mp 126-128°. $[\alpha]_D$ -31.2 (c, 0.76 in Me_2CO).

Trimesyl: 1,2-O-Isopropylidene-3,5,6-tri-O-mesyl-β-L-idofuranose
$C_{12}H_{22}O_{12}S_3$ 454.497
Cryst. (EtOH). Mp 147-148°. $[\alpha]_D$ -39.4 (c, 1.27 in $CHCl_3$).

3-Tosyl: 1,2-O-Isopropylidene-3-O-tosyl-β-L-idofuranose
[28642-57-1]
$C_{16}H_{22}O_8S$ 374.411
Cryst. (petrol/Et_2O). Mp 99-100° (92-93°). $[\alpha]_D^{27}$ -38.3 (c, 1.0 in $CHCl_3$).

6-Benzoyl, 3-tosyl: 6-O-Benzoyl-1,2-O-isopropylidene-3-O-tosyl-β-L-idofuranose
[28642-58-2]
$C_{23}H_{26}O_9S$ 478.519
Cryst. (petrol). Mp 136°. $[\alpha]_D^{27}$ -51 (c, 1.0 in $CHCl_3$).

6-Benzoyl, 3-tosyl, 5-Ac: 5-O-Acetyl-6-O-benzoyl-1,2-O-isopropylidene-3-O-tosyl-β-L-idofuranose
[28772-36-3]
$C_{25}H_{28}O_{10}S$ 520.556
Syrup. $[\alpha]_D^{27}$ -4 (c, 1.0 in $CHCl_3$).
Described as a solid Mp 126-127° by Kovár, J., *Can. J. Chem.*, 1970, **48**, 2383. Probably mistaken for 5-benzoyl isomer.

3,5,6-Tri-Ac: 3,5,6-Tri-O-acetyl-1,2-O-isopropylidene-β-L-idofuranose
$C_{15}H_{22}O_9$ 346.333
Mp 82-84°. $[\alpha]_D$ -2 (c, 1.7 in $CHCl_3$).

6-Benzoyl, 3,5-di-Ac: 3,5-Di-O-acetyl-6-O-benzoyl-1,2-O-isopropylidene-β-L-idofuranose
[28642-63-9]
$C_{20}H_{24}O_9$ 408.404
Mp 86-88°. $[\alpha]_D^{25}$ -14.9 (c, 1.0 in $CHCl_3$).

5-Benzoyl, 3-tosyl, 6-Ac: 6-O-Acetyl-5-O-benzoyl-1,2-O-isopropylidene-3-O-tosyl-β-L-idofuranose
[28642-56-0]
$C_{25}H_{28}O_{10}S$ 520.556
Mp 125°. $[\alpha]_D^{25}$ -8 (c, 1.1 in $CHCl_3$).

3,5-Isopropylidene: 1,2:3,5-Di-O-isopropylidene-β-L-idofuranose
$C_{12}H_{20}O_6$ 260.286
Syrup. $[\alpha]_D$ +11 (c, 1.3 in $CHCl_3$).

5,6-O-Isopropylidene: 1,2:5,6-Di-O-isopropylidene-β-L-idofuranose
[13100-30-6]
$C_{12}H_{20}O_6$ 260.286
Mp 155-156°. $[\alpha]_D^{27}$ -32 (c, 1.0 in $CHCl_3$).

5,6-O-Isopropylidene, 3-Ac: 3-O-Acetyl-1,2:5,6-di-O-isopropylidene-β-L-idofuranose
$C_{14}H_{22}O_7$ 302.324
Mp 77-78°. $[\alpha]_D^{15}$ -12 (c, 0.75 in $CHCl_3$).

5,6-O-Isopropylidene, 3-benzoyl: 3-O-Benzoyl-1,2:5,6-di-O-isopropylidene-β-L-idofuranose
[26597-76-2]
$C_{19}H_{24}O_7$ 364.394
Mp 108-109.5°. $[\alpha]_D$ -22 ($CHCl_3$).

3,5-O-Benzylidene: 3,5-O-Benzylidene-1,2-O-isopropylidene-β-L-idofuranose
[34049-09-7]
$C_{16}H_{20}O_6$ 308.33
Mp 120-121°. $[\alpha]_D^{25}$ +7 (c, 1.3 in $CHCl_3$).

3,5-O-Benzylidene, 6-tosyl: 3,5-O-Benzylidene-1,2-O-isopropylidene-6-O-tosyl-β-L-idofuranose
[34010-36-1]
$C_{23}H_{26}O_8S$ 462.52
Mp 120-121°. $[\alpha]_D^{25}$ -5.

3-Me, 5,6-O-isopropylidene: 1,2:5,6-Di-O-isopropylidene-3-O-methyl-β-L-idofuranose
$C_{13}H_{22}O_6$ 274.313
Syrup. $[\alpha]_D^{22}$ -63 (c, 2.09 in $CHCl_3$).

3-Benzyl, 5,6-O-isopropylidene: 3-O-Benzyl-1,2:5,6-di-O-isopropylidene-β-L-idofuranose
$C_{19}H_{26}O_6$ 350.411
Syrup. $[\alpha]_D$ -74 (c, 0.40 in $CHCl_3$).

6-Trityl, 3-tosyl: 1,2-O-Isopropylidene-3-O-tosyl-6-O-trityl-β-L-idofuranose
[32785-84-5]
$C_{35}H_{36}O_8S$ 616.731
Mp 84-86°. $[\alpha]_D^{27}$ -32.5 (c, 1.0 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 403C (*nmr*)

Iwadare, K. *et al., Bull. Chem. Soc. Jpn.*, 1944, **19**, 27 (*β-D-form, synth*)

De Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1970, **12**, 475 (*β-L-isopropylidene benzoyl*)

Chalk, R.C. *et al., Chem. Comm.*, 1970, 245 (*β-L-di-Ac 6-benzoyl, β-L-Ac 5-benzoyl tosyl, β-L-6-benzoyl 3-tosyl*)

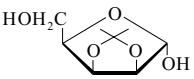
Miljković, A.M. *et al., Carbohydr. Res.*, 1971, **17**, 155 (*β-L-tosyl, β-L-benzoyl tosyl, β-L-Ac 6-benzoyl tosyl, β-L-tosyl trityl, β-L-Ac 5-benzoyl tosyl*)

Chalk, R.C. *et al., Carbohydr. Res.*, 1971, **20**, 151 (*β-L-form, synth, β-L-di-Ac benzoyl, β-L-6-benzoyl, β-L-benzylidene derivs*)

Hughes, N.A. *et al., Carbohydr. Res.*, 1982, **101**, 221 (***synth, bibl, diisopropylidenes***)

Popsavin, M. *et al., Carbohydr. Res.*, 1994, **260**, 145 (*β-L-mesyl, β-L-trimesyl*)

2,3-*O*-Isopropylidenelyxose I-70



α−D−Furanose−*form*

$C_8H_{14}O_5$ 190.196

α-D-Furanose-*form*

Mp 81-82°. $[\alpha]_D$ +21.4 → +18.5 (H_2O).

Di-Ac: 1,5-Di-O-acetyl-2,3-O-isopropylidene-α-D-lyxofuranose
$C_{12}H_{18}O_7$ 274.27
Mp 49-50°. $[\alpha]_D$ +62.5 ($CHCl_3$).

1,5-Dibenzoyl: 1,5-Di-O-benzoyl-2,3-O-isopropylidene-α-D-lyxofuranose
$C_{22}H_{22}O_7$ 398.412
Mp 93-94°. $[\alpha]_D$ +17 ($CHCl_3$).

5-Mesyl: 2,3-O-Isopropylidene-5-O-mesyl-α-D-lyxofuranose
[20689-05-8]
$C_9H_{16}O_7S$ 268.287
Syrup. $[\alpha]_D$ +14 ($CHCl_3$).

Benzyl glycoside: Benzyl 2,3-O-isopropylidene-α-D-lyxofuranoside
[20786-73-6]
$C_{15}H_{20}O_5$ 280.32
Mp 87-87.5°. $[\alpha]_D$ +99 (Me_2CO).

Benzyl glycoside, 5-mesyl: Benzyl 2,3-O-isopropylidene-5-O-mesyl-α-D-lyxofuranoside
[20689-04-7]
$C_{16}H_{22}O_7S$ 358.412
Mp 78-79°. $[\alpha]_D$ +68 (Me_2CO).

Me glycoside, 5-benzyl: Methyl 5-O-benzyl-2,3-O-isopropylidene-α-D-lyxofuranoside
[32780-15-7]
$C_{16}H_{22}O_5$ 294.347
Bp_2 140°. $[\alpha]_D^{21}$ +32.1 (c, 1.25 in C_6H_6).

β-D-Furanose-*form*

Me glycoside: Methyl 2,3-O-isopropylidene-β-D-lyxofuranoside
[129263-68-9]
$C_9H_{16}O_5$ 204.222
Oil.

L-Pyranose-*form*

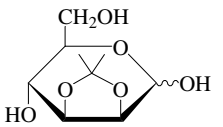
Me glycoside: Methyl 2,3-O-isopropylidene-L-lyxopyranoside
$C_9H_{16}O_5$ 204.222
Mp 51.5-52.5°. $[\alpha]_D$ -47 (EtOH).

Me glycoside, 4-tosyl: Methyl 2,3-O-isopropylidene-4-O-tosyl-L-lyxopyranoside
$C_{16}H_{22}O_7S$ 358.412
Mp 104.5-105°. $[\alpha]_D$ +11.5 ($CHCl_3$).

Schaffer, R. *et al., J. Res. Natl. Bur. Stand., Sect. A*, 1961, **65**, 507 (*synth, struct*)

de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **34**, 179
Barbat, J. *et al., Carbohydr. Res.*, 1991, **219**, 115 (***synth, pmr***)
Gartenmann Dickson, L. *et al., Org. Biomol. Chem.*, 2004, **2**, 1217-1226 (*Me β-D-fur*)

2,3-*O*-Isopropylidenemannose I-71



D-Pyranose-*form*

$C_9H_{16}O_6$ 220.222

D-Pyranose-*form*

1-Ac: 1-O-*Acetyl-2,3*-O-*isopropylidene-α-D-mannofuranose*
[79241-32-0]
$C_{11}H_{18}O_7$ 262.259
$[\alpha]_D^{22}$ +55 (c, 1.0 in CH_2Cl_2).

4,6-Dibenzyl: 4,6-Dibenzyl-2,3-O-*isopropylidene-D-mannopyranose*
[170998-36-4]
$C_{23}H_{28}O_6$ 400.471
Syrup.

α-D-Furanose-*form*

1-Benzoyl: 1-O-*Benzoyl-2,3*-O-*isopropylidene-α-D-mannofuranose*
[57492-90-7]
$C_{16}H_{20}O_7$ 324.33
Glass. $[\alpha]_D^{20}$ +52.5 (c, 1.7 in EtOH).

1,6-Dimesyl: 2,3-O-*Isopropylidene-1,6-di*-O-*mesyl-α-D-mannofuranose*
$C_{11}H_{20}O_{10}S_2$ 376.405
Needles. Mp 147-148°. $[\alpha]_D^{25}$ +33.5 (c, 1.39 in $CHCl_3$).

5,6-Dimesyl: 2,3-O-*Isopropylidene-5,6-di*-O-*mesyl-α-D-mannofuranose*
[28978-36-1]
$C_{11}H_{20}O_{10}S_2$ 376.405
Cryst. (EtOAc/petrol). Mp 142-143°. $[\alpha]_D$ -10 (c, 1 in $CHCl_3$).

5,6-Isopropylidene: 2,3:5,6-Di-O-*isopropylidene-α-D-mannofuranose*
[14131-84-1]
$C_{12}H_{20}O_6$ 260.286
Mp 121-122°. $[\alpha]_D^{21}$ +16.6 (c, 2.5 in EtOH).

5,6-Isopropylidene, 1-benzoyl: 1-O-*Benzoyl-2,3:5,6-di*-O-*isopropylidene-α-D-mannofuranose*
[57526-34-8]
$C_{19}H_{24}O_7$ 364.394
Mp 127-128°. $[\alpha]_D^{20}$ +33.4 (c, 2.3 in $CHCl_3$). An earlier preparation without assignment of anomeric config. had props. almost identical to these and was presumably the α-anomer.

5,6-Isopropylidene, 1-(2,4-dinitrobenzenesulfonyl): [35880-41-2]
Mp 147-148°. $[\alpha]_D^{20}$ -32.1 (1 in dioxan).

Me glycoside: Methyl 2,3-O-*isopropylidene-α-D-mannofuranoside*
[27954-10-5]
$C_{10}H_{18}O_6$ 234.249
Syrup. $[\alpha]_D$ +85.3 (c, 1 in $CHCl_3$) (+82.6).

Me glycoside, 5,6-di-Ac: Methyl 5,6-di-O-*acetyl-2,3*-O-*isopropylidene-α-D-mannofuranoside*
[26255-74-3]
$C_{14}H_{22}O_8$ 318.323
Cryst. (petrol). Mp 54-55°. $[\alpha]_D$ +57 (c, 3 in $CHCl_3$).

Me glycoside, 6-tosyl: Methyl 2,3-O-*isopropylidene-6*-O-*tosyl-α-D-mannofuranoside*
[40789-24-0]
$C_{17}H_{24}O_8S$ 388.438
Mp 94-95°. $[\alpha]_D^{26}$ +4.5 (c, 1.24 in $CHCl_3$).

Me glycoside, 5,6-dimesyl: Methyl 2,3-O-*isopropylidene-5,6-di*-O-*mesyl-α-D-mannofuranoside*
[50692-25-6]
$C_{12}H_{22}O_{10}S_2$ 390.432
Cryst. (EtOH). Mp 143-145°. $[\alpha]_D$ +32.6 (c, 0.50 in $CHCl_3$).

Me glycoside, 5,6-isopropylidene: Methyl 2,3:5,6-di-O-*isopropylidene-α-D-mannofuranoside*
[26255-73-2]
$C_{13}H_{22}O_6$ 274.313
Plates (EtOH aq.). Mp 23°. $Bp_{0.04}$ 125° (bath). $[\alpha]_D^{25}$ +68 (c, 4.65 in $CHCl_3$).

Me glycoside, 5-Me: Methyl 2,3-di-O-*isopropylidene-5*-O-*methyl-α-D-mannofuranoside*
[26511-53-5]
$C_{11}H_{20}O_6$ 248.275
Cryst. (petrol). Mp 54°. $[\alpha]_D^{24}$ +76 (c, 0.25 in $CHCl_3$).

Me glycoside, 5-benzyl: Methyl 5-O-*benzyl-2,3*-O-*isopropylidene-α-D-mannofuranoside*
[161365-09-9]
$C_{17}H_{24}O_6$ 324.373
Syrup. $[\alpha]_D$ +62.4 (c, 0.7 in $CHCl_3$).

Me glycoside, 6-benzyl: Methyl 6-O-*benzyl-2,3*-O-*isopropylidene-α-D-mannofuranoside*
[161365-10-2]
$C_{17}H_{24}O_6$ 324.373
Syrup. $[\alpha]_D$ +59.5 (c, 0.4 in $CHCl_3$).

Allyl glycoside, 5,6-isopropylidene: Allyl 2,3:5,6-di-O-*isopropylidene-α-D-mannofuranoside*
[54515-83-2]
$C_{15}H_{24}O_6$ 300.351
$[\alpha]_D^{25}$ +55.6 (c, 1.1 in $CHCl_3$).

β-D-Furanose-*form*

5,6-O-*Isopropylidene, 1-Ac: 1*-O-*Acetyl-2,3:5,6-di*-O-*isopropylidene-β-D-mannofuranose*
[54469-11-3]
$C_{14}H_{22}O_7$ 302.324
Mp 73-75°. $[\alpha]_D^{25}$ +40.4 (c, 1.7 in $CHCl_3$). $[\alpha]_D^{25}$ +22.4 (c, 1.5 in$CHCl_3$).

Me glycoside, 5,6-O-*isopropylidene: Methyl 2,3:5,6-di*-O-*isopropylidene-β-D-mannofuranoside*
[26255-72-1]
$C_{13}H_{22}O_6$ 274.313
Mp 40-41°. $Bp_{0.35}$ 118-124° (lit. gives a pressure range). $[\alpha]_D$ -49.3 (tetrachloroethane). $[\alpha]_D^{25}$ -58.9 (c, 2.0 in $CHCl_3$).

Allyl glycoside, 5,6-O-*isopropylidene: Allyl 2,3:5,6-di*-O-*isopropylidene-β-D-mannofuranoside*
[54515-84-3]
$C_{15}H_{24}O_6$ 300.351
Gum. $[\alpha]_D^{25}$ -29.5 (c, 0.97 in $CHCl_3$).

α-L-Furanose-*form*

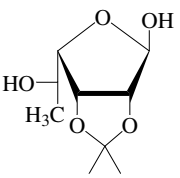
5,6-O-*Isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-α-L-mannofuranose*
[57819-52-0]
$C_{12}H_{20}O_6$ 260.286
Mp 121.5-122.5°. $[\alpha]_D^{21}$ -15.7 (c, 2.5 in EtOH).

[27954-10-5, 29847-39-0]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 315A (*nmr*)
Freudenberg, K. *et al., Ber.*, 1923, **56**, 2119 (*β-D-diisopropylidene*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, acetals*)
Randall, M.H. *et al., Carbohydr. Res.*, 1969, **11**, 173 (*α-D-Me fur isopropylidene, β-D-Me fur isopropylidene, α-D-Me fur di-Ac, α-D-Me fur Me*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1970, **14**, 297 (*D-fur benzoyl*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1970, 1273 (*α-D-fur dimesyl*)
Dmytraczenko, A. *et al., Carbohydr. Res.*, 1973, **26**, 297 (*α-D-Me fur di-Ac, α-D-Me fur tosyl*)
Evans, M.E. *et al., Carbohydr. Res.*, 1973, **28**, 359 (*α-D-Me fur dimesyl*)
Boigegrain, R.-A. *et al., Bull. Soc. Chim. Fr.*, 1974, 2623 (*α-D-Me fur isopropylidene, α-D-allyl fur isopropylidene, β-D-allyl fur isopropylidene, β-D-Me fur isopropylidene*)
Ritchie, R.G.S. *et al., Can. J. Chem.*, 1975, **53**, 1424 (*pmr*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1975, **44**, 13 (*α-L-isopropylidene*)
Ohrui, H. *et al., Tet. Lett.*, 1975, 2765 (*α-D-isopropylidene benzoyl, α-D-benzoyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1977, **34**, 179 (*rev*)
Jurczak, J. *et al., Carbohydr. Res.*, 1982, **104**, C18 (*Me gly 5,6-isopropylidene*)
Sheldrick, B. *et al., Acta Cryst. C*, 1985, **41**, 431 (*α-D-isopropylidene, cryst struct*)
Stepowska, H. *et al., Carbohydr. Res.*, 1994, **265**, 133 (*α-D-Me gly, Me gly benzyl derivs*)
Tamura, J. *et al., J. Carbohydr. Chem.*, 1995, **14**, 895-911 (*D-pyr 4,6-dibenzyl*)
Garcia-Moreno, M.I. *et al., Eur. J. Org. Chem.*, 2004, 1803-1819 (*α-D-fur 1-Ac*)

2,3-*O*-Isopropylidenerhamnose I-72

6-Deoxy-2,3-O-*isopropylidenemannose*



α-L-Furanose-*form*

$C_9H_{16}O_5$ 204.222

L-*form* [4926-05-0]
Cryst. (EtOAc/petrol). Mp 84-86°. $[\alpha]_D^{25}$ +17.6 (0.5h) → +20.7 (15h) (c, 2.8 in H_2O). See also α- and β-anomers separately descr. below.

1,5-Di-Ac: 1,5-Di-O-*acetyl-2,3*-O-*isopropylidene-*L*-rhamnose*
[29847-40-3]
$C_{13}H_{20}O_7$ 288.297
Cryst. (petrol). Mp 54-55°. $[\alpha]_D$ -43 (c, 3.2 in $CHCl_3$).

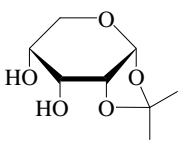
1,5-Dibenzyl: 1,5-Di-O-*benzyl-2,3*-O-*isopropylidene-*L*-rhamnose*
$C_{23}H_{28}O_5$ 384.471
Mp 104°. $[\alpha]_D$ +30.3 (Me_2CO).

5-Tosyl: 2,3-O-*Isopropylidene-5*-O-*tosyl-*L*-rhamnose*
[24435-98-1]
$C_{16}H_{22}O_7S$ 358.412
Cryst. (toluene/petrol). Mp 92-93°. $[\alpha]_D^{24}$ +29.1 ($CHCl_3$).

α-L-Furanose-*form* [14133-65-4]
Needles (Et_2O/petrol). Mp 79-80°. $[\alpha]_D$ +17.8 (H_2O, at equilib.).

β-L-Furanose-*form*
Mp 90-91°. $[\alpha]_D$ +17.5 (H_2O, at equilib.).
Freudenberg, K. *et al., Ber.*, 1926, **59**, 836 (*α-L-fur, β-L-fur, synth*)
Levene, P.A. *et al., J. Biol. Chem.*, 1936, **114**, 9 (*α-L-fur, β-L-fur, struct*)
Levene, P.A. *et al., J. Biol. Chem.*, 1936, **116**, 169 (*L-tosyl*)
Schmidt, O.T. *et al., Ber.*, 1942, **75**, 579 (*L-dibenzyl*)
Baxter, J.N. *et al., Can. J. Chem.*, 1960, **38**, 2217 (*β-L-fur*)
Haines, A.H. *et al., Carbohydr. Res.*, 1965, **1**, 214 (*L-form, synth, L-dibenzyl*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1967, **3**, 300 (*L-form, synth, L-di-Ac, pmr*)
Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1977, **55**, 205 (*L-form, synth*)
He, D.Y. *et al., Synth. Commun.*, 1992, **22**, 2653 (*L-form, synth*)

1,2-*O*-Isopropylideneribose I-73



α-D-Pyranose-*form*

$C_8H_{14}O_5$ 190.196

α-D-Pyranose-*form*
Mp 112-114°. $[\alpha]_D$ -26 (H_2O).

α-D-Furanose-*form* [37077-81-9]
Mp 86-87°.

5-Benzoyl: 5-O-*Benzoyl-1,2*-O-*isopropylidene-α-D-ribofuranose*
[6612-91-5]
$C_{15}H_{18}O_6$ 294.304
Mp 78-79°. $[\alpha]_D$ +20.5 ($CHCl_3$).

5-Benzoyl, 3-tosyl: 5-O-*Benzoyl-1,2*-O-*isopropylidene-3*-O-*tosyl-α-D-ribofuranose*
$C_{22}H_{24}O_8S$ 448.493
Mp 119°. $[\alpha]_D$ +96 ($CHCl_3$).

5-Tosyl: 1,2-O-*Isopropylidene-5*-O-*tosyl-α-D-ribofuranose*
[20513-96-6]
$C_{15}H_{20}O_7S$ 344.385
Mp 104-107°. $[\alpha]_D$ +26.3 ($CHCl_3$).

3,5-Ditosyl: 1,2-O-*Isopropylidene-3,5-di*-O-*tosyl-α-D-ribofuranose*
$C_{22}H_{26}O_9S_2$ 498.574
Mp 123-124°.

3-Me: 1,2-O-*Isopropylidene-3*-O-*methyl-α-D-ribofuranose*
[35506-61-7]
$C_9H_{16}O_5$ 204.222
Mp 74-76°. $[\alpha]_D$ +100 ($CHCl_3$).

3-Me, 5-benzoyl: 5-O-*Benzoyl-1,2*-O-*isopropylidene-3*-O-*methyl-α-D-ribofuranose*
[10300-20-6]
$C_{16}H_{20}O_6$ 308.33
Mp 74-76°. $[\alpha]_D$ +75.2 ($CHCl_3$).

3-Me, 5-tosyl: 1,2-O-*Isopropylidene-3*-O-*methyl-5*-O-*tosyl-α-D-ribofuranose*
[35506-62-8]
$C_{16}H_{22}O_7S$ 358.412
Mp 108-109°. $[\alpha]_D$ +60 ($CHCl_3$).

5-Benzyl: 5-O-*Benzyl-1,2*-O-*isopropylidene-α-D-ribofuranose*
[23202-83-7]
$C_{15}H_{20}O_5$ 280.32
Mp 80-81°. $[\alpha]_D$ +42 ($CHCl_3$).

3,5-Dibenzyl: 3,5-Di-O-*benzyl-1,2*-O-*isopropylidene-α-D-ribofuranose*
[55735-86-9]
$C_{22}H_{26}O_5$ 370.444
$Bp_{0.02}$ 178-182°.

5-Trityl: 1,2-O-*Isopropylidene-5*-O-*trityl-α-D-ribofuranose*
[20590-57-2]
$C_{27}H_{28}O_5$ 432.515
Mp 117°. $[\alpha]_D$ +25.8 ($CHCl_3$).

α-L-Furanose-*form* [172949-42-7]
Needles (EtOAc/hexane). Mp 86-87°. $[\alpha]_D^{25}$ -31.5 (c, 0.62 in $CHCl_3$).

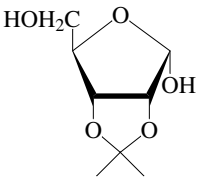
5-Benzoyl: 5-O-*Benzoyl-1,2*-O-*isopropylidene-α-L-ribofuranose*
[171721-11-2]
$C_{15}H_{18}O_6$ 294.304
Solid (hexane/EtOAc). Mp 131-132°. $[\alpha]_D^{25}$ +46.22 (c, 0.11 in MeOH).

3,5-Dibenzoyl: 3,5-Di-O-*benzo\yl-1,2*-O-*isopropylidene-α-L-ribofuranose*
[171721-12-3]
$C_{22}H_{22}O_7$ 398.412
Solid (Et_2O). Mp 100-102° (83-85°). $[\alpha]_D^{25}$ -122.38 (c, 0.9 in $CHCl_3$).

5-Trityl: 1,2-O-*Isopropylidene-5-trityl-α-L-ribofuranose*
$C_{27}H_{28}O_5$ 432.515
Mp 119-120°. $[\alpha]_D$ -26.2 (c, 1.0 in CH_2Cl_2).

Hughes, N.A. *et al., Carbohydr. Res.*, 1965, **1**, 171 (*α-D-pyr*)
Ritzmann, G. *et al., Carbohydr. Res.*, 1975, **39**, 227 (*α-D-form, synth, α-D-dibenzyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 179 (*rev, derivs*)
Gosselin, G. *et al., Carbohydr. Res.*, 1993, **249**, 1 (*α-D-form, synth, pmr, α-D-benzoyl*)
Kakefuda, A. *et al., Tetrahedron*, 1994, **50**, 10167-10182 (*α-D-dibenzyl, synth, pmr*)
Chelain, E. *et al., J. Carbohydr. Chem.*, 1995, **14**, 1251-1256 (*synth, dibenzoyl, 5-trityl*)
Ma, T. *et al., J. Med. Chem.*, 1996, **39**, 2835-2843 (*α-L-form, synth, pmr, α-L-benzoyl derivs*)
Wang, Z.-X. *et al., J.O.C.*, 2000, **65**, 9214-9219 (*α-L-form, synth, pmr, cmr*)

2,3-*O*-Isopropylideneribose I-74



α-D-*form*

$C_8H_{14}O_5$ 190.196

D-Furanose-*form* [13199-25-2]
Syrup. $[\alpha]_D^{25}$ -34 (c, 1.5 in MeOH). $[\alpha]_D$ -37 (Me_2CO). Mixt. of anomers, α:β ratio 1:9 for sample with $[\alpha]_D$ -34.

α-D-Furanose-*form*

1,5-Bis(4-nitrobenzoyl): [57274-18-7]
Cryst. (CH_2Cl_2/Et_2O). Mp 157-158°. $[\alpha]_D^{25}$ +12.4 (c, 1.63 in $CHCl_3$).

β-D-Furanose-*form* [70266-87-4]

5-Ac: 5-O-*Acetyl-2,3*-O-*isopropylidene-β-D-ribofuranose*
[168431-09-2]
$C_{10}H_{16}O_6$ 232.233
$[\alpha]_D$ -17.1.

1,5-O-*Isopropylidene: 1,5:2,3-Di*-O-*isopropylidene-β-D-ribofuranose*
[58645-36-6]
$C_{11}H_{18}O_5$ 230.26
Hygroscopic. Mp 73-74°. $[\alpha]_D^{20}$ -42.5 (c, 1.2 in $CHCl_3$).

1,5-Bis(4-nitrobenzoyl): [57274-17-6]
Cryst. (CH_2Cl_2/Et_2O). Mp 139-140°. $[\alpha]_D^{25}$ 0 (c, 1.673 in $CHCl_3$).

Me glycoside: Methyl 2,3-O-*isopropylidene-β-D-ribofuranoside*
[4099-85-8]
$C_9H_{16}O_5$ 204.222
Bp_{10} 110° $Bp_{0.3}$ 75°. $[\alpha]_D$ -82.2 ($CHCl_3$).

Me glycoside, 5-tosyl: Methyl 2,3-O-*isopropylidene-5*-O-*tosyl-β-D-ribofuranoside*
[4137-56-8]
$C_{16}H_{22}O_7S$ 358.412
Mp 83-84°. $[\alpha]_D^{28}$ -38.6 (c, 1.0 in EtOH).

Me glycoside, 5-trityl: Methyl 2,3-O-*isopropylidene-5*-O-*trityl-β-D-ribofuranoside*
[50908-06-0]
$C_{28}H_{30}O_5$ 446.542
Mp 110-111°.

β-L-Furanose-*form*

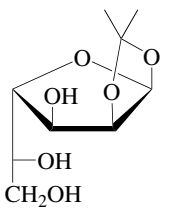
Me glycoside: Methyl 2,3-O-*isopropylidene-β-L-ribofuranoside*
[20672-63-3]
$C_9H_{16}O_5$ 204.222
$Bp_{0.05}$ 75-80°. $[\alpha]_D$ +74 ($CHCl_3$).

Me glycoside, 5-tosyl: Methyl 2,3-O-*isopropylidene-5*-O-*tosyl-β-L-ribofuranoside*
$C_{16}H_{22}O_7S$ 358.412
Mp 83-84°. $[\alpha]_D$ +38 (EtOH).

De Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Leonard, N.J. *et al., J. Het. Chem.*, 1966, **3**, 485 (*β-D-Me fur, β-D-Me fur tosyl*)
Rabelo, J.J. *et al., Carbohydr. Res.*, 1973, **30**, 381 (*Me β-D-fur tosyl*)

Hanessian, S. *et al., Tet. Lett.*, 1973, 3555 (*Me β-D-fur trityl*)
De Bernardo, S. *et al., J.O.C.*, 1976, **41**, 287 (*α-D-bisnitrobenzoyl, β-D-bisnitrobenzoyl*)
Hanessian, S. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 63 (*Me gly 5-trityl*)
Barrett, A.G.M. *et al., J.O.C.*, 1990, **55**, 3853 (*Me gly, pmr*)
Ewing, D.F. *et al., Carbohydr. Res.*, 1991, **218**, 233 (***synth, pmr, cmr***)
He, D.Y. *et al., Synth. Commun.*, 1992, **22**, 2653 (*D-form, synth*)
Bouchra, M. *et al., Synthesis*, 1995, 561 (*5-Ac*)
Ghosh, A.K. *et al., J.O.C.*, 1996, **61**, 6175 (*Me gly, synth, pmr, ir*)
Clauss, R. *et al., J.C.S. Perkin 1*, 1997, 71-84 (*synth, pmr, cmr*)
Dudfield, P.J. *et al., J.C.S. Perkin 1*, 1999, 2929-2936 (*D-form, synth, ir, pmr, cmr, ms*)
Van Tilburg, E.W. *et al., J. Med. Chem.*, 2001, **44**, 2966-2975 (*Me glycoside, synth, pmr, cmr*)

1,2-*O*-Isopropylidenetalose I-75



β-D-Furanose-*form*

$C_9H_{16}O_6$ 220.222

β-D-Furanose-*form*

*5,6-*O*-Isopropylidene: 1,2:5,6-Di-*O*-isopropylidene-β-D-talofuranose*
[23262-79-5]
$C_{12}H_{20}O_6$ 260.286
Cryst. (Et_2O/petrol). Mp 85-86°.
$[\alpha]_D$ -25 (c, 0.47 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 3-Ac: 3-*O*-Acetyl-1,2:5,6-di-*O*-isopropylidene-β-D-talofuranose*
[38166-69-7]
$C_{14}H_{22}O_7$ 302.324
Syrup. $[\alpha]_D$ -7.4 (c, 0.38 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 3-tosyl: 1,2:5,6-Di-*O*-isopropylidene-3-*O*-tosyl-β-D-talofuranose*
[23344-48-1]
$C_{19}H_{26}O_8S$ 414.476
Cryst. (EtOH aq.). Mp 136-137°.
$[\alpha]_D$ -84.5 (c, 0.6 in $CHCl_3$).

β-L-Furanose-*form* [31718-77-1]
Mp 100-101°. $[\alpha]_D^{22}$ +52 (c, 1.1 in MeOH).

*3-Benzoyl: 3-*O*-Benzoyl-1,2-*O*-isopropylidene-β-L-talofuranose*
[31795-15-0]
$C_{16}H_{20}O_7$ 324.33
Mp 96-98°. $[\alpha]_D^{22}$ +107 (c, 1.6 in $CHCl_3$).

*Tribenzoyl: 3,5,6-Tri-*O*-benzoyl-1,2-O-isopropylidene-β-L-talofuranose*
$C_{30}H_{28}O_9$ 532.546
Mp 156-158°. $[\alpha]_D^{22}$ +90 (c, 1.0 in $CHCl_3$).

*5,6-*O*-Isopropylidene: 1,2:5,6-Di-*O*-isopropylidene-β-L-talofuranose*
[26597-74-0]
$C_{12}H_{20}O_6$ 260.286
Cryst. (Et_2O/petrol). Mp 85-86°.
$[\alpha]_D$ +31.3 (c, 0.49 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 3-tosyl: 1,2:5,6-Di-*O*-isopropylidene-3-*O*-tosyl-β-L-talofuranose*
[26597-75-1]
$C_{19}H_{26}O_8S$ 414.476
Cryst. (EtOH). Mp 135-137°. $[\alpha]_D$ +84 (c, 0.53 in $CHCl_3$).

*3-Benzyl, 5,6-*O*-isopropylidene: 3-O-Benzyl-1,2:5,6-di-*O*-isopropylidene-β-L-talofuranose*
[40982-92-1]
$C_{19}H_{26}O_6$ 350.411
Cryst. (hexane). Mp 71-73°. $[\alpha]_D^{19}$ +88.3 (c, 1.01 in $CHCl_3$).

*3-Me: 1,2-*O*-Isopropylidene-3-*O*-methyl-β-L-talofuranose*
[32166-85-1]
$C_{10}H_{18}O_6$ 234.249
Cryst. (Et_2O). Mp 54-56°. $[\alpha]_D$ +103 (c, 1.0 in $CHCl_3$).

*3-Me, 6-benzoyl: 6-*O*-Benzoyl-1,2-O-isopropylidene-3-O-methyl-β-L-talofuranose*
[32166-84-0]
$C_{17}H_{22}O_7$ 338.357
Cryst. (Et_2O/hexane). Mp 98-99°.
$[\alpha]_D$ +63 (c, 1.0 in $CHCl_3$).

*3-Me, 5,6-dibenzoyl: 5,6-Di-*O*-benzoyl-1,2-O-isopropylidene-3-O-methyl-β-L-talofuranose*
[32166-83-9]
$C_{24}H_{26}O_8$ 442.465
Syrup. $[\alpha]_D$ +10 (c, 1.0 in $CHCl_3$).

*3-Me, 5,6-dimesyl: 1,2-*O*-Isopropylidene-5,6-di-*O*-mesyl-3-*O*-methyl-β-L-talofuranose*
[32166-86-2]
$C_{12}H_{22}O_{10}S_2$ 390.432
Cryst. (Me_2CO/Et_2O). Mp 149-150°.
$[\alpha]_D$ +32.5 (c, 1.0 in $CHCl_3$).

*3-Benzyl, 5,6-dibenzoyl: 5,6-Di-*O*-benzoyl-3-O-benzyl-1,2-O-isopropylidene-β-L-talofuranose*
[35777-79-8]
$C_{30}H_{30}O_8$ 518.562
Syrup. $[\alpha]_D^{19}$ +29 (c, 0.12 in $CHCl_3$).

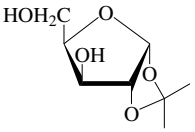
*6-Trityl, 3-benzyl: 3-*O*-Benzyl-1,2-O-isopropylidene-6-O-trityl-β-L-talofuranose*
[35777-80-1]
$C_{35}H_{36}O_6$ 552.666
Mp 115-116°. $[\alpha]_D^{23}$ +33 (c, 0.24 in $CHCl_3$).

*6-Trityl, 3-benzyl, 5-tosyl: 3-*O*-Benzyl-1,2-O-isopropylidene-5-O-tosyl-6-O-trityl-β-L-talofuranose*
$C_{42}H_{42}O_8S$ 706.855
Syrup. $[\alpha]_D^{22}$ +14 (c, 0.11 in $CHCl_3$).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1969, **9**, 231 (*β-D-isopropylidene, β-D-isopropylidene tosyl*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1970, 1632 (*β-L-isopropylidene, β-L-isopropylidene tosyl*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1971, 2911 (*β-L-benzoyl Me, β-L-dibenzoyl Me, β-L-dimesyl Me, β-L-Me*)
Naka, T. *et al., Tet. Lett.*, 1971, 95 (*β-L-form, β-L-isopropylidene, β-L-tribenzoyl*)
Ohrui, H. *et al., Tet. Lett.*, 1971, 4267 (*β-L-benzyl dibenzoyl, β-L-tosyl benzyl trityl, β-L-benzyl trityl*)
Hall, L.D. *et al., Can. J. Chem.*, 1972, **50**, 1912 (*β-D-isopropylidene Ac, pmr*)
Kuzuhara, H. *et al., Agric. Biol. Chem.*, 1973, **37**, 349 (*β-L-isopropylidene, β-L-isopropylidene benzyl*)

1,2-*O*-Isopropylidenexylose, 9CI, 8CI I-76

[20031-21-4]



α-D-Furanose-*form*

$C_8H_{14}O_5$ 190.196

α-D-Furanose-*form*

Syrup or cryst. (EtOAc/petrol). Mp 42-43°. $Bp_{0.06}$ 112-114°. $[\alpha]_D^{22}$ -21.1 (c, 2.0 in H_2O).

*5-Ac: 5-*O*-Acetyl-1,2-O-isopropylidene-α-D-xylofuranose*
$C_{10}H_{16}O_6$ 232.233
Mp 101°. $[\alpha]_D^{22}$ +23 (c, 1.0 in $CHCl_3$).

3,5-Di-Ac: 3,5-Di-O-acetyl-1,2-O-isopropylidene-α-D-xylofuranose
[42927-45-7]
$C_{12}H_{18}O_7$ 274.27
Syrup. $[\alpha]_D^{20}$ -6.1 ($CHCl_3$).

*5-Benzoyl: 5-*O*-Benzoyl-1,2-O-isopropylidene-α-D-xylofuranose*
$C_{15}H_{18}O_6$ 294.304
Cryst. (Et_2O). Mp 83-85°.

3,5-Dibenzoyl: 3,5-Di-O-benzoyl-1,2-O-isopropylidene-α-D-xylofuranose
[6893-67-0]
$C_{22}H_{22}O_7$ 398.412
Syrup. $[\alpha]_D$ -50 (c, 0.7 in $CHCl_3$).

*5-Tosyl: 1,2-*O*-Isopropylidene-5-O-tosyl-α-D-xylofuranose*
[20513-95-5]
$C_{15}H_{20}O_7S$ 344.385
Cryst. (EtOAc). Mp 133-134°. $[\alpha]_D^{20}$ -13 (c, 2.0 in $CHCl_3$).

*3,5-Ditosyl: 1,2-*O*-Isopropylidene-3,5-di-O-tosyl-α-D-xylofuranose*
$C_{22}H_{26}O_9S_2$ 498.574
Mp 91-92°. $[\alpha]_D^{20}$ -37.9 ($CHCl_3$).

*3,5-*O*-Isopropylidene: 1,2:3,5-Di-O-isopropylidene-α-D-xylofuranose*
[20881-04-3]
$C_{11}H_{18}O_5$ 230.26
Cryst. (MeOH aq.). Mp 44-45°.
$[\alpha]_D$ +13 (H_2O).

*5-Me: 1,2-*O*-Isopropylidene-5-O-methyl-α-D-xylofuranose*
$C_9H_{16}O_5$ 204.222
Cryst. (Et_2O). Mp 81°. $[\alpha]_D^{20}$ -20.2 (H_2O).

*5-Benzyl, 3-Me: 5-*O*-Benzyl-1,2-O-isopropylidene-3-O-methyl-α-D-xylofuranose*
[34383-11-4]
$C_{16}H_{22}O_5$ 294.347
Syrup. $Bp_{0.01}$ 139-140°. $[\alpha]_D^{24}$ -45.4 (c, 1.31 in EtOH).

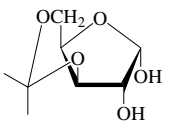
α-L-Furanose-*form*

*5-Benzoyl: 5-*O*-Benzoyl-1,2-O-isopropylidene-α-L-xylofuranose*
Cryst. (Et_2O). $[\alpha]_D^{20}$ -10.6 (c, 1.2 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 403B (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 330C (*ir*)

Levene, P.A. *et al., J. Biol. Chem.*, 1933, **102**, 331 (*α-D-Me*)
Tipson, R.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1959, **62**, 257 (*α-D-form, synth*)
Tipson, R.S. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 249 (*5-tosyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1966, **1**, 341 (*α-D-dibenzoyl*)
Miljkowik, M.A. *et al., Carbohydr. Res.*, 1970, **15**, 162
Kováč, P. *et al., Carbohydr. Res.*, 1971, **19**, 249 (*α-D-benzyl Me*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1975, 2163 (*α-D-dibenzoyl, pmr*)
Gosselin, G. *et al., Carbohydr. Res.*, 1993, **249**, 1 (*α-D-5-benzoyl*)
Moracová, J. *et al., Carbohydr. Res.*, 1994, **263**, 61 (***synth, α-D-form***)
Bouchra, M. *et al., Synthesis*, 1995, 561 (*5-Ac, pmr, cmr*)
Jiang, B. *et al., J.O.C.*, 2003, **68**, 2376-2384 (*α-L-fur-5-benzoyl, synth, pmr*)

3,5-*O*-Isopropylidenexylose I-77



α-D-Furanose-*form*

$C_8H_{14}O_5$ 190.196

D-Furanose-*form*
Syrup. $[\alpha]_D^{22}$ -5 (c, 2.9 in MeOH). $[\alpha]_D$ +19 (MeOH). Anomeric mixt. (ratio α:β 1.2:1 for the prepn. having $[\alpha]_D$ -5).

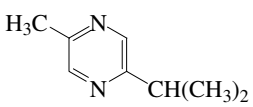
α-D-Furanose-*form* [138343-48-3]
*Di-Ac: 1,2-Di-*O*-acetyl-3,5-*O*-isopropylidene-α-D-xylofuranose*
[62410-11-1]
$C_{12}H_{18}O_7$ 274.27
Mp 64-65°. $[\alpha]_D^{25}$ +77.2 (c, 0.5 in MeOH).

[138343-47-2]

Kiso, M. *et al., Carbohydr. Res.*, 1976, **52**, 95 (*synth, di-Ac*)
Ewing, D.E. *et al., Carbohydr. Res.*, 1991, **218**, 233 (***synth, pmr, cmr***)

2-Isopropyl-5-methylpyrazine, 8CI I-78

2-Methyl-5-(1-methylethyl)pyrazine, 9CI. FEMA 3554
[13925-05-8]

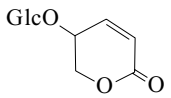


$C_8H_{12}N_2$ 136.196
Present in various cooked foods. Prod. by *Chondromyces crocatus*. Liq. with peanut-like odour. Bp_{13} 68-70° (as 1:1 mixt. with the 2,6-isomer). n_D^{23} 1.4865.

Goldman, I.M. *et al., Helv. Chim. Acta*, 1967, **50**, 694-705 (*synth, ms, isol*)
Peer, H.G. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1969, **88**, 1335-1336 (*synth*)
Oser, B.L. *et al., Food Technol. (Chicago)*, 1978, **32**, 60-62; **32(2)**, 64-66; 68-70 (*use*)
Cantalego, M.J. *et al., J. Agric. Food Chem.*, 1997, **45**, 1853-1860 (*glc, detn, earth-almond*)
Ulrich, D. *et al., Am. J. Potato Res.*, 2000, **77**, 111-117 (*glc, detn*)
Schulz, S. *et al., Tetrahedron*, 2004, **60**, 3863-3872 (*isol*)

Isoranunculin I-79

*5-(β-D-Glucopyranosyloxy)-5,6-dihydro-2*H*-pyran-2-one, 9CI*
[35879-54-0]



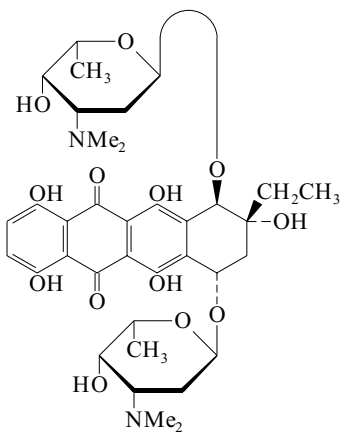
$C_{11}H_{16}O_8$ 276.243
Extracted from *Ranunculus repens* and *Helleborus foetidus*.

Tetra-Ac: $[\alpha]_D^{20}$ -64.7 (c, 0.9 in $CHCl_3$).

Tschesche, R. *et al., Chem. Ber.*, 1972, **105**, 290 (*isol, pmr, ms*)

Isorhodomycin A I-80

[1403-81-2]



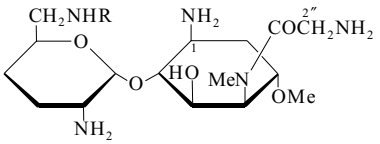
$C_{36}H_{48}N_2O_{13}$ 716.781
Anthracycline antibiotic. Prod. by *Streptomyces purpurascens* NRRL2269. Active against gram-positive bacteria. Sol. MeOH, EtOAc; fairly sol. C_6H_6, $CHCl_3$; poorly sol. Et_2O, hexane, H_2O. λ_{max} 235; 305; 525; 551; 563; 610 (MeOH) (Berdy).

Hydrochloride:
Deep-red prisms. Mp 220°.

Brockmann, H. *et al., Chem. Ber.*, 1955, **88**, 1455; 1965, **98**, 3145 (*isol, uv, struct*)
Blinov, N.O. *et al., Izv. Akad. Nauk SSSR, Ser. Biol.*, 1967, 357; *CA*, **67**, 52709 (*struct*)

Istamycin A I-81

Sannamycin A. KA 7038I. Antibiotic KA 7038I
[72503-79-8]



R = Me

$C_{17}H_{35}N_5O_5$ 389.494
Aminoglycoside antibiotic. Isol. from *Streptomyces sannanensis* and *Streptomyces tenjimariensis*. Active against gram-positive and -negative bacteria. Hemihydrate.
Mp 78-82°. $[\alpha]_D^{25}$ +120.5 (c, 1 in H_2O).

▶ NM7521540
Carbonate (2:1): [72523-63-8]
Powder. Mp 102-108° dec. $[\alpha]_D^{25}$ +155 (c, 0.4 in H_2O).

N$^{2''}$-*Carbamoyl:* ***Istamycin A$_2$***. *2''-*N*-Carbamoylistamycin A, 9CI*
[83728-97-6]
$C_{18}H_{36}N_6O_6$ 432.519
Isol. from *Streptomyces tenjimariensis*. Sol. H_2O; poorly sol. Me_2CO, hexane.

N$^{2''}$-*Carbamoyl; carbonate (2:1):*
Powder + ½ H_2O. Mp 105-135° (gradually). $[\alpha]_D^{20}$ +115 (c, 1 in H_2O).

N$^{2''}$-*Formyl:* ***Istamycin A$_1$***. *2''-*N*-Formylisamycin A*
[83728-96-5]
$C_{18}H_{35}N_5O_6$ 417.504
Isol. from *Streptomyces tenjimariensis*. Sol. H_2O; poorly sol. Me_2CO, hexane.

N$^{2''}$-*Formyl; carbonate:*
Powder. Mp 85-115° (gradually). $[\alpha]_D^{22}$ +113 (c, 1 in H_2O).

N-*De(aminoacetyl):* ***Istamycin A$_0$***. *Sannamycin B. KA 7038III. Antibiotic KA 7038III*
[72503-80-1]
$C_{15}H_{32}N_4O_4$ 332.442
Isol. from *Streptomyces sannanensis* and *Streptomyces tenjimariensis*. Shows v. little antibiotic activity. $[\alpha]_D^{25}$ +78 (c, 0.5 in H_2O).

▶ NM7521580
N-*De(aminoacetyl), carbonate (2:1):*
Powder. Mp 111-114°. $[\alpha]_D^{22}$ +76 (c, 0.56 in H_2O).

1-Epimer: ***Istamycin B***
[72523-64-9]
$C_{17}H_{35}N_5O_5$ 389.494
Isol. from *Streptomyces tenjimariensis*. Active against gram-positive and -negative bacteria. Sol. H_2O, MeOH; poorly sol. EtOH, hexane.

▶ LD_{50} (mus, ivn) 80-160 mg/kg.
NM7521520
1-Epimer, carbonate (2:1): [73004-01-0]
Powder + ½ H_2O. Mp 112-124°. $[\alpha]_D^{25}$ +165 (c, 0.4 in H_2O).

1-Epimer, N$^{2''}$*-formyl:* ***Istamycin B$_1$***. *2''-*N*-Formylistamycin B*
[83780-76-1]
$C_{18}H_{35}N_5O_6$ 417.504

Isol. from *Streptomyces tenjimariensis*. Sol. H_2O; poorly sol. Me_2CO, hexane.

1-Epimer, N$^{2''}$*-formyl; carbonate:*
Powder. Mp 87-120° (gradually dec.). $[\alpha]_D^{21}$ +112 (c, 1 in H_2O).

1-Epimer, N-*de(aminoacetyl):* ***Istamycin B$_0$****. Deglycylistamycin B*
[76497-51-3]
$C_{15}H_{32}N_4O_4$ 332.442
Isol. from *Streptomyces tenjimariensis*. Sol. H_2O, MeOH; poorly sol. hexane, EtOH.

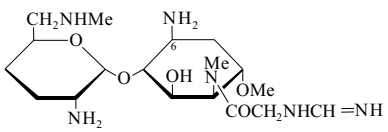
1-Epimer, N-*de(aminoacetyl); sulfate:*
Cryst. + $2H_2O$. Mp 215-244° dec. $[\alpha]_D^{15}$ +88 (c, 1 in H_2O).

1-Epimer, N-*de(aminoacetyl); carbonate (2:1):*
Powder + ½ H_2O. $[\alpha]_D^{26}$ +160 (c, 1 in H_2O). Indefinite Mp.

Deushi, T. *et al., J. Antibiot.*, 1979, **32**, 1061; 1066 (*isol, ir, pmr, ms, cmr, struct*)
Okami, Y. *et al., J. Antibiot.*, 1979, **32**, 964 (*isol, uv, ir, pmr*)
Ikeda, D. *et al., J. Antibiot.*, 1979, **32**, 964; 1365 (*synth, isol, uv, ir, pmr, cmr*)
Kondo, S. *et al., Jpn. J. Antibiot.*, (Suppl.), 1979, **32**, S228 (*synth*)
Ger. Pat., 1980, 2 928 373; *CA*, **92**, 196387 (*isol*)
Hotta, K. *et al., J. Antibiot.*, 1980, **33**, 1502; 1510 (*isol*)
Ikeda, D. *et al., Carbohydr. Res.*, 1982, **109**, 33 (*isol, struct*)
Deushi, T. *et al., CA*, 1983, **98**, 14108; 77979 (*isol, struct*)
Ludin, C. *et al., Annalen*, 1995, 291 (*synth, pmr, cmr*)

Istamycin A3 I-82

2″-N-*Formimidoylistamycin A*
[81202-83-7]



$C_{18}H_{36}N_6O_5$ 416.52
Prod. by *Streptomyces tenjimariensis*. Active against gram-positive and -negative bacteria, except for *Pseudomonas*.

Sulfate (1:2):
Hygroscopic powder + $3H_2O$. $[\alpha]_D^{19}$ +77 (c, 1 in H_2O). Gradually dec. >210°.

6-Epimer: ***Istamycin B3****. 2″-N-Formimidoylistamycin B*
[77312-55-1]
$C_{18}H_{36}N_6O_5$ 416.52
Prod. by *Streptomyces tenjimariensis*.

6-Epimer; sulfate (1:2):
Trihydrate. $[\alpha]_D^{19}$ +82 (c, 1 in H_2O). Gradually dec. >215°.

Horiuchi, Y. *et al., J. Antibiot.*, 1980, **33**, 1577 (*synth*)
Kondo, S. *et al., J. Antibiot.*, 1982, **35**, 1104 (*isol, props*)

Istamycin C I-83

[83728-93-2]
As Istamycin A, I-81 with
R = $-CH_2CH_3$
$C_{18}H_{37}N_5O_5$ 403.521
Aminoglycoside antibiotic. Isol. from *Streptomyces tenjimariensis*. Active against gram-positive and -negative bacteria. Powder + ½ H_2O (as carbonate salt). Sol. H_2O; poorly sol. Me_2CO, hexane. $[\alpha]_D^{25}$ +131 (c, 1 in H_2O) (carbonate salt).

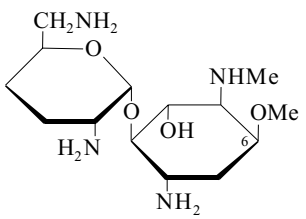
N-*De(aminoacetyl):* ***Istamycin C$_0$****. Deglycylistamycin C*
[83728-94-3]
$C_{16}H_{34}N_4O_4$ 346.469
Isol. from *Streptomyces tenjimariensis*. Weakly active against gram-positive and -negative bacteria. Sol. H_2O; poorly sol. Me_2CO, hexane. $[\alpha]_D^{23}$ +69 (c, 1 in H_2O) (carbonate salt).

N$^{2''}$*-Formyl:* ***Istamycin C$_1$****. 2″*-N-*Formylistamycin C*
[83728-95-4]
$C_{19}H_{37}N_5O_6$ 431.531
Isol. from *Streptomyces tenjimariensis*. Weakly active against gram-positive and -negative bacteria. Powder (as carbonate salt). Sol. H_2O.
Mp 70-78° dec. (carbonate salt). $[\alpha]_D^{21}$ +108 (c, 1 in H_2O) (carbonate salt).

Ikeda, D. *et al., Carbohydr. Res.*, 1982, **109**, 33 (*isol, struct*)

Istamycin X$_0$ I-84

Sannamycin G. KA 7038V. Antibiotic KA 7038V
[73522-72-2]



$C_{14}H_{30}N_4O_4$ 318.415
Aminoglycoside antibiotic. Isol. from *Streptomyces sannanensis* and *Streptomyces tenjimariensis*. Shows weak antimicrobial activity. Powder.
Mp 78-82°. $[\alpha]_D^{25}$ +115 (c, 0.1 in H_2O).

▶ NM7522733

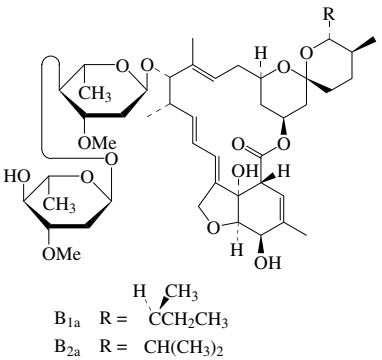
6-Epimer: ***Istamycin Y$_0$****. Sannamycin H. KA 7038VII. Antibiotic KA 7038VII*
[73491-61-9]
$C_{14}H_{30}N_4O_4$ 318.415
Isol. from *Streptomyces sannanensis* and *Streptomyces tenjimariensis*. Shows weak antimicrobial activity. Powder. $[\alpha]_D^{25}$ +59 (c, 1 in H_2O).

▶ NM7522580

Ger. Pat., 1980, 2 928 373; *CA*, **92**, 196387 (*isol*)
Deushi, T. *et al., CA*, 1983, **98**, 14108; 77979 (*isol, struct*)

Ivermectin, BAN, INN, USAN I-85

Eqvalan. Hyvermectin. Ivomec. Mectizan. Oramec. MK 933
[70288-86-7]



Macrolide antibiotic complex. A mixt. of ivermectin components B_{1a} and B_{1b}. B_{1a} is identical with. Semisynthetic. Broad spectrum antiparasitic agent. Used in elimination programme for African onchocerciasis (river blindness). Launched 1987

▶ IH7891500

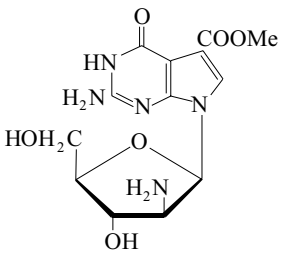
Ivermectin B$_{1b}$ [70209-81-3]

$C_{47}H_{72}O_{14}$ 861.078
Not separately characterised.

Chabala, J.C. *et al., J. Med. Chem.*, 1980, **23**, 1134-1136 (*synth, props*)
U.S. Pat., 1980, 4 199 569; *CA*, **93**, 130559 (*synth*)
Campbell, W.C. *et al., Science (Washington, D.C.)*, 1983, **221**, 823-828 (*rev, pharmacol*)
Calcott, P.H. *et al., J. Antibiot.*, 1984, **37**, 253-259 (*biochem*)
Koch, H. *et al., Pharm. Int.*, 1984, **5**, 55-56 (*rev*)
Fink, D.W. *et al., Anal. Profiles Drug Subst.*, 1988, **17**, 155-184 (*rev*)
Baker, R. *et al., Chem. Br.*, 1989, **25**, 692-696 (*rev*)
Campbell, W.C. *et al., Annu. Rev. Microbiol.*, 1991, **45**, 445 (*rev*)
Campbell, W.C. *et al., Med. Res. Rev.*, 1993, **13**, 61-79 (*rev*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 101
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 10th edn., J. Wiley*, 2000, ITD875

Kanagawamicin K-1

AB 116. Antibiotic AB 116
[84873-16-5]



$C_{13}H_{17}N_5O_6$ 339.307

Nucleoside antibiotic. Prod. by *Actinoplanes kanagawaensis*. Shows antitumour and weak antibacterial props. Amorph. powder +1 H_2O. Sol. H_2O, DMSO, Py, MeOH; poorly sol. Me_2CO, hexane.
Mp 225-228°. $[\alpha]_D^{25}$ -14 (c, 1 in DMSO). Related to Cadeguomycin. λ_{max} 231 (ϵ 14100); 272 (ϵ 6310); 297 (ϵ 6920) (0.1*N* HCl) (Derep). λ_{max} 225 (sh) (ϵ 9175); 268 (ϵ 9175); 282 (sh) (ϵ) (H_2O at pH 11) (Derep). λ_{max} 232 (ϵ 19680); 272 (ϵ 6881); 298 (ϵ 7610) (H_2O) (Derep). λ_{max} 233 (ϵ 15900); 272 (ϵ 6350); 298 (ϵ 6950) (H_2O) (Berdy). λ_{max} 231 (ϵ 14200); 272 (ϵ 6350); 297 (ϵ 6950) (HCl) (Berdy).

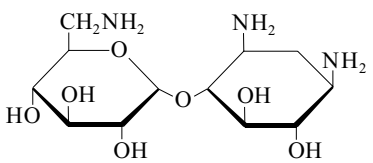
N,O,O-*Tri-Ac:*
Amorph. powder. Mp 170-171°.

[86330-89-4]

Naruto, S. *et al., Heterocycles*, 1983, **20**, 27 (*isol, struct*)
Japan. Pat., 1983, 83 32 893; *CA*, **99**, 37106 (*isol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Kanamine K-2

4-O-(6-Amino-6-deoxy-α-D-glucopyranosyl)-2-deoxystreptamine, 9CI. NK 1003. Antibiotic NK 1003
[31077-71-1]



$C_{12}H_{25}N_3O_7$ 323.345

Aminoglycoside antibiotic. Isol. from *Streptomyces fradiae* and *Streptomyces kanamyceticus*. Needles.
Mp 202-205°. $[\alpha]_D^{25}$ +95 (c, 1 in H_2O).

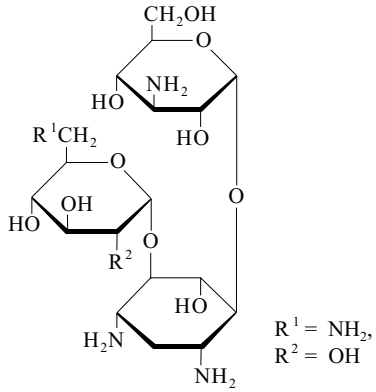
▶ WK1970400

Hydrochloride (1:2): [34304-39-7]
$[\alpha]_D^{22}$ +89 (c, 0.3 in H_2O).

Umezawa, S. *et al., J. Antibiot.*, 1962, **15**, 51 (*isol*)
Nishimura, Y. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 2521 (*synth, pmr*)

Kanamycin A, 8CI K-3

4-O-(6-Amino-6-deoxy-α-D-glucopyranosyl)-6-O-(3-amino-3-deoxy-α-D-glucopyranosyl)-2-deoxystreptamine, 9CI.
***Kanamycin, BAN, INN**. Kanacin. Many other names*
[59-01-8]



R^1 = NH_2, R^2 = OH

$C_{18}H_{36}N_4O_{11}$ 484.503

Aminoglycoside antibiotic. Isol. from *Streptomyces kanamyceticus*. Broad spectrum clinically used antibiotic. Cryst. (EtOH). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Log P -7.77 (uncertain value) (calc).

▶ Gastrointestinal and other adverse effects incl. nephrotoxicity and ototoxicity reported when used therapeutically. LD_{50} (mus, orl) 20500 mg/kg. LD_{50} (mus, ipr) 794 mg/kg. Exp. reprod. and teratogenic effects; LD_{50} (mus, ivn) 220 mg/kg. WK1962000

Sulfate: Kanamytrex. Kantrex. Kano. Kantrim
[25389-94-0]
[64013-70-3]
Cryst. Mp 250° dec. $[\alpha]_D^{24}$ +149 (c, 0.87 in H_2O).

▶ LD_{50} (rat, ipr) 3200 mg/kg. NZ3225030

Tetra-N-*Ac:* Mp 240°. $[\alpha]_D^{25}$ +115 (c, 0.52 in H_2O).

3″-N-*Me:* ***3″-N-Methylkanamycin A***. *Combimicin A_4*
[76551-32-1]
$C_{19}H_{38}N_4O_{11}$ 498.529
Prod. by *Micromonospora echinospora*. Powder. λ_{max} 200 (H_2O).

5-Deoxy: ***5-Deoxykanamycin A***
[62819-32-3]
$C_{18}H_{36}N_4O_{10}$ 468.503
Isol. from *Streptomyces kanamyceticus*. Active against gram-positive and -negative bacteria.
Mp 250-255° dec. (dec. from 160°). $[\alpha]_D^{25}$ +101.8 (c, 0.33 in H_2O). Lacks the OH group in the cyclitol ring.

▶ WK1969200

5-Deoxy; sulfate (2:3): [86540-92-3]
$[\alpha]_D^{25}$ +124 (c, 0.5 in H_2O).

Cron, M.J. *et al., J.A.C.S.*, 1958, **80**, 2342 (*isol*)
Hichens, M. *et al., J.A.C.S.*, 1963, **85**, 1547 (*abs config*)
Nakajima, M. *et al., Tet. Lett.*, 1968, 623 (*synth, ir, nmr*)
Koyama, G. *et al., Tet. Lett.*, 1968, 1875 (*cryst struct, abs config*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 533 (*synth, ir*)
Yamaoka, N. *et al., Chem. Pharm. Bull.*, 1974, **22**, 2196 (*cmr*)
Claes, P.J. *et al., Anal. Profiles Drug Subst.*, 1977, **6**, 259 (*rev*)
Kavadias, G. *et al., Can. J. Chem.*, 1978, **56**, 2086 (*synth, pmr, deriv*)
Japan. Pat., 1978, 78 34 988; *CA*, **89**, 127758 (*isol, deriv*)
Miyake, T. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 1149 (*synth, pmr, cmr*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 5078 (*synonyms*)
Eneva, G. *et al., Spectrochim. Acta A*, 1991, **47**, 875 (*pmr, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 177
Cox, J.R. *et al., Carbohydr. Res.*, 1995, **271**, 55 (*pmr, conformn*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, KAL000; KAM000; KAV000

Kanamycin B, 8CI K-4

***Bekanamycin, INN**. Aminodeoxykanamycin, JAN. Nebramycin factor 5. Nebramycin V. Kanendomycin. Many other names*
[4696-76-8]
As Kanamycin A, K-3 with
$R^1 = R^2 = NH_2$

$C_{18}H_{37}N_5O_{10}$ 483.518

Aminoglycoside antibiotic. Prod. by *Streptomyces kanamyceticus*. Shows broad-spectrum activity. Congener of Kanamycin A, K-3 administered as sulfate. Cryst. or cryst. + $2H_2O$.
Mp 178-182° dec. $[\alpha]_D^{18}$ +130 (c, 0.5 in H_2O). Log P -7.72 (uncertain value) (calc).

▶ LD_{50} (mus, ipr) 800 mg/kg. WK1975000

Sulfate: ***Bekanamycin sulfate, JAN***
[29701-07-3]
[70550-99-1] Mp >250° dec.

N-*Ac:* **N-*Acetylkanamycin B***. *NK 1013-2. Antibiotic NK 1013-2*
[31156-80-6]
$C_{20}H_{39}N_5O_{11}$ 525.555
Isol. from *Streptomyces kanamyceticus*. Cryst.
Mp 229-232° dec. $[\alpha]_D^{24}$ +117 (c, 1 in H_2O). Not clear which nitrogen is acetylated. Another (? the same) *N*-Ac deriv., Mp 220-250° dec. $[\alpha]_D^{24}$ +150° (H_2O) has been reported.

Undeca-Ac: $[\alpha]_D^{24}$ +107.8 (c, 0.49 in MeOH).

4′-O-*α-D-Glucopyranosyl:* ***4′-O-α-D-Glucopyranosylkanamycin B***
$C_{24}H_{47}N_5O_{15}$ 645.66
Prod. by *Streptomyces kanamyceticus*. Sol. H_2O; poorly sol. Me_2CO, hexane.

▶ LD_{50} (mus, ivn) 1040 mg/kg.

3″-N-*Me:* ***3″-N-Methylkanamycin B***. *Combimicin B_5*
[58700-58-6]
$C_{19}H_{39}N_5O_{10}$ 497.545
Prod. by *Micromonospora echinospora*.

6″-O-*Carbamoyl: Nebramycin IV. Nebramycin factor 4*
[51736-76-6]
$C_{19}H_{38}N_6O_{11}$ 526.543

Isol. from *Streptomyces* spp. Cryst. Sol. H_2O, MeOH; poorly sol. butanol, hexane. $[\alpha]_D$ +122.8 (c, 7.8 in H_2O). pK_{a1} 5.3; pK_{a2} 6.8; pK_{a3} 7.8; pK_{a4} 9.

▶ LD_{50} (mus, ivn) 219 mg/kg. WK1930000

Schmitz, H. *et al., J.A.C.S.*, 1958, **80**, 2911 (*isol*)
Hichens, M. *et al., J.A.C.S.*, 1963, **85**, 1547 (*struct, abs config*)
Stark, W.M. *et al., Antimicrob. Agents Chemother.*, 1967, 314; 324; 332; 341 (*Nebramycin IV*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 537 (*synth, ir*)
Japan. Pat., 1970, 70 06 077; *CA*, **73**, 2660 (*isol, deriv*)
Stark, W.M. *et al., Folia Microbiol. (Prague)*, 1971, **16**, 205 (*Nebramycin IV*)
Koch, K.F. *et al., J. Antibiot.*, 1973, **26**, 745
Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1978, **51**, 2354 (*synth, cmr*)
Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430 (*cmr, pmr, ms*)
Japan. Pat., 1982, 82 149 300; *CA*, **98**, 34907q (*4′-Glucosylkanamycin B*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 5085
Eneva, G. *et al., Spectrochim. Acta A*, 1991, **47**, 875 (*pmr, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 121
Cox, J.R. *et al., Carbohydr. Res.*, 1995, **271**, 55 (*pmr, conformn*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BAU270; KBA100

Kanamycin C, 8CI K-5

4-O-(2-Amino-2-deoxy-α-D-glucopyranosyl)-6-O-(3-amino-3-deoxy-α-D-glucopyranosyl)-2-deoxystreptamine, 9CI.
Kanamycin
[2280-32-2]

As Kanamycin A, K-3 with
R^1 = OH, R^2 = NH_2

$C_{18}H_{36}N_4O_{11}$ 484.503

Aminoglycoside antibiotic. Isol. from *Streptomyces kanamyceticus*. Shows broad-spectrum activity. Needles (DMF aq. or EtOH). Sol. H_2O; fairly sol. $HCONH_2$, MeOH; poorly sol. EtOH, hexane, butanol. Mp 270° dec. $[\alpha]_D^{18}$ +145 (c, 0.58 in H_2O).

▶ LD_{50} (mus, ivn) 225 mg/kg; LD_{50} (mus, ivn) 200 mg/kg. NZ3165000

3′-Deoxy: ***3′-Deoxykanamycin C****. Antibiotic 535*
$C_{18}H_{36}N_4O_{10}$ 468.503
From *Streptomyces cremus tobramycinii*. Sol. H_2O; poorly sol. Me_2CO, hexane.
Mp 247-250°.

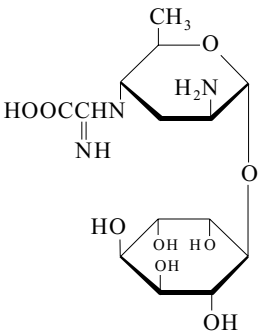
▶ LD_{50} (mus, ivn) 225 mg/kg , LD_{50} (mus, scu) 1150 mg/kg.

2-Hydroxy: ***2-Hydroxykanamycin C****. LL-BM 27α. Antibiotic LL-BM 27α*
[83480-58-4]
$C_{18}H_{36}N_4O_{12}$ 500.502
Prod. by *Streptomyces* sp. BM27. Sol. H_2O; poorly sol. Me_2CO, hexane. λ_{max} (H_2O) (Berdy).

Murase, M. *et al., J. Antibiot., Ser. A*, 1961, **14**, 156; 367 (*isol*)
Hichens, M. *et al., J.A.C.S.*, 1963, **85**, 1547 (*abs config, struct*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 529 (*synth, ir, nmr*)
Toda, S. *et al., J. Antibiot.*, 1977, **30**, 1002 (*synth*)
Harada, K. *et al., J. Antibiot.*, 1982, **35**, 102 (*ms*)
Borders, D.B. *et al., J. Antibiot.*, 1982, **35**, 1107-1110 (*2-Hydroxykanamycin C*)
Konstantinova, N.V. *et al., CA*, 1986, **104**, 17418 (*deriv*)

Kasugamycin, 8CI K-6

3-O-[2-Amino-4-[(carboxyiminomethyl)-amino]-2,3,4,6-tetradeoxy-α-D-arabino-hexopyranosyl]-D-chiro-inositol, 9CI.
Kasumin L
[6980-18-3]



$C_{14}H_{25}N_3O_9$ 379.366

Aminoglycoside antibiotic. Prod. by *Streptomyces kasugaensis*. Inhibitor of the fungus responsible for rice blast. pK_{a1} 2; pK_{a2} 7.1; pK_{a3} 10.6 (amidine). pK_a 10.6.

▶ NM7521650

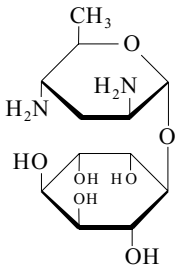
Hydrochloride: Kasumin. NSC 100858
[19408-46-9]
[39080-40-5]
Plates. Sol. H_2O; poorly sol. MeOH, hexane. Mp 206-210° dec. $[\alpha]_D$ +125 (c, 1.6 in H_2O).

▶ LD_{50} (mus, orl) 20.5 mg/kg; LD_{50} (mus, ivn) 800 mg/kg , LD_{50} (mus, scu) 2000 mg/kg , LD_{50} (mus, ipr) 2000 mg/kg. NM7521800

Umezawa, H. *et al., J. Antibiot., Ser. A*, 1965, **18**, 101 (*isol*)
Ikekawa, T. *et al., J. Antibiot., Ser. A*, 1966, **19**, 49 (*cryst struct, abs config*)
Suhara, Y. *et al., Tet. Lett.*, 1966, 1239 (*struct, ir, nmr*)
Fukagawa, Y. *et al., J. Antibiot.*, 1968, **21**, 50 (*biosynth*)
Suhara, Y. *et al., J.A.C.S.*, 1968, **90**, 6559; 1972, **94**, 6501 (*synth, nmr, ir*)
Nii, Y. *et al., Tet. Lett.*, 1979, 2517
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 12876
Sato, K. *et al., CA*, 1983, **99**, 83581 (*rev*)
Pesticide Manual, 9th edn., 1991, No. 7610
Agrochemicals Handbook, 3rd edn., Royal Society of Chemistry, 1992, A501
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, KCK000

Kasuganobiosamine, 8CI K-7

3-O-(2,4-Diamino-2,3,4,6-tetradeoxy-α-D-arabino-hexopyranosyl)-D-chiro-inositol, 9CI
[6189-93-1]



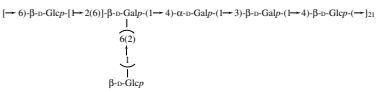
$C_{12}H_{24}N_2O_7$ 308.331

Degradn. prod. of Kasugamycin, K-6.

Hydrochloride (1:2): Mp 225-230° dec. $[\alpha]_D^{15}$ +103 (c, 1.8 in H_2O).

Suhara, Y. *et al., J. Antibiot., Ser. A*, 1965, **18**, 187 (*isol*)
Nakajima, M. *et al., Tet. Lett.*, 1968, 2271 (*synth*)
Suhara, Y. *et al., J.A.C.S.*, 1972, **94**, 6501 (*synth*)

Kefiran K-8



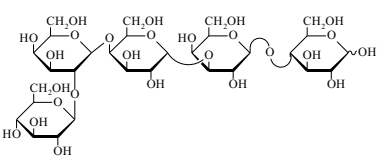
Exopolysaccharide composed of hexasaccharide repeating units. Prod. by *Lactobacillus kefiranofaciens* and *Lactobacillus delbrueckii* ssp. *bulgaricus* both isol. from kefir grains. Sol. H_2O. $[\alpha]_D$ +68 (c, 1.0 in H_2O).

Poly(O-Me):
Syrup. $[\alpha]_D$ +18 ($CHCl_3$).

Kooiman, P. *et al., Carbohydr. Res.*, 1968, **7**, 200-211
Micheli, L. *et al., Appl. Microbiol. Biotechnol.*, 1999, **53**, 69-74 (*isol, cd, struct*)
Frengova, G.I. *et al., Z. Naturforsch., C*, 2002, **57**, 805-810 (*isol*)
Maeda, H. *et al., J. Agric. Food Chem.*, 2004, **52**, 5533-5538 (*pmr, cmr, struct*)

Kefirose K-9

β-D-Glucopyranosyl-(1→2)-β-D-galactopyranosyl-(1→4)-α-D-galactopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-D-glucose, 9CI
[20108-50-3]



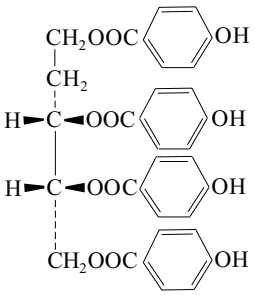
$C_{30}H_{52}O_{26}$ 828.725

Enzymic degradation prod. of Kefiran, K-8. Syrup. $[\alpha]_D$ +90 (H_2O).

Kooiman, P. *et al., Carbohydr. Res.*, 1968, **7**, 200

Kelletinin II K-10

2-Deoxy-D-ribitol tetrakis(4-hydroxybenzoate)
[87698-01-9]

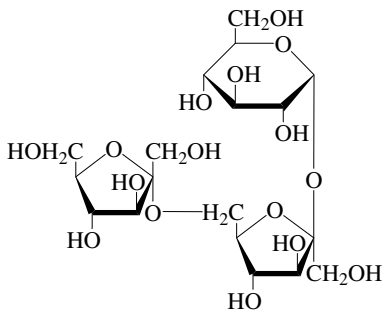


$C_{33}H_{28}O_{12}$ 616.577
Metab. of the marine mollusc, *Kelletia kelletii*. Antibacterial, cytotoxic. Sol. MeOH, bases, Et_2O; poorly sol. H_2O. λ_{max} 258 (ϵ 63100) (EtOH/HCl) (Derep). λ_{max} 301 (ϵ 100000) (EtOH/NaOH) (Derep). λ_{max} 258 (ϵ 50100) (EtOH) (Derep). λ_{max} 259 (ϵ 24700) (EtOH) (Berdy). λ_{max} 257 (ϵ 33900) (HCl) (Berdy). λ_{max} 302 (ϵ 45600) (NaOH) (Berdy).

Tymiak, A.A. *et al., J.A.C.S.*, 1983, **105**, 7396 (*isol, ms, pmr, cmr*)

Kelose K-11

O-α-D-*Fructofuranosyl-(2→6)-β-D-fructofuranosyl-α-D-glucopyranoside, 9CI*
[138809-76-4]

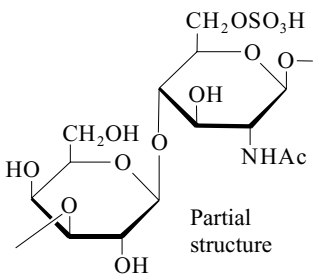


$C_{18}H_{32}O_{16}$ 504.441
Constit. of commercial beet syrup, *Beta vulgaris*.

Swallow, K.W. *et al., J. Agric. Food Chem.*, 1993, **41**, 1587-1592 (*isol, cmr, struct*)

Keratan sulfate K-12

Keratosulfate, 9CI, 8CI
[9056-36-4]

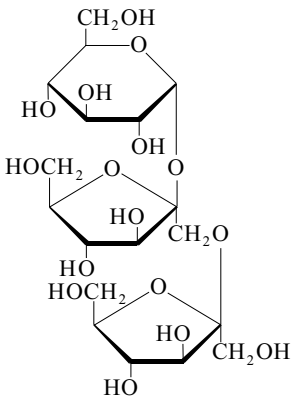


A proteoglycan, the polysaccharide of which is mainly composed of a repeating unit of -β-D-galactosyl-(1→4)-2-acetamido-2-deoxy-β-D-glucopyranosyl 6-sulfate-(1→3)-, with occasionally some L-fucose, D-mannose and other sugars present. The linkage to protein is either through the N of L-asparagine or the O of L-serine or L-threonine. MW 5000-20000. Present in aorta, cornea, cartilage and nucleus pulposus.
$[\alpha]_D$ +4.5 (H_2O).

Jeanloz, R.W. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1970, **2B**, 617
CRC Handb. Biochem. Mol. Biol., Lipids, Carbohydrates, Steroids, 3rd Ed., 1975, 357
Sharon, N. *et al., Complex Carbohydrates*, Addison-Wesley, Mass., 1975,
Lindahl, U. *et al., Annu. Rev. Biochem.*, 1978, **47**, 385
Kennedy, J.F. *et al., Proteoglycans-Biological and Chemical Aspects in Human Life*, Elsevier, 1979,
Peña, M. *et al., Carbohydr. Res.*, 1998, **309**, 117-124 (*pmr, cmr, struct*)
Yeung, B.K.S. *et al., J. Carbohydr. Chem.*, 2002, **21**, 799-865 (*rev, synth*)

1-Kestose K-13

O-β-D-*Fructofuranosyl-(2→1)-β-D-fructofuranosyl α-D-glucopyranoside, 9CI, 8CI.* O-α-D-*Glucopyranosyl-(1→2)*-O-β-D-*fructofuranosyl-(1→2)-β-D-fructofuranoside. Isokestose. 1-Fructosylsucrose. Inulobiosylsucrose. 1-Kestotriose*
[470-69-9]



$C_{18}H_{32}O_{16}$ 504.441
A fructan. See Fructans, F-43. Formed by the action of various enzymes on sucrose. Also obt. from some monocotyledons and from moulds, e.g. *Aspergillus*. Isol from the roots of asparagus. Appears to play an essential role in the metabolism of D-fructose polymers in the tubers of the Jerusalem artichoke.
Mp 82-88° Mp 200-201° (double Mp).
$[\alpha]_D^{20}$ +28.5 (c, 1.8 in H_2O).

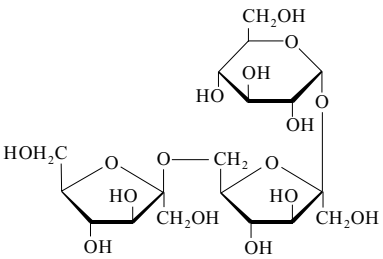
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Syrup. $[\alpha]_D^{20}$ +31.8 (c, 3.7 in $CHCl_3$).

Undeca-Me:
$C_{29}H_{54}O_{16}$ 658.736
$[\alpha]_D^{20}$ +27.9 (c, 2.5 in H_2O).

Bacon, J.S.D. *et al., J.C.S.*, 1953, 2528 (*isol*)
Barker, S.A. *et al., J.C.S.*, 1954, 2125
Bacon, J.S.D. *et al., Biochem. J.*, 1959, **73**, 507 (*isol*)
Gross, D. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 360 (*enzymic synth*)
Pazur, J.H. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 365 (*enzymic synth*)
Edelman, J. *et al., Biochem. J.*, 1966, **98**, 787
Binkley, W.W. *et al., Carbohydr. Res.*, 1969, **10**, 245; 1971, **17**, 127 (*pmr, ms*)
Jeffrey, G.A. *et al., Acta Cryst. B*, 1972, **28**, 257 (*cryst struct*)
Jarrell, H.C. *et al., Carbohydr. Res.*, 1979, **76**, 45 (*cmr*)
Calub, T.M. *et al., Carbohydr. Res.*, 1990, **199**, 11 (*pmr, cmr*)
Waterhouse, A.L. *et al., Carbohydr. Res.*, 1991, **217**, 29 (*pmr, cmr, conformn*)
Takeda, H. *et al., J. Ferment. Bioeng.*, 1994, **77**, 386-389 (*enzymic synth*)
Fukuchi, E. *et al., Magn. Reson. Chem.*, 2000, **38**, 1005-1011 (*isol, pmr, cmr*)

6-Kestose K-14

O-β-D-*Fructofuranosyl-(2→6)-β-D-fructofuranosyl α-D-glucopyranoside, 9CI, 8CI. Kestose. 6-Kestotriose*
[562-68-5]



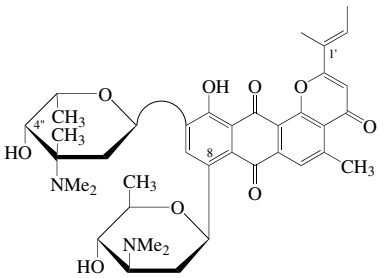
$C_{18}H_{32}O_{16}$ 504.441
A fructan. See Fructans, F-43. Produced by the action of yeast invertase on a conc. sucrose soln. Constit. of the grasses *Lolium multiflorum* and *Arrhenatherum elatius*. Widely distributed in cereals and other grasses. Also isol. from onion (*Allium cepa*). Component of Neosugar which is a mixt. with Nystose, N-87 and its 1-fructosyl deriv. used as a dietary constit. for improvement of intestinal flora.
Mp 145°. $[\alpha]_D^{20}$ +27.3 (c, 2.19 in H_2O).

Undeca-Me: $[\alpha]_D^{18}$ +25.8 (c, 4.2 in H_2O).

Albon, N. *et al., J.C.S.*, 1953, 24 (*synth, isol*)
Gross, D. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 360 (*enzymic synth*)
Hammer, H. *et al., Acta Chem. Scand.*, 1968, **22**, 197 (*occur*)
Jeffrey, G.A. *et al., Acta Cryst. B*, 1972, **28**, 257 (*cryst struct*)
Ferretti, V. *et al., Acta Cryst. C*, 1984, **40**, 531 (*cryst struct*)
Liu, J. *et al., Carbohydr. Res.*, 1991, **217**, 43 (*pmr, cmr*)
Buddington, R.K. *et al., Am. J. Clin. Nutr.*, 1996, **63**, 709-719 (*pharmacol, neosugar*)

Kidamycin K-15

Rubiflavin B
[11072-82-5]



$C_{39}H_{48}N_2O_9$ 688.816

Anthracycline-type antibiotic. Isol. from *Streptomyces phaeoverticillatus* var. *takatsukiensis*. Antitumour agent. Orange-red cryst. (MeOH). Sol. MeOH, C_6H_6, acids, Py; poorly sol. H_2O, hexane.
Mp 214-217° dec. $[\alpha]_D^{20}$ +476 (c, 0.986 in $CHCl_3$). Related to Hedamycin, H-2 and Pluramycin A. λ_{max} 258 (ϵ 43500); 323 (ϵ 14200); 543 (ϵ 9500) (EtOH/NaOH) (Derep). λ_{max} 244 (ϵ 46600); 271 (ϵ 32700); 343 (ϵ 6400); 427 (ϵ 9100) (EtOH) (Derep). λ_{max} 244 (E1%/1cm 807); 270; 434 (E1%/1cm 210) (MeOH) (Berdy).

▶ LD_{50} (mus, ivn) 12.5 mg/kg , LD_{50} (mus, ipr) 20 mg/kg. CB4584600

Tri-Ac: Mp 214-216°. $[\alpha]_D^{25}$ +256.2 (c, 1.1 in $CHCl_3$).

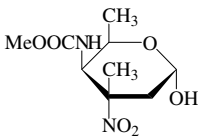
*1′,S,2′*S-*Epoxide:* ***Epoxykidamycin***. *Largomycin FII component 4*
[99237-11-3]
$C_{39}H_{48}N_2O_{10}$ 704.816
Prod. by *Streptomyces pluricolorescens*. Active against gram-positive bacteria and fungi. Sol. MeOH, EtOAc, $CHCl_3$; poorly sol. H_2O, hexane. λ_{max} 245 (ϵ 33900); 268 (sh) (ϵ 20600); 288 (sh) (ϵ 10800); 428 (ϵ 6120) (EtOH/HCl) (Derep). λ_{max} 257 (ϵ 33800); 283 (sh) (ϵ 12100); 335 (ϵ 7390); 555 (ϵ 5140) (EtOH/NaOH) (Derep). λ_{max} 246 (ϵ 33400); 268 (sh) (ϵ 2200); 288 (sh) (ϵ 10800); 434 (ϵ 5770) (EtOH) (Derep). λ_{max} 246 (E1%/1cm 474); 434 (E1%/1cm 82) (EtOH) (Berdy).

8-Deglycosyl, 4″-Ac: ***Saptomycin G***. *8*-C-*Deglycosylrubiflavin F*
[138370-81-7]
$C_{33}H_{35}NO_8$ 573.641
Prod. by *Streptomyces* sp. HP530. Antitumour agent. Yellow powder. Sol. MeOH, acids, $CHCl_3$, C_6H_6; fairly sol. EtOAc, Me_2CO; poorly sol. H_2O, hexane. $[\alpha]_D^{20}$ +118 (c, 0.1 in $CHCl_3$). λ_{max} 243 (ϵ 73200); 267 (sh) (ϵ 44200); 421 (ϵ 15300) (MeOH/HCl) (Derep). λ_{max} 255 (ϵ 65400); 285 (sh) (ϵ 21800); 337 (ϵ 15700); 544 (ϵ 10300) (MeOH/NaOH) (Derep). λ_{max} 243 (ϵ 65400); 267 (sh) (ϵ 39500); 422 (ϵ 13300) (MeOH) (Derep). λ_{max} 250; 278; 410 (MeOH) (Berdy).

Kanda, N. *et al., J. Antibiot.*, 1971, **24**, 599 (*isol*)
Furukawa, M. *et al., Tetrahedron*, 1975, **31**, 2989 (*struct, uv, ir, nmr, cryst struct*)
Séquin, U. *et al., Tetrahedron*, 1978, **34**, 761; 3623 (*struct, pmr, ir, uv, cmr*)
Takeshima, H. *et al., Antibiotics (N.Y.)*, 1979, **5**, 120 (*rev*)
Nadig, H. *et al., Helv. Chim. Acta*, 1985, **68**, 953 (*isol*)
Byrne, K.M. *et al., J. Antibiot.*, 1985, **38**, 1040 (*Epoxykidamycin*)
Abe, N. *et al., J. Antibiot.*, 1993, **46**, 1530; 1536 (*Saptomycin G, isol, pmr, cmr, uv, ms*)

Kijanose K-16

2,3,4,6-Tetradeoxy-4-(methoxycarbonylamino)-3-C-*methyl-3-nitro*-xylo-*hexopyranose. Tetronitrose*



α-D-Pyranose-*form*

$C_9H_{16}N_2O_6$ 248.235

D-*form* [79005-87-1]
Component of Kijanimicin, Tetrocarcin A and Tetrocarcin B.

α-D-Pyranose-*form*
Me glycoside: Methyl 2,3,4,6-tetradeoxy-4-(methoxycarbonylamino)-3-C-*methyl-3-nitro-α-D*-xylo-*hexopyranoside*
[78798-14-8]
$C_{10}H_{18}N_2O_6$ 262.262
$[\alpha]_D$ +152 ($CHCl_3$). $[\alpha]_D$ +130 (c, 0.3 in MeOH).

β-D-Pyranose-*form*
Me glycoside: Methyl 2,3,4,6-tetradeoxy-4-(methoxycarbonylamino)-3-C-*methyl-3-nitro-β-D*-xylo-*hexopyranoside*
$C_{10}H_{18}N_2O_6$ 262.262
Mp 180.5-181.5°. $[\alpha]_D$ +34.1 (MeOH).
[78798-15-9]

Tamaoki, T. *et al., J. Antibiot.*, 1980, **33**, 668; 946
Mallams, A.K. *et al., J.A.C.S.*, 1981, **103**, 3938 (*pmr, cmr, ms, Me glycosides*)
Funaki, F. *et al., Tet. Lett.*, 1982, 3069 (*α-D-Me pyr*)
Hirayama, N. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 2112 (*α-Me Pyr, β-Me Pyr, cryst struct*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1983, **123**, C19 (*partial synth*)
Mallams, A.K. *et al., J.C.S. Perkin 1*, 1983, 1497 (*occur*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1986, **155**, 236 (*synth*)
Giuliano, R.M. *et al., J. Carbohydr. Chem.*, 1987, **6**, 295-299 (*Me gly, synth*)

Kojihexaose K-17

β-D-Glc*p*(1→2)-[β-D-Glc*p*(1→2)]$_4$-β-D-Glc*p*

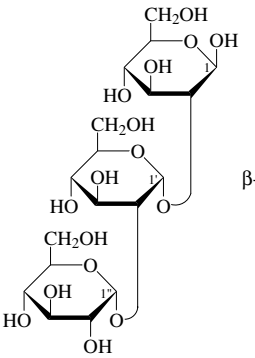
$C_{36}H_{62}O_{31}$ 990.867

Higher homologue of Kojitriose, K-18. Prob. struct. Isol. from *Rhizobium japonicum* strain 561. Sol. H_2O. $[\alpha]_D$ +166.3 (c, 1.6 in H_2O).

Watanabe, T. *et al., Carbohydr. Res.*, 1982, **110**, 170

Kojitriose K-18

O-*α-D-Glucopyranosyl-(1→2)*-O-*α-D-glucopyranosyl-(1→2)-D-glucose, 9CI*
[74738-47-9]



β-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Component of the membrane teichoic acid isol. from *Streptococcus faecalis* strain 8191.
Mp 228-230° dec. $[\alpha]_D^{25}$ +150 → +156 (c, 1.7 in H_2O).

β-Pyranose-*form*
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 187-188°. $[\alpha]_D^{25}$ +123 (c, 2.2 in $CHCl_3$).

Wicken, A.J. *et al., Biochem. J.*, 1963, **87**, 54 (*isol*)
Takeo, K. *et al., Carbohydr. Res.*, 1981, **88**, 158 (*synth*)
Watanabe, T. *et al., Carbohydr. Res.*, 1982, **110**, 170 (*isol*)
Takeo, K. *et al., Carbohydr. Res.*, 1987, **162**, 95 (*synth*)
Bols, M. *et al., Acta Chem. Scand.*, 1996, **50**, 931-937 (*synth*)

Krestin K-19

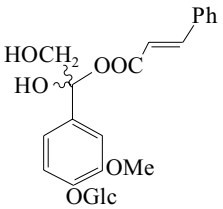
Polysaccharide K. Polysaccharide Kureha. PSK
[66455-27-4]

Protein-bound β-glucan. Isol. from the mushroom *Coriolus versicolor* CM-101. Antineoplastic agent.

Uetsuka, A. *et al., Adv. Exp. Med. Biol., Sect. B*, 1979, **121**, 21-31 (*pharmacol*)
Fisher, M. *et al., Anticancer Res.*, 2002, **22**, 1737-1754 (*rev*)
Yamaguchi, Y. *et al., Anticancer Res.*, 2004, **24**, 639-647 (*pharmacol*)
Ohwada, S. *et al., Br. J. Cancer*, 2004, **90**, 1003-1010 (*clin trial*)

Kujimycin A K-20

4^A-O-Deacetylankamycin
[33955-27-0]



$C_{40}H_{70}O_{15}$ 790.984

Macrolide antibiotic. From *Streptomyces spinichromogenes* var. *kujmyceticus*. Protein synth. inhibitor. Powder (Et_2O/petrol). Sol. MeOH, Et_2O; poorly sol. H_2O, hexane.
Mp 114-115°. $[\alpha]_D^{20}$ -83 (c, 1 in MeOH). λ_{max} 289 (E1%/1cm 3.5) (MeOH) (Berdy).

▶ LD_{50} (mus, ivn) 400 mg/kg. OE3047000

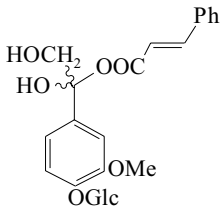
15-Ac: ***Kujimycin C***
[33956-60-4]
$C_{42}H_{72}O_{16}$ 833.021

More active antibiotic than Kujimycin A.

Omura, S. *et al., J. Antibiot., Ser. A*, 1969, **22**, 500
Omura, S. *et al., J. Antibiot.*, 1971, **24**, 717
Sawada, J. *et al., J. Antibiot.*, 1974, **27**, 639

Kutkin K-21

4-[1,2-Dihydroxy-1-[(1-oxo-3-phenyl-2-propenyl)oxy]ethyl]-2-methoxyphenyl β-D-glucopyranoside, 9CI. 2-Methoxy-4-(1,1,2-trihydroxyethyl)phenyl β-D-glucopyranoside 1-cinnamate, 8CI
[25356-80-3]



$C_{24}H_{28}O_{11}$ 492.479
Constit. of roots of *Picrorhiza kurrooa*.
Mp 211°. $[\alpha]_D^{41}$ -165.

Basu, K. *et al., Experientia*, 1970, **26**, 818 (*isol, ir, pmr, ms*)
Basu, K. *et al., J.O.C.*, 1970, **35**, 3159 (*isol*)

Labiose L-1

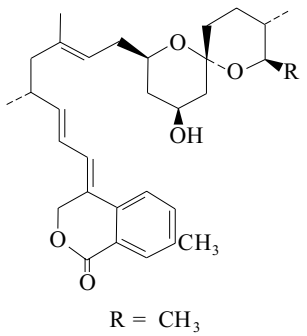
$C_{18}H_{32}O_{16}$ 504.441

Prob. a trisaccharide. Struct. unknown. Isol. from root nodules of *Eremostachys labiosa*. Small prisms (EtOH aq.). Mp 126-128°. $[\alpha]_D^{20}$ +136.7 (H_2O).

Strepkov, S.M. *et al., Ber.*, 1937, **70**, 1166
Strepkow, S.M. *et al., Chem. Zentralbl.*, 1940, 1840

Lacrimin A L-2

[87292-17-9]



R = CH_3

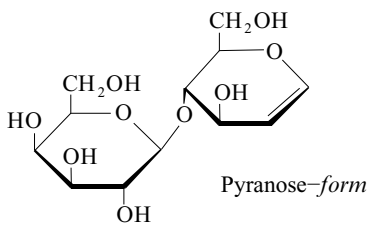
$C_{31}H_{42}O_5$ 494.67

Semisynthetic. Antihypotensive agent. $[\alpha]_D^{22}$ -49 (c, 0.26 in $CHCl_3$). Log P 6.19 (calc).

Japan. Pat., 1983, 83 69 886, (*Sankyo*); *CA*, **99**, 156820x (*synth*)
Takle, A. *et al., Tetrahedron*, 1990, **46**, 4503 (*synth*)

Lactal L-3

*4-O-β-D-Galactopyranosyl-1,2-dideoxy-D-*arabino*-1-hexenose. 1,5-Anhydro-2-deoxy-4-O-β-D-galactopyranosyl-D-*arabino*-hex-1-enitol*
[65207-55-8]



$C_{12}H_{20}O_9$ 308.285

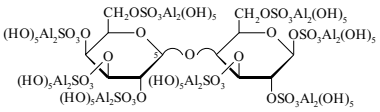
Cryst. Mp 191-192°. $[\alpha]_D^{23}$ +27.5 (c, 1.6 in H_2O).

Hexa-Ac: [51450-24-9]
$C_{24}H_{32}O_{15}$ 560.508
Mp 114°. $[\alpha]_D^{20}$ -18 (c, 0.8 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1930, 2644 (*synth, hexa-Ac*)
Haskins, W.T. *et al., J.A.C.S.*, 1942, **64**, 1852 (*hexa-Ac*)
Helferich, B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 209 (*rev*)
Rivera-Sagredo, A. *et al., J. Carbohydr. Chem.*, 1992, **11**, 903-919 (*pmr, conformn*)
Shull, B.K. *et al., J. Carbohydr. Chem.*, 1996, **15**, 955 (*hexa-Ac, !synth, pmr, cmr*)

Lactalfate, INN L-4

Lactose octakis(hydrogen sulfate) basic aluminium salt
[96427-12-2]



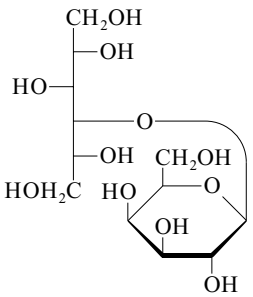
$C_{12}H_{54}Al_{16}O_{75}S_8$ 2086.746

Antiulcer agent.

Spanish Pat., 1985, 532 088; *CA*, **106**, 5370n (*synth*)

Lactitol, BAN, INN L-5

4-O-β-D-Galactopyranosyl-D-glucitol, 9CI. Emportal. Floralac. Importal. Oponaf. Portolac. E966
[585-86-4]
[81025-04-9]



$C_{12}H_{24}O_{11}$ 344.315

Artificial sweetener used in foods. Monohydrate used in the management of hepatic encephalopathy. Bulking agent for cosmetics and pharmaceuticals. Laxative. Cryst. + 1, 2 or $3H_2O$. Mp 95-98° (monohydrate). Log P -6.86 (calc). A food additive petition for GRAS status has been filed with the FDA.

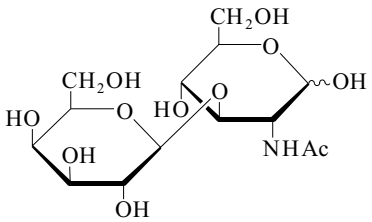
▶ LD_{50} (rat, orl) 27500 mg/kg. LZ4392000

[81025-03-8]

Hoagland, P.D. *et al., Carbohydr. Res.*, 1979, **74**, 135 (*cmr*)
Van Velthuijsen, J.A. *et al., J. Agric. Food Chem.*, 1979, **27**, 680 (*rev, synth, props, use*)
Kanters, J.A. *et al., Acta Cryst. C*, 1990, **46**, 2408 (*cryst struct*)
Van Velthuijsen, J.A. *et al., Food Sci. Technol.*, 1991, **48**, 283 (*rev*)
Kivikoski, J. *et al., Carbohydr. Res.*, 1992, **223**, 45; 53; 189 (*cryst struct*)
Sinkledam, E.J. *et al., J. Am. Coll. Toxicol.*, 1992, **11**, 165; 189; 209; 219; 233; 249 (*tox*)
Christiansen-Brams, I. *et al., J. Carbohydr. Chem.*, 1992, **11**, 813 (*synth, pmr, cmr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1043
Peruche, B. *et al., Pharm. Ztg.*, 1993, **138**, 40 (*rev*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1533-1534 (*props*)

Lacto-*N*-biose I L-6

2-Acetamido-2-deoxy-3-O-β-D-galactopyranosyl-D-glucose. β-D-Galactopyranosyl-(1→3)-2-acetamido-2-deoxy-D-glucose
[50787-09-2]



$C_{14}H_{25}NO_{11}$ 383.352

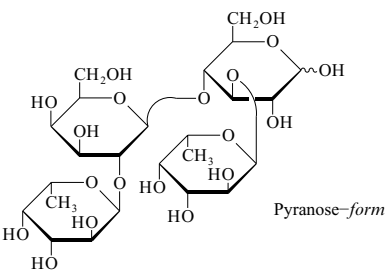
Found in combined form in human milk and in blood group A substance. Mp 197°. $[\alpha]_D^{25}$ +22 → +7 (c, 1.0 in H_2O).

2,2,2-Trichloroethyl glycoside:
Cryst. (EtOH/EtOAc). Mp 187-188°. $[\alpha]_D^{25}$ -29.3 (c, 1 in H_2O).

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 1553 (*struct*)
Cheese, I.A.F.L. *et al., Nature (London)*, 1961, **191**, 149 (*isol*)
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4063 (*trichloroethyl gly, pmr, cmr*)
Jain, R.K. *et al., Carbohydr. Res.*, 1993, **241**, 165-176 (*synth*)
Vetere, A. *et al., Eur. J. Biochem.*, 2000, **267**, 942-949 (*synth*)

Lactodifucotetraose L-7

α-L-Fucopyranosyl-(1→2)-β-D-galactopyranosyl-(1→4)-[α-L-fucopyranosyl-(1→3)]-D-glucose
[20768-11-0]



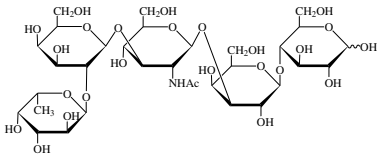
$C_{24}H_{42}O_{19}$ 634.584

Isol. from human milk. Principal neutral carbohydrate of platypus milk. Found in some human urines. Amorph. powder. $[\alpha]_D^{26}$ -106 (-103.2) (c, 1 in H_2O).

Montreuil, J. *et al., C. R. Hebd. Seances Acad. Sci.*, 1956, **242**, 192 (*isol*)
Kuhn, R. *et al., Annalen*, 1958, **611**, 249 (*isol*)
Jenkins, G.A. *et al., Carbohydr. Res.*, 1984, **30**, 488 (*cmr*)
Takeo, K. *et al., Carbohydr. Res.*, 1985, **141**, 159 (*synth, cmr, bibl*)
Thurl, S. *et al., J. Chromatogr.*, 1991, **568**, 291-300 (*anal*)
Thurl, S. *et al., Anal. Biochem.*, 1996, **235**, 202-206 (*anal*)

Lacto-*N*-fucopentaose I L-8

6-Deoxy-α-L-galactopyranosyl-(1→2)-β-D-galactopyranosyl-(1→3)-2-acetamido-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-D-glucose
[7578-25-8]

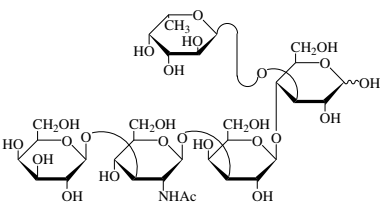


$C_{32}H_{55}NO_{25}$ 853.778
Isol. from human milk. Cryst (MeOH/1-butanol/1-hexanol).
Mp 216°. $[\alpha]_D^{23}$ -11 → -16.3 (4h) (c, 2 in H_2O).

Kuhn, R. *et al., Chem. Ber.*, 1956, **89**, 2514-2523 (*isol, struct*)
Kabat, E.A. *et al., Biochemistry*, 1969, **8**, 747-756 (*ord, cd*)
Bush, C.A. *et al., Anal. Biochem.*, 1985, **145**, 124-136 (*cmr*)
Hounsell, E.F. *et al., Carbohydr. Res.*, 1988, **178**, 67-78 (*pmr*)

Lacto-*N*-fucopentaose V L-9

[60254-64-0]

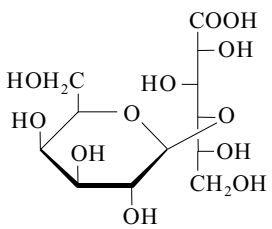


$C_{32}H_{55}NO_{25}$ 853.778
Isol. from human milk.

Ginsburg, V. *et al., Arch. Biochem. Biophys.*, 1976, **175**, 565-568

Lactonic acid L-10

4-O-β-Galactopyranosylgluconic acid, 9CI. Lactobionic acid, 8CI



$C_{12}H_{22}O_{12}$ 358.299

D-*form* [96-82-2]
Formed by the action of paracolon bacteria and *Pseudomonas graveolens* (ATCC 4683) on lactose.

Ca salt: Calcium lactobionate
[5001-51-4] Firming agent in foods. Pentahydrate. $[\alpha]_D^{20}$ +23.7 (c, 6.28 in H_2O).

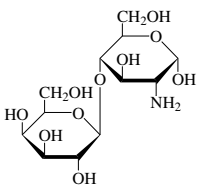
1,5-Lactone: Lactono-1,5-lactone
$C_{12}H_{20}O_{11}$ 340.283
Mp 195-196° dec. $[\alpha]_D^{20}$ +54 → +22 (c, 5.0 in H_2O).

Octa-Me, Me ester: Methyl octa-O-methyl-D-lactonate
$C_{21}H_{40}O_{12}$ 484.54
$Bp_{0.05}$ 157-164°.

Aldrich Library of NMR Spectra, 2nd edn., 1983, **1**, 460B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 525D (*ir*)
Haworth, W.N. *et al., J.C.S.*, 1927, 544 (*Me octa-Me*)
Isbell, H.S. *et al., Bur. Standards J. Research*, 1933, **11**, 713 (*Ca salt, lactone, synth*)
Nishizuka, Y. *et al., J. Biol. Chem.*, 1960, **235**, PC13 (*enzymic synth*)
Cook, W.J. *et al., Acta Cryst. B*, 1973, **29**, 215 (*cryst struct*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 395-396

Lactosamine L-11

2-Amino-2-deoxy-4-O-(β-D-galactopyranosyl)-D-glucose, 9CI. β-D-Galactopyranosyl-(1→4)-2-amino-2-deoxy-D-glucose. 4-O-β-D-Galactosyl-D-glucosamine
[13000-25-4]



α-Pyranose-*form*

$C_{12}H_{23}NO_{10}$ 341.314
Isol. from porcine gastric mucin, human milk, glycoproteins with human blood group A activity, goat colostrum and from fetuin. Growth factor for *Lactobacillus bifidus*. $[\alpha]_D^{21.5}$ +78.2 (3 min) → +63.1 (3h) (c, 1.25 in H_2O).

N-*Ac:* N-*Acetyllactosamine*
[32181-59-2]
[77304-67-7]
$C_{14}H_{25}NO_{11}$ 383.352
Repeating unit in mucopolysaccharides isol. from partial acid hydrolysates or acetolysates of human-blood group A substance and other sources. Structural unit in higher oligosaccharides present in human milk. Hydrolysis prod. of human plasma glycoprotein and of fetuin, a glycoprotein from calf foetal plasma.
Cryst. (2-propanol/MeOH).
Mp 170-171° (168-170°). $[\alpha]_D^{20}$ +50 → +28.5 (c, 0.6 in 90% MeOH aq.). $[\alpha]_D^{19}$ +48.3 (3 min) → +27.4 (equilib.) (c, 0.5 in H_2O).

α-Pyranose-*form*

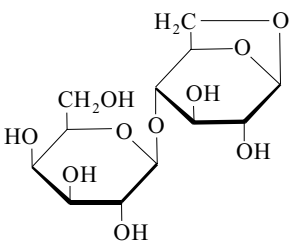
Octa-Ac: [36954-63-9]
$C_{28}H_{39}NO_{18}$ 677.612
Mp 224-225°. $[\alpha]_D$ +61.5 (+57.7) ($CHCl_3$).

[4307-58-8, 36954-63-9]

Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 1547-1552; 1961, **94**, 842; 1259-1263 (*synth*)
Kuhn, R. *et al., Annalen*, 1956, **600**, 135-143 (*N-Ac, synth*)
Cote, R.H. *et al., Nature (London)*, 1956, **178**, 1171-1172 (*N-Ac, isol*)
Okuyama, T. *et al., CA*, 1961, **55**, 18817 (*N-Ac, isol, synth*)
Spiro, R.G. *et al., J. Biol. Chem.*, 1962, **237**, 646-652 (*N-Ac, isol*)
Johnson, G. *et al., Carbohydr. Res.*, 1975, **39**, 271-281 (*N-Ac, synth*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1976, **46**, 138-142 (*N-Ac, synth, hepta-Ac*)
Lee, R.T. *et al., Carbohydr. Res.*, 1979, **77**, 270-274 (*N-Ac, synth*)
Takamura, T. *et al., Chem. Pharm. Bull.*, 1979, **27**, 721-725 (*N-Ac, synth*)
Longchambon, F. *et al., Acta Cryst. B*, 1981, **37**, 601-607 (*N-Ac, cryst struct*)
Alais, J. *et al., Carbohydr. Res.*, 1981, **93**, 164-165 (*N-Ac, !synth*)
Wong, C.-H. *et al., J.O.C.*, 1982, **41**, 5416-5418 (*N-Ac, synth*)
Ajisaka, K. *et al., Carbohydr. Res.*, 1988, **180**, 35-42 (*synth*)
Goux, W.J. *et al., Carbohydr. Res.*, 1988, **184**, 47-65 (*cmr*)
Orlando, R. *et al., Anal. Chem.*, 1990, **62**, 2388-2390 (*ms*)
Lattová, E. *et al., Carbohydr. Res.*, 1992, **235**, 289-293 (*N-Ac, synth*)
Sakai, K. *et al., J. Carbohydr. Chem.*, 1992, **11**, 553-565 (*N-Ac, enzymic synth*)
Herrmann, G.F. *et al., Angew. Chem., Int. Ed.*, 1993, **32**, 1342-1343 (*N-Ac, synth*)
Wiemann, T. *et al., Carbohydr. Res.*, 1994, **257**, C1-C6 (*N-Ac, synth*)
Kaji, E. *et al., J. Carbohydr. Chem.*, 1995, **14**, 791-803 (***synth, N-Ac***)
Kretzchmar, G. *et al., Tetrahedron*, 1998, **54**, 6341-6358 (*N-Ac, synth*)
Endo, J. *et al., Carbohydr. Res.*, 1999, **316**, 179-183 (*N-Ac, biomanuf, pmr*)
Yoon, J.H. *et al., Carbohydr. Res.*, 2000, **327**, 377-383 (*N-Ac, enzymic synth*)
Hara, Y. *et al., Carbohydr. Res.*, 2001, **330**, 65-71 (*biosynth*)
Stütz, A.E. *et al., J. Carbohydr. Chem.*, 2003, **22**, 253-265 (***synth, N-Ac***)

Lactosan L-12

1,6-Anhydro-4-O-β-D-galactopyranosyl-β-D-glucopyranose, 9CI
[34395-01-2]



$C_{12}H_{20}O_{10}$ 324.284
Mp 128-130°. $[\alpha]_D^{20}$ -50.6 (H_2O).

Hexa-Ac:
$C_{24}H_{32}O_{16}$ 576.507
Mp 206-208°. $[\alpha]_D^{20}$ -40.8 ($CHCl_3$).

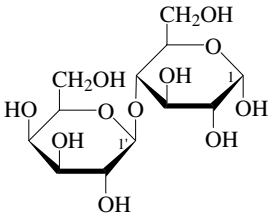
4,6-O-Benzylidene:
$C_{19}H_{24}O_{10}$ 412.393
Hygroscopic amorph. powder. $[\alpha]_D^{25}$ -64 (c, 1.1 in H_2O).

4,6-O-Benzylidene, tetrabenzoyl:
$C_{47}H_{40}O_{14}$ 828.825
Cryst. (EtOH/EtOAc). Mp 227-229°. $[\alpha]_D^{20}$ +110 (c, 0.5 in $CHCl_3$).

Montgomery, E.M. *et al., J.A.C.S.*, 1943, **65**, 1848 (*synth*)
Chiba, T. *et al., Carbohydr. Res.*, 1975, **45**, 11 (*benzylidene, benzylidene tetrabenzoyl*)

Lactose L-13

4-O-β-D-Galactopyranosyl-D-glucose, 9CI, 8CI. Milk sugar. Lactobiose. Tablettose. Lactin. Mother's disaccharide
[63-42-3]
[64044-51-5]



α-*form*

$C_{12}H_{22}O_{11}$ 342.299
Obt. industrially from whey. Occurs in mammalian milk (human 6-7%, cow 4-5%), fruits of *Achras sapota*, and a few other plants. V. inexpensive starting material for synthesis. Common excipient for tablets. Nutrient, sweetener, food blending agent.
Sweetness 0.68 × sucrose.

▶ Exp. teratogen. Gastrointestinal effects if intestinal lactase activity is diminished. Mixtures with strong oxidants are explosive. May cause allergy in sensitive patients. OD9625000

Phenylosazone: Lactosazone
[4746-17-2]
Mp 200-212°.

α-*form* [14641-93-1]
[5989-81-1] Mp 202° (monohydrate) Mp 252° (anhyd.). $[\alpha]_D$ +85 → +52.6 (monohydrate) (c, 8 in H_2O) (H_2O).

3′-Sulfate: [159358-51-7]
$C_{12}H_{22}O_{14}S$ 422.363
Isol. from milk of beagle dogs (*Canis familiaris*).

Octa-Ac: Octa-O-*acetyl-α-D-lactopyranose*
[34213-32-6]
$C_{28}H_{38}O_{19}$ 678.597
Mp 152°. $[\alpha]_D$ +53 (c, 10 in $CHCl_3$).

Me glycoside: Methyl α-D-lactopyranoside
[21973-65-9]
$C_{13}H_{24}O_{11}$ 356.326
Mp 189-190°. $[\alpha]_D^{25}$ +115.1 (c, 1.03 H_2O).

Ph glycoside: Phenyl α-D-lactopyranoside
[34361-46-1]
$C_{18}H_{26}O_{11}$ 418.397
Mp 139-141°. $[\alpha]_D^{19}$ +65 (c, 2.45 in $CHCl_3$).

1-Bromo, 1-deoxy, hepta-Ac: Acetobromolactose
[4753-07-5]
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 145° dec. $[\alpha]_D^{23}$ +108.7 ($CHCl_3$).

1-Chloro, 1-deoxy, hepta-Ac: Acetochlorolactose
[14227-58-8]
$C_{26}H_{35}ClO_{17}$ 655.005
Mp 120-121°. $[\alpha]_D^{20}$ +83.9 ($CHCl_3$).

β-*form* [5965-66-2]
Mp 252°. $[\alpha]_D$ +55.4 (c, 4 in H_2O).

1,2,2′,3,3′,4′,6′-Hepta-O-*Ac:* See 1,2,2′,3,3′,4′,6′-Hepta-*O*-acetyllactose, H-6

2,2′,3,3′,4′,6,6′-Hepta-O-*Ac:* See 2,2′,3,3′,4′,6,6′-Hepta-*O*-acetyllactose, H-7

Octa-Ac: Octa-O-*acetyl-β-D-lactopyranose*
[6291-42-5]
$C_{28}H_{38}O_{19}$ 678.597
Mp 90°. $[\alpha]_D$ -4.4 (c, 10 in $CHCl_3$).

6-O-Benzoyl: [41093-38-3]
$C_{19}H_{26}O_{12}$ 446.407
$[\alpha]_D^{20}$ +55.6 (c, 0.9 in MeOH).

Octabenzoyl: [41093-36-1]
$C_{68}H_{54}O_{19}$ 1175.163
Mp 140-142°. $[\alpha]_D^{20}$ +38.1 (c, 0.9 in $CHCl_3$).

Me glycoside: Methyl β-D-lactopyranoside
[7216-69-5]
$C_{13}H_{24}O_{11}$ 356.326
Mp 170-171°.

Me glycoside, hepta-Ac: [30021-61-5]
$C_{27}H_{38}O_{18}$ 650.586
Mp 76-77°. $[\alpha]_D$ -5.9 ($CHCl_3$).

Me glycoside, hepta-Me: [37093-70-2]
$C_{20}H_{38}O_{11}$ 454.514
Mp 82°. $[\alpha]_D$ +5.

Me glycoside, 4′,6′-benzylidene: [56865-31-7]
$C_{20}H_{28}O_{11}$ 444.435
Syrup.

Benzyl glycoside, 2,3,6-tribenzyl: [88593-71-9]
$C_{40}H_{46}O_{11}$ 702.797
$[\alpha]_D^{20}$ +17.4 (c, 3.4 in $CHCl_3$).

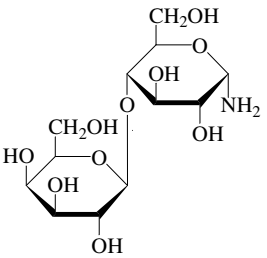
Me glycoside, 3′,4′-isopropylidene: [98169-70-1]
$C_{16}H_{28}O_{11}$ 396.391
Cryst. (MeOH). Mp 222-223°. $[\alpha]_D^{25}$ +19 (c, 1.2 in D_2O).

[10039-26-6]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 194D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 307A (*nmr*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*Acetobromolactose, rev*)
Venkataraman, R. *et al., Arch. Biochem. Biophys.*, 1958, **75**, 443 (*isol*)
Clamp, J.R. *et al., Adv. Carbohydr. Chem.*, 1961, **16**, 159 (*rev*)
Chumbalov, T.K. *et al., Khim. Prir. Soedin.*, 1966, **2**, 284; *Chem. Nat. Compd. (Engl. Transl.)*, 1966, **2**, 230 (*isol*)
Szabo, F. *et al., Acta Chim. Hung.*, 1970, **64**, 67 (*synth, Acetobromolactose*)
Pazur, J.H. *et al., The Carbohydrates*, Academic Press, 1970, **2A**, 69 (*rev*)
Roberts, J.D. *et al., J.A.C.S.*, 1971, **93**, 4463 (*cmr*)
Vazquez, I.M. *et al., Carbohydr. Res.*, 1973, **26**, 351 (*benzoyl derivs*)
Bhatt, R.S. *et al., Carbohydr. Res.*, 1975, **43**, 57 (*Me gly 4′,6′-benzylidene derivs*)
Hough, L. *et al., Pure Appl. Chem.*, 1977, **49**, 1069 (*rev*)
Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15 (*pmr*)
Pfeffer, P.E. *et al., J.A.C.S.*, 1979, **101**, 1265 (*cmr*)
Thelwall, L.A.W. *et al., Dev. Food Carbohydr.*, Applied Science Publ., 1980, **2**, 275 (*rev*)
Hayes, M.L. *et al., Carbohydr. Res.*, 1982, **100**, 87 (*cmr, β Me-gly*)
Takeo, K. *et al., Carbohydr. Res.*, 1983, **121**, 163 (*synth*)
Dahmén, J. *et al., Carbohydr. Res.*, 1985, **138**, 17 (*Me gly 3′,4′-isopropylidene*)
Kartha, K.P.R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 777-781 (*Acetobromolactose, !synth*)
Brittain, H.G. *et al., Anal. Profiles Drug Subst.*, 1991, **20**, 369 (*rev*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 252-261
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1370
Engelsen, S.B. *et al., J. Carbohydr. Chem.*, 1997, **16**, 773-788 (*struct*)
Bubb, W.A. *et al., Carbohydr. Res.*, 1999, **318**, 123-128 (*3′-sulfate*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LAR000

Lactosylamine L-14

4-O-β-D-Galactopyranosyl-D-glucopyranosylamine, 9CI. 1-Aminolactose
[52396-70-0]



α-*form*

$C_{12}H_{23}NO_{10}$ 341.314

α-*form* [145921-39-7]

N-*Ac:*
$C_{14}H_{25}NO_{11}$ 383.352
Prisms + $2H_2O$ (EtOH). Mp 162-163°. $[\alpha]_D^{24}$ +71.5 (c, 0.11 in H_2O).

N*,2,2′,3,3′,4′,6,6′-Octa-Ac:* [104325-35-1]
$C_{28}H_{39}NO_{18}$ 677.612
Rhombic cryst. Mp 181-183°. $[\alpha]_D^{27}$ +68.1 (c, 0.21 in $CHCl_3$).

β-*form* [91926-84-0]
Syrup + $1H_2O$. $[\alpha]_D^{20}$ +38.5 (H_2O).

N-*Ac:* [163749-71-1]
Cryst. + $2H_2O$. Mp 246-248° dec. $[\alpha]_D^{25}$ +1.5 (H_2O).

N*,2,2′,3,3′,4,6,6′-Octa-Ac:* [220880-52-4]
Cryst. + H_2O (H_2O/MeOH/Et_2O). Mp 142-146°. $[\alpha]_D^{25}$ +2.7 ($CHCl_3$). $[\alpha]_D^{25}$ +7.4 (MeOH).

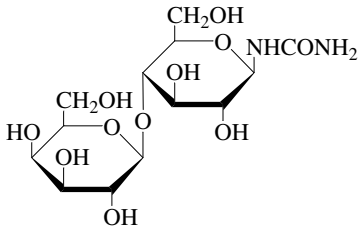
[6005-55-6]

Micheel, F. *et al., Chem. Ber.*, 1952, **85**, 1092 (*synth*)
Kuhn, R. *et al., Chem. Ber.*, 1954, **87**, 1544 (*synth, β-Ac*)
Cadenas, R.A. *et al., J.O.C.*, 1963, **28**, 1072 (*synth, α-Ac*)
Moczar, E. *et al., Carbohydr. Res.*, 1976, **50**, 133 (*cmr*)
Kallin, E. *et al., J. Carbohydr. Chem.*, 1989, **8**, 597-611 (*β-form, synth, pmr, cmr*)
Lubineau, A. *et al., Carbohydr. Res.*, 1995, **266**, 211-219 (***synth***)

Isac-Garcia, J. *et al., Eur. J. Org. Chem.*, 2001, 383-390 (*β-octa-Ac*)

Lactosylurea L-15

(4-O-β-D-Galactopyranosyl-β-D-glucopyranosyl)urea, 9CI. Lactose ureide
[76249-90-6]
[24162-28-5]

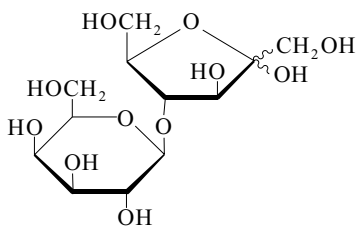


$C_{13}H_{24}N_2O_{11}$ 384.339
Animal feedstuff. Cryst. (H_2O). Mp 234-236° (230-240°) dec. $[\alpha]_D^{20}$ +2.4 (H_2O). $[\alpha]_D^{25}$ +1.5 (H_2O).

Schoorl, M.N. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1903, **22**, 31-78 (*synth*)
Segal, L. *et al., J.A.C.S.*, 1960, **82**, 2807-2811 (*ir*)
Cerbulis, J. *et al., Carbohydr. Res.*, 1978, **65**, 311-313 (*synth, pmr, cmr*)
U.S. Pat., 1978, 4 066 750; *CA*, **88**, 135073p (*synth*)
Merry, R.J. *et al., Br. J. Nutr.*, 1982, **48**, 275-286 (*synth, ms*)
Olmstead, M.M. *et al., Acta Cryst. C*, 1997, **C53**, 915-916 (*cryst struct*)
Morrison, D.J. *et al., Rapid Commun. Mass Spectrom.*, 2001, **15**, 1279-1282 (*synth, ms*)

Lactulose, BAN, INN, JAN, USAN L-16

4-O-β-D-Galactopyranosyl-D-fructose, 9CI. Bifiteral. Cephulac. Duphalac. Laevilac. Normose. Many other names
[4618-18-2]

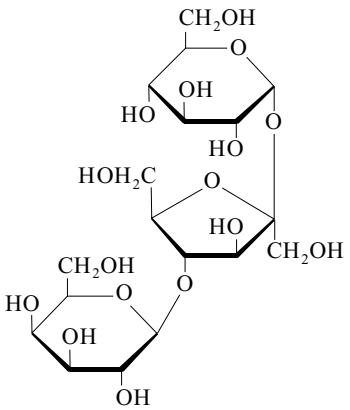


$C_{12}H_{22}O_{11}$ 342.299
An aq. soln. at 25° contains 61.5% β-pyr, 7.5% α-fur 29% β-fur, and 1.6% ketone. Used in the treatment of hepatic coma and chronic constipation. V. sol. H_2O (65.4% w/w, 30°). Mp 168-171°. $[\alpha]_D^{20}$ -51.4 (c, 4.0 in H_2O).
▶ LS6965000
Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Needles (EtOH). Mp 138°. $[\alpha]_D^{20}$ -6.6 ($CHCl_3$).

Montgomery, E.M. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 325 (*synth, octa-Ac*)
Carubelli, R. *et al., Carbohydr. Res.*, 1966, **2**, 480 (*synth*)
Gatzche, L. *et al., Ernaehrungsforschung*, 1967, **12**, 641
Kamerling, J.P. *et al., Biochem. Biophys. Res. Commun.*, 1969, **38**, 794 (*pmr*)
Adachi, S. *et al., Carbohydr. Res.*, 1969, **9**, 242 (*saccharate complex, isol*)
Canulli, N. *et al., Digestion*, 1972, **6**, 139 (*metab*)
Otten, N. *et al., Drug Intell. Clin. Pharm.*, 1977, **11**, 604 (*rev, pharmacol*)
Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15 (*pmr*)
Hicks, K.B. *et al., Carbohydr. Res.*, 1980, **82**, 393 (*synth*)
Pfeffer, P.E. *et al., Carbohydr. Res.*, 1982, **102**, 11 (*cmr*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Shukla, R. *et al., Carbohydr. Res.*, 1985, **143**, 97 (*synth*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 2586
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1992, **226**, 29 (*cmr, cryst struct*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 887

Lactulosucrose L-17

O-β-D-Galactopyranosyl-(1→4)-β-D-fructofuranosyl α-D-glucopyranoside

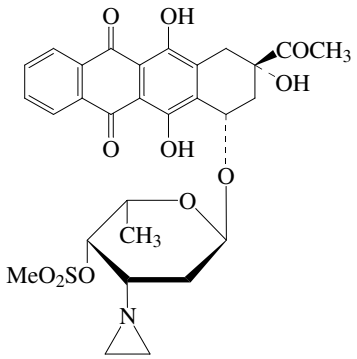


$C_{18}H_{32}O_{16}$ 504.441
Metab. of *Leuconostoc mesenteroides* strain *K*.
$[\alpha]_D^{24}$ +44.1 (c, 2.0 in H_2O).

Suzuki, H. *et al., Arch. Biochem. Biophys.*, 1964, **105**, 339 (*isol*)

Ladirubicin, INN L-18

9-Acetyl-7-[[3-(1-aziridinyl)-2,3,6-trideoxy-4-O-(methylsulfonyl)-α-L-lyxohexapyranosyl]oxy]-7,8,9,10-tetrahydro-6,9,11-trihydroxy-5,12-naphthacenedione, 9CI. 3′-Aziridinyl-3′-deamino-4-demethoxy-4′-methylsulfonyldaunorubicin. FCE 28729. PNU 159548
[171047-47-5]

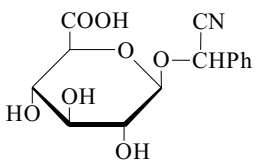


$C_{29}H_{31}NO_{11}S$ 601.63
Antineoplastic agent, antibacterial agent. Characterised by ms.

Marchini, S. *et al., Anti-Cancer Drug Des.*, 1995, **10**, 641-653 (*pharmacol*)
Pat. Coop. Treaty (WIPO), 1995, 95 16 695, (*Pharmacia*); *CA*, **124**, 9318w (*synth, pharmacol*)
Breda, M. *et al., J. Chromatogr., A*, 1999, **854**, 81-92 (*detn*)

Laetrile L-19

Cyanophenylmethyl β-D-glucopyranosiduronic acid, 9CI. Mandelonitrile-β-glucuronic acid
[1332-94-1]



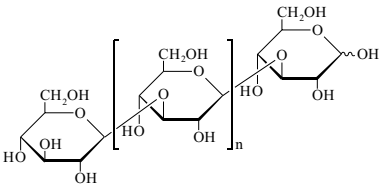
$C_{14}H_{15}NO_7$ 309.275
Obt. by hydrol. of Amygdalin (see 2-Hydroxy-2-phenylacetonitrile) and oxidn. of the resulting L-Mandelonitrile-β-glucoside. Claimed to be an anticancer agent, but there is no rigorous scientific evidence for this. Mp 214-216°.
▶ Human systemic effects by ingestion and other routes of administration characteristic of cyanide toxicity. OD9910000
Na salt: Mp 112-116°.

U.K. Pat., 1958, 788 855; *CA*, **52**, 11913 (*synth*)
Culliton, P. *et al., Science (Washington, D.C.)*, 1973, **182**, 1000 (*rev*)
Junghans, B. *et al., Pharmazie*, 1982, **37**, 172 (*synth*)
D'Arcy, P.F. *et al., Pharm. Int.*, 1984, **5**, 163 (*rev*)
Chandler, R.F. *et al., Pharm. J.*, 1984, **232**, 330 (*rev, pharmacol*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1719

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LAS000

Laminarin, 9CI L-20

Laminaran, 9CI, 8CI. Lamina riose
[9008-22-4]



$C_6H_{10}O_5$ 162.142

General term for low M.W. water-soluble reserve glucans from phaephyte algae. Soluble and insoluble forms were earlier recognised, but laminarans differ considerably in struct.

Soluble-*form*

Found in brown algae especially the Laminaria subgroup; isol. from *Laminaria digitata*. Sol. H_2O, pptd. by addn. of EtOH. $[\alpha]_D^{18}$ -11.9 (c, 2.1 in H_2O).

Per-Ac: $[\alpha]_D^{17}$ -64.6 (c, 0.9 in $CHCl_3$).

Per-carbanilate: Mp 175-185°. $[\alpha]_D^{20}$ -7 ($CHCl_3$). $[\alpha]_D^{20}$ -52 (Py).

Insoluble-*form*

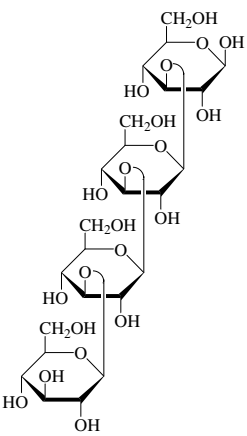
Found in brown algae especially the Laminaria subgroup; isol. from *Laminaria cloustoni*. Insol. H_2O. $[\alpha]_D^{16}$ -13.4 (c, 0.9 in H_2O).

Per-Ac: $[\alpha]_D^{15}$ -65.6 (c, 0.45 in $CHCl_3$).

Peat, S. *et al., J.C.S.*, 1958, 724 (*struct*)
Annan, W.D. *et al., J.C.S.*, 1965, 885 (*constit*)
Black, W.A.P. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 159 (*synth*)
Black, W.A.P. *et al., Ind. Gums*, 2nd Ed., Academic Press, 1973, 137 (*rev*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081 (*cmr*)
Zyvagintseva, T.N. *et al., Carbohydr. Res.*, 1999, **322**, 32-39 (***isol, bibl***)

Laminaritetraose L-21

β-D-Glucopyranosyl-(1→3)-β-D-glucopyranosyl-(1→3)-β-D-glucopyranosyl-(1→3)-D-glucose, 9CI
[26212-72-6]



β-Pyranose-*form*

$C_{24}H_{42}O_{21}$ 666.583

Isol. from partial acid hydrolysate of Laminarin, L-20 and Pachyman. $[\alpha]_D$ -5.9 (H_2O).

β-Pyranose-*form*

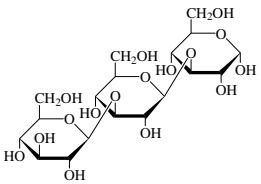
Tetradeca-Ac: [49587-42-0]
$C_{52}H_{70}O_{35}$ 1255.104
Mp 122-123°. $[\alpha]_D$ -46.2 ($CHCl_3$).

[53956-67-5]

Peat, S. *et al., J.C.S.*, 1958, 724 (*synth, Ac*)
Handa, N. *et al., Nature (London)*, 1961, **192**, 1078 (*isol*)
Ueno, Y. *et al., Carbohydr. Res.*, 1982, **99**, 194 (*synth, pmr, isopropylidene*)
Rogers, D.E.C. *et al., Org. Mass Spectrom.*, 1984, **19**, 490 (*ms*)
Bezukladnikov, P.W. *et al., Carbohydr. Res.*, 1990, **203**, 119 (*enzym synth*)

Laminaritriose L-22

O-*β-D-Glucopyranosyl-(1→3)-O-β-D-glucopyranosyl-(1→3)-D-glucose, 9CI. Laminaratriose*
[3256-04-0]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441

Some α-anomer present in the crystalline state. Acid hydrolysis product of Laminarin, L-20, pachyman and yeast β-glucan. Isol. from the partial hydrolysate of sclerotia of *Sclerotiorum sclerotinia*. Dihydrate (MeOH). Mp 164-165°. $[\alpha]_D$ +2.4 (H_2O). $[\alpha]_D^{20}$ +7.1 (2 min.) → +3.3 (c, 1.0 in H_2O).

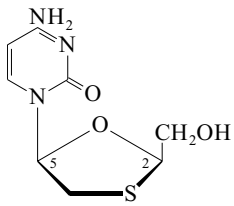
β-Pyranose-*form*

Undeca-Ac:
Cryst. (MeOH/EtOH). Mp 120-121°. $[\alpha]_D$ -40 ($CHCl_3$). $[\alpha]_D^{20}$ -33 (c, 2.0 in $CHCl_3$).

Warsi, S.A. *et al., Chem. Ind. (London)*, 1957, 1573 (*isol*)
Peat, S. *et al., J.C.S.*, 1958, 724; 3862; 1960, 175 (*isol, synth*)
Bouveng, H.O. *et al., Acta Chem. Scand.*, 1963, **17**, 1351 (*isol*)
Ford, C.W. *et al., J.C.S.*, 1965, 7035 (*isol*)
Hase, S. *et al., J. Biochem. (Tokyo)*, 1979, **85**, 217
Ueno, Y. *et al., Carbohydr. Res.*, 1980, **80**, 212 (*isol*)

Lamivudine, BAN, INN, USAN L-23

4-Amino-1-[2-(hydroxymethyl)-1,3-oxathiolan-5-yl]-2(1H)-pyrimidinone, 9CI. 1-[2-(Hydroxymethyl)oxathiolan-5-yl]-cytosine. 2′,3′-Dideoxy-3′-thiacytidine. Epivir. Heptodin. Zeffix. BCH 189. GR 109714X. 3TC



(2*R*,5*S*)-*form*

$C_8H_{11}N_3O_3S$ 229.259

HIV reverse transcriptase inhibitor. Potent antiviral agent, active against hepatitis B virus and human immunodeficiency virus. Marketed drug. Launched 1995 (US) as Combivir (combination with Zidovudine, Z-4). Worldwide 63rd best selling prescription drug ($0.88 bn, 2002) (GlaxoSmithKline) (Med Ad News). Log P -1.7 (calc). Component of Combivir.

(2*R*,5*R*)-*form* [139757-68-9]
Mp 153-156°. $[\alpha]_D^{25}$ +146.6 (c, 0.55 in MeOH).

(2*R*,5*S*)-*form* [134678-17-4]
Cryst. (Et_2O/MeOH). Mp 160-162°. $[\alpha]_D^{25}$ -121.6 (c, 1.1 in MeOH). Pharmacol. active isomer.

(2*S*,5*R*)-*form* [134680-32-3]
Mp 145-147°. $[\alpha]_D^{25}$ +120.96 (c, 1.04 in MeOH).

[131086-21-0, 131086-22-1, 136846-20-3, 136891-12-8, 141434-39-1, 146726-78-5]

Soudeyns, H. *et al., Antimicrob. Agents Chemother.*, 1991, **35**, 1386 (*pharmacol*)
Beach, J.W. *et al., J.O.C.*, 1991, **56**, 6503; 1992, **57**, 2217 (*synth, bibl, pharmacol*)
Coates, J.A.V. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 202 (*pharmacol*)
Schinazi, R.F. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 672 (*pharmacol*)
Eur. Pat., 1992, 517 145, (*Glaxo*); *CA*, **118**, 191756p (*synth, cryst struct*)
Chang, C.N. *et al., J. Biol. Chem.*, 1992, **267**, 22414 (*pharmacol*)
Humber, D.C. *et al., Tet. Lett.*, 1992, **33**, 4625 (*synth, bibl*)
Skalski, V. *et al., J. Biol. Chem.*, 1993, **268**, 23234 (*pharmacol*)
Jeong, L.S. *et al., J. Med. Chem.*, 1993, **36**, 181; 2627 (*synth, bibl, pharmacol, pmr, uv*)
Storer, R. *et al., Nucleosides Nucleotides*, 1993, **12**, 225 (*synth, abs config*)
van Leeuwen, R. *et al., J. Infect. Dis.*, 1995, **171**, 1166; 1438 (*clin trials*)
Perry, C.M. *et al., Drugs*, 1997, **54**, 657-680 (***rev***)
Harris, R.K. *et al., J.C.S. Perkin 1*, 1997, 2653-2659 (*cryst struct, ir, cmr, pmr*)
Jarvis, B. *et al., Drugs*, 1999, **58**, 101-141
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 622
Li, J. *et al., Synth. Commun.*, 2002, **32**, 2355-2359 (*isomers, synth*)
Haas, D. *et al., Drugs*, 2003, **63**, 1099-1100 (*rev*)

Clarke's Analysis of Drugs and Poisons, 3rd edn., (eds. Moffat, A.C. *et al*), Pharmaceutical Press, 2004, 1161 (*props, hplc, uv*)

Lantanose A L-24

[145204-38-2]

α-D-Gal-(1→6)-α-D-Gal-(1→6)-α-D-Gal-(1→6)-α-D-Gal-(1→6)-D-Glu

$C_{30}H_{52}O_{26}$ 828.725

Constit. of the roots of *Lantana camara*. Powder. $[\alpha]_D$ +166 (c, 1 in H_2O).

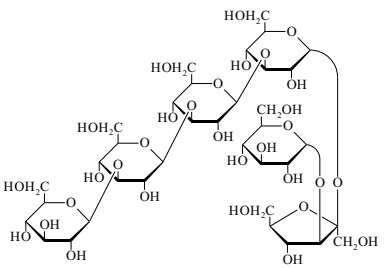
6-O-α-D-*Galactopyranosyl:* ***Lantanose B***
[145204-39-3]
$C_{36}H_{62}O_{31}$ 990.867

Constit. of the roots of *Lantana camara*. Powder. $[\alpha]_D$ +114.2 (c, 1.1 in H_2O).

Pan, W. *et al., Yaoxue Xuebao*, 1992, **27**, 515-521

Lasiose L-25

α-D-Glucopyranosyl-(1→3)-β-D-fructofuranosyl β-D-glucopyranosyl-(1→3)-β-D-glucopyranosyl-(1→3)-β-D-glucopyranosyl-(1→3)-α-D-glucopyranoside, 9CI
[41653-68-3]

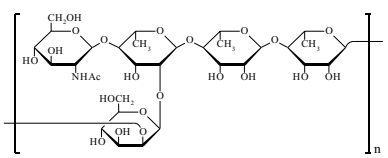


$C_{36}H_{62}O_{31}$ 990.867

Constit. of honeydew of sap suckling insects *Eriococcus conaceus* and *Lasiophylla striatus*. Syrup.

Basden, R. *et al., Proc. Linn. Soc. N.S.W.*, 1972, **97**, 95; *CA*, **78**, 55532r (*isol*)

Latosillan L-26



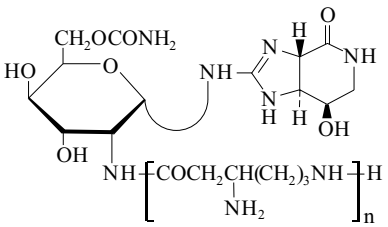
$C_{32}H_{53}NO_{22}$ 803.764

Heteroglycan antibiotic. Polymeric. Minimum formula given. Isol. from *Alcaligenes latus*. Antileukaemic agent. $[\alpha]_D^{20}$ -13 (c, 1 in 0.1*M* NaOH).

Hayakawa, Y. *et al., Agric. Biol. Chem.*, 1985, **49**, 2437; 2443 (*isol, struct, props*)

Lavendothricin L-27

[67383-12-4]



Isol. from *Actinomyces* 741. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Consists of six biol. active components A to F. Similar to Streptothricin, S-86.

▶ OF6120000

Lavendothricin *A* [67355-55-9]

$C_{49}H_{94}N_{18}O_{13}$ 1143.394
n = 6.

Lavendothricin *B*
A 53930B. Antibiotic A 53930B
[67355-56-0]

$C_{43}H_{82}N_{16}O_{12}$ 1015.221
Prod. by *Streptomyces vinaceusdrappus*. Powder.
Mp 61-36°. $[\alpha]_D^{25}$ -4.4 (c, 0.5 in H_2O). n = 5.

Lavendothricin *C*
A 53930A. Antibiotic A 53930A
[67392-17-0]

$C_{37}H_{70}N_{14}O_{11}$ 887.047
Prod. by *Streptomyces vinaceusdrappus*. Powder.
Mp 55-57°. $[\alpha]_D^{25}$ -15.1 (c, 0.5 in H_2O). n = 4.

Lavendothricin *D* [67392-18-1]

$C_{31}H_{58}N_{12}O_{10}$ 758.874
n = 3.

Lavendothricin *E* [67392-19-2]

$C_{25}H_{46}N_{10}O_9$ 630.7
n = 2.

Lavendothricin *F* [67392-16-9]

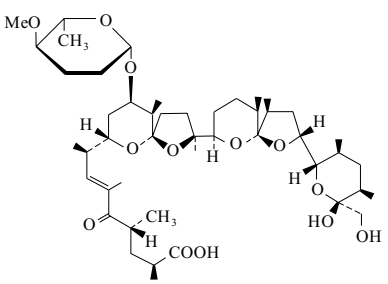
$C_{19}H_{34}N_8O_8$ 502.526
n = 1.

Dobreva, N. *et al., Farmatsiya (Sofia)*, 1977, **27**, 25 (*isol*)

Hisamoto, M. *et al., J. Antibiot.*, 1998, **51**, 607-617 (*Antibiotic A 53930*)

Lenoremycin L-28

A 130A. Ro 21-6150. Antibiotic A 130A. Antibiotic Ro 21-6150
[51257-84-2]



$C_{47}H_{78}O_{13}$ 851.125

Polyether antibiotic. See also Antibiotic A 130B, A-736 and Antibiotic A 130C. Isol. from *Streptomyces hygroscopicus*. Monovalent ionophore showing antimicrobial activity. Growth promotor. Amorph. powder. $[\alpha]_D$ +64.5 (c, 1 in $CHCl_3$). Related to Dianemycin. λ_{max} 235 (ε 14000) (EtOH) (Derep).

▶ LD_{50} (mus, orl) 55 mg/kg. HL5522000

Na salt:
Needles (Me_2CO aq.). Mp 227-231°. $[\alpha]_D$ +97.9 (c, 1 in $CHCl_3$).

Kubota, T. *et al., J. Antibiot.*, 1975, **28**, 931 (*isol, ir, uv, ms, nmr*)

Liu, C. *et al., J. Antibiot.*, 1976, **29**, 21 (*pmr, ir, uv*)

Anteunis, M.J.O. *et al., Bull. Soc. Chim. Belg.*, 1977, **86**, 609 (*pmr, conformn*)

Koyama, H. *et al., J.C.S. Perkin 2*, 1977, 1531 (*cryst struct*)

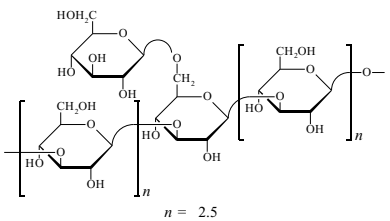
Tsuji, N. *et al., J. Antibiot.*, 1980, **33**, 94 (*cmr*)

Mizoue, K. *et al., J. Antibiot.*, 1980, **33**, 144 (*cmr*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LEJ700

Lentinan L-29

[37339-90-5]



A highly (1→6) branched (1→3)β-D-glucan. Elaborated by the fungus *Lentinus edodes* (shiitake). Shows growth-inhibitory activity against certain allogenic tumours, particularly mouse sarcoma 180. Immunostimulant. Has been used in the treatment of malignant neoplasms and AIDS. Launched 1986. Powder. Sol. H_2O, DMSO; fairly sol. H_2O; poorly sol. EtOH, hexane. Forms nonelastic gel in aq. suspensions.

[114285-68-6]

Chihara, G. *et al., Nature (London)*, 1969, **222**, 687; 1971, **229**, 634 (*isol, pharmacol*)

Sasaki, T. *et al., Carbohydr. Res.*, 1976, **47**, 99 (*pharmacol*)

Bluhm, T.L. *et al., ACS Symp. Ser.*, 1977, **48**, 105 (*cryst struct*)

Saito, H. *et al., Carbohydr. Res.*, 1979, **74**, 227-240 (*cmr, struct*)

Saito, H. *et al., Bull. Chem. Soc. Jpn.*, 1986, **59**, 2093 (*conform, cmr*)

Tsukagoshi, S. *et al., Drugs of Today (Barcelona)*, 1988, **24**, 91 (*rev*)

Suzuki, M. *et al., Int. J. Immunopharmacol.*, 1994, **16**, 463 (*rev*)

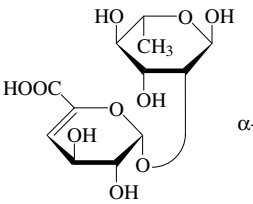
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1721

Gordon, M. *et al., J. Med. (Westbury, N.Y.)*, 1998, **29**, 305-330 (*pharmacol*)

Yang, G. *et al., Synlett*, 2000, 1423-1426 (*synth*)

Lepidimoic acid L-30

*6-Deoxy-2-*O*-(4-deoxy-β-L-*threo*-hex-4-enopyranuronosyl)-L-mannose, 9CI. Lepidimoide*
[157676-09-0]



α-Pyranose-*form*

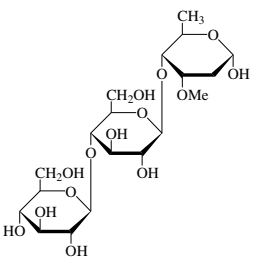
$C_{12}H_{18}O_{10}$ 322.268
Widespread in the exudates of all plant species studied. Isol. from seeds of *Lepidium sativum* (garden cress) and *Arabidopsis thaliana*. Allelopathic agent. Increases fructose 2,6-biphosphate level in plants. Growth promoter. Oil, amorph. powder (as Na salt). $[\alpha]_D^{19}$ +87.8 (c, 0.03 in D_2O). Strictly the Na salt is named Lipodimoide.

[145039-76-5]

Hasegawa, K. *et al., Plant Physiol.*, 1992, **100**, 1059-1061 (*isol*)
Kosemura, S. *et al., Tet. Lett.*, 1993, **34**, 2653-2656 (*abs config, synth*)
Yamada, K. *et al., Phytochemistry*, 1995, **39**, 1031-1032; 1996, **41**, 671 (*occur, activity*)
Yokotani-Tomita, K. *et al., Phytochemistry*, 1998, **47**, 1-2 (*isol, pmr*)
Kato-Noguchi, H. *et al., Phytochemistry*, 2001, **56**, 499-503 (*activity*)
Hirose, K. *et al., Tet. Lett.*, 2003, **44**, 2171-2173 (*synth*)

Leptatriose L-31

*β-D-Glucopyranosyl-(1→4)-β-D-glucopyranosyl-(1→4)-2,6-dideoxy-3-*O*-methyl-D-*ribo*-hexose. β-D-Glucopyranosyl-(1→4)-β-D-glucopyranosyl-(1→4)-β-D-cymarose*



α-Pyranose-*form*

$C_{19}H_{34}O_{14}$ 486.469
Obt. by acid hydrol. of Leptaculatin. Syrup. $[\alpha]_D$ -53.6 (c, 0.2 in MeOH).

Srivastava, S. *et al., J. Carbohydr. Chem.*, 1994, **13**, 75-80 (*isol, pmr, cmr, ms*)

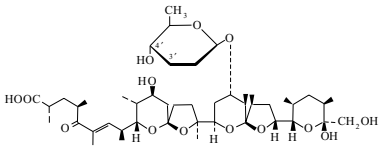
Leucosin, 9CI L-32

Chrysolaminarin. Chrysolaminaran
[9013-94-9]
Polysaccharide. Isol. from diatoms and algae. Reserve carbohydrate. Cryst. Consists mainly of β(1→3)-linked glucosyl residues with some branching.

Beattie, A. *et al., Biochem. J.*, 1961, **79**, 531 (*isol, struct*)
Archibald, A.R. *et al., Biochem. J.*, 1963, **88**, 444 (*isol, struct*)
McConville, M. *et al., Carbohydr. Res.*, 1986, **153**, 330 (*isol, struct*)

Leuseramycin B L-33

TM 531B. Antibiotic TM 531B
[80118-77-0]



$C_{46}H_{76}O_{14}$ 853.098
Polyether antibiotic. Isol. from *Streptomyces hygroscopicus* ATCC31590. Active against gram-positive bacteria, plant pathogens, coccidiosis in chickens. Cryst. (Me_2CO aq.). Sol. MeOH, Et_2O, hexane; poorly sol. H_2O, hexane. Mp 252.1-253.2°. $[\alpha]_D^{26}$ +37.8 (c, 0.5 in MeOH). Similar to Dianemycin. λ_{max} 232 (E1%/1cm 160) (MeOH) (Berdy).

3′-Hydroxy, 4′-Me ether: ***Leuseramycin C****. TM 531C. Antibiotic TM 531C*
[80118-78-1]
$C_{47}H_{78}O_{15}$ 883.124
From *Streptomyces hygroscopicus* ATCC31590. Sol. MeOH, hexane; poorly sol. H_2O, hexane.
Mp 190.4-190.6°. $[\alpha]_D^{26}$ +27.1 (c, 0.5 in MeOH). λ_{max} 232 (E1%/1cm 146.6) (MeOH) (Berdy).

Ger. Pat., 1980, 2 952 520; *CA*, **93**, 236926
Mitzutani, T. *et al., J. Antibiot.*, 1981, **34**, 1369 (*struct*)

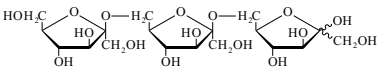
Levan L-34

[9013-95-0] A large variety of bacterial strains (*Aerobacter levanicum, Pseudomonas prunicula, Cornyebacterium* sp., and a strain of *Bacillus subtilis*), produce levans when grown on sucrose in a suitable nutrient medium. Also a constit. of grasses. Has a number of developing industrial uses. $[\alpha]_D^{20}$ -43. Levans in grasses contain essentially linear chains of =20-30 2,6-linked β-D-fructofuranose units terminated in most cases by a nonreducing glucopyranose residue. Some grass levans may contain a single branch point. In contrast, the levans elaborated by bacteria are of much higher molecular weight. Although the major linkage is of the 2,6-type, the polysaccharides are branched and contain unit chains =10-12 residues joined at the branching points by 2,1-linkages.

Bell, D.J. *et al., J.C.S.*, 1952, 3763; 1954, 2866 (*isol*)
Avigad, G. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 161
Rodd's Chem. Carbon Compd. (2nd edn.), 1967, **1F**, 687
Jarrell, H.C. *et al., Carbohydr. Res.*, 1979, **76**, 45-57 (*cmr*)
Han, Y.W. *et al., Adv. Appl. Microbiol.*, 1990, **35**, 171 (*rev, use*)

Levantriose L-35

β-D-Fructofuranosyl-(2→6)-β-D-fructofuranosyl-(2→6)-D-fructose, 9CI
[79324-71-3]



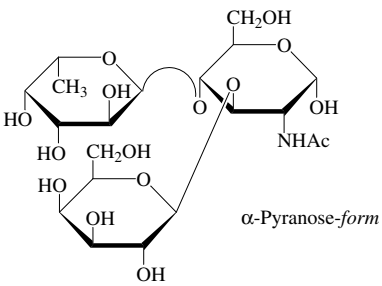
Furanose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Present in enzymic hydrolysates of levans; isol. from partial acid hydrolysates of grass; constit. of some fructosylsucroses. $[\alpha]_D$ -28 (-20.8) (H_2O).

Schlubach, H.H. *et al., Annalen*, 1955, **595**, 224 (*isol*)
Aspinall, G.O. *et al., J.C.S.*, 1955, 1106 (*isol*)
Zelikson, R. *et al., Biochem. J.*, 1961, **79**, 71
Tanaka, T. *et al., J. Biochem. (Tokyo)*, 1981, **90**, 521; 1985, **97**, 1679 (*synth*)
Tanaka, K. *et al., J. Chromatogr.*, 1983, **265**, 374 (*chromatog*)

Lewis a blood group trisaccharide L-36

β-D-Galactopyranosyl-(1→3)-[α-L-fucopyranosyl-(1→4)]-2-acetamido-2-deoxy-D-glucose. Le^a



α-Pyranose-*form*

$C_{20}H_{35}NO_{15}$ 529.494
Found in serologically active materials in the Le^a system. Present in the oligosaccharide component of glycoproteins and glycolipids present in bodily fluids and on the surface of cells. Antigenic determinant. $[\alpha]_D^{25}$ -45.1 (c, 1.0 in H_2O).

α-Pyranose-*form*

Nona-Ac:
$C_{38}H_{53}NO_{24}$ 907.829
Mp 142-144°. $[\alpha]_D^{22}$ -52 (c, 1.0 in $CHCl_3$).

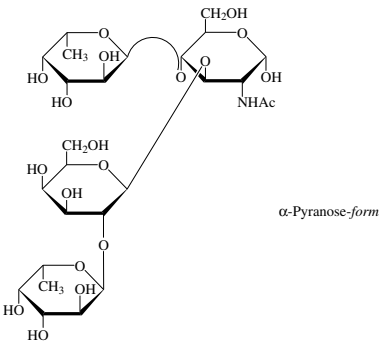
β-Pyranose-*form*

Me glycoside:
$C_{21}H_{37}NO_{15}$ 543.521
Characterised specroscopically.

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4063 (*synth, pmr, cmr*)
Jacquinet, J.-C. *et al., J.C.S. Perkin 1*, 1979, 319 (*synth, nona-Ac, pmr*)
Yan, L. *et al., J.A.C.S.*, 1996, **118**, 9239 (*synth, Me gly, pmr, cmr*)

Lewis b blood group tetrasaccharide L-37

α-L-Fucopyranosyl-(1→2)-β-D-galactopyranosyl-(1→3)-[α-L-fucopyranosyl-(1→4)]-2-acetamido-2-deoxy-β-D-glucopyranose. Le^b



α-Pyranose-*form*

$C_{26}H_{45}NO_{19}$ 675.637
Serologically active determinant isolated by alkaline degradation of the human blood group H, Le^b glycoprotein.
$[\alpha]_D$ -75.7 (c, 1.0 in H_2O).

α-Pyranose-*form*

Me glycoside:
$C_{27}H_{47}NO_{19}$ 689.664
$[\alpha]_D$ -67.5 (c, 0.8 in $CHCl_3$).

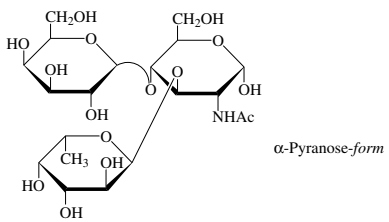
β-Pyranose-*form*

*Me glycoside:*Characterised spectroscopically.

Rana, S.S. *et al., Carbohydr. Res.*, 1981, **96**, 231 (*synth, pmr, cmr*)
Spohr, U. *et al., Carbohydr. Res.*, 1988, **174**, 211 (*α-Me gly, synth, pmr, cmr*)
Yan, L. *et al., J.A.C.S.*, 1994, **118**, 9239 (*β-Me gly, synth, pmr, cmr*)
Randolph, J.T. *et al., J.A.C.S.*, 1995, **117**, 5712 (*synth*)

Lewis x blood group trisaccharide L-38

β-D-Galactopyranosyl-(1→4)-[α-L-fucopyranosyl-(1→3)]-2-acetamido-2-deoxy-D-glucose. Le^x



α-Pyranose-*form*

$C_{20}H_{35}NO_{15}$ 529.494
Found in glycoproteins and membrane glycolipids of mammalian cells. Formed during embryonic development and cell differentiation. Serological determinant.
Mp 140-142°. $[\alpha]_D^{22}$ -33 (c, 1.0 in H_2O).

α-Pyranose-*form*

Nona-Ac:
$C_{38}H_{53}NO_{24}$ 907.829
Mp 241-242°. $[\alpha]_D^{22}$ -31 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside: [176106-81-3]
$C_{21}H_{37}NO_{15}$ 543.521
Characterised spectroscopically.

Jacquinet, J.-C. *et al., J.C.S. Perkin 1*, 1979, 314 (*synth, pmr, nona-Ac*)
Yan, L. *et al., J.A.C.S.*, 1996, **118**, 9239 (*Me gly synth, pmr, cmr*)
Dekany, G. *et al., J. Carbohydr. Chem.*, 1997, **16**, 983-999 (*synth*)
Gan, Z. *et al., J. Carbohydr. Chem.*, 1999, **18**, 755-773 (*synth*)

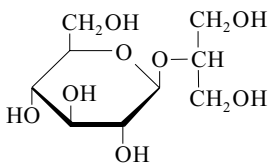
Lichenan L-39

β-Glucan. Lichenin†. Moss starch
[1402-10-4]
$C_6H_{10}O_5$ 162.142
A D-glucan similar to Cellulose, C-48 consisting of a series of (1→3)-β-linked cellotriose units with occasional cellobiose or cellotriose residues. Polymeric. Minimum formula given. Cell wall polysaccharide in the unicellular alga *Monodus subterraneus*. Also prod. by lichens. Antineoplastic agent. Amorph. powder. $[\alpha]_D$ +18.4 (H_2O).

Chand, N.B. *et al., J.C.S.*, 1957, 1951
Perkin, A.S. *et al., Can. J. Chem.*, 1962, **40**, 50
Fleming, M. *et al., Biochem. J.*, 1966, **100**, 4P (*struct*)
Ward, K. Jr. *et al., The Carbohydrates*, Academic Press, 1970, **2A**, 413
Shibata, S. *et al., J. Natl. Sci. Counc. Sri Lanka*, 1973, **1**, 183 (*rev*)
Gagnaire, D. *et al., Tet. Lett.*, 1975, 3953
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1984, **128**, 119 (*bibl*)
Yui, T. *et al., J. Carbohydr. Chem.*, 2000, **19**, 1075-1081 (*struct*)

Lilioside B L-40

2-Hydroxy-1-(hydroxymethyl)ethyl β-D-glucopyranoside, 9CI, 8CI. 2-O-β-D-Glucopyranosylglycerol
[10588-30-4]



$C_9H_{18}O_8$ 254.236
Constit. of *Lilium longiflorum*.
Mp 166-167°. $[\alpha]_D^{26}$ -30.2 (H_2O).

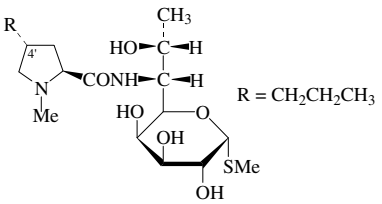
Mono-Ac: ***Lilioside A****. 2-(Acetyloxy)-1-(hydroxymethyl)ethyl β-D-glucopyranoside, 9CI*
[55729-18-5]
$C_{11}H_{20}O_9$ 296.274
Constit. of *Lilium longiflorum*.
Mp 146-148°. $[\alpha]_D^{23}$ -21.8 (H_2O).
Hexa-Ac: Mp 128°. $[\alpha]_D^{18}$ -15.5 ($CHCl_3$).

[131831-28-2]

Dutton, G.G.S. *et al., J. Chromatogr.*, 1968, **36**, 283 (*glc*)
Kaneda, M. *et al., Tet. Lett.*, 1974, 3937 (*isol, pmr*)
Kaneda, M. *et al., Phytochemistry*, 1990, **29**, 3559 (*synth, abs config*)

Lincomycin, BAN, INN L-41

Lincocin. Lincolnensin. NSC 70731. U 10149. Antibiotic U 10149. Jiemycin. Many other names
[154-21-2]



$C_{18}H_{34}N_2O_6S$ 406.542
Isol. from *Streptomyces lincolnensis, Streptomyces espinosus* and *Streptomyces variabilis*. Clinically used broad-spectrum antibiotic. Amorph. Sol. H_2O, $CHCl_3$, EtOAc, Me_2CO, butanol, MeOH; fairly sol. Et_2O, C_6H_6; poorly sol. hexane. $[\alpha]_D$ +158 (c, 1 in H_2O). pK_a 7.5. Log P -0.12 (uncertain value) (calc). More stable in the salt form.

▶ LD_{50} (rat, orl) 1000 mg/kg. LD_{50} (rat, ipr) 1900 mg/kg; LD_{50} (mus, ipr) 1000 mg/kg. RH6314000

Hydrochloride: [859-18-7]
Cryst. + ½H_2O. Mp 155-157° dec.
$[\alpha]_D$ +137 (c, 1 in H_2O).

▶ Gastrointestinal disturbances reported when used therapeutically. LD_{50} (mus, ipr) 1000 mg/kg. RH6315000

Tetra-Ac; hydrochloride:
Cryst. ($CHCl_3$/Et_2O). Mp 226-233°.
$[\alpha]_D$ +149 (c, 1 in H_2O).

S-*Oxide:* ***Lincomycose****. Lincomycin sulfoxide*
[22083-92-7]
$C_{18}H_{34}N_2O_7S$ 422.542
From *Streptomyces lincolnensis*. Active against gram-positive and -negative bacteria. Log P -1.34 (uncertain value) (calc).

N-*De-Me:* ***Lincomycin D****.* N-*Demethyllincomycin. U 111973E. Antibiotic U 11973E*
[2256-16-8]
$C_{17}H_{32}N_2O_6S$ 392.516
From *Streptomyces lincolnensis* with methyl thiolincosaminide. Shows a broad spectrum of activity. Monohydrate (as hydrochloride). $[\alpha]_D^{25}$ +149 (c, 0.9 in H_2O).

N-*De-Me,* N-*Et:* **N-*Ethyllincomycin D****.** *U 24166. Antibiotic U 24166*
[2256-17-9]
$C_{19}H_{36}N_2O_6S$ 420.569
Prod. by *Streptomyces lincolnensis* var. *lincolnensis*.

S-*De-Me,* S-*Et:* ***Lincomycin C****. U 11921A. Antibiotic U 11921A*
[14042-43-4]
$C_{19}H_{36}N_2O_6S$ 420.569
Prod. by *Streptomyces lincolnensis* with ethionine. Active against gram-positive bacteria. Monohydrate (as hydrochloride). $[\alpha]_D^{25}$ +143 (H_2O) (as hydrochloride).

N,S-*Di-de-Me,* S-*Et:* ***Lincomycin K****. U 20943. Antibiotic U 20943*
$C_{18}H_{34}N_2O_6S$ 406.542

Prod. by *Streptomyces lincolnensis* with ethyl thiolincosaminide. Active against gram-positive bacteria. Cryst. +1H_2O (as hydrochloride). $[\alpha]_D^{25}$ +157 (H_2O).

N,S-*Di-de-Me,* N,S-*di-Et:* ***Lincomycin S***. N,S-*Diethyllincomycin*. *U 25468*. *Antibiotic U 25468*
[21085-65-4]
$C_{20}H_{38}N_2O_6S$ 434.596
Prod. by *Streptomyces lincolnensis* with ethionine. Active against gram-positive bacteria. $[\alpha]_D$ +144.5 (H_2O) (as hydrochloride).

1-De(methylthio), 1-hydroxy: ***1-De-methylthio-1-hydroxylincomycin***
$C_{17}H_{32}N_2O_7$ 376.449
From *Streptomyces lincolnensis*. Active against gram-positive bacteria.
Log P -1.17 (uncertain value) (calc).

Lewis, C.N. *et al., Antimicrob. Agents Chemother.*, 1962, 570 (*isol, bibl*)
Argoudelis, A.D. *et al., J.A.C.S.*, 1964, **86**, 5044 (*isol, ir, pmr, struct, derivs*)
Savage, G.M. *et al., Antibiotiki (Moscow)*, 1967, **12**, 554-557 (*N-Ethyllincomycin D*)
U.S. Pat., 1968, 3 395 139 (*Lincomycin S*)
Argoudelis, A.D. *et al., J. Antibiot.*, 1969, **22**, 289 (*derivs*)
Eble, T.E. *et al., J. Antibiot.*, 1970, **23**, 1 (*isol*)
Howarth, G.B. *et al., J.C.S.(C)*, 1970, 2218 (*synth*)
Magerlein, B.J. *et al., J. Med. Chem.*, 1972, **15**, 1255 (*synth*)
Kagan, F. *et al., Org. Mass Spectrom.*, 1972, **6**, 1217 (*ms, derivs*)
Savage, G.M. *et al., Infection (Munich)*, 1974, **3**, 152 (*rev, use*)
Woolard, G.R. *et al., J.C.S. Perkin 1*, 1976, 950 (*synth*)
Mizsak, S. *et al., Tet. Lett.*, 1977, 721 (*nmr*)
Eble, T.E. *et al., J. Chromatogr. Libr.*, 1978, **15**, 231 (*rev*)
Chang, F.N. *et al., Antibiotics (N.Y.)*, 1979, **5**, 127 (*rev*)
Phillips, I. *et al., J. Antimicrob. Chemother.*, 1981, **7**, 11 (*rev, pharmacol*)
Pechera, J.C. *et al., Pathol. Biol.*, 1986, **34**, 119 (*rev*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 5071 (*synonyms*)
Moloney, G.P. *et al., Aust. J. Chem.*, 1990, **43**, 535 (*pmr, conformn*)
Knapp, S. *et al., J.O.C.*, 1990, **55**, 1632 (*synth*)
Golebiowski, A. *et al., Recent Prog. Chem. Synth. Antibiot.*, 1990, 365 (*rev, synth*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **3**, 159 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 178
Muti, H.Y. *et al., Anal. Profiles Drug Subst.*, 1994, **23**, 269 (*rev*)
Achmatowicz, O *et al., Carbohydr. Drug Des. 1997*, (eds. Witczak, Z.J. *et al*), Dekker, 1997, 579-653 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LGD000; LGE000

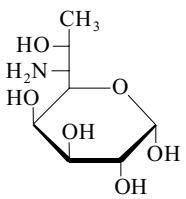
Lincomycin B L-42

U 21699. Antibiotic U 21699. 4′′-Etillincomycin
[2520-24-3]
As Lincomycin, L-41 with R = CH_2CH_3
$C_{17}H_{32}N_2O_6S$ 392.516
Isol. from *Streptomyces lincolnensis*. Active against gram-positive bacteria. Hemihydrate (as hydrochloride). Sol. EtOH, $CHCl_3$, Me_2CO, MeOH, EtOAc; fairly sol. H_2O, Et_2O; poorly sol. hexane. $[\alpha]_D^{25}$ +147 (H_2O) (as hydrochloride).

Argoudelis, A.D. *et al., J.A.C.S.*, 1964, **86**, 5044 (*isol, ir, nmr, struct*)
Magerlein, B.J. *et al., Tet. Lett.*, 1970, 33; *J. Med. Chem.*, 1972, **15**, 1255 (*synth*)
Kagan, F. *et al., Org. Mass Spectrom.*, 1972, **6**, 1217 (*ms*)
Woolard, G.R. *et al., J.C.S. Perkin 1*, 1976, 950 (*synth*)
Mizsak, S. *et al., Tet. Lett.*, 1977, 721 (*pmr*)
Eble, T.E. *et al., J. Chromatogr. Libr.*, 1978, **15**, 231 (*rev*)
Phillips, I. *et al., J. Antimicrob. Chemother.*, (Suppl. A), 1981, **7**, 11 (*rev, use*)

Lincosamine L-43

6-Amino-6,8-dideoxy-D-erythro-*D*-galacto-*octose*



Pyranose–*form*

$C_8H_{17}NO_6$ 223.225

Di-Me dithioacetal: [6734-58-3]
$C_{10}H_{23}NO_5S_2$ 301.427
Cryst. (EtOH). Mp 142-144°. pK_a 7.95 (H_2O).

*Di-Me dithioacetal, 6-*N*-Ac:* [6910-21-0]
$C_{12}H_{25}NO_6S_2$ 343.465
Cryst. (EtOH). Mp 179°.

*Di-Me dithioacetal, 6-*N*-benzoyl:* [16678-92-5]
$C_{17}H_{27}NO_6S_2$ 405.535
Cryst. (Me_2CO). Mp 182-184°.

*7-Me: 6-Amino-6,8-dideoxy-7-*O*-methyl-D*-erythro-*D*-galacto-*octose, 9CI. 7-*O*-Methyllincosamine.* ***Celestosamine***
[58041-84-2]
[54924-88-8]
$C_9H_{19}NO_6$ 237.252
Carbohydrate component of Celesticetin, C-35.

α-Pyranose-*form*

*Hexa-Ac: 6-Acetamido-1,2,3,4,7-penta-*O*-acetyl-6,8-dideoxy-D*-erythro-α-*D*-galacto-*octopyranose*
[6991-35-1]
$C_{20}H_{29}NO_{12}$ 475.449
Mp 169-172°. $[\alpha]_D^{25}$ +132 (c, 0.98 in $CHCl_3$).

*1,2:3,4-Di-*O*-isopropylidene,* N*-Ac: 6-Acetamido-6,8-dideoxy-1,2:3,4-di-*O*-isopropylidene-D*-erythro-α-*D*-galacto-*octopyranose, 8CI*
[27108-20-9]
$C_{16}H_{27}NO_7$ 345.392
Cryst. (EtOAc). Mp 166-167°. $[\alpha]_D^{20}$ -52.9 (c, 2.3 in $CHCl_3$).

*7-Me, 1,2:3,4-di-*O*-isopropylidene,* N*-Ac:*
[50603-52-6]
$C_{17}H_{29}NO_7$ 359.419
$[\alpha]_D^{20}$ -58.3 (c,2 in $CHCl_3$).

1-Thio, Me glycoside: Methyl 6-amino-6,8-dideoxy-1-thio-D-erythro-α-*D*-galacto-*octopyranoside, 9CI, 8CI. Methyl α-thiolincosaminide*
[14810-93-6]
$C_9H_{19}NO_5S$ 253.319
Present as the sugar residue of the antibiotic Lincomycin, L-41. Feathery needles (H_2O).
Mp 225-228°. $[\alpha]_D^{25}$ +276 (c, 0.77 in H_2O).

1-Thio, Me glycoside, N*-Ac: Methyl 6-acetamido-6,8-dideoxy-1-thio-D*-erythro-α-*D*-galacto-*octopyranoside, 8CI*
[6982-20-3]
$C_{11}H_{21}NO_6S$ 295.356
Needles (MeOH). Mp 243-245°. $[\alpha]_D$ +265 (c, 0.34 in H_2O).

*1-Thio, Me glycoside, penta-Ac: Methyl 6-acetamido-2,3,4,7-tetra-*O*-acetyl-6,8-dideoxy-1-thio-D*-erythro-α-*D*-galacto-*octopyranoside*
[13038-00-1]
$C_{19}H_{29}NO_{10}S$ 463.505
Rods (EtOAc/hexane). Mp 210-212°
Mp 218-220° (double Mp).

*1-Thio, Me glycoside, 3,4-*O*-isopropylidene: Methyl 6-amino-6,8-dideoxy-3,4-*O*-isopropylidene-1-thio-D*-erythro-α-*D*-galacto-*octopyranoside, 8CI*
[13037-99-5]
$C_{12}H_{23}NO_5S$ 293.383
Cryst. (EtOH). Mp 177-178°. $[\alpha]_D^{25}$ +186 (c, 0.69 in H_2O).

*1-Thio, Me glycoside, 7-Me ether: Methyl 6-amino-6,8-dideoxy-7-*O*-methyl-1-thio-D*-erythro-α-*D*-galacto-*octopyranoside, 9CI. Methyl 7-*O*-methyl-1-thio-α-lincosaminide*
[34291-32-2]
$C_{10}H_{21}NO_5S$ 267.346
Present as the sugar residue of the antibiotic Celesticetin, C-35. Needles + ½ H_2O (EtOH).
Mp 126-127°. $[\alpha]_D$ +263 (c, 0.83 in H_2O).

β-Pyranose-*form*

*Hexa-Ac: 6-Acetamido-1,2,3,4,7-penta-*O*-acetyl-6,8-dideoxy-D*-erythro-β-*D*-galacto-*octopyranose*
[6982-19-0]
$C_{20}H_{29}NO_{12}$ 475.449
Mp 227-230°. $[\alpha]_D^{25}$ +33 (c, 0.83 in $CHCl_3$).

*7-Me, 1,2,3,4,6*N*-penta-Ac:* [16678-99-2]
$C_{19}H_{29}NO_{11}$ 447.438
Cryst.

*1-Thio, Me glycoside, 6*N*,2,3,4,7-penta-Ac: Methyl 6-acetamido-2,3,4,7-tetra-*O*-acetyl-6,8-dideoxy-1-thio-D*-erythro-β-*D*-galacto-*octopyranoside*
[6991-37-3]
$C_{19}H_{29}NO_{10}S$ 463.505
Cryst. (EtOAc/hexane). Mp 272-273°. $[\alpha]_D$ +31 (c, 0.7 in $CHCl_3$).

*1-Thio, Me glycoside, 7-Me ether: Methyl 6-amino-6,8-dideoxy-7-*O*-methyl-1-thio-D*-erythro-β-*D*-galacto-*octopyranoside, 9CI. Methyl 7-*O*-methyl-1-thio-β-lincosaminide*
[16799-48-7]
$C_{10}H_{21}NO_5S$ 267.346

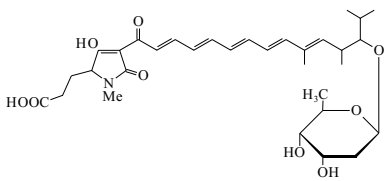
Needles. Mp 187-188°. $[\alpha]_D$ -7 (c, 0.63 in H_2O).

[13006-69-4]

Fr. Pat., 1966, 1 451 314; *CA*, **66**, 85995 (*α-pyr thio Me gly, α-pyr thio Me gly N-Ac, β-pyr hexa-Ac, β-pyr thio Me gly penta-Ac*)
Schroeder, W. *et al., J.A.C.S.*, 1967, **89**, 2448 (*α-pyr thio Me gly, isol, struct, α-pyr thio Me gly N-Ac, α-pyr thio Me gly acetals*)
Slomp, G. *et al., J.A.C.S.*, 1967, **89**, 2454-2459 (*Celestosamine, synth, pmr, cofig*)
Saeki, H. *et al., Chem. Pharm. Bull.*, 1970, **18**, 412; 789 (*α-pyr diisopropylidene N-Ac*)
Howarth, G.B. *et al., J.C.S.(C)*, 1970, 2218 (*α-pyr diisopropylidene N-Ac, di-Me dithioacetal N-Ac, α-pyr thio Me gly, α-pyr thio Me gly N-Ac*)
Magerlein, B.J. *et al., Tet. Lett.*, 1970, 33 (*α-pyr thio Me gly, α-pyr thio Me gly penta-Ac*)
Bannister, B. *et al., J.C.S. Perkin 1*, 1973, 1676 (*α-pyr thio Me gly 7-Me, β-pyr thio Me gly 7-Me*)
David, S.M. *et al., Carbohydr. Res.*, 1974, **38**, 147; 1976, **50**, 239 (*α-pyr thio Me gly N-Ac, α-pyr diisopropylidene N-Ac, α-pyr diisopropylidene N-Ac N-Me, α-pyr diisopropylidene N-Ac 7-Me, 7-Me derivs*)
Danishefsky, S.J. *et al., J.A.C.S.*, 1985, **107**, 1246 (*total synth, DL-form*)
Szechner, B. *et al., J. Carbohydr. Chem.*, 1992, **11**, 401-406 (*synth*)

α-Lipomycin L-44

[51053-40-8]



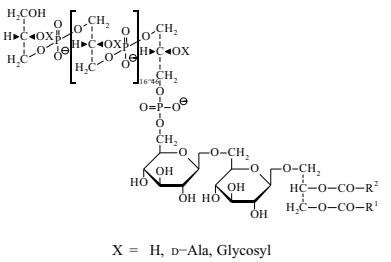
$C_{32}H_{45}NO_9$ 587.709

Pentaene antibiotic. Prod. by *Streptomyces aureofaciens*. Active against gram-positive organisms. Orange-red amorph. powder. Sol. MeOH, Et_2O, bases; poorly sol. H_2O,hexane. Mp 105°. $[\alpha]_D^{20}$ -229 (c, 0.1 in MeOH). λ_{max} 260 (ε 16400); 267 (ε 15800); 301 (ε 10600); 455 (ε 55800) (MeOH/HCl) (Derep). λ_{max} 260 (ε 15800); 270 (ε 15300); 287 (ε 10600); 403 (ε 47000) (MeOH) (Derep). λ_{max} 259 (ε 14700); 269 (ε 13500); 285 (ε 10600); 393 (ε 55900) (MeOH/NaOH) (Derep).

Aglycone: ***β-Lipomycin***
[51053-41-9]
$C_{26}H_{35}NO_6$ 457.566
Prod. by *Streptomyces aureofaciens*. Active against gram-positive bacteria. Sol. bases, Et_2O, MeOH; poorly sol. H_2O, hexane. $[\alpha]_D^{20}$ -176 (c, 0.1 in MeOH). λ_{max} 261 (ε 15800); 269 (ε 15100); 301 (ε 9830); 453 (ε 57600) (MeOH/HCl) (Derep). λ_{max} 260 (ε 14400); 269 (ε 13700); 287 (ε 10100); 393 (ε 57600) (MeOH/NaOH) (Derep). λ_{max} 260 (ε 14600); 269 (ε 14600); 287 (ε 10100); 399 (ε 9830); 460 (ε 47500) (MeOH) (Derep).

Kunze, B. *et al., Arch. Microbiol.*, 1972, **86**, 147 (*isol*)
Schabacher, K. *et al., Tet. Lett.*, 1973, 2691 (*struct*)
Zeeck, A. *et al., Annalen*, 1975, 2079
Nolte, M.J. *et al., J.C.S. Perkin 1*, 1980, 1057 (*cryst struct*)

Lipoteichoic acids L-45



X = H, D-Ala, Glycosyl

Poly(glycerophosphate) lipoteichoic acids are the most widespread, and have a glycolipid group which may vary within a genus or in a species-specific manner. The poly(glycerophosphate) chain is unbranched and contains 16-40 glycerophosphate residues. Position 2 of the glycerophosphate chain is substituted in part with D-alanine and glycosyl residues (typically Glc, Gal, and *N*-acetyl-D-glucosamine). Generally all the chains are partially substituted and D-alanine and glycosyl substituents are found on the same chains. Components of the cytoplasmic membrane of gram-positive bacteria. Potent immunogens, stimulate the release of cytokines from blood monocytes and murine peritoneal macrophages. Lipoteichoic acids from *Staphylococcus* spp. induce nitric acid synthase *in vivo* and show antitumour props. prob. by induction of tumour necrosis factor.

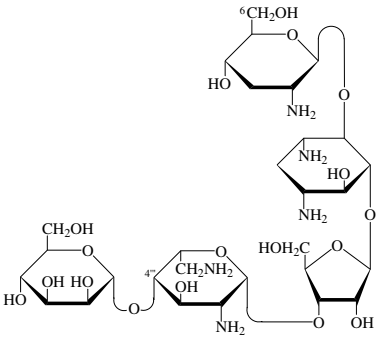
Streptococcus pyogenes **Lipoteichoic acid (modified)** [145454-61-1]

$C_{59}H_{116}O_{35}P_4$ 1509.439
Powder (as tetraammonium salt decahydrate). $[\alpha]_D^{21}$ +42 (c, 0.22 in H_2O).

Fischer, W. *et al., Adv. Microb. Physiol.*, 1988, **29**, 233 (*rev*)
Fischer, W. *et al., Handb. Lipid Res.*, 1990, **6**, 123 (*rev*)
Fukase, K. *et al., Bull. Chem. Soc. Jpn.*, 1992, **65**, 2643 (*synth*)
Fischer, W. *et al., New Compr. Biochem.*, 1994, **27**, 199 (*rev*)
De Kimpe, S.J. *et al., Br. J. Pharmacol.*, 1995, **114**, 1317 (*pharmacol*)
Wada, K. *et al., J. Pharmacol. Exp. Ther.*, 2000, **294**, 280-285 (*activity*)
Stadelmaier, A. *et al., Angew. Chem., Int. Ed.*, 2003, **42**, 916-920 (*synth*)

Lividomycin A L-46

Lividomycin, INN. *Livaline 500. Quintomycin B. SF 767A. Antibiotic SF 767A. Antibiotic 503-2*
[36441-41-5]



$C_{29}H_{55}N_5O_{18}$ 761.776

Aminoglycoside antibiotic. Isol. from *Streptomyces lividus*. Active against gram-positive and gram-negative bacteria. Powder.
Mp 197-203° dec. $[\alpha]_D^{25}$ +72 (c, 1 in H_2O). Log P -10.8 (uncertain value) (calc).

▶ LD_{50} (mus, scu) 1246 mg/kg. WK2140000

6-Phosphate: [68978-11-0]
$C_{29}H_{56}N_5O_{21}P$ 841.756
Prod. by *Streptomyces lividus* ATCC21178. Antibacterial agent. Powder. Sol. H_2O, MeOH; poorly sol. Me_2CO, hexane. $[\alpha]_D$ +76.9 (H_2O). λ_{max} 200 (H_2O).

4‴-Deglycosyl: ***Lividomycin B.*** *Quintomycin D. SF 767D. Antibiotic SF 767D*
[37636-51-4]
$C_{23}H_{45}N_5O_{13}$ 599.634
Prod. by *Streptomyces lividus*. Amorph. powder.
Mp 178-184° dec. $[\alpha]_D^{25}$ +62 (c, 1 in H_2O).

[11111-23-2]

Oda, T. *et al., J. Antibiot.*, 1971, **24**, 333; 511 (*isol, struct, ir, nmr*)
Mori, T. *et al., J. Antibiot.*, 1971, **24**, 339 (*isol*)
Yamamoto, H. *et al., J. Antibiot.*, 1972, **25**, 128; 485; 534 (*synth, ir, nmr, props*)
Okutani, T. *et al., J.A.C.S.*, 1977, **99**, 1278 (*synth, Lividomycin B*)
Japan. Pat., 1978, 78 101 334; *CA*, **90**, 70586e (*6-phosphate*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 99
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LHX350; DAS600

Locust bean gum L-47

Gum locust bean. Carob bean gum. Carob gum
[9000-40-2]

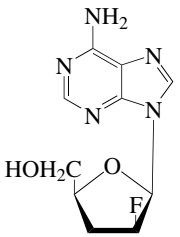
Consists of a high-MW polysaccharide with a main chain of 1,4-linked D-mannose units and side chains of D-galactose. Obt. from seeds of the carob tree *Ceratonia siliqua*. Stabiliser and thickener in food manuf.

Merck Index, 12th edn., 1996, 5584
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 494-497

Lodenosine, INN, USAN L-48

*9-(2,3-Dideoxy-2-fluoro-β-D-*threo*-pentofuranosyl)-9*H*-purin-6-amine, 9CI. 2′,3′-Dideoxy-2′-β-fluoroadenosine. β-Fluoro-ddA. NSC 613792*

[110143-10-7]



$C_{10}H_{12}FN_5O_2$ 253.236

Anti-HIV agent. Fluffy powder (EtOH). Mp 227°. $[\alpha]_D^{24}$ +57.8 (c, 0.08 in H_2O). λ_{max} 258 (ϵ 15100) (MeOH).

▶ Cardiotoxic in rats.

[110143-05-0]

Herdewijn, P. *et al., J. Med. Chem.*, 1987, **30**, 2131-2137 (*synth, uv, pmr, cmr, ms, pharmacol*)

U.S. Pat., 1987, 39 402, (*US Dept. Health and Human Services*); *CA*, **109**, 222451f (*synth, pharmacol*)

Marquez, V.E. *et al., J. Med. Chem.*, 1990, **33**, 978-985 (*synth, pmr, pharmacol*)

Masood, R. *et al., Mol. Pharmacol.*, 1990, **37**, 590-596 (*metab*)

Donizetti, B.A. *et al., Fundam. Appl. Toxicol.*, 1995, **27**, 167-176 (*tox*)

Ruxrungtham, K. *et al., Antimicrob. Agents Chemother.*, 1996, **40**, 2369-2374 (*pharmacol*)

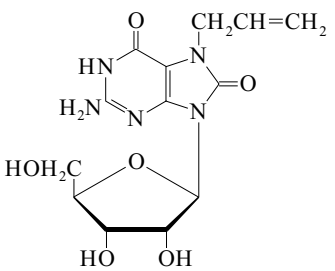
Singhal, D. *et al., Drug Metab. Dispos.*, 1996, **24**, 1155-1161 (*metab*)

Driscoll, J.S. *et al., Antiviral Chem. Chemother.*, 1997, **8**, 107-111 (*pharmacol*)

Loxoribine, INN, USAN L-50

*7,8-Dihydro-8-oxo-7-(2-propenyl)guanosine, 9CI. 7-Allyl-2-amino-9-β-D-ribofuranosylpurine-6,8(1*H*,9*H*)-dione. 7-Allyl-8-oxoguanosine. RWJ 21757*

[121288-39-9]



$C_{13}H_{17}N_5O_6$ 339.307

Immunostimulant, enhances murine natural killer synth. and β lymphocyte proliferation. Powder. Mp 230°. Log P -2.81 (calc).

Eur. Pat., 1989, 341 065, (*Scripps Found*); *CA*, **112**, 217466x (*synth, pharmacol*)

Goodman, M.G. *et al., Cell Immunol.*, 1990, **129**, 377 (*activity*)

Come, J. *et al., Tet. Lett.*, 1991, **32**, 4823 (*synth*)

Pope, B.L. *et al., J. Immunol.*, 1993, **151**, 3007 (*pharmacol*)

Pope, B.L. *et al., Cell Immunol.*, 1994, **159**, 194 (*pharmacol*)

Reitz, A.B. *et al., J. Med. Chem.*, 1994, **37**, 3561 (*synth, pharmacol, sar*)

LTA T L-51

Lipoteichoic acid T

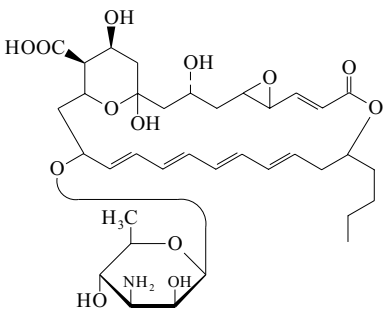
A lipoteichoic acid with a lipid anchor which is a galactofuranosyl-β-1,3-glycerol with different fatty acid residues esterified to the two adjacent OH groups in the glycerol moiety and a non-glycosylated, linear, unbranched glycerol phosphate chain. The hydrophilic backbone consists of only 10 glycerophosphate units esterified with D-alanine to the extent of 30%. Isol. from *Streptococcus* sp. DSM 8747. Shows antitumour activity.

Pat. Coop. Treaty (WIPO), 1996, 96 23 896; *CA*, **125**, 219747g (*isol*)

Lucensomycin, 9CI L-52

Etruscomycin. ***Lucimycin, INN***. *FI 1163*

[13058-67-8]



$C_{36}H_{53}NO_{13}$ 707.814

Polyene antibiotic. Isol. from *Streptomyces lucensis*. Shows antifungal props. Red tide plankton-controlling agent. No longer marketed. Cryst. powder. $[\alpha]_D^{20}$ +240 (DMF). $[\alpha]_D^{20}$ +50 (0.1*M* methanolic HCl). Log P -4.16 (uncertain value) (calc). Unstable to heat, light and air. Unstable beyond pH 6-8. λ_{max} 215 (ϵ 15000); 280 (ϵ 25200); 291 (ϵ 53500); 304 (ϵ 85700); 318 (ϵ 75000) (MeOH) (Derep).

▶ LD_{50} (mus, orl) 1263 mg/kg. OK3850000

Arcamone, F. *et al., Ann. Chim. (Rome)*, 1959, **49**, 345 (*isol*)

Gaudiano, G. *et al., Tet. Lett.*, 1966, 3559; 3567 (*struct*)

Pandey, R.C. *et al., J. Antibiot.*, 1976, **29**, 1035 (*cmr*)

Dornberger, K. *et al., Tet. Lett.*, 1976, 4469 (*cd, cmr, struct*)

Dornberger, K. *et al., Tetrahedron*, 1976, **32**, 3069 (*struct, ms*)

Nadeau, P. *et al., Antimicrob. Agents Chemother.*, 1982, **21**, 545 (*props*)

Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 12904

Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **3**, 475 (*rev*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LIN000

Luridomycin L-53

[84069-90-9]

Glycopeptide antibiotic. Struct. unknown. Prod. by *Nocardia lurida* var. *luridomycina*. Active against gram-positive and mycobacteria. Cryst. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane.

Mp 180°. $[\alpha]_D^{20}$ -81.7 (c, 1 in H_2O). λ_{max} 280 (H_2O) (Berdy).

Wang, C. *et al., CA*, 1983, **98**, 32962 (*isol*)

Lutropin L-54

Luteinising hormone. LH

[9002-67-9]

MW *ca*. 30,000. A glycoprotein consisting of two subunits designated α and β. It contains about 20% carbohydrate residues. Ovine LH-α is a polypeptide chain of 96 amino-acid residues having two carbohydrate moieties. Secreted by the anterior pituitary gland. In the male, stimulates testicular Leydig cells to secrete androgen. In the female it stimulates ovulation of the ovarian follicle and formation of the corpus luteum, which secretes progesterone. Prepns. isol. from urine of postmenopausal women are used in the treatment of infertility (Menotropin BAN, INN, USAN).

▶ OK6367000

Human-α-*form*

Lutropin alfa, BAN, INN, USAN. Luveris [152923-57-4] Recombinant human luteinising hormone. Stimulates follicle maturation. Used in the treatment of infertility. Approved 2000 (EU)

Pierce, J.G. *et al., J. Biol. Chem.*, 1971, **246**, 866 (*struct*)

Sairam, M.R. *et al., Arch. Biochem. Biophys.*, 1972, **153**, 554; *Biochem. Biophys. Res. Commun.*, 1972, **48**, 530 (*struct*)

Inagami, T. *et al., Biochem. J.*, 1972, **126**, 441 (*struct*)

Liu, W.K. *et al., J. Biol. Chem.*, 1972, **247**, 4351; 4365 (*struct*)

Maghuin-Rogister, G. *et al., Eur. J. Biochem.*, 1973, **39**, 235; 255 (*struct*)

Closset, J. *et al., FEBS Lett.*, 1973, **29**, 97 (*struct*)

Shome, B. *et al., J. Clin. Endocrinol.*, 1973, **36**, 618 (*struct*)

Ascoli, M. *et al., Eur. J. Biochem.*, 1977, **72**, 157 (*cd*)

Butt, W.R. *et al., Ann. Clin. Biochem.*, 1979, **16**, 1 (*rev*)

Keutmann, H.T. *et al., Biochem. Biophys. Res. Commun.*, 1979, **90**, 842 (*isol*)

Jibson, M.D. *et al., Int. J. Pept. Protein Res.*, 1979, **14**, 113 (*conformn*)

Sairam, M.R. *et al., Int. J. Pept. Protein Res.*, 1979, **14**, 153 (*struct*)

Brown, F.F. *et al., J. Biol. Chem.*, 1979, **254**, 4335 (*pmr*)

Pierce, J.G. *et al., Annu. Rev. Biochem.*, 1981, **50**, 465 (*rev*)

Zimniski, S.J. *et al., Biochem. Mamm. Reprod.*, 1982, 383 (*rev, metab*)

Kunz, H. *et al., Annalen*, 1983, **3**, 337 (*synth*)

Talmadge, K. *et al., DNA*, 1983, **2**, 281 (*cloning*)

Fiddes, J.C. *et al., Recent Prog. Horm. Res.*, 1984, **40**, 43 (*rev, cloning*)

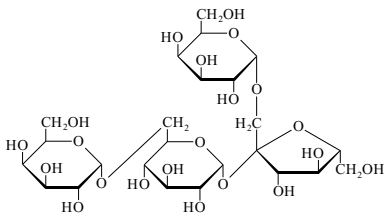
Harlin, J. *et al., Fertil. Steril.*, 1986, **46**, 1055 (*pharmacol*)

Lynch, S.S. *et al., Acta Endocrinol.*, Suppl., 1988, **119**, 12 (*isol, purifn*)

Reichert, L.E. *et al., Trends Pharmacol. Sci.*, 1991, **12**, 199 (*rev*)
Pandian, M.R. *et al., Clin. Chem. (Winston-Salem, N.C.)*, 1993, **39**, 1815 (*anal*)
Dharmesh, S.M. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1993, **90**, 11127 (*pharmacol*)
Robert, P. *et al., Mol. Cell. Endocrinol.*, 1994, **101**, 11-20 (*lutropin alfa*)
Pantel, J. *et al., Endocrinology (Baltimore)*, 1998, **139**, 527-533 (*lutropin alfa*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 1254
Mi, Y. *et al., J. Clin. Invest.*, 2002, **109**, 269-276 (*lutropin alfa*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, LIU300

Lychnose L-55

α-D-Galactopyranosyl-(1→1)-β-D-fructofuranosyl α-D-galactopyranosyl-(1→6)-α-D-glucopyranoside, 8CI
[512-65-2]



$C_{24}H_{42}O_{21}$ 666.583
Isol. from roots of *Lychnis dioica*. Occurs in vegetative parts of all species of Caryophyllaceae tested. $[\alpha]_D^{20}$ +153.5 (c, 0.5 in H_2O).

Archambault, A. *et al., Bull. Soc. Chim. Biol.*, 1956, **38**, 1121; 1133 (*isol, struct*)
Archambault, A. *et al., C. R. Hebd. Seances Acad. Sci.*, 1956, **242**, 2875 (*struct*)
Wickström, A. *et al., Bull. Soc. Chim. Fr.*, 1958, 1410 (*struct*)
Hopf, H. *et al., Planta*, 1984, **162**, 283 (*isol, biosynth*)

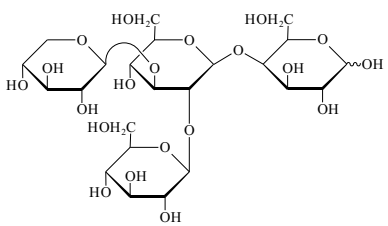
Lycopose L-56

$C_{36}H_{62}O_{21}$ 830.873
Struct. uncertain. Appears to be a non-reducing hexasaccharide of composition galactosyl(galactosyl)$_4$fructose. Isol. from rhizomes of *Lycopus lucidus*. Mp 270°. $[\alpha]_D$ +187.6.

Murakami, S. *et al., CA*, 1951, **45**, 3465
Nakahara, K. *et al., CA*, 1955, **49**, 16086

Lycotetraose L-57

β-D-Glucopyranosyl-(1→2)-[β-D-xylopyranosyl-(1→3)]-β-D-glucopyranosyl-(1→4)-D-galactose



$C_{23}H_{40}O_{20}$ 636.557
Component sugar of Demissine and α-Tomatine.
Mp 188°. $[\alpha]_D$ +2 (H_2O).

Aspinall, G.O. *et al., J.C.S.*, 1962, 214 (*isol*)
Takeo, K. *et al., Carbohydr. Res.*, 1984, **133**, 275 (*synth*)

Lymphokine LK1 L-58

Glycoprotein. Isol. from human tumour cells. Shows antitumour activity.
Sol. H_2O; poorly sol. $CHCl_3$, EtOAc, Et_2O. λ_{max} 280 (H_2O) (Berdy).

U.K. Pat., 1985, 2 153 364; *CA*, **103**, 176904g (*isol*)

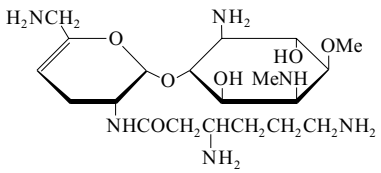
Lyophyllan A L-59

[104521-46-2]
Glycoprotein. Prod. by *Lyophyllum decaster*. Shows antitumour activity.

Lee, C.O. *et al., Saengyak Hakhoechi*, 1986, **17**, 23-24; *CA*, **105**, 149406f (*isol*)

Lysinomycin L-60

AX 127B$_1$. Antibiotic AX 127B$_1$
[79528-70-4]



$C_{20}H_{40}N_6O_6$ 460.573
Aminoglycoside antibiotic. Prod. by *Micromonospora pilospora*. Active against gram-negative and -positive bacteria. More active than Fortimicin A, F-26. Amorph. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 220-222° dec. (darkens at 160°). $[\alpha]_D^{26}$ +49 (c, 1 in H_2O).

4′,5′-Dihydro: [94481-04-6]
$C_{20}H_{42}N_6O_6$ 462.588
Semisynthetic. Shows antimicrobial props. $[\alpha]_D^{26}$ +76 (c, 1.0 in MeOH).

De-N-*lysyl:* [79549-88-5]
$C_{14}H_{28}N_4O_5$ 332.399
Semisynthetic. Shows antimicrobial props. $[\alpha]_D^{23}$ +120 (c, 1.05 in MeOH).

De-N-*lysyl, 4′,5′-dihydro:* [84048-09-9]
$C_{14}H_{30}N_4O_5$ 334.415
Semisynthetic. Shows antimicrobial props. $[\alpha]_D^{27}$ +77 (c, 1.02 in MeOH).

[75432-69-8]

Ger. Pat., 1980, 3 003 497; *CA*, **94**, 2931 (*isol*)
U.S. Pat., 1981, 4 283 529; *CA*, **95**, 187604 (*synth*)
Kurath, P. *et al., J. Antibiot.*, 1982, **35**, 1338; 1984, **37**, 1130 (*derivs, struct*)

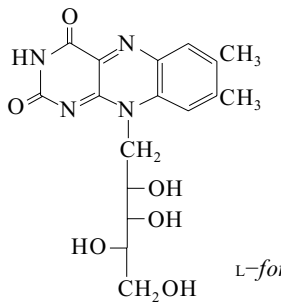
Lytechinastatin L-61

[80893-08-9]
Glycoprotein. Isol. from the sea urchin *Lytechinus variegatus*. Shows antitumour activity. Fairly sol. H_2O; poorly sol. hexane.

Pettit, G.R. *et al., J. Nat. Prod.*, 1981, **44**, 713-716 (*isol*)

Lyxoflavin, 9CI L-62

5-Deoxy-5-(3,4-dihydro-7,8-dimethyl-2,4-dioxobenzo[g]pteridin-10(2H)-yl)arabinitol, 9CI
[482-12-2]



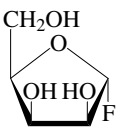
$C_{17}H_{20}N_4O_6$ 376.368

D-*form* [53187-52-3]
Mp 276°. $[\alpha]_D^{20}$ +46 (0.05N NaOH).

L-*form*
Isol. from mammalian heart tissue. Orange needles.
Mp 283-284° dec. $[\alpha]_D^{23}$ -49 (c, 0.26 in 0.05N NaOH).
Tetra-Ac: Mp 223°.

Karrer, P. *et al., Helv. Chim. Acta*, 1935, **18**, 908 (*D-form, synth*)
Heyl, D. *et al., J.A.C.S.*, 1951, **73**, 3826 (*L-form, synth*)
Emerson, G.A. *et al., J.A.C.S.*, 1951, **73**, 5383 (*L-form, activity*)
Harders, H. *et al., Biochemistry*, 1974, **13**, 3360 (*D-form, cd*)

Lyxofuranosyl fluoride L-63



α-D-*form*

$C_5H_9FO_4$ 152.122

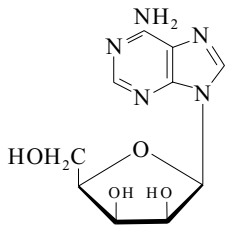
α-D-*form*
Tribenzoyl: 2,3,5-Tri-O-*benzoyl-α-D-lyxofuranosyl fluoride*
[57578-81-1]
$C_{26}H_{21}FO_7$ 464.446
Syrup. $[\alpha]_D^{20}$ -15.5 (c, 0.46 in $CHCl_3$).

β-D-*form*
Tribenzoyl: 2,3,5-Tri-O-*benzoyl-β-D-lyxofuranosyl fluoride*
[61835-38-9]
$C_{26}H_{21}FO_7$ 464.446
Cryst. (Et_2O). Mp 62-63°. $[\alpha]_D^{20}$ -14.13 (c, 0.72 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 727 (*tribenzoyl, pmr, cmr, F-19 nmr*)

9-Lyxofuranosyladenine, 8CI L-64

*9-Lyxofuranosyl-9*H*-purin-6-amine, 9CI*



$C_{10}H_{13}N_5O_4$ 267.244

β-D-*form* [4005-33-8]
Inhibitor of Purine metab. in Ehrlich ascites tumour cells *in vitro*.
Amorph. solid. $[\alpha]_D^{21}$ -21 (c, 0.3 in H_2O).
λ_{max} 259 nm (ε 14 900) (H_2O).

Picrate: Mp 213° dec.

*2′,3′-*O*-Benzylidene:*
$C_{17}H_{17}N_5O_4$ 355.352
Mp 219-222°. $[\alpha]_D^{0.5}$ +118 (c, 0.5 in Py).

*3′,5′-*O*-Benzylidene:*
$C_{17}H_{17}N_5O_4$ 355.352
Mp 251.5-253°. $[\alpha]_D^{24.5}$ -86 (c, 0.51 in Py).

*2′,3′-*O*-Isopropylidene:*
$C_{13}H_{17}N_5O_4$ 307.308
Mp 267-268.5°. $[\alpha]_D^{21}$ +17.8 (c, 0.52 in Py).

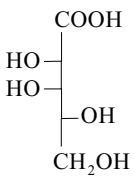
*2′,3′-*O*-Isopropylidene, 5′-mesyl:*
$C_{14}H_{19}N_5O_6S$ 385.4
Mp 185.5-187.5°. $[\alpha]_D^{24}$ +24 (c, 0.5 in Py).

*3′,5′-*O*-Isopropylidene:*
$C_{13}H_{17}N_5O_4$ 307.308
Mp 233.5-234°. $[\alpha]_D^{23.5}$ -55 (c, 0.5 in Py).

Reist, E.J. *et al., Chem. Ind. (London)*, 1965, 1561 (*synth*)
Reist, E.J. *et al., J.O.C.*, 1967, **32**, 169 (*synth, pmr*)
Ingwall, J.S. *et al., J.A.C.S.*, 1972, **94**, 5487 (*cd*)
Lau, K.F. *et al., Cancer Chemother. Rep., Part 2*, 1973, **3**, 95; *CA*, **79**, 13415v

Lyxonic acid, 9CI, 8CI L-65

[28223-40-7]



D−*form*

$C_5H_{10}O_6$ 166.13

D-*form* [526-92-1]

Phenylhydrazide: Mp 165°. $[\alpha]_D^{20}$ -13.7 (H_2O).

*Tetra-Ac, Me ester: Methyl 2,3,4,5-tetra-*O*-acetyl-D-lyxonoate*
$C_{14}H_{20}O_{10}$ 348.306
$[\alpha]_D^{25}$ +15.3 (c, 2.0 in $CHCl_3$).

Tetra-Ac, Et ester:
$C_{15}H_{22}O_{10}$ 362.333
$[\alpha]_D^{25}$ +14 (c, 2.0 in $CHCl_3$).

*1,4-Lactone: D-Lyxono-1,4-lactone. D-*lyxo*-1,4-Pentonolactone*
$C_5H_8O_5$ 148.115
Mp 115°. $[\alpha]_D$ +84.7 (H_2O).

*1,4-Lactone, 2,5-ditosyl: 2,5-Di-*O*-tosyl-D-lyxono-1,4-lactone*
[146820-56-6]
$C_{19}H_{20}O_9S_2$ 456.494
Cryst. (EtOAc/hexane). Mp 128-129°.
$[\alpha]_D^{20}$ +59 (c, 1.0 in Me_2CO).

*1,4-Lactone, 2,3-*O*-isopropylidene: 2,3-*O*-Isopropylidene-D-lyxono-1,4-lactone*
[56543-10-3]
$C_8H_{12}O_5$ 188.18
Mp 99-100°. $[\alpha]_D$ +106 (H_2O).

*1,4-Lactone, 3,5-*O*-isopropylidene: 3,5-*O*-Isopropylidene-D-lyxono-1,4-lactone*
[56543-11-4]
$C_8H_{12}O_5$ 188.18
Cryst. (EtOAc/petrol). Mp 137-138°.
$[\alpha]_D^{22}$ +22 (c, 2.0 in Me_2CO).

*1,4-Lactone, 3,5-benzylidene(*S*-): 3,5-*O*-Benzylidene-D-lyxono-1,4-lactone*
$C_{12}H_{12}O_5$ 236.224
Solid. Mp 202-203°. $[\alpha]_D^{22}$ +31.1 (c, 0.23 in Me_2CO).

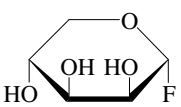
L-*form*

*1,4-Lactone 3,5-*O*-benzylidene: 3,5-*O*-Benzylidene-L-lyxono-1,4-lactone*
$C_{12}H_{12}O_5$ 236.224
Cryst. (Me_2CO). Mp 201.5-204°.
$[\alpha]_D^{20}$ -30.9 (DMF).

[78138-87-1, 131614-82-9]

Schaffer, R. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1961, **65A**, 507 (*D-lactone 2,3-isopropylidene*)
Humphlett, W.J. *et al., Carbohydr. Res.*, 1967, **4**, 157 (*Me and Et esters*)
Morgenlie, S. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 367 (*D-lactone 2,3-isopropylidene, D-lactone 3,5-isopropylidene*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 111 (*pmr, cmr, conformn, lactone*)
Madsen, R. *et al., Synthesis*, 1992, 1129 (*1,4-lactone, 2,5-ditosyl, pmr, cmr*)
Lundt, I. *et al., Synthesis*, 1992, 1129 (*D-lactone, 2,5-ditosyl*)
Kold, H. *et al., Acta Chem. Scand.*, 1994, **48**, 675 (*L-lactone 3,5-benzylidene*)
Han, S.-Y. *et al., Tetrahedron: Asymmetry*, 1994, **5**, 2535 (*D-lactone benzylidene*)

Lyxopyranosyl fluoride L-66



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-lyxopyranosyl fluoride*
[10369-22-9]
$C_{11}H_{15}FO_7$ 278.234
Cryst. (Et_2O/pentane). Mp 87-89°. $[\alpha]_D^{20}$ -10.4 (c, 1.14 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-lyxopyranosyl fluoride*
[2924-39-2]
$C_{26}H_{21}FO_7$ 464.446
Cryst. Mp 141-143°.

α-L-*form*

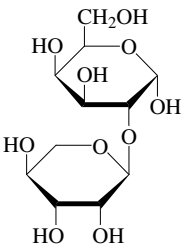
*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-L-lyxopyranosyl fluoride*
$C_{11}H_{15}FO_7$ 278.234
Cryst. Mp 50-51°. $[\alpha]_D^{20}$ -18 (c, 1.0 in $CHCl_3$).

β-L-*form*
22893-62-5.

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-L-lyxopyranosyl fluoride*
$C_{11}H_{15}FO_7$ 278.234
Cryst. (Et_2O/pentane). Mp 117-118°.
$[\alpha]_D^{20}$ +136 (c, 1.0 in $CHCl_3$).

Petersen, C. *et al., Acta Chem. Scand.*, 1964, **18**, 60 (*α-D-tribenzoyl*)
Lundt, I. *et al., Mikrochim. Acta*, 1966, 126 (*tri-Ac, ir*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 19 (*tri-Ac, pmr, F-19 nmr*)
Miethchen, R. *et al., Synthesis*, 1997, 159 (*α-D-tri-Ac*)

2-*O*-α-L-Lyxopyranosyl-D-galactose L-67



α-Pyranose-*form*

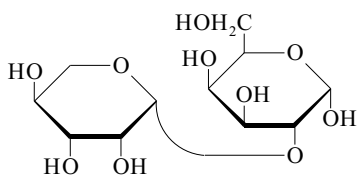
$C_{11}H_{20}O_{10}$ 312.273

α-Pyranose-*form*

Hepta-Ac: [87239-55-2]
$C_{25}H_{34}O_{17}$ 606.533
Needles (Et_2O). Mp 215°. $[\alpha]_D^{28}$ +60 (c, 1.0 in $CHCl_3$).

Konishi, F. *et al., Agric. Biol. Chem.*, 1983, **47**, 1633

2-*O*-β-L-Lyxopyranosyl-D-galactose L-68



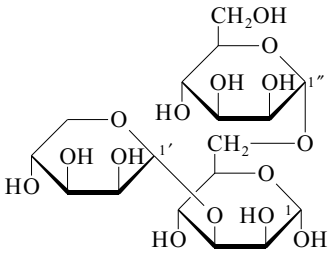
$C_{11}H_{20}O_{10}$ 312.273

α-Pyranose-*form*

Hepta-Ac: [87239-56-3]
$C_{25}H_{34}O_{17}$ 606.533
Plates (EtOH). Mp 161°. $[\alpha]_D^{28}$ +172 (c, 1.0 in $CHCl_3$).

Konishi, F. *et al., Agric. Biol. Chem.*, 1983, **47**, 1633

α-D-Lyxopyranosyl-(1→3)-[α-D-mannopyranosyl-(1→6)]-D-mannose L-69



$C_{17}H_{30}O_{15}$ 474.415

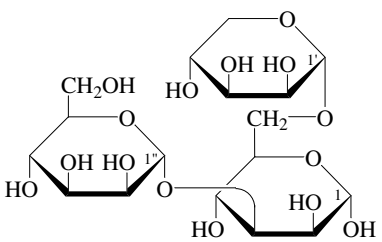
α-Pyranose-*form*

Me glycoside: [81555-72-8]
$C_{18}H_{32}O_{15}$ 488.442
Amorph. solid. $[\alpha]_D^{23}$ +91.5 (c, 0.23 in H_2O).

Me glycoside, 2-allyl, 2′,2″,3′,3″,4′,4″,6″-hepta-Ac: [81555-79-5]
$C_{35}H_{50}O_{22}$ 822.767
Oil.

Winnik, F.M. *et al., J.O.C.*, 1982, **47**, 2701 (*α-Me pyr derivs, synth, pmr*)

α-D-Lyxopyranosyl-(1→6)-[α-D-mannopyranosyl-(1→3)]-D-mannose L-70



α-Pyranose-*form*

$C_{17}H_{30}O_{15}$ 474.415

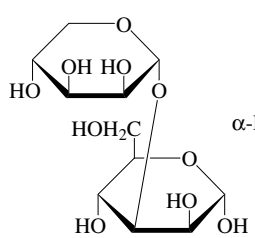
α-Pyranose-*form*

Me glycoside: [81555-73-9]
$C_{18}H_{32}O_{15}$ 488.442
Foam. $[\alpha]_D^{23}$ +89.6 (c, 0.23 in H_2O).

Me glycoside, 2-allyl, 2′,2″,3′,3″,4′,4″,6″-hepta-Ac: [81555-80-8]
$C_{35}H_{50}O_{22}$ 822.767
Foamy solid.

Winnik, F.M. *et al., J.O.C.*, 1982, **47**, 2701 (*α-Me pyr derivs, pmr*)

3-*O*-α-D-Lyxopyranosyl-D-mannose L-71



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

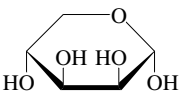
α-Pyranose-*form*

Me glycoside: Methyl 3-O-α-D-lyxopyranosyl-α-D-mannopyranoside
[81555-78-4]
$C_{12}H_{22}O_{10}$ 326.3
Mp 150-152°. $[\alpha]_D$ +44.7 (c, 0.29 in H_2O).

Winnik, F.M. *et al., J.O.C.*, 1982, **47**, 2701 (*synth, pmr*)

Lyxose, 9CI, 8CI L-72

[65-42-9]



α-D-Pyranose-*form*

$C_5H_{10}O_5$ 150.131

An aq. soln. at 31°C contains 70% α-pyr, 28% β-pyr, 1.5% α-fur, 0.5% β-fur and 0.03% aldehyde.

D-*form* [1114-34-7]
Mp 117-118° (106-107°). $[\alpha]_D$ +6. $[\alpha]_D$ -73 → -14 (H_2O). pK_{a1} 12.11 (25°).

2,4-Dinitrophenylhydrazone: Mp 171-172°. $[\alpha]_D^{20}$ +31 (c, 0.6 in Py).

Di-Et dithioacetal: See Lyxose diethyl dithioacetal, L-74

2,3-O-Isopropylidene: See 2,3-*O*-Isopropylidenelyxose, I-70

2-Me: 2-O-Methyl-D-lyxose
[32087-38-0]
$C_6H_{12}O_5$ 164.158
Mp 118-119°. $[\alpha]_D$ -6.5 (c, 1.5 in H_2O).

2,4-Di-Me: 2,4-Di-O-methyl-D-lyxose
$C_7H_{14}O_5$ 178.185
Mp 83-85°. $[\alpha]_D$ -5.7 → -11.1 (c, 0.32 in H_2O).

2,3,4-Tri-Me: 2,3,4-Tri-O-methyl-D-lyxose
$C_8H_{16}O_5$ 192.211
Mp 79°. $[\alpha]_D^{20}$ -22 (H_2O).

α-D-Pyranose-*form* [608-46-8]
Hygroscopic. Mp 106-107°. $[\alpha]_D^{20}$ +5.5 → -14 (c, 0.82 in H_2O).

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-α-D-lyxopyranose
[4026-34-0]
$C_{13}H_{18}O_9$ 318.28
Cryst. (EtOH). Mp 93-94° Mp 113-114° Mp 123-124°. $[\alpha]_D^{20}$ +25.1 (c, 3.3 in $CHCl_3$).

2,3,4-Tribenzoyl, 1-Ac: 1-O-Acetyl-2,3,4-tri-O-benzoyl-α-D-lyxopyranose
$C_{28}H_{24}O_9$ 504.492
Amorph. glass. $[\alpha]_D^{20}$ -115.3 (c, 0.70 in $CHCl_3$).

1-Benzoyl, 2,3,4-tri-Ac: 2,3,4-Tri-O-acetyl-1-O-benzoyl-α-D-lyxopyranose
[32453-52-4]
$C_{18}H_{20}O_9$ 380.351
Cryst. (Et_2O). Mp 90-91°. $[\alpha]_D^{20}$ +52.7 (c, 1.09 in $CHCl_3$).

Tetrabenzoyl: 1,2,3,4-Tetra-O-benzoyl-α-D-lyxopyranose
$C_{33}H_{26}O_9$ 566.563
Mp 137-139°.

Me glycoside: See Methyl lyxopyranoside, M-202

β-D-Pyranose-*form* [608-47-9]

Tetra-Ac: 1,2,3,4-Tetra-O-acetyl-β-D-lyxopyranose
$C_{13}H_{18}O_9$ 318.28
Syrup. $[\alpha]_D^{22}$ -79.7 (c, 0.94 in Me_2CO).

Tetrabenzoyl: 1,2,3,4-Tetra-O-benzoyl-β-D-lyxopyranose
[30319-46-1]
$C_{33}H_{26}O_9$ 566.563
Mp 117-120°.

β-D-Furanose-*form*

Me glycoside: See Methyl lyxofuranoside, M-201

Benzyl glycoside, 2,3-O-isopropylidene: Benzyl 2,3-O-isopropylidene-β-D-lyxofuranoside
$C_{15}H_{20}O_5$ 280.32
Mp 87-87.5°. $[\alpha]_D^{25}$ +99 (c, 1.0 in Me_2CO).

L-*form* [1949-78-6]
Present in the hydrol. prods. of Curamycin A, C-157.
Hygroscopic.
Mp 105°. $[\alpha]_D$ -5.8 → +13.5 (H_2O).

2,4-Dinitrophenylhydrazone: Mp 171-172°. $[\alpha]_D^{20}$ -31 (Py).

2-Me: 2-O-Methyl-L-lyxose
[27963-88-8]
$C_6H_{12}O_5$ 164.158
Mp 120-121°. $[\alpha]_D$ +6 (c, 1.0 in H_2O).

β-L-Furanose-*form* [40461-77-6]

1,2-O-Isopropylidene: 1,2-O-Isopropylidene-β-L-lyxofuranose
[34981-06-1]
$C_8H_{14}O_5$ 190.196
Mp 109-111°. $[\alpha]_D$ -20.5 (Me_2CO).

1,2-O-Isopropylidene, 5-tosyl: 1,2-O-Isopropylidene-5-O-tosyl-β-L-lyxofuranose
$C_{15}H_{20}O_7S$ 344.385
Mp 64-65°. $[\alpha]_D$ -24.4 ($CHCl_3$).

1,2-O-Isopropylidene, 3-benzyl: 3-O-Benzyl-1,2-O-isopropylidene-β-L-lyxofuranose
[34370-91-7]
$C_{15}H_{20}O_5$ 280.32
Mp 61-62°. $[\alpha]_D$ +48.6 ($CHCl_3$).

DL-*form*
Mp 95°.

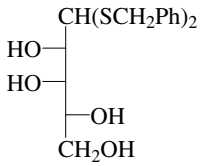
[7283-06-9, 7283-07-0, 7687-39-0, 25545-04-4, 40461-89-0]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 191C; 191D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 294C; 295A (*nmr*)
Fletcher, H.G. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 77; 79 (*synth*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 79 (*synth, L-form*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1968, 1381 (*β-L-benzyl fur*)
Binkley, R.W. *et al., Carbohydr. Res.*, 1970, **13**, 163 (*α-D-pyr tetra-Ac*)
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 389 (*α-D-pyr tribenzoyl 1-Ac, α-D-pyr benzoyl tri-Ac*)
Durette, P.L. *et al., J.O.C.*, 1971, **36**, 2658 (*α-D-pyr tetra-Ac, β-D-pyr tetra-Ac, α-D-pyr tetrabenzoyl, β-D-pyr tetrabenzoyl*)
Abbas, S.A. *et al., Carbohydr. Res.*, 1975, **42**, 362 (*α-D-pyr di-Me*)

de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **34**, 179 (*β-L-fur isopropylidene, β-L-fur isopropylidene tosyl, β-L-fur isopropylidene benzyl*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 38; 41 (*pmr, cmr*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Lacourt-Gadras, B. *et al., Carbohydr. Res.*, 1992, **235**, 281 (*synth, D-form*)
Yanagihara, R. *et al., Bull. Chem. Soc. Jpn.*, 1993, **66**, 2268 (*synth*)
Benesi, A.J. *et al., Carbohydr. Res.*, 1994, **258**, 27 (*pmr, cmr*)
Popsavin, V. *et al., Carbohydr. Res.*, 1999, **321**, 110-115 (*D-form, synth*)

Lyxose dibenzyl dithioacetal L-73

Lyxose dibenzyl mercaptal. 5,5-Bis(benzylthio)-1,2,3,4-pentanetetrol†



D-*form*

$C_{19}H_{24}O_4S_2$ 380.528

D-*form* [64780-60-5]
Needles (2-propanol). Mp 104°. $[\alpha]_D^{23}$ +4.8 (c, 3.81 in MeOH). $[\alpha]_D$ -26 (c, 2 in Py).

*Tetra-Ac: 2,3,4,5-Tetra-*O*-acetyl-D-lyxose dibenzyl dithioacetal*
$C_{27}H_{32}O_8S_2$ 548.677
Needles (MeOH). Mp 103.5°. $[\alpha]_D^{22}$ +198 (c, 1.8 in MeOH).

*2,3,5-Tri-Me: 2,3,5-Tri-*O*-methyl-D-lyxose dibenzyl dithioacetal*
[58886-15-0]
$C_{22}H_{30}O_4S_2$ 422.609
Syrup. $[\alpha]_D^{27}$ +122 (c, 1.61 in $CHCl_3$).

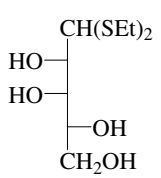
L-*form*

*2,3,5-Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-L-lyxose dibenzyl dithioacetal*
[169331-13-9]
$C_{40}H_{36}O_7S_2$ 692.852
Cryst. (MeOH). Mp 119-120°.

Hardegger, E. *et al., Helv. Chim. Acta*, 1950, **33**, 1159-1164 (*D-form, synth*)
Zinner, H. *et al., Chem. Ber.*, 1956, **89**, 800-813 (*D-form, synth*)
Van Es, T. *et al., Carbohydr. Res.*, 1976, **46**, 237-244 (*D-2,3,5-tri-Me*)
Birtwistle, I *et al., Synth. Commun.*, 2001, **31**, 3739-3746 (*L-2,3,5-tribenzoyl*)

Lyxose diethyl dithioacetal L-74

Lyxose diethyl mercaptal. 5,5-Bis(ethylthio)-1,2,3,4-pentanetetrol



D-*form*

$C_9H_{20}O_4S_2$ 256.387

D-*form* [6838-08-0]
Cryst. (EtOH). Mp 103-104° (102-102.5°). $[\alpha]_D^{20}$ +42.1 (c, 1.0 in H_2O).

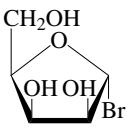
*Tetra-Ac: 2,3,4,5-Tetra-*O*-acetyl-D-lyxose diethyl dithioacetal*
[7241-19-2]
$C_{17}H_{28}O_8S_2$ 424.535
Cryst. (EtOH). Mp 52-53° Mp 36-37°. $[\alpha]_D^{28}$ +40.5 (c, 5 in $CHCl_3$). Dimorphic.

2,3,4-Tribenzyl: [96236-35-0]
$C_{30}H_{38}O_4S_2$ 526.76
Syrup. $[\alpha]_D^{17}$ -25.2 (c, 1.23 in $CHCl_3$).

L-*form* [22249-18-9]
Solid (2-methyl-1-propanol). Mp 101-102°. $[\alpha]_D^{20}$ -41.5 (c, 0.6 in H_2O).

Wolfrom, M.L. *et al., J.A.C.S.*, 1940, **62**, 3465-3466 (*D-form, synth*)
Zissis, E. *et al., J.A.C.S.*, 1954, **76**, 5515-5522 (*D-form, synth*)
Smrz, M. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 3803-3808 (*D-form, L-form, synth*)
Horton, D. *et al., Carbohydr. Res.*, 1980, **80**, 263-275 (*D-tetra-Ac*)
Dills, W.L. *et al., Carbohydr. Res.*, 1982, **99**, 23-31 (*D-form, synth*)
Tadano, K. *et al., J. Carbohydr. Chem.*, 1987, **6**, 245-257 (*D-2,3,4-tribenzyl*)

Lyxosyl bromide L-75



α-D-Furanose-*form*

$C_5H_9BrO_4$ 213.028

α-D-Pyranose-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-lyxopyranosyl bromide*
[4099-16-5]
$C_{11}H_{15}BrO_7$ 339.139
Needles (Et_2O/petrol). Mp 118°. $[\alpha]_D^{26}$ +143.8 (c, 1.0 in $CHCl_3$).

*2-Bromo-2-deoxy, 3,4-dibenzoyl: 3,4-Di-*O*-benzoyl-2-bromo-2-deoxy-α-D-lyxopyranosyl bromide*
[50271-34-6]
$C_{19}H_{16}Br_2O_5$ 484.14
Cryst. (Et_2O/pentane). Mp 144-145°. $[\alpha]_D^{22}$ +36.3 (c, 1.6 in $CHCl_3$).

β-D-Pyranose-*form*

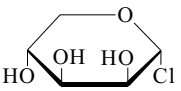
*2-Bromo-2-deoxy, 3,4-dibenzoyl: 3,4-Di-*O*-benzoyl-2-bromo-2-deoxy-β-D-lyxopyranosyl bromide*
[50271-33-5]
$C_{19}H_{16}Br_2O_5$ 484.14
Cryst. (Et_2O/pentane). Mp 143-144°. $[\alpha]_D^{21}$ -234 (c, 1.5 in $CHCl_3$).

α-D-Furanose-*form*

*2,3-Carbonate, 5-benzoyl: 5-*O*-Benzoyl-2,3-*O*-carbonyl-α-D-lyxofuranosyl bromide. 5-*O*-Benzoyl-α-D-lyxofuranosyl bromide 2,3-carbonate*
[64609-12-7]
$C_{13}H_{11}BrO_6$ 343.13
Cryst. (Et_2O). Mp 138-139°. $[\alpha]_D$ +92 (c, 1 in CH_2Cl_2).

Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 57 (*α-D-pyr tri-Ac, conformn*)
Bock, K. *et al., J.C.S. Perkin 1*, 1973, 1456 (*2-bromo-2-deoxy dibenzoyl derivs*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1041 (*pmr, equilib*)
Horitsu, K. *et al., Agric. Biol. Chem.*, 1977, **41**, 1459 (*α-D-fur carbonate benzoyl*)

Lyxosyl chloride L-76



α−D−Pyranose−*form*

$C_5H_9ClO_4$ 168.576

α-D-*Pyranose-form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-lyxopyranosyl chloride*
[32445-42-4]
$C_{11}H_{15}ClO_7$ 294.688
Needles (Et_2O/petrol). Mp 95.5-96.5°. $[\alpha]_D^{27}$ +90.3 (c, 1 in $CHCl_3$).

*Tribenzoyl, 2-*C*-chloro:* [52080-51-0]
$C_{26}H_{20}Cl_2O_7$ 515.345
Syrup. $[\alpha]_D^{25}$ -92 (c, 1.0 in $CHCl_3$).

Tris(chlorosulfate): [23566-98-5]
Cryst. ($CHCl_3$/petrol). Mp 92-93°. $[\alpha]_D^{21}$ +20.6 (c, 1.1 in $CHCl_3$).

β-D-*Pyranose-form*

*Tribenzoyl, 2-*C*-chloro:* [52080-54-3]
Syrup. $[\alpha]_D^{25}$ -115 (c, 1.0 in $CHCl_3$).

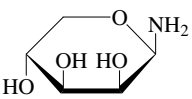
Tris(chlorosulfonyl):
Needles ($CHCl_3$/petrol). Mp 78°. $[\alpha]_D^{21}$ -82.8 (c, 1.6 in $CHCl_3$).

α-D-*Furanose-form*

*2,3,5-Tri-Ac: 2,3,5-Tri-*O*-acetyl-α-D-lyxofuranosyl chloride*
$C_{11}H_{15}ClO_7$ 294.688
Syrup. $[\alpha]_D$ +80 (c, 2.4 in $CHCl_3$).

Zinner, H. *et al., Chem. Ber.*, 1956, **89**, 1507 (*furanose form*)
Jennings, H.J. *et al., Can. J. Chem.*, 1969, **47**, 1157 (*trichloro sulfate*)
Horton, D. *et al., Chem. Comm.*, 1970, 1608
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 57 (*tri-Ac*)
Durrette, P.L. *et al., Org. Magn. Reson.*, 1971, **3**, 417 (*pmr*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1980, **113**, 471 (*chloro, pmr, cmr*)

Lyxosylamine L-77



β-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form* [39840-37-4]
Mp 142-143°. $[\alpha]_D$ -44.5 (H_2O).

N-*(4-Nitrophenyl):* [74709-33-4]
Yellow amorph. powder. Mp 209-210°. $[\alpha]_D$ -126 (c, 1.5 in $CHCl_3$).

N-*(4,5-Dimethyl-2-nitrophenyl):* Mp 198-199°. $[\alpha]_D$ -109 (Py).

N-*(4,5-Dimethyl-2-nitrophenyl), tri-Ac:* Mp 190-191°. $[\alpha]_D$ -154 (c, 1 in Py).

β-D-*Pyranose-form*

N-*Ac:*
$C_7H_{13}NO_5$ 191.183
Mp 166-167°. $[\alpha]_D$ -47 (c, 1 in H_2O).

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-lyxopyranosylamine*
[53887-03-9]
$C_{11}H_{17}NO_7$ 275.258
Cryst. (EtOAc/petrol). Mp 193-195°.

2,3,4-Tri-Ac; hydrochloride: [53784-77-3]
Cryst. (EtOH). Mp 153-163°. $[\alpha]_D^{21}$ -23.3 (c, 1 in MeOH).

N-*(*p-*Methoxybenzoyl), tri-Ac:*
Cryst. (EtOAc). Mp 202-203°. $[\alpha]_D^{23}$ -57 (c, 1 in $CHCl_3$).

N-*(4-Nitrobenzoyl), tri-Ac:*
Cryst. (EtOAc/petrol). Mp 186-189°. $[\alpha]_D^{25}$ -41 (c, 1 in $CHCl_3$).

N-*(Trifluoroacetyl), tri-Ac:*
Cryst. (EtOH/petrol). Mp 175-177°. $[\alpha]_D^{22}$ -45.3 (c, 1 in $CHCl_3$).

N*,2,3,4-Tetra-Ac:*
$C_{13}H_{19}NO_8$ 317.295
$[\alpha]_D^{25}$ -53.6 (c, 1 in $CHCl_3$).

L-*form*

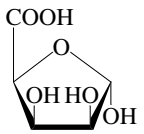
N-*(4,5-Dimethyl-2-nitrophenyl):* Mp 195-196°. $[\alpha]_D$ +112 (c, 1 in Py).

N-*(4,5-Dimethyl-2-nitrophenyl), tri-Ac:*
Mp 184-185°. $[\alpha]_D$ +155 (c, 1 in Py).

Levene, P.A. *et al., J. Biol. Chem.*, 1915, **22**, 333; 1916, **24**, 692 (*D-form*)
Weygand, F. *et al., Chem. Ber.*, 1950, **83**, 559 (*4-nitrophenyl*)
Heyl, D. *et al., J.A.C.S.*, 1954, **76**, 1355 (*2-nitrophenyl*)
Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*rev*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 1590 (*synth, pmr, conformn, β-D-Pyr*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 255 (*β-D-*N*-Ac*)
Smiatacz, Z. *et al., Carbohydr. Res.*, 1984, **128**, 227 (N-*Aryl*)

Lyxuronic acid, 8CI L-78

[30923-19-4]
[134679-15-5]



α-D-Furanose-*form*

$C_5H_8O_6$ 164.115

D-*form*

Produced by the action of *Acetobacter melanogenum* on D-glucose.
$[\alpha]_D^{20}$ -23 → -53 (H_2O) (as Ca salt dihydrate).

α-D-Furanose-*form*

α-D-Lyxofuranuronic acid
[134679-11-1]

Me glycoside, Me ester: Methyl (methyl α-D-lyxofuranosid)uronate
$C_7H_{12}O_6$ 192.168
Solid. $[\alpha]_D^{20}$ +50.1 (c, 0.7 in $CHCl_3$).

L-*form*

Cryst. (as Na salt). $[\alpha]_D$ -10 (c, 2.0 in H_2O).

Me ester: Methyl L-lyxuronate
$C_6H_{10}O_6$ 178.141
Mp 140°. $[\alpha]_D$ -37.7 → -23 (c, 1.8 in H_2O).

α-L-Furanose-*form*

Me glycoside, Me ester: Methyl (methyl α-L-lyxofuranosid)uronate
[5531-17-9]
$C_7H_{12}O_6$ 192.168
Cryst. Mp 85°. $[\alpha]_D$ -94 (c, 2 in MeOH).

Ameyama, M. *et al., Bull. Agric. Chem. Soc. Jpn.*, 1958, **22**, 271; 380; *CA*, **52**, 20408; **53**, 22229 (*D-form*)
Hulyalkar, R.K. *et al., Can. J. Chem.*, 1965, **43**, 3241-3246 (*L-form Me ester, α-L-Me fur Me ester*)
Wu, J. *et al., Carbohydr. Res.*, 1991, **210**, 51-70 (*pmr, cmr*)
Werschkun, B. *et al., Synthesis*, 1999, 121-137 (*α-D-Me fur Me ester*)

M 4400 M-1

Glycoprotein. Prod. by *Macrophomina phaseoli* IFO 7318. Glucosyltransferase inhibitor; used in the prevention of dental caries. Sol. H_2O. λ_{max} 280 (pH 6.3 buffer) (Berdy).

U.K. Pat., 1981, 2 069 499; *CA*, **96**, 91500j (*isol*)

M 5084 M-2

Glycoproteins. Prod. by *Fusarium solani* M5084 isol. from a soil sample. Glucosyltransferase inhibitors; used in the prevention of dental caries.

M 5084 1

Sol. H_2O. λ_{max} 280 (pH 6.3 buffer) (Berdy).

M 5084 11

Sol. H_2O. λ_{max} 280 (pH 6.3 buffer) (Berdy).

U.K. Pat., 1981, 2 069 499; *CA*, **96**, 91500j (*isol*)

M 5093 M-3

Glycoprotein. Prod. by *Gnomoniella* M5093. Glucosyltransferase inhibitor; used in the prevention of dental caries. Sol. H_2O. λ_{max} 280 (pH 6.3 buffer) (Berdy).

U.K. Pat., 1981, 2 069 499; *CA*, **96**, 91500j (*isol*)

M 5094 M-4

Glycoprotein. Prod. by *Nodulisporium* M5094. Glucosyltransferase inhibitor; used in the prevention of dental caries. Sol. H_2O. λ_{max} 280 (pH 6.3 buffer) (Berdy).

U.K. Pat., 1981, 2 069 499; *CA*, **96**, 91500j (*isol*)

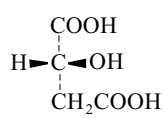
M GCI M-5

Glycoprotein. Isol. from *Micromonospora* sp. BR-1613. β-Glucuronidase inhibitor. λ_{max} 280 (ϵ 359) (H_2O) (Berdy).

Uyeda, M. *et al., Agric. Biol. Chem.*, 1984, **48**, 29-35 (*isol*)

Malic acid, 8CI M-6

Hydroxybutanedioic acid, 9CI. Hydroxysuccinic acid. E296
[6915-15-7]



(R)−form

$C_4H_6O_5$ 134.088
Flavour enhancer and other uses in food. Acidulant, antioxidant. Flavouring agent, buffering agent and a chelating agent.
▶ Skin and severe eye irritant. ON7175000

(R)-form
D-form
[636-61-3]
This enantiomer of rare occurrence; reported from fruits and leaves of *Hibiscus sabdariffa* (roselle) although there are many more isolations of malic acid with no opt. rotn. given and some may be of the (*R*)-form.
Cryst. (Et_2O). Sol. H_2O, EtOH, Me_2CO. Mp 101° (97-99°). $[\alpha]_D$ +2.92 (MeOH). $[\alpha]_D^{20}$ +28.4 (c, 5.5 in Py) (>99.8% ee). pK_{a1} 5.26 (25°, H_2O).
▶ ON7260000

Di-Na salt: [138-09-0]
$[\alpha]_D$ +8.29 (H_2O).
▶ ON7350000

1-Me ester: [83540-94-7]
$C_5H_8O_5$ 148.115
Cryst. (EtOAc/hexane). Mp 79-80°. $[\alpha]_D^{20}$ -5 (c, 9.5 in CH_3OH).

Di-Me ester: Dimethyl malate
[70681-41-3]
$C_6H_{10}O_5$ 162.142
Liq. $[\alpha]_D^{25}$ +6.2 (neat). $[\alpha]_D^{25}$ +9.1 (c, 2.15 in EtOH).

1-Et ester: [83540-96-9]
$C_6H_{10}O_5$ 162.142
Mp 48-49.5°.

Di-Et ester: Diethyl malate
[7554-28-1]
$C_8H_{14}O_5$ 190.196
Constit. of *Diospyros maritima*. Liq. $Bp_{1.4}$ 86-90°. $[\alpha]_D^{25}$ +10.7 (c, 2.29 in EtOH).

Diisopropyl ester: [83540-97-0]
$C_{10}H_{18}O_5$ 218.249
Liq. $[\alpha]_D^{25}$ +12.2 (c, 1.02 in EtOH).

Dibutyl ester: [146452-19-9]
$C_{12}H_{22}O_5$ 246.303
Oil. $[\alpha]_D^{25}$ +10.5 (c, 1.1 in EtOH).

Dibenzyl ester: [99266-22-5]
$C_{18}H_{18}O_5$ 314.337
Oil. $[\alpha]_D^{20}$ +17 (c, 2.1 in MeOH).

4-Amide: 4-Amino-2-hydroxy-4-oxobutanoic acid, 9CI. β-Malamic acid
[82310-91-6]
$C_4H_7NO_4$ 133.104
Plates (H_2O). Mp 149°. $[\alpha]_D$ +9.7 (H_2O).

4-Amide, 1-Me ester: Methyl-4-amino-2-hydroxy-4-oxobutanoate. Methyl β-malamate
[143565-79-1]
$C_5H_9NO_4$ 147.13
Cryst. Mp 75-76° (67-68°). $[\alpha]_D$ +12.7 (MeOH).

Diamide: 2-Hydroxybutanediamide, 9CI. Malamide
[41190-34-5]
$C_4H_8N_2O_3$ 132.119
Cryst. Mp 156-157°. $[\alpha]_D^{20}$ +37.9 (H_2O).

Ac, di-Et ester: [7614-35-9]
$C_{10}H_{16}O_6$ 232.233
Oil. $[\alpha]_D^{20}$ +15.7 (c, 1.2 in $CHCl_3$) (84% ee).

O-*(4-Hydroxycinnamoyl):* **p-*Coumaroylmalic acid***
[149197-99-9]
$C_{13}H_{12}O_7$ 280.234
Constit. of *Fumaria officinalis*.

O-*(3,4-Dihydroxycinnamoyl):* ***Caffeoylmalic acid***. *(*R*)-Phaselic acid*
[149197-97-7]
$C_{13}H_{12}O_8$ 296.233
Constit. of *Fumaria officinalis* and the liverwort *Jungermannia subulata*. Pale yellow powder. $[\alpha]_D$ -37.7 (c, 2.2 in H_2O). λ_{max} 220 (log ϵ 4.09); 245 (log ϵ 4.3); 330 (log ϵ 4.38) (MeOH).

O-*(4-Hydroxy-3-methoxycinnamoyl):* ***Feruloylmalic acid***
[149197-98-8]
$C_{14}H_{14}O_8$ 310.26
Constit. of *Fumaria officinalis*.

Me ether: See Methoxybutanedioic acid in *The Combined Chemical Dictionary.*

Et ether: Ethoxysuccinic acid
$C_6H_{10}O_5$ 162.142
Prisms. Mp 76-80°. $[\alpha]_D^{11}$ +60.57 (EtOH). Hygroscopic.

Et ether, di-Me ester:
$C_8H_{14}O_5$ 190.196
d_4^{13} 1.11. Bp_{30} 121°. $[\alpha]_D^{13}$ +59.86.

(S)-form *L-form. FEMA 2655*
[97-67-6]
Occurs naturally in apples and various other fruits.
Cryst. (Me_2CO). V. sol. EtOH, spar. sol. Et_2O.
Mp 104-105° (100°). $[\alpha]_D^{21}$ -2.3 (c, 8.5 in H_2O). $[\alpha]_D^{20}$ -28.7 (c, 5.5 in Py) (>99.8% ee). pK_{a1} 3.46; pK_{a2} 5.1. Dec. at *ca*. 140°. Specific rotn. concn. dependent. See (±)-form for food use.

1-Me ester: [66212-45-1]
Mp 79-80°. $[\alpha]_D^{20}$ +5.8 (c, 9.5 in MeOH).

4-Me ester: [66178-02-7]
$C_5H_8O_5$ 148.115
$[\alpha]_D$ +1.5 (c, 1.8 in $CHCl_3$).

Di-Me ester: [617-55-0]
Oil. Bp 242° Bp_{12} 122°. $[\alpha]_D^{25}$ -8.4 (pure liq.). $[\alpha]_D^{20}$ -10 (c, 2.2 in EtOH) (>99.8% ee). Prolonged heating leads to dimethyl fumarate. Easily dec. by H_2O.

1-Et ester: [83540-95-8]
Mp 48-49.5°.

Di-Et ester: FEMA 2374
[691-84-9]
Present in fruits.
Oil. Bp_{10} 120°. $[\alpha]_D$ -10.2 (neat). $[\alpha]_D$ +6 (c, 2.3 in $CHCl_3$).

Dibutyl ester: Dibutyl malate
[2385-79-7]
$C_{12}H_{22}O_5$ 246.303
Isol. from tamarind fruits (*Tamarindus indica*). Cytotoxic agent. Oil. $[\alpha]_D$ -9.8 (c, 1 in Me_2CO).

4-Benzyl ester: [66178-06-1]
$C_{11}H_{12}O_5$ 224.213
Syrup. $[\alpha]_D^{25}$ -11.4 (c, 1 in MeOH).
▶ EJ9971100

Dibenzyl ester: [85719-40-0]
Oil. $[\alpha]_D^{20}$ -16 (c, 1 in MeOH).

1-Amide, 4-Me ester: Methyl 4-amino-3-hydroxy-4-oxobutanoate, 9CI. α-Malamic acid methyl ester
[99494-39-0]
$C_5H_9NO_4$ 147.13
Cryst. Insol. Et_2O. Mp 40-42°
Mp 66-67°. $[\alpha]_D^{22}$ -46.5 (c, 2.11 in EtOH).

4-Amide: [57229-74-0]
Cryst. Sol. H_2O. Mp 149°. $[\alpha]_D$ -9.33 (H_2O).

4-Amide, 1-Me ester: Mp 75-76°. $[\alpha]_D$ -12.5 (MeOH).

Diamide: [617-47-0]
Prisms (H_2O). Mp 156-158°. $[\alpha]_D^{20}$ -38 (H_2O). There is also a labile modification, Mp 149-50°.

Ac: [85319-64-8]
$C_6H_8O_6$ 176.126
Mp 139°. $[\alpha]_D^{20}$ -10.7. Hydrol. by H_2O. Deacetoxylates on heating.

Ac, 1-Me ester: [39701-84-3]
$C_7H_{10}O_6$ 190.152
Oil. $[\alpha]_D^{20}$ -27.9 (c, 9.25 in MeOH).

Ac, di-Me ester: Dimethyl 2-acetoxysuccinate
[85828-07-5]
$C_8H_{12}O_6$ 204.179
Liq. Bp_{35} 157°. $[\alpha]_D$ -21.6 (c, 2.5 in EtOH).

Ac, 1-Et ester: [52485-05-9]
$C_8H_{12}O_6$ 204.179
Cryst. (Et_2O/hexane). Mp 51-53° (50-51°). $[\alpha]_D^{21}$ -26.1 (c, 1.05 in $CHCl_3$).

Ac, di-Et ester: Diethyl 2-acetoxysuccinate
[7554-26-9]
$C_{10}H_{16}O_6$ 232.233
Oil. $[\alpha]_D^{20}$ -15.4 (c, 1.4 in $CHCl_3$) (82% ee).

O-*Benzoyl: Benzoylmalic acid*
[22138-51-8]
$C_{11}H_{10}O_6$ 238.196
Constit. of alfalfa (*Medicago sativa*). Cryst.
Mp 142° (136-138°).

O-*Benzoyl, di-Me ester: Dimethyl benzoylmalate*
[65582-59-4]
$C_{13}H_{14}O_6$ 266.25
Syrup. $[\alpha]_D^{21}$ -4.1 (c, 2 in $CHCl_3$).

O-*(3,4,5-Trihydroxybenzoyl):* ***Galloylmalic acid***
$C_{11}H_{10}O_9$ 286.195
Constit. of the fruit of *Phyllanthus emblica*. Amorph. powder. $[\alpha]_D^{22}$ -0.4 (c, 0.24 in MeOH).

O-*(4-Hydroxycinnamoyl):* Constit. of *Chelidonium majus* (Papaveraceae), *Dicentra* sp. and *Fumaria* sp. (Fumariaceae).
$[\alpha]_D$ -7.5 (c, 5 in H_2O).

O-*(4-Hydroxy-3-methoxycinnamoyl):* Constit. of *Chelidonium majus* (Papaveraceae), *Corydalis* sp., *Dicentra* sp. and *Fumaria* sp. (Fumariaceae).
$[\alpha]_D$ -19.2 (c, 0.9 in H_2O).

O-*(3,4-Dihydroxycinnamoyl):* ***(S)-Phaselic acid***
[53755-04-7]
$C_{13}H_{12}O_8$ 296.233
Isol. from leaves of French bean (*Phaseolus vulgaris*) and from *Trifolium pratense* (red clover). Yellowish hygroscopic glass. $[\alpha]_D^{20}$ +31.5 (c, 1.36 in H_2O). $[\alpha]_D^{25}$ +28.3 (H_2O).

Me ether: See Methoxybutanedioic acid in *The Combined Chemical Dictionary.*

Et ether: [23264-21-3]
Cryst. Mp 76-80°. $[\alpha]_D^{14}$ -66.48 (Me_2CO).

(±)-*form* [617-48-1] Acidulant, antioxidant, flavouring agent, flavour enhancer. Forms a biodegradable homopolymer suitable for use as a drug carrier. Cryst. Sol. MeOH, Me_2CO, H_2O. Mp 131-133°. pK_{a1} 3.4; pK_{a2} 5.81 (25°, H_2O).

Di-Et ester: [626-11-9]

[7554-12-3] d_4^{21} 1.12. Bp 255° Bp_{27} 150-152°.

Bis-4-nitrobenzyl ester: Mp 124.5°.

1-Amide, 4-Me ester:
Prisms (EtOH). Sol. H_2O, EtOH, Et_2O. Mp 146°.

4-Amide: [62445-24-3]
Cryst. Spar. sol. EtOH; insol. Et_2O. Mp 148°.

4-Amide, 1-Me ester:
Cryst. Spar. sol. MeOH. Mp 113°.

Diamide: [89104-80-3]
Cryst. Mp 163-164°.

Dinitrile: Malic dinitrile. 2-Hydroxysuccinonitrile. 1,2-Dicyanoethanol
[4341-85-9]
$C_4H_4N_2O$ 96.088
A widely referenced compd. for which very little data is available (whether racemic or as enantiomers).

Ac, diamide: [89073-63-2]
$C_6H_{10}N_2O_4$ 174.156
Mp 168-170° dec.

Me ether: See Methoxybutanedioic acid in *The Combined Chemical Dictionary.*

Et ether: [1726-75-6]
Cryst. (Et_2O). V. sol. H_2O, EtOH, Et_2O. Mp 86°.

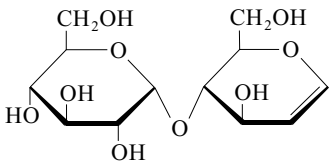
Et ether, di-Et ester: Diethyl 2-ethoxysuccinate
[17596-10-0]
$C_{10}H_{18}O_5$ 218.249
Bp_{250} 195-200° $Bp_{14.5}$ 126° (lit. gives a pressure range).

[149-61-1, 676-46-0, 3105-51-9, 4387-09-1, 22138-22-3, 39015-77-5, 68303-40-2]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 522A; 522B; 522C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 811B; 1041B (*nmr*)
Aldrich Library of NMR Spectra, **2**, 172B (*pmr*)
Sadtler Standard C-13 NMR Spectra, 4652 (*cmr*)
Lutz, O. *et al., Ber.*, 1902, **35**, 2460; 1908, **41**, 841 (*malamic acids*)
Pratt, D.S. *et al., Philipp. J. Sci.*, 1912, **7**, 201; *Chem. Zentralbl.*, 1913, 645 (*isol, R-form*)
Freudenberg, K. *et al., Ber.*, 1914, **47**, 2027; 1922, **55**, 1339 (*amides*)
McKenzie, A. *et al., J.C.S.*, 1923, **123**, 2875 (*synth, resoln*)
Scarpati, M.L. *et al., Gazz. Chim. Ital.*, 1960, **90**, 212 (*Phaselic acid*)
Kryger, L. *et al., Acta Chem. Scand.*, 1972, **26**, 2349 (*cryst struct, abs config*)
Rodd's Chem. Carbon Compd. (2nd edn.), 1976, **1E**, 224 (*rev*)
Yoshihara, T. *et al., Agric. Biol. Chem.*, 1977, **41**, 2427 (*Benzoylmalic acid*)
Shiba, T. *et al., Bull. Chem. Soc. Jpn.*, 1982, **55**, 899 (*resoln*)
Wynberg, H. *et al., J.A.C.S.*, 1982, **104**, 166 (*synth*)
Braud, C. *et al., Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)*, 1983, **24**, 71 (*rev, polymer*)
van der Sluis, P. *et al., Acta Cryst. C*, 1985, **41**, 956; 1989, **45**, 1406 (*cryst struct*)
Larchevêque, M. *et al., Synth. Commun.*, 1986, **16**, 183 (*synth, derivs*)
Alpegiani, M. *et al., J.O.C.*, 1987, **52**, 278, (*R-form di-Me ester*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, MAN000
Santaniello, E. *et al., J.C.S. Perkin 1*, 1991, 601 (*esters*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **13**, 1063 (*rev*)
Ushio, K. *et al., Biotechnol. Lett.*, 1992, **14**, 795 (*synth*)
Hahn, R. *et al., Planta Med.*, 1993, **59**, 71; 189 (*Phaselic acid*)
Koert, U. *et al., Chem. Ber.*, 1994, **127**, 1447, (*di-Et ester*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 285-286
Eck, R. *et al., Tetrahedron*, 1994, **50**, 13641-13654 (*synth, R-form, S-form*)
Lee, S.S. *et al., J.C.S. Perkin 1*, 1995, 2877 (*dibenzyl esters*)
Boegge, S.C. *et al., Z. Naturforsch., C*, 1995, **50**, 608 (*cinnamoylmalic acids*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1723
Kobayashi, A, *et al., Z. Naturforsch., C*, 1996, **51**, 233 (*isol, dibutyl ester*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 817; 1637-1639 (*use, occur, props, di-Et ester*)
Kuo, Y.-H. *et al., Chem. Pharm. Bull.*, 2000, **48**, 1211-1214 (*isol, di-Et ester*)
Brittain, H.G. *et al., Anal. Profiles Drug Subst.*, 2001, **28**, 153-195 (*rev*)
Zhang, Y.-J. *et al., Chem. Pharm. Bull.*, 2001, **49**, 537-540 (*Galloylmalic acid*)
Tazaki, H. *et al., Biosci., Biotechnol., Biochem.*, 2002, **66**, 255-261 (*(R)-Phaselic acid*)
Martindale, The Extra Pharmacopoeia, 33rd edn., Pharmaceutical Press, 2002, 1631
Cho, D.H. *et al., Synth. Commun.*, 2003, **33**, 515-519 (*R-form, diesters*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MAN000

Maltal M-7

*1,5-Anhydro-2-deoxy-4-*O*-α-*D*-glucopyranosyl-*D*-*arabino*-hex-1-enitol, 9CI, 8CI. 4-*O*-α-*D*-Glucopyranosyl-1,2-dideoxy-*D*-*arabino*-hex-1-enose*
[32447-71-5]



$C_{12}H_{20}O_9$ 308.285

Hexa-Ac: [67314-34-5]
$C_{24}H_{32}O_{15}$ 560.508
Foam or solid. Mp 131-133°. $[\alpha]_D^{20}$ +72.2 (c, 0.2 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1934, 302 (*synth*)
Helferich, B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 209 (*rev*)
Shull, B.K. *et al., J. Carbohydr. Chem.*, 1996, **15**, 955-964 (*hexa-Ac, !synth, ir, pmr, cmr*)
Alberti, A. *et al., Tetrahedron*, 2000, **56**, 6291-6297 (*synth, pmr, hexa-Ac*)

Maltodextrin, 9CI M-8

[9050-36-6]

[52769-80-9, 54077-26-8]

Polysccharide consisting of D-glucose units linked primarily by α-1,4-bonds and having a reducing sugar content (dextrose equivalent) of less than 20%. Produced by partial hydrolysis of corn starch. Nonsweet nutritive food additive;

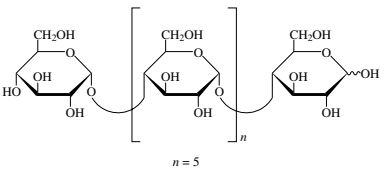
stabiliser, thickener and encapsulating agent in food products. Powder, granules or conc. soln. Mp 240° dec.

Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **9**, 599; **23**, 289-601; 559; 569 (*use*)

Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1643-1644 (*props, use*)

Maltoheptaose M-9

O-α-D-*Glucopyranosyl-(1→4)-[O-α-D-glucopyranosyl-(1→4)]$_5$-D-glucose. Amyloheptaose*
[34620-78-5]



$C_{42}H_{72}O_{36}$ 1153.009
Synth. by acid hydrol. of cyclodextrins. Prod. from, 1,2-O-*Isopropylidene using Bacillus sphaericus* E-244. Used in detn. of α-amylase. V. sol. H_2O; insol. EtOH. $[\alpha]_D$ +175.5 (c, 2 in H_2O).

Tricosa-Ac: [114715-54-7]

[84814-32-4]
$C_{88}H_{118}O_{59}$ 2119.865
Powder.

β-Pyranose-*form*

2-Chloro-4-nitrophenyl glycoside:
[90826-64-5]
$C_{48}H_{74}ClNO_{38}$ 1308.549
Reagent for detn. of α-amylase in body fluids.

Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845-858 (*cmr*)
Henkel, E. *et al., Fresenius' Z. Anal. Chem.*, 1984, **317**, 753-754 (*chloronitrophenyl glycoside, use*)
Oguma, T. *et al., Agric. Biol. Chem.*, 1991, **55**, 1661-1662
Hitchkiss, A.T. *et al., Carbohydr. Res.*, 1993, **242**, 1-9 (*synth*)
Sakairi, N. *et al., J.C.S. Perkin 1*, 1995, 437-443 (*tricosa-Ac*)
Sugiyama, H. *et al., Carbohydr. Res.*, 2000, **325**, 177-182 (*pmr, conformn*)

Maltohexaose, 8CI M-10

O-α-D-*Glucopyranosyl-(1→4)-[O-α-D-glucopyranosyl-(1→4)]$_4$-D-glucose, 9CI. Amylohexaose*
[34620-77-4]
As Maltoheptaose, M-9 with
n = 4

$C_{36}H_{62}O_{31}$ 990.867
Constit. of corn starch. Amylolysis prod. from starch. Maltooligosaccharide mixtures are important food additives (sweeteners, gelling agents and viscosity modifiers). $[\alpha]_D^{25}$ +182 (c, 1 in H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 311B (*nmr*)
Whistler, R.L. *et al., J.A.C.S.*, 1955, **77**, 5761-5762 (*isol*)
French, D. *et al., J. Chem. Res.*, 1966, **24**, 68-75 (*isol*)
Beadle, J.B. *et al., J. Agric. Food Chem.*, 1969, **17**, 904-906 (*glc*)
Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845-858 (*cmr*)
Eur. Pat., 1995, 670 368; *CA*, **123**, 221799 (*synth*)
Sugiyama, H. *et al., Carbohydr. Res.*, 2000, **325**, 177-182 (*pmr, conformn*)

Maltononaose M-11

O-α-D-*Glucopyranosyl-(1→4)-[O-α-D-glucopyranosyl-(1→4)]$_7$-D-glucose, 9CI*
[6471-60-9]
As Maltoheptaose, M-9 with
n = 7

$C_{54}H_{92}O_{46}$ 1477.293
Maltooligosaccharide mixts. are important food additives as sweetners, gelling agents and viscosity modifiers. Mp 231-235° (dec.). $[\alpha]_D$ +181 (c, 1.0 in H_2O).

Uchida, R. *et al., Carbohydr. Res.*, 1996, **283**, 271-274

Maltooctaose M-12

O-α-D-*Glucopyranosyl-(1→4)-[O-α-D-glucopyranosyl-(1→4)]$_6$-D-glucose, 9CI*
[6156-84-9]
As Maltoheptaose, M-9 with
n = 6

$C_{48}H_{82}O_{41}$ 1315.151
Maltooligosaccharide mixts. are important food additives as sweetners, gelling agents and viscosity modifiers. Mp 223-225° (dec.). $[\alpha]_D$ +180 (c, 1.0 in H_2O).

Uchida, R. *et al., Carbohydr. Res.*, 1996, **287**, 271-284

Maltopentaose, 8CI M-13

O-α-D-*Glucopyranosyl-(1→4)-[O-α-D-glucopyranosyl-(1→4)]$_3$-D-glucose, 9CI. Amylopentaose*
[34620-76-3]
As Maltoheptaose, M-9 with
n = 3

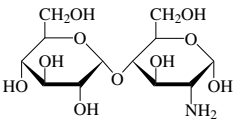
$C_{30}H_{52}O_{26}$ 828.725
Constit. of corn syrup. Amylolysis prod. from starch. Maltooligosaccharide mixtures are important food additives (sweeteners, gelling agents and viscosity modifiers). Synergist for antitumour agents. Cryst. + H_2O. Sol. H_2O; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane.
Mp 78° (hydrate). $[\alpha]_D^{25}$ +176.4 (c, 1.0 in H_2O).

[1668-09-3]

Whistler, R.L. *et al., J.A.C.S.*, 1955, **77**, 1017 (*isol*)
Beadle, J.B. *et al., J. Agric. Food Chem.*, 1969, **17**, 904 (*glc*)
Robyt, J.F. *et al., J. Biol. Chem.*, 1970, **245**, 3917
Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845 (*cmr*)
Moates, G.K. *et al., Carbohydr. Res.*, 1997, **299**, 91-94 (*struct, props*)
Sugiyama, H. *et al., Carbohydr. Res.*, 2000, **325**, 177-182 (*pmr, conformn*)

Maltosamine M-14

*2-Amino-2-deoxy-4-*O*-(α-D-glucopyranosyl)-α-D-glucopyranose. α-D-Glucopyranosyl-(1→4)-glucosylamine*



α-Pyranose-*form*

$C_{12}H_{23}NO_{10}$ 341.314
Obt. by acid hydrol. of partially reduced heparin.

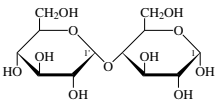
Hydrochloride: Mp 183-187° dec. $[\alpha]_D^{25}$ +100 → +81 (c, 2.8 in H_2O).

N-*Ac:*
$C_{14}H_{25}NO_{11}$ 383.352
Mp 145-146°. $[\alpha]_D$ +87 → +39 (H_2O).

Wolfrom, M.L. *et al., J.O.C.*, 1963, **28**, 278 (*struct*)
Wolfrom, M.L. *et al., Chem. Ind. (London)*, 1964, 545 (*synth*)
Nassr, M.A.M. *et al., Carbohydr. Res.*, 1979, **77**, 99-105 (*synth,* N-*Ac*)

Maltose, 9CI, 8CI M-15

*4-*O*-α-D-Glucopyranosyl-D-glucose, 9CI. Finetose. Maltobiose. Malt sugar*
[69-79-4]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Occurs in some plants as hydrolytic dec. prod. of starch. Prod. in high yield (80%) by the action of diastase (α- and β-amylase) on starch, a process used in brewing. Inexpensive starting material for synthesis. Sweetening agent. Dietary supplement. Cryst. + 1H_2O (β-form). Mp 102-103°. $[\alpha]_D$ +112 → +130 (H_2O).

▶ LD_{50} (rat, orl) 35000 mg/kg. OO5250000

Phenylosazone: Mp 206°. $[\alpha]_D$ +82.6 (Py/EtOH).

4′,6′-Isopropylidene, hexa-Ac:
[74135-00-5]
$C_{27}H_{38}O_{17}$ 634.587
Mp 88-90°. $[\alpha]_D^{20}$ -75 ($CHCl_3$).

α-Pyranose-*form* [4482-75-1]

Octa-Ac: [6920-00-9]
$C_{28}H_{38}O_{19}$ 678.597
Mp 125°. $[\alpha]_D$ +123 ($CHCl_3$).

6′-Trityl, hepta-Ac: [6748-73-8]
$C_{45}H_{50}O_{18}$ 878.879
Cryst. (Me_2CO/EtOH). Mp 161-161.6°. $[\alpha]_D$ +131 (c, 2 in $CHCl_3$).

Me glycoside: Methyl α-maltopyranoside
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{20}$ +174 (c, 0.9 in H_2O).

Ph glycoside: Phenyl α-D-maltopyranoside
[1175-37-7]
$C_{18}H_{26}O_{11}$ 418.397
$[\alpha]_D$ +198 (H_2O).

Ph glycoside, hepta-Ac: [71238-94-3]
$C_{32}H_{40}O_{18}$ 712.657
Mp 184-185°. $[\alpha]_D$ +170 ($CHCl_3$).

1-Bromo-1-deoxy, hepta-Ac: 4-O-*(2,3,4,6-Tetra-*O*-acetyl-α-D-glucopyranosyl)-tri-*O*-acetyl-α-D-glucopyranosyl bromide. Hepta-*O*-acetyl-4-*O*-α-D-glucopyranosyl-α-D-glucopyranosyl bromide. Acetobromomaltose*
[14257-35-3]
$C_{26}H_{35}BrO_{17}$ 699.456
Mp 112-113°. $[\alpha]_D^{20}$ +180.1 ($CHCl_3$).

1-Chloro-1-deoxy, hepta-Ac: Acetochloromaltose
[6919-99-9]
$C_{26}H_{35}ClO_{17}$ 655.005
Mp 125°. $[\alpha]_D$ +159.5 ($CHCl_3$).

*1,6-Anhydro, 6-bromo, hexa-Ac: Hexa-*O*-acetyl-1,6-anhydro-6-bromomaltose*
[117399-13-0]
$C_{24}H_{31}BrO_{16}$ 655.403
Mp 178-179°. $[\alpha]_D^{23}$ +10.5 (c, 0.46 in $CHCl_3$).

β-Pyranose-*form* [133-99-3]

*1,2,2′,3,3′,4′,6-Hepta-Ac: 1,2,2′,3,3′,4′,6-Hepta-*O*-acetyl-β-maltose*
$C_{26}H_{36}O_{18}$ 636.56
Needles (MeOH). Mp 177-178°. $[\alpha]_D^{19}$ +65 (c, 1.6 in $CHCl_3$).

*1,2,2′,3′,4′,6,6′-Hepta-Ac: 1,2,2′,3′,4′,6,6′-Hepta-*O*-acetyl-β-maltose*
[19204-77-4]
$C_{26}H_{36}O_{18}$ 636.56
Syrup. $[\alpha]_D^{20}$ +87.5 (c, 0.4 in $CHCl_3$).

*1,2′,3,3′,4′,6,6′-Hepta-Ac: 1,2′,3,3′,4′,6,6′-Hepta-*O*-acetyl-β-maltose*
[32447-67-9]
$C_{26}H_{36}O_{18}$ 636.56
Cryst. (EtOH). Mp 166.5-168.5°. $[\alpha]_D^{27}$ +86.7 (c, 2.6 in $CHCl_3$).

*2,2′,3,3′,4′,6,6′-Hepta-Ac: 2,2′,3,3′,4′,6,6′-Hepta-*O*-acetyl-β-maltose*
[18423-98-8]
$C_{26}H_{36}O_{18}$ 636.56
Cryst. (EtOH). Mp 188°. $[\alpha]_D^{22}$ +84 → +114 (c, 0.93 in Py). Error in CAS registration.

Octa-Ac: [22352-19-8]
Mp 159-160°. $[\alpha]_D$ +63 ($CHCl_3$).

Me glycoside: Methyl β-maltopyranoside
[744-05-8]
Mp 110-111° (hydrate) Mp 155° dec. (anhyd.). $[\alpha]_D^{19}$ +76 (H_2O).

Me glycoside, hepta-Ac: [13223-83-1]
$C_{27}H_{38}O_{18}$ 650.586
Mp 128-129°. $[\alpha]_D^{20}$ +53.5 ($CHCl_3$).

Me glycoside, 6,6′-ditosyl:
$C_{27}H_{36}O_{15}S_2$ 664.704
Mp 123-124°.

Me glycoside, hepta-Me: [19146-24-8]
$C_{20}H_{38}O_{11}$ 454.514
$Bp_{0.09}$ 189-190°. $[\alpha]_D$ +89.5 (MeOH).

*Me glycoside, 4′,6′-benzylidene: Methyl 4′,6′-*O*-benzylidene-β-maltoside*
[57472-04-5]
$C_{20}H_{28}O_{11}$ 444.435
Cryst. (Et_2O/MeOH). Mp 140-141°. $[\alpha]_D$ +47.6 (c, 2.0 in EtOH).

Me glycoside, 4′,6′-benzylidene, penta-Ac:
[57472-05-6]
$C_{30}H_{38}O_{16}$ 654.621
Cryst. (EtOH). Mp 200-201°. $[\alpha]_D$ +25.4 (c, 1.9 in $CHCl_3$).

Dodecyl glycoside: See Dodecyl maltoside, D-772

Ph glycoside: Phenyl β-D-maltopyranoside
[4419-95-8]
$C_{18}H_{26}O_{11}$ 418.397
Mp 96°. $[\alpha]_D$ +34 (H_2O).

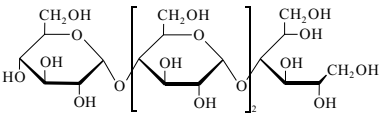
Ph glycoside, hepta-Ac: [29868-46-0]
Mp 157-158°. $[\alpha]_D$ +42 ($CHCl_3$).

[6363-53-7, 74135-02-7]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 910C (*pmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 195A (*ir*)
Fischer, E. *et al., Ber.*, 1901, **34**, 2885; 1902, **35**, 840
Brauns, D.H. *et al., J.A.C.S.*, 1929, **51**, 1820 (*Acetobromomaltose*)
Bates, F.J. *et al., Polarimetry, Saccharimetry and the Sugars*, U.S. Dept. of Commerce, Natl. Bur. Stand., 1942, 742
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*Acetobromomaltose, rev*)
Conchie, J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 180 (*rev*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 334 (*purifn*)
Pazur, J.H. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 335 (*enzymic synth*)
Rowell, R.M. *et al., Carbohydr. Res.*, 1967, **4**, 486 (*β-2,2′,3,3′,4′,6,6′-hepta-Ac*)
Wolfrom, M.L. *et al., J.O.C.*, 1967, **32**, 656, (*β-1,2,2′,3,3′,4′,6-hepta-Ac*)
Dick, W.E. *et al., Carbohydr. Res.*, 1968, **6**, 52 (*β-1,2,2′,3,3′,4′,6,6′-hepta-Ac*)
Thiel, I.M.E. *et al., Annalen*, 1969, **723**, 192 (*synth, Me gly derivs*)
Koeppen, B.H. *et al., Carbohydr. Res.*, 1970, **13**, 193 (*β-1,2′,3,3′,4′,6,6′-hepta-Ac*)
Sleeter, R.T. *et al., J.O.C.*, 1970, **35**, 3804 (*synth, Me gly derivs*)
Dick, W.E. *et al., Carbohydr. Res.*, 1971, **18**, 115 (*α-D-Me gly*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 647 (*occur*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*Me gly, conformn, cmr*)
Usui, T. *et al., Carbohydr. Res.*, 1974, **33**, 105 (*Me gly, pmr*)
Koizumi, K. *et al., Carbohydr. Res.*, 1974, **33**, 127 (*α-6′-trityl-hepta-Ac*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1975, **53**, 2182 (*β-Me gly 4,6-benzylidene, β-Me gly 4,6-benzylidene penta-Ac*)
St.-Jacques, M. *et al., J.A.C.S.*, 1976, **98**, 4386 (*pmr*)
Dick, W.E. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 15 (*α-D-Me gly*)
Fanton, E. *et al., Chem. Comm.*, 1980, 21 (*4′,6′-isopropylidene hexa-Ac*)
Tarelli, E. *et al., Dev. Food Carbohydr.*, Applied Science Publ., 1980, 187
Khan, R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1981, **39**, 214 (***rev***)
Cheetham, N.W.H. *et al., Carbohydr. Res.*, 1981, **96**, 126 (*synth, Me gly*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1988, **42**, 190 (*1,6-anhydro 6-bromo hexa-Ac*)
Kartha, K.P.R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 777-781 (*Acetobromomaltose, !synth*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1044
Tang, J. *et al., Spectrosc. Lett.*, 1995, **28**, 261 (*cmr, ir*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1646-1647
Gebbie, S.J. *et al., Carbohydr. Res.*, 1998, **308**, 345-348 (*α-Me gly, !synth*)
Sugiyama, H. *et al., Carbohydr. Res.*, 2000, **325**, 177-182 (*pmr, conformn*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MAO500

Maltotetraitol M-16

O-α-D-*Glucopyranosyl-(1→4)-[*O-α-D-*glucopyranosyl-(1→4)]*$_2$-O-D-*glucitol*



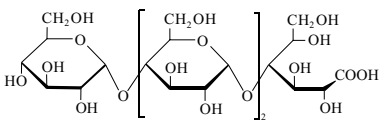
$C_{24}H_{44}O_{21}$ 668.599
$[\alpha]_D^{27}$ +149.9 (c, 2.09 in H_2O).

*Pentadeca-Ac:*Mp 113.5°. $[\alpha]_D^{25}$ +52.6 (c, 0.49 in $CHCl_3$).

Whistler, R.L. *et al., J.A.C.S.*, 1954, **76**, 1671 (*synth*)

Maltotetraonic acid M-17

O-α-D-*Glucopyranosyl-(1→4)-[*O-α-D-*glucopyranosyl-(1→4)]*$_2$-O-D-*gluconic acid*



$C_{24}H_{42}O_{22}$ 682.583
$[\alpha]_D^{27}$ +146.2 (c, 2.09 in H_2O).

Whistler, R.L. *et al., J.A.C.S.*, 1954, **76**, 1671 (*isol, synth*)

Maltotetraose, 8CI M-18

O-α-D-*Glucopyranosyl-(1→4)-[*O-α-D-*glucopyranosyl-(1→4)-]*$_2$-D-*glucose, 9CI. Amylotetraose*
[34612-38-9]
As Maltoheptaose, M-9 with n = 2

$C_{24}H_{42}O_{21}$ 666.583
Constit. of corn syrup. Product of action of α-amylase on starch. Also isol. from *Streptomyces* sp. Maltooligosaccharide mixtures are important food additives (sweeteners, gelling agents and viscosity modifiers). Exhibits antimicrobial activity against *Erwinia carotovora*. Amorph. Sol. H_2O, MeOH; fairly sol. EtOH, 2-propanol, butanol; poorly sol. Me_2CO, hexane. Mp 169.5-173° dec. $[\alpha]_D$ +165.5 (c, 5.0 in H_2O). $[\alpha]_D$ +177 (H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 311A (*nmr*)
Whistler, R.L. *et al., J.A.C.S.*, 1954, **76**, 1671 (*isol*)
Whyte, J.N.C. *et al., Anal. Biochem.*, 1971, **42**, 476 (*pmr*)
Kondo, H. *et al., J. Antibiot.*, 1975, **28**, 157 (*isol*)
Tanaka, M. *et al., J. Antibiot.*, 1975, **28**, 920 (*biosynth*)
Friebolin, H. *et al., Makromol. Chem.*, 1976, **177**, 845 (*cmr*)
Sugiyama, H. *et al., Carbohydr. Res.*, 2000, **325**, 177-182 (*pmr, conformn*)

Maltotriose, 8CI M-19

α-D-Glucopyranosyl-(1→4)-α-D-glucopyranosyl-(1→4)-D-glucose, 9CI. Amylotriose
[1109-28-0]
As Maltoheptaose, M-9 with $n = 1$

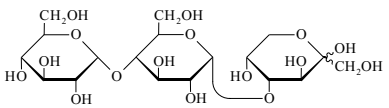
$C_{18}H_{32}O_{16}$ 504.441
Constit. of corn syrup. Amylolysis prod. from starch. Maltooligosaccharide mixtures are important food additives (sweeteners, gelling agents and viscosity modifiers). $[\alpha]_D^{23}$ +160 (in H_2O).

β-Undeca-Ac: [35396-13-5]
Cryst. (EtOH). Mp 134-136°. $[\alpha]_D^{25}$ +86 (c, 1.6 in $CHCl_3$).

Thompson, A. *et al., J.A.C.S.*, 1952, **74**, 3612 (*struct*)
Pazur, J.H. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 337 (*enzymic synth*)
Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 3037 (*pmr*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081 (*conformn, cmr*)
Sugiyama, H. *et al., Carbohydr. Res.*, 2000, **325**, 177-182 (*pmr, conformn*)
Damager, I. *et al., Synthesis*, 2002, 418-426, (*β-undeca-Ac*)
Storz, C.A. *et al., Carbohydr. Res.*, 2003, **338**, 95-107 (*conformn*)

Maltotriulose M-20

α-D-Glucopyranosyl-(1→4)-α-D-glucopyranosyl-(1→4)-D-fructose
[17807-89-5]



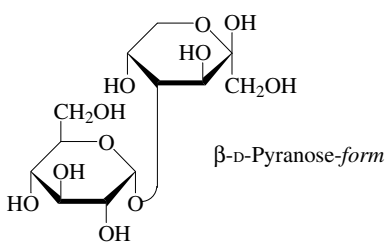
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Reducing trisaccharide. $[\alpha]_D$ +80 (H_2O). Fermented by brewing strains of *Saccharomyces cerevisiae*.

Avigad, G. *et al., Biochem. J.*, 1959, **73**, 587 (*synth*)
Clapperton, J.F. *et al., J. Inst. Brewing*, 1971, **77**, 519; *CA*, **76**, 32838q

Maltulose M-21

4-O-α-D-Glucopyranosyl-D-fructose, 9CI
[17606-72-3]



β-D-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
An aq. soln. at 25° contains 64% β-pyr, 12% α-fur, 22.5% β-fur and 1.5% ketone. Isol. from honey, beer and from the products formed by the action of an α-amylase on liver glycogen. Originates partly by epimerisation of maltose and partly by transglucosylation during the hydrolysis of sucrose by D-glucosidases present in yeast and honey. Cryst. + $1H_2O$ (dioxan/MeOH).
Mp 113-115° dec Mp 200-202°. $[\alpha]_D^{20}$ +58 → +64 (c, 1.6 in H_2O). $[\alpha]_D^{20}$ +51.9 (c, 1.5 in H_2O).

Peat, S. *et al., Biochem. J.*, 1952, **51**, xvii (*isol*)
Hough, L. *et al., J.C.S.*, 1953, 2005 (*synth*)
MacWilliam, I.C. *et al., Chem. Ind. (London)*, 1959, 364 (*occur*)
Täufel, A. *et al., Carbohydr. Res.*, 1967, **5**, 223 (*enzymic synth*)
Pfeffer, P.E. *et al., Carbohydr. Res.*, 1982, **102**, 11 (*cmr*)
Hicks, K.B. *et al., Carbohydr. Res.*, 1983, **112**, 37 (***synth, hplc***)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Lichtenthaler, F.W. *et al., J.C.S. Perkin 2*, 1990, 1489 (*equilib*)

Mannan, 9CI, 8CI M-22

[9036-88-8]

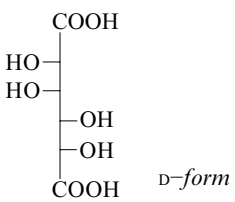
$C_6H_{10}O_5$ 162.142
A polysaccharide containing 95% or more mannose units which are (1→4) linked in the β-pyranosyl form with some α-D-galactopyranosyl units (1→6) linked along the main chain. The type of mannan depends on the ratio D-mannose: D-galactose; Galactomannan 1.04-5.26: 1; Mannan A 50:1; Mannan B 90:1. Polymeric. Minimum formula given. Occurs in custard apple, ebony and palms. Ivory nut mannan is a major product. Used in prepn. of D-Mannose by hydrol. of ivory nut meal. Widely used in industry, notably in food, pharmaceuticals, paints and explosives. $[\alpha]_D^{18}$ -44.58 (c, 0.83 in 1*N* NaOH).
► LD_{50} (mus, ivn) 2000 mg/kg. OP1949500

Per-Ac:
Powder. Mp 128-145°. $[\alpha]_D$ -3 ($CHCl_3$).

Patterson, J. *et al., J.C.S.*, 1923, **123**, 1147
Hess, K. *et al., Annalen*, 1928, **466**, 18
Gorin, P.A.J. *et al., Can. J. Chem.*, 1973, **51**, 2375 (*cmr*)
Marchessault, R.M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **33**, 398 (*cryst struct*)
Dey, P.M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1978, **35**, 341
Fox, J.E. *et al., Thickening and Gelling Agents for Food*, (ed. Imeson, A.), 2nd edn., Blackie, 1997, 262-283 (*rev*)

Mannaric acid, 9CI, 8CI M-23

Mannosaccharic acid
[6543-97-1]



D–*form*

$C_6H_{10}O_8$ 210.14

D-*form* [22076-54-6]
Mp 128.5°. Slowly converts into dilactone.

Diamide: D-Mannaric acid diamide
$C_6H_{12}N_2O_6$ 208.171
Mp 188-189.5° dec. $[\alpha]_D^{20}$ -24.4 (H_2O).

1,4-Lactone, phenylhydrazide: Mp 190-191° dec.

1,4;6,3-Dilactone: D-Mannaro-1,4:6,3-dilactone
[2900-01-8]
$C_6H_6O_6$ 174.11
Silky plates (EtOH). Mp 189° dec. $[\alpha]_D^{18}$ +214 (c, 1.1 in H_2O).

2,3,4,5-Tetra-Me: 2,3,4,5-Tetra-O-methyl-D-mannaric acid
$C_{10}H_{18}O_8$ 266.247
Semisolid, cryst. on standing. Mp 98-100°. $[\alpha]_D$ +4 (c, 1 in $CHCl_3$).

L-*form*

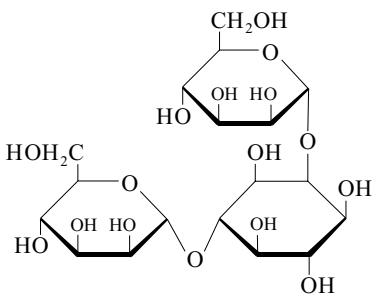
Diamide: L-Mannaric acid diamide
$C_6H_{12}N_2O_6$ 208.171
Mp 189-190° dec.

1,4:6,3-Dilactone: L-Mannaro-1,4:6,3-dilactone
$C_6H_6O_6$ 174.11
Mp 180° dec. $[\alpha]_D$ -201 (H_2O).

Kiliani, H. *et al., Ber.*, 1887, **20**, 339; 1926, **59**, 1469 (*synth, D-form, L-form*)
Fischer, E. *et al., Ber.*, 1891, **24**, 539 (*D-form, L-form, D-diamide, L-diamide, D-lactone phenylhydrazide*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 322; 325 (*rev*)
Haworth, W.N. *et al., J.C.S.*, 1944, 217, (*D-dilactone*)
Mancera, M. *et al., Carbohydr. Res.*, 2003, **338**, 1115-1119 (*D-form, 2,3,4,5-tetra-Me*)

Mannimositose M-24

*2-O-α-D-Mannopyranosyl-6-O-α-D-mannopyranosyl-*myo*-inositol*



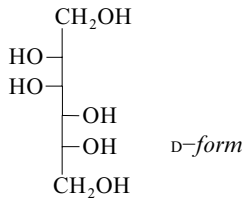
$C_{18}H_{32}O_{16}$ 504.441
Component of an inositol phospholipid from *Mycobacterium tuberculosis* and *Mycobacterium phlei*.

Dodeca-Ac: Mp 135-137°. $[\alpha]_D$ +54 ($CHCl_3$).

Vilkas, E. *et al., Bull. Soc. Chim. Biol.*, 1960, **42**, 1005
Ballou, C.E. *et al., Biochemistry*, 1964, **3**, 682
Lee, Y.C. *et al., Biochemistry*, 1964, **3**, 1395

Mannitol M-25

Mannite. manno-*Hexitol. Kurrine (obsol.)*
[87-78-5]



$C_6H_{14}O_6$ 182.173

► OP2050000

D-*form*

Cordycepic acid. Manita. Osmitrol. Resectisol. E421
[69-65-8]
Widespread in plants and their exudates particularly olive and plane trees. Obt. from manna and seaweeds. Obt. industrially from Fructose, F-84. Used as solid in alkalimetric titration of boric acid and Ge(*IV*); masking agent for metals. Reference material used in elemental microanalysis. Inexpensive starting material for synthesis. Sweetening agent. Food additive, used as anticaking agent, lubricant, for stabiliser and thickener, and for other uses in food processing. Diagnostic aid (renal function determination); diuretic. Tablet and capsule diluent.
Needles. Sol. H_2O, Py; sl. sol. EtOH; insol. Et_2O.
Mp 166°. $Bp_{3.5}$ 295°. $[\alpha]_D^{25}$ -0.21 (c, 17.6 in H_2O). $[\alpha]_D^{25}$ +28.61 (c, 10 in 12.8% borax aq.). pK_{a1} 13.29 (25°). Log P -4.67 (calc).
Cordycepic acid was originally given the struct. of a stereoisomer of quinic acid.
► Human systemic effects when used therapeutically, LD_{50} (rat, orl) 13500 mg/kg.
OP2060000

*1,2,5,6-Tetra-Ac: 1,2,5,6-Tetra-*O*-acetyl-*D*-mannitol*
[59184-39-3]
$C_{14}H_{22}O_{10}$ 350.322
Mp 86-88°. $[\alpha]_D^{25}$ +3 (c, 1.1 in EtOAc).

*Hexa-Ac: 1,2,3,4,5,6-Hexa-*O*-acetyl-*D*-mannitol*
[642-00-2]
$C_{18}H_{26}O_{12}$ 434.396
Mp 126°. $[\alpha]_D$ +25 ($CHCl_3$).

*1,6-Dibenzoyl: 1,6-Di-*O*-benzoyl-*D*-mannitol*
[7226-27-9]
$C_{20}H_{22}O_8$ 390.389
Needles (EtOH). Mp 182°. $[\alpha]_D^{20}$ +15.9 (Py).

*4,5-Dibenzoyl: 4,5-Di-*O*-benzoyl-*D*-mannitol. 2,3-Di-*O*-benzoyl-*L*-mannitol*
$C_{20}H_{22}O_8$ 390.389
Mp 183°. $[\alpha]_D^{20}$ +22.4 (c, 0.4 in Me_2CO).

*Hexabenzoyl: 1,2,3,4,5,6-Hexa-*O*-benzoyl-*D*-mannitol*
[7462-41-1]
$C_{48}H_{38}O_{12}$ 806.821
Mp 149°. $[\alpha]_D$ +50.7 ($CHCl_3$).

3,4-Ditosyl:
$C_{20}H_{26}O_{10}S_2$ 490.551
Solid (EtOH). Mp 119-122°. $[\alpha]_D^{25}$ +43 (c, 1.0 in $CHCl_3$).

*1,6-Ditosyl, 2,3,4,5-tetra-Ac: 2,3,4,5-Tetra-*O*-acetyl-1,6-di-*O*-tosyl-*D*-mannitol*
$C_{28}H_{34}O_{14}S_2$ 658.7
Mp 119-120°. $[\alpha]_D$ +22.9 ($CHCl_3$).

*3,4-Ditosyl, 1,2,5,6-tetra-Ac: 1,2,5,6-Tetra-*O*-acetyl-3,4-di-*O*-tosyl-*D*-mannitol*
[20706-75-6]
$C_{28}H_{34}O_{14}S_2$ 658.7
$[\alpha]_D$ -0.8 ($CHCl_3$).

*1,6-Ditosyl, 2,3,4,5-tetrabenzoyl: 2,3,4,5-Tetra-*O*-benzoyl-1,6-di-*O*-tosyl-*D*-mannitol*
$C_{48}H_{42}O_{14}S_2$ 906.983
Mp 166°. $[\alpha]_D$ +36.9 ($CHCl_3$).

*3,4-Ditosyl, 1,2,5,6-tetrabenzoyl: 1,2,5,6-Tetra-*O*-benzoyl-3,4-di-*O*-tosyl-*D*-mannitol*
[77824-37-4]
$C_{48}H_{42}O_{14}S_2$ 906.983
Mp 136-137°. $[\alpha]_D$ -4.8 ($CHCl_3$).

1,3,4,6-Tetratosyl:
$C_{34}H_{38}O_{14}S_4$ 798.93
Low melting solid. $[\alpha]_D^{25}$ +40 (c, 1.0 in $CHCl_3$).

1,2,5,6-Tetramesyl: ***Mannosulfan, INN****. Metsulnitol. Tetramezonnite. Zitostop. Zytostop. R 52*
[7518-35-6]
$C_{10}H_{22}O_{14}S_4$ 494.539
Antineoplastic agent. Mp 114-115°. $[\alpha]_D^{20}$ -4.9 (c, 5 in dioxan). Log P -2.79 (calc).
► OP3605000

*2,5-*O*-Methylene: 2,5-*O*-Methylene-*D*-mannitol*
[36566-49-1]
$C_7H_{14}O_6$ 194.184
Prismatic needles (EtOH). Mp 173-175°. $[\alpha]_D^{24}$ -50 (c, 1.2 in H_2O).

*2,3:4,5-Di-*O*-methylene: 2,3:4,5-Di-*O*-methylene-*D*-mannitol*
[58525-56-7]
$C_8H_{14}O_6$ 206.195
Mp 139°. $[\alpha]_D$ +71.1 (H_2O).

*2,3:4,5-Di-*O*-methylene, 1,6-dibenzoyl: 1,6-Di-*O*-benzoyl-2,3:4,5-di-*O*-methylene-*D*-mannitol*
[42400-22-6]
$C_{22}H_{22}O_8$ 414.411
Mp 120-122°. $[\alpha]_D$ +68.1 ($CHCl_3$).

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-*D*-mannitol*
[4306-35-8]
$C_9H_{18}O_6$ 222.238
Mp 158-161°. $[\alpha]_D^{20}$ +4 (c, 4 in H_2O).

*3,4-*O*-Isopropylidene: 3,4-*O*-Isopropylidene-*D*-mannitol*
[3969-84-4]
$C_9H_{18}O_6$ 222.238
Cryst. (C_6H_6). Mp 85-88°. $[\alpha]_D^{28}$ +29 (c, 3 in H_2O).

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-*O*-isopropylidene-*D*-mannitol*
[38145-93-6]
$C_{12}H_{22}O_6$ 262.302
Mp 37-39°. $[\alpha]_D$ +19.3 (H_2O).

*1,2:3,6-Di-*O*-isopropylidene: 1,2:3,6-Di-*O*-isopropylidene-*D*-mannitol*
[91667-56-0]
$C_{12}H_{22}O_6$ 262.302
Mp 140-142°. $[\alpha]_D^{20}$ -15.6 (c, 1 in $CHCl_3$).

*1,2:4,5-Di-*O*-isopropylidene: 1,2:4,5-Di-*O*-isopropylidene-*D*-mannitol*
[3969-61-7]
$C_{12}H_{22}O_6$ 262.302
Mp 49-52°. $[\alpha]_D^{20}$ -9.2 (c, 1 in $CHCl_3$).

*1,2:4,6-Di-*O*-isopropylidene: 1,2:4,6-Di-*O*-isopropylidene-*D*-mannitol*
[92218-94-5]
$C_{12}H_{22}O_6$ 262.302
Mp 83-85°. $[\alpha]_D^{20}$ -26 (c, 1 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene: 1,2:5,6-Di-*O*-isopropylidene-*D*-mannitol*
[1707-77-3]
$C_{12}H_{22}O_6$ 262.302
Important intermed. for chiral C_3 compds. by fission. Mp 122°. $[\alpha]_D$ +1.2 (H_2O).

*1,2:5,6-Di-*O*-isopropylidene, di-Ac: 3,4-Di-*O*-acetyl-1,2:5,6-di-*O*-isopropylidene-*D*-mannitol*
[76880-55-2]
$C_{16}H_{26}O_8$ 346.377
Mp 123°. $[\alpha]_D^{20}$ +26.7 (c, 1 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene, 3,4-dibenzyl: 3,4-Di-*O*-benzyl-1,2:5,6-di-*O*-isopropylidene-*D*-mannitol*
[111476-62-1]
$C_{26}H_{34}O_6$ 442.551
Oil. $[\alpha]_D^{25}$ +36 (c, 1.1 in $CHCl_3$).

*1,2:5,6-Di-*O*-isopropylidene, cyclic sulfate:*
[106571-12-4]
Mp 126-128°. $[\alpha]_D^{20}$ +27 (c, 2.9 in $CHCl_3$).

*2,3:4,5-Di-*O*-isopropylidene: 2,3:4,5-Di-*O*-isopropylidene-*D*-mannitol*
[70223-09-5]
$C_{12}H_{22}O_6$ 262.302
Cryst. (Et_2O/hexane). Mp 93-95°. $[\alpha]_D^{20}$ +15 (c, 2.8 in $CHCl_3$).

*2,4:3,5-Di-*O*-isopropylidene: 2,4:3,5-Di-*O*-isopropylidene-*D*-mannitol*
[111651-32-2]
$C_{12}H_{22}O_6$ 262.302
Cryst. (Me_2CO/hexane). Mp 124-136°. $[\alpha]_D^{20}$ +22 (c, 2.5 in $CHCl_3$).

*1,2:3,4:5,6-Tri-*O*-isopropylidene: 1,2:3,4:5,6-Tri-*O*-isopropylidene-*D*-mannitol*
[3969-59-3]
$C_{15}H_{26}O_6$ 302.367
Mp 69-71°. $[\alpha]_D^{20}$ +14 (c, 1.7 in $CHCl_3$).

*1,2:5,6-Di-*O*-cyclohexylidene: 1,2:5,6-Di-*O*-cyclohexylidene-*D*-mannitol*
[76779-67-4]
$C_{18}H_{30}O_6$ 342.431
Chiral director in asym. homologation via α-chloro boronic esters. Mp 103-105°. $[\alpha]_D^{20}$ +5.8 (c, 3 in CH_2Cl_2).

*1,3:4,6-Di-*O*-benzylidene: 1,3:4,6-Di-*O*-benzylidene-*D*-mannitol*
[28224-73-9]
$C_{20}H_{22}O_6$ 358.39
Cryst. Mp 146-149°. $[\alpha]_D^{23}$ -7 (c, 1.06 in Me_2CO).

*1,3:4,6-Di-*O*-benzylidene, 2,5-dimesyl: 1,3:4,6-Di-*O*-benzylidene-2,5-di-*O*-mesyl-*D*-mannitol*
[28224-74-0]
$C_{22}H_{26}O_{10}S_2$ 514.573
Mp 187-189°. $[\alpha]_D^{22}$ -30 (c, 0.42 in Me_2CO).

2,3:4,5-Di-O-*benzylidene: 2,3:4,5-Di*-O-*benzylidene-*D*-mannitol*
[35827-52-2]
$C_{20}H_{22}O_6$ 358.39
Mp 203-205°. $[\alpha]_D$ +76.7 (Py).

1,3:2,5:4,6-Tri-O-*benzylidene: 1,3:2,5:4,6-Tri*-O-*benzylidene-*D*-mannitol*
$C_{27}H_{26}O_6$ 446.499
Needles (Et_2O). Mp 218°.

1,6-Di-Ph ether, 3,4-isopropylidene:
$C_{21}H_{26}O_6$ 374.433
Solid. Mp 116-117°. $[\alpha]_D$ +44.9 (c, 1.52 in $CHCl_3$).

2,3,4,5-Tetra-Me: 2,3,4,5-Tetra-O-*methyl-*D*-mannitol*
$C_{10}H_{22}O_6$ 238.28
Syrup, cryst. on standing. Mp 67-69°. $[\alpha]_D$ +12 (c, 1 in $CHCl_3$).

Hexa-Me: 1,2,3,4,5,6-Hexa-O-*methyl-*D*-mannitol*
[20746-37-6]
$C_{12}H_{26}O_6$ 266.334
$[\alpha]_D$ +12.5.

3,4-Dibenzyl, 1,2,5,6-tetra-Ac: 1,2,5,6-Tetra-O-*acetyl-3,4-di*-O-*benzyl-*D*-mannitol*
[113409-83-9]
$C_{28}H_{34}O_{10}$ 530.571
Oil. $[\alpha]_D^{25}$ +41 (c, 0.8 in $CHCl_3$).

3,6-Dibenzyl, 1,2:4,5-di-O-*isopropylidene:*
[132565-88-9]
$C_{26}H_{34}O_6$ 442.551
$[\alpha]_D^{20}$ +1.9 (c, 1 in $CHCl_3$).

1,6-Dityril: 1,6-Di-O-*trityl-*D*-mannitol*
[29780-94-7]
$C_{44}H_{42}O_6$ 666.812
Mp 98-103° (90-93°). $[\alpha]_D$ -10 (c, 1 in $CHCl_3$). $[\alpha]_D$ -3.5 (C_6H_6).

1,6-Ditrityl, 2,3,4,5-tetra-Me: 2,3,4,5-Tetra-O-*methyl-1,6-ditrityl-*D*-mannitol*
$C_{48}H_{50}O_6$ 722.919
Cryst. Mp 158-160°. $[\alpha]_D$ +2 (c, 1 in $CHCl_3$).

Hexanitrate: ***Mannitol hexanitrate, INN****. Nitromannitol. Nitromannite. Nitromaxitate*
[15825-70-4]
$C_6H_8N_6O_{18}$ 452.159
Coronary vasodilator and spasmolytic. Needles (EtOH). Mp 106-108°. Log P 0.84 (calc).
► Explodes upon percussion. Mod. toxic. OP3000000

L-*form* [643-01-6] Not known in nature. Mp 164°.

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl-*L*-mannitol*
[129097-73-0]
$C_{18}H_{26}O_{12}$ 434.396
Cryst. (EtOH). Mp 122-123°. $[\alpha]_D$ -25.2 (c, 7.735 in $CHCl_3$).

*3,4-Isopropylidene: 3,4-Isopropylidene-*L*-mannitol*
[153059-36-0]
$C_9H_{18}O_6$ 222.238
Cryst. (Et_2O). Mp 83-86°. $[\alpha]_D$ -26.4 (c, 3 in H_2O).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-*L*-mannitol*
[22323-78-0]
$C_{12}H_{22}O_6$ 262.302
Needles (H_2O). Mp 121.5-122.5°.

1,2:3,4:5,6-Tri-O-*isopropylidene: 1,2:3,4:5,6-Tri*-O-*isopropylidene-*L*-mannitol*
[153059-35-9]
$C_{15}H_{26}O_6$ 302.367
Cryst. (EtOH). Mp 72-74°.

1,2,5,6-Tetrabenzyl ether: [425622-82-8]
$C_{34}H_{38}O_6$ 542.671
Oil. $[\alpha]_D^{25}$ +12.7 (c, 1.02 in $CHCl_3$).

1,2:5;6-Dianhydro, 3,4-O-*isopropylidene:* See 1,2:5,6-Diepoxy-3,4-hexanediol, D-661

DL-*form*

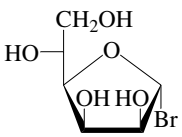
DL-Mannitol. α-Acritol
[133-43-7]
Mp 170°.

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl-*DL*-mannitol*
[142563-12-0]
$C_{18}H_{26}O_{12}$ 434.396
Mp 108-109°.

[45007-61-2, 61453-77-8]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 186C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 289C; 401A; 401B; 404A (*nmr*)
Ohle, H. *et al., Ber.*, 1929, **62**, 2982 (*4,5-dibenzoyl*)
Brigl, P. *et al., Ber.*, 1932, **65**, 641 (*dibenzoyl*)
Baer, E. *et al., J.A.C.S.*, 1939, **61**, 761-765, (*L-hexa-Ac, L-1,2:5,6-diisopropylidene*)
Ness, A.T. *et al., J.A.C.S.*, 1943, **65**, 2215 (*2,5-methylene*)
Wiggins, L.F. *et al., J.C.S.*, 1946, 13 (*3,4-isopropylidene*)
Lohmar, R. *et al., Carbohydr. Res.*, 1949, **4**, 211 (*rev*)
Kolthoff, I.M. *et al., Volumetric Analysis*, Interscience, NY, 1954, **2**, (*use*)
Wright, L. *et al., J.O.C.*, 1961, **26**, 1588 (*synth*)
Sinclair, H.B. *et al., Carbohydr. Res.*, 1970, **12**, 150 (*1,3:4,6-dibenzylidene, synth, pmr*)
Horváth, T. *et al., Carbohydr. Res.*, 1971, **16**, 253 (*Mannosulfan*)
Vargha, L. *et al., Ther. Hung.*, 1971, **19**, 10 (*Mannosulfan*)
Analyst (London), 1972, **97**, 740 (*microanal*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 148 (*occur*)
Brimacombe, J.S. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 479
Brecknell, D.J. *et al., Aust. J. Chem.*, 1976, **29**, 1749 (*tribenzylidene*)
Holzbecher, Z. *et al., Handbook of Organic Reagents in Inorganic Analysis*, Horwood, Chichester, 1976, (*use*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **1**, 754 (*rev*)
Morpain, C. *et al., J.C.S. Perkin 1*, 1979, 1379 (*dibenzoyl*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1980, **84**, 350 (*1,2:5,6-diisopropylidene*)
Matsuhiro, B. *et al., Carbohydr. Res.*, 1981, **89**, 326 (*cmr*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1984, **128**, 87; **132**, 178; 1985, **137**, 276 (*isopropylidene derivs*)
Makkee, M. *et al., Starch/Staerke*, 1985, **37**, 136 (*rev, synth*)
Jurczak, J. *et al., Carbohydr. Res.*, 1987, **164**, 493 (*derivs*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 457; 572
Gawronska, K. *et al., Carbohydr. Res.*, 1988, **176**, 79 (*2,3:4,5-diisopropylidene, 2,4:3,4-diisopropylidene*)
Morpain, C. *et al., Org. Prep. Proced. Int.*, 1990, **22**, 540 (*1,2:5,6-diisopropylidene*)
Frick, W. *et al., Annalen*, 1991, 435-438 (*3,6-dibenzyl, D-1,2:4,5-diisopropylidene*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1991, **222**, 283 (*diisopropylidene*)
Stein, Z. *et al., Acta Cryst. C*, 1992, **48**, 1141 (*cryst struct, hexa-Ac*)
Kopf, J. *et al., Carbohydr. Res.*, 1992, **229**, 17 (*cryst struct, D-hexa-Ac, DL-hexa-Ac*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 294-298
Nugiel, D.A. *et al., J. Med. Chem.*, 1996, **39**, 2156-2169 (*L-form, triisopropylidene, 3,4-isopropylidene, synth, pmr*)
Earle, M.J. *et al., J.O.C.*, 1996, **61**, 5697 (*1,2:5,6-diisopropylidene*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 901; 902
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 1658 (*rev*)
Saravanan, P. *et al., J.O.C.*, 1997, **62**, 2669-2670 (*tosylates, synth, pmr, ir, cmr*)
Zuccarello, G. *et al., J.O.C.*, 1998, **63**, 4898-4906 (*3,4-isopropylidene 1,6-di-Ph, synth, pmr, cmr*)
Org. Synth., Coll. Vol., 9, 1998, 450-453 (*1,2:5,6-diisopropylidene, synth, ir, pmr, cmr*)
Liu, P. *et al., Acta Cryst. C*, 1999, **55**, 1179-1181 (*triisopropylidene, cryst struct*)
Li, G. *et al., Organometallics*, 1999, **581**, 66-69 (*1,2:5,6-dicyclohexylidene, use*)
Badorrey, R. *et al., Tetrahedron*, 2002, **58**, 341-354 (*L-form, 1,2,5,6-tetrabenzyl ether*)
Li, L.-S. *et al., Tetrahedron*, 2002, **58**, 9049-9054 (*D-form, 1,2:4,5-diisopyropylidene*)
Fronezck, F.R. *et al., Acta Cryst. C*, 2003, **59**, o567-o570 (*D-form, cryst struct*)
Mancera, M. *et al., Carbohydr. Res.*, 2003, **338**, 1115-1119 (*2,3,4,5-tetra-Me, 1,6-ditrityl, 1,6-ditrityl 2,3,4,5-tetra-Me*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, HER000; MAW250; MAW800

Mannofuranosyl bromide M-26



α-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-*acetyl-α-D-mannofuranosyl bromide*
[55018-57-0]
$C_{14}H_{19}BrO_9$ 411.203
Syrup.

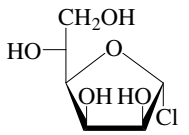
2,3:5,6-Di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-α-D-mannofuranosyl bromide*
[38838-12-9]
$C_{12}H_{19}BrO_5$ 323.183
Cryst. Mp 122-123°.

β-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-*acetyl-β-D-mannofuranosyl bromide*
[55018-58-1]
$C_{14}H_{19}BrO_9$ 411.203
Syrup.

Hanessian, S. *et al., Carbohydr. Res.*, 1972, **24**, 45 (*diisopropylidene, pmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1041 (*tetra-Ac, pmr*)
McAdam, D.P. *et al., Aust. J. Chem.*, 1988, **41**, 563 (*tetra-Ac, diisopropylidene*)

Mannofuranosyl chloride M-27



α-D-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-*form*

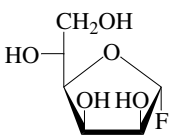
2,3:5,6-Di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-α-D-mannofuranosyl chloride*
[17087-84-2]
$C_{12}H_{19}ClO_5$ 278.732
Oil. $Bp_{2.4}$ 135-137° $Bp_{0.1}$ 112-122° (bath). $[\alpha]_D^{19.5}$ +2.75 (c, 8.3 in Me_2CO). $n_D^{19.5}$ 1.4679.

β-D-*form*

2,3:5,6-Di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-β-D-mannofuranosyl chloride*
[72258-31-2]
$C_{12}H_{19}ClO_5$ 278.732
Oil.

Lee, J.B. *et al., Tetrahedron*, 1967, **23**, 2789, (*α-diisopropylidene, ir*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1975, **44**, 13 (*α-diisopropylidene, pmr*)
Csuk, R. *et al., Chem. Comm.*, 1986, 1149, (*β-diisopropylidene*)

Mannofuranosyl fluoride M-28



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-*acetyl-α-D-mannofuranosyl fluoride*
[40031-25-2]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O). Mp 96-97.5°. $[\alpha]_D^{25}$ +68.5 (c, 2.1 in $CHCl_3$).

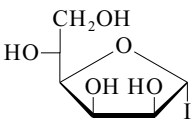
Tetrabenzoyl: 2,3,5,6-Tetra-O-*benzoyl-α-D-mannofuranosyl fluoride*
$C_{34}H_{27}FO_9$ 598.58
Cryst. (Et_2O). Mp 90-91°. $[\alpha]_D^{23}$ -115.6 (c, 2 in $CHCl_3$).

β-D-*form*

Tetra-Ac: 2,3,5,6-Tetra-O-*acetyl-β-D-mannofuranosyl fluoride*
[40031-26-3]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O). Mp 91-92.5°. $[\alpha]_D^{25}$ -13.8 (c, 2.5 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand.*, 1972, **26**, 2360 (*tetra-Ac, tetrabenzoyl, pmr, F-19 nmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 682 (*cmr, F-19 nmr*)

Mannofuranosyl iodide M-29



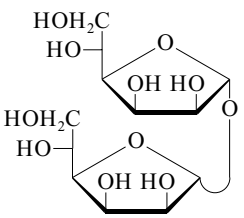
$C_6H_{11}IO_5$ 290.054

α-D-*form*

2,3:5,6-Di-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-α-D-mannofuranosyl iodide*
[125181-25-1]
$C_{12}H_{19}IO_5$ 370.184
Syrup.

Ernst, B. *et al., Tet. Lett.*, 1989, **30**, 3081 (*diisopropylidene, pmr*)

α-D-Mannofuranosyl α-D-mannofuranoside M-30



$C_{12}H_{22}O_{11}$ 342.299

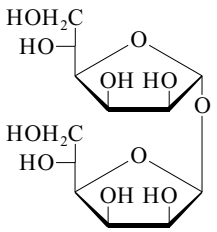
Tetra-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-α-D-mannofuranosyl 2,3:5,6-di*-O-*isopropylidene-α-D-mannofuranoside*
[64842-81-5]
$C_{24}H_{38}O_{11}$ 502.558
Cryst. (MeOH). Mp 187-188°. $[\alpha]_D^{20}$ +63 (c, 1.0 in $CHCl_3$).

Tetra-O-*cyclohexylidene: 2,3:5,6-Di*-O-*cyclohexylidene-α-D-mannofuranosyl 2,3:5,6-di*-O-*cyclohexylidene-α-D-mannofuranoside*
$C_{36}H_{54}O_{11}$ 662.816
Cryst. (EtOH). Mp 158-159°. $[\alpha]_D$ +73 (c, 1.4 in $CHCl_3$).

Eitelman, S.J. *et al., J.C.S. Perkin 1*, 1978, 595 (*synth*)
Zhdanov, Y.A. *et al., Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1979, **245**, 846; *Dokl. Chem. (Engl. Transl.)*, 1979, **245**, 157

β-D-Mannofuranosyl α-D-mannofuranoside, 9CI M-31

α-D-Mannofuranosyl β-D-mannofuranoside
[97629-23-7]



$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide. Cryst. (MeOH). Mp 172°. $[\alpha]_D^{20}$ -11.4 (c, 0.8 in DMSO).

Octa-Ac: [97672-95-2]
$C_{28}H_{38}O_{19}$ 678.597
Syrup. $[\alpha]_D^{20}$ -30.2 (c, 1.3 in $CHCl_3$).

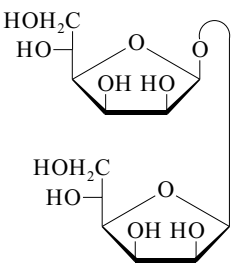
Tetra-O-*isopropylidene: 2,3:5,6-Di*-O-*isopropylidene-β-D-mannofuranosyl 2,3:5,6-di*-O-*isopropylidene-α-D-mannofuranoside*
[68198-88-9]
$C_{24}H_{38}O_{11}$ 502.558
Oil. $[\alpha]_D^{20}$ +18 (c, 1.0 in $CHCl_3$).

2,3;5,6-Di-O-*isopropylidene, tetra-Ac: 2,3:5,6-Di*-O-*isopropylidene-β-D-mannofuranosyl 2,3,5,6-tetra*-O-*acetyl-α-D-mannofuranoside*
[97629-26-0]
$C_{26}H_{38}O_{15}$ 590.577
Mp 40°. $[\alpha]_D^{20}$ -54.9 (c, 0.5 in $CHCl_3$).

Eitelman, S.J. *et al., J.C.S. Perkin 1*, 1978, 595
Dahlhoff, W.V. *et al., Z. Naturforsch., B*, 1985, **40**, 141 (*synth*)

β-D-Mannofuranosyl β-D-mannofuranoside, 9CI M-32

[97672-99-6]



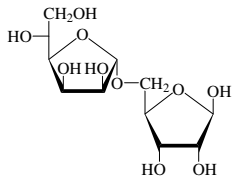
$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide. Mp 121°. $[\alpha]_D^{20}$ -126.1 (c, 0.5 in DMSO).

Octa-Ac: [97673-00-2]
$C_{28}H_{38}O_{19}$ 678.597
Mp 234-235°. $[\alpha]_D^{20}$ -116.5 (c, 0.6 in $CHCl_3$).

2,3;5,6-Di-O-*isopropylidene, tetra-Ac: 2,3:5,6-Di*-O-*isopropylidene-β-D-mannofuranosyl 2,3,5,6-tetra*-O-*acetyl-β-D-mannofuranoside*
[97672-97-4]
$C_{26}H_{38}O_{15}$ 590.577
$[\alpha]_D^{20}$ -60.7 (c, 1.3 in $CHCl_3$).

Dahlhoff, W.V. *et al., Z. Naturforsch., B*, 1985, **40**, 141 (*synth*)

5-*O*-α-D-Mannofuranosyl-D-ribose M-33



β-Furanose-*form*

$C_{11}H_{20}O_{10}$ 312.273

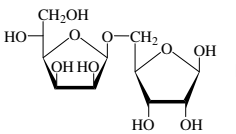
β-Furanose-*form*

Benzyl glycoside, 2,3-dibenzyl, 2′,3′:5′,6′-di-O-*isopropylidene: Benzyl 2,3-di*-O-*benzyl-5*-O-*(2,3:5,6-di*-O-*isopropylidene-α-D-mannofuranosyl)-β-D-ribofuranoside, 9CI*
[76679-42-0]
$C_{38}H_{46}O_{10}$ 662.775
Syrup. $[\alpha]_D^{20}$ +30 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-O-*isopropylidene, 2′,3′:5′,6′-di*-O-*isopropylidene: Methyl 5*-O-*(2,3:5,6-di*-O-*isopropylidene-α-D-mannofuranosyl)-2,3*-O-*isopropylidene-β-D-ribofuranoside, 9CI*
[76679-43-1]
$C_{21}H_{34}O_{10}$ 446.494
Mp 67-68°. $[\alpha]_D^{20}$ +2.6 (c, 1.0 in $CHCl_3$).

Schmidt, R.R. *et al., Chem. Ber.*, 1982, **115**, 39 (*synth, pmr*)

5-*O*-β-D-Mannofuranosyl-D-ribose M-34



β-Furanose-*form*

$C_{11}H_{20}O_{10}$ 312.273

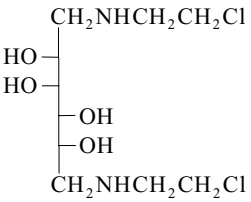
β-Furanose-*form*

Benzyl glycoside, 2,3-dibenzyl, 2′,3′:5′,6′-di-O-*isopropylidene: Benzyl 2,3-di*-O-*benzyl-5*-O-*(2,3:5,6-di*-O-*isopropylidene-β-D-mannofuranosyl)-β-D-ribofuranoside, 9CI*
[76679-45-3]
$C_{38}H_{46}O_{10}$ 662.775
Syrup. $[\alpha]_D^{20}$ -16.6 (c, 1.0 in $CHCl_3$).

Schmidt, R.R. *et al., Chem. Ber.*, 1982, **115**, 39 (*synth, pmr*)

Mannomustine, BAN, INN M-35

1,6-Bis[(2-chloroethyl)amino]-1,6-dideoxy-D-mannitol, 9CI, 8CI. Mannitol nitrogen mustard. Degranol. Mannitlost. NSC 9698
[576-68-1]



$C_{10}H_{22}Cl_2N_2O_4$ 305.2
Antineoplastic agent. Mp 278° dec. Log P -2.73 (calc).

▶ OP2100000

Hydrochloride (1:2): [551-74-6]
Mp 239-241° dec. $[\alpha]_D^{20}$ +18.46 (c, 1.81 in H_2O).

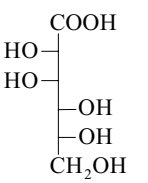
▶ Human systemic effects when used therapeutically. Exp. reprod. effects. Exp. carcinogen. LD_{50} (mus, scu) 120 mg/kg. OP2275000

Salt with ATP (1:1): Degratef
[89457-62-5]

Vargha, L. *et al., J.C.S.*, 1957, 805 (*synth*)
Hadnagy, C. *et al., Arch. Int. Pharmacodyn. Ther.*, 1959, **120**, 334 (*pharmacol*)
Gergely, P. *et al., CA*, 1973, **79**, 38 396c (*use*)
IARC Monog., 1975, **9**, 157; *Suppl.*, **7**, 65 (*tox, rev*)
Isakov, I. *et al., Khim.-Farm. Zh.*, 1983, **17**, 1446 (*salt*)
Buess, M.L. *et al., Org. Magn. Reson.*, 1984, **22**, 67 (*nqr*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 486
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MAW500; MAW750

Mannonic acid, 9CI, 8CI M-36

manno-*Hexonic acid*
[6906-37-2]



D–*form*

$C_6H_{12}O_7$ 196.157
Free acid v. readily lactonises.

D-*form* [642-99-9]

Na salt: $[\alpha]_D^{20}$ -8.8 (H_2O).

Ca salt:
Hydrate. Mp 165°. $[\alpha]_D^{20}$ -7.5 (H_2O).

Brucine salt: Mp 212°. $[\alpha]_D^{20}$ -26.7 (H_2O).

Me ester: Methyl D-mannonate
[16752-03-7]
$C_7H_{14}O_7$ 210.183
Mp 155°. $[\alpha]_D^{20}$ -11.1 (H_2O).

Et ester: Ethyl D-mannonate
[27934-94-7]
$C_8H_{16}O_7$ 224.21
Mp 164°.

Amide: D-Mannonamide
[27022-42-0]
$C_6H_{13}NO_6$ 195.172
Mp 176°. $[\alpha]_D^{20}$ -13.1 (c, 2.2 in H_2O).

Anilide: N-*Phenyl-D-mannonamide*
$C_{12}H_{17}NO_6$ 271.269
Mp 176°. $[\alpha]_D^{12}$ -16.9 (H_2O).

Hydrazide: D-Mannonic hydrazide
$C_6H_{14}N_2O_6$ 210.186
Mp 161° dec. $[\alpha]_D^{15}$ -2.7 (H_2O).

Nitrile: D-Mannononitrile
[52387-28-7]
$C_6H_{11}NO_5$ 177.157
Characterised as derivs.

Nitrile, 2,3:5,6-diisopropylidene: 2,3:5,6-Di-O-*isopropylidene-D-mannononitrile*
[123790-87-4]
$C_{12}H_{19}NO_5$ 257.286
Mp 97-98°. $[\alpha]_D^{20}$ +62.4 (c, 1.2 in CH_2Cl_2).

1,4-Lactone: See 1,4-Mannonolactone, M-37

1,5-Lactone: See 1,5-Mannonolactone, M-38

Penta-Ac: 2,3,4,5,6-Penta-O-*acetyl-D-mannonic acid*
$C_{16}H_{22}O_{12}$ 406.343
Cryst. (EtOH aq.). Mp 68-70° (as hydrate). $[\alpha]_D^{21}$ +23 (c, 4 in $CHCl_3$).

Penta-Ac, Me ester: Methyl 2,3,4,5,6-penta-O-*acetyl-D-mannonate*
[35813-13-9]
$C_{17}H_{24}O_{12}$ 420.369
Mp 78-79°. $[\alpha]_D^{20}$ +20.5 (c, 1.0 in CH_2Cl_2).

Penta-Ac, amide: Penta-O-*acetyl-D-mannonamide*
[20744-69-8]
$C_{16}H_{23}NO_{11}$ 405.358
Mp 113-114°. $[\alpha]_D^{28}$ +40.7 (c, 1.1 in $CHCl_3$).

Nitrile, 2,3:5,6-diisopropylidene, 4-benzoyl: 4-O-*Benzoyl-2,3:5,6-di*-O-*isopropylidene-D-mannononitrile*
[35023-81-5]
$C_{19}H_{23}NO_6$ 361.394
Cryst. (C_6H_6). Mp 148°. $[\alpha]_D^{28}$ +21.2 (c, 2.0 in $CHCl_3$).

Penta-Ac, nitrile: 2,3,4,5,6-Penta-O-*acetyl-D-mannonitrile*
[6337-12-8]
$C_{16}H_{21}NO_{10}$ 387.343
Cryst. (EtOH). Mp 92-93°. $[\alpha]_D^{29}$ -1.8 ($CHCl_3$).

2,3,4,5-Tetra-Me, nitrile: 2,3,4,5-Tetra-O-*methyl-D-mannononitrile*
$C_{10}H_{19}NO_5$ 233.264
Bp_{12} 180-182°. $[\alpha]_D^{20}$ +10.1 (MeOH).

Penta-Me, nitrile: 2,3,4,5,6-Penta-O-*methyl-D-mannononitrile*
$C_{11}H_{21}NO_5$ 247.291
Syrup. $Bp_{0.18}$ 110°. $[\alpha]_D^{20}$ +13.3 (EtOH).

1,6-Lactone, 2,3:4,5-diisopropylidene: 2,3:4,5-Di-O-*isopropylidene-D-mannono-1,6-lactone*
$C_{12}H_{18}O_6$ 258.271
Syrup. $[\alpha]_D^{25}$ -49.5 (c, 1.3 in $CHCl_3$).

L-*form* [51547-37-6]

Na salt: $[\alpha]_D$ +10.1 (H_2O).

Amide: L-Mannonamide
$C_6H_{13}NO_6$ 195.172
Mp 170-171° dec. $[\alpha]_D^{13}$ +29.9 (H_2O).

Hydrazide: L-Mannonic hydrazide
$C_6H_{14}N_2O_6$ 210.186
Mp 161-162° dec. $[\alpha]_D^{14}$ +4.4 (H_2O).

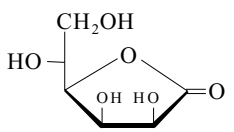
1,4-Lactone: See 1,4-Mannonolactone, M-37

*Penta-Ac, Me ester: Methyl 2,3,4,5,6-penta-*O*-acetyl-L-mannonate*
$C_{17}H_{24}O_{12}$ 420.369
Cryst. (MeOH/Et_2O/petrol). Mp 79-80°. $[\alpha]_D^{27}$ -19 (c, 3.3 in H_2O).

Nef, J.U. *et al., Annalen*, 1914, **403**, 306 (*D-form, D-Et ester*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1931, **53**, 622 (*D-nitrile penta-Ac*)
Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1933, **11**, 649 (*D-form*)
Glattfeld, J.W.E. *et al., J.A.C.S.*, 1934, **56**, 2481 (*D-amide*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 320
Wolfrom, M.L. *et al., J.A.C.S.*, 1951, **73**, 730 (*L-amide, L-Me ester penta-Ac*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 21 (*D-penta-Ac*)
Deferrari, J.O. *et al., An. Asoc. Quim. Argent.*, 1967, **55**, 187; *CA*, **69**, 67645g (*D-Penta-Ac, amide*)
Kampf, A. *et al., Carbohydr. Res.*, 1972, **21**, 1 (*D-nitrile diisopropylidene*)
Horton, D. *et al., Carbohydr. Res.*, 1972, **22**, 151 (*D-Me ester penta-Ac*)
Deslongchamps, P. *et al., Can. J. Chem.*, 1974, **52**, 3651 (*D-Me ester penta-Ac, pmr*)
Seldes, A.M. *et al., Carbohydr. Res.*, 1975, **39**, 11 (*D-nitrile penta-Ac*)
Horton, D. *et al., Carbohydr. Res.*, 1983, **119**, 263 (*pmr, cmr, conformn*)
Gawronska, K. *et al., Carbohydr. Res.*, 1988, **176**, 79 (*D-1,6-lactone diisopropylidene*)
Furstner, A. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 751 (*diisopropylidene nitrile*)

1,4-Mannonolactone M-37

manno-*Hexono-1,4-lactone. γ-Mannolactone*



D–*form*

$C_6H_{10}O_6$ 178.141

D-*form* [26301-79-1]
Mp 152°. $[\alpha]_D$ +51.8 (H_2O).

*2,3,5,6-Tetra-Ac: 2,3,5,6-Tetra-*O*-acetyl-D-mannono-1,4-lactone*
$C_{14}H_{18}O_{10}$ 346.29
Cryst. (Et_2O). Mp 120°. $[\alpha]_D^{20}$ +52 (H_2O).

*2,6-Ditosyl: 2,6-Di-*O*-tosyl-D-mannono-1,4-lactone*
[146820-58-8]
$C_{20}H_{22}O_{10}S_2$ 486.52
Cryst. ($CHCl_3$). Mp 142-143°. $[\alpha]_D^{20}$ +47 (c, 2.0 in Me_2CO).

*2,3-*O*-Isopropylidene: 2,3-*O*-Isopropylidene-D-mannono-1,4-lactone*
$C_9H_{14}O_6$ 218.206
Needles (Me_2CO/petrol). Mp 133°. $[\alpha]_D^{20}$ +55.4 (c, 1.62 in H_2O).

*5,6-*O*-Isopropylidene: 5,6-*O*-Isopropylidene-D-mannono-1,4-lactone*
$C_9H_{14}O_6$ 218.206
Solid (EtOAc). Mp 136-137°. $[\alpha]_D^{21}$ +58.5 (c, 1.00 in H_2O).

*2,3:5,6-Di-*O*-isopropylidene: 2,3:5,6-Di-*O*-isopropylidene-D-mannono-1,4-lactone*
[14440-56-3]
$C_{12}H_{18}O_6$ 258.271
Cryst. (petrol). Mp 126°. $[\alpha]_D$ +50.6 (c, 1.0 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 2-*O*-(trifluoromethanesulfonyl): 5,6-*O*-Isopropylidene-2-triflyl-D-mannono-1,4-lactone*
$C_{10}H_{13}F_3O_8S$ 350.269
Solid. Mp 109-110° dec. $[\alpha]_D^{21}$ +13.6 (c, 1.00 in $CHCl_3$).

*5,6-Di-Me, 2,3-*O*-isopropylidene: 2,3-*O*-Isopropylidene-5,6-di-*O*-methyl-D-mannono-1,4-lactone*
$C_{11}H_{18}O_6$ 246.26
Needles (Et_2O). Mp 110°. $[\alpha]_D^{20}$ +64.2 (c, 1.1 in H_2O).

*3,5,6-Tri-Me: 3,5,6-Tri-*O*-methyl-D-mannono-1,4-lactone*
[25018-61-5]
$C_9H_{16}O_6$ 220.222
Cryst. (diisopropyl ether/EtOH). Mp 132-133°. $[\alpha]_D^{26}$ +43.2 (c, 0.53 in H_2O) (initial).

*2,3,5,6-Tetra-Me: 2,3,5,6-Tetra-*O*-methyl-D-mannono-1,4-lactone*
[20869-29-8]
$C_{10}H_{18}O_6$ 234.249
Mp 110°.

*3,6-Dibenzoyl: 3,6-Di-*O*-benzoyl-D-mannono-1,4-lactone*
[89950-78-7]
$C_{20}H_{18}O_8$ 386.357
Cryst. (EtOH). Mp 204-208°. $[\alpha]_D^{20}$ +8.7 (c, 1.0 in Me_2CO).

*2,5,6-Tribenzoyl: 2,5,6-Tri-*O*-benzoyl-D-mannono-1,4-lactone*
[89950-76-5]
$C_{27}H_{22}O_9$ 490.465
Cryst. (C_6H_6 or MeOH). Mp 136-138°. $[\alpha]_D^{20}$ -20 (c, 1.0 in $CHCl_3$).

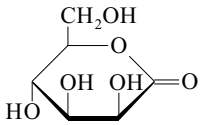
*Tetrabenzoyl: 2,3,5,6-Tetra-*O*-benzoyl-D-mannono-1,4-lactone*
[89950-77-6]
$C_{34}H_{26}O_{10}$ 594.573
Noncryst. $[\alpha]_D^{20}$ -99 (c, 1.0 in $CHCl_3$).

L-*form* [22430-23-5]
Mp 150-151°. $[\alpha]_D$ -51.8 (H_2O).

Nef, J.U. *et al., Annalen*, 1914, **403**, 306 (*D-form, synth*)
Goodyear, E.H. *et al., J.C.S.*, 1927, 3136, (*D-isopropylidene di-Me, D-isopropylidene, D-diisopropylidene, D-tetra-Ac, D-tetra-Me*)
Haworth, W.N. *et al., J.C.S.*, 1929, 345, (*D-tetra-Me*)
Horton, D. *et al., Carbohydr. Res.*, 1966, **2**, 251 (*D-diisopropylidene*)
Aleksidze, N.V. *et al., Zh. Obshch. Khim.*, 1967, **37**, 2625; *CA*, **69**, 97056h (*D-form, D-tetra-Me*)
Siddiqui, I.R. *et al., Carbohydr. Res.*, 1969, **9**, 344 (*D-tri-Me*)
Morgenlie, S. *et al., Acta Chem. Scand.*, 1972, **26**, 2518 (*D-diisopropylidene*)
Walaszek, Z. *et al., Carbohydr. Res.*, 1982, **105**, 131 (*pmr, cmr, conformn*)
Fernández-Cirelli, A. *et al., J. Carbohydr. Chem.*, 1983, **2**, 167-176 (*D-form, 3,6-dibenzoyl, 2,5,6-tribenzoyl, tetrabenzoyl*)
Lunot, I. *et al., Synthesis*, 1992, 1129 (*2,6-ditosyl*)
Sotofte, I. *et al., Acta Cryst. C*, 1994, **50**, 941 (*cryst struct, dimesyl*)
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **264**, 181 (*cryst struct, L-form*)
Long, D.D. *et al., J.C.S. Perkin 1*, 2002, 1982-1998 (*5,6-isopropylidene, synth, pmr*)

1,5-Mannonolactone M-38

1,5-Mannolactone



$C_6H_{10}O_6$ 178.141

D-*form* [32746-79-5]
Mp 162°. $[\alpha]_D$ +111.8 → +28.3 (H_2O).

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-D-mannono-1,5-lactone*
[73322-42-6]
$C_{14}H_{18}O_{10}$ 346.29
Cryst. (Et_2O). Mp 109-110° (99-100°). $[\alpha]_D^{25}$ +96.3 → +31.3 (H_2O). $[\alpha]_D^{21}$ +56 (3 min) → +53 (10 d) (c, 1 in $CHCl_3$).

*Tetra-Me: 2,3,4,6-Tetra-*O*-methyl-D-mannono-1,5-lactone*
[51224-21-6]
$C_{10}H_{18}O_6$ 234.249
Cryst. or syrup. Mp 38-40°. $Bp_{0.05}$ 106-108°. $[\alpha]_D^{20}$ +150 (c, 1.0 in H_2O). $[\alpha]_D^{20}$ +59.5 (c, 0.6 in $CHCl_3$). $[\alpha]_D^{20}$ +35 (c, 0.5 in Et_2O). $[\alpha]_D^{20}$ +20 (c, 0.7 in C_6H_6).

*Tetrabenzyl: 2,3,4,6-Tetra-*O*-benzyl-D-mannono-1,5-lactone*
[82598-88-7]
$C_{34}H_{34}O_6$ 538.639
Cryst. (EtOAc/petrol). Mp 83.5-85°. $[\alpha]_D$ +13 (c, 1.0 in $CHCl_3$) (-0.5).

L-*form* [124915-65-7]
Mp 162°. $[\alpha]_D$ -113.6 → -40.9 (H_2O).

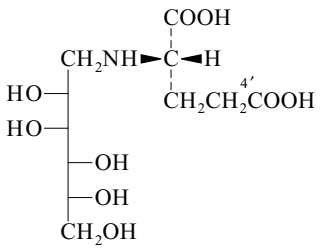
*3,4,6-Tri-Me: 3,4,6-Tri-*O*-methyl-L-mannono-1,5-lactone*
$C_9H_{16}O_6$ 220.222
Mp 96-97°. $[\alpha]_D$ -167 → -112.8 (c, 1.88 in H_2O).

*Tetra-Me: 2,3,4,6-Tetra-*O*-methyl-L-mannono-1,5-lactone*
$C_{10}H_{18}O_6$ 234.249
$[\alpha]_D$ -150 → -58.2 (H_2O).

Haworth, W.N. *et al., J.C.S.*, 1930, 2659, (*tetra-Me*)
Pocker, Y. *et al., J.A.C.S.*, 1974, **96**, 166 (*synth, pmr, ms, bibl*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1980, **113**, 489-510 (*synth*)
Walaszek, Z. *et al., Carbohydr. Res.*, 1982, **106**, 193 (*pmr, cmr, conformn*)
Overkleeft, H.S. *et al., Tetrahedron*, 1994, **50**, 4215 (*synth, pmr, cmr, tetrabenzyl*)
Crich, D. *et al., J.O.C.*, 1996, **61**, 6189, (*D-tetra-Me, synth, ir, pmr, cmr*)
Xie, J. *et al., J. Carbohydr. Chem.*, 1999, **18**, 481-498 (*D-form tetrabenzyl*)

Mannopinic acid M-39

1-Deoxy-1-[(1,3-dicarboxypropyl)amino]-mannitol, 9CI
[74524-18-8]



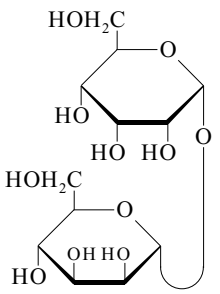
$C_{11}H_{21}NO_9$ 311.288

4′-Amide: ***Mannopine***
[87084-52-4]
$C_{11}H_{22}N_2O_8$ 310.303
Opine found in plant tumours.

Tempe, J. *et al., C. R. Hebd. Seances Acad. Sci. Ser. D*, 1980, **290**, 1173 (*synth*)
Chilton, W.S. *et al., J. Bacteriol.*, 1984, **158**, 650

α-D-Mannopyranosyl α-D-allopyranoside M-40

α-D-Allopyranosyl α-D-mannopyranoside

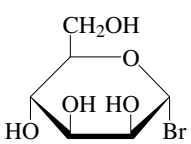


$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide.

Bis-4,6-O-benzylidene, bis-2,3-anhydro: 2,3-Anhydro-4,6-O-benzylidene-α-D-mannopyranosyl 2,3-anhydro-4,6-O-benzylidene-α-D-allopyranoside
[33072-97-8]
$C_{26}H_{26}O_9$ 482.486
Cryst. (MeOH). Mp 288°. $[\alpha]_D$ +118 (c, 0.17 in DMF).

Richardson, A.C. *et al., J.C.S.(C)*, 1971, 1090 (*synth*)
Hough, L. *et al., J.C.S. Perkin 1*, 1973, 287

Mannopyranosyl bromide M-41



α-D-*form*

$C_6H_{11}BrO_5$ 243.054

α-D-*form*

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-α-D-mannopyranosyl bromide, 9CI, 8CI. Acetobromomannose
[13242-53-0]
$C_{14}H_{19}BrO_9$ 411.203
Mp 53-54°. $[\alpha]_D^{20}$ +128 (c, 1.8 in $CHCl_3$).

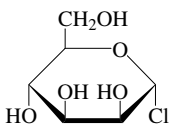
2,3,4,6-Tetrabenzoyl: 2,3,4,6-Tetra-O-benzoyl-α-D-mannopyranosyl bromide
[14218-30-5]
$C_{34}H_{27}BrO_9$ 659.486
Amorph. powder. $[\alpha]_D$ +11.7 ($CHCl_3$).

2,3-Carbonate, 4,6-di-Ac: 4,6-Di-O-acetyl-α-D-mannopyranosyl bromide 2,3-carbonate
[53958-21-7]
$[\alpha]_D^{25}$ +88 (c, 1.0 in $CHCl_3$).

6-Deoxy-6-iodo, 2,3,4-tri-Ac: 2,3,4-Tri-O-acetyl-6-deoxy-6-iodo-α-D-mannopyranosyl bromide
[50692-56-3]
$C_{12}H_{16}BrIO_7$ 479.063
Needles (diisopropyl ether). Mp 136-137° (softens at 122°). $[\alpha]_D$ +110 (c, 1.0 in $CHCl_3$).

Brauns, D.H. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1931, **7**, 573 (*α-D-tetra-Ac*)
Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*rev*)
Capon, B. *et al., J.C.S.*, 1964, 3242 (*α-D-tetra-Ac*)
Freestone, A.J. *et al., Carbohydr. Res.*, 1973, **28**, 378 (*α-D-deoxy-iodo tri-Ac*)
Shaban, M.A.E. *et al., Carbohydr. Res.*, 1975, **45**, 105 (*carbonate*)
Kartha, K.P.R. *et al., J. Carbohydr. Chem.*, 1990, **9**, 777-781 (*tetra-Ac, !synth*)

Mannopyranosyl chloride M-42



α-D-Pyranose-*form*

$C_6H_{11}ClO_5$ 198.603

α-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-α-D-mannopyranosyl chloride
[14257-40-0]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. Mp 81°. $[\alpha]_D^{20}$ +90.6 ($CHCl_3$).

Tetrabenzoyl: 2,3,4,6-Tetra-O-benzoyl-α-D-mannopyranosyl chloride
[14262-87-4]
$C_{34}H_{27}ClO_9$ 615.035
Amorph. solid. $[\alpha]_D^{20}$ -30.5 (c, 1.0 in $CHCl_3$).

Di-O-cyclohexylidene: 2,3:4,6-Di-O-cyclohexylidene-α-D-mannopyranosyl chloride
[70835-79-9]
$C_{18}H_{27}ClO_5$ 358.861
Cryst. (2-propanol). Mp 87-88°. $[\alpha]_D^{20}$ +47 (c, 4.5 in $CHCl_3$).

2,3-Dibenzyl, 4,6-di-Ac: 4,6-Di-O-acetyl-2,3-di-O-benzyl-α-D-mannopyranosyl chloride
$C_{24}H_{27}ClO_7$ 462.926
Syrup. $[\alpha]_D^{20}$ +28.8 (c, 4.7 in CH_2Cl_2).

3,6-Dibenzyl, 2,4-di-Ac: 2,4-Di-O-acetyl-3,6-di-O-benzyl-α-D-mannopyranosyl chloride
[79317-22-9]
$C_{24}H_{27}ClO_7$ 462.926
Syrup. $[\alpha]_D$ +40 (c, 0.3 in $CHCl_3$).

β-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-β-D-mannopyranosyl chloride
[14227-52-2]
$C_{14}H_{19}ClO_9$ 366.751
Cryst. (CH_2Cl_2/Et_2O). Mp 162-166°. $[\alpha]_D^{20}$ -27.2 (c, 1.0 in $CHCl_3$).

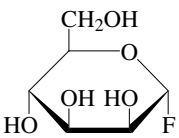
Tetrabenzoyl: 2,3,4,6-Tetra-O-benzoyl-β-D-mannopyranosyl chloride
[65236-81-9]
$C_{34}H_{27}ClO_9$ 615.035
Solid. Mp 186°. $[\alpha]_D^{20}$ -129.1 (c, 0.9 in $CHCl_3$).

α-L-*form*

6-Deoxy, tri-Ac: 2,3,4-Tri-O-acetyl-6-deoxy-α-L-mannopyranosyl chloride. Acetochlororhamnose
[5160-09-8]
$C_{12}H_{17}ClO_7$ 308.715
Cryst. Mp 73°. $[\alpha]_D$ -127 ($CHCl_3$).

Pacsu, E. *et al., Ber.*, 1928, **61**, 1508 (*α-tetra-Ac*)
Ness, R.K. *et al., J.A.C.S.*, 1950, **72**, 2200, (*α-tetrabenzoyl*)
Herpin, P. *et al., Acta Cryst. B*, 1976, **32**, 209 (*cryst struct, α-tetra-Ac*)
Chapleur, Y. *et al., Tetrahedron*, 1977, **33**, 1615 (*β-tetrabenzoyl*)
Blanc-Muesser, M. *et al., Carbohydr. Res.*, 1978, **67**, 305 (*β-tetra-Ac, 6-deoxy tri-Ac*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1979, **70**, C13 (*cyclohexylidene*)
Ogawa, T. *et al., Carbohydr. Res.*, 1981, **93**, C1 (*di-Ac dibenzyl*)

Mannopyranosyl fluoride M-43



α-D-*form*

$C_6H_{11}FO_5$ 182.148

α-D-*form* [2713-54-4]
Syrup.

Tetra-Ac: 2,3,4,6-Tetra-O-acetyl-α-D-mannopyranosyl fluoride
[2823-44-1]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O/pentane). Mp 69-71°. $[\alpha]_D^{20}$ +22.7 (c, 2 in $CHCl_3$).

Tetrabenzoyl: 2,3,4,6-Tetra-O-benzoyl-α-D-mannopyranosyl fluoride
[3825-18-1]
$C_{34}H_{27}FO_9$ 598.58
Cryst. (Et_2O/pentane). Mp 129-131°. $[\alpha]_D^{20}$ -86.2 (c, 1.47 in $CHCl_3$).

4,6-Di-Me, 2-benzoyl: 2-O-Benzoyl-4,6-di-O-methyl-α-D-mannopyranosyl fluoride
[69370-76-9]
$C_{15}H_{19}FO_6$ 314.31
Cryst. (Et_2O/pentane). Mp 147-148°. $[\alpha]_D^{20}$ -36.3 (c, 1.5 in $CHCl_3$).

4,6-Di-Me, 2,3-dibenzoyl: 2,3-Di-O-benzoyl-4,6-di-O-methyl-α-D-mannopyranosyl fluoride
[69370-75-8]
$C_{22}H_{23}FO_7$ 418.418
Cryst. (pentane). Mp 79-81°. $[\alpha]_D^{20}$ -131.1 (c, 1.8 in $CHCl_3$).

β-D-*form*

Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-β-D-mannopyranosyl fluoride*
[57573-38-3]
$C_{14}H_{19}FO_9$ 350.297
Cryst. (Et_2O). Mp 105.5-107°. $[\alpha]_D^{20}$ -1 (c, 1.5 in $CHCl_3$).

4,6-Di-Me, 2-benzoyl: 2-O-*Benzoyl-4,6-di*-O-*methyl-β-D-mannopyranosyl fluoride*
[69370-78-1]
$C_{15}H_{19}FO_6$ 314.31
Syrup.

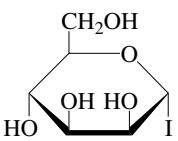
4,6-Di-Me, 3-benzoyl: 3-O-*Benzoyl-4,6-di*-O-*methyl-β-D-mannopyranosyl fluoride*
[69370-77-0]
$C_{15}H_{19}FO_6$ 314.31
Syrup.

4,6-Di-Me, 2,3-dibenzoyl: 2,3-Di-O-*benzoyl-4,6-di*-O-*methyl-β-D-mannopyranosyl fluoride*
[69370-79-2]
$C_{22}H_{23}FO_7$ 418.418
Syrup. $[\alpha]_D^{20}$ -82.2 (c, 2.5 in $CHCl_3$).

2,6-Anhydro: 2,6-Anhydro-β-D-mannopyranosyl fluoride
[108224-15-3]
$C_6H_9FO_4$ 164.133
Solid. Mp 101-103.5°. $[\alpha]_D$ -66.8 (c, 1 in abs. EtOH).

Pedersen, C. *et al., Acta Chem. Scand.*, 1963, **17**, 673 (*α-tetra-Ac, α-tetrabenzoyl*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 1 (*synth, pmr, F-19 nmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 682 (*β-tetra-Ac, pmr, cmr*)
Pedersen, C. *et al., Acta Chem. Scand., Ser. B*, 1978, **32**, 687 (*Me deriv, pmr*)
Baillargeon, D.J. *et al., Carbohydr. Res.*, 1986, 154; 275 (*anhydro*)
Caddick, S. *et al., Tetrahedron*, 1996, **52**, 149-156 (*tetra-Ac*)

Mannopyranosyl iodide M-44



$C_6H_{11}IO_5$ 290.054

α-D-*form*

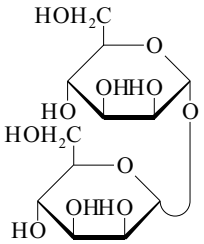
2,3,4,6-Tetra-Ac: [14227-51-1]
$C_{14}H_{19}IO_9$ 458.203
Oil. $[\alpha]_D^{25}$ +190.3 (c, 1.2 in $CHCl_3$).

2,3,4,6-Tetrabenzoyl: [14726-07-9]
$C_{34}H_{27}IO_9$ 706.486
Amorph. mass. $[\alpha]_D^{25}$ +138.5 (c, 1.2 in $CHCl_3$).

Ness, R.K. *et al., J.A.C.S.*, 1950, **72**, 2200-2205 (*tetrabenzoyl*)
Thiem, J. *et al., Chem. Ber.*, 1980, **113**, 3075-3085 (*tetra-Ac*)
Caputo, R. *et al., Eur. J. Org. Chem.*, 1999, 3147-3150 (*tetra-Ac, tetrabenzoyl*)

α-D-Mannopyranosyl α-D-mannopyranoside, 9CI M-45

[74464-63-4]



$C_{12}H_{22}O_{11}$ 342.299
Non-reducing disaccharide. Mp 240-243°. $[\alpha]_D$ +124 (H_2O). $[\alpha]_D$ +123 (c, 0.5 in 50% aq. MeOH).

Octa-Ac: [74080-42-5]
$C_{28}H_{38}O_{19}$ 678.597
Mp 126° (70-75°). $[\alpha]_D$ +65 (c, 1.0 in $CHCl_3$).

2,2′,3,3′-Tetrabenzyl: 2,3-Di-O-*benzyl-α-D-mannopyranosyl 2,3-di*-O-*benzyl-α-D-mannopyranoside*
[93636-47-6]
$C_{40}H_{46}O_{11}$ 702.797
$[\alpha]_D$ +41.5 (c, 1.0 in $CHCl_3$).

3,3′,4,4′,6,6′-Hexabenzyl: 3,4,6-Tri-O-*benzyl-α-D-mannopyranosyl 3,4,6-tri*-O-*benzyl-α-D-mannopyranoside*
[80738-61-0]
$C_{54}H_{58}O_{11}$ 883.046
Syrup. $[\alpha]_D^{25}$ +49.2 (c, 0.61 in $CHCl_3$).

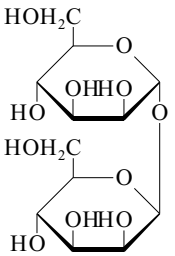
Octabenzyl: 2,3,4,6-Tetra-O-*benzyl-α-D-mannopyranosyl 2,3,4,6-tetra*-O-*benzyl-α-D-mannopyranoside*
[74080-41-4]
$C_{68}H_{70}O_{11}$ 1063.294
$[\alpha]_D^{20}$ +40 (c, 0.85 in $CHCl_3$).

Di-O-*benzylidene, tetrabenzyl: 2,3-Di*-O-*benzyl-4,6-di*-O-*benzylidene-α-D-mannopyranosyl 2,3-di*-O-*benzyl-4,6-di*-O-*benzylidene-α-D-mannopyranoside*
[93636-46-5]
$C_{54}H_{54}O_{11}$ 879.014
$[\alpha]_D$ +55 (c, 1.1 in $CHCl_3$).

Micheel, F. *et al., Chem. Ber.*, 1960, **93**, 1143 (*synth*)
Pavia, A.A. *et al., Carbohydr. Res.*, 1980, **79**, 79
Koto, S. *et al., Chem. Lett.*, 1980, 403 (*cmr*)
Ogawa, T. *et al., Tetrahedron*, 1981, **37**, 2787
Liav, A. *et al., Carbohydr. Res.*, 1983, **123**, C22; 1984, **129**, 121 (*synth, deriv*)

β-D-Mannopyranosyl α-D-mannopyranoside, 9CI M-46

α-D-Mannopyranosyl β-D-mannopyranoside
[80794-88-3]



$C_{12}H_{22}O_{11}$ 342.299
Mp 115-120°. $[\alpha]_D$ +44 (H_2O).

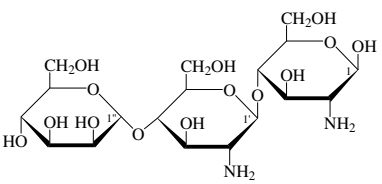
Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D$ +19 ($CHCl_3$).

3,3′,4,4′,6,6′-Hexabenzyl: 3,4,6-Tri-O-*benzyl-β-D-mannopyranosyl 3,4,6-tri*-O-*benzyl-α-D-mannopyranoside*
[80779-89-1]
$C_{54}H_{58}O_{11}$ 883.046
$[\alpha]_D^{25}$ +55.6 (c, 0.18 in $CHCl_3$).

Hexabenzyl, di-Ac: 2-O-*Acetyl-3,4,6-tri*-O-*benzyl-β-D-mannopyranosyl 2*-O-*acetyl-3,4,6-tri*-O-*benzyl-α-D-mannopyranoside*
[80779-88-0]
$C_{58}H_{62}O_{13}$ 967.12
Syrup. $[\alpha]_D^{25}$ +18.4 (c, 0.62 in $CHCl_3$).

Freudenberg, K. *et al., Ber.*, 1928, **61**, 1743
Micheel, F. *et al., Chem. Ber.*, 1960, **93**, 1143 (*synth*)
Ogawa, T. *et al., Tetrahedron*, 1981, **37**, 2787

α-D-Mannopyranosyl-(1 →4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI M-47



β-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

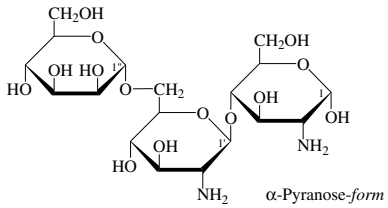
β-Pyranose-*form*

Benzyl glycoside, N,N′-*diphthaloyl, 3′′,6′′-diallyl, 2′′,3,3′,4′′,6,6′-hexabenzyl:*
[89067-98-1]
$C_{89}H_{88}N_2O_{18}$ 1473.677
Syrup. $[\alpha]_D^{25}$ +15.6 (c, 1.0 in $CHCl_3$).

Ogawa, T. *et al., Carbohydr. Res.*, 1983, **123**, C5 (*β-benzyl pyr hexabenzyl derivs*)

α-D-Mannopyranosyl-(1 →6)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI M-48

α-D-Mannopyranosyl-(1 →6)-chitobiose



α-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472

N,N′-*Di-Ac:* [34222-65-6]
$C_{22}H_{38}N_2O_{16}$ 586.546
Cryst. (MeOH/Me_2CO). Mp 186-188°.
$[\alpha]_D$ +36 → +34 (c, 1.4 in MeOH aq.).

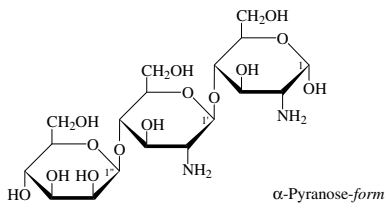
α-Pyranose-*form*

*1,2*N,*2′*N,*2″,3,3′,3″,4″,6,6″-Deca-Ac:* [34140-97-1]
$C_{38}H_{54}N_2O_{24}$ 922.844
Cryst. ($CHCl_3$/pentane). Mp 136-138°.
$[\alpha]_D^{20}$ +29 (c, 1.1 in $CHCl_3$).

Undeca-Ac: [34140-98-2]
$C_{40}H_{56}N_2O_{25}$ 964.881
Cryst. ($CHCl_3$/pentane). Mp 134-135°.
$[\alpha]_D^{20}$ +37 (c, 0.6 in $CHCl_3$).

Shaban, M. *et al., Carbohydr. Res.*, 1971, **19**, 311 (*di-Ac, deca-Ac, undeca-Ac, ir*)

β-D-Mannopyranosyl-(1 →4)-2-amino-2-deoxy-β-D-glucopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI M-49



α-Pyranose-*form*

$C_{18}H_{34}N_2O_{14}$ 502.472
Occurs in the core region of the carbohydrate chains of *N*-glycoproteins. Constit. of a dolichyl pyrophosphate lipid intermed. (cf. Dolichols).

N,N′-*Di-Ac:* [61652-90-2]
$C_{22}H_{38}N_2O_{16}$ 586.546
Amorph. solid. $[\alpha]_D^{20}$ +0.5 (c, 0.44 in H_2O) (+0.2).

α-Pyranose-*form*

*Benzyl glycoside, 2′*N*-phthaloyl, 2″,3,3′,4″,6-pentabenzyl, 2*N*,6′-di-Ac:* [92733-51-2]
$C_{72}H_{76}N_2O_{18}$ 1257.395
Syrup. $[\alpha]_D^{20}$ +29.1 (c, 0.6 in $CHCl_3$).

β-Pyranose-*form*

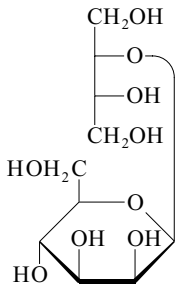
Benzyl glycoside, 3,6-dibenzyl, octa-Ac:
$C_{55}H_{68}N_2O_{22}$ 1109.142
Syrup. $[\alpha]_D^{20}$ +23 (c, 0.9 in $CHCl_3$).

*Benzyl glycoside, 2*N*,2′*N*-diphthaloyl, 3″,6″-diallyl, hexabenzyl:* [89067-97-0]
$C_{89}H_{88}N_2O_{18}$ 1473.677
Syrup. $[\alpha]_D^{25}$ -2.1 ($CHCl_3$).

[74653-25-1, 92733-50-1]

Warren, C.D. *et al., Carbohydr. Res.*, 1980, **82**, 71; 85 (*di-N-Ac, β-benzyl pyr octa-Ac deriv, ir, pmr, occur*)
Ogawa, T. *et al., Carbohydr. Res.*, 1983, **123**, C5 (*β-benzyl pyr hexabenzyl deriv, pmr*)
Paulsen, H. *et al., Carbohydr. Res.*, 1984, **130**, 85 (*α-benzyl pyr di-Ac deriv, pmr, occur*)

2-*O*-β-D-Mannopyranosyl-D-erythritol M-50



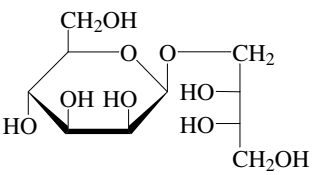
$C_{10}H_{20}O_9$ 284.263
$[\alpha]_D$ -35 (H_2O).

*Heptakis(*p*-nitrobenzoyl):* Mp 116-118°.
$[\alpha]_D$ -106 ($CHCl_3$).

Clamp, J.R. *et al., Adv. Carbohydr. Chem.*, 1961, **16**, 159 (*synth*)

1-*O*-β-D-Mannopyranosyl-L-erythritol M-51

2,3,4-Trihydroxybutyl β-mannopyranoside. 4-O-β-D-Mannopyranosyl-D-erythritol



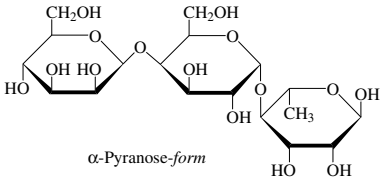
$C_{10}H_{20}O_9$ 284.263
Prod. by *Ustilago* spp. Needles (EtOH aq.).
Mp 160-162°. $[\alpha]_D^{26}$ -38 (c, 1 in H_2O).

*2′,3′-Di-*O*-acyl, 4′ and/or 6′-Ac: Mannosylerythritol lipids. MEL*
Glycolipid complex prod. in high yield by *Candida antarctica* grown on soybean oil. Biosurfactant. Complex consisting of C_8-C_{14} acyl residues at C-2′ and C-3′, further acetylated at C-4′ (MEL C), C-6′ (MEL B) or both (MEL A).

Boothroyd, B. *et al., Can. J. Biochem.*, 1956, **34**, 10 (*isol*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 2474 (*synth*)
Kikamoto, D. *et al., Biophys. Chem.*, 1990, **54**, 31 (*Mannosylerythritol lipids*)
Crich, D. *et al., Tetrahedron*, 2002, **58**, 35-44 (*Mannosylerythritol lipids, synth, config*)

β-D-Mannopyranosyl-(1 →4)-α-D-galactopyranosyl-(1 →4)-L-rhamnose M-52

[79522-98-8]



α-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Constit. of the repeating unit of the *O*-antigen present in the lipopolysaccharide of the bacterium *E. coli* serotype 075.

α-Pyranose-*form*

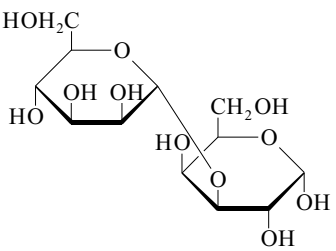
Benzyl glycoside, 2′,2″,3″,4″-tetrabenzyl, 3′,6′,6″-tri-Ac:
$C_{59}H_{68}O_{18}$ 1065.175
$[\alpha]_D^{20}$ +11.8 (c, 1.26 in CH_2Cl_2).

*Benzyl glycoside, 2,3-*O*-isopropylidene, 2′,2″,3″,4″-tetrabenzyl, 3′,6′,6″-tri-Ac:*
$C_{62}H_{72}O_{18}$ 1105.24
$[\alpha]_D^{20}$ +15.1 (c, 2.58 in CH_2Cl_2).

Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3102 (*synth*)

3-*O*-α-D-Mannopyranosyl-D-galactose, 9CI M-53

[71869-57-3]



$C_{12}H_{22}O_{11}$ 342.299
Isolated from enzymic hydrolysate of peach gum.
$[\alpha]_D^{20}$ +135.9 (c, 1.0 in H_2O) (+42.1).

α-Pyranose-*form*

Octa-Ac: [96150-23-1]
$C_{28}H_{38}O_{19}$ 678.597
Mp 134-136°. $[\alpha]_D^{20}$ +91.9 (c, 1.0 in $CHCl_3$).

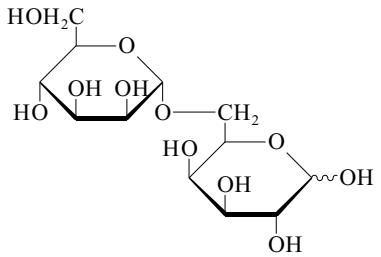
*4,6-*O*-Ethylidene, 1,2-*O*-isopropylidene, tetra-Ac:*
$C_{25}H_{36}O_{15}$ 576.55
$[\alpha]_D$ +53.4 (c, 4.0 in $CHCl_3$).

*4,6-*O*-Ethylidene, 1,2-*O*-isopropylidene, 3′,4′,6′-tribenzyl:*
$C_{38}H_{46}O_{11}$ 678.775
Cryst. (Et_2O/hexane). Mp 114-115°.
$[\alpha]_D^{20}$ +78.7 (c, 2.0 in $CHCl_3$).

Kardosova, A. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 2250
Torgov, V.I. *et al., Bioorg. Khim.*, 1985, **11**, 83; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1985, **11**, 47 (*synth, deriv*)

6-*O*-α-D-Mannopyranosyl-D-galactose, 9CI M-54

[20113-42-2]



Pyranose–*form*

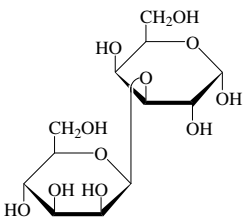
$C_{12}H_{22}O_{11}$ 342.299
Mp 166-168° (174-175° dec.). $[\alpha]_D$ +115 → +96 (c, 1.0 in H_2O).

[23339-29-9]

Ferrier, R.J. *et al., J.C.S.(C)*, 1969, 575 (*synth*)

3-*O*-β-D-Mannopyranosyl-D-galactose, 9CI M-55

[86784-47-6]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
$[\alpha]_D^{20}$ +22 (c, 2.0 in H_2O).

α-Pyranose-*form*

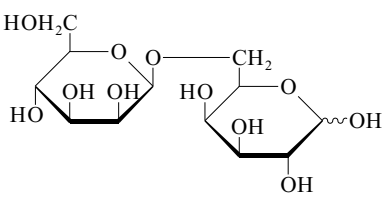
Octa-Ac: [96150-24-2]
$C_{28}H_{38}O_{19}$ 678.597
Mp 183-185°. $[\alpha]_D^{20}$ +38 (c, 1.0 in $CHCl_3$).

*4,6-*O*-Ethylidene, 1,2-*O*-isopropylidene, 3′,4′,6′-tribenzyl:*
$C_{38}H_{46}O_{11}$ 678.775
$[\alpha]_D^{20}$ +13 (c, 2.7 in $CHCl_3$).

Lipkind, J. *et al., Bioorg. Khim.*, 1983, **9**, 407; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 223 (*conformn*)
Torgov, V.I. *et al., Bioorg. Khim.*, 1985, **11**, 83; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 47 (*synth, deriv*)

6-*O*-β-D-Mannopyranosyl-D-galactose M-56

[40246-35-3]



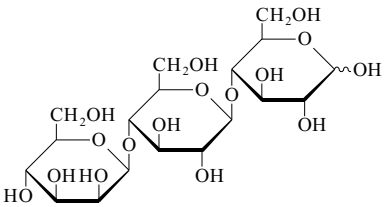
Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Cryst. (EtOH aq.). Mp 178-180°. $[\alpha]_D^{23}$ +23 (5 min) → +0.7 (24h) (c, 0.75 in H_2O).

Ekborg, G. *et al., Acta Chem. Scand.*, 1972, **26**, 3287

β-D-Mannopyranosyl-(1→4)-β-D-glucopyranosyl-(1→4)-D-glucose, 9CI M-57

[50692-77-8]



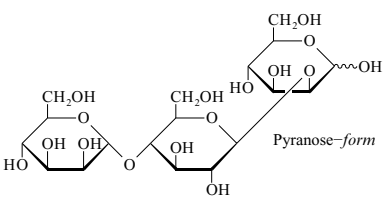
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Constit. of the mucilage from the tubers of *Bletilla striata*. Isol. from the enzymatic hydrolysate of the glucomannans from lily, Jack pine (*Pinus banksiana*), *Narcissus tazetta* and from larch (*Larix decidua*) glucomannan. Amorph. $[\alpha]_D^{20}$ +5.7 (c, 0.5 in H_2O). $[\alpha]_D$ +17 (c, 1.0 in H_2O).

Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815
Aspinall, G.O. *et al., J.C.S.*, 1962, 214
Kato, K. *et al., Agric. Biol. Chem.*, 1976, **40**, 2495 (*isol*)
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1976, **24**, 1807 (*isol, pmr*)

α-D-Mannopyranosyl-(1→4)-β-D-glucopyranosyl-(1→2)-D-mannose, 9CI M-58

[84693-09-4]



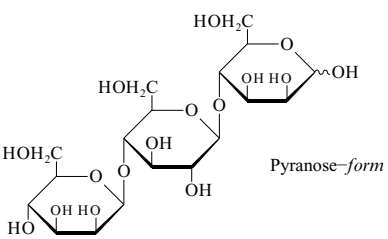
Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Syrup.

Gowda, D. *et al., Carbohydr. Res.*, 1983, **113**, 113 (*synth, chromatog, struct*)

β-D-Mannopyranosyl-(1→4)-β-D-glucopyranosyl-(1→4)-D-mannose, 8CI M-59

[28152-46-7]

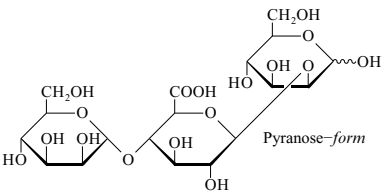


Pyranose–*form*

$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrol. of the glucomannan from *Bletilla striata, Narcissus tazetta, Arum maculatum, Arum orientale* and from larch (*Larix decidua*). Isol. from enzymic reaction on *Amorphophallus konjac* glucomannan.
$[\alpha]_D^{23}$ -5.8 (c, 2.2 in H_2O). $[\alpha]_D^{25}$ -8 (c, 0.4 in H_2O).

Aspinall, G.O. *et al., J.C.S.*, 1962, 214
Kato, K. *et al., Carbohydr. Res.*, 1973, **29**, 469
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1976, **24**, 1807 (*isol*)
Usui, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 863 (*cmr*)
Koleva, M. *et al., CA*, 1981, **95**, 165582r (*isol*)
Shimizu, K. *et al., Agric. Biol. Chem.*, 1983, **47**, 949 (*isol*)
Kusakabe, I. *et al., Agric. Biol. Chem.*, 1988, **52**, 519 (*synth*)

α-D-Mannopyranosyl-(1→4)-β-D-glucopyranuronosyl-(1→2)-D-mannose, 9CI M-60

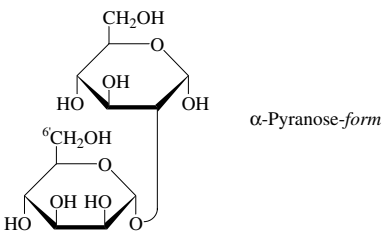


$C_{18}H_{30}O_{17}$ 518.425
Constit. of the repeating unit of a polysaccharide of mucin secreted by the leaves of *Drosera capensis*. Syrup.

Gowda, D. *et al., Carbohydr. Res.*, 1983, **113**, 113 (*occur, isol, chromatog, anal*)

2-*O*-α-D-Mannopyranosyl-D-glucose, 9CI M-61

[53777-23-4]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. $[\alpha]_{456}^{25}$ +75.5 (c, 1.0 in H_2O).

α-Pyranose-*form*

*Me glycoside: Methyl 2-*O*-α-D-mannopyranosyl-α-D-glucopyranoside*
[129948-04-5]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. powder. $[\alpha]_{578}^{22}$ +136 (c, 1.1 in H_2O).

*Me glycoside, 3,4,6-tribenzyl, 2′,3′,4′,6′-tetra-Ac: Methyl 3,4,6-tris-*O*-benzyl-2-*O*-(2,3,4,6-tetra-*O*-acetyl-α-D-mannopyranosyl)-α-D-glucopyranoside*
[129948-14-7]
$C_{42}H_{50}O_{15}$ 794.848
Syrup. $[\alpha]_{578}^{22}$ +82 (c, 0.8 in $CHCl_3$).

6′-Me, hepta-Ac: [70551-15-4]
$C_{27}H_{38}O_{18}$ 650.586
Amorph. powder. $[\alpha]_D^{10}$ +98.8 (c, 4.0 in $CHCl_3$).

β-Pyranose-*form* [75880-63-6]

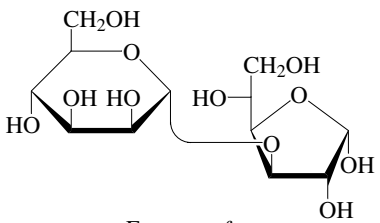
Octa-Ac: [53777-22-3]
$C_{28}H_{38}O_{19}$ 678.597
Cryst. (EtOH). Mp 148-149°. $[\alpha]_D$ +48.3 ($CHCl_3$).

*Me glycoside: Methyl 2-*O*-α-D-mannopyranosyl-β-D-glucopyranoside*
[129948-05-6]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{22}$ +34 (c, 1.9 in H_2O).

Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*synth*)
Esaki, S. *et al., Agric. Biol. Chem.*, 1979, **43**, 231 (*synth*)
Sztaricskai, F. *et al., Tet. Lett.*, 1980, **21**, 2983 (*cmr*)
Jansson, P.-E. *et al., J.C.S. Perkin 1*, 1990, 591-598 (*Me glycoside derivs*)
Eriksson, L. *et al., Acta Cryst. C*, 1997, **53**, 1105-1107 (*cryst struct, Me-β-gly*)

3-*O*-α-D-Mannopyranosyl-D-glucose M-62

[64938-31-4]



α-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Isol. from the partial acetolysis of xanthan gum from *Xanthomonas campestris*.

α-Furanose-*form*

*2′,3′:4′,6′-Di-*O*-cyclohexylidene, 1,2:5,6-di-*O*-isopropylidene:* [77855-99-3]
$C_{30}H_{46}O_{11}$ 582.687
$[\alpha]_D$ +3 (c, 2 in $CHCl_3$).

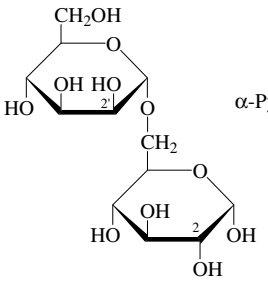
β-D-Pyranose-*form*

Me glycoside:
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{22}$ +55 (c, 0.8 in H_2O).

Lawson, C.J. *et al., Carbohydr. Res.*, 1977, **58**, 433 (*isol*)
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1980, **34**, 505 (*cyclohexylidene deriv*)
Jansson, P. *et al., J.C.S. Perkin 1*, 1990, 591-598 (*Me β-D-Pyr*)

6-*O*-α-D-Mannopyranosyl-D-glucose, 9CI M-63

[7286-49-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. $[\alpha]_D$ +73 (H_2O).

α-Pyranose-*form*

Me glycoside, 2,3,4-tri-Ac, tetrabenzyl:
[71528-66-0]
$C_{47}H_{54}O_{14}$ 842.935
Oil. $[\alpha]_D^{23}$ +66.6 (c, 0.38 in CH_2Cl_2).

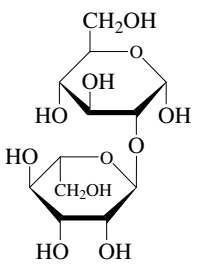
β-Pyranose-*form*

Octa-Ac: [66007-86-1]
$C_{28}H_{38}O_{19}$ 678.597
Amorph. $[\alpha]_D^{20}$ +38 (c, 1.2 in $CHCl_3$). Softens at 90°.

*2′,3′:4′,6′-Di-*O*-cyclohexylidene, tetra-Ac:*
[77855-95-9]
$C_{32}H_{46}O_{15}$ 670.706
$[\alpha]_D$ +155 (c, 1 in $CHCl_3$).

Talley, E.A. *et al., J.A.C.S.*, 1943, **65**, 573; 575
Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 2474; 1959, **37**, 1930 (*synth*)
Kochetkov, N.K. *et al., Tet. Lett.*, 1977, **41**, 3681 (*Octa-Ac*)
Wulff, G. *et al., Chem. Ber.*, 1979, **112**, 2847 (*α-Me gly*)
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1980, **34**, 505 (*cyclohexylidene*)

2-*O*-α-L-Mannopyranosyl-D-glucose M-64



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Syrup. $[\alpha]_D^{18}$ -7.5 (c, 0.1 in MeOH).

6′-Me: [70551-17-6]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{20}$ +15 (c, 2 in MeOH).

α-Pyranose-*form*

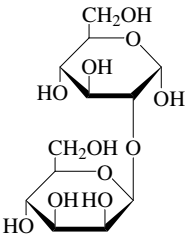
Octa-Ac: [61303-34-2]
$C_{28}H_{38}O_{19}$ 678.597
Amorph. powder. $[\alpha]_D^{30}$ -45.8 (c, 1.2 in EtOH).

6′-Me, hepta-Ac: [70551-14-3]
$C_{27}H_{38}O_{18}$ 650.586
Amorph. powder. $[\alpha]_D^{10}$ 0 (c, 4 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1976, **40**, 1731 (*synth*)
Esaki, S. *et al., Agric. Biol. Chem.*, 1979, **43**, 231 (*6′-Me*)

2-*O*-β-D-Mannopyranosyl-D-glucose M-65

[143120-91-6]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Parent sugar not well characterised.

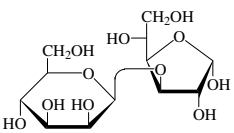
α-Pyranose-*form* [143120-90-5]

*Me glycoside: Methyl 2-*O*-β-D-mannopyranosyl-β-D-glucopyranoside*
[129948-06-7]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_{578}^{22}$ -45 (c, 1.1 in H_2O).

Jansson, P. *et al., J.C.S. Perkin 1*, 1990, 591, (*Me β-gly*)
Kobayashi, H. *et al., Carbohydr. Res.*, 1992, **229**, 369-375 (*pmr*)

3-*O*-β-D-Mannopyranosyl-D-glucose, 9CI M-66

[77881-88-0]



α-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. $[\alpha]_D$ +6 (c, 4.8 in H_2O).

α-Furanose-*form*

*2′,3′:4′,6′-Di-*O*-cyclohexylidene, 1,2:5,6-di-*O*-isopropylidene:* [77855-98-2]
$C_{30}H_{46}O_{11}$ 582.687
$[\alpha]_D$ -68 (c, 3.6 in $CHCl_3$).

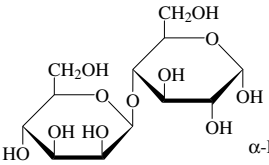
β-D-Pyranose-*form*

Me glycoside:
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{22}$ -38 (c, 1.9 in H_2O).

Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1980, **34**, 505 (*synth, pmr*)
Jansson, P. *et al., J.C.S. Perkin 1*, 1990, 591-598 (*Me β-D gly*)

4-*O*-β-D-Mannopyranosyl-D-glucose, 9CI M-67

[28072-80-2]



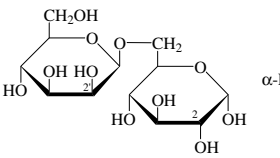
α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Structural unit in the glucomannan of plant hemicelluloses. Isol. from partial acid hydrol. of *Amorphophalus*, spp., *Picea glauca*, *Tsuga heterophylla*, *Acer rubrum* and others.
Mp 199-201°. $[\alpha]_D$ +30 (H_2O).

Gyaw, M.O. *et al., Can. J. Chem.*, 1960, **38**, 1957 (*isol*)
Tyminski, A. *et al., J.A.C.S.*, 1960, **82**, 2823 (*isol*)
Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815 (*isol, struct*)
Bailey, R.W. *et al., Oligosaccharides*, Pergamon Press, 1965, **4**, 100 (*occur*)
Usui, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 863 (*cmr*)
Koleva, M. *et al., CA*, 1980, **92**, 143239v (*isol*)

6-*O*-β-D-Mannopyranosyl-D-glucose M-68

[77881-87-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Reducing disaccharide. Cryst. (EtOH). Mp 209-210° (188-190°). $[\alpha]_D$ -5 (c, 2 in H_2O).

α-Pyranose-*form*

Me glycoside, 2,3,4-tri-Ac: [72009-59-7]
$C_{19}H_{30}O_{14}$ 482.438
$[\alpha]_D^{23}$ +33.7 (c, 1.4 in CH_2Cl_2).

Me glycoside, hepta-Ac: [71526-32-4]
$C_{27}H_{38}O_{18}$ 650.586
Mp 127-128°. $[\alpha]_D^{23}$ +35 (c, 0.14 in CH_2Cl_2).

Me glycoside, 2,3,4-tri-Ac, tetrabenzyl: [71528-65-9]
$C_{47}H_{54}O_{14}$ 842.935
$[\alpha]_D^{23}$ +15.6 (c, 1.24 in CH_2Cl_2).

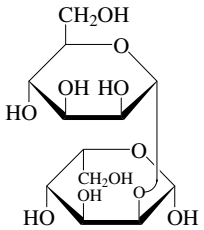
β-Pyranose-*form*

2′,3′:4′,6′-Di-O-*cyclohexylidene, tetra-Ac:* [77855-94-8]
$C_{32}H_{46}O_{15}$ 670.706
$[\alpha]_D$ -32 (c, 6 in $CHCl_3$).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1961, **39**, 2474 (*synth*)
Wulff, G. *et al., Chem. Ber.*, 1979, **112**, 2847, (*α-Me gly*)
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1980, **34**, 505 (*synth, pmr*)

2-*O*-α-D-Mannopyranosyl-L-gulose, 9CI M-69

[78684-25-0]



β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of Bleomycin. Hygroscopic solid. $[\alpha]_D^{25}$ +96 (c, 1.0 in H_2O).

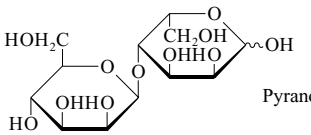
β-Pyranose-*form*

Octa-Ac: [78684-26-1]
$C_{28}H_{38}O_{19}$ 678.597
$[\alpha]_D^{25}$ +36 (c, 0.5 in $CHCl_3$).

Tsuchiya, T. *et al., Tet. Lett.*, 1981, **22**, 1413

4-*O*-β-D-Mannopyranosyl-L-gulose, 8CI M-70

[20237-61-0]

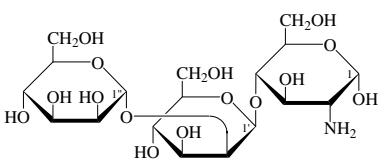


Pyranose–*form*

$C_{12}H_{22}O_{11}$ 342.299
Formed by the partial acid hydrolysis of a chemically reacted alginic acid, extracted from *Laminaria digitata*. Cryst. (EtOH/EtOAc).
Mp 201-203°. $[\alpha]_D$ -23.2 (c, 0.83 in H_2O).

Hirst, E.L. *et al., J.C.S.*, 1964, 1493 (*synth*)
Percival, E. *et al., Carbohydr. Res.*, 1967, **4**, 441 (*glc*)

α-D-Mannopyranosyl-(1 →2)-β-D-mannopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose M-71



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456

α-Pyranose-*form*

Undeca-Ac: [88087-50-7]
$C_{40}H_{55}NO_{26}$ 965.866
Powder (CH_2Cl_2/hexane). $[\alpha]_D^{19}$ +32.7 (c, 0.11 in $CHCl_3$).

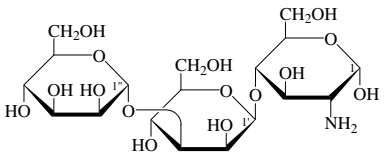
β-Pyranose-*form*

1,6-Anhydro, nona-Ac: [88087-49-4]
$C_{36}H_{49}NO_{23}$ 863.776
Powder (CH_2Cl_2/hexane). $[\alpha]_D^{21}$ -39.8 (c, 0.22 in $CHCl_3$).

1,6-Anhydro, 3,3′,4′,6′-tetrabenzyl, 2N,2″,3″,4″,6″-penta-Ac: [88087-47-2]
$C_{56}H_{65}NO_{19}$ 1056.125
Foamy solid. $[\alpha]_D^{19}$ -29 (c, 0.2 in $CHCl_3$).

Itoh, Y. *et al., Chem. Pharm. Bull.*, 1983, **31**, 1632 (*α-undeca-Ac, anhydro derivs, ir, pmr, cmr*)

α-D-Mannopyranosyl-(1 →3)-β-D-mannopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI M-72



α-Pyranose-*form*

$C_{18}H_{33}NO_{15}$ 503.456
Constit. of carbohydrate chains of glycoproteins.

N-*Ac:* [50722-98-0]
$C_{20}H_{35}NO_{16}$ 545.494
Syrup. $[\alpha]_D^{20}$ +27.8 (c, 0.71 in MeOH).

Undeca-Ac: [88155-79-7]
$C_{40}H_{55}NO_{26}$ 965.866
Amorph. powder + $1H_2O$ ($CHCl_3$/hexane). Mp 106-109°. $[\alpha]_D^{20}$ 0 (c, 2.3 in $CHCl_3$/MeOH) (monohydrate). $[\alpha]_D^{22}$ +20 (c, 0.14 in $CHCl_3$).

α-Pyranose-*form*

Undeca-Ac: [79157-01-0]
Syrup. $[\alpha]_D^{20}$ +3.9 (c, 1.20 in $CHCl_3$).

β-Pyranose-*form*

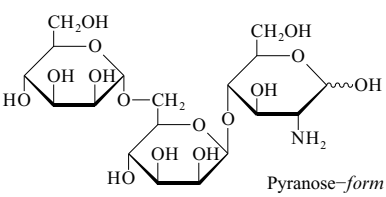
1,6-Anhydro, nona-Ac: [88087-42-7]
$C_{36}H_{49}NO_{23}$ 863.776
Powder + $0.5H_2O$ ($CHCl_3$/hexane). $[\alpha]_D^{21}$ -10 (c, 0.1 in $CHCl_3$).

1,6-Anhydro, 2′,3,4′,6′-tetrabenzyl, 2N,2″,3″,4″,6″-penta-Ac: [88087-41-6]
$C_{56}H_{65}NO_{19}$ 1056.125
Syrup. $[\alpha]_D^{21}$ -27.8 (c, 0.22 in $CHCl_3$).

[59446-75-2, 72398-11-9, 79157-08-7]

Warren, C.D. *et al., Carbohydr. Res.*, 1981, **92**, 85 (*undeca-Ac*)
Paulsen, H. *et al., Annalen*, 1983, 1047 (*N-Ac, α-undeca-Ac, pmr, occur*)
Itoh, Y. *et al., Chem. Pharm. Bull.*, 1983, **31**, 1632 (*undeca-Ac, anhydro derivs, pmr, cmr*)
Homans, S.W. *et al., Biochemistry*, 1990, **29**, 9110 (*N-Ac, struct*)

α-D-Mannopyranosyl-(1 →6)-β-D-mannopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI M-73



Pyranose–*form*

$C_{18}H_{33}NO_{15}$ 503.456
Constit. of carbohydrate chains of

glycoproteins. Isol. from urine of sheep with Swainsonine toxicosis.

N-*Ac:* [83259-19-2]
$C_{20}H_{35}NO_{16}$ 545.494
Syrup. $[\alpha]_D^{20}$ +36.5 (c, 0.74 in MeOH).

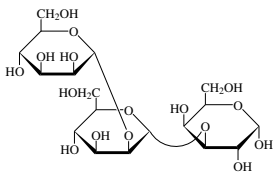
Undeca-Ac: [86861-59-8]
$C_{40}H_{55}NO_{26}$ 965.866
Syrup. $[\alpha]_D^{20}$ +32.3 (c, 1.3 in $CHCl_3$).

[86861-60-1, 86861-61-2, 86861-67-8]

Paulsen, H. *et al., Annalen*, 1983, 1047 (*N-Ac, pmr*)
Daniel, P.F. *et al., Methods Enzymol.*, 1987, **138**, 94 (*anal*)
Warren, C.D. *et al., J. Biol. Chem.*, 1988, **263**, 15041 (*isol, pmr, hplc*)
Michalski, J.C. *et al., Eur. J. Biochem.*, 1990, **189**, 369 (*occur*)

α-D-Mannopyranosyl-(1 →2)- α-D-mannopyranosyl-(1 →3)-D-galactose, 9CI M-74

[105678-07-7]



$C_{18}H_{32}O_{16}$ 504.441
Constituent of the main chain of *O*-antigenic polysaccharide of *Salmonella* serological groups C_2 and C_3.

Undeca-Ac: [111407-79-5]
$C_{40}H_{54}O_{27}$ 966.85
$[\alpha]_D^{20}$ +61.5 (c, 1.0 in $CHCl_3$).

α-Pyranose-*form*

*4,6-*O*-Ethylidene, 1,2-*O*-isopropylidene, 3′,3″,4′,4″,6′,6″-hexabenzyl:* [111407-78-4]
$C_{65}H_{74}O_{16}$ 1111.29
$[\alpha]_D^{20}$ +54 (c, 1.0 in $CHCl_3$).

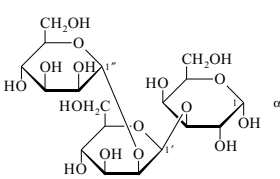
*4,6-*O*-Ethylidene, 1,2-*O*-isopropylidene, 2″-Ac, hexabenzyl:* [111407-76-2]
$C_{67}H_{76}O_{17}$ 1153.327
$[\alpha]_D^{20}$ +42 (c, 1.0 in $CHCl_3$).

[105678-09-9, 111407-80-8]

Srivastava, D.P. *et al., Can. J. Chem.*, 1986, **64**, 2324 (*methoxycarbonyloctyl glycoside*)
Torgov, V.I. *et al., Carbohydr. Res.*, 1987, **161**, 97

α-D-Mannopyranosyl-(1 →2)- β-D-mannopyranosyl-(1 →3)-D-galactose, 9CI M-75

[105678-08-8]



$C_{18}H_{32}O_{16}$ 504.441
Syrup.

Pyranose-*form*

Undeca-Ac: [111407-81-9]
$C_{40}H_{54}O_{27}$ 966.85
Amorph. $[\alpha]_D^{20}$ +38 (c, 1.0 in H_2O).

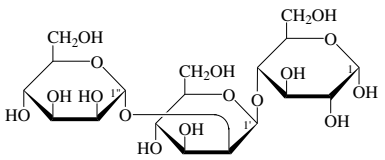
α-Pyranose-*form*

1-Dihydrogen phosphate: [105698-81-5]
$C_{18}H_{33}O_{19}P$ 584.421
Syrup. $[\alpha]_D^{20}$ +54 (c, 3.2 in H_2O).

[111407-82-0]

Torgov, V.I. *et al., Carbohydr. Res.*, 1987, **161**, 97 (*synth, pmr*)

α-D-Mannopyranosyl-(1 →2)- β-D-mannopyranosyl-(1 →4)-D-glucose, 9CI M-76



$C_{18}H_{32}O_{16}$ 504.441

Pyranose-*form*

2,2″,3,3′,3″,4′,4″,6,6′,6″-Deca-Ac: [128377-16-2]
$C_{38}H_{52}O_{26}$ 924.813
Syrup.

α-Pyranose-*form*

1-Trichloroacetimidoyl, deca-Ac: [128377-17-3]
Amorph. + 0.1 toluene. $[\alpha]_D^{25}$ +16.5 (c, 0.2 in $CHCl_3$).

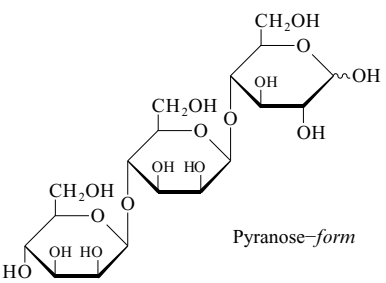
β-Pyranose-*form*

Benzyl glycoside, 2,3,4′,6,6′-pentabenzyl, 2″,3″,4″,6″-tetra-Ac: [128377-05-9]
$C_{68}H_{76}O_{20}$ 1213.336
Syrup. $[\alpha]_D^{25}$ -5.1 (c, 1.6 in $CHCl_3$).

Mori, M. *et al., Carbohydr. Res.*, 1990, **195**, 199 (*deca-Ac, α-deca-Ac deriv, β-benzyl pyr tetra-Ac deriv, pmr*)

β-D-Mannopyranosyl-(1 →4)- β-D-mannopyranosyl-(1 →4)-D-glucose M-77

[50692-76-7]

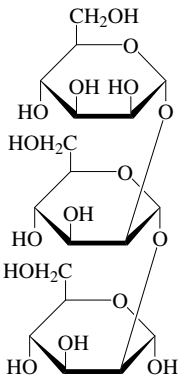


$C_{18}H_{32}O_{16}$ 504.441
Constit. of mucilage, from the bulbs of Suisen (*Narcissus tazetta*); from the tubers of *Bletilla striata* and *Arum maculatum* and from the glucomannan of lily.
Amorph. $[\alpha]_D$ -8 (c, 1.0 in H_2O).

Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815 (*isol*)
Kato, K. *et al., Carbohydr. Res.*, 1973, **29**, 469 (*isol*)
Kato, K. *et al., Agric. Biol. Chem.*, 1976, **40**, 2495
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1976, **24**, 1807 (*isol, pmr*)
Holeva, M. *et al., CA*, 1981, **95**, 165582r; 1983, **100**, 20436h (*isol*)

α-D-Mannopyranosyl-(1 →2)- α-D-mannopyranosyl-(1 →2)-D-mannose, 9CI, 8CI M-78

[32581-41-2]



$C_{18}H_{32}O_{16}$ 504.441
Constit. of the cell surface D-mannan of *Candida albicans, Candida utilis* and *Candida parapsilosis*. Isol. from mannan of *Pichia pastoris*.
Mp 183-185°. $[\alpha]_D$ +55.3 (c, 0.11 in H_2O).

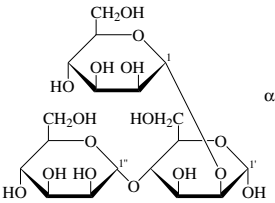
α-Pyranose-*form* [77447-85-9]

Allyl glycoside, 2″,3,3′,3″,4,4′,4″,6,6′,6″-decabenzyl: [97576-75-5]
$C_{91}H_{96}O_{16}$ 1445.75
Syrup. $[\alpha]_D^{25}$ +17 (c, 0.23 in $CHCl_3$).

Propyl glycoside: [97576-78-8]
$C_{21}H_{38}O_{16}$ 546.522
Syrup. $[\alpha]_D^{25}$ +13 (c, 0.74 in H_2O).

Karkkainen, J. *et al., Carbohydr. Res.*, 1971, **17**, 11 (*glc, ms*)
Ogawa, T. *et al., Carbohydr. Res.*, 1982, **104**, 271 (*synth, cmr*)
Funayama, M. *et al., Carbohydr. Res.*, 1983, **117**, 229
Allerhand, A. *et al., J.A.C.S.*, 1984, **106**, 2400 (*cmr*)
Ogawa, T. *et al., Carbohydr. Res.*, 1985, **136**, 135 (*allyl, propyl gly synth, pmr, cmr*)
Lee, R.T. *et al., J. Biol. Chem.*, 1991, **266**, 4810 (*isol, pmr, struct*)
Ajisaka, K. *et al., Carbohydr. Res.*, 1995, **270**, 123-130 (*enzymic synth*)

α-D-Mannopyranosyl-(1 →2)- M-79 [α-D-mannopyranosyl-(1 →4)]-D-mannose, 9CI



$C_{18}H_{32}O_{16}$ 504.441
Constit. of the cell wall proteoheteroglycan from *Pircularia oryzae*.

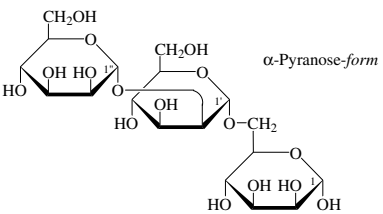
α-Pyranose-*form*

Me glycoside: [79218-78-3]
$C_{19}H_{34}O_{16}$ 518.468
Amorph. solid + $3H_2O$. $[\alpha]_D^{25}$ +38.5 (c, 0.3 in H_2O).

Me glycoside, 3,3′,3″,4′,4″,6,6′,6″-octabenzyl, 2′,2″-di-Ac: [79218-82-9]
$C_{79}H_{86}O_{18}$ 1323.538
Syrup. $[\alpha]_D^{25}$ +23.5 (c, 0.52 in $CHCl_3$).

Ogawa, T. *et al., Carbohydr. Res.*, 1981, **93**, 67 (*α-Me pyr derivs, pmr, cmr*)

α-D-Mannopyranosyl-(1 →2)- M-80 α-D-mannopyranosyl-(1 →6)-D-mannose, 9CI



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form* [72812-44-3]

6′-Phosphate:
$C_{18}H_{33}O_{19}P$ 584.421
Found on the asparagine-linked carbohydrate chains of lysosomal enzymes. Essential component of the enzyme recognition marker. Oil.

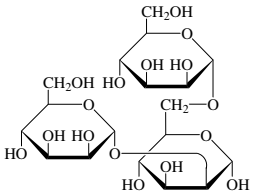
8-Methoxycarbonyloctyl glycoside, 6′-phosphate: [118465-01-3]
$C_{28}H_{51}O_{21}P$ 754.672
Syrup; powder + H_2O (as di-Na salt). $[\alpha]_D^{23}$ +53.2 (c, 0.19 in $CHCl_3$) (di-Na salt).

8-Methoxycarbonyloctyl glycoside, 6′-diphenyl phosphate, nona-Ac:
[106450-72-0]
$C_{58}H_{77}O_{30}P$ 1285.202
Syrup. $[\alpha]_D^{23}$ +44.2 (c, 0.53 in $CHCl_3$).

[106450-76-4]

Srivastava, O.P. *et al., Can. J. Chem.*, 1986, **64**, 2324 (*synth, pmr, cmr*)
Townsend, R.R. *et al., Anal. Biochem.*, 1988, **174**, 459 (*hplc*)
Tomoda, H. *et al., Carbohydr. Res.*, 1991, **213**, 37 (*biochem*)
Ajisaka, K. *et al., Carbohydr. Res.*, 1995, **270**, 123-130 (*enzyme synth*)

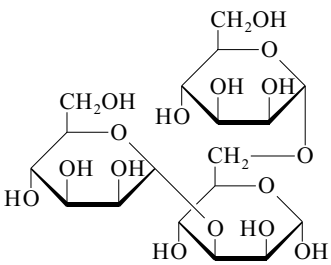
α-D-Mannopyranosyl-(1 →2)- M-81 [α-D-mannopyranosyl-(1 →6)]-D-mannose, 9CI



$C_{18}H_{32}O_{16}$ 504.441
Synth. by the action of α-mannosidase (from jack bean) on a 85% conc. mannose soln.

α-Pyranose-*form* [95396-22-8]
Syrup.
Johansson, E. *et al., Enzyme Microb. Technol.*, 1989, **11**, 347; *CA*, 1989, **111**, 37871w (*synth, pmr, hplc*)

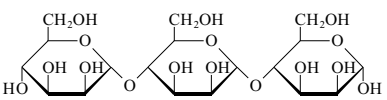
α-D-Mannopyranosyl-(1 →3)- M-82 [α-D-mannopyranosyl-(1 →6)]-D-mannose, 9CI



$C_{18}H_{32}O_{16}$ 504.441
Synth. by the action of α-mannosidase (from jack bean) on a 85% conc. mannose soln.

α-Pyranose-*form* [121123-33-9]
Syrup.
Johansson, E. *et al., Enzyme Microb. Technol.*, 1989, **11**, 347; *CA*, 1989, **111**, 37871w (*synth, pmr, hplc*)

α-D-Mannopyranosyl-(1 →4)- M-83 α-D-mannopyranosyl-(1 →4)-D-mannose, 9CI



$C_{18}H_{32}O_{16}$ 504.441
Isol. from rapeseed (*Brassica campestris*) meal.

α-Pyranose-*form* [6817-81-8]

3,3′,3″,6,6′,6″-Hexabenzyl, 2,2′,2″-tris(4-methylbenzoyl), 4″-chloroacetyl:
[123826-58-4]
$C_{86}H_{87}ClO_{20}$ 1476.074
Syrup.

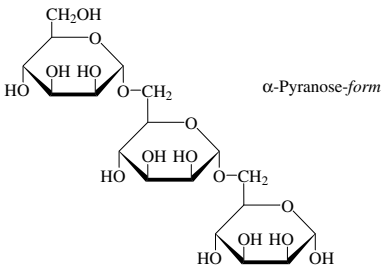
Me 1-thioglycoside, 3,3′,3″,6,6′,6″-hexabenzyl, 2,2′,2″-tris(4-methylbenzoyl):
[123826-49-3]
$C_{85}H_{88}O_{18}S$ 1429.685
Syrup. $[\alpha]_D^{25}$ -26 (c, 0.4 in $CHCl_3$).

[126403-29-0]

Siddiqui, I.R. *et al., J. Sci. Food Agric.*, 1973, **24**, 1427 (*isol*)
Mori, M. *et al., Carbohydr. Res.*, 1989, **192**, 131 (*hexabenzyl derivs, pmr*)
Mori, M. *et al., Tet. Lett.*, 1989, **30**, 1273 (*hexabenzyl derivs*)

α-D-Mannopyranosyl-(1 →6)- M-84 α-D-mannopyranosyl-(1 →6)-D-mannose

[6614-36-4]



$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysate of bakers' yeast (*Saccharomyces cerevisiae*) mannan and of *Candida utilis* mannan. $[\alpha]_D$ +68 (c, 0.42 in H_2O).

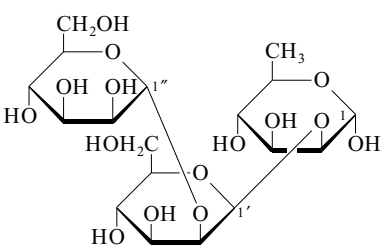
α-Pyranose-*form* [89253-88-3]
Syrup.

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 162-163°. $[\alpha]_D$ +43.7 (c, 0.09 in $CHCl_3$). α-Config. is probable.

[89253-88-3]

Peat, S. *et al., J.C.S.*, 1961, 29 (*isol*)
Rademacher, K.H. *et al., Z. Allg. Mikrobiol.*, 1982, **22**, 123; *CA*, **97**, 53720u (*isol*)
Allerhand, A. *et al., J.A.C.S.*, 1984, **106**, 2400 (*cmr*)
Lee, R.T. *et al., J. Biol. Chem.*, 1991, **266**, 4810 (*isol, pmr, struct*)
Zhu, Y. *et al., Carbohydr. Res.*, 2001, **332**, 1-21 (*synth*)

α-D-Mannopyranosyl-(1 →2)- M-85 β-D-mannopyranosyl-(1 →2)-D-mannose, 9CI



$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

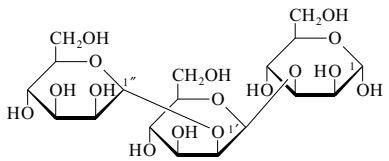
8-Methoxycarbonyloctyl glycoside, 6′-phosphate: [106450-75-3]
$C_{28}H_{51}O_{21}P$ 754.672
Powder (as di-Na salt). $[\alpha]_D^{23}$ +41.5 (c, 0.27 in H_2O) (di-Na salt).

8-Methoxycarbonyloctyl glycoside, 6′-diphenyl phosphate, 3,3′,4,4′-tetrabenzyl, 2″,3″,4″,6″-tetra-Ac: [106450-74-2]
$C_{76}H_{91}O_{25}P$ 1435.514
Syrup. $[\alpha]_D^{23}$ +37 (c, 0.18 in $CHCl_3$).

[106450-65-1, 118464-99-6]

Srivastava, O.P. *et al., Can. J. Chem.*, 1986, **64**, 2324 (*α-methoxycarbonyloctyl pyr derivs, cmr, pmr, deriv*)

α-D-Mannopyranosyl-(1 →2)-β-D-mannopyranosyl-(1 →3)-D-mannose, 9CI M-86



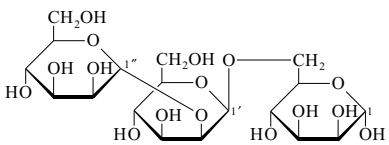
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, 6′-diphenylphosphoryl, 4,6-O-benzylidene, 2,3′,4′-tribenzyl, 2″,3″,4″,6″-tetra-Ac: [106499-41-6]
$C_{76}H_{89}O_{23}P$ 1401.499
Syrup. $[\alpha]_D^{23}$ 0 (c, 0.89 in $CHCl_3$).

Srivastava, O.P. *et al., Can. J. Chem.*, 1986, **64**, 2324 (*α-methoxycarbonyloctyl pyr tetra-Ac deriv, pmr, cmr*)

α-D-Mannopyranosyl-(1 →2)-β-D-mannopyranosyl-(1 →6)-D-mannose, 9CI M-87



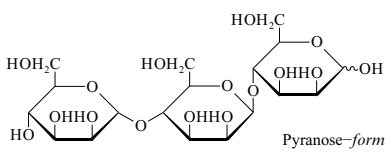
$C_{18}H_{32}O_{16}$ 504.441

α-Pyranose-*form*

8-Methoxycarbonyl glycoside, 6′-diphenyl phosphate, nona-Ac: [106450-73-1]
$C_{58}H_{77}O_{30}P$ 1285.202
Syrup. $[\alpha]_D^{23}$ +16.4 (c, 0.28 in $CHCl_3$).

Srivastava, O.P. *et al., Can. J. Chem.*, 1986, **64**, 2324 (*synth, cmr, pmr*)

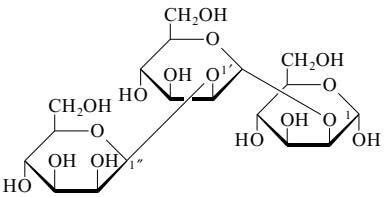
α-D-Mannopyranosyl-(1 →4)-β-D-mannopyranosyl-(1 →4)-D-mannose M-88



$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid hydrolysate of ivory-nut mannan (*Phytelephas macrocarpa*). Cryst. (EtOH aq.).
Mp 224-225°. $[\alpha]_D^{18}$ +40 (c, 2.1 in H_2O).

Aspinall, G.O. *et al., J.C.S.*, 1958, 215 (*isol*)

β-D-Mannopyranosyl-(1 →2)-α-D-mannopyranosyl-(1 →2)-D-mannose, 9CI M-89



$C_{18}H_{32}O_{16}$ 504.441
Repeating unit in the O-specific polymers of *Escherichia coli* 08, *Klebsiella pneumoniae* 05 and in *Serratia marcescens* strain S3255. Constit. of mannan of *Pischia pastoris*.

α-Pyranose-*form* [134931-19-4]

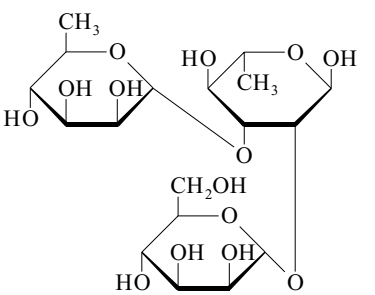
Allyl glycoside, 2″,3,3′,3″,4,4′,4″,6,6′,6″-decabenzyl: [97576-76-6]
$C_{91}H_{96}O_{16}$ 1445.75
Syrup. $[\alpha]_D^{25}$ -26 (c, 0.17 in $CHCl_3$).

Propyl glycoside: [97576-79-9]
$C_{21}H_{38}O_{16}$ 546.522
Syrup. $[\alpha]_D$ +13 (c, 0.74 in H_2O).

Ogawa, T. *et al., Carbohydr. Res.*, 1985, **136**, 135 (*α-propyl pyr, α-allyl pyr deriv, pmr, cmr*)
Aucken, H.M. *et al., FEMS Microbiol. Lett.*, 1990, **136**, 1279; *CA*, 1991, **115**, 47390k (*isol*)
Mbawala, A. *et al., J. Gen. Microbiol.*, 1990, **136**, 1279 (*isol*)
Oxley, D. *et al., Carbohydr. Res.*, 1991, **212**, 213 (*isol, pmr, cmr*)

α-D-Mannopyranosyl-(1 →2)-[α-D-mannopyranosyl-(1 →3)]-L-rhamnose M-90

α-D-Mannopyranosyl-(1 →2)-[α-D-mannopyranosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

α-Pyranose-*form*

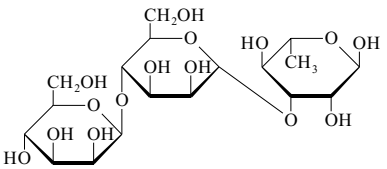
Me glycoside: [130062-86-1]
$C_{19}H_{34}O_{15}$ 502.469
Syrup. $[\alpha]_D^{28}$ -70.9 (c, 1.9 in $CHCl_3$).

Me glycoside, nonabenzoyl: [135129-57-6]
$C_{82}H_{70}O_{24}$ 1439.441
Syrup. $[\alpha]_D^{28}$ +32.1 (c, 1.0 in $CHCl_3$).

Lipkind, G.M. *et al., Can. J. Chem.*, 1990, **68**, 1238 (*α-Me pyr, conformn, nmr*)
Nifantev, P.E. *et al., Bioorg. Khim.*, 1991, **17**, 517; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1991, **17**, 292 (*α-Me pyr derivs*)

β-D-Mannopyranosyl-(1 →4)-α-D-mannopyranosyl-(1 →3)-L-rhamnose M-91

β-D-Mannopyranosyl-(1 →4)-α-D-mannopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{15}$ 488.442

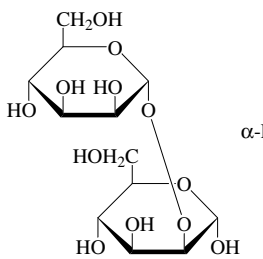
α-Pyranose-*form*

3′-Ac: [121471-20-3]
$C_{20}H_{34}O_{16}$ 530.479
Repeating unit of the O-specific polysaccharide from *Pseudomonas cepacia*. Syrup.

Soldatkina, M.A. *et al., Mikrobiol. Zh. (Kiev)*, 1989, **51**, 32; *CA*, **111**, 37531k (*occur, struct, immunol*)

2-*O*-α-D-Mannopyranosyl-D-mannose, 9CI, 8CI M-92

[40871-49-6]



$C_{12}H_{22}O_{11}$ 342.299
Constit. of the mycelia of *Epidermophyton floccosum* and in the cell walls of *Hansensula capsulata*, *Hansensula holstii* and in *Trichophyton mentagrophytes* the dermatophyte that causes tinea and other cutaneous lesions in humans. Isol. from baker's yeast (this appears to be a better route than chemical synthesis). Located at the non-reducing ends of the antennae of mannosidic type *N*-glycoproteins and assumed to play an important role in their interaction with receptor molecules.
Amorph. powder.
Mp 186-189° dec. $[\alpha]_D^{25}$ +60 (c, 0.1 in H_2O).

α-Pyranose-*form* [50271-62-0]

Octa-Ac: [82731-25-7]
$C_{28}H_{38}O_{19}$ 678.597
Needles (hexane/Et_2O). Mp 135-137°.
$[\alpha]_D^{23}$ +42.1 (c, 0.47 in $CHCl_3$).

Me glycoside: Methyl 2-O-α-D-mannopyranosyl-α-D-mannopyranoside, 9CI, 8CI [59571-75-4]
$C_{13}H_{24}O_{11}$ 356.326
Syrup or cryst. $[\alpha]_D^{22}$ +67.6 (c, 2.4 in H_2O). $[\alpha]_D^{22}$ +74.4 (c, 1.4 in MeOH).

β-Pyranose-*form* [89253-87-2]

Octa-Ac: [69685-28-5]
$C_{28}H_{38}O_{19}$ 678.597
Mp 102-103°. $[\alpha]_D^{20}$ +5.7 (c, 0.78 in $CHCl_3$).

Me glycoside: Methyl 2-O-α-D-*mannopyranosyl-β-D-mannopyranoside*
[131283-79-9]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. hydrate. $[\alpha]_D^{22}$ +8 (c, 1.2 in H_2O).

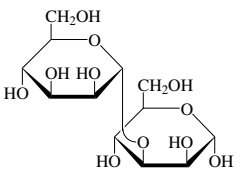
Me glycoside, 3,4,6-tribenzyl:
[131283-78-8]
$C_{34}H_{42}O_{11}$ 626.699
Amorph. $[\alpha]_D^{22}$ +5 (c, 0.6 in $CHCl_3$).

Me glycoside, 6′-phosphate: [131283-81-3]
$C_{13}H_{25}O_{14}P$ 436.306
Amorph. solid (as di-Na salt). $[\alpha]_D^{22}$ +42 (c, 1.1 in H_2O).

Reichert, C.M. *et al., Carbohydr. Res.*, 1979, **77**, 141 (*β-Octs-Ac*)
Montreuil, J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1980, **37**, 157 (*occur*)
Takeda, T. *et al., Carbohydr. Res.*, 1981, **89**, 301 (*Me gly*)
Ogawa, T. *et al., Carbohydr. Res.*, 1982, **104**, 271 (*synth*)
Ekborg, G. *et al., Carbohydr. Res.*, 1984, **134**, 83
Ekborg, G. *et al., Chem. Pharm. Bull.*, 1984, **32**, 957 (*α-Octa-Ac*)
Srikrishnan, T. *et al., Carbohydr. Res.*, 1989, **186**, 167 (*cryst struct, Me α-D-gly*)
Khan, S.H. *et al., Carbohydr. Res.*, 1990, **198**, 259; **267**, 57 (*derivs*)
Peters, T. *et al., Annalen*, 1991, 135 (*α-Me gly, occur*)
Ajisaka, K. *et al., Carbohydr. Res.*, 1995, **270**, 123-130 (*enzymic synth*)
Szurmai, Z. *et al., Carbohydr. Res.*, 1996, **296**, 279-284 (***isol***)

3-*O*-α-D-Mannopyranosyl-D-mannose, 9CI, 8CI M-93

[34141-02-1]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of the unsulfated α-D-mannan isol. from an aqueous extract of *Urospora penicilliformis*.
$[\alpha]_D^{27}$ +40 (c, 1.55 in MeOH). $[\alpha]_D$ +50 (c, 2.86 in MeOH).

α-Pyranose-*form* [50499-35-9]

Octa-Ac: 1,2,4,6-Tetra-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-mannopyranosyl)-α-D-mannopyranose*
[65877-61-4]
$C_{28}H_{38}O_{19}$ 678.597
Mp 170-172°. $[\alpha]_D^{22}$ +37.6 (c, 0.51 in $CHCl_3$).

Me glycoside: Methyl 3-O-α-D-*mannopyranosyl-α-D-mannopyranoside*
[72028-62-7]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. powder + $5H_2O$. $[\alpha]_D^{25}$ +94.8 (c, 0.31 in H_2O).

Me glycoside, tetra-Ac: Methyl 3-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-mannopyranosyl)-α-D-mannopyranoside*
[71978-78-4]
$C_{21}H_{32}O_{15}$ 524.475
Foam. $[\alpha]_D$ +70 (c, 0.43 in EtOH).

Me glycoside, hepta-Ac: Methyl 2,4,6-tri-O-*acetyl-3*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-mannopyranosyl)-α-D-mannopyranoside*
[71978-79-5]
$C_{27}H_{38}O_{18}$ 650.586
Syrup. $[\alpha]_D$ +39 (c, 0.9 in $CHCl_3$).

Me glycoside, tetrabenzyl: Methyl 2,4-di-O-*benzyl-3*-O-*(2,4-di*-O-*benzyl-α-D-mannopyranosyl)-α-D-mannopyranoside*
[79218-61-4]
$C_{41}H_{48}O_{11}$ 716.824
$[\alpha]_D^{25}$ +30.8 (c, 0.35 in $CHCl_3$).

Benzyl glycoside, hexabenzyl: Benzyl 2,4,6-tri-O-*benzyl-3*-O-*(2,4,6-tri*-O-*benzyl-α-D-mannopyranosyl)-α-D-mannopyranoside*
$C_{61}H_{64}O_{11}$ 973.17
$[\alpha]_D$ +16 (c, 0.60 in $CHCl_3$).

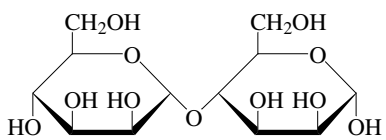
β-Pyranose-*form* [50499-34-8]

Hexa-Ac, 1,2-methylorthoacetate:
[81555-83-1]
$C_{27}H_{38}O_{18}$ 650.586
Mp 96-97°. $[\alpha]_D^{26}$ -45 (c, 0.22 in $CHCl_3$).

Jones, J.K.N. *et al., J.C.S.*, 1958, 27 (*isol*)
Jeanes, A. *et al., Can. J. Chem.*, 1962, **40**, 2256 (*isol*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1973, **51**, 2375 (*cmr*)
Bourne, E.J. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1974, 235 (*isol*)
Ponpipom, M.M. *et al., Carbohydr. Res.*, 1977, **59**, 311 (*synth*)
Lee, E.E. *et al., Carbohydr. Res.*, 1979, **75**, 322 (*Me gly*)
Ogawa, T. *et al., Carbohydr. Res.*, 1981, **97**, 205; **93**, 53 (*Me gly, cmr, deriv, synth*)
Winnick, F.M. *et al., Carbohydr. Res.*, 1982, **103**, 15-28 (*α-Me-pyr*)
Winnick, F.M. *et al., J.O.C.*, 1982, **47**, 2701-2707 (*hexa-Ac, octa-Ac*)
Brisson, J.R. *et al., J. Carbohydr. Chem.*, 1983, **2**, 41-55 (*Me gly, pmr*)
Ogawa, T. *et al., Agric. Biol. Chem.*, 1985, **49**, 475 (*synth, α-benzyl-pyr hexabenzyl*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1990, **200**, 475 (*α-Me pyr derivs*)
Ajisaka, K. *et al., Carbohydr. Res.*, 1995, **270**, 123-130 (*enzymic synth*)

4-*O*-α-D-Mannopyranosyl-D-mannose, 9CI, 8CI M-94

[35438-40-5]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from the hydrolytic product of *Bletilla* glucomannan and partial acetolysate of ivory nut mannan (*Phytelephas macrocarpa*).
$[\alpha]_D$ +80 (c, 0.6 in H_2O). $[\alpha]_D^{23}$ +42.6 (c, 0.4 in H_2O).

α-Pyranose-*form*

Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-mannopyranosyl)-α-D-mannopyranose*
[67650-36-6]
$C_{28}H_{38}O_{19}$ 678.597
Syrup. $[\alpha]_D^{27}$ 0 (c, 0.63 in $CHCl_3$).

Me glycoside: Methyl 4-O-α-D-*mannopyranosyl-α-D-mannopyranoside, 9CI*
[70427-91-7]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{25}$ +101 (c, 0.1 in H_2O).

Me glycoside, pentabenzyl: Methyl 3,6-di-O-*benzyl-4*-O-*(3,4,6-tri*-O-*benzyl-α-D-mannopyranosyl)-α-D-mannopyranoside*
[79218-79-4]
$C_{48}H_{54}O_{11}$ 806.948
$[\alpha]_D^{25}$ +49.5 (c, 0.75 in $CHCl_3$).

β-Pyranose-*form*

Octa-Ac: 1,2,3,6-Tetra-O-*acetyl-4*-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-mannopyranosyl)-β-D-mannopyranose*
$C_{28}H_{38}O_{19}$ 678.597
Mp 212-216°. $[\alpha]_D$ +90 (c, 0.12 in $CHCl_3$).

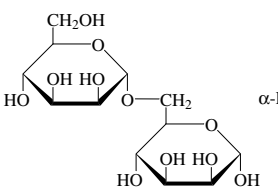
1,6-Anhydro, tetra-Ac: 1,6-Anhydro-4-O-*(2,3,4,6-tetra*-O-*acetyl-α-D-mannopyranosyl)-β-D-mannopyranose*
[67650-35-5]
$C_{20}H_{28}O_{14}$ 492.433
Cryst. + $\frac{1}{2}H_2O$ (EtOH). Mp 75-77°.
$[\alpha]_D^{27}$ -17.7 (c, 1.0 in $CHCl_3$).

[102046-25-3]

Aspinall, G.O. *et al., J.C.S.*, 1958, 215 (*isol*)
O'Brient, E. *et al., Carbohydr. Res.*, 1974, **32**, 31 (*synth*)
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1976, **24**, 1807 (*isol*)
Ogawa, T. *et al., Carbohydr. Res.*, 1981, **93**, 67; **97**, 205 (*Me gly*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 193 (*cmr, rev*)

6-*O*-α-D-Mannopyranosyl-D-mannose, 9CI, 8CI M-95

[6614-35-3]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isolated from partial acid hydrolysates of baker's yeast (*Saccharomyces cerevisiae*) mannan. Constituent of the sugar portion of the phospholipid of *Mycobacterium tuberculosis* and of the mannan from the cell walls of the dermatophyte *Trichophyton mentagrophytes*.
Mp 196-197° (188-190°). $[\alpha]_D$ +50 (c, 0.9 in H_2O). $[\alpha]_D$ +62 (H_2O).

Phenylosazone: Mp 128-129°.

α-Pyranose-*form* [50271-70-0]

Octa-Ac: [72691-29-3]
$C_{28}H_{38}O_{19}$ 678.597
Mp 162°. $[\alpha]_D^{22}$ +68 (c, 0.97 in $CHCl_3$).

Me glycoside, hepta-Ac: [76951-67-2]
$C_{27}H_{38}O_{18}$ 650.586
Foam. $[\alpha]_D^{20}$ +62.5 (c, 0.6 in $CHCl_3$).

Me glycoside 2,3′,4,4′-tetrabenzyl: [78880-17-8]
$C_{41}H_{48}O_{11}$ 716.824
$[\alpha]_D^{25}$ +58.8 (c, 0.4 in $CHCl_3$).

Me glycoside 2,3′,4,4′,6′-pentabenzyl: [79218-67-0]
$C_{48}H_{54}O_{11}$ 806.948
Syrup. $[\alpha]_D^{25}$ +68.9 (c, 0.19 in $CHCl_3$).

p-*Nitrophenyl glycoside:* [72647-96-2]
$[\alpha]_D^{20}$ +114 (c, 0.29 in H_2O).

β-Pyranose-*form* [82729-73-5]

Octa-Ac: [69685-27-4]
Mp 146° (152-153°). $[\alpha]_D$ +19.6 ($CHCl_3$). $[\alpha]_D$ +55 (c, 0.3 in EtOH).

Me glycoside: [100896-85-3]
$C_{13}H_{24}O_{11}$ 356.326
Amorph. solid. $[\alpha]_D^{22}$ +8 (c, 0.4 in MeOH).

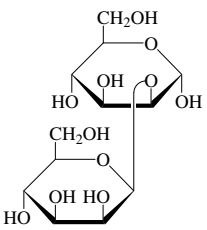
Me glycoside, 2′,3′,4′,6′-tetra-Ac: [131283-85-7]
$C_{21}H_{32}O_{15}$ 524.475
Amorph. solid. $[\alpha]_D^{22}$ +3 (c, 1.1 in $CHCl_3$).

Me glycoside, 6′-phosphate: [131283-87-9]
$C_{13}H_{25}O_{14}P$ 436.306
Amorph. solid (as di-Na salt). $[\alpha]_D^{22}$ +42 (c, 1.1 in H_2O).

Peat, S. *et al., J.C.S.*, 1961, 29; 3918 (*isol*)
O'Brient, E. *et al., Carbohydr. Res.*, 1974, **32**, 31 (*synth*)
Reichert, C.M. *et al., Carbohydr. Res.*, 1979, **77**, 141 (*α-Octa-Ac*)
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1980, **85**, 209 (*Me gly, hepta-Ac*)
Ogawa, T. *et al., Carbohydr. Res.*, 1981, **93**, 53; 231 (*derivs*)
Brisson, J.R. *et al., J. Carbohydr. Chem.*, 1983, **2**, 41-55 (*Me gly, pmr*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 193 (*cmr, Me gly*)
Khan, S.H. *et al., Carbohydr. Res.*, 1990, **200**, 57 (*β-Me gly, deriv*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1990, **200**, 475
Ajisaka, K. *et al., Carbohydr. Res.*, 1995, **270**, 123-130 (*enzymic synth*)
Zhu, Y. *et al., Carbohydr. Res.*, 2001, **332**, 1-21 (*synth*)

2-*O*-β-D-Mannopyranosyl-D-mannose, 8CI M-96

[50728-38-6]



α-Pyranose-*form*

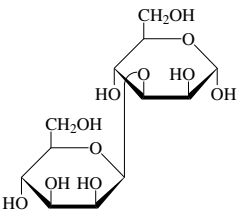
$C_{12}H_{22}O_{11}$ 342.299
Present in the side chain of a number of yeast mannans. Constituent of the repeating unit of the phosphomannan from *Hansenula capsulata*.

[50271-58-4, 50271-63-1]

Slodki, M.E. *et al., Biochim. Biophys. Acta*, 1963, **69**, 96 (*isol*)
Goldstein, I.J. *et al., Biochim. Biophys. Acta*, 1973, **317**, 500
Gorin, P.A.J. *et al., Can. J. Chem.*, 1973, **51**, 2375 (*cmr*)
Sugawara, T. *et al., Carbohydr. Res.*, 1992, **230**, 117 (*deriv, synth, pmr*)

3-*O*-β-D-Mannopyranosyl-D-mannose, 9CI, 8CI M-97

[50692-75-6]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Isol. from the hydrolysed glucomannan of *Narcissus tazetta* and from the exocellular mannan of *Rhototorula glutinis*.

α-Pyranose-*form* [55058-42-9]

Me glycoside: Methyl 3-O-β-D-mannopyranosyl-α-D-mannopyranoside, 9CI [104714-42-3]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D^{23}$ +5.8 (c, 0.59 in H_2O).

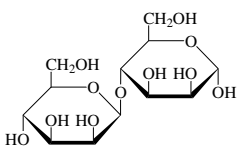
Me glycoside, hexabenzyl: Methyl 2,4,6-tri-O-benzyl-3-O-(3,4,6-tri-O-benzyl-β-D-mannopyranosyl)-α-D-mannopyranoside [104652-46-2]
$C_{55}H_{60}O_{11}$ 897.072
Syrup. $[\alpha]_D^{22}$ +16.6 (c, 0.72 in $CHCl_3$).

Kato, K. *et al., Carbohydr. Res.*, 1973, **29**, 469 (*isol*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1975, **39**, 3 (*cmr*)
Awad, L.F. *et al., Bull. Chem. Soc. Jpn.*, 1986, **59**, 1587 (*Me gly, cmr*)

4-*O*-β-D-Mannopyranosyl-D-mannose, 9CI, 8CI M-98

Mannobiose

[14417-51-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
The major repeating unit in the mannose chains of plant mannans, galacto and glucomannans. Isol. from partial acid hydrolysates of ivory nut (*Phytelephas macrocarpa*) mannan, guaran (*Cyamopsis* sp.), palmyra palm nut mannan (*Borassus flabellifer*), fenugreek (*Trigonella foenum-graecum*), lucerne (*Medicago sativa*) galactomannans, western hemlock wood cellulose (*Tsuga heterophylla*), white spruce (*Picea glauca*), *Larix decidua, Pinus strobus* and red maple (Acer rubrum) glucomannans and *Pinus taeda* hemicellulose. Also from the mucilage in the bulbs of *Narcissus tazetta*, the exocellular yeast mannan of *Rhodotorula glutinis* and from *Sesbania aegyptiaca* seeds.
Cryst. (MeOH).
Mp 203-204° (198-199°). $[\alpha]_D^{30}$ -8 (c, 1.6 in H_2O) (-2.3, -4). Some sources report a hydrate, Mp 122-124°.

Phenylosazone: Mp 203-206° (199°).

α-Pyranose-*form* [37169-60-1]

Octa-Ac: 1,2,3,6-Tetra-O-acetyl-4-O-(2,3,4,6-tetra-O-acetyl-β-D-mannopyranosyl)-α-D-mannopyranose [68036-19-1]
$C_{28}H_{38}O_{19}$ 678.597
Mp 152°. $[\alpha]_D^{20}$ +7 (c, 1.0 in MeOH).

Ph glycoside: Phenyl 4-O-β-D-mannopyranosyl-α-D-mannopyranoside [71238-86-3]
$C_{18}H_{26}O_{11}$ 418.397
$[\alpha]_D^{20}$ +53 (c, 1.15 in MeOH).

Ph glycoside, hepta-Ac: Phenyl 2,3,6-tri-O-acetyl-4-O-(2,3,4,6-tetra-O-acetyl-β-D-mannopyranosyl)-α-D-mannopyranoside [71238-76-1]
$C_{32}H_{40}O_{18}$ 712.657
$[\alpha]_D^{20}$ +20.4 (c, 1.3 in $CHCl_3$).

Ph glycoside, 6,6′-ditosyl: $[\alpha]_D^{20}$ +25.2 (c, 1.13 in MeOH).

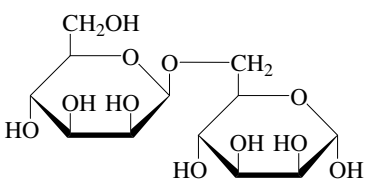
β-Pyranose-*form* [37169-64-5]

Benzyl glycoside, hepta-Ac: Benzyl 2,3,6-tri-O-acetyl-4-O-(2,3,4,6-tetra-O-acetyl-β-D-mannopyranosyl)-β-D-mannopyranoside [71238-92-1]
$C_{33}H_{42}O_{18}$ 726.684
$[\alpha]_D^{20}$ -35 (c, 0.5 in $CHCl_3$).

Courtois, J.E. *et al., Bull. Soc. Chim. Biol.*, 1958, **40**, 2031 (*isol*)
Mukherjee, A.K. *et al., Can. J. Chem.*, 1961, **39**, 1408 (*isol*)
Kato, K. *et al., Agric. Biol. Chem.*, 1969, **33**, 1446 (*isol, struct*)
Kamerling, J.P. *et al., Tetrahedron*, 1971, **27**, 4275; 1972, **28**, 3037 (*ms, pmr*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1975, **39**, 3 (*isol, cmr*)
Usui, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 863 (*cmr*)
Thiem, J. *et al., Chem. Ber.*, 1979, **112**, 1035, (*α-D-pyr octa-Ac, α-D-Ph pyr, α-D-Ph pyr hepta-Ac, α-D-Ph pyr ditosyl, α/β-D-benzyl pyr hepta A*)
Bhattarcharyya, S.B. *et al., Phytochemistry*, 1983, **22**, 161 (*isol*)
Sheldrick, B. *et al., Carbohydr. Res.*, 1984, **132**, 1 (*cryst struct*)

6-*O*-β-D-Mannopyranosyl-D-mannose, 9CI M-99

[71184-87-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299

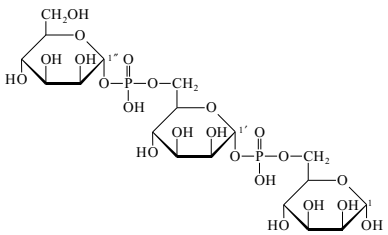
Isol. from the acid hydrolysate of the galactomannan of *Cassia javanica*. $[\alpha]_D$ -12.4 (H_2O). $[\alpha]_D^{26}$ -16 (c, 1.0 in H_2O).

α-Pyranose-*form*

Me glycoside: Methyl 6-O-β-D-mannopyranosyl-α-D-mannopyranoside, 9CI [76332-68-8]
$C_{13}H_{24}O_{11}$ 356.326
Foam. $[\alpha]_D^{22}$ +49.5 (c, 1.6 in H_2O).

Jones, J.K.N. *et al., J.C.S.*, 1958, 27 (*synth*)
Srivastava, V.K. *et al., J.O.C.*, 1981, **46**, 1121 (*deriv*)
Singh, R.B. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1983, **57**, 1263 (*isol*)

α-D-Mannopyranosyloxyphosphinico-(1 →6)-α-D-mannopyranosyloxyphosphinico-(1 →6)-D-mannose, 9CI M-100



$C_{18}H_{34}O_{22}P_2$ 664.401
In general poly(glycosyl phosphates) are immunologically active components of microorganism cell walls and capsules.

α-Pyranose-*form*

Me glycoside, 2′,2″,3′,3″,4′,4″-hexabenzoyl, 2,3,4-tri-Ac: [132498-66-9]
$C_{67}H_{66}O_{31}P_2$ 1429.187
Syrup (as bis(trimethylammonium) salt). $[\alpha]_D^{30}$ -75 (H_2O). CAS no. refers to salt.

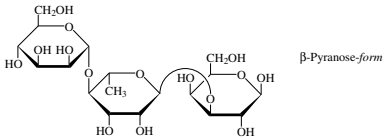
1-Dihydrogen phosphate: [123827-53-2]
$C_{18}H_{35}O_{25}P_3$ 744.381
Syrup (as tetrakis(ammonium) salt). $[\alpha]_D$ +35 (H_2O). CAS no. refers to salt.

1-Dihydrogen phosphate, 2,2′,2″,3,3′,3″,4,4′,4″-nonabenzoyl: [123900-44-7]
$C_{81}H_{71}O_{34}P_3$ 1681.353
Syrup (as tetrakis(ammonium) salt). CAS no. refers to salt.

Kenne, L. *et al., The Polysaccharides*, 1983, **2**, 287 (*rev*)
Nikolaev, A.V. *et al., Carbohydr. Res.*, 1989, **187**, C1 (*phosphate derivs*)
Nikolaev, A.V. *et al., Bioorg. Khim.*, 1990, **16**, 1696; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1990, **16**, 960 (*α-Me pyr tri-Ac deriv, pmr, cmr*)

α-D-Mannopyranosyl-(1 →4)-α-L-rhamnopyranosyl-(1 →3)-D-galactose, 9CI M-101

α-D-Mannopyranosyl-(1 →4)-6-deoxy-α-L-mannopyranosyl-(1 →3)-D-galactose, 9CI [59678-93-2]



$C_{18}H_{32}O_{15}$ 488.442
Constituent of the main chain of the *O*-antigenic polysaccharide of *Salmonella* serological groups A, B and D. Amorph. $[\alpha]_D^{20}$ +27 (c, 1.0 in H_2O). $[\alpha]_D$ +20 (c, 0.6 in H_2O).

β-Pyranose-*form*

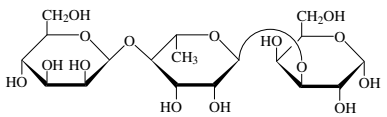
Benzyl glycoside:
$C_{25}H_{38}O_{15}$ 578.566
Mp 178-179°. $[\alpha]_D$ -5.9 (c, 1.0 in H_2O).

Benzyl glycoside, 2-benzoyl:
$C_{32}H_{42}O_{16}$ 682.674
Cryst. (EtOH). Mp 214-218°. $[\alpha]_D$ -12.5 (c, 0.6 in Py).

Torgov, V.I. *et al., Bioorg. Khim.*, 1980, **6**, 1860; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 989
Betaneli, V.I. *et al., Carbohydr. Res.*, 1980, **84**, 211
Garegg, P.T. *et al., J.C.S. Perkin 1*, 1982, 2973
Szurmai, Z. *et al., Carbohydr. Res.*, 1990, **200**, 201 (*synth*)

β-D-Mannopyranosyl-(1 →4)-α-L-rhamnopyranosyl-(1 →3)-D-galactose M-102

β-D-Mannopyranosyl-(1 →4)-6-deoxy-α-L-mannopyranosyl-(1 →3)-D-galactose, 9CI [53659-29-3]



$C_{18}H_{32}O_{15}$ 488.442
Repeating unit of the *O*-specific (antigenic) polysaccharide of *Salmonella anatum* and *Salmonella newington*. $[\alpha]_D$ -24 (H_2O). $[\alpha]_D$ -13 (H_2O). $[\alpha]_D^{20}$ -15 (c, 1.0 in H_2O).

Deca-Ac:
$C_{38}H_{52}O_{25}$ 908.814
Syrup. $[\alpha]_D^{25}$ -4 (c, 1.1 in $CHCl_3$).

α-Furanose-*form*

1,2:5,6-Di-O-isopropylidene, hexa-Ac:
$C_{36}H_{52}O_{21}$ 820.794
Oil. $[\alpha]_D^{20}$ -41.5 (c, 1.4 in $CHCl_3$).

α-Pyranose-*form* [74538-23-1]

4,6-O-Ethylidene, 1,2-O-isopropylidene: [65817-34-7]
$C_{23}H_{38}O_{15}$ 554.544
Syrup. $[\alpha]_D^{25}$ -11.3 (c, 0.77 in MeOH).

4,6-O-Ethylidene, 1,2-O-isopropylidene, hexa-Ac: [65817-33-6]
$C_{35}H_{50}O_{21}$ 806.767
Vitreous powder. Mp 87-92°. $[\alpha]_D^{25}$ -23 (c, 1.0 in $CHCl_3$).

β-Pyranose-*form* [51599-34-9]

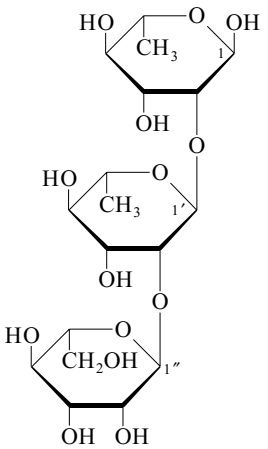
Benzyl glycoside, 2,4-dibenzyl, 2′,2″,3′,3″,4″,6″-hexa-Ac:
$C_{51}H_{62}O_{21}$ 1011.038
$[\alpha]_D^{20}$ -50.8 (c, 1.0 in $CHCl_3$).

[70168-45-5, 70168-47-7]

Kochetkov, N.K. *et al., Carbohydr. Res.*, 1975, **45**, 283 (*furanose deriv*)
Kochetkov, N.K. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1977, 2578; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 2387 (*α-form deriv*)
Betaneli, V.I. *et al., Carbohydr. Res.*, 1980, **84**, 211
Lipkind, G.M. *et al., Bioorg. Khim.*, 1981, **7**, 391; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 227 (*conformn, struct*)
Torgov, V.I. *et al., Bioorg. Khim.*, 1981, **7**, 401; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 235 (*synth, benzylgly*)
Kochetkov, N.K. *et al., Carbohydr. Res.*, 1982, **110**, C6; 1984, **128**, 269 (*allyl gly, synth, pmr, cmr*)
Helander, I.M. *et al., FEBS Lett.*, 1989, **250**, 565 (*occur*)

α-L-Mannopyranosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose M-103

α-L-Mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{14}$ 472.442

α-Pyranose-*form*

Me glycoside: [115678-06-3]
$C_{19}H_{34}O_{14}$ 486.469
Amorph. $[\alpha]_D^{22}$ -54 (c, 1.1 in H_2O) (lit. gives a temp. range).

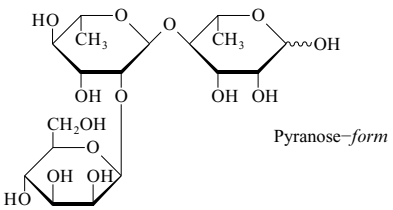
Me glycoside, 3,3′,4,4′-tetrabenzyl, 2″,3″,4″,6″-tetra-Ac: [115678-25-6]
$C_{55}H_{66}O_{18}$ 1015.116
Syrup. $[\alpha]_D^{22}$ -28 (c, 1.0 in $CHCl_3$) (lit. gives a temp. range).

Pozsgay, V. *et al., J.O.C.*, 1988, **53**, 4042 (*α-Me pyr derivs, pmr, cmr*)

β-D-Mannopyranosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →4)-L-rhamnose M-104

β-D-Mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI

[101236-42-4]



$C_{18}H_{32}O_{14}$ 472.442

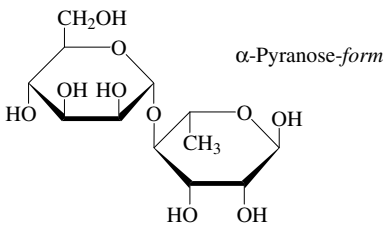
Hydrolytic product of lactosillan. Constit. of a polysaccharide isol. from culture filtrate of a bacterium *Alcaligenes latus* strain G66A. The polysaccharide induces differentiation of mouse myeloid leukemia cells (M1).

Hayakawa, Y. *et al., Agric. Biol. Chem.*, 1985, **49**, 2437; 2443 (*isol, cmr, glc, ms*)

4-*O*-α-D-Mannopyranosyl-L-rhamnose M-105

4-O-α-D-Mannopyranosyl-6-deoxy-L-mannose. 6-Deoxy-4-O-α-D-mannopyranosyl-L-mannose

[52327-16-9]



$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Constit. of the repeating unit of the *O*-antigens of *Salmonella* serogroups A, B and D (the most harmful to man). Cryst. (MeOH/2-propanol).
Mp 143-145°. $[\alpha]_D$ +53 → +60.3 (2h) (c, 1 in H_2O).

α-Pyranose-*form* [52389-38-5]

Hepta-Ac: [52389-37-4]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 149.5-150.5°.
$[\alpha]_D$ -5.5 (c, 4.3 in $CHCl_3$).

Me glycoside: [52327-13-6]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D$ +13 (c, 2.2 in H_2O).

Me glycoside, 2′,3′,4′,6′-tetra-Ac, 2,3-carbonate:
Cryst. (EtOH). Mp 146-148°. $[\alpha]_D^{20}$ +23 (c, 1.8 in $CHCl_3$).

Me glycoside, hexa-Ac: [52327-15-8]
$C_{25}H_{36}O_{16}$ 592.55
$[\alpha]_D$ +4 (c, 1.3 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, tetra-Ac:* [52327-11-4]
$C_{24}H_{36}O_{14}$ 548.54
Cryst. (EtOH or Et_2O/petrol). Mp 119-120° (116.5-117.5°). $[\alpha]_D$ +30.7 (c, 2.2 in $CHCl_3$). $[\alpha]_D$ +28.4 (c, 1.8 in $CHCl_3$).

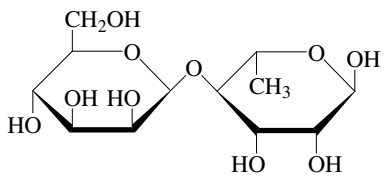
[117249-82-8]

Luderitz, O. *et al., Microb. Toxins*, Academic Press, New York, ed. Weinbaum, G. *et al*, 1971, **4**, 158 (*occur*)
Bebault, G.M. *et al., Can. J. Chem.*, 1974, **52**, 678 (*synth*)
Torgov, V.I. *et al., Bioorg. Khim.*, 1980, **6**, 1860; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1980, **6**, 989 (*carbonate, pmr, ir*)
Lipkind, G.M. *et al., Carbohydr. Res.*, 1988, **175**, 59 (*cmr*)

4-*O*-β-D-Mannopyranosyl-L-rhamnose M-106

4-O-β-D-Mannopyranosyl-6-deoxy-L-mannose. 6-Deoxy-4-O-β-D-mannopyranosyl-L-rhamnose

[6918-40-7]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

Reducing disaccharide. Constit. of the repeating unit of the *O*-antigen of *Salmonella muenster* E_1.
$[\alpha]_D$ -46 (c, 2.5 in H_2O).

α-Pyranose-*form*

Hepta-Ac: [53319-05-4]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 164-165°. $[\alpha]_D$ -67.8 (c, 1.3 in $CHCl_3$) (-57).

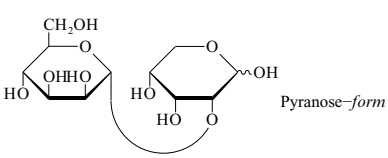
Me glycoside: [53958-23-9]
$C_{13}H_{24}O_{10}$ 340.327
Cryst. (2-propanol). Mp 108.5-110°.
$[\alpha]_D$ -72.4 (c, 2.2 in H_2O).

Me glycoside, hexa-Ac:
$C_{25}H_{36}O_{16}$ 592.55
$[\alpha]_D$ -57 (c, 2.1 in $CHCl_3$).

Bebault, G.M. *et al., Carbohydr. Res.*, 1974, **37**, 309 (*synth, derivs*)
Kochetkov, N.K. *et al., Carbohydr. Res.*, 1975, **45**, 283 (*hepta-Ac*)
Dmitriev, B.A. *et al., Carbohydr. Res.*, 1982, **100**, 195 (*cmr*)
Kenne, L. *et al., The Polysaccharides*, Academic Press, ed. Aspinall, G.O., 1983, **2**, 300 (*occur*)

2-*O*-α-D-Mannopyranosyl-D-ribose, 9CI M-107

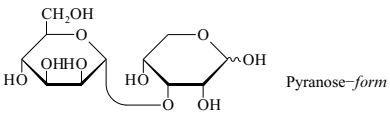
[39102-71-1]



$C_{11}H_{20}O_{10}$ 312.273
Syrup. $[\alpha]_D^{20}$ +54 (c, 1.4 in H_2O).
Zurowska, A. *et al., Carbohydr. Res.*, 1972, **24**, 319

3-*O*-α-D-Mannopyranosyl-D-ribose, 9CI M-108

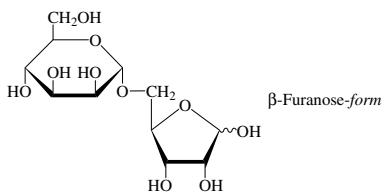
[39102-72-2]



$C_{11}H_{20}O_{10}$ 312.273
$[\alpha]_D^{20}$ +42 (c, 1.4 in H_2O).
Zurowska, A. *et al., Carbohydr. Res.*, 1972, **24**, 319

5-*O*-α-D-Mannopyranosyl-D-ribose, 9CI M-109

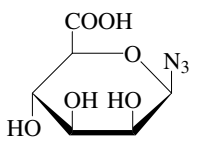
[39102-73-3]



$C_{11}H_{20}O_{10}$ 312.273
Syrup. $[\alpha]_D^{20}$ +22 (c, 1.4 in H_2O).
Zurowska, A. *et al., Carbohydr. Res.*, 1972, **24**, 319

Mannopyranosyluronic acid azide M-110

1-Deoxymannopyranosyl azide uronic acid. (Mannopyranosyl azide)uronate

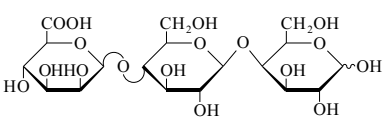


$C_6H_9N_3O_6$ 219.154

β-D-*form* [562847-35-2]
Solid. $[\alpha]_D^{26}$ -70.8 (c, 1.0 in H_2O).
Ying, L. *et al., Carbohydr. Res.*, 2003, **338**, 835-841 (*β-D-form, synth, pmr, cmr*)

β-D-Mannopyranuronosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-D-galactose, 8CI M-111

[22412-73-3]



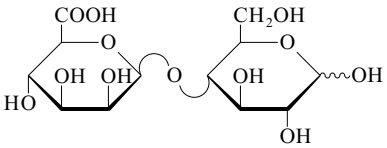
$C_{18}H_{30}O_{17}$ 518.425
Constit. of the extracellular bacterial polysaccharide from *Arthrobacter viscosus* (NRRL B-1973).

K salt: $[\alpha]_D^{25}$ -7.3 (in H_2O).

Sloneker, J.H. *et al., Can. J. Chem.*, 1986, **46**, 3353 (*isol*)

4-*O*-β-D-Mannopyranuronosyl-D-glucose M-112

[22412-74-4]



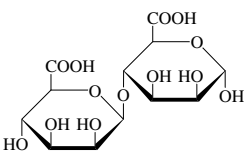
$C_{12}H_{20}O_{12}$ 356.283

Reducing disaccharide. Constit. of the extracellular bacterial polysaccharide from *Arthrobacter viscosus* (NRRL B-1973).

K salt: $[\alpha]_D^{25}$ -9.9 (c, 0.09 in H_2O).

Sloneker, J.H. *et al., Can. J. Chem.*, 1968, **46**, 3353

4-*O*-β-D-Mannopyranuronosyl-D-mannuronic acid M-113



α-Pyranose-*form*

$C_{12}H_{18}O_{13}$ 370.266

Isol. from the partial acid hydrol. of alginic acid.

Mp 182°. $[\alpha]_D$ -46.5 (H_2O).

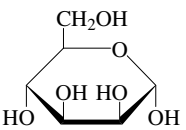
[34044-53-53-6]

Jayme, G. *et al., Chem. Ber.*, 1960, **93**, 2263 (*isol*)

Mannose, 9CI, 8CI M-114

Seminose. Carubinose

[31103-86-3]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

A 4*M* aq. soln. at 36° contains 63.7% α-pyr, 35.5% β-pyr, 0.6% α-fur, and 0.2% β-fur.

D-*form* [3458-28-4]

Obt. from the hydrolysates of D-mannans of the tagua palm *Phytelephas macrocarpa*. Mannans are also present in the tubers of Orchidaceae, seed of *Phoenix canariensis*, and corms of *Amorphophallus konjac* (devil's tongue). They are proliferated by some red algae and yeasts. Mannose is a constit. of blood serum globulins, ovomucoid, and tubercle bacilli. Occurs in trace amounts in apples and peaches. Obt. comly. from ivory nut hydrolysis. Inexpensive starting material for chiral synthesis. pK_{a1} 12.08 (25°).

Oxime:
$C_6H_{13}NO_6$ 195.172
Mp 176-184°. $[\alpha]_D$ +3.1 (H_2O).

Phenylhydrazone: Mp 198-200°. $[\alpha]_D$ +27 → +28 (EtOH).

4-Nitrophenylhydrazone: Mp 202-203°. $[\alpha]_D$ +56 (Py/EtOH).

Phenylosazone: See Hexose phenylosazones, H-90

Dimethyl dithioacetal: See Mannose dimethyl dithioacetal, M-116

*2-Mesyl: 2-*O*-Mesyl-D-mannose*
$C_7H_{14}O_8S$ 258.249
Mp 128-130°. $[\alpha]_D$ 0 (c, 1 in H_2O).

*2,3:5,6-Di-*O*-isopropylidene:* See 2,3-*O*-Isopropylidenemannose, I-71
[40036-82-6]

2-Me: See 2-*O*-Methylmannose, M-270

3-Me: See 3-*O*-Methylmannose, M-271

4-Me: See 4-*O*-Methylmannose, M-272

5-Me: See 5-*O*-Methylmannose, M-273

6-Me: See 6-*O*-Methylmannose, M-274

2,3-Di-Me: See 2,3-Di-*O*-methylmannose, D-748

2,4-Di-Me: See 2,4-Di-*O*-methylmannose, D-749

3,4-Di-Me: See 3,4-Di-*O*-methylmannose, D-751

3,5-Di-Me: See 3,5-Di-*O*-methylmannose, D-752

4,6-Di-Me: See 4,6-Di-*O*-methylmannose, D-753

2,3,6-Tri-Me: See 2,3,6-Tri-*O*-methylmannose, T-190

2,4,6-Tri-Me: See 2,4,6-Tri-*O*-methylmannose, T-191

3,4,6-Tri-Me: See 3,4,6-Tri-*O*-methylmannose, T-192

*3,4,6-Tribenzyl: 3,4,6-Tri-*O*-benzyl-D-mannose*
[20672-66-6]
$C_{27}H_{30}O_6$ 450.53
Mp 98-99°. $[\alpha]_D^{24}$ +22.7 (c, 1.92 in CH_2Cl_2).

Benzyl glycoside: See Benzyl mannoside, B-19

α-D-Pyranose-*form* [7296-15-3]

[27710-20-9] Mp 133°. $[\alpha]_D^{25}$ +29.3 → +14.5 (c, 1 in H_2O).

*2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-α-D-mannopyranose*
[22860-22-6]
$C_{14}H_{20}O_{10}$ 348.306
Mp 93-94°. $[\alpha]_D^{25}$ +22.8 (c, 2.2 in $CHCl_3$).

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-α-D-mannopyranose*
[4163-65-9]
$C_{16}H_{22}O_{11}$ 390.343
Mp 64° Mp 75°. $[\alpha]_D$ +55 (c, 1 in $CHCl_3$).

*2,3,4,6-Tetrabenzoyl: 2,3,4,6-Tetra-*O*-benzoyl-α-D-mannopyranose*
$C_{34}H_{28}O_{10}$ 596.589
Mp 112°. $[\alpha]_D$ +71 (c, 1 in $CHCl_3$).

*4,6-Isopropylidene: 4,6-*O*-Isopropylidene-α-D-mannopyranose*
[68791-08-2]
$C_9H_{16}O_6$ 220.222
Microcryst. powder (EtOAc). Mp 156-157°. $[\alpha]_D^{20}$ -1 → -24 (c, 1.2 in H_2O).

*4,6-Isopropylidene, tri-Ac: 1,2,3-Tri-*O*-acetyl-4,6-*O*-isopropylidene-α-D-mannopyranose*
[68791-09-3]
$C_{15}H_{22}O_9$ 346.333
Cryst. (EtOAc). Mp 49° (55°). $[\alpha]_D^{20}$ +48 (c, 1.0 in $CHCl_3$).

*2,3:4,6-Diisopropylidene: 2,3:4,6-Di-*O*-isopropylidene-α-D-mannopyranose*
[68791-15-1]
$C_{12}H_{20}O_6$ 260.286
Cryst. (EtOAc/hexane). Mp 139-140°. $[\alpha]_D^{25}$ -39 (c, 1.0 in $CHCl_3$) (-34).

Me glycoside: See Methyl α-D-mannopyranoside, M-204

Benzyl glycoside: See Benzyl mannoside, B-19

β-D-Pyranose-*form* [7322-31-8]

Mp 132° dec. $[\alpha]_D^{20}$ -17 → +14.6 (c, 4 in H_2O).

*1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-β-D-mannopyranose*
[28154-37-2]
$C_{14}H_{20}O_{10}$ 348.306
Mp 135-136°. $[\alpha]_D^{20}$ -22.5 ($CHCl_3$).

*1,2,3,4-Tetra-Ac, 6-mesyl: 1,2,3,4-Tetra-*O*-acetyl-6-*O*-mesyl-β-D-mannopyranose*
[28154-38-3]
$C_{15}H_{22}O_{12}S$ 426.398
Cryst. (EtOH). Mp 119-120°. $[\alpha]_D^{27}$ -21 (Py).

*1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-*O*-acetyl-β-D-mannopyranose*
[18968-05-3]
$C_{14}H_{20}O_{10}$ 348.306
Mp 164-165°. $[\alpha]_D^{30}$ -23.6 (c, 1.4 in $CHCl_3$).

*2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-β-D-mannopyranose*
[57884-82-9]
$C_{14}H_{20}O_{10}$ 348.306
Mp 160° (105-110°). $[\alpha]_D$ -24 (-12) ($CHCl_3$).

2,3,4,6-Tetra-Ac, 1-(dihydrogen phosphate): [57884-80-7]
$C_{14}H_{21}O_{13}P$ 428.286
$[\alpha]_D^{21}$ -13 (c, 1.5 in MeOH).

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-β-D-mannopyranose*
[4026-35-1]
$C_{16}H_{22}O_{11}$ 390.343
Cryst. (EtOH). Mp 117-118°. $[\alpha]_D^{25}$ -25.3 (c, 1 in $CHCl_3$).

*Pentabenzoyl: 1,2,3,4,6-Penta-*O*-benzoyl-β-D-mannopyranose*
[13526-09-5]
$C_{41}H_{32}O_{11}$ 700.697
Mp 161-162°. $[\alpha]_D^{20}$ -80.4 ($CHCl_3$).

*1,3,4,6-Tetra-Ac, 2-triflyl: 1,3,4,6-Tetra-*O*-acetyl-2-O-triflyl-β-D-mannopyranose*
[92051-23-5]
$C_{15}H_{19}F_3O_{12}S$ 480.369
Cryst. (EtOH). Mp 120-122°. $[\alpha]_D^{20}$ -16 (c, 1 in $CHCl_3$).

1,2-O-Ethylidene, 3,4,6-tri-Me: 1,2-O-Ethylidene-3,4,6-tri-O-methyl-β-D-mannopyranose
[26922-65-6]
$C_{11}H_{20}O_6$ 248.275
$[\alpha]_D^{25}$ -1.4 (c, 0.5 in EtOH).

2-Me, 1,3,4,6-tetra-Ac: 1,3,4,6-Tetra-O-acetyl-2-O-methyl-β-D-mannopyranose
$C_{15}H_{22}O_{10}$ 362.333
Mp 98-99°. $[\alpha]_D^{30}$ -32.3 (c, 1.1 in $CHCl_3$).

Me glycoside: See Methyl β-D-mannopyranoside, M-205

D-Furanose-*form*

Me glycoside: See Methyl mannofuranoside, M-203

α-D-Furanose-*form* [36574-21-7]

2,3-O-Isopropylidene: See 2,3-*O*-Isopropylidenemannose, I-71

2,3:5,6-Di-O-cyclohexylidene: 2,3:5,6-Di-O-cyclohexylidene-α-D-mannofuranose
[61489-23-4]
$C_{18}H_{28}O_6$ 340.416
Needles (heptane). Mp 122°. $[\alpha]_D^{21}$ +13.4 (c, 0.9 in $CHCl_3$).

Me glycoside: See Methyl mannofuranoside, M-203

Benzyl glycoside: See Benzyl mannoside, B-19

β-D-Furanose-*form* [40550-49-0]

2,3-O-Isopropylidene: See 2,3-*O*-Isopropylidenemannose, I-71

Me glycoside: See Methyl mannofuranoside, M-203

Benzyl glycoside: See Benzyl mannoside, B-19

L-*form* [10030-80-5]
Mp 132°. $[\alpha]_D$ +14 → -14 (H_2O).

Phenylhydrazone: [53956-43-7]
Mp 195°. $[\alpha]_D$ -34 (Py).

2,3:5,6-Di-O-isopropylidene: See 2,3-*O*-Isopropylidenemannose, I-71

α-L-Pyranose-*form* [35810-56-1]

Me glycoside: Methyl α-L-mannopyranoside
[64912-19-2]
$C_7H_{14}O_6$ 194.184
Mp 190-191°. $[\alpha]_D^{20}$ -79.4 (H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-O-acetyl-α-L-mannopyranoside
[141042-95-7]
$C_{15}H_{22}O_{10}$ 362.333
Syrup. $[\alpha]_D^{21}$ -34 (c, 0.9 in $CHCl_3$).

α-L-Furanose-*form* [36972-23-3]

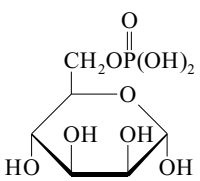
2,3;5,6-Di-O-isopropylidene: See 2,3-*O*-Isopropylidenemannose, I-71

[12773-34-1, 36972-23-3, 37738-80-0, 41767-04-8, 41847-42-1, 41847-43-2, 41847-45-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 188B; 191B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 299A; 299B; 1058A (*nmr*)
Fischer, E. *et al., Ber.*, 1913, **46**, 4029 (*penta-Ac, pentabenzoyl*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 298; 324 (*rev, derivs*)
Guthrie, R.D. *et al., J.C.S.*, 1959, 853 (*dicyclohexylidene-α-D-fur*)
Sowden, J.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 132 (*L-form*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 145 (*α-D-form, isol*)
Levine, S. *et al., Carbohydr. Res.*, 1968, **6**, 382; 1969, **10**, 468 (*β-D-pyr, synth, β-D-pyr-penta-Ac*)
Fernández-Bolaños, M. *et al., An. Quim.*, 1969, **65**, 1163 (*β-D-pyr tetra-Ac mesyl*)
Schaffer, R. *et al., The Carbohydrates*, 1972, **1A**, 69 (*occur*)
Warren, C.D. *et al., J. Biol. Chem.*, 1975, **250**, 8069 (*β-D-pyr tetra-Ac dihydrogen phosphate*)
Wilbur, D.J. *et al., J.A.C.S.*, 1977, **99**, 5450 (*equilib*)
Gelas, J. *et al., Carbohydr. Res.*, 1978, **67**, 371-387 (*α-D-pyr 2,3:4,6-diisopropylidene*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 37; 41 (*pmr, cmr*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 145 (*cmr*)
D'Accorso, N.B. *et al., Carbohydr. Res.*, 1983, **124**, 177 (*cmr, α-D-pentabenzoyl, β-D-pentabenzoyl*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 949 (*total synth, L-form*)
Mikamo, M. *et al., Carbohydr. Res.*, 1989, **191**, 150 (*synth, bibl, 2,3,4,6-tetra-Ac, 2,3,4,6-tetrabenzoyl*)
Pavliak, V. *et al., Carbohydr. Res.*, 1991, **210**, 333 (*2-triflyl, tetra-Ac*)
Chida, N. *et al., J. Carbohydr. Chem.*, 1992, **11**, 137-148 (*Me α-L-Pyr tetra-Ac*)
Chung, S.K. *et al., Carbohydr. Res.*, 1994, **260**, 39 (*α-D-pyr 2,3:4,6-diisopropylidene*)

Mannose 6-dihydrogen phosphate M-115

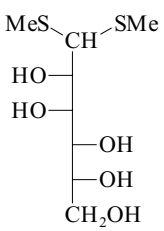
Mannose 6-phosphate



$C_6H_{13}O_9P$ 260.137

D-*form* [3672-15-9]
$[\alpha]_D^{25}$ +7.39 (c, 3.72 in H_2O) (as Na salt).
Meldal, M. *et al., Carbohydr. Res.*, 1992, **235**, 115 (***synth, pmr, cmr***)

Mannose dimethyl dithioacetal M-116



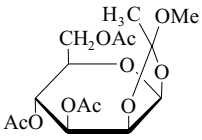
$C_8H_{18}O_5S_2$ 258.359

D-*form*

3,4:5,6-Diisopropylidene: 3,4:5,6-Di-O-isopropylidene-D-mannose dimethyl dithioacetal
$C_{14}H_{26}O_5S_2$ 338.488
Cryst. (petrol). Mp 58-59°. $[\alpha]_D^{21}$ +5 (c, 7.6 in $CHCl_3$).

Curtis, E.J.C. *et al., Can. J. Chem.*, 1960, **38**, 890 (*synth*)

Mannose 1,2-orthoacetate M-117



exo-Methyl,tri-Ac

$C_8H_{14}O_7$ 222.194

β-D-*exo-form*

Me ether, 3,4,6-tri-Ac: exo-*3,4,6-Tri-O-acetyl-1,2-O-(1-methoxyethylidene)-β-D-mannopyranose*
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (Et_2O). Mp 112-113°. $[\alpha]_D^{25}$ -22.2 (c, 2.5 in $CHCl_3$).

Benzyl ether: exo-*1,2-O-(1-Benzyloxyethylidene)-β-D-mannopyranose*
$C_{15}H_{20}O_7$ 312.319
Mp 128-130°. $[\alpha]_D$ +22.6 (c, 1.2 in H_2O).

Benzyl ether, 3,4,6-tri-Ac: exo-*3,4,6-Tri-O-acetyl-1,2-O-(1-benzyloxyethylidene)-β-D-mannopyranose*
$C_{21}H_{26}O_{10}$ 438.43
Mp 146-147°. $[\alpha]_D^{25}$ -1 (c, 2.4 in $CHCl_3$).

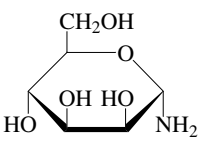
endo*-β-D-*form

Me ether, 3,4,6-tri Ac: endo-*3,4,6-Tri-O-acetyl-1,2-O-(1-methoxyethylidene)-β-D-mannopyranose*
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (Et_2O/hexane). Mp 104-105°. $[\alpha]_D^{25}$ -37.1 (c, 2.1 in $CHCl_3$).

Benzyl ether: endo-*1,2-O-(1-Benzyloxyethylidene)-β-D-mannopyranose*
$C_{15}H_{20}O_7$ 312.319
Mp 115-117°. $[\alpha]_D$ -14.8 (c, 1.1 in H_2O).

Perlin, A.S. *et al., Can. J. Chem.*, 1963, **41**, 399
Dais, P. *et al., Carbohydr. Res.*, 1983, **122**, 305

Mannosylamine, 9CI, 8CI M-118



α-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

D-*form* [52274-54-1]

2,3:5,6-Di-O-isopropylidene, N-*(4-bromophenyl):*Mp 135-136°. $[\alpha]_D^{25}$ -129 (c, 0.5 in $CHCl_3$).

2,3:5,6-Di-O-isopropylidene, N-*(4-nitrophenyl):*Mp 182-183°. $[\alpha]_D^{15}$ -212 (c, 0.6 in $CHCl_3$).

2,3:5,6-Di-O-isopropylidene, N-*phenyl: 2,3:5,6-Di-O-isopropylidene-N-phenyl-D-mannosylamine*
$C_{18}H_{25}NO_5$ 335.399
Mp 121-122°. $[\alpha]_D^{20}$ -149 (c, 1.1 in $CHCl_3$).

2,3:5,6-Di-O-isopropylidene, N-*(4-methylphenyl):*Mp 142-143°. $[\alpha]_D^{16}$ -139 (c, 0.4 in $CHCl_3$).

α-D-Pyranose-*form* *α-D-Mannopyranosylamine*
Cryst. Mp 70-71°.

β-D-Pyranose-*form* *β-D-Mannopyranosylamine*
[7388-99-0]
Cryst. + $1H_2O$. Mp 93-94°. $[\alpha]_D^{20}$ -11.6 (c, 2 in H_2O).

2,3,4,6-Tetra-O-*Ac: 2,3,4,6-Tetra*-O-*acetyl-β-D-mannopyranosylamine*
[41355-50-4]
$C_{14}H_{21}NO_9$ 347.321
Mp 155-156°. $[\alpha]_D^{21}$ -12.7 (c, 1.0 in $CHCl_3$).

2,3,4,6-Tetra-O-*benzoyl:* [41093-31-6]
$C_{34}H_{29}NO_9$ 595.604
Mp 156-157°. $[\alpha]_D^{20}$ -134.8 (c, 0.77 in $CHCl_3$).

N-*Ac:* N-*Acetyl-β-D-mannopyranosylamine.* N-*β-D-Mannopyranosylacetamide, 9CI*
[41093-33-8]
$C_8H_{15}NO_6$ 221.21
Mp 201-204°. $[\alpha]_D^{22}$ -46.8 (c, 1.0 in H_2O).

N-*Benzoyl:* N-*Benzoyl-β-D-mannopyranosylamine.* N-*β-D-Mannopyranosylbenzamide, 9CI*
[15354-98-0]
$C_{13}H_{17}NO_6$ 283.28
Mp 256-258°. $[\alpha]_D^{27}$ -9.1 (c, 1.0 in DMSO) (c, 0.2 in Py).

2,3,4,6-Tetra-O-*benzoyl,* N-*Ac:*
[41093-32-7]
$C_{36}H_{31}NO_{10}$ 637.642
Mp 166-167°. $[\alpha]_D^{20}$ -84 (c, 0.89 in $CHCl_3$).

2,3,4,6-Tetra-O-*Ac,* N-*benzoyl:*
[74761-72-1]
$C_{21}H_{25}NO_{10}$ 451.429
$[\alpha]_D^{27}$ -19.9 (c, 1.3 in $CHCl_3$).

N,O^2,O^3,O^4,O^6-*Penta-Ac:* [35923-07-0]
$C_{16}H_{23}NO_{10}$ 389.358
Mp 188-189°. $[\alpha]_D$ -16.5 ($CHCl_3$).

N-*Benzyl:* N-*Benzyl-β-D-mannopyranosylamine*
[70428-27-2]
$C_{13}H_{19}NO_5$ 269.297
Mp 131-132°. $[\alpha]_D^{27}$ -35.3 (c, 1.0 in MeOH).

N-*(4-Hydroxyphenyl):* [74372-70-6]
Mp 151-152°. $[\alpha]_D^{27}$ -78.8 (c, 1.0 in MeOH).

N-*(4-Methoxybenzyl):* [74372-71-7]
Mp 90-91°. $[\alpha]_D^{27}$ -38 (c, 1.0 in MeOH).

N-*(4-Nitrophenyl):* [25876-25-9]
Mp 217° dec. $[\alpha]_D^{27}$ -329 (c, 1.0 in Py).

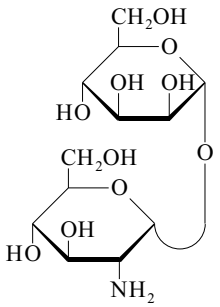
2,3,4,6-Tetra-O-*Ac,* N-*(4-nitrophenyl):*
[151767-39-4]
Mp 189-190°. $[\alpha]_D^{20}$ -150 (c, 2.0 in $CHCl_3$).

[2950-59-6]

Isbell, H.S. *et al., J.O.C.*, 1958, **23**, 1309-1319 (*β-D-Pyr form, penta-Ac*)
Guthrie, R.D. *et al., J.C.S.*, 1960, 1598-1602, (*D-isopropylidene derivs*)
Sproviero, J.F. *et al., Carbohydr. Res.*, 1973, **26**, 357-363 (*β-D-tetrabenzoyl, N-Ac, N-benzoyl*)
Ponpipom, M.M. *et al., Carbohydr. Res.*, 1980, **82**, 134-140; 141-148 (*tetra-Ac, N-benzoyl, N-acyl*)
Linek, K. *et al., Carbohydr. Res.*, 1993, **247**, 329-335 (*β-D-pyr form, pmr, cmr*)
Maity, S.K. *et al., Tetrahedron*, 1994, **50**, 6965-6974 (*α-D-pyr-form*)
Isac-Garcia, J. *et al., Eur. J. Org. Chem.*, 2001, 383-390 (*penta-Ac*)

Mannosylglucosaminide M-119

Mannotrehalosamine. Antibiotic 4243
[14510-04-4]



$C_{12}H_{23}NO_{10}$ 341.314
From *Streptomyces virginiae* var. 4243 MT/T1. Active against limited strains of gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. pK_a 6.98.

▶ LD_{50} (mus, ivn) 2000 mg/kg.

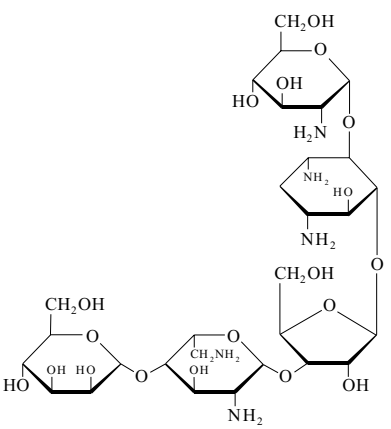
Hydrochloride: [17272-81-0]
Mp 230° dec. $[\alpha]_D^{23}$ +91.3 (c, 2 in H_2O).

Octa-Ac:
$C_{28}H_{39}NO_{18}$ 677.612
Mp 91.5-93°.

Uramoto, M. *et al., J. Antibiot.*, 1967, **20**, 236 (*isol*)
Paulsen, H. *et al., Chem. Ber.*, 1979, **112**, 3203 (*synth*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 2728 (*synth, conformn, cmr*)

Mannosylparomomycin M-120

Quintomycin A. SF 767L. Antibiotic 503-1. Antibiotic 2230C. Antibiotic SF 767L
[36019-37-1]



$C_{29}H_{55}N_5O_{19}$ 777.776
Aminoglycoside antibiotic. Obt. from *Streptomyces lividus*. Active against gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

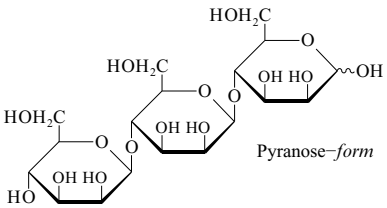
Mp 197-203°. $[\alpha]_D^{25}$ +74 (c, 1.0 in H_2O). Closely related to Lividomycin A, L-46. λ_{max} (H_2O) (Berdy).

▶ LD_{50} (mus, ivn) 198 mg/kg , LD_{50} (mus, ipr) 357 mg/kg , LD_{50} (mus, scu) 1878 mg/kg. WK2120000

Mori, T. *et al., J. Antibiot.*, 1971, **24**, 339; 1972, **25**, 317 (*isol, struct*)
Wang, W. *et al., CA*, 1976, **85**, 166542 (*isol, struct, props*)

Mannotriose M-121

β-D-Mannopyranosyl-(1→4)-β-D-mannopyranosyl-(1→4)-D-mannose, 9CI, 8CI
[28173-52-6]

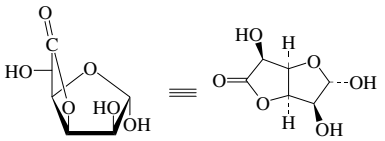


$C_{18}H_{32}O_{16}$ 504.441
Isol. from the partial acid and enzymic hydrolysates of several mannans e.g. ivory nut (*Phytelephas macrocarpa*), Palmyra palm (*Borassus flabellifer*), galactomannans e.g. lucerne (*Medicago sativa*), seeds of *Sesbania aegyptiaca*, glucomannans e.g. white spruce (*Picea glauca*), *Larix decidua*, jack pine (*Pinus banksiana*), *Bletilla striata* and *Narcissus tazetta*. Isol. from enzymic hydrolysates of brown copra meal, sapwood of *Pinus densiflora*. Constit. of commercial soybean syrup. Cryst. (EtOH).
Mp 167° Mp 211-213° (219°). $[\alpha]_D^{25}$ -21 (c, 3.0 in H_2O).

Trihydrate: Mp 137-137.5°.

Aspinall, G.O. *et al., J.C.S.*, 1958, 215; 1962, 214 (*isol*)
Tyminski, A. *et al., J.A.C.S.*, 1960, **82**, 2823
Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815
Mukherjee, A.K. *et al., Can. J. Chem.*, 1961, **39**, 1408
Kato, K. *et al., Carbohydr. Res.*, 1973, **29**, 469
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1976, **24**, 1807 (*isol*)
Usui, T. *et al., Agric. Biol. Chem.*, 1979, **43**, 863 (*cmr*)
Tanaka, R. *et al., CA*, 1982, **97**, 24116w (*occur*)
Shimizu, K. *et al., Agric. Biol. Chem.*, 1983, **47**, 949 (*isol*)
Kusakabe, I. *et al., Agric. Biol. Chem.*, 1983, **47**, 2391 (*isol, props*)
Bhattacharyya, S.B. *et al., Phytochemistry*, 1983, **22**, 161 (*isol*)
Mackie, W. *et al., Int. J. Biol. Macromol.*, 1986, **8**, 43 (*cryst struct*)
Park, G.G. *et al., CA*, 1989, **110**, 171717h (*occur*)
Takano, Y. *et al., CA*, 1991, **115**, 278391c (*occur, cmr, hplc*)

Mannourono-6,3-lactone M-122



α-*form*

$C_6H_8O_6$ 176.126

α-D-Pyranose-*form*

Me glycoside: [18486-28-7]
$C_7H_{10}O_6$ 190.152
Mp 146-147°. $[\alpha]_D^{25}$ +201.6 (c, 1.2 in MeOH).

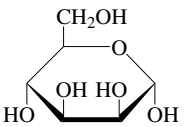
β-D-Pyranose-*form*

Me glycoside: [18587-77-4]
Mp 169-170°. $[\alpha]_D^{25}$ -31.5 (c, 1.27 in MeOH).

Schmidt, H.W.H. *et al., Tet. Lett.*, 1968, 235

Mannuronic acid, 9CI, 8CI M-123

[6814-36-4]



α-D-Pyranose-*form*

$C_6H_{10}O_7$ 194.141

D-*form* [1986-14-7]
A hydrol. prod. of alginic acids from algae, e.g. *Macrocystis pyrifera*.
V. hygroscopic cryst.
Mp 165-167°. $[\alpha]_D$ -50 → -20 (H_2O, equilib.). Crystallises spontaneously as the 6,3-lactone. The variable opt. rotn. values of the acid and its readily-formed lactone are difficult to interpret.

6,3-Lactone: D-Mannuronolactone. Mannurone
[7424-09-1]
$C_6H_8O_6$ 176.126
Cryst. (dimorph.). Mp 143-144° Mp 191-192°. $[\alpha]_D^{21}$ +57.7 → +92.2 (30 min) (H_2O).

α-D-Pyranose-*form*

Me glycoside: Methyl α-D-mannopyranosiduronic acid
$C_7H_{12}O_7$ 208.168
Monohydrate. Mp 108°. $[\alpha]_D^{19}$ +65.6 (c, 1.2 in H_2O).

Me glycoside, Me ester: Methyl (methyl α-D-mannopyranosid)uronate
$C_8H_{14}O_7$ 222.194
Syrup. $[\alpha]_D^{25}$ +78.8 (c, 1.04 in H_2O).

Me glycoside, amide: Methyl α-D-mannopyranosiduronamide
$C_7H_{13}NO_6$ 207.183
Prisms (Me_2CO aq.). Mp 182-183°. $[\alpha]_D^{18}$ +66 (c, 1.1 in H_2O).

Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-O-acetyl-α-D-mannopyranosiduronic acid
$C_{13}H_{18}O_{10}$ 334.279
Syrup. $[\alpha]_D^{20}$ +41 (c, 1.1 in $CHCl_3$).

Me glycoside, 2,3,4-tri-Me, Me ester: Methyl (methyl 2,3,4-tri-O-methyl-α-D-mannopyranosid)uronate
$C_{11}H_{20}O_7$ 264.275
$Bp_{0.02}$ 118°. $[\alpha]_D^{20}$ +74 (c, 1 in MeOH). $[\alpha]_D$ +64.1 (c, 1 in $CHCl_3$).

Me glycoside, 6,3-lactone: Methyl α-D-mannopyranosidurono-6,3-lactone
$C_7H_{10}O_6$ 190.152
Cryst. (MeOH). Mp 186°. $[\alpha]_D^{20}$ +80 (c, 1.1 in H_2O).

β-D-Pyranose-*form*

6→1Lactone, tri-Ac: 2,3,4-Tri-O-acetyl-β-D-mannopyranurono-6,1-lactone
[141989-99-3]
$C_{12}H_{14}O_9$ 302.237
Syrup. $[\alpha]_D^{20}$ +7.9 (c, 0.8 in $CHCl_3$).

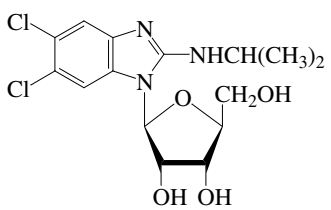
L-*form*
Mp 143-144°. $[\alpha]_D^{27}$ -92 (H_2O).
Semicarbazone: Mp 189°.

[35898-49-8]

Nelson, W.L. *et al., J.A.C.S.*, 1932, **54**, 3409, (*D-lactone, isol*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 322; 325 (*rev*)
Stacey, M. *et al., J.C.S.*, 1944, 587 (*D-lactone, α-D-Me pyr tri-Ac, α-D-Me pyr lactone*)
Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1946, **37**, 43; 321 (*D-lactone, isol, struct*)
Edington, R.A. *et al., J.C.S.*, 1955, 2281, (*α-D-Me pyr amide*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 35 (*D-lactone, isol*)
Schmidt, H.W.H. *et al., Tet. Lett.*, 1967, 235, (*α-D-Me pyr Me ester*)
Morris, E.R. *et al., J.C.S. Perkin 2*, 1975, 1418 (*cd*)
Vogel, C. *et al., J. Carbohydr. Chem.*, 1992, **11**, 287-303 (*6,1-lactone tri-Ac*)
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **265**, 197 (*cryst struct, lactone*)

Maribavir, BAN, INN, USAN M-124

5,6-Dichloro-N-(1-methylethyl)-1-ribofuranosyl-1H-benzimidazol-2-amine, 9CI. Benzimidavir. 1263 W 94



$C_{15}H_{19}Cl_2N_3O_4$ 376.238

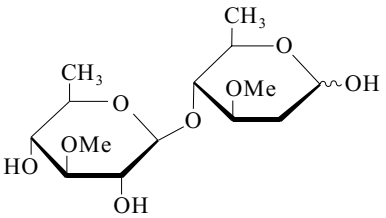
β-L-*form* [176161-24-3]
Antiviral agent. Used in the treatment of cytomegalovirus infections.
Solid. $[\alpha]_D^{20}$ -22.4 (c, 0.5 in DMF). Pharmacol. active isomer. λ_{max} 260 (ε 8300); 275 (ε 1800); 304 (ε 9500) (pH 7).

[176161-49-2]

Koszalka, G.W. *et al., Antiviral Res.*, 1996, **30**, A43 (*pharmacol*)
Pat. Coop. Treaty (WIPO), 1996, 96 01 833, (*Wellcome*); *CA*, **124**, 317788v (*synth, pharmacol*)
Graul, A. *et al., Drugs of the Future*, 1997, **22**, 707-710 (*rev*)
Zacny, V.L. *et al., J. Virol.*, 1999, **73**, 7271-7277 (*pharmacol*)
Lu, H. *et al., Curr. Opin. Invest. Drugs*, 2004, **5**, 898-907 (*rev*)

Marsectobiose M-125

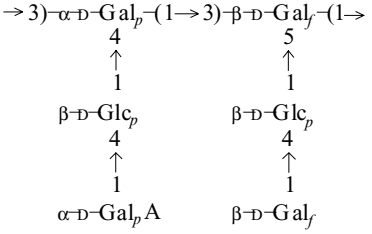
2,6-Dideoxy-4-O-(6-deoxy-3-O-methyl-β-D-glucopyranosyl)-3-O-methyl-D-arabino-hexose, 9CI, 8CI
[25153-15-5]



$C_{14}H_{26}O_8$ 322.355
Isol. from *Marsdenia erecta*.
Mp 136-140°. $[\alpha]_D^{25}$ -10.5 (c, 1.1 in H_2O).

Saner, A. *et al., Helv. Chim. Acta*, 1969, **52**, 1655; 1970, **53**, 221 (*isol, struct, pmr, ms*)

Melanocidin A M-126



Glycoside antibiotic, struct. not fully known. Isol. from *Nocardioides* sp. 1681J. Inhibitor of 5′-Nucleotidase. Also shows antitumour activity. Powder. Sol. H_2O, DMSO; poorly sol. MeOH, hexane.
Mp 300°. $[\alpha]_D^{20}$ +40 (c, 0.5 in H_2O).

Ogawara, H. *et al., J. Antibiot.*, 1985, **38**, 587; 592 (*isol, uv, ir, pmr, cmr*)

Melanocidin B M-127

[→3)-α-D-Gal*p*(1→3)β-D-Gal*p*(1→4)α-D-Gal*p*(1→3)-β-D-Gal*p*(1→](structural unit)
Glycoside antibiotic, struct. partly known. Isol. from *Nocardioides* sp. 1681J. Inhibitor of 5′-Nucleotidase. Also shows antitumour activity. Powder. Sol. H_2O, DMSO; poorly sol. MeOH, hexane.
Mp 300°. $[\alpha]_D^{20}$ +2 (c, 1 in H_2O).

Ogawara, H. *et al., J. Antibiot.*, 1985, **38**, 587; 592 (*isol, uv, ir, pmr, cmr*)

Melastin M-128

Glycopeptide; struct. unknown. Isol. from an unidentified *Streptomyces* sp. Selectively inhibits leukaemia cell growth. Sol. H_2O, MeOH; poorly sol. EtOH, butanol, EtOAc.

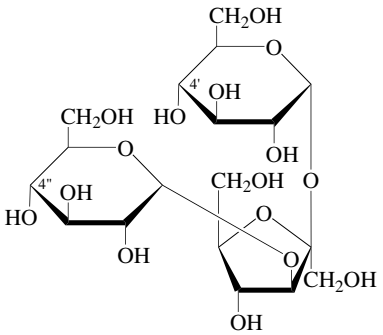
Magae, J. *et al., Biosci., Biotechnol., Biochem.*, 1993, **57**, 969-972 (*isol*)

Melezitose, 8CI M-129

O-α-D-*Glucopyranosyl-(1→3)-β-D-fructofuranosyl* α-D-*glucopyranoside, 9CI. Melizitose*

[597-12-6]

[10030-67-8]



$C_{18}H_{32}O_{16}$ 504.441

Constit. of honey and of the sweet exudates of many plants. Dihydrate. Mp 153-154°. $[\alpha]_D^{20}$ +88.2 (H_2O). Dimorphic.

Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 117°. $[\alpha]_D$ +104 (c, 1.0 in $CHCl_3$).

Undeca-Me:
$C_{29}H_{54}O_{16}$ 658.736
$Bp_{0.01}$ 236°. $[\alpha]_D$ +114 (MeOH).

4′,4″-Di-O-β-D-glucopyranosyl: ***Diglucomelezitose***
$C_{30}H_{52}O_{26}$ 828.725
Constit. of the honeydew from *Bemisia argentifolii* feeding on cotton.

Leitch, G.C. *et al., J.C.S.*, 1927, 588
Hudson, C.S. *et al., Adv. Carbohydr. Chem.*, 1946, **2**, 2 (*rev*)
Richtmyer, N.K. *et al., J.O.C.*, 1946, **11**, 610 (*struct*)
Hehre, E.J. *et al., Arch. Biochem. Biophys.*, 1952, **36**, 158 (*occur*)
Moor, J. *et al., Org. Mass Spectrom.*, 1974, **9**, 903 (*ms*)
Anteunis, M. *et al., Carbohydr. Res.*, 1975, **44**, 101 (*pmr*)
Avenel, D. *et al., Acta Cryst. B*, 1976, **32**, 2598 (*cryst struct*)
Bequart, J. *et al., Carbohydr. Res.*, 1982, **111**, 9 (*cryst struct*)
Wei, Y.A. *et al., J. Agric. Food Chem.*, 1997, **45**, 3481-3486 (*Diglucomelezitose*)

Meliacin M-130

[131641-50-4]

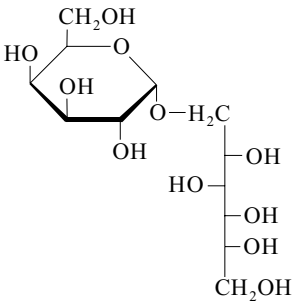
Glycoprotein; a cyclic peptide, MW 2200-2300, with a single glucose unit. Isol. from *Melia azederach*. Shows antiviral activity.

Andrei, G. *et al., Antiviral Chem. Chemother.*, 1994, **5**, 105-110 (*isol*)

Melibiitol M-131

6-O-α-D-*Galactopyranosyl-D-glucitol, 9CI, 8CI*

[497-83-6]



$C_{12}H_{24}O_{11}$ 344.315
Mp 173°. $[\alpha]_D^{24}$ +116 (H_2O).

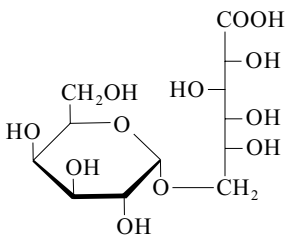
Nonabenzoyl:
$C_{75}H_{60}O_{20}$ 1281.287
Mp 157°. $[\alpha]_D^{25}$ +123 ($CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1940, **62**, 2553 (*synth*)
Percival, E. *et al., Carbohydr. Res.*, 1967, **4**, 441 (*glc*)
Havlicek, J. *et al., Chromatographia*, 1974, **7**, 361; *CA*, **81**, 105856j (*chromatog*)

Melibionic acid, 9CI M-132

6-O-α-D-*Galactopyranosyl-D-gluconic acid, 9CI, 8CI*

[21675-38-7]



$C_{12}H_{22}O_{12}$ 358.299
Formed by the action of Paracolon bacteria on Lactose, L-13. Obt. as Ca salt.

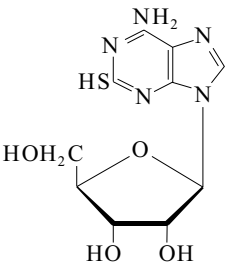
Me ester, octa-Me: Methyl octa-O-methylmelibionate
$C_{21}H_{40}O_{12}$ 484.54
Oil. $Bp_{0.06}$ 173-175°. $[\alpha]_D^{13}$ +106.4 (H_2O).

Zemplén, G. *et al., Ber.*, 1927, **60**, 923 (*struct*)
Haworth, W.N. *et al., J.C.S.*, 1927, 3146 (*struct*)
Levene, P.A. *et al., J. Biol. Chem.*, 1930, **86**, 403 (*Ca salt*)
Eddy, B.P. *et al., Nature (London)*, 1958, **181**, 904 (*bacterial synth*)
Samuelson, O. *et al., J. Chromatogr.*, 1963, **12**, 236 (*chromatog*)

2-Mercaptoadenosine M-133

1,2-Dihydro-2-thioxoadenosine, 9CI. 2-Thioadenosine

[43157-50-2]



$C_{10}H_{13}N_5O_4S$ 299.31
Mp 196-199° dec. $[\alpha]_D^{25}$ -43.6 (c, 0.5 in DMSO).

5′-Phosphate: 1,2-Dihydro-2-thioxo-5′-adenylic acid, 9CI. 2-Mercapto-5′-adenylic acid. 2-Thio-5′-adenylic acid
[59924-57-1]
$C_{10}H_{14}N_5O_7PS$ 379.29
Powder. Dimerises very easily by aerial oxidn.

S-*Me: 2-(Methylthio)adenosine, 9CI*
[4105-39-9]
$C_{11}H_{15}N_5O_4S$ 313.337
Mp 228-229.5°.

S-*Me, 5′-phosphate: 2-(Methylthio)-5′-adenylic acid, 9CI. 2-(Methylthio)-AMP*
[22140-20-1]
$C_{11}H_{16}N_5O_7PS$ 393.316
Specific inhibitor of platelet aggregation. Mp 192-195° dec.

S-*Me, 5′-triphosphate:* [43170-89-4]

[50880-70-1]
$C_{11}H_{18}N_5O_{13}P_3S$ 553.276
P_2 purinoreceptor agonist.

S-*Me, 2′,3′,5′-tri-Ac:*
$C_{17}H_{21}N_5O_7S$ 439.448
Cryst. (EtOAc/petrol). Mp 159-161°.

S-*Me,* N^6*-(3-methyl-1-butenyl):* N-*(3-Methyl-1-butenyl)-2-(methylthio)adenosine, 9CI*
[39832-56-9]
$C_{16}H_{23}N_5O_4S$ 381.455
Modified nucleoside found in tRNA's.

S-*Me,* N^6*-(3-methyl-2-butenyl):* N-*(3-Methyl-2-butenyl)-2-(methylthio)adenosine, 9CI.* N^6*-Isopentenyl-2-(methylthio)adenosine*
[20859-00-1]

[75869-71-5]
$C_{16}H_{23}N_5O_4S$ 381.455
Nucleoside present at the 37-position of the phenylalanine tRNA in most eubacteria. Cytokinin. Cryst. (EtOH). Mp 198.5-201°.

Tener, G.M. *et al., J.A.C.S.*, 1961, **83**, 159 (*synth, S-Me phosphate*)
Michael, F. *et al., Nature (London)*, 1969, **222**, 1073 (*synth, S-Me phosphate*)
U.K. Pat., 1971, 1 226 699; *CA*, **75**, 20922d (*synth, S-Me phosphate*)
Fleysher, M.H. *et al., J. Med. Chem.*, 1972, **15**, 187 (*S-Me N-3-Me-2-butenyl, pharmacol*)
Pinkerton, T.C. *et al., Nature (London)*, 1972, **240**, 88-90 (*S-Me N-3-Me-1-butenyl*)

Gough, G.R. *et al., J. Med. Chem.*, 1973, **16**, 1188-1190; 1978, **21**, 520 (S-*Me, 5′-triphosphate*)
Kikugawa, K. *et al., J. Med. Chem.*, 1973, **16**, 1381 (*synth, uv, pmr*)
Kikugawa, K. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1975, **2**, 159 (*synth*)
Stone, J.V. *et al., Can. J. Biochem.*, 1976, **54**, 529 (*synth, phosphate*)
Takahashi, S. *et al., Nucleic Acids Res., Spec. Publ.*, 1977, **3**, 61 (*nmr, conformn, S-Me phosphate*)
Sugiyama, T. *et al., Agric. Biol. Chem.*, 1980, **44**, 1673 (*S-Me N-3-Me-2-butenyl, synth, pmr*)
Bunstock, G. *et al., Br. J. Pharmacol.*, 1983, **79**, 907-913 (*S-Me-5′-triphosphate, pharmacol*)
Kapetanovic, E. *et al., Biochemistry*, 1985, **24**, 9586 (*synth, uv, pmr, phosphate*)
Nair, V. *et al., Synthesis*, 1986, 450 (*synth, uv, pmr, cmr, ms, S-Me*)
Gehrke, C.W. *et al., J. Chromatogr.*, 1989, **471**, 3 (*S-Me N-3-Me-2-butenyl, hplc*)
Bajji, A.C. *et al., J.O.C.*, 2002, **67**, 5352-5358 (*S-Me tri-Ac, synth, pmr, cmr*)

8-Mercaptoadenosine M-134

*7,8-Dihydro-8-thioxoadenosine, 9CI. 6-Amino-9-β-D-ribofuranosyl-9*H*-purine-8-thiol, 8CI*
[3001-45-4]

[27883-24-5]

$C_{10}H_{13}N_5O_4S$ 299.31
Cryst. (EtOH aq.). Mp 171-173° dec. (169-170°).

Cyclic 3′,5′-(hydrogen phosphate): See 8-Mercaptocyclic AMP, M-136

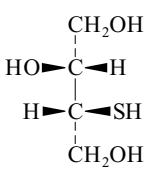
S-*Me: 8-(Methylthio)adenosine, 9CI*
[29836-01-9]
$C_{11}H_{15}N_5O_4S$ 313.337
Cryst. (EtOH aq.). Mp 237-238° dec.

S-*Et: 8-(Ethylthio)adenosine, 9CI*
[63614-44-8]
$C_{12}H_{17}N_5O_4S$ 327.363
Solid. Mp 176°.

Holmes, R.E. *et al., J.A.C.S.*, 1964, **86**, 1242-1245 (*synth, uv*)
Long, R.A. *et al., J.C.S. Dalton*, 1970, 1087-1089 (*pmr*)
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1971, **19**, 104-109 (*synth, uv*)
Uesugi, S. *et al., J.A.C.S.*, 1977, **99**, 3250-3253 (*S-Me, S-Et, cmr*)
Gendron, F.-P. *et al., J. Med. Chem.*, 2000, **43**, 2239-2247 (*synth, pmr, cmr*)

3-Mercapto-1,2,4-butanetriol, 9CI M-135

1,2,4-Trihydroxy-3-butanethiol



(2*R*,3*R*)−*form*

$C_4H_{10}O_3S$ 138.187

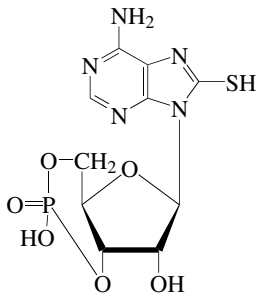
(2*R*,3*R*)-*form*
(-)-threo-*form. 2-Thio-D-threitol*
[177287-25-1]
Oil. $[\alpha]_D^{22}$ -38.7 (c, 2.7 in MeOH).

(2*R*,3*S*)-*form*
(+)-erythro-*form. 2-Thio-D-erythritol*
[177472-03-6]
Oil. $[\alpha]_D^{22}$ +5.9 (c, 1.7 in MeOH).

Brånalt, J. *et al., J.O.C.*, 1996, **61**, 3604 (*synth, pmr, cmr*)

8-Mercaptocyclic AMP M-136

8-Mercaptoadenosine cyclic 3′,5′-(hydrogen phosphate). 7,8-Dihydro-8-thioxoadenosine cyclic 3′,5′-(hydrogen phosphate), 9CI
[31319-89-8]



$C_{10}H_{12}N_5O_6PS$ 361.275
λ_{max} 220 (ϵ 13400); 244 (ϵ 9900); 308 (ϵ 25200) (pH 1). λ_{max} 224 (ϵ 17400); 291 (ϵ 22400) (pH 11).

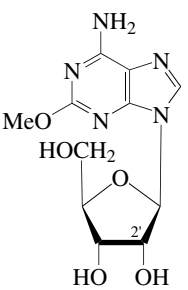
S-*Me:* [30630-07-0]
$C_{11}H_{14}N_5O_6PS$ 375.301
Cryst. λ_{max} 281 (ϵ 19700) (pH 1). λ_{max} 278 (ϵ 18500) (pH 11).

S-*(4-Chlorophenyl):* [41941-66-6]
$C_{16}H_{15}ClN_5O_6PS$ 471.817
Cryst. (2-methoxyethanol). λ_{max} 281 (ϵ 15900) (pH 1). λ_{max} 283 (ϵ 13750) (pH 11).

Muneyama, K. *et al., Biochemistry*, 1971, **10**, 2390-2395 (*synth*)
Miller, J.P. *et al., Biochemistry*, 1973, **12**, 5310-5319 (*synth*)
Fazakerley, G.V. *et al., Eur. J. Biochem.*, 1977, **76**, 601-605 (*conformn*)
Grant, P.G. *et al., Biochemistry*, 1990, **29**, 887-894 (*synth*)

2-Methoxyadenosine M-137

Spongosine
[24723-77-1]



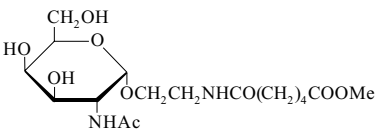
$C_{11}H_{15}N_5O_5$ 297.27
Isol. from the Caribbean sponge *Cryptotethia crypta* and from an unidentified Australian sponge (Tethyidae). Muscle relaxant CNS depressant, cardioactive agent, antiinflammatory, hypothermic.
Sol. H_2O, MeOH.
Mp 191-192°. $[\alpha]_D$ -43.5 (NaOH aq.). λ_{max} 248 (ϵ 7500); 275 (ϵ 11000) (pH 2) (Derep). λ_{max} 255 (sh) (ϵ); 268 (ϵ 12000) (pH 7) (Derep). λ_{max} 235 ; 267 (ϵ 14200) (MeOH) (Berdy). λ_{max} 269 (H_2O) (Berdy).

2′-Deoxy: ***2′-Deoxyspongosine****. 2′-Deoxy-2-methoxyadenosine*
[24757-70-8]
$C_{11}H_{15}N_5O_4$ 281.271
Isol. from an unidentified Australian sponge. Amorph. solid (H_2O).
Mp 174-175°. $[\alpha]_D$ -22.5 (c, 1 in DMSO). λ_{max} 267 (ϵ 13700) (MeOH) (Berdy).

Bergmann, W. *et al., J.O.C.*, 1951, **16**, 981-987; 1956, **21**, 226-228; 1957, **22**, 1575-1577 (*isol, struct, synth*)
Cook, A.F. *et al., J.O.C.*, 1980, **45**, 4020-4025 (*synth*)
Searle, P.A. *et al., J. Nat. Prod.*, 1994, **57**, 1452-1454 (*isol, uv, ir, pmr, cmr, ms*)

2-(4-Methoxycarbonylbutane-carboxamido)ethyl 2-acetamido-2-deoxygalactopyranoside M-138

6-[[2-[[2-(Acetylamino)-2-deoxygalactopyranosyl]oxy]ethyl]amino]-6-oxohexanoic acid methyl ester, 9CI



$C_{17}H_{30}N_2O_9$ 406.432

α-D-*form*
Cryst. (MeOH/Et_2O). Mp 206°. $[\alpha]_D^{20}$ +104 (c, 1 in H_2O).

*4,6-*O*-Benzylidene:* [78632-92-5]
Cryst. (EtOH). Mp 221°. $[\alpha]_D^{20}$ +110 (c, 0.5 in $CHCl_3$/MeOH 1:1).

*3-*O*-β-D-Galactopyranosyl: 2-(4-Methoxycarbonylbutanecarboxamido)ethyl 2-acetamido-2-deoxy-3-*O*-β-D-galactopyranosyl-α-D-galactopyranoside*
[78632-99-2]
$C_{23}H_{40}N_2O_{14}$ 568.574
Cryst. (MeOH). Mp 191°. $[\alpha]_D^{20}$ +76.5 (c, 1.0 in 10% MeOH aq.).

*4,6-*O*-Benzylidene, 3-*O*-β-D-galactopyranosyl, tetra-Ac:* [78632-97-0]
Amorph. $[\alpha]_D^{20}$ +81 (c, 1.0 in $CHCl_3$).

*3-*O*-β-D-Galactopyranosyl, tetra-Ac:* [78632-98-1]
Amorph. $[\alpha]_D^{20}$ +51 (c, 1.0 in $CHCl_3$).

β-D-*form*
Gel (EtOH). $[\alpha]_D^{20}$ +10.5 (c, 1.0 in H_2O).

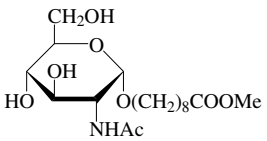
*4,6-*O*-Benzylidene:* [78632-96-9]
Cryst. (EtOH). Mp 186°. $[\alpha]_D^{20}$ +16.5 (c, 0.5 in $CHCl_3$/MeOH 1:1).

*3-*O*-β-D-Galactopyranosyl: 2-(4-Methoxycarbonylbutanecarboxamido)ethyl 2-acetamido-2-deoxy-3-*O*-β-D-galactopyranosyl-β-D-galactopyranoside*
[78633-05-3]
$C_{23}H_{40}N_2O_{14}$ 568.574
Powder. $[\alpha]_D^{20}$ +3 (c, 1.0 in H_2O).

*4,6-*O*-Benzylidene, 3-*O*-β-D-galactopyranosyl, tetra-Ac:* [78633-04-2]
Amorph. $[\alpha]_D^{20}$ +23 (c, 1.0 in $CHCl_3$).

Paulsen, H. *et al., Carbohydr. Res.*, 1982, **104**, 195 (*synth, pmr*)

8-(Methoxycarbonyl)octyl 2-acetamido-2-deoxyglucopyranoside M-139



α-D-*form*

$C_{18}H_{33}NO_8$ 391.461
Intermediate for synth. of semi-synthetic trisaccharide antigens.

α-D-*form*
Mp 139°. $[\alpha]_D$ +112 (MeOH).

3,4,6-Tri-Ac:
$C_{24}H_{39}NO_{11}$ 517.572
$[\alpha]_D^{25}$ +78 (MeOH).

4,6-O-Benzylidene: 8-(Methoxycarbonyl)octyl 2-acetamido-4,6-O-benzylidene-2-deoxy-α-D-glucopyranoside
$C_{25}H_{37}NO_8$ 479.569
Mp 138°. $[\alpha]_D$ +61 (MeOH).

β-D-*form*
Mp 156°. $[\alpha]_D$ -21 (MeOH).

3,4,6-Tri-Ac:
$C_{24}H_{39}NO_{11}$ 517.572
Mp 102°. $[\alpha]_D$ -10 ($CHCl_3$).

4,6-O-Benzylidene: 8-(Methoxycarbonyl)octyl 2-acetamido-4,6-O-benzylidene-2-deoxy-β-D-glucopyranoside
$C_{25}H_{37}NO_8$ 479.569
Cryst. (EtOH/petrol). Mp 221°. $[\alpha]_D$ -56 (c, 1.3 in DMF).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4076 (*β-D-benzylidene*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **103**, C12 (*α-D-benzylidene, β-D-benzylidene*)

3-(Methoxycarbonyl)propyl glucosinolate M-140

1-Thio-β-D-glucopyranose 1-[5-methoxy-5-oxo-N-(sulfooxy)pentanimidate], 9CI. ***Glucoerypestrin.*** *4-Methoxy-4-oxobutyl glucosinolate*
[27303-29-3]
$MeOOCCH_2CH_2CH_2C(SGlc){=}NOSO_3H$

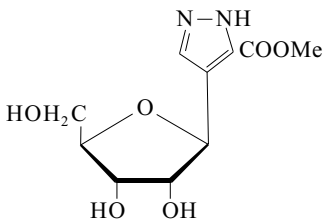
$C_{12}H_{21}NO_{11}S_2$ 419.43
Isol. from *Erysimum odoratum* seeds.

Tetra-Ac:
Cryst. + $1H_2O$ (EtOH) (as K salt). Mp 188-190° dec. (K salt). $[\alpha]_D^{23}$ -18 (c, 1.7 in H_2O).

Kjaer, A. *et al., Acta Chem. Scand.*, 1957, **11**, 577; 1969, **23**, 2548 (*isol*)
Chisholm, M.D. *et al., Phytochemistry*, 1973, **12**, 605 (*biosynth*)

3(5)-Methoxycarbonyl-4-ribofuranosylpyrazole M-141

Methyl 4-ribofuranosyl-1H-pyrazole-3-carboxylate, 9CI



$C_{10}H_{14}N_2O_6$ 258.23

β-D-*form* [50866-58-5]
Cryst. (EtOH). Mp 186-188°. $[\alpha]_D$ +10.6 (c, 0.56 in H_2O).

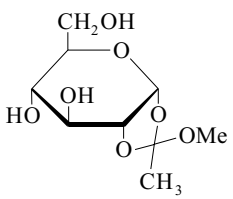
5-Trityl, 2,3-O-isopropylidene:
[57016-96-3]
$C_{32}H_{32}N_2O_6$ 540.615
Cryst. (MeOH). Mp 120-125° (as methanolate).

2,3,5-Tribenzyl: [59463-90-0]
$C_{31}H_{32}N_2O_6$ 528.604
$[\alpha]_D^{25}$ +95.1 (c, 0.8 in $CHCl_3$).

Albrecht, H.P. *et al., J.O.C.*, 1974, **39**, 2176, (*β-D-form, synth*)
de Las Heras, F.G. *et al., J.O.C.*, 1976, **41**, 84 (*isopropylidene trityl*)
Gupta, C.M. *et al., J.O.C.*, 1976, **41**, 3000, (*β-D-form, β-D-tribenzyl*)
Buchanan, J.G. *et al., Carbohydr. Res.*, 1977, **55**, 225 (*β-D-tribenzyl*)

1,2-*O*-(1-Methoxyethylidene)-glucopyranose, 9CI M-142

*Glucopyranose 1,2-(*O*-methyl orthoacetate)*



$C_9H_{16}O_7$ 236.221

α-D-*form* [55865-04-8]
3,4,6-Tri-Ac: 3,4,6-Tri-O-acetyl-1,2-O-(1-methoxyethylidene)-α-D-glucopyranose
[3254-16-8]
$C_{15}H_{22}O_{10}$ 362.333
Mp 92-94°. $[\alpha]_D$ +36 (c, 0.8 in $CHCl_3$).

4,6-O-Benzylidene, 3-Ac: 3-O-Acetyl-4,6-O-benzylidene-1,2-O-(1-methoxyethylidene)-α-D-glucopyranose, 9CI
$C_{18}H_{22}O_8$ 366.367
Cryst. (Et_2O). Mp 148-149°. $[\alpha]_D^{20}$ +36 (c, 0.7 in $CHCl_3$).

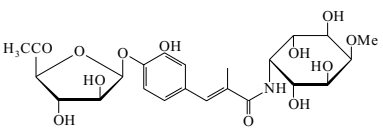
4,6-O-Benzylidene, 3-Me: 4,6-O-Benzylidene-1,2-O-(1-methoxyethylidene)-3-O-methyl-α-D-glucopyranose
$C_{17}H_{22}O_7$ 338.357
Needles (Et_2O). Mp 130-131°. $[\alpha]_D^{18}$ -63.8 (c, 0.7 in $CHCl_3$).

3,4,6-Tribenzyl: 3,4,6-Tri-O-benzyl-1,2-O-(1-methoxyethylidene)-α-D-glucopyranose, 9CI
[51532-75-3]
$C_{30}H_{34}O_7$ 506.594
Syrup. $[\alpha]_D$ +36 (c, 1.0 in $CHCl_3$).

Korytnyk, W. *et al., J.C.S.*, 1959, 636 (*synth, α-D-benzylidene Ac, α-D-benzylidene Me*)
Kochetkov, N.K. *et al., Tetrahedron*, 1967, **23**, 693 (*α-D-tri-Ac*)
Dick, W.E. *et al., Carbohydr. Res.*, 1972, **23**, 229 (*α-D-benzylidene Ac, pmr*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1973, **27**, 2639 (*α-D-tribenzyl*)
Ogawa, T. *et al., Carbohydr. Res.*, 1976, **51**, C13 (*α-D-tri-Ac*)

Methoxyhygromycin M-143

[101313-71-7]

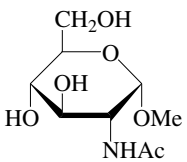


$C_{23}H_{31}NO_{12}$ 513.497
Loosely named (see Hygromycin A, H-201). Isol. from *Streptomyces* sp. no. 207. Inhibitor of *E. coli* haemagglutination activity. Powder.
Mp 133-136°.

Yoshida, M. *et al., Agric. Biol. Chem.*, 1986, **50**, 143

Methyl 2-acetamido-2-deoxyglucopyranoside M-144

Methyl N*-acetyl glucosaminide*



α-D-*form*

$C_9H_{17}NO_6$ 235.236

α-D-*form* [6082-04-8]
Mp 189°. $[\alpha]_D$ +118 (c, 0.9 in H_2O).

3,4,6-Tri-Ac: Methyl 2-acetamido-3,4,6-tri-O-acetyl-2-deoxy-α-D-glucopyranoside
[2595-39-3]
$C_{15}H_{23}NO_9$ 361.348
Mp 107-108° Mp 132°. $[\alpha]_D^{25}$ +100.2 (c, 1.0 in $CHCl_3$). $[\alpha]_D$ +44.6 ($CHCl_3$).

6-Mesyl: Methyl 2-acetamido-2-deoxy-6-O-mesyl-α-D-glucopyranoside
[41431-94-1]
$C_{10}H_{19}NO_8S$ 313.328
Cryst. ($MeOH/Et_2O$). Mp 153-153.5°. $[\alpha]_D^{20}$ +120 (c, 0.5 in MeOH).

6-Tosyl: Methyl 2-acetamido-2-deoxy-6-O-tosyl-α-D-glucopyranoside
[53756-24-4]
$C_{16}H_{23}NO_8S$ 389.426
Needles ($CHCl_3$/hexane/toluene). Mp 70-73°. $[\alpha]_D^{23}$ +68 (c, 2.0 in $CHCl_3$).

6-Tosyl, 3,4-di-Ac: Methyl 2-acetamido-3,4-di-O-acetyl-2-deoxy-6-O-tosyl-α-D-glucopyranoside
[53756-25-5]

$C_{20}H_{27}NO_{10}S$ 473.5
$[\alpha]_D^{22}$ +86 (c, 0.6 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-mesyl: Methyl 2-acetamido-4,6-*O*-benzylidene-2-deoxy-3-*O*-mesyl-α-D-glucopyranoside*
[6619-03-0]
$C_{17}H_{23}NO_8S$ 401.437
Cryst. (Me_2CO). Mp 213-214° dec. $[\alpha]_D^{24}$ +42 (c, 1.3 in $CHCl_3$).

3-Me: See Methyl 2-acetamido-2-deoxy-3-*O*-methylglucopyranoside, M-145

4-Me: See Methyl 2-acetamido-2-deoxy-4-*O*-methylglucopyranoside, M-146

6-Me: See Methyl 2-acetamido-2-deoxy-6-*O*-methylglucopyranoside, M-147

3,6-Anhydro: Methyl 2-acetamido-3,6-anhydro-2-deoxy-α-D-glucopyranoside
$C_9H_{15}NO_5$ 217.221
Plates (EtOAc). Mp 150-152°. $[\alpha]_D^{23}$ +130 (c, 0.5 in $CHCl_3$).

*3,6-Anhydro, 4-Ac: Methyl 2-acetamido-4-*O*-acetyl-3,6-anhydro-2-deoxy-α-D-glucopyranoside*
$C_{11}H_{17}NO_6$ 259.258
Needles (EtOH/Et_2O). Mp 120-122.5°. $[\alpha]_D^{23}$ +20 (c, 0.1 in $CHCl_3$).

β-D-*form* [3946-01-8]
Mp 200°. $[\alpha]_D^{20}$ -41.7 (c, 1.2 in H_2O).

*3-Ac: Methyl 2-acetamido-3-*O*-acetyl-2-deoxy-β-D-glucopyranoside*
[50605-08-8]
$C_{11}H_{19}NO_7$ 277.274
Needles (EtOH). Mp 162-164°. $[\alpha]_D^{20}$ -67 (c, 0.5 in MeOH).

*3,4,6-Tri-Ac: Methyl 2-acetamido-3,4,6-tri-*O*-acetyl-2-deoxy-β-D-glucopyranoside*
[2771-48-4]
$C_{15}H_{23}NO_9$ 361.348
Cryst. (EtOH/Et_2O). Mp 160°. $[\alpha]_D^{27}$ -21 (c, 2.0 in EtOH).

*3,4,6-Tribenzyl: Methyl 2-acetamido-3,4,6-tri-*O*-benzyl-2-deoxy-β-D-glucopyranoside*
[10583-66-1]
$C_{30}H_{35}NO_6$ 505.61
Cryst. (Et_2O/hexane). Mp 158-159°. $[\alpha]_D^{20}$ +17.5 (c, 1.0 in $CHCl_3$).

3,4,6-Tris(4-nitrobenzoyl):
Prisms (MeOH). Mp 126-127°. $[\alpha]_D^{20}$ -19 (c, 1.0 in $CHCl_3$).

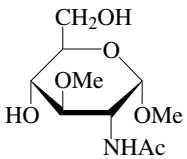
*4,6-*O*-Isopropylidene, 3-Ac: Methyl 2-acetamido-3-*O*-acetyl-2-deoxy-4,6-*O*-isopropylidene-β-D-glucopyranoside*
[50605-07-7]
$C_{14}H_{23}NO_7$ 317.338
Cryst. (Et_2O/EtOH). Mp 197-198°. $[\alpha]_D^{20}$ -75 (c, 1.0 in $CHCl_3$).

4,6-Di-Me: See Methyl 2-acetamido-2-deoxy-4-*O*-methylglucopyranoside, M-146

3,4,6-Tri-Me: See Methyl 2-acetamido-2-deoxy-6-*O*-methylglucopyranoside, M-147

Foster, A.B. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 247 (*rev, derivs*)
Kuhn, R. *et al., Chem. Ber.*, 1953, **86**, 466, (*α-D-form, synth, α-D-tri-Ac*)
Jeanloz, R.W. *et al., J.A.C.S.*, 1957, **79**, 2591, (*α-D-benzylidene mesyl*)
Conchie, J. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 332 (*β-D-form, synth*)
Shulman, M.L. *et al., Carbohydr. Res.*, 1973, **27**, 141 (*α-D-mesyl*)
Hasegawa, A. *et al., Carbohydr. Res.*, 1973, **29**, 223 (*β-D-Ac, β-D-Ac isopropylidene, β-D-tri-Ac*)
Jacquinet, J.-C. *et al., Carbohydr. Res.*, 1974, **32**, 101 (*β-D-form, synth, β-D-trisnitrobenzoyl, β-D-tribenzyl*)
Walker, E. *et al., Carbohydr. Res.*, 1974, **35**, 270 (*α-D-tosyl, α-D-tosyl di-Ac, α-D-anhydro, α-D-anhydro Ac*)
Yamaoka, N. *et al., Chem. Pharm. Bull.*, 1974, **22**, 2196 (*α-D-form, β-D-form, cmr*)

Methyl 2-acetamido-2-deoxy-3-*O*-methylglucopyranoside M-145



α-D-*form*

$C_{10}H_{19}NO_6$ 249.263

α-D-*form* [10427-79-9] Inhibitor of wheat-germ agglutinin. Mp 211°. $[\alpha]_D$ +116 (H_2O).

*4,6-Di-Ac: Methyl 2-acetamido-4,6-di-*O*-acetyl-2-deoxy-3-*O*-methyl-α-D-glucopyranoside*
$C_{14}H_{23}NO_8$ 333.338
Mp 167-168°. $[\alpha]_D$ +82 ($CHCl_3$).

*4-Benzoyl: Methyl 2-acetamido-4-*O*-benzoyl-2-deoxy-3-*O*-methyl-α-D-glucopyranoside*
[10368-83-9]
$C_{17}H_{23}NO_7$ 353.371
Mp 143-147°. $[\alpha]_D$ +20 ($CHCl_3$).

*4,6-Dibenzoyl: Methyl 2-acetamido-4,6-di-*O*-benzoyl-2-deoxy-3-*O*-methyl-α-D-glucopyranoside*
[18944-95-1]
$C_{24}H_{27}NO_8$ 457.479
Mp 123-125°.

*6-Tosyl: Methyl 2-acetamido-2-deoxy-3-*O*-methyl-6-*O*-tosyl-α-D-glucopyranoside*
[53657-50-4]
$C_{17}H_{25}NO_8S$ 403.452
Mp 159-160°. $[\alpha]_D$ +99 (c, 0.2 in $CHCl_3$).

*4,6-*O*-Benzylidene: Methyl 2-acetamido-4,6-O-benzylidene-2-deoxy-3-*O*-methyl-α-D-glucopyranoside*
$C_{17}H_{23}NO_6$ 337.372
Mp 277-279°. $[\alpha]_D$ +39 ($CHCl_3$).

*4-Me: Methyl 2-acetamido-2-deoxy-3,4-di-*O*-methyl-α-D-glucopyranoside*
$C_{11}H_{21}NO_6$ 263.29
Needles (EtOH/Et_2O). Mp 192-193°. $[\alpha]_D$ +152 (c, 0.45 in MeOH).

*4-Me, 6-Ac: Methyl 2-acetamido-6-O-acetyl-2-deoxy-3,4-di-*O*-methyl-α-D-glucopyranoside*
[55976-34-6]
$C_{13}H_{23}NO_7$ 305.327
Mp 171°. $[\alpha]_D$ +123 ($CHCl_3$).

4-Me, 6-mesyl: Methyl 2-acetamido-2-deoxy-6-O-mesyl-3,4-di-O-methyl-α-D-glucopyranoside
[41341-96-2]
$C_{12}H_{23}NO_8S$ 341.382
Cryst. ($CHCl_3$/Et_2O). Mp 180-181°. $[\alpha]_D^{20}$ +117 (c, 0.5 in $CHCl_3$).

*6-Me: Methyl 2-acetamido-2-deoxy-3,6-di-*O*-methyl-α-D-glucopyranoside*
$C_{11}H_{21}NO_6$ 263.29
Mp 161-162°. $[\alpha]_D$ +129 (MeOH).

*6-Me, 4-Ac: Methyl 2-acetamido-4-*O*-acetyl-2-deoxy-3,6-di-*O*-methyl-α-D-glucopyranoside*
$C_{13}H_{23}NO_7$ 305.327
Mp 163-164°. $[\alpha]_D$ +116 ($CHCl_3$).

*6-Me, 4-benzoyl: Methyl 2-acetamido-4-*O*-benzoyl-2-deoxy-3,6-di-*O*-methyl-α-D-glucopyranoside*
$C_{18}H_{25}NO_7$ 367.398
Mp 139-140°. $[\alpha]_D$ +48 ($CHCl_3$).

*4,6-Di-Me: Methyl 2-acetamido-2-deoxy-3,4,6-tri-*O*-methyl-α-D-glucopyranoside*
[7380-60-1]
$C_{12}H_{23}NO_6$ 277.317
Cryst. (EtOAc). Mp 150°. $[\alpha]_D^{20}$ +104.3 (c, 0.92 in H_2O).

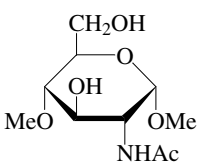
*4-Benzyl: Methyl 2-acetamido-4-*O*-benzyl-2-deoxy-3-*O*-methyl-α-D-glucopyranoside*
$C_{17}H_{25}NO_6$ 339.388
Mp 198-200°. $[\alpha]_D$ +101 ($CHCl_3$).

*6-Trityl: Methyl 2-acetamido-2-deoxy-3-*O*-methyl-6-*O*-trityl-α-D-glucopyranoside*
$C_{29}H_{33}NO_6$ 491.583
Prismatic needles (MeOH). Mp 206-207°. $[\alpha]_D^{26}$ +53 (c, 1.01 in $CHCl_3$).

*6-Trityl, 4-Me: Methyl 2-acetamido-2-deoxy-3,4-di-*O*-methyl-6-*O*-trityl-α-D-glucopyranoside*
$C_{30}H_{35}NO_6$ 505.61
Prismatic needles (Et_2O). Mp 232-233°. $[\alpha]_D^{27}$ +88 (c, 1.4 in $CHCl_3$).

Cutler, W.O. *et al., J.C.S.*, 1937, 1979 (*α-D-4,6-di-Me*)
Jeanloz, R.W. *et al., J.A.C.S.*, 1952, **74**, 4597, (*α-D-6-trityl, α-D-4-Me, α-D-4-Me trityl, α-D-4,6-di-Me*)
Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*rev, derivs*)
Allen, A.K. *et al., Biochem. J.*, 1973, **131**, 155 (*pharmacol*)
Shulman, M.L. *et al., Carbohydr. Res.*, 1973, **27**, 141 (*α-D-4-Me mesyl*)
Perry, M.B. *et al., Can. J. Chem.*, 1974, **52**, 2425 (*α-D-6-tosyl*)

Methyl 2-acetamido-2-deoxy-4-*O*-methylglucopyranoside M-146



α-D-*form*

$C_{10}H_{19}NO_6$ 249.263

α-D-*form* [41137-07-9] Inhibitor of wheat-germ agglutinin. Mp 232-233°. $[\alpha]_D$ +157 (MeOH).

3,6-Di-Ac:
$C_{14}H_{23}NO_8$ 333.338
$[\alpha]_D$ +79 ($CHCl_3$).

3,6-Dimesyl: Mp 157-159°. $[\alpha]_D$ +107 ($CHCl_3$).

3,6-Ditosyl: $[\alpha]_D$ +75 ($CHCl_3$).

6-Trityl: Mp 212-213°. $[\alpha]_D$ +59 ($CHCl_3$).

6-Trityl, 3-Ac: Mp 182°. $[\alpha]_D$ +71 ($CHCl_3$).

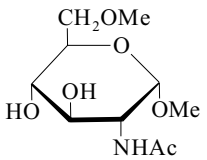
*6-Me: Methyl 2-acetamido-2-deoxy-4,6-di-*O*-methyl-α-D-glucopyranoside*
$C_{11}H_{21}NO_6$ 263.29
Mp 199-200°. $[\alpha]_D$ +150 (MeOH).

β-D-*form*

*6-Me: Methyl 2-acetamido-2-deoxy-4,6-di-*O*-methyl-β-D-glucopyranoside*
Mp 187°. $[\alpha]_D$ -21.5 (MeOH).

Jeanloz, R.W. *et al., J.A.C.S.*, 1957, **79**, 2583 (*synth*)
Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*rev*)
Kalinovskii, A.I. *et al., Khim. Prir. Soedin.*, 1974, 780; *CA*, **82**, 132602a (*ms*)

Methyl 2-acetamido-2-deoxy-6-*O*-methylglucopyranoside M-147



$C_{10}H_{19}NO_6$ 249.263

α-D-*form* [41137-08-0] Inhibitor of wheat-germ agglutinin.
Needles (MeOH/Et_2O). Mp 189-191°. $[\alpha]_D$ +143 (c, 0.72 in MeOH).

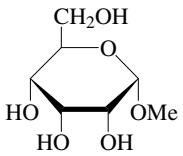
*3,4-Di-Ac: Methyl 2-acetamido-3,4-di-*O*-acetyl-2-deoxy-6-*O*-methyl-α-D-glucopyranoside*
$C_{14}H_{23}NO_8$ 333.338
Prisms (Et_2O/pentane). Mp 126-127°. $[\alpha]_D$ +97 (c, 0.78 in $CHCl_3$).

*3,4-Dibenzoyl: Methyl 2-acetamido-3,4-di-*O*-benzoyl-2-deoxy-6-*O*-methyl-α-D-glucopyranoside*
$C_{24}H_{27}NO_8$ 457.479
Glass. $[\alpha]_D$ -8 ($CHCl_3$).

*3,4-Dibenzyl: Methyl 2-acetamido-3,4-di-*O*-benzyl-2-deoxy-6-*O*-methyl-α-D-glucopyranoside*
$C_{24}H_{31}NO_6$ 429.512
Needles (Me_2CO/Et_2O/pentane). Mp 197-198°. $[\alpha]_D$ +99 (c, 0.74 in $CHCl_3$).

Jeanloz, R.W. *et al., J.A.C.S.*, 1954, **76**, 558, (*α-D-form, synth, α-D-di-Ac, α-D-dibenzoyl, α-D-dibenzyl*)
Allen, A.K. *et al., Biochem. J.*, 1973, **131**, 155 (*α-D-form, pharmacol*)

Methyl alloside M-148



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

α-D-Pyranose-*form*

Methyl α-D-allopyranoside
[20550-04-3]
Mp 118-119°. $[\alpha]_D$ +152.8 (c, 0.82 in H_2O).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-D-allopyranoside*
[17460-42-3]
$C_{15}H_{22}O_{10}$ 362.333
Mp 115-116°. $[\alpha]_D^{23}$ +103 (c, 2 in $CHCl_3$).

*2-Tosyl: Methyl 2-*O*-tosyl-α-D-allopyranoside*
[17014-00-5]
$C_{14}H_{20}O_8S$ 348.373
Cryst. ($CHCl_3$/petrol). Mp 118-119°. $[\alpha]_D$ +62 (c, 0.45 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 2-tosyl: Methyl 3,4-*O*-isopropylidene-2-*O*-tosyl-α-D-allopyranoside*
[17049-11-5]
$C_{17}H_{24}O_8S$ 388.438
$[\alpha]_D$ +42.5 (c, 1.2 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 2,6-ditosyl: Methyl 3,4-*O*-isopropylidene-2,6-di-*O*-tosyl-α-D-allopyranoside*
[17014-01-6]
$C_{24}H_{30}O_{10}S_2$ 542.627
Cryst. (MeOH). Mp 132-133°. $[\alpha]_D$ +43 (c, 0.5 in $CHCl_3$).

*2,3:4,6-Di-*O*-ethylidene: Methyl 2,3:4,6-di-*O*-ethylidene-α-D-allopyranoside*
$C_{11}H_{18}O_6$ 246.26
Mp 74-76.5°. $[\alpha]_D^{27}$ +121 (c, 0.67 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 6-benzoyl, 2-tosyl: Methyl 6-*O*-benzoyl-3,4-*O*-isopropylidene-2-*O*-tosyl-α-D-allopyranoside*
$C_{24}H_{28}O_9S$ 492.546
Mp 121°. $[\alpha]_D$ +41 (c, 0.5 in $CHCl_3$).

*3-Benzyl, 2-Me: Methyl 3-*O*-benzyl-2-*O*-methyl-α-D-allopyranoside*
[14218-22-5]
$C_{15}H_{22}O_6$ 298.335
Syrup. $[\alpha]_D^{25}$ +132 (c, 2.25 in $CHCl_3$).

*3-Benzyl, 2-Me, 6-tosyl: Methyl 3-*O*-benzyl-2-*O*-methyl-6-*O*-tosyl-α-D-allopyranoside*
[17013-98-8]
$C_{22}H_{28}O_8S$ 452.524
Syrup. $[\alpha]_D^{22}$ +118 (c, 0.6 in $CHCl_3$).

β-D-Pyranose-*form* *Methyl β-D-allopyranoside*
[18469-06-2]
Mp 176° (154-155°). $[\alpha]_D^{16}$ -40 (c, 0.8 in $CHCl_3$). $[\alpha]_D^{24}$ -50.8 (c, 5.7 in H_2O).

*2,4-Di-Ac, 3,6-ditosyl: Methyl 2,4-di-*O*-acetyl-3,6-di-*O*-tosyl-β-D-allopyranoside*
[28251-93-6]
$C_{25}H_{30}O_{12}S_2$ 586.637
Mp 165°. $[\alpha]_D^{22}$ +6.6 (c, 1.8 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2-tosyl: Methyl 4,6-*O*-benzylidene-2-*O*-tosyl-β-D-allopyranoside*
[55338-61-9]
$C_{21}H_{24}O_8S$ 436.482
Mp 148-149°. $[\alpha]_D^{30}$ -69.6 (c, 0.5 in $CHCl_3$).

α-D-Furanose-*form* *Methyl α-D-allofuranoside*
[28642-51-5]
Mp 108-109°. $[\alpha]_D$ +131 (c, 0.265 in H_2O).

*5,6-*O*-Cyclohexylidene: Methyl 5,6-*O*-cyclohexylidene-α-D-allofuranoside*
$C_{13}H_{22}O_6$ 274.313
Syrup. $[\alpha]_D^{21}$ +100 (c, 1 in $CHCl_3$).

*5,6-*O*-Cyclohexylidene, 3-mesyl: Methyl 5,6-*O*-cyclohexylidene-3-*O*-mesyl-α-D-allofuranoside*
$C_{14}H_{24}O_8S$ 352.405
Prisms (diisopropyl ether/C_6H_6). Mp 118-119°. $[\alpha]_D^{22}$ +97.7 (c, 1 in $CHCl_3$).

β-D-Furanose-*form* *Methyl β-D-allofuranoside*
[28642-52-6]
Mp 86-88°. $[\alpha]_D^{25}$ -57.5 (c, 0.195 in H_2O).

*2,3-*O*-Isopropylidene: Methyl 2,3-O-isopropylidene-α-D-allofuranoside*
[28642-54-8]
$C_{10}H_{18}O_6$ 234.249
$[\alpha]_D^{25}$ -43 (c, 0.35 in H_2O).

*5,6-*O*-Cyclohexylidene, 3-mesyl: Methyl 5,6-*O*-cyclohexylidene-3-*O*-mesyl-β-D-allofuranoside*
$C_{14}H_{24}O_8S$ 352.405
Needles (diisopropyl ether/C_6H_6). Mp 138-140°. $[\alpha]_D^{24}$ -44.6 (c, 1 in $CHCl_3$).

*2,3:5,6-Di-*O*-isopropylidene: Methyl 2,3:5,6-di-*O*-isopropylidene-β-D-allofuranoside*
[28642-53-7]
$C_{13}H_{22}O_6$ 274.313
Mp 67-68°. $[\alpha]_D^{23}$ -54 (c, 0.19 in $CHCl_3$).

β-L-Furanose-*form* *Methyl β-L-allofuranoside*

*2,3-*O*-Isopropylidene: Methyl 2,3-O-isopropylidene-β-L-allofuranoside*
[28978-41-8]
$C_{10}H_{18}O_6$ 234.249
Mp 98-99°. $[\alpha]_D$ +77 (c, 1.4 in $CHCl_3$).

*2,3-*O*-Isopropylidene, 6-Me: Methyl 2,3-O-isopropylidene-6-O-methyl-β-L-allofuranoside*
$C_{11}H_{20}O_6$ 248.275
Bp_1 80-85°. $[\alpha]_D$ +67 (c, 4 in $CHCl_3$).

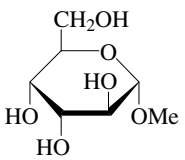
*2,3-*O*-Isopropylidene, 6-Me, 5-tosyl: Methyl 2,3-*O*-isopropylidene-6-O-methyl-5-*O*-tosyl-β-L-allofuranoside*
$C_{18}H_{26}O_8S$ 402.465
Cryst. (petrol). Mp 74.5-75.5°. $[\alpha]_D$ +26 (c, 1 in MeOH).

*5,6-Anhydro, 2,3-*O*-isopropylidene: Methyl 5,6-anhydro-2,3-O-isopropylidene-β-L-allofuranoside*
$C_{10}H_{16}O_5$ 216.233
Bp_1 70-75°. $[\alpha]_D$ +87 (c, 1 in $CHCl_3$).

Ahluwahlia, R. *et al., Carbohydr. Res.*, 1967, **4**, 478 (*α-D-pyr-tetra-Ac, β-D-pyr*)

Brimacombe, J.S. *et al., J.C.S.(C)*, 1967, 1503; 1970, 1273 (*α-D-pyr 3-benzyl 2-Me, α-D-pyr benzyl Me tosyl, α-D-pyr tosyl, α-D-pyr-isopropylidene tosyl*)
Williams, J.M. *et al., Carbohydr. Res.*, 1970, **13**, 281 (*α-D-pyr, β-D-pyr, α-D-fur, β-D-fur, pmr*)
Guthrie, R.D. *et al., J.C.S.(C)*, 1970, 1961
Evans, M.E. *et al., Carbohydr. Res.*, 1972, **25**, 43 (*α-D-pyr, α-D-fur, β-D-fur*)
Kondo, Y. *et al., Agric. Biol. Chem.*, 1974, **38**, 2553 (*β-D-pyr-benzylidene tosyl*)
Dick, W.E. *et al., Carbohydr. Res.*, 1975, **42**, 55 (*α-D-pyr diethylidene*)
Kawana, M. *et al., Tet. Lett.*, 1975, 3395 (*α-D-fur-cyclohexylidene, α-D-fur cyclohexylidene mesyl, β-D-fur-cyclohexylidene mesyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1977, **34**, 179 (*cyclic acetals, rev*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Colombo, D. *et al., J. Carbohydr. Chem.*, 1994, **13**, 611-617 (*α-D-Pyr, enzymic synth*)
Kim, M. *et al., Carbohydr. Res.*, 1999, **320**, 244-249 (*synth, derivs*)

Methyl altroside M-149



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

α-D-Pyranose-*form* [29411-57-2]
Mp 107-108°. $[\alpha]_D$ +125 (c, 3.0 in H_2O).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-D-altropyranoside*
[51897-78-0]
$C_{15}H_{22}O_{10}$ 362.333
Prisms ($CHCl_3$/Et_2O/2-methylbutane). Mp 88-89°. $[\alpha]_D$ +66 (c, 5 in $CHCl_3$).

*3,4-*O*-Isopropylidene: Methyl 3,4-*O*-isopropylidene-α-D-altropyranoside*
[10230-25-8]
$C_{10}H_{18}O_6$ 234.249
Mp 61-62°. $[\alpha]_D$ +103 (c, 1.66 in H_2O).

*4,6-*O*-Isopropylidene: Methyl 4,6-*O*-isopropylidene-α-D-altropyranoside*
[50615-71-9]
$C_{10}H_{18}O_6$ 234.249
Mp 167-169°. $[\alpha]_D$ +125 (c, 0.61 in H_2O).

*4,6-*O*-Isopropylidene, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-isopropylidene-α-D-altropyranoside*
[50615-72-0]
$C_{14}H_{22}O_8$ 318.323
Mp 134-135°. $[\alpha]_D$ +62 (c, 1.25 in $CHCl_3$).

*4,6-*O*-Benzylidene:* See Methyl 4,6-*O*-benzylidenealtropyranoside, M-156

*2-Me, 3-tosyl: Methyl 2-*O*-methyl-3-*O*-tosyl-α-D-altropyranoside*
$C_{15}H_{22}O_8S$ 362.4
Mp 118°. $[\alpha]_D^{15}$ +88.1 (c, 1.04 in $CHCl_3$).

*2-Me, 4,6-dibenzoyl, 3-tosyl: Methyl 4,6-di-*O*-benzoyl-2-*O*-methyl-3-*O*-tosyl-α-D-altropyranoside*
$C_{29}H_{30}O_{10}S$ 570.616
Mp 113°. $[\alpha]_D^{16}$ +94.69 (c, 1.10 in $CHCl_3$).

*2-Me, 6-trityl, 4-Ac, 3-tosyl: Methyl 4-*O*-acetyl-2-*O*-methyl-3-*O*-tosyl-6-*O*-trityl-α-D-altropyranoside*
$C_{36}H_{38}O_9S$ 646.757
Mp 165°. $[\alpha]_D^{15}$ +72.4 (c, 1.00 in $CHCl_3$).

*2-Me, 4,6-*O*-ethylidene: Methyl 4,6-O-ethylidene-2-*O*-methyl-α-D-altropyranoside*
[38088-51-6]
$C_{10}H_{18}O_6$ 234.249
Mp 104-105°.

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-D-altropyranoside*
[33164-03-3]
$C_{21}H_{26}O_6$ 374.433
$Bp_{0.01}$ 160-165°. $[\alpha]_D$ +80.5 (c, 1.25 in $CHCl_3$).

*2,3-Dibenzyl, 6-tosyl: Methyl 2,3-di-*O*-benzyl-6-*O*-tosyl-α-D-altropyranoside*
[33159-48-7]
$C_{28}H_{32}O_8S$ 528.622
Cryst. (Et_2O/petrol). Mp 103°. $[\alpha]_D$ +50.7 (c, 1.38 in $CHCl_3$).

*6-Trityl, 2-benzoyl, 3,4-dimesyl: Methyl 2-*O*-benzoyl-3,4-di-*O*-mesyl-6-*O*-trityl-α-D-altropyranoside*
[51385-41-2]
$C_{35}H_{36}O_{11}S_2$ 696.795
Cryst. (Et_2O). Mp 194° dec. $[\alpha]_D^{23}$ -13.9 (c, 6.0 in $CHCl_3$).

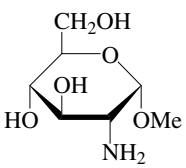
β-D-Pyranose-*form*

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-β-D-altropyranoside*
[34254-54-1]
$C_{15}H_{22}O_{10}$ 362.333
Mp 93-94°. $[\alpha]_D^{23}$ -60 (c, 1.5 in $CHCl_3$).

Robertson, G.J. *et al., J.C.S.*, 1940, 319 (*α-D-pyr Me dibenzoyl tosyl, α-D-pyr Me Ac tosyl trityl, α-D-pyr Me tosyl*)
Richtmyer, N.K. *et al., J.A.C.S.*, 1941, **63**, 1727 (*α-D-pyr, α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 107 (*α-D-pyr*)
Giudici, T.A. *et al., Chem. Comm.*, 1970, 690 (*α-D-pyr, hydrol*)
Spichtig, A.M. *et al., Helv. Chim. Acta*, 1971, **54**, 1191 (*α-D-pyr dibenzyl, α-D-pyr dibenzyl tosyl*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1972, 1670 (*α-D-pyr ethylidene Me*)
Holder, N.L. *et al., Can. J. Chem.*, 1973, **51**, 3357 (*α-D-pyr benzoyl dimesyl trityl*)
Evans, M.E. *et al., Carbohydr. Res.*, 1973, **30**, 215 (*α-D-pyr, α-D-3,4-isopropylidene, α-D-4,6-isopropylidene*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)

Methyl 2-amino-2-deoxyglucopyranoside M-150

Methyl glucosamine



α-D-*form*

$C_7H_{15}NO_5$ 193.199

α-D-*form* [4704-14-7]
Cryst. (EtOH). Mp 154-160°. $[\alpha]_D^{30}$ +158.5 (c, 1.06 in H_2O).

N-*Ac:* See Methyl 2-acetamido-2-deoxyglucopyranoside, M-144

N-*Benzoyl:* See Methyl 2-benzamido-2-deoxyglucopyranoside, M-154

*4,6-*O*-Benzylidene: Methyl 2-amino-4,6-O-benzylidene-2-deoxy-α-D-glucopyranoside*
[10396-58-4]
$C_{14}H_{19}NO_5$ 281.308
Needles (EtOH). Mp 175°. $[\alpha]_D$ +112.5 (c, 1.0 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2*N*,3-dimesyl:*
[20759-16-4]
$C_{16}H_{23}NO_9S_2$ 437.491
Needles (EtOH). Mp 207-208.5°. $[\alpha]_D$ +47 (c, 1.0 in $CHCl_3$).

*4,6-*O*-Benzylidene,* N*-Et:* [169873-65-8]
$C_{16}H_{23}NO_5$ 309.361
Mp 126-128°. $[\alpha]_D^{20}$ +108 ($CHCl_3$).

*3-Me, 4,6-*O*-ethylidene: Methyl 2-amino-2-deoxy-4,6-O-ethylidene-3-*O*-methyl-α-D-glucopyranoside*
$C_{10}H_{19}NO_5$ 233.264
Mp 231° dec. (as hydrochloride). $[\alpha]_D$ +97 (H_2O).

3-Me, N*-benzyloxycarbonyl:*
$C_{16}H_{23}NO_7$ 341.36
Mp 139-140°. $[\alpha]_D$ +74 (EtOH).

*3,4,6-Tri-Me: Methyl 2-amino-2-deoxy-3,4,6-tri-*O*-methyl-α-D-glucopyranoside*
$C_{10}H_{21}NO_5$ 235.28
$Bp_{0.004}$ 85°. $[\alpha]_D$ +169.8 (MeOH).

3,4,6-Tri-Me; hydrochloride: Mp 237° dec. $[\alpha]_D$ +129.6 (H_2O).

3,4,6-Tri-Me, N*-benzyloxycarbonyl:*
$C_{18}H_{27}NO_7$ 369.414
Mp 119-121°. $[\alpha]_D$ +98.5 ($CHCl_3$).

N,N*,3,4,6-Penta-Me: Methyl 2-deoxy-2-(*N*-dimethylamino)-3,4,6-tri-*O*-methyl-α-D-glucopyranoside*
[92414-15-8]
$C_{12}H_{25}NO_5$ 263.333
$Bp_{0.03}$ 160°.

3-Benzyl, N*-benzyloxycarbonyl:* [87907-35-5]
$C_{22}H_{27}NO_7$ 417.458
Mp 151-152°. $[\alpha]_D^{23}$ +94 (c, 1 in MeOH).

3-Benzyl, 6-benzoyl, N*-benzyloxycarbonyl:*
[87907-36-6]
$C_{29}H_{31}NO_8$ 521.566
Mp 154-155°. $[\alpha]_D^{23}$ +74 (c, 1.0 in $CHCl_3$).

*3-Benzyl, 4,6-*O*-benzylidene,* N*-benzyloxycarbonyl: Methyl 3-*O*-benzyl-4,6-O-benzylidene-2-(benzyloxycarbonyl) amino-2-deoxy-α-D-glucopyranoside*
[93000-11-4]
$C_{29}H_{31}NO_7$ 505.566
Mp 202-203°. $[\alpha]_D^{23}$ +46 (c, 1.0 in $CHCl_3$).

*3,4,6-Tribenzyl: Methyl 2-amino-3,4,6-tri-*O*-benzyl-2-deoxy-α-D-glucopyranoside*
[207272-62-6]
$C_{28}H_{33}NO_5$ 463.572
Slowly crystallising gum. Mp 37°. $[\alpha]_D$ +105.2 (c, 1. 0 in $CHCl_3$).

3,4,6-Tribenzyl, N-tert-*butyloxycarbonyl:* [242142-78-5]
$C_{33}H_{41}NO_7$ 563.689
Cryst. Mp 91°. $[\alpha]_D$ +63.7 (c, 0.6 in $CHCl_3$).

3-O-*Sulfate:* [120002-02-0]
$C_7H_{15}NO_8S$ 273.263
Cryst. (EtOH aq.). Mp 208-210°. $[\alpha]_D$ +124.6 (c, 1.87 in H_2O).

4-O-*Sulfate:* [120001-98-1]
$C_7H_{15}NO_8S$ 273.263
Cryst. (MeOH aq.). Mp 208-210°. $[\alpha]_D$ +148 (c, 0.66 in H_2O).

6-O-*Sulfate:* [120002-00-8]
$C_7H_{15}NO_8S$ 273.263
Cryst. Mp 192-194°. $[\alpha]_D$ +129.6 (c, 1.4 in H_2O).

β-D-*form* [3867-92-3]
Cryst. (EtOH). Mp 130-132°. $[\alpha]_D^{18}$ -41 (c, 1.57 in H_2O).

N-*Ac:* See Methyl 2-acetamido-2-deoxyglucopyranoside, M-144

N-*Benzoyl:* See Methyl 2-benzamido-2-deoxyglucopyranoside, M-154

3,4,6-Tri-Ac: Methyl 3,4,6-tri-O-*acetyl-2-amino-2-deoxy-β-D-glucopyranoside*
[42854-52-4]
$C_{13}H_{21}NO_8$ 319.311
Mp 152°. $[\alpha]_D^{20}$ +10 (c, 2.0 in MeOH).

3,4,6-Tri-Ac; hydrochloride: Mp 233° dec. $[\alpha]_D^{20}$ +17 (MeOH).

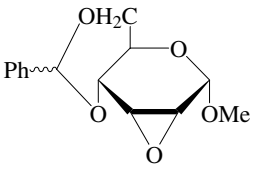
4,6-O-*Benzylidene: Methyl 2-amino-4,6-O-benzylidene-2-deoxy-β-D-glucopyranoside*
[76899-76-8]
$C_{14}H_{19}NO_5$ 281.308
Amorph. solid. $[\alpha]_D$ -72 (c, 1 in DMSO).

3-Me, 4,6-O-*ethylidene: Methyl 2-amino-2-deoxy-4,6*-O-*ethylidene-3*-O-*methyl-β-D-glucopyranoside*
$C_{10}H_{19}NO_5$ 233.264
Mp 232° dec. (as hydrochloride). $[\alpha]_D$ -19 (H_2O).

3,6-Dibenzyl: Methyl 2-amino-3,6-di-O-*benzyl-2-deoxy-β-D-glucopyranoside*
[178936-28-2]
$C_{21}H_{27}NO_5$ 373.448
Oil. $[\alpha]_D$ -16 (c, 1 in $CHCl_3$).

Fodor, G. *et al., Chem. Ber.*, 1956, **89**, 701, (*β-D-tri-Ac*)
Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*rev, Me ethers*)
Ali, Y. *et al., Carbohydr. Res.*, 1968, **7**, 255-271 (*α-D-benzylidene, α-D-dimesyl benzylidene*)
Hanessian, S. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 208 (*α-D-form, β-D-form, synth*)
Yamaoka, M. *et al., Chem. Pharm. Bull.*, 1974, **22**, 2196 (*cmr*)
Tsuchiya, T. *et al., Carbohydr. Res.*, 1979, **77**, 267-269 (*synth*)
Jacquinet, J.C. *et al., Carbohydr. Res.*, 1984, **130**, 221-241 (*3-benzyl derivs*)
Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 1987, **162**, 181 (*α-D-form, synth*)
Leder, I.G. *et al., J. Carbohydr. Chem.*, 1988, **7**, 583-592 (*sulfates*)
Kerns, R.J. *et al., Synth. Commun.*, 1996, **26**, 2671 (*β-D-benzylidene, β-D-dibenzyl*)
Henry, C. *et al., J. Carbohydr. Chem.*, 1999, **18**, 689-695 (*α-D-tribenzyl*)

Methyl 2,3-anhydro-4,6-*O*-benzylideneallopyranoside M-151



α-D-*form*

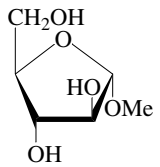
$C_{14}H_{16}O_5$ 264.277

α-D-*form* [3150-15-0]
Needles ($CHCl_3$/EtOH). Mp 199-200°. $[\alpha]_D^{20}$ +140 (c, 2.2 in $CHCl_3$).

β-D-*form* [14187-71-4]
Cryst. (MeOH). Mp 138°. $[\alpha]_D$ -15.6 (c, 0.6 in $CHCl_3$).

Robertson, G.J. *et al., J.C.S.*, 1935, 1193 (*α-D-form, synth*)
Peat, S. *et al., J.C.S.*, 1938, 1088 (*β-D-form, synth*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 107 (*α-D-form*)
Wiggins, L.F. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 188 (*α-D-form*)
Kim, K.S. *et al., Carbohydr. Res.*, 1979, **72**, 25 (*cmr*)
Abdel-Malik, M.M. *et al., Carbohydr. Res.*, 1987, **159**, 11 (*pmr, cmr*)
Szeja, W. *et al., Carbohydr. Res.*, 1988, **183**, 135 (*synth*)
Raaijmakers, H.W.C. *et al., Carbohydr. Res.*, 1993, **238**, 185 (***synth***, *α-D-form*)

Methyl arabinofuranoside, 9CI, 8CI M-152



α-D-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [56607-40-0]
Cryst. (EtOAc). Mp 65-67° (52°). $[\alpha]_D$ +128 (c, 4.0 in H_2O).

Tri-Ac: Methyl 2,3,5-tri-O-*acetyl-α-D-arabinofuranoside*
$C_{12}H_{18}O_8$ 290.269
Syrup. $[\alpha]_D^{23}$ +68 (c, 2.5 in $CHCl_3$).

2-Benzoyl: Methyl 2-O-*benzoyl-α-D-arabinofuranoside*
[204918-53-6]
$C_{13}H_{16}O_6$ 268.266
$[\alpha]_D^{25}$ +88 (c, 0.97 in $CHCl_3$).

2,3-Dibenzoyl, 5-Ac: Methyl 5-O-*acetyl-2,3-di*-O-*benzoyl-α-D-arabinofuranoside*
$C_{22}H_{22}O_8$ 414.411
Syrup. $[\alpha]_D$ -31.5 (c, 5.4 in $CHCl_3$).

Tribenzoyl: Methyl 2,3,5-tri-O-*benzoyl-α-D-arabinofuranoside*
[7473-42-9]
$C_{27}H_{24}O_8$ 476.482
Cryst. (EtOH). Mp 101-103°. $[\alpha]_D^{20}$ -19.5 (c, 2.67 in $CHCl_3$).

2-Me: Methyl 2-O-*methyl-α-D-arabinofuranoside*
$C_7H_{14}O_5$ 178.185
$[\alpha]_D^{25}$ +110 (c, 1.0 in H_2O).

2-Me, 3,5-di-Ac: Methyl 3,5-di-O-*acetyl-2*-O-*methyl-α-D-arabinofuranoside*
[38791-37-6]
$C_{11}H_{18}O_7$ 262.259
Syrup. $[\alpha]_D^{21}$ +83 (c, 0.6 in $CHCl_3$).

*2-Me, 3,5-bis(4-nitrobenzoyl):*Mp 113-114°. $[\alpha]_D^{25}$ +90 (c, 0.7 in $CHCl_3$).

3-Me: Methyl 3-O-*methyl-α-D-arabinofuranoside*
[60738-01-4]
$C_7H_{14}O_5$ 178.185
$[\alpha]_D^{23}$ +155.3 (c, 1.48 in MeOH).

5-Me: Methyl 5-O-*methyl-α-D-arabinofuranoside*
[60761-88-8]
$C_7H_{14}O_5$ 178.185
$[\alpha]_D^{25}$ +92 (c, 0.3 in H_2O).

5-Trityl: Methyl 5-O-*trityl-α-D-arabinofuranoside*
[4060-35-9]
$C_{25}H_{26}O_5$ 406.477
Cryst. (EtOAc/cyclohexane). Mp 112-113°. $[\alpha]_D^{20}$ +62.4 (c, 1.56 in EtOAc).

3-Benzyl, 2-benzoyl: Methyl 2-O-*benzoyl-3*-O-*benzyl-α-D-arabinofuranoside*
[310880-44-5]
$C_{20}H_{22}O_6$ 358.39
$[\alpha]_D^{25}$ +19 (c, 1.60 in $CHCl_3$).

β-D-*form* [25129-51-5]
Hygroscopic cryst. Mp 56-57°. $[\alpha]_D^{20}$ -119 (c, 2.6 in H_2O).

2-Me: Methyl 2-O-*methyl-β-D-arabinofuranoside*
$C_7H_{14}O_5$ 178.185
Mp 49-50°. $[\alpha]_D^{25}$ -132 (c, 0.8 in H_2O).

2-Me, 3,5-di-Ac: Methyl 3,5-di-O-*acetyl-2*-O-*methyl-β-D-arabinofuranoside*
[38791-38-7]
$C_{11}H_{18}O_7$ 262.259
Cryst. (Et_2O/pentane). Mp 48-49°. $[\alpha]_D^{21}$ -101 (c, 0.8 in $CHCl_3$).

2-Benzyl: Methyl 2-O-*benzyl-β-D-arabinofuranoside*
$C_{13}H_{18}O_5$ 254.282
Needles (Et_2O/EtOAc). Mp 103-105°. $[\alpha]_D^{20}$ -89 (c, 1.6 in EtOH).

α-L-*form* [3795-68-4]
Cryst. (EtOAc). Mp 52°. $[\alpha]_D$ -128 (c, 4.7 in H_2O).

5-(4-Nitrobenzoyl): [55018-42-3]
Cryst. (EtOH/EtOAc). Mp 113-114°. $[\alpha]_D$ -51 (c, 1.0 in $CHCl_3$).

5-(4-Nitrobenzoyl), 2,3-dibenzoyl:
[55018-43-4]
Cryst. (EtOH). Mp 113°. $[\alpha]_D$ +17 (c, 1.0 in CH_2Cl_2).

5-Tosyl: Methyl 5-O-*tosyl-α-L-arabinofuranoside*
[34980-57-9]
$C_{13}H_{18}O_7S$ 318.347
$[\alpha]_D^{29}$ -82.5 (c, 2.35 in MeOH).

5-Tosyl, 2,3-dibenzoyl: Methyl 2,3-di-O-*benzoyl-5*-O-*tosyl-α-L-arabinofuranoside*
[55018-44-5]
$C_{27}H_{26}O_9S$ 526.563

Cryst. (Me_2CO/EtOH). Mp 120-122°. $[\alpha]_D$ +22 (c, 2.0 in $CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-L-arabinofuranoside*
$C_{20}H_{24}O_5$ 344.407
Syrup. $[\alpha]_D^{27}$ -88.4 (c, 3.83 in $CHCl_3$).

*5-Trityl: Methyl 5-*O*-trityl-α-L-arabinofuranoside*
[14645-36-4]
$C_{25}H_{26}O_5$ 406.477
Mp 112-113°. $[\alpha]_D^{26}$ -89.1 (c, 3.10 in $CHCl_3$).

*5-Trityl, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-5-*O*-trityl-α-L-arabinofuranoside*
[16896-01-8]
$C_{39}H_{38}O_5$ 586.726
Mp 80-81°. $[\alpha]_D^{27}$ -41.2 (c, 3.3 in $CHCl_3$).

β-L-*form* [3795-69-5]
Cryst. (EtOAc). Mp 58°. $[\alpha]_D$ +118 (c, 2.2 in H_2O).

*5-Tosyl: Methyl 5-*O*-tosyl-β-L-arabinofuranoside*
[34980-56-8]
$C_{13}H_{18}O_7S$ 318.347
Mp 71-76°. $[\alpha]_D^{29}$ +35.7 (c, 2.38 in MeOH).

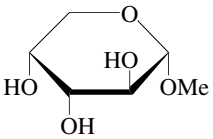
*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-β-L-arabinofuranoside*
$C_{20}H_{24}O_5$ 344.407
Syrup. $[\alpha]_D^{24}$ +43 (c, 2.61 in $CHCl_3$).

*5-Trityl: Methyl 5-*O*-trityl-β-L-arabinofuranoside*
[16896-00-7]
$C_{25}H_{26}O_5$ 406.477
Mp 122-123°. $[\alpha]_D^{27}$ +50.9 (c, 3.02 in $CHCl_3$).

*5-Trityl, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-5-*O*-trityl-β-L-arabinofuranoside*
[16896-02-9]
$C_{39}H_{38}O_5$ 586.726
Syrup. $[\alpha]_D^{27}$ +31.3 (c, 2.94 in $CHCl_3$).

Augestad, I. *et al., Acta Chem. Scand.*, 1954, **8**, 251 (*α-D-form, β-D-form, α-L-form, β-L-form*)
Wright, R.S. *et al., J.A.C.S.*, 1958, **80**, 1994, (*α-D-form, synth*)
Ness, R.K. *et al., J.A.C.S.*, 1958, **80**, 2007, (*α-D-tribenzoyl*)
Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, 255
Glaudemans, C.P.J. *et al., J.A.C.S.*, 1965, **87**, 4636 (*α-D-trityl*)
Iwashige, T. *et al., Chem. Pharm. Bull.*, 1967, **15**, 132; 1803 (*α-L-dibenzyl, α-L-dibenzyl trityl, α-L-trityl, β-L-dibenzyl, β-L-dibenzyl trityl, β-L-trityl*)
Guthrie, R.D. *et al., Chem. Ind. (London)*, 1968, **27**, 547 (*synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1971, **20**, 305 (*α-L-tosyl, β-L-tosyl*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1972, **26**, 1561 (*α-D-Me di-Ac, β-D-Me di-Ac*)
Bock, K. *et al., Carbohydr. Res.*, 1973, **29**, 331 (*α-D-Ac dibenzoyl, α-D-tri-Ac*)
Ferrier, R.J. *et al., Carbohydr. Res.*, 1974, **38**, 125 (*α-L-nitrobenzoyl, α-L-nitrobenzoyl dibenzoyl, α-L-tosyl dibenzoyl*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1976, **48**, 171 (*α-D-2-Me, α-D-5-Me, cmr*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Mizukani, K. *et al., Carbohydr. Res.*, 1989, **185**, 27 (*pmr, cmr*)
Gordon, M.T. *et al., J.A.C.S.*, 1999, **121**, 9682-9692 (*α-D-form, conform*)
Houseknecht, J.B. *et al., J.A.C.S.*, 2001, **123**, 8811-8824 (*α-D-3-Me, synth, conformn, cmr, pmr*)
Sanchez, S. *et al., Eur. J. Org. Chem.*, 2002, 3864-3873 (*α-D-2-benzyl, α-D-2-benzyl 2-benzoyl*)

Methyl arabinopyranoside M-153



α-D-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [3867-83-2]
Cryst. (EtOAc). Mp 132°. $[\alpha]_D$ -17 (H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-α-D-arabinopyranoside*
[32453-58-0]
$C_{12}H_{18}O_8$ 290.269
$[\alpha]_D$ -19 (7:3 Ac_2O/AcOH).

*3,4-*O*-Isopropylidene: Methyl 3,4-*O*-isopropylidene-α-D-arabinopyranoside*
$C_9H_{16}O_5$ 204.222
Cryst. (diisopropyl ether). Mp 73-74°. $[\alpha]_D$ -43 (H_2O). $[\alpha]_D$ -28 (H_2O).

*3,4-*O*-Isopropylidene, 2-mesyl: Methyl 3,4-*O*-isopropylidene-2-*O*-mesyl-α-D-arabinopyranoside*
$C_{10}H_{18}O_7S$ 282.314
Needles (EtOH). Mp 135° (144-145°). $[\alpha]_D$ -81.5 ($CHCl_3$). $[\alpha]_D$ -33.1 ($CHCl_3$).

β-D-*form* [5328-63-2]
Mp 172°. $[\alpha]_D$ -244 (H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-β-D-arabinopyranoside*
[32453-59-1]
$C_{12}H_{18}O_8$ 290.269
$[\alpha]_D$ -184 (7:3 Ac_2O/AcOH).

*3,4-*O*-Isopropylidene: Methyl 3,4-*O*-isopropylidene-β-D-arabinopyranoside*
$C_9H_{16}O_5$ 204.222
Syrup. $Bp_{0.01}$ 90°. $[\alpha]_D$ -201 ($CHCl_3$).

*3,4-*O*-Isopropylidene, 2-Ac: Methyl 2-*O*-acetyl-3,4-*O*-isopropylidene-β-D-arabinopyranoside*
$C_{11}H_{18}O_6$ 246.26
Cryst. (H_2O). Mp 76.5-77.5°. $[\alpha]_D$ -125 (H_2O).

*3,4-*O*-Isopropylidene, 2-mesyl: Methyl 3,4-*O*-isopropylidene-2-*O*-mesyl-β-D-arabinopyranoside*
$C_{10}H_{18}O_7S$ 282.314
Mp 138-139°. $[\alpha]_D$ -187 ($CHCl_3$).

*3,4-*O*-Isopropylidene, 2-tosyl: Methyl 3,4-*O*-isopropylidene-2-*O*-tosyl-β-D-arabinopyranoside*
$C_{16}H_{22}O_7S$ 358.412
Cryst. (EtOH). Mp 134°.

*2-Me: Methyl 2-*O*-methyl-β-D-arabinopyranoside*
$C_7H_{14}O_5$ 178.185
Cryst. (MeOH/Et_2O). Mp 48°. $[\alpha]_D$ -205 (MeOH).

*2-Me, 3,4-*O*-isopropylidene: Methyl 3,4-*O*-isopropylidene-2-*O*-methyl-β-D-arabinopyranoside*
$C_{10}H_{18}O_5$ 218.249
Mp 43°. $[\alpha]_D^{19}$ -145 (H_2O).

*4-Me: Methyl 4-*O*-methyl-β-D-arabinopyranoside*
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 113-114°. $[\alpha]_D^{20}$ -241 (c, 0.87 in MeOH).

*2,3,4-Tri-Me: Methyl 2,3,4-tri-*O*-methyl-β-D-arabinopyranoside*
[2876-86-0]
$C_9H_{18}O_5$ 206.238
$[\alpha]_D$ -248 (c, 1.0 in H_2O).

α-L-*form* [3945-28-6]
Mp 131°. $[\alpha]_D$ +17 (H_2O).

*2-Tosyl: Methyl 2-*O*-tosyl-α-L-arabinopyranoside*
$C_{13}H_{18}O_7S$ 318.347
Cryst. (CH_2Cl_2/petrol). Mp 128°. $[\alpha]_D^{16}$ +0.4 (c, 1.8 in Me_2CO).

*3-Tosyl: Methyl 3-*O*-tosyl-α-L-arabinopyranoside*
$C_{13}H_{18}O_7S$ 318.347
Cryst. (CH_2Cl_2). Mp 128°. $[\alpha]_D^{20}$ +59.9 (c, 1.1 in $CHCl_3$). Hydrate ($0.5H_2O$).

*4-Tosyl: Methyl 4-*O*-tosyl-α-L-arabinopyranoside*
$C_{13}H_{18}O_7S$ 318.347
Syrup. $[\alpha]_D^{18}$ -10 (c, 1.7 in $CHCl_3$). Hydrate ($0.25H_2O$).

*3,4-Ditosyl: Methyl 3,4-di-*O*-tosyl-α-L-arabinopyranoside*
$C_{20}H_{24}O_9S_2$ 472.536
Foam. $[\alpha]_D^{10}$ +27.9 (c, 0.9 in $CHCl_3$).

*2,3,4-Tri-Me: Methyl 2,3,4-tri-*O*-methyl-α-L-arabinopyranoside*
$C_9H_{18}O_5$ 206.238
$[\alpha]_D$ +46 (H_2O).

β-L-*form* [1825-00-9]
Silky plates or needles (EtOH). Mp 172°. $[\alpha]_D^{20}$ +246 (c, 1.2 in H_2O).

*2-Ac: Methyl 2-*O*-acetyl-β-L-arabinopyranoside*
$C_8H_{14}O_6$ 206.195
Prisms (EtOH/petrol). Mp 172°. $[\alpha]_D^{16}$ +252 (c, 1 in H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-β-L-arabinopyranoside*
[14520-32-2]
$C_{12}H_{18}O_8$ 290.269
Mp 85°. $[\alpha]_D^{23}$ +182 ($CHCl_3$).

*2,3-Dibenzoyl: Methyl 2,3-di-*O*-benzoyl-β-L-arabinopyranoside*
[13143-91-4]
$C_{20}H_{20}O_7$ 372.374
Cryst. (Et_2O). Mp 141.5-142.5°. $[\alpha]_D^{20}$ +210 (c, 1 in $CHCl_3$).

*2-Tosyl: Methyl 2-*O*-tosyl-β-L-arabinopyranoside*
$C_{13}H_{18}O_7S$ 318.347
Syrup or needles (EtOH aq.). Mp 48-49°. $[\alpha]_D^{20}$ +107.2 (c, 2.6 in $CHCl_3$). $[\alpha]_D^{18}$ +110.9 (c, 1.14 in $CHCl_3$).

*4-Tosyl: Methyl 4-*O*-tosyl-β-L-arabinopyranoside*
$C_{13}H_{18}O_7S$ 318.347
Needles ($CHCl_3$). Mp 150-151°. $[\alpha]_D^{20}$ +129.9 (c, 0.9 in $CHCl_3$). Monohydrate.

*2,3-Ditosyl: Methyl 2,3-di-*O*-tosyl-β-L-arabinopyranoside*
$C_{20}H_{24}O_9S_2$ 472.536
Syrup. $[\alpha]_D^{18}$ +79.1 (c, 1.7 in $CHCl_3$).

*2,4-Ditosyl: Methyl 2,4-di-*O*-tosyl-β-L-arabinopyranoside*
$C_{20}H_{24}O_9S_2$ 472.536
Syrup. $[\alpha]_D^{21}$ +107.8 (c, 0.6 in $CHCl_3$).

*2,3,4-Tritosyl: Methyl 2,3,4-tri-*O*-tosyl-β-L-arabinopyranoside*
[14200-58-9]
$C_{27}H_{30}O_{11}S_3$ 626.725
Cryst. (MeOH). Mp 116-117°. $[\alpha]_D^{23}$ +101 (c, 0.9 in $CHCl_3$).

*3,4-*O*-Ethylidene: Methyl 3,4-*O*-ethylidene-β-L-arabinopyranoside*
$C_8H_{14}O_5$ 190.196
Cryst. (petrol). Mp 76°. $[\alpha]_D^{18}$ +204.6 (c, 3.6 in $CHCl_3$).

*3,4-*O*-Ethylidene, 2-benzoyl: Methyl 2-*O*-benzoyl-3,4-*O*-ethylidene-β-L-arabinopyranoside*
$C_{15}H_{18}O_6$ 294.304
Mp 142° (117°). $[\alpha]_D^{20}$ +125 (c, 2.6 in $CHCl_3$).

*3,4-*O*-Isopropylidene:* See Methyl 3,4-*O*-isopropylidenearabinopyranoside, M-197

*3,4-*O*-Benzylidene: Methyl 3,4-*O*-benzylidene-β-L-arabinopyranoside*
$C_{13}H_{16}O_5$ 252.266
Syrup. $[\alpha]_D^{16}$ +112.3 (c, 4.9 in $CHCl_3$).

*3,4-*O*-Benzylidene, 2-benzoyl: Methyl 2-*O*-benzoyl-3,4-*O*-benzylidene-β-L-arabinopyranoside*
$C_{20}H_{20}O_6$ 356.374
Cryst. (petrol). Mp 126-127°. $[\alpha]_D^{18}$ +174 (c, 3.2 in $CHCl_3$).

*3,4-*O*-Benzylidene, 2-tosyl: Methyl 3,4-*O*-benzylidene-2-*O*-tosyl-β-L-arabinopyranoside*
$C_{20}H_{22}O_7S$ 406.456
Mp 144-145°. $[\alpha]_D$ +188 (C_6H_6).

*2-Me: Methyl 2-*O*-methyl-β-L-arabinopyranoside, 8CI*
[14520-38-8]
$C_7H_{14}O_5$ 178.185
Mp 65° (vac. dried) Mp 47° (hydrate). $[\alpha]_D^{24}$ +225 (c, 2.2 in MeOH).

*2-Me, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-*O*-methyl-β-L-arabinopyranoside*
[14520-21-9]
$C_{11}H_{18}O_7$ 262.259
$[\alpha]_D$ +186 (MeOH).

*4-Me: Methyl 4-*O*-methyl-β-L-arabinopyranoside*
$C_7H_{14}O_5$ 178.185
$[\alpha]_D$ +213 (MeOH).

*3,4-Di-Me: Methyl 3,4-di-*O*-methyl-β-L-arabinopyranoside*
[2296-48-2]
$C_8H_{16}O_5$ 192.211
$[\alpha]_D$ +210 ($CHCl_3$).

*2,3,4-Tri-Me: Methyl 2,3,4-tri-*O*-methyl-β-L-arabinopyranoside, 8CI*
[2296-43-7]
$C_9H_{18}O_5$ 206.238
$[\alpha]_D$ +223 (MeOH).

*2-Benzyl: Methyl 2-*O*-benzyl-β-L-arabinopyranoside*
$C_{13}H_{18}O_5$ 254.282
Cryst. (EtOAc/petrol). Mp 67°. $[\alpha]_D^{22}$ +147.4 (c, 0.6 in $CHCl_3$).

α-DL-*form*

*4-Me: Methyl 4-*O*-methyl-α-DL-arabinopyranoside*
$C_7H_{14}O_5$ 178.185
Fluffy cryst. (CH_2Cl_2/hexane). Mp 116°.

*4-Me, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-methyl-α-DL-arabinopyranoside*
$C_{11}H_{18}O_7$ 262.259
Cryst. (CH_2Cl_2/hexane). Mp 94-95°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 302B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 193A (*ir*)
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Jones, J.K.N. *et al., J.C.S.*, 1947, 1341 (*β-D-isopropylidene, β-D-isopropylidene mesyl, β-D-isopropylidene tosyl, β-D-isopropylidene Me, β-D-2-Me, β-L-2-Me*)
Overend, W.G. *et al., J.C.S.*, 1949, 1235 (*β-D-isopropylidene, β-D-isopropylidene-Ac, α-D-isopropylidene, α-D-isopropylidene mesyl*)
Fletcher, H.G. *et al., J.A.C.S.*, 1950, **72**, 4173 (*α-D-form, synth*)
Pratt, J.W. *et al., J.A.C.S.*, 1952, **74**, 2200 (*β-D-form, synth, β-D-tri-Me*)
Conchie, J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 157 (*rev, synth*)
Jones, J.K.N. *et al., Can. J. Chem.*, 1957, **35**, 955 (*β-L-tritosyl*)
Wood, H.B. *et al., J.A.C.S.*, 1958, **80**, 5242, (*α-D-isopropylidene, α-D-isopropylidene mesyl, β-D-isopropylidene, β-D-isopropylidene mesyl*)
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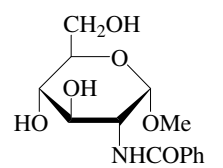
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, derivs*)
Fletcher, H.G. *et al., J.O.C.*, 1965, **30**, 2321, (*β-D-4-Me*)
Williams, S.C. *et al., Can. J. Chem.*, 1967, **45**, 275 (*β-D-4-Me*)
Reist, E.J. *et al., J.O.C.*, 1967, **32**, 2541 (*β-L-2,3-dibenzoyl*)
Srivastava, R.M. *et al., Can. J. Chem.*, 1970, **48**, 2341 (*α-DL-4-Me, α-DL-4-Me di-Ac*)
Breitmaier, E. *et al., Tetrahedron*, 1973, **29**, 227 (*cmr*)
Kováč, P. *et al., Carbohydr. Res.*, 1974, **36**, 379 (*β-L-2-Me*)
Gorin, P.J. *et al., Can. J. Chem.*, 1975, **53**, 1212 (*cmr*)
Dyong, I. *et al., Chem. Ber.*, 1979, **112**, 1849, (*β-L-2-benzyl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*pmr, cmr*)
Kondo, Y. *et al., Carbohydr. Res.*, 1987, **162**, 159 (*α-L-tosyl, β-L-tosyl derivs*)

Methyl 2-benzamido-2-deoxy-glucopyranoside M-154



α-D-*form*

$C_{14}H_{19}NO_6$ 297.307

α-D-*form* [6863-90-7]
Mp 224-227°. $[\alpha]_D^{20}$ +108 (c, 0.5 in H_2O).

*3,4,6-Tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-benzamido-2-deoxy-α-D-glucopyranoside*
$C_{20}H_{25}NO_9$ 423.419
Cryst. (Et_2O/petrol). Mp 105-106°. $[\alpha]_D^{20}$ +111 (c, 1.0 in $CHCl_3$).

*3,4-Di-Ac, 6-tosyl: Methyl 3,4-di-*O*-acetyl-2-benzamido-2-deoxy-6-*O*-tosyl-α-D-glucopyranoside*
[39727-13-4]
$C_{25}H_{29}NO_{10}S$ 535.571
Mp 129-131°. $[\alpha]_D$ +115 (c, 1.4 in $CHCl_3$).

*4,6-Ditosyl, 3-Ac: Methyl 3-*O*-acetyl-2-benzamido-2-deoxy-4,6-di-*O*-tosyl-α-D-glucopyranoside*
[39031-60-2]
$C_{30}H_{33}NO_{11}S_2$ 647.723
Cryst. (EtOH). Mp 162-163°. $[\alpha]_D$ +82.5 (c, 1.9 in $CHCl_3$).

*3,6-Ditosyl, 4-Ac: Methyl 4-*O*-acetyl-2-benzamido-2-deoxy-3,6-di-*O*-tosyl-α-D-glucopyranoside*
$C_{30}H_{33}NO_{11}S_2$ 647.723
Cryst. (EtOH). Mp 171-172°. $[\alpha]_D$ +126 (c, 2.1 in CH_2Cl_2).

*3-Benzoyl: Methyl 2-benzamido-3-*O*-benzoyl-2-deoxy-α-D-glucopyranoside*
[23193-40-0]
$C_{21}H_{23}NO_7$ 401.415
Cryst. (EtOH/petrol). Mp 132°. $[\alpha]_D$ +131 (c, 0.8 in EtOH).

*3-Mesyl: Methyl 2-benzamido-2-deoxy-3-*O*-mesyl-α-D-glucopyranoside*
[28978-59-8]
$C_{15}H_{21}NO_8S$ 375.399
Cryst. ($CHCl_3$/petrol). Mp 85-90° (133-137°) (as hydrate). $[\alpha]_D$ +99 (c, 1.2 in $CHCl_3$).

*3,6-Dibenzoyl: Methyl 2-benzamido-3,6-di-*O*-benzoyl-2-deoxy-α-D-glucopyranoside*
[28978-51-0]
$C_{28}H_{27}NO_8$ 505.523
$[\alpha]_D$ +119.2 (c, 1.3 in $CHCl_3$).

*3-Benzoyl, 4,6-dimesyl: Methyl 2-benzamido-3-*O*-benzoyl-2-deoxy-4,6-di-*O*-mesyl-α-D-glucopyranoside*
[23193-41-1]
$C_{23}H_{27}NO_{11}S_2$ 557.598
Cryst. (EtOH). Mp 177-178°. $[\alpha]_D$ +120 (c, 0.81 in $CHCl_3$).

*3,6-Dibenzoyl, 4-mesyl: Methyl 2-benzamido-3,6-di-*O*-benzoyl-2-deoxy-4-*O*-mesyl-α-D-glucopyranoside*
[28978-52-1]
$C_{29}H_{29}NO_{10}S$ 583.615
Cryst. (2-propanol). Mp 178-180°. $[\alpha]_D$ +116.3 (c, 1.2 in $CHCl_3$).

*4,6-Dibenzoyl, 3-mesyl: Methyl 2-benzamido-4,6-di-*O*-benzoyl-2-deoxy-3-*O*-mesyl-α-D-glucopyranoside*
[28978-60-1]
$C_{29}H_{29}NO_{10}S$ 583.615
Mp 132-133°. $[\alpha]_D$ +82 (c, 1.0 in $CHCl_3$).

*3,4,6-Trimesyl: Methyl 2-benzamido-2-deoxy-3,4,6-tri-*O*-mesyl-α-D-glucopyranoside*
[22672-30-6]
$C_{17}H_{25}NO_{12}S_3$ 531.582
Mp 149-150°. $[\alpha]_D$ +96.5 (c, 0.83 in $CHCl_3$).

*4,6-Ditosyl: Methyl 2-benzamido-2-deoxy-4,6-di-*O*-tosyl-α-D-glucopyranoside*
[39032-55-8]
$C_{28}H_{31}NO_{10}S_2$ 605.686
Cryst. (EtOH). Mp 102-104°. $[\alpha]_D$ +56.4 (c, 1.3 in $CHCl_3$).

*4,6-*O*-Benzylidene: Methyl 2-benzamido-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside*
$C_{21}H_{23}NO_6$ 385.416
Needles (EtOH). Mp 247-248°. $[\alpha]_D^{20}$ +57 (c, 2.0 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-Ac: Methyl 3-*O*-acetyl-2-benzamido-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside*
[39031-59-9]
$C_{23}H_{25}NO_7$ 427.453
Cryst. (Me_2CO). Mp 225-226°. $[\alpha]_D$ +75.6 (c, 2.8 in CH_2Cl_2).

*4,6-*O*-Benzylidene, 3-benzoyl: Methyl 2-benzamido-3-*O*-benzoyl-4,6-*O*-benzylidene-2-deoxy-α-D-glucopyranoside*
$C_{28}H_{27}NO_7$ 489.524
Needles (EtOAc/EtOH). Mp 204°. $[\alpha]_D$ +29.6 (c, 0.9 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-mesyl: Methyl 2-benzamido-4,6-*O*-benzylidene-2-deoxy-3-*O*-mesyl-α-D-glucopyranoside*
$C_{22}H_{25}NO_8S$ 463.507
Needles (EtOH). Mp 195-195.5°. $[\alpha]_D^{20}$ +77.5 (c, 5.0 in $CHCl_3$).

*4,6-*O*-Benzylidene, 3-tosyl: Methyl 2-benzamido-4,6-*O*-benzylidene-2-deoxy-3-*O*-tosyl-α-D-glucopyranoside*
[20707-01-1]
$C_{28}H_{29}NO_8S$ 539.605
Cryst. (EtOH). Mp 193-195° dec. $[\alpha]_D$ +30 ($CHCl_3$).

*3,4,6-Tri-Me: Methyl 2-benzamido-2-deoxy-3,4,6-tri-*O*-methyl-α-D-glucopyranoside*
$C_{17}H_{25}NO_6$ 339.388
Mp 162°. $[\alpha]_D$ +122.8 ($CHCl_3$).

*4-Benzyl, 3-Me: Methyl 2-benzamido-4-*O*-benzyl-2-deoxy-3-*O*-methyl-α-D-glucopyranoside*
$C_{22}H_{27}NO_6$ 401.458
Mp 116-118°. $[\alpha]_D$ +117 ($CHCl_3$).

β-D-*form*
Cryst. (Et_2O/petrol). Mp 227°. $[\alpha]_D^{22}$ -24 (c, 1.5 in H_2O).

*3,4,6-Tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-benzamido-2-deoxy-β-D-glucopyranoside*
$C_{20}H_{25}NO_9$ 423.419
Cryst. (MeOH). Mp 221°. $[\alpha]_D^{20}$ +29 (c, 0.9 in $CHCl_3$).

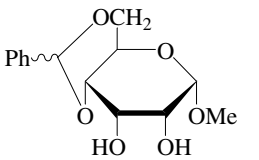
*4,6-Dimesyl, 3-Me: Methyl 2-benzamido-2-deoxy-4,6-di-*O*-mesyl-3-*O*-methyl-β-D-glucopyranoside*
$C_{17}H_{25}NO_{10}S_2$ 467.517
Mp 169-170° dec. $[\alpha]_D^{22}$ +3 (c, 0.75 in DMSO).

*3-Me: Methyl 2-benzamido-2-deoxy-3-*O*-methyl-β-D-glucopyranoside*
$C_{15}H_{21}NO_6$ 311.334
Mp 201-202°. $[\alpha]_D^{21}$ -20 (c, 1.0 in DMSO).

*3,4,6-Tri-Me: Methyl 2-benzamido-2-deoxy-3,4,6-tri-*O*-methyl-β-D-glucopyranoside*
$C_{17}H_{25}NO_6$ 339.388
Mp 198°. $[\alpha]_D$ +29.6 ($CHCl_3$).

Jeanloz, R.W. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 189 (*rev, derivs*)
Micheel, F. *et al., Chem. Ber.*, 1960, **93**, 2372, (*β-D-form, β-D-tri-Ac*)
Gibbs, C.F. *et al., Carbohydr. Res.*, 1965, **1**, 290 (*synth, α-D-form, α-D-benzylidene, α-D-benzylidene mesyl*)
Baker, B.R. *et al., J.O.C.*, 1965, **30**, 2308 (*α-D-form, synth, α-D-benzylidene, α-D-benzylidene mesyl*)
Ali, Y. *et al., Carbohydr. Res.*, 1968, **7**, 255 (*α-D-benzylidene tosyl*)
Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1969, **102**, 1076 (*α-D-tri-Ac*)
Ali, Y. *et al., J.C.S.(C)*, 1969, 320 (*α-D-benzylidene benzoyl, α-D-benzoyl, α-D-benzoyl dimesyl*)
Horner, M.W. *et al., J.C.S.(C)*, 1970, 1336, (*α-D-dibenzoyl, α-D-dibenzoyl 4-mesyl, α-D-dibenzoyl 3-mesyl, α-D-3-mesyl*)
Khan, R. *et al., Carbohydr. Res.*, 1972, **24**, 141 (*α-D-benzylidene Ac, α-D-di-Ac tosyl, α-D-ditosyl 3-Ac, α-D-ditosyl 4-Ac*)
Meyer zu Reckendorf, W. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 270 (*synth, β-D-dimesyl Me, β-D-Me*)

Methyl 4,6-*O*-benzylideneallopyranoside, 9CI, 8CI M-155



α-D-*form*

$C_{14}H_{18}O_6$ 282.293

α-D-*form* [4153-17-7]
Needles (EtOH/petrol). Mp 58-60° (dihydrate) Mp 148-149° Mp 175-177°. $[\alpha]_D^{20}$ +117 (c, 1.5 in $CHCl_3$).

*2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-α-D-allopyranoside*
[57538-70-2]
$C_{16}H_{20}O_7$ 324.33
Cryst. (EtOAc/hexane). Mp 69-71°. $[\alpha]_D^{25}$ +60 ($CHCl_3$).

*2,3-Di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-benzylidene-α-D-allopyranoside*
$C_{18}H_{22}O_8$ 366.367
Syrup. $[\alpha]_D^{23}$ +54 (c, 1.0 in $CHCl_3$).

*2-Benzoyl: Methyl 2-*O*-benzoyl-4,6-*O*-benzylidene-α-D-allopyranoside*
[56253-26-0]
$C_{21}H_{22}O_7$ 386.401
Mp 110-115°. $[\alpha]_D^{20}$ +74 (c, 1.15 in $CHCl_3$).

*2-Mesyl: Methyl 4,6-*O*-benzylidene-2-*O*-mesyl-α-D-allopyranoside*
[4153-14-4]
$C_{15}H_{20}O_8S$ 360.384
Needles (EtOH/petrol). Mp 143-145°. $[\alpha]_D^{25}$ +58 (DMF).

*2-Tosyl: Methyl 4,6-*O*-benzylidene-2-*O*-tosyl-α-D-allopyranoside*
$C_{21}H_{24}O_8S$ 436.482
Needles (EtOH/petrol). Mp 166-167°. $[\alpha]_D^{25}$ +35.6 (DMF).

*2,3-*O*-Isopropylidene: Methyl 4,6-*O*-benzylidene-2,3-*O*-isopropylidene-α-D-allopyranoside*
[57538-69-9]
$C_{17}H_{22}O_6$ 322.357
Cryst. (CH_2Cl_2/hexane). Mp 119-121°. $[\alpha]_D^{25}$ +131 ($CHCl_3$).

*3-Me, 2-tosyl: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-2-*O*-tosyl-α-D-allopyranoside*
[7045-54-7]
$C_{22}H_{26}O_8S$ 450.509
Cryst. (EtOAc/petrol). Mp 169-170°. $[\alpha]_D$ +60 (c, 1.0 in $CHCl_3$).

*3-Benzyl, 2-tosyl: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-2-*O*-tosyl-α-D-allopyranoside*
[14218-32-7]
$C_{28}H_{30}O_8S$ 526.606
Cryst. ($CHCl_3$/petrol). Mp 135-136°. $[\alpha]_D^{23}$ +7 (c, 0.5 in $CHCl_3$).

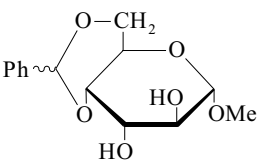
*3-Benzyl, 2-Me: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-2-*O*-methyl-α-D-allopyranoside*
[17013-90-0]
$C_{22}H_{26}O_6$ 386.444
Cryst. ($CHCl_3$/petrol). Mp 82-83°. $[\alpha]_D^{16}$ +24.5 (c, 0.5 in $CHCl_3$).

β-D-*form* [37093-57-5]
Mp 176°. $[\alpha]_D^{16}$ -40 (c, 0.8 in $CHCl_3$).

2,3-Anhydro: See Methyl 2,3-anhydro-4,6-*O*-benzylideneallopyranoside, M-151

Baker, B.R. *et al., J.O.C.*, 1965, **30**, 2304 (*α-D-form, synth, α-D-mesyl, α-D-tosyl*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1967, 1503 (*α-D-2-tosyl-3-benzyl, α-D-2-Me-3-benzyl*)
Al-Radhi, A.K. *et al., J.C.S.(C)*, 1971, 2305, (*α-D-3-Me 2-tosyl*)
Kondo, Y. *et al., Carbohydr. Res.*, 1973, **30**, 386 (*α-D-form, β-D-form, synth*)
Hönig, H. *et al., Carbohydr. Res.*, 1975, **39**, 374 (*α-D-2-benzoyl*)
Baker, D.C. *et al., J.O.C.*, 1976, **41**, 3834, (*α-D-isopropylidene, α-D-2-Ac, α-D-di-Ac*)
Murphy, P.V. *et al., Carbohydr. Res.*, 2001, **354**, 327-335 (*β-D-form, synth*)

Methyl 4,6-*O*-benzylidenealtropyranoside M-156



$C_{14}H_{18}O_6$ 282.293

α-D-*form*
Prisms (MeOH). Mp 169-170° (149-150°). $[\alpha]_D$ +51 (c, 2.0 in $CHCl_3$). $[\alpha]_D$ +115 (c, 2.0 in $CHCl_3$).

*2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-α-D-altropyranoside*
[107657-09-0]
$C_{16}H_{20}O_7$ 324.33
$[\alpha]_D^{23}$ +54.1 (c, 1 in $CHCl_3$).

*Di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-benzylidene-α-D-altropyranoside*
[6752-75-6]
$C_{18}H_{22}O_8$ 366.367
Cryst. (EtOH aq.). Mp 103-103.5°. $[\alpha]_D^{21}$ +54.3 ($CHCl_3$).

*2-Benzoyl: Methyl 2-*O*-benzoyl-4,6-*O*-benzylidene-α-D-altropyranoside*
[35823-97-3]
$C_{21}H_{22}O_7$ 386.401

Mp 137-138.5°. $[\alpha]_D^{24}$ -5.2 (c, 2.0 in $CHCl_3$). $[\alpha]_D^{23}$ +9.75 (c, 5.5 in $CHCl_3$).

*3-Benzoyl: Methyl 3-*O*-benzoyl-4,6-O-benzylidene-α-D-altropyranoside*
[56253-31-7]
$C_{21}H_{22}O_7$ 386.401
Syrup. $[\alpha]_D^{20}$ +131 (c, 1.39 in $CHCl_3$).

*Dibenzoyl: Methyl 2,3-di-*O*-benzoyl-4,6-O-benzylidene-α-D-altropyranoside*
[6884-04-4]
$C_{28}H_{26}O_8$ 490.509
Syrup. $[\alpha]_D^{19}$ +9 (c, 1.52 in $CHCl_3$).

*2-Benzoyl, 3-tosyl: Methyl 2-*O*-benzoyl-4,6-O-benzylidene-3-O-tosyl-α-D-altropyranoside*
$C_{28}H_{28}O_9S$ 540.59
Syrup. $[\alpha]_D^{26}$ -12 (c, 1.72 in $CHCl_3$).

*3-Benzoyl, 2-tosyl: Methyl 3-*O*-benzoyl-4,6-O-benzylidene-2-O-tosyl-α-D-altropyranoside*
$C_{28}H_{28}O_9S$ 540.59
Syrup. $[\alpha]_D^{25}$ +75 (c, 2.15 in $CHCl_3$).

*2-Tosyl: Methyl 4,6-*O*-benzylidene-2-O-tosyl-α-D-altropyranoside*
$C_{21}H_{24}O_8S$ 436.482
Amorph. solid. $[\alpha]_D^{20}$ +44.5 (c, 3.0 in $CHCl_3$).

*2,3-Ditosyl: Methyl 4,6-*O*-benzylidene-2,3-di-O-tosyl-α-D-altropyranoside*
$C_{28}H_{30}O_{10}S_2$ 590.671
Mp 176-178°. $[\alpha]_D^{21}$ +45 (c, 1.0 in $CHCl_3$).

3-Nitrate:
$C_{14}H_{17}NO_8$ 327.29
Cryst. (petrol/EtOH). Mp 156-157°. $[\alpha]_D^{19}$ +118 ($CHCl_3$).

*2-Me: Methyl 4,6-*O*-benzylidene-2-O-methyl-α-D-altropyranoside*
[6752-76-7]
$C_{15}H_{20}O_6$ 296.319
Mp 97-99°. $[\alpha]_D^{20}$ +102.1 ($CHCl_3$).

*3-Me: Methyl 4,6-*O*-benzylidene-3-O-methyl-α-D-altropyranoside*
[6748-98-7]
$C_{15}H_{20}O_6$ 296.319
Mp 131-133°. $[\alpha]_D^{20}$ +103.2 ($CHCl_3$).

*3-Me, 2-tosyl: Methyl 4,6-*O*-benzylidene-3-O-methyl-2-O-tosyl-α-D-altropyranoside*
$C_{22}H_{26}O_8S$ 450.509
Mp 140-141°. $[\alpha]_D^{23}$ +53 (c, 1.4 in $CHCl_3$).

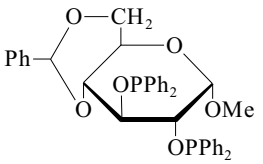
*Di-Me: Methyl 4,6-*O*-benzylidene-2,3-di-O-methyl-α-D-altropyranoside*
[6748-99-8]
$C_{16}H_{22}O_6$ 310.346
Prisms (petrol). Mp 83-87°. $[\alpha]_D^{20}$ +92.4 ($CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-O-benzylidene-α-D-altropyranoside*
[33164-02-2]
$C_{28}H_{30}O_6$ 462.541
Cryst. (MeOH aq.). Mp 88°. $[\alpha]_D$ +2.1 (c, 0.77 in $CHCl_3$).

[71117-41-4]

Robertson, G.J. *et al., J.C.S.*, 1935, 1193, (*α-D-di-Me*)
Richtmyer, N.K. *et al., J.A.C.S.*, 1941, **63**, 1727 (*α-D-form, synth*)
Jeanloz, R.W. *et al., J.A.C.S.*, 1958, **80**, 5692, (*α-D-3-benzoyl, α-D-2-benzoyl, α-D-dibenzoyl*)
Ennor, K.S. *et al., J.C.S.*, 1958, 2921 (*α-D-tosyl, α-D-ditosyl, α-D-nitrate*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 107 (*α-D-form, synth*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Kovář, J. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 854 (*α-D-di-Ac*)
Spichtig, A.M. *et al., Helv. Chim. Acta*, 1971, **54**, 1191 (*α-D-dibenzyl*)
Miterera, J. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 3744 (*ms*)
Holder, N.L. *et al., Synthesis*, 1972, **2**, 83, (*α-D-2-benzoyl*)
Conway, E. *et al., J.C.S. Perkin 2*, 1974, 542 (*cmr*)
Hoenig, H. *et al., Carbohydr. Res.*, 1975, **39**, 374 (*benzoylation*)
Stevens, C.L. *et al., J.O.C.*, 1975, **40**, 2466 (*α-D-dibenzyl*)
Ludwig-Baxter, K.G. *et al., Carbohydr. Res.*, 1991, **214**, 245 (*synth*)
Iacazio, G. *et al., J.C.S. Perkin 1*, 1993, 1099, (*2-Ac, synth, pmr*)

Methyl 4,6-*O*-benzylidene-2,3-bis-*O*-(diphenylphosphino)gluco-pyranoside M-157



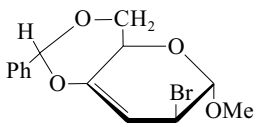
$C_{38}H_{36}O_6P_2$ 650.646
Ligand for Rh.

α-D-*form* [37605-43-9]
Reagent for asymmetric hydrogenations. Cryst. ($CHCl_3$/petrol). Mp 130-131°. $[\alpha]_D^{25}$ -9 (c, 8.8 in $CHCl_3$).

[68098-66-8, 68912-30-1, 71116-65-9, 122044-13-7, 127685-53-4]

Cullen, W.R. *et al., Tet. Lett.*, 1978, 1635 (*synth, use*)
Pavlov, V.A. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1987, 508; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1987, 459 (*complexes*)
Liu, Z. *et al., J.O.C.*, 1990, **55**, 4273 (*oxide*)

Methyl 4,6-*O*-benzylidene-2-bromo-2,3-dideoxy-*threo*-hex-3-eno-pyranoside, 8CI M-158

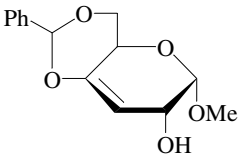


$C_{14}H_{15}BrO_4$ 327.174

α-D-*form* [20853-46-7]
Needles ($CHCl_3$/petrol). Mp 187-189°. $[\alpha]_D^{20}$ +77 (c, 1 in $CHCl_3$).

Nayak, U.G. *et al., Can. J. Chem.*, 1967, **45**, 481; 1767
Albano, E.L. *et al., Carbohydr. Res.*, 1969, **9**, 149

Methyl 4,6-*O*-benzylidene-3-deoxy-*erythro*-hex-3-enopyranoside M-159



α-D-*form*

$C_{14}H_{16}O_5$ 264.277

α-D-*form*

*3-C-Me, 2-Ac: Methyl 2-*O*-acetyl-4,6-O-benzylidene-3-deoxy-3-C-methyl-α-D-*erythro-*hex-3-enopyranoside*
[80041-32-3]
$C_{17}H_{20}O_6$ 320.341
Needles (Me_2CO aq.). Mp 112-113°. $[\alpha]_D^{28}$ +61 (c, 1.0 in $CHCl_3$).

*3-C-Benzyl, 2-Ac: Methyl-2-*O*-acetyl-3-C-benzyl-4,6-O-benzylidene-3-deoxy-α-D-*erythro-*hex-3-enopyranoside*
[80018-92-4]
$C_{23}H_{24}O_6$ 396.439
Gum. $[\alpha]_D^{28}$ +27.3 (c, 1.9 in $CHCl_3$).

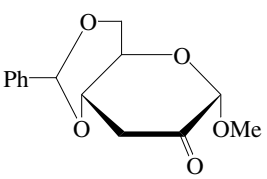
*3-C-Allyl, 2-Ac: Methyl 2-*O*-acetyl-3-C-allyl-4,6-O-benzylidene-3-deoxy-α-D-*erythro-*hex-3-enopyranoside*
[80018-97-9]
$C_{19}H_{22}O_6$ 346.379
Gum. $[\alpha]_D^{28}$ +71.5 (c, 1.2 in $CHCl_3$).

β-D-*form* [34340-38-0]
Cryst. ($CHCl_3$/petrol). Mp 134-135°. $[\alpha]_D^{23}$ -43.3 (c, 1.6 in $CHCl_3$).

*2-Ac: Methyl 2-*O*-acetyl-4,6-O-benzylidene-3-deoxy-β-D-*erythro-*hex-3-enopyranoside*
[31077-50-6]
$C_{16}H_{18}O_6$ 306.315
Cryst. ($CHCl_3$/petrol). Mp 130-131°. $[\alpha]_D^{23}$ -164 (c, 1.0 in $CHCl_3$).

Williams, E.H. *et al., Carbohydr. Res.*, 1971, **20**, 49 (*β-D-form, synth, β-D-Ac, pmr*)
Box, L.L. *et al., Carbohydr. Res.*, 1981, **96**, 215 (*α-D-Ac Me, α-D-Ac benzyl, α-D-Ac allyl*)

Methyl 4,6-*O*-benzylidene-3-deoxy-*erythro*-hexopyranosid-2-ulose M-160



α-D-*form*

$C_{14}H_{16}O_5$ 264.277

α-D-*form* [19272-50-5]
Cryst. (Et_2O/petrol). Mp 114-115°. $[\alpha]_D^{22}$ +109 (c, 2.0 in $CHCl_3$). $[\alpha]_D^{20}$ +93.8 (c, 1.2 in $CHCl_3$).

Oxime: [24905-50-8]
$C_{14}H_{17}NO_5$ 279.292
Cryst. (Et_2O/EtOAc). Mp 138-139°. $[\alpha]_D^{22}$ +88 (c, 1.0 in $CHCl_3$).

*Acetylhydrazone(*syn-*):*
Cryst. (EtOH). Mp 212-214°. $[\alpha]_D^{20}$ -23.8 (c, 1.0 in $CHCl_3$).

Phenylhydrazone: [35800-00-1]
Mp 177-179°.

β-D-*form* [31505-12-1]
Needles (EtOAc/petrol). Mp 153-155°. $[\alpha]_D^{23}$ -30 (c, 0.5 in $CHCl_3$).

Hydrazone: [26578-05-2]
$C_{14}H_{18}N_2O_4$ 278.307
Cryst. (EtOH). Mp 235°. $[\alpha]_D^{20}$ +18.5 (c, 1.0 in $CHCl_3$).

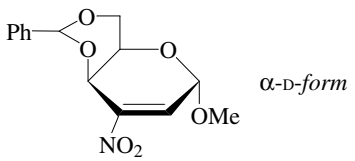
Acetylhydrazone: [26532-29-6]
$C_{16}H_{20}N_2O_5$ 320.344
Mp 189-191°. $[\alpha]_D^{20}$ +26.5 (c, 1.5 in $CHCl_3$).

Phenylhydrazone: [58641-77-3]
Cryst. (MeOH). Mp 146-149°.

[74524-02-0]

Kitahara, K. *et al., Agric. Biol. Chem.*, 1969, **33**, 748 (*α-D-form*)
Rosenthal, A. *et al., Can. J. Chem.*, 1969, **47**, 2747 (*α-D-form, synth, α-D-oxime*)
Paulsen, H. *et al., Chem. Ber.*, 1969, **102**, 834; 3825 (*α-D-form, synth, α-D-acetylhydrazone, β-D-hydrazone, β-D-acetylhydrazone*)
Williams, E.H. *et al., Can. J. Chem.*, 1971, **49**, 796 (*β-D-form*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1972, 2596 (*α-D-phenylhydrazone*)
Collins, P.M. *et al., Carbohydr. Res.*, 1975, **45**, 127 (*β-D-phenylhydrazone*)

Methyl 4,6-*O*-benzylidene-2,3-dideoxy-3-nitro-*threo*-hex-2-enopyranoside M-161



α-D-*form*

$C_{14}H_{15}NO_6$ 293.276

α-D-*form* [16697-60-2]
Needles (EtOAc/petrol). Mp 185-186°.

*2-C-Me: Methyl 4,6-O-benzylidene-2,3-dideoxy-2-C-methyl-3-nitro-α-D-*threo*-hex-2-enopyranoside*
[70190-24-8]
$C_{15}H_{17}NO_6$ 307.302
Cryst. ($EtOAc/Et_2O$). Mp 214-215°. $[\alpha]_D$ +109 (c, 1.0 in $CHCl_3$).

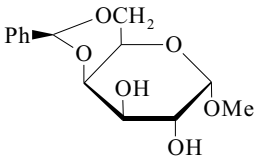
β-D-*form* [3650-62-2]
Needles (EtOAc/petrol). Mp 162°. $[\alpha]_D^{23}$ -47.8 (c, 1.0 in DMF).

[61664-98-0]

Baer, H.H. *et al., Can. J. Chem.*, 1965, **43**, 1829; **45**, 983; 1971, **49**, 3192; 1978, **56**, 3087

Methyl 4,6-*O*-benzylidene-α-D-galactopyranoside, 8CI M-162

Methyl 4,6-O-(phenylmethylene)-α-D-galactopyranoside, 9CI
[4288-93-1]



$C_{14}H_{18}O_6$ 282.293
The stable normal isomer (of the 2,3-di-Me deriv.) is the (1′*S*) epimer illus. The acid-labile (1′*R*) epimer can also be prepd. Needles (petrol/EtOH). Mp 170-172°. $[\alpha]_D$ +166.5 (c, 1.5 in $CHCl_3$).

2-Ac: Methyl 2-O-acetyl-4,6-O-benzylidene-α-D-galactopyranoside
[37180-49-7]
$C_{16}H_{20}O_7$ 324.33
Cryst. (EtOH). Mp 168-174°. $[\alpha]_{578}$ +156 (c, 0.5 in $CHCl_3$).

3-Ac: Methyl 3-O-acetyl-4,6-O-benzylidene-α-D-galactopyranoside
[37180-50-0]
$C_{16}H_{20}O_7$ 324.33
Mp 75-100° (ethanolate). $[\alpha]_{578}$ +232 (c, 1.0 in $CHCl_3$).

2,3-Di-Ac: Methyl 2,3-di-O-acetyl-4,6-O-benzylidene-α-D-galactopyranoside
[15451-81-7]
$C_{18}H_{22}O_8$ 366.367
Mp 117-118°. $[\alpha]_{578}$ +189 (c, 1.0 in $CHCl_3$).

2-Benzoyl: Methyl 2-O-benzoyl-4,6-O-benzylidene-α-D-galactopyranoside
[72659-78-0]
$C_{21}H_{22}O_7$ 386.401
Cryst. (EtOAc/hexane). Mp 202-204° (190°). $[\alpha]_D$ +164.5 (c, 0.15 in $CHCl_3$). $[\alpha]_D^{15}$ +146 (c, 1.2 in $CHCl_3$).

3-Benzoyl: Methyl 3-O-benzoyl-4,6-O-benzylidene-α-D-galactopyranoside
[72659-77-9]
$C_{21}H_{22}O_7$ 386.401
Cryst. (EtOAc/hexane). Mp 142-143° (139°). $[\alpha]_D^{19}$ +236 (c, 1.0 in $CHCl_3$).

2,3-Dibenzoyl: Methyl 2,3-di-O-benzoyl-4,6-O-benzylidene-α-D-galactopyranoside
$C_{28}H_{26}O_8$ 490.509
Mp 201-202°. $[\alpha]_D$ +231.3 (c, 1.0 in $CHCl_3$).

2-Tosyl: Methyl 4,6-O-benzylidene-2-O-tosyl-α-D-galactopyranoside
[58463-71-1]
$C_{21}H_{24}O_8S$ 436.482
Mp 179° (134-135°). $[\alpha]_D^{18}$ +118 (c, 1.0 in $CHCl_3$).

3-Tosyl: Methyl 4,6-O-benzylidene-3-O-tosyl-α-D-galactopyranoside
$C_{21}H_{24}O_8S$ 436.482
Mp 177-178°. $[\alpha]_D^{14}$ +185.2 (c, 1.9 in $CHCl_3$).

2,3-Ditosyl: Methyl 4,6-O-benzylidene-2,3-di-O-tosyl-α-D-galactopyranoside
[15384-63-1]
$C_{28}H_{30}O_{10}S_2$ 590.671
Cryst. ($CHCl_3/Et_2O$). Mp 182-183°. $[\alpha]_D^{14}$ +137.3 (c, 1.8 in $CHCl_3$).

2,3-Di-Me: Methyl 4,6-O-benzylidene-2,3-di-O-methyl-α-D-galactopyranoside
$C_{16}H_{22}O_6$ 310.346
Mp 117-119° Mp 158-160°. $[\alpha]_D$ +167 ($CHCl_3$). $[\alpha]_D$ +109 ($CHCl_3$) (diastereoisomers).

3-Benzyl: Methyl 3-O-benzyl-4,6-O-benzylidene-α-D-galactopyranoside
$C_{21}H_{24}O_6$ 372.417
Cryst. (EtOH). Mp 194°. $[\alpha]_D^{23}$ +186 (c, 1 in $CHCl_3$).

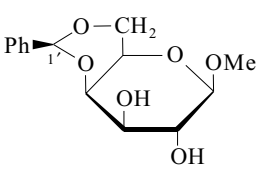
2,3-Dibenzyl: Methyl 2,3-di-O-benzyl-4,6-O-benzylidene-α-D-galactopyranoside
$C_{28}H_{30}O_6$ 462.541
Cryst. (EtOAc). Mp 174-175°. $[\alpha]_D^{25}$ +78.5 (c, 0.75 in $CHCl_3$).

2,3-Cyclic carbonate: Methyl 4,6-O-benzylidene-α-D-galactopyranoside 2,3-carbonate
[56155-88-5]
$C_{15}H_{16}O_7$ 308.287
Mp 224-227°.

Robertson, G.J. *et al., J.C.S.*, 1934, 1321 (*synth, di-Me*)
Sorkin, E. *et al., Helv. Chim. Acta*, 1945, **28**, 1 (*synth, 3-tosyl, ditosyl*)
Gyr, M. *et al., Helv. Chim. Acta*, 1945, **28**, 226 (*2-benzoyl, 3-benzoyl, dibenzoyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Baggett, N. *et al., Carbohydr. Res.*, 1965, **1**, 22 (*config*)
Kiss, J. *et al., Helv. Chim. Acta*, 1970, **53**, 1000 (*dibenzyl*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1972, **26**, 644 (*2-Ac, 3-Ac*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **21**, 73 (*pmr*)
Kardouche, N.G. *et al., J.C.S. Perkin 1*, 1975, 754 (*cyclic carbonate*)
Munavu, R.M. *et al., J.O.C.*, 1976, **41**, 1832, (*2-tosyl*)
Barnes, J.C. *et al., Carbohydr. Res.*, 1979, **69**, 47 (*di-Me, cryst struct*)
Szeja, W. *et al., Synthesis*, 1979, 821 (*2-benzoyl, 3-benzoyl*)
Kaifu, R. *et al., Carbohydr. Res.*, 1985, **140**, 37 (*3-benzyl*)
Abdel-Malik, M.M. *et al., Carbohydr. Res.*, 1987, **159**, 11 (*cmr, pmr*)

Methyl 4,6-*O*-benzylidene-β-D-galactopyranoside, 8CI M-163

Methyl 4,6-O-(phenylmethylene)-β-D-galactopyranoside, 9CI
[6988-39-2]



$C_{14}H_{18}O_6$ 282.293
Mp 198-200°. $[\alpha]_D$ -35.1 (c, 1.9 in $CHCl_3$). The stable normal isomer has the (1′*S*)-config. illustrated (as determined for the 2,3-di-Me deriv.). The acid-labile (1′*R*) isomer can be prepared indirectly.

*2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-benzylidene-β-D-galactopyranoside*
[37180-53-3]
$C_{16}H_{20}O_7$ 324.33
Mp 158-160° (194-195°). $[\alpha]_D$ +82 ($CHCl_3$). $[\alpha]_{578}$ +4 (c, 1.0 in $CHCl_3$).

*3-Ac: Methyl 3-*O*-acetyl-4,6-*O*-benzylidene-β-D-galactopyranoside*
[37180-54-4]
$C_{16}H_{20}O_7$ 324.33
Mp 75-78°. $[\alpha]_D$ +87 (c, 1.0 in $CHCl_3$).

*2,3-Di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-O-benzylidene-β-D-galactopyranoside*
$C_{18}H_{22}O_8$ 366.367
Mp 158-160°. $[\alpha]_{578}$ +82 (c, 1.0 in $CHCl_3$).

*2-Benzoyl: Methyl 2-*O*-benzoyl-4,6-O-benzylidene-β-D-galactopyranoside*
[51591-23-2]
$C_{21}H_{22}O_7$ 386.401
Mp 250-251° (232-233°). $[\alpha]_D^{23}$ +43.5 (c, 1.0 in Py). $[\alpha]_D$ +28.7 (c, 0.4 in $CHCl_3$).

*3-Benzoyl: Methyl 3-*O*-benzoyl-4,6-O-benzylidene-β-D-galactopyranoside*
[53167-15-0]
$C_{21}H_{22}O_7$ 386.401
Mp 165°. $[\alpha]_D$ +95 (c, 1.1 in $CHCl_3$). $[\alpha]_D^{23}$ +137 (c, 1.0 in Py).

*3-Tosyl: Methyl 4,6-*O*-benzylidene-3-O-tosyl-β-D-galactopyranoside*
$C_{21}H_{24}O_8S$ 436.482
Mp 171-172°. $[\alpha]_D^{20}$ +57.4 (c, 1.2 in $CHCl_3$).

*2,3-Ditosyl: Methyl 4,6-*O*-benzylidene-2,3-di-O-tosyl-β-D-galactopyranoside*
[6988-45-0]
$C_{28}H_{30}O_{10}S_2$ 590.671
Mp 171-172°. $[\alpha]_D^{20}$ +39.7 (c, 1.3 in $CHCl_3$).

*2-Benzyl: Methyl 2-*O*-benzyl-4,6-O-benzylidene-β-D-galactopyranoside*
$C_{21}H_{24}O_6$ 372.417
Mp 118-119°. $[\alpha]_D$ +22.4 ($CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-O-benzylidene-β-D-galactopyranoside*
$C_{28}H_{30}O_6$ 462.541
Cryst. (Et_2O/pentane). Mp 117°. $[\alpha]_D^{25}$ +47.6.

2-(Tetrahydropyran-2-yl): [24807-93-0]
Mp 164-165°. $[\alpha]_D$ +29.4 ($CHCl_3$).

*2,3-Di-Me: Methyl 4,6-*O*-benzylidene-2,3-di-O-methyl-β-D-galactopyranoside*
[4261-46-5]
$C_{16}H_{22}O_6$ 310.346
Needles (Et_2O/petrol). Mp 156-157.5° (148°). $[\alpha]_D$ -27 ($CHCl_3$) (+18).

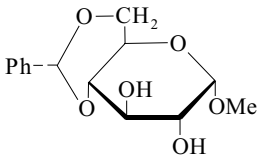
2,3-Cyclic carbonate: [18390-85-7]
Mp 254-257°.

Oldham, J.W.H. *et al., J.A.C.S.*, 1938, **60**, 323 (*synth, di-Me*)
Sorkin, E. *et al., Helv. Chim. Acta*, 1945, **28**, 1 (*synth, tosyl, ditosyl*)
deBelder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Baggett, N. *et al., Carbohydr. Res.*, 1965, **1**, 22 (*1'-config*)
Sibral, W. *et al., Tet. Lett.*, 1967, 4239 (*carbonate*)
Boren, H.B. *et al., Acta Chem. Scand.*, 1972, **26**, 644 (*2-Ac, 3-Ac*)
Veinberg, A.Y. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1974, **44**, 867 (*2-benzoyl, 3-benzoyl*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 333 (*dibenzyl*)
Abdel-Malik, M.M. *et al., Carbohydr. Res.*, 1987, **159**, 11 (*cmr, pmr*)

Methyl 4,6-*O*-benzylidene-α-D-glucopyranoside, 8CI M-164

[3162-96-7]

[57701-27-6]



$C_{14}H_{18}O_6$ 282.293

The stable isomer (of the 2,3-di-*O*-Me deriv.) has the (*R*)-config. illus. (originally erroneously assigned as (*S*-)). Mp 163-164°. $[\alpha]_D^{20}$ +110 (c, 2.0 in $CHCl_3$).

*2-Ac: Methyl 2-*O*-acetyl-4,6-O-benzylidene-α-D-glucopyranoside*
[25577-40-6]
$C_{16}H_{20}O_7$ 324.33
Prismatic needles. Mp 133-134° (128-130°). $[\alpha]_D^{26}$ +106 (c, 1.27 in $CHCl_3$).

*3-Ac: Methyl 3-*O*-acetyl-4,6-O-benzylidene-α-D-glucopyranoside*
[18031-57-7]
$C_{16}H_{20}O_7$ 324.33
Silky needles (Me_2CO/Et_2O/pentane). Mp 159-161° Mp 176-177°. $[\alpha]_D^{23}$ +114 (c, 0.57 in $CHCl_3$).

*Di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-O-benzylidene-α-D-glucopyranoside*
[4141-45-1]
$C_{18}H_{22}O_8$ 366.367
Mp 109-110°. $[\alpha]_D^{24}$ +72 (c, 1.04 in $CHCl_3$).

*2-Benzoyl: Methyl 2-*O*-benzoyl-4,6-O-benzylidene-α-D-glucopyranoside*
[28642-64-0]
$C_{21}H_{22}O_7$ 386.401
Cryst. (Me_2CO/Et_2O/pentane). Mp 169°. $[\alpha]_D$ +109 (c, 1.0 in $CHCl_3$).

*2-Benzoyl, 3-tosyl: Methyl 2-*O*-benzoyl-4,6-O-benzylidene-2-O-tosyl-α-D-glucopyranoside*
$C_{28}H_{28}O_9S$ 540.59
Mp 184-186°. $[\alpha]_D$ +83.8 ($CHCl_3$).

*3-Benzoyl: Methyl 3-*O*-benzoyl-4,6-O-benzylidene-α-D-glucopyranoside*
[33535-04-5]
$C_{21}H_{22}O_7$ 386.401
Needles (Me_2CO/Et_2O/pentane). Mp 219-220°. $[\alpha]_D^{26}$ +34 (c, 1.1 in $CHCl_3$).

*3-Benzoyl, 2-tosyl: Methyl 3-*O*-benzoyl-4,6-O-benzylidene-2-O-tosyl-α-D-glucopyranoside*
$C_{28}H_{28}O_9S$ 540.59
Mp 212-213°. $[\alpha]_D$ +51.6 ($CHCl_3$).

*Dibenzoyl: Methyl 2,3-di-*O*-benzoyl-4,6-O-benzylidene-α-D-glucopyranoside*
[6748-91-0]
$C_{28}H_{26}O_8$ 490.509
Cryst. (Me_2CO/Et_2O/pentane). Mp 152-153°. $[\alpha]_D$ +98.6 ($CHCl_3$).

*2-Mesyl: Methyl 4,6-*O*-benzylidene-2-O-mesyl-α-D-glucopyranoside*
[51016-18-3]
$C_{15}H_{20}O_8S$ 360.384
Mp 135-136°. $[\alpha]_D^{24}$ +73 (c, 2.2 in $CHCl_3$).

*2-Tosyl: Methyl 4,6-*O*-benzylidene-2-O-tosyl-α-D-glucopyranoside*
[6698-32-4]
$C_{21}H_{24}O_8S$ 436.482
Mp 153-154°. $[\alpha]_D^{20}$ +64 (c, 5.0 in $CHCl_3$).

*3-Tosyl: Methyl 4,6-*O*-benzylidene-3-O-tosyl-α-D-glucopyranoside*
[6698-34-6]
$C_{21}H_{24}O_8S$ 436.482
Mp 164-165°. $[\alpha]_D$ +32.3 (c, 1.1 in $CHCl_3$).

*Ditosyl: Methyl 4,6-*O*-benzylidene-2,3-di-O-tosyl-α-D-glucopyranoside*
[6884-01-1]
$C_{28}H_{30}O_{10}S_2$ 590.671
Mp 154-155°. $[\alpha]_D^{20}$ +12 (c, 6.0 in $CHCl_3$).

*Di-Me: Methyl 4,6-*O*-benzylidene-2,3-di-O-methyl-α-D-glucopyranoside*
[3051-89-6]
$C_{16}H_{22}O_6$ 310.346
Mp 122-123°. $[\alpha]_D^{20}$ +94.6 ($CHCl_3$).

*2-Benzyl: Methyl 2-*O*-benzyl-4,6-O-benzylidene-α-D-glucopyranoside*
[15384-58-4]
$C_{21}H_{24}O_6$ 372.417
Powder. Mp 131-132° (126-127°). $[\alpha]_D^{25}$ +34.7 (c, 0.95 in $CHCl_3$).

*2-Benzyl, 3-Ac: Methyl 3-*O*-acetyl-2-O-benzyl-4,6-O-benzylidene-α-D-glucopyranoside*
[99212-41-6]
$C_{23}H_{26}O_7$ 414.454
Mp 133-134°. $[\alpha]_D^{20}$ +30.2 (c, 1.1 in $CHCl_3$).

*3-Benzyl: Methyl 3-*O*-benzyl-4,6-O-benzylidene-α-D-glucopyranoside*
[14419-69-3]
$C_{21}H_{24}O_6$ 372.417
Powder. Mp 187-188°. $[\alpha]_D^{20}$ +79 (c, 1 in $CHCl_3$).

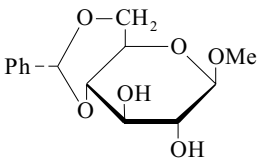
*Dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-O-benzylidene-α-D-glucopyranoside*
$C_{28}H_{30}O_6$ 462.541
Mp 93°. $[\alpha]_D$ +31.2 ($CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **2**, 378A (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann. Arbor, 1943, 260
Jeanloz, R.W. *et al., J.A.C.S.*, 1957, **79**, 2579 (*2-Ac, 3-Ac, di-Ac, 2-benzoyl, 3-benzoyl, ditosyl*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 107 (*synth*)
de Belder, A. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Horton, D. *et al., J.O.C.*, 1969, **34**, 86 (*synth, 3-Ac, di-Ac, pmr*)
Szarek, W.A. *et al., Carbohydr. Res.*, 1974, **35**, 203 (*3-tosyl, pmr*)
Conway, E. *et al., J.C.S. Perkin 2*, 1974, 542 (*cmr*)
Barnes, J.C. *et al., Carbohydr. Res.*, 1979, **69**, 47 (*di-Me, cryst struct*)
Baggett, N. *et al., Carbohydr. Res.*, 1979, **74**, C14 (*config*)

Hall, D.M. *et al., Carbohydr. Res.*, 1980, **86**, 158 (***synth***)
Baer, H.H. *et al., Carbohydr. Res.*, 1982, **110**, 19 (*tosyl derivs*)
Paulsen, H. *et al., Carbohydr. Res.*, 1985, **140**, 155-162 (*2-benzyl 3-Ac*)
Iacazio, G. *et al., J.C.S. Perkin 1*, 1993, 1099, (*2-Ac, 3-Ac, synth, pmr*)
Khanbabaee, K. *et al., J. Prakt. Chem.*, 1999, **341**, 159-166 (*2-benzyl, 3-benzyl*)
Spanevello, R.A. *et al., Org. Prep. Proced. Int.*, 1999, **31**, 460-462 (*synth*)
Joseph, C.C. *et al., Synth. Commun.*, 2003, **33**, 493-497 (*synth*)

Methyl 4,6-*O*-benzylidene-β-D-glucopyranoside, 8CI M-165

*Methyl 4,6-*O*-(phenylmethylene)-β-D-glucopyranoside, 9CI*
[14155-23-8]



$C_{14}H_{18}O_6$ 282.293

The benzylidene config. appears to be (*R*-) as illus., but this does not appear to be explicit in the lit. Cryst. (EtOH aq.). Mp 198-199°. $[\alpha]_D$ -67.4 (c, 0.98 in $CHCl_3$). The 2-OH and 3-OH groups show little selectivity in partial etherification or esterification reactions, unlike Methyl 4,6-*O*-benzylidene-α-D-glucopyranoside, M-164.

*Di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[20750-01-0]
$C_{18}H_{22}O_8$ 366.367
Mp 171-172°. $[\alpha]_D$ -90.1 ($CHCl_3$).

*Dibenzoyl: Methyl 2,3-di-*O*-benzoyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
$C_{28}H_{26}O_8$ 490.509
Mp 185°. $[\alpha]_D$ +15.8 ($CHCl_3$).

*2-Tosyl: Methyl 4,6-*O*-benzylidene-2-*O*-tosyl-β-D-glucopyranoside*
[14187-68-9]
$C_{21}H_{24}O_8S$ 436.482
Mp 122-123°. $[\alpha]_D^{21}$ -54.1 (c, 0.22 in $CHCl_3$).

*3-Tosyl: Methyl 4,6-*O*-benzylidene-3-*O*-tosyl-β-D-glucopyranoside*
[14187-69-0]
$C_{21}H_{24}O_8S$ 436.482
Mp 155-156°. $[\alpha]_D^{20}$ -81.4 (c, 0.58 in $CHCl_3$). The earlier (1939) report of this compound (Mp 175-176°) is an error.

*Ditosyl: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-tosyl-β-D-glucopyranoside*
[30010-02-7]
$C_{28}H_{30}O_{10}S_2$ 590.671
Mp 160-161° (158°). $[\alpha]_D^{21}$ -60.7 (c, 0.46 in $CHCl_3$).

*2-Mesyl: Methyl 4,6-*O*-benzylidene-2-*O*-mesyl-β-D-glucopyranoside*
[29845-74-7]
$C_{15}H_{20}O_8S$ 360.384
Mp 164-165.5°. $[\alpha]_D^{21}$ -69.6 (c, 0.76 in $CHCl_3$).

*3-Mesyl: Methyl 4,6-*O*-benzylidene-3-*O*-mesyl-β-D-glucopyranoside*
[29845-75-8]
$C_{15}H_{20}O_8S$ 360.384
Mp 187-189°. $[\alpha]_D^{21}$ -57 (c, 0.52 in $CHCl_3$).

*Dimesyl: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-mesyl-β-D-glucopyranoside*
[26532-07-0]
$C_{16}H_{22}O_{10}S_2$ 438.476
Cryst. ($CHCl_3$/petrol). Mp 148-149°.

*2-Me: Methyl 4,6-*O*-benzylidene-2-*O*-methyl-β-D-glucopyranoside*
$C_{15}H_{20}O_6$ 296.319
Needles (EtOH). Mp 175-176° (170-171°). $[\alpha]_D$ -69.2 ($CHCl_3$) (-67.3).

*2-Me, 3-tosyl: Methyl 4,6-*O*-benzylidene-2-*O*-methyl-3-*O*-tosyl-β-D-glucopyranoside*
$C_{22}H_{26}O_8S$ 450.509
Prisms (EtOH). Mp 139-139.5° (135-136°). $[\alpha]_D$ -84.3 (c, 2 in $CHCl_3$).

*3-Me: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-β-D-glucopyranoside*
[35775-68-9]
$C_{15}H_{20}O_6$ 296.319
Mp 174° (164°). $[\alpha]_D$ -50 ($CHCl_3$).

*3-Me, 2-mesyl: Methyl 4,6-*O*-benzylidene-2-*O*-mesyl-3-*O*-methyl-β-D-glucopyranoside*
[52260-45-4]
$C_{16}H_{22}O_8S$ 374.411
Cryst. ($CHCl_3$/diisopropyl ether). Mp 126.5°. $[\alpha]_D^{27}$ -56 (c, 1.0 in $CHCl_3$).

*3-Me, 2-benzoyl: Methyl 2-*O*-benzoyl-4,6-*O*-benzylidene-3-*O*-methyl-β-D-glucopyranoside*
[52260-49-8]
$C_{22}H_{24}O_7$ 400.427
Cryst. (Me_2CO/diisopropyl ether). Mp 146°. $[\alpha]_D^{27}$ -9 (c, 1.0 in $CHCl_3$).

*3-Me, 2-tosyl: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-2-*O*-tosyl-β-D-glucopyranoside*
$C_{22}H_{26}O_8S$ 450.509
Mp 125-126°. $[\alpha]_D$ -34.1 (c, 0.76 in $CHCl_3$).

*Di-Me: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-methyl-β-D-glucopyranoside*
[13035-20-6]
$C_{16}H_{22}O_6$ 310.346
Mp 140-141° (132-133°). $[\alpha]_D$ -59 ($CHCl_3$).

*2-Benzyl: Methyl 2-*O*-benzyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[57539-07-8]
$C_{21}H_{24}O_6$ 372.417
Powder. Mp 124-125°. $[\alpha]_D^{20}$ -28 (c, 1 in $CHCl_3$).

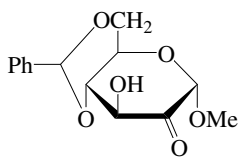
*3-Benzyl: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[57539-08-9]
$C_{21}H_{24}O_6$ 372.417
Powder. Mp 188-189°. $[\alpha]_D^{20}$ -47 (c, 1 in $CHCl_3$).

*Dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
$C_{28}H_{30}O_6$ 462.541
Cryst. (petrol). Mp 187-188° (182-183°). $[\alpha]_D$ -60 (c, 1.2 in $CHCl_3$). There is also an unstable lower-melting form.

[71117-37-8]

Freudenberg, K. *et al., Ber.*, 1928, **61**, 1750 (*synth, 3-Me, di-Me*)
Mathers, D.S. *et al., J.C.S.*, 1933, 696 (*di-Ac, di-Me*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 264 (*rev*)
Oldham, J.W.H. *et al., J.A.C.S.*, 1939, **61**, 1112 (*3-tosyl, 3-tosyl-2-Me, 2-Me, di-Me*)
Bolliger, H.R. *et al., Helv. Chim. Acta*, 1946, **29**, 1116 (*2-tosyl, di-Me*)
Capon, B. *et al., Tetrahedron*, 1961, **16**, 106 (*synth*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Guthrie, R.D. *et al., J.C.S.(C)*, 1970, 1961, (*2-tosyl, 2-mesyl, 3-mesyl, dimesyl*)
Brimacombe, J.S. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 376 (*dibenzyl*)
Miljković, M. *et al., J.O.C.*, 1974, **39**, 3223, (*3-Me, 2-benzoyl*)
Hall, D.M. *et al., Carbohydr. Res.*, 1980, **86**, 158 (***synth***)
Baer, H.H. *et al., Carbohydr. Res.*, 1982, **110**, 19 (*tosyl derivs*)
Takeo, K. *et al., Carbohydr. Res.*, 1984, **133**, 147 (*derivs*)
Lee, E. *et al., Carbohydr. Res.*, 1990, **208**, 231 (*cryst struct, pmr, cmr, 2-Me-3-tosyl*)
Khanbabaee, K. *et al., J. Prakt. Chem.*, 1999, **341**, 159-166 (*2-benzyl, 3-benzyl*)
Joseph, C.C. *et al., Synth. Commun.*, 2003, **33**, 493-497 (*synth*)

Methyl 4,6-*O*-benzylidene-*arabino*-hexopyranosid-2-ulose M-166



α-D-*form*

$C_{14}H_{16}O_6$ 280.277

α-D-*form*

*3-Ac: Methyl 3-*O*-acetyl-4,6-*O*-benzylidene-α-D-*arabino*-hexopyranosid-2-ulose*
[55338-59-5]
$C_{16}H_{18}O_7$ 322.314
Cryst. (EtOH). Mp 103-104°. $[\alpha]_D^{14}$ +36 (c, 0.6 in $CHCl_3$).

*3-Benzoyl: Methyl 3-*O*-benzoyl-4,6-*O*-benzylidene-α-D-*arabino*-hexopyranosid-2-ulose*
[38993-01-0]
$C_{21}H_{20}O_7$ 384.385
Needles (CH_2Cl_2/Et_2O/pentane). Mp 51-52° Mp 114-116°. $[\alpha]_D$ -18 (c, 0.5 in EtOH). $[\alpha]_D^{20}$ -8 (c, 0.9 in $CHCl_3$).

*3-Tosyl: Methyl 4,6-*O*-benzylidene-3-*O*-tosyl-α-D-*arabino*-hexopyranosid-2-ulose*
$C_{21}H_{22}O_8S$ 434.466
Cryst. (EtOAc/petrol). Mp 162-164°. $[\alpha]_D$ +6.3 (c, 1.1 in $CHCl_3$).

*3-Me: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-α-D-*arabino*-hexopyranosid-2-ulose*
[29774-59-2]
$C_{15}H_{18}O_6$ 294.304
Needles (Me_2CO/diisopropyl ether). Mp 134-135°. $[\alpha]_D^{27}$ +42 (c, 1.0 in $CHCl_3$).

3-C-*Me, 3-deoxy: Methyl 4,6*-O-*benzylidene-3-deoxy-3*-C-*methyl-α-D*-arabino-*hexopyranosid-2-ulose*
$C_{15}H_{18}O_5$ 278.304
Cryst. (EtOAc/hexane). Mp 130-131°. $[\alpha]_D$ +58 (c, 1.3 in $CHCl_3$).

3-C-*Et, 3-deoxy: Methyl 4,6*-O-*benzylidene-3-deoxy-3*-C-*ethyl-α-D*-arabino-*hexopyranosid-2-ulose*
[31022-37-4]
$C_{16}H_{20}O_5$ 292.331
Cryst. (petrol). Mp 108°. $[\alpha]_D$ +57.5 (c, 2 in $CHCl_3$).

β-D-*form*

3-Benzoyl: Methyl 3-O-*benzoyl-4,6*-O-*benzylidene-β-D*-arabino-*hexopyranosid-2-ulose*
$C_{21}H_{20}O_7$ 384.385
Needles (CH_2Cl_2/Et_2O/pentane). Mp 166-168°. $[\alpha]_D$ -126 (c, 0.6 in $CHCl_3$).

3-Tosyl: Methyl 4,6-O-*benzylidene-3*-O-*tosyl-β-D*-arabino-*hexopyranosid-2-ulose*
$C_{21}H_{22}O_8S$ 434.466
Cryst. ($CHCl_3$/petrol). Mp 212-213°. $[\alpha]_D$ -94.2 (c, 0.5 in $CHCl_3$).

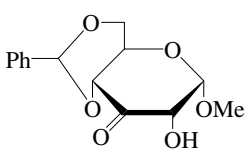
3-Me: Methyl 4,6-O-*benzylidene-3*-O-*methyl-β-D*-arabino-*hexopyranosid-2-ulose*
[29774-60-5]
$C_{15}H_{18}O_6$ 294.304
Needles (Me_2CO/diisopropyl ether). Mp 167-169°. $[\alpha]_D^{17}$ -73 (c, 1.2 in $CHCl_3$).

3-Me, phenylhydrazone: Mp 162-163°.

Inch, T.D. *et al., Carbohydr. Res.*, 1971, **19**, 17 (*α-D-3-C-Et 3-deoxy*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1972, 2596 (*α-D-benzoyl, β-D-benzoyl*)
Kondo, Y. *et al., Agric. Biol. Chem.*, 1974, **38**, 2553 (*α-D-Ac, α-D-Me*)
Szarek, W.A. *et al., Carbohydr. Res.*, 1974, **35**, 203 (*α-D-tosyl, β-D-tosyl*)
Miljkovič, M. *et al., J.O.C.*, 1974, **39**, 2118, (*α-D-Me, β-D-Me*)
Lichtenthaler, F.L. *et al., Carbohydr. Res.*, 1976, **49**, 57 (*α-D-benzoyl*)
Nakata, M. *et al., Bull. Chem. Soc. Jpn.*, 1980, **53**, 3252 (*α-D-3-C-Me 3-deoxy*)

Methyl 4,6-*O*-benzylidene-*ribo*-hexopyranosid-3-ulose, 9CI M-167

[3051-92-1]



α-D-*form*

$C_{14}H_{16}O_6$ 280.277
Cryst. (EtOH aq.). Mp 193°. $[\alpha]_D^{23}$ +123 (c, 0.3 in Me_2CO).

α-D-*form*

Ac: Methyl 2-O-*acetyl-4,6*-O-*benzylidene-α-D*-ribo-*hexopyranosid-3-ulose*
[42400-52-2]
$C_{16}H_{18}O_7$ 322.314
Mp 187°. $[\alpha]_D^{16}$ +65 (c, 1.0 in $CHCl_3$).

Benzoyl: Methyl 2-O-*benzoyl-4,6*-O-*benzylidene-α-D*-ribo-*hexopyranosid-3-ulose*
[28642-65-1]
$C_{21}H_{20}O_7$ 384.385
Mp 198-199°. $[\alpha]_D$ +94 (c, 0.5 in $CHCl_3$).

Mesyl: Methyl 4,6-O-*benzylidene-2*-O-*mesyl-α-D*-ribo-*hexopyranosid-3-ulose*
$C_{15}H_{18}O_8S$ 358.368
Cryst. (EtOH). Mp 181-183°. $[\alpha]_D^{22}$ +40.1 ($CHCl_3$).

Tosyl: Methyl 4,6-O-*benzylidene-2*-O-*tosyl-α-D*-ribo-*hexopyranosid-3-ulose*
$C_{21}H_{22}O_8S$ 434.466
Needles (EtOH). Mp 165-167°. $[\alpha]_D^{25}$ +44.9 ($CHCl_3$).

2-Me: Methyl 4,6-O-*benzylidene-2*-O-*methyl-α-D*-ribo-*hexopyranosid-3-ulose*
$C_{15}H_{18}O_6$ 294.304
Needles (EtOH/pentane). Mp 198-200°. $[\alpha]_D$ +45 (c, 1 in $CHCl_3$).

β-D-*form* [64482-53-7]
Mp 156-158°.

Oxime: [72503-81-2]
$C_{14}H_{17}NO_6$ 295.291
Cryst. (EtOAc/petrol). Mp 169° dec. $[\alpha]_D$ -55.7 (c, 0.4 in $CHCl_3$).

2-Ac: Methyl 2-O-*acetyl-4,6*-O-*benzylidene-β-D*-ribo-*hexopyranosid-3-ulose*
[51306-39-9]
$C_{16}H_{18}O_7$ 322.314
Mp 210-211°. $[\alpha]_D^{23}$ -95 (c, 1 in $CHCl_3$).

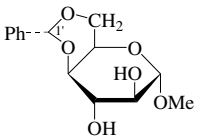
2-Benzoyl: Methyl 2-O-*benzoyl-4,6*-O-*benzylidene-β-D*-ribo-*hexopyranosid-3-ulose*
[38993-04-3]
$C_{21}H_{20}O_7$ 384.385
Mp 198-199° dec. $[\alpha]_D$ -12 (c, 0.5 in $CHCl_3$).

2-Tosyl: Methyl 4,6-O-*benzylidene-2*-O-*tosyl-β-D*-ribo-*hexopyranosid-3-ulose*
[55338-60-8]
$C_{21}H_{22}O_8S$ 434.466
Cryst. (EtOH). Mp 163-165°. $[\alpha]_D^{24}$ -62.4 (c, 0.7 in DMF).

2-Me: Methyl 4,6-O-*benzylidene-2*-O-*methyl β-D*-ribo-*hexopyranosid-3-ulose*
[58227-69-3]
$C_{15}H_{18}O_6$ 294.304
Mp 217-219°. $[\alpha]_D^{23}$ -110.5.

Baker, B.R. *et al., J.O.C.*, 1965, **30**, 2304 (*α-D-mesyl, tosyl*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1972, 1670; 2596 (*α-D-benzoyl, Me, β-D-benzoyl*)
Kondo, Y. *et al., Can. J. Chem.*, 1973, **51**, 1476 (*α-D-Ac*)
Kondo, Y. *et al., Carbohydr. Res.*, 1973, **30**, 386 (*β-D-Ac*)
Kondo, Y. *et al., Agric. Biol. Chem.*, 1974, **38**, 2553 (*β-D-tosyl*)
Defaye, J. *et al., Carbohydr. Res.*, 1974, **35**, 264 (*α-D- synth, Ac*)
Sato, K. *et al., Bull. Chem. Soc. Jpn.*, 1978, **51**, 2116 (*Me, pmr*)
Baer, H.H. *et al., Carbohydr. Res.*, 1979, **76**, 141 (*α-D-oxime*)

Methyl 4,6-*O*-benzylideneidopyranoside M-168



α-D-(1'*R*)-*form*

$C_{14}H_{18}O_6$ 282.293

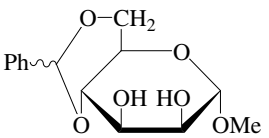
α-D-(1′*R*)-*form*
Fine needles (EtOH). Mp 123-125°. $[\alpha]_D^{24}$ +83 (c, 1.1 in EtOH). $[\alpha]_D^{24}$ +59 (c, 0.7 in $CHCl_3$). Prepared indirectly, referred to as the 'non-natural' isomer.

α-D-(1′*S*)-*form*
Mp 147-149°. $[\alpha]_D^{20}$ +49.1 ($CHCl_3$). The predominant isomer obt. by direct benzylidenation.

Ditosyl: Methyl 4,6-O-*benzylidene-2,3-di*-O-*tosyl-α-D-idopyranoside*
$C_{28}H_{30}O_{10}S_2$ 590.671
Mp 153-155°. $[\alpha]_D$ +35.7 ($CHCl_3$).

Zobáčová, A. *et al., Coll. Czech. Chem. Comm.*, 1971, **36**, 1860 (*synth*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **81**, 35 (*synth*)

Methyl 4,6-*O*-benzylidene-mannopyranoside M-169



α-D-*form*

$C_{14}H_{18}O_6$ 282.293

α-D-*form*
Mp 146-147°. $[\alpha]_D$ +71.7 (c, 1.18 in $CHCl_3$).

2,3-Di-Ac: Methyl 2,3-di-O-*acetyl-4,6*-O-*benzylidene-α-D-mannopyranoside*
[6748-84-1]
$C_{18}H_{22}O_8$ 366.367
Mp 59-63°. $[\alpha]_D^{20}$ +21.4 (c, 2 in $CHCl_3$).

2-Benzoyl: Methyl 2-O-*benzoyl-4,6*-O-*benzylidene-α-D-mannopyranoside*
[55169-75-0]
$C_{21}H_{22}O_7$ 386.401
Amorph. $[\alpha]_D^{25}$ -45.1 (c, 0.3 in $CHCl_3$).

2-Benzoyl, 3-tosyl: Methyl 2-O-*benzoyl-4,6*-O-*benzylidene-3*-O-*tosyl-α-D-mannopyranoside*
[56341-64-1]
$C_{28}H_{28}O_9S$ 540.59
Mp 186-188°. $[\alpha]_D$ -34 (c, 0.5 in $CHCl_3$).

3-Benzoyl: Methyl 3-O-*benzoyl-4,6*-O-*benzylidene-α-D-mannopyranoside*
[52260-51-2]
$C_{21}H_{22}O_7$ 386.401
Mp 132-133°. $[\alpha]_D^{22}$ -26.1 (c, 1.3 in $CHCl_3$).

3-Benzoyl, 2-tosyl: Methyl 3-O-*benzoyl-4,6*-O-*benzylidene-2*-O-*tosyl-α-D-mannopyranoside*
[53008-55-2]

$C_{28}H_{28}O_9S$ 540.59
Mp 214-215°. $[\alpha]_D^{25}$ -35 (c, 1 in $CHCl_3$).

*2,3-Dimesyl: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-mesyl-α-D-mannopyranoside*
[23819-27-4]
$C_{16}H_{22}O_{10}S_2$ 438.476
Mp 202-204°. $[\alpha]_D^{20}$ -1.76 (c, 1.1 in $CHCl_3$).

*3-Tosyl: Methyl 4,6-*O*-benzylidene-3-*O*-tosyl-α-D-mannopyranoside*
[32934-18-2]
$C_{21}H_{24}O_8S$ 436.482
Mp 155-156°. $[\alpha]_D^{17}$ +24.5 (c, 2.57 in $CHCl_3$).

*2,3-Ditosyl: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-tosyl-α-D-mannopyranoside*
[6748-86-3]
$C_{28}H_{30}O_{10}S_2$ 590.671
Cryst. (EtOH). Mp 163-164°. $[\alpha]_D^{33}$ -5.5 (c, 1.9 in $CHCl_3$).

*3-Me: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-α-D-mannopyranoside*
[52260-48-7]
$C_{15}H_{20}O_6$ 296.319
Syrup. $[\alpha]_D^{27}$ +76 (c, 1 in $CHCl_3$).

*3-Me, 2-benzoyl: Methyl 2-*O*-benzoyl-4,6-*O*-benzylidene-3-*O*-methyl-α-D-mannopyranoside*
$C_{22}H_{24}O_7$ 400.427
Syrup. $[\alpha]_D^{27}$ -48 (c, 1 in $CHCl_3$).

*3-Me, 2-mesyl: Methyl 4,6-*O*-benzylidene-2-*O*-mesyl-3-*O*-methyl-α-D-mannopyranoside*
$C_{16}H_{22}O_8S$ 374.411
Mp 185-186°. $[\alpha]_D^{27}$ +22 (c, 0.7 in $CHCl_3$).

*2,3-Di-Me: Methyl 4,6-*O*-benzylidene-2,3-di-*O*-methyl-α-D-mannopyranoside*
$C_{16}H_{22}O_6$ 310.346
Syrup. $Bp_{0.5}$ 185-190°. $[\alpha]_D^{21}$ +60.7 (c, 2.4 in $CHCl_3$).

*2-Benzyl: Methyl 2-*O*-benzyl-4,6-*O*-benzylidene-α-D-mannopyranoside*
[23392-29-2]
$C_{21}H_{24}O_6$ 372.417
Cryst. (EtOH). Mp 42-44°. $[\alpha]_D$ +2 (c, 1 in $CHCl_3$).

*3-Benzyl: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-α-D-mannopyranoside*
[23392-28-1]
$C_{21}H_{24}O_6$ 372.417
Cryst. (MeOH). Mp 68-69°. $[\alpha]_D$ +6.7 ($CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-4,6-*O*-benzylidene-α-D-mannopyranoside*
$C_{28}H_{30}O_6$ 462.541
Syrup. $[\alpha]_D^{18}$ +26.7 (c, 2.2 in $CHCl_3$).

β-D-*form*
Cryst. (C_6H_6). Mp 180-182°. $[\alpha]_D$ -98 (c, 1.3 in $CHCl_3$).

*3-Me: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-β-D-mannopyranoside*
[51364-57-9]
$C_{15}H_{20}O_6$ 296.319
Needles (Me_2CO/diisopropyl ether). Mp 187-188°. $[\alpha]_D^{27}$ -70 (c, 1.0 in $CHCl_3$).

*3-Me, 2-benzoyl: Methyl 2-*O*-benzoyl-4,6-*O*-benzylidene-3-*O*-methyl-β-D-mannopyranoside*
[52260-50-1]
$C_{22}H_{24}O_7$ 400.427
Syrup. $[\alpha]_D^{27}$ -112 (c, 1.0 in $CHCl_3$).

*3-Me, 2-mesyl: Methyl 4,6-*O*-benzylidene-2-*O*-mesyl-3-*O*-methyl-β-D-mannopyranoside*
[52260-47-6]
$C_{16}H_{22}O_8S$ 374.411
Mp 182°. $[\alpha]_D^{27}$ -79 (c, 1.0 in $CHCl_3$).
AF1200.

*3-Me, 2-tosyl: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-2-*O*-tosyl-β-D-mannopyranoside*
$C_{22}H_{26}O_8S$ 450.509
Amorph. $[\alpha]_D^{25}$ -25 (c, 0.5 in $CHCl_3$).

*2-Benzyl: Methyl 2-*O*-benzyl-4,6-*O*-benzylidene-β-D-mannopyranoside*
$C_{21}H_{24}O_6$ 372.417
Cryst. (EtOH). Mp 153-154°. $[\alpha]_D$ -131 (c, 0.2 in $CHCl_3$).

*3-Benzyl: Methyl 3-*O*-benzyl-4,6-*O*-benzylidene-β-D-mannopyranoside*
[2774-19-8]
$C_{21}H_{24}O_6$ 372.417
Cryst. (EtOH). Mp 120-121°. $[\alpha]_D$ -32 (c, 0.8 in $CHCl_3$).

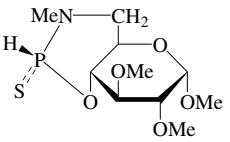
*2,3-Anhydro: Methyl 2,3-anhydro-4,6-*O*-benzylidene-β-D-mannopyranoside*
[2880-96-8]
$C_{14}H_{16}O_5$ 264.277
Mp 185-187°. $[\alpha]_D^{25}$ -28.5 (c, 0.35 in $CHCl_3$).

[78185-83-8]

Buchanan, J.G. *et al., J.C.S.*, 1962, 4770 (*synth, 3-tosyl, ditosyl*)
Wiggins, L.F. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 188 (*2,3-anhydro*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev*)
Garegg, P.J. *et al., Ark. Kemi*, 1965, **23**, 255 (*synth, 2-benzyl, 3-benzyl*)
Horton, D. *et al., Carbohydr. Res.*, 1968, **7**, 101 (*di-Ac*)
Guthrie, R.D. *et al., J.C.S.(C)*, 1970, 1961, (*2,3-anhydro*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1972, **26**, 1082 (*2-benzyl*)
Seymour, F.R. *et al., Carbohydr. Res.*, 1974, **34**, 65 (*3-benzoyl, 3-benzoyl 2-tosyl, pmr*)
Conway, E. *et al., J.C.S. Perkin 2*, 1974, 542 (*cmr*)
Miljković, M. *et al., J.O.C.*, 1974, **39**, 2118; 3223 (*3-Me, 3-Me 2-benzoyl, 3-Me 2-mesyl*)
Abbas, S.A. *et al., Carbohydr. Res.*, 1975, **39**, 358 (*2-benzoyl 3-tosyl, 2-benzoyl, 3-benzoyl*)
Seymour, F.R. *et al., Carbohydr. Res.*, 1976, **46**, 189 (*ditosyl*)
Srivastava, H.C. *et al., Carbohydr. Res.*, 1977, **58**, 227 (*3-benzyl*)
Kondo, Y. *et al., Carbohydr. Res.*, 1983, **123**, 157 (*dibenzyl*)
Misra, A.K. *et al., Synth. Commun.*, 1996, **26**, 2857 (*3-benzyl*)
Tennant-Eyles, R.J. *et al., Tetrahedron: Asymmetry*, 2003, **14**, 1201-1210 (*synth*)

Methyl 6-deoxy-2,3-di-*O*-methyl-6-methylaminoglucopyranoside 4,6-cyclic thiophosphonamide **M-170**

Octahydro-3-methylpyrano[2,3-e]-1,3,2-oxazaphosphorine 2-sulfide. 8,9,10-Trimethoxy-4-methyl-2,7,4-dioxaza-3-phosphabicyclo[4.4.0]decane 3-sulfide



α-D-$(R)_P$-*form*

$C_{10}H_{20}NO_5PS$ 297.311

α-D-$(R)_P$-*form*

P-*Me:*
$C_{11}H_{22}NO_5PS$ 311.338
Cryst. (petrol). Mp 181-183°. $[\alpha]_D$ +57 (c, 1.8 in $CHCl_3$).

P-*Chloro:*
$C_{10}H_{19}ClNO_5PS$ 331.756
Cryst. (petrol). Mp 123-127°. $[\alpha]_D$ +57 (c, 1.2 in $CHCl_3$). Has $(S)_P$-config.

α-D-$(S)_P$-*form*

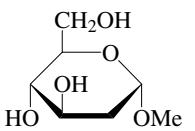
P-*Me:*
Cryst. (petrol). Mp 123°. $[\alpha]_D$ +142 (c, 1.2 in $CHCl_3$).

P-*Methoxy:*
$C_{11}H_{22}NO_6PS$ 327.338
Cryst. (petrol). Mp 70-73°. $[\alpha]_D$ +153 (c, 1 in $CHCl_3$). Has $(R)_P$-config.

Harrison, J.M. *et al., J.C.S. Perkin 1*, 1975, 1892 (*synth, pmr, P nmr*)

Methyl 2-deoxy-*arabino*-hexopyranoside **M-171**

Methyl 2-deoxyglucopyranoside



α-D-*form*

$C_7H_{14}O_5$ 178.185

α-D-*form* [13145-22-7]
Mp 91°. $[\alpha]_D^{20}$ +137.9 (H_2O).

*4,6-*O*-Benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-α-D-*arabino*-hexopyranoside*
[6752-48-3]
$C_{14}H_{18}O_5$ 266.293
Mp 152-153°. $[\alpha]_D^{20}$ +82.5 (EtOH).

*4,6-*O*-Benzylidene, 3-mesyl: Methyl 4,6-*O*-benzylidene-2-deoxy-3-*O*-mesyl-α-D-*arabino*-hexopyranoside*
[16848-72-9]
$C_{15}H_{20}O_7S$ 344.385
Cryst. (MeOH). Mp 131-132°. $[\alpha]_D^{20}$ +77.3 ($CHCl_3$).

*4,6-*O*-Benzylidene, 3-*p*-nitrobenzenesulfonyl:* [14929-18-1]
Mp 121° dec.

*4,6-*O*-Benzylidene, 3-tosyl: Methyl 4,6-*O*-benzylidene-2-deoxy-3-*O*-tosyl-α-D-*arabino*-hexopyranoside*
[14929-13-6]

$C_{21}H_{24}O_7S$ 420.482
Mp 95° (119°).

*4,6-*O*-Benzylidene, 3-Me: Methyl 4,6-*O*-benzylidene-2-deoxy-3-*O*-methyl-α-D-*arabino*-hexopyranoside*
[53131-18-3]
$C_{15}H_{20}O_5$ 280.32
Cryst. (hexane). Mp 103-104°. $[\alpha]_D^{20}$ +99 (c, 1.5 in $CHCl_3$).

*4-*O*-(6-Deoxy-3-*O*-methyl-β-D-allopyranoside): **α-Methyl dredehongbioside***
[117841-36-8]
$C_{14}H_{26}O_9$ 338.354
Constit. of *Dregea volubilis*.

β-D-*form* [29084-15-9]
Mp 122°. $[\alpha]_D^{20}$ -48.4 (H_2O).

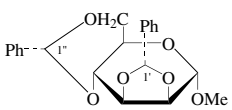
*Tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-deoxy-β-D-*arabino*-hexopyranoside*
$C_{13}H_{20}O_8$ 304.296
Mp 99-100°. $[\alpha]_D$ -26 (c, 1.1 in $CHCl_3$).

*4,6-*O*-Benzylidene: Methyl 4,6-*O*-benzylidene-2-deoxy-β-D-*arabino*-hexopyranoside*
[52612-68-7]
$C_{14}H_{18}O_5$ 266.293
Mp 155-156°. $[\alpha]_D$ -67 ($CHCl_3$).

*4,6-*O*-Benzylidene, 3-Ac: Methyl 3-*O*-acetyl-4,6-*O*-benzylidene-2-deoxy-β-D-*arabino*-hexopyranoside*
[52443-47-7]
$C_{16}H_{20}O_6$ 308.33
Mp 141-142°. $[\alpha]_D$ -69.3 (c, 1 in $CHCl_3$).

McNally, S. *et al., J.C.S.(C)*, 1966, 1978, (*α-D-benzylidene nitrobenzenesulfonyl, α-D-benzylidene tosyl*)
Kovář, J. *et al., Coll. Czech. Chem. Comm.*, 1967, **32**, 2498 (*α-D-benzylidene mesyl*)
Kumazawa, S. *et al., Angew. Chem., Int. Ed.*, 1973, **12**, 921 (*β-D-benzylidene Ac*)
Arduini, A. *et al., Carbohydr. Res.*, 1973, **31**, 255 (*pmr*)
Charon, D. *et al., Carbohydr. Res.*, 1974, **34**, 271 (*α-D-benzylidene Me*)
Baer, H.H. *et al., Carbohydr. Res.*, 1975, **39**, C8 (*β-D-benzylidene*)
Chiu, M. *et al., Zhiwu Xuebao*, 1988, **30**, 297; *CA*, **110**, 4673j (*Methyl dredehongbioside*)
Lee, E. *et al., Carbohydr. Res.*, 1991, **219**, 229 (*synth, pmr, cryst struct, β-D-tri-Ac*)
Evdokimov, A.G. *et al., Acta Cryst. C*, 1997, **53**, 264-266 (*cryst struct,α-D-form*)

Methyl 2,3:4,6-di-*O*-benzylidenemannopyranoside M-172



α-D-(1'*S*,1"*R*)-*form*

$C_{21}H_{22}O_6$ 370.401
Synthetic intermed. for chiral substances. The synthetic method of Jones *et al* is greatly superior but gives only the (1′*S*,1″*R*)-isomer.

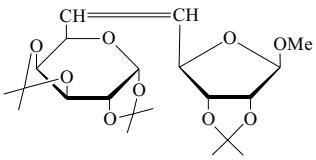
α-D-(1′*R*,1″*R*)-*form*
Mp 96-98°. $[\alpha]_D$ -61 ($CHCl_3$).

α-D-(1′*S*,1″*R*)-*form* [71484-87-2]
Cryst. (Me_2CO). Mp 182-184°. $[\alpha]_D$ 0 (c, 1 in $CHCl_3$).

[4148-71-4]

Robertson, G.J. *et al., J.C.S.*, 1934, 330
Honeyman, J. *et al., J.C.S.*, 1954, 744
Horton, D. *et al., Carbohydr. Res.*, 1975, **44**, 227
Lipták, A. *et al., Carbohydr. Res.*, 1979, **73**, 327 (*pmr*)
Lipták, A. *et al., Tetrahedron*, 1979, **35**, 1111 (*cmr*)
Jones, D.N. *et al., Synth. Commun.*, 1992, **22**, 1687 (***synth, pmr***)

Methyl 5,6-dideoxy-2,3:8,9:10,11-tri-*O*-isopropylidene-L-*lyxo*-α-L-*talo*-undec-5-enodialdo-1,4-furanoside-11,7-pyranose M-173



(*Z*)−*form*

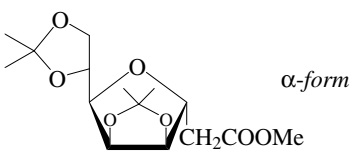
$C_{21}H_{32}O_9$ 428.478

(*E*)-*form* [69204-36-0]
Needles (cyclohexane). Mp 141.5-142°. $[\alpha]_D^{25}$ -105.7 (c, 0.6 in $CHCl_3$).

(*Z*)-*form* [69204-35-9]
Oil. $[\alpha]_D^{28}$ -94.7 (c, 0.7 in $CHCl_3$).

Secrist, J.A. *et al., J.O.C.*, 1979, **44**, 1434 (*synth, pmr, cmr*)

Methyl (2,3:5,6-di-*O*-isopropylidenemannofuranosyl)acetate M-174



α-*form*

$C_{15}H_{24}O_7$ 316.35

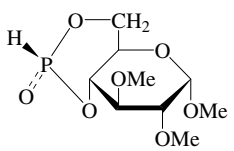
α-D-*form*
*Methyl 3,6-anhydro-2-deoxy-4,5:7,8-di-*O*-isopropylidene-D-*glycero*-D-*talo*-octonate, 9CI*
[56703-45-8]
Mp 59-60°. $[\alpha]_D^{20}$ -4.9 (c, 1.0 in $CHCl_3$).

β-D-*form*
*Methyl 3,6-anhydro-2-deoxy-4,5:7,8-di-*O*-isopropylidene-D-*glycero*-D-*galacto*-octonate, 9CI*
[56703-46-9]
$[\alpha]_D^{20}$ -5.7 (c, 1.0 in $CHCl_3$).

Ohrui, H. *et al., J.A.C.S.*, 1975, **97**, 4602

Methyl 2,3-di-*O*-methylglucopyranoside 4,6-cyclic phosphonate M-175

Hexahydro-6,7,8-trimethoxypyrano[2,3-e]-1,3,2-dioxaphosphorin 2-oxide. 8,9,10-Trimethoxy-2,4,7-trioxa-3-phosphabicyclo[4.4.0]decane 3-oxide



α-D-(*R*)$_P$-*form*

$C_9H_{17}O_7P$ 268.203

α-D-(*R*)$_P$-*form*
P-*Me:*
$C_{10}H_{19}O_7P$ 282.23
Cryst. (diisopropyl ether). Mp 96-99°. $[\alpha]_D$ +72 (c, 2 in $CHCl_3$).

P-*Ph:*
$C_{15}H_{21}O_7P$ 344.3
Cryst. (diisopropyl ether). Mp 107-109°. $[\alpha]_D$ +18 (c, 0.5 in $CHCl_3$).

P-*Ethoxy:*
$C_{11}H_{21}O_8P$ 312.256
$[\alpha]_D$ +90 ($CHCl_3$).

P-*Dimethylamino:*
$C_{11}H_{22}NO_7P$ 311.271
Cryst. (diisopropyl ether). Mp 145-147°. $[\alpha]_D$ +105 (c, 1.6 in $CHCl_3$).

P-*(4-Nitrophenoxy):*
$C_{15}H_{20}NO_{10}P$ 405.297
Cryst. (diisopropyl ether). Mp 112-115°. $[\alpha]_D$ +43 (c, 1.1 in $CHCl_3$).

P-*(Propylthio):*
$C_{12}H_{23}O_7PS$ 342.349
$[\alpha]_D$ +53 (c, 2 in $CHCl_3$). Has (*S*)$_P$-config.

α-D-(*S*)$_P$-*form*
P-*Me:*
Cryst. (Me_2CO/petrol). Mp 205°. $[\alpha]_D$ +114 (c, 2 in $CHCl_3$).

P-*Ph:*
Cryst. (diisopropyl ether). Mp 173°. $[\alpha]_D$ +156 (c, 1 in $CHCl_3$).

P-*Ethoxy:*
Cryst. (diisopropyl ether). Mp 115°. $[\alpha]_D$ +114 (c, 2 in $CHCl_3$).

P-*(4-Nitrophenoxy):*
Cryst. Mp 91-93°. $[\alpha]_D$ +80 (c, 1.3 in $CHCl_3$).

P-*Fluoro:*
$C_9H_{16}FO_7P$ 286.193
Cryst. (diisopropyl ether). Mp 126°. $[\alpha]_D$ +88 (c, 1.3 in $CHCl_3$).

P-*Chloro:*
$C_9H_{16}ClO_7P$ 302.648
Cryst. (diisopropyl ether). Mp 127-129°. $[\alpha]_D$ +114.5 (c, 1.8 in $CHCl_3$). Has (*R*)$_P$-config.

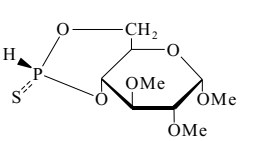
P-*Dimethylamino:*
Cryst. (diisopropyl ether). Mp 105-110°. $[\alpha]_D$ +83 (c, 1.1 in $CHCl_3$).

P-*(Propylthio):*
$[\alpha]_D$ +29 (c, 0.5 in $CHCl_3$). Has (*R*)$_P$-config.

Cooper, D.B. *et al., J.C.S. Perkin 1*, 1974, 1043; 1049; 1058 (*synth, ir, pmr, P-31 nmr*)
Harrison, J.M. *et al., J.C.S. Perkin 1*, 1974, 1053 (*synth, ir, pmr, P-31 nmr*)

Methyl 2,3-di-*O*-methylglucopyranoside 4,6-cyclic phosphonothioate M-176

Hexahydro-6,7,8-trimethoxypyrano[2,3-e]-1,3,2-dioxaphosphorin 2-sulfide. 8,9,10-Trimethoxy-2,4,7-trioxa-3-phosphabicyclo[4.4.0]decane 3-sulfide



α-D-(*R*)$_P$−*form*

$C_9H_{17}O_6PS$ 284.269

α-D-(*R*)$_P$-*form*

P-*Me:*
$C_{10}H_{19}O_6PS$ 298.296
Cryst. (Me_2CO/hexane). Mp 167-168°. $[\alpha]_D$ +75 (c, 1.0 in $CHCl_3$).

P-*Ph:*
$C_{15}H_{21}O_6PS$ 360.367
Cryst. (Me_2CO/cyclohexane). Mp 158-161°. $[\alpha]_D$ +126 (c, 1.0 in $CHCl_3$).

P-*Ethoxy:*
$C_{11}H_{21}O_7PS$ 328.322
Cryst. (EtOAc/cyclohexane). Mp 81-82°. $[\alpha]_D$ +136 (c, 1.0 in $CHCl_3$).

P-*Chloro:*
$C_9H_{16}ClO_6PS$ 318.714
Cryst. (Et_2O/petrol). Mp 71-74°. $[\alpha]_D$ +96 (c, 0.8 in $CHCl_3$). Has (*S*)$_P$-config.

α-D-(*S*)$_P$-*form*

P-*Me:*
$[\alpha]_D$ +135 (c, 1.0 in $CHCl_3$).

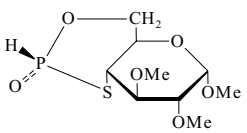
P-*Ph:*
Cryst. (cyclohexane). Mp 116-117°. $[\alpha]_D$ +98 (c, 1.0 in $CHCl_3$).

P-*Ethoxy:*
Cryst. (EtOH/petrol). Mp 140-141°. $[\alpha]_D$ +89 (c, 0.1 in $CHCl_3$).

Cooper, D.B. *et al., J.C.S. Perkin 1*, 1974, 1049 (*synth, P nmr*)
Harrison, J.M. *et al., J.C.S. Perkin 1*, 1974, 1053 (*chloride*)

Methyl 2,3-di-*O*-methyl-4-thioglucopyranoside 4,6-cyclic phosphonate M-177

Hexahydro-6,7,8-trimethoxypyrano[3,2-d][1,3,2]oxathiaphosphorine 2-oxide. 8,9,10-Trimethoxy-4,7-dioxa-2-thia-3-phosphabicyclo[4.4.0]decane 3-oxide



α-D-(*R*)$_P$-*form*

$C_9H_{17}O_6PS$ 284.269

α-D-(*R*)$_P$-*form*

P-*Me:*
$C_{10}H_{19}O_6PS$ 298.296
Cryst. (EtOH). Mp 183°. $[\alpha]_D$ +73 (c, 1 in $CHCl_3$).

P-*Ethoxy:*
$C_{11}H_{21}O_7PS$ 328.322
Syrup. $[\alpha]_D$ +46 (c, 2 in $CHCl_3$). Has (*S*)$_P$-config.

P-*Chloro:*
$C_9H_{16}ClO_6PS$ 318.714
Cryst. (diisopropyl ether). Mp 127°. $[\alpha]_D$ +41 (c, 0.4 in $CHCl_3$). Has (*S*)$_P$-config.

α-D-(*S*)$_P$-*form*

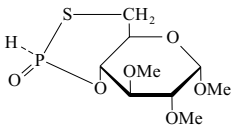
P-*Me:*
Cryst. (Et_2O/petrol). Mp 124°. $[\alpha]_D$ +42.5 (c, 1.2 in $CHCl_3$).

P-*Ethoxy:*
Cryst. Mp 98°. $[\alpha]_D$ +7 (c, 1.0 in $CHCl_3$). Has (*R*)$_P$-config.

Cooper, D.B. *et al., J.C.S. Perkin 1*, 1974, 1049 (*synth, ir, pmr*)
Harrison, J.M. *et al., J.C.S. Perkin 1*, 1974, 1053 (*chloride, props*)

Methyl 2,3-di-*O*-methyl-6-thioglucopyranoside 4,6-cyclic phosphonate M-178

8,9,10-Trimethoxy-2,7-dioxa-4-thia-3-phosphabicyclo[4.4.0]decane 3-oxide. Hexahydro-6,7,8-trimethoxypyrano[2,3-e]-1,3,2-oxathiaphosphorin 2-oxide



α-D-(*R*)$_P$-*form*

$C_9H_{17}O_6PS$ 284.269

α-D-(*R*)$_P$-*form*

P-*Me:*
$C_{10}H_{19}O_6PS$ 298.296
Cryst. (diisopropyl ether). Mp 203-207°. $[\alpha]_D$ +160 (c, 2 in $CHCl_3$).

P-*Ethoxy:*
$C_{11}H_{21}O_7PS$ 328.322
Syrup. $[\alpha]_D$ +88 (0.7 in $CHCl_3$). Has (*S*)$_P$-config.

P-*Chloro:*
$C_9H_{16}ClO_6PS$ 318.714
Cryst. (diisopropyl ether). Mp 129-131°. $[\alpha]_D$ +206 (c, 1.7 in $CHCl_3$). Has (*S*)$_P$-config.

α-D-(*S*)$_P$-*form*

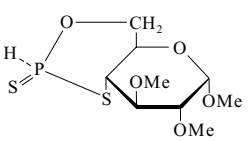
P-*Me:*
Cryst. (diisopropyl ether). Mp 159-161°. $[\alpha]_D$ +190 (1.7 in $CHCl_3$).

P-*Ethoxy:*
Cryst. (diisopropyl ether). Mp 135-138°. $[\alpha]_D$ +207 (c, 0.8 in $CHCl_3$). Has (*R*)$_P$-config.

Cooper, D.B. *et al., J.C.S. Perkin 1*, 1974, 1049; 1058 (*synth, ir, pmr, props*)
Harrison, J.M. *et al., J.C.S. Perkin 1*, 1974, 1053 (*props*)

Methyl 2,3-di-*O*-methyl-4-thioglucopyranoside 4,6-cyclic phosphonothioate M-179

Hexahydro-6,7,8-trimethoxypyrano[3,2-d][1,3,2]oxathiaphosphorin 2-sulfide. 8,9,10-Trimethoxy-4,7-dioxa-2-thia-3-phosphabicyclo[4.4.0]decane 3-sulfide



α-D-(*R*)$_P$-*form*

$C_9H_{17}O_5PS_2$ 300.336

α-D-(*R*)$_P$-*form*

P-*Ethoxy:*
$C_{11}H_{21}O_6PS_2$ 344.389
Cryst. (EtOH/petrol). Mp 81-82°.

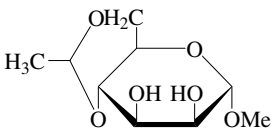
α-D-(*S*)$_P$-*form*

P-*Ethoxy:*
Cryst. (EtOAc/petrol). Mp 140-141°.

P-*Chloro:*
$C_9H_{16}ClO_5PS_2$ 334.781
Cryst. (Et_2O/petrol). Mp 71-74°. $[\alpha]_D$ +96 (c, 0.8 in $CHCl_3$). Has (*R*)$_P$-config.

Harrison, J.M. *et al., J.C.S. Perkin 1*, 1974, 1053 (*synth*)

Methyl 4,6-*O*-ethylidene-mannopyranoside M-180



α-D-*form*

$C_9H_{16}O_6$ 220.222

α-D-*form* [42890-23-3]
Mp 117°. $[\alpha]_D^{20}$ +77 (c, 1.0 in $CHCl_3$).

*2,3-Di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-ethylidene-α-D-mannopyranoside*
$C_{13}H_{20}O_8$ 304.296
Mp 132°. $[\alpha]_D^{22}$ +36.7 (c, 1.0 in $CHCl_3$).

*2-Tosyl: Methyl 4,6-*O*-ethylidene-2-*O*-tosyl-α-D-mannopyranoside*
$C_{16}H_{22}O_8S$ 374.411
Mp 165-166°. $[\alpha]_D$ +10 ($CHCl_3$).

*3-Tosyl: Methyl 4,6-*O*-ethylidene-3-*O*-tosyl-α-D-mannopyranoside*
$C_{16}H_{22}O_8S$ 374.411
Mp 129°. $[\alpha]_D$ +25 ($CHCl_3$).

*2,3-Ditosyl: Methyl 4,6-*O*-ethylidene-2,3-di-*O*-tosyl-α-D-mannopyranoside*
$C_{23}H_{28}O_{10}S_2$ 528.6
Mp 121-122°. $[\alpha]_D^{21}$ -11.6 (c, 1.2 in $CHCl_3$).

*2,3-*O*-Ethylidene: Methyl 2,3:4,6-di-*O*-ethylidene-α-D-mannopyranoside*
$C_{11}H_{18}O_6$ 246.26
Mp 72°. $[\alpha]_D^{19}$ +14.2 (c, 1.0 in $CHCl_3$).

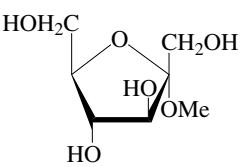
*2,3-Di-Me: Methyl 4,6-*O*-ethylidene-2,3-di-*O*-methyl-α-D-mannopyranoside*
$C_{11}H_{20}O_6$ 248.275
Mp 42-44°. $[\alpha]_D^{18}$ +65.8 (c, 0.48 in $CHCl_3$).

β-D-*form*
Mp 180-181°. $[\alpha]_D$ -128 ($CHCl_3$).

*2,3-*O*-Ethylidene: Methyl 2,3:4,6-di-*O*-ethylidene-β-D-mannopyranoside*
$C_{11}H_{18}O_6$ 246.26
Mp 124-125°. $[\alpha]_D$ -176 ($CHCl_3$).

de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, derivs*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1973, **27**, 325 (*cmr*)

Methyl fructofuranoside M-181



α-D-*form*

$C_7H_{14}O_6$ 194.184

α-D-*form*
Stocksiol
[15219-93-9]
Constit. of the aerial parts of *Stocksia brahuica*.
Mp 81°. $[\alpha]_D$ +93 (H_2O).

Tetra-Ac: Methyl 1,3,4,6-tetra-O-*acetyl-α-D-fructofuranoside*
[70802-04-9]
$C_{15}H_{22}O_{10}$ 362.333
Mp 48-49°. $[\alpha]_D^{19}$ +88.1 ($CHCl_3$).

Tetrabenzoyl: Methyl 1,3,4,6-tetra-O-*benzoyl-α-D-fructofuranoside*
$C_{35}H_{30}O_{10}$ 610.616
Syrup. $[\alpha]_D$ +5 ($CHCl_3$).

1-Tosyl: Methyl 1-O-*tosyl-α-D-fructofuranoside*
$C_{14}H_{20}O_8S$ 348.373
Mp 79-81°. $[\alpha]_D$ +15.2 (c, 1.0 in MeOH).

3,4-Di-Me, 1,6-ditosyl: Methyl 3,4-di-O-*methyl-1,6-di*-O-*tosyl-α-D-fructofuranoside*
$C_{23}H_{30}O_{10}S_2$ 530.616
Syrup. $[\alpha]_D$ +20 (MeOH).

3,4,6-Tri-Me: Methyl 3,4,6-tri-O-*methyl-α-D-fructofuranoside*
$C_{10}H_{20}O_6$ 236.264
Syrup. $[\alpha]_D$ +67.6 (MeOH).

3,4,6-Tri-Me, 1-tosyl: Methyl 3,4,6-tri-O-*methyl-1*-O-*tosyl-α-D-fructofuranoside*
$C_{17}H_{26}O_8S$ 390.454
Syrup. $[\alpha]_D^{18}$ +32 (c, 1.2 in MeOH).

6-Trityl, 3,4-di-Me: Methyl 3,4-di-O-*methyl-6*-O-*trityl-α-D-fructofuranoside*
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D$ +14 (MeOH).

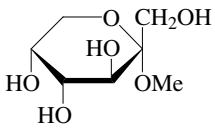
β-D-*form* [13403-14-0]
$[\alpha]_D$ -60 (H_2O).

1,3,4-Tribenzyl: Methyl 1,3,4-tri-O-*benzyl-β-D-fructofuranoside*
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D$ -8 (c, 1.06 in $CHCl_3$).

3,4,6-Tribenzyl: Methyl 3,4,6-tri-O-*benzyl-β-D-fructofuranoside*
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D$ +6 (c, 0.43 in $CHCl_3$).

Brigl, P. *et al., Ber.*, 1934, **67**, 754 (*α-D-tetrabenzoyl*)
Purves, C.B. *et al., J.A.C.S.*, 1937, **59**, 49 (*α-D-form, α-D-tetra-Ac*)
Hirst, E.L. *et al., J.C.S.*, 1953, 3170 (*α-D-tosyl, α-D-tosyl derivs, α-D-di-Me trityl, α-D-tri-Me*)
Pacsu, E. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 354 (*α-D-form*)
Verstraeten, L.M.J. *et al., Adv. Carbohydr. Chem.*, 1967, **22**, 229 (*rev, derivs*)
O'Donnell, G.W. *et al., Aust. J. Chem.*, 1972, **25**, 907 (*α-D-form, synth*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1249 (*α-D-form, β-D-form, cmr*)
Ahmad, V.U. *et al., J. Chem. Soc. Pak.*, 2000, **22**, 66-67 (*Stocksiol*)
Oscarson, S. *et al., J.O.C.*, 2002, **67**, 8457-8462 (*β-D-form, tribenzyl, synth, pmr, cmr*)

Methyl fructopyranoside M-182



α-D-*form*

$C_7H_{14}O_6$ 194.184

α-D-*form* [15219-31-5]
Mp 96-97°. $[\alpha]_D$ +44 (H_2O).

Tetra-Ac: Methyl 1,3,4,5-tetra-O-*acetyl-α-D-fructopyranoside*
[20701-35-3]
$C_{15}H_{22}O_{10}$ 362.333
Mp 112°. $[\alpha]_D$ +45.5 ($CHCl_3$).

Tetrabenzoyl: Methyl 1,3,4,5-tetra-O-*benzoyl-α-D-fructopyranoside*
[70551-19-8]
$C_{35}H_{30}O_{10}$ 610.616
Oil. $Bp_{0.001}$ 180°. $[\alpha]_D^{25}$ +20.4 (c, 1.4 in $CHCl_3$).

1-Me: Methyl 1-O-*methyl-α-D-fructopyranoside*
$C_8H_{16}O_6$ 208.211
Mp 113°. $[\alpha]_D$ +34.1 (H_2O).

1-Me, 3,4,5-tri-Ac: Methyl 3,4,5-tri-O-*acetyl-1*-O-*methyl-α-D-fructopyranoside*
$C_{14}H_{22}O_9$ 334.322
Mp 109°. $[\alpha]_D$ +14.7 ($CHCl_3$).

β-D-*form* [4208-77-9]
Mp 119-120°. $[\alpha]_D$ -172.1 (H_2O).

Tetra-Ac: Methyl 1,3,4,5-tetra-O-*acetyl-β-D-fructopyranoside*
[20701-34-2]
$C_{15}H_{22}O_{10}$ 362.333
Mp 75-76°. $[\alpha]_D$ -124.4 ($CHCl_3$).

Tetrabenzoyl: Methyl 1,2,3,4-tetra-O-*benzoyl-β-D-fructopyranoside*
$C_{35}H_{30}O_{10}$ 610.616
Mp 113°. $[\alpha]_D$ -171.3 ($CHCl_3$).

1,3-O-*Benzylidene: Methyl 1,3*-O-*benzylidene-β-D-fructopyranoside*
[18610-09-8]
$C_{14}H_{18}O_6$ 282.293
Cryst. (EtOH/petrol). Mp 136-137°.
$[\alpha]_D$ -73 (c, 0.51 in $CHCl_3$).

1,3-O-*Benzylidene, 4-mesyl: Methyl 1,3*-O-*benzylidene-4*-O-*mesyl-β-D-fructopyranoside*
[18610-08-7]
$C_{15}H_{20}O_8S$ 360.384
Cryst. (EtOH). Mp 134-135°. $[\alpha]_D$ -83 (c, 0.99 in $CHCl_3$).

1,3-O-*Benzylidene, 4,5-dimesyl: Methyl 1,3*-O-*benzylidene-4,5-di*-O-*mesyl-β-D-fructopyranoside*
[18610-06-5]
$C_{16}H_{22}O_{10}S_2$ 438.476
Cryst. (2-propanol). Mp 145-146°. $[\alpha]_D$ -107 (c, 0.52 in $CHCl_3$).

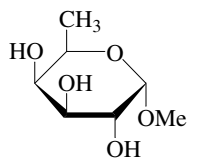
1,3-O-*Benzylidene, 5-benzoyl, 4-mesyl: Methyl 5*-O-*benzoyl-1,3*-O-*benzylidene-4*-O-*mesyl-β-D-fructopyranoside*
[18610-07-6]
$C_{22}H_{24}O_9S$ 464.492
Cryst. (2-propanol). Mp 146-148° dec.
$[\alpha]_D$ -167 (c, 1.16 in $CHCl_3$).

5-Me, 1,3-O-*benzylidene, 4-mesyl: Methyl 1,3*-O-*benzylidene-4*-O-*mesyl-5*-O-*methyl-β-D-fructopyranoside*
[58794-64-2]
$C_{16}H_{22}O_8S$ 374.411
Cryst. (EtOH). Mp 145° dec. $[\alpha]_D^{21}$ -82.2 (c, 2 in $CHCl_3$).

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 377 (*α-D-tetra-Ac, β-D-tetra-Ac*)
Ness, R.K. *et al., J.A.C.S.*, 1953, **75**, 2619, (*β-D-tetrabenzoyl*)
Verstraeten, L.M.J. *et al., Adv. Carbohydr. Chem.*, 1967, **22**, 229 (*rev, derivs*)
Murphy, D. *et al., J.C.S.(C)*, 1967, 1732, (*β-D-benzylidene, β-D-benzylidene derivs*)
Heyns, K. *et al., Annalen*, 1976, 269 (*β-D-benzylidene Me mesyl*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1249 (*β-D-form, synth*)
Steinlin, H. *et al., Helv. Chim. Acta*, 1979, **62**, 378 (*α-D-form, synth, α-D-tetrabenzoyl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)

Methyl fucopyranoside M-183

Methyl 6-deoxygalactopyranoside, 9CI, 8CI



α-D-*form*

$C_7H_{14}O_5$ 178.185

α-D-*form* [1128-40-1]
Mp 153-154°. $[\alpha]_D^{26}$ +192.7 (c, 0.9 in H_2O).

2,3,4-Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-α-D-fucopyranoside*
[43139-93-1]
$C_{13}H_{20}O_8$ 304.296
Cryst. (hexane). Mp 64-65°. $[\alpha]_D^{26}$ +149.1 (c, 0.97 in $CHCl_3$).

3-Me: Methyl 3-O-*methyl-α-D-fucopyranoside*
[35862-73-8]
$C_8H_{16}O_5$ 192.211
Syrup. $Bp_{0.005}$ 115-140° (bath). $[\alpha]_D^{20}$ +124.4 (c, 0.94 in Me_2CO).

2,3,4-Tribenzyl: Methyl 2,3,4-tri-O-*benzyl-α-D-fucopyranoside*
[156769-28-7]
$C_{28}H_{32}O_5$ 448.558
Syrup. $[\alpha]_D^{20}$ +59.4 (c, 1.9 in $CHCl_3$).

β-D-*form* [1198-82-9]
Mp 121.5-122.5°. $[\alpha]_D^{20}$ -16.4 (c, 1.09 in H_2O).

2,3,4-Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-β-D-fucopyranoside*
[53942-13-5]
$C_{13}H_{20}O_8$ 304.296
Mp 99-100°. $[\alpha]_D$ -6.6 (c, 1.22 in $CHCl_3$).

2,3,4-Tribenzoyl: Methyl 2,3,4-tri-O-*benzoyl-β-D-fucopyranoside*
[18929-75-4]
$C_{28}H_{26}O_8$ 490.509
Cryst. (Et_2O/pentane). Mp 163-164°.
$[\alpha]_D$ +190 (c, 0.92 in $CHCl_3$).

*3,4-*O*-Isopropylidene:* See Methyl 3,4-*O*-isopropylidenefucopyranoside, M-198

α-L-*form* [14687-15-1]
Cryst. (MeOH). Mp 158°. $[\alpha]_D^{24}$ -197.5 (c, 0.6 in H_2O).

*2-Ac: Methyl 2-*O*-acetyl-α-L-fucopyranoside*
[34388-71-1]
$C_9H_{16}O_6$ 220.222
Mp 82-83°. $[\alpha]_D^{23}$ -196 (c, 0.4 in $CHCl_3$).

*2,4-Di-Ac: Methyl 2,4-di-*O*-acetyl-α-L-fucopyranoside*
[146582-04-9]
$C_{11}H_{18}O_7$ 262.259
Long blunt needles (petrol). Mp 95°. $[\alpha]_D$ -163 (c, 1.1 in $CHCl_3$).

*3,4-Di-Ac: Methyl 3,4-di-*O*-acetyl-α-L-fucopyranoside*
[146582-03-8]
$C_{11}H_{18}O_7$ 262.259
Cryst. (CH_2Cl_2/petrol). Mp 134°. $[\alpha]_D$ -211 (c, 0.7 in $CHCl_3$).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-α-L-fucopyranoside*
[24333-02-6]
$C_{13}H_{20}O_8$ 304.296
Mp 70°. $[\alpha]_D^{20}$ -152 (c, 1 in $CHCl_3$).

*2,3-Dibenzoyl: Methyl 2,3-di-*O*-benzoyl-α-L-fucopyranoside*
[14917-25-0]
$C_{21}H_{22}O_7$ 386.401
Syrup. $[\alpha]_D$ -187 (c, 4.03 in $CHCl_3$).

*2,3,4-Tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-α-L-fucopyranoside*
[14686-82-9]
$C_{28}H_{26}O_8$ 490.509
Prisms (Et_2O/petrol). Mp 147-148°. $[\alpha]_D$ -26 (c, 0.85 in $CHCl_3$).

*2-Tosyl: Methyl 2-*O*-tosyl-α-L-fucopyranoside*
$C_{14}H_{20}O_7S$ 332.374
Mp 158°. $[\alpha]_D^{15}$ -85 (c, 1 in $CHCl_3$).

*3,4-*O*-Isopropylidene:* See Methyl 3,4-*O*-isopropylidenefucopyranoside, M-198

*2-Me: Methyl 2-*O*-methyl-α-L-fucopyranoside*
[42822-20-8]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D^{25}$ -196 (c, 1.20 in H_2O).

*2-Me, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-*O*-methyl-α-L-fucopyranoside*
[42822-22-0]
$C_{12}H_{20}O_7$ 276.286
Syrup. $[\alpha]_D^{20}$ -133 (c, 1.41 in $CHCl_3$).

*3-Me: Methyl 3-*O*-methyl-α-L-fucopyranoside*
[42822-17-3]
$C_8H_{16}O_5$ 192.211
Cryst. (EtOAc). Mp 99-100° (96-97°). $[\alpha]_D$ -136 (c, 0.62 in MeOH).

*3-Me, 2,4-di-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-methyl-α-L-fucopyranoside*
[42822-18-4]
$C_{12}H_{20}O_7$ 276.286
Cryst. (Et_2O). Mp 118-119° (115-117°). $[\alpha]_D^{23}$ -177 (c, 1.47 in $CHCl_3$).

*4-Me: Methyl 4-*O*-methyl-α-L-fucopyranoside*
[42822-28-6]
$C_8H_{16}O_5$ 192.211
Cryst. (Me_2CO/Et_2O). Mp 134-136°. $[\alpha]_D^{24}$ -192 (c, 0.9 in H_2O).

*4-Me, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-methyl-α-L-fucopyranoside*
[42822-29-7]
$C_{12}H_{20}O_7$ 276.286
Needles (Et_2O). Mp 93-95°. $[\alpha]_D^{22}$ -138 (c, 1 in $CHCl_3$).

*3,4-Di-Me: Methyl 3,4-di-*O*-methyl-α-L-fucopyranoside*
[99603-83-5]
$C_9H_{18}O_5$ 206.238
Cryst. (petrol). Mp 100°. $[\alpha]_D^{20}$ -213 (c, 1.3 in H_2O).

*2-Benzyl: Methyl 2-*O*-benzyl-α-L-fucopyranoside*
[42822-24-2]
$C_{14}H_{20}O_5$ 268.309
Cryst. ($CHCl_3$/petrol). Mp 79-81°. $[\alpha]_D^{25}$ -118 (c, 1.50 in $CHCl_3$).

*2-Benzyl, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-*O*-benzyl-α-L-fucopyranoside*
[42822-25-3]
$C_{18}H_{24}O_7$ 352.383
Syrup. $[\alpha]_D^{25}$ -77 (c, 0.91 in $CHCl_3$).

*3-Benzyl: Methyl 3-*O*-benzyl-α-L-fucopyranoside*
[80928-20-7]
$C_{14}H_{20}O_5$ 268.309
$[\alpha]_D$ -133.5 ($CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-L-fucopyranoside*
[42822-27-5]
$C_{21}H_{26}O_5$ 358.433
Cryst. (Et_2O/petrol). Mp 78-80°. $[\alpha]_D^{25}$ -57.8 (c, 1.12 in $CHCl_3$).

*2,3-Dibenzyl, 4-Ac: Methyl 4-*O*-acetyl-2,3-di-*O*-benzyl-α-L-fucopyranoside*
[42822-26-4]
$C_{23}H_{28}O_6$ 400.471
Syrup. $[\alpha]_D^{24}$ -46 (c, 1.06 in $CHCl_3$).

*2,4-Dibenzyl: Methyl 2,4-di-*O*-benzyl-α-L-fucopyranoside*
[42822-12-8]
$C_{21}H_{26}O_5$ 358.433
Syrup. $[\alpha]_D^{23}$ -61.7 (c, 2.31 in $CHCl_3$).

*2,4-Dibenzyl, 3-Ac: Methyl 3-*O*-acetyl-2,4-di-*O*-benzyl-α-L-fucopyranoside*
[42822-14-0]
$C_{23}H_{28}O_6$ 400.471
Syrup. $[\alpha]_D^{22}$ -96 (c, 1.15 in $CHCl_3$).

*2,4-Dibenzyl, 3-Me: Methyl 2,4-di-*O*-benzyl-3-*O*-methyl-α-L-fucopyranoside*
[42822-16-2]
$C_{22}H_{28}O_5$ 372.46
Syrup. $[\alpha]_D^{25}$ -25.5 (c, 1.05 in $CHCl_3$).

*3,4-Dibenzyl: Methyl 3,4-di-*O*-benzyl-α-L-fucopyranoside*
[42822-13-9]
$C_{21}H_{26}O_5$ 358.433
Cryst. (Et_2O). Mp 92-94°. $[\alpha]_D^{27}$ -57 (c, 1.10 in $CHCl_3$).

*3,4-Dibenzyl, 2-Ac: Methyl 2-*O*-acetyl-3,4-di-*O*-benzyl-α-L-fucopyranoside*
[42822-15-1]
$C_{23}H_{28}O_6$ 400.471
Syrup. $[\alpha]_D^{22}$ -85 (c, 1.06 in $CHCl_3$).

*3,4-Dibenzyl, 2-Me: Methyl 3,4-di-*O*-benzyl-2-*O*-methyl-α-L-fucopyranoside*
[42822-21-9]
$C_{22}H_{28}O_5$ 372.46
Syrup. $[\alpha]_D^{24}$ -21.5 (c, 1.05 in $CHCl_3$).

*2,3,4-Tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-α-L-fucopyranoside*
[33639-74-6]
$C_{28}H_{32}O_5$ 448.558
Syrup. $[\alpha]_D^{28}$ -20 (c, 1.02 in $CHCl_3$).

*2-Trityl: Methyl 2-*O*-trityl-α-L-furcopyranoside*
[146581-98-8]
$C_{26}H_{28}O_5$ 420.504
Mp 118-124° approx. Mp 133° (double Mp). $[\alpha]_D$ -55.6 (c, 0.72 in $CHCl_3$).

*2-Trityl, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2-*O*-trityl-α-L-fucopyranoside*
[146582-00-5]
$C_{30}H_{32}O_7$ 504.579
Cryst. (Me_2CO aq.). Mp 219-220°. $[\alpha]_D$ -40.4 (c, 0.7 in $CHCl_3$).

*3-Trityl: Methyl 3-*O*-trityl-α-L-fucopyranoside*
[146581-99-9]
$C_{26}H_{28}O_5$ 420.504
Rods +1H_2O (MeOH aq.). Mp 71-73°. $[\alpha]_D$ -107 (c, 0.7 in $CHCl_3$).

*3-Trityl, 2-Ac: Methyl 2-*O*-acetyl-3-*O*-trityl-α-L-fucopyranoside*
[146582-01-6]
$C_{28}H_{30}O_6$ 462.541
Cryst. (EtOH aq.). Mp 113-114°. $[\alpha]_D$ -78.5 (c, 0.7 in $CHCl_3$).

*3-Trityl, 2,4-di-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-trityl-α-L-fucopyranoside*
[146582-02-7]
$C_{30}H_{32}O_7$ 504.579
Cryst. (Me_2CO aq.). Mp 184°. $[\alpha]_D$ -100 (c, 1 in $CHCl_3$).

β-L-*form* [24332-98-7]
Cryst. (MeOH). Mp 126-127°. $[\alpha]_D$ +10.5 (c, 1 in H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-β-L-fucopyranoside*
[24332-97-6]
$C_{13}H_{20}O_8$ 304.296
Cryst. (EtOH). Mp 99-100°. $[\alpha]_D^{20}$ +8 (c, 1 in $CHCl_3$).

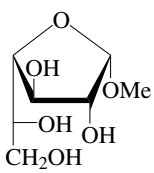
*3-Me: Methyl 3-*O*-methyl-β-L-fucopyranoside*
[109959-25-3]
$C_8H_{16}O_5$ 192.211
Mp 104-105°. $[\alpha]_D$ -12.4 (c, 0.6 in MeOH).

*3-Me, di-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-methyl-β-L-fucopyranoside*
[53956-72-2]
$C_{12}H_{20}O_7$ 276.286
Mp 123-125°. $[\alpha]_D$ -27 (c, 0.77 in $CHCl_3$).

Tamm, C. *et al., Helv. Chim. Acta*, 1949, **32**, 163-172 (*α-D-3-Me*)
Percival, E.E. *et al., J.C.S.*, 1950, 690-691, (*α-L-3,4-di-Me*)
Gardiner, J.G. *et al., J.C.S.*, 1958, 1414-1418, (*α-L-form, β-L-form, synth*)
Richardson, A.C. *et al., Tetrahedron*, 1967, **23**, 1641-1646 (*α-L-dibenzoyl, α-L-tribenzoyl*)
Leaback, D.H. *et al., Biochemistry*, 1969, **8**, 1351-1359 (*α-L-form, α-L-tri-Ac, β-L-form, synth, β-L-tri-Ac*)
Hanessian, S. *et al., J.O.C.*, 1969, **34**, 1035-1044 (*α-D-form, synth, β-D-tribenzoyl*)

Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1971, **18**, 219-229; 1973, **28**, 61-78 (*Me benzyl derivs*)
Rafestin, M.-E. *et al., Can. J. Chem.*, 1974, **52**, 210-212 (*α-L-tri-Ac*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 2992-3012 (*β-D-form, synth, β-D-tri-Ac*)
Stevens, C.L. *et al., J.O.C.*, 1974, **39**, 298-302 (*α-D-tri-Ac*)
Rana, S.S. *et al., Carbohydr. Res.*, 1980, **83**, 170-174 (*2,3-dibenzyl-α-L, 2,4-dibenzyl-α-L*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1982, **99**, 170-174 (*α-L-3-benzyl*)
Toman, R. *et al., Carbohydr. Res.*, 1986, **158**, 236-244 (*Me derivs*)
Lamba, D. *et al., Carbohydr. Res.*, 1993, **243**, 217-224 (*pmr, cryst struct, α-L-form*)
Lai, W. *et al., Carbohydr. Res.*, 1993, **250**, 185-193 (*α-D-tribenzyl*)
Leder, I.G. *et al., J. Carbohydr. Chem.*, 1993, **12**, 95-103 (*α-L-Pyr trityl, Ac derivs*)
Liao, W.S. *et al., Carbohydr. Res.*, 1994, **260**, 151-154 (*α-L-3-Me, β-L-3-Me*)

Methyl galactofuranoside M-184



α-D-*form*

$C_7H_{14}O_6$ 194.184

α-D-*form* [3795-67-3]
Mp 91-92°. $[\alpha]_D^{20}$ +105 (H_2O).

*5,6-*O*-Isopropylidene: Methyl 5,6-*O*-isopropylidene-α-D-galactofuranoside*
[20869-13-0]
$C_{10}H_{18}O_6$ 234.249
Cryst. (C_6H_6). Mp 84-85°. $[\alpha]_D^{20}$ +84.3 (c, 5.3 in $CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-D-galactofuranoside*
[20869-17-4]
$C_{21}H_{26}O_6$ 374.433
Needles (Et_2O/C_6H_6). Mp 83-85°. $[\alpha]_D^{20}$ +33.9 (c, 4 in $CHCl_3$).

2,3-Dibenzyl, 5,6-bis(4-nitrobenzoyl):
Cryst. (EtOAc/petrol). Mp 116-118°. $[\alpha]_D$ +55.7 (c, 2 in $CHCl_3$).

*2,3-Dibenzyl, 5,6-*O*-isopropylidene: Methyl 2,3-di-*O*-benzyl-5,6-*O*-isopropylidene-α-D-galactofuranoside*
[20869-15-2]
$C_{24}H_{30}O_6$ 414.497
Needles (hexane). Mp 61-62°. $[\alpha]_D^{20}$ +35.3 (c, 4.3 in $CHCl_3$).

*2,3,5,6-Tetrabenzyl: Methyl 2,3,5,6-tetra-*O*-benzyl-α-D-galactofuranoside*
[55656-67-2]
$C_{35}H_{38}O_6$ 554.682
Oil. $[\alpha]_D$ +20 (c, 2 in $CHCl_3$).

β-D-*form* [1824-93-7]
Cryst. (EtOAc). Mp 69-70°. $[\alpha]_D^{20}$ -180 (c, 1.65 in H_2O).

*2-Ac: Methyl 2-*O*-acetyl-β-D-galactofuranoside*
[33422-92-3]
$C_9H_{16}O_7$ 236.221
Mp 50-54°. $[\alpha]_D^{20}$ -95 (c, 0.78 in H_2O). Hygroscopic.

*6-Ac: Methyl 6-*O*-acetyl-β-D-galactofuranoside*
[22323-74-6]
$C_9H_{16}O_7$ 236.221
Mp 86-87°. $[\alpha]_D^{20}$ -117 (c, 0.5 in EtOH).

*Tetrabenzoyl: Methyl 2,3,5,6-tetra-*O*-benzoyl-β-D-galactofuranoside*
$C_{35}H_{30}O_{10}$ 610.616
Cryst. (EtOH). Mp 90-92°. $[\alpha]_D^{20}$ -3 (c, 1 in $CHCl_3$).

*5,6-*O*-Isopropylidene: Methyl 5,6-*O*-isopropylidene-β-D-galactofuranoside*
[20869-14-1]
$C_{10}H_{18}O_6$ 234.249
Syrup. $[\alpha]_D^{20}$ -82.1 (c, 0.87 in $CHCl_3$).

*5,6-*O*-Isopropylidene, 2,3-dibenzyl: Methyl 2,3-di-*O*-benzyl-5,6-*O*-isopropylidene-β-D-galactofuranoside*
[20869-16-3]
$C_{24}H_{30}O_6$ 414.497
Syrup. $[\alpha]_D^{20}$ -61.9 (c, 5.9 in $CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-β-D-galactofuranoside*
[20869-18-5]
$C_{21}H_{26}O_6$ 374.433
Needles (Et_2O/C_6H_6). Mp 89-91°. $[\alpha]_D^{20}$ -79.4 (c, 5.2 in $CHCl_3$).

*2,3-Dibenzyl, 6-benzoyl, 5-tosyl: Methyl 6-*O*-benzoyl-2,3-di-*O*-benzyl-5-*O*-tosyl-β-D-galactofuranoside*
[23567-76-2]
$C_{35}H_{36}O_9S$ 632.73
Syrup. $[\alpha]_D^{21}$ -7.2 (c, 4.4 in $CHCl_3$).

*2,3-Dibenzyl, 6-tosyl: Methyl 2,3-di-*O*-benzyl-6-*O*-tosyl-β-D-galactofuranoside*
[23567-79-5]
$C_{28}H_{32}O_8S$ 528.622
Syrup. $[\alpha]_D^{19}$ -48 (c, 4.6 in $CHCl_3$).

*2,3-Dibenzyl, 5,6-ditosyl: Methyl 2,3-di-*O*-benzyl-5,6-di-*O*-tosyl-β-D-galactofuranoside*
[23567-80-8]
$C_{35}H_{38}O_{10}S_2$ 682.811
Syrup. $[\alpha]_D^{21}$ -31.5 (c, 3.6 in $CHCl_3$).

*2,3,5-Tribenzyl: Methyl 2,3,5-tri-*O*-benzyl-β-D-galactofuranoside*
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D^{20}$ -41 (c, 1.8 in $CHCl_3$).

*2,3,5-Tribenzyl, 6-Ac: Methyl 6-*O*-acetyl-2,3,5-tri-*O*-benzyl-β-D-galactofuranoside*
[22323-75-7]
$C_{30}H_{34}O_7$ 506.594
$[\alpha]_D^{20}$ -46.5 (c, 0.7 in $CHCl_3$).

*Tetrabenzyl: Methyl 2,3,5,6-tetra-*O*-benzyl-β-D-galactofuranoside*
[18685-21-7]
$[\alpha]_D^{20}$ -49.2 (c, 2.97 in $CHCl_3$).

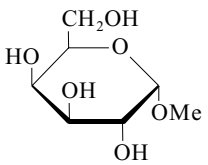
*6-Trityl: Methyl 6-*O*-trityl-β-D-galactofuranoside*
[18465-51-5]
$C_{26}H_{28}O_6$ 436.504
Amorph. $[\alpha]_D^{20}$ -49.4 ($CHCl_3$).

Augestad, I. *et al., Acta Chem. Scand.*, 1954, **8**, 251 (*α-D-form, β-D-form, synth*)
Pacsu, E. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 354 (*β-D-form, synth*)
Capon, B. *et al., J.C.S.(B)*, 1967, 185, (*α-D-form, synth*)
Saeki, H. *et al., Chem. Pharm. Bull.*, 1968, **16**, 1129; 2410 (*α-D-isopropylidene, α-D-isopropylidene dibenzyl, α-D-dibenzyl, β-D-isopropylidene, β-D-isopropylidene dibenzyl, β-D-dibenzyl derivs*)
Fréchet, J.M.J. *et al., Can. J. Chem.*, 1975, **53**, 670 (*α-D-dibenzyl bisnitrobenzoyl, α-D-tetrabenzyl, β-D-tetrabenzyl*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1975, **53**, 1212 (*pmr*)
Groth, P. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 948 (*α-D-form, cryst struct*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1976, **48**, 171 (*cmr*)
Marino, C. *et al., Carbohydr. Res.*, 1989, **190**, 65 (*β-D-form, synth, pmr, cmr*)
Lubineau, A. *et al., Synth. Commun.*, 1991, **21**, 815 (*β-D-form, synth*)

Methyl α-D-galactopyranoside M-185

[3396-99-4]

[34004-14-3]



$C_7H_{14}O_6$ 194.184
Cryst. (EtOH). Mp 111°. $[\alpha]_D^{20}$ +178 (c, 1.5 in H_2O).

*2-Ac: Methyl 2-*O*-acetyl-α-D-galactopyranoside*
[37180-51-1]
$C_9H_{16}O_7$ 236.221
Amorph. solid. $[\alpha]_D$ +206 (c, 1.0 in H_2O).

*3-Ac: Methyl 3-*O*-acetyl-α-D-galactopyranoside*
[37180-52-2]
$C_9H_{16}O_7$ 236.221
Mp 139-143°. $[\alpha]_D$ +216 (c, 1.0 in H_2O).

*6-Ac: Methyl 6-*O*-acetyl-α-D-galactopyranoside*
[5540-32-9]
$C_9H_{16}O_7$ 236.221
Mp 154-156°. $[\alpha]_D$ +160 (EtOH).

*4,6-Di-Ac: Methyl 4,6-di-*O*-acetyl-α-D-galactopyranoside*
[51842-33-2]
$C_{11}H_{18}O_8$ 278.258
$[\alpha]_D$ +111 (EtOH).

*2,3,6-Tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-α-D-galactopyranoside*
[87924-29-6]
$C_{13}H_{20}O_9$ 320.296
Cryst. (Et_2O/hexane). Mp 105-107°. $[\alpha]_D$ +3.3 (c, 0.7 in $CHCl_3$).

*2,3,4,6-Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-D-galactopyranoside*
[5019-22-7]
$C_{15}H_{22}O_{10}$ 362.333
Mp 86-87°. $[\alpha]_D^{20}$ +132.5 ($CHCl_3$).

*6-Benzoyl: Methyl 6-*O*-benzoyl-α-D-galactopyranoside*
[42927-28-6]
$C_{14}H_{18}O_7$ 298.292
Cryst. (2-propanol). Mp 150-151° (152-154°). $[\alpha]_D^{27}$ +122 (c, 0.96 in Py).

*6-Benzoyl, 2,3,4-trimesyl: Methyl 6-*O*-benzoyl-2,3,4-tri-*O*-mesyl-α-D-galactopyranoside*
[42927-31-1]

$C_{17}H_{24}O_{13}S_3$ 532.567
Needles (MeOH). Mp 126-128°. $[\alpha]_D^{27}$ +94 (c, 1.37 in Py).

*3,6-Dibenzoyl: Methyl 3,6-di-*O*-benzoyl-α-D-galactopyranoside*
[14315-83-4]
$C_{21}H_{22}O_8$ 402.4
Mp 145-146°. $[\alpha]_D$ +103 (c, 1.0 in $CHCl_3$).

*2,3,6-Tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-α-D-galactopyranoside*
[3601-36-3]
$C_{28}H_{26}O_9$ 506.508
Mp 137-139°. $[\alpha]_D^{25}$ +116.9 ($CHCl_3$).

*2,3,6-Tribenzoyl, 4-mesyl: Methyl 2,3,6-tri-*O*-benzoyl-4-*O*-mesyl-α-D-galactopyranoside*
[4137-34-2]
$C_{29}H_{28}O_{11}S$ 584.6
Cryst. (EtOH). Mp 141-142°.

*6-Tosyl: Methyl 6-*O*-tosyl-α-D-galactopyranoside*
[34698-19-6]
$C_{14}H_{20}O_8S$ 348.373
Cryst. (MeOH). Mp 170°. $[\alpha]_D^{18}$ +103.5 (Py).

*6-Tosyl, 2,3,4-tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-*O*-tosyl-α-D-galactopyranoside*
[52109-81-6]
$C_{20}H_{26}O_{11}S$ 474.485
Prisms (MeOH). Mp 128°. $[\alpha]_D^{18}$ +102.4 ($CHCl_3$).

*2,6-Ditosyl: Methyl 2,6-di-*O*-tosyl-α-D-galactopyranoside*
[69182-51-0]
$C_{21}H_{26}O_{10}S_2$ 502.562
Cryst. (EtOH). Mp 151-152° (148°). $[\alpha]_D^{17}$ +75 (c, 0.6 in Py).

*3,6-Ditosyl: Methyl 3,6-di-*O*-tosyl-α-D-galactopyranoside*
[74042-86-7]
$C_{21}H_{26}O_{10}S_2$ 502.562
Cryst. (EtOH). Mp 89-90° (63-64°). $[\alpha]_D^{18}$ +82.2 (c, 1.1 in $CHCl_3$). $[\alpha]_D^{24}$ +128 (c, 1.34 in $CHCl_3$).

*2,3,6-Tritosyl: Methyl 2,3,6-tri-*O*-tosyl-α-D-galactopyranoside*
[74052-05-4]
$C_{28}H_{32}O_{12}S_3$ 656.752
Cryst. (MeOH). Mp 142-143°. $[\alpha]_D^{17}$ +109.7 (c, 1.08 in $CHCl_3$).

*3,4-*O*-Methylene: Methyl 3,4-*O*-methylene-α-D-galactopyranoside*
$C_8H_{14}O_6$ 206.195
Cryst. (EtOAc/Et_2O). Mp 113-116°. $[\alpha]_D^{20}$ +179.

*4,6-*O*-Methylene: Methyl 4,6-*O*-methylene-α-D-galactopyranoside*
[50256-51-4]
$C_8H_{14}O_6$ 206.195
Mp 222-223°. $[\alpha]_D$ +182 (H_2O).

*4,6-*O*-Ethylidene: Methyl 4,6-*O*-ethylidene-α-D-galactopyranoside*
$C_9H_{16}O_6$ 220.222
Mp 117-118°. $[\alpha]_D$ +177 (EtOH).

*3,4-Isopropylidene: Methyl 3,4-*O*-isopropylidene-α-D-galactopyranoside*
[40269-01-0]
$C_{10}H_{18}O_6$ 234.249
Flakes (C_6H_6), cryst. (Me_2CO/hexane). Mp 103-104° (97-98°). $[\alpha]_D^{22}$ +161 (c, 2.0 in $CHCl_3$) (+135, +151).

*2,3:4,6-Diisopropylidene: Methyl 2,3:4,6-di-*O*-isopropylidene-α-D-galactopyranoside*
[118542-53-3]
$C_{13}H_{22}O_6$ 274.313
Mp 72-73°. $[\alpha]_D$ +157 (c, 1 in $CHCl_3$).

*3,4-*O*-Benzylidene, 6-benzoyl: Methyl 6-*O*-benzoyl-3,4-*O*-benzylidene-α-D-galactopyranoside*
[42927-29-7]
$C_{21}H_{22}O_7$ 386.401
Cryst. (EtOH). Mp 154-155.5°. $[\alpha]_D^{27}$ +128 (c, 1.25 in Py).

*3,4-*O*-Benzylidene, 6-benzoyl, 2-Ac: Methyl 2-*O*-acetyl-6-*O*-benzoyl-3,4-*O*-benzylidene-α-D-galactopyranoside*
[42927-30-0]
$C_{23}H_{24}O_8$ 428.438
Cryst. (EtOH). Mp 128-129°. $[\alpha]_D^{27}$ +110 (c, 1.2 in Me_2CO).

*4,6-*O*-Benzylidene:* See Methyl 4,6-*O*-benzylidene-α-D-galactopyranoside, M-162

*2,3,4,6-Tetra-Me: Methyl 2,3,4,6-tetra-*O*-methyl-α-D-galactopyranoside*
[3149-64-2]
$C_{11}H_{22}O_6$ 250.291
Mp 80-84°. $[\alpha]_D^{18}$ +148 (EtOH).

*3-Benzyl: Methyl 3-*O*-benzyl-α-D-galactopyranoside*
[81371-52-0]
$C_{14}H_{20}O_6$ 284.308
Cryst. (EtOAc). Mp 146-147° (138-139°).

*3-Benzyl, tri-Ac: Methyl 2,4,6-tri-*O*-acetyl-3-*O*-benzyl-α-D-galactopyranoside*
[81348-19-8]
$C_{20}H_{26}O_9$ 410.42
Needles (EtOH aq.). Mp 80-81°. $[\alpha]_D$ +160 (c, 1.1 in MeOH).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-D-galactopyranoside*
[29388-46-3]
$C_{21}H_{26}O_6$ 374.433
Cryst. (diisopropyl ether). Mp 87-88°. $[\alpha]_D^{25}$ +45.4 (c, 0.8 in $CHCl_3$).

*2,3-Dibenzyl, 6-Ac: Methyl 6-*O*-acetyl-2,3-di-*O*-benzyl-α-D-galactopyranoside*
[51842-23-0]
$C_{23}H_{28}O_7$ 416.47
Mp 139-141°. $[\alpha]_D$ +13 ($CHCl_3$).

*2,3-Dibenzyl, 4,6-di-Ac: Methyl 4,6-di-*O*-acetyl-2,3-di-*O*-benzyl-α-D-galactopyranoside*
[51842-32-1]
$C_{25}H_{30}O_8$ 458.507
$[\alpha]_D$ +52 ($CHCl_3$).

*2,3,4-Tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-α-D-galactopyranoside*
[55094-38-7]
$C_{28}H_{32}O_6$ 464.557
Cryst. (cyclohexane). Mp 103-105°. $[\alpha]_D$ -22 (c, 0.7 in $CHCl_3$).

*2,3,6-Tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-α-D-galactopyranoside*
[55697-49-9]
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D^{22}$ +40 (+35) ($CHCl_3$).

*2,4,6-Tribenzyl: Methyl 2,4,6-tri-*O*-benzyl-α-D-galactopyranoside*
[55697-50-2]
$C_{28}H_{32}O_6$ 464.557
Syrup. $[\alpha]_D$ +46.6 (c, 1.04 in $CHCl_3$).

*6-Trityl: Methyl 6-*O*-trityl-α-D-galactopyranoside*
[35920-83-3]
$C_{26}H_{28}O_6$ 436.504
Oil. Not characterised; anomeric config. in doubt.

*6-Trityl, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-*O*-trityl-α-D-galactopyranoside*
[38982-56-8]
$C_{32}H_{34}O_9$ 562.615
Cryst. (EtOH). Mp 179-181° (170-173°). $[\alpha]_D$ +60 (c, 1 in $CHCl_3$).

*6-Trityl, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-6-*O*-trityl-α-D-galactopyranoside*
[53685-07-7]
$C_{29}H_{32}O_6$ 476.568
Cryst. (hexane). Mp 111-113° (61-64°). $[\alpha]_D$ +52 (c, 1 in $CHCl_3$) (49). Also descr. as a foam.

Dale, J.K. *et al., J.A.C.S.*, 1930, **52**, 2534-2537 (*synth, tetra-Ac*)
Valentin, F. *et al., Coll. Czech. Chem. Comm.*, 1932, **4**, 364-375 (*6-trityl -tri-Ac*)
Ohle, H. *et al., Ber.*, 1933, **66**, 525-532 (*tosyl, tosyl tri-Ac*)
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Wolfrom, M.L. *et al., J.A.C.S.*, 1959, **81**, 3716-3719 (*3,4-isopropylidene*)
Pacsu, E. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 356-357 (*synth*)
Reist, E.J. *et al., J.O.C.*, 1965, **30**, 2312-2317 (*2,3,6-tribenzoyl*)
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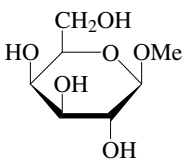
Kiss, J. *et al., Helv. Chim. Acta*, 1970, **53**, 1000-1011 (*dibenzyl*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1971, **20**, 357-365 (*pmr*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1972, **26**, 644-652; 1973, **27**, 2740-2748 (*2-Ac, 3-Ac, 6-Ac, 6-Ac dibenzyl, 4,6-di-Ac, 4,6-di-Ac dibenzyl*)
Garegg, P.G. *et al., Acta Chem. Scand.*, 1972, **26**, 3895-3901 (*2,3,4-tribenzyl*)
Hollenberg, D.H. *et al., Carbohydr. Res.*, 1973, **28**, 135 (*6-benzoyl, 6-benzoyl trimesyl, 3,4-benzylidene 6-benzoyl*)
Szarek, W.A. *et al., Can. J. Chem.*, 1974, **52**, 3394-3400 (*cmr*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 179-241 (*rev, acetals*)
Ogawa, T. *et al., Carbohydr. Res.*, 1977, **56**, C1 (*6-benzoyl*)
Matsuhiro, B. *et al., Carbohydr. Res.*, 1980, **81**, 330-334 (*2,6-ditosyl, 3,6-ditosyl, 2,3,6-tritosyl*)
Thiem, J. *et al., Chem. Ber.*, 1980, **113**, 3058-3066 (*3,4-isopropylidene*)
Garegg, P.G. *et al., Carbohydr. Res.*, 1982, **108**, 97-101 (*2,3,6-tribenzyl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27-66 (*cmr, rev*)
Kaifu, R. *et al., Carbohydr. Res.*, 1985, **140**, 37-49 (*6-trityl 2,3-isopropylidene*)
Kovac, P. *et al., Carbohydr. Res.*, 1985, **142**, 158-164 (*3-benzyl, pmr, cmr*)
Bernotas, R.C. *et al., Carbohydr. Res.*, 1987, **167**, 305-311 (*6-trityl*)
Barili, P.L. *et al., Carbohydr. Res.*, 1988, **177**, 29-41; 1993, **243**, 165-176; 287 (*2,3:4,6-diisopropylidene, 3,4-isopropylidene, synth, cryst struct*)

Catelani, G. *et al., Carbohydr. Res.*, 1988, **182**, 287-289 (*synth, 3,4-isopropylidene*)
Rashid, A. *et al., Can. J. Chem.*, 1990, **68**, 1122-1127 (*6-trityl tri-Ac, 6-trityl 3,4-isopropylidene*)
Kong, F. *et al., Carbohydr. Res.*, 1990, **198**, 141-148 (*2,4,6-tribenzyl*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333-339 (*pmr, cmr*)
Parra, E. *et al., Carbohydr. Res.*, 1990, **208**, 83-92 (*4-benzyl, 4-benzyl tri-Ac*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1993, **47**, 1012-1018 (*3,4-methylene*)
Nouguier, R. *et al., Carbohydr. Res.*, 1995, **277**, 339-345 (*4,6-methylene*)
Kawana, M. *et al., J. Carbohydr. Chem.*, 2000, **19**, 67-78 (*3,6-ditosyl*)

Methyl β-D-galactopyranoside M-186

[1824-94-8]



$C_7H_{14}O_6$ 194.184
Mp 178-180°. $[\alpha]_D$ +0.61 (H_2O).

*2-Ac: Methyl 2-*O*-acetyl-β-D-galactopyranoside*
[37180-55-5]
$C_9H_{16}O_7$ 236.221
Mp 115-120°. $[\alpha]_D$ +12 (c, 1.0 in H_2O).

*3-Ac: Methyl 3-*O*-acetyl-β-D-galactopyranoside*
[37180-56-6]
$C_9H_{16}O_7$ 236.221
Syrup. $[\alpha]_D$ +41 (c, 0.5 in H_2O).

*4-Ac: Methyl 4-*O*-acetyl-β-D-galactopyranoside*
[51897-72-4]
$C_9H_{16}O_7$ 236.221
$[\alpha]_D$ -4 (EtOH).

*6-Ac: Methyl 6-*O*-acetyl-β-D-galactopyranoside*
[40694-69-7]
$C_9H_{16}O_7$ 236.221
Mp 142-145°. $[\alpha]_D^{22}$ -1.1 (c, 0.6 in H_2O). $[\alpha]_{578}^{22}$ +1 (c, 1.0 in H_2O).

*2,6-Di-Ac: Methyl 2,6-di-*O*-acetyl-β-D-galactopyranoside*
[51842-26-3]
$C_{11}H_{18}O_8$ 278.258
Mp 105-111°. $[\alpha]_D$ -12 ($CHCl_3$).

*3,4-Di-Ac: Methyl 3,4-di-*O*-acetyl-β-D-galactopyranoside*
[51842-29-6]
$C_{11}H_{18}O_8$ 278.258
$[\alpha]_D$ +32 ($CHCl_3$).

*4,6-Di-Ac: Methyl 4,6-di-*O*-acetyl-β-D-galactopyranoside*
[51842-35-4]
$C_{11}H_{18}O_8$ 278.258
Mp 109-112°. $[\alpha]_D$ -1 (EtOH).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-β-D-galactopyranoside*
[5019-23-8]
$C_{15}H_{22}O_{10}$ 362.333
Mp 94°. $[\alpha]_D$ -25.5 (C_6H_6).

*3-Benzoyl: Methyl 3-*O*-benzoyl-β-D-galactopyranoside*
[71454-34-7]
$C_{14}H_{18}O_7$ 298.292
Cryst. (petrol/EtOAc). Mp 106-109°. $[\alpha]_D^{20}$ +56.7 (c, 0.55 in EtOH).

*6-Benzoyl: Methyl 6-*O*-benzoyl-β-D-galactopyranoside*
[71454-33-6]
$C_{14}H_{18}O_7$ 298.292
Cryst. (petrol/EtOAc). $[\alpha]_D^{20}$ -4 (c, 0.5 in EtOH).

*3,6-Dibenzoyl: Methyl 3,6-di-*O*-benzoyl-β-D-galactopyranoside*
[64244-18-4]
$C_{21}H_{22}O_8$ 402.4
Cryst. (EtOAc/diisopropyl ether). Mp 132-133°. $[\alpha]_D^{25}$ -7.1 (c, 0.85 in $CHCl_3$).

*2,3,4-Tribenzoyl, 6-tosyl: Methyl 2,3,4-tri-*O*-benzoyl-6-*O*-tosyl-β-D-galactopyranoside*
$C_{35}H_{32}O_{11}S$ 660.697
Mp 194°. $[\alpha]_D^{20}$ +148.7 ($CHCl_3$).

*2,4,6-Tribenzoyl: Methyl 2,4,6-tri-*O*-benzoyl-β-D-galactopyranoside*
[34820-02-5]
$C_{28}H_{26}O_9$ 506.508
Foam. $[\alpha]_D$ +6 (c, 1.0 in $CHCl_3$).

*3,4-*O*-Ethylidene (*R*-): Methyl 3,4-*O*-ethylidene-β-D-galactopyranoside*
[54447-48-2]
$C_9H_{16}O_6$ 220.222
Mp 193-196°. $[\alpha]_D$ +8 (H_2O).

*3,4-*O*-Ethylidene (*S*-):* [54447-49-3]
Mp 169-171°. $[\alpha]_D$ +13 (H_2O).

*3,4-*O*-Isopropylidene: Methyl 3,4-*O*-isopropylidene-β-D-galactopyranoside*
[14897-47-3]
$C_{10}H_{18}O_6$ 234.249
Mp 134-135°. $[\alpha]_D^{17}$ +21 (H_2O).

*3,4-*O*-Isopropylidene, 6-tosyl: Methyl 3,4-*O*-isopropylidene-6-*O*-tosyl-β-D-galactopyranoside*
[20688-91-9]
$C_{17}H_{24}O_8S$ 388.438
Mp 154-155°. $[\alpha]_D$ 0 ($CHCl_3$).

*4,6-*O*-Isopropylidene: Methyl 4,6-O-isopropylidene-β-D-galactopyranoside*
[20688-90-8]
$C_{10}H_{18}O_6$ 234.249
Cryst. (EtOH). Mp 160-162° (155-157°). $[\alpha]_D^{25}$ -31.2 (c, 0.9 in $CHCl_3$).

*2,3:4,6-Diisopropylidene: Methyl 2,3:4,6-di-*O*-isopropylidene-β-D-galactopyranoside*
[118542-52-2]
$C_{13}H_{22}O_6$ 274.313
Mp 105-107°. $[\alpha]_D$ -27 (c, 1 in $CHCl_3$).

*3,4-*O*-Benzylidene: Methyl 3,4-O-benzylidene-β-D-galactopyranoside*
[51897-74-6]
$C_{14}H_{18}O_6$ 282.293
Mp 139-141° Mp 165-168°. $[\alpha]_D$ +18 (EtOH) (low-melting isomer). $[\alpha]_D$ -11 (EtOH) (high-melting isomer). Two diastereoisomers obt.

*4,6-*O*-Benzylidene:* See Methyl 4,6-*O*-benzylidene-β-D-galactopyranoside, M-163

*2,3-Di-Me, 4,6-*O*-ethylidene: Methyl 4,6-O-ethylidene-2,3-di-*O*-methyl-β-D-galactopyranoside*
$C_{11}H_{20}O_6$ 248.275
Mp 80-81°. $[\alpha]_D$ +9 ($CHCl_3$).

*Tetra-Me: Methyl 2,3,4,6-tetra-*O*-methyl-β-D-galactopyranoside*
[2296-47-1]
$C_{11}H_{22}O_6$ 250.291
Mp 48°. $[\alpha]_D^{20}$ -24.4 (EtOH).

*2,3-Dibenzyl, 4,6-di-Ac: Methyl 4,6-di-*O*-acetyl-2,3-di-*O*-benzyl-β-D-galactopyranoside*
[51842-34-3]
$C_{25}H_{30}O_8$ 458.507
Mp 108-109°. $[\alpha]_D$ +28 ($CHCl_3$).

*2,6-Dibenzyl, 3,4-di-Ac: Methyl 3,4-di-*O*-acetyl-2,6-di-*O*-benzyl-β-D-galactopyranoside*
[51842-28-5]
$C_{25}H_{30}O_8$ 458.507
$[\alpha]_D$ +14 ($CHCl_3$).

*2,3,4-Tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-β-D-galactopyranoside*
[40653-32-5]
$C_{28}H_{32}O_6$ 464.557
Foam. $[\alpha]_D$ -22 (c, 1.0 in $CHCl_3$). $[\alpha]_D$ +42 (c, 0.4 in EtOH). The large discrepancy in reported opt. rotns. is improbable.

*2,3,6-Tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-β-D-galactopyranoside*
[51842-16-1]
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D$ +3 ($CHCl_3$).

*2,3,6-Tribenzyl, 4-Ac: Methyl 4-*O*-acetyl-2,3,6-tri-*O*-benzyl-β-D-galactopyranoside*
[51842-17-2]
$C_{30}H_{34}O_7$ 506.594
$[\alpha]_D$ +20 ($CHCl_3$).

*3,4,6-Tribenzyl: Methyl 3,4,6-tri-*O*-benzyl-β-D-galactopyranoside*
[73445-27-9]
$C_{28}H_{32}O_6$ 464.557
Oil. $[\alpha]_D$ +2.9 (c, 0.6 in $CHCl_3$). Sample contained 17% α-anomer.

*6-Trityl: Methyl 6-*O*-trityl-β-D-galactopyranoside*
[35780-80-4]
$C_{26}H_{28}O_6$ 436.504
Mp 184-185° (167-168°). $[\alpha]_D$ -38 (c, 1.1 in $CHCl_3$).

*6-Trityl, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-*O*-trityl-β-D-galactopyranoside*
[87591-35-3]
$C_{32}H_{34}O_9$ 562.615
Cryst. (EtOH). Mp 143-145° (138°). $[\alpha]_D$ -52.7 (c, 1.6 in $CHCl_3$).

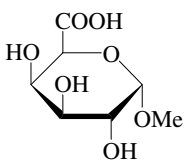
*6-Trityl, tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-6-*O*-trityl-β-D-galactopyranoside*
[53182-62-0]
$C_{47}H_{40}O_9$ 748.828
Mp 95°. $[\alpha]_D^{20}$ +78 ($CHCl_3$).

*2,6-Ditrityl: Methyl 2,6-di-*O*-trityl-β-D-galactopyranoside*
[81561-86-6]
$C_{45}H_{42}O_6$ 678.823
Cryst. (diisopropyl ether). Mp 134-136°. $[\alpha]_D$ +2 (c, 1.0 in $CHCl_3$).

2,3,4-Tris(trimethylsilyl): Methyl 2,3,4-tris(trimethylsilyl)-β-D-galactopyranoside
[22875-28-1]
$C_{16}H_{38}O_6Si_3$ 410.729
Mp 131-132°. $[\alpha]_D$ -1.7.
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 303B (*nmr*)
Dale, J.K. *et al., J.A.C.S.*, 1930, **52**, 2534 (*synth, tetra-Ac*)
Müller, A. *et al., Ber.*, 1931, **64**, 1820-1826, (*6-trityl tri-Ac, 6-trityl tribenzoyl, tosyl tribenzoyl*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc. , Ann Arbor, 1943, 343 (*rev, derivs*)
Conchie, J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 157 (*rev*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, acetals*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1971, **20**, 357 (*pmr*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1972, **26**, 644; 1973, **27**, 2740 (*Ac derivs, dibenzyl and tribenzyl derivs*)
Bock, K. *et al., Tet. Lett.*, 1973, 1037 (*cmr, rev*)
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 381-384 (*3,4-ethylidene, config*)
Fuchs, E.-F. *et al., Chem. Ber.*, 1974, **107**, 721 (*6-Ac*)
Takagi, S. *et al., Acta Cryst. B*, 1979, **35**, 902 (*cryst struct*)
Das, M.K. *et al., Carbohydr. Res.*, 1979, **73**, 235-244 (*6-benzoyl, 3-benzoyl*)
Ogawa, T. *et al., Tetrahedron*, 1981, **37**, 2363 (*3,6-dibenzoyl*)
Ogawa, T. *et al., Carbohydr. Res.*, 1982, **101**, 263 (*2,6-ditrityl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr, rev*)
Kovác, P. *et al., Carbohydr. Res.*, 1984, **128**, 101 (*6-trityl*)
Barili, P.L. *et al., Carbohydr. Res.*, 1988, **177**, 29; 1993, **243**, 165 (*2,3:4,6-diisopropylidene, 3,4-isopropylidene, synth, cryst struct, pmr, cmr*)
Catelani, G. *et al., Carbohydr. Res.*, 1988, **182**, 297 (***synth**, 3,4-isopropylidene*)
Helm, R.F. *et al., Carbohydr. Res.*, 1992, **229**, 183 (*tristrimethylsilyl, pmr, cmr*)
Valdor, J.-F. *et al., J. Carbohydr. Chem.*, 1997, **16**, 429-440 (*2,4,6-tribenzoyl, 6-trityl, 2,3,4-tribenzyl*)
Rozenberg, M. *et al., Carbohydr. Res.*, 2000, **328**, 307-319 (*ir*)
Barbieri, L. *et al., Eur. J. Org. Chem.*, 2004, 468-473 (*3,4,6-tribenzyl*)

Methyl galactopyranosiduronic acid, 9CI M-187

Methyl galactouronic acid



α-D-*form*

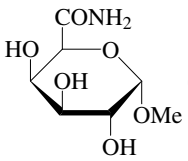
$C_7H_{12}O_7$ 208.168

α-D-*form* [5155-53-3]
Mp 109° (sinters) Mp 112-114° dec. $[\alpha]_D^{20}$ +129.9 (H_2O).
Me ester: Methyl (methyl α-D-galactopyranosid)uronate
[5155-54-4]
$C_8H_{14}O_7$ 222.194
Cryst. (EtOH/Et_2O). Mp 141° (hydrate). $[\alpha]_D^{25}$ +128 (c, 0.3 in H_2O).
2,3,4-Tri-Ac, Me ester: Methyl (methyl 2,3,4-tri-O-acetyl-α-D-galactopyranosid)uronate
[35785-35-4]
$C_{14}H_{20}O_{10}$ 348.306
Cryst. (Et_2O/pentane). Mp 95-96° Mp 118-120°. $[\alpha]_D^{25}$ +15.3 (c, 1.5 in $CHCl_3$). $[\alpha]_D^{22}$ +160 ($CHCl_3$).
2,3-Dibenzoyl, Me ester: Methyl (methyl 2,3-di-O-benzoyl-α-D-galactopyranosid)uronate
[55610-63-4]
$C_{22}H_{22}O_9$ 430.41
Syrup. $[\alpha]_D$ +172 (c, 1.0 in $CHCl_3$).
2,3,4-Tribenzoyl, Me ester: Methyl (methyl 2,3,4-tri-O-benzoyl-α-D-galactopyranosid)uronate
[55610-61-2]
$C_{29}H_{26}O_{10}$ 534.518
Cryst. (diisopropyl ether). Mp 134-135°. $[\alpha]_D$ +203 (c, 1.0 in $CHCl_3$).
2,3-Dibenzoyl, 4-mesyl, Me ester: Methyl (methyl 2,3-di-O-benzoyl-4-O-mesyl-α-D-galactopyranosid)uronate
[33012-59-8]
$C_{23}H_{24}O_{11}S$ 508.502
Cryst. (2-propanol). Mp 122-123°. $[\alpha]_D$ +156 (c, 1.0 in $CHCl_3$).
2-Tosyl, Me ester: Methyl (methyl 2-O-tosyl-α-D-galactopyranosid)uronate
$C_{15}H_{20}O_9S$ 376.384
Mp 71°. $[\alpha]_D^{18}$ +61 (c, 1.1 in $CHCl_3$).
3,4-O-Isopropylidene, Me ester: Methyl (methyl 3,4-O-isopropylidene-α-D-galactopyranosid)uronate
[25253-47-8]
$C_{11}H_{18}O_7$ 262.259
Needles (petrol). Mp 113-114°. $[\alpha]_D^{25}$ +117 (c, 1.2 in H_2O).
3,4-O-Isopropylidene, 2-tosyl, Me ester: Methyl (methyl 3,4-O-isopropylidene-2-O-tosyl-α-D-galactopyranosid)uronate
$C_{18}H_{24}O_9S$ 416.448
Mp 157-158°. $[\alpha]_D^{20}$ +122 (c, 1.1 in MeOH).
2-Me, Me ester: Methyl (methyl 2-O-methyl-α-D-galactopyranosid)uronate
[52545-24-1]
$C_9H_{16}O_7$ 236.221
Cryst. (butanone/Et_2O). Mp 77-79°. $[\alpha]_D^{25}$ +140 (c, 0.7 in MeOH).
3,4-Di-Me: Methyl 3,4-di-O-methyl-α-D-galactopyranosiduronic acid
$C_9H_{16}O_7$ 236.221
Mp 154-155°. $[\alpha]_D$ +158 ($CHCl_3$).
3,4-Di-Me, Me ester: Methyl (methyl 3,4-di-O-methyl-α-D-galactopyranosid)uronate
[35942-16-6]
$C_{10}H_{18}O_7$ 250.248
Needles (petrol). Mp 113-114°. $[\alpha]_D$ +165 ($CHCl_3$).
2,3,4-Tri-Me, Me ester: Methyl (methyl 2,3,4-tri-O-methyl-α-D-galactopyranosid)uronate
[55781-03-8]
$C_{11}H_{20}O_7$ 264.275
Mp 70°. $[\alpha]_D$ +142.1 ($CHCl_3$).
2,3-Dibenzyl, Me ester: Methyl (methyl 2,3-di-O-benzyl-α-D-galactopyranosid)uronate
[29600-82-6]
$C_{22}H_{26}O_7$ 402.443
Cryst. (diisopropyl ether). Mp 66-67°. $[\alpha]_D^{25}$ +33.3 (c, 0.74 in $CHCl_3$).
2,3-Dibenzyl, 4-mesyl, Me ester: Methyl (methyl 2,3-di-O-benzyl-4-O-mesyl-α-D-galactopyranosid)uronate
$C_{23}H_{28}O_9S$ 480.535
Cryst. (diisopropyl ether). Mp 96-97°. $[\alpha]_D$ +60.5 (c, 0.64 in $CHCl_3$).

β-D-*form* [5241-02-1]
Mp 134° (163-165°) dec. $[\alpha]_D^{21}$ -39.2 (c, 1.4 in H_2O). Sinters at 126°.
Me ester: Methyl (methyl β-D-galactopyranosid)uronate
[10357-03-6]
$C_8H_{14}O_7$ 222.194
Mp 193-194°. $[\alpha]_D^{20}$ -45.6 (H_2O).
3,4-O-Isopropylidene, Me ester: Methyl (methyl 3,4-O-isopropylidene-β-D-galactopyranosid)uronate
[52545-22-9]
$C_{11}H_{18}O_7$ 262.259
Mp 137°. $[\alpha]_D^{25}$ -28 (c, 0.9 in $CHCl_3$).
2,3-Di-Me, Me ester: Methyl (methyl 2,3-di-O-methyl-β-D-galactopyranosid) uronate
$C_{10}H_{18}O_7$ 250.248
Mp 111°. $[\alpha]_D$ -11 (H_2O).
2,3,4-Tri-Me: Methyl 2,3,4-tri-O-methyl-β-D-galactopyranosiduronic acid
$C_{10}H_{18}O_7$ 250.248
Mp 102°. $[\alpha]_D$ -21 (H_2O).
2,3,4-Tri-Me, Me ester: Methyl (methyl 2,3,4-tri-O-methyl-β-D-galactopyranosid)uronate
$C_{11}H_{20}O_7$ 264.275
$[\alpha]_D^{18}$ -20 (c, 1.0 in MeOH).
Ehrlich, F. *et al., Ber.*, 1933, **66**, 220 (*α-D-form, β-D-form, α-D-Me ester, β-D-Me ester*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 358 (*rev*)
Cadotte, J.E. *et al., J.A.C.S.*, 1952, **74**, 1501, (*α-D-Me ester*)
Edington, R.A. *et al., J.C.S.*, 1953, 2473, (*α-D-Me ester, α-D-Me ester isopropylidene, α-D-Me ester di-Me, α-D-Me ester tri-Me*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 131 (*rev, Me ethers*)
Kiss, J. *et al., Helv. Chim. Acta*, 1970, **53**, 1000 (*α-D-Me ester dibenzyl, α-D-Me ester dibenzyl mesyl*)
Gill, P.L. *et al., Carbohydr. Res.*, 1971, **17**, 213 (*α-D-Me ester dibenzoyl, α-D-Me ester dibenzoyl mesyl, α-D-Me ester tribenzoyl*)
Llewellyn, J.W. *et al., Carbohydr. Res.*, 1972, **22**, 221 (*α-D-Me ester tri-Ac*)
Hjortas, J. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 133 (*cryst struct*)
Kováč, P. *et al., Carbohydr. Res.*, 1974, **32**, 360 (*α-D-Me ester isopropylidene, β-D-Me ester isopropylidene, β-D-Me ester, α-D-Me ester Me*)
Tjan, S.B. *et al., Carbohydr. Res.*, 1974, **34**, 15 (*pmr*)
Keglević, D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1979, **36**, 57 (*rev*)
Matsuhiro, B. *et al., Carbohydr. Res.*, 1981, **97**, 11 (*cmr, pmr*)
Lamba, D. *et al., Acta Cryst. C*, 1995, **50**, 1494 (*cryst struct, Me ester*)

Schnatbaum, K. *et al., Synthesis*, 1999, 864-872 (*α-D-Me ester*)

Methyl galactosiduronamide M-188



α-D-Pyranose-*form*

$C_7H_{13}NO_6$ 207.183

α-D-Pyranose-*form*

Methyl α-D-galactopyranosiduronamide, 8CI
[3170-03-4]
Cryst. (EtOH aq.). Mp 231.5° dec. $[\alpha]_D$ +126.5 (H_2O).

*2-Tosyl: Methyl 2-*O*-tosyl-α-D-galactopyranosiduronamide*
$C_{14}H_{19}NO_8S$ 361.372
Mp 94-95°. $[\alpha]_D^{18}$ +67 (c, 0.5 in $CHCl_3$).

*3,4-*O*-Isopropylidene: Methyl 3,4-*O*-isopropylidene-α-D-galactopyranosiduronamide*
$C_{10}H_{17}NO_6$ 247.247
Cryst. (EtOAc/diisopropyl ether). Mp 161.5°. $[\alpha]_D^{25}$ +133 (c, 1.0 in $CHCl_3$).

*3,4-*O*-Isopropylidene, 2-Ac: Methyl 2-*O*-acetyl-3,4-*O*-isopropylidene-α-D-galactopyranosiduronamide*
$C_{12}H_{19}NO_7$ 289.285
Cryst. (EtOAc/cyclohexane). Mp 168-169°. $[\alpha]_D$ +130 ($CHCl_3$).

*3,4-*O*-Isopropylidene, 2-tosyl: Methyl 3,4-*O*-isopropylidene-2-*O*-tosyl-α-D-galactopyranosiduronamide*
$C_{17}H_{23}NO_8S$ 401.437
Cryst. (EtOAc/cyclohexane). Mp 172°. $[\alpha]_D^{20}$ +119.5 (c, 1.4 in $CHCl_3$).

*2-Me: Methyl 2-*O*-methyl-α-D-galactopyranosiduronamide*
$C_8H_{15}NO_6$ 221.21
Cryst. (EtOH/Et_2O). Mp 174-175°. $[\alpha]_D^{18}$ +55 (EtOH).

*3,4-Di-Me: Methyl 3,4-di-*O*-methyl-α-D-galactopyranosiduronamide*
$C_9H_{17}NO_6$ 235.236
Mp 130-131°. $[\alpha]_D^{17}$ +108 (c, 1.1 in EtOH).

*2,3,4-Tri-Me: Methyl 2,3,4-tri-*O*-methyl-α-D-galactopyranosiduronamide*
$C_{10}H_{19}NO_6$ 249.263
Mp 153-154°. $[\alpha]_D^{27}$ +121.5 ($CHCl_3$).

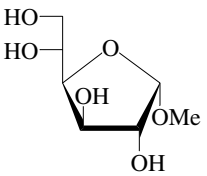
β-D-Furanose-*form*

*2,3-Di-Me: Methyl 2,3-di-*O*-methyl-β-D-galactofuranosiduronamide*
$C_9H_{17}NO_6$ 235.236
Mp 124°. $[\alpha]_D$ -151 (H_2O).

*2,3,5-Tri-Me: Methyl 2,3,5-tri-*O*-methyl-β-D-galactofuranosiduronamide*
$C_{10}H_{19}NO_6$ 249.263
Cryst. (Et_2O). Mp 106°. $[\alpha]_D$ -151.5 (c, 1.0 in H_2O).

Levene, P.A. *et al., J. Biol. Chem.*, 1937, **121**, 155 (*α-D-pyr tri-Me*)
Luckett, S. *et al., J.C.S.*, 1940, 1106 (*β-D-fur tri-Me*)
Edington, R.A. *et al., J.C.S.*, 1953, 2473, (*α-D-pyr Me, α-D-pyr di-Me*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 131 (*rev, Me ethers*)
Weidmann, H. *et al., Annalen*, 1964, **679**, 186 (*α-D-pyr, synth, α-D-pyr-isopropylidene, α-D-pyr-isopropylidene Ac, α-D-pyr isopropylidene tosyl*)

Methyl glucofuranoside, 9CI, 8CI M-189



α-D-*form*

$C_7H_{14}O_6$ 194.184

α-D-*form* [1824-88-0]
Needles (EtOAc). Mp 62-63°. $[\alpha]_D^{20}$ +118 (c, 4.5 in H_2O). $[\alpha]_D^{23}$ +136 (c, 1 in MeOH).

5,6-Carbonate: Methyl α-D-glucofuranoside 5,6-carbonate
$C_8H_{12}O_7$ 220.179
Cryst. (EtOAc). Mp 130°. $[\alpha]_D^{23}$ +130 (c, 0.6 in MeOH).

*5,6-Carbonate, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-α-D-glucofuranoside 5,6-carbonate*
$C_{12}H_{16}O_9$ 304.253
Cryst. (Me_2CO/MeOH). Mp 111°. $[\alpha]_D^{18}$ +148 (c, 0.5 in Me_2CO).

*3-Benzyl, 5,6-carbonate: Methyl 3-*O*-benzyl-α-D-glucofuranoside 5,6-carbonate*
[16895-87-7]
$C_{15}H_{18}O_7$ 310.303
Cryst. (EtOH/petrol). Mp 62-63°. $[\alpha]_D^{29}$ +93.3 (c, 2.7 in MeOH).

*2,3-Dibenzyl, 5,6-carbonate: Methyl 2,3-di-*O*-benzyl-α-D-glucofuranoside 5,6-carbonate*
[16895-89-9]
$C_{22}H_{24}O_7$ 400.427
Syrup. $[\alpha]_D^{27}$ +97.5 (c, 3.3 in $CHCl_3$).

β-D-*form* [1824-89-1]
Syrup. $[\alpha]_D$ -77 (H_2O).

5,6-Carbonate: Methyl β-D-glucofuranoside 5,6-carbonate
$C_8H_{12}O_7$ 220.179
Mp 143-145°. $[\alpha]_D^{22}$ -66 (c, 0.7 in H_2O).

*2,3-Di-Ac, 5,6-carbonate: Methyl 2,3-di-*O*-acetyl-β-D-glucofuranoside 5,6-carbonate*
$C_{12}H_{16}O_9$ 304.253
Prisms (Me_2CO/MeOH). Mp 164°. $[\alpha]_D^{18}$ -41 (c, 1.5 in Me_2CO).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-β-D-glucofuranoside*
[16895-91-3]
$C_{21}H_{26}O_6$ 374.433
Silky needles (Et_2O). Mp 59-61°. $[\alpha]_D^{27}$ -59.3 (c, 2.7 in $CHCl_3$).

*3-Benzyl, 5,6-carbonate: Methyl 3-*O*-benzyl-β-D-glucofuranoside 5,6-carbonate*
[16895-88-8]
$C_{15}H_{18}O_7$ 310.303
Syrup. $[\alpha]_D^{20}$ -51.2 (c, 3.3 in MeOH).

*2,3-Dibenzyl, 5,6-carbonate: Methyl 2,3-di-*O*-benzyl-β-D-glucofuranoside 5,6-carbonate*
[16895-90-2]
$C_{22}H_{24}O_7$ 400.427
Syrup. $[\alpha]_D^{27}$ -52.5 (c, 3.2 in $CHCl_3$).

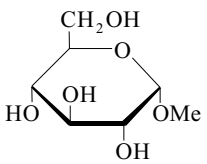
*6-Trityl, 2,3-dibenzyl, 5-mesyl: Methyl 2,3-di-*O*-benzyl-5-*O*-mesyl-6-*O*-trityl-β-D-glucofuranoside*
[16895-92-4]
$C_{41}H_{42}O_8S$ 694.844
Syrup. $[\alpha]_D^{28}$ +4.7 (c, 3.0 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1929, 2796; 1932, 2254 (*synth, carbonate, carbonate di-Ac*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros., Inc., Ann Arbor, 1943, 258 (*rev, derivs*)
Iwashige, T. *et al., Chem. Pharm. Bull.*, 1967, **15**, 132; 1968, **16**, 1040 (*carbonate, benzyl carbonate, dibenzyl carbonate, dibenzyl, dibenzyl mesyl trityl*)
Ritchie, R.G.S. *et al., Can. J. Chem.*, 1975, **53**, 1424 (*cmr*)

Methyl α-D-glucopyranoside, 9CI, 8CI M-190

[97-30-3]

[3149-68-6]



$C_7H_{14}O_6$ 194.184
Obt. using yeast α-glucosidase. Inexpensive starting material for synthesis. V. sol. H_2O. Mp 168°. $[\alpha]_D^{20}$ +158.9 (H_2O).

*6-Ac: Methyl 6-*O*-acetyl-α-D-glucopyranoside*
[4201-66-5]
$C_9H_{16}O_7$ 236.221
Oil. $[\alpha]_D^{21}$ +151.1 (c, 1.12 in Me_2CO).

*2,3-Di-Ac: Methyl 2,3-di-*O*-acetyl-α-D-glucopyranoside*
[29868-42-6]
$C_{11}H_{18}O_8$ 278.258
$[\alpha]_D^{25}$ +112.4 (c, 1.0 in H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-α-D-glucopyranoside*
[7432-72-6]
$C_{13}H_{20}O_9$ 320.296
Mp 111°. $[\alpha]_D^{20}$ +148.8 ($CHCl_3$).

*2,3,4,6-Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-D-glucopyranoside*
[604-70-6]
$C_{15}H_{22}O_{10}$ 362.333
Mp 105°. $[\alpha]_D^{20}$ +130.5 ($CHCl_3$).

*6-Benzoyl: Methyl 6-*O*-benzoyl-α-D-glucopyranoside*
[4338-28-7]
$C_{14}H_{18}O_7$ 298.292
No phys. props. reported.

*2,6-Dibenzoyl: Methyl 2,6-di-*O*-benzoyl-α-D-glucopyranoside*
[26927-44-6]
$C_{21}H_{22}O_8$ 402.4

Obt. in 1 step from methyl α-D-glucopyranoside. Mp 140-142°. $[\alpha]_D^{25}$ +66.1 (c, 0.62 in $CHCl_3$).

*2,3,4-Tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-α-D-glucopyranoside*
[52621-71-3]
$C_{28}H_{26}O_9$ 506.508
Mp 143°. $[\alpha]_D^{17}$ +131.4 (Py).

*2,3,6-Tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-α-D-glucopyranoside*
[57784-06-2]
$C_{28}H_{26}O_9$ 506.508
Cryst. (Et_2O/hexane). Mp 129-130°. $[\alpha]_D$ +147.8 (c, 0.50 in $CHCl_3$).

*2,3,4,6-Tetrabenzoyl: Methyl 2,3,4,6-tetra-*O*-benzoyl-α-D-glucopyranoside*
[32849-03-9]
$C_{35}H_{30}O_{10}$ 610.616
Mp 103-104°. $[\alpha]_D^{21}$ +78 (c, 0.5 in $CHCl_3$).

*6-Mesyl, 2,3,4-tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-*O*-mesyl-α-D-glucopyranoside*
$C_{14}H_{22}O_{11}S$ 398.387
Cryst. (MeOH). Mp 113°.

*6-Tosyl: Methyl 6-*O*-tosyl-α-D-glucopyranoside*
[6619-09-6]
$C_{14}H_{20}O_8S$ 348.373
Cryst. (H_2O). Mp 56-58° (hydrate) Mp 124° (anhydr.). $[\alpha]_D^{20}$ +98.5 (c, 1.3 in EtOH).

*2,3-Ditosyl: Methyl 2,3-di-*O*-tosyl-α-D-glucopyranoside*
$C_{21}H_{26}O_{10}S_2$ 502.562
$[\alpha]_D$ +58.5 ($CHCl_3$).

*2,4-Ditosyl: Methyl 2,4-di-*O*-tosyl-α-D-glucopyranoside*
$C_{21}H_{26}O_{10}S_2$ 502.562
$[\alpha]_D$ +61.9 (c, 0.69 in $CHCl_3$).

*2,6-Ditosyl: Methyl 2,6-di-*O*-tosyl-α-D-glucopyranoside*
[54497-89-1]
$C_{21}H_{26}O_{10}S_2$ 502.562
Syrup. Mp 55-57°. $[\alpha]_D$ +61.9 (c, 0.69 in $CHCl_3$).

*4,6-*O*-Methylene: Methyl 4,6-*O*-methylene-α-D-glucopyranoside*
[50256-48-9]
$C_8H_{14}O_6$ 206.195
Cryst. (EtOAc). Mp 127-128°. $[\alpha]_D^{20}$ +120.5 (c, 1.0 in H_2O).

*4,6-*O*-Ethylidene: Methyl 4,6-*O*-ethylidene-α-D-glucopyranoside*
[13225-11-1]
$C_9H_{16}O_6$ 220.222
Mp 75-76°. $[\alpha]_D$ +111.3 (H_2O).

*4,6-*O*-Ethylidene, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-ethylidene-α-D-glucopyranoside*
$C_{13}H_{20}O_8$ 304.296
Mp 81°. $[\alpha]_D^{16}$ +117 ($CHCl_3$).

*4,6-*O*-Ethylidene, 2-tosyl: Methyl 4,6-*O*-ethylidene-2-*O*-tosyl-α-D-glucopyranoside*
$C_{16}H_{22}O_8S$ 374.411
Mp 150°. $[\alpha]_D$ +82.1 ($CHCl_3$).

*4,6-*O*-Ethylidene, 3-tosyl: Methyl 4,6-*O*-ethylidene-3-*O*-tosyl-α-D-glucopyranoside*
$C_{16}H_{22}O_8S$ 374.411
Mp 145-146°. $[\alpha]_D$ +68.4 ($CHCl_3$).

*4,6-*O*-Ethylidene, 2,3-ditosyl: Methyl 4,6-*O*-ethylidene-2,3-di-*O*-tosyl-α-D-glucopyranoside*
$C_{23}H_{28}O_{10}S_2$ 528.6
Mp 155°. $[\alpha]_D$ +50.9 ($CHCl_3$).

*4,6-*O*-Propylidene: Methyl 4,6-*O*-propylidene-α-D-glucopyranoside*
[2465-70-5]
$C_{10}H_{18}O_6$ 234.249
Mp 102-103.5°. $[\alpha]_D$ +122 ($CHCl_3$).

*2,3:4,6-Di-*O*-cyclohexylidene: Methyl 2,3:4,6-di-*O*-cyclohexylidene-α-D-glucopyranoside*
[18405-23-7]
$C_{19}H_{30}O_6$ 354.442
Mp 145.5-146.5° (142-143°). $[\alpha]_D^{25}$ +77 (c, 1.0 in Me_2CO).

2-Me: See 2-*O*-Methylglucose, M-255

2,3-Di-Me: See 2,3-Di-*O*-methylglucose, D-738

2,3,4,6-Tetra-Me: See 2,3,4,6-Tetra-*O*-methylglucose, T-43

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-D-glucopyranoside*
[17791-36-5]
$C_{21}H_{26}O_6$ 374.433
Needles (EtOH). Mp 79-80°. $[\alpha]_D^{20}$ +88.7 (Me_2CO).

*2,3,4-Tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-α-D-glucopyranoside*
[53008-65-4]
$C_{28}H_{32}O_6$ 464.557
Needles (Et_2O/petrol). Mp 66.5-67°. $[\alpha]_D^{25}$ +23.5 (c, 1 in $CHCl_3$).

*2,3,6-Tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-α-D-glucopyranoside*
[19488-48-3]
$C_{28}H_{32}O_6$ 464.557
Syrup. $[\alpha]_D$ +13 ($CHCl_3$) (+11).

*2,4,6-Tribenzyl: Methyl 2,4,6-tri-*O*-benzyl-α-D-glucopyranoside*
[35303-86-7]
$C_{28}H_{32}O_6$ 464.557
Syrup. $Bp_{0.002}$ 253-255°. $[\alpha]_D$ +67.1 (c, 2.9 in $CHCl_3$). n_D^{20} 1.5582.

2,3,4,6-Tetranitrate:
$C_7H_{10}N_4O_{14}$ 374.174
Mp 49-50°. $[\alpha]_D$ +140 (EtOH).

*2,4-Bis(trimethylsilyl): Methyl 2,4-bis-*O*-trimethylsilyl-α-D-glucopyranoside*
$C_{13}H_{30}O_6Si_2$ 338.547
Mp 98.5-99.5°. $[\alpha]_D^{24}$ +91.5 (c, 5.0 in $CHCl_3$).

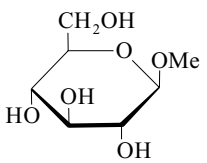
2,3,4-Tris(trimethylsilyl): Methyl 2,3,4-tris(trimethylsilyl)-α-D-glucopyranoside
[4201-65-4]
$C_{16}H_{38}O_6Si_3$ 410.729
Mp 99-100°. $[\alpha]_D^{24}$ +91.5 (c, 5.0 in $CHCl_3$).

*4,6-*O*-Benzylidene:* See Methyl 4,6-*O*-benzylidene-α-D-glucopyranoside, M-164

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 192B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 304A (*nmr*)
Freudenberg, K. *et al., Ber.*, 1940, **73**, 621 (*dibenzyl*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann Arbor, 1943, 260 (*rev, derivs*)
Conchie, J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 157 (*rev*)
Cramer, F.D. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 244 (*6-mesyl 2,3,4-tri-Ac, 6-tosyl*)
Bollenbeck, G.N. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 326 (*synth, tetra-Ac*)
Jary, J. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 930 (*2,4-ditosyl, 2,6-ditosyl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, cyclic acetals*)
Hurst, D.T. *et al., Can. J. Chem.*, 1965, **43**, 2004 (*6-Ac, trimethylsilyl derivs*)
Bisset, F.H. *et al., Carbohydr. Res.*, 1967, **5**, 184 (*2,3:4,6-dicyclohexylidene*)
Berman, H.M. *et al., Acta Cryst. B*, 1968, **24**, 897 (*cryst struct*)
Hall, D.M. *et al., Carbohydr. Res.*, 1970, **12**, 421-428 (*4,6-propylidene*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147 (*cmr*)
Bottino, F. *et al., Ann. Chim. (Rome)*, 1972, **62**, 782 (*2-Ac, 3-Ac, 2,3-di-Ac*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 291 (*2,4,6-tribenzyl*)
Eby, R. *et al., Carbohydr. Res.*, 1974, **34**, 79 (*2,3,4-tribenzyl*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*tetrabenzoyl, cmr*)
Wirén, E. *et al., Carbohydr. Res.*, 1976, **49**, 201 (*6-Ac*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1976, **50**, C12; 1981, **93**, C10 (*2,3,6-tribenzoyl*)
Ogawa, T. *et al., Carbohydr. Res.*, 1977, **56**, C1 (*2,6-ditosyl*)
Ogawa, T. *et al., Tetrahedron*, 1981, **37**, 2363 (*2,3-dibenzoyl, 2,6-dibenzoyl*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed), Academic Press, 1982, **13**, 41 (*pmr, cmr*)
Koto, S. *et al., Carbohydr. Res.*, 1984, **130**, 73 (*2,4,6-tribenzyl*)
Liguori, A. *et al., J.C.S. Perkin 1*, 1993, 1783, (*6-benzoyl*)
Li, K. *et al., Carbohydr. Res.*, 1995, **273**, 249-253 (*2,3,6-tribenzoyl*)
Nouguier, R. *et al., Carbohydr. Res.*, 1995, **277**, 339-345 (*4,6-methylene*)
Rozenberg, M. *et al., Carbohydr. Res.*, 2000, **328**, 307-319 (*ir*)

Methyl β-D-glucopyranoside M-191

[709-50-2]



$C_7H_{14}O_6$ 194.184
Present in *Scabiosa succisa* and *Medicago sativa* (alfalfa). Widespread in the Dipsacaceae.
Mp 108-110°. $[\alpha]_D$ -34.2 (H_2O).

*2-Ac: Methyl 2-*O*-acetyl-β-D-glucopyranoside*
[37180-47-5]
$C_9H_{16}O_7$ 236.221
Cryst. Mp 141-143°. $[\alpha]_D^{25}$ -34.1 (c, 1 in EtOH).

*3-Ac: Methyl 3-*O*-acetyl-β-D-glucopyranoside*
[20749-98-8]
$C_9H_{16}O_7$ 236.221

Cryst. (Me_2CO). Mp 137-139°. $[\alpha]_D^{25}$ -9.8 (c, 3.8 in Me_2CO).

*4-Ac: Methyl 4-*O*-acetyl-β-D-glucopyranoside*
[51897-71-3]
$C_9H_{16}O_7$ 236.221
Cryst. Mp 119-126°. $[\alpha]_D$ -20 (H_2O).

*6-Ac: Methyl 6-*O*-acetyl-β-D-glucopyranoside*
[20771-12-4]
$C_9H_{16}O_7$ 236.221
Cryst. (EtOH/Et_2O). Mp 132-134° (128-129°). $[\alpha]_D^{20}$ -34 (c, 2.0 in H_2O).

*2,3-Di-Ac: Methyl 2,3-di-*O*-acetyl-β-D-glucopyranoside*
[27539-67-9]
$C_{11}H_{18}O_8$ 278.258
Cryst. Mp 113-113.5°.

*3,6-Di-Ac: Methyl 3,6-di-*O*-acetyl-β-D-glucopyranoside*
[20750-00-9]
$C_{11}H_{18}O_8$ 278.258
Cryst. (CH_2Cl_2). Mp *ca.* 45-47°. $[\alpha]_D^{25}$ -17.2 (c, 1.8 in $CHCl_3$).

*4,6-Di-Ac: Methyl 4,6-di-*O*-acetyl-β-D-glucopyranoside*
[20771-17-9]
$C_{11}H_{18}O_8$ 278.258
Cryst. (C_6H_6). Mp 92-95°. $[\alpha]_D^{25}$ -40.2 (c, 2.0 in $CHCl_3$).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-β-D-glucopyranoside*
[16668-00-1]
$C_{13}H_{20}O_9$ 320.296
Mp 134-135°. $[\alpha]_D$ -19.1 ($CHCl_3$).

*2,3,6-Tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-β-D-glucopyranoside*
[31873-37-7]
$C_{13}H_{20}O_9$ 320.296
Mp 114-115°. $[\alpha]_D^{18}$ -64.9 ($CHCl_3$).

*2,4,6-Tri-Ac: Methyl 2,4,6-tri-*O*-acetyl-β-D-glucopyranoside*
$C_{13}H_{20}O_9$ 320.296
Foamy solid. $[\alpha]_D$ +45.2 (c, 1.0 in $CHCl_3$).

*3,4,6-Tri-Ac: Methyl 3,4,6-tri-*O*-acetyl-β-D-glucopyranoside*
$C_{13}H_{20}O_9$ 320.296
Mp 95-97°. $[\alpha]_D$ +19 ($CHCl_3$).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranoside*
[4860-85-9]
$C_{15}H_{22}O_{10}$ 362.333
Mp 104-105°. $[\alpha]_D^{20}$ -18.7 ($CHCl_3$).

*6-Benzoyl: Methyl 6-*O*-benzoyl-β-D-glucopyranoside.* ***Scoloposide A***
[21056-50-8]
$C_{14}H_{18}O_7$ 298.292
Constit. of the stems of *Scopolia spinosa*. Needles (EtOAc).
Mp 131-132°. $[\alpha]_D$ -16 (c, 0.15 in $CHCl_3$).

*2,3,4-Tribenzoyl, 6-Ac: Methyl 6-*O*-acetyl-2,3,4-tri-*O*-benzoyl-β-D-glucopyranoside*
$C_{30}H_{28}O_{10}$ 548.545
Mp 150-151°. $[\alpha]_D^{20}$ -6.5 ($CHCl_3$).

*Tetrabenzoyl: Methyl 2,3,4,6-tetra-*O*-benzoyl-β-D-glucopyranoside*
[6605-40-9]
$C_{35}H_{30}O_{10}$ 610.616
Mp 160-162°. $[\alpha]_D^{20}$ +31 ($CHCl_3$).

*6-*O*-(3,4-Dihydroxy-*E*-cinnamoyl): **Methyl 6-O-trans-caffeoyl-β-D-glucopyranoside***
$C_{16}H_{20}O_9$ 356.329
Constit. of the aerial parts of *Geum rivale*. Amorph. solid.
Mp 163-166°. $[\alpha]_D^{20}$ -18.1 (c, 0.1 in MeOH).

*6-*O*-Malonyl: **Methyl 6-O-malonyl-β-D-glucopyranoside***
[79384-28-4]
$C_{10}H_{16}O_9$ 280.231
Constit. of the roots of *Rumex obtusifolius*. Solid. Sol. H_2O. $[\alpha]_D^{16}$ -26 (c, 1 in H_2O).

*Tetratosyl: Methyl 2,3,4,6-tetra-*O*-tosyl-β-D-glucopyranoside*
[19186-53-9]
$C_{35}H_{38}O_{14}S_4$ 810.941
Prisms (AcOH). Mp 177-178°. $[\alpha]_D$ -6.6 ($CHCl_3$).

Tetranitrate:
$C_7H_{10}N_4O_{14}$ 374.174
Prisms (MeOH). Mp 118-119°. $[\alpha]_D^{20}$ +11.6 ($CHCl_3$).

*4,6-*O*-Methylene: Methyl 4,6-*O*-methylene-β-D-glucopyranoside*
$C_8H_{14}O_6$ 206.195
Cryst. (EtOAc/hexane). Mp 171-172°. $[\alpha]_D^{25}$ -77 (c, 0.5 in H_2O).

*4,6-*O*-Ethylidene:*
$C_9H_{16}O_6$ 220.222
Mp 189-190°. $[\alpha]_D^{22}$ -79.1 (H_2O).

*4,6-*O*-Ethylidene, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-ethylidene-β-D-glucopyranoside*
$C_{13}H_{20}O_8$ 304.296
Mp 180-182°. $[\alpha]_D$ -65.9 ($CHCl_3$).

*4,6-*O*-Ethylidene, 2-tosyl: Methyl 4,6-O-ethylidene-2-*O*-tosyl-β-D-glucopyranoside*
$C_{16}H_{22}O_8S$ 374.411
Mp 152-153°. $[\alpha]_D$ -45.5 ($CHCl_3$).

*4,6-*O*-Isopropylidene:* See Methyl 4,6-*O*-isopropylideneglucopyranoside, M-199

*4,6-*O*-Benzylidene:* See Methyl 4,6-*O*-benzylidene-α-D-glucopyranoside, M-164

2,3,4-Tri-Me: See 2,3,4-Tri-*O*-methylglucose, T-184

Tetra-Me: See 2,3,4,6-Tetra-*O*-methylglucose, T-43

*6-Benzyl, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-6-*O*-benzyl-β-D-glucopyranoside*
[162284-49-3]
$C_{18}H_{24}O_8$ 368.383
$[\alpha]_D^{25}$ -29.5 (c, 3.0 in $CHCl_3$).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-β-D-glucopyranoside*
$C_{21}H_{26}O_6$ 374.433
Needles (petrol). Mp 122-123°. $[\alpha]_D^{20}$ -13.3 (c, 2.7 in $CHCl_3$).

*2,3,4-Tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-β-D-glucopyranoside*
[4356-80-3]
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D^{25}$ +98 (c, 0.48 in $CHCl_3$).

*2,3,6-Tribenzyl: Methyl 2,3,6-tri-*O*-benzyl-β-D-glucopyranoside*
$C_{28}H_{32}O_6$ 464.557
Mp 64-65°. $[\alpha]_D^{22}$ -17 (c, 1 in $CHCl_3$).

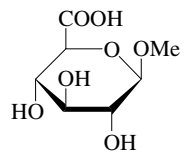
*3,4,6-Tribenzyl: Methyl 3,4,6-tri-*O*-benzyl-β-D-glucopyranoside*
[40246-30-8]
$C_{28}H_{32}O_6$ 464.557
Mp 72-75°. $[\alpha]_{587}^{22}$ -5 (c, 1.1 in $CHCl_3$).

6-Trityl: See Methyl 6-*O*-tritylglucopyranoside, M-213

[3149-68-6, 7000-27-3, 84324-94-7]

Koenigs, W. *et al., Ber.*, 1901, **34**, 957 (*synth*)
Oldham, J.W.H. *et al., J.A.C.S.*, 1932, **54**, 366 (*tetratosyl*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann Arbor, 1943, 262 (*rev, derivs*)
Dennison, J.C. *et al., J.C.S.*, 1951, 1616 (*dibenzyl*)
Bouveng, H.O. *et al., Acta Chem. Scand.*, 1961, **15**, 87 (*6-Ac*)
Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1963, **256**, 1397 (*occur*)
Rao, V.S.R. *et al., J. Phys. Chem.*, 1963, **67**, 951 (*pmr*)
De Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, derivs*)
Tulloch, A.P. *et al., Can. J. Chem.*, 1968, **46**, 2485 (*3-Ac, 3,6-di-Ac, 4,6-di-Ac*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147 (*cmr*)
Ekborg, G. *et al., Acta Chem. Scand.*, 1972, **26**, 3287-3292 (*tribenzyl, synth, pmr*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1973, **27**, 2740 (*4-Ac*)
Goodwin, J.C. *et al., Carbohydr. Res.*, 1973, **28**, 213 (*methylene, pmr*)
Horton, D. *et al., Carbohydr. Res.*, 1975, **43**, 9 (*2-Ac, 3-Ac, 2,3-di-Ac, 2,3,4-tri-Ac, 3,4,6-tri-Ac, 2,3,6-tri-Ac, tetra-Ac*)
Lindberg, K.B. *et al., Acta Cryst. B*, 1976, **32**, 642 (*cryst struct, 6-Ac*)
Carighan, Y. *et al., Carbohydr. Res.*, 1977, **58**, 281 (*tetranitrate, pmr*)
Kasai, T. *et al., Phytochemistry*, 1981, **20**, 1131 (*malonate*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 41 (*pmr, cmr*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1982, **108**, 97 (*tribenzyl*)
Shaari, K. *et al., Phytochemistry*, 1994, **36**, 1021 (*Scopoloside A*)
Liu, C.-J. *et al., J.O.C.*, 1998, **63**, 7364-7369 (*tribenzyl, synth, pmr*)
Ming, D.-S. *et al., J. Asian Nat. Prod. Res.*, 2002, **4**, 217-220 (*6-caffeate*)
Zeng, Y. *et al., Carbohydr. Res.*, 2003, **338**, 2359-2366 (*2,4,6-tri-Ac*)
Roën, A. *et al., J.O.C.*, 2003, **68**, 4615-4630 (*2,3,4-tribenzyl, benzyl di-Ac, synth, pmr, cmr*)

Methyl glucopyranosiduronic acid, 8CI M-192



β-D-*form*

$C_7H_{12}O_7$ 208.168

α-D-*form* [5155-45-3]

*2,3-Di-Ac, 4-mesyl, Me ester: Methyl (methyl 2,3-di-*O*-acetyl-4-*O*-mesyl-α-D-glucopyranosid)uronate*
[29388-40-7]
$C_{13}H_{20}O_{11}S$ 384.36
$[\alpha]_D^{25}$ +118 (c, 1.12 in $CHCl_3$).

*2,3-Dibenzyl, 4-mesyl, Me ester: Methyl (methyl 2,3-di-*O*-benzyl-4-*O*-mesyl-α-D-glucopyranosid)uronate*
[25130-02-3]
$C_{23}H_{28}O_9S$ 480.535
Mp 63°. $[\alpha]_D^{25}$ +33 (c, 0.9 in $CHCl_3$). $[\alpha]_D^{25}$ +77.4 (c, 1.92 in $CHCl_3$).

*4-Me: Methyl 4-*O*-methyl-α-D-glucopyranosiduronic acid*
[73703-00-1]
$C_8H_{14}O_7$ 222.194
$[\alpha]_D$ +129 (c, 1.27 in H_2O).

*4-Me, Me ester: Methyl (methyl 4-*O*-methyl-α-D-glucopyranosid)uronate*
[31506-18-0]
$C_9H_{16}O_7$ 236.221
$[\alpha]_D$ +128 (H_2O).

*Tri-Me, Me ester: Methyl (methyl 2,3,4-tri-*O*-methyl-α-D-glucopyranosid)uronate*
[52729-97-2]
$C_{11}H_{20}O_7$ 264.275
$[\alpha]_D$ +156 (H_2O).

β-D-*form* [18486-38-9]

*Tri-Ac, Me ester: Methyl (methyl 2,3,4-tri-*O*-acetyl-β-D-glucopyranosid)uronate*
[34213-34-8]
$C_{14}H_{20}O_{10}$ 348.306
Mp 151-152°. $[\alpha]_D^{25}$ -28.1.

*2,3-Di-Me, 4-Ac: Methyl 4-*O*-acetyl-2,3-di-*O*-methyl-β-D-glucopyranosiduronic acid*
[38709-35-2]
$C_{11}H_{18}O_8$ 278.258
Cryst. (Et_2O/petrol). Mp 101-103°. $[\alpha]_D$ -46.8 (c, 2.0 in $CHCl_3$).

*2,3-Di-Me, 4-Ac, Me ester: Methyl (methyl 4-*O*-acetyl-2,3-di-*O*-methyl-β-D-glucopyranosid)uronate*
[38709-30-7]
$C_{12}H_{20}O_8$ 292.285
Cryst. (EtOH). Mp 97-99°. $[\alpha]_D$ -51.7 (c, 2.0 in $CHCl_3$).

*2,3-Di-Me, 4-mesyl: Methyl 4-*O*-mesyl-2,3-di-*O*-methyl-β-D-glucopyranosiduronic acid*
[38709-32-9]
$C_{10}H_{18}O_9S$ 314.313
Cryst. (Et_2O/petrol). Mp 93-95°. $[\alpha]_D$ +10 (c, 2.0 in $CHCl_3$).

*2,3-Di-Me, 4-mesyl, Me ester: Methyl (methyl-4-*O*-mesyl-2,3-di-*O*-methyl-β-D-glucopyranosid)uronate*
[38709-29-4]
$C_{11}H_{20}O_9S$ 328.34
Cryst. (EtOH). Mp 110-112°. $[\alpha]_D$ -31.6 (c, 2.0 in $CHCl_3$).

*Tri-Me: Methyl 2,3,4-tri-*O*-methyl-β-D-glucopyranosiduronic acid*
[23445-34-3]
$C_{10}H_{18}O_7$ 250.248
Cryst. (Et_2O/petrol). Mp 132-134°. $[\alpha]_D$ -37.1 (c, 1.0 in H_2O).

*Tri-Me, Me ester: Methyl (methyl 2,3,4-tri-*O*-methyl-β-D-glucopyranosid)uronate*
[31506-17-9]
$C_{11}H_{20}O_7$ 264.275
Cryst. (petrol). Mp 52-53°. $[\alpha]_D$ -36.4 (H_2O).

α-L-*form*

Me ester: Methyl (methyl α-L-glucopyranosid)uronate
[528584-66-9]
$C_8H_{14}O_7$ 222.194
Yellow syrup. $[\alpha]_D^{20}$ -95 (c, 1.0 in H_2O).

Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1954, **9**, 131 (*rev, derivs*)
Kiss, J. *et al., Helv. Chim. Acta*, 1970, **53**, 1000 (*α-D-2,3-di-Ac 4-mesyl Me ester, α-D-2,3-dibenzyl 4-mesyl Me ester*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1972, **50**, 2203 (*β-D-2,3-di-Me derivs, β-D-2,3,4-tri-Me*)
Kegelvić, D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1979, **36**, 57 (*rev*)
Li, K. *et al., Carbohydr. Res.*, 1995, **273**, 249-253 (*synth, pmr, 4-Me*)
Schämann, M. *et al., Eur. J. Org. Chem.*, 2003, 351-358 (*α-L-Me ester*)

Methyl glucosinolate M-193

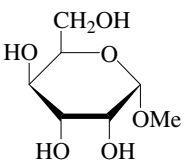
*1-Thio-β-D-glucopyranose 1-[*N*-(sulfooxy)ethanimidate], 9CI.* ***Glucocapparin***
[497-77-8]
$H_3CC(SGlc){=}NOSO_3H$
$C_8H_{15}NO_9S_2$ 333.34
A mustard oil glycoside widely distributed in the Capparidaceae. Needles (aq. EtOH) (as K salt).
Mp 207-209° (K salt). $[\alpha]_D^{22}$ -28 (c, 1.9 in H_2O).

Tetra-Ac:
Cryst. (EtOH aq.) (as K salt). Mp 215-217° (K salt). $[\alpha]_D^{22}$ -29 (c, 2 in H_2O).

[15592-33-3]

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 335 (*isol, ir*)
Kjaer, A. *et al., Phytochemistry*, 1963, **2**, 29 (*isol*)
Benn, M.H. *et al., Can. J. Chem.*, 1964, **42**, 163 (*synth*)
Helboe, P. *et al., J. Chromatogr.*, 1980, **197**, 199-205 (*hplc*)
Eagles, J. *et al., Biomed. Mass Spectrom.*, 1981, **8**, 278 (*ms*)
Kokkonen, P. *et al., Rapid Commun. Mass Spectrom.*, 1989, **3**, 102-106 (*hplc, ms*)
Verkerk, R. *et al., Natural Toxicants in Food*, 1998, 29-53

Methyl gulopyranoside M-194



α-D-*form*

$C_7H_{14}O_6$ 194.184

α-D-*form* [51223-62-2]
Mp 77°. $[\alpha]_D$ +109.4 (H_2O).

*3-Ac: Methyl 3-*O*-acetyl-α-D-gulopyranoside*
[5540-33-0]
$C_9H_{16}O_7$ 236.221
Cryst. (EtOAc). Mp 169-170°. $[\alpha]_D^{22}$ +108 (c, 0.6 in MeOH).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-D-gulopyranoside*
$C_{15}H_{22}O_{10}$ 362.333
Mp 98°. $[\alpha]_D$ +97.3 ($CHCl_3$).

*4,6-*O*-Isopropylidene: Methyl 4,6-*O*-isopropylidene-α-D-gulopyranoside*
$C_{10}H_{18}O_6$ 234.249
Mp 132-133°. $[\alpha]_D$ +88.5 ($CHCl_3$).

*4,6-*O*-Isopropylidene, 2-Ac: Methyl 2-*O*-acetyl-4,6-*O*-isopropylidene-α-D-gulopyranoside*
$C_{12}H_{20}O_7$ 276.286
Mp 176-178°. $[\alpha]_D$ +76.8 ($CHCl_3$).

*4,6-*O*-Isopropylidene, 2-Ac, 3-tosyl: Methyl 2-*O*-acetyl-4,6-*O*-isopropylidene-3-*O*-tosyl-α-D-gulopyranoside*
$C_{19}H_{26}O_9S$ 430.475
Mp 122-123°. $[\alpha]_D$ +52.2 ($CHCl_3$).

*4,6-*O*-Benzylidene: Methyl 4,6-*O*-benzylidene-α-D-gulopyranoside*
[59168-66-0]
$C_{14}H_{18}O_6$ 282.293
Cryst. (EtOH). Mp 147-148°. $[\alpha]_D^{20}$ +79.8 (c, 0.9 in $CHCl_3$). $[\alpha]_D$ +63 ($CHCl_3$).

*4,6-*O*-Benzylidene, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-benzylidene-α-D-gulopyranoside*
[59121-47-0]
$C_{18}H_{22}O_8$ 366.367
Mp 149-150°. $[\alpha]_D$ +53 ($CHCl_3$).

*2,4,6-Tribenzyl: Methyl 2,4,6-tri-*O*-benzyl-α-D-gulopyranoside*
$C_{28}H_{32}O_6$ 464.557
Oil. $[\alpha]_D$ +4.5 (c, 1 in $CHCl_3$).

β-D-*form* [51224-39-6]
Prisms (EtOH/EtOAc). Mp 178-180°. $[\alpha]_D$ -87.9 (H_2O).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-β-D-gulopyranoside*
$C_{15}H_{22}O_{10}$ 362.333
Mp 66-67°. $[\alpha]_D$ -32.1 ($CHCl_3$).

*4,6-*O*-Benzylidene: Methyl 4,6-*O*-benzylidene-β-D-gulopyranoside*
$C_{14}H_{18}O_6$ 282.293
Rods (EtOH/pentane). Mp 177-178°. $[\alpha]_D$ -87.8 (c, 1.01 in $CHCl_3$).

*4,6-*O*-Benzylidene, 2,3-dibenzoyl: Methyl 2,3-di-*O*-benzoyl-4,6-*O*-benzylidene β-D-gulopyranoside*
$C_{28}H_{26}O_8$ 490.509
Cryst. (EtOH). Mp 155-156°. $[\alpha]_D$ -57.3 (c, 0.61 in $CHCl_3$).

α-L-*form* [56688-81-4]
Cryst. (2-propanol). Mp 68-71°.

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-L-gulopyranoside*
[41398-87-2]
$C_{15}H_{22}O_{10}$ 362.333
Mp 96-97°. $[\alpha]_D$ -96.5 (c, 0.8 in $CHCl_3$).

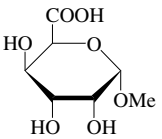
β-L-*form*
Mp 176°. $[\alpha]_D$ -83.3 (H_2O).

*Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-β-L-gulopyranoside*
[25217-94-1]
$C_{15}H_{22}O_{10}$ 362.333
Mp 64-66.5°. $[\alpha]_D$ +33 ($CHCl_3$).

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1932, **8**, 1 (*α-D-form, α-D-tetra-Ac, β-D-form, β-D-tetra-Ac*)
Fletcher, H.G. *et al., J.A.C.S.*, 1954, **76**, 3029 (*α-D-benzylidene, β-D-benzylidene, β-D-benzylidene dibenzoyl*)
Antia, N.J. *et al., Can. J. Chem.*, 1960, **38**, 1917

de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev, cyclic acetals*)
Takita, T. *et al., J. Antibiot., Ser. A*, 1969, **22**, 237
Buchanan, J.G. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 135 (*α-D-3-Ac*)
Grasdalen, H. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 17 (*pmr*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1975, **28**, 1541 (*α-L-form, synth*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Mulard, L.A. *et al., Carbohydr. Res.*, 1994, **259**, 21 (*α-D-2,4,6-tribenzyl*)

Methyl gulopyranosiduronic acid M-195

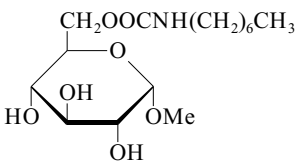


α-D-Pyranose-*form*

$C_7H_{12}O_7$ 208.168
α- and β-D-Pyranose isomers prepd.
Anthonsen, T. *et al., Carbohydr. Res.*, 1980, **78**, 368 (*synth, pmr*)

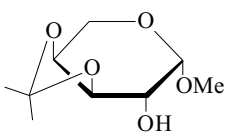
Methyl 6-*O*-(*N*-heptylcarbamoyl)-α-D-glucopyranoside M-196

HECAMEG
[115457-83-5]



$C_{15}H_{29}NO_7$ 335.397
Powerful surfactant for use in membrane studies.
Engelson, S.B. *et al., Carbohydr. Res.*, 1994, **264**, 161 (*cryst struct, bibl*)

Methyl 3,4-*O*-isopropylidenearabinopyranoside, 8CI M-197



$C_9H_{16}O_5$ 204.222

β-L-*form* [6960-39-0] $Bp_{0.1}$ 82°. $[\alpha]_D$ +199.1 (c, 1.0 in $CHCl_3$).

Ac: Methyl 2-O-acetyl-3,4-O-isopropylidene-β-L-arabinopyranoside
[16713-78-3]
$C_{11}H_{18}O_6$ 246.26
Cryst. (petrol). Mp 76-77°. $[\alpha]_D^{16}$ +123.6 (c, 1.2 in H_2O).

Benzoyl: Methyl 2-O-benzoyl-3,4-O-isopropylidene-β-L-arabinopyranoside
$C_{16}H_{20}O_6$ 308.33
Cryst. (EtOH aq.). Mp 78-79°. $[\alpha]_D^{18}$ +206.7 (c, 1.3 in $CHCl_3$).

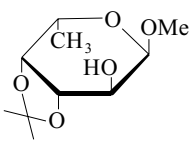
Tosyl: Methyl 3,4-O-isopropylidene-2-O-tosyl-β-L-arabinopyranoside
[6847-76-3]
$C_{16}H_{22}O_7S$ 358.412
Needles (EtOH/petrol). Mp 136°. $[\alpha]_D^{19}$ +181.3 (c, 1.7 in $CHCl_3$).

2-Me: Methyl 3,4-O-isopropylidene-2-O-methyl-β-L-arabinopyranoside
[53226-15-6]
$C_{10}H_{18}O_5$ 218.249
Mp 62°. $[\alpha]_D^{20}$ +162.5 (c, 4.6 in $CHCl_3$).

Benzyl: Methyl 2-O-benzyl-3,4-O-isopropylidene-β-L-arabinopyranoside
[53226-16-7]
$C_{16}H_{22}O_5$ 294.347
$Bp_{0.01}$ 150°. $[\alpha]_D^{23}$ +123.8 (c, 0.5 in $CHCl_3$).
Honeyman, J. *et al., J.C.S.*, 1946, 990 (*β-L-form, synth, β-L-Ac, β-L-benzoyl, β-L-tosyl, β-L-Me*)
King, R.D. *et al., Carbohydr. Res.*, 1969, **9**, 423 (*pmr*)
Dyong, I. *et al., Chem. Ber.*, 1979, **112**, 1849, (*β-L-benzyl*)

Methyl 3,4-*O*-isopropylidenefucopyranoside, 8CI M-198

Methyl 6-deoxy-3,4-O-isopropylidenegalactopyranoside, 9CI



$C_{10}H_{18}O_5$ 218.249

α-L-*form* [24577-96-6] $Bp_{0.01}$ 95°. $[\alpha]_D^{15}$ -160 (c, 1.0 in H_2O).

2-Ac: Methyl 2-O-acetyl-3,4-O-isopropylidene-α-L-fucopyranoside
[34388-70-0]
$C_{12}H_{20}O_6$ 260.286
Cryst. (petrol). Mp 100-101°. $[\alpha]_D^{25}$ -230.1 (c, 0.62 in C_6H_6).

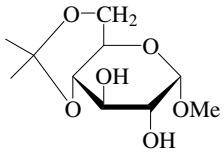
2-Tosyl: Methyl 3,4-O-isopropylidene-2-O-tosyl-α-L-fucopyranoside
$C_{17}H_{24}O_7S$ 372.438
Cryst. (MeOH). Mp 182°. $[\alpha]_D^{15}$ -146 (c, 1.0 in $CHCl_3$).

2-Benzyl: Methyl 2-O-benzyl-3,4-O-isopropylidene-α-L-fucopyranoside
[37776-54-8]
$C_{17}H_{24}O_5$ 308.374
Syrup. $[\alpha]_D^{25}$ -98.5 (c, 1.16 in $CHCl_3$).

β-D-*form* [39981-26-5]
Cryst. (Et_2O/petrol). Mp 64-66°. $[\alpha]_D^{20}$ +24.5 (c, 0.96 in $CHCl_3$).
Percival, E.E. *et al., J.C.S.*, 1950, 690 (*α-L-form, synth, α-L-tosyl*)
King, R.D. *et al., Carbohydr. Res.*, 1969, **9**, 423 (*pmr*)
Dejter-Juszynski, M. *et al., Carbohydr. Res.*, 1972, **23**, 41 (*α-L-benzyl*)
Zehavi, U. *et al., J.O.C.*, 1972, **37**, 2141 (*α-L-Ac*)
Paulsen, H. *et al., Chem. Ber.*, 1974, **107**, 2992 (*β-D-form, synth*)

Methyl 4,6-*O*-isopropylideneglucopyranoside, 8CI M-199

Methyl 4,6-O-(1-methylethylidene)glucopyranoside, 9CI



α-D-*form*

$C_{10}H_{18}O_6$ 234.249

α-D-*form* [15354-29-7]
Needles (C_6H_6). Mp 84-86°. $[\alpha]_D^{25}$ +105 (c, 5.0 in H_2O). $[\alpha]_D^{20}$ +94 (c, 5.0 in H_2O).

2,3-O-Isopropylidene: Methyl 2,3:4,6-di-O-isopropylidene-α-D-glucopyranoside
[13035-60-4]
$C_{13}H_{22}O_6$ 274.313
Plates (hexane). Mp 85°. $[\alpha]_D^{25}$ +99 (c, 2.0 in C_6H_6).

2,3-Di-Me: [15354-38-8]
$C_{12}H_{22}O_6$ 262.302
Mp 84°. $[\alpha]_D^{25}$ +120 (c, 1.0 in $CHCl_3$).

2,3-Di-Ac:
$C_{14}H_{22}O_8$ 318.323
Mp 73-75°. $[\alpha]_D$ +106 (c, 0.1 in $CHCl_3$).

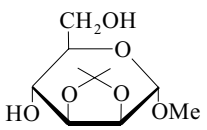
β-D-*form* [16802-97-4]
Powder (propanol or EtOAc/petrol). Mp 131° (128-128.5°). $[\alpha]_D^{25}$ -85 (c, 0.1 in H_2O). $[\alpha]_D^{20}$ -72 (c, 1.4 in H_2O).

2,3-Di-Ac:
Powder (MeOH aq.). Mp 149°. $[\alpha]_D$ -65 (c, 0.1 in $CHCl_3$).

2,3-O-Isopropylidene: Methyl 2,3:4,6-di-O-isopropylidene-β-D-glucopyranoside
$C_{13}H_{22}O_6$ 274.313
Needles (hexane). Mp 71-73°. $[\alpha]_D^{20}$ -60.5 (c, 0.1 in $CHCl_3$).

2,3-Di-Me: [16802-91-8]
Syrup. $[\alpha]_D^{23}$ -43 (c, 1.0 in $CHCl_3$).
Evans, M.E. *et al., Carbohydr. Res.*, 1967, **3**, 453 (*synth, α-Me gly; α-di-Me; α-diisopropylidene*)
Parrish, F.W. *et al., J.O.C.*, 1968, **33**, 3165, (*β-Me gly; β-di-Me*)
Wolfrom, M.L. *et al., Carbohydr. Res.*, 1974, **35**, 87 (*α-Me gly*)
Debost, J.-L. *et al., Carbohydr. Res.*, 1984, **125**, 329 (*pmr, cmr,*)

Methyl 2,3-*O*-isopropylidenemannopyranoside M-200



$C_{10}H_{18}O_6$ 234.249

α-D-*form*
Cryst. (EtOH/petrol). Mp 104-105°. $Bp_{0.02}$ 145°. $[\alpha]_D^{20}$ +28 (c, 4.3 in MeOH).

4,6-O-Isopropylidene: Methyl 2,3:4,6-di-O-isopropylidene-α-D-mannopyranoside
$C_{13}H_{22}O_6$ 274.313
Mp 76-77°. $[\alpha]_D^{22}$ +3 (c, 2.4 in MeOH).

*4,6-Dimesyl: Methyl 2,3-*O*-isopropylidene-4,6-di-*O*-mesyl-α-D-mannopyranoside*
[22932-29-2]
$C_{12}H_{22}O_{10}S_2$ 390.432
Cryst. (EtOH). Mp 105-106°. $[\alpha]_D^{25}$ +14.7 (c, 1.32 in $CHCl_3$).

*6-Me: Methyl 2,3-*O*-isopropylidene-6-*O*-methyl-α-D-mannopyranoside*
[28140-06-9]
$C_{11}H_{20}O_6$ 248.275
Cryst. (Et_2O/petrol). Mp 75-76°. $[\alpha]_D^{23}$ +19.5 (c, 1.8 in $CHCl_3$).

*4,6-Di-Me: Methyl 2,3-*O*-isopropylidene-4,6-di-*O*-methyl-α-D-mannopyranoside*
$C_{12}H_{22}O_6$ 262.302
$Bp_{0.01}$ 95°. $[\alpha]_D^{20}$ +51 (MeOH).

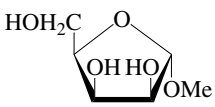
*6-Trityl: Methyl 2,3-*O*-isopropylidene-6-*O*-trityl-α-D-mannopyranoside*
$C_{29}H_{32}O_6$ 476.568
Glassy solid. $[\alpha]_D^{27}$ +11 (c, 1.1 in EtOH).

*6-Me, 4-Ac: Methyl 4-*O*-acetyl-2,3-*O*-isopropylidene-6-*O*-methyl-α-D-mannopyranoside*
[39523-72-3]
$C_{13}H_{22}O_7$ 290.313
Syrup. $[\alpha]_D$ +10.3 (c, 1.3 in $CHCl_3$).

6-Me, 4-(3,5-dinitrobenzoyl): [39523-73-4]
$[\alpha]_D^{28}$ +6 (c, 1.6 in $CHCl_3$).

Ault, R.G. *et al., J.C.S.*, 1935, 517; 1012, (*α-D-form, synth, α-D-isopropylidene, α-D-di-Me*)
Smith, F. *et al., J.C.S.*, 1951, 2646 (*α-D-trityl*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179 (*rev*)
Stevens, C.L. *et al., J.O.C.*, 1970, **35**, 592 (*α-D-form, synth, α-D-isopropylidene, α-D-dimesyl*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1972, **24**, 263; 283 (*α-D-Me, α-D-Me Ac, α-D-Me dinitrobenzoyl*)

Methyl lyxofuranoside M-201



α-D-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [22416-73-5]
Cryst. (EtOAc). Mp 98-99°. $[\alpha]_D^{22}$ +128 (c, 1.0 in MeOH).

*2-Me: Methyl 2-*O*-methyl-α-D-lyxofuranoside*
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{25}$ +29 (c, 1.6 in $CHCl_3$).

*5-Benzyl, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-5-*O*-benzyl-α-D-lyxofuranoside*
[32780-16-8]
$C_{17}H_{22}O_7$ 338.357
$Bp_{0.05}$ 165°. $[\alpha]_D^{24}$ +73.8 (c, 2.09 in C_6H_6).

*5-Benzyl, 2,3-*O*-isopropylidene:* See 2,3-*O*-Isopropylidenelyxose, I-70

*5-Trityl: Methyl 5-*O*-trityl-α-D-lyxofuranoside*
$C_{25}H_{26}O_5$ 406.477
Syrup. $[\alpha]_D^{25}$ +51 (c, 1.3 in $CHCl_3$).

β-D-*form* [22861-09-2]
Syrup. $[\alpha]_D$ -112 (c, 0.6 in H_2O).

*3,5-Dibenzoyl, 2-tosyl: Methyl 3,5-di-*O*-benzoyl-2-*O*-tosyl-β-D-lyxofuranoside*
[30591-85-6]
$C_{27}H_{26}O_9S$ 526.563
Cryst. (C_6H_6/petrol). Mp 95-97°. $[\alpha]_D^{23}$ -41.6 (c, 0.48 in $CHCl_3$).

*Tribenzoyl: Methyl 2,3,5-tri-*O*-benzoyl-β-D-lyxofuranoside*
[22861-07-0]
$C_{27}H_{24}O_8$ 476.482
Cryst. (petrol). Mp 83-85°. $[\alpha]_D^{23}$ -70 (c, 0.45 in $CHCl_3$).

*2,3-Ditosyl: Methyl 2,3-di-*O*-tosyl-β-D-lyxofuranoside*
[30591-72-1]
$C_{20}H_{24}O_9S_2$ 472.536
Cryst. (EtOAc/petrol). Mp 142-144°. $[\alpha]_D^{24}$ -62 (c, 0.6 in $CHCl_3$).

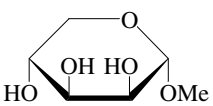
*2,3-Ditosyl, 5-benzoyl: Methyl 5-*O*-benzoyl-2,3-di-*O*-tosyl-β-D-lyxofuranoside*
[27646-56-6]
$C_{27}H_{28}O_{10}S_2$ 576.644
Cryst. (C_6H_6/petrol). Mp 152-153°. $[\alpha]_D^{25}$ -47 (c, 0.66 in $CHCl_3$).

*Tritosyl: Methyl 2,3,5-tri-*O*-tosyl-β-D-lyxofuranoside*
[27646-54-4]
$C_{27}H_{30}O_{11}S_3$ 626.725
Cryst. ($CHCl_3$/petrol). Mp 148-149°. $[\alpha]_D^{23}$ -26 (c, 0.69 in $CHCl_3$).

*5-Trityl: Methyl 5-*O*-trityl-β-D-lyxofuranoside*
$C_{25}H_{26}O_5$ 406.477
Syrup. $[\alpha]_D$ -18 (c, 4.0 in $CHCl_3$).

Furberg, S. *et al., Acta Chem. Scand.*, 1961, **15**, 1190 (*α-D-form, cryst struct*)
Reist, E.J. *et al., Carbohydr. Res.*, 1969, **10**, 289 (*α-D-form, synth*)
Hildesheim, J. *et al., Carbohydr. Res.*, 1970, **14**, 305; 315 (*β-D-form, β-D-tribenzoyl, β-D-dibenzoyl tosyl, β-D-tritosyl, β-D-ditosyl, β-D-ditosyl benzoyl*)
Koga, K. *et al., Tet. Lett.*, 1971, 263 (*α-D-di-Ac benzyl*)
Taniguchi, M. *et al., Tetrahedron*, 1974, **30**, 3547 (*α-D-di-Ac benzyl*)
Gorin, P.A.J. *et al., Carbohydr. Res.*, 1976, **48**, 171 (*α-D-Me, α-D-trityl, β-D-trityl, cmr*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Popsavin, V. *et al., Carbohydr. Res.*, 1999, **321**, 110-115 (*α-D-form, synth*)

Methyl lyxopyranoside M-202



α-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [18449-76-8]
Cryst. (EtOAc). Mp 108-109°. $[\alpha]_D^{22}$ +51.8 (H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-α-D-lyxopyranoside*
[32445-37-7]
$C_{12}H_{18}O_8$ 290.269
Mp 96-97°. $[\alpha]_D^{20}$ +29.5 (c, 1.12 in $CHCl_3$).

*2,3,4-Tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-α-D-lyxopyranoside*
[33640-74-3]
$C_{27}H_{24}O_8$ 476.482
Amorph. glass. $[\alpha]_D^{24}$ -141.5 (c, 1.14 in $CHCl_3$).

*2,3-*O*-Isopropylidene: Methyl 2,3-*O*-isopropylidene-α-D-lyxopyranoside*
[20672-64-4]
$C_9H_{16}O_5$ 204.222
Mp 40-41°. $Bp_{0.02}$ 65°. $[\alpha]_D^{22}$ +42.7 (c, 0.8 in EtOH).

*2,3-*O*-Isopropylidene, 4-tosyl: Methyl 2,3-O-isopropylidene-4-*O*-tosyl-α-D-lyxopyranoside*
$C_{16}H_{22}O_7S$ 358.412
Cryst. (EtOH). Mp 96-97°. $[\alpha]_D^{22}$ -10.2 (c, 1.85 in EtOH).

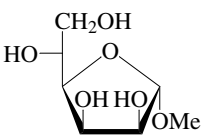
*2,3-*O*-Isopropylidene, 4-Me: Methyl 2,3-O-isopropylidene-4-*O*-methyl-α-D-lyxopyranoside*
[16888-99-6]
$C_{10}H_{18}O_5$ 218.249
$Bp_{0.5}$ 65°. $[\alpha]_D$ +60 (c, 0.7 in $CHCl_3$).

β-D-*form* [33509-64-7]
Needles (2-propanol). Mp 115-116°. $[\alpha]_D$ -127 (c, 0.25 in H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-β-D-lyxopyranoside*
[32445-38-8]
$C_{12}H_{18}O_8$ 290.269
Cryst. (Et_2O/petrol). Mp 89°.

Kent, P.W. *et al., J.C.S.*, 1953, 416 (*α-D-form, synth, α-D-isopropylidene, α-D-isopropylidene tosyl*)
Hughes, N.A. *et al., J.C.S.(C)*, 1967, 1182, (*α-D-isopropylidene Me*)
Jennings, H.J. *et al., Can. J. Chem.*, 1971, **49**, 1355 (*β-D-form, synth*)
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 403 (*α-D-tri-Ac, α-D-tribenzoyl, β-D-tri-Ac, pmr*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*pmr, cmr*)
Evdokimov, A.G. *et al., Acta Cryst. C*, 1996, **52**, 3218-3219 (*α-D-form, cryst struct*)
Popsavin, V. *et al., Carbohydr. Res.*, 1999, **321**, 110-115 (*α-D-form, synth, pmr*)

Methyl mannofuranoside M-203



α-D-*form*

$C_7H_{14}O_6$ 194.184

α-D-*form* [4097-91-0]
Needles (MeOH). Mp 119°. $[\alpha]_D^{20}$ +114.4 (c, 0.7 in H_2O).

*2,3,5,6-Tetra-Ac: Methyl 2,3,5,6-tetra-*O*-acetyl-α-D-mannofuranoside*
[24916-39-0]
$C_{15}H_{22}O_{10}$ 362.333
Needles (EtOH aq.). Mp 63°. $[\alpha]_D^{19}$ +107 (c, 1.0 in $CHCl_3$).

*5-Me, 2,3-*O*-methylene: Methyl 5-O-methyl-2,3-*O*-methylene-α-D-mannofuranoside*
[26922-73-6]
$C_9H_{16}O_6$ 220.222
Cryst. ($CHCl_3$/hexane). Mp 70-72°. $[\alpha]_D^{25}$ +98 (c, 1.0 in EtOH).

*6-Me, 2,3-*O*-methylene: Methyl 6-*O*-methyl-2,3-*O*-methylene-α-D-mannofuranoside*
[26946-17-8]
$C_9H_{16}O_6$ 220.222
$[\alpha]_D^{25}$ +92 (c, 0.5 in EtOH).

*2,3:5,6-Di-*O*-methylene: Methyl 2,3:5,6-di-*O*-methylene-α-D-mannofuranoside*
[26922-64-5]
$C_9H_{14}O_6$ 218.206
$[\alpha]_D^{25}$ +78 (c, 1.3 in $CHCl_3$).

*2,3-*O*-Isopropylidene:* See 2,3-*O*-Isopropylidenemannose, I-71

*2,6-Di-Me: Methyl 2,6-di-*O*-methyl-α-D-mannofuranoside*
[26922-74-7]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D^{25}$ +96 (c, 0.5 in EtOH).

*3,5-Di-Me: Methyl 3,5-di-*O*-methyl-α-D-mannofuranoside*
[22314-34-7]
$C_9H_{18}O_6$ 222.238
$[\alpha]_D$ +63.5 (c, 0.5 in EtOH). $[\alpha]_D^{26}$ +92.3 (c, 3.87 in H_2O).

*5,6-Di-Me: Methyl 5,6-di-*O*-methyl-α-D-mannofuranoside*
$C_9H_{18}O_6$ 222.238
$[\alpha]_D^{25}$ +99 (c, 1.0 in EtOH).

*3,5,6-Tri-Me: Methyl 3,5,6-tri-*O*-methyl-α-D-mannofuranoside*
[25018-59-1]
$C_{10}H_{20}O_6$ 236.264
$[\alpha]_D^{29}$ +61.8 (c, 5.5 in H_2O).

*3,5,6-Tri-Me, 2-tosyl: Methyl 3,5,6-tri-*O*-methyl-2-*O*-tosyl-α-D-mannofuranoside*
[25018-58-0]
$C_{17}H_{26}O_8S$ 390.454
$[\alpha]_D^{27}$ +62.2 (c, 3.05 in $CHCl_3$).

*2,6-Dibenzyl: Methyl 2,6-di-*O*-benzyl-α-D-mannofuranoside*
[27178-05-8]
$C_{21}H_{26}O_6$ 374.433
Mp 74-76°. $[\alpha]_D$ +100 (c, 1.0 in EtOH).

6-Trityl: See Methyl 6-*O*-tritylmannopyranoside, M-215

β-D-*form*

$[\alpha]_D^{20}$ -80.6 (c, 2.2 in H_2O).

$CaCl_2$ complex: [26295-70-5]
$[\alpha]_D^{20}$ -54.7 (c, 1.35 in H_2O).

α-L-*form*

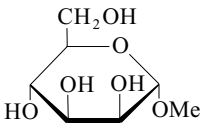
*2,3-*O*-Isopropylidene, dimesyl: Methyl 2,3-*O*-isopropylidene-1,6-di-*O*-mesyl-α-L-mannofuranoside*
[57783-61-6]
Needles (MeOH). Mp 147-148°. $[\alpha]_D^{25}$ -32.6 (c, 1.80 in $CHCl_3$).

Haworth, W.N. *et al., J.C.S.*, 1930, 649; 651, (*α-D-form, α-D-tetra-Ac*)
Mowery, D.F. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 328 (*α-D-form, synth*)
Bhattacharjee, S.S. *et al., Can. J. Chem.*, 1969, **47**, 1195; 1207 (*α-D-2,6-dibenzyl, α-D-3,5-di-Me, α-D-5,6-di-Me*)
Siddiqui, I.R. *et al., Carbohydr. Res.*, 1969, **9**, 344 (*α-D-tri-Me, α-D-tri-Me tosyl*)
Randall, M.H. *et al., Carbohydr. Res.*, 1969, **11**, 173 (*α-D-form, β-D-form, synth*)
Bhattacharjee, S.S. *et al., Carbohydr. Res.*, 1970, **12**, 57 (*α-D-methylene 5-Me, α-D-methylene 6-Me, dimethylene, α-D-2,6-di-Me*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1975, **28**, 1541 (*α-D-form, β-D-form, synth*)
Leroux, J. *et al., Carbohydr. Res.*, 1976, **47**, C8
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr, α,β-forms*)

Methyl α-D-mannopyranoside, 9CI, 8CI M-204

[617-04-9]

[27939-30-6]



$C_7H_{14}O_6$ 194.184
Mp 193-194°. $[\alpha]_D^{20}$ +79.2 (c, 1.0 in H_2O).

*4-Ac: Methyl 4-*O*-acetyl-α-D-mannopyranoside*
$C_9H_{16}O_7$ 236.221
$[\alpha]_D^{20}$ -5 ($CHCl_3$).

*4,6-Di-Ac: Methyl 4,6-di-*O*-acetyl-α-D-mannopyranoside*
[51842-36-5]
$C_{11}H_{18}O_8$ 278.258
$[\alpha]_D^{20}$ +38 (c, 1 in $CHCl_3$).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-α-D-mannopyranoside*
[7468-47-5]
$C_{13}H_{20}O_9$ 320.296
Mp 97-98°. $[\alpha]_D^{25}$ +54.9 (c, 1.1 in $CHCl_3$).

*2,3,4,6-Tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-α-D-mannopyranoside*
[5019-24-9]
$C_{15}H_{22}O_{10}$ 362.333
Mp 65°. $[\alpha]_D^{25}$ +49.2 (c, 6.5 in $CHCl_3$).

*2,4,6-Tri-Ac, 3-tosyl: Methyl 2,4,6-tri-*O*-acetyl-3-*O*-tosyl-α-D-mannopyranoside*
$C_{20}H_{26}O_{11}S$ 474.485
Cryst. (EtOH). Mp 127-128°. $[\alpha]_D^{24}$ +26.6 (c, 1.74 in $CHCl_3$).

*3,6-Dibenzoyl: Methyl 3,6-di-*O*-benzoyl-α-D-mannopyranoside*
[14315-85-6]
$C_{21}H_{22}O_8$ 402.4
Cryst. (Et_2O/petrol). Mp 145-145.5°. $[\alpha]_D^{24}$ +61.6 (c, 1.38 in $CHCl_3$).

*3,6-Dibenzoyl, 2,4-di-Ac: Methyl 2,4-di-*O*-acetyl-3,6-di-*O*-benzoyl-α-D-mannopyranoside*
[14517-51-2]
$C_{25}H_{26}O_{10}$ 486.474
Needles ($CHCl_3$/petrol). Mp 130-131°. $[\alpha]_D^{24}$ +29 (c, 1.09 in $CHCl_3$).

*2,3,6-Tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-α-D-mannopyranoside*
[3396-68-7]
$C_{28}H_{26}O_9$ 506.508
Cryst. (EtOH aq.). Mp 67-69° (hydrate). $[\alpha]_D^{24}$ -6.5 (c, 0.93 in $CHCl_3$). $[\alpha]_D^{27}$ -21 (c, 0.89 in Me_2CO) (hydrate).

*2,3,6-Tribenzoyl, 4-mesyl: Methyl 2,3,6-tri-*O*-benzoyl-4-*O*-mesyl-α-D-mannopyranoside*
[14315-87-8]
$C_{29}H_{28}O_{11}S$ 584.6
Cryst. (EtOH). Mp 185-186°. $[\alpha]_D^{24}$ -53 (c, 1.17 in $CHCl_3$).

*2,3,4,6-Tetrabenzoyl: Methyl 2,3,4,6-tetra-*O*-benzoyl-α-D-mannopyranoside*
$C_{35}H_{30}O_{10}$ 610.616
Cryst. (EtOH). Mp 134-135°. $[\alpha]_D^{24}$ -68 (c, 0.88 in $CHCl_3$).

*2,3-Dimesyl: Methyl 2,3-di-*O*-mesyl-α-D-mannopyranoside*
[16802-88-3]
$C_9H_{18}O_{10}S_2$ 350.367
Cryst. ($CHCl_3$/heptane). Mp 113-114°. $[\alpha]_D^{20}$ +22 (c, 1.3 in Me_2CO).

*2,3,6-Trimesyl: Methyl 2,3,6-tri-*O*-mesyl-α-D-mannopyranoside*
$C_{10}H_{20}O_{12}S_3$ 428.459
Cryst. (EtOH). Mp 158-160°. $[\alpha]_D^{25}$ +32 (c, 1.7 in Py).

*2-Tosyl: Methyl 2-*O*-tosyl-α-D-mannopyranoside*
[53008-59-6]
$C_{14}H_{20}O_8S$ 348.373
Mp 149-150°. $[\alpha]_D^{25}$ +50 (c, 3.4 in H_2O).

*3-Tosyl: Methyl 3-*O*-tosyl-α-D-mannopyranoside*
$C_{14}H_{20}O_8S$ 348.373
Cryst. ($CHCl_3$/petrol). Mp 87-90°. $[\alpha]_D^{22}$ +51 (c, 1.0 in $CHCl_3$).

*2,3-Ditosyl: Methyl 2,3-di-*O*-tosyl-α-D-mannopyranoside*
[58720-04-0]
$C_{21}H_{26}O_{10}S_2$ 502.562
$[\alpha]_D^{33}$ -14.5 (c, 1.5 in $CHCl_3$).

*2,6-Ditosyl: Methyl 2,6-di-*O*-tosyl-α-D-mannopyranoside*
[108825-74-7]
$C_{21}H_{26}O_{10}S_2$ 502.562
$[\alpha]_D^{24}$ +14.7 (c, 0.92 in $CHCl_3$). Obt. in only 2% yield.

*3,6-Ditosyl: Methyl 3,6-di-*O*-tosyl-α-D-mannopyranoside*
[108825-72-5]
$C_{21}H_{26}O_{10}S_2$ 502.562
$[\alpha]_D^{24}$ +41.4 (c, 1.1 in $CHCl_3$) (+37).

*4,6-*O*-Methylene: Methyl 4,6-*O*-methylene-α-D-mannopyranoside*
[50256-50-3]
$C_8H_{14}O_6$ 206.195
Cryst. (EtOAc/hexane). Mp 122-123°. $[\alpha]_D^{20}$ +58 (c, 1.0 in H_2O).

*4,6-*O*-Methylene, 2,3-di-Ac: Methyl 2,3-di-*O*-acetyl-4,6-*O*-methylene-α-D-mannopyranoside*
[50256-58-1]
$C_{12}H_{18}O_8$ 290.269
Mp 168-169°. $[\alpha]_D^{20}$ +43.8 (c, 1.0 in $CHCl_3$).

*2,3:4,6-Di-*O*-methylene: Methyl 2,3:4,6-di-*O*-methylene-α-D-mannopyranoside*
[23397-81-1]
$C_9H_{14}O_6$ 218.206
Cryst. (EtOAc). Mp 144-145°. $[\alpha]_D^{20}$ +19.4 (c, 0.33 in $CHCl_3$).

*4,6-*O*-Ethylidene:* See Methyl 4,6-*O*-ethylidenemannopyranoside, M-180

*2,3-*O*-Isopropylidene:* See Methyl 2,3-*O*-isopropylidenemannopyranoside, M-200

*4,6-*O*-Benzylidene:* See Methyl 4,6-*O*-benzylidenemannopyranoside, M-169

6-Benzyl: [23392-33-8]
$C_{14}H_{20}O_6$ 284.308
Oil. $[\alpha]_D^{23}$ +69.7 (c, 0.71 in $CHCl_3$).

2,3-Dibenzyl: Methyl 2,3-di-O-*benzyl-α-D-mannopyranoside*
[51842-19-4]
$C_{21}H_{26}O_6$ 374.433
$[\alpha]_D^{20}$ -2 ($CHCl_3$).

2,3-Dibenzyl, 6-Ac: Methyl 6-O-*acetyl-2,3-di*-O-*benzyl-α-D-mannopyranoside*
[51842-24-1]
$C_{23}H_{28}O_7$ 416.47
$[\alpha]_D^{20}$ -9 (EtOH).

2,3-Dibenzyl, 4,6-di-Ac: Methyl 4,6-di-O-*acetyl-2,3-di*-O-*benzyl-α-D-mannopyranoside*
$C_{25}H_{30}O_8$ 458.507
$[\alpha]_D^{20}$ -5 ($CHCl_3$).

3,6-Dibenzyl: Methyl 3,6-di-O-*benzyl-α-D-mannopyranoside*
[31022-29-4]
$C_{21}H_{26}O_6$ 374.433
$[\alpha]_D$ +20.3 (c, 0.6 in $CHCl_3$).

3,4,6-Tribenzyl: Methyl 3,4,6-tri-O-*benzyl-D-mannopyranoside*
[20672-67-7]
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D^{21}$ +59.7 (c, 1.85 in CH_2Cl_2).

3,4,6-Tribenzyl, 2-Ac: Methyl 2-O-*acetyl-3,4,6-tri*-O-*benzyl-α-D-mannopyranoside*
[20672-69-9]
$C_{30}H_{34}O_7$ 506.594
$[\alpha]_D^{27}$ +27.9 (c, 2.24 in CH_2Cl_2).

2-Me: See 2-*O*-Methylmannose, M-270

4-Me: See 4-*O*-Methylmannose, M-272

6-Me: See 6-*O*-Methylmannose, M-274

2,3-Di-Me: See 2,3-Di-*O*-methylmannose, D-748

2,4-Di-Me: See 2,4-Di-*O*-methylmannose, D-749

3,4-Di-Me: See 3,4-Di-*O*-methylmannose, D-751

4,6-Di-Me: See 4,6-Di-*O*-methylmannose, D-753

2,3,6-Tri-Me: See 2,3,6-Tri-*O*-methylmannose, T-190

2,4,6-Tri-Me: See 2,4,6-Tri-*O*-methylmannose, T-191

3,4,6-Tri-Me: See 3,4,6-Tri-*O*-methylmannose, T-192

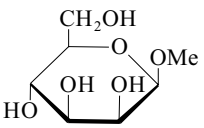
6-Trityl: See Methyl 6-*O*-tritylmannopyranoside, M-215

2,3,4-Tris(trimethylsilyl): Methyl 2,3,4-tris(trimethylsilyl)-α-D-mannopyranoside
[146399-85-1]
$C_{16}H_{38}O_6Si_3$ 410.729
Mp 65°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 193B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 303C; 1058B (*nmr*)
Harris, T.L. *et al., J.C.S.*, 1932, 2108 (*tetra-Ac*)
Watters, A.J. *et al., J.A.C.S.*, 1939, **61**, 1528 (*tri-Ac*)
Cadotte, J.E. *et al., J.A.C.S.*, 1952, **74**, 1501 (*synth*)
Buchanan, J.G. *et al., J.C.S.*, 1962, 4770 (*3-tosyl tri-Ac*)
Mowery, D.F. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 328 (*synth*)
Chalk, R.C. *et al., J.O.C.*, 1966, **31**, 1509 (*trimesyl*)
Williams, J.M. *et al., Tetrahedron*, 1967, **23**, 1369 (*di-Ac dibenzoyl, dibenzoyl, tribenzoyl, tribenzoyl mesyl, tetrabenzoyl*)
Franks, N.E. *et al., Carbohydr. Res.*, 1968, **6**, 286 (*tribenzyl, tribenzyl Ac*)
Parrish, F.W. *et al., J.O.C.*, 1968, **33**, 3165 (*dimesyl*)
Bhattacharjee, S.S. *et al., Can. J. Chem.*, 1969, **47**, 1195; 1207 (*dimethylene*)
Choy, Y.M. *et al., Carbohydr. Res.*, 1971, **17**, 439 (*3-tosyl*)
Borén, H.B. *et al., Acta Chem. Scand.*, 1973, **27**, 2740 (*4-Ac, 4,6-di-Ac, 2,3-dibenzyl, dibenzyl Ac, dibenzyl di-Ac*)
Seymour, F.R. *et al., Carbohydr. Res.*, 1976, **46**, 189 (*2,3-ditosyl*)
Ogawa, T. *et al., Carbohydr. Res.*, 1978, **62**, C1 (*3,6-dibenzyl*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 41 (*pmr, cmr*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1982, **108**, 97 (*3,6-dibenzyl*)
Meldal, M. *et al., Carbohydr. Res.*, 1992, **235**, 115 (*2,3,4-tris(trimethylsilyl)*)
Nouguier, R. *et al., Carbohydr. Res.*, 1995, **277**, 339-345 (*methylene, dimethylene*)
Rozenberg, M. *et al., Carbohydr. Res.*, 2000, **328**, 307-319 (*ir*)
Kawana, M. *et al., J. Carbohydr. Chem.*, 2000, **19**, 67-78 (*2,6-ditosyl, 3,6-ditosyl*)
Mikkelsen, L.M. *et al., J.O.C.*, 2003, **68**, 2123-2128 (*tribenzoyl, synth, pmr, cmr, ir*)
Tennant-Eyles, R.J. *et al., Tetrahedron: Asymmetry*, 2003, **14**, 1201-1210 (*6-benzyl*)

Methyl β-D-mannopyranoside, 9CI, 8CI M-205

[22277-65-2]



$C_7H_{14}O_6$ 194.184
Cryst. (2-propanol). Mp 74-75°. $[\alpha]_D^{20}$ -53.3 (H_2O). Phys. constants for 2-propanol solvate.

6-Ac: Methyl 6-O-*acetyl-β-D-mannopyranoside*
$C_9H_{16}O_7$ 236.221
$[\alpha]_D^{20}$ +67 (EtOH).

2,3,4,6-Tetra-Ac: Methyl 2,3,4,6-tetra-O-*acetyl-β-D-mannopyranoside*
[5019-25-0]
$C_{15}H_{22}O_{10}$ 362.333
Mp 161-162°. $[\alpha]_D$ -47 ($CHCl_3$).

4,6-O-*Ethylidene:* See Methyl 4,6-*O*-ethylidenemannopyranoside, M-180

4,6-O-*Benzylidene:* See Methyl 4,6-*O*-benzylidenemannopyranoside, M-169

3-Me, 2-benzoyl: Methyl 2-O-*benzoyl-3*-O-*methyl-β-D-mannopyranoside*
[54307-90-3]
$C_{15}H_{20}O_7$ 312.319
Amorph. $[\alpha]_D$ -94 (c, 1.23 in MeOH).

3-Me, 2,6-dibenzoyl: Methyl 2,6-di-O-*benzoyl-3*-O-*methyl-β-D-mannopyranoside*
[54307-92-5]
$C_{22}H_{24}O_8$ 416.427
Needles (Me_2CO/diisopropyl ether). Mp 177.5-178°. $[\alpha]_D^{27}$ -95 (c, 0.77 in $CHCl_3$).

3-Me, 2-benzoyl, 4,6-dimesyl: Methyl 2-O-*benzoyl-4,6-di*-O-*mesyl-3*-O-*methyl-β-D-mannopyranoside*
[54307-91-4]
$C_{17}H_{24}O_{11}S_2$ 468.502
Cryst. (Me_2CO/diisopropyl ether). Mp 165-166°. $[\alpha]_D^{27}$ -65 (c, 1.11 in $CHCl_3$).

3-Me, tribenzoyl: Methyl 2,4,6-tri-O-*benzoyl-3*-O-*methyl-β-D-mannopyranoside*
[54307-88-9]
$C_{29}H_{28}O_9$ 520.535
Amorph. $[\alpha]_D^{27}$ -95 (c, 2.19 in $CHCl_3$).

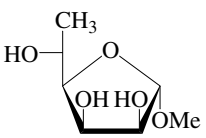
Tetra-Me: Methyl 2,3,4,6-tetra-O-*methyl-β-D-mannopyranoside*
[3445-71-4]
$C_{11}H_{22}O_6$ 250.291
$[\alpha]_D^{23}$ -65.8.

3,4,6-Tribenzyl, 2-mesyl: Methyl 3,4,6-tri-O-*benzyl-2*-O-*mesyl-β-D-mannopyranoside*
$C_{29}H_{28}O_{11}S$ 584.6
$[\alpha]_D^{22}$ -39.4 (c, 0.9 in $CHCl_3$).

Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1940, **24**, 125 (*synth, tetra-Ac*)
Świderski, S. *et al., Carbohydr. Res.*, 1966, **3**, 225 (*tetra-Ac*)
Bock, K. *et al., Tet. Lett.*, 1973, 1037 (*cmr, pmr*)
Miljković, M. *et al., J.O.C.*, 1975, **40**, 1054 (*Me benzoyl, Me dibenzoyl, Me benzoyl dimesyl, Me tribenzoyl*)
Srivastava, V.K. *et al., Carbohydr. Res.*, 1980, **79**, C13 (*tribenzyl mesyl*)
Crich, D. *et al., J.O.C.*, 1996, **61**, 6189, (*tetra-Me, tetra-Ac, synth, pmr, cmr*)

Methyl rhamnofuranoside M-206

Methyl 6-deoxymannofuranoside



α-D-*form*

$C_7H_{14}O_5$ 178.185

α-D-*form*

2,3-O-*Isopropylidene, 5-benzoyl: Methyl 5*-O-*benzoyl-2,3*-O-*isopropylidene-α-D-rhamnofuranoside*
[53872-90-5]
$C_{17}H_{22}O_6$ 322.357
Mp 75-76°. $[\alpha]_D^{27}$ +19.9 (c, 1.4 in MeOH).

2,3-O-*Isopropylidene, 5-mesyl: Methyl 2,3*-O-*isopropylidene-5*-O-*mesyl-α-D-rhamnofuranoside*
[53872-88-1]
$C_{11}H_{20}O_7S$ 296.341
Mp 65°. $[\alpha]_D^{25}$ +28.1 (c, 1.4 in $CHCl_3$).

2,3-O-*Isopropylidene, 5-tosyl: Methyl 2,3*-O-*isopropylidene-5*-O-*tosyl-α-D-rhamnofuranoside*
[53872-89-2]
$C_{17}H_{24}O_7S$ 372.438
Mp 84-85°. $[\alpha]_D^{25}$ +14.1 (c, 3.2 in MeOH).

α-L-*form* [50705-54-9]
Cryst. (Et_2O or C_6H_6). Mp 62° (58°). $[\alpha]_D^{18}$ -98.6 (c, 2.2 in H_2O).

2,3-O-*Isopropylidene: Methyl 2,3*-O-*isopropylidene-α-L-rhamnofuranoside*
[53872-92-7]
$C_{10}H_{18}O_5$ 218.249
$Bp_{0.7}$ 100-105°. $[\alpha]_D^{25}$ -53.3 (c, 0.9 in $CHCl_3$). $[\alpha]_D$ -66.7 (MeOH).

2,3-O-*Isopropylidene, 5-benzoyl: Methyl 5*-O-*benzoyl-2,3*-O-*isopropylidene-α-L-rhamnofuranoside*
[53872-93-8]
$C_{17}H_{22}O_6$ 322.357
Mp 74-75°. $[\alpha]_D^{27}$ -18.9 (c, 1.4 in MeOH).

2,3-O-*Isopropylidene, 5-tosyl: Methyl 2,3*-O-*isopropylidene-5*-O-*tosyl-α-L-rhamnofuranoside*
[26706-15-0]
$C_{17}H_{24}O_7S$ 372.438
Mp 84-85°. $[\alpha]_D^{25}$ -14.8 (c, 3.2 in MeOH).

5-Me: Methyl 5-O-*methyl-α-L-rhamnofuranoside*
$C_8H_{16}O_5$ 192.211
Cryst. (petrol). Mp 59-60°. $[\alpha]_D$ -89.2 (H_2O).

5-Me, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-5*-O-*methyl-α-L-rhamnofuranoside*
$C_{11}H_{20}O_5$ 232.276
Bp_1 65°. $[\alpha]_D$ -54.5 (MeOH).

β-L-*form*
Cryst. (Et_2O). Mp 65-67°. $[\alpha]_D$ +129 (c, 1.3 in H_2O).

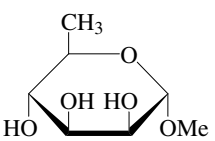
2,3-O-*Isopropylidene, 5-tosyl: Methyl 2,3*-O-*isopropylidene-5*-O-*tosyl-β-L-rhamnofuranoside*
[26706-16-1]
$C_{17}H_{24}O_7S$ 372.438
Cryst. (EtOAc/petrol). Mp 61-63°. $[\alpha]_D^{25}$ +100.4 (MeOH).

5-Me, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-5*-O-*methyl-β-L-rhamnofuranoside*
$C_{11}H_{20}O_5$ 232.276
$Bp_{0.3}$ 58-60°. $[\alpha]_D$ +6.3 (MeOH).

Levene, P.A. *et al., J. Biol. Chem.*, 1936, **114**, 9 (*α-L-5-Me*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219 (*rev, cyclic acetals*)
Ferguson, A.C. *et al., J.C.S.(C)*, 1969, 2372, (*α-L-isopropylidene tosyl, α-L-isopropylidene Me, β-L-isopropylidene Me*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1974, **36**, 392 (*α-D-isopropylidene benzoyl, α-D-isopropylidene mesyl, α-D-isopropylidene tosyl*)
Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1977, **55**, 205 (*synth, pmr, α-L-isopropylidene*)
Florent, J.C. *et al., Carbohydr. Res.*, 1980, **85**, 243 (*α-L-form*)
Stanek, J. *et al., J. Carbohydr. Chem.*, 1985, **4**, 79-90 (*isomers, !synth, pmr, cmr*)

Methyl rhamnopyranoside M-207

Methyl 6-deoxymannopyranoside, 9CI, 8CI



α-D-*form*

$C_7H_{14}O_5$ 178.185

α-D-*form* [15814-59-2]
Mp 106-108°. $[\alpha]_D^{27}$ +64.5 (c, 1.7 in H_2O).

2,3-Isopropylidene: Methyl 2,3-O-*isopropylidene-α-D-rhamnopyranoside*
[22932-38-3]
$C_{10}H_{18}O_5$ 218.249
Gum. $Bp_{0.2}$ 72-82°. $[\alpha]_D$ +16.8 (c, 2 in EtOH). $[\alpha]_D$ +14.8 (c, 1.4 in MeOH).

2,3-Isopropylidene, 4-mesyl: Methyl 2,3-O-*isopropylidene-4*-O-*mesyl-α-D-rhamnopyranoside*
[10503-85-2]
$C_{11}H_{20}O_7S$ 296.341
Cryst. (EtOH). Mp 128-129.5°. $[\alpha]_D^{25}$ +14.2 (c, 1.2 in $CHCl_3$).

2,3-Isopropylidene, 4-tosyl: Methyl 2,3-O-*isopropylidene-4*-O-*tosyl-α-D-rhamnopyranoside*
[10515-99-8]
$C_{17}H_{24}O_7S$ 372.438
Cryst. (MeOH aq.). Mp 59-61°. $[\alpha]_D^{27}$ -21.7 (c, 1.0 in MeOH).

2-Me: Methyl 2-O-*methyl-α-D-rhamnopyranoside*
[112457-11-1]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D$ +43 (c, 1.2 in $CHCl_3$).

4-Me: Methyl 4-O-*methyl-α-D-rhamnopyranoside*
$C_8H_{16}O_5$ 192.211
Oil. $[\alpha]_D^{30}$ +98 (c, 0.57 in $CHCl_3$).

2,3-Di-Me: Methyl 2,3-di-O-*methyl-α-D-rhamnopyranoside*
[82159-72-6]
$C_9H_{18}O_5$ 206.238
Syrup. $[\alpha]_D^{13}$ +26 (c, 0.5 in $CHCl_3$).

2,4-Di-Me: Methyl 2,4-di-O-*methyl-α-D-rhamnopyranoside*
$C_9H_{18}O_5$ 206.238
Oil. $[\alpha]_D^{30}$ +68 (c, 0.12 in $CHCl_3$).

4-Benzyl: [109526-95-6]
$C_{14}H_{20}O_5$ 268.309
Cryst. (Et_2O). Mp 105-107°. $[\alpha]_D^{25}$ +72 (c, 4 in $CHCl_3$).

4-Benzyl, 2,3-isopropylidene: [86447-92-9]
$C_{17}H_{24}O_5$ 308.374
$Bp_{0.1}$ 100-120°. $[\alpha]_D^{16}$ +71.1 (c, 1.5 in $CHCl_3$).

2,4-Dibenzyl: [112612-46-1]
$C_{21}H_{26}O_5$ 358.433
$[\alpha]_D^{16}$ +14.8 (c, 1.9 in $CHCl_3$).

2,4-Dibenzyl, 3-Ac: [112612-47-2]
$C_{23}H_{28}O_6$ 400.471
Syrup. $[\alpha]_D^{16}$ -2.5 (c, 2.1 in $CHCl_3$).

3,4-Dibenzyl: Methyl 3,4-di-O-*benzyl-α-D-rhamnopyranoside*
[125519-98-4]
$C_{21}H_{26}O_5$ 358.433
Syrup. $[\alpha]_D^{23}$ +51.5 (c, 0.27 in $CHCl_3$).

3,4-Dibenzyl, 2-Me: Methyl 3,4-di-O-*benzyl-2*-O-*methyl-α-D-rhamnopyranoside*
[83238-32-8]
$C_{22}H_{28}O_5$ 372.46
$[\alpha]_D$ +54 (c, 0.49 in $CHCl_3$).

α-L-*form* [14917-55-6]
Cryst. (EtOAc). Mp 108-109°. $[\alpha]_D^{20}$ -62.5 (H_2O).

4-Ac: Methyl 4-O-*acetyl-α-L-rhamnopyranoside*
[14686-87-4]
$C_9H_{16}O_6$ 220.222
Mp 112-116°. $[\alpha]_D$ -97.5 (c, 1.2 in $CHCl_3$).

Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-α-L-rhamnopyranoside*
[28251-53-8]
$C_{13}H_{20}O_8$ 304.296
Mp 88°. $[\alpha]_D^{20}$ -60.1 ($CHCl_3$).

2,3-Dibenzoyl: Methyl 2,3-di-O-*benzoyl-α-L-rhamnopyranoside*
[14686-83-0]
$C_{21}H_{22}O_7$ 386.401
$[\alpha]_D$ +76 (c, 3.4 in $CHCl_3$).

2,3-Dibenzoyl, 4-Ac: Methyl 4-O-*acetyl-2,3-di*-O-*benzoyl-α-L-rhamnopyranoside*
[14686-84-1]
$C_{23}H_{24}O_8$ 428.438
Cryst. (EtOH). Mp 60-61°. $[\alpha]_D$ +116.5 (c, 1.1 in $CHCl_3$).

2,3-Dibenzoyl, 4-tosyl: Methyl 2,3-di-O-*benzoyl-4*-O-*tosyl-α-L-rhamnopyranoside*
[14686-85-2]
$C_{28}H_{28}O_9S$ 540.59
Cryst. (EtOH). Mp 107-109°.

2,4-Dibenzoyl: Methyl 2,4-di-O-*benzoyl-α-L-rhamnopyranoside*
[88331-96-8]
$C_{21}H_{22}O_7$ 386.401
Syrup. $[\alpha]_D^{24}$ +57.3 (c, 2.4 in CH_2Cl_2).

2,3-Carbonate: [75100-10-6]
$C_8H_{12}O_6$ 204.179
Cryst. (EtOAc/petrol). Mp 160-162°. $[\alpha]_D^{22}$ -71.3 (c, 1.1 in CH_2Cl_2).

2,3-Isopropylidene: Methyl 2,3-O-*isopropylidene-α-L-rhamnopyranoside*
[14133-63-2]
$C_{10}H_{18}O_5$ 218.249
$Bp_{0.8}$ 104-105°. $[\alpha]_D$ -16.4 (c, 3.1 in Me_2CO). $[\alpha]_D$ -11.9 (c, 1 in MeOH). $[\alpha]_D$ -290.7 (c, 0.22 in $CHCl_3$). Large discrepancy in reported opt. rotns. The largest value is the most recent one.

2,3-Isopropylidene, 4-Ac: Methyl 4-O-*acetyl-2,3*-O-*isopropylidene-α-L-rhamnopyranoside*
[14686-86-3]
$C_{12}H_{20}O_6$ 260.286
Cryst. (EtOH). Mp 68°. $[\alpha]_D$ -16 (c, 1 in $CHCl_3$).

2,3-Isopropylidene, 4-benzoyl: Methyl 4-O-*benzoyl-2,3*-O-*isopropylidene-α-L-rhamnopyranoside*
[71204-48-3]
$C_{17}H_{22}O_6$ 322.357
Mp 97-98°. $[\alpha]_D$ -2 (c, 1 in MeOH).

2,3-Isopropylidene, 4-mesyl: Methyl 2,3-O-*isopropylidene-4*-O-*mesyl-α-L-rhamnopyranoside*
[15397-01-0]
$C_{11}H_{20}O_7S$ 296.341
Cryst. (EtOH aq.). Mp 130-131°. $[\alpha]_D^{20}$ -4.6 (c, 1.6 in $CHCl_3$).

2,3-Isopropylidene, 4-tosyl: Methyl 2,3-O-*isopropylidene-4*-O-*tosyl-α-L-rhamnopyranoside*
[72959-83-2]
$C_{17}H_{24}O_7S$ 372.438
Mp 61-62°. $[\alpha]_D$ +21.9 (MeOH).

2-Me: Methyl 2-O-*methyl-α-L-rhamnopyranoside*
[59013-63-7]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D$ -37 (c, 1.3 in $CHCl_3$) (-49).

*3-Me: Methyl 3-*O*-methyl-α-L-rhamnopyranoside*
[59013-64-8]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D$ -61 (MeOH) (-59).

*3-Me, di-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-methyl-α-L-rhamnopyranoside*
[56083-41-1]
$C_{12}H_{20}O_7$ 276.286
Mp 104-105° (101-103°). $[\alpha]_D$ -26 (c, 0.9 in $CHCl_3$) (-23.6).

*4-Me: Methyl 4-*O*-methyl-α-L-rhamnopyranoside*
[53626-10-1]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D$ -50.2 (H_2O).

*4-Me, 2,3-isopropylidene: Methyl 2,3-*O*-isopropylidene-4-*O*-methyl-α-L-rhamnopyranoside*
[26706-17-2]
$C_{11}H_{20}O_5$ 232.276
$Bp_{0.3}$ 67-68°. $[\alpha]_D$ -24 (H_2O).

*2,3-Di-Me: Methyl 2,3-di-*O*-methyl-α-L-rhamnopyranoside*
[4348-80-5]
$C_9H_{18}O_5$ 206.238
Syrup. $[\alpha]_D$ -27.8 (c, 2.0 in $CHCl_3$).

*2,3-Di-Me, 4-tosyl: Methyl 2,3-di-*O*-methyl-4-*O*-tosyl-α-L-rhamnopyranoside*
[39687-54-2]
$C_{16}H_{24}O_7S$ 360.427
Cryst. (2-propanol). Mp 114°. $[\alpha]_D$ -33 (c, 2.0 in $CHCl_3$).

*2,3,4-Tri-Me: Methyl 2,3,4-tri-*O*-methyl-α-L-rhamnopyranoside*
[35939-73-2]
$C_{10}H_{20}O_5$ 220.265
Syrup. $[\alpha]_D$ -15.1 (H_2O).

*3-Benzyl: Methyl 3-*O*-benzyl-α-L-rhamnopyranoside*
[75336-82-2]
$C_{14}H_{20}O_5$ 268.309
Mp 80°. $[\alpha]_D$ -26.1 (c, 1.0 in $CHCl_3$).

*4-Benzyl: Methyl 4-*O*-benzyl-α-L-rhamnopyranoside*
[25019-69-6]
$C_{14}H_{20}O_5$ 268.309
Cryst. (EtOAc/petrol). Mp 107-109°.
$[\alpha]_D^{25}$ -68.3 (c, 1.6 in $CHCl_3$).

*4-Benzyl, 2,3-isopropylidene: Methyl 4-*O*-benzyl-2,3-*O*-isopropylidene-α-L-rhamnopyranoside*
[25019-68-5]
$C_{17}H_{24}O_5$ 308.374
$Bp_{0.8}$ 146-147°. $[\alpha]_D^{20}$ -62.6 (c, 3.8 in Me_2CO).

*2,3-Dibenzyl: Methyl 2,3-di-*O*-benzyl-α-L-rhamnopyranoside*
[75336-79-7]
$C_{21}H_{26}O_5$ 358.433
$[\alpha]_D$ +14.5 (c, 1.0 in $CHCl_3$).

*2,4-Dibenzyl: Methyl 2,4-di-*O*-benzyl-α-L-rhamnopyranoside*
[69850-47-1]
$C_{21}H_{26}O_5$ 358.433
$[\alpha]_D^{22}$ -16 (c, 1.2 in $CHCl_3$).

*3,4-Dibenzyl: Methyl 3,4-di-*O*-benzyl-α-L-rhamnopyranoside*
[69558-07-2]
$C_{21}H_{26}O_5$ 358.433
$[\alpha]_D^{20}$ -45 (c, 0.8 in CH_2Cl_2).

2,3-Thionocarbonate, 4-benzyl:
[25019-70-9]
$C_{15}H_{18}O_5S$ 310.37
Oil. $[\alpha]_D^{24}$ -50 (c, 2.1 in $CHCl_3$).

β-L-*form* [42214-00-6]
Mp 138-140°. $[\alpha]_D^{20}$ +95.4 (H_2O).

*Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-β-L-rhamnopyranoside*
[31085-67-3]
$C_{13}H_{20}O_8$ 304.296
Needles (EtOH). Mp 151-152°. $[\alpha]_D^{18}$ +45.7 (1,1,2,2-tetrachloroethane).

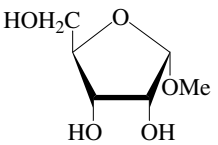
*4-Me: Methyl 4-*O*-methyl-β-L-rhamnopyranoside*
$C_8H_{16}O_5$ 192.211
Syrup. $Bp_{0.3}$ 104-105°. $[\alpha]_D$ -13.9 (H_2O).

*3,4-Di-Me: Methyl 3,4-di-*O*-methyl-β-L-rhamnopyranoside*
[72398-28-8]
$C_9H_{18}O_5$ 206.238
Mp 67°. $[\alpha]_D^{20}$ +36 (H_2O).

*Tri-Me: Methyl 2,3,4-tri-*O*-methyl-β-L-rhamnopyranoside*
[35939-74-3]
$C_{10}H_{20}O_5$ 220.265
Mp 53-54°. $[\alpha]_D$ +106 (H_2O).

Haworth, W.N. *et al., J.C.S.*, 1929, 2469 (*β-L-tri-Me*)
Levene, P.A. *et al., J. Biol. Chem.*, 1936, **114**, 9 (*β-L-4-Me*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros., Inc., Ann Arbor, 1943, 170 (*β-L-di-Me*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 266 (*α-L-4-Me, 2,3,5-tri-Me*)
Ballou, C.E. *et al., J.A.C.S.*, 1957, **79**, 984-986 (*α-D-4-benzoyl α-D-isopropylidene*)
Pacsu, G. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 357 (*α-L-tri-Ac*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 298 (*rev, acetals*)
Gunner, S.W. *et al., Carbohydr. Res.*, 1967, **4**, 498 (*α-L-isopropylidene mesyl*)
Richardson, A.C. *et al., Tetrahedron*, 1967, **23**, 1641 (*α-L-4-Ac, dibenzoyl derivs, isopropylidene 4-Ac*)
King, R.D. *et al., Carbohydr. Res.*, 1969, **9**, 423 (*α-L-isopropylidene, pmr*)
Hemmer, E. *et al., Acta Chem. Scand.*, 1970, **24**, 3019 (*β-L-tri-Ac, pmr, ms, ir*)
Stevens, C.L. *et al., J.O.C.*, 1970, **35**, 592 (*α-D-isopropylidene, α-D-isopropylidene mesyl, α-D-isopropylidene tosyl, pmr*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147 (*cmr*)
Bebault, G.M. *et al., Can. J. Chem.*, 1972, **50**, 3373 (*α-L-4-Ac, isopropylidene, isopropylidene 4-Ac, 2,3-di-Me, 2,3-di-Me tosyl, pmr*)
Haines, A.H. *et al., Carbohydr. Res.*, 1972, **21**, 99 (*α-L-4-benzyl, 4-benzyl isopropylidene, 4-benzyl thionocarbonate*)
de Bruyn, A. *et al., Carbohydr. Res.*, 1976, **47**, 158 (*pmr*)
Handa, V.K. *et al., Carbohydr. Res.*, 1979, **74**, C5-C7 (*2,4-dibenzyl, 3,4-dibenzyl*)
Simon, P. *et al., Synthesis*, 1979, 951 (*α-D-isopropylidene*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1980, **81**, 184 (*α-L-2-Me, α-L-3-Me*)
Rana, S.S. *et al., Carbohydr. Res.*, 1980, **85**, 313 (*α-L-3-benzyl, 2,3-dibenzyl*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1980, 799 (*α-L-2,3-carbonate*)
Sato, K.I. *et al., Carbohydr. Res.*, 1982, **103**, 221 (*α-D-2,3-di-Me*)
Liptak, A. *et al., Carbohydr. Res.*, 1982, **107**, 300 (*α-D-2-Me, 3,4-dibenzyl-2-Me*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1982, **108**, 97 (*α-L-2,3-dibenzyl, 2,4-dibenzyl*)
Wessel, H.P. *et al., Carbohydr. Res.*, 1983, **124**, 301 (*α-L-2,4-dibenzoyl*)
Stanek, J. *et al., J. Carbohydr. Chem.*, 1985, **4**, 79-90 (*synth, pmr, cmr*)
Pozsgay, V. *et al., Can. J. Chem.*, 1987, **65**, 2764 (*α-L-3,4-dibenzyl*)
Fang, Y. *et al., J. Carbohydr. Chem.*, 1987, **6**, 169-179 (*α-D-2,4-dibenzyl, α-D-2,4-dibenzyl 3-Ac*)
Chen, Q. *et al., Carbohydr. Res.*, 1993, **240**, 107 (*α-D-3,4-dibenzyl*)
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **258**, 267; **264**, 173 (*cryst struct, α-L-tri-Ac*)
Liao, W. *et al., Carbohydr. Res.*, 1994, **260**, 151 (*α-L-3-Me, 3-Me di-Ac*)
Ashton, P.R. *et al., Chem. Eur. J.*, 1996, **2**, 580 (*α-L-4-Ac, 2,3-isopropylidene 4-Ac, 2,3-dibenzoyl 4-Ac*)
Sone, H. *et al., J.O.C.*, 1996, **61**, 8956-8960, (*α-D-4-Me, α-D-2,4-di-Me*)
Capozzi, G. *et al., J.O.C.*, 2001, **66**, 8787-8792 (*α-L-2,3-benzylidene, α-L-2,3-benzylidene 4-benzyl*)

Methyl ribofuranoside M-208



α-D-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [52485-92-4]
Syrup. $[\alpha]_D^{23}$ +147 (c, 1.3 in H_2O).

*3,5-Dibenzyl: Methyl 3,5-di-*O*-benzyl-α-D-ribofuranoside*
$C_{20}H_{24}O_5$ 344.407
$[\alpha]_D^{23}$ +67 (c, 1.0 in $CHCl_3$).

β-D-*form* [7473-45-2]
Mp 79-80°. $[\alpha]_D$ -50 (c, 2.0 in H_2O).

*3,5-Dibenzoyl: Methyl 3,5-di-*O*-benzoyl-β-D-ribofuranoside*
[50907-84-1]
$C_{20}H_{20}O_7$ 372.374
Cryst. (EtOH). Mp 132-133°. $[\alpha]_D^{25}$ -8.8 (c, 0.5 in $CHCl_3$).

*Tribenzoyl: Methyl 2,3,5-tri-*O*-benzoyl-β-D-ribofuranoside*
[52783-53-6]
$C_{27}H_{24}O_8$ 476.482
$[\alpha]_D^{23}$ +55 (c, 1.5 in $CHCl_3$).

*5-Benzoyl, 2,3-ditosyl: Methyl 5-*O*-benzoyl-2,3-di-*O*-tosyl-β-D-ribofuranoside*
$C_{27}H_{28}O_{10}S_2$ 576.644
Cryst. (Et_2O). Mp 104-106°. $[\alpha]_D^{28}$ +53 (c, 0.79 in $CHCl_3$).

*2,3,5-Tritosyl: Methyl 2,3,5-tri-*O*-tosyl-β-D-ribofuranoside*
[20701-25-1]
$C_{27}H_{30}O_{11}S_3$ 626.725
Cryst. ($CHCl_3$/petrol). Mp 126°. $[\alpha]_D^{10}$ +38.3 (c, 2.5 in $CHCl_3$).

*2,3-*O*-Methylene, 5-benzoyl: Methyl 5-*O*-benzoyl-2,3-*O*-methylene-β-D-ribofuranoside*
[42400-23-7]
$C_{14}H_{16}O_6$ 280.277
Mp 83-84°. $[\alpha]_D$ -55.6 ($CHCl_3$).

2,3-O-*Isopropylidene:* See 2,3-*O*-Isopropylideneribose, I-74

2,3-O-*Benzylidene, 5-benzoyl: Methyl 5*-O-*benzoyl-2,3*-O-*benzylidene-β-D-ribofuranoside*
[50907-80-7]
$C_{20}H_{20}O_6$ 356.374
Cryst. (Et_2O/pentane). Mp 73-75°. $[\alpha]_D^{27}$ -27.4 (c, 2.4 in $CHCl_3$).

2-Me: Methyl 2-O-*methyl-β-D-ribofuranoside*
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc/petrol). Mp 73-75°. $[\alpha]_D^{18}$ -24.5 (c, 0.55 in $CHCl_3$).

2-Me, 3,5-dibenzoyl: Methyl 3,5-di-O-*benzoyl-2*-O-*methyl-β-D-ribofuranoside*
$C_{21}H_{22}O_7$ 386.401
Syrup. $[\alpha]_D^{18}$ +21.9 (c, 0.3 in $CHCl_3$).

2,3,5-Tri-Me: Methyl 2,3,5-tri-O-*methyl-β-D-ribofuranoside*
[14520-34-4]
$C_9H_{18}O_5$ 206.238
Bp_{12} 126-130°. $[\alpha]_D$ -1.9 (c, 0.4 in $CHCl_3$).

2,3,5-Tribenzyl: Methyl 2,3,5-tri-O-*benzyl-β-D-ribofuranoside*
[55725-85-4]
$C_{27}H_{30}O_5$ 434.531
Syrup. $[\alpha]_D^{25}$ +23 (c, 0.5 in dioxan).

α-L-*form* [52689-55-1]
$[\alpha]_D^{27}$ -104 (c, 2.0 in H_2O).

Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-α-L-ribofuranoside*
$C_{12}H_{18}O_8$ 290.269
Oil. $[\alpha]_D^{20}$ -124.5 (c, 1.43 in CH_2Cl_2).

Tribenzoyl: Methyl 2,3,5-tri-O-*benzoyl-α-L-ribofuranoside*
$C_{27}H_{24}O_8$ 476.482
$[\alpha]_D^{20}$ -79.3 (c, 1.09 in CH_2Cl_2).

β-L-*form* [52689-56-2]
$[\alpha]_D^{27}$ +46 (c, 1.9 in H_2O).

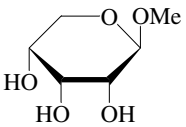
2,3-O-*Isopropylidene:* See 2,3-*O*-Isopropylideneribose, I-74

3-Benzyl: Methyl 3-O-*benzyl-β-L-ribofuranoside*
[390824-26-7]
$C_{13}H_{18}O_5$ 254.282
$[\alpha]_D^{20}$ +9.1 (c, 0.5 in MeOH).

3-Benzyl, 2,5-di-Ac: Methyl 2,5-O-*diacetyl-3*-O-*benzyl-β-L-ribofuranoside*
[390824-27-8]
$C_{17}H_{22}O_7$ 338.357
Oil. $[\alpha]_D^{20}$ -13.1 (c, 1.0 in MeOH).

Barker, R. *et al., J.O.C.*, 1961, **26**, 4605 (*β-D-form*)
Bishop, C.T. *et al., Can. J. Chem.*, 1963, **41**, 2743 (*α-D-form, β-D-form*)
Cleophax, J. *et al., Bull. Soc. Chim. Fr.*, 1967, 4111 (*β-D-benzoyl ditosyl, β-D-tritosyl*)
Hanessian, S. *et al., Can. J. Chem.*, 1972, **50**, 233 (*β-D-dibenzoyl*)
Hanessian, S. *et al., Carbohydr. Res.*, 1973, **26**, 258 (*β-D-methylene benzoyl*)
Haines, A.H. *et al., Tetrahedron*, 1973, **29**, 2807 (*β-D-Me, β-D-Me dibenzoyl, β-D-tri-Me*)
Jacobsen, S. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 866 (*β-D-benzylidene benzoyl*)
Walker, T.E. *et al., Carbohydr. Res.*, 1974, **32**, 413 (*α-L-form, β-L-form, synth*)
Ritzmann, G. *et al., Carbohydr. Res.*, 1975, **39**, 227 (*D-dibenzyl*)
Hanessian, S. *et al., Tet. Lett.*, 1976, 657 (*β-D-tribenzoyl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Batch, A. *et al., J. Carbohydr. Chem.*, 1994, **13**, 935-940 (*α-L-tri-Ac, α-L-tribenzoyl*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2001, **74**, 1679-1694 (*β-D-tribenzyl*)
Shi, Z.-D. *et al., Tetrahedron*, 2002, **58**, 3287-3296 (*β-L-form, 3-benzyl, 3 benzyl 2,5-di-Ac*)

Methyl ribopyranoside M-209



β-D-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [6207-03-0]
Syrup. $[\alpha]_D$ +103.3 (MeOH).

β-D-*form* [17289-61-1]
Cryst. (Et_2O). Mp 83°. $[\alpha]_D$ -105 (H_2O).

2,3-O-*Isopropylidene: Methyl 2,3*-O-*isopropylidene-β-D-ribopyranoside*
[53796-88-6]
$C_9H_{16}O_5$ 204.222
Mp 70-71°. $[\alpha]_D$ -77 (c, 1 in CH_2Cl_2).

2,3-O-*Isopropylidene, 4-tosyl: Methyl 2,3*-O-*isopropylidene-4*-O-*tosyl-β-D-ribopyranoside*
[53756-36-8]
$C_{16}H_{22}O_7S$ 358.412
Cryst. (diisopropyl ether/petrol). Mp 99-100°. $[\alpha]_D$ -25 (c, 0.6 in CH_2Cl_2).

3,4-O-*Isopropylidene: Methyl 3,4*-O-*isopropylidene-β-D-ribopyranoside*
[53756-35-7]
$C_9H_{16}O_5$ 204.222
$Bp_{0.2}$ 100°. $[\alpha]_D$ -109 (c, 1.2 in CH_2Cl_2).

3,4-O-*Isopropylidene, 2-tosyl: Methyl 3,4*-O-*isopropylidene-2*-O-*tosyl-β-D-ribopyranoside*
[53796-89-7]
$C_{16}H_{22}O_7S$ 358.412
Cryst. (diisopropyl ether). Mp 145-146°. $[\alpha]_D$ -110 (c, 0.7 in CH_2Cl_2).

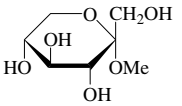
2-Me: Methyl 2-O-*methyl-β-D-ribopyranoside*
[60562-99-4]
$C_7H_{14}O_5$ 178.185
$Bp_{0.02}$ 85° (bath). $[\alpha]_D$ -113.4 (c, 0.95 in $CHCl_3$).

2-Me, 3,4-O-*isopropylidene: Methyl 3,4*-O-*isopropylidene-2*-O-*methyl-β-D-ribopyranoside*
[60551-05-5]
$C_{10}H_{18}O_5$ 218.249
Oil. $Bp_{0.2}$ 74°. $[\alpha]_D$ -114.8 (c, 1.5 in $CHCl_3$).

2,3,4-Tri-Me: Methyl 2,3,4-tri-O-*methyl-β-D-ribopyranoside*
[2876-87-1]
$C_9H_{18}O_5$ 206.238
$Bp_{0.06}$ 49-50°. $[\alpha]_D$ -81 (c, 1.12 in $CHCl_3$).

Reist, E.J. *et al., J.O.C.*, 1966, **31**, 226 (*α-D-form, synth*)
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 403 (*β-D-form, synth*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1974, **35**, 247 (*2,3-isopropylidene, 2,3-isopropylidene tosyl, 3,4-isopropylidene, 3,4-isopropylidene tosyl*)
Abbas, S.A. *et al., J.C.S. Perkin 1*, 1976, 1351 (*β-D-tri-Me, β-D-isopropylidene Me, β-D-Me*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 38 (*pmr, α-D-form, β-D-form, cmr, α-D-tri-Ac, β-D-tri-Ac*)

Methyl sorboside M-210



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

α-D-Pyranose-*form*
Mp 119°. $[\alpha]_D$ +89 (H_2O).

α-L-Pyranose-*form* [3765-95-5]
Mp 120-122°. $[\alpha]_D$ -88 (H_2O).

Tetrabenzoyl: Methyl 1,3,4,5-tetra-O-*benzoyl-α-L-sorbopyranoside*
$C_{35}H_{30}O_{10}$ 610.616
Mp 133-136°. $[\alpha]_D^{21}$ +12.2 (c, 1 in $CHCl_3$).

1,3-O-*Benzylidene: Methyl 1,3*-O-*benzylidene-α-L-sorbopyranoside*
$C_{14}H_{18}O_6$ 282.293
Cryst. (2-propanol). Mp 183-184°. $[\alpha]_D$ -54.6 ($CHCl_3$).

1,3-O-*Benzylidene, 5-Me: Methyl 1,3*-O-*benzylidene-5*-O-*methyl-α-L-sorbopyranoside*
[58801-73-3]
$C_{15}H_{20}O_6$ 296.319
Needles (propanol). Mp 133-134°. $[\alpha]_D^{22}$ -51 (c, 2 in $CHCl_3$).

Tetrabenzyl: Methyl 1,3,4,5-tetra-O-*benzyl-α-L-sorbopyranoside*
$C_{35}H_{38}O_6$ 554.682
Yellow oil. $[\alpha]_D$ -14.2 (c, 3.1 in $CHCl_3$).

β-L-Pyranose-*form*
Mp 106°. $[\alpha]_D$ +39 (H_2O).

α-L-Furanose-*form* [51295-56-8]
$[\alpha]_D$ -85 (EtOH).

Tetrabenzoyl: Methyl 1,3,4,5-tetra-O-*benzoyl-α-L-sorbofuranoside*
[51295-54-6]
$C_{35}H_{30}O_{10}$ 610.616
$[\alpha]_D$ -115 (c, 0.75 in $CHCl_3$).

β-L-Furanose-*form* [51295-55-7]
$[\alpha]_D$ +60 (EtOH).

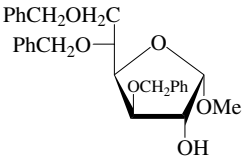
Tetrabenzoyl: Methyl 1,3,4,5-tetra-O-*benzoyl-β-L-sorbofuranoside*
$C_{35}H_{30}O_{10}$ 610.616
Cryst. (MeOH). Mp 110-112°. $[\alpha]_D$ +17 (c, 1.0 in $CHCl_3$).

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 382 (*D-pyr, L-pyr*)
Paulsen, H. *et al., Chem. Ber.*, 1967, **100**, 2669 (*α-L-pyr tetrabenzoyl*)
Murphy, D. *et al., J.C.S.(C)*, 1967, 1732 (*α-L-pyr benzylidene*)
Bethell, G.S. *et al., Carbohydr. Res.*, 1973, **31**, 69 (*α-L-fur, α-L-fur tetrabenzoyl, β-L-fur, β-L-fur tetrabenzoyl*)

Heyns, K. *et al., Annalen*, 1976, 269 (*α-L-pyr benzylidene Me*)
Helleur, R. *et al., Carbohydr. Res.*, 1981, **89**, 83 (*synth, α-L-pyr, L-tetrabenzyl*)

Methyl 3,5,6-tri-*O*-benzylglucofuranoside M-211

Methyl 3,5,6-tris-O-*(phenylmethyl) glucofuranoside, 9CI*



α-D-*form*

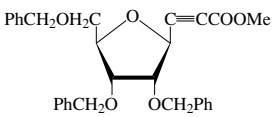
$C_{28}H_{32}O_6$ 464.557
Never marketedLog P 4.54 (calc).

D-*form*
Mebenoside, INN. *CB 28046*
[55902-93-7] Antiinflammatory agent. $Bp_{0.9}$ 270-280°. $[\alpha]_D^{20}$ -21 (c, 1.08 in $CHCl_3$). Props. appear to refer to an anomeric mixt.

α-D-*form* [20822-88-2]
Mp 55°. $[\alpha]_D$ +26 (c, 0.88 in $CHCl_3$).

β-D-*form* [20822-89-3]
$[\alpha]_D^{20}$ -55 (c, 1.16 in $CHCl_3$).
Huber, G. *et al., Helv. Chim. Acta*, 1968, **51**, 1185 (*synth, pharmacol, pmr, conformn*)
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1979, **33**, 453 (*synth*)
Lee, D.S. *et al., Carbohydr. Res.*, 1984, **125**, 265 (*synth*)

Methyl 3-(2,3,5-tri-*O*-benzylribofuranosyl)propiolate M-212



β-*form*

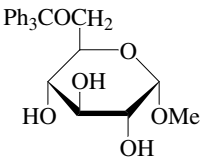
$C_{30}H_{30}O_6$ 486.563

α-D-*form*
Methyl 4,7-anhydro-5,6,8-tri-O-*benzyl-2,3-dideoxy-2,2,3,3-tetradehydro-D*-allo-*octonoate*
[57361-95-2]
Mp 38-39°. $[\alpha]_D^{22}$ +84.3 (c, 1.7 in $CHCl_3$).

β-D-*form*
Methyl 4,7-anhydro-5,6,8-tri-O-*benzyl-2,3-dideoxy-2,2,3,3-tetradehydro-D*-altro-*octonoate*
[57361-98-5]
$[\alpha]_D^{22}$ +16 (c, 1.0 in $CHCl_3$).
Buchanan, J.G. *et al., Carbohydr. Res.*, 1977, **55**, 225

Methyl 6-*O*-tritylglucopyranoside M-213

Methyl 6-O-*(triphenylmethyl)glucopyranoside*



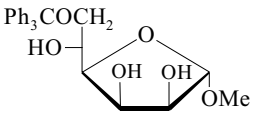
α-D-*form*

$C_{26}H_{28}O_6$ 436.504

α-D-*form* [18311-26-7]
Cryst. (EtOH). Mp 155-156°. $[\alpha]_D^{16}$ +86.3 (Py).
2,3,4-Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6*-O-*trityl-α-D-glucopyranoside*
[18031-49-7]
$C_{32}H_{34}O_9$ 562.615
Mp 136°. $[\alpha]_D^{15}$ +136 (Py).
2-Benzoyl: Methyl 2-O-*benzoyl-6*-O-*trityl-α-D-glucopyranoside*
[66464-15-1]
$C_{33}H_{32}O_7$ 540.612
Microcryst. solid. Mp 92-94°. $[\alpha]_D^{25}$ +88 (c, 1.7 in EtOAc) (+120).
2-Benzoyl, 3,4-dimesyl: Methyl 2-O-*benzoyl-3,4-di*-O-*mesyl-6*-O-*trityl-α-D-glucopyranoside*
[51385-37-6]
$C_{35}H_{36}O_{11}S_2$ 696.795
Microcryst. solid. Mp 176-177° (169-170°). $[\alpha]_D^{23}$ +103.6 (c, 5 in $CHCl_3$).
2,3,4-Tribenzoyl: Methyl 2,3,4-tri-O-*benzoyl-6*-O-*trityl-α-D-glucopyranoside*
[20231-39-4]
$C_{47}H_{40}O_9$ 748.828
Mp 108-110° Mp 171° (double Mp).
2,3,4-Tri-Me: Methyl 2,3,4-tri-O-*methyl-6-trityl-α-D-glucopyranoside*
[6984-43-6]
$C_{29}H_{34}O_6$ 478.584
Solid. Mp 104-106°. $[\alpha]_D$ +84 (c, 0.9 in $CHCl_3$).

β-D-*form* [67412-01-5]
Mp 108-109° Mp 148° (double Mp).
Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6*-O-*trityl-β-D-glucopyranoside*
[31873-39-9]
$C_{32}H_{34}O_9$ 562.615
Mp 126°. $[\alpha]_D$ +32 (Py).
Helferich, B. *et al., Annalen*, 1924, **440**, 1 (*α-D-form, α-D-tri-Ac, α-D-tribenzoyl, β-D-form*)
Helferich, B. *et al., Adv. Carbohydr. Chem.*, 1948, **3**, 79 (*rev*)
Chaudhary, S.K. *et al., Tet. Lett.*, 1979, 95, (*α-D-tri-Ac*)
Ho, W.M. *et al., Tetrahedron*, 1995, **51**, 7373, (*α-D-2-benzoyl, 2-benzoyl dimesyl*)
Molina Pinilla, I. *et al., Carbohydr. Res.*, 2003, **338**, 549-555 (*tri-Me*)

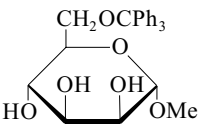
Methyl 6-*O*-tritylmannofuranoside M-214



$C_{26}H_{28}O_6$ 436.504

α-D-*form*
$[\alpha]_D^{27}$ +50.6 (c, 5.14 in $CHCl_3$).
2-Tosyl: [22314-31-4]
$[\alpha]_D^{27}$ +43 (c, 5.0 in $CHCl_3$).
2-Tosyl, 3,5-di-Me: [22314-32-5]
$[\alpha]_D^{28}$ +26 (c, 5.0 in $CHCl_3$).
3,5-Di-Me: [22314-33-6]
$C_{28}H_{32}O_6$ 464.557
$[\alpha]_D^{27}$ +23.2 (c, 4.3 in $CHCl_3$).
Siddiqui, I.R. *et al., Carbohydr. Res.*, 1968, **8**, 477; 1969, **9**, 344 (*synth, derivs*)

Methyl 6-*O*-tritylmannopyranoside, 9CI, 8CI M-215



$C_{26}H_{28}O_6$ 436.504

α-D-*form* [20231-36-1]
Mp 100°. $[\alpha]_D^{20}$ +20 (c, 1.1 in $CHCl_3$).
2,3,4-Tri-Ac: [7511-40-2]
$C_{32}H_{34}O_9$ 562.615
Mp 128-129°. $[\alpha]_D^{26}$ +44.6 (c, 1.0 in $CHCl_3$).
2,3-Dimesyl: [16802-89-4]
$[\alpha]_D^{20}$ +7.7 (c, 1.0 in $CHCl_3$).
2-Tosyl: Methyl 2-O-*tosyl-6*-O-*trityl-α-D-mannopyranoside*
$[\alpha]_D^{25}$ +6 (c, 5.6 in $CHCl_3$).
2-Tosyl, 3-Me: [27409-35-4]
Mp 154-155°. $[\alpha]_D^{25}$ +3 (c, 1.3 in $CHCl_3$).
2-Tosyl, 3,4-di-Me: Mp 160-161°. $[\alpha]_D^{17}$ +3.6 (c, 1.31 in $CHCl_3$).
3-Tosyl: Methyl 3-O-*tosyl-6*-O-*trityl-α-D-mannopyranoside*
[25581-49-1]
Mp 104°. $[\alpha]_D^{23}$ +29.2 (c, 2.4 in $CHCl_3$).
3-Tosyl, 2,4-di-Me: [25581-50-4]
Mp 199-201°. $[\alpha]_D^{24}$ +38.2 (c, 2.08 in $CHCl_3$).
4-Tosyl: Methyl 4-O-*tosyl-6*-O-*trityl-α-D-mannopyranoside*
$[\alpha]_D^{17}$ +45.6 (c, 2.11 in $CHCl_3$).
4-Tosyl, 2,3-di-Me: Mp 146-147°. $[\alpha]_D^{20}$ +35.1 (c, 1.44 in $CHCl_3$).
4-Benzyl: Methyl 4-O-*benzyl-6*-O-*trityl-α-D-mannopyranoside*
[26922-87-2]
$C_{33}H_{34}O_6$ 526.628
Mp 127°. $[\alpha]_D^{20}$ +46.9 (c, 0.68 in $CHCl_3$).
2,3-Dibenzyl:
$C_{40}H_{40}O_6$ 616.752
$[\alpha]_D^{22}$ -9 ($CHCl_3$).

*2,3,4-Tribenzyl: Methyl 2,3,4-tri-*O*-benzyl-6-*O*-trityl-α-D-mannopyranoside*
[40653-13-2]
$C_{47}H_{46}O_6$ 706.877
Mp 116-118°. $[\alpha]_D^{23}$ +20 (c, 0.51 in $CHCl_3$).

2,3-Di-Me: [27299-03-2]
$C_{28}H_{32}O_6$ 464.557
Mp 177-178°. $[\alpha]_D^{19}$ +76.1 (c, 1.05 in $CHCl_3$).

2,3-Di-Me, 4-Ac: [53767-29-6]
$C_{30}H_{34}O_7$ 506.594
Mp 205-206°. $[\alpha]_D^{25}$ +24.6 (c, 1.28 in $CHCl_3$).

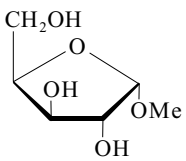
2,4-Di-Me: [25581-51-5]
$C_{28}H_{32}O_6$ 464.557
Mp 167-168°. $[\alpha]_D^{22}$ +25.2 (c, 2.25 in $CHCl_3$).

3,4-Di-Me: [27299-02-1]
$C_{28}H_{32}O_6$ 464.557
Syrup. $[\alpha]_D^{20}$ +51.2 (c, 1.75 in $CHCl_3$).

2,3,4-Tri-Me:
$C_{29}H_{34}O_6$ 478.584
Mp 106-110°. $[\alpha]_D^{20}$ +33 (c, 1.04 in $CHCl_3$).

Murty, V.L.N. *et al., Carbohydr. Res.*, 1969, **10**, 477; **11**, 273

Methyl xylofuranoside, 9CI, 8CI M-216



$C_6H_{12}O_5$ 164.158

α-D-*form* [1824-96-0]
Mp 84°. $[\alpha]_D$ +182 (H_2O).

*2-Mesyl: Methyl 2-*O*-mesyl-α-D-xylofuranoside*
[53081-34-8]
$C_7H_{14}O_7S$ 242.249
Plates (Et_2O). Mp 89°. $[\alpha]_D^{22}$ +166.7 (c, 1.0 in MeOH).

*3,5-*O*-Isopropylidene: Methyl 3,5-*O*-isopropylidene-α-D-xylofuranoside*
[7045-40-1]
$C_9H_{16}O_5$ 204.222
$Bp_{0.1}$ 85-88°. $[\alpha]_D$ +16 (c, 2.0 in H_2O).

*3,5-*O*-Isopropylidene, 2-benzoyl: Methyl 2-*O*-benzoyl-3,5-*O*-isopropylidene-α-D-xylofuranoside*
$C_{16}H_{20}O_6$ 308.33
Cryst. (Et_2O/petrol). Mp 89-90°. $[\alpha]_D$ +128 (c, 2.8 in $CHCl_3$).

*3,5-*O*-Isopropylidene, 2-mesyl: Methyl 3,5-*O*-isopropylidene-2-*O*-mesyl-α-D-xylofuranoside*
[7045-39-8]
$C_{10}H_{18}O_7S$ 282.314
Cryst. (CCl_4). Mp 86-87°. $[\alpha]_D^{22}$ +103.8 (c, 1.0 in MeOH).

*2-Me: Methyl 2-*O*-methyl-α-D-xylofuranoside*
[32469-86-6]
$C_7H_{14}O_5$ 178.185
Cryst. (Et_2O). Mp 72-73°. $[\alpha]_D^{25}$ +159 (c, 1.03 in EtOH).

*2-Me, 5-benzoyl: Methyl 5-*O*-benzoyl-3-*O*-methyl-α-D-xylofuranoside*
Syrup. $[\alpha]_D^{28}$ +119.3 (c, 1.25 in $CHCl_3$). Incorrectly called 3-*O*-methyl.

*2-Me, 3,5-*O*-isopropylidene: Methyl 3,5-*O*-isopropylidene-2-*O*-methyl-α-D-xylofuranoside*
[50615-84-4]
$C_{10}H_{18}O_5$ 218.249
Syrup. $Bp_{0.07}$ 77°. $[\alpha]_D^{23}$ +105.3 (c, 1.7 in $CHCl_3$) (+24.6).

*3-Me: Methyl 3-*O*-methyl-α-D-xylofuranoside*
$C_7H_{14}O_5$ 178.185
$[\alpha]_D^{25}$ +143.9 (c, 1.59 in EtOH).

*2,3-Di-Me: Methyl 2,3-di-*O*-methyl-α-D-xylofuranoside*
[15821-56-4]
$C_8H_{16}O_5$ 192.211
Cryst. (Et_2O). Mp 82-83°. $[\alpha]_D^{24}$ +17.42 (c, 1.99 in EtOH).

*2-Benzyl: Methyl 2-*O*-benzyl-α-D-xylofuranoside*
$C_{13}H_{18}O_5$ 254.282
Cryst. (Et_2O/hexane). Mp 63-63.5°. $[\alpha]_D^{22}$ +129.9 (c, 0.43 in $CHCl_3$).

*2-Benzyl, 3,5-isopropylidene: Methyl 2-*O*-benzyl-3,5-*O*-isopropylidene-α-D-xylofuranoside*
$C_{16}H_{22}O_5$ 294.347
Syrup. $[\alpha]_D^{20}$ +68.6 (c, 0.98 in $CHCl_3$). Incorrectly called 3-benzyl in the lit.

*5-Benzyl, 3-Me: Methyl 5-*O*-benzyl-3-*O*-methyl-α-D-xylofuranoside*
$C_{14}H_{20}O_5$ 268.309
$Bp_{0.01}$ 129°. $[\alpha]_D^{25}$ +96.5 (c, 1.44 in EtOH).

*5-Benzyl, 2,3-di-Me: Methyl 5-*O*-benzyl-2,3-di-*O*-methyl-α-D-xylofuranoside*
$C_{15}H_{22}O_5$ 282.336
Syrup. $Bp_{0.01}$ 129-131°. $[\alpha]_D^{24}$ +11.4 (c, 1.16 in EtOH).

*5-Trityl, 2,3-dimesyl: Methyl 2,3-di-*O*-mesyl-5-*O*-trityl-α-D-xylofuranoside*
$C_{27}H_{30}O_9S_2$ 562.661
Mp 148°. $[\alpha]_D^{16}$ +81 (c, 2 in $CHCl_3$).

β-D-*form*

*3,5-*O*-Isopropylidene: Methyl 3,5-*O*-isopropylidene-β-D-xylofuranoside*
[51754-99-5]
$C_9H_{16}O_5$ 204.222
Oil. $Bp_{0.1}$ 108-110°. $[\alpha]_D$ -26 (c, 0.6 in H_2O). $[\alpha]_D^{24}$ -64.2 (c, 2 in H_2O).

*2-Me, 5-benzoyl: Methyl 5-*O*-benzoyl-2-*O*-methyl-β-D-xylofuranoside*
$C_{14}H_{18}O_6$ 282.293
Syrup. $[\alpha]_D^{24}$ -33.6 (c, 1.0 in $CHCl_3$).

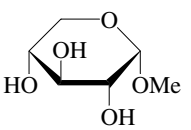
*2-Me, 3,5-isopropylidene: Methyl 3,5-*O*-isopropylidene-2-*O*-methyl-β-D-xylofuranoside*
$C_{10}H_{18}O_5$ 218.249
Syrup. $[\alpha]_D^{24}$ -33.5 (c, 1.0 in $CHCl_3$). Incorrectly called 3-Me in the lit.

*2-Benzyl, 3,5-isopropylidene: Methyl 2-*O*-benzyl-3,5-*O*-isopropylidene-β-D-xylofuranoside*
$C_{16}H_{22}O_5$ 294.347
Syrup. $[\alpha]_D^{20}$ -45 (c, 1.3 in $CHCl_3$).

*5-Trityl, 2,3-dimesyl: Methyl 2,3-di-*O*-mesyl-5-*O*-trityl-β-D-xylofuranoside*
$C_{27}H_{30}O_9S_2$ 562.661
Cryst. (EtOH). Mp 139°. $[\alpha]_D^{23}$ -18 (c, 2 in $CHCl_3$).

Robertson, G.J. *et al., J.C.S.*, 1934, 824, (*α-D-isopropylidene Me*)
Percival, E.E. *et al., J.C.S.*, 1952, 4305, (*β-D-isopropylidene*)
Baker, B.R. *et al., J.A.C.S.*, 1955, **77**, 7, (*Me β-D-gly 3,5-isopropylidene*)
Kováč, P. *et al., Carbohydr. Res.*, 1971, **16**, 492; **19**, 249 (*2-Me, 2,3-di-Me*)
Kováč, P. *et al., Carbohydr. Res.*, 1971, **19**, 249 (*α-D-3-Me, α-D-3-Me bisnitrobenzoyl, α-D-benzyl Me, α-D-benzyl-di-Me, α-D-di-Me*)
Buchanan, J.G. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 135 (*2-tosyl-3,4-di-Ac*)
Rabelo, J. *et al., Carbohydr. Res.*, 1973, **30**, 202 (*isopropylidene Me, α-D-2-Me*)
El Khadem, H.S. *et al., Carbohydr. Res.*, 1974, **33**, 329 (*α-D-isopropylidene mesyl, mesyl*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1975, 2163 (*α-D-isopropylidene, α-D-isopropylidene benzoyl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr, α-form*)
Tronchet, J.M. *et al., Carbohydr. Res.*, 1988, **181**, 97 (*2-Me derivs, 2-benzyl derivs*)
Lacourt-Gadras, B. *et al., Carbohydr. Res.*, 1992, **235**, 281 (*5-trityl-2,3-dimesyl*)

Methyl xylopyranoside M-217



α-*form*

$C_6H_{12}O_5$ 164.158

α-D-*form* [91-09-8]
Cryst. (butanone). Mp 90-91°. $[\alpha]_D$ +153.9 (H_2O).

*2,3,4-Tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-α-D-xylopyranoside*
[20880-54-0]
$C_{12}H_{18}O_8$ 290.269
Cryst. (EtOH). Mp 85-86°. $[\alpha]_D$ +118 (c, 3.7 in $CHCl_3$).

*3-Benzoyl: Methyl 3-*O*-benzoyl-α-D-xylopyranoside*
[60551-03-3]
$C_{13}H_{16}O_6$ 268.266
Cryst. (EtOAc/petrol). Mp 139-141°. $[\alpha]_D$ +111 (c, 1 in dioxan).

*2,3,4-Tribenzoyl: Methyl 2,3,4-tri-*O*-benzoyl-α-D-xylopyranoside*
[10225-78-2]
$C_{27}H_{24}O_8$ 476.482
Cryst. (EtOH). Mp 107-109°. $[\alpha]_D$ +56.3 (c, 1.10 in $CHCl_3$).

*2,3,4-Trimesyl: Methyl 2,3,4-tri-*O*-mesyl-α-D-xylopyranoside*
$C_9H_{18}O_{11}S_3$ 398.433
Cryst. (EtOAc/EtOH). Mp 131.5-132°. $[\alpha]_D^{21}$ +78.4 (c, 1.0 in Me_2CO).

*2-Tosyl: Methyl 2-*O*-tosyl-α-D-xylopyranoside*
[14187-86-1]
$C_{13}H_{18}O_7S$ 318.347
Cryst. (H_2O). Mp 135-136°. $[\alpha]_D$ +85.9 (c, 0.55 in $CHCl_3$).

2-Tosyl, 3,4-di-Ac: Methyl 3,4-di-O-*acetyl-2*-O-*tosyl-α-D-xylopyranoside*
[14187-87-2]
$C_{17}H_{22}O_9S$ 402.421
Cryst. (EtOH). Mp 143-144°.

β-D-*form* [612-05-5]
Mp 156°. $[\alpha]_D^{22}$ -65.2 (H_2O). Incorrect sign of rotation given in one ref.

2,3-Di-Ac: Methyl 2,3-di-O-*acetyl-β-D-xylopyranoside*
[70003-50-8]
$C_{10}H_{16}O_7$ 248.232
Cryst. (EtOAc/petrol). Mp 84°. $[\alpha]_D$ -82.6 (c, 0.5 in $CHCl_3$).

2,3,4-Tri-Ac: Methyl 2,3,4-tri-O-*acetyl-β-D-xylopyranoside*
[13007-37-9]
$C_{12}H_{18}O_8$ 290.269
Cryst. (EtOH). Mp 115°. $[\alpha]_D$ -59.6 (c, 1.0 in $CHCl_3$).

2,3,4-Tribenzoyl: Methyl 2,3,4-tri-O-*benzoyl-β-D-xylopyranoside*
[6638-76-2]
$C_{27}H_{24}O_8$ 476.482
Needles (MeOH). Mp 93-95°. $[\alpha]_D$ -24.1 (c, 1.63 in $CHCl_3$).

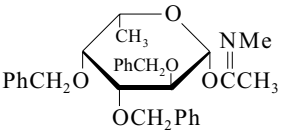
2,3,4-Trimesyl: Methyl 2,3,4-tri-O-*mesyl-β-D-xylopyranoside*
$C_9H_{18}O_{11}S_3$ 398.433
Cryst. (EtOH). Mp 141-142°. $[\alpha]_D^{25}$ -26 (c, 1.4 in Me_2CO).

4-Trityl, 2,3-dibenzyl: Methyl 2,3-di-O-*benzyl-4*-O-*trityl-β-D-xylopyranoside*
$C_{39}H_{38}O_5$ 586.726
Amorph. $[\alpha]_D$ +22 (c, 1 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 303A (*nmr*)
Hudson, C.S. *et al., J.A.C.S.*, 1925, **47**, 265, (*α-D-form, β-D-form*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 144 (*derivs, rev*)
Janson, J. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 375 (*β-D-form*)
Ferrier, R.J. *et al., J.C.S.*, 1964, 3330 (*α-D-3-benzoyl*)
Buchanan, J.G. *et al., J.C.S.(C)*, 1966, 1926, (*α-D-2-tosyl, 2-tosyl-di-Ac*)
Jennings, H.J. *et al., Can. J. Chem.*, 1971, **49**, 1355 (*α-D-tri-Ac, β-D-tri-Ac*)
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 403 (*α-D-form, α-D-tribenzoyl, α-D-tri-Ac, β-D-tri-Ac, β-D-tribenzoyl*)
Chalk, R.C. *et al., Carbohydr. Res.*, 1973, **28**, 313 (*α-D-trimesyl, β-D-trimesyl*)
Vangehr, K. *et al., Chem. Ber.*, 1980, **113**, 2609 (*β-D-tribenzoyl, cryst struct*)
Tsuda, Y. *et al., Chem. Pharm. Bull.*, 1980, **28**, 3223 (*β-D-form*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 38 (*pmr, α,β-forms, cmr, α,β tri Ac*)
Petráková, E. *et al., Carbohydr. Res.*, 1982, **101**, 141 (*synth, cmr, Ac, benzyl derivs*)
McEwan, T. *et al., Carbohydr. Res.*, 1982, **104**, 161 (*pmr, cmr, Ac derivs*)
Kondo, Y. *et al., Carbohydr. Res.*, 1982, **107**, 303; **110**, 339 (*benzoyl, tosyl derivs*)
Nifant'ev, N.E. *et al., Carbohydr. Res.*, 1989, **191**, 13 (*4-trityl-2,3-dibenzyl*)
Nilsson, M. *et al., J. Carbohydr. Chem.*, 1993, **12**, 23-37 (*2,3-di-Ac*)
Bardet, M. *et al., Carbohydr. Res.*, 1994, **264**, 135 (*cmr*)

1-*O*-*N*-Methylacetimidyl-2,3,4-tri-*O*-benzylfucopyranose M-218

6-Deoxy-2,3,4-tris-O-*phenylmethylgalactopyranose* N-*methylethanimidate*

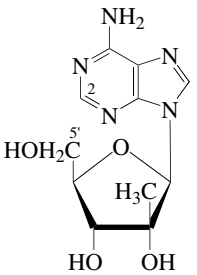


$C_{30}H_{35}NO_5$ 489.61

β-L-*form* [70267-04-8]
Mp 89-90°. $[\alpha]_D$ -67 (c, 1.0 in C_6H_6).
Jacquinet, J.-C. *et al., J.C.S. Perkin 1*, 1979, 319

2′-*C*-Methyladenosine, 9CI, 8CI M-219

9-(2-C-*Methyl-β-D-ribofuranosyl)adenine*
[15397-12-3]



$C_{11}H_{15}N_5O_4$ 281.271
Mp 257-258°. $[\alpha]_D$ -21 (c, 0.5 in H_2O). λ_{max} 260 nm (ϵ 15 100) (H_2O).

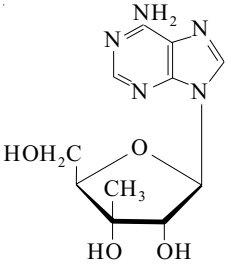
*6*N,*2′,3′,5′-Tetrabenzoyl:*
$C_{39}H_{31}N_5O_8$ 697.703
$[\alpha]_D$ -66 (c, 1.0 in $CHCl_3$).

2′,3′-O-*Isopropylidene:*
$C_{14}H_{19}N_5O_4$ 321.335
Mp 291-292°. $[\alpha]_D$ -89 (c, 0.5 in MeOH). λ_{max} 260 (ϵ 15100) (MeOH).

*2-Chloro, 5′-deoxy: 2-Chloro-5′-deoxy-2′-C-methyladenosine, 9CI. **Kumusine**. Trachycladine A*
[164672-56-4]
$C_{11}H_{14}ClN_5O_3$ 299.716
Isol. from marine sponges *Theonella* sp., *Trachycladus laevispirulifer* and *Theonella cupola*. Cytotoxic and immunosuppressive agent. May have activity against HIV. Mp 210-213°. $[\alpha]_D$ -19.6 (c, 0.41 in MeOH). Kumusine and Trachycladine A not compared. Mp refers to Kumusine, opt. rotn. to Trachycladine A. λ_{max} 264 (ϵ 14200) (MeOH).
Walton, E. *et al., J.A.C.S.*, 1966, **88**, 4524 (*synth*)
Jenkins, S.R. *et al., J.O.C.*, 1968, **33**, 2490 (*synth, pmr*)
Garrett, E.R. *et al., J.A.C.S.*, 1972, **94**, 8532 (*solvolysis*)
Searle, P.A. *et al., J.O.C.*, 1995, **60**, 4296-4298 (*Trachycladine A*)
Ichiba, T. *et al., Tet. Lett.*, 1995, **36**, 3977-3980 (*Kumusine*)
Higa, T. *et al., ACS Symp. Ser.*, 2000, **745**, 12-21 (*Kumusine, isol, activity*)

3′-*C*-Methyladenosine, 9CI, 8CI M-220

9-(3-C-*Methyl-β-D-ribofuranosyl)adenine*
[15397-13-4]



$C_{11}H_{15}N_5O_4$ 281.271
Mp 213-215° (transition at 165°). $[\alpha]_D$ -58 (c, 1.0 in H_2O). λ_{max} 260 (ϵ 14 900) (H_2O), 257.5 (14 800) (pH 1), 260 nm (14 300) (pH 13).

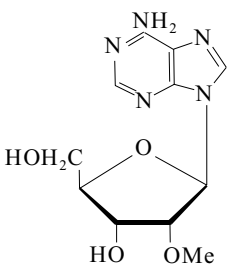
2′,3′-O-*Isopropylidene:*Mp 205-207°. $[\alpha]_D$ -39 (c, 5.0 in Py).

2′,3′-O-*Isopropylidene, 5′-tosyl:*λ_{max} 259 (ϵ 11 000), 225 (14 000), 215 nm (22 000) (MeOH).

*6*N,*2′,3′,5′-Tetrabenzoyl:* $[\alpha]_D$ -146 (c, 1.5 in $CHCl_3$).
Nutt, R.F. *et al., J.O.C.*, 1968, **33**, 1789 (*synth, pmr*)
Follmann, H. *et al., Eur. J. Biochem.*, 1974, **47**, 187 (*conformn, pmr*)

2′-*O*-Methyladenosine, 9CI, 8CI M-221

9-(2′-O-*Methyl-β-D-ribofuranosyl)adenine*
[2140-79-6]



$C_{11}H_{15}N_5O_4$ 281.271
Constit. of yeast and other soluble ribonucleic acids (s-RNA). Cryst. (EtOH). Mp 203-204°. $[\alpha]_D^{24}$ -58.2 (c, 1.0 in H_2O). λ_{max} 258.5 nm (ϵ 13 900) (pH 11).

*6*N-*Me: 6*N,*2′*O-*Dimethyladenosine*
$C_{12}H_{17}N_5O_4$ 295.297
Mp 88-91°.

3′-Sulfamoyl:
Cryst. (EtOH). Mp 195-197° dec. (as hemiethanolate). $[\alpha]_D^{29}$ -84.5 (c, 1.0 in 60% MeOH aq.).

3′-Me: 2′,3′-Di-O-*methyladenosine*
$C_{12}H_{17}N_5O_4$ 295.297
Prisms (EtOH). Mp 182-184°.

*3′,6*N-*Di-Me: 6*-N,*2′*-O,*3′*O-*Trimethyladenosine*
$C_{13}H_{19}N_5O_4$ 309.324
Needles (EtOH). Mp 163-166°.

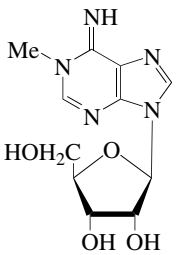
5′-Trityl:
$C_{30}H_{29}N_5O_4$ 523.59
Mp 118-120°.

Khwaja, T.A. *et al., J.A.C.S.*, 1966, **88**, 3640 (*synth, pmr*)
Shuman, D.A. *et al., J.A.C.S.*, 1970, **92**, 3434 (*sulfamoyl, trityl, pmr*)
Prusiner, P. *et al., Acta Cryst. B*, 1976, **32**, 161 (*cryst struct*)
Kazimierczuk, Z. *et al., Biochemistry*, 1976, **15**, 2735 (*3′-Me, 3′,6N-di-Me, pmr*)
Beigelman, L. *et al., Tetrahedron*, 2000, **56**, 1047-1056 (***synth***)

1-Methyladenosine, 12CI M-222

N,*6-Didehydro-1,6-dihydro-1-methyladenosine, 9CI*
[15763-06-1]

[34308-25-3, 112120-03-3]

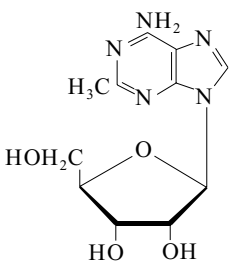


$C_{11}H_{15}N_5O_4$ 281.271
Modified nucleoside present in t-RNA's. Needles.
Mp 214-217° (dec.). $[\alpha]_D^{26}$ -58.9 (c, 2 in H_2O). Softens at 210°.

Jones, J.W. *et al., J.A.C.S.*, 1963, **85**, 193-201 (*synth*)
Shaw, S.J. *et al., J.A.C.S.*, 1970, **92**, 2510-2522 (*ms*)
Yamauchi, K. *et al., J.C.S. Perkin 1*, 1980, 2787-2792 (*synth*)
Smith, D.L. *et al., Biomed. Mass Spectrom.*, 1983, **10**, 269-275 (*ms*)
Chang, C. *et al., Org. Magn. Reson.*, 1984, **22**, 671-675 (*cmr*)
Sierzputowska-Gracz, H. *et al., Nucleic Acids Res.*, 1986, **14**, 7783-7801 (*pmr, cmr, N-15 nmr*)
Yamagata, Y. *et al., Acta Cryst. C*, 1987, **43**, 2117-2120 (*cryst struct*)

2-Methyladenosine, 9CI, 8CI M-223

2-Methyl-9-β-D-ribofuranosyladenine
[16526-56-0]



$C_{11}H_{15}N_5O_4$ 281.271
Isol. from RNA. Exhibits antiviral activity against Herpes simplex and vaccinia viruses. Hygroscopic cryst. (EtOH). $[\alpha]_D^{25}$ -66.6 (c, 1.0 in H_2O). Log P -2.38 (calc). λ_{max} 264 nm (ϵ 14 500) (pH 6). Softens at 130-133°.

Picrate: Mp 200° dec.

2′,3′-O-Isopropylidene: [16526-53-7]
$C_{14}H_{19}N_5O_4$ 321.335
Cryst. (EtOH). Mp 202-203°. $[\alpha]_D^{25}$ -81.5 (c, 1.0 in H_2O). λ_{max} 264 nm (ϵ 14 300) (pH 6).

6-N-Me: 2,6-N-Dimethyladenosine
[16526-78-6]
$C_{12}H_{17}N_5O_4$ 295.297
Cryst. (EtOH). Mp 179-180°. $[\alpha]_D^{25}$ -67.6 (c, 1.0 in H_2O).

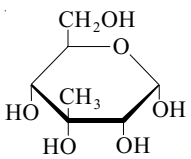
6,6-N-Di-Me: 2,2,6-N-Trimethyladenosine
[16526-79-7]
$C_{13}H_{19}N_5O_4$ 309.324
Cryst. (EtOH). Mp 159°. $[\alpha]_D^{25}$ -65.7 (c, 1.0 in H_2O). λ_{max} 272 (ϵ 16 700) (pH 1), 280 (19 500) (pH 6), 280 nm (19 600) (pH 13).

5′-Phosphate:
$C_{11}H_{16}N_5O_7P$ 361.25
Mp 260° (as Ba salt). λ_{max} 264 nm (ϵ 13 200) (pH 6).

[16526-81-1]

Davoll, J. *et al., J.A.C.S.*, 1952, **74**, 1563 (*synth*)
Littlefield, J.W. *et al., Biochem. J.*, 1958, **70**, 642 (*isol*)
Yamazaki, A. *et al., J.O.C.*, 1968, **33**, 2583 (*synth, phosphate, di-N-Me, N-Me, isopropylidene*)
Hecht, S.M. *et al., Anal. Biochem.*, 1970, **38**, 230 (*ms*)
Shanon, W.M. *et al., J. Med. Chem.*, 1974, **17**, 361 (*pharmacol*)
Hattori, M. *et al., Annalen*, 1978, 1796 (*synth*)

3-*C*-Methylallose M-224



$C_7H_{14}O_6$ 194.184

α-D-Pyranose-*form*

Me glycoside, 4,6-O-benzylidene: Methyl 4,6-O-benzylidene-3-C-methyl α-D-allopyranoside
[22416-35-9]
$C_{15}H_{20}O_6$ 296.319
Mp 210-212°. $[\alpha]_D^{23}$ +95 (c, 0.3 in $CHCl_3$).

Me glycoside, 4,6-O-benzylidene, 2-Ac: Methyl 2-O-acetyl-4,6-O-benzylidene-3-C-methyl-α-D-allopyranoside
$C_{17}H_{22}O_7$ 338.357
Mp 95-96°. $[\alpha]_D^{23}$ +6.98 (c, 1.2 in $CHCl_3$).

Me glycoside, 4,6-O-benzylidene, di-Ac: Methyl 2,3-di-O-acetyl-4,6-O-benzylidene-3-C-methyl-α-D-allopyranoside
[42776-10-3]
$C_{19}H_{24}O_8$ 380.394
Cryst. (Et_2O/hexane). Mp 97-98°. $[\alpha]_D^{23}$ +53.5 (c, 1.03 in $CHCl_3$).

Me glycoside, 4,6-O-benzylidene, 3-Ac, 2-tosyl: Methyl 3-O-acetyl-4,6-O-benzylidene-3-C-methyl-2-O-tosyl-α-D-allopyranoside
$C_{24}H_{28}O_9S$ 492.546
Prisms (Et_2O/petrol). Mp 133-134°.

Me glycoside, 4,6-O-benzylidene, 2-tosyl: Methyl 4,6-O-benzylidene-3-C-methyl-2-O-tosyl-α-D-allopyranoside
$C_{22}H_{26}O_8S$ 450.509
Plates ($CHCl_3$/petrol). Mp 138-139°. $[\alpha]_D^{23}$ +45 (c, 2.0 in $CHCl_3$).

Me glycoside, 3-benzyl, 4,6-O-benzylidene: Methyl 3-O-benzyl-4,6-O-benzylidene-3-C-methyl-α-D-allopyranoside
$C_{22}H_{26}O_6$ 386.444
Syrup. $[\alpha]_D^{20}$ +119 (c, 1.2 in THF).

Me glycoside, 3-benzyl, 4,6-O-benzylidene, 2-tosyl: Methyl 3-O-benzyl-4,6-O-benzylidene-3-C-methyl-2-O-tosyl-α-D-allopyranoside
$C_{29}H_{32}O_8S$ 540.633
Mp 49-50°. $[\alpha]_D^{20}$ +54 (c, 0.6 in MeOH).

Me glycoside, 3-benzyl, 4,6-O-benzylidene, 2-Me: Methyl 3-O-benzyl-4,6-O-benzylidene-3-C-methyl-2-O-methyl-α-D-allopyranoside
$C_{23}H_{28}O_6$ 400.471
Needles (petrol). Mp 113-114°. $[\alpha]_D^{20}$ +108 (c, 0.7 in $CHCl_3$).

Me glycoside, 2-Me: Methyl 3-C-methyl-2-O-methyl-α-D-allopyranoside
$C_9H_{18}O_6$ 222.238
Viscous syrup. $[\alpha]_D^{20}$ +107 (c, 0.3 in $CHCl_3$).

Me glycoside, 2-Me, 6-tosyl: Methyl 3-C-methyl-2-O-methyl-6-O-tosyl-α-D-allopyranoside
$C_{16}H_{24}O_8S$ 376.427
Prisms ($CHCl_3$/petrol). Mp 116-118°. $[\alpha]_D^{20}$ +85 (c, 0.3 in $CHCl_3$).

Me glycoside, 2-Me, 4,6-ditosyl: Methyl 3-C-methyl-2-O-methyl-4,6-di-O-tosyl-α-D-allopyranoside
$C_{23}H_{30}O_{10}S_2$ 530.616
Needles ($CHCl_3$/petrol). Mp 129-130°.

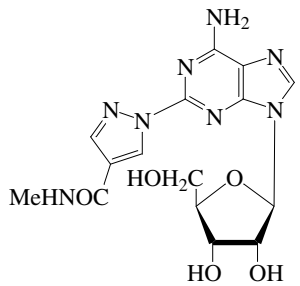
α-D-Furanose-*form*

1,2:5,6-Di-O-isopropylidene: [35784-67-9]
$C_{13}H_{22}O_6$ 274.313
Needles (Et_2O/petrol). Mp 104-105°. $[\alpha]_D^{23}$ +28 (c, 0.24 in EtOAc).

Howarth, G.B. *et al., Can. J. Chem.*, 1968, **46**, 3375; 3691 (*α-D-Me pyr benzylidene, α-D-Me pyr Me, derivs*)
Yoshimura, J. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 1515 (*α-D-Me pyr benzylidene Ac, α-D-Me pyr benzylidene di-Ac*)
Funabashi, M. *et al., Org. Prep. Proced. Int.*, 2002, **34**, 432-435 (*diisopropylidene-α-D-fur*)

2-[4-[(Methylamino)carbonyl]-1*H*-pyrazol-1-yl]adenosine, 9CI M-225

CVT 3146
[313348-27-5]

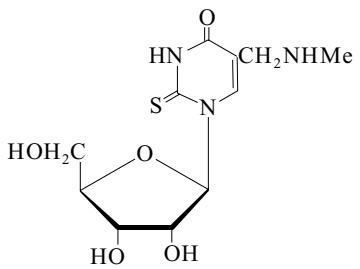


$C_{15}H_{18}N_8O_5$ 390.358
Adenosine A_{2A} receptor agonist. Characterised by pmr.

Pat. Coop. Treaty (WIPO), 2000, 00 78 779, (*CV Therapeutics*); *CA*, **134**, 56921d (*synth, pharmacol*)
Gao, Z. *et al., J. Pharmacol. Exp. Ther.*, 2001, **298**, 209-218; 2003, **307**, 182-189 (*pharmacol*)
Palle, V.P. *et al., Bioorg. Med. Chem. Lett.*, 2002, **12**, 2935-2939 (*pharmacol*)

5-(Methylaminomethyl)-2-thiouridine, 9CI, 8CI M-226

[32860-54-1]

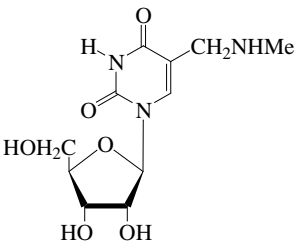


$C_{11}H_{17}N_3O_5S$ 303.338
Isol. from t-RNA of *E. coli*. Located at the first position of the anticodon of t-RNA. Possible role in translating genetic information in protein biosynthesis.
Mp 139-140°. λ_{max} 275 (ϵ 14 700), 220 (15 200) (pH 7); 273.5 (13 700), 219.5 (14 700) (pH 2); 270.5 (15 700), 241.5 nm (21 100) (pH 12).

Ikeda, K. *et al., Chem. Pharm. Bull.*, 1975, **23**, 2958 (*synth, pmr*)
Vorbrüggen, H. *et al., Angew. Chem., Int. Ed.*, 1975, **14**, 255 (*synth, pmr*)

5-(Methylaminomethyl)uridine, 9CI M-227

[72667-55-1]

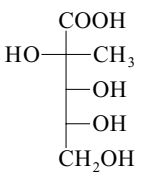


$C_{11}H_{17}N_3O_6$ 287.272
Modified nucleoside found in tRNAs.

Sierzputowska-Gracz, H. *et al., J.A.C.S.*, 1987, **109**, 7171-7177 (*pmr, conformn*)
Sekine, M. *et al., Nucleosides Nucleotides*, 1993, **12**, 305-321 (*synth*)

2-*C*-Methylarabinonic acid M-228

2-C-Methyl-arabino-*pentonic acid. β-Glucosaccharinic acid*



$C_6H_{12}O_6$ 180.157

D-*form*

1,4-Lactone: 2-C-Methyl-D-arabinono-1,4-lactone. β-D-Glucosaccharino-1,4-lactone
$C_6H_{10}O_5$ 162.142
Syrup. $[\alpha]_D$ +82.5 (c, 0.9 in H_2O) (+69).

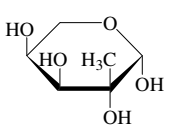
1,4-Lactone, tri-Ac: 2,3,5-Tri-O-acetyl-2-C-methyl-D-arabinono-1,4-lactone
$C_{12}H_{16}O_8$ 288.254
Syrup. $[\alpha]_D$ +64.2 (c, 1 in $CHCl_3$).

L-*form*

1,4-Lactone: 2-C-Methyl-L-arabinono-1,4-lactone. β-L-Glucosaccharino-1,4-lactone
$C_6H_{10}O_5$ 162.142
Syrup. $[\alpha]_D^{23}$ -106 (c, 0.6 in H_2O).

Feast, A.A.J. *et al., Acta Chem. Scand.*, 1965, **19**, 1127 (*synth, L-form lactone*)
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **129**, 99 (*synth, pmr, D-form derivs*)

2-*C*-Methylarabinose M-229



β-L-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [53008-88-1]
Syrup. $[\alpha]_D^{20}$ -5.9 (c, 4.4 in H_2O).

Benzylphenylhydrazone: [53008-89-2]
Cryst. (MeOH). Mp 131-132°. $[\alpha]_D^{20}$ -32.6 (c, 0.23 in $CHCl_3$).

D-Pyranose-*form*

Me glycoside: Methyl 2-C-methyl-D-arabinopyranoside
[53023-43-1]
$C_7H_{14}O_5$ 178.185
No phys. props. reported.

β-D-Pyranose-*form*

1,2:3,4-Di-O-isopropylidene: 1,2:3,4-Di-O-isopropylidene-2-C-methyl-β-D-arabinopyranose
[93635-79-1]
$C_{12}H_{20}O_5$ 244.287
Mp 66-68°. $[\alpha]_D$ +12 (c, 1.4 in $CHCl_3$).

L-*form*
Syrup. $[\alpha]_D$ -2.4 (c, 3.1 in MeOH).

β-L-Pyranose-*form*

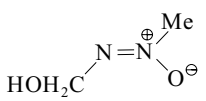
Me glycoside: Methyl 2-C-methyl-β-L-arabinopyranoside
[4135-40-4]
$C_7H_{14}O_5$ 178.185
Cryst. (EtOAc). Mp 97-98°. $[\alpha]_D^{20}$ +125 (c, 0.47 in EtOH).

Benzylglycoside, 3,4-isopropylidene: Benzyl 3,4-O-isopropylidene-2-C-methyl-β-L-arabinopyranoside
[87598-87-6]
$C_{16}H_{22}O_5$ 294.347
Liq. $Bp_{0.005}$ 100° (bath). $[\alpha]_D^{25}$ +129.1 (c, 1.2 in $CHCl_3$).

Ferrier, R.J. *et al., J.C.S.(C)*, 1968, 1091, (*L-form, synth, β-L-Me pyr*)
Novák, J.J.K. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 869 (*D-form, synth, D-Me pyr*)
Ireland, R.E. *et al., J.O.C.*, 1983, **48**, 5186, (*β-L-benzyl pyr isopropylidene*)
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **129**, 99 (*D-diisopropylidene*)

Methylazoxymethanol M-230

(Methyl-ONN-azoxy)methanol, 9CI. MAM
[590-96-5]



$C_2H_6N_2O_2$ 90.082
▶ PC2625000

(Z)-form
Toxic constit. of the nuts of *Cycas circinalis*. $Bp_{0.6}$ 51°.
▶ Exp. carcinogen and teratogen. PC2625000

Ac: [592-62-1]
$C_4H_8N_2O_3$ 132.119
Bp 191° $Bp_{0.45}$ 49°.
▶ LD_{50} (rat, orl) 270 mg/kg. Possible human carcinogen. Exp. carcinogen and teratogen. PC2800000

O-*β-D-Glucopyranoside:* ***Cycasin****. β-D-Glucosyloxyazoxymethane*
[14901-08-7]
$C_8H_{16}N_2O_7$ 252.224
Alkaloid from seeds of the false sago *Cycas circinalis* and sago cycas *Cycas revoluta* (Cycadaceae). Carcinogen of significance in human nutrition.
Mp 154° dec. (144-145° dec.). $[\alpha]_D^{18}$ -44

(c, 0.62 in H_2O). λ_{max} 218 (ϵ 7240); 275 (sh) (ϵ 50) (H_2O) (Derep).

▶ Exp. teratogen. Possible human carcinogen (IARC 2B). LZ5950000

O-*β-D-Glucopyranoside, tetra*-O-*Ac:* Mp 137°. $[\alpha]_D^{18}$ -27 (c, 1 in $CHCl_3$).

O-*[β-D-Xylopyranosyl-(1→6)-D-glucopyranoside]:* ***Macrozamin***
[6327-93-1]
$C_{13}H_{24}N_2O_{11}$ 384.339
Constit. of *Macrozamia riedlei* and *Macrozamia spiralis*. Prisms (EtOH aq.). Mp 202-203° dec. $[\alpha]_D^{23}$ -71.3 (c, 0.4 in H_2O). λ_{max} 217 (ϵ 7940); 275 (sh) (ϵ 50) (H_2O) (Derep).

O-*[β-D-Glucopyranosyl-(1→3)-β-D-glucopyranoside]:* ***Neocycasin A***
[2288-32-6]
$C_{14}H_{26}N_2O_{12}$ 414.366
Isol. from *Cycas revoluta*. Cryst. + $1H_2O$. Mp 162-163° dec. $[\alpha]_D^{29}$ -35.1. λ_{max} 217 (ϵ 7940); 275 (sh) (ϵ 50) (H_2O) (Derep).

▶ QO7500000

O-*[β-D-Glucopyranosyl-(1→4)-β-D-glucopyranoside]:* ***Neocycasin E***
$C_{14}H_{26}N_2O_{12}$ 414.366
Alkaloid from *Cycas revoluta* (Cycadaceae).
Mp 156-158° dec. $[\alpha]_D^{15}$ -29.2 (c, 0.9 in H_2O).

O-*[α-D-Glucopyranosyl-(1→6)-β-D-glucopyranoside]:* ***Neocycasin B$_\alpha$***
[97673-88-6]
$C_{14}H_{26}N_2O_{12}$ 414.366
Isol. from seeds of *Cycas revoluta*.

O-*[β-D-Glucopyranosyl-(1→6)-β-D-glucopyranoside]:* ***Neocycasin B***
[2697-20-3]
$C_{14}H_{26}N_2O_{12}$ 414.366
Isol. from *Cycas revoluta*. λ_{max} 217 (ϵ 7940); 275 (sh) (ϵ 50) (H_2O) (Derep).

O-*[β-D-Glucopyranosyl-(1→3)-β-D-glucopyranosyl-(1→3)-β-D-glucopyranosyl (1→3)-β-D-glucopyranoside]:* ***Neocycasin C***
[2288-31-5]
$C_{26}H_{46}N_2O_{22}$ 738.65
Isol. from *Cycas revoluta*.

O-*[β-D-Glucopyranosyl-(1→4)-β-D-glucopyranosyl-(1→3)-β-D-glucopyranoside]: Neocycasin H*
[102770-23-0]
$C_{20}H_{36}N_2O_{17}$ 576.508
Isol. from *Cycas revoluta*. Artifact formed from Neocycasin A by enzymic tranglycosylation.

O-*[β-D-Glucopyranosyl-(1→6)-β-D-glucopyranosyl-(1→3)-β-D-glucopyranoside]:* ***Neocycasin G***
[2288-28-0]
$C_{20}H_{36}N_2O_{17}$ 576.508
Isol. from seeds of *Cycas circinalis*.

O-*[β-D-Glucopyranosyl-(1→6)-[β-D-glucopyranosyl-(1→3)]-β-D-glucopyranoside]: Neocycasin I*
[102770-22-9]
$C_{20}H_{36}N_2O_{17}$ 576.508
Artifact of tranglycosylation by incubation of *Cycas* sp. with β-glucosidase.

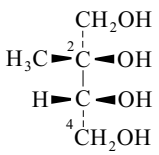
O-*[β-D-Glucopyranosyl-(1→3)-[β-D-xylopyranosyl-(1→6)]-β-D-glucopyranoside]:* ***Neocycasin J***
[102770-21-8]
$C_{19}H_{34}N_2O_{16}$ 546.481
Isol. from leaves of *Cycas revoluta*.

[106251-55-2]

Riggs, N.V. *et al., Chem. Ind. (London)*, 1956, 926 (*isol, uv, struct*)
Nagahama, T. *et al., Agric. Biol. Chem.*, 1961, **25**, 937 (*Neocycasin E*)
Korsch, B.H. *et al., Tet. Lett.*, 1964, 523 (*pmr, struct*)
Kobayashi, A. *et al., Arch. Biochem. Biophys.*, 1965, **110**, 373 (*isol*)
Palekar, R.S. *et al., Nature (London)*, 1965, **206**, 1363
IARC Monog., 1976, **10**, 131; *Suppl.*, **7**, 66 (*tox, rev, Ac*)
Baldwin, J.E. *et al., J.O.C.*, 1978, **43**, 2427 (*synth*)
Cannon, J.R. *et al., Aust. J. Chem.*, 1980, **33**, 2229 (*Macrozamin*)
Moretti, A. *et al., Phytochemistry*, 1981, **20**, 1415 (*occur*)
Yagi, F. *et al., Agric. Biol. Chem.*, 1983, **47**, 137; 1985, **49**, 1531; 2985 (*Neocycasins*)
Matsumoto, H. *et al., CRC Handb. Nat. Occurring Food Toxicants*, 1983, 39 (*rev*)
Zedeck, M.S. *et al., ACS Monogr.*, No. 182, 1984, (*rev*)
Hoffmann, G.R. *et al., Environ. Mutagen.*, 1984, **6**, 103 (*rev*)
Tate, M.E. *et al., Aust. J. Chem.*, 1995, **48**, 1059 (*cryst struct*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, COU000; HMG000; MGS750

2-Methyl-1,2,3,4-butanetetrol, 9CI M-231

[42933-13-1]



(2*S*,3*R*)–*form*

$C_5H_{12}O_4$ 136.147

The methylerythritol/methylthreitol nomenclature is confusing.

(2S,3R)-form

2-C-*Methyl-D-erythritol*
[58698-37-6]
Constit. of *Convolvulus glomeratus*, *Liriodendron tulipifera* and *Ferula sinaica*. Putative isoprenoid precursor in mevalonate-independent pathway.
Mp 82-83°. $[\alpha]_D$ +21.4 (c, 7.0 in H_2O).

4-Phosphate: [206440-72-4]
$C_5H_{13}O_7P$ 216.127
The first pathway-specific intermediate in the methylerythritol phosphate route for biosynth. of isoprenoid compds. in bacteria, algae and plant chloroplasts.
$[\alpha]_D^{21}$ +6.4 (c, 1.0 in H_2O).

2,4-Cyclic pyrophosphate: 2,4,7-Trihydroxy-6-methyl-1,3,5,2,4-trioxadiphosphocane-6-methanol 2,4-dioxide
[151435-51-7]
$C_5H_{12}O_9P_2$ 278.092
Isol. from *Brevibacterium ammoniagenes*. Oxidative stress metab. of various nocardioform bacteria incl. *Corynebacterium* and *Micrococcus* spp. Oxidative stress agent.

1-O-*β-D-Glucopyranoside:* [522653-86-7]
$C_{11}H_{22}O_9$ 298.289
Constit. of anise (*Pimpinella anisum*), coriander (*Coriandrum sativum*) and cumin (*Cuminum cyminum*). Syrup. $[\alpha]_D^{21}$ -15 (c, 1.2 in MeOH).

1-O-*[4-Hydroxybenzoyl-(→6)-β-D-glucopyranoside]:* [522653-92-5]
$C_{18}H_{26}O_{11}$ 418.397
Constit. of anise (*Pimpinella anisum*). Amorph. powder. $[\alpha]_D^{22}$ -12 (c, 1.6 in MeOH).

1-O-*[4-Methoxybenzoyl-(→6)-β-D-glucopyranoside]:* [522653-93-6]
$C_{19}H_{28}O_{11}$ 432.424
Constit. of anise (*Pimpinella anisum*). Amorph. powder. $[\alpha]_D^{22}$ -13 (c, 0.3 in MeOH).

3-O-*β-D-Glucopyranoside:* [522653-87-8]
$C_{11}H_{22}O_9$ 298.289
Constit. of anise (*Pimpinella anisum*) and cumin (*Cuminum cyminum*). Syrup. $[\alpha]_D^{21}$ -13 (c, 1.6 in MeOH).

4-O-*β-D-Glucopyranoside:* [522653-88-9]
$C_{11}H_{22}O_9$ 298.289
Constit. of anise (*Pimpinella anisum*), coriander (*Coriandrum sativum*) and cumin (*Cuminum cyminum*). Syrup. $[\alpha]_D^{21}$ -8 (c, 0.9 in MeOH).

1-O-*β-D-Fructofuranoside:* [522653-89-0]
$C_{11}H_{22}O_9$ 298.289
Constit. of anise (*Pimpinella anisum*). Syrup. $[\alpha]_D^{22}$ -28 (c, 1.4 in MeOH).

3-O-*β-D-Fructofuranoside:* [522653-90-3]
$C_{11}H_{22}O_9$ 298.289
Constit. of anise (*Pimpinella anisum*). Syrup. $[\alpha]_D^{22}$ -15 (c, 0.7 in MeOH).

4-O-*β-D-Fructofuranoside:* [522653-91-4]
$C_{11}H_{22}O_9$ 298.289
Constit. of anise (*Pimpinella anisum*). Syrup. $[\alpha]_D^{22}$ -19 (c, 1.2 in MeOH).

1,3,4-Tri-Ac: 1,3,4-Tri-O-*acetyl-2*-C-*methyl-D-erythritol*
[77594-07-1]
$C_{11}H_{18}O_7$ 262.259
$[\alpha]_D^{20}$ +18.1 (c, 18.4 in $CHCl_3$).

(2R,3S)-form *3*-C-*Methyl-D-erythritol*
[93921-83-6]
Syrup.

Tetra-O-*benzoyl: 1,2,3,4-Tetra*-O-*benzoyl-3*-C-*methyl-D-erythritol*
[93841-85-1]
$C_{33}H_{28}O_8$ 552.579
Cryst. (MeOH). Mp 81-83°.

(2S,3S)-form *3*-C-*Methyl-L-threitol*
[93921-84-7]
Syrup. $[\alpha]_D^{20}$ -7 (c, 2.0 in MeOH).

Tetra-O-*benzoyl: 1,2,3,4-Tetra*-O-*benzoyl-3*-C-*methyl-L-threitol*
[93836-33-0]
Cryst. Mp 90-92°. $[\alpha]_D^{20}$ -11.2 (c, 2 in $CHCl_3$).

(2*R,3*R**)-*form***

4-O-*[3,4-Dihydroxy*-E-*cinnamoyl-(→6)-β-*D*-glucopyranoside]:* [167638-48-4]
$C_{20}H_{28}O_{12}$ 460.434
Constit. of the leaves of *Lonicera gracilipes* var. *glandulosa*. Amorph. powder. $[\alpha]_D^{31}$ -8 (c, 0.3 in MeOH). Rel. config. only is known.

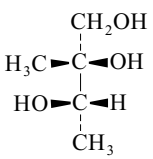
(2*RS*,3*RS*)-*form* *2*-C-*Methyl-*DL*-threitol*
[77646-71-0]
Oil.

[58698-38-7, 58698-39-8]

Anthonsen, T. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 91-93; 1980, **34**, 41-45 (*2S,3R-form, isol, pmr, ms, synth*)
Shah, S.W. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 903 (*abs config*)
Anthonsen, T. *et al., Phytochemistry*, 1980, **19**, 2375-2377 (*synth, pmr, cmr*)
Witczak, Z.J. *et al., Carbohydr. Res.*, 1984, **133**, 235-245 (*synth*)
Dittrich, P. *et al., Phytochemistry*, 1988, **27**, 935 (*2-C-Methyl-*D*-erythritol, isol, pmr*)
Ostrovsky, D. *et al., Biochem. J.*, 1993, **295**, 901-902 (*cyclopyrophosphate*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1993, **41**, 1667-1669 (*isol*)
Shchipanova, I.N. *et al., Dokl. Akad. Nauk USSR*, 1993, **333**, 666-670 (*2-C-Methyl-*D*-erythritol, synth*)
Matsuda, N. *et al., Chem. Pharm. Bull.*, 1995, **43**, 1049-1051 (*4-caffeoylglucoside*)
Ahmed, A.A. *et al., J. Nat. Prod.*, 1996, **59**, 1171-1173 (*isol, pmr, cmr*)
Duvold, T. *et al., Tet. Lett.*, 1997, **38**, 6181-6184 (*biosynth*)
Sagner, S. *et al., Tet. Lett.*, 1998, **39**, 2091-2094 (*biosynth*)
Kuzuyama, T. *et al., Tet. Lett.*, 1998, **39**, 4509-4512 (*2S,3R-form, 4-phosphate, synth, pmr, cmr*)
Sakamoto, I. *et al., Biosci., Biotechnol., Biochem.*, 2000, **64**, 1915-1922 (*synth*)
Kis, K. *et al., J.O.C.*, 2000, **65**, 587-592 (*synth, pmr, cmr*)
Koppisch, A.T. *et al., Org. Lett.*, 2000, **2**, 215-217 (*2S,3R-form, 4-phosphate, synth*)
Fontana, A. *et al., Tet. Lett.*, 2000, **41**, 7559-7562 (*synth*)
Hecht, S. *et al., J.O.C.*, 2001, **66**, 7770-7775 (*synth, bibl*)
Giner, J.-L. *et al., J.O.C.*, 2002, **67**, 4856-4859 (*synth*)
Seemann, M. *et al., Tet. Lett.*, 2002, **43**, 775-778 (*biosynth*)
Kitajima, J. *et al., Phytochemistry*, 2003, **62**, 115-120 (*glycosides*)

2-Methyl-1,2,3-butanetriol, 8CI M-232

[29602-51-5]



(2*S*,3*S*)–*form*

$C_5H_{12}O_3$ 120.148

(2*S*,3*S*)-*form*
(+)-threo-*form*
Bp_{10} 138°. $[\alpha]_D^{26}$ +8.9 (neat). n_D^{25} 1.4693.
Tris(4-methylbenzenesulfonyl): Mp 83°. $[\alpha]_D^{23}$ -4.5 (c, 5 in $CHCl_3$).

(±)-*form*
Bp_{16} 144-146°. Mixt. of stereoisomers.
Tri-Ac:
$C_{11}H_{18}O_6$ 246.26
Bp_{15} 138-140°.

Colonge, J. *et al., Bull. Soc. Chim. Fr.*, 1947, 838 (*synth*)
Christensen, B.W. *et al., Proc. Chem. Soc., London*, 1962, 307 (*synth, abs config*)

3-Methyl-3-butenyl glucosinolate M-233

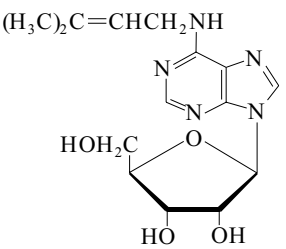
$H_2C{=}C(CH_3)CH_2CH_2C(SGlc){=}NOSO_3H$
$C_{12}H_{21}NO_9S_2$ 387.431
Isol. from *Capparis linearis*.

Tetra-Ac:
Cryst. + ½ H_2O (EtOH/Et_2O) (as tetramethylammonium salt). Mp 168-171° dec. (tetramethylammonium salt). $[\alpha]_D^{24}$ -22 (c, 0.3 in H_2O).

Kjaer, A. *et al., Acta Chem. Scand.*, 1965, **19**, 1989 (*isol*)

N-(3-Methyl-2-butenyl)adenosine, 9CI, 8CI M-234

6-N-*(γ,γ-Dimethylallyl)adenosine.* ***Ribopurine, INN, USAN.*** *NSC 105546.*
N^6-*Isopentenyladenosine*
[7724-76-7]



$C_{15}H_{21}N_5O_4$ 335.362
Constit. of yeast soluble ribonucleic acid (s-RNA). Exhibits cytokinin activity. Antineoplastic agent. Never marketed. Fine needles (MeCN/EtOH). Sol. H_2O. Mp 145-147°. $[\alpha]_{Hg}^{25}$ -97 (c, 0.7 in EtOH). Log P -0.55 (calc). λ_{max} 265 (ε 20 400) (pH 1), 269 nm (20 000) (pH 7-12). λ_{max} 268 (EtOH) (Berdy). λ_{max} 273 (EtOH-HCl) (Berdy). λ_{max} 275 (EtOH-NaOH) (Berdy).

▶ AU7404910

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 220B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 718B (*ir*)
Hall, R.H. *et al., J.A.C.S.*, 1966, **88**, 2614 (*isol, pmr*)
Folke, S. *et al., Phytochemistry*, 1967, **6**, 1169
Wilson, M.S. *et al., Biochim. Biophys. Acta*, 1971, **240**, 623 (*ms*)
Chheda, G.B. *et al., Biochem. Pharmacol.*, 1972, **21**, 27 (*metab*)
Fleysher, M.H. *et al., J. Med. Chem.*, 1972, **15**, 187 (*pharmacol*)
Robins, M.J. *et al., Biochemistry*, 1973, **12**, 2179 (*synth, ms, bibl*)
Chong-Maw, C. *et al., Biochemistry*, 1975, **14**, 3088 (*biosynth*)

2-Methylbutyl glucosinolate M-235

*1-Thio-β-*D*-glucopyranose 1-[3-methyl*-N-*(sulfooxy)pentanimidate], 9CI.* ***Glucojiaputin***
[119626-63-0]
$H_3CCH_2CH(CH_3)CH_2C(SGlc){=}NOSO_3H$
$C_{12}H_{23}NO_9S_2$ 389.447
Isol. from *Putranjiva roxburghii*, *Dentaria pinnata* and *Stanleya pinnata*.

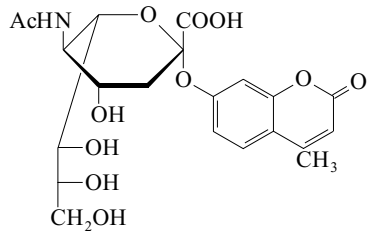
Kjaer, A. *et al., Acta Chem. Scand.*, 1962, **16**, 936; 1963, **17**, 2562 (*isol*)
Bertelsen, F. *et al., Phytochemistry*, 1988, **27**, 3743 (*isol*)

3-Methylbutyl glucosinolate M-236

*1-Thio-β-*D*-glucopyranoside 1-[4-methyl*-N-*(sulfooxy)pentanimidate], 9CI*
[76265-22-0]
$(H_3C)_2CHCH_2CH_2C(SGlc){=}NOSO_3H$
$C_{12}H_{23}NO_9S_2$ 389.447
Present in horseradish (*Armoracia lapathifolia*).

Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)

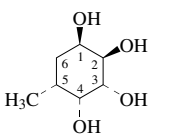
4-Methylcoumarin-7-yl 5-acetamido-3,5-dideoxy-D-*glycero*-α-D-*galacto*-2-nonulopyranosidonic acid M-237



$C_{21}H_{25}NO_{11}$ 467.429
Fluorogenic substrate for neuraminidase. Buff powder + 4H_2O. Mp 171° (162°) dec. $[\alpha]_D$ +70 (c, 0.8 in H_2O).

Baggett, N. *et al., Carbohydr. Res.*, 1982, **110**, 11 (***synth****, struct, pmr, cmr, bibl*)

5-Methyl-1,2,3,4-cyclohexanetetrol M-238



(1*R*,2*R*,3*R*,4*R*,5*R*)-*form*

$C_7H_{14}O_4$ 162.185

(1*R*,2*R*,3*R*,4*R*,5*R*)-*form*
*3,4-Dideoxy-3-methyl-*D*-*allo*-inositol, 9CI. 5*a*-Carba-α-*L*-fucopyranose. Pseudo-α-*L*-fucopyranose*
[141436-56-8]
Cryst. (EtOH). Mp 115-117°. $[\alpha]_D^{20}$ -58 (c, 1 in MeOH).
*Me glycoside: Methyl pseudo-α-*L*-fucopyranoside. Methyl 5*a*-carba-α-*L*-fucopyranoside. 3,4-Dideoxy-3-methyl-5-*O*-methyl-*D*-allo-inositol, 9CI*
[399511-21-8]

$C_8H_{16}O_4$ 176.212
Mp 101-103°. $[\alpha]_D$ -39.5 (c, 0.2 in $CHCl_3$).

(1*R*,2*R*,3*R*,4*R*,5*S*)-*form* *3,4-Dideoxy-4-methyl-D-*allo-*inositol, 9CI. 6-Deoxy-*5a-*carba-β-D-altropyranose. Pseudo-6-deoxy-β-D-altropyranose*
[141436-57-9]
Solid (EtOAc). Mp 178° (170-172°). $[\alpha]_D^{24}$ +45 (c, 0.24 in EtOH).

(1*S*,2*S*,3*S*,4*S*,5*R*)-*form* *1,2-Dideoxy-1-methyl-D-*allo-*inositol, 9CI. Pseudo-6-deoxy-β-L-altropyranose*
[200728-85-4]
Cryst. $[\alpha]_D^{24}$ -53.4 (c, 1 in MeOH).

(1*RS*,2*RS*,3*RS*,4*RS*,5*RS*)-*form* *1,2-Dideoxy-2-methyl-DL-*allo-*inositol, 9CI. Pseudo-α-DL-fucopyranose*
[112314-16-6]
Solid (EtOH). Mp 153-155°.
Tetra-Ac: [112347-16-7]
$C_{15}H_{22}O_8$ 330.334
Prisms (EtOH). Mp 134-135°.

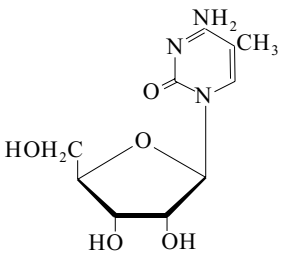
(1*RS*,2*RS*,3*RS*,4*SR*,5*RS*)-*form* *1,2-Dideoxy-2-methyl-DL-*chiro-*inositol, 9CI*
Tetra-Ac: [80124-73-8]
Plates (EtOH). Mp 137-138°.

(1*RS*,2*SR*,3*SR*,4*RS*,5*SR*)-*form* *1,2-Dideoxy-1-methyl-DL-*myo-*inositol, 9CI*
Tetra-Ac: [80124-77-2]
Prisms (EtOH). Mp 110-111°.

Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 2739-2746 (*tetra-Ac*)
Ogawa, S. *et al., Carbohydr. Res.*, 1987, **163**, 53-62 (*pseudo-α-DL-fucopyranose*)
Redlich, H. *et al., Carbohydr. Res.*, 1992, **226**, 57-58 (*pseudo-α-L-fucopyranose, pseudo-6-deoxy-β-D-altropyranose*)
Carless, H.A.J. *et al., Chem. Comm.*, 1995, 2447-2448 (*pseudo-α-L-fucopyranose*)
Tran, C.H. *et al., Tetrahedron: Asymmetry*, 1996, **7**, 2403-2406 (*pseudo-α-L-fucopyranose, pseudo-6-deoxy-β-D-altropyranose*)
Angelaud, R. *et al., Tet. Lett.*, 1997, **38**, 8841-8844 (*pseudo-6-deoxy-β-L-altropyranose*)
Carpintero, M. *et al., Eur. J. Org. Chem.*, 2000, 1285-1296; 2001, 4127-4135 (*pseudo-α-L-fucopyranose, Me glycoside*)
Ogawa, S. *et al., Eur. J. Org. Chem.*, 2001, 967-974 (*pseudo-α-L-fucopyranose*)

5-Methylcytidine, 9CI, 8CI M-239

[2140-61-6]

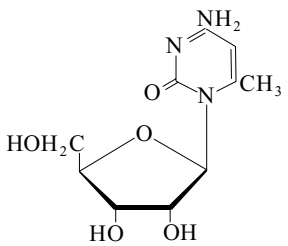


$C_{10}H_{15}N_3O_5$ 257.246
Metab. of *Brevibacterium ammoniagenes* and from *Azotobacter aerogenes*. Prod. of hydrol. of wheat RNA.
Mp 238-240° (210-211°). $[\alpha]_D^{23}$ -3 (1*M* NaOH). pK_{a1} 4.21; pK_{a2} 13. λ_{max} 278 (ε 8700) (H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 387B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 831B (*ir*)
Roberts, M. *et al., J.A.C.S.*, 1952, **74**, 669 (*synth*)
Fox, J.J. *et al., J.A.C.S.*, 1959, **81**, 178 (*synth*)
Dunn, D.B. *et al., Biochim. Biophys. Acta*, 1960, **38**, 176 (*isol*)
Ger. Pat., 1971, 2 209 078, (*Kyowa Fermentation*); *CA*, **78**, 27908z (*isol*)
Schweizer, M.P. *et al., J.A.C.S.*, 1971, **93**, 277; 1973, **95**, 3770 (*conformn, pmr, cmr*)
Golankiewicz, K. *et al., Nucleic Acids Res.*, 1976, **3**, 709
Padmaja, N. *et al., Acta Cryst. C*, 1991, **47**, 1445 (*cryst struct*)

6-Methylcytidine M-240

[16710-12-6]



$C_{10}H_{15}N_3O_5$ 257.246
Cryst. (H_2O/EtOH/2-propanol). Mp 230-232° dec. (236-238° dec.). $[\alpha]_D^{30}$ -41.5 (c, 1.6 in H_2O). λ_{max} 278 (ε 14 700) (pH 1), 274 (9 500) (pH 4), 271 (9 300) (pH 11), 273 nm (9 900) (pH 14).

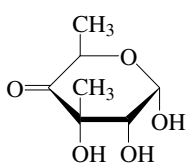
2′,3′,5′-Tribenzoyl: [23316-79-2]
$C_{31}H_{27}N_3O_8$ 569.57
Mp 190-192°.

5-Me: 5,6-Dimethylcytidine, 8CI
[23312-45-0]
$C_{11}H_{17}N_3O_5$ 271.272
Mp 232-234°. λ_{max} 281 (ε 9 120), 232 (8 913), 216 nm (11 220) (pH 7).

5-Me, 2′,3′,5′-Tribenzoyl: [23312-61-0]
$C_{32}H_{29}N_3O_8$ 583.596
Mp 208-211°.

Winkley, M.W. *et al., J.O.C.*, 1968, **33**, 2822 (*synth*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 331; 2316 (*synth, 5-Me deriv, 5-Me tribenzoyl*)
Schweizer, M.P. *et al., J.A.C.S.*, 1973, **95**, 3770 (*pmr, cmr*)

3-*C*-Methyl-6-deoxy-*ribo*-hexopyranos-4-ulose M-241



α-D-*form*

$C_7H_{12}O_5$ 176.169

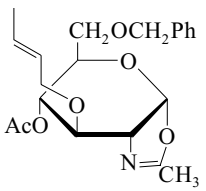
α-D-*form*

Me glycoside:
$C_8H_{14}O_5$ 190.196
Cryst. ($CHCl_3$/hexane). Mp 97-99°. $[\alpha]_D$ +239 (c, 1 in $CHCl_3$).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1983, **112**, 320

2-Methyl-4,5-dihydro-4-*O*-acetyl-6-*O*-benzyl-3-*O*-(2-butenyl)-1,2-dideoxyglucopyranoso[2,1-*d*]-1,3-oxazole M-242

*4-*O*-Acetyl-2-amino-6-*O*-benzyl-3-*O*-(2-butenyl)-2-deoxy-1-*O*,2-*N*-(methylmethylidene)glucopyranose*

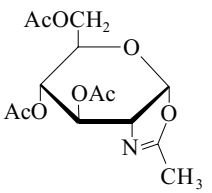


$C_{21}H_{27}NO_6$ 389.447
Glycosylating agent used in synth. of oligosaccharides. Syrup. $[\alpha]_D^{27}$ +11.9 (c, 2 in $CHCl_3$).

Durette, P.L. *et al., Carbohydr. Res.*, 1981, **89**, 279 (*synth, pmr, use*)

2-Methyl-4,5-dihydro(3,4,6-tri-*O*-acetyl-1,2-dideoxyglucopyranoso)[2,1-*d*]-1,3-oxazole M-243

*3,4,6-Tri-*O*-acetyl-2-amino-2-deoxy-1-*O*,2-*N*-[6-methylmethylidene]glucopyranose*



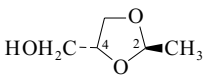
$C_{14}H_{19}NO_8$ 329.306

α-D-*form* [35954-65-5]
$[\alpha]_D^{27}$ +16.3 (c, 1.6 in $CHCl_3$). $[\alpha]_D$ +10 (c, 1.0 in $CHCl_3$).

Khorlin, A.Y. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1968, **227**, 2094 (*synth*)
Vul'fson, N.S. *et al., Carbohydr. Res.*, 1969, **10**, 351 (*ms*)
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4063 (*synth*)
Warren, C.D. *et al., Carbohydr. Res.*, 1977, **53**, 67
Matta, K.L. *et al., Carbohydr. Res.*, 1977, **53**, 209
Auge, C. *et al., Chem. Comm.*, 1977, 449 (*synth*)
Srivastava, V.K. *et al., Carbohydr. Res.*, 1982, **103**, 286 (*synth, pmr*)
Foces-Foces, L. *et al., Carbohydr. Res.*, 1984, **135**, 1 (*conformn*)

2-Methyl-1,3-dioxolane-4-methanol, 9CI, 8CI M-244

5-Hydroxymethyl-2-methyl-1,3-dioxolane. 1,2-O-Ethylideneglycerol
[3773-93-1]



(2*RS*,4*RS*)-*form*

$C_5H_{10}O_3$ 118.132
Constit. of part port and sherry wine, increases with aging. Liq. Bp_{22} 94-95°. Mixt. of stereoisomers.

Benzoyl:
$C_{12}H_{14}O_4$ 222.24
Liq. Bp_2 144-145°.

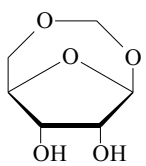
Me ether: 4-(Methoxymethyl)-2-methyl-1,3-dioxolane, 8CI
$C_6H_{12}O_3$ 132.159
Liq. Bp_{23} 56-58°.

(2*RS*,4*RS*)-*form* (±)-trans-*form*
[25687-52-9]
Liq. Bp_{11} 83-83.5°.

(2*RS*,4*SR*)-*form* (±)-cis-*form*
[25687-56-3]
Liq. Bp_{14} 80.5°.

Maglio, M.M. *et al., J. Chem. Educ.*, 1946, **23**, 174 (*synth*)
Gelas, J. *et al., Bull. Soc. Chim. Fr.*, 1970, 2341; 4041 (*synth, isom, ir, pmr*)
Borremans, F. *et al., Org. Magn. Reson.*, 1973, **5**, 299 (*pmr*)
Heyns, K. *et al., Chem. Ber.*, 1976, **109**, 3707 (*synth, pmr*)
Muller, C.J. *et al., Am. J. Enol. Vitic.*, 1978, **29**, 207 (*isol, ms*)
Williams, P.J. *et al., J. Inst. Brewing*, 1978, **84**, 144 (*isol*)
Frydenvang, K. *et al., Acta Cryst. C*, 1992, **48**, 1341 (*cryst struct, tosyl*)
Da Silva Ferreira, A.C. *et al., J. Agric. Food Chem.*, 2002, **50**, 2560-2564 (*isol*)

1,5-*O*-Methyleneribofuranose M-245



$C_6H_{10}O_5$ 162.142

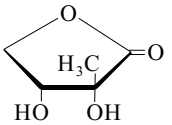
β-D-*form*
Mp 125-128°. $[\alpha]_D^{20}$ -13 (c, 1 in MeOH).

2,3-Isopropylidene: 2,3-O-Isopropylidene-1,5-O-methylene-β-D-ribofuranose
$C_9H_{14}O_5$ 202.207
Readily obt. by treating ribose with $Me_2CO/HCHO/H_2SO_4$. Cryst. (hexane). Mp 114-116°. $[\alpha]_D^{20}$ -17 (c, 2 in $CHCl_3$).

Morgenlie, S. *et al., Carbohydr. Res.*, 1988, **173**, 303 (*synth, pmr, cmr*)

2-*C*-Methyl-1,4-erythronolactone M-246

3,4-Dihydroxy-3-methyldihydro-2(3H)-furanone, 9CI



$C_5H_8O_4$ 132.116

D-*form* [18465-71-9]
Constit. of *Astragalus lusitanicus*, *Orixa japonica*, *Trifolium incarnatum* (crimson clover) and *Phaseolus vulgaris* (kidney bean).
$[\alpha]_D$ -58.6 ($CHCl_3$).

2,3-Di-Ac: 2,3-Di-O-acetyl-2-C-methyl-D-1,4-erythronolactone
[74831-17-7]
$C_9H_{12}O_6$ 216.19
Mp 87-88°. $[\alpha]_D$ -9 (c, 0.9 in $CHCl_3$).

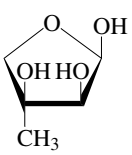
3-O-(3,4-Dihydroxycinnamoyl): 3-O-Caffeoyl-2-C-methyl-D-1,4-erythronolactone
[144881-15-2]
$C_{14}H_{14}O_7$ 294.26
Constit. of the leaves of *Bidens pilosa*. Pale yellow solid. $[\alpha]_D^{25}$ -93.3 (c, 0.8 in MeOH).

2,3-O-Isopropylidene: 2,3-O-Isopropylidene-2-C-methyl-D-1,4-erythronolactone
$C_8H_{12}O_4$ 172.18
Mp 40-41°. $[\alpha]_D$ -99 (c, 0.85 in $CHCl_3$).

2-Benzyl: 2-O-Benzyl-2-C-methyl-D-1,4-erythronolactone
$C_{12}H_{14}O_4$ 222.24
$[\alpha]_D^{22}$ -21.8 (c, 1.2 in $CHCl_3$).

Ishizu, A. *et al., Acta Chem. Scand.*, 1967, **21**, 424 (*isopropylidene*)
De Pascual Teresa, J. *et al., Tet. Lett.*, 1980, 1359 (*isol, di-Ac, isopropylidene*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **101**, 343 (*di-Ac, benzyl*)
Ono, H. *et al., Biosci., Biotechnol., Biochem.*, 2000, **64**, 1970-1973 (*isol, pmr, cmr*)

3-*C*-Methylerythrose M-247



α-L-Furanose-*form*

$C_4H_{10}O_4$ 122.121

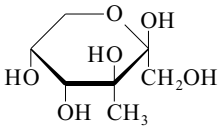
L-Furanose-*form*

2,3-Isopropylidene: 2,3-O-Isopropylidene-3-C-methyl-α-L-erythrofuranose
[130377-88-7]
$C_8H_{14}O_4$ 174.196
Syrup. $[\alpha]_D^{20}$ +59 (c, 2.7 in $CHCl_3$). Exists as cyclic hemiacetal.

[130548-07-1]

Ando, K. *et al., Heterocycles*, 1989, **29**, 1023 (*synth*)
Deguin, B. *et al., J.O.C.*, 1991, **56**, 405 (*synth, pmr*)

3-*C*-Methylfructose M-248



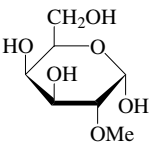
$C_7H_{14}O_6$ 194.184

β-D-Pyranose-*form*

1,2:4,5-Diisopropylidene: 1,2:4,5-Di-O-isopropylidene-3-C-methyl-β-D-fructopyranose
$C_{13}H_{22}O_6$ 274.313
Cryst. (hexane). Mp 84-86°. $[\alpha]_D^{25}$ -95 (c, 1.05 in $CHCl_3$).

Cubero, I.Z. *et al., Carbohydr. Res.*, 1981, **89**, 65 (*synth, pmr, cmr*)

2-*O*-Methylgalactose, 9CI M-249



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [4060-33-7]
Prisms (EtOH). Mp 148-150°. $[\alpha]_D^{20}$ +54.5 → +82.9 (c, 1.2 in H_2O).

α-D-Pyranose-*form* [31505-23-4]

1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-acetyl-2-O-methyl-α-D-galactopyranose
[14199-57-6]
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (EtOH). Mp 101-102°. $[\alpha]_D^{20}$ +98 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 2-O-methyl-α-D-galactopyranoside
[28542-06-5]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D^{25}$ +180 (c, 1 in MeOH).

Me glycoside, 4,6-O-benzylidene: Methyl 4,6-O-benzylidene-2-O-methyl-α-D-galactopyranoside
[28542-07-6]
$C_{15}H_{20}O_6$ 296.319
Cryst. (EtOH). Mp 152°. $[\alpha]_D^{25}$ +165.2 (c, 1.6 in MeOH).

Me glycoside, 4,6-O-benzylidene, 3-tosyl: Methyl 4,6-O-benzylidene-2-O-methyl-3-O-tosyl-α-D-galactopyranoside
$C_{22}H_{26}O_8S$ 450.509
Needles (MeOH). Mp 145°. $[\alpha]_D$ +158.4.

Me glycoside, 3,4-O-isopropylidene: Methyl 3,4-O-isopropylidene-2-O-methyl-α-D-galactopyranoside
$C_{11}H_{20}O_6$ 248.275
Prisms (petrol). Mp 77-78°. $[\alpha]_D$ +157.4.

β-D-Pyranose-*form* [14199-60-1]

Me glycoside: Methyl 2-O-methyl-β-D-galactopyranoside
$C_8H_{16}O_6$ 208.211
Needles (EtOAc). Mp 131-132°. $[\alpha]_D^{17}$ +1.7 (c, 11.25 in H_2O).

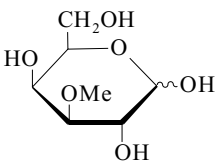
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-2-*O*-methyl-β-D-galactopyranoside*
[35780-85-9]
$C_{15}H_{20}O_6$ 296.319
Cryst. (EtOH). Mp 160°. $[\alpha]_D$ -32.8.

*Me glycoside, 4,6-*O*-benzylidene, 3-tosyl: Methyl 4,6-*O*-benzylidene-2-*O*-methyl-3-O-tosyl-β-D-galactopyranoside*
$C_{22}H_{26}O_8S$ 450.509
Needles (MeOH). Mp 126°. $[\alpha]_D$ +38.4.

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 3,4-*O*-isopropylidene-2-*O*-methyl-β-D-galactopyranoside*
$C_{11}H_{20}O_6$ 248.275
Prisms (Et_2O/petrol). Mp 75-76°. $[\alpha]_D^{17}$ +7.16 (c, 4.0 in $CHCl_3$).

Oldham, J.W. *et al., J.A.C.S.*, 1938, **60**, 323 (*synth, β-D-Me pyr, β-D-Me pyr isopropylidene*)
Bell, D.J. *et al., J.C.S.*, 1938, 1196 (*α-D-Me pyr, α-D-Me pyr benzylidene tosyl, α-D-Me pyr isopropylidene,β-D-Me pyr acetals*)
McCreath, D. *et al., J.C.S.*, 1939, 387 (*synth*)
Mastronardi, I.O. *et al., Carbohydr. Res.*, 1966, **3**, 177 (*synth, α-D-tetra-Ac*)
Singh, P.P. *et al., Carbohydr. Res.*, 1970, **13**, 229 (*α-D-Me pyr, α-D-Me pyr benzylidene*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1971, **20**, 357 (*pmr*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)
McArdle, P. *et al., Carbohydr. Res.*, 1993, **241**, 261 (*cryst struct, Me gly 4,6-benzylidene*)

3-*O*-Methylgalactose, 9CI, 8CI M-250



$C_7H_{14}O_6$ 194.184

D-*form* [4682-46-6]
Component of polysaccharides of *Ulmus fulva* and *Ulmus glabra*.
Mp 144-146°. $[\alpha]_D^{24}$ +168 → +113.2 (c, 1.2 in H_2O).

Di-Et dithioacetal: [15354-65-1]
$C_{11}H_{24}O_5S_2$ 300.44
Cryst. (C_6H_6). Mp 107-108°. $[\alpha]_D$ +6 (c, 1 in MeOH).

Di-Et dithioacetal, 2,4,5,6-tetra-Ac:
[15354-66-2]
$C_{19}H_{32}O_9S_2$ 468.588
Cryst. (MeOH aq.). Mp 77.5-78.5°. $[\alpha]_D$ +9.2 (c, 2.7 in $CHCl_3$).

α-D-Pyranose-*form* [24807-95-2]
*Me glycoside: Methyl 3-*O*-methyl-α-D-galactopyranoside*
[34698-06-1]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D^{25}$ +163.5 (c, 1.8 in $CHCl_3$).

*Me glycoside, 2,4,6-tri-Ac: Methyl 2,4,6-tri-*O*-acetyl 3-*O*-methyl-α-D-galactopyranoside*
[55697-58-0]
$C_{14}H_{22}O_9$ 334.322
Syrup. $[\alpha]_D^{24}$ +136.4 (c, 1.7 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-α-D-galactopyranoside*
$C_{15}H_{20}O_6$ 296.319
Mp 174-175°. $[\alpha]_D^{13}$ +188.6 (c, 0.9 in $CHCl_3$).

β-D-Pyranose-*form* [31505-24-5]
*Me glycoside: Methyl 3-*O*-methyl-β-D-galactopyranoside*
[34698-07-2]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D^{17}$ +31.9 (c, 5 in H_2O).

*Me glycoside, 4,6-dibenzoyl, 2-mesyl: Methyl 4,6-di-*O*-benzoyl-2-*O*-mesyl-3-O-methyl-β-D-galactopyranoside*
[54307-89-0]
$C_{23}H_{26}O_{10}S$ 494.518
Cryst. (Me_2CO/diisopropyl ether). Mp 152-152.5°. $[\alpha]_D^{27}$ -24 (c, 1.3 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-β-D-galactopyranoside*
$C_{15}H_{20}O_6$ 296.319
Mp 210°. $[\alpha]_D^{15}$ +33 (c, 1.03 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, 2-mesyl: Methyl 4,6-*O*-benzylidene-2-*O*-mesyl-3-O-methyl-β-D-galactopyranoside*
[51385-25-2]
$C_{16}H_{22}O_8S$ 374.411
Mp 182-184°. $[\alpha]_D$ +30.2 (c, 1.3 in $CHCl_3$).

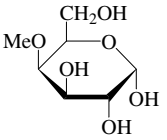
α-D-Furanose-*form*
*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylidenegalactofuranose, I-64

β-D-Furanose-*form*
*Me glycoside: Methyl 3-*O*-methyl-β-D-galactofuranoside*
[18465-68-4]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D^{28}$ -142.8 (c, 1.2 in MeOH).

*Me glycoside, 6-trityl: Methyl 3-*O*-methyl-6-O-trityl-β-D-galactofuranoside*
[18465-62-8]
$C_{27}H_{30}O_6$ 450.53
Cryst. (diisopropyl ether). Mp 123-124°. $[\alpha]_D^{27}$ -46.1 (c, 1.8 in $CHCl_3$).

Reber, F. *et al., Helv. Chim. Acta*, 1945, **28**, 1164 (*D-form, synth, β-D-Me pyr, β-D-Me pyr benzylidene, α-D-Me pyr benzylidene*)
Hirst, L.E. *et al., J.C.S.*, 1951, 323 (*isol*)
Williams, D.T. *et al., Can. J. Chem.*, 1967, **45**, 741 (*D-di-Et dithioacetal, D-di-Et dithioacetal tetra-Ac*)
Siddiqui, I.R. *et al., Carbohydr. Res.*, 1967, **5**, 210 (*D-form, synth, β-D-Me fur, β-D-Me fur trityl*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 1363; 3762 (*D-form, synth*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1975, **39**, 245 (*α-D-Me pyr, α-D-Me pyr tri-Ac*)
Miljkovic, M. *et al., J.O.C.*, 1975, **40**, 1054 (*β-D-Me pyr dibenzoyl mesyl*)
Liao, W. *et al., Carbohydr. Res.*, 1994, **260**, 151 (*synth, α-D-Me pyr*)

4-*O*-Methylgalactose, 9CI, 8CI M-251



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [18404-81-4]
Prisms (AcOH). Mp 218-221°. $[\alpha]_D^{22}$ +61 → +83 (c, 2.2 in H_2O).

α-D-Pyranose-*form* [31505-25-6]
*Me glycoside: Methyl 4-*O*-methyl-α-D-galactopyranoside*
[34698-08-3]
$C_8H_{16}O_6$ 208.211
Cryst. (EtOH). Mp 125-127°. $[\alpha]_D^{25}$ +169.9 (c, 1 in $CHCl_3$).

*Me glycoside, 2,3,6-tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-*O*-methyl-α-D-galactopyranoside*
[55697-57-9]
$C_{14}H_{22}O_9$ 334.322
Syrup. $[\alpha]_D^{24}$ +123 (c, 1.4 in $CHCl_3$).

β-D-Pyranose-*form* [25029-37-2]
*1,2,3,6-Tetra-Ac: 1,2,3,6-Tetra-*O*-acetyl-4-O-methyl-β-D-galactopyranose*
[56809-45-1]
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (diisopropyl ether). Mp 102-105°. $[\alpha]_D$ +32 (c, 0.1 in $CHCl_3$).

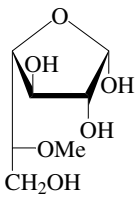
*Me glycoside: Methyl 4-*O*-methyl-β-D-galactopyranoside*
[25029-36-1]
$C_8H_{16}O_6$ 208.211
Cryst. (EtOH). Mp 175-176°. $[\alpha]_D^{20}$ -39.9 (c, 1.3 in EtOH).

*Me glycoside, 2,3,6-tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-4-*O*-methyl-β-D-galactopyranoside*
[25029-35-0]
$C_{29}H_{28}O_9$ 520.535
Cryst. (EtOH). Mp 135-136°. $[\alpha]_D^{20}$ +29.1 (c, 1.9 in $CHCl_3$).

L-*form*
Residue present in agar from *Gracilaria verrucosa*.

Jeanloz, R.W. *et al., J.A.C.S.*, 1954, **76**, 5684, (*D-form, synth*)
Gros, E.G. *et al., Carbohydr. Res.*, 1969, **10**, 318 (*D-form, β-D-Me pyr, β-D-Me pyr tribenzoyl*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1971, **20**, 357 (*α/β-D-Me pyr, pmr*)
Flowers, H.M. *et al., Carbohydr. Res.*, 1975, **39**, 245 (*α-D-Me pyr*)
Lee, E.E. *et al., Carbohydr. Res.*, 1975, **41**, 313 (*β-D-pyr tetra-Ac*)
Karamanos, Y. *et al., Carbohydr. Res.*, 1989, **187**, 93 (*occur, L-form*)

5-*O*-Methylgalactose M-252



α-D-Furanose-*form*

$C_7H_{14}O_6$ 194.184

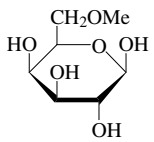
D-Furanose-*form*
Cryst. (1-propanol). Mp 135-137°. $[\alpha]_D^{20}$ -15.7 (c, 0.5 in H_2O).

2,3,6-Tri-Ac: 2,3,6-Tri-O-*acetyl-5*-O-*methyl-D-galactofuranose*
$C_{13}H_{20}O_9$ 320.296
Syrup. $[\alpha]_D$ -20.9 (c, 1.0 in $CHCl_3$).

Sznaidman, M.L. *et al., Carbohydr. Res.*, 1986, **146**, 233 (*synth, pmr, cmr*)

6-*O*-Methylgalactose, 9CI, 8CI M-253

6-Methoxyfucose



β-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [6779-91-5]
Component of *Rhizobium* extracellular polysaccharides.
Mp 113-114°. $[\alpha]_D^{18}$ +137.2 → +77 (c, 3.1 in H_2O).

3,4-O-*Isopropylidene: 3,4*-O-*Isopropylidene-6*-O-*methyl-D-galactose*
[56119-02-9]
$C_{10}H_{18}O_6$ 234.249
Mp 99-100°. $[\alpha]_D^{25}$ +79 (c, 1 in H_2O, 4h.).

α-D-Pyranose-*form* [31505-26-7]

1,2:3,4-Di-O-*isopropylidene: 1,2:3,4-Di*-O-*isopropylidene-6*-O-*methyl-α-D-galactopyranose*
[34698-17-4]
$C_{13}H_{22}O_6$ 274.313
$Bp_{0.5}$ 120°. $[\alpha]_D^{25}$ -63 (c, 3 in $CHCl_3$).

Me glycoside: Methyl 6-O-*methyl-α-D-galactopyranoside*
[7045-61-6]
$C_8H_{16}O_6$ 208.211
Mp 138°. $[\alpha]_D^{23}$ +165 (c, 1 in H_2O).

β-D-Pyranose-*form* [31505-27-8]

Me glycoside: Methyl 6-O-*methyl-β-D-galactopyranoside*
[34698-11-8]
$C_8H_{16}O_6$ 208.211
Mp 114-115°. $[\alpha]_D^{13}$ 0 (c, 0.7 in H_2O).

L-*form*
$[\alpha]_D$ -14.4 (c, 1.0 in MeOH). Prepared enzymatically. No comment made on much lower opt. rotn. than D-form.

Freudenberg, K. *et al., Ber.*, 1926, **59**, 100, (*D-form, α-D-diisopropylidene*)

Pacsu, E. *et al., J.A.C.S.*, 1940, **62**, 2301, (*D-form, synth*)

Rathbone, E.B. *et al., Carbohydr. Res.*, 1971, **20**, 357 (*pmr*)

Haverkamp, J. *et al., Carbohydr. Res.*, 1974, **33**, 319 (*cmr*)

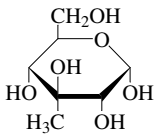
Morgenlie, S. *et al., Carbohydr. Res.*, 1975, **41**, 77 (*α-D-isopropylidene*)

Berry, J.M. *et al., Carbohydr. Res.*, 1976, **47**, 307 (*α-D-diisopropylidene*)

Kennedy, L.D. *et al., Carbohydr. Res.*, 1980, **87**, 156 (*occur*)

Wong, C.-H. *et al., J.O.C.*, 1995, **60**, 7360, (*L-form synth, pmr, cmr*)

3-*C*-Methylglucose M-254



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

α-D-Pyranose-*form*

Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-3*-C-*methyl-α-D-glucopyranoside*
[42776-05-6]
$C_{15}H_{20}O_6$ 296.319
Cryst. ($CHCl_3$/hexane). Mp 80-82°. $[\alpha]_D^{23}$ +91 (c, 1.25 in $CHCl_3$).

Me glycoside, 4,6-O-*benzylidene, di-Ac: Methyl 2,3-di*-O-*acetyl-4,6*-O-*benzylidene-3*-C-*methyl-α-D-glucopyranoside*
[42776-07-8]
$C_{19}H_{24}O_8$ 380.394
Cryst. (EtOH/hexane). Mp 156-157°. $[\alpha]_D^{23}$ +15.4 (c, 0.95 in $CHCl_3$).

β-D-Pyranose-*form*

1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-O-*acetyl-3*-C-*methyl-β-D-glucopyranose*
[59156-89-7]
$C_{15}H_{22}O_{10}$ 362.333
Amorph. powder. $[\alpha]_D^{22}$ -23 (c, 2.34 in $CHCl_3$).

α-D-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-3*-C-*methyl-α-D-glucofuranose*
[53270-26-1]
$C_{13}H_{22}O_6$ 274.313
Cryst. (hexane). Mp 66-67°. $[\alpha]_D^{23}$ +23 (c, 1.0 in Me_2CO).

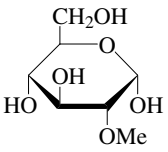
3-Me, 1,2:5,6-di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-3*-C-*methyl-3*-O-*methyl-α-D-glucofuranose*
[96918-52-4]
$C_{14}H_{24}O_6$ 288.34
Oil. $Bp_{0.1}$ 70°. $[\alpha]_D^{25}$ +1.3 (c, 2.44 in $CHCl_3$).

Yoshimura, J. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 1515-1519; 1976, **49**, 788-790 (*α-D-Me pyr benzylidene, β-D-pyr-tetra-Ac, α-D-fur-diisopropylidene*)

Cubero, I.I. *et al., Carbohydr. Res.*, 1983, **114**, 311-316 (*α-D-fur-diisopropylidene*)

Oikawa, Y. *et al., J.C.S. Perkin 1*, 1985, 1-5, (*α-D-fur-diisopropylidene-3-O-Me*)

2-*O*-Methylglucose, 9CI, 8CI M-255



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [4132-40-5]
Cryst. (EtOH). Mp 158.5-159°. $[\alpha]_D^{25}$ +66 (c, 2 in H_2O).

Phenylhydrazone: Mp 177-178°. $[\alpha]_D^{19}$ -13.3 (Py).

Di-Et dithioacetal: [3767-34-8]
$C_{11}H_{24}O_5S_2$ 300.44
Mp 156-157°. $[\alpha]_D^{25}$ -25 (Py).

α-D-Pyranose-*form* [24436-13-3]

1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2*-O-*methyl-α-D-glucopyranose*
[14199-55-4]
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (EtOH). Mp 107-108°. $[\alpha]_D^{20}$ +109.2 (c, 0.9 in $CHCl_3$).

4,6-O-*Ethylidene, 1,3-di-Ac: 1,3-Di*-O-*acetyl-4,6*-O-*ethylidene-2*-O-*methyl-α-D-glucopyranose*
[35880-37-6]
$C_{13}H_{20}O_8$ 304.296
Cryst. (2-propanol). Mp 107-108°. $[\alpha]_D^{20}$ +118 (c, 1 in $CHCl_3$).

Me glycoside: Methyl 2-O-*methyl-α-D-glucopyranoside*
[20908-66-1]
$C_8H_{16}O_6$ 208.211
Cryst. (EtOAc). Mp 147-148°. $[\alpha]_D^{24}$ +158 (c, 1 in H_2O).

Me glycoside, 3,4,6-tri-Ac: Methyl 3,4,6-tri-O-*acetyl-2*-O-*methyl-α-D-glucopyranoside*
$C_{14}H_{22}O_9$ 334.322
Needles (EtOH). Mp 120-121°. $[\alpha]_D^{22}$ +149 ($CHCl_3$).

Me glycoside, 4,6-O-*benzylidene: Methyl 4,6*-O-*benzylidene-2*-O-*methyl-α-D-glucopyranoside*
[20770-90-5]
$C_{15}H_{20}O_6$ 296.319
Mp 169-170°. $[\alpha]_D^{24}$ +97 (c, 0.8 in $CHCl_3$).

β-D-Pyranose-*form* [14251-16-2]

1,3,4,6-Tetra-Ac: 1,3,4,6-Tetra-O-*acetyl-2*-O-*methyl-β-D-glucopyranose*
[14199-54-3]
$C_{15}H_{22}O_{10}$ 362.333
Cryst. (EtOH). Mp 107-108°. $[\alpha]_D^{25}$ +22 (c, 2 in $CHCl_3$).

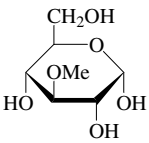
Me glycoside: Methyl 2-O-*methyl-β-D-glucopyranoside*
[15064-82-1]
$C_8H_{16}O_6$ 208.211
Mp 96-97°. $[\alpha]_D^{25}$ -41 (c, 2 in H_2O).

Me glycoside, 3,4,6-tri-Ac: Methyl 3,4,6-tri-O-*acetyl-2*-O-*methyl-β-D-glucopyranoside*
[14982-06-0]
$C_{14}H_{22}O_9$ 334.322
Mp 74-75°. $[\alpha]_D$ +5.9 (EtOH).

Haworth, W.N. *et al., J.C.S.*, 1931, 2858 (*D-form, synth, α-D-Me pyr, α-D-Me pyr tri-Ac*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 298 (*rev, derivs*)
Mastronardi, I.O. *et al., Carbohydr. Res.*, 1966, **3**, 177 (*α-D-pyr tetra-Ac, β-D-pyr tetra-Ac*)
De, K.K. *et al., Carbohydr. Res.*, 1967, **4**, 72, (*D-form, synth, β-D-Me pyr, β-D-Me pyr tri-Ac*)
Gigg, R. *et al., J.C.S.(C)*, 1968, 1903 (*α-D-Me pyr benzylidene*)
Dick, W.E. *et al., Carbohydr. Res.*, 1972, **21**, 255 (*α-D-ethylidene di-Ac*)
Erbing, B. *et al., Acta Chem. Scand.*, 1973, **27**, 1094 (*α-D-Me*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*cmr*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*pmr*)
McArdle, P. *et al., Carbohydr. Res.*, 1993, **241**, 261 (*cryst struct, Me α-D-pyr*)
De Bruyn, A. *et al., J. Carbohydr. Chem.*, 1995, **14**, 135-156 (*pmr*)

3-*O*-Methylglucose, 9CI, 8CI M-256

[146-72-5]



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

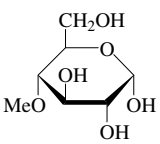
D-*form*
Constit. of *Rhizobium* extracellular polysaccharides.
Mp 168°. $[\alpha]_D$ +104 → +55 (H_2O).

α-D-Pyranose-*form* [13224-94-7]
*Me glycoside: Methyl 3-*O*-methyl-α-D-glucopyranoside*
[5149-37-1]
$C_8H_{16}O_6$ 208.211
Cryst. (EtOAc). Mp 81-82°. $[\alpha]_D^{21}$ +148 (c, 0.8 in H_2O).
*Me glycoside, 4,6-*O*-benzylidene: Methyl 4,6-*O*-benzylidene-3-*O*-methyl-α-D-glucopyranoside*
[20770-95-0]
$C_{15}H_{20}O_6$ 296.319
Mp 150-151° (133°). $[\alpha]_D$ +119.5 (+49.1) ($C_2H_2Cl_4$).

β-D-Pyranose-*form* [13224-95-8]
Mp 133.5-135°. $[\alpha]_D$ +32 → +55 (H_2O).
*1,2,4,6-Tetra-Ac: 1,2,4,6-Tetra-*O*-acetyl-3-*O*-methyl-β-D-glucopyranose*
[4163-64-8]
$C_{15}H_{22}O_{10}$ 362.333
Mp 95-96°. $[\alpha]_D$ -5 (c, 2 in $CHCl_3$).
*Me glycoside: Methyl 3-*O*-methyl-β-D-glucopyranoside*
[14982-01-5]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D$ -26 (H_2O).
*Me glycoside, 4,6-*O*-benzylidene:* See Methyl 4,6-*O*-benzylidene-β-D-glucopyranoside, M-165

α-D-Furanose-*form*
*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-3-*O*-methyl-α-D-glucofuranose*
[43138-65-4]
$C_{10}H_{18}O_6$ 234.249
Syrup. $[\alpha]_D^{23}$ -52.4 (c, 0.4 in $CHCl_3$). $[\alpha]_D$ -36.8 (EtOH).
*1,2:5,6-Di-*O*-isopropylidene: 1,2:5,6-Di-O-isopropylidene-3-*O*-methyl-α-D-glucofuranose*
[43138-64-3]
$C_{13}H_{22}O_6$ 274.313
Syrup. Bp_{12} 140°. $[\alpha]_D^{22}$ -33 (c, 0.4 in EtOH).
► LZ4959400
*1,2-Cyclohexylidene: 1,2-*O*-Cyclohexylidene-3-*O*-methyl-α-D-glucofuranose*
[13322-87-7]
$C_{13}H_{22}O_6$ 274.313
Mp 106° (102°). $Bp_{0.005}$ 170-175°. $[\alpha]_D^{20}$ -24 (c, 3.3 in H_2O).
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 190D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 305B (*nmr*)
Bolliger, H.R. *et al., Helv. Chim. Acta*, 1945, **28**, 465 (*α-D-Me pyr benzylidene*)
Glen, W.L. *et al., J.C.S.*, 1951, 2568 (*D-form, synth*)
Jeanloz, R.W. *et al., J.A.C.S.*, 1954, **76**, 5793, (*α-D-Me pyr*)
Van der Veen, J.M. *et al., J.O.C.*, 1963, **28**, 564 (*pmr*)
Hirst, E.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 145 (*α-D-form*)
Methods Carbohydr. Chem., 1965, **5**, 298 (*rev, derivs*)
Landor, S.R. *et al., J.C.S.(C)*, 1966, 1822, (*α-D-fur 1,2-cyclohexylidene*)
De, K.K. *et al., Carbohydr. Res.*, 1967, **4**, 72, (*α-D-pyr, β-D-pyr tetra-Ac*)
Dorman, D.E. *et al., J.A.C.S.*, 1970, **92**, 1355 (*cmr*)
Roberts, E.J. *et al., Carbohydr. Res.*, 1972, **21**, 357 (*β-D-Me pyr*)
Kovář, J. *et al., Can. J. Chem.*, 1973, **51**, 1801 (*α-D-fur isopropylidene, α-D-fur diisopropylidene*)
Defaye, J. *et al., Carbohydr. Res.*, 1974, **35**, 264 (*α-D-Me pyr*)
Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1975, 1773 (*4,6-benzylidene*)
Kennedy, L.D. *et al., Carbohydr. Res.*, 1980, **87**, 156 (*occur*)
Sheldrick, B. *et al., Acta Cryst. C*, 1983, **39**, 315 (*cryst struct*)

4-*O*-Methylglucose, 9CI, 8CI M-257



α-D-Pyranose-*form*

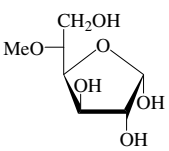
$C_7H_{14}O_6$ 194.184

D-*form* [4132-38-1]
Syrup. $[\alpha]_D$ +59 (c, 1.1 in H_2O) (equilib.).

α-D-Pyranose-*form* [31505-21-2]
*Me glycoside: Methyl 4-*O*-methyl-α-D-glucopyranoside*
[27551-99-1]
$C_8H_{16}O_6$ 208.211
Cryst. (heptane). Mp 97-98°. $[\alpha]_D^{20}$ +165 (c, 1.2 in H_2O).
*Me glycoside, 2,3,6-tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-*O*-methyl-α-D-glucopyranoside*
[24905-15-5]
$C_{14}H_{22}O_9$ 334.322
Mp 122-123°. $[\alpha]_D^{25}$ +150.4 ($CHCl_3$).
*Me glycoside, 2,3,6-tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-4-*O*-methyl-α-D-glucopyranoside*
[132556-23-1]
$C_{29}H_{28}O_9$ 520.535
Foam. $[\alpha]_D$ +132.1 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form* [31505-22-3]
*1,2,3,6-Tetra-Ac: 1,2,3,6-Tetra-*O*-acetyl-4-O-methyl-β-D-glucopyranose*
[14199-56-5]
$C_{15}H_{22}O_{10}$ 362.333
Mp 104°. $[\alpha]_D$ -9.4 (c, 1.58 in $CHCl_3$).
*Me glycoside: Methyl 4-*O*-methyl-β-D-glucopyranoside*
[3056-43-7]
$C_8H_{16}O_6$ 208.211
Cellulose model compd. Cryst. (EtOAc). Mp 102-103°. $[\alpha]_D$ -19 (H_2O).
*Me glycoside, 2,3,6-tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-*O*-methyl-β-D-glucopyranoside*
[24905-16-6]
$C_{14}H_{22}O_9$ 334.322
Mp 106-108°. $[\alpha]_D$ -34 ($CHCl_3$).
Bouveng, H.O. *et al., Acta Chem. Scand.*, 1957, **11**, 1788 (*D-form, synth, β-D-Me pyr tri-Ac*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 298 (*rev, derivs*)
De, K.K. *et al., Carbohydr. Res.*, 1967, **4**, 72, (*D-form, synth, β-D-pyr tetra-Ac, β-D-Me pyr*)
Gros, E. *et al., Carbohydr. Res.*, 1971, **16**, 232 (*cmr*)
v. Cleve, J.W. *et al., Carbohydr. Res.*, 1972, **25**, 465 (*α-D-Me pyr*)
Bochkov, A.F. *et al., Carbohydr. Res.*, 1974, **32**, 1 (*D-form, synth, β-D-pyr tetra-Ac*)
Li, K. *et al., Carbohydr. Res.*, 1995, **273**, 249-253 (*synth, pmr, cmr, α-D-Me pyr, α-D-Me pyr 2,3,6-tribenzoyl*)
Röhrling, J. *et al., Carbohydr. Res.*, 2002, **337**, 691-700 (*Me β-D-gly, synth, pmr, cmr*)

5-*O*-Methylglucose, 9CI M-258



α-D-Furanose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [4132-41-6]
Syrup. $[\alpha]_D^{20}$ -10.6 (c, 2 in EtOH).

α-D-Furanose-*form*
*Tetrabenzoyl: 1,2,3,6-Tetra-*O*-benzoyl-5-O-methyl-α-D-glucofuranose*
[55726-89-1]
$C_{35}H_{30}O_{10}$ 610.616
Plates (C_6H_6/petrol). Mp 174-175°. $[\alpha]_D^{19}$ +96 (c, 1.1 in $CHCl_3$).
*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-5-*O*-methyl-α-D-glucofuranose*
[5488-90-4]
$C_{10}H_{18}O_6$ 234.249
Syrup. $[\alpha]_D^{20}$ -13.1 (c, 8.0 in $CHCl_3$).
*1,2-*O*-Isopropylidene, 3,6-di-Ac: 3,6-Di-O-acetyl-1,2-*O*-isopropylidene-5-*O*-methyl-α-D-glucofuranose*
[14980-10-0]
$C_{14}H_{22}O_8$ 318.323
Mp 87°. $[\alpha]_D^{20}$ -15.2 (c, 2.6 in $CHCl_3$).

1,2-O-*Isopropylidene, 3,6-dibenzoyl: 3,6-Di*-O-*benzoyl-1,2*-O-*isopropylidene-5*-O-*methyl-α-D-glucofuranose*
[55726-90-4]
$C_{24}H_{26}O_8$ 442.465
Cryst. (petrol). Mp 93-94°. $[\alpha]_D$ -50.3 (c, 1.1 in $CHCl_3$).

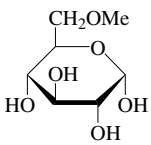
β-D-Furanose-*form*

2,3,6-Tribenzoyl: 2,3,6-Tri-O-*benzoyl-5*-O-*methyl-β-D-glucofuranose*
$C_{28}H_{26}O_9$ 506.508
Cryst. (MeOH). Mp 147-148°. $[\alpha]_D^{20}$ +42.6 (c, 1.4 in $CHCl_3$) (5 min).

1,2,3,6-Tetrabenzoyl: 1,2,3,6-Tetra-O-*benzoyl-5*-O-*methyl-β-D-glucofuranose*
[13096-72-5]
$C_{35}H_{30}O_{10}$ 610.616
Needles (EtOH). Mp 155-156°. $[\alpha]_D^{19}$ +18 (c, 1.8 in $CHCl_3$).

Vargha, L. *et al., Ber.*, 1936, **69**, 2098 (*D-form, synth, α-D-fur isopropylidene, α-D-fur isopropylidene di-Ac*)
Kuzuhara, H. *et al., J.O.C.*, 1967, **32**, 2531, (*β-D-fur tribenzoyl, β-D-fur tetrabenzoyl*)
Stevens, J.D. *et al., Aust. J. Chem.*, 1975, **28**, 525 (*D-form, α-D-fur isopropylidene dibenzoyl, α-D-fur-tetrabenzoyl, β-D-fur-tetrabenzoyl*)
Chittenden, G.F. *et al., Carbohydr. Res.*, 1979, **74**, 333-336 (*synth*)

6-*O*-Methylglucose, 9CI, 8CI M-259



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [2461-70-3]
Cryst. (EtOH). Mp 143-145°. $[\alpha]_D^{20}$ +110 → +59 (H_2O).

α-D-Pyranose-*form* [14199-58-7]

1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-6*-O-*methyl-α-D-glucopyranose*
$C_{15}H_{22}O_{10}$ 362.333
Mp 120°. $[\alpha]_D$ +112 ($CHCl_3$).

Me glycoside: Methyl 6-O-*methyl-α-D-glucopyranoside*
[5155-48-6]
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D$ +128 (H_2O).

Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6*-O-*methyl-α-D-glucopyranoside*
[24587-95-9]
$C_{14}H_{22}O_9$ 334.322
Mp 73.5-74°.

β-D-Pyranose-*form* [24436-14-4]

1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-6*-O-*methyl-β-D-glucopyranoside*
[14199-53-2]
$C_{15}H_{22}O_{10}$ 362.333
Mp 92-94°. $[\alpha]_D^{20}$ +20.5 (c, 1.2 in $CHCl_3$).

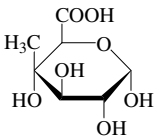
Me glycoside: Methyl 6-O-*methyl-β-D-glucopyranoside*
[5155-50-0]
$C_8H_{16}O_6$ 208.211
Mp 133-135°. $[\alpha]_D$ -27 (H_2O).

Me glycoside, 2,3,4-tri-Ac: Methyl 2,3,4-tri-O-*acetyl-6*-O-*methyl-β-D-glucopyranoside*
[24905-12-2]
$C_{14}H_{22}O_9$ 334.322
Mp 107-108°. $[\alpha]_D$ -14.5 ($CHCl_3$).

Methods Carbohydr. Chem., 1965, **5**, 298 (*rev, derivs*)
Gros, E.G. *et al., Chem. Ind. (London)*, 1966, 1556 (*D-form, synth, β-D-pyr tetra-Ac*)
Bourne, E.J. *et al., Carbohydr. Res.*, 1972, **25**, 516 (*D-form, synth*)
Colson, P. *et al., Can. J. Chem.*, 1975, **53**, 1030 (*cmr*)
Berry, J. *et al., Carbohydr. Res.*, 1976, **47**, 307 (*β-D-pyr tetra-Ac*)
Van Cleve, J.W. *et al., Carbohydr. Res.*, 1985, **137**, 259 (***synth***)

4-*C*-Methylglucuronic acid, 9CI M-260

Moenuronic acid



α-D-Pyranose-*form*

$C_7H_{12}O_7$ 208.168

D-*form* [63124-46-9]
A component of Moenomycin, M-316 where it occurs as its 3-*O*-carbamoyl-1-phosphate.

α-D-Pyranose-*form*

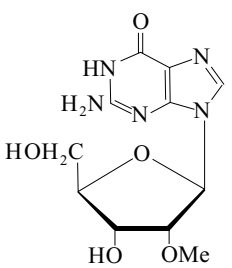
Me glycoside: Methyl 4-C-*methyl-α-D-glucopyranosiduronic acid*
$C_8H_{14}O_7$ 222.194
$[\alpha]_D$ +87 (c, 0.7 in MeOH).

Me glycoside, 2,3-di-Ac, Et ester: Ethyl (methyl 2,3-di-O-*acetyl-α-D-glucopyranosid)uronate*
$C_{14}H_{22}O_9$ 334.322
Mp 99-101°. $[\alpha]_D$ +112 (c, 0.6 in $CHCl_3$).

Langenfeld, N. *et al., Tet. Lett.*, 1978, 1833 (*occur*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **99**, C1 (*α-D-Me pyr, α-D-Me pyr di-Ac Et ester*)

2′-*O*-Methylguanosine, 9CI, 8CI M-261

[2140-71-8]

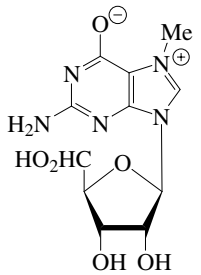


$C_{11}H_{15}N_5O_5$ 297.27
Constit. of yeast sRNA. Cryst. (MeOH). Mp 234-236°. $[\alpha]_D^{22}$ -38.4 (c, 0.6 in H_2O). λ_{max} 255.5 (ε 10 660) (pH 1), 258 nm (9 776) (pH 11).

Morisawa, S. *et al., Biochim. Biophys. Acta*, 1963, **68**, 147
Khwaja, T.A. *et al., J.A.C.S.*, 1966, **88**, 3640 (*synth, pmr*)
Howlett, H.A. *et al., Anal. Biochem.*, 1971, **39**, 429 (*ms*)
Robins, M.J. *et al., J.O.C.*, 1974, **39**, 1891 (*synth*)
Beigelman, L. *et al., Tetrahedron*, 2000, **56**, 1047-1056 (***synth***)
Chow, S. *et al., Bioorg. Med. Chem. Lett.*, 2003, **13**, 1631-1634 (*synth*)

7-Methylguanosine M-262

*2-Amino-6,9-dihydro-7-methyl-6-oxo-9-β-D-ribofuranosyl-1*H*-purinium hydroxide inner salt, 9CI*
[20244-86-4]



$C_{11}H_{15}N_5O_5$ 297.27
Modified nucleoside found rarely in tRNAs. Main prod. of DNA methylation by carcinogenic and mutagenic agents. Mutagenic agent causing base mispairing in DNA. Cryst. + $2H_2O$.
Mp 160-161°. $[\alpha]_D$ -33.5 (c, 0.4 in H_2O).

▶ Mutagen.

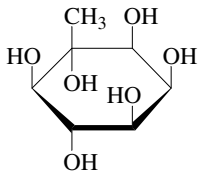
5′-Phosphate: [10162-58-0]
$C_{11}H_{16}N_5O_8P$ 377.25
λ_{max} 258 (ε 10300) (phosphate buffer, pH 6.8).

[22164-16-5, 81100-62-1, 139008-87-0]

Jones, J.W. *et al., J.A.C.S.*, 1963, **85**, 193-201 (*synth*)
McCloskey, J.A. *et al., Acc. Chem. Res.*, 1977, **10**, 403 (*rev*)
Yamauchi, K. *et al., Synthesis*, 1980, 852-853 (*synth*)
Chang, C.J. *et al., Biochemistry*, 1981, **20**, 2657 (*synth*)
Chang, C. *et al., Org. Magn. Reson.*, 1984, **22**, 671-675 (*cmr*)
Schubert, E.M. *et al., J. Het. Chem.*, 1985, **22**, 889-905 (*ms*)
Sierzputowska-Gracz, H. *et al., Nucleic Acids Res.*, 1986, **14**, 7783 (*pmr, cmr, N-15 nmr*)
Kamiichi, K. *et al., J.C.S. Perkin 2*, 1987, 1739-1745 (*synth, 5′-phosphate*)
Barbarella, G. *et al., Magn. Reson. Chem.*, 1987, **25**, 864-868 (*N-15 nmr*)
Hettich, R.L. *et al., Biomed. Environ. Mass Spectrom.*, 1989, **18**, 265 (*ms*)
Cho, B.P. *et al., Magn. Reson. Chem.*, 1993, **31**, 1048 (*cmr*)

4-*C*-Methyl-*myo*-inositol M-263

Laminitol
[472-95-7]



D-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [134680-68-5]
Isol. from red alga *Polysiphonia fastigiata* (Ceramiales) and known alga *Laminaria cloustoni*.
Cryst. (H_2O).
Mp 270-274° (266-269°). $[\alpha]_D^{20}$ -3 (c, 2 in H_2O).

Hexa-Ac: Hexa-O-*acetyl-4*-C-myo-*inositol*
[52795-38-7]
$C_{19}H_{26}O_{12}$ 446.407
Cryst. (EtOH). Mp 151-152°. $[\alpha]_D^{19}$ -19 (c, 2 in $CHCl_3$).

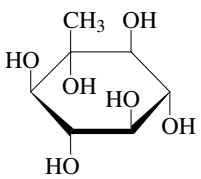
(±)-*form*
Cryst. (H_2O). Mp 262-268°.

Hexa-Ac:
Cryst. (EtOH). Mp 157-158°.

Lindberg, L. *et al., Acta Chem. Scand.*, 1954, **8**, 1875-1876 (*isol*)
Wickberg, B. *et al., Acta Chem. Scand.*, 1957, **11**, 506-511 (*isol*)
Lindberg, B. *et al., Ark. Kemi*, 1958, **13**, 447-455 (*isol*)
Posternak, T. *et al., Helv. Chim. Acta*, 1960, **43**, 2142-2147; 1961, **44**, 2080-2085 (*synth, config*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1974, **27**, 1075-1086 (*synth, pmr*)
Carless, H.A.J. *et al., Tet. Lett.*, 1991, **32**, 1671-1674 (*synth, pmr*)
Sata, K. *et al., Bull. Chem. Soc. Jpn.*, 1994, **67**, 1633-1640 (*synth*)

1-*C*-Methyl-*scyllo*-inositol M-264

Mytilitol
[564-92-1]



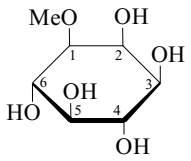
$C_7H_{14}O_6$ 194.184
Isol. from blue mussels *Mytilus edulis*, red alga *Poysiphonia fastigiata* and brown algae. Cryst. (H_2O).
Mp 266-268°.

Hexa-Ac:
$C_{19}H_{26}O_{12}$ 446.407
Mp 186-188°.

Posternak, T. *et al., Helv. Chim. Acta*, 1944, **27**, 457-468 (*synth*)
Wickberg, B. *et al., Acta Chem. Scand.*, 1957, **11**, 506-511 (*isol*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1974, **27**, 1075-1086 (*pmr*)
Sato, K. *et al., Bull. Chem. Soc. Jpn.*, 1994, **67**, 1633-1640 (*synth*)

1-*O*-Methyl-*myo*-inositol M-265

Bornesitol
[144902-49-8]



L–*form*

$C_7H_{14}O_6$ 194.184
Some confusion in earlier lit. about abs. config. of D- and L-forms.

D-*form* [484-71-9]
Occurs in several families of Dicotyledons.
Mp 205-206°. $[\alpha]_D^{18}$ -32.1 (c, 3.5 in H_2O).

2,3-O-*Isopropylidene, 4,5,6-tri-Ac:*
$C_{16}H_{24}O_9$ 360.36
Mp 157°. $[\alpha]_D^{18}$ +9 (c, 1.4 in $CHCl_3$).

Penta-Ac: Penta-O-*acetyl-1*-O-*methyl-D*-myo-*inositol*
[54324-59-3]
$C_{17}H_{24}O_{11}$ 404.37
Mp 142-143° Mp 157°. $[\alpha]_D$ -8.6 (c, 1.1 in $CHCl_3$).

L-*form* *3*-O-*Methyl-D*-myo-*inositol, 9CI*
[22350-68-1]
Occurs in seven genera of Apocynaceae and in *Sarcocephalus diderrichii*.
Mp 201-202°. $[\alpha]_D^{20}$ +31.4 (c, 4.2 in H_2O).

Penta-Ac: Penta-O-*acetyl-1*-O-*methyl-L*-myo-*inositol*
[94482-10-7]
$C_{17}H_{24}O_{11}$ 404.37
Mp 138-139° Mp 157°.

King, F.E. *et al., J.C.S.*, 1953, 1192-1195, (*L-form, isol*)
Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1955, **241**, 983-985 (*D-form, isol*)
Angyal, S.J. *et al., J.C.S.*, 1957, 1417-1422 (*synth*)
Bien, S. *et al., J.C.S.*, 1958, 3189-3194 (*D-form, abs config*)
Post, G.G. *et al., J.A.C.S.*, 1962, **84**, 478-480, (*D-form, synth*)
Kindl, H. *et al., Prog. Chem. Org. Nat. Prod.*, 1966, **24**, 149 (*rev*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 282 (*bibl, occur*)
Jaramillo, C. *et al., J.O.C.*, 1994, **59**, 3135-3141 (*D-form, synth, pmr*)
Ichimura, K. *et al., Biosci., Biotechnol., Biochem.*, 1999, **63**, 189-191 (*isol, pmr, cmr*)

2-*O*-Methyl-*myo*-inositol M-266

[7600-53-5]

$C_7H_{14}O_6$ 194.184
Mp 212°. Opt. inactive (*meso*-).

Penta-Ac: 1,3,4,5,6-Penta-O-*acetyl-2*-O-*methyl*-myo-*inositol*
$C_{17}H_{24}O_{11}$ 404.37
Mp 235-236°.

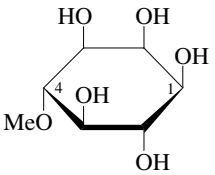
D-*form*

3,4,5,6-Tetrabenzyl: [28140-43-4]
$C_{35}H_{38}O_6$ 554.682
Solid. Mp 133-135°. Chiral molecule. Props. refer to D-form.

Angyal, S.J. *et al., J.C.S.*, 1957, 1417-1422 (*synth*)
Martin, S.F. *et al., J.O.C.*, 1996, **61**, 8016-8023 (*tetrabenzyl, synth, pmr, cmr*)

4-*O*-Methyl-*myo*-inositol M-267

Ononitol
[484-69-5]



D-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [6090-97-7]
Isol. from *Ononis* spp., *Vigna catjang, Kiggelaria africana, Medicago sativa* (alfalfa), *Leucaena glauca* and others.
Mp 167-168°. $[\alpha]_D^{23}$ +5.5 (c, 11.2 in H_2O).

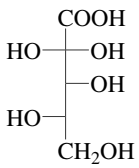
Penta-Ac: 1,2,3,5,6-Penta-O-*acetyl-4*-O-*methyl*-myo-*inositol*
$C_{17}H_{24}O_{11}$ 404.37
Mp 121°. $[\alpha]_D^{23}$ -11.1 (c, 0.8 in $CHCl_3$).

L-*form* *6*-O-*Methyl-D*-myo-*inositol, 9CI.*
1-O-*Methyl-L*-myo-*inositol*
[166734-75-4]
Mp 168-169°. $[\alpha]_D$ -5.7 (c, 2.0 in H_2O).

Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1955, **241**, 983-985 (*isol*)
Post, G.G. *et al., J.A.C.S.*, 1962, **84**, 478-480 (*synth, D-form*)
Kindl, H. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1966, **345**, 257 (*biosynth*)
Pietrusiewicz, K.M. *et al., Synth. Commun.*, 1995, **25**, 1863-1867 (*synth, D-form, L-form*)

2-*C*-Methyllyxonic acid M-268

β-Galactosaccharinic acid



L-*form*

$C_6H_{12}O_6$ 180.157

L-*form*

1,4-Lactone, tribenzoyl: 2,3,5-Tri-O-*benzoyl-2*-C-*methyl-L-lyxono-1,4-lactone*
[36792-01-5]
$C_{27}H_{22}O_8$ 474.466
Needles (EtOH aq.). Mp 109-110.5°.
$[\alpha]_D^{17}$ -76 (c, 2.1 in $CHCl_3$).

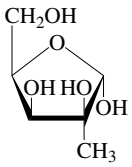
DL-*form*

1,4-Lactone: 2-C-*Methyl-DL-lyxono-1,4-lactone*
[86204-18-4]
$C_6H_{10}O_5$ 162.142
Syrup.

1,4-Lactone, tribenzoyl: 2,3,5-Tri-O-*benzoyl-DL-lyxono-1,4-lactone*
[93636-13-6]
$C_{27}H_{22}O_8$ 474.466
Mp 110-111°.

*2,3-Isopropylidene, 1,4-lactone: 2,3-*O*-Isopropylidene-2-*C*-methyl-DL-lyxono-1,4-lactone*
[93636-14-7]
$C_9H_{14}O_5$ 202.207
Mp 83-84°.
Ishizu, A. *et al., Carbohydr. Res.*, 1972, **23**, 23 (*L-form deriv*)
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **129**, 99 (*DL-form*)

2-*C*-Methyllyxose M-269

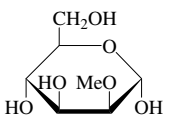


α-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

D-*form*
Syrup. $[\alpha]_D$ -3 (c, 1 in H_2O).
Cubero, I.I. *et al., Carbohydr. Res.*, 1982, **105**, 181 (*synth, pmr*)

2-*O*-Methylmannose M-270



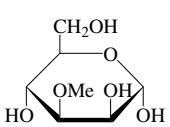
α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [36864-61-6]
Mp 138-139°. $[\alpha]_D^{25}$ +6.6 → +4.8 (24 hr.) (c, 1.1 in H_2O).
3-Me: See 2,3-Di-*O*-methylmannose, D-748
4-Me: See 2,4-Di-*O*-methylmannose, D-749
6-Me: See 2,6-Di-*O*-methylmannose, D-750

L-*form*
Mp 138-139° (135-137°). $[\alpha]_D^{20}$ +8.8 → +5 (24h) (c, 2 in H_2O).
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1953, **8**, 217 (*rev*)
Gross, E.G. *et al., Experientia*, 1968, **24**, 323 (*struct*)
Deferrari, J.O. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 365 (*D-form, synth*)
Lipták, A. *et al., Acta Chim. Acad. Sci. Hung.*, 1977, **94**, 261 (*D-form*)
Jeroncic, L.O. *et al., Carbohydr. Res.*, 1989, **191**, 130 (*L-form*)

3-*O*-Methylmannose M-271



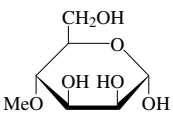
α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form*
Constit. of lipopolysaccharide in *Klebsiella coli*. Also in mannan of *Saccharomyces rouxii* and prod. by *Streptomyces griseus*.
Cryst. (EtOH/Et_2O).
Mp 133-134°. $[\alpha]_D^{20}$ +14 → +3 (c, 0.6 in H_2O).
4-Me: See 3,4-Di-*O*-methylmannose, D-751
5-Me: See 3,5-Di-*O*-methylmannose, D-752
*6-Me: 3,6-Di-*O*-methyl-D-mannose*
[27552-15-4]
$C_8H_{16}O_6$ 208.211
$[\alpha]_D^{29}$ +22.4 (c, 1.82 in H_2O).

α-D-Pyranose-*form*
*Me glycoside: Methyl 3-*O*-methyl-α-D-mannopyranoside*
$C_8H_{16}O_6$ 208.211
Syrup. $[\alpha]_D$ +53.1 (c, 0.54 in MeOH).
*Me glycoside, 2,6-dibenzyl: Methyl 2,6-*O*-benzyl-3-*O*-methyl-α-D-mannopyranoside*
[187083-12-1]
$C_{22}H_{28}O_6$ 388.46
Syrup. $[\alpha]_D^{20}$ -10 (c, 0.6 in $CHCl_3$).
Aspinall, G.O. *et al., J.C.S.*, 1957, 2271 (*D-form, synth*)
Handa, N. *et al., Carbohydr. Res.*, 1969, **11**, 467 (*D-form, synth, 6-Me*)
Alfredson, G. *et al., Acta Chem. Scand.*, 1970, **24**, 2671 (*6-Me*)
Nimmich, W. *et al., Biochim. Biophys. Acta*, 1970, **215**, 189 (*occur*)
Usov, A.I. *et al., Bioorg. Khim.*, 1975, **1**, 1583
Liao, W. *et al., Carbohydr. Res.*, 1994, **260**, 151 (*α-D-Me pyr*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2002, **75**, 1301-1309 (*α-D-Me Pyr 2,6-dibenzyl*)

4-*O*-Methylmannose M-272



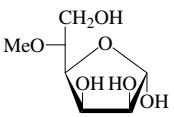
α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form*
Syrup. $[\alpha]_D^{20}$ +7.4 (c, 3.0 in H_2O).
Phenylosazone: Mp 157°. $[\alpha]_D^{23}$ -34 → -1.5 (c, 2.5 in EtOH).

α-D-Pyranose-*form*
Mp 127-128°. $[\alpha]_D^{20}$ +22.6 (c, 0.8 in H_2O) (equilib.).
*Me glycoside: Methyl 4-*O*-methyl-α-D-mannopyranoside*
[7468-45-3]
$C_8H_{16}O_6$ 208.211
Cryst. (butanone). Mp 101-102°. $[\alpha]_D^{25}$ +64 (c, 0.8 in H_2O) (+83.9).
*Me glycoside, 2,3,6-tri-Ac: Methyl 2,3,6-tri-*O*-acetyl-4-*O*-methyl-α-D-mannopyranoside*
[53098-96-7]
$C_{14}H_{22}O_9$ 334.322
Mp 101-102°.
*Me glycoside, 2,3,6-tribenzoyl: Methyl 2,3,6-tri-*O*-benzoyl-4-*O*-methyl-α-D-mannopyranoside*
[50710-91-3]
$C_{29}H_{28}O_9$ 520.535
Cryst. (MeOH). Mp 174-175°. $[\alpha]_D^{25}$ -43 (c, 1.0 in H_2O).
*Me glycoside, 2,3-dimesyl: Methyl 2,3-di-*O*-mesyl-4-*O*-methyl-α-D-mannopyranoside*
[16802-87-2]
$C_{10}H_{20}O_{10}S_2$ 364.394
Cryst. (Et_2O). Mp 131-132°. $[\alpha]_D^{22}$ +19 (c, 1.0 in $CHCl_3$).
*Me glycoside, trimesyl: Methyl 2,3,6-tri-*O*-mesyl-4-*O*-methyl-α-D-mannopyranoside*
$C_{11}H_{22}O_{12}S_3$ 442.486
Cryst. ($CHCl_3$/hexane). Mp 105-108°. $[\alpha]_D^{20}$ +43 (c, 1.0 in $CHCl_3$).
Me glycoside, 6-Me: See 4,6-Di-*O*-methylmannose, D-753
Pacsu, E. *et al., Ber.*, 1929, **62**, 2811 (*D-form, synth*)
Haskins, W.T. *et al., J.A.C.S.*, 1943, **65**, 70, (*α-D-pyr, α-D-Me pyr*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1953, **8**, 217 (*rev*)
Chalk, R.C. *et al., J.O.C.*, 1966, **31**, 1509, (*α-D-Me pyr trimesyl*)
Parrish, F.W. *et al., J.O.C.*, 1968, **33**, 3165, (*α-D-Me pyr dimesyl*)
Seymour, F.R. *et al., Carbohydr. Res.*, 1973, **30**, 327 (*α-D-Me pyr tribenzoyl, α-D-Me pyr*)
Fournet, B. *et al., J. Chromatogr.*, 1974, **92**, 185 (*α-D-Me pyr tri-Ac, glc*)

5-*O*-Methylmannose M-273



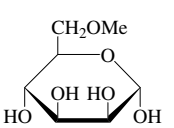
α-D-Furanose-*form*

$C_7H_{14}O_6$ 194.184

D-*form*
Phenylosazone:
Yellow cryst. (EtOH/C_6H_6).
Mp 131-133°.

α-L-Furanose-*form*
*Tetra-Ac: 1,2,3,6-Tetra-*O*-acetyl-5-*O*-methyl-α-L-mannofuranose*
[140934-10-7]
$C_{15}H_{22}O_{10}$ 362.333
Syrup. $[\alpha]_D^{21}$ -70 (c, 1.3 in $CHCl_3$).
*2,3-Isopropylidene: 2,3-*O*-Isopropylidene-5-*O*-methyl-α-L-mannofuranose*
[140934-11-8]
$C_{10}H_{18}O_6$ 234.249
Needles (Me_2CO). Mp 99-100.5°. $[\alpha]_D^{28}$ -20 (c, 1.2 in $CHCl_3$).
Perlin, A.S. *et al., Can. J. Chem.*, 1964, **42**, 1365 (*synth*)
Randall, M.H. *et al., Carbohydr. Res.*, 1969, **11**, 173 (*synth*)
Chida, N. *et al., J. Carbohydr. Chem.*, 1992, **11**, 137-148 (*α-L-fur derivs*)

6-*O*-Methylmannose M-274



α-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

D-*form* [27552-12-1]
$[\alpha]_D$ +14 (c, 0.2 in $CHCl_3$). $[\alpha]_D^{25}$ +34.9 (10 min.) → +32.9 (8 hr.) (c, 1.10 in H_2O).

Phenylosazone: Mp 173-174°.

α-D-Pyranose-*form*

*Me glycoside: Methyl 6-*O*-methyl-α-D-mannopyranoside*
[27552-07-4]
$C_8H_{16}O_6$ 208.211
$Bp_{0.001}$ 75-80°. $[\alpha]_D^{25}$ +78.8 (c, 1.2 in $CHCl_3$).

*Me glycoside, 4-Ac: Methyl 4-*O*-acetyl-6-*O*-methyl-α-D-mannopyranoside*
[39523-78-9]
$C_{10}H_{18}O_7$ 250.248
Syrup. $[\alpha]_D^{23}$ +66.8 (c, 1.2 in $CHCl_3$).

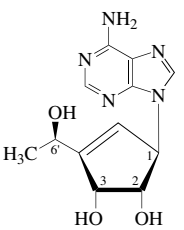
*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-6-*O*-methyl-α-D-mannopyranoside*
[28140-05-8]
$C_{14}H_{22}O_9$ 334.322
Mp 53-55°. $Bp_{0.01}$ 70°. $[\alpha]_D^{26}$ +56.8 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene:* See Methyl 2,3-*O*-isopropylidenemannopyranoside, M-200

Gros, E.G. *et al., Carbohydr. Res.*, 1970, **14**, 409 (*D-form, α-D-Me pyr, α-D-Me pyr tri-Ac*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1972, **24**, 263; 283 (*α-D-Me pyr, α-D-Me pyr Ac, α-D-Me pyr tri-Ac*)

6′-*C*-Methylneplanocin A M-275

*9-[2,3-Dihydroxy-4-(1-hydroxyethyl)-4-cyclopenten-1-yl]adenine. 5-(6-Amino-9*H*-purin-9-yl)-3-(1-hydroxyethyl)-3-cyclopentene-1,2-diol, 9CI. TJ 13025*



(1*R*,2*S*,3*R*,6′*R*)-*form*

$C_{12}H_{15}N_5O_3$ 277.282
Potent antiviral agent against DNA and RNA viruses. Relat. to Neplanocin A, N-29.

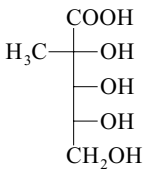
(1*R*,2*S*,3*R*,6′*R*)-*form* [138571-54-7]
Cryst. Mp 211°. Pharmacol. active isomer. 6′*R*-config. essential for activity.

(1*R*,2*S*,3*R*,6′*S*)-*form* [138662-99-4]
Cryst. Mp 231°.

[161128-66-1]

Shigeta, S. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 435-439 (*activity*)
Eur. Pat., 1992, 477 700, (*Toyo Jozo*); *CA*, **117**, 8368f (*synth, pharmacol*)
Shuto, S. *et al., J. Med. Chem.*, 1992, **35**, 324-331 (*synth, activity, pmr*)
Shuto, S. *et al., Bioorg. Med. Chem. Lett.*, 1994, **4**, 605-608 (*config*)
Shuto, S. *et al., Chem. Pharm. Bull.*, 1997, **45**, 138-142 (*synth, config*)

2-*C*-Methyl-*ribo*-pentonic acid M-276



$C_6H_{12}O_6$ 180.157

D-*form*

*1,4-Lactone, 2,3-isopropylidene, 5-tosyl: 2,3-*O*-Isopropylidene-2-*C*-methyl-5-*O*-tosyl-D-ribo-1,4-pentonolactone*
[85963-84-4]
$C_{16}H_{20}O_7S$ 356.396
Cryst. (Et_2O/petrol). Mp 93-94°. $[\alpha]_D^{22}$ +3.5 (c, 2.2 in $CHCl_3$).

Sowden, J.C. *et al., J.A.C.S.*, 1960, **82**, 3707 (*synth*)

4-Methylpentyl glucosinolate M-277

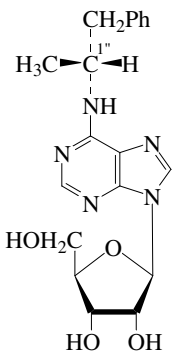
$(H_3C)_2CHCH_2CH_2CH_2C(SGlc)=NOSO_3H$

$C_{13}H_{25}NO_9S_2$ 403.474
Present in radish (*Raphanus sativus*).

Kjaer, A. *et al., Agric. Biol. Chem.*, 1978, **42**, 1715 (*occur*)

N-(1-Methyl-2-phenylethyl)-adenosine, 9CI M-278

[20125-40-0]



(1″*R*)-*form*

$C_{19}H_{23}N_5O_4$ 385.422
Adenosine receptor agonist.

(1″*R*)-*form* [38594-96-6]
Mp 143-145°. The pharmacologically more active isomer.

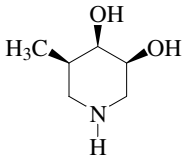
(1″*S*)-*form* [38594-97-7]
Mp 105-112°.

(1″*RS*)-*form*
Mp 141-142°.

U.K. Pat., 1968, 1 123 245; *CA*, **69**, 87018h (*synth*)
Bridges, A.J. *et al., J. Med. Chem.*, 1987, **30**, 1709-1711 (*synth*)

5-Methyl-3,4-piperidinediol, 9CI M-279

3,4-Dihydroxy-5-methylpiperidine. 2-C-Methyl-1,2,5-trideoxy-1,5-iminopentitol



$C_6H_{13}NO_2$ 131.174

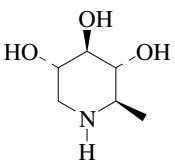
(3*S*,4*R*,5*R*)-*form*
L-ribo-*form. 2-*C*-Methyl-1,2,5-trideoxy-1,5-imino-L-ribitol*
[186204-76-2] α-Fucosidase inhibitor.

Hydrochloride: [176485-25-9]
$[\alpha]_D^{25}$ -6.3 (c, 0.75 in H_2O).

Hansen, A. *et al., Chem. Comm.*, 1996, 2649-2650 (*synth, pmr, cmr, use*)
Hansen, A. *et al., Tetrahedron*, 1997, **53**, 697-706 (*synth*)

2-Methyl-3,4,5-piperidinetriol, 9CI M-280

3,4,5-Trihydroxy-2-methylpiperidine. 1,5-Imino-1,5,6-trideoxyhexitol



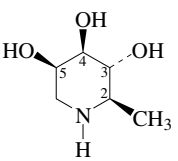
$C_6H_{13}NO_3$ 147.174

(2*R*,3*R*,4*R*,5*S*)-*form*
1,5-Imino-1,5,6-trideoxy-D-glucitol. ***1,6-Dideoxynojirimycin***
Alkaloid from the pods of *Angylocalyx pynaertii*.
$[\alpha]_D$ +37.8 (c, 0.26 in H_2O).

Yasuda, K. *et al., J. Nat. Prod.*, 2002, **65**, 198-202 (*isol, pmr, cmr*)

2-Methyl-3,4,5-piperidinetriol M-281

1,5,6-Trideoxy-1,5-iminohexitol



(2*R*,3*R*,4*R*,5*R*)-*form*

$C_6H_{13}NO_3$ 147.174

(2*R*,3*R*,4*R*,5*R*)-*form*
1,5,6-Trideoxy-1,5-imino-D-mannitol. 1-Deoxy-D-rhamnojirimycin. 1,5-Dideoxy-1,5-imino-D-rhamnitol
[134735-70-9]
$[\alpha]_D^{23}$ -4 (c, 2.5 in H_2O).

Hydrochloride: [142204-08-8]
Solid. Mp 247-248° dec. $[\alpha]_D^{20}$ -35.7 (c, 0.6 in H_2O).

(2*R*,3*R*,4*R*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-D-glucitol. 1,6-Dideoxynojirimycin
[73861-92-4] Glucosidase inhibitor.
Resin. $[\alpha]_D^{23}$ +15.5 (c, 1.88 in H_2O).

(2*R*,3*R*,4*S*,5*R*)-*form*
1,5,6-Trideoxy-1,5-imino-D-altritol. 1,6-Dideoxy-D-altronojirimycin
[168252-99-1]
Oil. $[\alpha]_D^{20}$ +2 (c, 1.1 in MeOH).

(2*R*,3*R*,4*S*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-D-allitol. 1,6-Dideoxy-D-allonojirimycin
[158705-81-8]
Yellowish resin. $[\alpha]_D^{20}$ +17 (c, 1 in H_2O).
N*1,3,4,5-Tetra-Ac:* [158705-87-4]
$C_{14}H_{21}NO_7$ 315.322
Cryst. (2-propanol/diisopropyl ether). Mp 120°. $[\alpha]_D^{16}$ +7 (c, 1 in $CHCl_3$).

(2*R*,3*S*,4*R*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-D-galactitol. 1-Deoxy-D-fuconojirimycin. 1,5-Dideoxy-1,5-imino-D-fucitol
[135395-47-0]
Resin. $[\alpha]_D^{20}$ +49 (c, 1 in H_2O).

(2*R*,3*S*,4*S*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-D-gulitol. 1,6-Dideoxy-D-gulonojirimycin
[135395-58-3] Strong inhibitor of α-L-rhamnosidase.
Amorph. solid. $[\alpha]_D^{24}$ +6.3 (c, 0.96 in H_2O). $[\alpha]_D$ -3 (c, 1 in H_2O).

(2*S*,3*R*,4*R*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-L-iditol. 1,6-Dideoxy-L-idonojirimycin
[134735-66-3]
3,4,5-Tri-Ac:
$C_{12}H_{19}NO_6$ 273.285
$[\alpha]_D$ +10 (c, 0.91 in $CHCl_3$).

(2*S*,3*R*,4*S*,5*R*)-*form*
1,5,6-Trideoxy-1,5-imino-L-galactitol. 1-Deoxy-L-fuconojirimycin. 1,5-Dideoxy-1,5-imino-L-fucitol
[99212-30-3] Strong inhibitor of α-L-fucosidase.
Oil. $[\alpha]_D^{20}$ -48.8 (c, 0.64 in H_2O).

(2*S*,3*S*,4*R*,5*R*)-*form*
1,5,6-Trideoxy-1,5-imino-L-allitol. 1,6-Dideoxy-L-allonojirimycin
[150085-57-7]
Hygroscopic solid.
N*1,3,4,5-Tetra-Ac:* [150085-17-9]
Cryst. $^1/_3H_2O$ (Et_2O/petrol). Mp 119-120°. $[\alpha]_D$ -4 (c, 0.23 in $CHCl_3$).

(2*S*,3*S*,4*R*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-L-altritol. 1,6-Dideoxy-L-altronojirimycin
[135395-60-7]
Oil. $[\alpha]_D^{20}$ -2 (c, 1.1 in MeOH).

(2*S*,3*S*,4*S*,5*S*)-*form*
1,5,6-Trideoxy-1,5-imino-L-mannitol. 1-Deoxy-L-rhamnojirimycin. 1,5-Dideoxy-1,5-imino-L-rhamnitol
[135395-45-8]
Prisms (EtOH). Mp 169-170°. $[\alpha]_D^{20}$ +73 (c, 1 in H_2O).
Hydrochloride: [142204-10-2]
Solid. $[\alpha]_D^{20}$ +37.5 (c, 0.67 in H_2O).

(2*S*,3*S*,4*S*,5*R*)-*form*
1,6-Dideoxy-L-nojirimycin
$[\alpha]_D^{20}$ 0 (c, 1.6 in MeOH).
Fleet, G.W.J. *et al., Chem. Comm.*, 1985, 841-842 (*deoxy-L-fuco*)
Paulsen, H. *et al., Annalen*, 1988, 1121-1126 (*deoxy-L-fuco*)
Fleet, G.W.J. *et al., J.C.S. Perkin 1*, 1989, 665-666 (*deoxy-L-fuco*)
Kajimoto, T. *et al., J.A.C.S.*, 1991, **113**, 6187-6196 (*dideoxynojirimycin, deoxy-D-rhamno*)
Fairbanks, A.J. *et al., Tetrahedron*, 1992, **48**, 3365-3376 (*deoxy-D-rhamno*)
Washiyama, S. *et al., Biosci., Biotechnol., Biochem.*, 1993, **57**, 847-849 (*deoxy-L-rhamno*)
Hussain, A. *et al., Tetrahedron*, 1993, **49**, 2123-2130 (*dideoxy-L-allo*)
Streith, J. *et al., Helv. Chim. Acta*, 1995, **78**, 61-72 (*dideoxy-D-altro, dideoxy-L-altro*)
Defoin, A. *et al., Helv. Chim. Acta*, 1996, **79**, 560-567 (*dideoxy-D-gulo*)
Takahashi, S. *et al., J.C.S. Perkin 1*, 1997, 607-612 (*deoxy-L-fuco*)
Dhavale, D.D. *et al., J.O.C.*, 1997, **62**, 7482-7484 (*dideoxynojirimycin*)
Defoin, A. *et al., Tetrahedron*, 1997, **53**, 13769-13782; 13783-13796 (*dideoxynojirimycin, dideoxy-L-allo, deoxy-D-fuco*)
Davis, B.G. *et al., Tetrahedron: Asymmetry*, 1998, **9**, 2947-2960 (*dideoxy-D-gulo*)
Meyers, A.I. *et al., Tetrahedron*, 1999, **55**, 8931-8952 (*deoxy-L-rhamno*)
Pistia, G. *et al., Carbohydr. Res.*, 2000, **328**, 467-472 (*deoxy-D-fuco, dideoxynojirimycin*)
Gil, L. *et al., Synthesis*, 2000, 2117-2126 (*dideoxy-L-ido, tri-Ac*)
Bordier, A. *et al., Tetrahedron: Asymmetry*, 2003, **14**, 47-51 (*dideoxy-L-nojirimycin*)

1-Methylpropyl glucosinolate M-282

1-Thio-β-D-glucopyranose 1-[2-methyl-N-(sulfooxy)butanimidate], 9CI. sec-*Butyl glucosinolate.* ***Glucocochlearin***
[499-24-1]
$H_3CCH_2CH(CH_3)C(SGlc){=}NOSO_3H$
$C_{11}H_{21}NO_9S_2$ 375.42
Isol. from *Cochlearia officinalis*, *Cardamine pratensis*, *Putranjiva roxburghii* and *Capparis* sp. Highly hygroscopic amorph. solid (as K salt).

Tetra-Ac: [16885-28-2]
Needles (EtOH aq.) (as K salt). Mp 193-194° (K salt). $[\alpha]_D^{27}$ -8 (c, 0.7 in H_2O).

[18462-54-9]

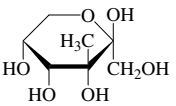
Schultz, O.E. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1955, **288**, 525 (*isol*)
Kjaer, A. *et al., Phytochemistry*, 1963, **2**, 29 (*isol*)
Benn, M.H. *et al., Can. J. Chem.*, 1967, **45**, 1595 (*synth*)

2-Methylpropyl glucosinolate M-283

1-Thio-β-D-glucoside 1-[3-methyl-N-(sulfooxy)butanimidate], 9CI. Isobutyl glucosinolate
[38226-91-4]
$(H_3C)_2CHCH_2C(SGlc){=}NOSO_3H$
$C_{11}H_{21}NO_9S_2$ 375.42
Present in *Conringia orientalis* (hare's ear mustard), *Tersonia brevipes* and seeds of *Brassica oleracea* (cabbage).

Underhill, E.W. *et al., Phytochemistry*, 1972, **11**, 2085 (*occur*)
Kjaer, A. *et al., Phytochemistry*, 1979, **18**, 1565 (*occur*)
Macleod, A.J. *et al., Phytochemistry*, 1989, **28**, 1405 (*occur*)

3-*C*-Methylpsicose M-284



β-D-Pyranose-*form*

$C_7H_{14}O_6$ 194.184

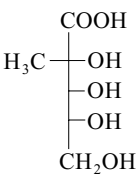
D-*form*
*6-Deoxy: 6-Deoxy-3-*C*-methyl-D-psicose*
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D^{25}$ -27 (c, 1.46 in H_2O).

β-D-Pyranose-*form*
*1,2:4,5-Diisopropylidene: 1,2:4,5-Di-*O*-isopropylidene-3-*C*-methyl-β-D-psicopyranose*
$C_{13}H_{22}O_6$ 274.313
Cryst. (hexane). Mp 94-96°. $[\alpha]_D^{25}$ -130 (c, 1.17 in $CHCl_3$).

β-D-Furanose-*form*
*1,2:3,4-Diisopropylidene: 1,2:3,4-Di-*O*-isopropylidene-3-*C*-methyl-β-D-psicofuranose*
$C_{13}H_{22}O_6$ 274.313
Cryst. (hexane). Mp 69-70°. $[\alpha]_D^{25}$ -44 (c, 1.06 in $CHCl_3$).
*1,2:3,4-Diisopropylidene, 6-tosyl: 1,2:3,4-Di-*O*-isopropylidene-3-*C*-methyl-6-*O*-tosyl-β-D-psicofuranose*
$C_{20}H_{28}O_8S$ 428.502
Cryst. (Et_2O/hexane). Mp 81-83°. $[\alpha]_D^{25}$ -27 (c, 1.03 in $CHCl_3$).
*6-Deoxy, 1,2:3,4-diisopropylidene: 6-Deoxy-1,2:3,4-di-*O*-isopropylidene-3-*C*-methyl-β-D-psicofuranose*
$C_{13}H_{22}O_5$ 258.314
Syrup. $[\alpha]_D^{25}$ -80 (c, 1.81 in $CHCl_3$).
Cubero, I.Z. *et al., Carbohydr. Res.*, 1981, **89**, 65 (*synth, pmr, cmr*)

2-*C*-Methylribonic acid M-285

Glucosaccharinic acid
[29625-80-7]



D–*form*

$C_6H_{12}O_6$ 180.157

D-*form* [7473-35-0]
Anilide: Mp 193-195°. $[\alpha]_D^{20}$ +58 (H_2O).
Phenylhydrazide: Mp 167-169°. $[\alpha]_D^{20}$ +50 (H_2O).
*1,4-Lactone: 2-*C*-Methyl-D-ribono-1,4-lactone. α-Glucosaccharin. Glucosaccharino-γ-lactone. Glucosaccharinic lactone. Saccharin*†
[492-30-8]
$C_6H_{10}O_5$ 162.142

Rearrangement product of D-glucose under mild conditions ($Ca(OH)_2$ aq. at r.t., 10% yield). V. inexpensive synthon for chiral molecules. Mp 160-161°. $[\alpha]_D^{20}$ +93 (H_2O).

1,4-Lactone, 2,3,5-tri-Ac: [23669-83-2]
$C_{12}H_{16}O_8$ 288.254
Syrup. $Bp_{0.01}$ 120° (bath). $[\alpha]_D^{20}$ +146.5 (c, 0.5 in EtOH).

1,4-Lactone, 2,3,5-tribenzoyl: [7392-74-7]
$C_{27}H_{22}O_8$ 474.466
Mp 139-140°. $[\alpha]_D^{20}$ +122.5 (c, 0.5 in EtOH).

*1,4-Lactone, 2,3-*O*-isopropylidene:* [23709-41-3]
$C_9H_{14}O_5$ 202.207
Mp 57-58°. $[\alpha]_D^{20}$ -44 (c, 0.5 in EtOH).

*4,5-Anhydro, Me ester: Methyl 4,5-anhydro-2-*C*-methyl-*D*-ribonate*
[85994-63-4]
$C_7H_{12}O_5$ 176.169
$[\alpha]_D^{23}$ -8.2 (c, 4.29 in $CHCl_3$).

*4,5-Anhydro, 2,3-isopropylidene, Me ester: Methyl 4,5-anhydro-2,3-*O*-isopropylidene-2-*C*-methyl-*D*-ribonate*
$C_{10}H_{16}O_5$ 216.233
Oil. Bp_{12} 123-127°. $[\alpha]_D^{23}$ -8.2 (c, 4.3 in $CDCl_3$).

L-*form*

*1,4-Lactone: 2-*C*-Methyl-L-ribono-1,4-lactone*
[19774-08-4]
$C_6H_{10}O_5$ 162.142
Cryst. (MeCN). Mp 159-160°. $[\alpha]_D$ -91.1 (c, 1.2 in H_2O).

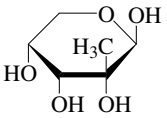
DL-*form*

Et ester: [93636-16-9]
$C_8H_{16}O_6$ 208.211
Mp 125-127°.

*1,4-Lactone: 2-*C*-Methyl-DL-ribono-1,4-lactone*
[86204-17-3]
$C_6H_{10}O_5$ 162.142
Mp 155-156°.

Green, J.W. *et al., J.A.C.S.*, 1956, **78**, 1894, (*D-anilide*)
Sowden, J.C. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 35 (*rev*)
Sowden, J.C. *et al., J.A.C.S.*, 1957, **79**, 6450; 1963, **83**, 3707 (*D-lactone, 4,5-anhydro*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 484 (*D-lactone*)
Ferrier, R.J. *et al., J.C.S.(C)*, 1968, 1091, (*L-lactone*)
Novák, J.J.K. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 857 (*D-lactone, D-lactone isopropylidene, D-lactone tri-Ac, D-lactone tribenzoyl*)
Petersson, G. *et al., Org. Mass Spectrom.*, 1972, **6**, 577
Hoffman, R.W. *et al., Chem. Ber.*, 1983, **116**, 1631 (*4,5-anhydro*)
Ireland, R.E. *et al., J.A.C.S.*, 1983, **105**, 1988 (*L-lactone 2,3-isopropylidene*)
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **129**, 99 (*DL-form*)
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **264**, 191 (*cryst struct, D-lactone*)
López-Herrera, F.J. *et al., J. Carbohydr. Chem.*, 1994, **13**, 767-775 (*D-1,4-lactone, synth*)

2-*C*-Methylribose M-286



β-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form*

Cryst. (prev. descr. as syrup). Mp 93-95°. $[\alpha]_D^{23}$ -12 (c, 0.9 in H_2O).

Tosylhydrazone:
Cryst. (EtOH). Mp 169.5-170°. $[\alpha]_D^{22}$ +1.8 (c, 0.5 in Py).

β-D-Pyranose-*form*

*Benzyl glycoside: Benzyl 2-*C*-methyl-β-D-ribopyranoside*
$C_{13}H_{18}O_5$ 254.282
Cryst. (THF/hexane). Mp 109-110.5°. $[\alpha]_D$ -120 (c, 1.0 in Me_2CO).

D-Furanose-*form* [23669-84-3]
Cryst. (2-propanol). Mp 93-95°. $[\alpha]_D^{20}$ -23.6 (c, 0.62 in H_2O) (equilib.).

*2,3-Carbonate: 2-*C*-Methyl-D-ribofuranose 2,3-*O*-carbonate*
[23661-05-4]
$C_7H_{10}O_6$ 190.152
Cryst. (EtOAc). Mp 113°.

*Tetrabenzoyl: 1,2,3,5-Tetra-*O*-benzoyl-2-*C*-methyl-β-D-ribofuranose*
[15397-15-6]
$C_{34}H_{28}O_9$ 580.59
Cryst. Mp 159-160°. $[\alpha]_D$ +68 (c, 1 in $CHCl_3$).

β-D-Furanose-*form*

*Me glycoside: Methyl 2-*C*-methyl-β-D-ribofuranoside*
[23669-86-5]
$C_7H_{14}O_5$ 178.185
Cryst. (MeOH). Mp 109°. $[\alpha]_D^{20}$ -82.1 (c, 0.5 in EtOH).

L-*form*

Syrup. $[\alpha]_D^{20}$ +111 (c, 0.9 in EtOH).

Tosylhydrazone: [19774-07-3]
Cryst. (MeOH). Mp 169-170°. $[\alpha]_D^{20}$ +9.3 (c, 1.1 in Py).

β-L-Pyranose-*form*

*Me glycoside: Methyl 2-*C*-methyl-β-L-ribopyranoside*
[19774-05-1]
$C_7H_{14}O_5$ 178.185
Cryst. (Et_2O). Mp 58-59°. $[\alpha]_D^{20}$ +173.8 (c, 0.5 in MeOH).

*Benzyl glycoside, 3,4-isopropylidene: Benzyl 3,4-*O*-isopropylidene-2-*C*-methyl-β-L-ribopyranoside*
[87598-88-7]
$C_{16}H_{22}O_5$ 294.347
Liq. $Bp_{0.005}$ 100° (bath). $[\alpha]_D^{25}$ +186.5 (c, 1.0 in $CHCl_3$).

Feast, A.A.J. *et al., Acta Chem. Scand.*, 1965, **19**, 1127 (*synth, D-form*)
Walton, E. *et al., J.A.C.S.*, 1966, **88**, 4524, (*D-fur-tetrabenzoyl*)
Ferrier, R.J. *et al., J.C.S.(C)*, 1968, 1091, (*L-form, synth, β-L-Me pyr*)
Jenkins, S.R. *et al., J.O.C.*, 1968, **33**, 2490, (*D-fur-tetrabenzoyl*)
Novák, J.J.K. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 857 (*D-fur form, D-carbonate, β-D-Me fur*)
Ireland, R.E. *et al., J.O.C.*, 1983, **48**, 5186 (*Benzyl β-L-pyr isopropylidene*)
Eilitz, U. *et al., J. Het. Chem.*, 2003, **40**, 329-335 (*synth, D-form, 3-D-benzyl pyr*)

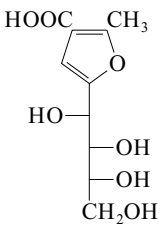
11-(Methylsulfinyl)undecyl glucosinolate M-287

$MeSO(CH_2)_{11}C(SGlc)=NOSO_3H$

$C_{19}H_{37}NO_{10}S_3$ 535.7
Present in seeds of *Neslia paniculata*.

Kjaer, A. *et al., Phytochemistry*, 1972, **11**, 3045 (*occur*)

2-Methyl-5-(1,2,3,4-tetrahydroxybutyl)-3-furancarboxylic acid M-288



$C_{10}H_{14}O_7$ 246.216

(1′*S*,2′*R*,3′*R*)-*form*
D-arabino-*form*

Tetrakis(3-pyridinecarbonyl), Me ester: ***Nicofurate, INN****. Arteriolase. GN 3. Tetnicoran*
[4397-91-5]
$C_{35}H_{28}N_4O_{11}$ 680.626
No longer marketed
Vasodilator, antilipidaemic agent. Cryst. (MeOH/Et_2O). Mp 122.5-124°. Log P 2.56 (uncertain value) (calc).

Fr. Pat., 1965, 1 404 748, (*Fujisawa Pharm*); *CA*, **64**, 712d (*synth*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 13010

4-(Methylthio)-3-butenyl glucosinolate M-289

*1-Thio-β-D-glucopyranose 1-[5-(methylthio)-*N*-(sulfooxy)-4-pentenimidate], 9CI.* ***Glucoraphasatin****. Glucodehydroerucin*
[28463-23-2]
$MeSCH=CHCH_2CH_2C(SGlc)=NOSO_3H$
$C_{12}H_{21}NO_9S_3$ 419.497
Isol. from *Matthiola fruticulosa*.

S-*Oxide: 4-(Methylsulfinyl)-3-butenyl glucosinolate.* ***Glucoraphenin***
[28463-24-3]
$C_{12}H_{21}NO_{10}S_3$ 435.497
Isol. from *Matthiola bicornis* and *Matthiola fruticulosa*. Needles $+1H_2O$(EtOH) (as tetra-Ac, K salt).
Mp 155-156° (tetra-Ac, K salt). $[\alpha]_D^{27}$ -23.5 (c, 1.5 in H_2O) (tetra-Ac, K salt).

6′-(4-Hydroxy-3,5-dimethoxycinnamoyl), S-*oxide:* ***6-Sinapoylglucoraphenin***
[76653-80-0]
$C_{23}H_{31}NO_{14}S_3$ 641.694

Isol. from radish (*Raphanus sativus*) cotyledons.

Schultz, O.E. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1955, **288**, 525 (*isol*)
Kjaer, A. *et al., Acta Chem. Scand.*, 1959, **13**, 851 (*isol*)
Gmelin, R. *et al., Phytochemistry*, 1970, **9**, 569 (*isol*)
Wendisch, D. *et al., Z. Naturforsch., C*, 1980, **35**, 907 (*isol*)

4-(Methylthio)butyl glucosinolate M-290

*1-Thio-β-D-glucopyranose 1-[5-(methylthio)-*N*-(sulfooxy)pentanimidate], 9CI.* ***Glucoerucin***
[21973-56-8]

[15592-37-7]

$MeSCH_2CH_2CH_2CH_2C(SGlc)=NOSO_3H$

$C_{12}H_{23}NO_9S_3$ 421.513
Isol. from seeds of salad rocket (*Eruca sativa*) and Brussels sprouts (*Brassica oleracea* var. *gemmifera*).
Mp 153-154° (as K salt). $[\alpha]_D^{25}$ -21.5 (c, 0.55 in H_2O) (K salt).

S-*Oxide: 4-(Methylsulfinyl)butyl glucosinolate.* ***Glucoraphanin***
[21414-41-5]
$C_{12}H_{23}NO_{10}S_3$ 437.512
Isol. from radish (*Raphanus sativus*) and *Brassica* sp. seeds or tops.

S-*Oxide,* L*-proline salt:*
$C_{17}H_{32}N_2O_{12}S_3$ 552.644
Constit. of the flowering heads of *Cardaria draba*. Powder. $[\alpha]_D^{20}$ -44 (c, 16.3 in H_2O). λ_{max} 225 (H_2O).

S,S-*Dioxide: 4-(Methylsulfonyl)butyl glucosinolate.* ***Glucoerysolin***
[74542-16-8]

[11025-51-7, 22149-26-4]
$C_{12}H_{23}NO_{11}S_3$ 453.512
Isol. from seeds of *Erysimum* sp. Needles (EtOH aq.) (as K salt).
Mp 161-163° (K salt). $[\alpha]_D^{28}$ -19.1 (c, 0.75 in H_2O) (K salt).

Tetra-Ac: Mp 150-151° dec. (as K salt). $[\alpha]_D^{26}$ -14.9 (c, 0.51 in H_2O).

Tetra-Ac, S,S*-dioxide:* [23614-86-0]
Cryst. (EtOH) (as K salt). Mp 155-156° (K salt). $[\alpha]_D^{28}$ -17.1 (c, 0.86 in H_2O) (K salt).

*6′-*O*-Benzoyl:* ***6′-O-Benzoylglucoerucin***
$C_{19}H_{27}NO_{10}S_3$ 525.621
Constit. of *Arabidopsis thaliana*.

*6′-*O*-Benzoyl,* S*-oxide:* ***6′-O-Benzoylglucoraphanin***
$C_{19}H_{27}NO_{11}S_3$ 541.62
Constit. of *Arabidopsis thaliana*.

S-*De-Me: 1-Thio-β-D-glucopyranose 1-[*N*-(sulfooxy)-5-thiopentanimidate], 9CI. 4-Mercaptobutyl glucosinolate*
$C_{11}H_{21}NO_9S_3$ 407.486
Isol. from the leaves of *Eruca sativa* (rocket).

Schneider, W. *et al., Annalen*, 1912, **392**, 1 (*Glucoerysolin, isol*)
Schmidt, H. *et al., Helv. Chim. Acta*, 1948, **31**, 1017 (*Glucoraphanin*)
Gmelin, R. *et al., Acta Chem. Scand.*, 1968, **22**, 2875 (*Glucoerysolin*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Heaney, R.K. *et al., J. Sci. Food Agric.*, 1980, **31**, 785-793 (*isol*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*cmr*)
Verkerk, R. *et al., Natural Toxicants in Food*, (ed. Watson, D.H.), CRC Press, 1998, 29-53 (*rev, occur*)
Fréchard, A. *et al., Fitoterapia*, 2002, **73**, 177-178 (*S-oxide proline salt*)
Reichelt, M. *et al., Phytochemistry*, 2002, **59**, 663-671 (*isol, pmr, cmr*)
Bennett, R.N. *et al., Phytochemistry*, 2002, **61**, 25-30 (*Mercaptobutyl glucosinolate*)

10-(Methylthio)decyl glucosinolate M-291

*1-Thio-β-D-glucopyranose 1-[11-(methylthio)-*N*-(sulfooxy)undecanimidate], 9CI*
$MeS(CH_2)_{10}C(SGlc)=NOSO_3H$
$C_{18}H_{35}NO_9S_3$ 505.674
Constit. of *Arabis amplexicaulis*.

S-*Oxide: 10-(Methylsulfinyl)decyl glucosinolate. Glucocamelinin*
[67884-10-0]
$C_{18}H_{35}NO_{10}S_3$ 521.673
Present in seeds of *Camelina* sp.

S,S-*Dioxide: 10-(Methylsulfonyl)decyl glucosinolate*
$C_{18}H_{35}NO_{11}S_3$ 537.673
Constit. of *Arabis turrita*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 1614 (*isol*)
Daxenbichler, M.E. *et al., Phytochemistry*, 1991, **30**, 2623-2628 (*isol*)

2-(Methylthio)ethyl glucosinolate M-292

*1-Thio-β-D-glucopyranose 1-[3-(methylthio)-*N*-(sulfooxy)propanimidate], 9CI*
[27303-30-6]

[10593-29-0]

$MeSCH_2CH_2C(SGlc)=NOSO_3H$

$C_{10}H_{19}NO_9S_3$ 393.459
Present in horseradish (*Armoracia lapathifolia*).

S-*Oxide: 2-(Methylsulfinyl)ethyl glucosinolate*
$C_{10}H_{19}NO_{10}S_3$ 409.459
Constit. of *Arabidopsis thaliana*.

Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)
Reichelt, M. *et al., Phytochemistry*, 2002, **59**, 663-671 (*S-oxide*)

7-(Methylthio)heptyl glucosinolate M-293

*1-Thio-β-D-glucopyranose 1-[8-(methylthio)-*N*-(sulfooxy)octanimidate], 9CI*
[80667-67-0]
$MeS(CH_2)_7C(SGlc)=NOSO_3H$
$C_{15}H_{29}NO_9S_3$ 463.593
Present in *Arabis hirsuta* and *Arabidopsis thaliana*.

S-*Oxide: 7-(Methylsulfinyl)heptyl glucosinolate.* ***Glucosibarin***
[112572-51-7]
$C_{15}H_{29}NO_{10}S_3$ 479.593
Present in *Sibara virginica* and *Arabidopsis thaliana*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1970, **24**, 3031; 1972, **26**, 8 (*occur*)
Hasapis, X. *et al., Phytochemistry*, 1981, **20**, 2355 (*occur*)
Hogge, L.R. *et al., J. Chromatogr. Sci.*, 1986, **26**, 551 (*occur*)

6-(Methylthio)hexyl glucosinolate M-294

*1-Thio-β-D-glucopyranose 1-[7-(methylthio)-*N*-(sulfooxy)heptanimidate], 9CI*
[74542-17-9]
$MeS(CH_2)_6C(SGlc)=NOSO_3H$
$C_{14}H_{27}NO_9S_3$ 449.567
Present in *Arabidopsis thaliana* and other crucifers.

S-*Oxide: 6-(Methylsulfinyl)hexyl glucosinolate.* ***Glucohesperalin***. *Glucohesperin*
[33049-17-1]
$C_{14}H_{27}NO_{10}S_3$ 465.566
Present in seeds of *Hesperis matronalis* (sweet rocket).

S,S-*Dioxide: 6-(Methylsulfonyl)hexyl glucosinolate*
[74542-18-0]
$C_{14}H_{27}NO_{11}S_3$ 481.565
Present in crucifers.

Daxenbichler, M.E. *et al., J.O.C.*, 1961, **26**, 4168 (*isol*)
Christensen, B.W. *et al., Acta Chem. Scand.*, 1963, **17**, 846 (*Glucohesperalin*)
Hogge, L.R. *et al., J. Chromatogr. Sci.*, 1986, **26**, 551 (*isol*)

9-(Methylthio)nonyl glucosinolate M-295

*1-Thio-β-D-glucopyranose 1-[10-(methylthio)-*N*-(sulfooxy)decanimidate], 9CI*
[81149-01-1]
$MeS(CH_2)_9C(SGlc)=NOSO_3H$
$C_{17}H_{33}NO_9S_3$ 491.647
Present in *Arabis purpurea*.

S-*Oxide: 9-(Methylsulfinyl)nonyl glucosinolate.* ***Glucoarabin***
[67920-64-3]
$C_{17}H_{33}NO_{10}S_3$ 507.646
Present in seeds of *Arabis alpina*.

S,S-*Dioxide: 9-(Methylsulfonyl)nonyl glucosinolate*
$C_{17}H_{33}NO_{11}S_3$ 523.646
Constit. of *Arabidopsis turrita* and *Sinapis arvensis*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 1358 (*Glucoarabin*)
Hasapis, X. *et al., Phytochemistry*, 1981, **20**, 2355 (*occur*)
Daxenbichler, M.E. *et al., Phytochemistry*, 1991, **30**, 2623-2628 (*isol*)

8-(Methylthio)octyl glucosinolate M-296

*1-Thio-β-D-glucopyranose 1-[9-(methylthio)-*N*-(sulfooxy)nonanimidate], 9CI*
[80667-68-1]
$MeS(CH_2)_8C(SGlc)=NOSO_3H$
$C_{16}H_{31}NO_9S_3$ 477.62
Present in seeds of *Arabis hirsuta*.

S-*Oxide: 8-(Methylsulfinyl)octyl glucosinolate.* ***Glucohirsutin***
[21973-60-4]
$C_{16}H_{31}NO_{10}S_3$ 493.62

Present in seeds of *Arabis hirsuta* and *Sibara virginica*.

S,S-*Dioxide: 8-(Methylsulfonyl)octyl glucosinolate*
$C_{16}H_{31}NO_{11}S_3$ 509.619
Constit. of *Heliophila amplexicaulis* and *Sinapis arvensis*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1958, **12**, 833; 1970, **24**, 3031; 1972, **26**, 8 (*isol*)
Daxenbichler, M.E. *et al., Phytochemistry*, 1991, **30**, 2623-2628 (*isol*)

8-(Methylthio)-3-oxooctyl glucosinolate M-297

$MeS(CH_2)_5COCH_2CH_2C(SGlc)=NOSO_3H$

$C_{16}H_{29}NO_{10}S_3$ 491.604
Present in seeds of *Arabis hirsuta*.

S-*Oxide: 8-(Methylsulfinyl)-3-oxooctyl glucosinolate*
$C_{16}H_{29}NO_{11}S_3$ 507.603
Present in seeds of *Arabis hirsuta*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1972, **26**, 8 (*occur*)

5-(Methylthio)pentyl glucosinolate M-298

*1-Thio-β-D-glucopyranose 1-[6-(methylthio)-*N*-(sulfooxy)hexanimidate], 9CI.* ***Glucoberteroin***
[29611-01-6]
$MeS(CH_2)_5C(SGlc)=NOSO_3H$

$C_{13}H_{25}NO_9S_3$ 435.54
Present in seeds of *Berteroa incana* and in *Erysimum hieracifolium*.

S-*Oxide: 5-(Methylsulfinyl)pentyl glucosinolate.* ***Glucoalyssin***
[499-37-6]
$C_{13}H_{25}NO_{10}S_3$ 451.539
Isol. from *Alyssum argenteum*. Cryst. (EtOH) (as tetra-Ac, K salt).
Mp 158° dec. (tetra-Ac, K salt). $[\alpha]_D$ -10.54 (c, 1.66 in H_2O) (tetra-Ac, K salt).

S,S-*Dioxide: 5-(Methylsulfonyl)pentyl glucosinolate*
$C_{13}H_{25}NO_{11}S_3$ 467.539
Constit. of *Cakile maritima* and *Erysimum rhaeticum*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1955, **9**, 1311; 1956, **10**, 1100; 1970, **24**, 1631 (*occur*)
Schultz, O.E. *et al., Z. Naturforsch., B*, 1956, **11**, 417 (*Glucoalyssin*)
Kjaer, A. *et al., Phytochemistry*, 1973, **12**, 929-933 (*isol*)
Daxenbichler, M.E. *et al., Phytochemistry*, 1991, **30**, 2623-2628 (*isol*)

3-(Methylthio)propyl glucosinolate M-299

*1-Thio-β-D-glucopyranose 1-[4-(methythio)-*N*-(sulfooxy)butanimidate], 9CI.* ***Glucoibervirin***
[26888-03-9]
$MeSCH_2CH_2CH_2C(SGlc)=NOSO_3H$

$C_{11}H_{21}NO_9S_3$ 407.486
Present in seeds of *Iberis sempervirens*.

S-*Oxide: 3-(Methylsulfinyl)propyl glucosinolate.* ***Glucoiberin***
[554-88-1]
$C_{11}H_{21}NO_{10}S_3$ 423.486
Isol. from seeds of *Iberis amara, Brassica oleracea* and other crucifers. Precursor to 1-Isothiocyanato-3-(methylsulfinyl)propane. Needles (EtOH aq.).
Mp 142-144° dec. (as K salt). $[\alpha]_D^{20}$ -55.3 (c, 4.9 in H_2O).

S-*Oxide, tetra-Ac:*
Needles + $1H_2O$ (EtOH aq.) (as K salt).
Mp 145-147° dec. (K salt). $[\alpha]_D^{23}$ -16.6 (c, 2.0 in H_2O).

S,S-*Dioxide: 3-(Methylsulfonyl)propyl glucosinolate.* ***Glucocheirolin***
[554-86-9]
$C_{11}H_{21}NO_{11}S_3$ 439.485
Isol. from seeds of many crucifers. Cryst. (EtOH aq.) (as K salt).
Mp 168° (K salt). $[\alpha]_D$ -18.5 (c, 3.45 in H_2O).

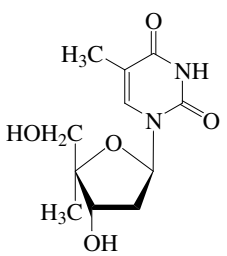
S,S-*Dioxide, tetra-Ac:*
$C_{19}H_{29}NO_{15}S_3$ 607.634
Mp 193-194° (as K salt). $[\alpha]_D$ -18 (c, 1.0 in H_2O).

[15592-34-4, 15592-36-6, 27303-31-7]

Schneider, W. *et al., Ber.*, 1913, **46**, 2634 (*isol*)
Schultz, O.E. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1954, **287**, 404 (*isol*)
Kjaer, A. *et al., Acta Chem. Scand.*, 1955, **9**, 1143; 1959, **13**, 851 (*isol*)
Gmelin, R. *et al., Arzneim.-Forsch.*, 1966, **16**, 123; *CA*, **64**, 18023f (*isol*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*cmr*)
Verkerk, R. *et al., Natural Toxicants in Food*, (ed. Watson, D.H.), CRC Press, 1998, 29-53 (*rev, occur*)
Jaki, B. *et al., J. Nat. Prod.*, 2002, **65**, 517-522 (*Glucoiberin*)

4′-Methylthymidine, 9CI M-300

*1-(2-Deoxy-4-*C*-methyl-β-D-*erythro-*pentofuranosyl)thymine*
[139925-84-1]



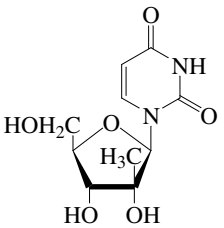
$C_{11}H_{16}N_2O_5$ 256.258
Shows inhibitory activity against HIV in MT-4 cells. Cryst. ($MeOH/Et_2O$). Mp 167°. $[\alpha]_D^{25}$ +33.6 (c, 1.1 in MeOH).

*3′-Epimer: 1-(2-Deoxy-4-*C*-methyl-β-D-*threo-*pentofuranosyl)thymine*
[152141-66-7]
Solid (2-propanol). Mp 196-199°. $[\alpha]_D^{22}$ -14 (c, 0.1 in $CHCl_3$/MeOH).

Hrebabecky, H. *et al., Coll. Czech. Chem. Comm.*, 1993, **58**, 1668-1674 (*3′-epimer, synth, pmr*)
Waga, T. *et al., Nucleosides Nucleotides*, 1996, **15**, 287-304 (*synth, ir, uv, pmr*)
Jung, M.E. *et al., J.O.C.*, 2001, **66**, 2624-2635 (*3′-epimer, synth, ir, pmr, cmr*)
Detmer, I. *et al., Eur. J. Org. Chem.*, 2003, 1837-1846 (*synth, ir, pmr, cmr*)

2′-*C*-Methyluridine M-301

*1-(2-*C*-Methyl-β-D-ribofuranosyl)-2,4(1*H*,3*H*)-pyrimidinedione, 9CI*
[31448-54-1]



$C_{10}H_{14}N_2O_6$ 258.23
Intermed. for RNA analogues. Cryst. (H_2O). Mp 118-119° (101-103°). $[\alpha]_D^{20}$ +82 (c, 0.7 in H_2O).

2′,3′-Di-Ac: [273935-23-2]
$C_{14}H_{18}N_2O_8$ 342.305
No phys. props. reported.

3′,5′-Di-Ac: [364337-03-1]
$C_{14}H_{18}N_2O_8$ 342.305
Characterised by pmr, cmr.

2′,3′,5′-Tri-Ac: [273935-22-1]
$C_{16}H_{20}N_2O_9$ 384.342
No phys. props. reported.

5′-(4-Methylbenzoyl), 2′,3′-di-Ac:
[110808-89-4]
$C_{22}H_{24}N_2O_9$ 460.44
Foam. $[\alpha]_D^{20}$ +23 (c, 1 in $CHCl_3$).

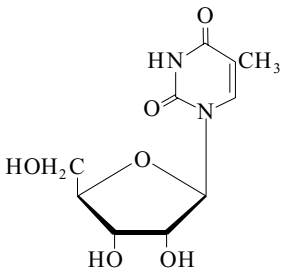
2′,3′,5′-Tribenzoyl: [23643-36-9]
$C_{31}H_{26}N_2O_9$ 570.554
Solid (EtOAc/hexane). Mp 201-202°. $[\alpha]_D^{20}$ -23 (c, 0.315 in $CHCl_3$).

2′,3′-Cyclic phosphate: [141635-70-3]
$C_{10}H_{13}N_2O_8P$ 320.195
Characterised spectroscopically.

U.K. Pat., 1970, 1 209 654; *CA*, **74**, 100358u (*synth*)
Beigelman, L.N. *et al., Carbohydr. Res.*, 1987, **166**, 219-232 (*synth, uv, pmr, cryst struct, cd, 5′-methylbenzyl 2′,3′-di-Ac*)
Tsapkina, E.N. *et al., Kristallografiya*, 1988, **33**, 1415-1420 (*cryst struct*)
Mikhailov, S.N. *et al., J.O.C.*, 1992, **57**, 4122-4126 (*cyclic phosphate, synth, pmr, P-31 nmr*)
Wolfe, M.S. *et al., Tet. Lett.*, 1995, **36**, 7611-7614 (*synth*)
Harry-O'kuru, R.E. *et al., J.O.C.*, 1997, **62**, 1754-1759 (*tribenzoyl, synth, pmr, cmr, ms*)
Iglesias, L.E. *et al., Biotechnol. Lett.*, 2000, **22**, 361-365 (*2′,3′-di-Ac, 2′,3,5′-tri-Ac*)
Gallo, M. *et al., Tetrahedron*, 2001, **57**, 5707-5713 (*Ac derivs, synth, pmr, cmr, P-31 nmr*)

5-Methyluridine M-302

Thymine riboside. Ribothymidine. Ribosylthymine
[1463-10-1]

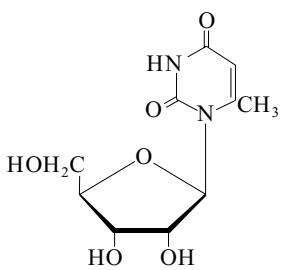


$C_{10}H_{14}N_2O_6$ 258.23
Occurs widely as a modified nucleoside in transfer ribonucleic acids. Cryst. (EtOH). Mp 183-185° (177.5-178.5°). $[\alpha]_D^{23}$ -8 (c, 2.3 in H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 371C (*nmr*)
Fox, J.J. *et al., J.A.C.S.*, 1956, **78**, 2117 (*synth*)
Wittenburg, E. *et al., Chem. Ber.*, 1968, **101**, 1095 (*synth*)
Watanabe, K.A. *et al., J. Het. Chem.*, 1969, **6**, 109 (*synth*)
Jones, S.S. *et al., Synthesis*, 1982, 259 (*synth*)
Tanaka, H. *et al., Tetrahedron*, 1986, **42**, 4187 (*synth, pmr*)
Pfister, M. *et al., Helv. Chim. Acta*, 1995, **78**, 1705 (*synth*)

6-Methyluridine, 9CI, 8CI M-303

[16710-13-7]



$C_{10}H_{14}N_2O_6$ 258.23
Cryst. (MeOH/EtOAc). Mp 177-178°. $[\alpha]_D^{30}$ -28.6 (c, 1.52 in H_2O). λ_{max} 261 (ε 11 200) (pH 11), 262 (9 400) (pH 11), 264 nm (7 900) (pH 14).

2′,3′,5′-Tri-Ac:
$C_{16}H_{20}N_2O_9$ 384.342
Mp 152-153°.

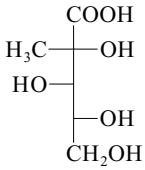
2′,3′,5′-Tribenzoyl:
$C_{31}H_{26}N_2O_9$ 570.554
Cryst. (CH_2Cl_2/pentane). Mp 126-129°. $[\alpha]_D^{20}$ -5 (c, 1.0 in $CHCl_3$).

*3*N-*Me: 3,6-Dimethyluridine*
$C_{11}H_{16}N_2O_6$ 272.257
Mp 155-157°. λ_{max} 261 (ε 9 120), 206 nm (8 128) (pH 7).

*3*N-*Benzyl:*
$C_{17}H_{20}N_2O_6$ 348.355
Syrup. λ_{max} 263 (ε 12 590), 210 nm (16 600) (pH 7).

Winkley, M.W. *et al., J.O.C.*, 1968, **33**, 2822 (*synth*)
Prystaš, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 2316 (*synth, pmr*)
Suck, D. *et al., J.A.C.S.*, 1972, **94**, 6520 (*cryst struct*)
Klein, R.S. *et al., J.O.C.*, 1972, **37**, 4381 (*synth*)
Schweizer, M.P. *et al., J.A.C.S.*, 1973, **95**, 3770 (*pmr, cmr*)
Niedballa, U. *et al., J.O.C.*, 1974, **39**, 3660 (*tribenzoyl*)

2-*C*-Methylxylonic acid M-304



D–*form*

$C_6H_{12}O_6$ 180.157

D-*form*

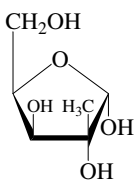
1,4-Lactone: 2-C-*Methyl-D-xylono-1,4-lactone*
$C_6H_{10}O_5$ 162.142
Cryst. (EtOAc). Mp 162-164°. $[\alpha]_D$ +96.5 (c, 3.5 in H_2O).

1,4-Lactone, 3,5-Isopropylidene: 3,5-O-Isopropylidene-2-C-methyl-D-xylono-1,4-lactone
$C_9H_{14}O_5$ 202.207
Mp 153-154°. $[\alpha]_D$ +69 (c, 0.9 in $CHCl_3$).

1,4-Lactone, 3,5-Isopropylidene, 2-Ac: 2-O-Acetyl-3,5-O-isopropylidene-2-C-methyl-D-xylono-1,4-lactone
$C_{11}H_{16}O_6$ 244.244
Mp 88-90°. $[\alpha]_D$ +53 (c, 0.8 in $CHCl_3$).

Novak, J.J.K. *et al., Coll. Czech. Chem. Comm.*, 1974, **39**, 869 (*lactone*)
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1984, **129**, 99 (*lactone derivs*)

2-*C*-Methylxylose M-305



α-D-Furanose-*form*

$C_6H_{12}O_5$ 164.158

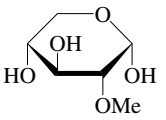
D-*form*
Syrup. $[\alpha]_D$ +1 (c, 1.1 in H_2O).

α-D-Furanose-*form*

1,2:3,5-Diisopropylidene: 1,2:3,5-Di-O-isopropylidene-2-C-methyl-α-D-xylofuranose
$C_{12}H_{20}O_5$ 244.287
Cryst. Mp 132-134°. $[\alpha]_D$ +18 (c, 1.1 in $CHCl_3$).

Cubero, I.I. *et al., Carbohydr. Res.*, 1982, **105**, 181 (*synth, pmr*)

2-*O*-Methylxylose M-306



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [7434-28-8]
Isol. from hydrol. of *Prunus domestica* (plum) polysaccharides.
Mp 137-138°. $[\alpha]_D$ -21 → +34 (2 hr.) (H_2O).

Di-Et dithioacetal: [54623-12-0]
$C_{10}H_{22}O_4S_2$ 270.413
Cryst. (petrol). Mp 60-61°. $[\alpha]_D^{21}$ +3 (c, 2.6 in $CHCl_3$).

5-Me: 2,5-Di-O-methyl-D-xylose
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D$ +46 (H_2O).

3,4-Di-Me: 2,3,4-Tri-O-methyl-D-xylose [4060-04-2]
$C_8H_{16}O_5$ 192.211
Mp 91-92°. $[\alpha]_D$ +16 (c, 1.5 in MeOH).

α-D-Pyranose-*form*

Tribenzoyl: 1,3,4-Tri-O-benzoyl-2-O-methyl-α-D-xylopyranose [38791-45-6]
$C_{27}H_{24}O_8$ 476.482
Mp 93-95°. $[\alpha]_D^{26}$ -84.1 (c, 1.4 in $CHCl_3$).

3-Me: 2,3-Di-O-methyl-α-D-xylopyranose
$C_7H_{14}O_5$ 178.185
Mp 79-80°. $[\alpha]_D$ +70 → +23 (24 hr.) (H_2O).

β-D-Pyranose-*form*
Mp 131°. $[\alpha]_D$ -21 → +23.8 (1 d) (EtOH).

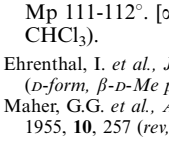
Tri-Ac: 1,3,4-Tri-O-acetyl-2-O-methyl-β-D-xylopyranose
$C_{12}H_{18}O_8$ 290.269
Mp 95°. $[\alpha]_D$ -2.2 ($CHCl_3$).

4-Me: 2,4-Di-O-methyl-β-D-xylopyranose
$C_7H_{14}O_5$ 178.185
Mp 116-118° (108°). $[\alpha]_D$ -30 → +22 (H_2O). $[\alpha]_D$ -26 ($CHCl_3$).

Me glycoside: Methyl 2-O-methyl-β-D-xylopyranoside
$C_7H_{14}O_5$ 178.185
Mp 111-112°. $[\alpha]_D$ -70 (c, 0.23 in $CHCl_3$).

Ehrenthal, I. *et al., J.A.C.S.*, 1954, **76**, 5509, (*D-form, β-D-Me pyr*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 257 (*rev, derivs*)
Andrews, P. *et al., Chem. Ind. (London)*, 1956, 1278 (*D-form, isol*)
van Es, T. *et al., Carbohydr. Res.*, 1974, **37**, 373 (*D-di-Et dithioacetal*)

3-*O*-Methylxylose M-307



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158

D-*form* [15075-11-3]
Mp 103-104° (94-96°). $[\alpha]_D$ +55 → +17 (H_2O).

4-Me: 3,4-Di-O-*methyl-D-xylose*
[7434-10-8]
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D$ +24.9 → +20.5 (H_2O).

5-Me: 3,5-Di-O-*methyl-D-xylose*
$C_7H_{14}O_5$ 178.185
Syrup. $[\alpha]_D$ +11 ($CHCl_3$).

2,5-Di-Me: 2,3,5-Tri-O-*methyl-D-xylose*
[20688-68-0]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D$ +24.7 → +29.5 (H_2O).

α-D-Furanose-*form*

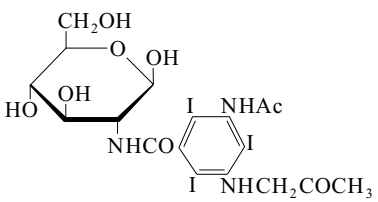
5-Benzoyl, 1,2-di-Ac: 1,2-Di-O-*acetyl-5*-O-*benzoyl-3*-O-*methyl-α-D-xylofuranose*
[58769-31-6]
$C_{17}H_{20}O_8$ 352.34
Needles (EtOAc/hexane). Mp 93-94°. $[\alpha]_D^{21}$ +84 ($CHCl_3$).

L-*form*
Component of the lipopolysaccharides of gram-negative bacteria *Rhodopseudomonas viridis* and *Pseudomonas maltophilia*. Mp 102-103°. $[\alpha]_D$ -57 → -18 (c, 1 in H_2O).

Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 257 (*rev, derivs*)
Bischofberger, K. *et al., Carbohydr. Res.*, 1975, **42**, 175 (*α-D-fur di-Ac benzoyl*)
Lipták, A. *et al., Carbohydr. Res.*, 1982, **107**, 296 (*synth, bibl, L-form*)

Metrizamide, BAN, INN, JAN M-308

*2-[[3-(Acetylamino)-5-(acetylmethylamino)-2,4,6-triiodobenzoyl]amino]-2-deoxy-D-glucose, 9CI. 2-[3-Acetamido-2,4,6-triiodo-5-(*N*-methylacetamido)benzamido]-2-deoxy-D-glucose, 8CI. Amipaque. Telebrin 300. Win 39103*
[31112-62-6]



$C_{18}H_{22}I_3N_3O_8$ 789.101
Radiopaque substance; contrast agent used in spinal cord and CNS radiology. Cryst. (2-propanol). Mp 230° dec. $[\alpha]_D^{20}$ +18 (c, 0.13 in 0.1*N* HCl).

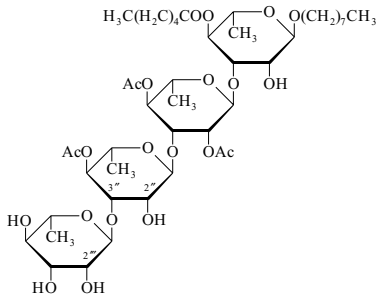
► Human systemic effects when used therapeutically. LD_{50} (rat, scu) 17 mg/kg. Exp. reprod. and teratogenic effects. LZ6650000

[55134-11-7]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 421B (*ir*)
Ger. Pat., 1971, 2 031 724; *CA*, **74**, 99662e (*synth*)
Mathias, A.P. *et al., FEBS Lett.*, 1973, **33**, 18
Rickwood, D. *et al., FEBS Lett.*, 1975, **50**, 102 (*rev*)
Hol, L. *et al., Pharmacol. Biochem. Prop. Drug Subst.*, 1977, **1**, 387 (*rev, pharm*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 710
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MQR300

Mezzettiaside 7 M-309

[134857-01-5]



$C_{44}H_{74}O_{21}$ 939.056
Extracted from the stem bark of *Mezzettia leptopoda* (Annonaceae). Cytotoxic agent. Gum. $[\alpha]_D$ -63 (c, 0.54 in $CHCl_3$).

2‴-Ac: ***Mezzettiaside 6***
[134857-00-4]
$C_{46}H_{76}O_{22}$ 981.093
From *Mezzettia leptopoda*. Gum. $[\alpha]_D$ -35 (c, 0.23 in $CHCl_3$).

3‴-Ac: ***Mezzettiaside 5***
[134856-99-8]
$C_{46}H_{76}O_{22}$ 981.093
From *Mezzettia leptopoda*. Gum. $[\alpha]_D$ -57 (c, 0.37 in $CHCl_3$).

3″-Deglycosyl: ***Mezzettiaside 4***
[135091-79-1]
$C_{38}H_{64}O_{17}$ 792.913
From *Mezzettia leptopoda*. Exhibits weak cytotoxicity. Gum. $[\alpha]_D$ -54 (c, 0.46 in $CHCl_3$).

3″-Deglycosyl, 2″-Ac: ***Mezzettiaside 2***
[135091-78-0]
$C_{40}H_{66}O_{18}$ 834.951
From *Mezzettia leptopoda*. Exhibits weak cytotoxicity. Gum. $[\alpha]_D$ -31 (c, 0.25 in $CHCl_3$).

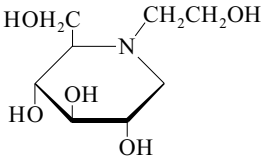
3″-Deglycosyl, 3″-Ac: ***Mezzettiaside 3***
[129832-67-3]
$C_{40}H_{66}O_{18}$ 834.951
From *Mezzettia leptopoda*. Exhibits weak cytotoxicity. Gum. $[\alpha]_D^{20}$ -49 (c, 0.38 in $CHCl_3$).

3″-Deglycosyl, 4″-de-Ac, 2″-Ac: ***Mezzettiaside 8***
$C_{38}H_{64}O_{17}$ 792.913
Constit. of *Mezzetia leptopoda*. Exhibits weak cytotoxicity. Gum. $[\alpha]_D$ -66.4 (c, 0.1 in $CHCl_3$).

Powell, D.A. *et al., Can. J. Chem.*, 1990, **68**, 1044
Etse, J.T. *et al., J.C.S. Perkin 1*, 1991, 861 (*isol, pmr, cmr, ms, ir*)
Cui, B. *et al., J. Nat. Prod.*, 1998, **61**, 1535-1538 (*isol, ir, pmr, cmr, activity*)

Miglitol, BAN, INN, USAN M-310

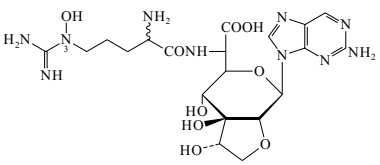
1,5-Dideoxy-1,5-[(2-hydroxyethyl)imino]-D-glucitol, 9CI. 1-(2-Hydroxyethyl)-2-(hydroxymethyl)-3,4,5-piperidinetriol. N-*Hydroxyethyl-1-desoxynojirimycin. Diastabol. Glyset. Bay m 1099*
[72432-03-2]



$C_8H_{17}NO_5$ 207.226
α- and β-Glucosidase inhibitor; used in the management of diabetes mellitus. Launched in Germany (1997). Cryst. (EtOH). Mp 143-145.5°. Log P -2.57 (calc).

Japan. Pat., 1981, 81 83 409; *CA*, **95**, 163893u (*pharmacol*)
Eur. Pat., 1982, 55 431; *CA*, **98**, 34905n (*synth*)
Lembcke, B. *et al., Digestion*, 1985, **31**, 109 (*pharmacol*)
Cauderay, M. *et al., Metab., Clin. Exp.*, 1986, **35**, 472 (*pharmacol*)
Joubert, P.H. *et al., Eur. J. Clin. Pharmacol.*, 1987, **31**, 723 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 290
Ahr, H. *et al., Arzneim.-Forsch.*, 1997, **47**, 734
Scott, L.J. *et al., Drugs*, 2000, **59**, 521-549

Miharamycin A M-311



$C_{20}H_{30}N_{10}O_9$ 554.519
Nucleoside antibiotic. Isol. from *Streptomyces miharaensis*. Antiviral antibiotic. Sol. H_2O, Me_2CO-H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 215-218°. Related to Amipurimycin, A-472. λ_{max} 223 (ε 30000); 244 (sh) (ε 5000); 314 (ε 5000) (0.1*N* HCl) (Derep). λ_{max} 244 (ε 9000); 307 (ε 6000) (0.1*N* NaOH) (Derep). λ_{max} 218 (ε 22900); 244 (ε 6580); 307 (ε 6770) (HCl salt/H_2O) (Derep). λ_{max} 223 (E1%/1cm 390); 249 (E1%/1cm 120); 314 (E1%/1cm 70) (HCl) (Berdy). λ_{max} 217 (ε 22900); 244 (ε 6580); 307 (ε 6770) (H_2O) (Berdy). λ_{max} 307 (E1%/1cm 105) (NaOH) (Berdy).

► LD_{50} (mus, ivn) 5 - 10 mg/kg.

Hydrochloride (1:2): [12626-16-3]
Cryst. Mp 210-214° dec. $[\alpha]_D^{24}$ -59 (c, 1 in H_2O).

► PY5247900

N^3-*Deoxy:* ***Miharamycin B***
$C_{20}H_{30}N_{10}O_8$ 538.519
Isol. from *Streptomyces Miharaensis*. Antiviral antibiotic. Sol. H_2O, Me_2CO-H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. λ_{max} 223 (ε 30000); 244 (sh) (ε 5000); 314 (ε 5000) (0.1*N* HCl)

(Derep). λ_{max} 244 (ϵ 9000); 307 (ϵ 6000) (0.1*N* NaOH) (Derep). λ_{max} 218 (ϵ 22900); 244 (ϵ 6580); 307 (ϵ 6770) (HCl salt/H_2O) (Derep). λ_{max} 218 (ϵ 21200); 244 (ϵ 6100); 307 (ϵ 6320) (H_2O) (Berdy). λ_{max} 223 (E1%/1cm 568); 314 (E1%/1cm 66) (HCl) (Berdy).

▶ LD_{50} (mus, ivn) 5 - 10 mg/kg.

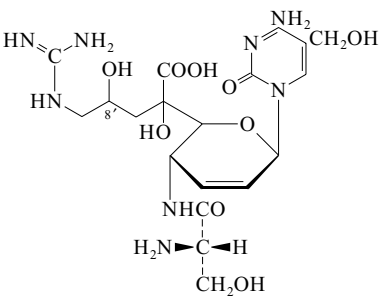
N^3-Deoxy; hydrochloride: [12626-15-2]
Mp 215-218° dec. $[\alpha]_D^{20}$ -63 (c, 1 in H_2O).

▶ PY5248000

Tsuruoka, T. *et al., Meiji Seika Kenkyu Nenpo*, 1967, **9**, 1; *CA*, **69**, 26025 (*isol*)
Japan. Pat., 1971, 71 34 198; *CA*, **76**, 12828 (*isol*)
Seto, H. *et al., Tet. Lett.*, 1983, **24**, 1805 (*struct, pmr, cmr, uv*)
Hara, K. *et al., Carbohydr. Res.*, 1987, **159**, 65 (*partial synth*)
Rauter, A. *et al., Carbohydr. Res.*, 2000, **325**, 1-15 (*partial synth*)

Mildiomycin M-312

B 98891. Antibiotic B 98891
[67527-71-3]



$C_{19}H_{30}N_8O_9$ 514.494

Nucleoside antibiotic. Isol. from *Streptoverticillium rimofaciens*. Active against gram-positive and -negative bacteria, yeasts and fungi. Fungicide against powdery mildew. Sol. H_2O; fairly sol. Py, DMSO, dioxan, THF; poorlysol. MeOH, hexane.
Mp 300° dec. $[\alpha]_D^{23}$ +100 (c, 1 in H_2O). λ_{max} 266 (ϵ 8470) (MeOH/HCl) (Derep). λ_{max} (MeOH) (Derep). λ_{max} 284 (ϵ 9380) (MeOH) (Derep). λ_{max} 271 (E1%/1cm 157) (pH 7 buffer) (Berdy). λ_{max} 271 (E1%/1cm 154) (NaOH) (Berdy). λ_{max} 280 (E1%/1cm 247) (HCl) (Berdy). λ_{max} 271 (ϵ 8720) (H_2O) (Berdy).

▶ LD_{50} (mus, ivn) 500 - 1500 mg/kg , LD_{50} (mus, orl) 5000 mg/kg. PY6140000

8′-Deoxy: ***Mildiomycin D***
[86432-24-8]
$C_{19}H_{30}N_8O_8$ 498.495
Isol. from *Streptoverticillium rimofaciens*. Weakly active against gram-positive and -negative bacteria, phytopathogenic fungi and some yeasts. Powder + $2H_2O$. Sol. H_2O; poorly sol. MeOH, hexane.
Mp 210° dec. $[\alpha]_D^{20}$ +119.4 (c, 1 in H_2O). λ_{max} 266 (ϵ 8470) (MeOH/HCl) (Derep). λ_{max} 284 (ϵ 9380) (MeOH) (Derep). λ_{max} 271 (ϵ 9100) (H_2O) (Berdy). λ_{max} 271 (ϵ 9100) (NaOH) (Berdy). λ_{max} 280 (ϵ 13600) (HCl) (Berdy).

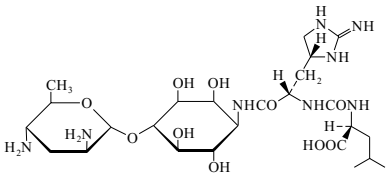
▶ LD_{50} (mus, ipr) 1000 - 3000 mg/kg. UP5960000

[78162-87-5, 78162-88-6, 78162-89-7 78162-90-0, 78162-91-1]

Harada, S. *et al., Tetrahedron*, 1981, **37**, 1317
Tashiro, S. *et al., Agric. Biol. Chem.*, 1984, **48**, 881 (*isol, uv, pmr, cmr, deriv*)
Sawada, H. *et al., J. Ferment. Technol.*, 1984, **62**, 537 (*analogues*)
Feduchi, E. *et al., J. Antibiot.*, 1985, **38**, 415
Sawada, H. *et al., J. Ferment. Technol.*, 1985, **63**, 17; *CA*, **102**, 145879c (*biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MQU000

Minosaminomycin M-313

[51746-09-9]



$C_{25}H_{46}N_8O_{10}$ 618.686

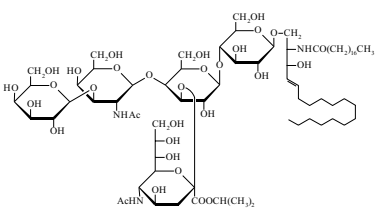
Aminoglycoside antibiotic. Isol. from *Actinomyces aureomonopodrales*. Active against mycobacteria. Amorph. powder. Sol. H_2O; poorly sol. butanol, hexane. Mp 225-260° dec. $[\alpha]_D^{22}$ +30 (c, 1 in H_2O).

▶ LD_{50} (mus, ivn) 50 - 100 mg/kg. NM7522500

Hamada, M. *et al., J. Antibiot.*, 1974, **27**, 81 (*isol, ir, uv, nmr*)
Iinuma, K. *et al., J. Antibiot.*, 1975, **28**, 613 (*struct, ir, nmr*)
Iinuma, K. *et al., Bull. Chem. Soc. Jpn.*, 1977, **50**, 1850 (*synth*)
Kambara, H. *et al., J. Antibiot.*, 1982, **35**, 67 (*ms*)

Mipragoside, INN M-314

AGF 44
[131129-98-1]



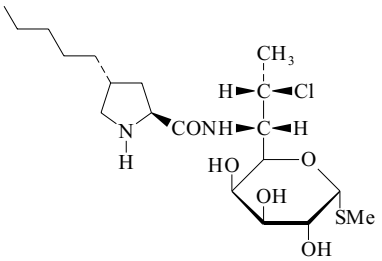
$C_{76}H_{137}N_3O_{31}$ 1588.92

Semisynthetic ganglioside deriv. Antiinflammatory and antinociceptive agent. Log P 2.66 (uncertain value) (calc).

Amico-Roxas, M. *et al., Drugs Exp. Clin. Res.*, 1992, **18**, 251 (*pharmacol*)
Bucolo, C. *et al., J. Ocul. Pharmacol.*, 1993, **9**, 321 (*pharmacol*)
Malmberg, A.B. *et al., Neurosci. Lett.*, 1993, **161**, 45 (*pharmacol*)

Mirincamycin, INN M-315

Methyl-7-chloro-6,7,8-trideoxy-6-[[(4-pentyl-2-pyrrolidinyl)carbonyl]amino]-1-thio-galacto-*octopyranoside, 9CI. 7-Chloro*-N-*demethyl-7-deoxy-3′-depropyl-3′-pentyllincomycin*
[31101-25-4]



$C_{19}H_{35}ClN_2O_5S$ 439.015

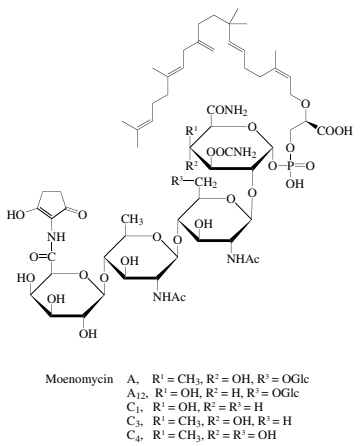
Synthetic. Antibacterial, antimalarial agent. Log P 1.22 (uncertain value) (calc). Related to Lincomycin, L-41.

Hydrochloride: ***Mirincamycin hydrochloride, USAN****. U 24729A. Antibiotic U 24729A*
[8063-91-0]

Matsen, J.M. *et al., J. Lab. Clin. Med.*, 1971, **77**, 378 (*pharmacol*)
Magerlein, B.J. *et al., J. Med. Chem.*, 1972, **15**, 1255 (*synth, props, resoln*)

Moenomycin M-316

Bambermycin, BAN, INN*. Bambermycins, USAN. Flavofosfolipol. Flavomycin. Flavophospholipol*



Moenomycin A, $R^1 = CH_3$, $R^2 = OH$, $R^3 = OGlc$
A_{12}, $R^1 = OH$, $R^2 = H$, $R^3 = OGlc$
C_1, $R^1 = OH$, $R^2 = R^3 = H$
C_3, $R^1 = CH_3$, $R^2 = OH$, $R^3 = H$
C_4, $R^1 = CH_3$, $R^2 = R^3 = OH$

Phosphoglycolipid antibiotic complex. Strain also produces Moenomycins B_1 and B_2, later sepd. into Moenomycins D-H. The marketed drug Bambermycin consists of a purified mixt. of Moenomycins A and C. Prod. by *Streptomyces bambergensis*. Antibiotic used in animal nutrition.

Moenomycin A [76095-39-1]

$C_{69}H_{108}N_5O_{34}P$ 1582.599
Mp 184-185°. λ_{max} 246 (ϵ 12300) (0.1*N* HCl) (Derep). λ_{max} 258 (ϵ 16700) (H_2O at pH 12) (Derep). λ_{max} 258 (ϵ 16700) (H_2O pH 7) (Derep).

Na salt: $[\alpha]_D^{23}$ +4 (c, 1 in H_2O).

Moenomycin A_{12} [162895-32-1]
$C_{68}H_{106}N_5O_{34}P$ 1568.572
Sol. MeOH. λ_{max} 258 (MeOH) (Berdy).

Moenomycin C_1 [152509-74-5]
$C_{62}H_{96}N_5O_{28}P$ 1390.431
From *Streptomyces* sp. Active against gram-positive and weakly against gram-negative bacteria. Sol. H_2O. Mp 178-179°. $[\alpha]_D^{23}$ +4 (c, 1 in H_2O). Props. refer to Moenomycin C complex which includes other Moenomycin C's below. λ_{max} 258 (MeOH) (Berdy).

Moenomycin C_3 [123589-03-7]
$C_{63}H_{98}N_5O_{28}P$ 1404.458
Component of Moenomycin C from *Streptomyces* sp. Sol. H_2O. λ_{max} 259 (ϵ 21000) (MeOH) (Berdy). λ_{max} 243 (ϵ 12000) (MeOH/NaOH) (Berdy).

Moenomycin C_4 [149633-74-9]
$C_{63}H_{98}N_5O_{29}P$ 1420.457
Component of Moenomycin C from *Streptomyces* sp. Sol. MeOH. λ_{max} 259 (ϵ 21000) (MeOH) (Berdy). λ_{max} 243 (ϵ 12000) (MeOH/HCl) (Berdy).
6^E-Hydroxy: See Pholipomycin in *The Combined Chemical Dictionary.*

[11015-37-5]

Huber, G. *et al., Antibiotics*, (Hahn, E.E. Ed.), Springer, Berlin, 1979, **5/1**, 135 (*rev*)
Welzel, P. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 121 (*isol, pmr, struct*)
Welzel, P. *et al., Tetrahedron*, 1983, **39**, 1583; 2219 (*isol, uv, cmr*)
Ger. Pat., 1988, 3 704 659; *CA*, **111**, 230656 (*Moenomycin C_3*)
Fehlhaber, H.W. *et al., Tetrahedron*, 1990, **46**, 1557 (*ms, struct*)
Metten, K.-H. *et al., Tetrahedron*, 1992, **48**, 8401
Scherkenbeck, J. *et al., Tetrahedron*, 1993, **49**, 3091 (*Moenomycins C_3, C_4*)
Hessler-Klintz, M. *et al., Tetrahedron*, 1993, **49**, 7667 (*Moenomycin C_1*)
Donnerstag, A. *et al., Tetrahedron*, 1995, **51**, 1931 (*Moenomycin A12*)
Donnerstag, A. *et al., Magn. Reson. Chem.*, 1996, **34**, 1031-1035 (*pmr*)
Subramaniam-Niehaus, B. *et al., Z. Naturforsch., C*, 1997, **52**, 217 (*isol, biosynth*)
Hennig, L. *et al., Magn. Reson. Chem.*, 1998, **36**, 615-620 (*pmr*)
Endler, K. *et al., Tet. Lett.*, 1998, **39**, 13-16 (*biosynth*)
Schuricht, U. *et al., J. Prakt. Chem.*, 2000, **342**, 761-772 (*biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MRA250

Monastatin M-317

Glycoprotein. Isol. from *Alteromonas* B-10-31 isol. from nearshore seawater of Japan. Alkaline protease inhibitor.

Imada, C. *et al., Can. J. Microbiol.*, 1985, **31**, 1089-1094 (*isol*)

Monguine M-318

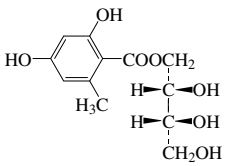
[106388-34-5]

Glycoprotein, MW 9000, with a high content of Asp/Asn and Glu/Gln. Isol. from seeds of *Croton mongue*. Shows antitumour activity. λ_{max} 228 ; 280 (H_2O) (Berdy).
► LD_{50} (mus, ipr) 0.035 mg/kg.

Ralison, C. *et al., Biochimie*, 1986, **68**, 1225-1230 (*isol*)

Montagnetol M-319

Erythrityl orsellinate. Pikroerythrin



Relative Configuration

$C_{12}H_{16}O_7$ 272.254

(+)-*form*
Constit. of *Roccella montagnei*.
Mp 135-136°. $[\alpha]_D$ +16 (H_2O). Racemises readily.

(±)-*form*
Mp 156-157°. λ_{max} 262 (log ϵ 3.9); 298 (log ϵ 4.3) (MeOH).

Rao, S. *et al., Proc. - Indian Acad. Sci., Sect. A*, 1941, **13**, 199; 1942, **15**, 18; 429
Manaktala, S.K. *et al., Tetrahedron*, 1966, **22**, 2373 (*synth*)

Mucoran M-320

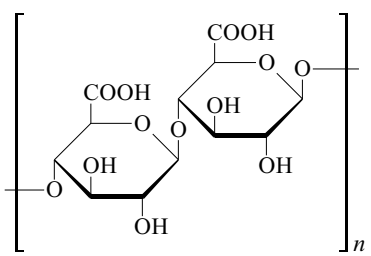
[9083-39-0]

Heteropolymer of D-glucuronic acid, D-mann and L-fuc, ratio 5:3:2, with small amounts of Gal and Glu. Isol. from cell walls of *Mucor rouxii*. $[\alpha]_D^{23}$ +48 (c, 1.0 in H_2O).

Bartnicki-Garcia, S. *et al., Carbohydr. Res.*, 1972, **23**, 75 (*isol, struct*)
Dow, J.M. *et al., J. Bacteriol.*, 1983, **155**, 1088 (*isol*)

Mucoric acid M-321

Poly-β-(1→4)-D-glucuronic acid
[94896-57-8]

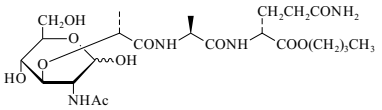


Isol. from cell walls of *Mucor rouxii* and other zygomycetes. Also isol. from *Trichosporon cutaneum*.
Tan powder. $[\alpha]_D^{23}$ -56 (c, 1.0 in 0.1*M* NaOH).

Bartnicki-Garcia, S. *et al., Biochim. Biophys. Acta*, 1968, **170**, 54 (*isol, struct*)
Dow, J.M. *et al., J. Bacteriol.*, 1983, **155**, 1088 (*isol*)
Camacho-Aguero, S. *et al., Exp. Mycol.*, 1990, **14**, 227 (*isol*)
Depree, J. *et al., J. Gen. Microbiol.*, 1993, **139**, 2123 (*isol, pmr*)

Murabutide, INN M-322

N^2-[N-(N-Acetylmuramoyl)-L-alanyl]-D-glutamine butyl ester, 9CI
[74817-61-1]

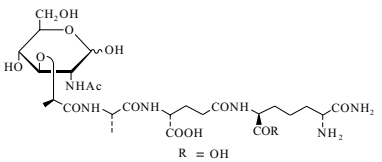


$C_{23}H_{40}N_4O_{11}$ 548.589
Immunomodulator. $[\alpha]_D^{20}$ +35 (c, 1.0 in AcOH). Log P -3.18 (calc).

Eur. Pat., 1979, 6 068; *CA*, **93**, 132812w (*synth, pharmacol*)
Lafrancier, P. *et al., J. Med. Chem.*, 1982, **25**, 87 (*synth, pharmacol*)
Fermandjian, S. *et al., Carbohydr. Res.*, 1987, **162**, 23 (*pmr*)
Auci, D.L. *et al., Immunopharmacology*, 1993, **26**, 157 (*pharmacol*)

Muracein A M-323

[90965-60-9]

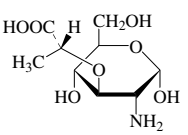


$C_{26}H_{44}N_6O_{14}$ 664.665
Glycopeptide antibiotic. Isol. from *Nocardia orientalis*. Inhibits angiotensin converting enzyme. Powder. Sol. H_2O. Mp 171-174° dec. $[\alpha]_D^{25}$ +6.7 (c, 0.46 in H_2O).

Bush, K. *et al., J. Antibiot.*, 1984, **37**, 330 (*isol, props*)
Singh, P.D. *et al., J. Antibiot.*, 1984, **37**, 336 (*pmr, cmr, struct*)

Muramic acid M-324

2-Amino-3-O-(1-carboxyethyl)-2-deoxy-glucose, 9CI. 3-O-(1-Carboxyethyl)-glucosamine



α-D-Pyranose-*form*

$C_9H_{17}NO_7$ 251.236

D-*form* [1114-41-6]
Component of bacterial cell walls. Cryst. (EtOH aq.).
Mp 160-162° dec. $[\alpha]_D^{22}$ +146 → +116 (c, 0.57 in H_2O).

N-*Ac: Acetylmuramic acid*
[10597-89-4]
$C_{11}H_{19}NO_8$ 293.273
Component of bacterial cell walls. Prisms (EtOAc/MeOH).
Mp 119-120°. $[\alpha]_D^{20}$ +60 → +40 (c, 1.2 in H_2O).

1′-Epimer: Isomuramic acid
$C_9H_{17}NO_7$ 251.236
Mp 130-131°. $[\alpha]_D^{25}$ +40 (c, 0.8 in H_2O).

1′-Epimer, N-*Ac:* N-*Acetylisomuramic acid*
$C_{11}H_{19}NO_8$ 293.273
Component of the *O*-specific polysaccharide of *Proteus penneri*.
$[\alpha]_D$ -28.7. $[\alpha]_D$ -6 (H_2O).

α-D-Pyranose-*form*

Me glycoside, N-*Ac: Methyl 2-acetamido-3-*O*-(1-carboxyethyl)-2-deoxy-α-D-glucopyranoside*
Mp 303° dec. (as K salt). $[\alpha]_D^{25}$ +111 (c, 0.27 in H_2O).

*Me glycoside, 4,6-*O*-benzylidene,* N-*Ac: Methyl 2-acetamido-4,6-*O*-benzylidene-3-*O*-(1-carboxyethyl)-2-deoxy-α-D-glucopyranoside, 9CI*
$C_{19}H_{25}NO_8$ 395.408
Cryst. (MeOH). Mp 263-266°. $[\alpha]_D^{25}$ +107 (c, 0.17 in EtOH).

Benzyl glycoside, N-*Ac: Benzyl 2-acetamido-3-*O*-(1-carboxyethyl)-2-deoxy-α-D-glucopyranoside*
$C_{18}H_{25}NO_8$ 383.397
Needles (MeOH/EtOAc). Mp 162-163°. $[\alpha]_D^{25}$ +168 (c, 0.62 in MeOH).

Benzyl glycoside, N-*Ac, Me ester:*
$C_{19}H_{27}NO_8$ 397.424
Mp 136°. $[\alpha]_D^{20}$ +151 (c, 1 in $CHCl_3$).

Benzyl glycoside, N-*Ac, Me ester, 6-mesyl:*
$C_{20}H_{29}NO_{10}S$ 475.516
$[\alpha]_D^{20}$ +117 (c, 0.3 in $CHCl_3$).

*Benzyl glycoside, 4,6-*O*-benzylidene,* N-*Ac: Benzyl 2-acetamido-4,6-*O*-benzylidene-3-*O*-(1-carboxyethyl)-2-deoxy-α-D-glucopyranoside*
$C_{25}H_{29}NO_8$ 471.506
Cryst. (MeOH). Mp 243-244°. $[\alpha]_D^{22}$ +98 (c, 0.63 in MeOH).

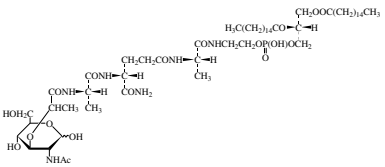
*Benzyl glycoside, 4,6-*O*-benzylidene,* N-*Ac, Me ester:*
$C_{26}H_{31}NO_8$ 485.533
Cryst. (MeOH). Mp 213-214°. $[\alpha]_D^{25}$ +100 (c, 1.1 in $CHCl_3$).

[40461-66-3, 40525-29-9]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 597B; 758B (*ir*)
Kent, L.H. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 250 (*isol*)
Biochem. Prep., 1963, **10**, 109 (*synth, Me gly N-Ac salt, Me gly benzylidene N-Ac*)
Lambert, R. *et al., Arch. Biochem. Biophys.*, 1965, **110**, 341 (*biosynth*)
Osawa, T. *et al., J.O.C.*, 1965, **30**, 448 (*synth, N-Ac, benzyl gly N-Ac, benzyl gly N-Ac Me ester, benzyl gly benzylidene N-Ac Me ester, benzyl gly benzylidene N-Ac*)
Knox, J.R. *et al., Acta Cryst. B*, 1974, **30**, 365
Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **79**, C20 (*benzyl gly N-Ac Me ester, benzyl gly N-Ac Me ester mesyl*)
Merten, H. *et al., Carbohydr. Res.*, 1989, **191**, 144 (***synth, N-Ac***)
Knirel, Y.A. *et al., Carbohydr. Res.*, 1992, **235**, C19 (*N-acetylisomuramic acid*)
Ragoussis, V. *et al., Carbohydr. Res.*, 1997, **297**, 289-295 (*synth, pmr, cmr*)

Muramyl tripeptide phosphatidylethanolamine M-325

N-*(*N-*Acetylmuramoyl)-*L-*alanyl-*D-*α-glutaminyl-*N-*[(7*R*)-4-hydroxy-4-oxido-10-oxo-[(1-oxohexadecyl)oxy]-3,5,9-trioxa-4-phosphapentacos-1-yl]-*L-*alaninamide*
[83461-56-7]

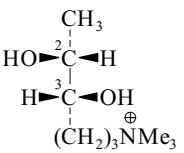


$C_{59}H_{109}N_6O_{19}P$ 1237.513
Used in antibiotic preparations. Antineoplastic agent.

U.S. Pat., 1983, 4 414 204; *CA*, **100**, 161784g (*synth*)
Murray, J.L. *et al., J. Clin. Oncol.*, 1989, **7**, 1915-1925; 1991, **9**, 259-267; 1992, **10**, 1310-1316 (*pharmacol*)
Vail, D.M. *et al., Clin. Cancer Res.*, 1995, **1**, 1165-1170; 1595-1601; 1999, **5**, 4249-4258 (*pharmacol*)

Muscaridine M-326

*4,5-Dihydroxy-*N,N,N*-trimethyl-1-hexanaminium(1+), 9CI*



(2*R*,3*R*)–*form*

$C_9H_{22}NO_2^{\oplus}$ 176.278
Present in *Amanita muscaria*. Mp 129-131° dec. (as tetrachloroaurate). $[\alpha]_D$ +20.5 (tetrachloroaurate). Stereochem. of the nat. prod. could not be confirmed. It was claimed to have the *erythro*-config. but props. do not coincide with those of the well-characterised synthetic stereoisomers later obt.

(2*R*,3*R*)-*form*
D-threo-*form*
Iodide: Mp 98-100°. $[\alpha]_D$ +14.2 (c, 2.8 in H_2O).
Tetrachloroaurate: Mp 98-101°. $[\alpha]_D^{20}$ +6.2 (c, 0.5 in H_2O).

(2*R*,3*S*)-*form* D-erythro-*form*
Iodide:
$C_9H_{22}INO_2$ 303.183
Mp 101-103°. $[\alpha]_D$ +14.7 (c, 2.3 in H_2O).
Tetrachloroaurate: Mp 128-130°. $[\alpha]_D$ -9.

(2*S*,3*R*)-*form* L-erythro-*form*
Iodide: Mp 101-103°. $[\alpha]_D^{20}$ +14.7 (c, 1 in H_2O).

(2*S*,3*S*)-*form* L-threo-*form*
Iodide: Mp 97-98°. $[\alpha]_D$ -14.9 (c, 1.2 in H_2O).

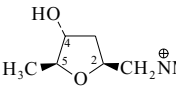
(2*RS*,3*RS*)-*form* (±)-threo-*form*
Tetrachloroaurate: Mp 97-102°.

(2*RS*,3*SR*)-*form* (±)-erythro-*form*
[6801-43-0]
Tetrachloroaurate: Mp 127-131° dec.

Salemink, C.A. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1963, **82**, 21 (*isol, bibl, ir, synth, resoln*)
Pedersen, C. *et al., Acta Chem. Scand.*, 1993, **47**, 885 (*synth, cmr, bibl*)

Muscarine M-327

*Tetrahydro-4-hydroxy-*N,N,N*,5-tetramethyl-2-furanmethanaminium(1+), 9CI*
[7619-12-7]



(2*S*,4*R*,5*S*)–*form*

$C_9H_{20}NO_2^{\oplus}$ 174.262
Sol. EtOH; fairly sol. $CHCl_3$, Et_2O. All 8 stereoisomers have been synthesised.

(2*S*,4*R*,5*S*)-*form* [300-54-9]
Main toxic constit. of the fly fungus *Amanita muscaria* and various *Inocybe* spp. V. powerful parasympathomimetic agent causing hypotension and bronchoconstriction. Stereoisomers show only a fraction of the activity. V. hygroscopic.
▶ V. toxic if swallowed. Can cause convulsions, coma, death. LD_{50} (mus, ivn) 0.23 mg/kg. Antidote atropine sulfate. QG3325000

Chloride: [2303-35-7]
$C_9H_{20}ClNO_2$ 209.715
Needles. Mp 181.5-182°, (179-180°). $[\alpha]_D$ +7.4 (c, 3.1 in H_2O).
▶ QG3500000

Iodide: [24570-49-8]
$C_9H_{20}INO_2$ 301.167
Needles (MeCN/Me_2CO). Mp 149-149.5°. $[\alpha]_D$ +6.3 (c, 1.1 in H_2O). Turns yellow within a few hours.

Tetraphenylborate: [104487-60-7]
$C_{33}H_{40}BNO_2$ 493.495
Mp 193°. $[\alpha]_D$ +9.7 (c, 1.34 in Me_2CO).

*Ketone: Tetrahydro-*N,N,N*,5-tetramethyl-4-oxo-2-furanmethanaminium(1+). Muscarone*
[4780-69-2]
$C_9H_{18}NO_2^{\oplus}$ 172.247
Acetylcholine mimic.

(2*R*,4*R*,5*S*)-*form*
5-Allomuscarine
[6252-44-4]
[35119-38-1] Constit. of numerous Agaricales incl. *Amanita* spp. and *Clitocybe* spp. Shows similar biol. activity to Muscarine.
Mp 130.8° (as iodide). $[\alpha]_D$ -37.7 (c, 0.8 in H_2O).

(2*R*,4*S*,5*R*)-*form* [92981-62-9]
[35119-35-8] Mp 179-180° (as chloride). $[\alpha]_D$ -8.4 (EtOH).

(2*R*,4*S*,5*S*)-*form*
3-Epi-5-allomuscarine
[6836-06-2]
[5487-32-1] Mp 199.2° (as iodide). $[\alpha]_D$ 0 (c, 1 in H_2O).

(2*S*,4*S*,5*S*)-*form*
3-Epimuscarine
[6836-08-4]

[93226-49-4] Constit. of various Agaricales incl. *Amanita* spp. and *Clitocybe* spp. Cryst. (2-propanol) (as iodide). Mp 170.4° (iodide). $[\alpha]_D$ +43.2 (c, 0.6 in EtOH).

(2*RS*,4*SR*,5*RS*)-*form* [71-06-7]

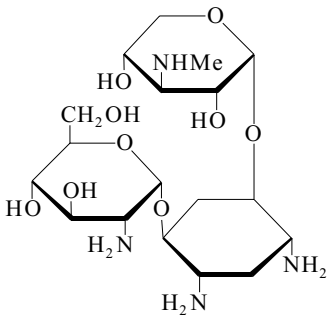
[6032-87-7] Mp 119-120° (as tetrachloroaurate).

[2936-25-6]

Hardegger, E. *et al., Helv. Chim. Acta*, 1957, **40**, 2383-2389 (*2S,4R,5S-form, synth, abs config*)
Wilkinson, S. *et al., Q. Rev., Chem. Soc.*, 1961, **15**, 153-171 (*rev*)
Eugster, C.H. *et al., Helv. Chim. Acta*, 1969, **52**, 708-715 (*occur, glc*)
Matsumoto, T. *et al., Tetrahedron*, 1969, **25**, 5889-5892 (*(±)-forms, synth*)
Bollinger, H. *et al., Helv. Chim. Acta*, 1971, **54**, 2704-2730 (*synth stereoisomers, abs config, cd*)
Whiting, J. *et al., Can. J. Chem.*, 1972, **50**, 3322-3325 (*synth, pmr*)
Stadelmann, R.J. *et al., Helv. Chim. Acta*, 1976, **59**, 2432-2436 (*occur, stereoisomers*)
Nitta, K. *et al., Helv. Chim. Acta*, 1977, **60**, 1747-1753 (*biosynth*)
Wang, P.-C. *et al., The Alkaloids*, (ed. A. Brossi), Academic Press, 1984, **23**, 327-380 (*rev*)
Mulzer, J. *et al., Annalen*, 1987, 7-14 (*2S,4R, 5S-form, synth, pmr, ir*)
Pirrung, M.C. *et al., Tet. Lett.*, 1988, **29**, 159-162 (*synth, bibl*)
Takano, S. *et al., Chem. Comm.*, 1989, 1371-1372 (*2S,4R,5S-form, synth*)
Adams, J. *et al., Tet. Lett.*, 1989, **30**, 1753 (*synth, pmr, cmr*)
De Amici, M. *et al., J.O.C.*, 1991, **56**, 67-72 (***synth, stereoisomers, bibl***)
Frydenvang, K. *et al., Acta Cryst. C*, 1992, **48**, 469; 1993, **49**, 985; 1834 (*cryst struct, Muscarone*)
Chan, T.H. *et al., Can. J. Chem.*, 1992, **70**, 2726-2729 (*2S,4R,5S-form, synth*)
Mantell, S.J. *et al., J.C.S. Perkin 1*, 1992, 3023-3027 (*2S,4R,5S-form synth, bibl*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1391
Knight, D.W. *et al., Synlett*, 1994, 295-296, (*(-)-Muscarine, synth*)
Norild, J.C. *et al., Synthesis*, 1997, 1128-1130 (*Allomuscarine*)
Popsavin, V. *et al., Carbohydr. Lett.*, 1998, **3**, 1-8 (*synth, Epimuscarine*)
Hartung, J. *et al., Eur. J. Org. Chem.*, 2000, 1677-1683 (*synth*)
Kang, K.H. *et al., Tet. Lett.*, 2000, **41**, 8137-8140 (*synth*)
Popsavin, V. *et al., Tetrahedron*, 2000, **56**, 5929-5940 (*synth*)
Knight, D.W. *et al., Tet. Lett.*, 2002, **43**, 6771-6773 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MRW250

Mutamicin 2_a M-328

[54797-14-7]

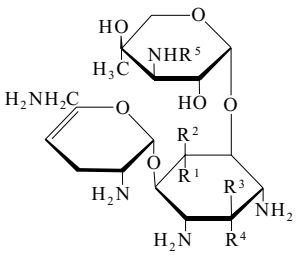


$C_{18}H_{36}N_4O_9$ 452.504
Isol. from *Micromonospora inyoensis*. Semisynthetic aminoglycoside antibiotic. Sol. H_2O; poorly sol. Me_2CO, hexane.

Testa, R.T. *et al., J. Antibiot.*, 1974, **27**, 917 (*synth, isol, struct*)
U.S. Pat., 1974, 4 011 390; *CA*, **86**, 169333 (*synth, struct*)

Mutamicin 1 M-329

[54830-49-8]



$R^1 = R^3 = OH$, $R^2 = R^4 = H$, $R^5 = Me$

$C_{19}H_{37}N_5O_8$ 463.53
Aminoglycoside-type antibiotic. Isol. from mutants of *Micromonospora inyoensis* which only produced antibiotics in presence of added aminocyclitols. Broad spectrum mutasynthetic antibiotic. Sol. H_2O; poorly sol. Me_2CO, hexane.
► LD_{50} (mus, ivn) 110 mg/kg. WK2284700
Testa, R.T. *et al., J. Antibiot.*, 1974, **27**, 917 (*isol, synth, struct*)
U.S. Pat., 1974, 4 011 390; *CA*, **86**, 169333 (*synth, struct*)

Mutamicin 2 M-330

[54830-48-7]
As Mutamicin 1, M-329 with
$R^1 = R^2 = R^3 = R^4 = H$, $R^5 = Me$
$C_{19}H_{37}N_5O_6$ 431.531
Isol. from *Micromonospora inyoensis*. Semisynthetic aminocyclitol antibiotic. Sol. H_2O; poorly sol. Me_2CO, hexane.

Testa, R.T. *et al., J. Antibiot.*, 1974, **27**, 917 (*synth, isol, struct*)

Mutamicin 4 M-331

[55820-70-7]
As Mutamicin 1, M-329 with
$R^1 = OH$, $R^2 = R^3 = H$, $R^4 = OH$, $R^5 = Me$
$C_{19}H_{37}N_5O_8$ 463.53
Isol. from *Micromonospora inyoensis*. Semisynthetic aminocyclitol antibiotic. Sol. H_2O; poorly sol. MeOH, hexane.

U.S. Pat., 1974, 4 011 390; *CA*, **86**, 169333 (*synth, struct*)

Mutamicin 5 M-332

[55750-88-4]
As Mutamicin 1, M-329 with
$R^1 = NH_2$, $R^2 = R^3 = R^4 = H$, $R^5 = Me$
$C_{19}H_{38}N_6O_6$ 446.546
Isol. from *Micromonospora inyoensis*. Semisynthetic aminocyclitol antibiotic. Sol. H_2O; poorly sol. Me_2CO, hexane. λ_{max} (H_2O) (Berdy).

U.S. Pat., 1974, 4 011 390; *CA*, **86**, 169333 (*synth, struct*)

Mutamicin 1A M-333

[54830-50-1]
As Mutamicin 1, M-329 with
$R^1 = OH$, $R^2 = H$, $R^3 = OH$, $R^4 = H$, $R^5 = Ac$
$C_{20}H_{37}N_5O_9$ 491.54
Isol. from *Micromonospora inyoensis*. Semisynthetic aminocyclitol antibiotic. Sol. H_2O; poorly sol. Me_2CO, hexane. λ_{max} (H_2O) (Berdy).

Testa, R.T. *et al., J. Antibiot.*, 1974, **27**, 917 (*isol, synth, struct*)

Mutamicin 1B M-334

[54830-51-2]
As Mutamicin 1, M-329 with
$R^1 = OH$, $R^2 = H$, $R^3 = OH$, $R^4 = R^5 = H$
$C_{18}H_{35}N_5O_8$ 449.503
Isol. from *Micromonospora inyoensis*. Semisynthetic aminocyclitol antibiotic. Sol. H_2O; poorly sol. Me_2CO, hexane.

Testa, R.T. *et al., J. Antibiot.*, 1974, **27**, 917 (*isol, synth, struct*)

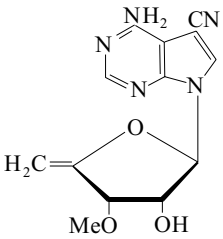
Mutastein M-335

Glycoprotein. Prod. by *Aspergillus terreus* M3328. Chewing-gum ingredient. Inhibits glucosyltransferases of *Streptococcus mutans*; suppresses the formation of dental caries. Sol. H_2O.

Endo, A. *et al., J. Antibiot.*, 1983, **36**, 203-207 (*isol*)
Hayashida, O. *et al., Biosci., Biotechnol., Biochem.*, 1997, **61**, 588-591 (*isol*)

Mycalisine A M-336

[98890-73-4]



$C_{13}H_{13}N_5O_3$ 287.277

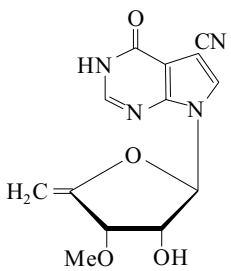
Nucleoside antibiotic. Related to Toyocamycin. Found in *Mycale* sp., prob. prod. by symbiotic microorganisms. Inhibits cell division in starfish eggs. Oil. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. $[\alpha]_D^{21}$ -88 (c, 0.05 in EtOH). Unstable at r.t. λ_{max} 207 (ϵ 17000); 233 (sh) (ϵ 15000); 279 (ϵ 11000) (pH 2 EtOH) (Derep). λ_{max} 279 (ϵ) (EtOH at pH 12) (Derep). λ_{max} 207 (ϵ 30000); 233 (sh) (ϵ 8900); 279 (ϵ 14000) (pH 7 EtOH) (Derep). λ_{max} 207 (ϵ 30000); 279 (ϵ 14000) (EtOH) (Berdy). λ_{max} 207 (ϵ 15000); 279 (ϵ 11000) (EtOH-HCl) (Berdy). λ_{max} 279 (EtOH-NaOH) (Berdy).

Kato, Y. *et al., Tet. Lett.*, 1985, **26**, 3483 (*isol, struct, nmr, props*)

Mycalisine B M-337

*5-Cyano-7-(3-*O*-methyl-5-deoxy-β-*D*-erythro-pent-4-enofuranosyl)pyrrolo[2,3-d]pyrimidin-4-one*

[98890-72-3]



$C_{13}H_{12}N_4O_4$ 288.262

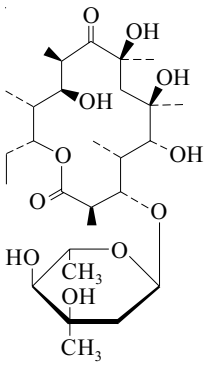
Isol. from *Mycale* sp., Japanese marine sponge. Oil. Sol. MeOH, $CHCl_3$; poorly sol. H_2O. $[\alpha]_D^{21}$ -75.9 (c, 0.26 in EtOH). Unstable at r.t. λ_{max} 214 (ϵ 3000); 265 (ϵ 3000) (pH 2 EtOH) (Derep). λ_{max} 265 (sh) (ϵ) (pH 12 EtOH) (Derep). λ_{max} 210 (ϵ 6000); 265 (ϵ 3000) (pH 7 EtOH) (Derep). λ_{max} 210 (ϵ 6000); 265 (ϵ 3000) (EtOH) (Berdy). λ_{max} 214 (ϵ 3000); 265 (ϵ 3000) (EtOH-HCl) (Berdy). λ_{max} 265 (EtOH-NaOH) (Berdy).

Kato, Y. *et al., Tet. Lett.*, 1985, **26**, 3483 (*isol, ir, pmr, cmr, uv*)

3-*O*-(α-L-Mycarosyl)-8-hydroxyerythronolide B M-338

*12-Deoxy-3-*O*-(2,6-dideoxy-3-*C*-methyl-α-L-ribo-hexopyranosyl)erythronolide A, 9CI*

[38421-35-1]



$C_{28}H_{50}O_{11}$ 562.696

Isol. from *Streptomyces erythreus*. Antipyretic agent. Needles (MeOH aq.). Mp 205-208°.

8-Deoxy: ***3-O-(α-L-Mycarosyl)erythronolide B***

[34698-88-9]

$C_{28}H_{50}O_{10}$ 546.697

From *Streptomyces erythreus*. Needles (EtOAc/hexane).

Mp 201-203°. $[\alpha]_D^{26}$ -72 (c, 1 in $CHCl_3$).

*8-Epimer, 8-deoxy: 3-*O*-(α-L-Mycarosyl)-8-*epi*-erythronolide B*

[42713-53-1]

$C_{28}H_{50}O_{10}$ 546.697

From *Streptomyces erythreus*. Needles (EtOAc/hexane).

Mp 198-200°. $[\alpha]_D^{25}$ -112 (c, 1 in MeOH).

Martin, J.R. *et al., Biochemistry*, 1966, **5**, 2852 (*derivs, isol*)

Mitscher, L.A. *et al., Tet. Lett.*, 1969, 4505 (*deriv, cd*)

U.S. Pat., 1972, 3 684 794; *CA*, **77**, 138339 (*isol*)

Martin, J.R. *et al., Tetrahedron*, 1973, **29**, 935 (*epimer*)

Nourse, J.G. *et al., J.A.C.S.*, 1975, **97**, 4584 (*cmr*)

Mycobactocidin M-339

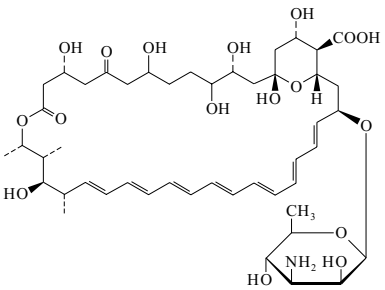
Glycoprotein; struct. unknown. Prod. by *Staphylococcus epidermidis*. Shows antimicrobial activity. Sol. H_2O; poorly sol. MeOH, hexane.

Fregnan, G.B. *et al., J. Bacteriol.*, 1962, **83**, 1069-1076 (*isol*)

Mycoheptin M-340

5,8,9-Trideoxy-7,10-dihydroxy-5-oxoamphotericin B, 9CI. Micoheptin

[12609-89-1]



$C_{47}H_{71}NO_{17}$ 922.074

Heptaene antibiotic. Isol. from *Streptomyces netropsis* and *Streptoverticillium mycoheptinicum*. Active against fungi and yeasts. Yellow powder. Similar to Candidin.

▶ BU2829900

Severinets, L.Y. *et al., Antibiotiki (Moscow)*, 1977, **22**, 492 (*isol*)

Borowski, E. *et al., J. Antibiot.*, 1978, **31**, 117 (*ir, uv, ms, nmr, struct*)

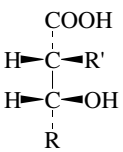
Bolshakova, L.O. *et al., Antibiotiki (Moscow)*, 1980, **25**, 499 (*props*)

Swiss Pat., 1981, 625 271; *CA*, **96**, 33348e (*isol*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MRW800

Mycolic acid M-341

Corynomycolic acid. Nocardic acid. Smegmamycolic acid



Absolute Configuration

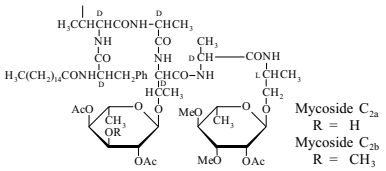
Glycolipids of bacterial origin which are homologous mixts. varying with the origin of the sample. On pyrol. they yield RCHO + R′CH_2COOH. R′ is a saturated alkyl residue. R may be saturated or unsaturated. The following classes have been recognised. (i) From *Corynebacterium diphtheriae* and *Nocardia opaca*: R = C_{15}; R′ = C_{14} R = *n*-C_{31}, *n*-C_{33}, *n*-C_{35}; R′ = C_8, C_{10}, C_{12} (ii) Acids containing unsaturated alkyl chains (and in some cases branching methyl groups) from *C. diphtheriae*, *N.* spp. and *Mycobacterium smegmatis*: R = 8-pentadecenyl; R′ = $C_{14}H_{29}$ R = C_{37}, C_{39}, C_{41}; R′ = $C_{22}H_{45}$*also* dienes, R = $C_{49}H_{95}$–$C_{58}H_{113}$ (10 members), some of which have a branching methyl group. (iii) Acids containing one cyclopropane unit, one double bond and one branching methyl, from *M. smegmatis*: e.g. R = $H_3C(CH_2)_{17}$-cyclopropyl-$(CH_2)_{13}CH{=}CHCH(CH_3)$; R′ = $C_{22}H_{45}$ (iv) Acids containing two cyclopropane units from *M. tuberculosis* and *M. paratuberculosis*.(v) Acids with additional oxygenated functions

(-OMe, C═O and -COOH) in R′: e.g. R′ = $H_3C(CH_2)_{17}CH(CH_3)CO(CH_2)_{16}$-cyclopropyl-$(CH_2)_{19}$-; R = $C_{24}H_{49}$ R′ = $HOOC(CH_2)_xCH{=}CH(CH_2)_y$-(x = 14, 16; y = 17, 19); R = C_{20}, C_{22}, C_{24} R′ = $HOOC(CH_2)_{14}CH(CH_3)CH{=}CH(CH_2)_{16}$; R = C_{20}, C_{22}, C_{24}.

[23599-54-4, 23642-94-6, 23725-22-6 23950-11-0]

Polgar, N. *et al., Top. Lipid Chem.*, 1971, **2**, 207
Gensler, W.J. *et al., Chem. Phys. Lipids*, 1977, **19**, 128
Asselineau, C. *et al., Prog. Chem. Fats Other Lipids*, 1978, **16**, 59
Wong, M.Y.H. *et al., J. Biol. Chem.*, 1979, **254**, 5734; 5741
Kitano, Y. *et al., Chem. Comm.*, 1985, 498 (*synth*)
Utaka, M. *et al., Chem. Comm.*, 1987, 1368 (*synth*)
Fujisawa, T. *et al., Bull. Chem. Soc. Jpn.*, 1988, **61**, 1273 (*synth*)

Mycoside C_2 M-342

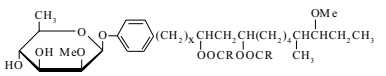


Partial structure

Mycoside C_2 consists of two homologous peptidoglycolipids, mycosides C_{2a} and C_{2b}. The lipid moiety present in these molecules is a complex mixture of fatty acid residues, principally Palmitic and Stearic. Produced by *Mycobacterium avium*.
Mp 200°. $[\alpha]_D$ -28.

Voiland, A. *et al., Eur. J. Biochem.*, 1971, **21**, 285 (*struct*)

Mycosides M-343



Occur as mixtures with differing x values and different acyl groups.

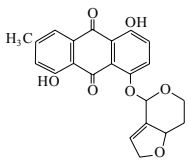
Mycoside A [11033-70-8]
Glycolipid from *Mycobacterium kansasii* No. 4.
Mp 108-109°. $[\alpha]_D^{20}$ -37 ($CHCl_3$). x varies from 16-20 with 18 predominating. RCO varies from C_{12}-C_{18} monoene fatty acids and C_{27}-C_{32} mycerosic acids.

Mycoside B [39379-13-0]
Glycolipid from *Mycobacterium tuberculosis* var. *bovis*.
Mp 25°. $[\alpha]_D^{20}$ -22 ($CHCl_3$). x varies from 16-20 with 16 predominating. RCO various saturated and methyl-branched fatty acids.

[11113-72-7]

Gastambide-Odier, M. *et al., Tet. Lett.*, 1965, 3135 (*struct, ms*)

Mycotoxin MT81 M-344



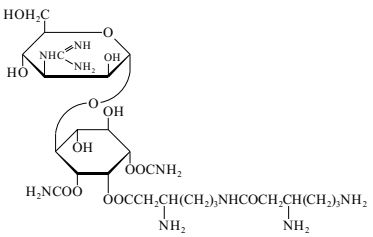
$C_{22}H_{18}O_7$ 394.38

Anthraquinone antibiotic. Constit. of *Penicillium nigricans*. Cryst.
Mp 300° dec. $[\alpha]_D^{25}$ +50 (MeOH).

Gupta, M. *et al., Indian J. Chem., Sect. B*, 1984, **23**, 393

Myomycin B M-345

[52955-41-6]



$C_{27}H_{51}N_9O_{14}$ 725.752

Glycopeptide antibiotic. Obt. from *Nocardia* sp. NRRL5338 and *Corynebacterium* sp. NRRL11072. Active against gram-positive and -negative bacteria. Sol. H_2O; poorly sol. MeOH, hexane. Major component of Myomycin complex. Position of peptide chain linkage not certain. Related to Antibiotic LL-BM 782α_1, A-760, Antibiotic LL-BM 782α_{1a}, A-761 and Antibiotic LL-BM 782α_2, A-762.

▶ LD_{50} (mus, ivn) 165 mg/kg , LD_{50} (mus, ipr) 800 mg/kg , LD_{50} (mus, scu) 1100 mg/kg , LD_{50} (mus, orl) 9000 mg/kg. QH3284000

Sulfate: [53109-99-2]
Dihydrate. $[\alpha]_D$ -4.5 (c, 1.5-2 in H_2O).

Myomycin A [53025-68-6]
From *Nocardia* sp. NRRL5338. Sol. H_2O. Minor component of Myomycin complex. Struct. not known.

Myomycin C [53025-69-7]
From *Nocardia* sp. NRRL5338. Sol. H_2O. Minor component of Myomycin complex. Struct. not known.

U.S. Pat., 1971, 3 795 668; *CA*, **81**, 89779 (*struct*)
French, J.C. *et al., J. Antibiot.*, 1973, **26**, 272 (*isol*)
Japan. Pat., 1978, 78 118 590; *CA*, **90**, 101945 (*isol*)
McGahren, W.J. *et al., J.O.C.*, 1981, **46**, 792 (*struct*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MRY100

Myxaline M-346

[116110-99-7]

Heat-stable glycopeptide. Isol. from *Myxococcus xanthus*. Shows anticoagulant activity. Sol. H_2O; poorly sol. MeOH, EtOAc, hexane.

Masson, P.J. *et al., J. Gen. Microbiol.*, 1988, **134**, 801-806 (*isol*)
Akoum, A. *et al., Chromatographia*, 1989, **28**, 157-160 (*isol*)
Akoum, A. *et al., Process Biochem.*, 1989, **24**, 55-59 (*isol*)
Akoum, A. *et al., Thromb. Res.*, 1990, **60**, 9-18 (*anticoagulant activity*)

Nadroparin N-1

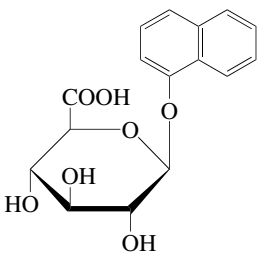
Low MW heparin (see Heparin, H-5).

Ca salt: ***Nadroparin calcium, BAN, INN.*** *Fraxiparin. CY 216*†

Used for prevention and treatment of thromboembolic disease.

Boucher, M. *et al., Drugs of Today (Barcelona)*, 1987, **23**, 451 (*rev, pharmacol, tox*)
Dautzenberg, M.D. *et al., Thromb. Haemostasis*, 1990, **64**, 490 (*activity*)
Barradell, L.B. *et al., Drugs*, 1992, **44**, 858 (*rev*)
Beguin, S. *et al., Thromb. Haemostasis*, 1992, **67**, 33 (*pharmacol*)
Cziraky, M.J. *et al., Clin. Pharm.*, 1993, **12**, 892 (*use, rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 231

1-Naphthalenyl glucopyranosiduronic acid N-2



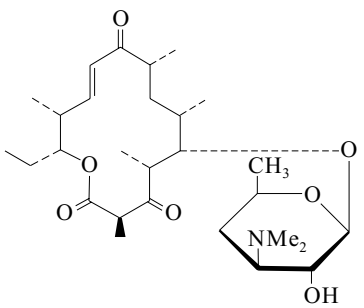
$C_{16}H_{16}O_7$ 320.298

β-D-*form* [17238-47-0]

Dorough, H.W. *et al., J. Agric. Food Chem.*, 1974, **22**, 642-645 (*metab*)
Mackenzie, P.I. *et al., Anal. Biochem.*, 1980, **109**, 362-368 (*anal, fluorescence*)

Narbomycin N-3

12-Deoxypicromycin, 9CI
[6036-25-5]



$C_{28}H_{47}NO_7$ 509.682

Macrolide antibiotic. Prod. by *Streptomyces narbonensis*. Inactive *in vivo* but highly active against gram-positive organisms *in vitro*. Cryst. (Et_2O/petrol). Sol. MeOH, Et_2O; fairly sol. hexane; poorly sol. H_2O.
Mp 113.5-115°. $[\alpha]_D$ +68.5 (c, 1.35 in $CHCl_3$). pK_a 7.7. λ_{max} 225 (ε 11500); 286 (ε 120) (EtOH) (Berdy).

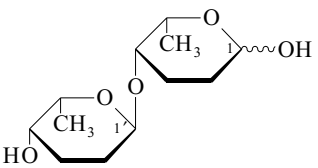
► LD_{50} (mus, scu) 600 mg/kg. QN4725000

Aglycone: ***Narbonolide***
[32885-75-9]
$C_{20}H_{32}O_5$ 352.47
Isol. from *Streptomyces venezuelae*.
Sol. MeOH, Et_2O; poorly sol. H_2O.
Mp 125-126°. $[\alpha]_D^{23}$ +89 (c, 1 in MeOH). λ_{max} 228 (ε 8200) (MeOH) (Berdy).

Corbaz, R. *et al., Helv. Chim. Acta*, 1955, **38**, 935 (*isol*)
Prelog, V. *et al., Helv. Chim. Acta*, 1962, **45**, 4 (*isol*)
Celmer, W.D. *et al., J.A.C.S.*, 1965, **87**, 1799; 1801 (*config*)
Rickards, R.W. *et al., Tet. Lett.*, 1970, 1025 (*config*)
Hori, T. *et al., Chem. Comm.*, 1971, 304 (*isol, Narbonolide*)
Noguchi, K. *et al., CA*, 1975, **83**, 120704t (*struct*)
Ogara, H. *et al., J.A.C.S.*, 1975, **97**, 1930 (*stereochem*)
Kaiho, T. *et al., J.O.C.*, 1982, **47**, 1613 (*synth, Narbonolide*)
Paterson, I. *et al., Tetrahedron*, 1985, **41**, 3569 (*synth, rev*)

Narbosine A N-4

[133578-67-3, 133646-42-1]



$C_{12}H_{22}O_5$ 246.303

Carbohydrate antibiotic. Metab. of *Streptomyces* spp. Antiviral agent. Oil. Sol. MeOH. $[\alpha]_D^{20}$ -91.7 (c, 0.78 in Me_2CO). Isol. as a 1:1 anomeric mixture.

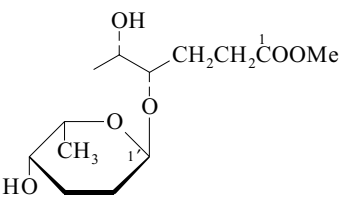
1-Me glycoside: ***Narbosine B***

[133646-43-2, 133646-44-3]
$C_{13}H_{24}O_5$ 260.33
Metab. of *Streptomyces* spp. Oil. Sol. MeOH. $[\alpha]_D^{20}$ -11.8 (c, 0.34 in Me_2CO). 1:1 anomeric mixture.

Henkel, T. *et al., Annalen*, 1991, 575-580 (*isol, pmr, cmr, ms*)

Narbosine C N-5

[133578-68-4]



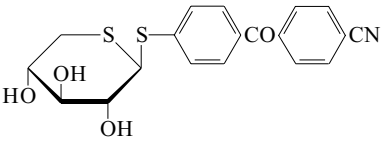
$C_{13}H_{24}O_6$ 276.329
Metab. of *Streptomyces* spp. Antiviral agent. Sol. MeOH.

1-Alcohol: ***Narbosine D***
[133578-70-8]
$C_{12}H_{24}O_5$ 248.319
Metab. of *Streptomyces* spp. Oil. Sol. MeOH. $[\alpha]_D^{20}$ -65.9 (c, 0.5 in MeOH).

Henkel, T. *et al., Annalen*, 1991, 575 (*isol, pmr, cmr, ms*)

Naroparcil, INN N-6

4-[4-[(5-Thio-β-D-xylopyranosyl)thio]-benzoyl]benzonitrile, 9CI. 4-[(4-Cyanobenzoyl)phenyl] 1,5-dithio-β-xylopyranoside. LF 9 0055
[120819-70-7]

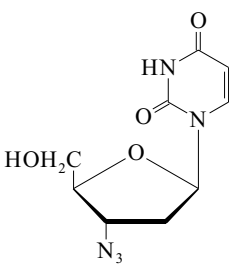


$C_{19}H_{17}NO_4S_2$ 387.48
Antithrombotic agent. Mp 164°. $[\alpha]_D^{20}$ +53 (c, 0.2 in MeOH). Log P 0.98 (calc).

Eur. Pat., 1988, 290 321, (*Fournier Innov Synergie*); *CA*, **110**, 232019f (*synth, pharmacol*)
Millet, J. *et al., Thromb. Res.*, *Suppl*. 1, 1992, **65**, S158 (*pharmacol*)
Bellamy, F. *et al., Eur. J. Med. Chem. (Chim. Ther.)*, 1995, **30 suppl**, 101S-115S (*synth, pharmacol*)
Masson, P.J. *et al., J. Biol. Chem.*, 1995, **270**, 2662-2668 (*pharmacol*)
Le Questel, J.L. *et al., Carbohydr. Res.*, 1996, **284**, 35-49 (*cryst struct*)

Navuridine, INN N-7

3′-Azido-2′,3′-dideoxyuridine. AZDU. CS-87
[84472-85-5]

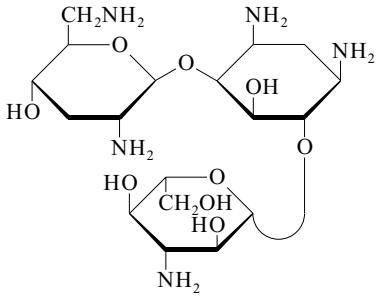


$C_9H_{11}N_5O_4$ 253.217
Potential antiviral agent. Inhibitor of HIV-1. Tan cryst. Mp 161-163° dec.

Lin, T.S. *et al., J. Med. Chem.*, 1983, **26**, 544 (*synth, ir, uv, pmr*)
Van Roey, P. *et al., J.A.C.S.*, 1988, **110**, 2277 (*cryst struct*)
Chu, C.K. *et al., Tet. Lett.*, 1988, **29**, 5349 (*synth*)
Low, J.N. *et al., Acta Cryst. C*, 1989, **45**, 664 (*cryst struct*)
Zhu, Z. *et al., Mol. Pharmacol.*, 1990, **38**, 929 (*metab*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1340

Nebmycin T N-8

[143731-17-3]



$C_{18}H_{37}N_5O_9$ 467.518

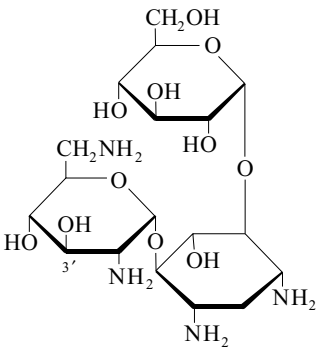
Aminoglycoside antibiotic. Ref. not available, no source given in abstr.

Li, L. *et al., Bopuxue Zazhi*, 1992, **9**, 1; *CA*, **117**, 171880 (*pmr, cmr, struct*)

Nebramycin factor 3 N-9

Nebramycin III. Antibiotic NK 1012-1. NK 1012-1

[31077-70-0]



$C_{18}H_{36}N_4O_{11}$ 484.503

Aminoglycoside antibiotic. Prod. by *Streptomyces tenebrarius*.

$[\alpha]_D^{20}$ +136 (H_2O).

▶ WK2297000

3′-Deoxy: ***Nebramycin factor 12***. *Nebramycin XII*

[64332-34-9]

$C_{18}H_{36}N_4O_{10}$ 468.503

Prod. by *Streptomyces tenebrarius*. Cryst. (MeOH). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

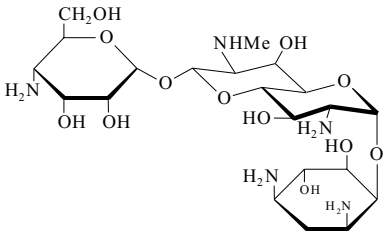
Suami, T. *et al., Carbohydr. Res.*, 1976, **52**, 187 (*synth*)

Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430 (*isol, cmr, nmr, ms*)

Nebramycin factor 7 N-10

Nebramycin VII. Oxyapramycin

[56283-52-4]



$C_{21}H_{41}N_5O_{12}$ 555.581

Aminoglycoside antibiotic. Isol. from *Streptomyces* spp. Needles. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

Mp 265° dec. $[\alpha]_D^{27}$ +170.4 (c, 0.154 in H_2O).

▶ WK1969500

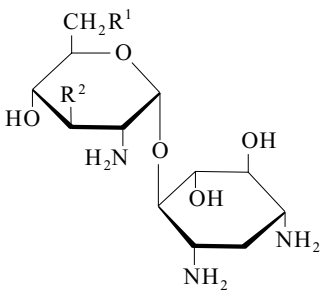
Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430

Martin, O.R. *et al., Chem. Comm.*, 1983, 926 (*synth*)

Nebramycin factor 8 N-11

Nebramycin VIII. Nebramine

[34051-04-2]



$R^1 = NH_2$, $R^2 = H$

$C_{12}H_{26}N_4O_5$ 306.361

Antibiotic. Sol. H_2O; poorly sol. butanol, hexane.

Mp 225°. $[\alpha]_D^{20}$ +110.

Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430

Nebramycin factor 9 N-12

Nebramycin IX. Lividamine

[36019-33-7]

As Nebramycin factor 8, N-11 with R^1 = OH, R^2 = H

$C_{12}H_{25}N_3O_6$ 307.346

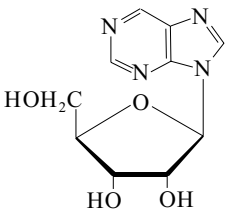
Sol. H_2O; poorly sol. butanol, hexane. Mp 222-224°. $[\alpha]_D^{20}$ +94.

Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430

Nebularine N-13

*9-β-D-Ribofuranosyl-9*H*-purine, 9CI, 8CI. Purinosine*

[550-33-4]



$C_{10}H_{12}N_4O_4$ 252.229

Nucleoside antibiotic. Isol. from the mushroom *Clitocybe nebularis* (clouded agaric), from *Streptomyces yokosukaensis* and *Microbispora* sp. nov. Shows tuberculostatic and antimitotic activity. Adenosine deaminase inhibitor. Investigated as an antileukaemic agent in combination therapies. Needles (MeOH).

Mp 182-183°. $[\alpha]_D^{35}$ -46.8 (c, 2.0 in H_2O). λ_{max} 262.5 (ε 7 020) (H_2O), 262.8 (5 900) (1*M* HCl), 263 nm (7 110) (pH 9.2).

▶ LD_{50} (rat, scu) 220 mg/kg. UO9100000

2′,3′,5′-Tri-Ac: [15981-63-2]

$[\alpha]_D^{26}$ -10.8 (c, 1.5 in MeOH).

6-Fluoro: See 6-Fluoro-9-ribofuranosyl-9*H*-purine, F-16

Isono, K. *et al., J. Antibiot., Ser. A*, 1960, **13**, 270-272 (*isol*)

Cory, J.G. *et al., Biochemistry*, 1965, **4**, 1729-1732 (*pharmacol*)

Iwamura, H. *et al., J.O.C.*, 1968, **33**, 1796-1799 (*synth, tri-Ac*)

Takeda, T. *et al., Acta Cryst. B*, 1974, **30**, 825-827 (*cryst struct*)

Ohno, M. *et al., J.A.C.S.*, 1974, **96**, 4326-4327 (*tri-Ac*)

Chenon, M.T. *et al., J.A.C.S.*, 1975, **97**, 4627-4636 (*cmr*)

Westhof, E. *et al., Z. Naturforsch., C*, 1975, **30**, 131-140 (*pmr*)

Gupta, P.K. *et al., Indian J. Chem., Sect. B*, 1981, **20**, 534-537 (*synth*)

Zavgorodnii, S.G. *et al., Bioorg. Khim.*, 1984, **10**, 1496-1507 (*conformn*)

Nair, V. *et al., Synthesis*, 1984, 401-402 (*synth, uv, pmr, cmr, ms*)

Cooper, R. *et al., J. Ind. Microbiol.*, 1986, **1**, 275-276 (*isol*)

Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711-1739 (*rev*)

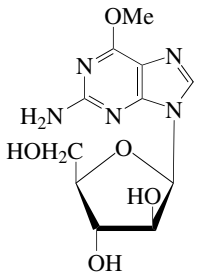
Nair, V. *et al., Tetrahedron*, 1988, **44**, 7001-7006 (*derivs*)

Worner, K. *et al., Helv. Chim. Acta*, 1999, **82**, 2094-2104 (*synth, pmr*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RJF000

Nelzarabine, INN N-14

*9-Arabinofuranosyl-6-methoxy-9*H*-purin-2-amine, 9CI. 2-Amino-6-methoxypurine arabinoside.* ***Nelarabine, BAN, USAN.*** *506 U 78. GW 506 U 78*



$C_{11}H_{15}N_5O_5$ 297.27

Antineoplastic agent. Water sol. prodrug of 9-Arabinofuranosylguanine, A-815.

β-D-*form* [121032-29-9]

Cryst. Mp 210°. $[\alpha]_D^{20}$ +55.9 (c, 0.27 in DMF).

Eur. Pat., 1988, 294 114, (*Wellcome Foundation*); *CA*, **111**, 7760s (*synth, pharmacol*)

Averett, D.R. *et al., Antimicrob. Agents Chemother.*, 1991, **35**, 851-857 (*pharmacol*)

Lambe, C.U. *et al., Cancer Res.*, 1995, **55**, 3352-3356 (*pharmacol*)

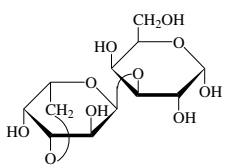
Rodriguez, C.O. *et al., J. Chromatogr., B: Biomed. Appl.*, 2000, **745**, 421-430 (*hplc*)

Kisor, D.F. *et al., J. Clin. Oncol.*, 2000, **18**, 995-1003 (*pharmaco kinet*)

Neoagarobiose N-15

*3-*O*-(3,6-Anhydro-α-L-galactopyranosyl)-D-galactose, 9CI*

[484-58-2]



α-Pyranose-*form*

$C_{12}H_{20}O_{10}$ 324.284

Isol. from the products of enzymic hydrolysis of agar.

Mp 207-208°. $[\alpha]_D$ +34.4 → +20.3 (H_2O).

Phenylosazone: Mp 199-200°.

Hexa-Ac:

$C_{24}H_{32}O_{16}$ 576.507

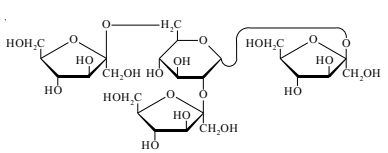
Mp 112°. $[\alpha]_D^{27}$ +1.6 ($CHCl_3$).

Araki, C. *et al., Bull. Chem. Soc. Jpn.*, 1956, **29**, 339 (*isol*)

Vattuone, M.A. *et al., Carbohydr. Res.*, 1975, **39**, 164 (*isol*)

Van der Meulen, H. *et al., Antonie van Leeuwenhoek*, 1976, **42**, 81; *CA*, **85**, 42721w (*isol*)

Neobifurcose N-16



$C_{24}H_{42}O_{21}$ 666.583

Struct. not confirmed. A trifructosyl glucose with the prob. struct. shown. Isol. from cereals.

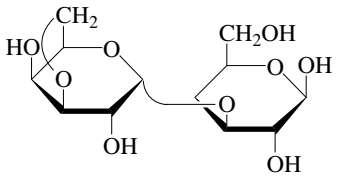
$[\alpha]_D^{20}$ +14.4 (H_2O).

Schlubach, H.H. *et al., Annalen*, 1958, **614**, 126; 1961, **647**, 41

Neocarrabiose N-17

*3-*O*-(3,6-Anhydro-α-D-galactopyranosyl)-D-galactose*

[70456-76-7]



β-Pyranose-*form*

$C_{12}H_{20}O_{10}$ 324.284

Repeating unit of carrageenans. Constit. of Mediterranean red alga *Rissoella verruculosa*.

β-Pyranose-*form* [79297-08-8]

Cryst. (2-propanol aq.). Mp 164-166°. $[\alpha]_D^{24}$ +96 → +110 (c, 1.0 in H_2O).

[150571-82-7]

Combaut, G. *et al., Phytochemistry*, 1985, **24**, 1597 (*occur*)

Lamba, D. *et al., Carbohydr. Res.*, 1990, **208**, 215 (*cryst struct*)

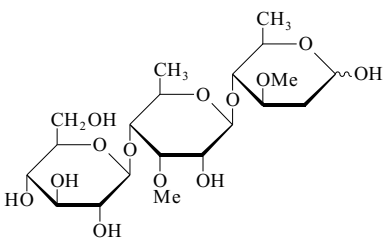
Ueda, K. *et al., Biopolymers*, 1996, **38**, 461 (*conformn*)

Stortz, C.A. *et al., J. Carbohydr. Chem.*, 2000, **19**, 1115-1130 (*conformn*)

Neocondurangotriose, 9CI N-18

*β-D-Glucopyranosyl-(1→4)-6-deoxy-3-*O*-methyl-β-D-allopyranosyl-(1→4)-β-D-oleandropyranose*

[75316-70-0]



$C_{20}H_{36}O_{13}$ 484.497

Isol. from Condurango cortex and *Boucerosia aucheriana*.

$[\alpha]_D$ +30.5 (c, 0.3 in MeOH).

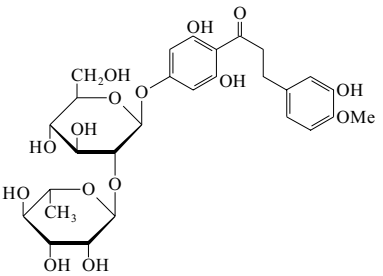
Hayashi, K. *et al., CA*, 1984, **100**, 135778p

Hayashi, K. *et al., Phytochemistry*, 1988, **27**, 3919 (*isol, pmr*)

Neohesperidin dihydrochalcone N-19

Neohesperidin DHC. E959. FEMA 3811. NHDHC. NHDC

[20702-77-6]



$C_{28}H_{36}O_{15}$ 612.583

Derived semisynthetically from 3′,5,7-Trihydroxy-4′-methoxyflavanone. Intensely sweet, 612 times more sweet than sucrose. Permitted in EU at low concs. (=10 ppm) for certain applications, e.g. low-alcohol beer. Generally recognised as safe (GRAS) in the USA.

Analogues extensively studied.

▸ LZ5785000

Horowitz, R.M. *et al., J. Agric. Food Chem.*, 1969, **17**, 696 (*rev*)

DuBois, G.E. *et al., J. Med. Chem.*, 1981, **24**, 408

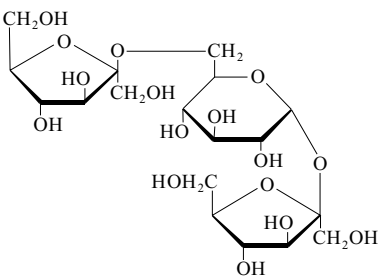
Lina, B.A.R. *et al., Food Chem. Toxicol.*, 1990, **28**, 507 (*tox*)

Bär, A. *et al., Lebensm.-Wiss. Technol.*, 1990, **23**, 371 (*rev, prop*)

Neokestose N-20

O-*β-D-Fructofuranosyl-(2→6)-α-D-glucopyranosyl β-D-fructofuranoside. β-D-Fructofuranosyl 6-*O*-β-D-fructofuranosyl-α-D-glucopyranoside, 8CI.* neo-*Kestose. 6^G-Kestotriose*

[3688-75-3]



$C_{18}H_{32}O_{16}$ 504.441

A fructan. See Fructans, F-43. Synthesised together with 1-kestose during the action of yeast invertase on sucrose. Isol. from the roots of asparagus, the sap of sugar maple, and together with 1-kestose from aq. alcoholic extracts of oat stalks. Amorph. $[\alpha]_D^{20}$ +22.2 (c, 2.3 in H_2O).

Gross, D. *et al., J.C.S.*, 1954, 1727 (*synth*)

Schlubach, H.H. *et al., Annalen*, 1961, **647**, 41 (*isol*)

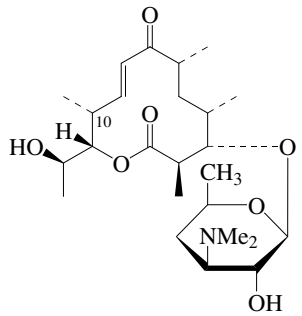
Haq, S. *et al., Can. J. Chem.*, 1961, **39**, 1165 (*isol*)

Gross, D. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 360 (*enzymic synth*)

Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 3037 (*pmr*)
Henry, R.J. *et al., Phytochemistry*, 1980, **19**, 1017
De Bruyn, A. *et al., Carbohydr. Res.*, 1991, **211**, 131 (*cmr*)
Liu, J. *et al., Carbohydr. Res.*, 1991, **213**, 43 (*pmr, cmr*)
Fukushi, E. *et al., Magn. Reson. Chem.*, 2000, **38**, 1005-1011 (*isol, pmr, cmr*)

Neomethymycin N-21

10-Deoxy-12-hydroxymethymycin, 9CI
[497-73-4]



$C_{25}H_{43}NO_7$ 469.617

Macrolide antibiotic. Prod. by *Streptomyces venezuelae*. Cryst. (Et_2O/hexane). Sol. MeOH, EtOAc, Et_2O, C_6H_6, butanol, Me_2CO, $CHCl_3$; fairly sol. H_2O; poorly sol. hexane. Mp 156-158°. $[\alpha]_D$ +93. λ_{max} 227 (ϵ 12600); 322 (ϵ 40) (EtOH) (Berdy).

Me_2CO solvate: Mp 156-158°.

CH_2Cl_2 solvate:
Hexagonal plates. Mp 154-156°.

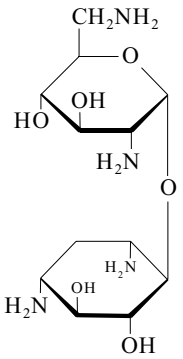
10-Hydroxy: 12-Hydroxymethymycin. ***Novamethymycin***
$C_{25}H_{43}NO_8$ 485.617
Prod. by *Streptomyces venezuelae*. Solid.

Aglycone: ***Neomethynolide***
[497-51-8]
$C_{17}H_{28}O_5$ 312.405
From *Streptomyces venezuelae*. Mp 102-104°.

Djerassi, C. *et al., Tetrahedron*, 1958, **3**, 255; 1959, **4**, 369 (*isol, struct*)
Celmer, W.D. *et al., J.A.C.S.*, 1965, **87**, 1801 (*config*)
Rickards, R.W. *et al., Tet. Lett.*, 1970, 1025 (*abs config*)
Olson, K.A. *et al., CA*, 1972, **77**, 113770j (*synth*)
Maezawa, I. *et al., J. Antibiot.*, 1974, **27**, 84 (*aglycone*)
de Grande, G.G. *et al., CA*, 1975, **82**, 31240a
Paterson, I. *et al., Tetrahedron*, 1985, **41**, 3569 (*synth, rev*)
Inanaga, J. *et al., Bull. Chem. Soc. Jpn.*, 1986, **59**, 1521 (*synth*)
Zhang, Q. *et al., J. Nat. Prod.*, 2001, **64**, 1447-1450 (*pmr, cmr, Novamethymycin*)

Neomycin A N-22

Neomin. Myacin. Neamine. Nebramycin factor 10. Nebramycin X. Negamicin†. Dekamycin V
[3947-65-7]



$C_{12}H_{26}N_4O_6$ 322.361

Aminoglycoside antibiotic. Isol. from *Streptomyces fradiae*. Degradn. prod. of Neomycin B, N-23 and Neomycin C, N-24. Shows relatively weak activity primarily against gram-positive organisms. Cryst. (H_2O or EtOH aq.). Mp 225-226° dec. $[\alpha]_D^{25}$ +112.8 (c, 1.0 in H_2O). Component of Neomycin, BAN, INN.

▶ LD_{50} (mus, scu) 1250 mg/kg. QP3860000

Hydrochloride:
Amorph. powder. Mp 250-260° dec. $[\alpha]_D^{23}$ +83 (c, 1.0 in H_2O).

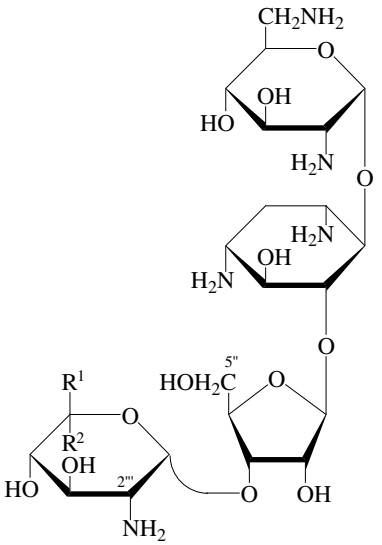
N-*Ac:*
Cryst. (MeOH). Mp 334-336°. $[\alpha]_D^{25}$ +87 (c, 1.0 in H_2O).

[1404-04-2, 1405-10-3]

Kuehl, F.A. *et al., J.A.C.S.*, 1951, **73**, 881 (*struct*)
Peck, R.L. *et al., J.A.C.S.*, 1953, **75**, 1018 (*isol*)
Rinehart, K.L. *et al., J.A.C.S.*, 1957, **79**, 4567; 4568; 1958, **80**, 6461; 6463 (*struct*)
Kuniaki, T. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 2371 (*synth*)
Hanessian, S. *et al., Can. J. Chem.*, 1978, **56**, 1509 (*synth*)
Koch, K.L. *et al., J.O.C.*, 1978, **43**, 1430 (*struct*)
Harayama, A. *et al., Bull. Chem. Soc. Jpn.*, 1979, **52**, 3626 (*synth*)
Ewad, M.J.S. *et al., Chem. Comm.*, 1983, 18; 20 (*biosynth*)
Botto, R.E. *et al., J.A.C.S.*, 1983, **105**, 1021 (*N nmr*)
Goda, S.K. *et al., J. Antibiot.*, 1992, **45**, 984 (*biosynth*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 185
Ryu, D.H. *et al., Bioorg. Med. Chem. Lett.*, 2003, **13**, 901-903 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, NCE500

Neomycin B N-23

Framycetin, BAN, INN. *Actilin. Soframycin. Antibiotic 10676. Dextromycin. Streptothricin B_2. Dekamycin III. Many other names*
[119-04-0]



$R^1 = H$

$R^2 = CH_2NH_2$

$C_{23}H_{46}N_6O_{13}$ 614.649

Aminoglycoside antibiotic. Prod. by *Streptomyces fradiae* and other spp. Clinically used broad-spectrum antibiotic. Amorph. $[\alpha]_D^{25}$ +83 (c, 1 in 0.2*M* H_2SO_4). Log P -9.03 (uncertain value) (calc). Indefinite Mp. Hydrol. → Neomycin A, D-ribose and 2,6-diamino-2,6-dideoxy-L-idose.

▶ LD_{50} (mus, scu) 220 mg/kg; LD_{50} (mus, orl) 1250 mg/kg. QP4025000

Mixt. with Neomycin A and C: ***Neomycin, BAN, INN.*** *Fradiomycin. Many other names*
[1404-04-2] Antibiotic complex. Used mainly topically as sulfate and as undecylenate salts.

▶ Nephrotoxic and ototoxic effects reported when used therapeutically. Other adverse effects. LD_{50} (mus, scu) 275 mg/kg; LD_{50} (mus, orl) 2880 mg/kg. QP3850000

$O^{5''}$-*β*-D-*Glucopyranoside:* ***Neomycin B glucoside***
[53861-54-4]
$C_{29}H_{56}N_6O_{18}$ 776.791
From *Streptomyces fradiae* in glucose. Sol. H_2O. $[\alpha]_D^{25}$ +35.

N-*Diphosphate:* ***Neomycin B pyrophosphate***
[31390-61-1]
$C_{23}H_{48}N_6O_{19}P_2$ 774.609
Prod. by *Streptomyces fradiae*. Position of pyrophosphate residue not known.

6‴-Deamino, 6‴-hydroxy: ***6‴-Deamino-6‴-hydroxyneomycin B***
[78524-73-9]
$C_{23}H_{45}N_5O_{14}$ 615.634
Prod. by *Streptomyces rimosus* ssp. *paromomyceticus*. Powder.

[1405-10-3, 1406-04-8]

Ford, J.H. *et al., J.A.C.S.*, 1955, **77**, 5311 (*isol*)
Rinehart, K.L. *et al., J.A.C.S.*, 1957, **79**, 4567; 4568; 1958, **80**, 6461; 6463 (*struct*)
Hichens, M. *et al., J.A.C.S.*, 1963, **85**, 1547 (*struct*)
Haskell, T.H. *et al., J.O.C.*, 1963, **28**, 2598 (*struct*)
Majumder, M.K. *et al., Biochem. J.*, 1970, **120**, 271-278 (*pyrophosphate*)
Perlman, D. *et al., J. Antibiot.*, 1974, **27**, 637 (*deriv*)
Heyes, W.F. *et al., Anal. Profiles Drug Subst.*, 1979, **8**, 399 (*rev*)
Chernyshev, A.I. *et al., Khim. Prir. Soedin.*, 1980, **16**, 686; *Chem. Nat. Compd. (Engl. Transl.)*, 1980, **16**, 500 (*cmr*)
Lin, Z.-L. *et al., CA*, 1981, **95**, 220241
Autissier, D. *et al., J. Antibiot.*, 1981, **34**, 536-543 (*6‴-Deamino-6‴-hydroxyneomycin B*)
Ewad, M.J.S. *et al., Chem. Comm.*, 1983, 18; 20 (*biosynth*)
Botto, R.E. *et al., J.A.C.S.*, 1983, **105**, 1021 (*N-15 nmr*)
Usui, T. *et al., Carbohydr. Res.*, 1984, **130**, 165; 1988, **174**, 133 (*synth*)
Botto, R.E. *et al., J. Carbohydr. Chem.*, 1984, **3**, 545-563 (*pmr*)
Usui, T. *et al., J. Antibiot.*, 1987, **40**, 1464 (*synth*)
Reid, D.G. *et al., J. Biol. Chem.*, 1987, **262**, 7967 (*pmr, cmr*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 7030
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **2**, 904 (*rev*)
Goda, S.K. *et al., J. Antibiot.*, 1992, **45**, 984 (*biosynth*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 185
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, NCE000; NCF000; NCG000

Neomycin C N-24

Streptothricin B_1. Dekamycin II
[66-86-4]
As Neomycin B, N-23 with
$R^1 = CH_2NH_2$, $R^2 = H$
$C_{23}H_{46}N_6O_{13}$ 614.649

Aminoglycoside antibiotic. Prod. by *Streptomyces fradiae* and other spp. Clinically used broad spectrum antibiotic. Amorph. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{25}$ +121 (c, 1.0 in 0.2*N* H_2SO_4). Log P -9.03 (uncertain value) (calc). Indefinite Mp. Hydrol. → D-ribose and Neomycin A, N-22. Component of Neomycin, BAN, INN and Fradiomycin sulfate, JAN. Also used as palmitate, sulfate and undecenoate salts.

▶ LD_{50} (mus, ipr) 116 mg/kg; LD_{50} (mus, ivn) 20 mg/kg , LD_{50} (mus, scu) 290 mg/kg. QP4200000

N-*Diphosphate: Neomycin C pyrophosphate*
[31390-62-2]
$C_{23}H_{48}N_6O_{19}P_2$ 774.609
Prod. by *Streptomyces fradiae*. Powder. Sol. H_2O; poorly sol. EtOH. Point of phosphorylation not known.

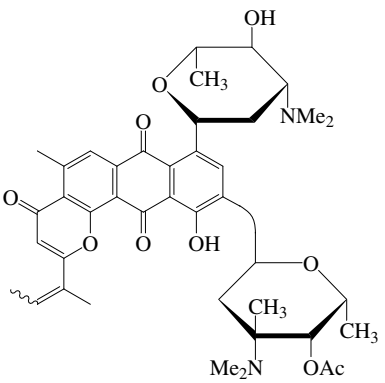
6‴-Deamino, 6‴-hydroxy: ***6‴-Deamino-6‴-hydroxyneomycin C***
[78549-66-3]
$C_{23}H_{45}N_5O_{14}$ 615.634
Prod. by *Streptomyces rimosus* ssp. *paromomyceticus*. Powder. Sol. H_2O. $[\alpha]_D$ +111.4.

[1404-04-2, 1405-10-3]

Ford, J.H. *et al., J.A.C.S.*, 1955, **77**, 5311 (*isol*)
Rinehart, K.L. *et al., J.A.C.S.*, 1957, **79**, 4568; 4667; 1958, **80**, 6461; 6463; 1962, **84**, 3218 (*struct*)
Hichens, M. *et al., J.A.C.S.*, 1963, **85**, 1547 (*struct*)
Majumder, M.K. *et al., Biochem. J.*, 1970, **120**, 271-278 (*diphosphate*)
Umezawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1980, **53**, 3259 (*synth, bibl*)
Autissier, D. *et al., J. Antibiot.*, 1981, **34**, 536-543 (*6‴-Deamino-6‴-hydroxyneomycin C*)
Ewad, M.J.S. *et al., Chem. Comm.*, 1983, 18; 20 (*biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, NCF300

Neopluramycin, 9CI, 8CI N-25

[11081-47-3]



$C_{41}H_{50}N_2O_{10}$ 730.853

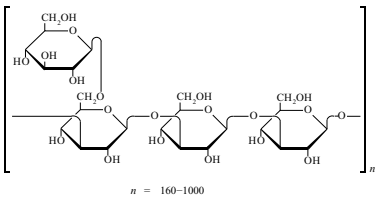
Anthracycline antibiotic. Isol. from *Streptomyces pluricolorescens*. Antibiotic which inhibits the growth of gram-positive bacteria. Also shows antitumour activity. Orange-red cryst. (EtOAc). Sol. MeOH, C_6H_6, acids; poorly sol. Et_2O, H_2O, hexane. Mp 180-184° dec. $[\alpha]_D^{26}$ +362 (c, 1.05 in $CHCl_3$). λ_{max} 218 (ε 47300); 243 (ε 59000); 272 (ε 41200); 426 (ε 13400) (EtOH/HCl) (Derep). λ_{max} 206 (ε 59600); 248 (ε 52100); 260 (sh) (ε 49800); 320 (ε 16200); 546 (ε 7000) (EtOH/NaOH) (Derep). λ_{max} 216 (ε 46700); 243 (ε 57700); 270 (ε 41200); 430 (ε 12000) (EtOH) (Derep). λ_{max} 218 (E1%/1cm 648); 243 (E1%/1cm 808); 272 (E1%/1cm 564); 426 (E1%/1cm 184) (EtOH-HCl) (Berdy).

▶ LD_{50} (mus, ivn) 12.5 mg/kg , LD_{50} (mus, ivn) 2.5 mg/kg. CB4584300

Kondo, S. *et al., J. Antibiot.*, 1970, **23**, 354; 1977, **30**, 1143 (*isol, synth, struct, cmr*)

Neoschizophyllan N-26

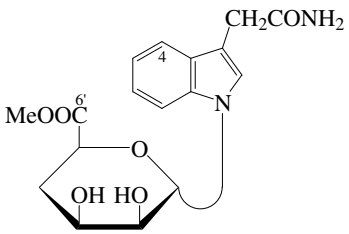
[63440-28-8]



Semisynthetic. Shows antineoplastic activity.
Possesses 3-stranded helical conformation.
Ger. Pat., 1977, 2 648 834; *CA*, **87**, 66594 (*synth*)
Australian Pat., 1983, 528 005; *CA*, **99**, 110734 (*synth*)

Neosidomycin N-27

[72033-44-4]



$C_{17}H_{20}N_2O_6$ 348.355

Nucleoside-type antibiotic. Metab. from *Streptomyces hygroscopicus*. Weakly active against gram-negative bacteria. Amorph. powder + ½H_2O. Sol. MeOH, butanol.
Mp 93-103°. $[\alpha]_D^{26}$ +51 (c, 0.48 in MeOH). Similar to Antibiotic SF 2140, A-773. λ_{max} 270 (ε 8130); 279 (ε 7760); 283 (sh) (ε 7410); 298 (ε 5750) (MeOH) (Derep).

Di-O-*Ac:* Mp 78-80°.

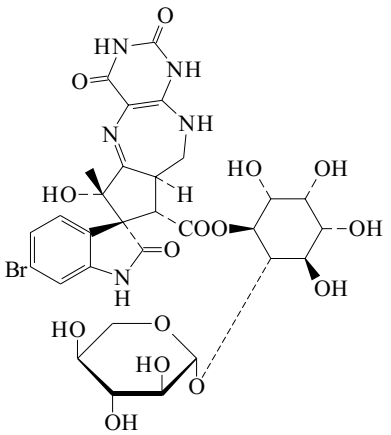
4-Methoxy: 4-Methoxyneosidomycin. ***Kahakamide A***
$C_{18}H_{22}N_2O_7$ 378.381
Prod. by the marine *Nocardiopsis dassonvillei*. Stereochem. not confirmed.
λ_{max} 222; 266; 286; 295 (no solvent reported).

4-Methoxy, parent acid, 6′-amide: ***Kahakamide B***
$C_{17}H_{21}N_3O_6$ 363.369
Prod. by the marine *Nocardiopsis dassonvillei*. Stereochem. not confirmed.

Furuta, R. *et al., Tet. Lett.*, 1979, 1701-1704 (*isol, uv, ir, pmr, ms, struct*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1994, 1417-1426 (*synth*)
Schumacher, R.W. *et al., Tet. Lett.*, 2001, **42**, 5133-5135 (*Kahakamides*)

Neosurugatoxin N-28

[80680-43-9]



$C_{30}H_{34}BrN_5O_{15}$ 784.527

Toxin from the mid-gut gland of *Babylonia japonica* (Japanese ivory shell) of dietary origin. Shows powerful antimydriatic activity. Prisms + $1H_2O$ (H_2O). Sol. H_2O-MeOH.

Mp 331-335° dec. Extremely unstable in alkaline medium and fairly heat-labile. λ_{max} 220 (ϵ 44700); 282 (ϵ 15100); 310 (sh) (ϵ 9120); 325 (sh) (ϵ 6310) (H_2O) (Derep). λ_{max} 220 (ϵ 44668); 282 (ϵ 15135); 310; 325 (H_2O) (Berdy).

5′-O-Dexylosyl: ***Prosurugatoxin***

[99102-40-6]

$C_{25}H_{26}BrN_5O_{11}$ 652.411

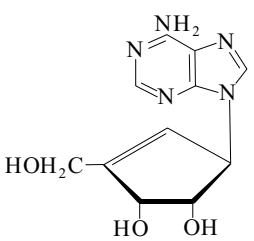
Isol. from *Babylonia japonica*. Ganglion blocking agent. λ_{max} 220 (ϵ 44700); 282 (ϵ 15100); 310 (sh) (ϵ 9120); 325 (sh) (ϵ 6310) (H_2O) (Derep).

Kosuge, T. *et al., Tet. Lett.*, 1981, 3417 (*cryst struct*)
Kosuge, T. *et al., Chem. Pharm. Bull.*, 1982, **30**, 3255; 1985, **33**, 2890; 3059 (*isol, Prosurgatoxin*)
Inoue, S. *et al., CA*, 1983, **100**, 191639 (*synth*)
Hayashi, E. *et al., J. Neurochem.*, 1984, **42**, 1491 (*props*)
Inoue, S. *et al., Tet. Lett.*, 1986, **27**, 5225 (*synth*)
Inoue, S. *et al., Yakugaku Zasshi*, 1987, **107**, 645 (*rev, synth*)
Wada, A. *et al., Methods Neurosci.*, 1992, **8**, 311 (*rev, props*)
Inoue, S. *et al., Tetrahedron*, 1994, **50**, 2753 (*synth*)

Neplanocin A N-29

A 11079B$_{1b}$. Antibiotic A 11079B$_{1b}$

[72877-50-0]



$C_{11}H_{13}N_5O_3$ 263.255

Nucleoside antibiotic. Isol. from *Ampullariella regularis*. Active against tumours. Cryst. (Me_2CO aq.). Sol. H_2O, DMF, Me_2CO-H_2O, AcOH, DMSO; poorly sol. EtOAc, hexane.

Mp 220-222°. $[\alpha]_D^{23}$ -157 (c, 0.5 in H_2O). λ_{max} 260 (ϵ 15100) (H_2O at pH 2) (Derep). λ_{max} 262 (ϵ 15800) (H_2O) (Derep). λ_{max} 263 (E1%/1cm 602.1) (H_2O) (Berdy). λ_{max} 261 (E1%/1cm 566.4) (pH 3 buffer) (Berdy). λ_{max} 263 (E1%/1cm 595) (pH 10 buffer) (Berdy).

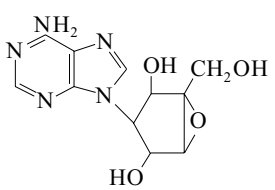
▶ LD_{50} (mus, ipr) 13.7 mg/kg. GY5976500

Fukukawa, K. *et al., Chem. Pharm. Bull.*, 1981, **29**, 597
Yaginuma, S. *et al., J. Antibiot.*, 1981, **34**, 359 (*isol*)
Hayashi, M. *et al., J. Antibiot.*, 1981, **34**, 675 (*struct*)
Arita, M. *et al., J.A.C.S.*, 1983, **105**, 4049 (*synth*)
Lim, M.-I. *et al., Tet. Lett.*, 1983, **24**, 4051; 5559 (*synth*)
Tseng, C.K.H. *et al., Tet. Lett.*, 1985, **26**, 3617 (*synth*)
Fisher, E.W. *et al., J. Antibiot.*, 1987, **40**, 873 (*props, bibl*)
Medich, J.R. *et al., Tet. Lett.*, 1987, **28**, 4131 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Arai, Y. *et al., J.C.S. Perkin 1*, 1988, 3133 (*synth, bibl*)
Marquez, V.E. *et al., J.O.C.*, 1988, **53**, 5709 (*synth*)
Bestmann, H.-J. *et al., Angew. Chem., Int. Ed.*, 1990, **29**, 99 (*synth*)
Wolfe, M.S. *et al., J.O.C.*, 1990, **55**, 4712 (*synth, bibl*)
Borthwick, A.D. *et al., Tetrahedron*, 1992, **48**, 571 (*rev, synth*)
Hill, J.M. *et al., J.A.C.S.*, 1995, **117**, 5391 (*biosynth*)
Trost, B.M. *et al., Tet. Lett.*, 1997, **38**, 1707 (*synth*)
Niizuma, S. *et al., Tetrahedron*, 1997, **53**, 13621-13632 (*synth*)
Yoshida, N. *et al., Tet. Lett.*, 1998, **39**, 4677-4678 (*synth*)
Hegedus, L.S. *et al., J.O.C.*, 2000, **65**, 4204-4207 (*synth*)
Ono, M. *et al., J.O.C.*, 2001, **66**, 8199-8203 (*synth*)

Neplanocin B N-30

3-(6-Amino-9H-purin-9-yl)-1-(hydroxymethyl)-6-oxabicyclo[3.1.0]hexane-2,4-diol, 9CI

[72877-49-7]



$C_{11}H_{13}N_5O_4$ 279.255

Nucleoside antibiotic. Isol. from *Ampullariella regularis*. Weakly active against tumours. Platelets. Sol. H_2O, DMSO; poorly sol. EtOAc, hexane.

Mp 269-272° dec. $[\alpha]_D^{24}$ -3.5 (c, 1 in DMSO). λ_{max} 260 (ϵ 15100) (H_2O at pH 2) (Derep). λ_{max} 262 (ϵ 15800) (H_2O) (Derep). λ_{max} 262 (E1%/1cm 530.4) (H_2O) (Berdy). λ_{max} 259 (E1%/1cm 506.7) (HCl) (Berdy). λ_{max} 263 (E1%/1cm 522.7) (NaOH) (Berdy).

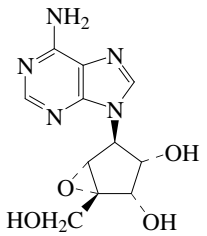
▶ RN8990000

Ger. Pat., 1979, 2 917 000; *CA*, **92**, 109108 (*isol, props*)
Hayashi, M. *et al., Nucleic Acids Symp. Ser.*, 1980, **8**, 565 (*struct, props*)
Japan. Pat., 1981, 81 51 414; *CA*, **95**, 175791 (*isol, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Neplanocin C N-31

4-(6-Amino-9H-purin-9-yl)-1-(hydroxymethyl)-6-oxabicyclo[3.1.0]hexane-2,3-diol, 9CI. A 11079B$_2$. Antibiotic A 11079B$_2$

[72877-48-6]



$C_{11}H_{13}N_5O_4$ 279.255

Nucleoside antibiotic. Isol. from *Ampullariella regularis*. Weak antitumour agent. Active against phytopathogenic fungi. Platelets. Sol. H_2O, DMSO, DMF; poorly sol. EtOAc, hexane.

Mp 226° dec. $[\alpha]_D^{21}$ -43.6 (c, 0.67 in H_2O). λ_{max} 260 (ϵ 15100) (H_2O at pH 2) (Derep). λ_{max} 262 (ϵ 15800) (H_2O) (Derep). λ_{max} 263 (E1%/1cm 538.9) (H_2O) (Berdy). λ_{max} 259 (E1%/1cm 510.8) (pH 3 buffer) (Berdy). λ_{max} 263 (E1%/1cm 534.4) (pH 10 buffer) (Berdy).

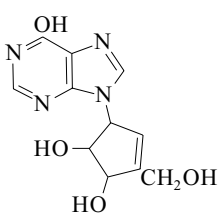
▶ LD_{50} (mus, ipr) 55 mg/kg. RN8990100

Ger. Pat., 1979, 2 917 000; *CA*, **92**, 109108
Hayashi, M. *et al., Nucleic Acids Symp. Ser.*, 1980, **8**, 565 (*isol, props*)
De Clereq, E. *et al., Antimicrob. Agents Chemother.*, 1985, **28**, 84; 1986, **29**, 482 (*props*)
Kinoshita, K. *et al., Nucleosides Nucleotides*, 1985, **4**, 661 (*cryst struct*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Comin, M.J. *et al., Tetrahedron*, 2000, **56**, 4639-4649 (*synth*)

Neplanocin D N-32

9-[4,5-Dihydroxy-3-(hydroxymethyl)-2-cyclopenten-1-yl]-1,9-dihydro-6H-purin-6-one, 9CI

[72877-47-5]



$C_{11}H_{12}N_4O_4$ 264.24

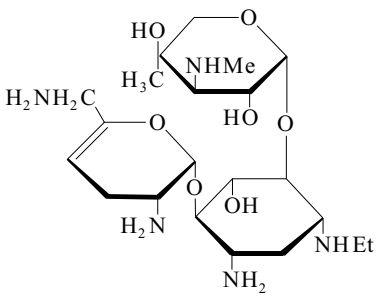
Nucleoside antibiotic. Isol. from *Ampullariella regularis*. Weak antitumour agent. Sol. H_2O, Py, DMF, DMSO, AcOH; poorly sol. EtOAc, hexane. λ_{max} 260 (ϵ 15100) (H_2O at pH 2) (Derep). λ_{max} 262 (ϵ 15800) (H_2O) (Derep). λ_{max} 251 (E1%/1cm 479) (H_2O) (Berdy). λ_{max} 251 (E1%/1cm 453) (HCl) (Berdy). λ_{max} 256 (E1%/1cm 508) (NaOH) (Berdy).

▶ UP0791950

Ger. Pat., 1979, 2 917 000; *CA*, **92**, 109108
Hayashi, M. *et al., Nucleic Acids Symp. Ser.*, 1980, **8**, 565 (*isol, struct, props*)
Japan. Pat., 1981, 81 51 414; *CA*, **95**, 175791
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Netilmicin, BAN, INN N-33

N-*Ethylsisomicin. Certomycin. Netromycin. Vivicil. Antibiotic Sch 20569. Sch 20569. Many other names*
[56391-56-1]



$C_{21}H_{41}N_5O_7$ 475.584
Semisynthetic aminoglycoside antibiotic. Shows broad spectrum activity. Sol. H_2O; poorly sol. EtOH, hexane. Mp 100-103°. $[\alpha]_D$ +129.5 (H_2O). Log P -3.81 (uncertain value) (calc).

▶ Less ototoxic than congeners. LD_{50} (rat, ipr) 231 mg/kg. Exp. reprod. and teratogenic effects; LD_{50} (mus, ivn) 40 mg/kg , LD_{50} (mus, ipr) 125 mg/kg , LD_{50} (mus, scu) 175 mg/kg. WK2285000

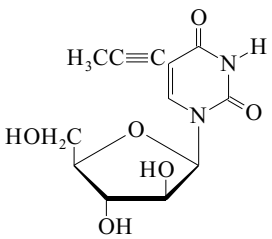
Sulfate (1:5): ***Netilmicin sulfate, JAN, USAN***
[56391-57-2]

▶ WK2286000

U.S. Pat., 1974, 4 002 742, (*Schering*); *CA*, **87**, 6298w (*synth*)
Watanakunakorn, C. *et al., Antimicrob. Agents Chemother.*, 1976, **10**, 382 (*props*)
Wright, J.J. *et al., Chem. Comm.*, 1976, 206 (*ms, nmr, synth*)
Drugs of Today (Barcelona), 1981, **17**, 322 (*rev*)
Boxler, D.L. *et al., J.C.S. Perkin 1*, 1981, 2168 (*synth*)
Aminoglycosides, (ed. Whelton, A. *et al*), M. Dekker, 1982, (*book*)
Nagabhushan, T.L. *et al., Carbohydr. Res.*, 1984, **130**, 243 (*synth*)
Noone, P. *et al., Drugs*, 1984, **27**, 548 (*rev*)
Solberg, C.O. *et al., Netilmicin*, Academic Press, London, 1984, (*book*)
Campoli-Richards, D.M. *et al., Drugs*, 1989, **38**, 703 (*rev, pharmacol*)
Textbook of Adverse Drug Reactions, 4th edn., (ed. Davies, D.M.), Oxford University Press, 1991, 578
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 186
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 8766 (*synonyms*)
Nam, G. *et al., Org. Process Res. Dev.*, 2002, **6**, 78-81 (*synth, pmr, cmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, NCP550; SBD000

Netivudine, BAN N-34

1-β-D-Arabinofuranosyl-5-(1-propynyl)-2,4(1H,3H)-pyrimidinedione, 9CI. 1-β-D-Arabinofuranosyl-5-(1-propynyl)uracil. 882C87
[84558-93-0]



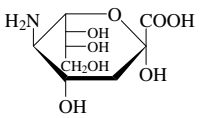
$C_{12}H_{14}N_2O_6$ 282.252
Antiviral agent. Mp 240-245° dec. Log P -2.03 (calc).

[140623-73-0]

De Clercq, E. *et al., J. Med. Chem.*, 1983, **26**, 661 (*synth, uv, pmr, pharmacol*)
Cygler, M. *et al., Can. J. Chem.*, 1984, **62**, 147 (*cryst struct*)
Eur. Pat., 1988, 272 065, (*Wellcome*); *CA*, **110**, 8593f (*synth, pharmacol*)
Lacey, S.F. *et al., J. Gen. Virol.*, 1991, **72**, 623 (*pharmacol*)
Rahim, S.G. *et al., Antiviral Chem. Chemother.*, 1992, **3**, 293
Peck, R.W. *et al., Antimicrob. Agents Chemother.*, 1995, **39**, 20 (*pharmacokinet, human*)

Neuraminic acid N-35

5-Amino-3,5-dideoxy-D-glycero-D-galacto-non-2-ulosonic acid, 9CI. Prehemataminic acid
[114-04-5]



α-D-Pyranose-*form*

$C_9H_{17}NO_8$ 267.235
The aminononulosonic acid from which the sialic acids are derived. See also Sialic acids, S-37. Occurs in nature in its acylated forms.

N-*Ac:* See *N*-Acetylneuraminic acid, A-20

N-*Benzoyl:*
$C_{16}H_{21}NO_9$ 371.343
Mp 208-210° dec. $[\alpha]_D^{24}$ -33 (H_2O).

N-*Ethoxycarbonyl:*
$C_{12}H_{21}NO_{10}$ 339.299
Mp 179-180° dec. $[\alpha]_D^{24}$ -32.8 (H_2O).

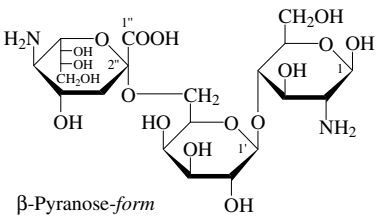
N-*Benzyloxycarbonyl:*
$C_{17}H_{23}NO_{10}$ 401.369
Mp 191-193° dec. $[\alpha]_D^{24}$ -30.4 (H_2O).

[497-43-8, 41546-22-9]

Zilliken, F. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 237 (*rev*)
Gottschalk, A. *et al., The Chemistry and Biology of Sialic Acids and Related Substances*, Cambridge Univ. Press, 1960, (*rev*)
Wesemann, W. *et al., Annalen*, 1966, **695**, 209 (*N-benzoyl, N-benzyloxycarbonyl, N-ethoxycarbonyl*)
Codington, J.F. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 226 (*anal*)
Schauer, R. *et al., Sialic Acids: Chem. Metab. and Function*, Springer-Verlag, 1982, (*rev*)

α-D-Neuraminopyranosyl-(2→6)-β-D-galactopyranosyl-(1→4)-2-amino-2-deoxy-D-glucose N-36

5-Amino-3,5-dideoxy-D-glycero-α-galacto-2-nonulopyranosonosyl-(2→3)-β-D-galactopyranosyl-(1→4)-2-amino-2-deoxy-D-glucose, 9CI



β-Pyranose-*form*

$C_{21}H_{38}N_2O_{17}$ 590.534

Pyranose-*form*

N,N′-*Di-Ac:* [78969-47-8]
$C_{25}H_{42}N_2O_{19}$ 674.609
Syrup. $[\alpha]_D^{20}$ -0.7 (c, 1.0 in H_2O).

β-Pyranose-*form*

2N-*Phthaloyl, undeca-Ac, Me ester:* [94537-72-1]
Syrup. $[\alpha]_D^{20}$ +9.8 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2′,3,3′,6-tetrabenzyl, 2N,5″N-di-Ac: [89733-62-0]
$C_{60}H_{72}N_2O_{19}$ 1125.231
Syrup. $[\alpha]_D^{28}$ -12.1 (c, 1.0 in $CHCl_3$).

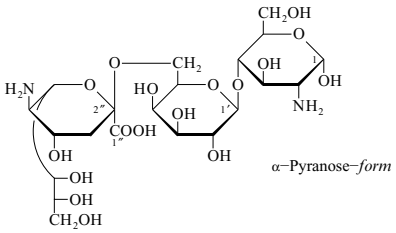
Benzyl glycoside, 2′,3,3′,6-tetrabenzyl, hepta-Ac, Me ester: [89733-61-9]
$C_{71}H_{84}N_2O_{24}$ 1349.444
Syrup. $[\alpha]_D^{26}$ -12.2 (c, 1.0 in $CHCl_3$).

[64364-50-7, 89733-60-8, 89824-82-8, 104039-88-5]

Paulsen, H. *et al., Angew. Chem., Int. Ed.*, 1982, **21**, 927; 1985, **24**, 128 (*di-N-Ac, β-pyr Me ester deriv*)
Paulsen, H. *et al., Carbohydr. Res.*, 1984, **125**, 147; 1985, **144**, 205 (*β-benzyl pyr derivs, pmr*)

β-D-Neuraminopyranosyl-(2 →6)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose N-37

5-Amino-3,5-dideoxy-D-glycero-*β-D*-galacto-*2-nonulopyranosonosyl-(2 →6)-β-D-galactopyranosyl-(1 →4)-2-amino-2-deoxy-D-glucose, 9CI*



$C_{21}H_{38}N_2O_{17}$ 590.534

Pyranose-*form*

N,N′-*Di-Ac:* [85798-73-8]
$C_{25}H_{42}N_2O_{19}$ 674.609
Syrup. $[\alpha]_D^{27}$ -3.5 (c, 1.0 in H_2O).

α-Pyranose-*form*

*2*N-*Phthaloyl, undeca-Ac, Me ester:* [94537-66-3]
$C_{52}H_{64}N_2O_{30}$ 1197.073
Syrup. $[\alpha]_D^{20}$ +14 (c, 1.3 in $CHCl_3$).

*Benzyl glycoside, 2′,3,3′,6-tetrabenzyl, 2*N,*5′′*N-*di-Ac:* [89733-66-4]
$C_{60}H_{72}N_2O_{19}$ 1125.231
Syrup. $[\alpha]_D^{23}$ -12.5 (c, 1.0 in $CHCl_3$).

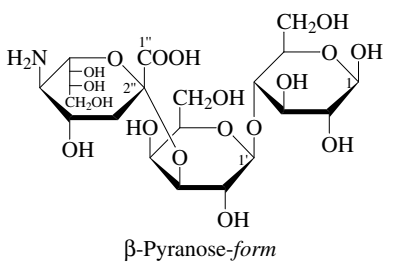
Benzyl glycoside, 2′,3,3′,6-tetrabenzyl, hepta-Ac, Me ester: [89733-64-2]
$C_{71}H_{84}N_2O_{24}$ 1349.444
Syrup. $[\alpha]_D^{22}$ -16 (c, 0.9 in CH_2Cl_2).

[89733-63-1, 89733-65-3, 89824-83-9, 94537-65-2, 104039-89-6]

Paulsen, H. *et al., Carbohydr. Res.*, 1984, **125**, 47; 1985, **144**, 205 (*di-N-Ac, α-pyr N-phthaloyl Me ester deriv, α-benzyl pyr Me ester derivs, synth, pmr*)

α-D-Neuraminopyranosyl-(2 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose N-38

5-Amino-3,5-dideoxy-D-glycero-*α-D*-galacto-*2-nonulopyranosonosyl-(2 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI*



$C_{21}H_{37}NO_{18}$ 591.519
Occurs in bovine colostrum, human urine and in Hematoside, a sialosyl ceramide isol. from horse erythrocytes.

Pyranose-*form*

N-*Ac:* [35890-38-1]
$C_{23}H_{39}NO_{19}$ 633.556
Amorph. $[\alpha]_D$ +21.3 (c, 0.62 in H_2O).

β-Pyranose-*form*

Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, N-*Ac:* [96520-24-0]
$C_{65}H_{75}NO_{19}$ 1174.303
Syrup. $[\alpha]_D^{20}$ -7.1 (c, 1.12 in MeOH).

Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, N-*Ac, Me ester:* [102727-55-9]
$C_{66}H_{77}NO_{19}$ 1188.33
Syrup. $[\alpha]_D^{20}$ -7.8 (c, 0.58 in MeOH).

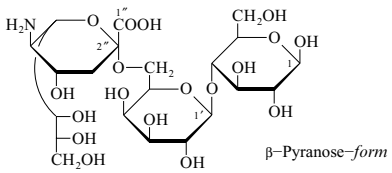
*Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, 4′′,5′′*N,*7′′,8′′,9′′-penta-Ac, Me ester:* [96520-22-8]
$C_{74}H_{85}NO_{23}$ 1356.478
Syrup. $[\alpha]_D$ +5.8 (c, 0.93 in $CHCl_3$).
$[\alpha]_D^{20}$ -4.8 (c, 0.52 in $CHCl_3$).

[70472-21-8]

Ogawa, T. *et al., Carbohydr. Res.*, 1985, **135**, C5 (*N-Ac, pmr*)
Sugimoto, M. *et al., Glycoconjugate J.*, 1985, **2**, 5 (*penta-Ac*)
Paulsen, H. *et al., Carbohydr. Res.*, 1986, **146**, 147 (*N-Ac, β-benzyl pyr pentabenzyl derivs, pmr*)

α-D-Neuraminopyranosyl-(2 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose N-39

5-Amino-3,5-dideoxy-D-glycero-*α-D*-galacto-*2-nonulopyranosonosyl-(2 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI*



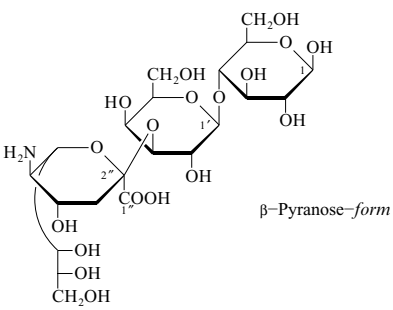
$C_{21}H_{37}NO_{18}$ 591.519

N-*Ac:* [35890-39-2]
$C_{23}H_{39}NO_{19}$ 633.556
Amorph. powder. $[\alpha]_D^{27}$ +5.6 (c, 1.0 in H_2O).

Furuhata, K. *et al., Chem. Pharm. Bull.*, 1986, **34**, 2725 (*N-Ac, anhydro Me ester deriv, ir, pmr, ms, hplc*)

β-D-Neuraminopyranosyl-(2 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose N-40

5-Amino-3,5-dideoxy-D-glycero-*β-D*-galacto-*2-nonulopyranosonosyl-(2 →3)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI*



$C_{21}H_{37}NO_{18}$ 591.519

Pyranose-*form*

N-*Ac:* [96612-93-0]

[11040-27-0]
$C_{23}H_{39}NO_{19}$ 633.556
Amorph. $[\alpha]_D^{20}$ +12.3 (c, 0.47 in H_2O).

β-Pyranose-*form*

Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, N-*Ac:* [96520-25-1]
$C_{65}H_{75}NO_{19}$ 1174.303
Syrup. $[\alpha]_D^{20}$ -5.3 (c, 1.21 in MeOH).

Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, N-*Ac, Me ester:* [102716-29-0]
$C_{66}H_{77}NO_{19}$ 1188.33
Syrup. $[\alpha]_D^{20}$ -6.1 (c, 0.48 in MeOH).

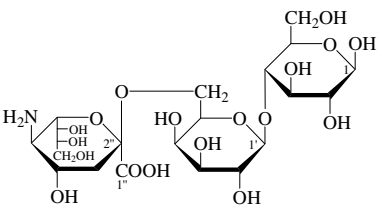
*Benzyl glycoside, 2,2′,3,6,6′-pentabenzyl, 4′′,5′′*N,*7′′,8′′,9′′-penta-Ac, Me ester:* [96520-23-9]
$C_{74}H_{85}NO_{23}$ 1356.478
Syrup. $[\alpha]_D^{20}$ -2.8 (c, 1.33 in $CHCl_3$).

[102778-91-6, 102778-92-7]

Ogawa, T. *et al., Carbohydr. Res.*, 1985, **135**, C5 (*N-Ac, pmr*)
Paulsen, H. *et al., Carbohydr. Res.*, 1986, **146**, 147 (*N-Ac, β-benzyl pyr pentabenzyl derivs, pmr*)

β-D-Neuraminopyranosyl-(2 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose N-41

5-Amino-3,5-dideoxy-D-glycero-*β-D*-galacto-*2-nonulopyranosonosyl-(2 →6)-β-D-galactopyranosyl-(1 →4)-D-glucose, 9CI. β-D-Neuraminopyranosyl-(2 →6)-lactose*



$C_{21}H_{37}NO_{18}$ 591.519

N-*Ac:* [56144-12-8]

[11040-27-0]
$C_{23}H_{39}NO_{19}$ 633.556
Amorph. powder. $[\alpha]_D^{27}$ +1.8 (c, 1.0 in H_2O).

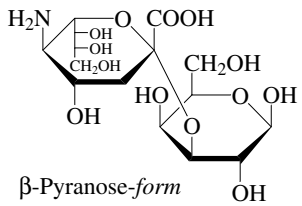
β-Pyranose-*form*

*1,6-Anhydro, 2,2′,3,3′,4′-pentabenzyl, 4′′,5*N*′′,7′′,8′′,9′′-penta-Ac, Me ester:* [90318-50-6]
$C_{67}H_{77}NO_{22}$ 1248.339
Powder. $[\alpha]_D^{26}$ -27 (c, 1.0 in $CHCl_3$).

Furuhata, K. *et al., Chem. Pharm. Bull.*, 1986, **34**, 2725 (*N-Ac, β-anhydro Me ester deriv, ir, pmr, cmr, ms*)

α-D-Neuraminopyranosyl-(2 →3)-D-galactose N-42

5-Amino-3,5-dideoxy-D-glycero-α-D-galacto-2-nonulopyranosonosyl-(2 →3)-D-galactose, 9CI



$C_{15}H_{27}NO_{13}$ 429.377
Isol. as a minor component from a ganglioside mixt.

Pyranose-*form*

N-*Ac:* [83563-61-5]
$C_{17}H_{29}NO_{14}$ 471.414
Oil. $[\alpha]_D^{25}$ +23.1 (c, 1.18 in H_2O).

β-Pyranose-*form*

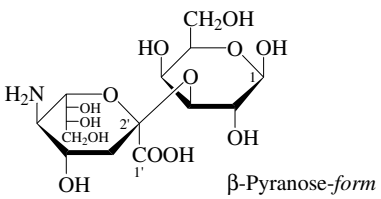
Benzyl glycoside, 2,6-dibenzyl, N-*Ac:* [96520-19-3]
$C_{38}H_{47}NO_{14}$ 741.788
Syrup. $[\alpha]_D$ -25.9 (c, 1.62 in MeOH).

Benzyl glycoside, 2,6-dibenzyl, 4′′,5′′N,7′′,8′′,9′′-penta-Ac, Me ester: [96520-15-9]
$C_{47}H_{57}NO_{18}$ 923.963
Syrup. $[\alpha]_D$ -21.7 (c, 1.15 in $CHCl_3$).

Wiegandt, H. *et al., Z. Naturforsch., B*, 1964, **19**, 256; 1965, **20**, 164
Handb. Lipid Res., 1983, **3**, 165 (*isol*)
Ogawa, T. *et al., Carbohydr. Res.*, 1985, **135**, C5 (*N-Ac, β-benzyl pyr dibenzyl derivs, pmr, cmr*)

β-D-Neuraminopyranosyl-(2 → 3)-D-galactose N-43

5-Amino-3,5-dideoxy-D-glycero-β-D-galacto-2-nonulopyranosonosyl-(2 →3)-D-galactose, 9CI



$C_{15}H_{27}NO_{13}$ 429.377

Pyranose-*form*

N-*Ac:* [96520-21-7]
$C_{17}H_{29}NO_{14}$ 471.414
$[\alpha]_D^{25}$ +11 (c, 0.3 in H_2O).

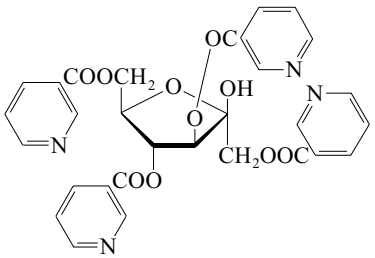
β-Pyranose-*form*

Benzyl glycoside, 2,6-dibenzyl, 4′′,5′′N,7′′,8′′,9′′-penta-Ac, Me ester: [96520-16-0]
$C_{47}H_{57}NO_{18}$ 923.963
$[\alpha]_D$ -25.4 (c, 1.40 in $CHCl_3$).

Ogawa, T. *et al., Carbohydr. Res.*, 1985, **135**, C5 (*N-Ac, β-benzyl gly Me ester deriv, pmr, cmr*)

Nicofuranose, BAN, INN, JAN N-44

β-D-Fructofuranose 1,3,4,6-tetra-3-pyridinecarboxylate, 9CI. D-Fructofuranose 1,3,4,6-tetranicotinate, 8CI. ES 304. Bradilan. Buclidan. Cardilan. Romanil. Vasperdil
[15351-13-0]

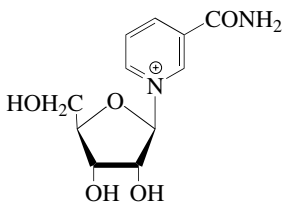


$C_{30}H_{24}N_4O_{10}$ 600.54
Peripheral vasodilator, antithrombotic agent. Mp 145-146°. $[\alpha]_D^{18}$ -8.5 ($CHCl_3$). Log P 1.17 (calc).

U.K. Pat., 1970, 1 197 978, (*Eprova*); *CA*, **73**, 77559d (*synth, pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1311

Nicotinamide ribonucleoside N-45

3-(Aminocarbonyl)-1-β-D-ribofuranosylpyridinium(1+), 9CI. Nicotinamide riboside
[1341-23-7]



$C_{11}H_{15}N_2O_5^{\oplus}$ 255.25

Bromide: [78687-39-5]
$C_{11}H_{15}BrN_2O_5$ 335.154
Amorph. hygroscopic powder. $[\alpha]_D^{20}$ -33 (c, 1.42 in H_2O).

5-O-Phosphate inner salt: Nicotinamide ribonucleotide. Nicotinamide ribotide. Nicotinamide mononucleotide
[1094-61-7]
$C_{11}H_{15}N_2O_8P$ 334.222
Intermed. in synth. of nicotinamide adenine nucleotide analogues. Subcomponent of coenzymes I and II. Amorph. powder. $[\alpha]_D^{20}$ -31.4 (c, 1.94 in H_2O).

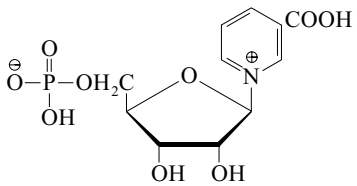
5′-O-(2ξ-Acetoxy-3ξ-methylpentanoyl):
$C_{19}H_{27}N_2O_8^{\oplus}$ 411.431
Isol. from the beetle *Platyphora opima*. $[\alpha]_D^{25}$ -1.6 (c, 0.19 in MeOH). Counterion not specified. λ_{max} 210 (log ϵ 3.8); 260 (log ϵ 3.44) (MeOH).

[75414-16-3]

Haynes, L.J. *et al., J.C.S.*, 1957, 3727-3732 (*synth, phosphate*)
Mikhailopulo, I.A. *et al., Synthesis*, 1981, 388-389 (*synth, pmr, bibl, phosphate*)
Walt, D.R. *et al., J.A.C.S.*, 1984, **106**, 234-239 (*synth, use, phosphate, bibl*)
Micheli, V. *et al., Arch. Biochem. Biophys.*, 1990, **283**, 40-45 (*metab, phosphate*)
Liu, R. *et al., Nucleosides Nucleotides*, 1994, **13**, 1215-1216 (*synth, phosphate*)
Plasman, V. *et al., J. Nat. Prod.*, 2000, **63**, 1261-1264 (*isol*)

Nicotinic acid mononucleotide N-46

3-Carboxy-1-(5-O-phosphono-β-D-ribofuranosyl)pyridinium hydroxide inner salt, 9CI. 3-Carboxy-1-β-D-ribofuranosylpyridinium hydroxide 5′-(dihydrogen phosphate) inner salt, 8CI. Deamido-NMN. Niacin ribonucleotide. Nicotinic acid ribonucleotide
[321-02-8]

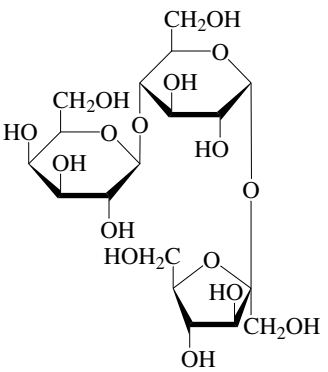


$C_{11}H_{14}NO_9P$ 335.207
Isol. from bacteria. Intermed. in the biosynth. of nicotinic acid.

Konno, K. *et al., Nature (London)*, 1965, **205**, 874 (*biosynth*)
Wagner, C. *et al., Anal. Biochem.*, 1968, **25**, 472 (*synth*)
Honjo, T. *et al., Methods Enzymol.*, 1971, **18B**, 132 (*enzymic synth*)

Nigeglanose N-47

β-D-Galactopyranosyl-(1 →4)-α-D-glucopyranosyl β-D-fructofuranoside. 4-O-β-D-Galactopyranosyl-D-sucrose
[187674-67-5]



$C_{18}H_{32}O_{16}$ 504.441
Constit. of the seeds of *Nigella gladulifera*.

Hao, H. *et al., Yaoxue Xuebao*, 1996, **31**, 654-659; *CA*, **126**, 183810b

Nigeran N-48

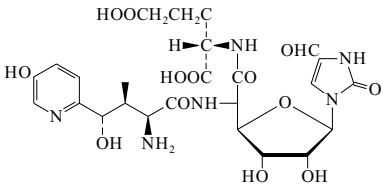
Mycodextran
[31799-84-5]
A linear D-glucan containing alternating α-D-(1 →3) and α-D-(1 →4) linkages. Prod. by *Aspergillus niger* 152 from a wide range of substrates and by a great variety of fungi.
$[\alpha]_D^{25}$ +225 (c, 1 in 1*M* NaOH).

Dox, A.W. *et al., J. Biol. Chem.*, 1914, **18**, 167; 1915, **20**, 83

Barker, S.A. *et al., J.C.S.*, 1953, 3084; 3588 (*isol*)
Reese, E.T. *et al., Can. J. Microbiol.*, 1964, **10**, 103 (*isol*)
Barker, S.A. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 165 (*isol*)
Bobbitt, T.F. *et al., Carbohydr. Res.*, 1980, **81**, 177 (*cmr*)
Painter, T.J. *et al., Carbohydr. Res.*, 1990, **200**, 403 (*struct*)

Nikkomycin I N-49

[77368-60-6]



$C_{25}H_{32}N_6O_{13}$ 624.56

Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Active against insects, fungi and bacteria. Sol. H_2O, Py; poorly sol. EtOH, hexane. λ_{max} 288 (HCl) (Berdy). λ_{max} 232; 300 (NaOH) (Berdy).

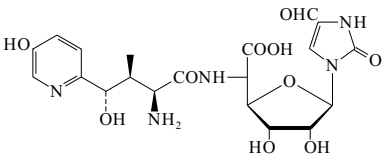
▶ MA1269600

Ger. Pat., 1980, 2 928 137; *CA*, **95**, 5141 (*isol, use*)
Hagenmaier, H. *et al., Annalen*, 1981, 1018 (*struct, pmr, ms, hplc*)
Hass, W. *et al., Annalen*, 1982, 1615 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Nikkomycin X N-50

Neopolyoxin A

[72864-26-7]



$C_{20}H_{25}N_5O_{10}$ 495.445

Nucleoside antibiotic. Isol. from *Streptomyces tendae* and *Streptomyces cacaoi*. Chitin synthase inhibitor. Active against insects and fungi. Powder.
Mp 204-207°. $[\alpha]_D^{21}$ +24.3 (c, 0.325 in H_2O). pK_{a1} 2.9; pK_{a2} 4.3; pK_{a3} 7.3; pK_{a4} 8.7; pK_{a5} 10.3. Amphoteric. λ_{max} 287 (ϵ) (MeOH) (Derep).

▶ BA2928600

5‴-Deoxy: ***Nikkomycin L_X***
$C_{20}H_{25}N_5O_9$ 479.446
Prod. by a genetically engineered *Streptomyces tendae*. Antifungal agent. Lacks the OH group on the pyridine ring.

$4^{imidazole}$-Carboxylic acid: ***Neopolyoxin B***
[75005-71-9]
$C_{20}H_{25}N_5O_{11}$ 511.444
Nucleoside antibiotic. Prod. by *Streptomyces cacaoi* ssp. *asoensis*. Active against fungi and insects.

Mp 192-196°. $[\alpha]_D^{21}$ +19 (c, 0.722 in H_2O). pK_{a1} 2.4; pK_{a2} 3; pK_{a3} 4.4; pK_{a4} 7.7; pK_{a5} 9.1; pK_{a6} 11.1. Has -COOH replacing -CHO.

▶ BA2927800

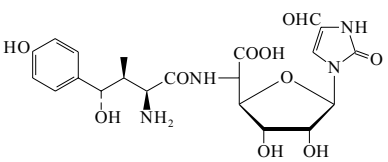
[75044-70-1]

Dahn, U. *et al., Arch. Microbiol.*, 1976, **107**, 143 (*isol*)
Hagenmaier, H. *et al., Annalen*, 1979, 1494 (*isol, struct*)
Brillinger, G.V. *et al., Arch. Microbiol.*, 1979, **121**, 71 (*props*)
Agric. Biol. Chem., 1980, 1709 (*Neopolyoxins*)
Ger. Pat., 1980, 2 900 591; *CA*, **95**, 19726 (*isol, use*)
Japan. Pat., 1980, 80 92 395; 1981, 80 26 900; *CA*, **93**, 202702; **95**, 22946 (*Neopolyoxins*)
Fielder, H. *et al., Biotechnol. Lett.*, 1981, **3**, 303 (*hplc*)
Uramoto, M. *et al., Tetrahedron*, 1982, **38**, 1599 (*Neopolyoxins, biosynth, ir, pmr, cmr, ms*)
Krainer, E. *et al., Biopolymers*, 1990, **29**, 1297 (*conformn*)
Baumberg, S. *et al., Tet. Lett.*, 1995, **36**, 2351 (*biosynth*)
Bormann, C. *et al., J. Antibiot.*, 1999, **52**, 582-585 (*Nikkomycin L_X*)

Nikkomycin B_x N-51

5-[[2-Amino-4-hydroxy-4-(4-hydroxyphenyl)-3-methyl-1-oxobutyl]amino]-1,5-dideoxy-1-(4-formyl-2,3-dihydro-2-oxo-1H-imidazol-1-yl)hexofuranuronic acid, 9CI

[75410-71-8]



$C_{21}H_{26}N_4O_{10}$ 494.457

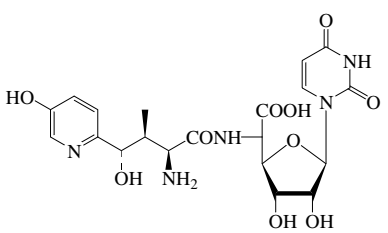
Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Active against fungi and insects esp. *Megoura viciae* larvae. Sol. H_2O, Py; poorly sol. butanol, hexane. $[\alpha]_D^{19}$ +56.7 (c, 0.06 in H_2O). λ_{max} 280 (HCl) (Berdy). λ_{max} 240; 242; 299; 300 (NaOH) (Berdy).

Ger. Pat., 1980, 2 900 591; *CA*, **95**, 19726 (*isol, use*)
Hahn, H. *et al., Annalen*, 1987, 803 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Sormann, C. *et al., J. Antibiot.*, 1999, **52**, 102-108 (*isol, ms*)

Nikkomycin B N-52

Nikkomycin B_Z

[74342-20-4]



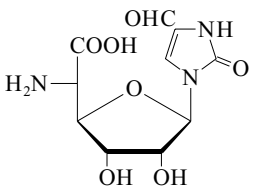
$C_{21}H_{26}N_4O_{10}$ 494.457

Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Antifungal and insecticide. Powder.

Koenig, W.A. *et al., Annalen*, 1980, 622 (*synth, struct, pmr*)
Ger. Pat., 1980, 2 900 591; *CA*, **95**, 19726 (*synth*)
Melnick, M.J. *et al., J.O.C.*, 1988, **53**, 850 (*synth*)
Barrett, A.G.M. *et al., J.O.C.*, 1990, **55**, 5818; 1991, **56**, 4875 (*bibl, synth*)
Bormann, C. *et al., J. Antibiot.*, 1999, **52**, 102-108 (*isol, ms*)

Nikkomycin C_x N-53

[72864-27-8]



$C_{10}H_{13}N_3O_7$ 287.229

Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Active against insects and fungi. Solid. Sol. H_2O, Py; poorly sol. butanol, hexane. λ_{max} 287 (ϵ 16500) (HCl) (Berdy). λ_{max} 307 (ϵ 12800) (NaOH) (Berdy).

Hagenmaier, H. *et al., Annalen*, 1979, 1494 (*isol, pmr*)
Ger. Pat., 1980, 2 900 591; *CA*, **95**, 19726 (*isol, use*)
Fielder, H. *et al., Biotechnol. Lett.*, 1981, **3**, 303 (*hplc*)

Nikkomycin J_H N-54

[89156-91-2]

As Nikkomycin J, N-55 with

R =CH_2OH

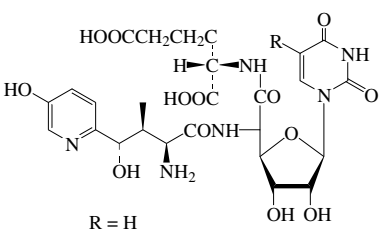
$C_{26}H_{34}N_6O_{14}$ 654.586

Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Inhibitor of chitin synthase and fungi.

Delzer, J. *et al., J. Antibiot.*, 1984, **37**, 80 (*isol, props*)

Nikkomycin J N-55

[77368-59-3]



$C_{25}H_{32}N_6O_{13}$ 624.56

Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Active against insects, phytopathogenic fungi and bacteria. Sol. H_2O, Py. λ_{max} 288 (HCl) (Berdy). λ_{max} 232; 300 (NaOH) (Berdy).

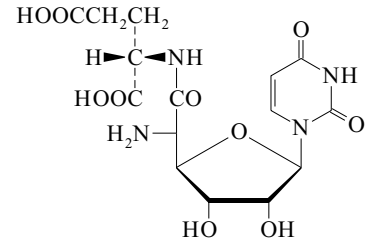
▶ MA1253000

Ger. Pat., 1980, 2 928 137; *CA*, **95**, 5141 (*isol, use*)

Hagenmaier, H. *et al., Annalen*, 1981, 1018 (*struct, pmr, ms, hplc*)
Hass, W. *et al., Annalen*, 1982, 1615 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Nikkomycin N N-56

[77368-58-2]



$C_{15}H_{20}N_4O_{10}$ 416.344

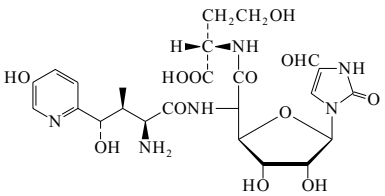
Nucleoside antibiotic. Isol. from *Streptomyces tendae*. Hydrol. prod. of Nikkomycin J, N-55. Active against insects, phytopathogenic fungi and bacteria. Sol. H_2O, Py.

▶ MA1252500

Ger. Pat., 1980, 2 928 137; *CA*, **95**, 5141 (*isol, use*)
Hagenmaier, H. *et al., Annalen*, 1981, 1018 (*struct, pmr, ms, hplc*)
Hass, W. *et al., Annalen*, 1982, 1615 (*synth*)

Nikkomycin Q_x N-57

[95259-48-6]



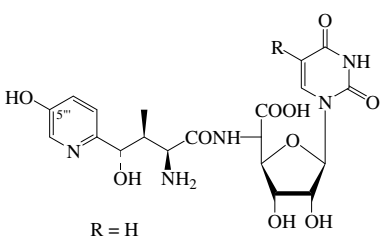
$C_{24}H_{32}N_6O_{12}$ 596.55

Nucleoside antibiotic. From *Streptomyces tendae*. Exhibits lower activity than other Nikkomycins.

Bormann, C. *et al., J. Antibiot.*, 1985, **38**, 9 (*isol, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Nikkomycin Z N-58

Nikkomycin. Neopolyoxin C
[59456-70-1]



R = H

$C_{20}H_{25}N_5O_{10}$ 495.445

Nucleoside-type antibiotic. Metab. of *Streptomyces tendae* and from *Streptomyces cacaoi*. Antifungal agent which also inhibits chitin biosynth.

Mp 194-197°. $[\alpha]_D^{21}$ +49.5 (c, 1 in H_2O). pK_{a1} 2.7; pK_{a2} 4.1; pK_{a3} 7.1; pK_{a4} 8.5; pK_{a5} 9.7. λ_{max} 264 (ϵ); 287 (sh) (ϵ) (MeOH) (Derep).

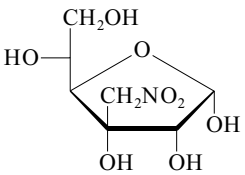
▶ BA2928200

5‴-Deoxy: ***Nikkomycin L_Z***
$C_{20}H_{25}N_5O_9$ 479.446
Prod. by a genetically engineered *Streptomyces tendae*. Antifungal agent.

[75044-69-8]

Daehn, U. *et al., Arch. Microbiol.*, 1976, **107**, 143 (*isol, ir, uv, ms, nmr, struct*)
Koenig, W.A. *et al., Adv. Mass Spectrom.*, 1978, **7B**, 1530 (*ms*)
Kobinata, K. *et al., Agric. Biol. Chem.*, 1980, **44**, 1709 (*Neopolyoxin C*)
Koenig, W.A. *et al., Annalen*, 1980, 1728; 1984, 1216 (*config, struct*)
Hagenmaier, H. *et al., Annalen*, 1980, 1728 (*config*)
Fiedler, H. *et al., Biotechnol. Lett.*, 1981, **3**, 303 (*hplc*)
Hass, W. *et al., Annalen*, 1982, 1615 (*synth*)
Uramoto, M. *et al., Tetrahedron*, 1982, **38**, 1599 (*Neopolyoxin C*)
Fiedler, H.P. *et al., Clin. Dermatol.*, 1993, **7**, 325 (*rev*)
Bormann, C. *et al., J. Antibiot.*, 1999, **52**, 582-585 (*Nikkomycin L_Z*)

3-*C*-(Nitromethyl)allose N-59



$C_7H_{13}NO_8$ 239.182

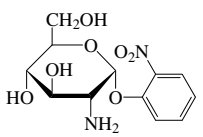
α-D-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-3*-C-*(nitromethyl)*-α-D-*allofuranose*
[26922-49-6]
$C_{13}H_{21}NO_8$ 319.311
Cryst. Mp 109-110°. $[\alpha]_D^{22}$ +23.3 (c, 1.1 in $CHCl_3$).

Albrecht, H.P. *et al., Tet. Lett.*, 1970, 1063

2-Nitrophenyl 2-amino-2-deoxyglucoside N-60

2-Nitrophenyl glucosamide



α-D-Pyranose-*form*

$C_{12}H_{16}N_2O_7$ 300.268

α-D-Pyranose-*form*

N-*Ac:* [10139-01-2]
$C_{14}H_{18}N_2O_8$ 342.305
Substrate for *N*-acetyl-α-D-glucosaminidase. Cryst. (EtOH). Mp 208-208.5°. $[\alpha]_D$ +219 (c, 0.48 in H_2O).

N,*3,4,6-Tetra-Ac:*
$C_{20}H_{24}N_2O_{11}$ 468.416
Cryst. (EtOAc). Mp 173.5-174.5°. $[\alpha]_D^{23}$ +28.2 (c, 0.49 in $CHCl_3$).

β-D-Pyranose-*form*

N-*Ac:* [13264-92-1]
Cryst. (MeOH). Mp 189-190° (dec.). $[\alpha]_D^{23}$ -34.7 (c, 0.52 in H_2O).

N,*3,4,6-Tetra-Ac:*
Cryst. Mp 191-191.5°. $[\alpha]_D^{23}$ +64.8 (c, 0.55 in $CHCl_3$).

Leaback, D.H. *et al., J.C.S.*, 1957, 4754-4760 (*synth, derivs*)
Weissmann, B. *et al., J.O.C.*, 1966, **31**, 2505-2509 (*synth, derivs*)

3-Nitrophenyl 2-amino-2-deoxyglucoside N-61

3-Nitrophenyl glucosamide
$C_{12}H_{16}N_2O_7$ 300.268

β-D-Pyranose-*form*

N,*3,4,6-Tetra-Ac:*
Cryst. Mp 234-235°.

Fujisu, S. *et al., Nippon Kagaku Kaishi*, 1951, **72**, 728-731

4-Nitrophenyl 2-amino-2-deoxyglucoside N-62

4-Nitrophenyl glucosamide
$C_{12}H_{16}N_2O_7$ 300.268

α-D-Pyranose-*form*

N-*Ac:* [10139-02-3]
$C_{14}H_{18}N_2O_8$ 342.305
Substrate for *N*-acetyl-α-D-glucosaminidase. Cryst. (EtOH). Mp 274° (dec.). $[\alpha]_D^{23}$ +273.4 (c, 0.37 in MeOH).

N,*3,4,6-Tetra-Ac:*
$C_{20}H_{24}N_2O_{11}$ 468.416
Cryst. (EtOAc). Mp 197.5-198.5°. $[\alpha]_D^{23}$ +192.8 (c, 0.64 in $CHCl_3$).

β-D-Pyranose-*form*

N-*Ac:* [3459-18-5] Substrate for *N*-acetyl-β-D-glucosaminidase.
Cryst. (EtOH or MeOH). Mp 214° (206.2-206.7°). $[\alpha]_D^{23}$ -19.4 (c, 0.3 in H_2O).

N,*3,4-Tri-Ac:* [7364-99-0]
$C_{18}H_{22}N_2O_{10}$ 426.379
Cryst. (EtOH). Mp 210-211°. $[\alpha]_D^{22}$ -97 (c, 0.4 in MeOH).

N,*3,6-Tri-Ac:* [61891-87-0]
$C_{18}H_{22}N_2O_{10}$ 426.379
Cryst. (EtOH). Mp 190-192° (dec.). $[\alpha]_D^{22}$ -37 (c, 0.9 in MeOH).

3,4,6-Tri-O-*Ac:* [41481-07-6]
$C_{18}H_{22}N_2O_{10}$ 426.379
Needles (MeOH/Et_2O) (as hydrochloride). Mp 218-220° (hydrochloride). $[\alpha]_D^{20}$ -42 (c, 0.37 in MeOH). CAS no. refers to hydrochloride.

N,*3,4,6-Tetra-Ac:* [13089-27-5]
Cryst. (MeOH). Mp 237.4-238.4°. $[\alpha]_D$ -9.6 ($CHCl_3$).

3,4-Dibenzoyl, N-*Ac:* [84564-20-5]
$C_{28}H_{26}N_2O_{10}$ 550.521
Cryst. (2-propanol). Mp 204-205°. $[\alpha]_{578}^{23}$ -20.4 (c, 3.85 in $CHCl_3$).

4-Me, N-*Ac:* [61891-89-2]
$C_{15}H_{20}N_2O_8$ 356.332
Cryst. (EtOH). Mp 211-212°. $[\alpha]_D^{22}$ -14 (c, 0.4 in MeOH).

6-Me, N-*Ac:* [61891-88-1]
$C_{15}H_{20}N_2O_8$ 356.332
Cryst. (EtOH). Mp 182-183° (dec.). $[\alpha]_D^{22}$ -36 (c, 0.4 in MeOH).

3-Benzyl, N-*Ac:* [84564-21-6]
$C_{21}H_{24}N_2O_8$ 432.429
Cryst. (EtOH). Mp 213-215°. $[\alpha]_{578}^{23}$ +15 (c, 1.9 in $CHCl_3$/MeOH).

3,4-Dibenzyl, N-*Ac:* [84564-23-8]
$C_{28}H_{30}N_2O_8$ 522.554
Cryst. (EtOH aq.). Mp 215-217°. $[\alpha]_{578}^{23}$ -3.8 (c, 1.1 in $CHCl_3$/MeOH).

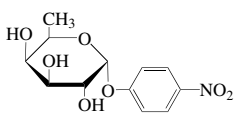
3,6-Dibenzyl, N-*Ac:* [84564-22-7]
$C_{28}H_{30}N_2O_8$ 522.554
Cryst. (EtOH aq.). Mp 191-193°. $[\alpha]_{578}^{23}$ -11.8 (c, 1.65 in $CHCl_3$/MeOH).

6-Trityl, N,*3,4-tri-Ac:*
$C_{37}H_{36}N_2O_{10}$ 668.699
Needles ($CHCl_3$/MeOH). Mp 256° (dec.). $[\alpha]_D^{20}$ +7 (c, 0.5 in $CHCl_3$).

Westphal, O. *et al., Annalen*, 1952, **575**, 84 (*β-D-pyr N-Ac*)
Leaback, D.H. *et al., J.C.S.*, 1957, 4754-4760 (*β-D-pyr Ac derivs*)
Findlay, J. *et al., Biochem. J.*, 1958, **69**, 467 (*β-D-pyr N-Ac*)
Leaback, D.H. *et al., Biochem. Prep.*, 1963, **10**, 118 (*β-D-pyr N-Ac, !synth*)
Weissmann, B. *et al., J.O.C.*, 1966, **31**, 2505-2509 (*α-D-pyr Ac derivs, β-D-pyr Ac derivs*)
Barker, S.A. *et al., Tetrahedron, Suppl.*, No. 8, 1966, 611 (*β-D-pyr N-Ac*)
Begbie, R. *et al., Carbohydr. Res.*, 1969, **10**, 311 (*β-D-pyr N-Ac, !synth*)
Shafizadeh, F. *et al., J.O.C.*, 1973, **38**, 1190 (*β-D-pyr N-Ac*)
Kolesmikov, V.V. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1976, 2331-2336; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1976, 2175-2180 (*β-D-pyr Ac derivs*)
Vafima, M.G. *et al., Carbohydr. Res.*, 1977, **56**, 183-187 (*β-D-pyr Ac derivs*)
Ekborg, G. *et al., Carbohydr. Res.*, 1982, **110**, 55-67 (*β-D-pyr Ac derivs, synth, pmr, cmr*)
Roy, R. *et al., Can. J. Chem.*, 1991, **69**, 817-821 (*β-D-pyr Ac derivs, synth, pmr*)

4-Nitrophenyl fucoside N-63

4-Nitrophenyl 6-deoxygalactoside, 9CI



α-D-Pyranose-*form*

$C_{12}H_{15}NO_7$ 285.253

α-D-Pyranose-*form* [74032-91-0]
Mp 193-194°. $[\alpha]_D^{20}$ +329 (Me_2CO).

β-D-Pyranose-*form* [1226-39-7]
Mp 186-188°. $[\alpha]_D^{20}$ -85 (EtOH). $[\alpha]_D^{20}$ -96 (Me_2CO). $[\alpha]_D$ -145 (c, 1.4 in MeOH).

α-L-Pyranose-*form* [10231-84-2]
Mp 196-197°. $[\alpha]_D^{20}$ -317 (Me_2CO).

Tri-Ac: [58902-47-9]
$C_{18}H_{21}NO_{10}$ 411.365
Cryst. (MeOH). Mp 178°. $[\alpha]_D^{20}$ -222 ($CHCl_3$).

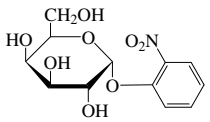
β-L-Pyranose-*form* [22153-71-5]
Mp 187-189°. $[\alpha]_D^{20}$ +100 (EtOH).

Tri-Ac: Mp 164-166°. $[\alpha]_D^{20}$ +1.5 ($CHCl_3$ or Me_2CO).

Westphal, O. *et al., Chem. Ber.*, 1956, **89**, 582-588 (*synth*)
Levvy, G.A. *et al., Biochem. J.*, 1961, **80**, 433-435 (*synth*)
Chiocconi, A. *et al., Carbohydr. Res.*, 2000, **323**, 7-13 (*β-D-Pyr, synth, pmr*)

2-Nitrophenyl galactoside, 9CI N-64

[19710-96-4]



α-D-Pyranose-*form*

$C_{12}H_{15}NO_8$ 301.252

α-D-Pyranose-*form* [19887-85-5]
Cryst. (EtOH). Mp 145-147°. $[\alpha]_D$ +198 (c, 0.6 in H_2O).

Tetra-Ac: [24624-80-4]
$C_{20}H_{23}NO_{12}$ 469.401
Cryst. (EtOH). Mp 170.5-171°. $[\alpha]_D$ +199 (c, 0.56 in $CHCl_3$).

2,3,6-Tribenzoyl: [77988-33-1]
$C_{33}H_{27}NO_{11}$ 613.576
Mp 158-159°. $[\alpha]_D$ +178 (c, 0.4 in $CHCl_3$).

6-Diphenylphosphate: [114102-82-8]
$C_{24}H_{24}NO_{11}P$ 533.428
Mp 110-114°. $[\alpha]_D$ +153 (c, 0.7 in MeOH).

β-D-Pyranose-*form* [369-07-3]
Substrate for the assay of β-galactosidase (lactase).
Yellow needles. Sol. H_2O, MeOH.
Mp 200-203° (193-194°). $[\alpha]_D^{20}$ -68 (c, 1 in H_2O).

6-Ac: [20943-02-6]
$C_{14}H_{17}NO_9$ 343.29
Mp 155-156°. $[\alpha]_D^{22}$ -24.7 (c, 0.43 in H_2O).

6-Ac, 2,3,4-tris(trimethylsilyl): [52416-96-3]
$C_{23}H_{41}NO_9Si_3$ 559.835
Cryst. (EtOH). Mp 144°. $[\alpha]_D^{22}$ -70.3 (c, 1 in $CHCl_3$).

Tetra-Ac: [3053-17-6]
Yellow prisms. Mp 173-174° (168-170°). $[\alpha]_D^{20}$ +57. $[\alpha]_D^{20}$ +6.5 ($CHCl_3$).

2-Mesyl, 3,4,6-tri-Ac: [35816-41-2]
$C_{19}H_{23}NO_{13}S$ 505.456
Mp 149-150°. $[\alpha]_D^{14}$ +17 (c, 1 in $CHCl_3$).

6-Phosphate: [20943-01-5]
$C_{12}H_{16}NO_{11}P$ 381.232
$[\alpha]_D^{22}$ -57.1 (c, 1.4 in H_2O).

6-Trityl:
$C_{31}H_{29}NO_8$ 543.572
Cryst. (Et_2O/hexane). Mp 104-107.5°. $[\alpha]_D$ -35 (c, 0.7 in MeOH).

[369-07-3, 19887-85-5, 118014-27-0]

Zoltan, C. *et al., Acta Chim. Acad. Sci. Hung.*, 1964, **42**, 263-267; *CA*, **62**, 7848h (*β-D-pyr, β-D-pyr tetra-Ac*)
Dey, P.M. *et al., Chem. Ind. (London)*, 1967, 1637 (*α-D-pyr*)
Hengstenberg, W. *et al., Carbohydr. Res.*, 1968, **7**, 180-183 (*β-D-pyr 6-phosphate, β-D-pyr 6-Ac*)
Tsuzuki, Y. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 1052-1059 (*α-D-pyr tetra-Ac, β-D-pyr, β-D-pyr tetra-Ac, synth, uv, cd, ord*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147-1154 (*β-D-pyr, cmr*)
Tenn, J.P. *et al., Eur. J. Biochem.*, 1971, **20**, 363-370 (*biochem*)
Sekiya, M. *et al., Carbohydr. Res.*, 1972, **22**, 325-336 (*β-D-pyr 2-mesyl 3,4,6-tri-Ac, synth, pmr, ir*)
Sinnott, M.L. *et al., Biochem. J.*, 1973, **133**, 89-98 (*synth, biochem*)
Schneider, J. *et al., Carbohydr. Res.*, 1973, 405-408 (*α-D-pyr, chromatog*)
Fuch, E.-F. *et al., Chem. Ber.*, 1974, **107**, 721-724 (*β-D-pyr 6-Ac 2,3,4-tris(trimethylsilyl) ester*)
Iverson, T. *et al., Synthesis*, 1979, 823-824 (*β-D-pyr tetra-Ac*)
Apparu, M. *et al., Can. J. Chem.*, 1981, **59**, 314-320 (*α-D-pyr, α-D-pyr tetra-Ac, α-D-pyr 2,3,6-tribenzoyl, synth, pmr, cmr*)
Jagota, S.K. *et al., J. Food Sci.*, 1981, **46**, 161-163 (*use*)
DeVries, N.K. *et al., Carbohydr. Res.*, 1987, **165**, 1-16 (*α-D-pyr 6-diphenylphosphate, β-D-pyr 6-trityl, synth, pmr, cmr*)

3-Nitrophenyl galactoside N-65

$C_{12}H_{15}NO_8$ 301.252

β-D-Pyranose-*form* [3150-25-2]
Mp 181-182°. $[\alpha]_D^{20}$ -67.6 (H_2O).

Tetra-Ac:
$C_{20}H_{23}NO_{12}$ 469.401
Mp 108-110°. $[\alpha]_D^{20}$ -8.1 ($CHCl_3$).

Csuros, Z. *et al., Acta Chim. Acad. Sci. Hung.*, 1964, **42**, 263-267; *CA*, **62**, 7848h (*synth, tetra-Ac*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147-1154 (*cmr*)
Sinnott, M.L. *et al., Biochem. J.*, 1973, **133**, 89-98 (*synth, biochem*)

4-Nitrophenyl galactoside, 9CI N-66

$C_{12}H_{15}NO_8$ 301.252

α-D-Pyranose-*form* [7493-95-0]
Cryst. (EtOH). Mp 170-171°. $[\alpha]_D$ +220 (c, 0.4 in H_2O).

Tetra-Ac: [17042-39-6]
$C_{20}H_{23}NO_{12}$ 469.401
Cryst. (EtOH). Mp 132-133°. $[\alpha]_D$ +204 (c, 0.68 in $CHCl_3$).

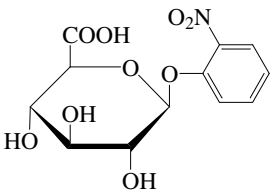
β-D-Pyranose-*form* [3150-24-1]
Substrate for detn. of β-galactosidase activity using uv monitoring of 4-nitrophenol release.
Cryst. (hydrate). Mp 181-182° (hydrate). $[\alpha]_D^{22}$ -84 (c, 0.3 in H_2O).

Tetra-Ac: [2872-66-4]
Cryst. Mp 145-146°. $[\alpha]_D^{22}$ -10 (c, 2 in $CHCl_3$).

Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147-1154 (*cmr*)
Sinnott, M.L. *et al., Biochem. J.*, 1973, **133**, 89-98 (*synth, biochem*)
Wallner, S.J. *et al., Plant Physiol.*, 1975, **55**, 94 (*use*)
Matta, K.L. *et al., Carbohydr. Res.*, 1977, **53**, 209-216 (*synth*)

Buonocore, V. *et al., J. Appl. Biochem.*, 1980, **2**, 390 (*use*)
Apparu, M. *et al., Can. J. Chem.*, 1981, **59**, 314-320 (*α-D-form, synth*)
Dess, D. *et al., Synthesis*, 1981, 883-885 (*β-D-form, synth*)

2-Nitrophenyl glucopyranosiduronic acid, 9CI N-67

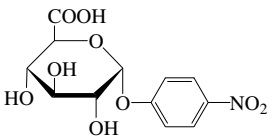


$C_{12}H_{13}NO_9$ 315.236

β-D-*form*

2,3,4-Tri-Ac, Me ester: [55274-44-7]
$C_{19}H_{21}NO_{12}$ 455.374
Cryst. (AcOH/petrol). Mp 175-176°. $[\alpha]_D^{25}$ +18.4 (c, 1.2 in $CHCl_3$).
Bollenback, G.N. *et al., J.A.C.S.*, 1955, **77**, 3310 (*synth, derivs*)

4-Nitrophenyl glucopyranosiduronic acid N-68



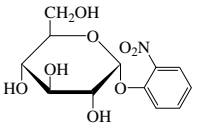
α-D-*form*

$C_{12}H_{13}NO_9$ 315.236

α-D-*form* [71484-85-0]
Cryst. (EtOH aq.). Mp 211-212° (dec.). $[\alpha]_D$ +161 (c, 1.0 in EtOH).

β-D-*form* [10344-94-2]
Substrate for assay of β-glucuronidase activity.
Cryst. (EtOAc/Et_2O aq.). Mp 139°. $[\alpha]_D^{24}$ -108 (c, 1 in EtOH). Hygroscopic; forms a monohydrate (Mp 95°) in air.
Tri-Ac, Me ester: [18472-49-6]
$C_{19}H_{21}NO_{12}$ 455.374
Cryst. (EtOH) or needles (MEOH). Mp 153-154°. $[\alpha]_D^{25}$ -52.1 (c, 1 in $CHCl_3$).
Marsh, C.A. *et al., Biochem. J.*, 1958, **68**, 617-621 (***synth***)
Kato, K. *et al., Chem. Pharm. Bull.*, 1960, **8**, 239-242 (*β-D-form*)
Weintraub, L. *et al., J.C.S.(C)*, 1969, 1562-1564 (*β-D-tri-Ac Me ester*)
Asen, S. *et al., Phytochemistry*, 1974, **13**, 1219-1223 (*derivs, pmr, ir*)
Kiss, J. *et al., Helv. Chim. Acta*, 1975, **58**, 301-310 (*derivs, synth, pmr*)
Honma, K. *et al., Chem. Pharm. Bull.*, 1976, **24**, 394-399 (*β-D-form, synth, ir, pmr, ord*)
Johnson, L.P. *et al., Carbohydr. Res.*, 1979, **73**, 255-259 (*β-D-form, synth, pmr, cmr*)

2-Nitrophenyl glucoside N-69



α-D-Pyranose-*form*

$C_{12}H_{15}NO_8$ 301.252

α-D-Pyranose-*form* [56193-44-3]
Prisms (H_2O). Mp 186-188°. $[\alpha]_D$ +228 (c, 0.46 in H_2O).

β-D-Pyranose-*form* [2816-24-2]
Rosettes of needles (EtOH). Mp 152° Mp 168-170° (dimorph.). $[\alpha]_D$ -106 (c, 1 in H_2O).
Montgomery, E.M. *et al., J.A.C.S.*, 1942, **64**, 690-693; 1943, **65**, 3-7 (*α-D-pyr, β-D-pyr, synth*)
Reeves, R.E. *et al., J.A.C.S.*, 1954, **76**, 2219-2221 (*β-D-pyr, synth*)
Capon, B. *et al., J.C.S.*, 1961, 5172-5176 (*α-D-pyr*)
Angyal, S.J. *et al., Angew. Chem., Int. Ed.*, 1969, **8**, 157-166 (*β-D-pyr, conformn*)
Breitmeier, E. *et al., Chem. Ber.*, 1971, **104**, 1147-1154 (*β-D-pyr, cmr*)

4-Nitrophenyl glucoside, 9CI N-70

$C_{12}H_{15}NO_8$ 301.252

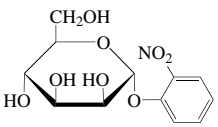
α-D-Pyranose-*form* [3767-28-0]
Substrate for the assay of α-glucosidases (maltase and isomaltase).
Prisms (H_2O). Sol. (H_2O). Mp 216°. $[\alpha]_D^{20}$ +220 (c, 1 in H_2O).
Tetra-Ac: [14131-42-1]
$C_{20}H_{23}NO_{12}$ 469.401
Acicular prisms (EtOH). Mp 113°. $[\alpha]_D^{20}$ +191 (c, 2 in $CHCl_3$).
3,4,6-Tribenzoyl: [80245-20-1]
$C_{33}H_{27}NO_{11}$ 613.576
Cryst. (EtOH). Mp 202-205°. $[\alpha]_D^{23}$ +90.1 (c, 0.75 in $CHCl_3$).
Tetrabenzoyl: [80245-18-7]
$C_{40}H_{31}NO_{12}$ 717.684
Cryst. (EtOH). Mp 142-143.5°. $[\alpha]_D^{23}$ +57.6 (c, 1.65 in $CHCl_3$).
6-Tosyl, 2,3,4-tri-Ac:
$C_{25}H_{27}NO_{13}S$ 581.553
Needles (EtOH/Me_2CO). Mp 178°. $[\alpha]_D^{25}$ +173 (c, 1.04 in $CHCl_3$).

β-D-Pyranose-*form* [2492-87-7]
Isol. from *Sagittaria trifolia*. Substrate for the assay of β-glucosidase (cellobiase).
Needles (EtOAc/MeOH).
Mp 166-167°. $[\alpha]_D^{20}$ -106 (c, 1 in H_2O).
2-Ac: [40837-81-8]
$C_{14}H_{17}NO_9$ 343.29
Amorph. solid. $[\alpha]_D^{20}$ -36.9 (c, 0.43 in DMF).
2,3-Di-Ac: [40837-80-7]
$C_{16}H_{19}NO_{10}$ 385.327
Cryst. (EtOH). Mp 183-185°. $[\alpha]_D^{20}$ -24.9 (c, 0.553 in DMF).
3,4,6-Tri-Ac: [87236-45-1]
$C_{18}H_{21}NO_{11}$ 427.364
Cryst. ($CHCl_3/CCl_4$). Mp 105-107°. $[\alpha]_D^{20}$ -42 (c, 1 in $CHCl_3$).
Tetra-Ac: [5987-78-0]
Cryst. ($CHCl_3$/hexane). Mp 174-174.5°. $[\alpha]_D^{23}$ -34 (c, 0.85 in $CHCl_3$).
3,4,6-Tribenzoyl: [80245-21-2]
Cryst. (EtOH). Mp 159-161°. $[\alpha]_D^{23}$ -25.8 (c, 1.32 in $CHCl_3$).
2,3,4,6-Tetrabenzoyl: [64768-18-9]
Cryst. (EtOH). Mp 153.5-154.5°. $[\alpha]_D^{23}$ +18.7 (c, 1.2 in $CHCl_3$).

[5779-46-4]

Montgomery, E.M. *et al., J.A.C.S.*, 1942, **64**, 692-694 (*α-D-pyr, α-D-pyr 2,3,4,6-tetra-Ac, β-D-pyr, β-D-pyr 2,3,4,6-tetra-Ac*)
Whistler, R.L. *et al., Carbohydr. Res.*, 1966, **2**, 93-103 (*β-D-pyr 6-tosyl 2,3,4-tri-Ac*)
Smale, T.C. *et al., Chem. Comm.*, 1966, 680-681 (*β-D-pyr 2,3,4,6-tetra-Ac, ms*)
Tsuzuki, Y. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 1052-1059 (*α-D-pyr, α-D-pyr 2,3,4,6-tetra-Ac, β-D-pyr, β-D-pyr 2,3,4,6-tetra-Ac, synth, cd, ord, uv*)
Matsui, M. *et al., Chem. Pharm. Bull.*, 1970, **18**, 2129-2131; 1972, **20**, 1033-1040 (*α-D-pyr 2,3,4,6-tetra-Ac, β-D-pyr 2,3,4,6-tetra-Ac, pmr*)
Phillips, G.O. *et al., J.C.S. Dalton*, 1970, 1269-1270 (*β-D-pyr, ms*)
Doss, S.H. *et al., Aust. J. Chem.*, 1971, **24**, 2711-2715 (*α-D-pyr 2,3,4,6-tetra-Ac, β-D-pyr 2,3,4,6-tetra-Ac, ir*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147-1154 (*α-D-pyr, cmr*)
Audichya, T.D. *et al., Indian J. Chem.*, 1971, **9**, 282-283 (*α-D-pyr, β-D-pyr, ir*)
Yamamoto, K. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 290 (*β-D-pyr 2-Ac, β-D-pyr 2,3-di-Ac*)
Honma, K. *et al., Chem. Pharm. Bull.*, 1976, **24**, 394-399 (*α-D-pyr, α-D-pyr 2,3,4,6-tetra-Ac, β-D-pyr, β-D-pyr 2,3,4,6-tetra-Ac, synth, pmr*)
Rao, V.S. *et al., Carbohydr. Res.*, 1981, **92**, 141-148 (*α-D-pyr, β-D-pyr, cmr*)
Ishido, Y. *et al., Carbohydr. Res.*, 1981, **97**, 51-79 (*α-D-pyr 3,4,6-tribenzoyl, α-D-pyr 2,3,4,6-tetrabenzoyl, β-D-pyr 3,4,6-tribenzoyl, β-D-pyr 2,3,4,6-tetrabenzoyl, synth, pmr*)
Swaminathan, P. *et al., Acta Cryst. B*, 1982, **38**, 184-188 (*α-D-pyr, cryst struct*)
Baggett, N. *et al., Carbohydr. Res.*, 1983, **119**, 285-291 (*β-D-pyr 3,4,6-tri-Ac, β-D-pyr 2,3,4,6-tetra-Ac*)
Yamaguchi, M. *et al., J.C.S. Perkin 1*, 1990, 1079-1082 (*α-D-pyr 2,3,4,6-tetra-Ac, β-D-pyr 2,3,4,6-tetra-Ac*)
CA, 1998, **128**, 306260y

2-Nitrophenyl mannoside N-71



α-D-pyranose-*form*

$C_{12}H_{15}NO_8$ 301.252

α-D-Pyranose-*form* [18249-33-7]
Cryst. (MeOH). Mp 183-184°. $[\alpha]_D^{22}$ +99.8 (c, 1.0 in MeOH).
2,3,4,6-Tetra-Ac: [28541-67-5]
$C_{20}H_{23}NO_{12}$ 469.401
Cryst. Mp 131-133°. $[\alpha]_D^{22}$ +121.7 (c, 2 in $CHCl_3$).
Barnett, J.E.G. *et al., Biochem. J.*, 1967, **105**, 669-672 (*synth*)
Vervoort, A. *et al., Carbohydr. Res.*, 1970, **12**, 277-280 (*synth, derivs*)

3-Nitrophenyl mannoside N-72

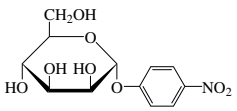
$C_{12}H_{15}NO_8$ 301.252

α-D-Pyranose-*form* [28541-80-2]
Cryst. (MeOH). Mp 150-151°. $[\alpha]_D^{22}$ +130.8 (c, 2 in MeOH).

2,3,4,6-Tetra-Ac: [28541-68-6]
$C_{20}H_{23}NO_{12}$ 469.401
Cryst. Mp 90-92°. $[\alpha]_D^{22}$ +81.2 (c, 2 in $CHCl_3$).

Vervoort, A. *et al., Carbohydr. Res.*, 1970, **12**, 277-280 (*synth, derivs*)

4-Nitrophenyl mannoside N-73



α-D-Pyranose-*form*

$C_{12}H_{15}NO_8$ 301.252

α-D-Pyranose-*form* [10357-27-4]
Flakes (MeOH/Et_2O). Mp 182-184°. $[\alpha]_D^{20}$ +155 (c, 0.44 in H_2O).

2,3,4,6-Tetra-Ac: [13242-51-8]
$C_{20}H_{23}NO_{12}$ 469.401
Cryst. Mp 154°. $[\alpha]_D^{22}$ +48 (c, 5 in MeOH). $[\alpha]_D^{20}$ +207 (c, 4 in $CHCl_3$).

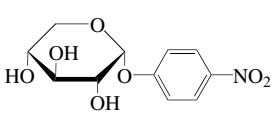
2,3,4-Tribenzoyl: [101455-27-0]
$C_{33}H_{27}NO_{11}$ 613.576
Cryst. (EtOAc/hexane). Mp 150-152°. $[\alpha]_D^{22}$ +5.7 (c, 0.9 in $CHCl_3$).

β-D-Pyranose-*form* [35599-02-1]
Cryst. (EtOH). Mp 206-207°. $[\alpha]_D^{20}$ -125 (c, 0.46 in H_2O).

2,3,4,6-Tetra-Ac: [58918-67-5]
Cryst. (Et_2O). Mp 142-144°. $[\alpha]_D$ -9.8 (c, 0.74 in $CHCl_3$).

Jermyl, M.A. *et al., Aust. J. Chem.*, 1955, **8**, 403-408 (*synth, α-D-form, derivs*)
Tsuzuki, Y. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 1208-1211 (*pmr*)
Breitmaier, E. *et al., Ber.*, 1971, **104**, 1147-1154 (*cmr*)
Rosenfeld, L. *et al., Carbohydr. Res.*, 1976, **46**, 155-158 (***synth**, β-D-form, pmr*)
Maley, F. *et al., Carbohydr. Res.*, 1978, **64**, 279-282 (***synth**, β-D-form, derivs*)
Garett, P.J. *et al., Carbohydr. Res.*, 1979, **73**, 313-314 (***synth**, β-D-form*)
Kohata, K. *et al., Agric. Biol. Chem.*, 1982, **46**, 927-936 (*synth, uv, cd, ord*)
Baggett, N. *et al., Carbohydr. Res.*, 1983, **119**, 285-291 (*synth*)
Srivastava, O.P. *et al., Carbohydr. Res.*, 1985, **143**, 77-84 (*synth, α-D-form, derivs, pmr*)

4-Nitrophenyl xyloside N-74



α-D-*form*

$C_{11}H_{13}NO_7$ 271.226

α-D-Pyranose-*form* [10238-28-5]
Substrate for α-xylosidase.
Pale yellow syrup.

2,3,4-Tri-Ac:
$C_{17}H_{19}NO_{10}$ 397.338
Pale yellow cryst. (2-propanol). Mp 145-147°.

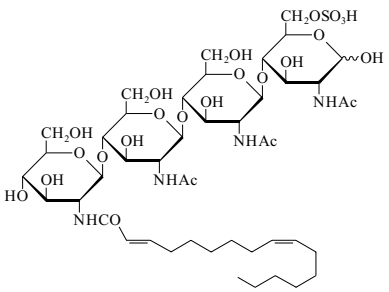
β-D-Pyranose-*form* [2001-96-9]
Substrate for detn. of β-xylosidase activity.
Cryst. (EtOH aq.). Mp 159-161°. $[\alpha]_D^{24}$ -56.7 (c, 1 in MeOH).

2,3,4-Tri-Ac: [24624-78-0]
Cryst. (2-propanol). Mp 149-151°. $[\alpha]_D^{24}$ -73.5 (c, 2 in $CHCl_3$).

Loontiens, F.G. *et al., Naturwissenschaften*, 1964, **51**, 359 (*β-D-form, synth, tri-O-Ac*)
Zhdanov, Y.A. *et al., Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1972, **207**, 607-609; *Dokl. Chem. (Engl. Transl.)*, 1972, **207**, 889-891 (*α-D-form, biochem, synth, tri-O-Ac*)
Xu, W.Z. *et al., Eur. J. Biochem.*, 1991, **202**, 1197-1203 (*β-D-form, biochem*)
Le Questel, J.Y. *et al., Carbohydr. Res.*, 1994, **265**, 291-298 (*β-D-form, cryst struct*)

Nod Rm 1 N-75

[128269-59-0]



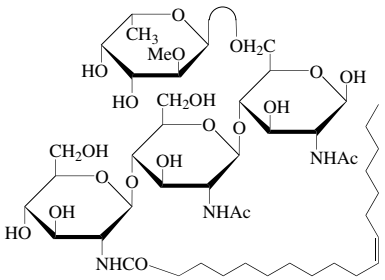
$C_{46}H_{78}N_4O_{24}S$ 1103.201
Prod. by *Rhizobium meliloti*. Active against gram-positive bacteria. Believed to be a chemical trigger involved with N fixation in legumes. Induces root hair deformations and nodule organogenesis specifically on alfalfa. Pale brown-yellow powder (as Na salt). $[\alpha]_D^{20}$ -1.2 (c, 0.1 in H_2O).

[143838-00-0]

Lerouge, P. *et al., Nature (London)*, 1990, **344**, 781 (*isol*)
Roche, P. *et al., J. Biol. Chem.*, 1991, **266**, 10933 (*isol, struct*)
Nicolaou, N.K. *et al., J.A.C.S.*, 1992, **114**, 8701 (*synth, bibl*)
Tailler, D. *et al., Chem. Comm.*, 1994, 1827 (*synth*)
Wang, L.-X. *et al., J.C.S. Perkin 1*, 1994, 621 (*synth, pmr, bibl*)

NodRf III N-76

[159383-81-0]

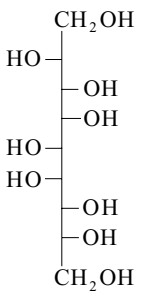


$C_{47}H_{83}N_3O_{20}$ 1010.181
Nodulation factor prod. by *Rhizobium fredii*.

Bec-Ferte, M.-P. *et al., Biochemistry*, 1994, **33**, 11782 (*isol, struct*)
Debenham, J.S. *et al., J.O.C.*, 1997, **62**, 4591 (*synth, pmr, cmr*)

D-*arabino*-L-*galacto*-Nonitol N-77

D-lyxo-D-manno-*Nonitol*



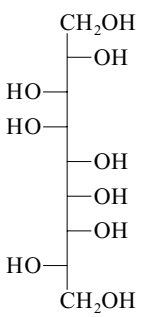
$C_9H_{20}O_9$ 272.252
Mp 250-255°.

Nona-Ac:
$C_{27}H_{38}O_{18}$ 650.586
Mp 147°. $[\alpha]_D^{20}$ +27.8 (c, 2 in $CHCl_3$).

Zissis, E. *et al., J.O.C.*, 1965, **30**, 79 (*synth*)
Brimacombe, J.S. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 479
Szafranek, J. *et al., Anal. Lett.*, 1973, **6**, 479 (*glc*)

L-*lyxo*-L-*altro*-Nonitol N-78

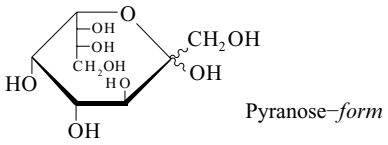
L-lyxo-D-galacto-*Nonitol*



$C_9H_{20}O_9$ 272.252
Cryst. (MeOH aq.). Mp 169-171°.
$[\alpha]_D$ +2.5 (c, 0.7 in H_2O).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1986, **158**, 81 (*synth*)

D-*erythro*-L-*galacto*-Nonulose N-79



Pyranose–*form*

$C_9H_{18}O_9$ 270.236

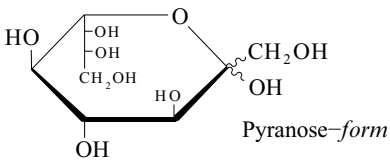
Present in avocado, root of *Primula officinalis* and Crassulaceae spp. $[\alpha]_D^{20}$ -36.2 (c, 5.2 in MeOH aq.).

2,5-Dichlorophenylhydrazone: Mp 247-249°.

Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272 (*occur*)

Sephton, H.H. *et al., Carbohydr. Res.*, 1966, **2**, 289 (*synth*)

D-*erythro*-L-*gluco*-Nonulose N-80



Pyranose–*form*

$C_9H_{18}O_9$ 270.236

Isol. from dried roots of *Primula officinalis*. Also from fruits of *Persea americana* (avocado). Syrup. $[\alpha]_D^{20}$ -40 (c, 0.6 in H_2O).

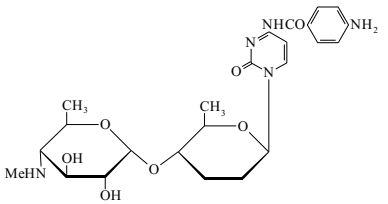
2,5-Dichlorophenylosazone: Yellow needles. Mp 248-250° dec.

Sephton, H.H. *et al., J.O.C.*, 1963, **28**, 2388 (*isol*)

Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272 (*isol*)

Sephton, H.H. *et al., Carbohydr. Res.*, 1966, **2**, 289 (*synth*)

Norplicacetin N-81



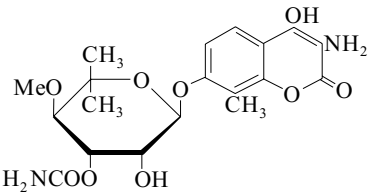
$C_{24}H_{33}N_5O_7$ 503.554

Nucleoside antibiotic. Isol. from *Streptomyces plicatus*. Active against gram-positive bacteria and mycobacteria. Needles (MeOH). Mp 168-171°. $[\alpha]_D^{23}$ +125 (c, 1 in MeOH). λ_{max} 253 (E1%/1cm 230); 325 (E1%/1cm 500) (MeOH) (Berdy).

Evans, J.R. *et al., J. Antibiot.*, 1977, **30**, 604 (*isol, uv, ms, nmr*)

Novenamine N-82

[31026-09-2]



$C_{19}H_{24}N_2O_9$ 424.407

A component of Novobiocin. Shows the same potency as Novobiocin and is prob. the active moiety in inhibition of DNA replication.

Sebek, O.K. *et al., J. Antibiot.*, 1972, **25**, 434 (*synth, struct*)

Reusser, F. *et al., J. Antibiot.*, 1986, **39**, 272 (*props*)

Nucleic acid N-83

General term describing natural macromolecules found in living cells formed by the polymerisation of mixed nucleotides. There are two main types: Deoxyribonucleic acid, D-361 which usually has a very high molecular weight, particularly that present in bacterial and animal cells, and Ribonucleic acid, R-130 which has lower molecular weights. RNA is a polymer of ribonucleotides derived mainly from Adenine, Cytosine, Guanine and Uracil, linked by 3′,5′-phosphodiester bonds, whereas DNA consists of similar polymers, but of deoxyribonucleotides, derived mainly from Adenine, Guanine and Cytosine, as in RNA, but with Thymine in place of Uracil.

Charagaff, E. *et al., The Nucleic Acids*, Academic Press, 1955, 1960

Jordon, D.O. *et al., The Chemistry of the Nucleic Acids*, Butterworths, 1960,

Org. Chem. Nucleic Acids, (Kochetkov, N.K. etal, Ed.), Parts A and B, Plenum Press, 1971,

Basic Princ. Nucleic Acid Chem., (Ts'O, P.O.P., Ed.), Academic Press, Vols. 1 and 2, 1974,

Jankowski, K. *et al., Adv. Heterocycl. Chem.*, 1986, **39**, 79 (*ms*)

Taillandier, E. *et al., J. Mol. Struct.*, 1989, **214**, 185 (*ir, Raman, conformn*)

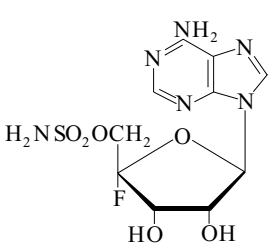
Reid, B.R. *et al., Biochemistry*, 1992, **31**, 3564 (*pmr*)

Wemmer, D.E. *et al., Biol. Magn. Reson.*, Plenum Press, Vol. 10, 1992, 195 (*pmr, cmr, rev*)

Nucleocidin N-84

4′-C-Fluoroadenosine 5′-sulfamate, 9CI, 8CI. T 3018. Antibiotic T 3018

[24751-69-7]



$C_{10}H_{13}FN_6O_6S$ 364.314

Nucleoside-type antibiotic. Produced by *Streptomyces calvus*. Antitrypanosomal which inhibits protein synth. Cryst. + $1H_2O$ (H_2O). Sol. acids, Me_2CO, bases, MeOH, EtOH; fairly sol. H_2O; poorly sol. butanol, hexane, EtOAc. Mp 190° dec. $[\alpha]_D^{24.5}$ -33.3 (c, 1.05 in EtOH/HCl). Recent attempts (1993) at isol. from *S. calvus* have been unsuccessful. λ_{max} 257 (ϵ 15000) (0.1*N* HCl) (Derep). λ_{max} 259 (ϵ 16000) (0.1*N* NaOH) (Derep). λ_{max} 258 (ϵ 15500) (H_2O) (Derep). λ_{max} 256 (E1%/1cm 392) (H_2O) (Berdy). λ_{max} 256 (E1%/1cm 392) (HCl) (Berdy).

▶ LD_{50} (mus, ipr) .2 mg/kg , LD_{50} (mus, orl) 2 mg/kg. AU7400000

Picrate: Mp 145-147°.

Thomas, S.O. *et al., Antibiot. Annu.*, 1956, 716-721 (*isol*)

Waller, C.W. *et al., J.A.C.S.*, 1957, **79**, 1011-1012 (*struct*)

Morton, G.O. *et al., J.A.C.S.*, 1969, **91**, 1535-1537 (*struct, ms, nmr*)

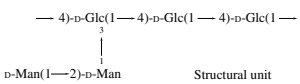
Jenkins, I.D. *et al., J.A.C.S.*, 1971, **93**, 4323-4324; 1976, **98**, 3346-3357 (*synth, ir, uv, nmr*)

Maguire, A.R. *et al., J.C.S. Perkin 1*, 1993, 1795-1808 (*synth*)

Nucleoticidin N-85

YM 3229G. Antibiotic YM 3229G

[87209-37-8]



Polysaccharide antibiotic. Isol. from *Pseudomonas* sp. YM-3229G. Inhibits 5′-Nucleotidase. Shows antitumour activity. Neutral powder. Sol. H_2O, DMSO; poorly sol. MeOH, hexane. Mp 300°. $[\alpha]_D^{20}$ -140 (c, 0.5 in 0.1*M* NaOH). Darkens at 180-190°.

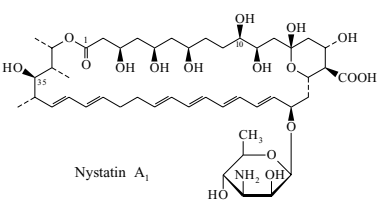
Uchino, T. *et al., J. Antibiot.*, 1985, **38**, 153 (*isol, ir, struct*)

Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Nystatin, BAN, INN N-86

Fungicidin. Mycostatin. Chinyfungin. Nyotran

[1400-61-9]



Polyene antibiotic complex. Complex separated into Nystatins A_1, A_2 (Polyfungin A_2) and A_3 (Polyfungin A_3). Strain also prod. Nystatin B. Prod. by *Streptomyces noursei* and other spp. Antifungal agent active against yeasts. No significant effect on bacteria or viruses. Phase III clin. trials for systemic fungal infections and cryptococcal meningitis (2002). Light-yellow powder.

Mp 250°. $[\alpha]_D^{25}$ -10 (AcOH). $[\alpha]_D^{25}$ +21 (Py). $[\alpha]_D^{25}$ +12 (DMF). Gradually dec. >160°.

▶ LD_{50} (rat, orl) 10000 mg/kg. Exp. teratogen. RF5950000

Me ester: [52439-07-3]
Mp 110-116° dec. $[\alpha]_D^{26}$ +45.3 (DMF).

Nystatin A_1 *Polyfungin A_1*
[34786-70-4]
$C_{47}H_{75}NO_{17}$ 926.106
Major component of Nystatin complex. λ_{max} 232 (ϵ 27600); 280 (ϵ 25500); 291 (ϵ 50700); 304 (ϵ 76100); 318 (ϵ 69700) (MeOH) (Derep).

35-O-*(2,6-Dideoxy-L*-ribo-*hexopyranoside): **Nystatin A_3**. Polyfungin A_3*
[62997-67-5]
$C_{53}H_{85}NO_{20}$ 1056.249
λ_{max} 290 (ϵ); 304 (ϵ 68600); 318 (ϵ) (MeOH) (Derep). λ_{max} 240; 305; 318 (MeOH) (Berdy).

10-Deoxy, 35-O-*(2,6-dideoxy-L*-ribo-*hexopyranoside): **Polyfungin B**. Polifungin B*
[37371-05-4]
$C_{53}H_{85}NO_{19}$ 1040.25
From *Streptomyces* sp. λ_{max} 292; 304; 318 (MeOH) (Berdy).

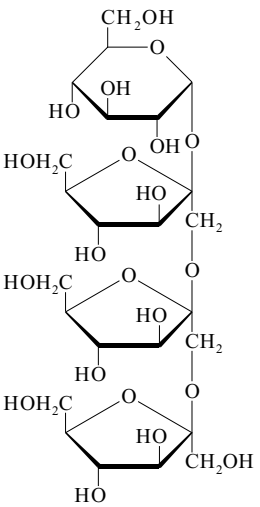
Nystatin A_2 *Polyfungin A_2*
Prod. by *Streptomyces noursei*.
Yelow powder. λ_{max} 231 (E1%/1cm 279); 290 (E1%/1cm 530); 303 (E1%/1cm 700); 318 (E1%/1cm 653) (MeOH) (Berdy).

[65086-32-0]

U.K. Pat., 1955, 714 189; *CA*, **49**, 4242 (*isol*)
Walter, D.R. *et al., J.A.C.S.*, 1957, **79**, 5076 (*struct*)
Manwaring, D.G. *et al., Tet. Lett.*, 1969, 5319 (*struct*)
Chong, C.N. *et al., Tet. Lett.*, 1970, 5145 (*struct*)
Michel, G.W. *et al., Anal. Profiles Drug Subst.*, 1977, **6**, 341 (*rev*)
Pandey, R.C. *et al., J. Antibiot.*, 1977, **30**, 158 (*synth*)
Holz, R.W. *et al., Antibiotics (N.Y.)*, 1979, **5**, 313 (*rev*)
Travkin, O.V. *et al., Antibiotiki (Moscow)*, 1981, **26**, 519 (*props*)
Peterson, N.O. *et al., Can. J. Chem.*, 1985, **63**, 77 (*spectra*)
Coline, A. *et al., J. Antibiot.*, 1985, **38**, 181 (*spectra*)
Ling, D. *et al., Yaoxue Xuebao*, 1986, **21**, 454 (*Polyfungin B*)
Ma, J. *et al., Kangshengsu*, 1987, **12**, 83 (*isol*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 8257
Zielinski, J. *et al., J. Antibiot.*, 1988, **41**, 1289 (*Nystatin A_3*)
Prandi, J. *et al., Tet. Lett.*, 1989, **30**, 4517; 4521 (*pmr, struct, bibl*)
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **3**, 475 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 330
Arikan, S. *et al., Curr. Opin. Invest. Drugs*, 2001, **2**, 488-495 (*nystatin, rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, NOH500

Nystose N-87

β-D-Fructofuranosyl-(2→1)-β-D-fructofuranosyl-(2→1)-β-D-fructofuranosyl α-D-glucopyranoside, 9CI. Fungitetraose. 1,1-Kestotetraose
[13133-07-8]



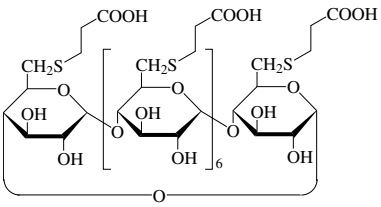
$C_{24}H_{42}O_{21}$ 666.583

A fructan. See Fructans, F-43. Prod. comly. by enzymic synthesis from sucrose. Isol. from horse chestnut (*Aesculus hippocastanum*), *Lycoris radiata*, tulips and *Leucojum* spp., seeds of onions and roots of Asparagus. Low-calorie sweetening agent for food and chewing gum. Constit. of neosugar which improves the intestinal flora in humans. Cryst. (MeOH/EtOH); cryst. + $1H_2O$; needles + 3MeOH (MeOH aq.).
Mp 129-131° (monohydrate) Mp 134° (trihydrate). $[\alpha]_D^{20}$ +10.3 (c, 0.61 in H_2O). Cmr data published prior to 1993 was incorrect.

Tsuchida, H. *et al., Agric. Biol. Chem.*, 1966, **30**, 429 (*synth*)
Binkley, W.W. *et al., Carbohydr. Res.*, 1971, **17**, 127; 1972, **23**, 301 (*ms, cmr*)
Kamerling, J.P. *et al., Carbohydr. Res.*, 1972, **25**, 293 (*isol, ms, cryst struct*)
Shiomi, N. *et al., Agric. Biol. Chem.*, 1979, **43**, 2233 (*enzymic synth*)
Uchiyama, T. *et al., Agric. Biol. Chem.*, 1985, **49**, 3315 (*isol*)
Hidaka, H. *et al., Agric. Biol. Chem.*, 1988, **52**, 1181 (*enzymic synth*)
Handbook of Sweetners, (eds. Marie, S. *et al*), Blackie, 1991, 64-65 (*rev*)
Okuyama, K. *et al., Bull. Chem. Soc. Jpn.*, 1993, **66**, 374 (*cryst struct*)
Timmermans, J.W. *et al., Carbohydr. Res.*, 1993, **243**, 379 (*pmr, cmr*)
Jeffery, G.A. *et al., Carbohydr. Res.*, 1993, **247**, 37 (*cryst struct*)
French, A.D. *et al., Carbohydr. Res.*, 1993, **247**, 51 (*struct*)
Takeda, H. *et al., J. Ferment. Bioeng.*, 1994, **77**, 386-389 (*enzymic synth*)
Buddington, R.K. *et al., Am. J. Clin. Nutr.*, 1996, **63**, 709-716 (*pharmacol*)
Fukushi, E. *et al., Magn. Reson. Chem.*, 2000, **38**, 1005-1011 (*isol, pmr, cmr*)

Octakis-*S*-(2-carboxyethyl)octathio-γ-cyclodextrin O-1

6-Perdeoxy-6-per(2-carboxyethyl)thio-γ-cyclodextrin. Org 25969



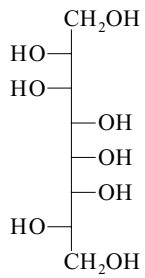
$C_{72}H_{112}O_{48}S_8$ 2002.176
Reverses drug induced neuromuscular block.

Octa-Na salt: ***Sugammadex sodium, USAN***
[343306-79-6]
Glassy solid.

Pat. Coop. Treaty (WIPO), 2001, 01 40 316, (*Akzo Nobel*); *CA*, **135**, 29151s (*synth, pharmacol*)
Bom, A. *et al., Angew. Chem., Int. Ed.*, 2002, **41**, 265-270 (*pharmacol*)
Adam, J.M. *et al., J. Med. Chem.*, 2002, **45**, 1806-1816 (*synth, pmr, pharmacol*)
Epemolu, O. *et al., Anesthesiology*, 2003, **99**, 632-637 (*pharmacol*)

D-*erythro*-L-*altro*-Octitol O-2

L-threo-D-manno-*Octitol*

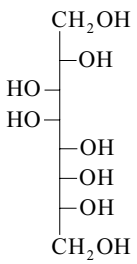


$C_8H_{18}O_8$ 242.225
Mp 144-145°. $[\alpha]_D$ +1 (c, 1 in H_2O).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1987, **168**, C5 (*synth*)

D-*erythro*-D-*galacto*-Octitol, 8CI O-3

[27655-86-3]



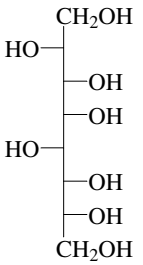
$C_8H_{18}O_8$ 242.225
Isol. from avocado. Cryst. (EtOH aq.). Mp 170-171°. $[\alpha]_D^{20}$ -12 (c, 0.4 in 5% ammonium molybdate) (monohydrate).

Octa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Mp 99-100°. $[\alpha]_D^{20}$ +1 (c, 1.0 in $CHCl_3$).

Charlson, A.J. *et al., J.A.C.S.*, 1960, **82**, 3428 (*isol, synth, octa-Ac*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1986, 815 (*synth*)

D-*erythro*-L-*galacto*-Octitol, 9CI O-4

Octane-1,2,3,4,5,6,7,8-octaol
[162299-70-9]



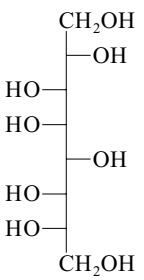
$C_8H_{18}O_8$ 242.225
Cryst. (EtOH aq.). Mp 148-150°. $[\alpha]_D^{15}$ +1.9 (H_2O).

Octa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Prisms (EtOH). Mp 88-89°. $[\alpha]_D^{20}$ +20.7 (c, 3.8 in $CHCl_3$).

Hann, R.M. *et al., J.A.C.S.*, 1944, **66**, 1912-1921 (*synth, octa-Ac*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4630-4634 (*synth, pmr*)

L-*erythro*-D-*galacto*-Octitol O-5

L-threo-D-gulo-*Octitol*

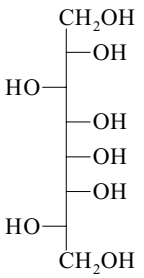


$C_8H_{18}O_8$ 242.225
Mp 153-154.5°. $[\alpha]_D$ -2.5 (c, 0.6 in H_2O).

Brimacome, J.S. *et al., J.C.S. Perkin 1*, 1986, 815 (*synth*)

L-*threo*-L-*altro*-Octitol O-6

L-threo-D-gluco-*Octitol*



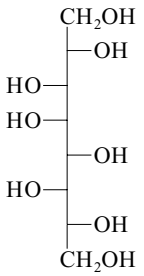
$C_8H_{18}O_8$ 242.225
Mp 121.5-122.5°. $[\alpha]_D$ -2.3 (c, 1 in H_2O).

Octa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
$[\alpha]_D$ -30 (c, 1.5 in $CHCl_3$).

Brimacombe, J.S. *et al., Carbohydr. Res.*, 1987, **168**, C5 (*synth*)

D-*threo*-D-*galacto*-Octitol O-7

L-threo-D-ido-*Octitol*

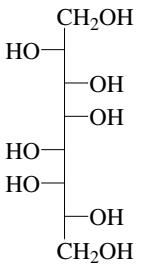


$C_8H_{18}O_8$ 242.225
Cryst. (EtOH aq.). Mp 168-169°. $[\alpha]_D$ -0.55 (c, 1.1 in H_2O).

Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1986, 815 (*synth*)

D-*threo*-L-*galacto*-Octitol O-8

Octane-1,2,3,4,5,6,7,8-octaol

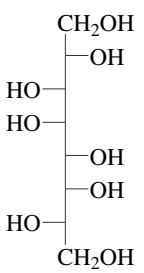


$C_8H_{18}O_8$ 242.225
Cryst. (H_2O). Mp 216-218°. Opt. rotn. was too small to be measurable.

Octa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Plates (EtOH aq.). Mp 141°. $[\alpha]_D$ +40.4 ($CHCl_3$).

Maclay, W. *et al., J.A.C.S.*, 1938, **60**, 1035-1040 (*synth, octa-Ac*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4630-4634 (*synth, pmr*)

L-*threo*-D-*galacto*-Octitol O-9



$C_8H_{18}O_8$ 242.225

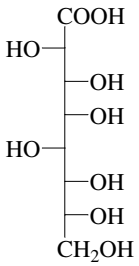
Cryst. (H_2O). Mp 233-236°. $[\alpha]_D$ 0 (H_2O). $[\alpha]_D$ -2.3 (c,1 in H_2O).

Octa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Mp 143-145°. $[\alpha]_D$ -40 (c, 1.1 in $CHCl_3$).

Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1986, 815 (*synth*)
Köll, P. *et al., Carbohydr. Res.*, 1993, **238**, 317 (*cryst struct, octa-Ac*)

D-*erythro*-L-*galacto*-Octonic acid, 9CI O-10

2,3,4,5,6,7,8-Heptahydroxyoctanoic acid



$C_8H_{16}O_9$ 256.209
Cryst. (as Ba salt).

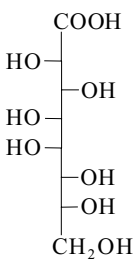
Me ester:
$C_9H_{18}O_9$ 270.236
Plates (EtOH aq.). Mp 162° dec. $[\alpha]_D$ +8.3 (c, 2.2 in H_2O).

Amide:
$C_8H_{17}NO_8$ 255.224
Plates (EtOH aq.). Mp 160.5-161.5°. $[\alpha]_D$ -24.4 (c, 3.88 in H_2O).

1,4-Lactone: 3,4-Dihydroxy-5-(1,2,3,4-tetrahydroxybutyl)dihydro-2(3H)-furanone†
[56570-93-5]
$C_8H_{14}O_8$ 238.194
Needles (EtOH aq.). Mp 151-152° (142-144°). $[\alpha]_D$ +51.3 (c, 2 in H_2O).

Hockett, R.C. *et al., J.A.C.S.*, 1938, **60**, 622-623 (*synth, bibl, lactone, amide*)
Hann, R.M. *et al., J.A.C.S.*, 1944, **66**, 1912-1921 (*Me ester*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4625-4629 (*lactone, synth, pmr, cmr*)

D-*erythro*-L-*gluco*-Octonic acid O-11



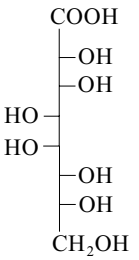
$C_8H_{16}O_9$ 256.209
Mp 170-172°. $[\alpha]_D^{20}$ +4 → -17 (c, 3.1 in H_2O).

Hepta-Ac: 2,3,4,5,6,7,8-Hepta-O-*acetyl*-D-erythro-L-gluco-*octonic acid*
$C_{22}H_{30}O_{16}$ 550.469
Cryst. (Et_2O/hexane). Mp 129-131°. $[\alpha]_D^{20}$ +14.8 (c, 3.9 in $CHCl_3$).

Hepta-Ac, Me ester: Methyl 2,3,4,5,6,7,8-hepta-O-*acetyl*-D-erythro-L-gluco-*octonoate*
$C_{23}H_{32}O_{16}$ 564.496
Cryst. (C_6H_6/petrol). Mp 114-116°. $[\alpha]_D^{20}$ +9.9 (c, 3.2 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1955, **77**, 3096 (*hepta-Ac, Me ester hepta-Ac, synth*)

D-*erythro*-L-*manno*-Octonic acid O-12



$C_8H_{16}O_9$ 256.209
Mp 171-172°. $[\alpha]_D^{20}$ +4 → -31 (c, 1.0 in H_2O).

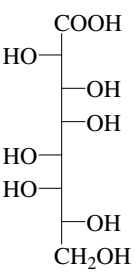
Hepta-Ac: 2,3,4,5,6,7,8-Hepta-O-*acetyl*-D-erythro-L-manno-*octonic acid*
$C_{22}H_{30}O_{16}$ 550.469
Cryst. (Et_2O/petrol). Mp 141-144°. $[\alpha]_D^{20}$ +3 (c, 3.2 in $CHCl_3$).

Chloride, hepta-Ac:
$C_{22}H_{29}ClO_{15}$ 568.915
Cryst. (C_6H_6/petrol). Mp 138-141°. $[\alpha]_D^{20}$ +13 (c, 3.7 in $CHCl_3$).

Hepta-Ac, Me ester: Methyl 2,3,4,5,6,7,8-hepta-O-*acetyl*-D-erythro-L-manno-*octonoate*
$C_{23}H_{32}O_{16}$ 564.496
Cryst. (Et_2O/petrol). Mp 172-173°. $[\alpha]_D^{21}$ +10.5 (c, 1.5 in $CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1955, **77**, 3096

D-*threo*-L-*galacto*-Octonic acid, 9CI O-13



$C_8H_{16}O_9$ 256.209
Cryst. (H_2O). Mp 221° dec. $[\alpha]_D$ +5 (H_2O). Readily lactonises. Soln. mutarotates at 20°.

tert-*Butyl ester:*
$C_{12}H_{24}O_9$ 312.316
Cryst. (H_2O). Mp 167-169°. $[\alpha]_D$ +10.1 (c, 2 in H_2O).

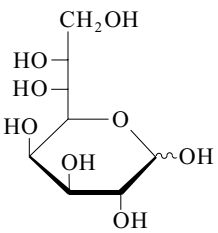
Amide:
$C_8H_{17}NO_8$ 255.224
Plates (H_2O). Mp 228°. $[\alpha]_D$ -42 (H_2O).

1,4-Lactone: 3,4-Dihydroxy-5-(1,2,3,4-tetrahydroxybutyl)dihydro-2(3H)-furanone†
$C_8H_{14}O_8$ 238.194
Cryst. (H_2O). Mp 218-220°. $[\alpha]_D$ +51 (c, 2 in H_2O).

1,4-Lactone, hexa-Ac:
$C_{20}H_{26}O_{14}$ 490.417
Needles (EtOH). Mp 137-139°. $[\alpha]_D$ +45.4 ($CHCl_3$).

Maclay, W.D. *et al., J.A.C.S.*, 1938, **60**, 1035-1040 (*synth, lactone, amide*)
Jorgensen, M. *et al., J.O.C.*, 2001, **66**, 4625-4629 (*tert-butyl ester, lactone, synth, pmr, cmr*)

D-*erythro*-D-*galacto*-Octose O-14



Pyranose–*form*

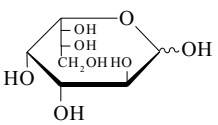
$C_8H_{16}O_8$ 240.21
Mp 174-175°. $[\alpha]_D^{20}$ +45 → +64 (c, 0.7 in H_2O).

Phenylhydrazone: Mp 188-189°.

6-Amino-6,8-dideoxy: See Lincosamine, L-43

Charlson, A.J. *et al., J.A.C.S.*, 1960, **82**, 3428
Bannister, B. *et al., J.C.S. Perkin 1*, 1973, 1676
Woolard, G.R. *et al., J.C.S. Perkin 1*, 1976, 950

D-*erythro*-L-*galacto*-Octose O-15



Pyranose–*form*

$C_8H_{16}O_8$ 240.21
Cryst. (monohydrate). Mp 92°. $[\alpha]_D^{20}$ -63 → -47 (c, 2.0 in H_2O).

α-Hepta-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 138°. $[\alpha]_D^{20}$ +75.1 (c, 2.0 in $CHCl_3$).

β-Hepta-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 92-93°. $[\alpha]_D^{20}$ 0 (c, 0.8 in $CHCl_3$).

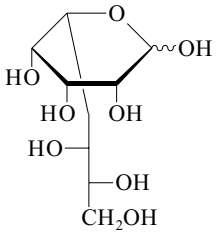
Me glycoside:
$C_9H_{18}O_8$ 254.236
Mp 156-157°. $[\alpha]_D^{20}$ -138 (c, 1.7 in H_2O).

Me glycoside, hexa-Ac:
$C_{21}H_{30}O_{14}$ 506.46
Mp 86-87°. $[\alpha]_D^{20}$ -99 (c, 0.8 in $CHCl_3$).

Hann, R.M. *et al., J.A.C.S.*, 1944, **66**, 1912

D-*threo*-L-*talo*-Octose, 9CI O-16

[64307-93-3]



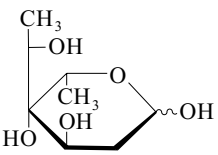
$C_8H_{16}O_8$ 240.21

Solid. Mp 144-147° (138-140°) (sealed tube under N_2). $[\alpha]_D^{25}$ -14.1 (c, 3 in H_2O).

Neff, D.-P. *et al., Helv. Chim. Acta*, 1991, **74**, 508 (*synth, bibl*)

v-Octose O-17

2,6-Dideoxy-4-C-(1S-hydroxyethyl)-L-xylo-hexose. Quinovose A†



$C_8H_{16}O_5$ 192.211

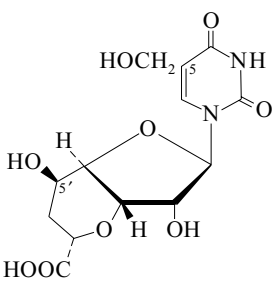
Component of Quinocycline A and Isoquinocycline B (see Isoquinocycline A.

1,1′-Anhydro:
$C_8H_{14}O_4$ 174.196
Formed by acid-cat. ring closure of the natural sugar. Cryst. (EtOAc). Mp 153-154°. $[\alpha]_D^{25}$ -144 (c, 2 in H_2O).

Webb, J.S. *et al., J.A.C.S.*, 1962, **84**, 3183 (*isol, anhydro, struct*)
Cosulich, D.B. *et al., Tet. Lett.*, 1963, 453 (*isol*)
Tulinsky, A. *et al., J.A.C.S.*, 1964, **86**, 5368 (*occur*)
Matern, U. *et al., Eur. J. Biochem.*, 1972, **29**, 1 (*isol, pmr, struct*)

Octosyl acid B O-18

[55728-22-8]



$C_{13}H_{16}N_2O_9$ 344.277

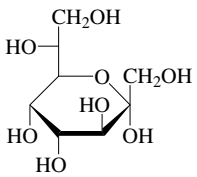
Nucleoside antibiotic. Isol. from *Streptomyces cacaoi asoensis*. Sol. H_2O.
Mp 200° dec. λ_{max} 265 (ϵ 7700) (H_2O) (Berdy). λ_{max} 265 (ϵ 7700) (HCl) (Berdy). λ_{max} 265 (ϵ 5500) (NaOH) (Berdy).

5-Carboxylic acid: ***Octosyl acid A***
[55728-21-7]
$C_{13}H_{14}N_2O_{10}$ 358.261
Isol. from *Streptomyces cacaoi asoensis*.
Cryst. + $1H_2O$. Sol. H_2O.
Mp 290-295° dec. $[\alpha]_D^{20}$ +13.3 (c, 0.425 in 1*M* NaOH). pK_{a1} 3; pK_{a2} 4.3; pK_{a3} 9.4. λ_{max} 220 (ϵ 9000); 276 (ϵ 10700) (H_2O) (Berdy). λ_{max} 220 (ϵ 9000); 276 (ϵ 10700) (HCl) (Berdy). λ_{max} 272 (ϵ 7000) (NaOH) (Berdy).

5-Carboxylic acid, 5′-ketone: ***Octosyl acid C***
[55728-23-9]
$C_{13}H_{12}N_2O_{10}$ 356.245
Isol. from *Streptomyces cacaoi asoensis*.
Cryst. + $1H_2O$. Sol. H_2O.
Mp 192-198°. pK_{a1} 3.1; pK_{a2} 4.5; pK_{a3} 9.9. λ_{max} 220 (ϵ 9200); 275 (ϵ 9200) (H_2O) (Berdy). λ_{max} 220 (ϵ 9200); 275 (ϵ 9200) (HCl) (Berdy). λ_{max} 272 (ϵ 6400) (NaOH) (Berdy).

Isono, K. *et al., J.A.C.S.*, 1975, **97**, 943 (*isol, struct*)
Sato, T. *et al., Tet. Lett.*, 1979, 3441 (*isol, cmr*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

D-*glycero*-D-*altro*-2-Octulose O-19



α-Pyranose-*form*

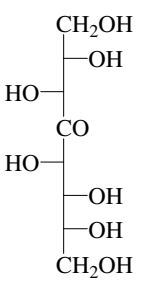
$C_8H_{16}O_8$ 240.21

1,8-Diphosphate:
$C_8H_{18}O_{14}P_2$ 400.169
Present in tissues having active pentose phosphate metabolism. Possible intermed. in an alternative pentose phosphate pathway.
Obt. as mixt. of furanose and pyranose forms.

Franke, F.P. *et al., Carbohydr. Res.*, 1984, **125**, 177 (*synth, cmr*)

D-*glycero*-D-*galacto*-4-Octulose O-20

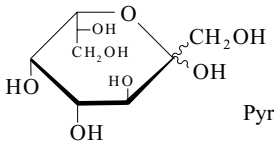
D-arabino-L-threo-*4-Octulose, 9CI*
[177421-52-2]



$C_8H_{16}O_8$ 240.21
$[\alpha]_D^{27}$ +63 (c, 2.5 in MeOH).

Izquierdo, I. *et al., J. Carbohydr. Chem.*, 1996, **15**, 303-315 (*synth*)

D-*glycero*-L-*galacto*-2-Octulose O-21



Pyranose–*form*

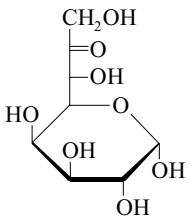
$C_8H_{16}O_8$ 240.21

β-Pyranose form predominates in aq. soln. Present in ripe avocados, dried roots of *Primula officinalis* and several Crassulaceae.
$[\alpha]_D^{20}$ -57 (c, 2 in H_2O).

2,5-Dichlorophenylhydrazone: Mp 178-180°.

Sephton, H.H. *et al., J.O.C.*, 1963, **28**, 1691 (*occur, synth*)
Sephton, H.H. *et al., Carbohydr. Res.*, 1966, **2**, 289 (*occur, synth*)
Schaffer, R. *et al., The Carbohydrates*, Academic Press, 1972, 69 (*rev*)
Hricoviniova, Z. *et al., Tetrahedron: Asymmetry*, 2002, **13**, 1567-1571 (*synth, pmr, cmr*)

L-*glycero*-D-*galacto*-7-Octulose O-22



$C_8H_{14}O_8$ 238.194

α-Pyranose-*form*

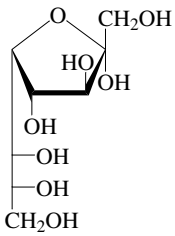
1,2:3,4-Di-O-isopropylidene, trimethylene dithioacetal: 1,2:3,4-Di-O-isopropylidene-L-glycero-α-D-galacto-7-octulopyranose trimethylenedithioacetal
[80582-80-5]
$C_{17}H_{28}O_7S_2$ 408.536
Mp 125-127°. $[\alpha]_D^{20}$ -57.4 (c, 1.04 in $CHCl_3$).

1,2:3,4-Di-O-isopropylidene, trimethylene dithioacetal, 8-Ac: [80564-75-6]
$C_{19}H_{30}O_8S_2$ 450.573
Mp 156°. $[\alpha]_D^{20}$ -69.4 (c, 1.0 in $CHCl_3$).

1,2:3,4-Di-O-isopropylidene, trimethylene dithioacetal, 6,8-di-Ac: [80564-74-5]
$C_{21}H_{32}O_9S_2$ 492.61
Mp 134-136°. $[\alpha]_D^{20}$ -95.3 (c, 0.5 in $CHCl_3$).

Paulsen, H. *et al., Annalen*, 1981, 2009-2027 (*synth*)

D-*glycero*-D-*ido*-2-Octulose O-23



α-D-Furanose-*form*

$C_8H_{16}O_8$ 240.21
Major sugar of the leaves of the resurrection plant *Craterostigma plantinagineum*. Appears to be responsible for the ability of the plant to withstand severe dehydration.

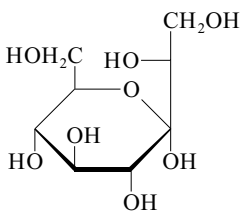
1,8-Diphosphate:
$C_8H_{18}O_{14}P_2$ 400.169
Present in tissues having active pentose phosphate metabolism. Possible intermed. in an alternative pentose phosphate pathway.
Obt. as a mixt. of α- and β- (predominant) furanose forms.

α-Furanose-*form*

1,3:4,6:7,8-Triisopropylidene:
$C_{17}H_{28}O_8$ 360.403
$[\alpha]_D$ +14.3 (c, 1.8 in $CHCl_3$).
Francke, F.P. *et al., Carbohydr. Res.*, 1984, **125**, 177 (*synth, cmr*)
Howarth, O.W. *et al., Carbohydr. Res.*, 1996, **289**, 137-142

D-*glycero*-D-*ido*-3-Octulose O-24

D-gluco-L-glycero-*3-Octulose*
[78174-72-8]



$C_8H_{16}O_8$ 240.21
First reported naturally occurring 3-octulose. Main constit. in aq. extracts of *Laurus nobilis* leaves (bay laurel) and buds.

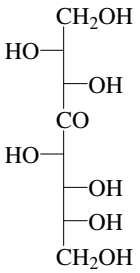
α-*form*

Cryst. (MeOH). Mp 173-176°. $[\alpha]_D$ +66 (c, 1.0 in H_2O) (+55.7).

Hepta-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 128-131°. $[\alpha]_D$ +69 (c, 0.41 in $CHCl_3$).
Schaffer, R. *et al., J.O.C.*, 1963, **28**, 1929
Westelund, E. *et al., Carbohydr. Res.*, 1981, **91**, 21 (*synth, ms, cmr*)
Sakata, K. *et al., Agric. Biol. Chem.*, 1989, **53**, 2539 (*isol, cmr, ms*)

D-*glycero*-D-*ido*-4-Octulose O-25

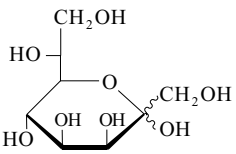
D-arabino-D-threo-*4-Octulose, 9CI*
[177568-30-8]



$C_8H_{16}O_8$ 240.21
$[\alpha]_D^{26}$ +32.6 (c, 2.4 in MeOH).
Izquierdo, I. *et al., J. Carbohydr. Chem.*, 1996, **15**, 303-315 (*synth*)

D-*glycero*-D-*manno*-2-Octulose, 8CI O-26

[13111-79-0]



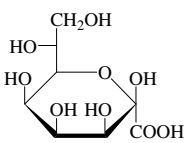
Pyranose–*form*

$C_8H_{16}O_8$ 240.21
Present in avocado (*Persea gratissima*), *Sedum* spp., alfalfa (*Medicago sativa*), roots of *Primula officinalis*, poppy (*Papaver somniferum*) etc.
$[\alpha]_D^{20}$ +20 (c, 1.1 in MeOH).

2,5-Dichlorophenylhydrazone: Mp 169-170°.
Charlson, A.J. *et al., J.A.C.S.*, 1960, **82**, 3428 (*occur*)
Haustveit, G. *et al., Acta Chem. Scand.*, 1970, **24**, 3059 (*occur*)

D-*glycero*-D-*talo*-2-Octulosonic acid O-27

KO
[189241-22-3]



β-D-Pyranose-*form*

$C_8H_{14}O_9$ 254.193
Component of the lipopolysaccharides of *Burkholderia cepacia* and *Acinetobacter calcoaceticus* NCTC 10305. Amorph. powder (as Na salt). $[\alpha]_D^{20}$ +11 → +9 (16h) (c, 0.5 in H_2O) (Na salt).

α-D-Pyranose-*form*

4,5,7,8-Tetra-Ac, Me ester: Methyl 4,5,7,8-tetra-O-*acetyl*-D-glycero-α-D-talo-*oct-2-ulopyranosonate*
[150920-79-9]
$C_{17}H_{24}O_{13}$ 436.369
Syrup. $[\alpha]_D^{20}$ +37 (c, 0.4 in $CHCl_3$).

Hexa-Ac, Me ester: Methyl 2,3,4,5,7,8-hexa-O-*acetyl*-D-glycero-α-D-talo-*oct-2-ulopyranosonate*
[150920-78-8]
$C_{21}H_{28}O_{15}$ 520.443
Cryst. (Et_2O/hexane). Mp 143-144°. $[\alpha]_D^{20}$ +79.5 (c, 0.5 in $CHCl_3$).

Hexa-Ac, benzyl ester: Benzyl 2,3,4,5,7,8-hexa-O-*acetyl*-D-glycero-α-D-talo-*oct-2-ulopyranosonate*
[321549-78-4]
$C_{25}H_{30}O_{13}$ 538.504
Mp 178-179°. $[\alpha]_D^{20}$ +74 (c, 1 in $CHCl_3$).

*2-*O*-Allyl glycoside, 4,5:7,8-diisopropylidene, Me ester: Methyl (allyl 4,5:7,8-di*-O-*isopropylidene*-D-glycero-α-D-talo-*oct-2-ulopyranoside)onate*
[271245-02-4]
$C_{18}H_{28}O_9$ 388.414
Syrup. $[\alpha]_D$ +7.9 (c, 0.25 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside, penta-Ac, Me ester: Methyl (methyl 3,4,5,7,8-penta-O-*acetyl*-D-glycero-β-D-talo-*oct-2-ulopyranosid)onate*
[150920-76-6]
$C_{20}H_{28}O_{14}$ 492.433
Syrup. $[\alpha]_D^{20}$ +55 (c, 0.7 in $CHCl_3$).

Me glycoside, 4,5:7,8-diisopropylidene, Me ester: Methyl (methyl 4,5:7,8-di-O-*isopropylidene*-D-glycero-β-D-talo-*oct-2-ulopyranosid)onate*
[150920-75-5]
$C_{16}H_{26}O_9$ 362.376
Amorphous solid. $[\alpha]_D^{20}$ +15 (c, 0.8 in $CHCl_3$).

α-D-Furanose-*form*

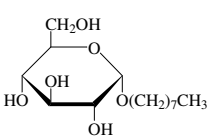
Hexa-Ac, Me ester: Methyl 2,3,4,6,7,8-hexa-O-*acetyl*-D-glycero-α-D-talo-*oct-2-ulofuranosonate*
[150920-83-5]
$C_{21}H_{28}O_{15}$ 520.443
$[\alpha]_D^{20}$ +46 (c, 0.7 in $CHCl_3$).

β-D-Furanose-*form*

Hexa-Ac, Me ester: Methyl 2,3,4,6,7,8-hexa-O-*acetyl*-D-glycero-β-D-talo-*oct-2-ulofuranosonate*
[150920-82-4]
$C_{21}H_{28}O_{15}$ 520.443
Characterised spectroscopically.
Goss, J. *et al., Carbohydr. Res.*, 1993, **244**, 69-84 (*Me ester, acetates, diisopropylidene*)
Wimmer, N. *et al., Carbohydr. Res.*, 2000, **329**, 549-560 (*hexa-Ac benzyl ester, 4-nitrobenzoates*)
Reiner, M. *et al., Tetrahedron: Asymmetry*, 2000, **11**, 319-335 (*2-allyl derivs*)
Isshiki, Y. *et al., Carbohydr. Res.*, 2003, **338**, 2659-2666 (*occur*)

Octyl glucoside O-28

[41444-50-2]



α-D-Pyranose-*form*

$C_{14}H_{28}O_6$ 292.372

α-D-Pyranose-*form*
Octyl α-D-glucopyranoside
[29781-80-4]
Cryst. (EtOAc). Mp 117-118°. $[\alpha]_D^{25}$ +117.9 (c, 1 in MeOH).

β-D-Pyranose-*form*
Octyl β-D-glucopyranoside
[29836-26-8]
Constit. of *Rhodiola sachalinensis*.
Non-ionic detergent; solubilising agent for membrane proteins. Used in membrane reconstitution, and characterisation of enzymes, receptors, proteins - including human tumor necrosis factor (TNF).
Readily removed by dialysis.
Mp 107-108° (83-84°). $[\alpha]_D^{20}$ -33 (c, 5 in H_2O). $[\alpha]_D^{25}$ -28.1 (c, 1 in MeOH).

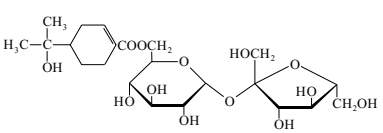
β-D-Furanose-*form* [158604-09-2]
Cryst. (diisopropyl ether). Mp 52-54°. $[\alpha]_D^{20}$ -71.5 (c, 0.01 in Me_2CO).

[6801-93-0, 54549-23-4, 65309-84-4, 142925-45-9, 142925-47-1, 166021-55-2]

De Grip, W.J. *et al., Chem. Phys. Lipids*, 1979, **23**, 321-335 (*α-D-pyr, synth, pmr*)
Rosevear, P. *et al., Biochemistry*, 1980, **19**, 4108 (*β-D-pyr, synth, cmr, use*)
Dorset, D.L. *et al., Chem. Phys. Lipids*, 1981, **29**, 299-307 (*cryst struct*)
Landaver, P. *et al., Biochem. Biophys. Res. Commun.*, 1982, **106**, 848-855 (*synth*)
Tsui, D.S.K. *et al., Carbohydr. Res.*, 1985, **144**, 137-147 (*cmr*)
Van Konigsfeld, H. *et al., Acta Cryst. C*, 1988, **44**, 1054-1057 (*α-D-pyr, cryst struct*)
Paternostre, M.T. *et al., Biochemistry*, 1988, **27**, 2668 (*use*)
Hjerten, S. *et al., J. Liq. Chromatogr.*, 1989, **12**, 2471 (*use*)
Focher, B. *et al., Chem. Phys. Lipids*, 1990, **53**, 141-155 (*synth, pmr, cmr*)
Walker, N. *et al., J. Cryst. Growth*, 1990, **100**, 168 (*use*)
Raaijmakers, H.W.C. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1994, **113**, 79-87 (*β-D-fur, synth, pmr, cmr, ms*)
Fan, W. *et al., Chem. Pharm. Bull.*, 2001, **49**, 396-401 (*isol*)
Ducret, A. *et al., Can. J. Chem.*, 2002, **80**, 653-656 (*β-D-pyr, synth*)
Basso, A. *et al., Tet. Lett.*, 2002, **43**, 2005-2008 (*synth*)

6-*O*-Oleuropeoylsucrose O-29

6-[4-(1-Hydroxy-1-methylethyl)-1-cyclohexene-1-carboxylate] sucrose, 8CI
[17651-05-7]

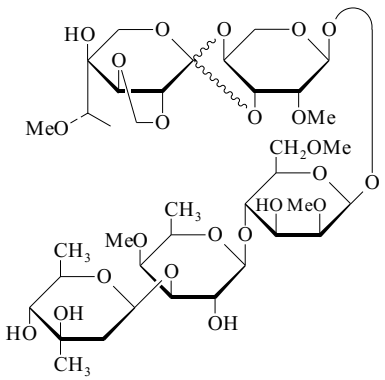


$C_{22}H_{36}O_{13}$ 508.519
Constit. of the root bark of the olive (*Olea europaea*). Cryst. (EtOH).
Mp 199-200°. $[\alpha]_D^{28}$ -3.9 (c, 1.1 in H_2O).

Scarpati, M.L. *et al., Tet. Lett.*, 1966, 5673 (*isol*)

Olgose O-30

[55539-05-4]



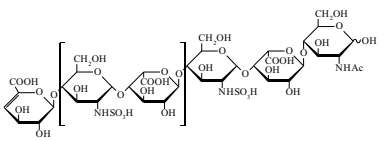
$C_{37}H_{62}O_{22}$ 858.884
Hydrol. prod. from Everninomicins.
Mp 212-215°. $[\alpha]_D$ -21.8.

Per-Me: Mp 194-195°. $[\alpha]_D$ -13.9.

[57903-39-6]

Ganguly, A.K. *et al., J.A.C.S.*, 1975, **97**, 1982
Ganguly, A.K. *et al., Chem. Comm.*, 1977, 313
Yoshimura, J. *et al., Carbohydr. Res.*, 1982, **100**, 283 (*stereochem*)

Oligo-H tetradecasaccharide O-31

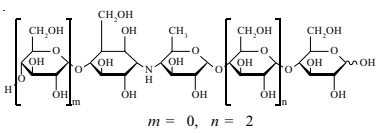


A tetradecasaccharide obtained from heparan sulphate on treatment with heparitinase which has a similar binding affinity for basic fibroblast growth factor (bFGF) as the proteoglycan.

Turnbull, J.E. *et al., J. Biol. Chem.*, 1992, **267**, 10337
Ornitz, D.M. *et al., Mol. Cell. Biochem.*, 1992, **12**, 240

Oligostatin C O-32

SF 1130 X-3. Antibiotic SF 1130 X-3
[80450-14-2]



m = 0, *n* = 2

$C_{31}H_{55}NO_{24}$ 825.768
Aminocyclitol antibiotic. Isol. from *Streptomyces myxogenes*. Antibacterial agent with strong amylase inhibiting props. Sol. H_2O, DMSO; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane.
Mp 183° dec. $[\alpha]_D^{23}$ +154 (c, 1 in H_2O). Strain also produces Oligostatin A and Oligostatin B which were not characterised.

[78025-06-6]

Ger. Pat., 1981, 3 035 193; *CA*, **95**, 40843v (*isol*)
Itoh, J. *et al., J. Antibiot.*, 1981, **34**, 1424 (*isol*)
Omoto, S. *et al., J. Antibiot.*, 1981, **34**, 1429 (*struct*)

Oligostatin D O-33

SF 1130X-2. Antibiotic SF 1130X-2
[80450-15-3]
As Oligostatin C, O-32 with
m = 0, n = 3

$C_{37}H_{65}NO_{28}$ 971.91
Aminocyclitol antibiotic. Isol. from *Streptomyces myxogenes*. Antibacterial agent with strong amylase inhibiting props. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane.
Mp 190° dec. $[\alpha]_D^{23}$ +155 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 500 mg/kg.

[66525-21-1, 80955-61-9]

Ger. Pat., 1978, 2 737 943; *CA*, **88**, 188137 (*isol*)
Japan. Pat., 1978, 78 26 398; *CA*, **89**, 22301 (*isol*)
Itoh, J. *et al., J. Antibiot.*, 1981, **34**, 1424 (*isol*)
Omoto, S. *et al., J. Antibiot.*, 1981, **34**, 1429 (*struct*)

Oligostatin E O-34

SF 1130X-1. Antibiotic SF 1130X-1
[80450-16-4]
As Oligostatin C, O-32 with
m = 1, n = 3

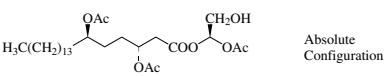
$C_{43}H_{75}NO_{33}$ 1134.052
Aminocyclitol antibiotic. Isol. from *Streptomyces myxogenes*. Antibacterial agent with strong amylase inhibiting props. Powder. Sol. H_2O, DMSO; fairly sol. MeOH, EtOH; poorly sol. Me_2CO, hexane.
Mp 203-205° dec. $[\alpha]_D^{23}$ +166 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 500-1500 mg/kg.

[66525-20-0, 80955-60-8]

Ger. Pat., 1978, 2 737 943; *CA*, **88**, 188137 (*isol*)
Japan. Pat., 1978, 78 26 398; *CA*, **89**, 22301 (*isol*)
Itoh, J. *et al., J. Antibiot.*, 1981, **34**, 1424 (*isol*)
Omoto, S. *et al., J. Antibiot.*, 1981, **34**, 1429 (*struct*)

Oncidinol O-35

Glycerol 1-acetate 2-(3,6-diacetoxyeicosanoate). 1-O-Acetyl-2-O-(3,6-diacetoxyeicosanoyl)glycerol
[638203-64-2]



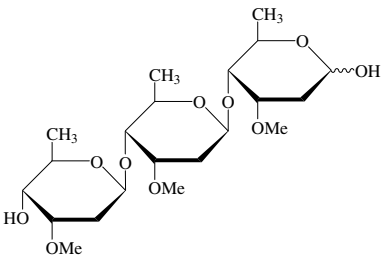
Absolute Configuration

$C_{29}H_{52}O_9$ 544.724
Constit. of the floral oil of *Ornithophora radicans*.

Reis, M.G. *et al., Tet. Lett.*, 2003, **44**, 8519-8523 (*isol, pmr, cmr*)

Ornonin O-36

β-D-Cymaropyranosyl-(1→4)-β-D-cymaropyranosyl-(1→4)-β-D-cymaropyranose
[254900-85-1]

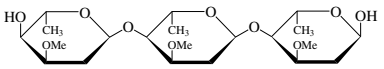


$C_{21}H_{38}O_{10}$ 450.525
Constit. of *Orthenthera viminea*.

Sigler, P. *et al., Trends Carbohydr. Chem.*, 1999, **4**, 11-15

Ornose O-37

α-L-Cymaropyranosyl-(1→4)-α-L-cymaropyranosyl-(1→4)-L-cymaropyranose
[85120-50-9]



α-*form*

$C_{21}H_{38}O_{10}$ 450.525
Isol. from the dried twigs of *Orthenthera viminea* (Asclepiadaceae).
$[\alpha]_D^{25}$ +31 (MeOH).

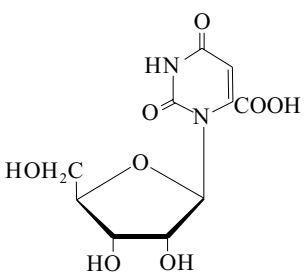
α-*form*

Di-Ac:
$C_{25}H_{42}O_{12}$ 534.6
$[\alpha]_D^{25}$ +9 (c, 0.63 in MeOH).

Tiwari, K.N. *et al., Carbohydr. Res.*, 1983, **112**, C7; **119**, 109 (*pmr, ms, isol*)

Orotidine O-38

1,2,3,6-Tetrahydro-2,6-dioxo-3-β-D-ribofuranosyl-4-pyrimidinecarboxylic acid, 9CI. 3-β-D-Ribofuranosylorotic acid, 8CI. 6-Carboxyuridine, 8CI
[314-50-1]



$C_{10}H_{12}N_2O_8$ 288.213
Prod. by bacteria. Also present in plants, e.g. isol. from *Phaseolus vulgaris* (kidney bean) and *Xanthium pensylvanicum*. Intermediate in pyrimidine nucleotide biosynth.
Mp 200° (turns brown near). λ_{max} 267 (ε 9570) (0.1*N* HCl) (Derep). λ_{max} 265 (ε 8960) (0.1*N* NaOH) (Derep). λ_{max} 268 (ε 8900) (MeOH) (Derep).

Cyclohexylammonium salt: Mp 182-183.5° dec. λ_{max} 265 (ε 9700) (0.1*M* HCl). λ_{max} 265 (ε 7750) (0.1*M* NaOH).

*3*N-*Me:*
$C_{11}H_{14}N_2O_8$ 302.24
Mp 189-190° dec.

*3*N-*Me, Me ester:*
$C_{12}H_{16}N_2O_8$ 316.267
Mp 135-137°.

2′,3′-O-*Isopropylidene, Me ester:*
$C_{14}H_{18}N_2O_8$ 342.305
Mp 163-164°.

2′,3′-O-*Isopropylidene, 3*N-*Me:*
$C_{14}H_{18}N_2O_8$ 342.305
Mp 210-211° (as cyclohexylammonium salt).

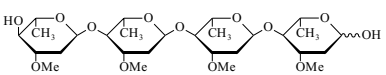
2′,3′-O-*Isopropylidene, 3*N-*Me, Me ester:*
$C_{15}H_{20}N_2O_8$ 356.332
Mp 110-111°.

5′-Phosphate: Orotidine 5′-(dihydrogen phosphate), 8CI. Orotidylic acid. OMP
[2149-82-8]
$C_{10}H_{13}N_2O_{11}P$ 368.193
Formed in the biosynthetic pathway in yeast. Decarboxylation by Orotidylate decarboxylase affords Uridine 5′-phosphate which is the route to Uridine and its derivatives *de novo* and consequently one of the most important processes in nucleic acid synthesis. Trihydrate (as Na salt).

Moffatt, J.G. *et al., J.A.C.S.*, 1963, **85**, 1118 (*synth*)
Curran, W.V. *et al., J.O.C.*, 1966, **31**, 201 (*synth*)
Hruska, F.E. *et al., J.A.C.S.*, 1971, **93**, 1795 (*conformn, pmr*)
Hermann, E.C. *et al., Anal. Biochem.*, 1973, **53**, 478 (*chromatog, phosphate*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 738 (*synth*)

Orthenthose O-39

α-L-Oleandropyranosyl-(1→4)-α-L-oleandropyranosyl-(1→4)-α-L-oleandropyranosyl-(1→4)-β-L-oleandropyranose
[88417-18-9]



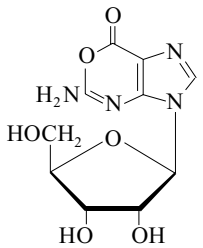
$C_{28}H_{50}O_{13}$ 594.695
Isol. from dried twigs of *Orthenthera viminea* (Asclepiadaceae). Amorph. $[\alpha]_D^{25}$ +47.5 (c, 0.63 in MeOH).

Di-Ac: [88498-49-1]
Amorph. $[\alpha]_D^{25}$ +149.5 (c, 0.63 in MeOH).

Schaub, F. *et al., Helv. Chim. Acta*, 1968, **51**, 738 (*isol*)
Tiwari, K.N. *et al., Carbohydr. Res.*, 1983, **123**, 231 (*isol, pmr, cmr, ms*)
Khare, M.P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 523-535 (*isol, ms*)

Oxanosine O-40

5-Amino-3-β-D-ribofuranosylimidazo[4,5-d][1,3]-oxazin-7(3H)-one, 9CI
[80394-72-5]

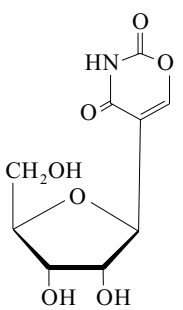


$C_{10}H_{12}N_4O_6$ 284.228
Nucleoside antibiotic. Isol. from *Streptomyces capreolus*. Weakly active against *E. coli and Shigella* spp. Inhibitor of GMP synthetase and IMP dehydrogenase. Shows immunomodulatory, antileukaemic and anti-HIV activities. Platy needles (H_2O). Sol. H_2O, MeOH; fairly sol. MeOH; poorly sol. Me_2CO, hexane. Mp 199° dec. $[\alpha]_D^{25}$ -36.7 (c, 0.3 in H_2O). λ_{max} 249 (ε 11220); 288 (0.1*N* HCl) (Derep). λ_{max} 272 (ε 9120) (0.1*N* NaOH) (Derep). λ_{max} 247 (ε 12020); 288 (ε 8510) (H_2O) (Derep). λ_{max} 247 (ε 12200); 288 (ε 8500) (H_2O) (Berdy). λ_{max} 249 (ε 11200); 288 (ε 8130) (HCl) (Berdy). λ_{max} 272 (ε 9120) (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) -100 - 300 mg/kg.
NJ5095480

Shimada, N. *et al., J. Antibiot.*, 1981, **34**, 1216 (*isol*)
Nakamura, H. *et al., J. Antibiot.*, 1981, **34**, 1219 (*struct*)
Yagisawa, N. *et al., Tet. Lett.*, 1983, **24**, 931 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Itoh, O. *et al., Cancer Res.*, 1989, **49**, 996-1000 (*activity*)
Luk, K.-C. *et al., Tet. Lett.*, 1994, **35**, 1007 (*synth, bibl*)
De Napoli, L. *et al., Tet. Lett.*, 1998, **39**, 7397-7400 (*synth*)
Saito, Y. *et al., J. Antibiot.*, 2000, **53**, 309-313 (*derivs, activity*)

Oxazinomycin O-41

*5-β-Ribofuranosyl-2*H-*1,3-oxazine-2,4(3*H*)-dione, 9CI. Minimycin. EM 5429. Antibiotic EM 5429*
[32388-21-9]



$C_9H_{11}NO_7$ 245.188

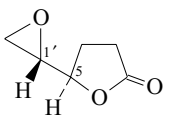
Nucleoside-type antibiotic. Isol. from *Streptomyces tanesashinensis*, *Streptomyces hygroscopicus* and *Pseudomonas paucimobilis*. Antibiotic active against gram-positive and gram-negative bacteria.
Mp 164-166° dec. $[\alpha]_D^{20}$ +19.7 (c, 1 in H_2O). λ_{max} 230 (sh) (ϵ 4610) (0.01*M* HCl) (Derep). λ_{max} 232 (ϵ 4120) (H_2O) (Derep).

► LD_{50} (mus, scu) 20 mg/kg. RP6320000

Haneishi, T. *et al., J. Antibiot.*, 1971, **24**, 797 (*cryst struct*)
Sasaki, K. *et al., J. Antibiot.*, 1972, **25**, 151 (*isol, struct*)
Isono, K. *et al., J. Antibiot.*, 1977, **30**, 272; 1988, **41**, 1711 (*biosynth, cmr, rev*)
de Bernadino, S. *et al., J.O.C.*, 1977, **42**, 109 (*synth, ir, uv, ms, nmr*)
Tymiak, A.A. *et al., J. Antibiot.*, 1984, **37**, 416 (*isol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, OMK000

5-Oxiranyl-2(3*H*)-furanone O-42

5,6-Anhydro-2,3-dideoxyhexono-1,4-lactone



(1′*R*,5*R*)−*form*

$C_6H_8O_3$ 128.127

(1′*R*,5*R*)-*form*

L-threo-*form. 5,6-Anhydro-2,3-dideoxy-*L-threo-*1,4-hexonolactone*
[129151-33-3]
Oil. $Bp_{0.4}$ 101°. $[\alpha]_D^{20}$ +58 (c, 1.97 in H_2O).

(1′*R*,5*S*)-*form*

D-erythro-*form. 5,6-Anhydro-2,3-dideoxy-*D-erythro-*1,4-hexonolactone*
[129151-46-8]
Syrup. $Bp_{0.2}$ 95°. $[\alpha]_D^{20}$ +13.1 (c, 1.9 in $CHCl_3$).

(1′*S*,5*S*)-*form*

D-threo-*form. 5,6-Anhydro-2,3-dideoxy-*D-threo-*1,4-hexonolactone*
[129151-43-5]
Oil. $[\alpha]_D^{20}$ -57 (c, 1.5 in H_2O).

Vekemans, J.A.J.M. *et al., J.O.C.*, 1990, **55**, 5336 (*synth*)
Lundt, I. *et al., Synthesis*, 1992, 669 (*synth*)

4-Oxoheptyl glucosinolate O-43

*1-Thio-β-D-glucopyranose 1-[5-oxo-*N*-(sulfooxy)octanimidate], 9CI.* ***Glucocapangulin***
[536-06-1]
$H_3CCH_2CH_2CO(CH_2)_3C(SGlc)=NOSO_3H$
$C_{14}H_{25}NO_{10}S_2$ 431.484
Isol. from *Capparis angulata*.

Tetra-Ac:
Cryst. + $1H_2O$ (EtOH aq.) (as K salt). Mp 168-169° (K salt). $[\alpha]_D^{22}$ -16.5 (c, 0.85 in MeOH).

Kjaer, A. *et al., Acta Chem. Scand.*, 1960, **14**, 1226 (*isol*)
Ahmed, Z.F. *et al., Phytochemistry*, 1972, **11**, 251 (*isol*)

5-Oxoheptyl glucosinolate O-44

Gluconorcappasalin
[20016-82-4]
$H_3CCH_2CO(CH_2)_4C(SGlc)=NOSO_3H$
$C_{14}H_{25}NO_{10}S_2$ 431.484
Isol. from *Capparis salicifolia*.

Kjaer, A. *et al., Acta Chem. Scand.*, 1963, **17**, 561 (*isol*)
Brown, I.V. *et al., Phytochemistry*, 1968, **7**, 1409 (*isol*)

5-Oxooctyl glucosinolate O-45

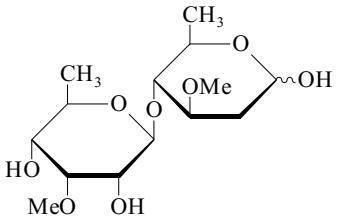
*1-Thio-β-D-glucopyranose 1-[6-oxo-*N*-(sulfooxy)nonanimidate].* ***Glucocappasalin***
[59204-63-6]
$H_3CCH_2CH_2CO(CH_2)_4C(SGlc)=NOSO_3H$
$C_{15}H_{27}NO_{10}S_2$ 445.511
Isol. from seeds of *Capparis salicifolia*.

Tetra-Ac:
Cryst. + $\frac{1}{2}H_2O$ (as K salt). Mp 133-136° dec. (K salt). $[\alpha]_D^{22}$ -16 (c, 1.0 in H_2O).

Kjaer, A. *et al., Acta Chem. Scand.*, 1962, **16**, 2065

Pachybiose P-1

*2,6-Dideoxy-4-O-(6-deoxy-3-O-methyl-β-D-allopyranosyl)-3-O-methyl-D-*arabino-*hexose, 8CI. 6-Deoxy-3-O-methyl-β-D-allopyranosyl-(1→4)-3-O-methyl-D-*arabino-*hexose*
[17063-53-5]



$C_{14}H_{26}O_8$ 322.355
Acid hydrolytic prod. of Ceolin a pregnane ester glycoside (see 3,8,11,12,14-Pentahydroxypregn-5-en-20-one) isol. from dried roots of *Dregea lanceolata*. Also obt. from *Dregea volubilis* and from the leaves of *Marsdenia erecta*. Component of glycosides of *Pachycarpus lineolatus* and other Asclepiadaceae. Hemihydrate (possibly).
Mp 153-156° (159-161°). $[\alpha]_D^{25}$ -9.2 (c, 0.16 in H_2O).

α-Pyranose-*form*

Me glycoside: Methyl α-pachybioside
[17063-57-9]
$C_{15}H_{28}O_8$ 336.381
Isol. from roots of *Dregea volubilis*.

β-Pyranose-*form*

Me glycoside: Methyl β-pachybioside
[55902-83-5]
$C_{15}H_{28}O_8$ 336.381
Extracted from dried aerial parts of *Sarcostemma brevistigma*.
Mp 135-136°. $[\alpha]_D^{25}$ -38 (MeOH).

Jaeggi, K.A. *et al., Helv. Chim. Acta*, 1967, **50**, 1201 (*isol, ms*)
Allgeier, H. *et al., Helv. Chim. Acta*, 1968, **51**, 311 (*struct*)
Saner, A. *et al., Helv. Chim. Acta*, 1970, **53**, 221 (*isol*)
Yoshimura, S. *et al., Chem. Pharm. Bull.*, 1983, **31**, 3971
Yugh, S. *et al., Chem. Pharm. Bull.*, 1985, **33**, 2287
Khare, M.P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 523-535 (*Me β-gly, isol, ms*)
Chiu, M. *et al., Zhiwu Xuebao*, 1988, **30**, 297-302; *CA*, **110**, 4673 (*isol, α-Me gly*)
Krishna, G. *et al., J. Nat. Prod.*, 1990, **53**, 1399 (*isol, struct*)

Pachymatismin P-2

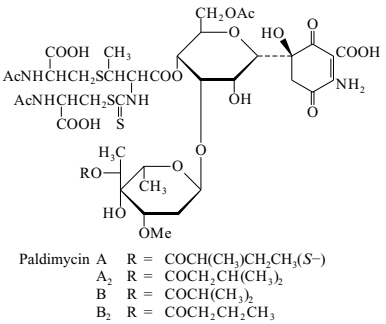
[185702-38-9]

Glycoprotein; MW 46 kDa. Isol. from *Pachymatisma johnstonii*. Shows antitumour activity.

Zidane, M. *et al., Comp. Biochem. Physiol., C: Comp. Pharmacol.*, 1996, **115**, 47-53 (*isol*)

Paldimycin, INN P-3

Antibiotic 273a$_1$. U 70138
[102426-96-0]



Paldimycin A R = $COCH(CH_3)CH_2CH_3(S-)$
A_2 R = $COCH_2CH(CH_3)_2$
B R = $COCH(CH_3)_2$
B_2 R = $COCH_2CH_2CH_3$

Glycoside-type antibiotic complex. Prod. by *Streptomyces paulus*. Active against gram-positive bacteria. Isol. with Antibiotic 273a$_2$. Related also to Paulomycin.
►RT2600000

Paldimycin A

Antibiotic 273a$_{1\alpha}$. U 67963
[101411-70-5]
$C_{44}H_{64}N_4O_{23}S_3$ 1113.201
Sol. MeOH, EtOAc, bases; fairly sol. $CHCl_3$, CH_2Cl_2; poorly sol. Et_2O, H_2O, hexane. $[\alpha]_D$ -31 (c, 0.9 in MeOH). Dec. begins at *ca.* 120°. λ_{max} 248 (ε 18000); 274 (ε 9460); 321 (ε 8990) (95% EtOH) (Derep).
►HA1662000

Paldimycin A$_2$ [101466-00-6]

$C_{44}H_{64}N_4O_{23}S_3$ 1113.201
No phys. props. reported.

Paldimycin B

Antibiotic 273a$_{1\beta}$
[101411-71-6]
$C_{43}H_{62}N_4O_{23}S_3$ 1099.174
Sol. MeOH, bases, EtOAc; fairly sol. $CHCl_3$, CH_2Cl_2; poorly sol. Et_2O, hexane, H_2O. $[\alpha]_D^{25}$ -35 (c, 0.9 in MeOH). Dec. begins at *ca.* 120°. λ_{max} 248 (ε 18000); 274 (ε 9460); 321 (ε 8990) (95% EtOH) (Derep). λ_{max} 248 (E1%/1cm 163); 274 (E1%/1cm 85.6); 321 (E1%/1cm 82.1) (MeOH) (Berdy).
►HA1663000

Paldimycin B$_2$ [127319-29-3]

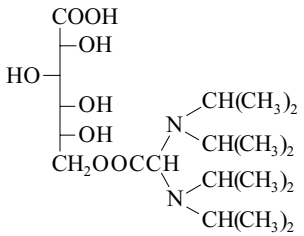
$C_{43}H_{62}N_4O_{23}S_3$ 1099.174
No phys. props. reported.

[94554-99-1]

Rolston, K.V. *et al., Antimicrob. Agents Chemother.*, 1987, **31**, 653 (*props*)
Argoudelis, A.D. *et al., J. Antibiot.*, 1987, **40**, 408; 419 (*isol, struct, synth*)
Brumfitt, W. *et al., J. Antimicrob. Chemother.*, 1987, **19**, 405 (*props*)
Stodola, J.D. *et al., J. Chromatogr.*, 1990, **502**, 401 (*glc*)

Pangamic acid, 8CI P-4

Vitamin B$_{15}$, 8CI. D-Gluconic acid 6-bis[bis(1-methylethyl)amino]acetate, 9CI. D-Gluconic acid 6-bis(diisopropylamino)-acetate
[11006-56-7]



$C_{20}H_{40}N_2O_8$ 436.545
Struct. dubious, not properly characterised. Isol. from apricot kernel, also said to be present in cereals etc. Said to be a vitamin of significance in, *inter alia*, hypertension control.

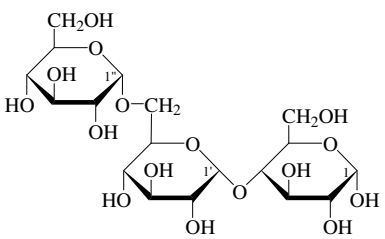
[13149-69-4]

Krebs, E.T. *et al., CA*, 1952, **46**, 4622 (*isol*)
Janicki, J. *et al., Bull. Acad. Pol. Sci., Ser. Sci. Biol.*, 1968, **16**, 273; *CA*, **69**, 97040y (*props*)
Siong, T.E. *et al., CA*, 1980, **93**, 192084v (*struct*)
Riemschneider, R. *et al., CA*, 1984, **100**, 33504d (*rev*)
Schneider, D. *et al., Arzneim.-Forsch.*, 1999, **49**, 335-343 (*rev*)
Merck Index, 13th edn., 2001, No. 7078 (*rev*)

Panose, 9CI P-5

O-α-D-*Glucopyranosyl-(1→6)*-O-α-D-*glucopyranosyl-(1→4)*-D-*glucose, 9CI. *4-α-Isomaltosylglucose*
[33401-87-5]

[25193-53-7]



α-Pyranose-*form*

$C_{18}H_{32}O_{16}$ 504.441
Metab. of *Aspergillus niger*. Isol. from wort and beer.
Mp 223° dec. (195-198°). $[\alpha]_D^{25}$ +163 → +155.5 (c, 4.0 in H_2O). $[\alpha]_D$ +147 (H_2O).

α-Pyranose-*form*

Benzyl glycoside, decabenzyl: [85011-47-8]
$C_{95}H_{98}O_{16}$ 1495.81
Syrup. $[\alpha]_D^{20}$ +75 (c, 1.0 in $CHCl_3$).

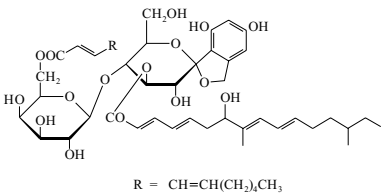
β-Pyranose-*form*

2″,3″,4″,6″-Tetrabenzyl, 1,2,2′,3,3′,6-hexa-Ac: [93417-47-1]
$C_{58}H_{68}O_{22}$ 1117.162
Cryst. (EtOH/2-propanol). Mp 152-153°. $[\alpha]_D^{20}$ +51.3 (c, 2.0 in $CHCl_3$).

Pan, S.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 341 (*enzymic synth*)
Wolfrom, M.L. *et al., Chem. Comm.*, 1966, 2 (*synth, struct*)
Bathgate, G.N. *et al., Chem. Ind. (London)*, 1969, 520 (*isol*)
Helferich, B. *et al., Chem. Ber.*, 1973, **106**, 2508 (*synth*)
Colson, P. *et al., J.A.C.S.*, 1974, **96**, 8081 (*conformn, cmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 188 (*synth, α-benzyl gly synth, cmr*)
Takeo, K. *et al., Carbohydr. Res.*, 1984, **133**, 135 (*synth, β-pyr deriv synth, cmr*)
Imberty, S. *et al., Carbohydr. Res.*, 1988, **181**, 4 (*cryst struct*)
Jeffery, G.A. *et al., Carbohydr. Res.*, 1991, **222**, 47 (*cryst struct*)

Papulacandin A P-6

[61036-46-2]



$C_{47}H_{66}O_{16}$ 887.029

Glycoside antibiotic. Isol. from *Papularia sphaerosperma*. Active against yeasts. Inhibitor of glucan synthesis. Amorph. solid. Sol. MeOH, 1-propanol, Me_2CO, DMF, EtOH; fairly sol. EtOAc, $CHCl_3$, CCl_4; poorly sol. H_2O, hexane-C_6H_6, Et_2O.
Mp 171-173° dec. $[\alpha]_D^{22}$ +30 (MeOH). λ_{max} 230 (sh) (ϵ 21600); 240 (ϵ 23500); 262 (ϵ 29800) (MeOH) (Derep). λ_{max} 242 (E1%/1cm 425); 265 (E1%/1cm 520) (EtOH) (Berdy).

► LD_{50} (mus, scu) 1000 mg/kg. LZ5710000

Gruner, J. *et al., Experientia*, 1977, **33**, 137 (*isol*)
Traxler, P. *et al., J. Antibiot.*, 1977, **30**, 289; 1980, **33**, 967 (*struct*)
Japan. Pat., 1979, 79 44 658; *CA*, **91**, 144180z
Dubois, E. *et al., Carbohydr. Res.*, 1992, **223**, 157

Papulacandin B P-7

[61032-80-2]

As Papulacandin A, P-6 with
R = –CH=CHCH=CHCH(OH)CH_2CH_3 (*Z*,*E*-)

$C_{47}H_{64}O_{17}$ 901.012

Glycoside antibiotic. Isol. from *Papularia sphaerosperma*. Active against yeasts. Inhibits glucan synthesis. Amorph. solid. Sol. MeOH, 1-propanol, EtOH, Me_2CO, DMSO, DMF; fairly sol. EtOAc, $CHCl_3$-CCl_4; poorly sol. H_2O, hexane-Et_2O, C_6H_6.
Mp 193-197° dec. $[\alpha]_D^{22}$ +50 (MeOH). λ_{max} 232 (ϵ 42000); 240 (ϵ 42400); 268 (ϵ 44800); 300 (sh) (ϵ 31200) (EtOH) (Derep).

► LD_{50} (mus, scu) 1000 mg/kg. LZ5700000

Nona-Ac:
Amorph. solid (Et_2O/hexane). $[\alpha]_D^{22}$ +6 (c, 0.865 in $CHCl_3$).

Gruner, J. *et al., Experientia*, 1977, **33**, 137 (*isol*)
Traxler, P. *et al., Helv. Chim. Acta*, 1977, **60**, 578 (*struct*)
Traxler, P. *et al., J. Antibiot.*, 1977, **30**, 289; 1980, **33**, 967; 1987, **40**, 1146
Dubois, E. *et al., Carbohydr. Res.*, 1992, **223**, 157

Papulacandin C P-8

[61036-48-4]

As Papulacandin A, P-6 with
R = CH=CHCH=CHCH(OH)CH_2CH_3 (*E*,*E*-)

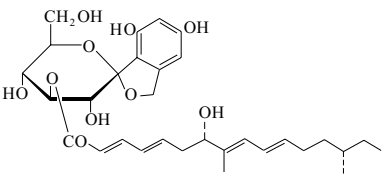
$C_{47}H_{64}O_{17}$ 901.012

Glycoside antibiotic. Isol. from *Papularia sphaerosperma*. Active against yeasts. Amorph. solid. Sol. MeOH, Py, butanol, DMF, Me_2CO; fairly sol. EtOAc, Et_2O, $CHCl_3$; poorly sol. C_6H_6, hexane, H_2O.
Mp 140-150° dec. $[\alpha]_D^{22}$ +33 (MeOH). λ_{max} 232 (ϵ 42000); 240 (ϵ 42400); 268 (ϵ 44800); 300 (sh) (ϵ 31200) (EtOH) (Derep).

Gruner, J. *et al., Experientia*, 1977, **33**, 137
Traxler, P. *et al., J. Antibiot.*, 1977, **30**, 289; 1980, **33**, 967 (*struct*)
Dubois, E. *et al., Carbohydr. Res.*, 1992, **223**, 157

Papulacandin D P-9

[61036-49-5]



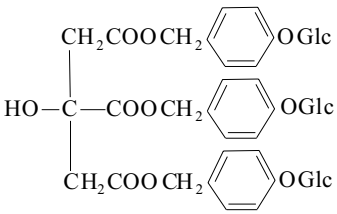
$C_{31}H_{42}O_{10}$ 574.667

Glycoside antibiotic. Isol. from *Papularia sphaerosperma*. Active against yeasts. Amorph. solid. Sol. MeOH, EtOH, DMF; fairly sol. EtOAc, $CHCl_3$; poorly sol. H_2O, hexane-C_6H_6, Et_2O.
Mp 127-130°. $[\alpha]_D^{22}$ +7 (MeOH). λ_{max} 230 (E1%/1cm 340); 235; 261 (E1%/1cm 320) (EtOH) (Berdy).

Gruner, J. *et al., Experientia*, 1977, **33**, 137 (*isol*)
Traxler, P. *et al., J. Antibiot.*, 1977, **30**, 289; 1980, **33**, 967 (*struct*)
Danishefsky, S. *et al., Carbohydr. Res.*, 1987, **171**, 317 (*synth*)
Dubois, E. *et al., Carbohydr. Res.*, 1992, **223**, 157
Barrett, A.G.M. *et al., J.O.C.*, 1996, **61**, 1082 (*synth, struct, abs config*)

Parishin P-10

*[[3-[[[4-(β-D-Glucopyranosyloxy)phenyl]methoxy]carbonyl]-3-hydroxy-1,5-dioxo-1,5-pentanediyl]bis(oxymethylene-4,1-phenylene)]bis-β-D-glucopyranoside, 9CI. Tris(*p*-glucosyloxybenzyl) citrate*
[62499-28-9]



$C_{45}H_{56}O_{25}$ 996.922

Isol. from *Gastrodia elata* and *Vanda parishii*. Amorph. solid. $[\alpha]_D$ -73.9 (c, 1 in MeOH).

1-De-(4-Glucosyloxybenzyl): 1,2-Bis(4-glucosyloxybenzoyl) citrate. ***Parishin B***†
$C_{32}H_{40}O_{19}$ 728.657
Constit. of *Gastrodia elata*. Amorph. solid + ½H_2O. $[\alpha]_D^{28}$ -64.6 (c, 1 in MeOH).

Dahmén, J. *et al., Phytochemistry*, 1976, **15**, 1986 (*isol, ir, pmr*)
Taguchi, H. *et al., Chem. Pharm. Bull.*, 1981, **29**, 55 (*isol*)
Lin, J.-H. *et al., Phytochemistry*, 1996, **42**, 549 (*Parishin B, isol, uv, ir, pmr, cmr, ms*)

Parnaparin sodium, BAN, INN P-11

Fluxum. Opocrin. OP 21-23

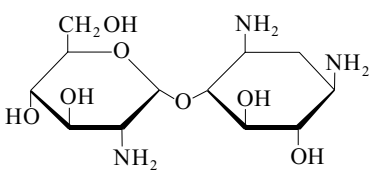
Low MW heparin (see Heparin, H-5). Prepd. by H_2O_2 and Cu(*II*) acetate degradation of heparin obt. from the intestinal mucosa of pigs. Anticoagulant. Used in the prevention and treatment of thromboembolic and other vascular disorders. Launched 1993 (Italy)

[9041-08-1]

Dettori, A.B. *et al., Med. Res. Rev.*, 1992, **12**, 373 (*pharmacol*)
Cziraky, M.J. *et al., Clin. Pharm.*, 1993, **12**, 892 (*use*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 232
Frampton, J.E. *et al., Drugs*, 1994, **47**, 652 (*rev*)
Pinhal, M.A.S. *et al., Thromb. Res.*, 1994, **74**, 143 (*pharmacol*)

Paromamine, 9CI P-12

4-O-(2-Amino-2-deoxy-α-D-glucopyranosyl)-2-deoxy-D-streptamine, 9CI. Neomycin D. Pseudoneamine. ψ-Neamine
[534-47-4]



$C_{12}H_{25}N_3O_7$ 323.345

Prod. by *Streptomyces kanamyceticus* and *Streptomyces fradiae* and by hydrol. of Paromomycin. Weakly active against gram-positive bacteria. Sol. H_2O, MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{26}$ +114 (c, 1.4 in H_2O).

N,N′,N″-Tri-Ac: $[\alpha]_D^{25}$ +108 (c, 1.0 in H_2O).

O^5-β-D-Xylofuranosyl: ***Antibiotic Z 1159-2. Z 1159-2. 5-β-D-Xylofuranosylparomamine***
[55484-62-3]
$C_{17}H_{33}N_3O_{11}$ 455.461
Isol. from *Bacillus circulans* and *Bacillus vitellinus*.
$[\alpha]_D$ +37.8 (H_2O).

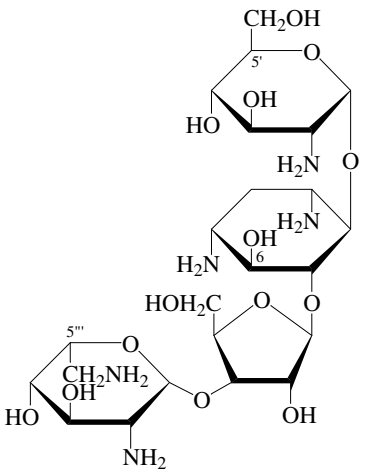
▶ WK2127000

[1405-10-3]

Umezawa, S. *et al., J. Antibiot.*, 1966, **19**, 88; 1972, **25**, 530 (*synth*)
Japan. Pat., 1974, 74 117 685; *CA*, **83**, 7129 (*isol, uv, ir, pmr, deriv*)
Nagabhushan, T.L. *et al., Tet. Lett.*, 1975, 747 (*cmr*)

Paromomycin, BAN, INN P-13

Aminosidine I. Catenulin. Gabbromycin. Humaycin. Hydroxymycin. Monomycin. Neomycin E. Paramomycin I. Quintomycin C. Zygomycin A_1. 2230D. SF 767B. Antibiotic 2230D. Antibiotic SF 767B. Antibiotic 4915. Many other names
[7542-37-2]



$C_{23}H_{45}N_5O_{14}$ 615.634

Aminocyclitol antibiotic. Produced by *Streptomyces rimosus paramomycinus*. Shows broad spectrum antibiotic activity. Amoebicide. Anticryptosporidial activity, used in AIDS patients. Tuberculostat. Amorph. solid. $[\alpha]_D^{25}$ +65 (c, 1 in H_2O). Log P -9.11 (uncertain value) (calc).

▶ Gastrointestinal, ototoxic, and nephrotoxic effects reported when used therapeutically. LD_{50} (mus, orl) 2275 mg/kg. LD_{50} (mus, ipr) 930 mg/kg. WK2315000

Hydrochloride: $[\alpha]_D^{25}$ +56.5 (c, 1 in H_2O).

Sulfate: ***Paromomycin sulfate, JAN, USAN. Gabroral. Humatin***
[1263-89-4]
$[\alpha]_D^{25}$ +50.5 (c, 1.5 in H_2O).

▶ LD_{50} (mus, orl) 23500 mg/kg. WK2320000

N^1-Ac: ***N^1-Acetylparomomycin I***
$C_{25}H_{47}N_5O_{15}$ 657.671
Isol. from *Streptomyces circulatus*. Active against gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.

3-N-*Me:* ***3-N-Methylparomomycin I***
$C_{24}H_{47}N_5O_{14}$ 629.66
From a *Streptoverticillium* sp. Shows similar antimicrobial activity as parent. Powder (as carbonate). Sol. H_2O; poorly sol. butanol, hexane. Mp 163-167° dec. (carbonate). $[\alpha]_D^{20}$ +67.2 (c, 1 in H_2O). Log P -8.8 (uncertain value) (calc).

2′-N-*Et: 2′*-N-*Ethylparomomycin*
[57785-97-4]

[66749-20-0]
$C_{25}H_{49}N_5O_{14}$ 643.687
Semisynthetic. Shows broader antibacterial spectrum than Paramomycin. Mp 285° dec. (as sulfate salt). $[\alpha]_D$ +36 (H_2O). Log P -8.13 (uncertain value) (calc).

6-Deoxy: ***6-Deoxyparomomycin I***
[61430-99-7]
$C_{23}H_{45}N_5O_{13}$ 599.634
From *Streptomyces rimosus* forma *paromomycinus*. Less active than Paromomycin I. Sol. H_2O.

6‴-Deamino, 6‴-hydroxy: ***6‴-Deamino-6‴-hydroxyparomomycin I***
[78524-72-8]
$C_{23}H_{44}N_4O_{15}$ 616.618
Prod. by *Streptomyces rimosus paromomyceticus*. Powder. Sol. H_2O.

5‴-Epimer: ***Paromomycin II***. *Neomycin F. Aminosidine II. Zygomycin A_2*
[51795-47-2]
$C_{23}H_{45}N_5O_{14}$ 615.634
Minor prod. of *Streptomyces rimosus* forma *paramomycinus*. Shows broad-spectrum activity. Sol. H_2O; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ivn) 174 mg/kg; LD_{50} (mus, ivn) 174 mg/kg. WK1977000

5‴-Epimer, 6-deoxy: ***6-Deoxyparomomycin II***
[61476-28-6]
$C_{23}H_{45}N_5O_{13}$ 599.634
From *Streptomyces rimosus* forma *paromomycinus*. Less active than Paromomycin II.

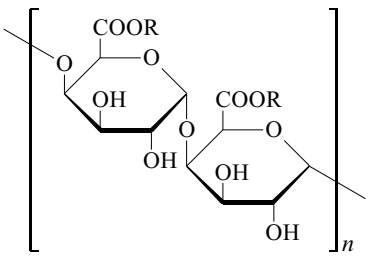
5‴-Epimer, 6‴-deamino, 6‴-hydroxy: ***6‴-Deamino-6‴-hydroxyparomomycin II***
[78549-65-2]
$C_{23}H_{44}N_4O_{15}$ 616.618
Prod. by *Streptomyces rimosus paromomyceticus*. Powder. Sol. H_2O. $[\alpha]_D$ +54.1.

[59-04-1, 1405-10-3, 54597-56-7]

Haskell, T.H. *et al., J.A.C.S.*, 1959, **81**, 3480; 3482 (*isol, uv, ir*)
Schillings, R.T. *et al., Antimicrob. Agents Chemother.*, 1961, 274
Hichens, M. *et al., J.A.C.S.*, 1963, **85**, 1547 (*abs config*)
Haskell, T.H. *et al., J.O.C.*, 1963, **28**, 2598 (*struct, stereochem*)
Konstantinova, N.V. *et al., Antibiotiki (Moscow)*, 1965, **10**, 989 (*deriv*)
de Jongh, D.C. *et al., J.A.C.S.*, 1967, **89**, 3364 (*ms, struct*)
Hessler, E. *et al., J. Antibiot.*, 1970, **23**, 464
Cleophax, J. *et al., J.A.C.S.*, 1976, **98**, 7110 (*deriv*)
Cassinelli, G. *et al., J. Antibiot.*, 1978, **31**, 379 (*deriv*)
Autissier, D. *et al., J. Antibiot.*, 1981, **34**, 536 (*deriv*)
Battistini, C. *et al., J. Antibiot.*, 1982, **35**, 98 (*deriv*)
Rengaraju, S. *et al., J. Antibiot.*, 1986, **39**, 1598 (*deriv*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 190
Verdon, R. *et al., Antimicrob. Agents Chemother.*, 1994, **38**, 1681 (*activity*)
Kanyok, T.P. *et al., J. Antimicrob. Chemother.*, 1994, **33**, 323 (*activity*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 9738 (*synonyms*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, APP500; MRJ600; NCF500

Pectic acid P-14

Pectinic acid. Pectin
[9046-40-6]



Colloidal polygalacturonic acids which are essentially completely deesterified and with varying degrees of neutralisation are referred to as pectic acids. Pectinic acids are colloidal polygalacturonic acids with more than a negligible content of Me ester groups with varying degrees of neutralisation. The term pectins refers to those water-soluble pectinic acids of varying Me ester content and degree of neutralisation that are capable of forming gels with sugar and acid under suitable conditions. In pectins, the α-(1→4)-linked D-polygalacturonate sequences are interrupted with (1→2)-L-rhamnose residues, neutral sugars, e.g. D-galactose and L-arabinose, form side chains on the pectin molecules. The mol. wt. of pectins is 20,000 - 400,000. Present in cell walls of all plant tissues. Up to 30% w/w can be isol. from orange and lemon rind. Pectic gels contg. cations, esp. $Ca^{2\oplus}$, are important components of higher plant cell walls and are also important components of commercial pectin products. Used in food processing as a gelling agent, stabiliser, thickener and emusifier.

[9000-69-5]

Norris, F.W. *et al., Biochem. J.*, 1937, **31**, 1945 (*rev*)
Markovic, O. *et al., Coll. Czech. Chem. Comm.*, 1981, **46**, 266 (*isol*)

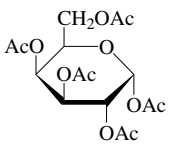
Walkinshaw, M.D. *et al., J. Mol. Biol.*, 1981, **153**, 1055 (*cryst struct*)
Japan. Pat., 1988, 63 89 501; *CA*, **109**, 75610b (*manuf*)
Jarvis, M.C. *et al., Carbohydr. Res.*, 1995, **275**, 131-145 (*cmr*)
Renard, M.G.C.C. *et al., Carbohydr. Res.*, 1995, **275**, 155-165 (*pmr, cmr*)
Rees, D.A. *et al., Angew. Chem., Int. Ed.*, 1997, **16**, 214-224 (*struct, rev*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2104-2108
Sinitsya, A. *et al., J. Carbohydr. Chem.*, 1998, **17**, 279-292 (*cmr, struct*)
Merck Index, 13th edn., 2001, No. 7135 (*bibl*)
Ridley, B.L. *et al., Phytochemistry*, 2001, **57**, 929-967 (*rev, struct, biosynth, props*)

Pelvetian, 8CI P-15

Pelvecyan. *Pelvecian*
[39421-88-0]
Branched sulfated polysaccharide based on a linear glucuronomannan chain. Isol. from the brown alga *Pelvetia wrightii*.
$[\alpha]_D^{20}$ -57 (H_2O).

Ovodov, Y.S. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1970, **6**, 408 (*isol*)
Khomenko, V.A. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1971, **7**, 375; 378 (*struct*)
Pavlenko, A.F. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1974, **10**, 155 (*struct*)
Ovodov, Y.S. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1975, **11**, 317 (*struct, rev*)
Pavlenko, A.F. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1976, **12**, 515 (*struct*)

1,2,3,4,6-Penta-*O*-acetylgalactose, 8CI P-16



α-D-Pyranose-*form*

$C_{16}H_{22}O_{11}$ 390.343

α-D-Pyranose-*form* [32445-48-0]
Mp 95.5°. $[\alpha]_D^{20}$ +106.7 (c, 3.25 in $CHCl_3$).

β-D-Pyranose-*form* [4163-60-4]
Needles (MeOH). Mp 142°. $[\alpha]_D^{20}$ +25 ($CHCl_3$).

α-D-Furanose-*form* [22435-12-7]
Component of Torula yeast (*Torulopsis utilis*). Mp 87°. $[\alpha]_D^{20}$ +61.2 ($CHCl_3$).

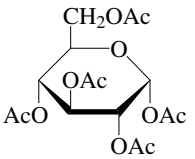
β-D-Furanose-*form* [5531-53-3]
Cryst. (2-propanol). Mp 96-97°. $[\alpha]_D^{22}$ -41.5 (c, 2.0 in CH_2Cl_2).

L-*form*
Cryst. (Me_2CO/hexane). Mp 109-110°. $[\alpha]_D$ +19 → +11 (c, 1 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1056C (*nmr*)
Aldrich Library of Infrared Spectra, 3rd edn., 1981, 372A (*ir*)
Hudson, C.S. *et al., J.A.C.S.*, 1915, **37**, 1589; 1591 (α-D-*pyr*, β-D-*fur*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 340 (*rev*)
Hachiro, O. *et al., CA*, 1964, **61**, 11056e (*occur*)
Dey, P.M. *et al., Chem. Ind. (London)*, 1967, 1637 (β-D-*pyr synth*)
Chittenden, G.J.F. *et al., Carbohydr. Res.*, 1972, **25**, 35 (β-D-*fur, synth*)
González, F.S. *et al., Carbohydr. Res.*, 1990, **202**, 33 (L-*form*)

1,2,3,4,6-Penta-*O*-acetylglucose P-17

[83-87-4]



α-D-*form*

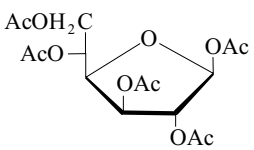
$C_{16}H_{22}O_{11}$ 390.343

α-D-Pyranose-*form* [604-68-2]
Reference material used in elemental microanalysis. Mp 112-114°. $[\alpha]_D^{20}$ +102 ($CHCl_3$).

β-D-Pyranose-*form* [604-69-3]
Mp 132-135°. $[\alpha]_D^{20}$ +4 ($CHCl_3$).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 625A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1056A; 1056B (*nmr*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 211 (*synth*)
Stanek, J. *et al., The Monosaccharides*, Academic Press, N.Y. and London, 1963, 190 (*rev*)
Horton, D. *et al., J.O.C.*, 1967, **32**, 1073 (*synth, pmr*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1969, **102**, 994 (*config*)
Analyst (London), 1972, **97**, 740 (*microanal*)
Vignon, M.R. *et al., Tet. Lett.*, 1976, 2445 (*cmr*)
Thibodeaux, D.P. *et al., Carbohydr. Res.*, 2002, **337**, 2301-2310 (β-D-*Pyr, cryst struct*)

1,2,3,5,6-Penta-*O*-acetylglucose, 9CI P-18

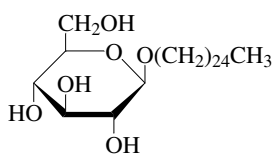


$C_{16}H_{22}O_{11}$ 390.343

β-D-Furanose-*form* [40031-23-0]
Syrup. $[\alpha]_D^{23}$ -21.2 (c, 1.5 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand.*, 1972, **26**, 2360 (*pmr, synth*)
Akhrem, A.A. *et al., Dokl. Akad. Nauk SSSR*, 1974, **219**, 99; *CA*, **82**, 86532c
McChesney, J.D. *et al., Heterocycles*, 1976, **4**, 1065 (*synth*)

Pentacosyl glucoside P-19

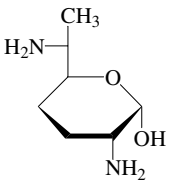


$C_{31}H_{62}O_6$ 530.827

β-D-Pyranose-*form* [449774-90-7]
Constit. of the stems of *Butea monosperma*.
Amorph. powder.
Mp 190°. $[\alpha]_D$ +34 (Py).

Shukla, Y.N. *et al., Indian J. Chem., Sect. B*, 2002, **41**, 1283-1285 (*isol, pmr, ms*)

2,3,4,6,7-Pentadeoxy-2,6-diamino-*ribo*-heptose P-20



α-D-Pyranose-*form*

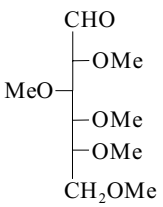
$C_7H_{16}N_2O_2$ 160.216

D-*form*
Purpurosamine B
[70636-65-6]
Component of Gentamicin C_2.
Di-Et dithioacetal, N^3,N^6*-di-Ac:*
$C_{15}H_{30}N_2O_3S_2$ 350.546
Mp 165-168°. $[\alpha]_D^{26}$ +48.4 (c, 0.3 in MeOH).
N^6*-Me: 2-Amino-2,3,4,6-tetradeoxy-6-methylamino-*D-ribo*-heptose. Purpurosamine A*
$C_8H_{18}N_2O_2$ 174.242
Component of Gentamicin C_1.
Di-Et dithioacetal, N^6*-Me,* N^3*-Ac:*
$C_{14}H_{30}N_2O_2S_2$ 322.535
Mp 97-100°. $[\alpha]_D^{26}$ +15.4 (c, 0.3 in MeOH).

α-DL-*form*
Me glycoside, N^2,N^6*-di-Ac: Methyl 2,6-diacetamido-2,3,4,6,7-pentadeoxy-α-*DL-ribo-*heptopyranoside*
$C_{12}H_{22}N_2O_4$ 258.317
Mp 229-231°.

Cooper, D.J. *et al., J.C.S.(C)*, 1971, 2876 (*isol, di-Et dithioacetal derivs*)
Chmielewski, M. *et al., Carbohydr. Res.*, 1979, **70**, 275 (α-DL-*Me pyr di-N-Ac*)

2,3,4,5,6-Penta-*O*-methylglucose, 8CI P-21



$C_{11}H_{22}O_6$ 250.291

D-*form* [14168-89-9]
Syrup. $Bp_{0.4}$ 108-110°. $[\alpha]_D^{25}$ -35.5 (c, 1.0 in $CHCl_3$).

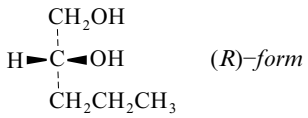
Di-Me acetal: [14169-21-2]
$C_{13}H_{28}O_7$ 296.36
Syrup. $Bp_{0.86}$ 95°. $[\alpha]_D^{25}$ +15 (c, 1.0 in MeOH).

Levene, P.A. *et al., J. Biol. Chem.*, 1926, **69**, 175 (D-*form, synth*)

Anet, E.F.L. *et al., Carbohydr. Res.*, 1966, **3**, 251; 1968, **7**, 453 (*D-form, synth, D-di-Me acetal, pmr*)
Ueda, M. *et al., Plant Physiol.*, 1970, **46**, 715 (*glc*)

1,2-Pentanediol, 9CI P-22

[5343-92-0]



(*R*)−*form*

$C_5H_{12}O_2$ 104.149

►SA0455000

(*R*)-*form* [108340-61-0]
Bp_{13} 98-102°. $[\alpha]_D^{20}$ +0.95.
Bisphenylurethane:
$C_{19}H_{22}N_2O_4$ 342.394
Mp 97-98°.

(*S*)-*form* [29117-54-2]
Oil. $[\alpha]_D^{20}$ -15.5 (c, 0.81 in EtOH).

(±)-*form* [91049-43-3]
Oil. d^{20} 0.97. Bp 210.5-211.5° $Bp_{0.3}$ 78-80°. n_D^{20} 1.4400.
Di-Ac: [134172-59-1]
$C_9H_{16}O_4$ 188.223
Bp 219-220° Bp_2 103-104°.
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 133B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 199C (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 193C (*ir*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1951, **29**, 678 (*abs config*)
Emmons, W.D. *et al., J.A.C.S.*, 1954, **76**, 3472 (*synth*)
Castro, B. *et al., Bull. Soc. Chim. Fr.*, 1967, 1547 (*synth*)
Kiegiel, K. *et al., Synth. Commun.*, 1999, **29**, 3999-4005 (*S-form, synth, pmr, cmr, ms*)

1,3-Pentanediol, 9CI P-23

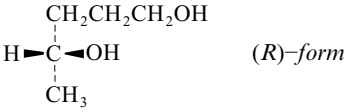
[3174-67-2]
$H_3CCH_2CH(OH)CH_2CH_2OH$
$C_5H_{12}O_2$ 104.149

►SA0489800

(±)-*form*
d_{20} 0.99. Bp_{16} 120-122°. n_D^{20} 1.4659.
Di-Ac: [7568-00-5]
$C_9H_{16}O_4$ 188.223
Bp_{10} 102-103°. n_D^{20} 1.4108.
Bis-4-nitrobenzoyl: Mp 89°.
Hanschke, E. *et al., Chem. Ber.*, 1955, **88**, 1043 (*synth*)
Warwel, S. *et al., J. Organomet. Chem.*, 1972, **36**, 243 (*Di-Ac*)
Kikuchi, H. *et al., Chem. Pharm. Bull.*, 1983, **31**, 552 (*synth, pmr, ms*)
Hoffmann, R.W. *et al., Annalen*, 1987, 977 (*synth*)
Gajda, T. *et al., Synthesis*, 1987, 1108 (*synth*)

1,4-Pentanediol, 9CI P-24

[626-95-9]



(*R*)−*form*

$C_5H_{12}O_2$ 104.149

(*R*)-*form* [56718-04-8]
$Bp_{1.5}$ 95-96°. $[\alpha]_D^{22}$ -4.9 (EtOH). Clearly optically impure (cf. *S*-isomer preparation below).
Bisphenylurethane: Mp 131-133°.

(*S*)-*form*
Viscous oil. $[\alpha]_D^{20}$ +19.3 (c, 1.0 in $CHCl_3$).

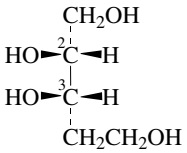
(±)-*form* Sol. H_2O, insol. petrol. d_0^0 1. Bp_{713} 219-220° Bp_{10} 124-126°. n_D^{17} 1.4439.
Di-Ac: [32864-71-4]
$C_9H_{16}O_4$ 188.223
Bp_{13} 107-110°.
1-Benzoyl: [128733-39-1]
$C_{12}H_{16}O_3$ 208.257
Oil.
Bis-1-naphthylurethane: Mp 128-129.5°.
[24347-57-7]
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 133A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 199B (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 193B (*ir*)
Levene, P.A. *et al., J. Biol. Chem.*, 1927, **72**, 593 (*synth*)
Hill, R.M. *et al., J.A.C.S.*, 1938, **60**, 1033 (*synth*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1951, **29**, 678 (*abs config*)
Fuganti, C. *et al., Gazz. Chim. Ital.*, 1969, **99**, 316 (*abs config*)
Whitney, T.A. *et al., Adv. Chem. Ser.*, 1974, **130**, 270 (*synth*)
Robinson, P.L. *et al., J.A.C.S.*, 1985, **107**, 5210 (*pmr, bibl*)
Werschkun, B. *et al., J.C.S. Perkin 1*, 1995, 2459 (*S-form*)
Tanoue, Y. *et al., J. Het. Chem.*, 2000, **37**, 1351-1353 (*di-Ac, synth, ir, pmr, cmr*)
Caddick, S. *et al., Tetrahedron*, 2001, **57**, 6305-6310 (*1-benzoyl, synth, pmr*)

1,5-Pentanediol, 9CI P-25

Pentamethylene glycol
[111-29-5]
$HOCH_2CH_2CH_2CH_2CH_2OH$
$C_5H_{12}O_2$ 104.149
Manuf. by hydrogenation of glutaric acid or glutaraldehyde. Used in manuf. of pharmaceuticals and pesticides. Monomer for polyamides and polyurethanes.
Oil with bitter taste. Sol. H_2O, EtOH, Me_2CO. d_{15}^{11} 1. Mp -18°. Bp 238-239° Bp_{12} 134°. n_D^{20} 1.4499.
►Eye and skin irritant. SA0480000
Diformyl: [5436-53-3]
$C_7H_{12}O_4$ 160.169
Liq. Bp_{20} 122-123°.
Di-Ac: [6963-44-6]
$C_9H_{16}O_4$ 188.223
Liq. with fruity odour. Fp 2. Bp 241° Bp_3 122-123°.
Bisphenylurethane:
Needles (EtOH or EtOH/$CHCl_3$). Mp 176°.
Bis-4-nitrobenzoyl: [22104-39-8]
Cryst. (C_6H_6 or Me_2CO aq.). Mp 104.5°.
Mono-Me ether: 5-Methoxy-1-pentanol, 9CI
[4799-62-6]
$C_6H_{14}O_2$ 118.175
Liq. Bp_{50} 118°.
Di-Me ether: 1,5-Dimethoxypentane
[111-89-7]
$C_7H_{16}O_2$ 132.202
Liq. Bp 159°.
Mono-Et ether: 5-Ethoxy-1-pentanol, 9CI
[10215-35-7]
$C_7H_{16}O_2$ 132.202
Liq. $Bp_{0.005}$ 45-46°.
Di-Et ether: 1,5-Diethoxypentane
$C_9H_{20}O_2$ 160.256
Liq. Bp_{16} 68-70°.
Monobenzyl ether: 5-Phenylmethoxy-1-pentanol, 9CI
[4541-15-5]
$C_{12}H_{18}O_2$ 194.273
Oil. $Bp_{0.4}$ 123°.
Mono-Ph ether: 5-Phenoxy-1-pentanol, 9CI
[16654-52-7]
$C_{11}H_{16}O_2$ 180.246
Oil. Bp_{17} 164-166°.
Mono(triphenylmethyl) ether: [147726-64-5]
$C_{24}H_{26}O_2$ 346.468
Cryst. (hexane). Mp 68-69°.
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 132B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 199A (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 193A (*ir*)
Aldrich Library of NMR Spectra, **1**, 97B (*pmr*)
Brewster, J.H. *et al., J.A.C.S.*, 1951, **73**, 366-370 (*polyurethanes*)
Org. Synth., Coll. Vol., 3, 1955, 693-695 (*synth*)
Korshak, V.V. *et al., Zh. Obshch. Khim.*, 1956, **26**, 539-543; *J. Gen. Chem. USSR (Engl. Transl.)*, 1956, **26**, 575-579 (*polyamides*)
Adams, W.R. *et al., Tetrahedron*, 1971, **27**, 2631-2637 (*synth*)
Konno, C. *et al., Tetrahedron*, 1976, **32**, 325-331 (*cmr*)
Blane, P.-A. *et al., Org. Mass Spectrom.*, 1978, **13**, 135-140 (*ms*)
Zahalka, H.A. *et al., Synthesis*, 1986, 763-765 (*diformyl*)
Thalladi, V.R. *et al., Angew. Chem., Int. Ed.*, 2000, **39**, 918-922 (*cryst struct*)
Angehrn, P. *et al., J. Med. Chem.*, 2004, **47**, 1487-1513 (*trityl ether, synth, pmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, PBK750

1,2,3,5-Pentanetetrol P-26

2-Deoxypentitol, 9CI



$C_5H_{12}O_4$ 136.147

The pentitol numbering starts at the other end of the chain.

(2*R*,3*S*)-*form*

2-Deoxy-D-ribitol

Constit. of the fruit of *Foeniculum vulgare* (fennel).

Syrup. $[\alpha]_D^{22}$ -20 (c, 0.3 in H_2O). $[\alpha]_D$ -17 (c, 0.3 in MeOH).

Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)

1,2,4,5-Pentanetetrol P-27

3-Deoxypentitol, 9CI

[89617-06-1]

$C_5H_{12}O_4$ 136.147

(2*R*,4*R*)-*form*

L-threo-*form*

[41107-44-2]

Syrup. $[\alpha]_D^{18}$ -12.8 (c, 3.1 in H_2O). $[\alpha]_D^{26}$ +25 (c, 12.7 in EtOH). Discrepancy in reported opt. rotns. unexplained.

Tetra-Ac: [41107-45-3]

$C_{13}H_{20}O_8$ 304.296

$Bp_{0.07}$ 99-103°. $[\alpha]_D$ +13 (c, 2 in $CHCl_3$). $[\alpha]_D^{21}$ +6.2 (c, 3.0 in Py).

1,5-Bis(4-methylbenzenesulfonyl):

[127785-48-2]

$C_{19}H_{24}O_8S_2$ 444.526

Cryst. Mp 88-90°. $[\alpha]_D^{20}$ -8.5 (c, 0.2 in EtOH).

1,5-Di-Me ether, 2,4-di-Ac:

$C_{11}H_{20}O_6$ 248.275

$[\alpha]_D^{18}$ -21.2 (c, 3.1 in $CHCl_3$).

1-Triphenylmethyl ether, 2,4-isopropylidene: [112031-65-9]

$C_{27}H_{30}O_4$ 418.532

$[\alpha]_D^{25}$ +29.9 (c, 1 in $CHCl_3$).

(2*R*,4*S*)-*form*

D-erythro-*form*

2,4-Isopropylidene, 1-Ac:

$C_{10}H_{18}O_5$ 218.249

Oil. $[\alpha]_D^{25}$ -4.6 (c, 1 in $CHCl_3$).

(2*S*,4*R*)-*form*

L-erythro-*form*

2,4-Isopropylidene, 1-Ac: $[\alpha]_D^{27}$ +5.1 (c, 2.8 in $CHCl_3$).

(2*S*,4*S*)-*form*

D-threo-*form*. *3-Deoxy-D-arabinitol*

[92691-36-6]

Constit. of the fruit of *Foeniculum vulgare* (fennel).

Cryst. (EtOH/Et_2O) or syrup.

Mp 73-75° Mp 102° (dimorph.). $[\alpha]_D^{18}$ +31 (c, 0.4 in H_2O) (synthetic). $[\alpha]_D^{22}$ -46 (c, 1.03 in EtOH) (synthetic). $[\alpha]_D^{22}$ -11 (c, 0.1 in H_2O) (nat.). $[\alpha]_D$ -34.5 (c, 0.1 in MeOH) (nat.).

Tetrabenzoyl: [116983-10-9]

$C_{33}H_{28}O_8$ 552.579

Gum. $[\alpha]_D^{20}$ -44.8 (c, 1.12 in EtOH).

(2*RS*,4*RS*)-*form*

threo-*form*. *(±)-form*

Bp_2 185-187°.

1,5-Di-Me ether: 1,5-Dimethoxy-2,4-pentanediol

$C_7H_{16}O_4$ 164.201

d_4^{20} 1.12. Bp_{20} 162-164°. n_D^{20} 1.4592.

(2*RS*,4*SR*)-*form*

meso-*form*. erythro-*form*

[17609-05-1]

Cryst. (Et_2O/pentane). Bp_2 185-187°.

Tetra-Ac: [34213-35-9] Bp 122-128°.

Tetrabenzoyl: Mp 108-109° (104°).

[124867-27-2]

Ritchie, R.G.S. *et al., Can. J. Chem.*, 1978, **56**, 794-802 (*derivs, synth, ir, glc, pmr*)

Tsuda, Y. *et al., Chem. Pharm. Bull.*, 1980, **28**, 920-925 (*synth, derivs*)

Witczak, Z.J. *et al., Carbohydr. Res.*, 1982, **110**, 326-329 (*synth*)

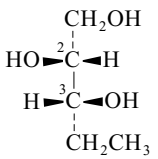
Xie, Z.-F. *et al., Tetrahedron: Asymmetry*, 1993, **4**, 973-980 (*derivs, synth, ir, pmr, cmr, ms*)

Katajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988 (*isol*)

Boydell, A.J. *et al., J.O.C.*, 2003, **68**, 8252-8255 (*synth*)

1,2,3-Pentanetriol P-28

[5371-48-2]



(2*R*,3*R*)−*form*

$C_5H_{12}O_3$ 120.148

(2*R*,3*R*)-*form*

1,2-Dideoxy-D-threo-*pentitol, 9CI. 1,2-Dideoxy-D-xylitol. 1,2-Dideoxy-D-lyxitol*

[54623-21-1]

Syrup. No opt. rotn. recorded.

1,2-Di-O-*isopropylidene:* [99945-79-6]

$[\alpha]_D^{20}$ +13.2 (c, 1.7 in $CHCl_3$).

(2*R*,3*S*)-*form*

1,2-Dideoxy-D-erythro-*pentitol, 9CI. 1,2-Dideoxy-D-ribitol. 1,2-Dideoxy-D-arabinitol*

[101221-89-0]

Mp 62-63° (39°). $[\alpha]_D^{25}$ -11.88 (c, 2.23 in EtOH).

Tribenzyl: Mp 111.5-112°.

1-(4-Methylbenzenesulfonyl): [101077-74-1]

Mp 101.5-102.5°. $[\alpha]_D^{30}$ +16.92 (c, 0.39 in EtOH).

1,2-Di-O-*isopropylidene:* [99838-60-5]

$[\alpha]_D^{20}$ +23.7 (c, 1.5 in $CHCl_3$).

(2*S*,3*R*)-*form*

4,5-Dideoxy-D-erythro-*pentitol, 9CI. 1,2-Dideoxy-L-ribitol. 1,2-Dideoxy-L-arabinitol*

[92622-03-2]

Mp 61-62°. $[\alpha]_D^{25}$ +11.4 (c, 3.03 in EtOH).

(2*RS*,3*SR*)-*form*

(±)-erythro-*form*

Tri-Ac: $Bp_{0.1}$ 75-76°. n_D^{20} 1.4285.

Raphael, R.A. *et al., J.C.S.*, (Suppl.), 1949, S44 (*synth*)

Wolfrom, M.L. *et al., J.A.C.S.*, 1960, **82**, 2817

Blumberg, K. *et al., Carbohydr. Res.*, 1981, **88**, 253

Williams, J.M. *et al., Carbohydr. Res.*, 1984, **128**, 73 (*synth*)

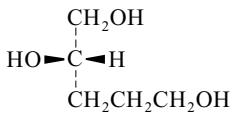
Mulzer, J. *et al., Annalen*, 1986, 825 (*derivs*)

Yusufoglu, A. *et al., Annalen*, 1986, 1119 (*synth, cmr*)

Classen, A. *et al., Annalen*, 1987, 629 (*synth*)

1,2,5-Pentanetriol, 9CI P-29

[14697-46-2]



(*S*)−*form*

$C_5H_{12}O_3$ 120.148

▶SA3327000

(*S*)-*form* [19131-21-6]

$Bp_{0.15}$ 145-150°. $[\alpha]_D^{20}$ -6 (c, 6.4 in MeOH). $[\alpha]_D$ -19.6 (c, 5.0 in EtOH).

(±)-*form*

Liq. d_{15}^{20} 1.14. Bp_{13} 190-191° Bp_6 180-182°. n_D^{20} 1.4280.

Tri-Ac: [5470-86-0]

$C_{11}H_{18}O_6$ 246.26

Bp_{20} 173-176°.

1,5-Di-Me ether: 1,5-Dimethoxy-2-pentanol

$C_7H_{16}O_3$ 148.202

Bp_{13} 94-95°.

Trisphenylurethane: Mp 92°.

Wilson, C.L. *et al., J.C.S.*, 1945, 49 (*synth*)

Org. Synth., Coll. Vol., 3, 1955, 833 (*synth*)

Kuhn, R. *et al., Angew. Chem.*, 1962, **74**, 252 (*abs config*)

Hartman, F.C. *et al., J.O.C.*, 1964, **29**, 873 (*synth*)

Cervinka, O. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2927 (*synth*)

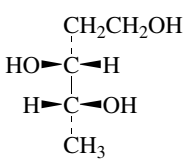
Golding, B.T. *et al., J.C.S. Perkin 2*, 1978, 839 (*synth*)

Cole, A.G. *et al., J.C.S. Perkin 1*, 1995, 2685; 2695 (*synth, ir, pmr, cmr, ms*)

1,3,4-Pentanetriol P-30

1,4-Dideoxypentitol

[101833-59-4]



$C_5H_{12}O_3$ 120.148

Liq. $Bp_{0.2}$ 110-112°. n_D^{20} 1.4721.

(3*R*,4*R*)-*form*

D-threo

Tri-Ac: [90414-37-2]

$C_{11}H_{18}O_6$ 246.26

$[\alpha]_D$ +26 (EtOH).

Hanschke, E. *et al., Chem. Ber.*, 1955, **88**, 1048 (*synth*)
Kochetkov, N.K. *et al., Tetrahedron*, 1963, **19**, 973 (*synth*)
Moore, R.E. *et al., J.O.C.*, 1984, **49**, 2484 (*tri-Ac*)

1,3,5-Pentanetriol, 9CI P-31

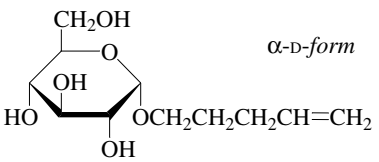
2,4-Dideoxypentitol
[4328-94-3]
$HOCH_2CH_2CH(OH)CH_2CH_2OH$
$C_5H_{12}O_3$ 120.148
d^{20} 1.13. Bp_{11} 188-189°. n_D^{20} 1.4785.

Tri-Ac: [38551-66-5]
$C_{11}H_{18}O_6$ 246.26
Bp_{12} 166-170°.

Tris-4-nitrobenzoyl: Mp 121-122°.

Olsen, S. *et al., Acta Chem. Scand.*, 1950, **4**, 993 (*synth*)
Paul, R. *et al., Bull. Soc. Chim. Fr.*, 1951, 550 (*synth*)

4-Pentenyl glucopyranoside P-32



α-D-*form*

$C_{11}H_{20}O_6$ 248.275

α-D-*form* [125647-51-0]

*Tetra-Ac: 4-Pentenyl 2,3,4,6-tetra-*O-*acetyl-α-D-glucopyranoside*
$C_{19}H_{28}O_{10}$ 416.47
Mp 62-64°. $[\alpha]_D^{21}$ +127 (c, 1.07 in $CHCl_3$).

*4,6-Benzylidene: 4-Pentenyl 4,6-*O-*benzylidene-α-D-glucopyranoside*
$C_{18}H_{24}O_6$ 336.384
Mp 89°. $[\alpha]_D^{21}$ +96 (c, 1.22 in $CHCl_3$).

*4,6-Benzylidene, di-Ac: 4-Pentenyl 2,3-di-*O-*acetyl-4,6-*O-*benzylidene-α-D-glucopyranoside*
$C_{22}H_{28}O_8$ 420.458
Mp 133-134°. $[\alpha]_D^{21}$ +85.8 (c, 1.03 in $CHCl_3$).

*4,6-Benzylidene, dibenzyl: 4-Pentenyl 2,3-di-*O-*benzyl-4,6-*O *-benzylidene-a-D-glucopyranoside*
$C_{32}H_{36}O_6$ 516.633
Mp 81-82°. $[\alpha]_D$ +0.65 (c, 9.41 in $CHCl_3$).

β-D-*form* [125631-33-6]

*Tetra-Ac: 4-Pentenyl 2,3,4,6-tetra-*O-*acetyl-β-D-glucopyranoside*
$C_{19}H_{28}O_{10}$ 416.47
Mp 47-48°. $[\alpha]_D^{21}$ -19.5 (c, 1.52 in $CHCl_3$).

*4,6-Benzylidene: 4-Pentenyl 4,6-*O-*benzylidene-β-D-glucopyranoside*
$C_{18}H_{24}O_6$ 336.384
Mp 144-145°. $[\alpha]_D^{21}$ -43.7 (c, 1.01 in $CHCl_3$).

*4,6-Benzylidene, di-Ac: 4-Pentenyl 2,3-di-*O-*acetyl-4,6-*O-*benzylidene-β-D-glucopyranoside*
$C_{22}H_{28}O_8$ 420.458
Mp 130-131°. $[\alpha]_D^{21}$ -76.8 (c, 1.1 in $CHCl_3$).

*4,6-Benzylidene, dibenzyl: 4-Pentenyl 2,3-di-*O-*benzyl-4,6-*O-*benzylidene-β-D-glucopyranoside*
$C_{32}H_{36}O_6$ 516.633
Mp 76°. $[\alpha]_D^{21}$ -36.5 (c, 1.02 in $CHCl_3$).

Mootoo, D.R. *et al., J.A.C.S.*, 1988, **110**, 2662 (*synth*)
Ratcliffe, A.J. *et al., J.A.C.S.*, 1989, **111**, 7661 (*diisopropylidene*)
Fraser-Reid, B. *et al., J.O.C.*, 1990, **55**, 6068 (*tetrabenzoyl*)
Konradsson, P. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1991, **110**, 23 (*cmr*)
Wilson, B.G. *et al., J.O.C.*, 1995, **60**, 317 (*tetra-Ac, 4,6-benzylidene, pmr, cmr*)

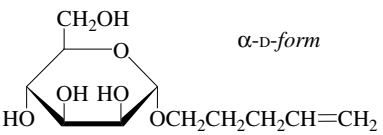
4-Pentenyl glucosinolate P-33

*1-Thio-β-D-glucopyranose 1-[*N-*(sulfooxy)-5-hexenimidate], 9CI.*
Glucobrassicanapin
[19041-10-2]
$H_2C{=}CH(CH_2)_3C(SGlc){=}NOSO_3H$
$C_{12}H_{21}NO_9S_2$ 387.431
Isol. from rape (*Brassica napus*) and other *Brassica* sp.

[37491-62-6]

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 1365 (*isol*)
Verkerk, R. *et al., Natural Toxicants in Food*, (ed. Watson, D.H.), CRC Press, 1998, 29-53 (*rev*)

4-Pentenyl mannopyranoside P-34

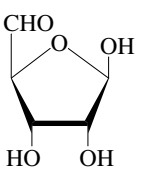


α-D-*form*

α-D-*form* [123487-65-0]
No phys. props. reported.

β-D-*form* No phys. props. reported.
Konradsson, P. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1991, **110**, 23 (*synth, cmr*)

ribo-Pentodialdo-1,4-furanose, 8CI P-35



β-D-Furanose-*form*

$C_5H_8O_5$ 148.115

β-D-Furanose-*form*

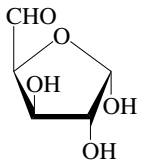
*Me glycoside, 2,3-*O*-isopropylidene: Methyl 2,3-*O*-isopropylidene-β-D-*ribo*-pentodialdo-1,4-furanoside*
[33985-40-9]
$C_9H_{14}O_5$ 202.207
Needles (Et_2O/petrol). Mp 60-61°. $Bp_{0.2}$ 75°. $[\alpha]_D^{23}$ -91 (c, 2 in $CHCl_3$). $[\alpha]_D^{22}$ -220 (c, 1 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-nitrophenylhydrazone:* [33985-41-0]
$C_{15}H_{19}N_3O_6$ 337.332
Yellow needles (Et_2O/hexane). Mp 151-152°. $[\alpha]_D^{24}$ -49 (c, 1 in $CHCl_3$).

Butterworth, R.F. *et al., Can. J. Chem.*, 1971, **49**, 2755 (*β-D-Me fur isopropylidene, β-D-Me fur isopropylidene nitrophenylhydrazone, pmr*)
Arrick, R.E. *et al., Carbohydr. Res.*, 1973, **26**, 441 (*β-D-Me fur isopropylidene*)
Berg, N. *et al., Carbohydr. Res.*, 1977, **57**, 65 (*β-D-Me fur isopropylidene*)
Binkley, R.W. *et al., J.O.C.*, 1977, **42**, 1216 (*β-D-Me fur isopropylidene*)

xylo-Pentodialdo-1,4-furanose P-36

xylo-*1,4-Pentodialdose*



α-D-*form*

$C_5H_8O_5$ 148.115

α-D-*form*

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-D-*xylo*-pentodialdo-1,4-furanose*
$C_8H_{12}O_5$ 188.18
Intermed. in synth. of labelled aldoses. Prisms (H_2O) (hydrate); needles (C_6H_6) (anhyd.). Mp 182-184°. $[\alpha]_D^{20}$ -25.9 (H_2O). Dimeric in cryst. state by intermolecular aldol condensation.

*1,2-*O*-Isopropylidene, semicarbazone:* Mp 208-209°.

*1,2-*O*-Isopropylidene, 3-benzyl: 3-*O*-Benzyl-1,2-*O*-isopropylidene-α-D-*xylo*-pentodialdo-1,4-furanose*
[23558-05-6]
$C_{15}H_{18}O_5$ 278.304
$Bp_{0.07}$ 150-155°. $[\alpha]_D^{25}$ -86.5 (c, 2.7 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-benzyl, oxime:* [26928-32-5]
$C_{15}H_{19}NO_5$ 293.319
$[\alpha]_D^{20}$ -121.2 (c, 1.0 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 3-benzyl, semicarbazone:* Mp 127-128°. $[\alpha]_D^{25}$ -50 (c, 1.5 in EtOH).

*1,2-*O*-Cyclohexylidene: 1,2-*O*-Cyclohexylidene-α-D-*xylo*-pentodialdo-1,4-furanose, 8CI*
[15356-27-1]
$C_{11}H_{16}O_5$ 228.244
Mp 183°. $[\alpha]_D^{17}$ +33 ($CHCl_3$).

*1,2-*O*-Cyclohexylidene, 3-benzoyl: 3-*O*-Benzoyl-1,2-*O*-cyclohexylidene-α-D-*xylo*-pentodialdo-1,4-furanose*
[15356-29-3]
$C_{18}H_{20}O_6$ 332.352
Oil. $[\alpha]_D^{17}$ -17 ($CHCl_3$).

*1,2-*O*-Cyclohexylidene, 3-benzyl, 2,4-dinitrophenylhydrazone:* [15354-76-4]
Mp 186-188°.

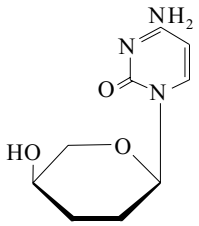
[63593-02-2]

Wolfrom, M.L. *et al., J.O.C.*, 1962, **27**, 1800 (*1,2-isopropylidene derivs*)

Zhdanov, Yu.A. *et al., Zh. Obshch. Khim.*, 1966, **36**, 1742; 1967, **37**, 98 (*1,2-cyclohexylidene derivs*)
Horton, D. *et al., Carbohydr. Res.*, 1970, **14**, 159 (*1,2-isopropylidene benzyl*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1973, **29**, 297 (*1,2-isopropylidene benzyl oxime*)
Shalaby, M.A. *et al., Carbohydr. Res.*, 1994, **261**, 203 (*cryst struct, 1,2-isopropylidene*)

Pentopyranine A, 9CI P-37

*4-Amino-1-(tetrahydro-5-hydroxy-2*H*-pyran-2-yl)-2(1*H*)-pyrimidinone, 9CI*
*1-(2,3-Dideoxy-α-L-*glycero-*pentopyranosyl)cytosine*
[39057-02-8]



$C_9H_{13}N_3O_3$ 211.22

One of the first known naturally occurring nucleosides with α-L-configuration. Isol. from the fermentation broth of *Streptomyces griseochromogenes*. Presumed byproduct of Blasticidin S, B-39 biosynth. Antiviral antibiotic. Sol. H_2O. Mp 258° dec. $[\alpha]_D^{21}$ 0 (c, 0.75 in H_2O). $[\alpha]_D^{21}$ +31.5 (c, 0.75 in H_2O). pK_a 4.2. λ_{max} 278 (ε 13 100) (0.1*N* HCl), 270 nm (8 850) (0.1*N* NaOH). λ_{max} 278 (ε 13100) (0.1*N* HCl) (Derep). λ_{max} 270 (ε 8850) (0.1*N* NaOH) (Derep). λ_{max} 278 (ε 13100) (pH 3 H_2O) (Derep).

N,*4′-Di-Ac:* Mp 200-202.5°.

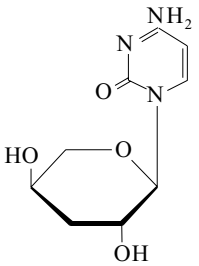
4′-Epimer: ***Pentopyranine B****. 1-(2,3-Dideoxy-β-D-*glycero-*pentopyranosyl)-cytosine*
[51257-56-8]
$C_9H_{13}N_3O_3$ 211.22
From *Streptomyces griseochromogenes*. Shows antitumour props. Sol. H_2O. Mp 242° dec. (233-234°). $[\alpha]_D^{21}$ +12 (c, 4.2 in H_2O). λ_{max} 278 (ε 13100) (0.1*N* HCl) (Derep). λ_{max} 270 (ε 8850) (0.1*N* NaOH) (Derep). λ_{max} 278 (ε 13100) (pH 3 H_2) (Derep). λ_{max} 278 (ε 13100) (HCl) (Berdy).

[73416-15-6]

Seto, H. *et al., Tet. Lett.*, 1972, 3991 (*struct, ms*)
Seto, H. *et al., Agric. Biol. Chem.*, 1973, **37**, 2415; 2421; 1974, **38**, 3622 (*struct, isol, pmr*)
Watanabe, K.A. *et al., J.O.C.*, 1974, **39**, 2482 (*synth, pmr*)
Watanabe, K.A. *et al., Can. J. Chem.*, 1981, **59**, 468 (*synth*)

Pentopyranine C, 9CI P-38

*4-Amino-1-(3-deoxy-α-L-*threo-*pentopyranosyl)-2(1*H*)-pyrimidinone, 9CI*
[39007-97-1]



$C_9H_{13}N_3O_4$ 227.219

One of the first known naturally occurring nucleosides with α-L-configuration. Isol. from *Streptomyces griseochromogenes*. Presumed byproduct of Blasticidin *S* biosynth. Antiviral antibiotic. Sol. H_2O. Mp 143-145°. $[\alpha]_D^{21}$ +20 (c, 1.2 in H_2O). pK_a 4.2. λ_{max} 278 (ε 12 200) (0.1*N* HCl), 270 nm (8 450) (0.1*N* NaOH). λ_{max} 278 (ε 13100) (0.1*N* HCl) (Derep). λ_{max} 270 (ε 8850) (0.1*N* NaOH) (Derep). λ_{max} 278 (ε 13100) (pH 3 H_2O) (Derep).

▶ LD_{50} (mus, ipr) 300 - 700 mg/kg.

N,*2′,4′-Tri-Ac:* Mp 204-205°. $[\alpha]_D^{27}$ 0 (c, 1.0 in $CHCl_3$).

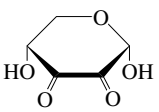
4′-Epimer: ***Pentopyranine D****. 1-(3-Deoxy-β-D-*erythro-*pentopyranosyl)cytosine*
[51257-57-9]
$C_9H_{13}N_3O_4$ 227.219
From *Streptomyces griseochromogenes*. Shows antitumour props. Sol. H_2O. Mp 261° (255-257°) dec. $[\alpha]_D^{21}$ +13.7 (c, 1.3 in H_2O). λ_{max} 278 (ε 13100) (0.1*N* HCl) (Derep). λ_{max} 270 (ε 8850) (0.1*N* NaOH) (Derep). λ_{max} 278 (ε 13100) (pH 3 H_2) (Derep).

▶ LD_{50} (mus, ipr) 300 - 700 mg/kg.

[77870-78-1]

Seto, H. *et al., Tet. Lett.*, 1972, 3991 (*struct, pmr, ms*)
Seto, H. *et al., Agric. Biol. Chem.*, 1973, **37**, 2415; 2421; 1974, **38**, 3622 (*isol, struct*)
Chiu, T.M.K. *et al., J.O.C.*, 1973, **38**, 3622 (*synth, pmr*)
Watanabe, K.A. *et al., Can. J. Chem.*, 1981, **59**, 468 (*synth*)

glycero-Pentos-2,3-diulose P-39



α-D-Pyranose-*form*

$C_5H_6O_5$ 146.099

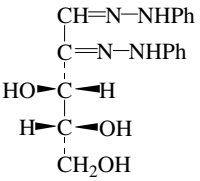
D-*form*

Bis(diphenylhydrazone):
$C_{29}H_{26}N_4O_3$ 478.549
Yellow needles (MeOH). Mp 141-142°.

Volc, J. *et al., Carbohydr. Res.*, 2000, **329**, 219-225 (*synth, pmr*)

Pentose phenylosazones P-40

Pentosazones



(3*R*,4*R*)-*form*

$C_{17}H_{20}N_4O_3$ 328.37

Formed from aldopentoses by treatment with phenylhydrazine. The reaction involves a formal oxidation step involving destruction of the chiral centre at C-2. The four (enantiomeric pairs of) pentoses therefore form a total of two different osazones. In addition, the two 2-pentuloses form the same osazones by formal oxidation at C-1. Key compds. for historical characterisation of pentoses and their configurational interconversion. Readily converted to osotriazoles which were used for further characterisation.

(3*R*,4*R*)-*form*

D-threo-*form*. D-*Xylosazone*. D-*Lyxosazone*. D-threo-*2-Pentulosazone*
[5934-40-7]
Cryst. (EtOH aq.). Mp 164-165°. $[\alpha]_D^{20}$ -22.5 → -48 (48h) (c, 0.84 in Py/EtOH (2:3)).

(3*R*,4*S*)-*form*

L-erythro-*form*. L-*Arabinosazone*. L-*Ribosazone*. L-erythro-*2-Pentulosazone*
[5985-95-5]
Yellow cryst. (EtOH). Mp 171-172° dec. $[\alpha]_D^{28}$ +60.5 → +31 (48h) (c, 0.9 in Py/EtOH (2:3)).

(3*S*,4*R*)-*form*

D-erythro-*form*. D-*Arabinosazone*. D-*Ribosazone*. D-erythro-*2-Pentulosazone*
[3322-01-8]
Cryst. (EtOH aq.). Mp 171-172°. $[\alpha]_D^{20}$ -61 → -30 (48h) (c, 0.84 in Py/EtOH (2:3)).

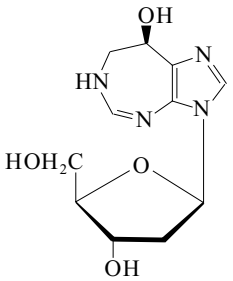
(3*S*,4*S*)-*form*

L-threo-*form*. L-*Xylosazone*. L-*Lyxosazone*. L-threo-*2-Pentulosazone*
[80514-36-9]
Yellow cryst. (EtOH aq.). Mp 164° (161-162°). $[\alpha]_D^{18}$ +10 → +42 (25h) (c, 1 in py/EtOH aq. (2:3)).

Bayne, S. *et al., Adv. Carbohydr. Chem.*, 1956, **11**, 43-96 (*rev*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 127-131 (*synth, bibl*)
Hough, L. *et al., Rodd's Chem. Carbon Compd. (2nd edn.)*, 1967, **1F**, 440-446 (*rev*)
Ho, T. *et al., Agric. Biol. Chem.*, 1969, **33**, 1217-1219 (*ms*)
Schnarr, G.W. *et al., J.C.S. Perkin 1*, 1979, 496-503 (*cmr*)
Lichtenthaler, F.W. *et al., Angew. Chem., Int. Ed.*, 1992, **31**, 1541-1556 (*rev*)

Pentostatin, BAN, INN, USAN P-41

*3-(2-Deoxy-β-D-*erythro-*pentofuranosyl)-3,6,7,8-tetrahydroimidazo[4,5-*d*][1,3]diazepin-8-ol, 9CI. 2′-Deoxycoformycin. Covidarabine. Oncopent. Nipent. ADAI. CI 825. d-Cof. NSC 218321. PD-ADI. YK 176*
[53910-25-1]



$C_{11}H_{16}N_4O_4$ 268.272

Nucleoside antibiotic. Prod. by *Streptomyces antibioticus* and *Aspergillus nidulans*. Potentiator, antineoplastic. Powerful adenosine deaminase inhibitor. Used to treat hairy cell leukaemia and lymphoid neoplasms. Nucleoside transporter substrate. Launched 1992 (US)
Mp 220-225°. $[\alpha]_D^{25}$ +76.4 (c, 1 in H_2O). Log P -3.1 (uncertain value) (calc). λ_{max} 273 (ϵ 7500) (H_2O at pH 2) (Derep). λ_{max} 282 (ϵ 8000) (H_2O at pH 11) (Derep). λ_{max} 282 (ϵ 8100) (pH 7 H_2O) (Derep).

▶ Adverse effects on CNS, kidneys and lungs when used therapeutically. Can cause myelosuppression. Mutagen. NI2931000

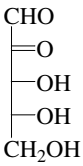
2′-Chloro: See Adechlorin in *The Combined Chemical Dictionary.*

[63677-95-2]

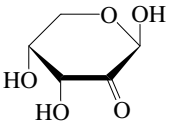
Woo, P.W.K. *et al., J. Het. Chem.*, 1974, **11**, 641 (*isol, cmr, pmr, cryst struct, pharmacol*)
Japan. Pat., 1977, 77 128 292; *CA*, **88**, 73015
Poster, D.S. *et al., Cancer Clin. Trials*, 1981, **4**, 209 (*rev, pharmacol*)
Chan, E. *et al., J.O.C.*, 1982, **47**, 3457 (*synth, uv, ir, pmr*)
Chan, E. *et al., J. Het. Chem.*, 1983, **20**, 629 (*synth, uv, ir, pmr*)
Chen, S.F. *et al., Biochem. Pharmacol.*, 1984, **33**, 4069-4079 (*pharmacol*)
O'Dwyer, P.J. *et al., NIH Publ.*, 1984, **2**, 1 (*revs, pharmacol, props*)
Tunac, J.B. *et al., J. Antibiot.*, 1985, **38**, 1344 (*struct, synth*)
O'Dwyer, P.J. *et al., Ann. Intern. Med.*, 1988, **108**, 733 (*pharmacol, rev*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Eastland, G. *et al., Drugs of Today (Barcelona)*, 1989, **25**, 458 (*rev*)
Ho, A.D. *et al., Cancer Treat. Rep.*, 1990, **17**, 213 (*pharmacol, rev*)
Ikeda, T. *et al., Clin. Rep.*, 1990, **24**, 135; 144; 163; 167; 173 (*pharmacol, tox*)
Arjuman, P. *et al., J. Biomol. Struct. Dyn.*, 1990, **8**, 199 (*struct, conformn*)
Grever, M. *et al., Invest. New Drugs*, 1992, **10**, 345
Showalter, H.D.H. *et al., J. Antibiot.*, 1992, **45**, 1914 (*manuf*)
Klohs, W.D. *et al., Pharmacol. Rev.*, 1992, **44**, 459 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 496
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, PBT100

erythro-Pentos-2-ulose P-42

Arabinosone



D-*form*



β-D-Pyranose-*form*

$C_5H_8O_5$ 148.115

β-D-Pyranose-*form*

*Me glycoside, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-β-D-*erythro-*pentopyranosid-2-ulose*
[4096-64-4]
$C_9H_{14}O_5$ 202.207
Needles (diisopropyl ether). Mp 114° (hydrate) Mp 97-98°. $[\alpha]_D^{23}$ -161 (c, 1.4 in EtOH).

*Benzyl glycoside, 3,4-isopropylidene: Benzyl 3,4-*O*-isopropylidene-β-D-*erythro-*pentopyranosid-2-ulose*
[28070-06-6]
$C_{15}H_{18}O_5$ 278.304
Mp 90-93° (hydrate).

Benzyl glycoside, 3,4-isopropylidene, oxime:
$C_{15}H_{19}NO_5$ 293.319
Mp 162-164°. $[\alpha]_D^{20}$ -232 (c, 1.0 in $CHCl_3$).

α-L-Pyranose-*form*

*Me glycoside, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-α-L-*erythro-*pentopyranosid-2-ulose*
$C_9H_{14}O_5$ 202.207
Mp 89-90°. $[\alpha]_D$ +9 (c, 0.5 in $CHCl_3$).

*Isopropyl glycoside, 3,4-isopropylidene: Isopropyl 3,4-*O*-isopropylidene-α-L-*erythro-*pentopyranosid-2-ulose*
$C_{11}H_{18}O_5$ 230.26
Mp 103-105°. $[\alpha]_D$ -12 (c, 0.8 in $CHCl_3$).

tert-*Butyl glycoside, 3,4-isopropylidene:* tert-*Butyl 3,4-*O*-isopropylidene-α-L-*erythro-*pentopyranosid-2-ulose*
[30652-72-3]
$C_{12}H_{20}O_5$ 244.287
Needles (petrol). Mp 123-124°. $[\alpha]_D^{21}$ +4.5 (c, 1.2 in $CHCl_3$).

β-L-Pyranose-*form*

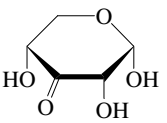
*Me glycoside, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-β-L-*erythro-*pentopyranosid-2-ulose*
[4096-62-2]
$C_9H_{14}O_5$ 202.207
Mp 99°. $[\alpha]_D^{20}$ +166 (c, 0.8 in EtOH).

tert-*Butyl glycoside, 3,4-isopropylidene:* tert-*Butyl 3,4-*O*-isopropylidene-β-L-*erythro-*pentopyranosid-2-ulose*
[30652-73-4]
$C_{12}H_{20}O_5$ 244.287
Mp 76-78°. $[\alpha]_D^{20}$ +159 (c, 2.0 in $CHCl_3$).

*Ph glycoside, 3,4-isopropylidene: Phenyl 3,4-*O*-isopropylidene-β-L-*erythro-*pentopyranosid-2-ulose*
$C_{14}H_{16}O_5$ 264.277
Cryst. (CH_2Cl_2/petrol). Mp 114-116°. $[\alpha]_D^{22}$ +197 (c, 1.0 in CH_2Cl_2).

Parikh, V.M. *et al., Can. J. Chem.*, 1965, **43**, 3452 (*β-D-Me pyr*)
Burton, J.S. *et al., J.C.S.*, 1965, 3433 (*β-D-Me pyr, β-L-Me pyr*)
Beynon, P.J. *et al., J.C.S.(C)*, 1966, 1131 (*β-L-Me pyr*)
Rosenthal, A. *et al., Can. J. Chem.*, 1970, **48**, 3253 (*β-D-Me pyr*)
Follmann, H. *et al., J.A.C.S.*, 1970, **92**, 671 (*β-D-benzyl pyr*)
Palmer, H.T. *et al., Acta Cryst. B*, 1976, **32**, 377 (*β-L-Me pyr, cryst struct*)
Collins, P.M. *et al., Carbohydr. Res.*, 1976, **46**, 277 (*α-L-tert-butyl pyr*)
Buchanan, J.G. *et al., Carbohydr. Res.*, 1977, **57**, 85 (*α-L-Me pyr*)
Collins, P.M. *et al., J. Chem. Res., Synop.*, 1978, 446; *J. Chem. Res., Miniprint*, 5344 (*α-L-tert-butyl pyr, β-L-tert-butyl pyr, β-L-Ph pyr*)

erythro-Pentos-3-ulose P-43



α-D-Pyranose-*form*

$C_5H_8O_5$ 148.115

α-D-Pyranose-*form*

*Me glycoside: Methyl α-D-*erythro-*pentopyranosid-3-uloside*
$C_6H_{10}O_5$ 162.142
Mp 80-82°. $[\alpha]_D^{20}$ +191 (c, 1 in H_2O).

β-D-Pyranose-*form*

*Me glycoside: Methyl β-D-*erythro-*pentopyranosid-3-uloside*
[7045-35-4]
$C_6H_{10}O_5$ 162.142
Mp 85-88°. $[\alpha]_D^{20}$ -77 (c, 1 in H_2O).

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene, oxime: 1,2-*O*-Isopropylidene-α-D-*erythro-*pentofuranos-3-ulose oxime*
[32453-68-2]
$C_8H_{13}NO_5$ 203.194
Cryst. ($CHCl_3$/pentane). Mp 139-140°. $[\alpha]_D^{25}$ +231 (c, 1.0 in MeOH).

*1,2-*O*-Isopropylidene, 5-benzoyl: 5-*O*-Benzoyl-1,2-*O*-isopropylidene-α-D-*erythro-*pentofuranos-3-ulose*
[6698-46-0]
$C_{15}H_{16}O_6$ 292.288
Cryst. (Et_2O). Mp 98-99°. $[\alpha]_D^{20}$ +136 (c, 1.0 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 5-tosyl: 1,2-*O*-Isopropylidene-5-*O*-tosyl-α-D-*erythro-*pentofuranos-3-ulose*
[20514-01-6]
$C_{15}H_{18}O_7S$ 342.369
Needles (MeOH/Et_2O/petrol). Mp 105-106° (as methanolate). $[\alpha]_D^{18}$ +70.5 (c, 1.0 in $CHCl_3$).

1,2-O-*Isopropylidene, 5-Ac, tosylhydrazone: 5*-O-*Acetyl-1,2*-O-*isopropylidene-α-D*-erythro-*pentofuranos-3-ulose tosylhydrazone*
Mp 174-175°.

1,2-O-*Isopropylidene, 5-trityl: 1,2*-O-*Isopropylidene-5*-O-*trityl-α-D*-erythro-*pentofuranos-3-ulose, 8CI*
[20590-54-9]
$C_{27}H_{26}O_5$ 430.499
Cryst. (EtOAc/petrol). $[\alpha]_D$ +132 (c, 4.7 in $CHCl_3$).

5-Deoxy, 1,2-O-*isopropylidene: 5-Deoxy-1,2*-O-*isopropylidene-α-D*-erythro-*pentofuranos-3-ulose*
[32453-67-1]
$C_8H_{12}O_4$ 172.18
Mp 39-41°. $[\alpha]_D^{23}$ +181.4 (c, 1.6 in $CHCl_3$).

5-Deoxy, 1,2-O-*isopropylidene, oxime:*
$C_8H_{13}NO_4$ 187.195
Mp 89°.

5-Deoxy, 1,2-O-*isopropylidene, 2,5-dichlorophenylhydrazone:* [35827-75-9]
Mp 134-136°. $[\alpha]_D^{23}$ +598 (c, 1.3 in $CHCl_3$).

2-Deoxy, Me glycoside, 5-trityl: Methyl 2-deoxy-5-O-*trityl-α-D*-glycero-*pentofuranosid-3-ulose*
$C_{25}H_{24}O_4$ 388.462
Cryst. (EtOH). Mp 122-123°. $[\alpha]_D^{24}$ +182.4 (c, 1.2 in $CHCl_3$).

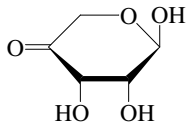
β-D-Furanose-*form*

2-Deoxy, Me glycoside, 5-trityl: Methyl 2-deoxy-5-O-*trityl-β-D*-glycero-*pentofuranosid-3-ulose*
$C_{25}H_{24}O_4$ 388.462
$Bp_{0.1}$ 125°. $[\alpha]_D^{27}$ -26 (c, 0.5 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1967, **21**, 910 (*Me α-D-fur, Me β-D-fur*)
Sowa, W. *et al., Can. J. Chem.*, 1968, **46**, 1586 (*α-D-trityl isopropylidene*)
Onodera, K. *et al., Carbohydr. Res.*, 1968, **6**, 276 (*α-D-tosyl isopropylidene*)
Nutt, R.F. *et al., J.O.C.*, 1968, **33**, 1789 (*α-D-benzoyl isopropylidene*)
Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1972, **55**, 613 (*α-D-deoxy isopropylidene, α-D-deoxy isopropylidene dichlorophenylhydrazone*)
Flaherty, B. *et al., J.C.S. Perkin 1*, 1973, 632 (*α-D-benzoyl isopropylidene*)
Rosenthal, A. *et al., Carbohydr. Res.*, 1974, **32**, 67 (*α-D-Me fur deoxy trityl, β-D-Me fur deoxy trityl*)
Nair, V. *et al., J.O.C.*, 1978, **43**, 5013 (*α-D-isopropylidene oxime*)

erythro-Pentos-4-ulose P-44

erythro-*Pentopyranos-4-ulose*



β-D-*form*

$C_5H_8O_5$ 148.115

β-L-*form*

Me glycoside, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-β-L*-erythro-*pentopyranosid-4-ulose, 8CI*
[22596-25-4]
$C_9H_{14}O_5$ 202.207
$Bp_{0.2}$ 64-66°. $[\alpha]_D^{23}$ +71 (c, 1 in EtOH).

Me glycoside, 2,3-O-*isopropylidene, oxime:*
[62819-19-6]
Cryst. (Et_2O/petrol). Mp 96-97°. $[\alpha]_D$ +81 (c, 1.1 in $CHCl_3$).

β-DL-*form*

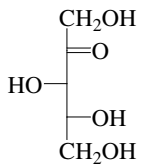
2,3-O-*Isopropylidene, 1-benzoyl: 1*-O-*Benzoyl-2,3*-O-*isopropylidene-β-DL*-erythro-*pentopyranos-4-ulose*
[63096-98-0]
$C_{15}H_{16}O_6$ 292.288
Cryst. (hexane/EtOAc). Mp 94-95°.

Me glycoside, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-β-DL*-erythro-*pentopyranosid-4-ulose*
$C_9H_{14}O_5$ 202.207
Cryst. (hexane/Et_2O). Mp 64-65°.

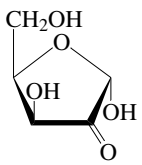
Overend, W.G. *et al., Carbohydr. Res.*, 1970, **15**, 185 (*β-L-Me pyr isopropylidene*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1976, **52**, 31 (*β-L-Me pyr isopropylidene, β-L-Me pyr isopropylidene oxime*)
Achmatowicz, O. *et al., Carbohydr. Res.*, 1977, **54**, 193 (*β-DL-Me pyr isopropylidene, β-DL-benzoyl isopropylidene*)

threo-Pentos-2-ulose, 9CI P-45

Lyxosone. Xylosone
[26188-06-7]



D-*form*



α-D-Furanose-*form*

$C_5H_8O_5$ 148.115

Complex mixt. of acyclic, cyclic and bicyclic forms and their hydrates in soln.

D-*form* [19694-88-3]
Syrup.

Bis(4-methylphenylhydrazone): [18685-56-8]
Cryst. Mp 225-227°.

Bis(thiosemicarbazone):
Yellow needles (H_2O). Mp 225° dec.

Bis(phenylhydrazone), 3,4,5-tri-Ac: [4092-27-7]
Cryst. Mp 196°.

α-D-Furanose-*form*

Me glycoside, 3,5-dibenzoyl, 4-nitrophenylhydrazone: [58366-00-0]
Mp 173-177°. $[\alpha]_D$ -8 (c, 0.7 in $CHCl_3$).

Me glycoside, 3,5-O-*isopropylidene: Methyl 3,5*-O-*isopropylidene-α-D*-threo-*pentofuranosid-2-ulose*
[65247-31-6]
$C_9H_{14}O_5$ 202.207
Cryst. (Et_2O/hexane). Mp 69-70° (hydrate). $[\alpha]_D^{22}$ +111 ($CHCl_3$).

β-D-Furanose-*form*

Me glycoside, 3,5-dibenzoyl: Methyl 3,5-di-O-*benzoyl-β-D*-threo-*pentofuranosid-2-ulose*
[58365-96-1]
$C_{20}H_{18}O_7$ 370.358
Needles (Et_2O). Mp 102-104° (hydrate). $[\alpha]_D$ -92 (c, 0.5 in $CHCl_3$).

Me glycoside, 3,5-dibenzoyl, 4-nitrophenylhydrazone: [58366-29-3]
Mp 146°. $[\alpha]_D$ -20 (c, 0.2 in $CHCl_3$).

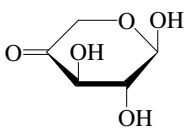
Me glycoside, 3,5-O-*isopropylidene: Methyl 3,5*-O-*isopropylidene-β-D*-threo-*pentofuranoside*
[65247-30-5]
$C_9H_{14}O_5$ 202.207
$[\alpha]_D^{20}$ -36 ($CHCl_3$).

L-*form* [3445-23-6]
Degradation product of L-ascorbic acid.
Foam.

Saloman, L.L. *et al., J.A.C.S.*, 1952, **74**, 5161 (*L-form, synth*)
Whiting, G.C. *et al., Nature (London)*, 1960, **185**, 843 (*L-form*)
El Khadem, H. *et al., Carbohydr. Res.*, 1965, **1**, 31
Stroh, H.H. *et al., Chem. Ber.*, 1968, **101**, 751
Carlsson, F.H.H. *et al., Carbohydr. Res.*, 1974, **36**, 359
Collins, P.M. *et al., J.C.S. Perkin 1*, 1975, 2163 (*α-D-Me fur dibenzoyl nitrophenylhydrazone, β-D-Me fur dibenzoyl, β-D-Me fur dibenzoyl nitrophenylhydrazone*)
Taylor, E.C. *et al., J.A.C.S.*, 1976, **98**, 2301 (*D-form, synth*)
Bischofberger, K. *et al., J.C.S. Perkin 1*, 1977, 1472 (*α-D-Me fur isopropylidene, β-D-Me fur isopropylidene*)
Somogyi, L. *et al., Carbohydr. Res.*, 1985, **145**, 156 (*synth, uv, ir*)
Vuorinen, T. *et al., Carbohydr. Res.*, 1990, **207**, 185 (*D-form, synth, cmr*)
Seok, Y.J. *et al., J. Carbohydr. Chem.*, 1996, **15**, 1073-1083 (*tautom*)

threo-Pentos-4-ulose P-46

threo-*Pentopyranos-4-ulose*



α-L-*form*

$C_5H_8O_5$ 148.115

α-L-*form*

Me glycoside, O-*methyloxime: Methyl α-L*-threo-*pentopyranosid-4-ulose* O-*methyloxime*
$C_7H_{13}NO_5$ 191.183
Flakes (CH_2Cl_2/petrol). Mp 69-70°. $[\alpha]_D$ -135 (c, 1.03 in H_2O).

Benzyl glycoside: Benzyl α-L-threo-*pentopyranosid-4-ulose*
$C_{12}H_{14}O_5$ 238.24
Cryst. Mp 80°. $[\alpha]_D^{20}$ -145 (c, 1 in H_2O).

β-L-*form*

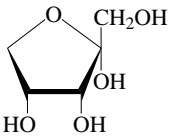
Me glycoside: Methyl β-L-threo-*pentopyranosid-4-ulose*
$C_6H_{10}O_5$ 162.142
Syrup. $[\alpha]_D$ +170 (c, 1.6 in H_2O).

Benzyl glycoside: Benzyl β-L-threo-*pentopyranosid-4-ulose*
$C_{12}H_{14}O_5$ 238.24
Cryst. + H_2O. Mp 86° (hydrate). $[\alpha]_D^{20}$ +166.8 (c, 1.0 in H_2O).

Benzyl glycoside, 2,3-dibenzyl: Benzyl 2,3-di-O-benzyl-β-L-threo-pentopyranosid-4-ulose
$C_{26}H_{26}O_5$ 418.488
$[\alpha]_D$ +98.3 (c, 1.25 in $CHCl_3$).
Heyns, K. *et al., Chem. Ber.*, 1962, **95**, 2964 (*benzyl glycosides*)
Schnarr, G.W. *et al., Can. J. Chem.*, 1978, **56**, 1752 (*α-L-Me pyr methyloxime, β-L-Me pyr*)
Matsuzawa, M. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 2169 (*β-L-benzyl pyr dibenzyl*)

erythro-2-Pentulose, 9CI P-47

Ribulose. Riboketose. Adonose. Erythropentulose. Arabulose. Arabinulose. Araboketose
[5556-48-9]



α-D-Furanose-*form*

$C_5H_{10}O_5$ 150.131
An aq. soln. contains 54.8% α-fur, 18.9% β-fur and 26.4% open-chain forms at 55°.

D-*form* [488-84-6]
An early prod. in plant photosynth.
$[\alpha]_D^{21}$ -16.3 (H_2O).

2-Nitrophenylhydrazone: [6155-41-5]
Mp 168-169°. $[\alpha]_D$ -48.3 (c, 0.32 in MeOH).

5-Phosphate: [4151-19-3]
$C_5H_{11}O_8P$ 230.111
Intermed. in the oxidative metabolism of glucose in yeast and animal tissue.
Cryst. + $2H_2O$. $[\alpha]_D^{26}$ +16.5 (H_2O).

1,5-Diphosphate: [24218-00-6]

[2002-28-0]
$C_5H_{12}O_{11}P_2$ 310.091
A substrate for the key photosynthetic enzyme, ribulose-bisphosphate carboxylase (EC 4.1.1.39). No phys. props. reported. In equilib. with 16% covalent hydrate in aq. soln. at 25°.

α-D-Furanose-*form* [131064-69-2]
1,2:3,4-Di-O-isopropylidene: 1,2:3,4-Di-O-isopropylidene-α-D-erythro-2-pentulose
[27294-54-8]
$C_{11}H_{18}O_5$ 230.26
Mp 87-89°. $[\alpha]_D^{22}$ -5.7 (c, 1.0 in MeOH).

β-D-Furanose-*form* [131064-70-5]
1,2:3,4-Di-O-isopropylidene: 1,2:3,4-Di-O-isopropylidene-β-D-erythro-2-pentulose
[25018-66-0]
$C_{11}H_{18}O_5$ 230.26
$[\alpha]_D^{22}$ -110 (c, 1.0 in MeOH).

L-*form* [2042-27-5]
$[\alpha]_D$ +17 (H_2O).
2-Nitrophenylhydrazone: Mp 168-170°. $[\alpha]_D^{19}$ +47.5 (c, 0.6 in MeOH).

α-L-Furanose-*form*
Me glycoside: Methyl α-L-erythro-2-pentulofuranoside
[53756-34-6]
$C_6H_{12}O_5$ 164.158
Cryst. Mp 68-69°. $[\alpha]_D^{25}$ -42.2 (c, 1.0 in H_2O).

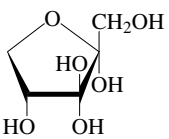
β-L-Furanose-*form*
Me glycoside: Methyl β-L-erythro-2-pentulofuranoside
[53756-33-5]
$C_6H_{12}O_5$ 164.158
Syrup. $[\alpha]_D^{25}$ +109.2 (c, 1.0 in H_2O).

[2922-69-2, 136332-88-2]

Reichstein, T. *et al., Helv. Chim. Acta*, 1934, **17**, 996 (*L-form, synth*)
Glatthaar, C. *et al., Helv. Chim. Acta*, 1935, **18**, 80 (*D-form, L-form, synth*)
Michelson, A.M. *et al., J.C.S.*, 1949, 2476-2486 (*synth, phosphate*)
Dickens, F. *et al., Biochem. J.*, 1960, **64**, 567-578 (*purifn, phosphate*)
Simpson, F.J. *et al., Methods Enzymol.*, 1966, **9**, 41-46 (*uv, phosphate*)
Tipson, R.S. *et al., Carbohydr. Res.*, 1969, **10**, 549 (*D-form, β-D-fur diisopropylidene*)
Gray, G.R. *et al., Biochemistry*, 1970, **9**, 2425-2462 (*1,5-diphosphate, pmr, uv, ir, struct*)
Stankovič, L. *et al., Carbohydr. Res.*, 1973, **35**, 242 (*Me L-furanosides*)
Wong, C.H. *et al., J.A.C.S.*, 1980, **102**, 7938-7939 (*1,5-diphosphate*)
Collins, P.M. *et al., J.C.S. Perkin 1*, 1980, 277 (*α-D-fur diisopropylidene, β-D-fur diisopropylidene*)
Wong, C.H. *et al., Methods Enzymol.*, 1982, **89**, 108-121 (*1,5-diphosphate*)
Franke, F.P. *et al., Carbohydr. Res.*, 1985, **143**, 69-76 (*nmr, phosphate*)
Wu, J. *et al., Carbohydr. Res.*, 1990, **206**, 1 (*cmr, equilib*)
Vuorinen, T. *et al., Carbohydr. Res.*, 1990, **207**, 185; **209**, 13 (*synth, pmr, cmr, D-form*)
Robitaille, P.M.L. *et al., J. Magn. Reson.*, 1991, **92**, 73-84 (*P-31 nmr, phosphate*)
Ekeberg, D. *et al., Carbohydr. Res.*, 2002, **337**, 779-786 (*synth*)

threo-2-Pentulose, 9CI, 8CI P-48

Xylulose. Xyloketose. Threopentulose. Ketoxylose. Lyxulose
[5962-29-8]



α-D-Furanose-*form*

$C_5H_{10}O_5$ 150.131
An aq. soln. at 37° contains 16% α-fur, 62% β-fur and 22% ketone.

D-*form* [551-84-8]
Prod. by microbacteria from xylose. Intermed. in carbohydrate metab. of plants. Component of the lipopolysaccharides of the pseudomonad *Pseudomonas vesicularis*.
Syrup. $[\alpha]_D^{18}$ -33.2 (H_2O).
p-*Bromophenylhydrazone:* Mp 128-129°. $[\alpha]_D^{20}$ +23.7 → -31.2 (Py).
2,4-Dinitrophenylhydrazone: [23176-93-4] Mp 175-176°.
5-Phosphate: [4212-65-1]
$C_5H_{11}O_8P$ 230.111
Metabolic intermed. Obt. in soln., 95-97% pure.

α-D-Furanose-*form*
Me glycoside: Methyl α-D-threo-pentulofuranoside
[53756-31-3]
$C_6H_{12}O_5$ 164.158
Syrup. $[\alpha]_D^{20}$ +73.4 (c, 1 in H_2O).

β-D-Furanose-*form*
2,3-O-Isopropylidene: 2,3-O-Isopropylidene-β-D-threo-pentulofuranose
[25018-68-2]
$C_8H_{14}O_5$ 190.196
Cryst. (Et_2O/pentane). Mp 74°. $[\alpha]_D^{25}$ +1.6 (c, 1 in Me_2CO).
Me glycoside: Methyl β-D-threo-pentulofuranoside
[53756-32-4]
$C_6H_{12}O_5$ 164.158
Syrup. $[\alpha]_D^{20}$ -86.3 (c, 1 in H_2O).

L-*form* [527-50-4]
Syrup. $[\alpha]_D^{20}$ +33.1 (H_2O).
p-*Bromophenylhydrazone:* Mp 130-131°. $[\alpha]_D^{20}$ -25.8 → +31.5 (Py).
Moses, V. *et al., Biochem. J.*, 1962, **83**, 8 (*D-form*)
Hough, L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 94 (*synth, D-form*)
Touster, O. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 98 (*synth, D-form, L-form*)
Mortlock, R.P. *et al., Methods Enzymol.*, 1966, **9**, 39 (*D-form*)
Rabinsohn, Y. *et al., J.O.C.*, 1967, **32**, 3452 (*D-form*)
Tipson, R.S. *et al., Carbohydr. Res.*, 1969, **10**, 549 (*β-D-fur isopropylidene*)
Stankovic, L. *et al., Carbohydr. Res.*, 1974, **35**, 242 (*α-D-Me fur, β-D-Me fur*)
Wilkinson, S.G. *et al., Carbohydr. Res.*, 1981, **98**, 247 (*occur*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib comp*)
Mocali, A. *et al., Carbohydr. Res.*, 1985, **143**, 288 (*5-phosphate*)
Wu, J. *et al., Carbohydr. Res.*, 1990, **206**, 1 (*cmr, equilib*)
Vuorinen, T. *et al., Carbohydr. Res.*, 1990, **207**, 185; **209**, 13 (*synth, pmr, cmr, D-form*)
Zeng, C. *et al., J.O.C.*, 1997, **62**, 4780-4784 (*β-D-fur isopropylidene, synth, pmr, cmr*)

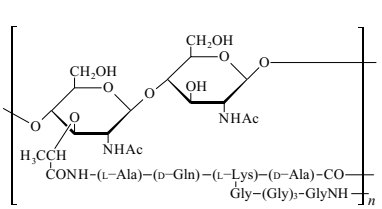
Pentyl glucosinolate P-49

1-Thio-β-D-glucopyranose 1-[N-(sulfooxy)hexanimidate], 9CI
[127929-24-2]
$H_3C(CH_2)_4C(SGlc)=NOSO_3H$
$C_{12}H_{23}NO_9S_2$ 389.447
Present in radish (*Raphanus sativus*) and in kohlrabi aroma.

Kjaer, A. *et al., Agric. Biol. Chem.*, 1978, **42**, 1715 (*occur*)
Macleod, G. *et al., Phytochemistry*, 1990, **29**, 1183 (*occur*)

Peptidoglycan P-50

Murein. Mucopeptide. Glycopeptide



Consists of linear polysaccharide chains cross-linked by oligopeptide units to form a single bag-shaped giant molecule which envelopes the cytoplasmic membrane of bacterial cells. Gram-negative bacterial cell walls contain a thin layer of peptidoglycan whereas it is the major component of gram-positive bacterial cell walls. Detailed studies have been made on the peptidoglycan isolated from cell walls of *Micrococcus luteus, Staphylococcus aureus* and *E. coli*.

Scheifer, K.H. *et al., Bacteriol. Rev.*, 1972, **36**, 407

Sharon, N. *et al., Complex Carbohydrates*, Addison-Wesley, 1975, 393

Ghuysen, J.M. *et al., J. Gen. Microbiol.*, 1977, **101**, 13 (*biosynth*)

Pestalotan P-51

A highly branched (1→3)β-D-glucan, MW = 2 × 10^6. Elaborated by the fungus *Pestalotia* sp. Shows mod. growth-inhibitory activity against mouse-implant tumours. Sol. DMSO; fairly sol. H_2O. $[\alpha]_D^{25}$ -0.1 (c, 0.5 in 1M NaOH).

Misaki, A. *et al., Carbohydr. Res.*, 1984, **129**, 209

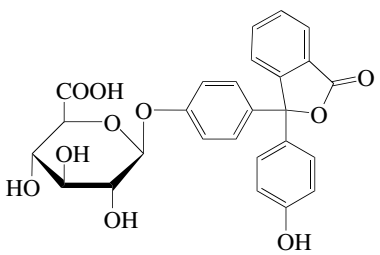
Phallic acids P-52

Glycuronans consisting of (1→4) linked α-L-iduronic acid and β-D-glucuronic acid residues in various ratios from 1:2 to 1:4. These with ratio 1:2 appear to be identical with Protuberic acid, P-100 except for molecular size. Widely distributed in fungi of the Phallales.

Tsuchihashi, H. *et al., Carbohydr. Res.*, 1983, **122**, 174 (*isol, pmr, struct, bibl*)

Phenolphthalein glucuronide P-53

4-[1,3-Dihydro-1-(4-hydroxyphenyl)-3-oxo-1-isobenzofuranyl]phenyl glucopyranosiduronic acid, 9CI. Phenolphthalein glucopyranosiduronic acid



$C_{26}H_{22}O_{10}$ 494.454

β-D-*form* [15265-26-6]

Substrate for assay of β-glucuronidase activity. Model compd. for enterohepatic studies.

Cryst. (as cinchonidine salt).

Na salt: [6820-54-8]

Amorph. solid (MeOH/2-propanol). Mp 210° (dec.) (as monohydrate). $[\alpha]_D^{18}$ -7.2 (c, 0.14 in MeOH).

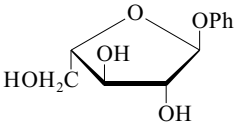
Di Somma, A.A. *et al., J. Biol. Chem.*, 1940, **133**, 277-284 (*isol*)

Marsh, C.A. *et al., Biochim. Biophys. Acta*, 1965, **97**, 597-599 (*synth*)

Nambara, T. *et al., Chem. Pharm. Bull.*, 1976, **24**, 2869-2870 (*synth*)

Cairns, T. *et al., Anal. Chem.*, 1982, **54**, 2456-2461 (*ms*)

Phenyl arabinofuranoside P-54



α-L-*form*

$C_{11}H_{14}O_5$ 226.229

α-L-*form*

Syrup. $[\alpha]_D^{25}$ -159 (H_2O). $[\alpha]_D^{30}$ -145 (c, 0.8 in $CHCl_3$).

Tribenzyl: Phenyl 2,3,5-tri-O-benzyl-α-L-arabinofuranoside
$C_{32}H_{32}O_5$ 496.602
Syrup. $[\alpha]_D^{25}$ -72.4 (c, 0.7 in $CHCl_3$).

β-L-*form*

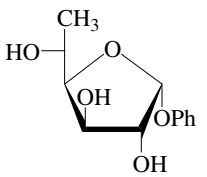
Mp 82-84°. $[\alpha]_D^{25}$ +112 (c, 0.7 in $CHCl_3$). Satisfactory analysis not obtained.

Tribenzyl: Phenyl 2,3,5-tri-O-benzyl-β-D-arabinofuranoside
$C_{32}H_{32}O_5$ 496.602
Syrup. $[\alpha]_D^{25}$ +113.3 (c, 0.7 in $CHCl_3$).

Sadeh, S. *et al., Carbohydr. Res.*, 1982, **101**, 152

Phenyl 6-deoxyglucofuranoside P-55

Phenyl quinovofuranoside



α-D-*form*

$C_{12}H_{16}O_5$ 240.255

α-D-*form*

3,5-Dibenzoyl, 2-Ac: Phenyl 2-O-acetyl-3,5-di-O-benzoyl-6-deoxy-α-D-glucofuranoside
$C_{28}H_{26}O_8$ 490.509
Thick syrup. $[\alpha]_D$ +77.3 (c, 0.88 in $CHCl_3$).

β-D-*form*

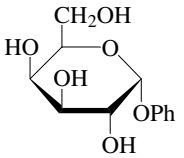
Glass. $[\alpha]_D$ -18.2 (c, 0.88 in MeOH).

3,5-Dibenzoyl: Phenyl 3,5-di-O-benzoyl-6-deoxy-β-D-glucofuranoside
$C_{26}H_{24}O_7$ 448.471
Glass. $[\alpha]_D$ -235.9 (c, 0.98 in $CHCl_3$).

3,5-Dibenzoyl, 2-Ac: Phenyl 2-O-acetyl-3,5-di-O-benzoyl-6-deoxy-β-D-glucofuranoside
$C_{28}H_{26}O_8$ 490.509
Thick syrup. $[\alpha]_D$ -172.5 (c, 1.09 in $CHCl_3$).

Buchanan, J.G. *et al., Tetrahedron*, 1995, **51**, 6033

Phenyl galactopyranoside P-56



α-D-*form*

$C_{12}H_{16}O_6$ 256.255

α-D-*form* [2871-15-0]

Mp 146°. $[\alpha]_D$ +217 (H_2O). $[\alpha]_D$ +175.2 (C_6H_6).

Tetra-Ac: Phenyl tetra-O-acetyl-α-D-galactopyranoside
[18463-30-4]
$C_{20}H_{24}O_{10}$ 424.404
Mp 131-132°. $[\alpha]_D$ +176 ($CHCl_3$).

4,6-O-Benzylidene: Phenyl 4,6-O-benzylidene-α-D-galactopyranoside
$C_{19}H_{20}O_6$ 344.363
Cryst. (EtOH). Mp 192-194°. $[\alpha]_D$ +95 (c, 0.54 in Py).

4,6-O-Benzylidene, 2,3-dibenzyl: Phenyl 2,3-di-O-benzyl-4,6-O-benzylidene-α-D-galactopyranoside
$C_{33}H_{32}O_6$ 524.612
Cryst. (Me_2CO/EtOH). Mp 132°. $[\alpha]_D$ +108 (c, 1.48 in $CHCl_3$).

2,3,4-Tribenzyl: Phenyl 2,3,4-tri-O-benzyl-α-D-galactopyranoside
$C_{33}H_{34}O_6$ 526.628
Cryst. (cyclohexane). Mp 57-58°. $[\alpha]_D$ +81 (c, 0.57 in $CHCl_3$).

2,3,4-Tribenzyl, 6-Me: Phenyl 2,3,4-tri-O-benzyl-6-O-methyl-α-D-galactopyranoside
$C_{34}H_{36}O_6$ 540.655
Syrup. $[\alpha]_D$ +110.5 (c, 0.3 in $CHCl_3$).

β-D-*form* [2818-58-8]

Mp 155-156°. $[\alpha]_D$ -43 (H_2O).

Tetra-Ac: Phenyl tetra-O-acetyl-β-D-galactopyranoside
[2872-72-2]
Mp 123-124°. $[\alpha]_D^{17}$ -26 (C_6H_6).

3,6-Dibenzoyl: Phenyl 3,6-di-O-benzoyl-β-D-galactopyranoside
[34213-09-7]
$C_{26}H_{24}O_8$ 464.471
Cryst. ($CHCl_3$). Mp 172-174°. $[\alpha]_D^{22}$ +55 (c, 3.1 in Me_2CO).

2,3,6-Tribenzoyl: Phenyl 2,3,6-tri-O-benzoyl-β-D-galactopyranoside
[34213-07-5]
$C_{33}H_{28}O_9$ 568.579
Cryst. (C_6H_6/petrol). Mp 167-169°. $[\alpha]_D^{22}$ +80 (c, 1.2 in $CHCl_3$).

4,6-O-Benzylidene: Phenyl 4,6-O-benzylidene-β-D-galactopyranoside
$C_{19}H_{20}O_6$ 344.363
Mp 248-249°. $[\alpha]_D$ -116 (c, 1.2 in Py).

4,6-O-Benzylidene, 2,3-di-Ac: Phenyl 2,3-di-O-acetyl-4,6-O-benzylidene-β-D-galactopyranoside
$C_{23}H_{24}O_8$ 428.438
Cryst. (EtOH). Mp 171-172°. $[\alpha]_D$ +43 (c, 0.8 in $CHCl_3$).

*4-Benzyl, 2,3-di-Me: Phenyl 4-*O*-benzyl-2,3-di-*O*-methyl-β-D-galactopyranoside*
$C_{21}H_{26}O_6$ 374.433
Cryst. (cyclohexane/hexane). Mp 107°. $[\alpha]_D$ -80 (c, 0.94 in $CHCl_3$).

*4-Benzyl, 2,3,6-tri-Me: Phenyl 4-*O*-benzyl-2,3,6-tri-*O*-methyl-β-D-galactopyranoside*
$C_{22}H_{28}O_6$ 388.46
Mp 77-78°. $[\alpha]_D$ -65 (c, 0.55 in $CHCl_3$).

*6-Benzyl, 2,3-di-Me: Phenyl 6-*O*-benzyl-2,3-di-*O*-methyl-β-D-galactopyranoside*
$C_{21}H_{26}O_6$ 374.433
Cryst. (cyclohexane). Mp 63-65°. $[\alpha]_D$ -34 (c, 0.52 in $CHCl_3$).

*6-Benzyl, 2,3,4-tri-Me: Phenyl 6-*O*-benzyl-2,3,4-tri-*O*-methyl-β-D-galactopyranoside*
$C_{22}H_{28}O_6$ 388.46
Mp 88.5-89°. $[\alpha]_D$ -47 (c, 0.46 in $CHCl_3$).

*2,3-Dibenzyl: Phenyl 2,3-di-*O*-benzyl-β-D-galactopyranoside*
$C_{26}H_{28}O_6$ 436.504
Cryst. (Me_2CO aq.). Mp 115°. $[\alpha]_D$ -7 (c, 1.9 in Py).

*2,3,4-Tribenzyl: Phenyl 2,3,4-tri-*O*-benzyl-β-D-galactopyranoside*
$C_{33}H_{34}O_6$ 526.628
Cryst. (cyclohexane). Mp 114°. $[\alpha]_D$ -47 (c, 0.68 in $CHCl_3$).

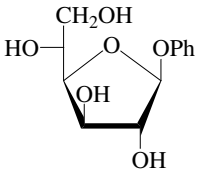
*2,3,4-Tribenzyl, 6-Me: Phenyl 2,3,4-tri-*O*-benzyl-6-*O*-methyl-β-D-galactopyranoside*
$C_{34}H_{36}O_6$ 540.655
Cryst. (cyclohexane). Mp 98-100°. $[\alpha]_D$ -20 (c, 0.79 in $CHCl_3$).

*2,3,6-Tribenzyl: Phenyl 2,3,6-tri-*O*-benzyl-β-D-galactopyranoside*
$C_{33}H_{34}O_6$ 526.628
Cryst. (EtOH). Mp 119°. $[\alpha]_D$ -23 (c, 1.56 in $CHCl_3$).

*2,3,6-Tribenzyl, 4-Me: Phenyl 2,3,6-tri-*O*-benzyl-4-*O*-methyl-β-D-galactopyranoside*
$C_{34}H_{36}O_6$ 540.655
Mp 120-122°. $[\alpha]_D$ -32 (c, 0.69 in $CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **2**, 396B (*nmr*)
Helferich, B. *et al., Ber.*, 1933, **66**, 378; 1944, **77**, 194 (*β-D-tetra-Ac*)
Reeves, R.E. *et al., J.A.C.S.*, 1948, **70**, 3963 (*β-D-form, β-D-benzylidene, β-D-benzylidene di-Ac, β-D-dibenzyl*)
Wollwage, P.C. *et al., J.C.S.(C)*, 1971, 3143 (*β-D-dibenzoyl, β-D-tribenzoyl*)
Dyong, I. *et al., Carbohydr. Res.*, 1973, **27**, 273 (*β-D-dibenzyl, β-D-2,3,6-tribenzyl*)
Lipták, A. *et al., Carbohydr. Res.*, 1975, **44**, 1 (*α-D-benzylidene, α-D-benzylidene dibenzyl, α-D-2,3,4-tribenzyl, α-D-2,3,4-tribenzyl Me, β-D-benzyl derivs*)

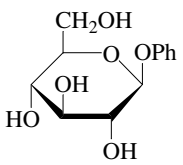
Phenyl glucofuranoside, 9CI P-57



$C_{12}H_{16}O_6$ 256.255

β-D-*form* [6092-22-4]
Cryst. (2-butanone/petrol). Mp 78.5-80.5°. $[\alpha]_D^{20}$ -143.2 (c, 2.0 in H_2O).
Jerkeman, P. *et al., Acta Chem. Scand.*, 1963, **17**, 1709-1711 (*synth*)
Kohata, K. *et al., Agric. Biol. Chem.*, 1982, **46**, 2077-2086 (*cd, ord, uv*)
Furneaux, R.H. *et al., J.C.S. Perkin 1*, 2000, 2011-2014 (*synth*)
Furneaux, R.H. *et al., Carbohydr. Res.*, 2002, **337**, 1999-2004 (*synth*)

Phenyl glucopyranoside, 8CI P-58



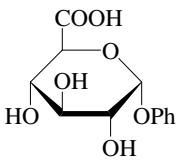
β-D-*form*

$C_{12}H_{16}O_6$ 256.255

α-D-*form* [4630-62-0]
Mp 173-174°. $[\alpha]_D$ +181 (c, 1.0 in H_2O).
► LZ5985500
*Tetra-Ac: Phenyl 2,3,4,6-tetra-*O*-acetyl-α-D-glucopyranoside*
[3427-45-0]
$C_{20}H_{24}O_{10}$ 424.404
Mp 114-115°. $[\alpha]_D$ +168 ($CHCl_3$).
*4,6-*O*-Benzylidene: Phenyl 4,6-*O*-benzylidene-α-D-glucopyranoside*
[22887-10-1]
$C_{19}H_{20}O_6$ 344.363
Cryst. (EtOH aq.). Mp 213-215°. $[\alpha]_{578}^{20}$ +189 (c, 1.0 in $CHCl_3$).
*4,6-*O*-Benzylidene, 2-tosyl: Phenyl 4,6-O-benzylidene-2-*O*-tosyl-α-D-glucopyranoside*
[22981-77-7]
$C_{26}H_{26}O_8S$ 498.553
Cryst. (EtOH aq.). Mp 184-189°. $[\alpha]_{578}^{20}$ +129 (c, 1.2 in $CHCl_3$).

β-D-*form* [1464-44-4]
Mp 175-176°. $[\alpha]_D$ -72 (c, 1.0 in H_2O).
► LZ5985510
*2,3-Di-Ac: Phenyl 2,3-di-*O*-acetyl-β-D-glucopyranoside*
$C_{16}H_{20}O_8$ 340.329
Cryst. (Me_2CO/Et_2O/hexane). Mp 142-143°. $[\alpha]_D^{23}$ -45 (c, 2.0 in $CHCl_3$).
*Tetra-Ac: Phenyl 2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranoside*
$C_{20}H_{24}O_{10}$ 424.404
Mp 125-126°. $[\alpha]_D$ -23 ($CHCl_3$).
*4,6-*O*-Benzylidene, di-Ac: Phenyl 2,3-di-*O*-acetyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
[23740-55-8]
$C_{23}H_{24}O_8$ 428.438
Cryst. ($CHCl_3$/EtOH). Mp 228-229°. $[\alpha]_D^{23}$ -64.2 (c, 1.0 in $CHCl_3$).
*2-Benzyl, 4,6-*O*-benzylidene: Phenyl 2-O-benzyl-4,6-*O*-benzylidene-β-D-glucopyranoside*
$C_{26}H_{26}O_6$ 434.488
Powder. Mp 138-139°. $[\alpha]_D^{20}$ -24 (c, 1 in $CHCl_3$).
Helferich, B. *et al., Ber.*, 1933, **66**, 378 (*α-D-tetra-Ac, β-D-tetra-Ac*)
Montgomery, E.M. *et al., J.A.C.S.*, 1942, **64**, 690 (*α-D-tetra-Ac, β-D-tetra-Ac*)
Conchie, J. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 157 (*α-D-form, β-D-form*)
Coleman, G.H. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 397 (*β-D-tetra-Ac*)
Svensson, S. *et al., Acta Chem. Scand.*, 1968, **22**, 2737 (*α-D-benzylidene, α-D-benzylidene tosyl*)
Shapiro, D. *et al., J.O.C.*, 1970, **35**, 1464 (*β-D-benzylidene di-Ac, β-D-di-Ac*)
Breitmaier, E. *et al., Chem. Ber.*, 1971, **104**, 1147 (*cmr*)
Audichya, T.D. *et al., Indian J. Chem.*, 1971, **9**, 282 (*pmr*)
Khanbabaee, K. *et al., J. Prakt. Chem.*, 1999, **341**, 159-166 (*β-D-benzylidene benzyl*)

Phenyl glucopyranosiduronic acid, 8CI P-59



α-D-*form*

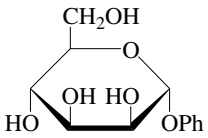
$C_{12}H_{14}O_7$ 270.238

α-D-*form* [17681-03-7]
Needles (EtOAc). Mp 147-149° (as hemihydrate). $[\alpha]_D$ +154 (c, 1 in H_2O).
*Tri-Ac, Me ester: Methyl (phenyl 2,3,4-tri-*O*-acetyl-α-D-glucopyranosid)uronate*
[30657-75-1]
$C_{19}H_{22}O_{10}$ 410.377
Mp 110-112°. $[\alpha]_D^{25}$ +163 (c, 1.27 in $CHCl_3$).

β-D-*form* [17685-05-1]
Cryst. (EtOAc). Mp 163-164°. $[\alpha]_D$ -90 (c, 1.0 in H_2O).
Me ester: Methyl (phenyl β-D-glucopyranosid)uronate
$C_{13}H_{16}O_7$ 284.265
Mp 152-154°. $[\alpha]_D^{20}$ -83 (c, 0.5 in MeOH).
*Me ester, tri-Ac: Methyl (phenyl 2,3,4-tri-*O*-acetyl-β-D-glucopyranosid)uronate*
[4630-61-9]
$C_{19}H_{22}O_{10}$ 410.377
Needles (2-propanol). Mp 126.5-127.5°. $[\alpha]_D$ -35.5 (c, 1 in $CHCl_3$).
Bollenback, G.N. *et al., J.A.C.S.*, 1955, **77**, 3310 (*α-D-form, α-D-Me ester tri-Ac, β-D-form, β-D-Me ester tri-Ac*)
Matsui, M. *et al., Chem. Pharm. Bull.*, 1972, **20**, 1033 (*pmr*)

Kiss, J. *et al., Helv. Chim. Acta*, 1975, **58**, 301 (*β-D-Me ester tri-Ac*)
Keglević, D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1979, **36**, 57 (*rev*)

Phenyl mannopyranoside P-60



α-D-*form*

$C_{12}H_{16}O_6$ 256.255

α-D-*form* [21797-50-2]
Cryst. (MeOH). Mp 132-133°. $[\alpha]_D^{23}$ +113.5 (H_2O).

Tetra-Ac: Phenyl 2,3,4,6-tetra-O-*acetyl-α-D-mannopyranoside*
[37797-56-1]
$C_{20}H_{24}O_{10}$ 424.404
Cryst. Mp 79-80°. $[\alpha]_D^{20}$ +73.9 ($CHCl_3$).

β-D-*form* [15548-42-2]
Mp 175-176.5° (170-172°). $[\alpha]_D$ -61.7 (c, 2.3 in H_2O).

Tetra-Ac: Phenyl 2,3,4,6-tetra-O-*acetyl-β-D-mannopyranoside*
[37797-55-0]
$C_{20}H_{24}O_{10}$ 424.404
Cryst. (EtOH). Mp 163-165°. $[\alpha]_D^{20}$ -61 (c, 0.8 in $CHCl_3$).

Helferich, B. *et al., Ber.*, 1933, **66**, 1556 (*α-D-form synth, α-D-tetra Ac, β-D-form synth, β-D-tetra-Ac*)
Vervoort, A. *et al., Carbohydr. Res.*, 1970, **12**, 277 (*α-D synth*)
Åkerfeldt, K. *et al., Acta Chem. Scand., Ser. B*, 1979, **33**, 467 (*β-D-tetra-Ac*)
Kleine, H.P. *et al., Carbohydr. Res.*, 1988, **182**, 307 (*β-D-form, synth*)

4-Phenylbutyl glucosinolate P-61

*1-Thio-β-D-glucopyranose 1-[*N-*(sulfooxy)benzenepentanimidate], 9CI*
[76265-26-4]
$Ph(CH_2)_4C(SGlc)=NOSO_3H$
$C_{17}H_{25}NO_9S_2$ 451.518
Present in horseradish (*Armoracia lapathifolia*).

Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)

2-Phenylethyl glucosinolate P-62

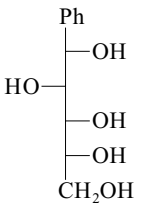
*1-Thio-β-D-glucopyranose 1-[*N-*(sulfooxy)benzenepropanimidate], 9CI*. ***Gluconasturtiin***. *Phenethyl glucosinolate. Gluconasturiin*
[499-30-9]
$PhCH_2CH_2C(SGlc)=NOSO_3H$
$C_{15}H_{21}NO_9S_2$ 423.464
Isol. from *Nasturtium officinale* (water cress), *Barbarea vulgaris* (winter cress) and other crucifers. Off-white cryst. (MeOH/EtOH) (as K salt).
Mp 171° (K salt). $[\alpha]_D^{20}$ -20.7 (c, 1.0 in H_2O).

Tetra-Ac: [75347-10-3]
Needles (EtOH aq.) (as K salt). Mp 198-200° dec. (K salt). $[\alpha]_D^{24}$ -11 (c, 1 in 50% EtOH aq.).

[18425-76-8]

Benn, M.H. *et al., J.C.S.*, 1964, 4072 (*synth*)
Doernemann, D. *et al., Can. J. Biochem.*, 1974, **52**, 916 (*biosynth*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Gil, V. *et al., Tetrahedron*, 1980, **36**, 779 (*synth*)

1-*C*-Phenyl-*gluco*-pentitol P-63



D-*form*

$C_{11}H_{16}O_5$ 228.244

D-*form*
2,3:4,5-Di-O-*isopropylidene: 2,3:4,5-Di*-O-*isopropylidene-1*-C-*phenyl-D*-gluco-*pentitol*
$C_{17}H_{24}O_5$ 308.374
Mp 138-138.5°. $[\alpha]_D^{25}$ +30.5 (c, 1.05 in Py).

L-*form*
2,3:4,5-Di-O-*isopropylidene: 2,3:4,5-Di*-O-*isopropylidene-1*-C-*phenyl-L*-gluco-*pentitol*
$C_{17}H_{24}O_5$ 308.374
Mp 137°. $[\alpha]_D^{25}$ -37.7 (Py).

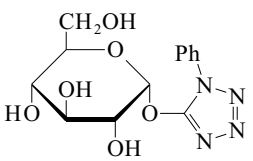
English, J.E. *et al., J.A.C.S.*, 1945, **67**, 2039 (*L-form*)
Bonner, W.A. *et al., J.A.C.S.*, 1951, **73**, 3126 (*D-form*)

3-Phenylpropyl glucosinolate P-64

*1-Thio-β-D-glucopyranose 1-[*N-*(sulfooxy)benzenebutanimidate], 9CI*
[76265-25-3]
$Ph(CH_2)_3C(SGlc)=NOSO_3H$
$C_{16}H_{23}NO_9S_2$ 437.491
Present in horseradish (*Armoracia lapathifolia*).

Grob, K. *et al., Phytochemistry*, 1980, **19**, 1789 (*occur*)

1-Phenyl-1*H*-tetrazol-5-yl glucopyranoside P-65



$C_{13}H_{16}N_4O_6$ 324.293

α-D-*form*
Tetra-O-*benzyl: 1-Phenyl-1*H-*tetrazol-5-yl 2,3,4,6-tetra*-O-*benzyl-α-D-glucopyranoside*
[162466-17-3]
$C_{41}H_{40}N_4O_6$ 684.79
Glycosylating agent. $[\alpha]_D$ +70.5 (c, 0.91 in $CHCl_3$).

Vessella, A. *et al., Bioorg. Med. Chem.*, 1994, **2**, 1169 (*synth, pmr, cmr*)

Palme, M. *et al., Helv. Chim. Acta*, 1995, **78**, 959 (*synth, use*)

Phlean, 11CI P-66

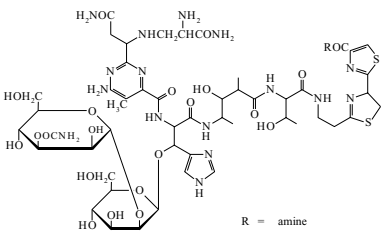
Phlein, 9CI
[39289-27-5]
A β-D-(2→6)-linked fructan. The principal reserve carbohydrate in stem bases of temperate grasses. Mp 220°. $[\alpha]_D$ -50 (c, 1.0 in H_2O). The old isolates Poan from *Poa trivialis* and Graminin from rye are prob. coterminous with phlean.

[55466-18-7]

McDonald, E.J. *et al., Adv. Carbohydr. Chem.*, 1946, **2**, 253 (*rev*)
Schlubach, H.H. *et al., Annalen*, 1950, **544**, 101; 111
Yamamoto, S. *et al., Plant Physiol.*, 1985, **78**, 591 (*isol*)

Phleomycin P-67

[11006-33-0]



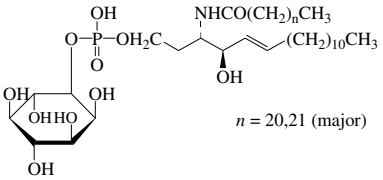
Complex of glycopeptide antibiotics related to Bleomycins. Derived from *Streptomyces verticillus*. Active against gram-positive and -negative bacteria and tumours, inhibitor of nucleic acid synth. A complex mixt. of amines Phleomycins A, C, D_1, D_2, E, F, G and H derived by directed biosynth. or semisynth. See also Bleomycins. λ_{max} 245 (ε 23600); 296 (ε 19600) (H_2O) (Derep). λ_{max} 244 (ε 24500); 298 (ε 8300); 615 (ε 100) (MeOH) (Berdy).
▶ LD_{50} (mus, ivn) 40 - 50 mg/kg , LD_{50} (mus, ivn) 150 mg/kg. SY0540000

Reineckate: Mp 195-197°.

Maeda, K. *et al., J. Antibiot., Ser. A*, 1956, **9**, 82 (*isol*)
Ishizuka, M. *et al., J. Antibiot., Ser. A*, 1966, **19**, 260
Umezawa, H. *et al., Antibiotics*, (Corcoran, J. *et al*, Eds.), Springer, 1974, **3**, 21 (*struct*)
Takita, T. *et al., J. Antibiot.*, 1978, **31**, 801 (*struct*)
Earhart, C.F. *et al., Antibiotics*, (Hahn, F., Ed.), Springer, 1979, **V2**, 298 (*rev*)
Hamamichi, N. *et al., J.A.C.S.*, 1993, **115**, 12605 (*struct, bibl*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, PGQ500; PGQ750

Comanthus japonica Phosphceramides P-68

CJP 1



Isol. from the starfish *Comanthus japonica*. Neuritogenic agent.
Amorph. powder.
Mp 205-210°. $[\alpha]_D$ +3.6 (c, 0.7 in $CHCl_3$/MeOH).

CJP 2
Amorph. powder. Mp 203-208°.

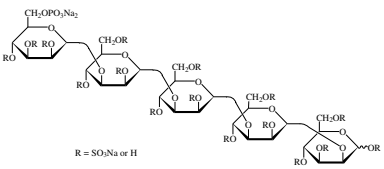
CJP3
Amorph. powder. Mp 203-208°.

CJP4
Neuritogenic agent.
Amorph. powder. Mp 205-210°.

Arao, K. *et al., Chem. Pharm. Bull.*, 1999, **47**, 687-689; 2001, **49**, 695-698; 2004, **52**, 1140-1142 (*isol, pmr, ms, struct*)

Phosphomannopentaose sulfate P-69

PI 88
[185077-23-0]

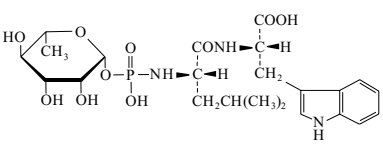


Primarily composed of sulfated phosphomannopentaose (approx. 60%) (shown in diagram) and phosphomannotetraose (approx. 30%) oligosaccharide units. Isol. from the yeast *Hansenula lolstii* (NRRL Y-2448). Inhibitor of heparanase. Antineoplastic agent. Angiogenesis inhibitor. Phase II trials (2004)

Bretthauser, R.K. *et al., Biochemistry*, 1973, **12**, 1251-1256 (*isol, struct*)
Parish, C.R. *et al., Cancer Res.*, 1999, **59**, 3433-3441 (*synth, pharmacol*)
Yu, G. *et al., Eur. J. Med. Chem. (Chim. Ther.)*, 2002, **37**, 783-791 (*synth, pharmacol*)
Cochran, S. *et al., J. Med. Chem.*, 2003, **46**, 4601-4608 (*pharmacol, bibl*)
Khachigian, L.M. *et al., Cardiovasc. Drug Rev.*, 2004, **22**, 1-6 (*rev*)

Phosphoramidon P-70

N-*[N-[[(6-Deoxy-α-L-mannopyranosyl)oxy]hydroxyphosphinyl]-L-leucyl]-L-tryptophan*
[36357-77-4]



$C_{23}H_{34}N_3O_{10}P$ 543.509

Nucleotide antibiotic. Metabolite of *Streptomyces tanashiensis* and various other actinomycetes. Specific inhibitor of Thermolysin and the related enzyme. Inhibits the formation of spontaneous metastases.
Related to Talopeptin. λ_{max} 221 (ε 26000); 275 (sh) (ε 4130); 282 (ε 4400); 290 (ε 3770) (H_2O) (Derep).
▶ YN6688000

Dicyclohexylamine salt:
Cryst. (2-propanol/isopropyl ether). Mp 130-148° dec. $[\alpha]_D^{21}$ -21 (c, 1.0 in H_2O).

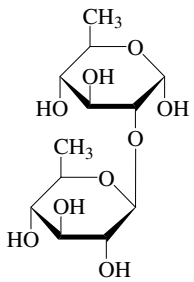
Na salt: Mp 173-178° dec. $[\alpha]_D^{20}$ -33.6 (c, 1.0 in H_2O).

N-*Ac, Me ester:*
$C_{26}H_{38}N_3O_{11}P$ 599.573
Mp 76-78°. $[\alpha]_D^{20}$ -10 ($CHCl_3$).

Umezawa, H. *et al., Methods Enzymol.*, 1976, **45**, 693 (*rev*)
Weaver, L.H. *et al., J. Mol. Biol.*, 1977, **114**, 119 (*cryst struct*)
Giraldi, T. *et al., Anticancer Res.*, 1984, **4**, 221 (*props*)
Rose, M.E. *et al., Biomed. Mass Spectrom.*, 1984, **11**, 10 (*ms*)

Phyllanthose P-71

*6-Deoxy-2-*O*-(6-deoxy-β-D-glucopyranosyl)-D-glucose, 9CI. 2-*O*-(6-Deoxy-β-D-glucopyranosyl)-6-deoxy-D-glucose. β-D-Quinovosyl(1→2)-β-D-quinovose*
[86826-01-9]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Isolated from *Phyllanthus acuminatus*.
Powder.
Mp 218-220°. $[\alpha]_D^{26}$ -3.3 (c, 1.51 in H_2O).

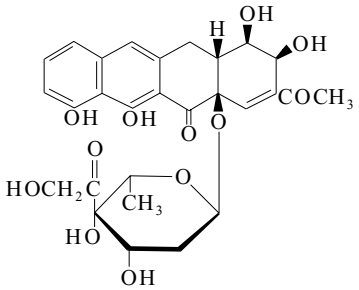
α-Pyranose-*form* [134357-73-6]

Hexa-Ac:
$C_{24}H_{34}O_{15}$ 562.524
Cryst. (Me_2CO/hexane). Mp 224-226°. $[\alpha]_D^{26}$ +71 (c, 0.83 in $CHCl_3$) (+64.1).

Kupchan, S.M. *et al., J.A.C.S.*, 1977, **99**, 3199
Pettit, G.R. *et al., J.O.C.*, 1984, **49**, 4258 (*isol, pmr, synth*)
Smith, A.B. *et al., J.A.C.S.*, 1987, **109**, 1272; 1991, **113**, 2092 (*derivs*)

Pillaromycin A P-72

[30361-37-6]

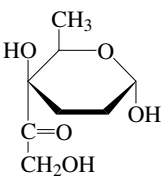


$C_{28}H_{30}O_{12}$ 558.538
Anthracycline-type antibiotic. Isol. from *Streptomyces flavovirens*. Active against gram-positive bacteria and certain tumour cells. Yellow cryst. Sol. MeOH, C_6H_6; fairly sol. Et_2O, H_2O; poorly sol. hexane. $[\alpha]_D$ -37 (MeOH). Shows low cardiotoxicity. λ_{max} 220 (ε 37600); 275 (ε 41400); 298 (sh) (ε 8000); 309 (sh) (ε 6500); 431 (ε 8750) (EtOH) (Derep).
▶ LD_{50} (mus, ipr) 800 mg/kg. QI9457300

Asai, M. *et al., Chem. Pharm. Bull.*, 1970, **18**, 1699; 1713; 1720 (*isol, struct*)
Pezzanite, J.O. *et al., J.A.C.S.*, 1975, **97**, 6250 (*cryst struct*)
Caldwell, C.G. *et al., Diss. Abstr. Int., B*, 1982, **42**, 2834 (*synth*)
White, J.D. *et al., J.O.C.*, 1986, **51**, 1150 (*synth*)

Pillarose, 9CI P-73

*4,6-Dihydroxy-4-(1-hydroxyethyl)-5-oxohexanal, 9CI. 2,3,6-Trideoxy-4-C-hydroxymethylcarbonyl-*threo*-hexopyranose. 2,3,6-Trideoxy-4-C-glycolyl-*threo*-hexose*



α-D-Pyranose-*form*

$C_8H_{14}O_5$ 190.196

α-D-Pyranose-*form*

*Me glycoside, 4′-benzoyl: Methyl 4-C-benzoyloxymethylcarbonyl-2,3,6-trideoxy-α-D-*threo*-hexopyranoside*
$C_{16}H_{20}O_6$ 308.33
Cryst. (Et_2O/hexane). Mp 107-108°. $[\alpha]_D^{23}$ +94.6 (c, 0.45 in $CHCl_3$).

L-*form* [30080-29-6]
Sugar component of Pillaromycin A, P-72 from *Streptomyces flavovirens*.
Syrup. $[\alpha]_D^{22}$ -16.7 (c, 1 in H_2O).

α-L-Pyranose-*form*

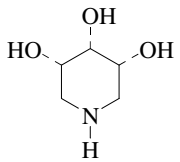
*Me glycoside, 4′-benzoyl: Methyl 4-C-benzoyloxymethylcarbonyl-2,3,6-trideoxy-α-L-*threo*-hexopyranoside*
$C_{16}H_{20}O_6$ 308.33
Cryst. (Et_2O/hexane). Mp 107-108°. $[\alpha]_D^{20}$ -96 (c, 0.51 in $CHCl_3$).

Asai, M. *et al., Chem. Pharm. Bull.*, 1970, **18**, 1699; 1713 (*L-form, isol, struct*)

Pezzanite, J.O. *et al., J.A.C.S.*, 1975, **97**, 6250 (*cryst struct*)
Walker, D.L. *et al., J.A.C.S.*, 1975, **97**, 6251 (α-D-*Me pyr benzoyl,* L-*form, struct*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 2146 (α-L-*Me pyr benzoyl*)
Fraser-Reid, B. *et al., Can. J. Chem.*, 1980, **58**, 2694 (α-D-*Me pyr benzoyl, pmr,* L-*form, struct*)
Brimacombe, J.S. *et al., J.C.S. Perkin 1*, 1980, 273 (α-L-*Me pyr benzoyl, pmr*)

3,4,5-Piperidinetriol, 9CI P-74

3,4,5-Trihydroxypiperidine. 1-Deoxy-5-nor-nojirimycin. 1,5-Dideoxy-1,5-iminopentitol
[152689-94-6]



(3α,4α,5α)-*form*

$C_5H_{11}NO_3$ 133.147

(3α,4α,5α)-*form*
cis,cis-*form. 1,5-Dideoxy-1,5-iminoribitol*
[172588-13-5]

[176597-75-4] β-Glucosidase inhibitor. Cryst. (MeOH aq.) (as hydrochloride). Mp 161-163° (dec.) Mp 185-187° (hydrochloride). *meso*-.

N-*Benzyl:* [177767-33-8]
$C_{12}H_{17}NO_3$ 223.271
Cryst. (EtOAc). Mp 133.8-134.8°.

[3*R*-(3α,4α,5β)]-*form*
(-)-cis,trans-*form. 1,5-Dideoxy-1,5-imino-*D-*arabinitol. 1,5-Dideoxy-1,5-imino-*D-*lyxitol*
[130549-94-9] α-L-Fucosidase inhibitor. Cryst. (MeOH/Et_2O). Mp 182-185° (dec.). $[\alpha]_D^{22}$ -71 (c, 0.6 in MeOH).

Hydrochloride: [187144-38-3]
Cryst. (MeOH). Mp 194-195°. $[\alpha]_D^{20}$ -22 (c, 0.8 in MeOH).

[3*S*-(3α,4α,5β)]-*form*
(+)-cis,trans-*form. 1,5-Dideoxy-1,5-imino-*L-*arabinitol. 1,5-Dideoxy-1,5-imino-*L-*lyxitol*
[130693-66-2]

[187144-40-7]
Cryst. (MeOH aq.) (as hydrochloride). Mp 195.5-196°. $[\alpha]_D^{20}$ +22.7 (c, 0.8 in MeOH).

N-*Me: 1-Methyl-3,4,5-piperidinetriol, 9CI. 3,4,5-Trihydroxy*-N-*methylpiperidine*
[260354-31-2]
$C_6H_{13}NO_3$ 147.174
Constit. of the leaves of *Eugenia uniflora* (nangapiry). Viscous oil. $[\alpha]_D$ +19.1 (c, 1.6 in H_2O).

[(±)-(3α,4α,5β)]-*form*
(±)-cis,trans-*form*
[130114-77-1]
Oil.

Tetra-Ac: [130271-87-3]
$C_{13}H_{19}NO_7$ 301.296
Cryst. (EtOAc/diisopropyl ether). Mp 102-103°.

N-*Me:* [155549-47-6]
$C_6H_{13}NO_3$ 147.174
Oil.

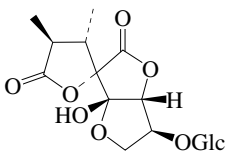
(3α,4β,5α)-*form* trans,trans-*form. 1,5-Dideoxy-1,5-iminoxylitol*
[13042-55-2]

[4451-19-8] β-Glucosidase inhibitor. Cryst. (MeOH/EtOAc/H_2O). Mp 126.5-127.5°. *meso*-.

Paulsen, H. *et al., Chem. Ber.*, 1967, **100**, 2467-2473 (*3α,4β,5α-form*)
Bernotas, R.C. *et al., Tet. Lett.*, 1990, **31**, 3393-3396 (*synth, pmr, cmr*)
Tschamber, T. *et al., Tetrahedron*, 1994, **50**, 1135-1152 (*3α,4α,5β-form, synth, ir, pmr, derivs*)
Legler, G. *et al., Carbohydr. Res.*, 1995, **272**, 17-30 (*3R-(3α,4α,5β)-form, synth, pmr, cmr*)
Godskesen, M. *et al., Bioorg. Med. Chem.*, 1996, **4**, 1857-1865 (*synth, pmr, cmr, biochem*)
Igarashi, Y. *et al., Bioorg. Med. Chem. Lett.*, 1996, **6**, 553-558 (*3α,4α,5α-form, synth, pmr, cmr, biochem*)
Kim, D.K. *et al., J.C.S. Perkin 1*, 1996, 803 (*3α,4α,5α-form, synth, pmr, cmr*)
Matsumura, T. *et al., Pharm. Biol.*, 2000, **38**, 302-307 (*N-Me*)

Piptoside, 9CI P-75

[10563-95-8]

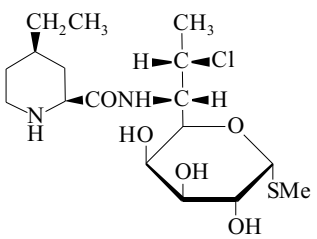


Absolute Configuration

$C_{17}H_{24}O_{12}$ 420.369
Constit. of *Piptocalyx moorei*.
Mp 228-230°. $[\alpha]_D^{16}$ -28 (c, 2.0 in H_2O).
Penta-Ac: Mp 194-194.5°. $[\alpha]_D^{26}$ -18 (c, 3.16 in $CHCl_3$).
Penta-Me ether: Mp 124°. $[\alpha]_D^{27}$ -23 (c, 3.3 in EtOH).
Aglycone: Piptosidine
Platelets (2-propanol). Mp 187.5-190°. $[\alpha]_D^{16}$ -8 (c, 2 in H_2O).
Riggs, N.V. *et al., Aust. J. Chem.*, 1962, **15**, 305; 1966, **19**, 683
Lowry, J.B. *et al., Aust. J. Chem.*, 1975, **28**, 109 (*abs config*)

Pirlimycin, INN P-76

U 57930E. Antibiotic U 57930E
[79548-73-5]



$C_{17}H_{31}ClN_2O_5S$ 410.961
Antimalarial agent. Active against aerobic gram-positive bacteria. Used to treat bovine mastitis. Cryst. (H_2O). Log P 0.19 (uncertain value) (calc). Clindamycin analogue.

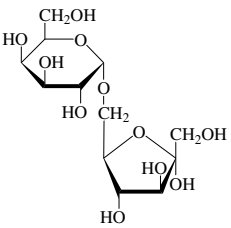
Hydrochloride: ***Pirlimycin hydrochloride, USAN***
[78822-40-9]
Cryst. + $1H_2O$. Mp 210-212°. $[\alpha]_D^{25}$ +181 (H_2O).

[77495-92-2]

Ahonkhai, V.I. *et al., Antimicrob. Agents Chemother.*, 1982, **21**, 902 (*props*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 147
Birkenmeyer, R.D. *et al., J. Med. Chem.*, 1984, **27**, 216 (*synth, props*)
Marshall, V.P. *et al., J. Antibiot.*, 1991, **44**, 895 (*pmr, cmr*)
Thornsberry, C. *et al., Antimicrob. Agents Chemother.*, 1993, **37**, 1122 (*use*)

Planteobiose P-77

*6-*O*-α-D-Galactopyranosyl-D-fructose. Melibiulose*



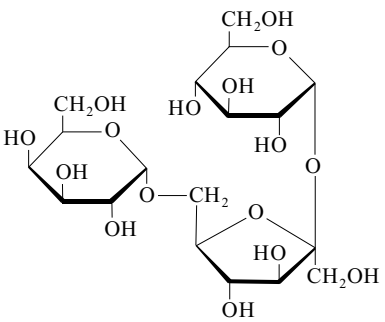
α-Furanose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Formed upon mild acid hydrolysis of the trisaccharide Planteose, P-78. $[\alpha]_D$ +55.5 (H_2O). Reduction with $NaBH_4$ gives a mixt. of 6-*O*-α-D-galactopyranosyl-D-glucitol and 6-*O*-α-D-galactopyranosyl-D-mannitol.

French, D. *et al., J.A.C.S.*, 1953, **75**, 709

Planteose P-78

O-α-D-*Galactopyranosyl-(1→6)-β-D-fructofuranosyl* α-D-*glucopyranoside, 8CI*
[470-57-5]



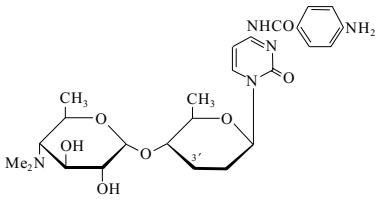
$C_{18}H_{32}O_{16}$ 504.441
Isol. from seeds of *Plantago major* and *Plantago ovata* and members of the Solanaceae and Malvaceae.
Mp 123° (dihydrate). $[\alpha]_D$ +129 (c, 4.0 in H_2O).

Per-Ac: Mp 135°. $[\alpha]_D^{26}$ +97 (c, 1.0 in $CHCl_3$).

French, D. *et al., J.A.C.S.*, 1953, **75**, 709
Rohrer, D.C. *et al., Acta Cryst. B*, 1972, **28**, 425 (*struct*)

Plicacetin P-79

Amicetin B. R 285. Antibiotic R 285
[43043-15-8]



$C_{25}H_{35}N_5O_7$ 517.581

Nucleoside antibiotic. Prod. by *Streptomyces plicatus*. Potent inhibitor of *in vitro* protein synthesis. Inhibitor of gram-positive and gram-negative bacteria. Needles (MeOH aq.). Mp 182-184°. $[\alpha]_D^{26}$ +181 (c, 2.7 in MeOH). λ_{max} 257 (ε 19000); 312 (ε 15100) (0.1*N* HCl) (Derep). λ_{max} 329 (ε 33000) (0.1*N* NaOH) (Derep). λ_{max} 249 (ε 13800); 321 (ε 27700) (pH 7 phosphate buffer) (Derep).

▶ CV2150000

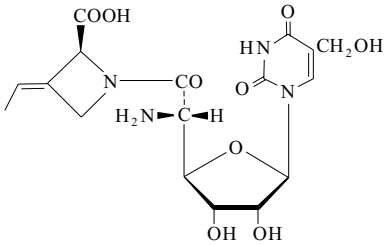
3′β-Hydroxy: ***Oxyplicacetin****. 3′-Hydroxyplicacetin. Cytosaminomycin E*
[100108-92-7]
$C_{25}H_{35}N_5O_8$ 533.58
From *Streptomyces ramulosus*. Sol. MeOH, EtOH; fairly sol. H_2O; poorly sol. EtOAc, hexane. λ_{max} 204 (ε 25100); 215 (sh) (ε 17100); 240 (sh) (ε 11700); 254 (ε 12800); 326 (ε 27700) (MeOH) (Derep). λ_{max} 204 (ε 25100); 250; 254 (ε 12800); 320; 326 (ε 27700) (MeOH) (Berdy). λ_{max} 249 (ε 2600); 320 (ε 38000) (H_2O) (Berdy). λ_{max} 256 (ε 30000); 312 (ε 31000) (HCl) (Berdy). λ_{max} 327 (ε 4000) (NaOH) (Berdy).

*3′β-Hydroxy, 4″-*N*-Me:* ***Cytosaminomycin B****. Antibiotic KO 8119D. KO 8119D*
[157878-03-0]
$C_{26}H_{37}N_5O_8$ 547.607
From *Streptomyces* sp. KO-8119. Anticoccidial agent. Pale yellow cryst. Sol. MeOH, EtOAc; poorly sol. H_2O. $[\alpha]_D^{25}$ +122 (c, 0.1 in MeOH). λ_{max} 204 (ε 23000); 242 (sh) (ε 11400); 255 (ε 11800); 339 (ε 26500) (MeOH) (Derep). λ_{max} 204 (ε 23000); 255 (ε 11800); 339 (ε 26500) (MeOH) (Berdy).

Haskell, T.H. *et al., J.A.C.S.*, 1958, **80**, 743 (*isol*)
Stevens, C.L. *et al., J.A.C.S.*, 1972, **94**, 3280 (*synth*)
Chen, Y. *et al., CA*, 1986, **104**, 65478 (*Oxyplicacetin*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Haneda, K. *et al., J. Antibiot.*, 1994, **47**, 774; 782 (*Cytosaminomycin B*)

Polyoxin I P-80

[22886-33-5]



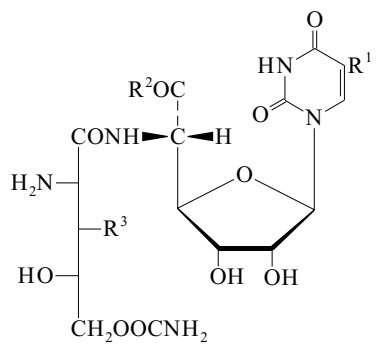
$C_{17}H_{22}N_4O_9$ 426.382

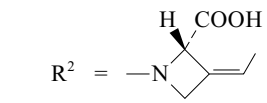
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. Amorph. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ -35 (c, 1 in H_2O). λ_{max} 262 (E1%/1cm 165) (HCl) (Berdy). λ_{max} 264 (E1%/1cm 123) (NaOH) (Berdy).

Isono, K. *et al., Agric. Biol. Chem.*, 1967, **31**, 190; 1968, **32**, 1193 (*isol, struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)

Polyoxin A P-81

[19396-03-3]





$C_{23}H_{32}N_6O_{14}$ 616.538

Member of a large closely related family. Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. Used as agricultural fungicide. Cryst. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ -30 (c, 1.02 in H_2O). pK_{a1} 3; pK_{a2} 7.3; pK_{a3} 9.6. λ_{max} 262 (E1%/1cm 142) (HCl) (Berdy). λ_{max} 264 (E1%/1cm 103) (NaOH) (Berdy). λ_{max} 262 (E1%/1cm 102) (H_2O) (Berdy).

▶ LD_{50} (mus, ivn) 200 mg/kg; LD_{50} (mus, ivn) 800 - 1200 mg/kg. CM4310640

Isono, K. *et al., Agric. Biol. Chem.*, 1966, **30**, 813; 1967, **31**, 190 (*struct, isol, props*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490; 1978, **100**, 3937 (*struct, ir, uv, nmr, biosynth, cmr*)
Hanessian, S. *et al., Tet. Lett.*, 1993, **34**, 4153 (*struct*)

Polyoxin B P-82

Piomycin. Polyoxin AL
[19396-06-6]
As Polyoxin A, P-81 with $R^1 = CH_2OH$, $R^2 = R^3 = OH$

$C_{17}H_{25}N_5O_{13}$ 507.41

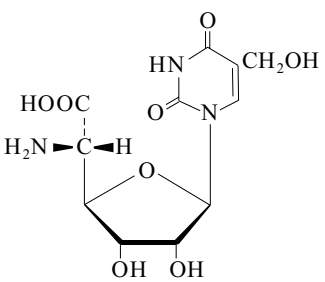
Nucleoside antibiotic. Isol. from *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. $[\alpha]_D^{20}$ +34 (c, 1.03 in H_2O). pK_{a1} 3; pK_{a2} 6.9; pK_{a3} 9.4.

▶ LD_{50} (rat, orl) approx. 15000 mg/kg. LD_{50} (mus, ivn) 200 mg/kg. BA2927000

Isono, K. *et al., Agric. Biol. Chem.*, 1967, **31**, 190 (*isol, props*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)
Sakurai, H. *et al., Pestic. Sci.*, 1978, **9**, 207 (*activity*)
Pesticide Manual, 9th edn., 1991, 9890
Agrochemicals Handbook, 3rd edn., Royal Society of Chemistry, 1992, A502
Uchida, K. *et al., Heterocycles*, 2000, **53**, 2253 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, PKE100

Polyoxin C P-83

1-(5-Amino-5-deoxy-β-D-allofuranosyl)-5-(hydroxymethyl)uracil
[21027-33-8]



$C_{11}H_{15}N_3O_8$ 317.255

Nucleoside antibiotic. Metab. of *Streptomyces cacaoi* var. *asoensis*. Antifungal agent. Cryst. + $1H_2O$ (H_2O). Sol. H_2O; poorly sol. MeOH, hexane. Mp 260-267° dec. $[\alpha]_D^{24}$ +11.2 (c, 0.5 in H_2O). pK_{a1} 2.4; pK_{a2} 8.1; pK_{a3} 9.5 (20°, H_2O). Monohydrate loses water on drying at 100°. λ_{max} 262 (E1%/1cm 297) (H_2O) (Berdy). λ_{max} 262 (E1%/1cm 297) (HCl) (Berdy). λ_{max} 264 (E1%/1cm 231) (NaOH) (Berdy).

▶ LD_{50} (mus, ivn) 100 mg/kg; LD_{50} (mus, ivn) 500 - 700 mg/kg. DT3740000

N^3*-Ac:* [53710-54-6]
Mp 220° dec.

Isono, K. *et al., Agric. Biol. Chem.*, 1967, **31**, 190 (*isol, props*)
Asahi, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 1046 (*cryst struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490; 1978, **100**, 3937 (*struct, ir, uv, nmr, biosynth, cmr*)
Azuma, T. *et al., Chem. Pharm. Bull.*, 1977, **25**, 1740 (*synth, derivs*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Barett, A.G.M. *et al., J.O.C.*, 1990, **55**, 3853 (*synth, bibl*)
Auberson, Y. *et al., Tetrahedron*, 1990, **46**, 7019 (*synth*)
Aggarwal, V.K. *et al., J.C.S. Perkin 1*, 1997, 2531-2537 (*synth*)

Kutterer, K.M.K. *et al., Heterocycles*, 1999, **51**, 1409-1420 (*synth*)

Polyoxin D P-84

[22976-86-9]
As Polyoxin A, P-81 with
R_1 = COOH, R_2 = R_3 = OH
$C_{17}H_{23}N_5O_{14}$ 521.394
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic which inhibits chitin formation. Cryst. powder. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ +30 (c, 1 in H_2O). Dec. >190°. λ_{max} 218 (E1%/1cm 217); 276 (E1%/1cm 276) (HCl) (Berdy). λ_{max} 271 (E1%/1cm 137) (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) 500 - 700 mg/kg.
UV7717100
Suzuki, S. *et al., Agric. Biol. Chem.*, 1966, **30**, 817 (*isol, props*)
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 1193 (*struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)
Shenbagamurthi, P. *et al., J. Chromatogr.*, 1982, **245**, 133 (*purifn*)
Uchida, K. *et al., Heterocycles*, 2000, **53**, 2253 (*synth*)
Pesticide Manual, 12th edn., 2000, No. 630

Polyoxin E P-85

[22976-87-0]
As Polyoxin A, P-81 with
R^1 = COOH, R^2 = OH, R^3 = H
$C_{17}H_{23}N_5O_{13}$ 505.394
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. Amorph. powder. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ +19 (c, 1 in H_2O). Dec. >180°. λ_{max} 218 (E1%/1cm 200); 276 (E1%/1cm 200) (HCl) (Berdy). λ_{max} 271 (E1%/1cm 128) (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) 500 - 700 mg/kg.
Suzuki, S. *et al., Agric. Biol. Chem.*, 1966, **30**, 817 (*isol*)
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 1193 (*struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)

Polyoxin F P-86

[23116-76-9]
As Polyoxin A, P-81 with
R^1 = COOH, R^3 = OH (R^2 as in Polyoxin *A*)
$C_{23}H_{30}N_6O_{15}$ 630.521
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. Amorph. powder. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ -18 (c, 1 in H_2O). Dec. >190°. λ_{max} 276 (E1%/1cm 181) (HCl) (Berdy). λ_{max} 271 (E1%/1cm 118) (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) 500 - 700 mg/kg.
UV7717000
Suzuki, S. *et al., Agric. Biol. Chem.*, 1966, **30**, 817 (*isol*)
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 1193 (*struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)
Hanessian, S. *et al., Tet. Lett.*, 1993, **34**, 4153 (*struct*)

Polyoxin G P-87

[22976-88-1]
As Polyoxin A, P-81 with
R^1 = CH_2OH, R^2 = OH, R^3 = H
$C_{17}H_{25}N_5O_{12}$ 491.411
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. Amorph. powder. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ +37 (c, 1 in H_2O). Dec. >190°. λ_{max} 262 (E1%/1cm 170) (HCl) (Berdy). λ_{max} 264 (E1%/1cm 134) (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) 500 - 700 mg/kg.
BA2927400
Suzuki, S. *et al., Agric. Biol. Chem.*, 1966, **30**, 817 (*isol*)
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 1193 (*struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)

Polyoxin H P-88

[24695-54-3]
As Polyoxin A, P-81 with
R^1 = CH_3, R^3 = OH (R^2 as in Polyoxin A)
$C_{23}H_{32}N_6O_{13}$ 600.538
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal antibiotic. Needles. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{20}$ -38 (c, 1 in H_2O). λ_{max} 265 (E1%/1cm 127) (HCl) (Berdy). λ_{max} 266 (E1%/1cm 103) (NaOH) (Berdy).
▶ LD_{50} (mus, ivn) 500 - 1100 mg/kg.
CM4310650
Isono, K. *et al., Agric. Biol. Chem.*, 1967, **31**, 190; 1968, **32**, 1193 (*isol, struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)
Hanessian, S. *et al., Tet. Lett.*, 1993, **34**, 4153 (*struct*)

Polyoxin J P-89

[22976-89-2]
As Polyoxin A, P-81 with
R_1 = CH_3, R_2 = R_3 = OH
$C_{17}H_{25}N_5O_{12}$ 491.411
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal agent. Amorph. powder. Sol. H_2O; poorly sol. MeOH, hexane.
Mp 195-200° (dec.). $[\alpha]_D^{22}$ +31.7 (c, 1 in H_2O).
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 792 (*isol, struct*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)
Kuzuhara, H. *et al., Tet. Lett.*, 1973, 5055 (*synth, ir, nmr*)
Isono, K. *et al., CA*, 1979, **93**, 65606 (*biosynth*)
Chida, N. *et al., Chem. Comm.*, 1994, 111 (*synth*)
Ghosh, A.K. *et al., J.O.C.*, 1999, **64**, 2789-2795 (*synth, bibl*)
Uchida, K. *et al., Synthesis*, 1999, 1678-1686 (*synth, ir, pmr, ms*)

Polyoxin K P-90

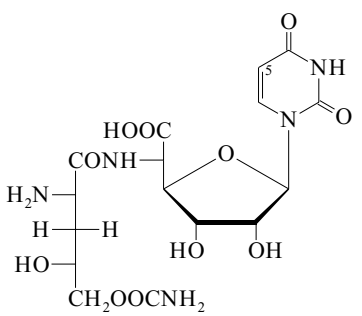
[22886-46-0]
As Polyoxin A, P-81 with
R^1 = H, R^3 = OH (R^2 as in Polyoxin A)
$C_{22}H_{30}N_6O_{13}$ 586.511
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal agent. Sol. H_2O; poorly sol. MeOH, hexane. $[\alpha]_D^{22}$ -16.5 (c, 1 in H_2O). λ_{max} (HCl) (Berdy). λ_{max} 262 (ϵ 7230) (NaOH) (Berdy).
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 792 (*isol*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490 (*struct, ir, uv, nmr*)
Shibaya, K. *et al., Agric. Biol. Chem.*, 1972, **36**, 1229 (*synth, ir, uv, nmr*)
Hanessian, S. *et al., Tet. Lett.*, 1993, **34**, 4153 (*struct*)

Polyoxin L P-91

Piomycin B
[22976-90-5]
As Polyoxin A, P-81 with
R_1 = H, R_2 = R_3 = OH
$C_{16}H_{23}N_5O_{12}$ 477.384
Nucleoside antibiotic. Produced by *Streptomyces cacaoi* var. *asoensis*. Antifungal agent.
Mp 180-183° (dec.). $[\alpha]_D^{22}$ +34.4 (c, 1 in H_2O).
▶ BA2926500
5-Fluoro: 5-Fluoropolyoxin L
[50355-67-4]
$C_{16}H_{22}FN_5O_{12}$ 495.374
Prod. by *Streptomyces cacaoi* var. *asoensis* with 5-fluorouracil. Antibacterial, inhibits chitin synth. Powder. Sol. H_2O. $[\alpha]_D^{25}$ +45.1 (c, 1 in H_2O). λ_{max} 267 (ϵ 8100) (HCl) (Berdy). λ_{max} 265 (ϵ 6400) (NaOH) (Berdy).
[59519-82-3]
Isono, K. *et al., Agric. Biol. Chem.*, 1968, **32**, 792 (*isol*)
Isono, K. *et al., J.A.C.S.*, 1969, **91**, 7490; 1973, **95**, 5788 (*struct, ir, uv, nmr, deriv*)
Shibuya, K. *et al., Agric. Biol. Chem.*, 1972, **36**, 1229 (*synth, ir, uv, nmr*)
Japan. Pat., 1975, 75 32 318; *CA*, **85**, 31610 (*isol*)
Azuma, T. *et al., Chem. Pharm. Bull.*, 1977, **25**, 1740 (*synth, derivs*)
Uchida, K. *et al., Synthesis*, 1999, 1678-1686 (*synth, ir, pmr, cmr*)

Polyoxin M P-92

[34718-88-2]



$C_{16}H_{23}N_5O_{11}$ 461.385
Nucleoside antibiotic. Semisynthetic. Antifungal agent. Sol. H_2O; poorly sol. MeOH, hexane. Mp 190° dec. $[\alpha]_D^{20}$

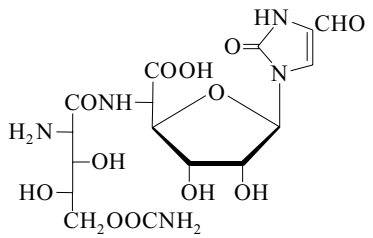
+49.9 (c, 1 in H_2O). Log P -7.88 (calc). λ_{max} 259 (ϵ 8650) (0.05*M* HCl). λ_{max} 261 (ϵ 6430) (0.05*M* NaOH).

5-Fluoro: ***5-Fluoropolyoxin M***
[50355-68-5]
$C_{16}H_{22}FN_5O_{11}$ 479.375
Prod. by *Streptomyces cacoi* var. *asoensis* ATCC 19093 with 5-fluorouracil. Antibacterial agent. Also inhibits chitin synth. Powder. Sol. H_2O. $[\alpha]_D^{25}$ +42.5 (c, 1 in H_2O). Log P -7.4 (calc). λ_{max} 267 (ϵ 7900) (HCl). λ_{max} 268 (ϵ 6400) (NaOH).

Shibuya, K. *et al., Agric. Biol. Chem.*, 1972, **36**, 1229-1236 (*synth*)
Isono, K. *et al., J.A.C.S.*, 1973, **95**, 5788-5789 (*5-Fluoropolyoxin M*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711-1739 (*rev*)

Polyoxin N P-93

[37362-29-1]

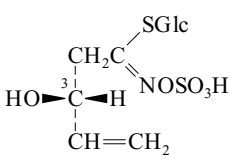


$C_{16}H_{23}N_5O_{12}$ 477.384
Nucleoside antibiotic. Isol. from *Streptomyces piomogenus* ATCC21137. Active against phytopathogenic fungi and yeasts. Sol. H_2O; poorly sol. MeOH, hexane.
Mp 190° dec. $[\alpha]_D^{23}$ +15.3 (c, 1.035 in H_2O). pK_{a1} 2.9; pK_{a2} 7.4; pK_{a3} 10.2. λ_{max} 286 (E1%/1cm 236) (HCl) (Berdy). λ_{max} 309 (E1%/1cm 181) (NaOH) (Berdy).
▶ BA2925500

Uramoto, M. *et al., Tet. Lett.*, 1980, **21**, 3395 (*struct*)
Uramoto, M. *et al., Agric. Biol. Chem.*, 1981, **45**, 1901
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Progoitrin P-94

1-Thio-β-D-glucopyranose 1-[3-hydroxy-N-(sulfooxy)-4-pentenimidate], 9CI. 2-Hydroxy-3-butenyl glucosinolate. Glucorapiferin
[585-95-5]



$C_{11}H_{19}NO_{10}S_2$ 389.404
Isol. from *Brassica napus* and other *Brassica* spp. Thioglycoside biosynthetic precursor to goitrin.

Na salt:
Long cryst. (EtOH). Mp 145°. $[\alpha]_D$ -22.3 (H_2O). Unstable to air. Browns at 128-130°.

NH_4 salt: [87859-15-2]
Hard hygroscopic solid. Mp 136°. $[\alpha]_D^{20}$ -22.2 (c, 0.5 in H_2O).

Penta-Ac:
Cryst. (as K salt). Mp 178-180°. $[\alpha]_D^{25}$ -9.5 (c, 2.6 in H_2O).

3-Epimer: ***Epiprogoitrin***. *Epiglucorapiferin*
[19237-18-4]
$C_{11}H_{19}NO_{10}S_2$ 389.404
The major glucosinolate from crambe seed. Amorph. solid (as K salt). $[\alpha]_D^{25}$ -25 (c, 3.4 in H_2O).
▶ LZ5778500

3-Epimer, penta-Ac:
Cryst. (EtOH aq.) (as K salt). $[\alpha]_D^{25}$ -14.8 (c, 1.7 in H_2O).

3-Epimer, 3-benzoyl: ***3-O-Benzoylepiprogoitrin***
$C_{18}H_{23}NO_{11}S_2$ 493.512
Constit. of *Arabidopsis thaliana*.

[31362-92-2, 35522-68-0]

Kjaer, A. *et al., Acta Chem. Scand.*, 1956, **10**, 1365; 1959, **13**, 144 (*abs config*)
Kreula, M. *et al., Acta Chem. Scand.*, 1959, **13**, 1375 (*occur*)
Greer, M.A. *et al., Arch. Biochem. Biophys.*, 1962, **99**, 369 (*isol, ir, uv*)
Daxenbichler, M.E. *et al., Biochemistry*, 1965, **4**, 318; 1966, **5**, 692 (*Epiprogoitrin*)
Björkman, R. *et al., Acta Chem. Scand.*, 1972, **26**, 1111 (*isol*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Hanley, A.B. *et al., J. Sci. Food Agric.*, 1983, **34**, 869 (*isol*)
MacLeod, A.J. *et al., J.C.S. Perkin 1*, 1983, 717 (*synth*)
Cox, J.I. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*cmr*)
Verkerk, R. *et al., Natural Toxicants in Food*, (ed. Watson, D.H.) Sheffield Academic Press, 1998, 29-53 (*rev, occur*)
Reichelt, M. *et al., Phytochemistry*, 2002, **59**, 663-671 (*isol, pmr, cmr*)

2-Propenyl glucosinolate P-95

1-Thio-β-D-glucopyranose 1-[N-(sulfooxy)-3-butenimidate], 9CI. ***Sinigrin***. *Allyl glucosinolate. Myronic acid*
[534-69-0]

[3952-98-5]

$H_2C{=}CHCH_2C(SGlc){=}NOSO_3H$

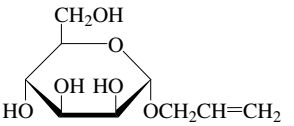
$C_{10}H_{17}NO_9S_2$ 359.378
Isol. from seeds of black mustard *Brassica nigra* and cabbage, as K salt. Present in many crucifers, major glucosinolate in Brussels sprouts (*Brassica oleraceae*). Biol. precursor of 3-Isothiocyanato-1-propene. Shows antifungal activity. Cryst. (as K salt).
Mp 125-127° (K salt). $[\alpha]_D^{28}$ -17 (c, 0.2 in H_2O).

Tetra-Ac: [5019-27-2]
Cryst. (as K salt). Mp 193-195° (K salt). $[\alpha]_D^{26}$ -16 (c, 0.14 in H_2O).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 904D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1456C (*nmr*)
Benn, M.H. *et al., Chem. Comm.*, 1965, 445 (*synth*)
Matsuo, M. *et al., Tet. Lett.*, 1968, 4101 (*biosynth*)
Marsh, R.E. *et al., Acta Cryst. B*, 1970, **26**, 1030 (*cryst struct*)
v. Etten, C.H. *et al., J. Agric. Food Chem.*, 1976, **24**, 452; *CA*, **85**, 3935z
Watson, W.H. *et al., Cryst. Struct. Commun.*, 1977, **6**, 441 (*cryst struct*)
Fenwick, G.R. *et al., Biomed. Mass Spectrom.*, 1980, **7**, 410; 1981, **8**, 265 (*ms*)
Parry, R.J. *et al., J.A.C.S.*, 1982, **104**, 3217 (*biosynth*)
Hanley, A.B. *et al., J. Sci. Food Agric.*, 1983, **34**, 869 (*isol*)
Cox, I.J. *et al., Carbohydr. Res.*, 1984, **132**, 323 (*cmr, pmr*)
Mawson, R. *et al., Natural Toxicants - Vol. II, Glycosides*, CRC Press, Boca Raton, 1989, (*glucosinolates, tox, rev*)
Abramski, W. *et al., J. Carbohydr. Chem.*, 1996, **15**, 109 (***synth***)
Olivier, C. *et al., J. Chem. Ecol.*, 1999, **25**, 2687-2701 (*activity, occur*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AGH125

2-Propenyl mannopyranoside P-96

Allyl mannopyranoside



α-D-*form*

$C_9H_{16}O_6$ 220.222

α-D-*form* [41308-76-3]
Cryst. (Me_2CO). Mp 138-139°. $[\alpha]_D$ +51.6 (c, 0.23 in H_2O).

4,6-Di-Ac: 2-Propenyl 4,6-di-O-acetyl-α-D-mannopyranoside. Allyl 4,6-di-O-acetyl-α-D-mannopyranoside
$C_{13}H_{20}O_8$ 304.296
Cryst. (Me_2CO/petrol). Mp 109-110°. $[\alpha]_D^{20}$ +58 (c, 2 in $CHCl_3$).

2,4,6-Tri-Ac: 2-Propenyl 2,4,6-tri-O-acetyl-α-D-mannopyranoside. Allyl 2,4,6-tri-O-acetyl-α-D-mannopyranoside
$C_{15}H_{22}O_9$ 346.333
$[\alpha]_D^{20}$ +21.5 (c, 2 in $CHCl_3$).

2,3-O-Isopropylidene: 2-Propenyl 2,3-O-isopropylidene-α-D-mannopyranoside. Allyl 2,3-O-isopropylidene-α-D-mannopyranoside
$C_{12}H_{20}O_6$ 260.286
Cryst. (Et_2O/hexane). Mp 76-78°. $[\alpha]_D^{20}$ +37.5 (c, 2 in $CHCl_3$).

Tetrabenzoyl: 2-Propenyl 2,3,4,6-tetra-O-benzoyl-α-D-mannopyranoside. Allyl 2,3,4,6-tetra-O-benzoyl-α-D-mannopyranoside
$C_{37}H_{32}O_{10}$ 636.654
Amorph. glass. $[\alpha]_D^{20}$ -54.5 (c, 0.86 in $CHCl_3$).

2,4-Dibenzyl: Allyl 2,4-di-O-benzyl-α-D-mannopyranoside. 2-Propenyl 2,4-di-O-benzyl-α-D-mannopyranoside
[97576-59-5]
$C_{23}H_{28}O_6$ 400.471
$[\alpha]_D^{24}$ +35 (c, 0.5 in $CHCl_3$).

3,4-Dibenzyl: Allyl 3,4-di-O-benzyl-α-D-mannopyranoside. 2-Propenyl 3,4-di-O-benzyl-α-D-mannopyranoside

[106466-83-5]
$C_{23}H_{28}O_6$ 400.471
$[\alpha]_D^{22}$ +45 (c, 0.3 in $CHCl_3$).

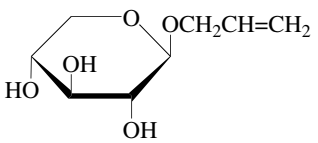
2,3,4-Tribenzyl: Allyl 2,3,4-tri-O-benzyl-α-D-mannopyranoside. 2-Propenyl 2,3,4-tri-O-benzyl-α-D-mannopyranoside
[93451-42-4]
$C_{30}H_{34}O_6$ 490.595
$[\alpha]_D^{25}$ +38 (c, 0.6 in $CHCl_3$).

2,4,6-Tribenzyl: Allyl 2,4,6-tri-O-benzyl-α-D-mannopyranoside. 2-Propenyl tri-O-benzyl-α-D-mannopyranoside
[603962-08-9]
$C_{30}H_{34}O_6$ 490.595
$[\alpha]_D^{25}$ +22 (c, 0.5 in $CHCl_3$).

β-D-*form*
Syrup. $[\alpha]_D$ -55 (c, 1 in H_2O).
Winnik, F.M. *et al., J.O.C.*, 1982, **47**, 2701-2707 (*α-D-form, synth, pmr*)
Chernyak, A.T. *et al., Carbohydr. Res.*, 1984, **128**, 269-281 (*α-D-2,3-O-isopropylidene, α-D-tri-Ac*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1999, **72**, 765-777 (*α-D-form, synth*)
Utille, J.P. *et al., Carbohydr. Res.*, 2000, **329**, 431-439 (*β-D-form, synth, pmr, cmr*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1409-1421 (*α-D-benzyl derivs*)
Pakulski, Z. *et al., Synthesis*, 2003, 2074-2078 (*α-D-tetrabenzoyl*)

2-Propenyl xylopyranoside P-97

Allyl xylopyranoside



$C_8H_{14}O_5$ 190.196

α-D-*form* [140420-69-5]
Mp 106-109°. $[\alpha]_D^{20}$ +159.5 (c, 1.0 in MeOH).

Tri-Ac: Allyl 2,3,4-tri-O-acetyl-α-D-xylopyranoside
[151557-76-5]
$C_{14}H_{20}O_8$ 316.307
Oil. $[\alpha]_D^{20}$ +115.6 (c, 0.5 in CH_2Cl_2).

2,3-Isopropylidene: Allyl 2,3-O-isopropylidene-α-D-xylopyranoside
[189076-84-4]
$C_{11}H_{18}O_5$ 230.26
Mp 74-76°. $[\alpha]_D^{20}$ +146.6 (c, 1.1 in $CHCl_3$).

Tribenzyl: Allyl 2,3,4-tri-O-benzyl-α-D-xylopyranoside
[196859-38-8]
$C_{29}H_{32}O_5$ 460.569
Solid. $[\alpha]_D^{20}$ +36.1 (c, 0.4 in $CHCl_3$).

β-D-*form* [73787-48-1]
Long needles (Et_2O). Mp 75.5-77.5°. $[\alpha]_D$ -63 (c, 1.5 in Me_2CO).

3,4-Di-Ac: Allyl 3,4-di-O-acetyl-β-D-xylopyranoside
[185809-29-4]
$C_{12}H_{18}O_7$ 274.27
No phys. props. reported.

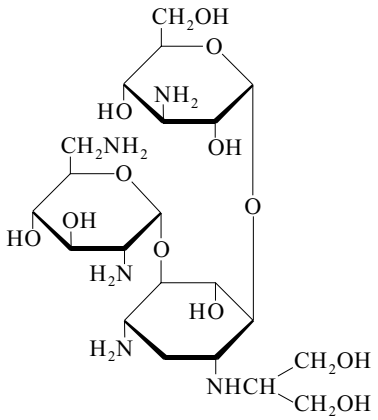
2,3,4-Tri-Ac: Allyl 2,3,4-tri-O-acetyl-β-D-xylopyranoside
[39102-79-9]
$C_{14}H_{20}O_8$ 316.307
Needles (EtOH/petrol).

Tribenzyl: Allyl 2,3,4-tri-O-benzyl-β-D-xylopyranoside
[138196-11-9]
$C_{29}H_{32}O_5$ 460.569
Cryst. Mp 64-66°. $[\alpha]_D^{20}$ +8 (c, 0.2 in $CHCl_3$).

Helm, R.F. *et al., J.O.C.*, 1991, **56**, 7015-7021 (*synth, 2,3,4-tri-Ac*)
Liu, M.Z. *et al., Carbohydr. Res.*, 1996, **290**, 233-237 (*3,4-di-Ac*)
Goodby, J.W. *et al., Liq. Cryst.*, 1997, **22**, 497-508 (*α-D-form, α-D-2,3-isopropylidene*)
Moitessier, N. *et al., Eur. J. Org. Chem.*, 2000, 995-1005 (*α-D-tribenzyl, β-D-tribenzyl*)

Propikacin, INN, USAN P-98

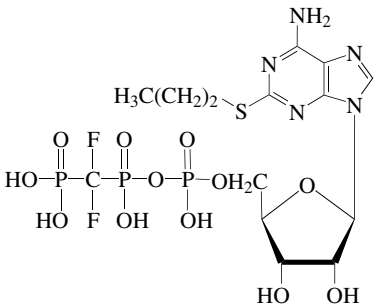
3-Amino-3-deoxy-α-D-glucopyranosyl-(1→6)-[2,6-diamino-2,6-dideoxy-α-D-glucopyranosyl-(1→4)]-2-deoxy-N′-[2-hydroxy-1-(hydroxymethyl)ethyl]-D-streptamine, 9CI. N′-(1,3-Dihydroxy-2-propyl)kanamycin C. UK 31214
[66887-96-5]



$C_{21}H_{43}N_5O_{12}$ 557.597
Semisynthetic aminoglycoside antibiotic. Active against gram-negative bacteria including some aminoglycoside resistant strains. Amorph. Mp 165-170°.
Brammer, K.W. *et al., Curr. Chemother. Infect. Dis., Proc. Int. Congr. Chemother., 11th*, 1979, **1**, 389; 390; 392 (*struct, synth, pharmacol, tox*)
Richardson, K. *et al., J. Antibiot.*, 1979, **32**, 973 (*synth, pharmacol*)
Thomas, M.B. *et al., Tet. Lett.*, 1980, **21**, 4981 (*synth*)

2-Propylthio-β,γ-difluoromethylene ATP P-99

2-(Propylthio)-5′-adenylic acid monoanhydride with (difluoromethylene)bis[phosphonic acid], 9CI. ARL 66096. FPL 66096
[145783-24-0]



$C_{14}H_{22}F_2N_5O_{12}P_3S$ 615.338
Purinoceptor P_{2T} antagonist. Inhibits ADP-induced platelet aggregation. Characterised by ^{31}P nmr.

[145782-74-7]

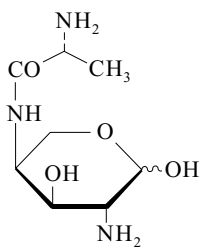
Eur. Pat., 1992, 508 687, (*Fisons*); *CA*, **118**, 81338u (*synth*)
Humphries, R.G. *et al., Br. J. Pharmacol.*, 1994, **113**, 1057 (*pharmacol*)
May, J.A. *et al., Blood Coagulation Fibrinolysis*, 1996, **7**, 221-224 (*pharmacol*)
Daniel, J.L. *et al., J. Biol. Chem.*, 1998, **273**, 2024-2029 (*pharmacol*)

Protuberic acid P-100

[55963-73-0]
[→4)-β-D-GlcA(1→4)-α-L-IdoA(1→4)-β-D-GlcA(1→]
A phallic acid (see Phallic acids, P-52). Isol. from the fungus *Kobayasia nipponica*.
$[\alpha]_D^{22}$ -83.6 (c, 2.0 in H_2O).
Miyazaki, T. *et al., Biochim. Biophys. Acta*, 1975, **385**, 345 (*isol, struct*)
Tsuchihashi, H. *et al., Carbohydr. Res.*, 1980, **84**, 365; 1981, **98**, 65; 1983, **122**, 174 (*struct, bibl*)

Prumycin P-101

2-Amino-4-[(2-amino-1-oxopropyl)-amino]-2,4-dideoxyarabinose, 9CI. F 1028. Antibiotic F 1028
[38819-28-2]



$C_8H_{17}N_3O_4$ 219.24
Isol. from *Streptomyces* sp. No. F-1028 and *Bacillus cereus*. Antifungal and antitumour agent. Sol. H_2O, DMSO, MeOH; fairly sol. EtOH; poorly sol. butanol, $CHCl_3$, Et_2O, C_6H_6.

► LD_{50} (mus, ivn) 144 mg/kg; LD_{50} (mus, orl) 750 mg/kg; LD_{50} (mus, ipr) 155 mg/kg. CE6230000

N,N′-Di-Ac:
Cryst. (MeOH). Mp 200° dec. $[\alpha]_D^{25}$ +48.8 (c, 0.44 in MeOH).

Tetra-Ac:
Powder. $[\alpha]_D^{25}$ +69.8 (c, 0.48 in MeOH).

α-form

Hydrochloride (1:2):
Needles. Mp 184-185° dec. $[\alpha]_D^{20}$ +68.8 (c, 0.5 in MeOH).

β-form

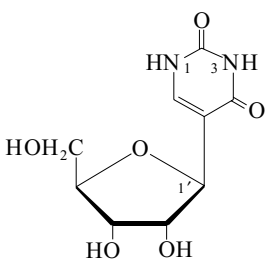
Hydrochloride (1:2): [57420-47-0]
Cryst. Mp 198-200° dec. $[\alpha]_D^{20}$ +115 (c, 0.5 in MeOH).

► CE6235000

Hata, T. *et al., J. Antibiot.*, 1971, **24**, 900 (*isol*)
Omura, S. *et al., J.C.S. Perkin 1*, 1974, 1627 (*struct, ir, pmr, cmr*)
Kuzuhara, H. *et al., Tet. Lett.*, 1975, 1853 (*synth, ir, pmr*)
Hasegawa, A. *et al., Carbohydr. Res.*, 1976, **52**, 137 (*synth*)
Yoshimura, J. *et al., Chem. Lett.*, 1976, 201 (*synth, ir, pmr*)
U.S. Pat., 1976, 3 951 487; *CA*, **85**, 61432u (*isol*)
Hamada, Y. *et al., Tet. Lett.*, 1982, **23**, 1193 (*synth*)
Hamada, M. *et al., J. Antibiot.*, 1983, **36**, 86 (*isol*)
Iwabuchi, J. *et al., J. Carbohydr. Chem.*, 1988, **7**, 605-616 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AFI500

Pseudouridine C P-102

5-β-D-Ribofuranosyl-2,4(1H,3H)-pyrimidinedione, 9CI. 5-β-D-Ribofuranosyluracil, 8CI. Pseudouridine. ψ-Uridine
[1445-07-4]



$C_9H_{12}N_2O_6$ 244.204
Principal minor component in tRNA. Also isol. from seeds of *Cicer arietinum* (chickpea). Cryst. (EtOH).
Mp 222-223°. $[\alpha]_D$ -3 (H_2O). λ_{max} 262 (ε 7900); 287 (ε 7800 pH 12) (H_2O).

2′,3′,5′-Tri-Ac: [24800-34-8]
$C_{15}H_{18}N_2O_9$ 370.315
Syrup. $[\alpha]_D^{25}$ +42 (c, 0.5 in $CHCl_3$).

2′,3′-O-Isopropylidene: [28113-58-8]
$C_{12}H_{16}N_2O_6$ 284.268
Cryst. ($MeOH/Me_2CO$/petrol). Mp 233-234°.

2′,3′-O-Isopropylidene, 5′-trityl: [74615-79-5]
$C_{31}H_{30}N_2O_6$ 526.588
Mp 125-140° dec.

2′,3′-O-Carbonate, 5′-tosyl: [91298-48-5]
$C_{17}H_{16}N_2O_9S$ 424.387
Mp 235-236°.

1-Me: 1-Methylpseudouridine. Antibiotic U 50228. U 50228
[13860-38-3]
$C_{10}H_{14}N_2O_6$ 258.23
Prod. by *Streptomyces platensis* var. *clarensis*, also found in archaebacterial tRNA. Shows weak antiviral props. Needles (EtOH). Sol. H_2O, MeOH, EtOH; fairly sol. Me_2CO; poorly sol. hexane.
Mp 185-186° Mp 181-184°. $[\alpha]_D$ -25 (c, 1 in EtOH aq.). $[\alpha]_D^{25}$ -6.75 (c, 1.0 in H_2O). λ_{max} 209 (sh) (ε 10300); 270 (ε 8920) (H_2O at pH 1) (Derep). λ_{max} 267 (ε 6190) (H_2O at pH 11) (Derep). λ_{max} 209 (ε 7550); 270 (ε 9080) (H_2O) (Derep).

3-Me: 3-Methylpseudouridine. 3-Methyl-ψ-uridine
[81691-06-7]
$C_{10}H_{14}N_2O_6$ 258.23
Prod. by *Nocardia lactamdurans*. Sol. H_2O.
Mp 148-149°. λ_{max} 285 (H_2O at pH 12) (Derep). λ_{max} 263 (ε 10000) (pH 7 buffer) (Berdy). λ_{max} 253 (ε 11500) (pH 1 buffer) (Berdy).

3-Me, 2′-deoxy: 2′-Deoxy-3-methylpseudouridine C
[81691-10-3]
$C_{10}H_{14}N_2O_5$ 242.231
Cryst. ($EtOH/Et_2O$). Mp 175°.

1,3-Di-Me: [64272-68-0]
$C_{11}H_{16}N_2O_6$ 272.257
Cryst. (EtOH). Mp 174°.

1,3-Di-Me, 2′,3′-O-isopropylidene:
[116700-55-1]
$C_{14}H_{20}N_2O_6$ 312.322
Cryst. ($CHCl_3/Et_2O$). Mp 80-85°.

5′-Phosphate: Pseudouridylic acid
[1157-60-4]
$C_9H_{13}N_2O_9P$ 324.183
Component of yeast tRNA.

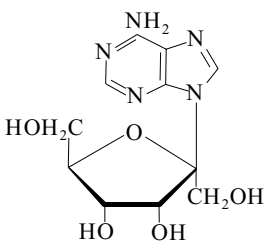
1′-Epimer: Pseudouridine B. α-Pseudouridine
[10017-66-0]
$C_9H_{12}N_2O_6$ 244.204
Produced by acid treatment of Pseudouridine C. Mp 218-219°. The name α-Pseudouridine is confusing.

1′-Epimer, 2′,3′,5′-tri-Ac: [28455-49-4]
$C_{15}H_{18}N_2O_9$ 370.315
Mp 175-177°.

Cohn, W. *et al., J. Biol. Chem.*, 1960, **235**, 1488-1498 (*isol, struct*)
Michelson, A. *et al., Biochemistry*, 1962, **1**, 490-495 (*isopropylidene*)
Bobek, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 1690-1695 (*tri-Ac*)
Hruska, F.E. *et al., J.A.C.S.*, 1971, **93**, 4334-4336 (*pmr*)
Sundaralingam, M. *et al., J.A.C.S.*, 1971, **93**, 6644-6647 (*cryst struct, epimer*)
Lerch, U. *et al., J.O.C.*, 1971, **36**, 1507-1513 (*synth, uv, pmr, ord*)
Wenkert, E. *et al., Biochem. Biophys. Res. Commun.*, 1973, **51**, 318-322 (*cmr*)
Komoroski, R.A. *et al., Biochemistry*, 1974, **13**, 369-372 (*cmr*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497-508 (*pmr*)
Argoudelis, A.D. *et al., J. Antibiot.*, 1976, **29**, 818-823 (*1-Me, isol*)
Chu, C.K. *et al., J.O.C.*, 1976, **41**, 2793-2797 (*synth, isopropylidene trityl*)
U.S. Pat., 1976, 3 988 314; *CA*, **86**, 28494 (*1-Me*)
Reichman, U. *et al., J. Antibiot.*, 1977, **30**, 129-131 (*1-Me, synth*)
Earl, R.A. *et al., J. Het. Chem.*, 1977, **14**, 699-700 (*1-Me, synth, uv, pmr*)
Habermehl, G. *et al., Annalen*, 1978, 427-430 (*synth*)
Hirota, K. *et al., J.O.C.*, 1978, **43**, 1193-1197 (*di-Me*)
Brown, D.M. *et al., J.C.S. Perkin 1*, 1981, 723-725 (*synth*)
Matsuda, A. *et al., Carbohydr. Res.*, 1982, **100**, 297-302 (*3-Me, 3-Me 2-deoxy*)
Pang, H. *et al., J. Biol. Chem.*, 1982, **257**, 3589-3592 (*1-Me, isol*)
Smith, D.L. *et al., Biomed. Mass Spectrom.*, 1983, **10**, 269-275 (*ms*)
Pankiewicz, K.W. *et al., Carbohydr. Res.*, 1984, **127**, 227-233 (*O-carbonate tosyl*)
Handa, G. *et al., Phytochemistry*, 1984, **23**, 1779-1780 (*isol*)
Kim, J.-H. *et al., J.O.C.*, 1988, **53**, 5046-5050 (*di-Me isopropylidene, pmr*)
Nielsen, J.B. *et al., J. Antibiot.*, 1989, **42**, 1248-1252 (*3-Me, isol*)
Hempel, A. *et al., Acta Cryst. C*, 1997, **53**, 1707-1709 (*cryst struct*)
Luyten, I. *et al., J.O.C.*, 1998, **63**, 1033-1044 (*tautom*)
Chui, H.M.-P. *et al., J.O.C.*, 2002, **67**, 8847-8854 (*3-Me, synth, pmr, cmr*)

Psicofuranine P-103

9-β-D-Psicofuranosyl-9H-purin-6-amine, 9CI. 9-β-D-Psicofuranosyladenine, 8CI. Angustmycin C. U 9586. Antibiotic U 9586
[1874-54-0]



$C_{11}H_{15}N_5O_5$ 297.27
Nucleoside-type antibiotic. Isol. from *Streptomyces hygroscopicus* and *Micromonospora echinospora*. Antitumour and antibacterial antibiotic. Cryst. or needles.
Mp 212-214° dec. $[\alpha]_D^{25}$ -68 (c, 1 in DMF). λ_{max} 261 (ε 15700) (0.01*N* NaOH) (Derep). λ_{max} 259 (ε 15100) (H_2O) (Derep).

► LD_{50} (rat, orl) 10000 mg/kg. AU7100000

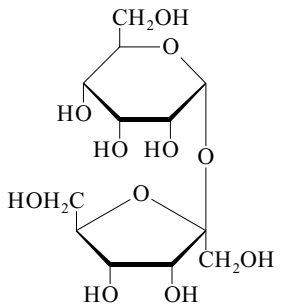
1′,4′-Anhydro: [79607-61-7]
Cryst. (H_2O). Mp 197-198°.

Schroeder, W. *et al., J.A.C.S.*, 1959, **81**, 1767 (*isol, uv, struct*)
Tanaka, N. *et al., J. Antibiot., Ser. A*, 1961, **14**, 98 (*props*)
Sugimori, T. *et al., J.A.C.S.*, 1965, **87**, 1136 (*biosynth*)
Suhadolnik, R.J. *et al., Antibiotics (N.Y.)*, 1967, **2**, 400 (*rev, struct, biosynth*)
Shaw, S.J. *et al., J.A.C.S.*, 1970, **92**, 2510 (*ms*)
Nichol, C.A. *et al., Handb. Exp. Pharmacol.*, 1975, **38**, 434 (*rev, pharmacol*)

Rosenthal, A. *et al., Carbohydr. Res.*, 1977, **54**, 61 (*synth*)
Zavgorodny, S.G. *et al., Tet. Lett.*, 1981, **22**, 3003 (*deriv*)
Grouiller, A. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 367 (*synth*)
Japan. Pat., 1985, 24 195; *CA*, **103**, 67976 (*isol*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Sax, N.I. *et al., Dangerous Properties of Industrial Materials, 7th edn., Van Nostrand Reinhold*, 1989, 2320

β-D-Psicofuranosyl α-D-allopyranoside P-104

*β-D-*ribo-*Hexofuranosyl α-D-allopyranoside. α-D-Allopyranosyl β-D-psicofuranoside*



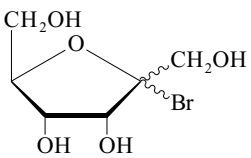
$C_{12}H_{22}O_{11}$ 342.299

Non-reducing disaccharide.

*Dianhydro, tetra-Ac: 1,6-Di-*O*-acetyl-3,4-anhydro-β-D-psicofuranosyl 4,6-di-*O*-acetyl-2,3-anhydro-α-D-allopyranoside*
[103949-90-2]
$C_{20}H_{26}O_{13}$ 474.418
$[\alpha]_D$ +60 (c, 1.0 in $CHCl_3$).

Chowdhary, M.S. *et al., Carbohydr. Res.*, 1986, **147**, 49

Psicofuranosyl bromide P-105



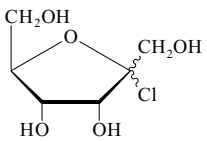
$C_6H_{11}BrO_5$ 243.054

D-*form*

*Tetrabenzoyl: 1,3,4,6-Tetra-*O*-benzoyl-D-psicofuranosyl bromide*
[54401-10-4]
$C_{34}H_{27}BrO_9$ 659.486
Semi-cryst.

Prisbe, E.J. *et al., J.O.C.*, 1976, **41**, 1836 (*tetrabenzoyl*)

Psicofuranosyl chloride P-106



D–Furanose–*form*

$C_6H_{11}ClO_5$ 198.603

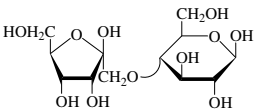
D-*form*

*Tetrabenzoyl: 1,3,4,6-Tetra-*O*-benzoyl-D-psicofuranosyl chloride*
[13019-85-7]
$C_{34}H_{27}ClO_9$ 615.035
Syrup.

Grouiller, A. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 367 (*tetrabenzoyl*)

4-*O*-β-D-Psicofuranosyl-D-glucose P-107

[218770-13-9]



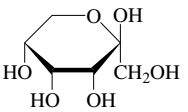
β-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Constit. of *Morina chinensis* and *Munronia henryi*.

Zhang, G. *et al., CA*, 1999, **130**, 78688c (*isol*)
Qi, S.H. *et al., J. Asian Nat. Prod. Res.*, 2003, **5**, 215-221 (*isol*)

Psicose, 9CI, 8CI P-108

ribo-*Hexulose. ψ-Fructose. Allulose. Pseudofructose. Erythrohexulose*
[23140-52-5]



β-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

An aq. soln. at 27° conts. 22% α-pyr, 24% β-pyr, 39% α-fur, 15% β-fur and 0.3% ketone.

D-*form* [551-68-8]

Isol. from the hydrolysate of Psicofuranine, P-103. Also in plants, e.g. *Itea* spp. Obt. synthetically by isomerisation of Fructose, F-84.
Mp 101-109° (amorph.). $[\alpha]_D^{20}$ +16.3 (c, 0.94 in H_2O). Forms D-Allosazone with phenylhydrazine.

β-D-Pyranose-*form* [40461-85-6]

*1,2:4,5-Di-*O*-isopropylidene: 1,2:4,5-Di-*O*-isopropylidene-β-D-psicopyranose*
[18422-54-3]
$C_{12}H_{20}O_6$ 260.286
Mp 68-69° (64-66°). $[\alpha]_D^{25}$ -126 (c, 1.1 in $CHCl_3$).

β-D-Furanose-*form* [470-24-6]

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-*O*-isopropylidene-β-D-psicofuranose*
[34626-95-4]
$C_{12}H_{20}O_6$ 260.286
Mp 56-56.5°. $[\alpha]_D^{20}$ -90 (c, 1.0 in $CHCl_3$).

L-*form* [16354-64-6]
$[\alpha]_D$ -3.3 (H_2O).

L-Furanose-*form*

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-*O*-isopropylidene-L-psicofuranose*
[35013-19-5]
$C_{12}H_{20}O_6$ 260.286
Cryst. (pentane). Mp 55-56°. $[\alpha]_D^{20}$ +98.7 (c, 1.0 in Me_2CO).

[36441-95-9, 38029-84-4, 40461-87-8, 41847-04-5, 41847-06-7, 41847-53-4]

Wolfrom, M.L. *et al., J.A.C.S.*, 1945, **67**, 1793-1797 (*D-form, synth*)
Karabinos, J.V. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 99-136 (*rev*)
Garrett, E.R. *et al., J.A.C.S.*, 1960, **82**, 827-832 (*D-form, isol, occur*)
Hough, L. *et al., Phytochemistry*, 1963, **2**, 315-320; 1966, **5**, 215-222 (*isol, biosynth*)
Brady, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 197-278 (*rev, acetals*)
Armenakian, A. *et al., J.C.S. Perkin 1*, 1972, 63-65 (*L-form, synth, diisopropylidene*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1249-1265 (*conformn, cmr*)
Valentine, K.M. *et al., Carbohydr. Res.*, 1981, **96**, 293-298 (*cmr*)
Beveridge, R.J. *et al., Carbohydr. Res.*, 1982, **101**, 348-349 (***synth***)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15-68 (*equilib*)
Kopper, S. *et al., Chem. Eur. J.*, 1998, **4**, 2442-2455 (*synth, pmr, cmr, ms*)

Psyllium hemicellulose, USAN P-109

Hemicellulose, 9CI. Masonex
[9034-32-6]

Consists of a combination of highly subst. arabinoxylan polysaccharides. These polysaccharides are linear chains of xylose units to which are attached single units of arabinose and additional xylose. Also present are rhamnose, galactose, glucose and rhamnosyluronic acid residues. Alkali sol. fraction of psyllium (*Plantago ovata*) seed husk. Laxative and cholesterol lowering agent. Source of dietary fibre.

Segawa, K. *et al., Biol. Pharm. Bull.*, 1998, **21**, 184-187 (*pharmacol*)
Anderson, J.W. *et al., Am. J. Clin. Nutr.*, 2000, **71**, 472-479; 1433-1438 (*pharmacol*)
Marlett, J.A. *et al., Am. J. Clin. Nutr.*, 2000, **72**, 784-789 (*pharmacol*)
Jenkins, D.J. *et al., Am. J. Clin. Nutr.*, 2002, **75**, 834-839 (*clin trials*)

Pullulan P-110

[9057-02-7]

M = 60000-240000. Consists mainly of Maltotriose, M-19 joined through α(1→6)glucosidic linkages plus 5-7% of randomly distributed maltotetraose units. Extracellular α-D-glucan from *Pullularia pullulans* (*Aureobasidium pullulans*). Comly. available; various derivs. are under investigation for applications in the food, cosmetics and other industries (1998).

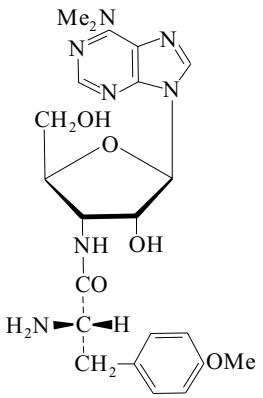
*Poly-*O*-sulfate:* Sulfated polysaccharide with medicinal uses, e.g. shows antiulcer activity. Unbranched struct. leads to differences in props. compared with, Poly-O-*sulfate.*

Bender, H. *et al., Biochem. Z.*, 1961, **334**, 79
Wallenfels, K. *et al., Biochem. Z.*, 1965, **341**, 433
Taguchi, R. *et al., Agric. Biol. Chem.*, 1973, **37**, 1583
Catley, B.J. *et al., Carbohydr. Res.*, 1986, **153**, 79 (*struct*)

Tezuka, Y. *et al., Carbohydr. Res.*, 1998, **305**, 155-161 (*pmr, cmr, nona-Ac*)
Mähner, C. *et al., Carbohydr. Res.*, 2001, **331**, 203-208 (*sulfate*)

Puromycin, BAN, INN, USAN P-111

*3′-[[2-Amino-3-(4-methoxyphenyl)-1-oxopropyl]amino]-3′-deoxy-*N,N*-dimethyladenosine, 9CI. 3′-(α-Amino-*p*-methoxyhydrocinnamido)-3′-deoxy-*N,N*-dimethyladenosine,8CI. Achromycin†. Stillomycin. Stylomycin. CL 13900. 3123L. P 638. Antibiotic CL 13900. Antibiotic 3123L. Antibiotic P 638. Bacterenomycin*
[53-79-2]



$C_{22}H_{29}N_7O_5$ 471.515

Nucleoside-type antibiotic. Isol. from *Streptomyces alboniger*. Antineoplastic and antitrypanosomal agent. Plates (2-propanol). Sol. $CHCl_3$, Me_2CO-H_2O, EtOH-H_2O, butanol-H_2O; fairly sol. H_2O, butanol, MeOH, EtOH, EtOAc; poorly sol. C_6H_6, hexane, Et_2O, toluene. Mp 175.5-177°. $[\alpha]_D^{25}$ -11 (c, 1 in EtOH). Log P -0.61 (calc). λ_{max} 268 (ϵ 19500) (0.1*M* HCl) (Derep). λ_{max} 275 (ϵ 20300) (0.1*M* NaOH) (Derep). λ_{max} 275 (ϵ 20000) (EtOH) (Derep). λ_{max} 267 (ϵ 19500) (HCl) (Berdy). λ_{max} 267 (H_2O) (Berdy).

▶ LD_{50} (mus, orl) 20 mg/kg. Exp. reprod. and teratogenic effects; LD_{50} (mus, ivn) 335 - 365 mg/kg , LD_{50} (mus, ipr) 525 - 575 mg/kg , LD_{50} (mus, orl) 680 - 720 mg/kg. AU7350000

Hydrochloride (1:2): ***Puromycin hydrochloride, USAN****. CL 16536. NSC 3055. Antibiotic CL 16536*
[58-58-2]

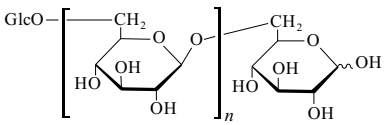
▶ AU7352000

N,N-*Di-Me:*
Small plates (2-propanol). Mp 163-164.5°.

Porter, J.N. *et al., Antibiot. Chemother. (Washington, D.C.)*, 1952, **2**, 409 (*isol*)
Waller, C.W. *et al., J.A.C.S.*, 1953, **75**, 2025 (*ir, uv, struct*)
Baker, B.R. *et al., J.A.C.S.*, 1954, **76**, 4044 (*synth*)
Johnson, L.F. *et al., J.A.C.S.*, 1963, **85**, 3700 (*nmr, struct*)
Eggers, S.H. *et al., Tet. Lett.*, 1966, 3271 (*ms, struct*)
Nathans, D. *et al., Antibiotics (N.Y.)*, 1967, **1**, 259 (*rev*)
Hawtrey, A.O. *et al., Tet. Lett.*, 1967, 1693 (*uv*)
Daluge, S. *et al., J. Med. Chem.*, 1972, **15**, 171 (*pharmacol*)
de Leeuw, H.P.M. *et al., Eur. J. Biochem.*, 1977, **76**, 209 (*pmr, conformn*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 143
Narula, S.S. *et al., Indian J. Biochem. Biophys.*, 1985, **22**, 1; 1986, **23**, 187 (*cmr, pmr, conformn*)
Robins, M.J. *et al., J.O.C.*, 2001, **66**, 8204-8210 (*synth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, AEI000; POK300

Pustulan, 9CI, 8CI P-112

β-D-(1→6)-Glucan
[37331-28-5]

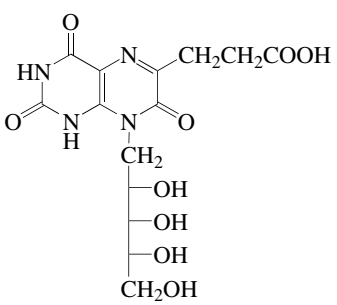


Isol. from the lichens *Umbilicaria pustulata* and *Umbilicaria spodochroa*, sometimes in a partially acetylated form (1 Ac group for every 10-11 glycoside units). A similar linear (1→6)-glucan was isol. from the lichen *Gyrophora esculenta*. Also isol. from *Actinobacillus suis*, an important pig pathogen. The *G. esculenta* isolate was reported to exhibit antitumour props.
Amorph. $[\alpha]_D$ -46 (c, 0.5 in H_2O).
*Per-Ac:*Sol. H_2O; poorly sol. EtOH, Me_2CO. $[\alpha]_D$ +9.1 (c, 0.3 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1954, **8**, 985 (*isol, struct*)
Hellerqvist, C.G. *et al., Acta Chem. Scand.*, 1968, **22**, 2736
Pfannemueller, B. *et al., Carbohydr. Res.*, 1975, **43**, 151 (*pmr*)
Kjolberg, O. *et al., Acta Chem. Scand., Ser. B*, 1984, **38**, 735-739 (*O-Acetylpustulan*)
Sone, Y. *et al., Biosci., Biotechnol., Biochem.*, 1996, **60**, 213-215 (*Gyrophora esculenta glucan*)
Monteiro, M.A. *et al., Carbohydr. Res.*, 2000, **329**, 121-130 (*isol, Actinobacillus*)

Putidolumazine P-113

*1-[6-(2-Carboxyethyl)-1,3,4,7-tetrahydro-2,4,7-trioxo-8(2*H*)-pteridinyl]-1-deoxy-D-ribitol, 9CI. 1,2,3,4,7,8-Hexahydro-2,4,7-trioxo-8-(2,3,4,5-tetrahydroxypentyl)pteridine-6-propionic acid*
[29161-67-9]



$C_{14}H_{18}N_4O_9$ 386.318

Pteridine nucleoside. Isol. from *Pseudomonas ovalis*. Useful as affinity chromatog. ligand for purifn. of riboflavin. Inhibitor of Riboflavin synthase. Cryst. (H_2O).
Mp 265° dec.

Suzuki, A. *et al., Bull. Chem. Soc. Jpn.*, 1971, **44**, 1869 (*isol*)
Wrigglesworth, R. *et al., CA*, 1976, **84**, 175673
Ginger, C.G. *et al., J.C.S. Perkin 1*, 1984, 953; 959 (*synth, use*)

PX Glycoprotein P-114

Glycoprotein. Isol. from the carpophore of *Psalliota xanthoderma*. Shows antiviral activity. Sol. H_2O. λ_{max} 277 (H_2O) (Berdy).

▶ LD_{50} (mus, ivn) 318 mg/kg.

Ger. Pat., 1976, 2 553 971; *CA*, **85**, 166632n (*isol*)

4*H*-Pyran, 9CI P-115

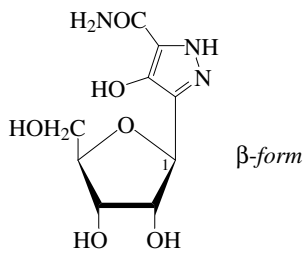
γ-Pyran. 1,4-Pyran
[289-65-6]

C_5H_6O 82.102
Oil. Bp 80°. n_D^{20} 1.4559. Rapidly dec. in air.

Masamune, S. *et al., J.A.C.S.*, 1962, **84**, 2452 (*nmr*)
Strating, J. *et al., Angew. Chem., Int. Ed.*, 1962, **1**, 399 (*synth*)
Royer, J. *et al., Bull. Soc. Chim. Fr.*, 1972, 707 (*synth*)
Seoane, C. *et al., Heterocycles*, 1980, **14**, 337 (*rev*)

Pyrazomycin P-116

*4-Hydroxy-3-ribofuranosyl-1*H*-pyrazole-5-carboxamide, 9CI. A 23813. Antibiotic A 23813*



β-*form*

$C_9H_{13}N_3O_6$ 259.218

Nucleoside antibiotic. Sol. H_2O, EtOH, butanol, MeOH; fairly sol. EtOAc; poorly sol. $CHCl_3$, hexane. Log P -2.91 (calc). λ_{max} 232 (ϵ 7400); 263 (ϵ 6200) (EtOH/HCl) (Derep). λ_{max} 235 (ϵ 5100); 307 (ϵ 5100) (EtOH/NaOH) (Derep). λ_{max} 232 (ϵ 6200); 263 (ϵ 6210) (pH 7 H_2O) (Derep). λ_{max} 226 (ϵ 7600); 267 (ϵ 6000) (MeOH) (Berdy). λ_{max} 232 (ϵ 7400); 263 (ϵ 6200) (EtOH) (Berdy). λ_{max} 232 (ϵ 7000); 263 (ϵ 6000) (EtOH-HCl) (Berdy). λ_{max} 263 (ϵ 6200) (pH 7 buffer) (Berdy). λ_{max} 307 (ϵ 8100) (pH 12 buffer) (Berdy).

α-D-*form*

Pyrazofurin B. *Pyrazomycin B*
[41855-21-4]
Isol. from *Streptomyces candidus*.
Dihydrate. Sol. H_2O, MeOH; poorly sol. Et_2O, hexane.
Mp 69-70°. λ_{max} 232 (ϵ 7400); 263 (ϵ 6200) (EtOH/HCl) (Derep). λ_{max} 235 (ϵ 5100); 307 (ϵ 5100) (EtOH/NaOH) (Derep). λ_{max} 232 (ϵ 6200); 263 (ϵ 6210) (pH 7 H_2O) (Derep). λ_{max} 225 (ϵ 8000); 276 (ϵ 6700) (EtOH) (Berdy). λ_{max} 304 (ϵ 8400) (NaOH) (Berdy).

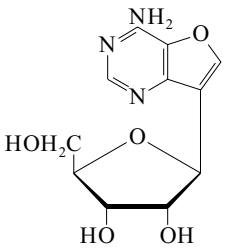
β-D-*form*

Pyrazofurin, USAN. *Pirazofurin, INN. Antibiotic A 23812. NSC 143095. A 23812*
[30868-30-5]
From *Streptomyces candidus*. Shows antibiotic and antineoplastic props.
Cryst. (H_2O).
Mp 112-115°. $[\alpha]_D^{25}$ -49.6 (c, 0.80 in H_2O).
► Gastrointestinal disturbances and adverse skin effects reported when used therapeutically. UQ6360000

Ger. Pat., 1971, 2 019 838; *CA*, **74**, 41133s (*isol*)
Farkas, J. *et al., Tet. Lett.*, 1972, 2279 (*synth*)
Wenkert, E. *et al., Biochem. Biophys. Res. Commun.*, 1973, **51**, 318 (*cmr*)
Sweeney, M.J. *et al., Cancer Res.*, 1973, **33**, 2619
Crain, P.F. *et al., J. Het. Chem.*, 1973, **10**, 843 (*ms*)
de Bernardo, S. *et al., J.O.C.*, 1976, **41**, 287 (*synth*)
U.S. Pat., 1976, 3 998 999; *CA*, **86**, 155899z (*synth*)
Neumann, J.M. *et al., Biochim. Biophys. Acta*, 1977, **479**, 427 (*conformn, nmr*)
Miles, D.W. *et al., J. Phys. Chem.*, 1983, **87**, 2444 (*conformn*)
Karagiri, N. *et al., J.C.S. Perkin 1*, 1984, 553 (*synth*)
Lopez Herrera, F.J. *et al., Carbohydr. Res.*, 1985, **139**, 95 (*analogues*)
Petrie, C.R. *et al., J. Med. Chem.*, 1986, **29**, 268 (*derivs*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 1300
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)

Pyrrolosine P-117

[86132-93-6]

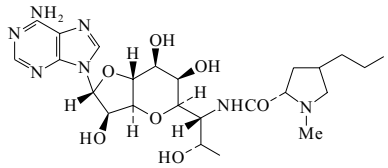


$C_{11}H_{13}N_3O_5$ 267.241
Nucleoside-type antibiotic. Struct. revised in 1992. Prod. by *Streptomyces albus*. Inhibitor of RNA synthesis. Hexagonal plates + 1MeOH (MeOH/EtOAc). Sol. H_2O.
Mp 105-110°. λ_{max} 225 (ϵ 5800); 268 (sh) (ϵ 7500); 276 (ϵ 7800); 285 (sh) (ϵ 5200) (H_2O at pH 1.5) (Derep). λ_{max} 220 (ϵ 10000); 242 (ϵ 4400); 272 (ϵ 4200) (H_2O pH 7) (Derep). λ_{max} 220 (ϵ 10000); 242 (ϵ 4400); 272 (ϵ 4200) (H_2O) (Berdy). λ_{max} 225 (ϵ 5800); 276 (ϵ 7800) (pH 1.5 buffer) (Berdy).

Ikegami, S. *et al., J.A.C.S.*, 1990, **112**, 9668 (*isol*)
Otter, B.A. *et al., J.A.C.S.*, 1992, **114**, 668 (*struct*)

Quantamycin Q-1

[91899-90-0]



$C_{24}H_{37}N_7O_7$ 535.599

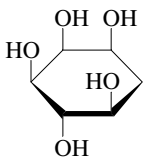
Nucleoside antibiotic. Synthetic. Inhibits bacterial ribosomal binding. Microcryst. Mp 205-207° dec. $[\alpha]_D$ +4.5 (c, 0.7 in $CHCl_3$). Log P -1.47 (uncertain value) (calc).

Hanessian, S. *et al., J.A.C.S.*, 1984, **106**, 6114 (*synth*)

Cheney, B.V. *et al., THEOCHEM*, 1986, **27**, 389 (*props*)

epi-Quercitol Q-2

1,2,3,5/4-Cyclohexanepentol



(+)-*form*

$C_6H_{12}O_5$ 164.158

Chiral molecule.

(+)-*form*

*2-Deoxy-D-*epi-*inositol, 9CI. 6-Deoxy-D-*myo-*inositol*

[131435-06-8]

Cryst. ($CHCl_3$). Mp 197-198°. $[\alpha]_D^{25}$ +8.9 (c, 0.5 in H_2O).

(-)-*form*

*4-Deoxy-D-*epi-*inositol, 9CI. 4-Deoxy-D-*myo-*inositol*

[3411-22-1]

Mp 195-196°. $[\alpha]_D^{25}$ -8 (c, 0.64 in H_2O).

(±)-*form* [19776-68-2]

Cryst. (MeOH aq.or EtOH aq.). Mp 208-210° (205-215°).

Penta-Ac: [56782-13-9]

$C_{16}H_{22}O_{10}$ 374.344

Cryst. ($CHCl_3$/EtOH). Mp 123-124.5° (plates) Mp 142-143° (prisms) (dimorph.).

May, E.L. *et al., J.O.C.*, 1949, **14**, 1137-1140 (*±-form, penta-Ac*)

Angyal, S.J. *et al., J.C.S.*, 1957, 3682-3691 (*±-form, penta-Ac*)

McCasland, G.E. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 11-65 (*rev*)

Buchs, A. *et al., Helv. Chim. Acta*, 1968, **51**, 695-707 (*ms*)

Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1975, **48**, 1545-1548 (*synth*)

Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)

Jiang, C. *et al., J. Carbohydr. Chem.*, 1987, **6**, 319-355 (*±-form, synth*)

Ley, S.V. *et al., Tetrahedron*, 1990, **46**, 4995-5026 (*synth, cmr*)

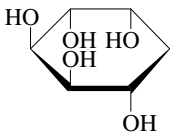
Dubreuil, D. *et al., Tetrahedron*, 1997, **53**, 16747-16766 (*synth, pmr, cmr*)

Biamonte, M.A. *et al., Helv. Chim. Acta*, 1998, **81**, 688-694 (*synth*)

gala-Quercitol Q-3

*2-Deoxy-*allo-*inositol, 9CI. 1,2,5/3,4-Cyclohexanepentol*

[81369-62-2]



L-*form*

$C_6H_{12}O_5$ 164.158

Chiral molecule.

L-*form*

(+)-form

[81623-40-7]

Cryst. (EtOH aq.). Mp 254-255°. $[\alpha]_D$ +50 (c, 1.4 in H_2O).

D-*form*

(-)-form

[40617-62-7]

Cryst. (MeOH). Mp 257-258°. $[\alpha]_D^{22}$ -48.6 (c, 0.5 in H_2O).

Penta-Ac:

$C_{16}H_{22}O_{10}$ 374.344

Cryst. (2-propanol). Mp 117-118°. $[\alpha]_D^{27}$ -24 (c, 0.5 in H_2O).

(±)-*form* [19776-23-9]

Cryst. (MeOH). Mp 256-257°.

Penta-Ac: [81601-27-6]

Cryst. (2-propanol). Mp 90-92° Mp 117-118°.

Nakajima, M. *et al., Chem. Ber.*, 1961, **94**, 515-523 (*synth*)

McCasland, G.E. *et al., J.A.C.S.*, 1961, **83**, 2335-2343 (*synth, (-)-form*)

Buchs, A. *et al., Helv. Chim. Acta*, 1968, **51**, 695-707 (*ms*)

Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54; **101**, 209-219 (*synth, (+)-form, cmr*)

Angelaud, R. *et al., J.O.C.*, 1996, **61**, 5202-5203 (*synth, (-)-form*)

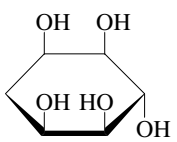
Salamci, E. *et al., J.O.C.*, 1997, **62**, 2453-2457 (*synth, ir, pmr, cmr*)

Baran, A. *et al., Synthesis*, 2003, 1500-1502 (*synth*)

muco-Quercitol Q-4

*3-Deoxy-*epi-*inositol, 9CI. 1,2,4,5/3-Cyclohexanepentol.* ***Kijolanitol***

[81369-59-7]



$C_6H_{12}O_5$ 164.158

A *meso*-stereoisomer, but derivs. may be chiral. Care needed with numbering. Constit. of the leaves of *Marsdenia tomentosa*. Cryst. Mp 95°. Dec. at 245°.

Penta-Ac: [20097-36-3]

$C_{16}H_{22}O_{10}$ 374.344

Cryst. (MeOH or EtOH). Mp 170-172° (167-168°).

4-O-β-D-Glucopyranoside: [209542-56-3]

$C_{12}H_{22}O_{10}$ 326.3

Constit. of *Marsdenia tomentosa*. Prisms. Mp 229-231°. $[\alpha]_D^{24}$ -2.4 (c, 0.9 in MeOH).

Nakajima, M. *et al., Annalen*, 1965, **689**, 235-242 (*synth*)

Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54; **101**, 209-219 (*synth, cmr*)

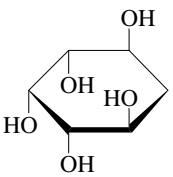
Kim, K.S. *et al., Chem. Comm.*, 1998, 1945-1946 (*synth*)

Abe, F. *et al., Phytochemistry*, 1998, **47**, 1297-1301 (*isol, pmr, cmr*)

neo-Quercitol Q-5

*5-Deoxy-*myo-*inositol, 9CI. 1,5/2,3,4-Cyclohexanepentol*

[26671-58-9]



$C_6H_{12}O_5$ 164.158

A *meso*-stereoisomer. Cryst. (MeOH). Mp 238-239° dec Mp 248-249° dec.

Penta-Ac: [68907-51-7]

$C_{16}H_{22}O_{10}$ 374.344

Cryst. (EtOH). Mp 187°.

Anderson, L. *et al., Arch. Biochem. Biophys.*, 1958, **78**, 518-531 (*synth, penta-Ac*)

McCasland, G.E. *et al., J.A.C.S.*, 1961, **83**, 2335 (*synth*)

Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1978, **51**, 2957-2963 (*penta-Ac, synth, pmr*)

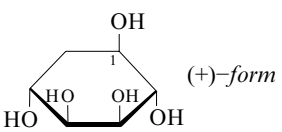
Angyal, S. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)

Jiang, C. *et al., J. Carbohydr. Chem.*, 1987, **6**, 319-355 (*synth, pmr*)

proto-Quercitol Q-6

*2-Deoxy-*chiro-*inositol, 9CI. Protoquercitol. 1,3,4/2,5-Cyclohexanepentol. 1-Deoxy-*muco-*inositol*

[90899-07-3]



(+)–*form*

$C_6H_{12}O_5$ 164.158

(+)-*form*

*2-Deoxy-D-*chiro-*inositol. 1L-1,3,4/2,5-Cyclohexanepentol. Acorn sugar*

[488-73-3]

Occurs in acorns of *Quercus* spp. oak barks, leaves of *Chamaerops humilis*, seeds of *Mimusops elengi* and *Achras sapota*. Prisms (H_2O). Mp 235-237°. $[\alpha]_D^{20}$ +25.6 (H_2O).

Pentabenzoyl: [22412-50-6]

$C_{41}H_{32}O_{10}$ 684.698

Mp 155°. $[\alpha]_D^{23}$ +61.4 (EtOAc).

1-O-(3,4,5-Trihydroxybenzoyl):

1-O-Galloyl-*proto-*quercitol

[110170-36-0]

$C_{13}H_{16}O_9$ 316.264

Isol. from the acorns of *Quercus mongolica*. Needles.
Mp 282-284°. $[\alpha]_D^{17}$ -10.6 (c, 0.4 in MeOH).

1,4-Bis(3,4,5-trihydroxybenzoyl):
1,4-Di*-O-*galloyl*-proto-*quercitol
[110082-87-6]
$C_{20}H_{20}O_{13}$ 468.37
Isol. from the leaf of *Quercus myrsinaefolia*. Needles + $1\frac{1}{2}H_2O$.
Mp 185-187°. $[\alpha]_D^{23}$ -10.1 (c, 0.8 in Me_2CO). λ_{max} 217 (ϵ 46000); 276 (ϵ 19000) (MeOH) (Derep).

3,5-Bis(3,4,5-trihydroxybenzoyl):
3,5-Di*-O-*galloyl*-proto-*quercitol
[133201-12-4]
$C_{20}H_{20}O_{13}$ 468.37
Constit. of *Quercus acuta*. Amorph. powder + $2.5H_2O$. $[\alpha]_D^{28}$ +13.9 (c, 0.3 in MeOH). λ_{max} 217 (ϵ 46000); 277 (ϵ 18000) (MeOH).

4,5-Bis(3,4,5-trihydroxybenzoyl):
4,5-Di*-O-*galloyl*-proto-*quercitol
[86588-92-3]
$C_{20}H_{20}O_{13}$ 468.37
Isol. from the bark of *Quercus stenophylla*. Amorph. powder + $\frac{1}{2}H_2O$. $[\alpha]_D^{21}$ -107.2 (c, 0.67 in MeOH). λ_{max} 217 (ϵ 46000); 276 (ϵ 19000) (MeOH) (Derep).

1,3,5-Tris(3,4,5-trihydroxybenzoyl):
1,3,5-Tri*-O-*galloyl*-proto-*quercitol
[91431-98-0]
$C_{27}H_{24}O_{17}$ 620.476
Tannin constit. of *Quercus stenophylla*. Needles + H_2O (H_2O).
Mp 222-224°. $[\alpha]_D^{20}$ -11.9 (c, 0.81 in Me_2CO).

1,4,5-Tris(3,4,5-trihydroxybenzoyl):
1,4,5-Tri*-O-*galloyl*-proto-*quercitol
[91431-96-8]
$C_{27}H_{24}O_{17}$ 620.476
A tannin isol. from the bark of *Quercus stenophylla*. Granules + $1\frac{1}{2}H_2O$ (H_2O).
Mp 219-223°. $[\alpha]_D^{20}$ +39.1 (c, 0.40 in MeOH).

2,4,5-Tris(3,4,5-trihydroxybenzoyl):
2,4,5-Tri*-O-*galloyl*-proto-*quercitol
[91431-97-9]
$C_{27}H_{24}O_{17}$ 620.476
A tannin constit. of *Quercus stenophylla*. Needles + $4\frac{1}{2}H_2O$ (H_2O).
Mp 207-210°. $[\alpha]_D^{21}$ +15 (c, 0.13 in Me_2CO).

3,4,5-Tris(3,4,5-trihydroxybenzoyl):
3,4,5-Tri*-O-*galloyl*-proto-*quercitol
[86588-49-0]
$C_{27}H_{24}O_{17}$ 620.476
Isol. from the bark of *Quercus stenophylla*. Needles + H_2O (H_2O).
Mp 255-258°. $[\alpha]_D^{18}$ -10.5 (c, 0.68 in Me_2CO).

1,2,4,5-Tetrakis(3,4,5-trihydroxybenzoyl):
1,2,4,5-Tetra*-O-*galloyl*-proto-*quercitol
[91432-00-7]
$C_{34}H_{28}O_{21}$ 772.583
Tannin constit. of *Quercus stenophylla*. Off-white amorph. powder + $5H_2O$. $[\alpha]_D^{21}$ +34.3 (c, 0.14 in MeOH).

1,3,4,5-Tetrakis(3,4,5-trihydroxybenzoyl):
1,3,4,5-Tetra*-O-*galloyl*-proto-*quercitol
[91431-99-1]
$C_{34}H_{28}O_{21}$ 772.583
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder + $5H_2O$. $[\alpha]_D^{21}$ -2.7 (c, 0.71 in MeOH).

Pentakis-O-*(3,4,5-trihydroxybenzoyl):*
1,2,3,4,5-Penta*-O-*galloyl*-proto-*quercitol
[91432-01-8]
$C_{41}H_{32}O_{25}$ 924.689
Tannin isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder + $4H_2O$. $[\alpha]_D^{18}$ +9.9 (c, 0.52 in Me_2CO).

3,4-O-*Isopropylidene:*
$C_9H_{16}O_5$ 204.222
Mp 159°. $[\alpha]_D^{21}$ +74 (c, 1.2 in EtOH).

(-)-*form*
2-Deoxy-L-chiro-*inositol, 9CI, 8CI.*
1D-1,3,4/2,5-Cyclohexanepentol
[17278-12-5]
Occurs in *Eucalyptus populnea*.
Mp 237°. $[\alpha]_D$ -27 (H_2O).

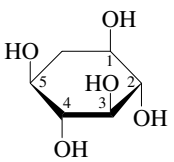
(±)-*form* [38836-69-0]
Cryst. (EtOH aq.). Mp 228-229°.

Penta-Ac: [38836-70-3]
$C_{16}H_{22}O_{10}$ 374.344
Cryst. (EtOAc/petrol). Mp 115-116°.

Posternak, T. *et al., Helv. Chim. Acta*, 1932, **15**, 948-955 (*struct*)
Bauer, K.H. *et al., Arch. Pharm. (Weinheim, Ger.)*, 1942, **280**, 37-45 (*isol*)
Buchs, A. *et al., Helv. Chim. Acta*, 1968, **51**, 695-707 (*ms*)
McCasland, G.E. *et al., J.O.C.*, 1968, **33**, 4220-4227 (*synth, pmr*)
Anderson, L. *et al., The Carbohydrates*, 2nd edn., Academic Press, 1972, **1A**, 519
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54; **101**, 209-219 (*cmr, stereoisomers*)
Nishimura, H. *et al., Chem. Pharm. Bull.*, 1984, **32**, 1741-1749 (*gallates*)
Ishimaru, K. *et al., Phytochemistry*, 1987, **26**, 1501-1504 (*gallates*)
Cambie, R.C. *et al., Aust. J. Chem.*, 1990, **43**, 1597-1602 (*synth*)
Serit, M. *et al., Agric. Biol. Chem.*, 1991, **55**, 19-23 (*3,5-digalloyl, 4,5-digalloyl*)
Secen, H. *et al., Synlett*, 1993, 609-610 (*synth*)
Hudicky, T. *et al., Synlett*, 1994, 899-901 (*synth*)
Salamci, E. *et al., J.O.C.*, 1997, **62**, 2453-2457 (*(±)-form, synth, bibl, pmr, cmr, ir*)
Gütekin, M.S. *et al., Carbohydr. Res.*, 2003, **338**, 1615-1619 (*synth*)

scyllo-Quercitol, 9CI, 8CI Q-7

2-Deoxy-myo-*inositol, 9CI, 8CI. 1,3,5/2,4-Cyclohexanepentol. Deoxyscyllitol. Scyllo-quercitol*
[527-42-4]



$C_6H_{12}O_5$ 164.158
Care needed with numbering. A meso-compound which can be numbered in either direction but the numbering becomes significant for chiral derivs. The numbering system for 2-deoxy-*myo*-inositol differs from that shown.
Cryst. (EtOH aq.). Mp 233-235°
Mp 242-243°. Opt. inactive (*meso*-).

Penta-Ac: [18376-41-5]
$C_{16}H_{22}O_{10}$ 374.344
Mp 188-190°.

Pentabenzoyl: [19647-40-6]
$C_{41}H_{32}O_{10}$ 684.698
Needles (EtOH aq.). Mp 295-296°.

2-O-*(3,4,5-Trihydroxybenzoyl): 2*-O-*Galloyl*-scyllo-*quercitol*
[107693-08-3]
$C_{13}H_{16}O_9$ 316.264
Isol. from the bark of *Quercus stenophylla*. Needles + $\frac{1}{2}H_2O$ ($CHCl_3$/EtOH).
Mp 254-257° dec. $[\alpha]_D^{23}$ +3.6 (c, 0.14 in Me_2CO).

1,2-Bis-O-*(3,4,5-trihydroxybenzoyl): 1,2-Di*-O-*galloyl*-scyllo-*quercitol*
[107794-82-1]
$C_{20}H_{20}O_{13}$ 468.37
Tannin constit. of *Quercus stenophylla*. Off-white amorph. powder + $3H_2O$. $[\alpha]_D^{23}$ -95.6 (c, 0.31 in MeOH).

1,2,3-Tris-O-*(3,4,5-trihydroxybenzoyl): 1,2,3-Tri*-O-*galloyl*-scyllo-*quercitol*
[107794-83-2]
$C_{27}H_{24}O_{17}$ 620.476
Gallotannin from the bark of *Quercus stenophylla*. Off-white amorph. powder + $1H_2O$. $[\alpha]_D^{18}$ +15.6 (c, 0.27 in MeOH).

1,2,3,4-Tetrakis-O-*(3,4,5-trihydroxybenzoyl): 1,2,3,4-Tetra*-O-*galloyl*-scyllo-*quercitol*
[107724-19-6]
$C_{34}H_{28}O_{21}$ 772.583
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder + $2H_2O$. $[\alpha]_D^{17}$ -38 (c, 0.48 in Me_2CO).

Pentakis-O-*(3,4,5-trihydroxybenzoyl): 1,2,3,4,5-Penta*-O-*galloyl*-scyllo-*quercitol*
[107794-84-3]
$C_{41}H_{32}O_{25}$ 924.689
Tannin constit. isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder.

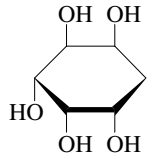
3-Me: 2-Deoxy-5-O-*methyl*-myo-*inositol*
$C_7H_{14}O_5$ 178.185
Mp 215°. *Meso*-.

3-Me, tetra-O-*Ac:*
$C_{15}H_{22}O_9$ 346.333
Mp 184-185°.

Posternak, T. *et al., Helv. Chim. Acta*, 1941, **24**, 1045-1058 (*synth*)
Post, G.G. *et al., J.A.C.S.*, 1962, **84**, 471-478 (*synth, 3-OMe*)
Buchs, A. *et al., Helv. Chim. Acta*, 1968, **51**, 695-707 (*ms*)
McCasland, G.E. *et al., J.O.C.*, 1969, **34**, 1382-1386 (*synth, ir, pmr*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)
Nishimura, H. *et al., Phytochemistry*, 1986, **25**, 2599-2604 (*gallates*)

talo-Quercitol Q-8

1-Deoxy-allo-*inositol, 9CI. 1,2,3/4,5-Cyclohexanepentol*



(+)-*form*

$C_6H_{12}O_5$ 164.158
Chiral molecule.

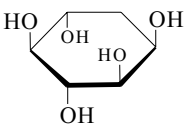
(+)-*form*
D-*form*
[78148-00-2]
Cryst. (EtOH). Mp 246-248°.
Penta-Ac:
$C_{16}H_{22}O_{10}$ 374.344
Cryst. (2-propanol). Mp 182-183°. $[\alpha]_D^{27}$ +28 (c, 1 in $CHCl_3$).

(±)-*form* DL-*form*
[19776-72-8]
Cryst. (EtOH aq.). Mp 245-247°.
Penta-Ac: [27088-53-5]
[81601-28-7]
Cryst. (EtOH). Mp 170-171°.

Nakajima, M. *et al., Chem. Ber.*, 1961, **94**, 515-523 (*synth*)
McCasland, G.E. *et al., J.A.C.S.*, 1961, **83**, 2335-2343 (*synth, abs config*)
Buchs, A. *et al., Helv. Chim. Acta*, 1968, **51**, 695-707 (*ms*)
Suami, T. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 2672-2676 (*synth*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54; **101**, 209-219 (*synth, cmr*)
Maras, A. *et al., J.O.C.*, 1998, **63**, 2039-2041 (*synth, ir, pmr, cmr*)

vibo-Quercitol, 9CI, 8CI Q-9

1-Deoxy-chiro-*inositol, 9CI, 8CI. 1,2,4/3,5-Cyclohexanepentol. 1-Deoxy*-myo-*inositol. Viburnitol. Viboquercitol*



$C_6H_{12}O_5$ 164.158

L-*form* [488-76-6]
Isol. from leaves of *Viburnum tinus, Gymnema silvestre, Stephania hernandifolia, Menispermum canadense* and other spp.
Mp 180-181°. $[\alpha]_D$ -49.8 (c, 1.0 in H_2O).
Penta-Ac: [81601-29-8]
$C_{16}H_{22}O_{10}$ 374.344
Mp 124-125°. $[\alpha]_D$ -22 ($CHCl_3$).
Pentabenzoyl: [17230-47-6]
$C_{41}H_{32}O_{10}$ 684.698
Mp 159°. $[\alpha]_D$ -79 ($CHCl_3$).
1,2-O-*Isopropylidene, tri-Ac:*
$C_{15}H_{22}O_8$ 330.334
Mp 104-105° Mp 118-120°. $[\alpha]_D^{26}$ -66.3 (c, 5.2 in EtOAc).

2-Me: [152884-28-1]
$C_7H_{14}O_5$ 178.185
Mp 148-149°. $[\alpha]_D$ -71.4 (c, 1.0 in H_2O).

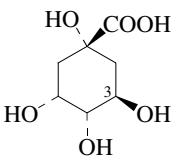
(±)-*form* [81623-43-0]
Cryst. (EtOH). Mp 161-162°.
Penta-Ac: [20108-58-1]
$C_{16}H_{22}O_{10}$ 374.344
Cryst. (EtOH). Mp 113-114°.

[22412-50-6]

Posternak, T. *et al., Helv. Chim. Acta*, 1950, **33**, 350-355; 1594-1597 (*synth, config*)
Plouvier, V. *et al., C. R. Hebd. Seances Acad. Sci.*, 1960, **251**, 131-133; 1961, **253**, 3047-3049; 1964, **258**, 2921-2924; 1965, **260**, 1003-1006 (*isol*)
Post, G.G. *et al., J.A.C.S.*, 1962, **84**, 471-478 (*synth*)
McCasland, G.E. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 11-65 (*rev*)
Buchs, A. *et al., Helv. Chim. Acta*, 1968, **51**, 695-707 (*ms*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1982, **100**, 43-54 (*cmr*)
Jiang, C. *et al., J. Carbohydr. Chem.*, 1987, **6**, 319-355 (*synth*)
Kozikowski, A.P. *et al., J.A.C.S.*, 1993, **115**, 4429-4434 (*synth, pmr, cmr*)
Salamci, E. *et al., Synth. Commun.*, 1997, **27**, 2223-2234 (*synth, ir, pmr, cmr*)
Maras, A. *et al., J.O.C.*, 1998, **63**, 2039-2041 (*synth, ir, pmr, cmr*)

Quinic acid Q-10

1,3,4,5-Tetrahydroxycyclohexanecarboxylic acid, 9CI. Hexahydro-1,3,4,5-tetrahydroxybenzoic acid. Chinic acid
[36413-60-2]



(-)-*form*

$C_7H_{12}O_6$ 192.168
Note that the C atom carrying the OH which is *cis* to the COOH is normally numbered 3. Care is needed; see Eliel (1997). CA numbers the OH *cis* to the COOH, 5.

(+)-*form* [7216-27-5]
Mp 164°. $[\alpha]_D^{20}$ +44 (H_2O).

(-)-*form* [77-95-2]
Occurs in cinchona bark, coffee beans, tobacco leaves and many other plant sources. Food acidulant with good taste characteristics, use limited by cost. Sol. H_2O.
Mp 162-163°. $[\alpha]_D^{26}$ -42.1 (H_2O). pK_a 3.58 (25°).
► LD_{50} (mus, scu) 10000 mg/kg. GU8650000
1,3-Lactone: 1,3,4-Trihydroxy-6-oxabicyclo[3.2.1]octan-7-one, 9CI. ***Quinide.*** *Quinolactone*
[665-27-0]
$C_7H_{10}O_5$ 174.153
Constit. of *Gardenia sootepensis* and *Detarium microcarpum* bark.
Mp 187°. $[\alpha]_D^{23}$ -16.75 (c, 8.3 in H_2O). Lactonised onto the C-3 OH group.

*4,5-Isopropylidene, 1,3-lactone: 4,5-*O-*Isopropylidenequinide. 3*a*R,4R,7S,8*a*R-Tetrahydro-7-hydroxy-2,2-dimethyl-4,7-methano-1,3-dioxolo[4,5-*c*]oxepin-6(4*H*)-one, 10CI*
[32384-42-2]
$C_{10}H_{12}O_5$ 212.202
Cryst. (EtOAc/C_6H_6/petrol). Mp 139.5-140.5° (136-138). $[\alpha]_D^{18}$ -36.6 (1,1,2,2-tetrachloroethane). $[\alpha]_D$ -28 (c, 1.08 in EtOH).
Tetra-Ac: Mp 132-136°. $[\alpha]_D^{20}$ -22.5 (EtOH).
Tetra-Ac, amide: Mp 186-187° dec. $[\alpha]_D$ -28.6 ($C_2H_2Cl_4$).
3,4-Bis(4-hydroxy-3-methoxybenzoyl): 3,4-Divanilloylquinic acid. ***Burkinabin C***
$C_{23}H_{24}O_{12}$ 492.435
Constit. of the root bark of *Fagara zanthoxyloides*.
3,5-Bis(4-hydroxy-3-methoxybenzoyl): 3,5-Divanilloylquinic acid. ***Burkinabin B***
$C_{23}H_{24}O_{12}$ 492.435
Constit. of the root bark of *Fagara zanthoxyloides*.
4,5-Bis(4-hydroxy-3-methoxybenzoyl): 4,5-Divanilloylquinic acid. ***Burkinabin A***
$C_{23}H_{24}O_{12}$ 492.435
Constit. of the root bark of *Fagara zanthoxyloides*.
3-O-*(3,4,5-Trihydroxybenzoyl): 3*-O-*Galloylquinic acid.* ***Theogallin***
[53584-43-3]
$C_{14}H_{16}O_{10}$ 344.274
Isol. from the bark of *Quercus stenophylla* and from tea. Off-white amorph. powder. $[\alpha]_D^{18}$ -36.4 (c, 0.37 in H_2O).
4-O-*(3,4,5-Trihydroxybenzoyl):* ***4-O-Galloylquinic acid***
[53505-96-7]
$C_{14}H_{16}O_{10}$ 344.274
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder. $[\alpha]_D^{17}$ -30.4 (c, 0.24 in 50% MeOH aq.).
5-O-*(3,4,5-Trihydroxybenzoyl): 5*-O-*Galloylquinic acid*
[17365-11-6]
$C_{14}H_{16}O_{10}$ 344.274
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder. $[\alpha]_D^{17}$ -13.7 (c, 0.36 in H_2O).
1,4-Bis(3,4,5-trihydroxybenzoyl): ***1,4-Di-O-galloylquinic acid***
[110082-88-7]
$C_{21}H_{20}O_{14}$ 496.381
Isol. from the leaf of *Quercus myrsinaefolia*. Needles + H_2O.
Mp 213-215°. $[\alpha]_D^{23}$ -18.9 (c, 1.1 in Me_2CO).
1,5-Bis(3,4,5-trihydroxybenzoyl): ***1,5-Digalloylquinic acid***
[176328-08-8]
$C_{21}H_{20}O_{14}$ 496.381
Constit. of *Guiera senegalensis* (Combretaceae). Powder. $[\alpha]_D^{23}$ -30 (c, 1 in MeOH). Named as 1,3-deriv. in paper.
3,4-Bis(3,4,5-trihydroxybenzoyl): ***3,4-Di-O-galloylquinic acid***
[86687-37-8]
$C_{21}H_{20}O_{14}$ 496.381
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder. $[\alpha]_D^{27}$ -102.8 (c, 0.32 in Me_2CO).

3,5-Bis(3,4,5-trihydroxybenzoyl): ***3,5-Di-O-galloylquinic acid***
[86588-90-1]
$C_{21}H_{20}O_{14}$ 496.381
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder + $1H_2O$. $[\alpha]_D^{26}$ -63 (c, 0.20 in Me_2CO).

4,5-Bis(3,4,5-trihydroxybenzoyl): ***4,5-Di-O-galloylquinic acid***
[53505-97-8]
$C_{21}H_{20}O_{14}$ 496.381
Isol. from the bark of *Quercus stenophylla*. Off-white amorph. powder. $[\alpha]_D^{23}$ -35.5 (c, 0.20 in Me_2CO).

1,3,4-Tris(3,4,5-trihydroxybenzoyl): ***1,3,4-Tri-O-galloylquinic acid***
[110082-89-8]
$C_{28}H_{24}O_{18}$ 648.487
Isol. from the leaf of *Quercus myrsinaefolia*. Shows anti-HIV activity. Needles. Mp 220-225° dec. $[\alpha]_D^{23}$ -5.2 (c, 0.9 in Me_2CO). Log P 0.1 (calc).

3,4,5-Tris(3,4,5-trihydroxybenzoyl): ***3,4,5-Tri-O-galloylquinic acid***
[94414-04-7]
$C_{28}H_{24}O_{18}$ 648.487
Isol. from the bark of *Quercus stenophylla* and root of *Guiera senegalensis*. Shows anti-HIV activity. Off-white amorph. powder. $[\alpha]_D$ -124 (c, 0.20 in Me_2CO). Log P 0.27 (calc).

3,4,5-Tris(3,4,5-trihydroxybenzoyl), Me ester: [125369-71-3]
$C_{29}H_{26}O_{18}$ 662.514
Constit. of *Lepidobotrys stauditi*. Claimed to have anti-HIV props. Powder.

3,4,5-Tris(3,4,5-trihydroxybenzoyl), Et ester: ***Ethyl 3,4,5-tri-O-galloylquinate***
[211388-30-6]
$C_{30}H_{28}O_{18}$ 676.54
Constit. of *Guiera senegalensis*.

1,3,4,5-Tetrakis(3,4,5-trihydroxybenzoyl): ***1,3,4,5-Tetra-O-galloylquinic acid***
[123166-70-1]
$C_{35}H_{28}O_{22}$ 800.593
Tannin constit. isol. from commercial tannic acid. Shows an inhibition to HIV reverse transcriptase and HIV cell growth. Amorph. powder + $2H_2O$. $[\alpha]_D^{20}$ -72 (c, 0.20 in Me_2CO). Log P 1.51 (calc). λ_{max} 277 (ϵ 34700) (MeOH) (Derep).

3-O-(Galloylgalloyl): 3-O-Digalloylquinic acid. ***Pistafolin B***
[264619-60-5]
$C_{21}H_{20}O_{14}$ 496.381
Constit. of *Pistacia weinmannifolia*. Off-white powder. $[\alpha]_D^{22}$ -67.9 (c, 0.24 in MeOH). Exists as an equilibrium mixture of *m*- and *p*-isomers. λ_{max} 217 (log ϵ 4.53); 278 (log ϵ 4.11) (MeOH).

3-O-(Galloylgalloyl), 4,5-bis(3,4,5-trihydroxybenzoyl): ***3-Digalloyl-4,5-di-O-galloylquinic acid***
[123166-69-8]
$C_{35}H_{28}O_{22}$ 800.593
Isol. from commercial tannic acid. Inhibitory to HIV reverse transcriptase and HIV cell growth. Amorph. powder + H_2O. $[\alpha]_D^{20}$ -106 (c, 0.48 in Me_2CO). λ_{max} 277 (ϵ 23000) (MeOH) (Berdy).

5-O-(Galloylgalloyl), 3,4-bis(3,4,5-trihydroxybenzoyl): 5-O-Digalloyl-3,4-di-O-galloylquinic acid
[123134-20-3]
$C_{35}H_{28}O_{22}$ 800.593
Constit. of commercial tannic acid. Exhibits inhibition of HIV reverse transcriptase and HIV cell growth. Amorph. powder + H_2O. $[\alpha]_D^{20}$ -92 (c, 0.60 in Me_2CO). λ_{max} 277 (ϵ 35000) (MeOH) (Berdy).

4-O-(Galloylgalloyl), 3,5-bis(3,4,5-trihydroxybenzoyl): ***4-O-Digalloyl-3,5-di-O-galloylquinic acid***
[123134-19-0]
$C_{35}H_{28}O_{22}$ 800.593
Isol. from commercial tannic acid. Inhibits the activity of HIV reverse transcriptase and the growth of HIV cells. Amorph. powder + H_2O. $[\alpha]_D^{20}$ -91 (c, 0.53 in Me_2CO). λ_{max} 277 (ϵ 34400) (MeOH) (Berdy).

3-O-(Galloylgalloylgalloyl): 3-O-Trigalloylquinic acid. ***Pistafolin A***
[264619-17-2]
$C_{28}H_{24}O_{18}$ 648.487
Constit. of *Pistacia weinmannifolia*. Off-white powder. $[\alpha]_D^{22}$ -9.9 (c, 0.68 in MeOH). Exists as an equilibrium mixture of *m*- and *p*-isomers. λ_{max} 217 (log ϵ 4.79); 271 (log ϵ 4.43) (MeOH).

1-O-(3,4-Dihydroxycinnamoyl): See 1-*O*-Caffeoylquinic acid in *The Combined Chemical Dictionary.*

3-O-(3,4-Dihydroxycinnamoyl): See 3-*O*-Caffeoylquinic acid in *The Combined Chemical Dictionary.*

4-O-(3,4-Dihydroxycinnamoyl): See 4-*O*-Caffeoylquinic acid in *The Combined Chemical Dictionary.*

5-O-(3,4-Dihydroxycinnamoyl): See 5-*O*-Caffeoylquinic acid in *The Combined Chemical Dictionary.*

1,3-Bis-O-(3,4-dihydroxycinnamoyl): See 1,5-Di-*O*-caffeoylquinic acid in *The Combined Chemical Dictionary.*

3,4-Bis-O-(3,4-dihydroxycinnamoyl): See 3,4-Di-*O*-caffeoylquinic acid in *The Combined Chemical Dictionary.*

3,5-Bis-O-(3,4-dihydroxycinnamoyl): See 3,5-Di-*O*-caffeoylquinic acid in *The Combined Chemical Dictionary.*

4,5-Bis-O-(3,4-dihydroxycinnamoyl): See 4,5-Di-*O*-caffeoylquinic acid in *The Combined Chemical Dictionary.*

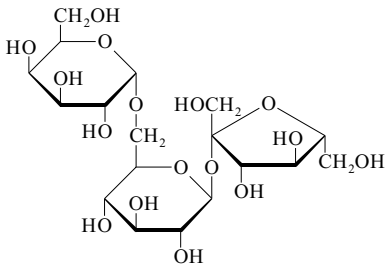
(±)-*form* [1010-25-9]
Cryst. (EtOH). Mp 155-156° (149°).

1,3-Lactone: [27783-00-2]
Mp 200° (180-196°).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 525A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 814C (*nmr*)
v. Lippmann, E. *et al., Ber.*, 1901, **34**, 1159-1162 (*isol*)
Gorter, K. *et al., Annalen*, 1908, **359**, 217-244 (*isol*)
Fischer, H.O.L. *et al., Ber.*, 1932, **65**, 1009-1031 (*struct*)
Grewe, R. *et al., Chem. Ber.*, 1954, **87**, 793-802 (*synth*)
Haslam, E. *et al., J.C.S.*, 1963, 2173-2181 (*gallates*)
Wolinsky, J. *et al., J.O.C.*, 1964, **29**, 3596-3598 (*synth, bibl*)
Haslam, E. *et al., J.C.S.(C)*, 1971, 1496-1500 (*pmr*)
Stagg, G.V. *et al., Phytochemistry*, 1971, **10**, 1671-1673 (*Theogallin*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 989 (*occur*)
De Pooter, H. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 835-843 (*4,5-isopropylidenefactone*)
Kelley, C.J. *et al., J.O.C.*, 1976, **41**, 449-122 (*cmr*)
Nishimura, H. *et al., Phytochemistry*, 1984, **23**, 2621-2623 (*gallates*)
Ishimatsu, K. *et al., Phytochemistry*, 1987, **26**, 1501-1504 (*gallates*)
Abell, C. *et al., Acta Cryst. C*, 1988, **44**, 1287-1290 (*cryst struct, bibl, abs config*)
Nishizawa, M. *et al., J. Nat. Prod.*, 1989, **52**, 762-768 (*gallates*)
Scholz-Böttcher, B.M. *et al., Annalen*, 1991, 1029-1036 (*bibl, stereoisomers*)
Meier, R.M. *et al., Helv. Chim. Acta*, 1991, **74**, 807-818 (*synth*)
Mahmood, N. *et al., Antiviral Chem. Chemother.*, 1993, **4**, 235-240 (*3,4,5-trigalloyl, anti-HIV activity*)
Neszmelyi, A. *et al., Planta Med.*, 1993, **59**, 164 (*Tetragalloylquinic acid*)
Altmann, R. *et al., Monatsh. Chem.*, 1995, **126**, 1225-1232 (*synth, gallates, cd*)
Bokesh, H.R. *et al., Nat. Prod. Lett.*, 1996, **8**, 133-136 (*trigalloyl Me ester*)
Bouchet, N. *et al., Phytochemistry*, 1996, **42**, 189-190 (*1,5-Digalloylquinic acid*)
Manthey, M.K. *et al., J.C.S. Perkin 1*, 1997, 625-628 (*lactone, synth, ir, pmr, cmr*)
Eliel, E.L. *et al., Tetrahedron: Asymmetry*, 1997, **8**, 3551-3554 (*stereochem*)
Bouchet, N. *et al., Pharm. Biol.*, 1998, **36**, 63-65 (*Ethyl trigalloylquinate*)
Hou, A.-J. *et al., Planta Med.*, 2000, **66**, 624-626 (*Pistafolins*)
Abreu, P. *et al., Carbohydr. Res.*, 2002, **337**, 1663-1666 (*lactone, isol*)
Ouattara, B. *et al., Phytochemistry*, 2004, **65**, 1145-1151 (*Burkinabins*)

Raffinose, 8CI R-1

β-D-Fructofuranosyl α-D-galactopyranosyl-(1→6)-α-D-glucopyranoside, 9CI. Melitriose. Gossypose. Melitose
[512-69-6]



$C_{18}H_{32}O_{16}$ 504.441
Occurs in sugar beet, cotton seeds, manna. Widely distributed in plants, esp. in the seeds. The only trisaccharide readily accessible in bulk.
Mp 118° (anhyd.). $[\alpha]_D$ +123 (c, 2 in H_2O) (anhyd.). Sweet taste. Sweetness 0.48 × sucrose. Does not reduce Fehling's soln. Invertase or raffinase gives 6-*O*-α-D-Galactopyranosyl-D-glucose, G-145 and Fructose.

► LZ5851200

Pentahydrate: [17629-30-0]
Prisms. Mp 78°.

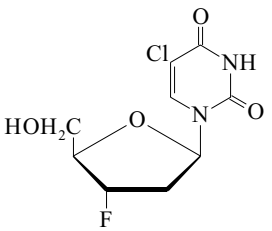
Undeca-Ac:
$C_{40}H_{54}O_{27}$ 966.85
Mp 101°. $[\alpha]_D$ +100 (c, 8 in EtOH).

Undeca-Me:
$C_{29}H_{54}O_{16}$ 658.736
Bp_2 238-240°. $[\alpha]_D^{17}$ +128.4 (c, 1 in H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 310B (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 197B (*ir*)
Tanret, G. *et al., Bull. Soc. Chim. Fr.*, 1895, 261
Haworth, N.W. *et al., J.C.S.*, 1923, 3125
French, D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1954, **9**, 149 (*rev*)
Duperon, R. *et al., C. R. Hebd. Seances Acad. Sci.*, 1955, **241**, 1817 (*occur*)
Bourne, E.J. *et al., Biochem. J.*, 1965, **97**, 802 (*biosynth*)
Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 4375 (*ms*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 671 (*occur*)
Bock, K. *et al., Tet. Lett.*, 1973, 1037 (*cmr*)
Anteunis, M. *et al., Carbohydr. Res.*, 1975, **44**, 101 (*pmr*)
Hough, L. *et al., Carbohydr. Res.*, 1980, **80**, 117; 123 (*derivs*)
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1990, **206**, 173 (*cryst struct*)

Raluridine, USAN R-2

5-Chloro-2′,3′-dideoxy-3′-fluorouridine, 9CI. 935U83
[119644-22-3]

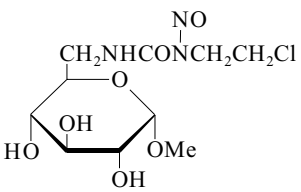


$C_9H_{10}ClFN_2O_4$ 264.64
Selective inhibitor of HIV-1 and HIV-2 replication. Cryst. (Me_2CO/hexane). Mp 181° dec.

Van Aerschot, A. *et al., J. Med. Chem.*, 1989, **32**, 1743; 1990, **33**, 1833 (*synth, uv, ms, pmr, cmr, cryst struct*)

Ranimustine, INN, JAN R-3

Methyl 6-[[[(2-chloroethyl)nitrosoamino]carbonyl]amino]-6-deoxy-α-D-glucopyranoside, 9CI. Ranomustine. Cymerin. Tymerin. MCNU. NSC 270516
[58994-96-0]



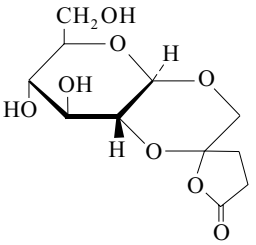
$C_{10}H_{18}ClN_3O_7$ 327.721
Antineoplastic agent. Launched 1987. Pale yellow needles. Mp 111-112° dec. $[\alpha]_D^{20}$ +93.2 (c, 0.5 in MeOH). Log P -1.59 (calc).

► LD_{50} (rat, orl) 46.4 mg/kg. LD_{50} (rat, ipr) 37 mg/kg. Exp. reprod. and mutagenic effects. LZ5910000

Ger. Pat., 1978, 2 805 185, (*Tokyo Tanabe*); *CA*, **90**, 6664 (*synth*)
Sekido, S. *et al., Cancer Treat. Rep.*, 1979, **63**, 961 (*pharmacol*)
Fujimoto, S. *et al., Gann*, 1984, **75**, 937 (*pharmacol, tox*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 499

Ranuncoside R-4

Hexahydro-7,8-dihydroxy-6-(hydroxymethyl)spiro[furan-2(5H),2′(3′H)-[6H]pyrano[2,3-b][1,4]dioxin]-5-one, 9CI. 1,2-O-[2-(S)-2-(2-Oxotetrahydro-5-furylidene)]ethylene-β-D-glucopyranose
[35879-55-1]



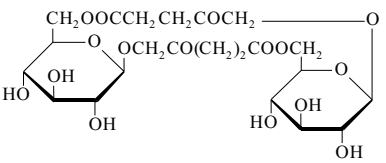
$C_{11}H_{16}O_8$ 276.243
Constit. of *Ranunculus repens* and *Helleborus foetidus*. Needles (EtOH aq.). Mp 206-208°. $[\alpha]_D^{20}$ +40.2 (c, 0.5 in EtOH aq.).

Tri-Ac: Mp 175-176°. $[\alpha]_D^{20}$ +30 (c, 1.0 in $CHCl_3$).

Tschesche, R. *et al., Chem. Ber.*, 1972, **105**, 290 (*isol, pmr, ms*)
Mariezcurrena, R.A. *et al., Acta Cryst. B*, 1973, **29**, 1030 (*struct*)

Ranunculoside, 9CI R-5

[35879-56-2]



$C_{22}H_{32}O_{16}$ 552.485
Extracted from *Ranunculus repens* and *Helleborus foetidus*.
Mp 153-154°. $[\alpha]_D^{20}$ -4 (c, 1.0 in MeOH).

Hexa-Ac: Mp 233-234°. $[\alpha]_D^{20}$ -3 (c, 0.94 in $CHCl_3$).

Tschesche, R. *et al., Chem. Ber.*, 1972, **105**, 290 (*synth, pmr*)

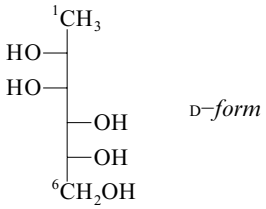
Reviparin, BAN, INN R-6

Clivarin. LU 47311
Low MW heparin, Av. MW 3500-4500. Obt. and marketed as Na salt. Obt. from HNO_2 degradn. of heparin from porcine intestinal mucosa. Anticoagulant, used to prevent deep vein thrombosis. Launched 1993 (Germany)

Hoppensteadt, D. *et al., Blood Coagulation Fibrinolysis*, 1993, **4**, S11 (*pharmacol, rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 232
Baumelou, A. *et al., Nephron*, 1994, **68**, 202 (*pharmacokinet*)
Wellington, K. *et al., Drugs*, 2001, **61**, 1185-1209 (*rev*)

Rhamnitol R-7

1-Deoxymannitol, 9CI, 8CI. 6-Deoxymannitol. Mannomethylitol
[1114-16-5]



D–*form*

$C_6H_{14}O_5$ 166.174

Care needed with numbering. Isol. from the hydrosylates of Levan, L-34.

D-*form*

Prisms (EtOH). Mp 123-124°. $[\alpha]_D^{20}$ -12 (c, 1.0 in H_2O).

L-*form* [488-28-8]
Mp 123-124°. $[\alpha]_D^{20}$ +12 (H_2O).

*4,5-*O*-Isopropylidene: 4,5-*O*-Isopropylidene-L-rhamnitol*
$C_9H_{18}O_5$ 206.238
Characterised spectroscopically.

*3,4-*O*-Isopropylidene: 3,4-*O*-Isopropylidene-L-rhamnitol*
$C_9H_{18}O_5$ 206.238
Cryst. (C_6H_6). Mp 79-80°. $[\alpha]_D$ -24 (c, 2.2 in H_2O).

*3,4:5,6-Di-*O*-isopropylidene: 3,4:5,6-Di-*O*-isopropylidene-L-rhamnitol*
$C_{12}H_{22}O_5$ 246.303
Cryst. (C_6H_6). Mp 64-66°. $[\alpha]_D$ -16 (c, 1.5 in MeOH).

*3,4:5,6-Di-*O*-isopropylidene, 2-tosyl: 3,4:5,6-Di-*O*-isopropylidene-2-*O*-tosyl-L-rhamnitol*
$C_{19}H_{28}O_7S$ 400.492
Mp 83-84°. $[\alpha]_D$ -13 (c, 2.0 in $CHCl_3$).

*2,5:4,6-Di-*O*-methylene, 3-tosyl: 2,5:4,6-Di-*O*-methylene-3-*O*-tosyl-L-rhamnitol*
$C_{15}H_{20}O_7S$ 344.385
Mp 117-118°. $[\alpha]_D$ +49.3 (c, 1.2 in $CHCl_3$).

*2,5-Di-Me: 2,5-Di-*O*-methyl-L-rhamnitol*
$C_8H_{18}O_5$ 194.227
Mp 71-73°. $[\alpha]_D$ +27 (c, 2.0 in H_2O).

*6-Benzyl, 4,5-isopropylidene: 6-*O*-Benzyl-4,5-*O*-isopropylidene-L-rhamnitol*
$C_{16}H_{24}O_5$ 296.363
Hemihydrate. $[\alpha]_D^{26}$ -18 (c, 1.34 in $CHCl_3$).

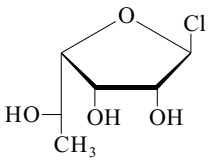
DL-*form*

Mp 112-113°.

Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 162; 167 (*D-form, L-form*)
Haskins, W.T. *et al., J.A.C.S.*, 1946, **68**, 628 (*D-form, DL-form*)
Foster, A.B. *et al., J.C.S.*, 1961, 4649 (*L-di-Me*)
Ferreira, M.A. *et al., Garcia de Orta*, 1963, **11**, 97; *CA*, **62**, 9458b (*occur*)
Bukhari, M.A. *et al., J.C.S.*, 1963, 2287 (*L-isopropylidene, L-diisopropylidene*)
Grindley, T.B. *et al., Can. J. Chem.*, 1974, **52**, 4062 (*L-di-methylene tosyl*)
Defaye, J. *et al., Carbohydr. Res.*, 1990, **205**, 191 (*synth, D-form*)
Munier, P. *et al., Tetrahedron*, 1995, **51**, 1229 (*L-2,3-isopropylidene, L-1-benzyl-2,3-isopropylidene*)

Rhamnofuranosyl chloride R-8

6-Deoxymannofuranosyl chloride, 9CI



$C_6H_{11}ClO_4$ 182.603

α-L-*form*

*2,3-*O*-Isopropylidene, 5-tosyl: 2,3-*O*-Isopropylidene-5-*O*-tosyl-α-L-rhamnofuranosyl chloride. 6-Deoxy-2,3-*O*-isopropylidene-5-*O*-tosyl-α-L-mannofuranosyl chloride*
[32658-92-7]
$C_{16}H_{21}ClO_6S$ 376.857
Syrup. Unstable at ambient temp.

Lerner, L.M. *et al., J.O.C.*, 1972, **37**, 477 (*isopropylidene deriv, pmr*)

Rhamnogalacturonan I R-9

Polysaccharide consisting of (→4)-α-D-Gal*p*A-(1→2)-α-L-Rha*p*-(1→) backbone with arabinan and oligogalactosyl side-groups attached at *O*-4 of the Rha residues. Interspecies variation is prob. due to side-chain variation. Isol. from xylem-differentiating zones of *Cryptomeria japonica* and from sycamore (*Acer pseudoplatanus*). Major pectic polysaccharide component of cell walls of dicots and nongraminaceous monocots.

[39280-21-2]

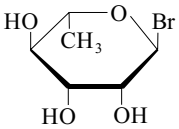
Lau, J.M. *et al., Carbohydr. Res.*, 1985, **137**, 111-125 (*struct*)
O'Neill, M. *et al., Methods Plant Biochem.*, 1990, **2**, 415-441 (*rev*)
Lerouge, P. *et al., Carbohydr. Res.*, 1993, **243**, 359-371 (*struct*)
An, J. *et al., Carbohydr. Res.*, 1994, **252**, 235-243 (*struct*)
Edashige, Y. *et al., Carbohydr. Res.*, 1997, **304**, 357-365 (*isol, bibl*)

Rhamnogalacturonan II R-10

Small complex polysaccharide containing apiose, 2-*O*-methyl-L-fucose, 2-*O*-methyl-D-xylose, aceric acid, Penta-Ac, 3-deoxy-D-*lyxo*-heptulosaric acid and other sugars depending on source. Obt. by the action of liquefying enzymes on apple, tomato and carrot juice pectin. The main nondegraded soluble polysaccharide component of the juice. Also present in various other plant products, e.g. leaves of *Panax ginseng* (ginseng).

Doco, T. *et al., Carbohydr. Res.*, 1997, **297**, 181-186 (*isol, bibl*)
Shin, K.S. *et al., Carbohydr. Res.*, 1997, **300**, 239-249 (*isol, struct*)
Vidal, S. *et al., Carbohydr. Res.*, 2000, **326**, 277-294 (*struct*)
Rodriguez-Carvajal, M.A. *et al., Carbohydr. Res.*, 2003, **338**, 651-671 (*struct*)

Rhamnopyranosyl bromide R-11



$C_6H_{11}BrO_4$ 227.054

α-L-*form*

*Tri-Ac: Tri-*O*-acetyl-α-L-rhamnopyranosyl bromide. Acetobromorhamnose*
[5158-64-5]
$C_{12}H_{17}BrO_7$ 353.166
Mp 64-65°. $[\alpha]_D^{20}$ -170 (c, 1.2 in $CHCl_3$).

Tribenzoyl: [53297-33-9]
$C_{27}H_{23}BrO_7$ 539.378
Mp 163-164°. $[\alpha]_D^{20}$ +64.4 (c, 1.44 in $CHCl_3$).

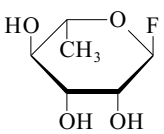
*4-Ac, 2,3-carbonate: 4-*O*-Acetyl-2,3-*O*-carbonyl-α-L-rhamnopyranosyl bromide*
[74517-02-5]
$[\alpha]_D$ -117.5 (c, 1.48 in $CHCl_3$).

Tribenzyl: [59055-61-7]
$C_{27}H_{29}BrO_4$ 497.428
$[\alpha]_D^{20}$ -119 (c, 1.7 in CH_2Cl_2).

Haynes, L.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1955, **10**, 207 (*rev*)
Fréchet, J.M. *et al., Carbohydr. Res.*, 1975, **42**, 369 (*benzyl*)
Boivin, J. *et al., Carbohydr. Res.*, 1980, **79**, 193 (*benzoyl*)
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1980, **84**, 225 (*carbonate*)

Rhamnopyranosyl fluoride R-12

6-Deoxymannopyranosyl fluoride



$C_6H_{11}FO_4$ 166.149

α-L-*form*

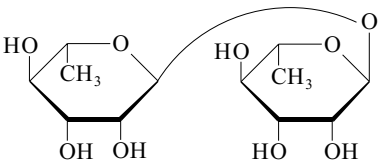
*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-L-rhamnopyranosyl fluoride*
$C_{12}H_{17}FO_7$ 292.261
Syrup. $[\alpha]_D^{20}$ -30 (c, 0.5 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-L-rhamnopyranosyl fluoride*
[10512-71-7]
$C_{27}H_{23}FO_7$ 478.473
Cryst. (MeOH). Mp 103-105°. $[\alpha]_D^{24}$ +231 (c, 0.8 in $CHCl_3$).

Lundt, I. *et al., Mikrochim. Acta*, 1966, 126 (*tribenzoyl*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 1 (*pmr, F-19 nmr*)
Nishiyama, K. *et al., Biosci., Biotechnol., Biochem.*, 1993, **57**, 107 (*α-L-tri-Ac*)
Miethchen, R. *et al., Synthesis*, 1997, 159 (*α-L-tri-Ac*)

α-L-Rhamnopyranosyl α-L-rhamnopyranoside R-13

[49815-06-7]



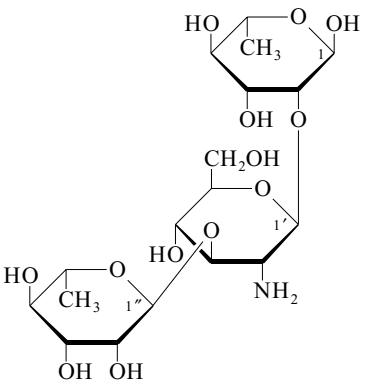
$C_{12}H_{22}O_9$ 310.3

Non-reducing disaccharide. Cryst. + $2H_2O$ (H_2O). Mp 152°. $[\alpha]_D^{20}$ -97.7 (c, 0.98 in H_2O).

Birkofer, L. *et al., Annalen*, 1973, 731 (*synthh*)

α-L-Rhamnopyranosyl-(1→3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1→2)-L-rhamnose R-14

6-Deoxy-α-L-mannopyranosyl-(1→3)-2-amino-2-deoxy-β-D-glucopyranosyl-(1→2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{33}NO_{13}$ 471.458

Constit. of the tetrasaccharide repeating unit of the *Shigella flexneri* lipopolysaccharide.

α-Pyranose-*form*

8-Methoxycarbonyloctyl glycoside, N-*Ac:* [73164-19-9]
$C_{30}H_{53}NO_{16}$ 683.746
Syrup. $[\alpha]_D^{21}$ -46.4 (c, 1.1 in H_2O).

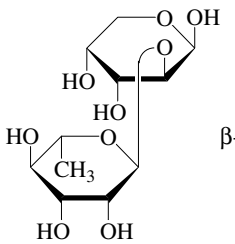
8-Methoxycarbonyloctyl glycoside, 4′,6′-O-benzylidene, 3,4-dibenzyl, 2′N,2″,3″,4″-tetra-Ac: [73164-18-8]
$C_{57}H_{75}NO_{19}$ 1078.215
Syrup. $[\alpha]_D^{21}$ -34.3 (c, 1.2 in $CHCl_3$).

Bundle, D.R. *et al., J.C.S. Perkin 1*, 1979, 2736 (*α-methoxycarbonyloctyl pyr derivs, pmr, conformn*)

2-*O*-α-L-Rhamnopyranosyl-D-arabinose R-15

2-O-(6-Deoxy-α-L-mannopyranosyl)-D-arabinose, 9CI

[68044-26-8]



β-Pyranose-*form*

$C_{11}H_{20}O_9$ 296.274

V. hygroscopic.

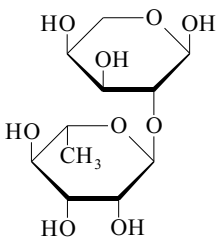
β-Pyranose-*form*

*Benzyl glycoside: Benzyl 2-*O*-α-L-rhamnopyranosyl-β-D-arabinopyranoside*
$C_{18}H_{26}O_9$ 386.398
Cryst. (EtOH). Mp 203°. $[\alpha]_D^{20}$ -188 (c, 1.4 in H_2O).

Sarfati, R.S. *et al., Carbohydr. Res.*, 1978, **65**, 11 (*synth*)

2-*O*-α-L-Rhamnopyranosyl-L-arabinose R-16

[78229-00-2]



α–Pyranose–*form*

$C_{11}H_{20}O_9$ 296.274

Occurs as the sugar component of terpenoid glycosides. Cryst. (MeOH). Mp 141-145°. $[\alpha]_D$ +12 (c, 0.31 in H_2O).

α-Pyranose-*form* [86049-19-6]

Hexa-Ac: [92122-99-1]
$C_{23}H_{32}O_{15}$ 548.497
Prisms (Et_2O/petrol). Mp 155°. $[\alpha]_D^{20}$ -53.3 (c, 1.0 in $CHCl_3$).

*Me glycoside: Methyl 2-*O*-α-L-rhamnopyranosyl-α-L-arabinopyranoside*
[89734-29-2]
$C_{12}H_{22}O_9$ 310.3
Syrup (monohydrate). $[\alpha]_D^{20}$ -46 (c, 1.0 in EtOH).

*Me glycoside, penta-Ac: Methyl 3,4-di-*O*-acetyl-2-*O*-(2,3,4-tri-*O*-acetyl-α-L-rhamnopyranosyl)-α-L-arabinopyranoside*
$C_{22}H_{32}O_{14}$ 520.486
Needles (EtOH aq.). Mp 170-172°. $[\alpha]_D^{20}$ 0 (c, 1.0 in $CHCl_3$).

tert-*Butyl glycoside:* tert-*Butyl 2-*O*-α-L-rhamnopyranosyl-α-L-arabinopyranoside*
[101305-02-6]
$C_{15}H_{28}O_9$ 352.381
Syrup. $[\alpha]_D^{15}$ -21.1 (c, 2.15 in Py).

β-Pyranose-*form* [86049-26-5]

Hexa-Ac: [92123-00-7]
$C_{23}H_{32}O_{15}$ 548.497
Needles (Et_2O/petrol). Mp 114-115°. $[\alpha]_D^{20}$ +65.5 (c, 1.0 in $CHCl_3$).

*Benzyl glycoside: Benzyl 2-*O*-α-L-rhamnopyranosyl-β-L-arabinopyranoside*
[86049-18-5]
$C_{18}H_{26}O_9$ 386.398
Cryst. (EtOAc/EtOH). Mp 216-220°. $[\alpha]_D$ +100 (c, 0.65 in H_2O).

*Me glycoside: Methyl 2-*O*-α-L-rhamnopyranosyl-β-L-arabinopyranoside*
[89734-33-8]
$C_{12}H_{22}O_9$ 310.3
Needles (EtOH). Mp 184-186°. $[\alpha]_D^{20}$ +95.7 (c, 0.67 in H_2O).

Kizu, H. *et al., Chem. Pharm. Bull.*, 1979, **27**, 2388 (*occur*)

Liptak, A. *et al., Tetrahedron*, 1982, **38**, 3489 (*synth*)

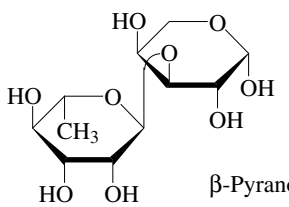
Kamiya, S. *et al., Agric. Biol. Chem.*, 1984, **48**, 1353; 1985, **49**, 55; 1986, **51**, 2207 (*Me gly, benzyl gly*)

Mizutani, K. *et al., Carbohydr. Res.*, 1984, **126**, 77 (*Me gly, synth, pmr*)

Mizutani, K. *et al., Chem. Pharm. Bull.*, 1985, **33**, 2266 (*tert-Butyl gly*)

Fujioka, T. *et al., Chem. Pharm. Bull.*, 1989, **37**, 2355 (*occur*)

3-*O*-α-L-Rhamnopyranosyl-L-arabinose R-17



β-Pyranose-*form*

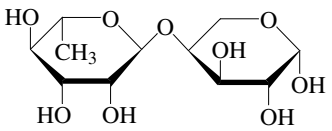
$C_{11}H_{20}O_9$ 296.274

β-Pyranose-*form*

*Benzyl glycoside: Benzyl 3-*O*-α-L-rhamnopyranosyl-β-L-arabinopyranoside. Benzyl 3-*O*-(6-deoxy-α-L-mannopyranosyl)-β-L-arabinopyranoside*
[108586-42-1]
$C_{18}H_{26}O_9$ 386.398
Plates (EtOH). Mp 220°. $[\alpha]_D^{20}$ +78 (c, 1.0 in 50% EtOH aq.).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1986, **50**, 2147

4-*O*-α-L-Rhamnopyranosyl-L-arabinose R-18



β-Pyranose-*form*

$C_{11}H_{20}O_9$ 296.274

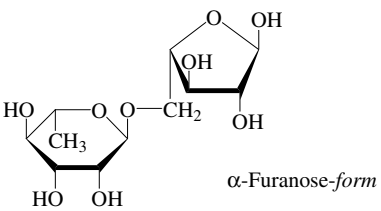
β-Pyranose-*form*

Me glycoside: Methyl 4-O-α-L-rhamnopyranosyl-β-L-arabinopyranoside
[96048-25-8]
$C_{12}H_{22}O_9$ 310.3
Amorph. powder. Mp 200-203°. $[\alpha]_D^{20}$ +120 (c, 0.4 in H_2O).

Me glycoside, penta-Ac: Methyl 2,3-di-O-acetyl-4-O-(2,3,4-tri-O-acetyl-α-L-rhamnopyranosyl)-β-L-arabinopyranoside
$C_{22}H_{32}O_{14}$ 520.486
Needles (EtOH). Mp 98°. $[\alpha]_D^{20}$ +96.6 (c, 0.6 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 55

5-*O*-α-L-Rhamnopyranosyl-L-arabinose R-19



α-Furanose-*form*

$C_{11}H_{20}O_9$ 296.274

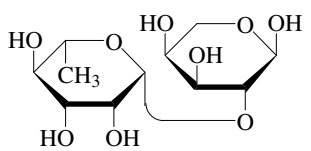
α-Furanose-*form*

Me glycoside: Methyl 5-O-α-L-rhamnopyranosyl-α-L-arabinofuranoside
[108586-43-2]
$C_{12}H_{22}O_9$ 310.3
$[\alpha]_D^{20}$ -103 (c, 1.0 in H_2O).

Me glycoside, penta-Ac: Methyl 2,3-di-O-acetyl-5-O-(2,3,4-tri-O-acetyl-α-L-arabinofuranosyl)-α-L-arabinofuranoside
[108586-52-3]
$C_{22}H_{32}O_{14}$ 520.486
$[\alpha]_D^{15}$ -75 (c, 1.0 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1986, **50**, 2147

2-*O*-β-L-Rhamnopyranosyl-L-arabinose R-20



α-Pyranose-*form*

$C_{11}H_{20}O_9$ 296.274

α-Pyranose-*form*

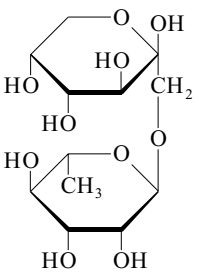
Me glycoside: Methyl 2-O-β-L-rhamnopyranosyl-α-L-arabinopyranoside
[111723-36-5]
$C_{12}H_{22}O_9$ 310.3
Cryst. + $3\frac{1}{2}H_2O$. $[\alpha]_D^{20}$ +8 (c, 0.5 in EtOH).

Me glycoside, pentabenzyl: [111748-70-0]
$C_{47}H_{52}O_9$ 760.922
Syrup. $[\alpha]_D^{20}$ +14 (c, 1.0 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1987, **51**, 2207

1-*O*-α-L-Rhamnopyranosyl-D-fructose R-21

[17074-01-0]



$C_{12}H_{22}O_{10}$ 326.3
Amorph. solid. $[\alpha]_D$ -4.85 (c, 0.58 in H_2O).

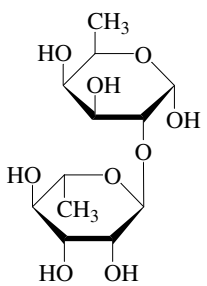
β-Pyranose-*form*

2,3:4,5-Di-O-isopropylidene, 2′,3′,4′-tribenzoyl: [17073-39-1]
$C_{39}H_{42}O_{13}$ 718.753
Cryst. (EtOH). Mp 190-191.5°. $[\alpha]_D$ +100 (c, 5 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1967, **31**, 267 (*synth*)

2-*O*-α-L-Rhamnopyranosyl-D-fucose R-22

2-O-(6-Deoxy-α-L-mannopyranosyl)-6-deoxy-D-galactose, 9CI. 6-Deoxy-2-O-(6-deoxy-α-L-mannopyranosyl)-D-galactose
[50489-31-1]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Reducing disaccharide. Needles (Me_2CO), cryst. + $\frac{1}{2}H_2O$. Mp 145°. $[\alpha]_D^{20}$ +25.8 → -4.5 (24h) (c, 0.66 in H_2O).

α-Pyranose-*form*

Hexa-Ac: [96048-35-0]
$C_{24}H_{34}O_{15}$ 562.524
Pillars (EtOH). Mp 145°. $[\alpha]_D^{15}$ +43.3 (c, 3.1 in $CHCl_3$).

β-Pyranose-*form*

Me glycoside:
$C_{13}H_{24}O_9$ 324.327
Prisms (Me_2CO). Mp 90° (sinters at 79°). $[\alpha]_D^{15}$ -65.6 (c, 4.8 in H_2O).

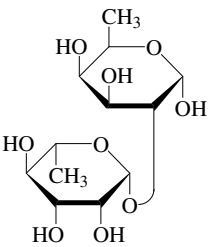
Me glycoside, penta-Ac: [96048-32-7]
$C_{23}H_{34}O_{14}$ 534.513
Needles (EtOH). Mp 125°. $[\alpha]_D^{15}$ -19 (c, 1 in $CHCl_3$).

Tsukitani, Y. *et al., Chem. Pharm. Bull.*, 1973, **21**, 791

Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 55 (*synth*)

2-*O*-β-L-Rhamnopyranosyl-D-fucose R-23

2-O-(6-Deoxy-β-L-galactopyranosyl)-6-deoxy-D-mannose. 6-Deoxy-2-O-(6-deoxy-α-L-galactopyranosyl)-D-mannose



β-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

β-Pyranose-*form*

Me glycoside:
$C_{13}H_{24}O_9$ 324.327
Needles (Me_2CO). Mp 160° (sinters at 155°). $[\alpha]_D$ +55.5 (c, 1.1 in H_2O).

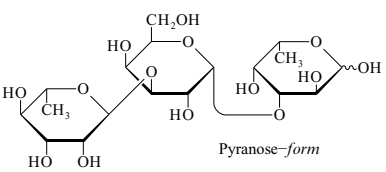
Me glycoside, penta-Ac: [96048-33-8]
$C_{23}H_{34}O_{14}$ 534.513
Syrup. $[\alpha]_D^{15}$ +50 (c, 1 in $CHCl_3$).

Me glycoside, 3,4-dibenzyl, 2′,3′,4′-tri-Ac:
$C_{33}H_{42}O_{12}$ 630.688
Plates. Mp 151-153°. $[\alpha]_D^{15}$ +9 (c, 1.87 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 55 (*synth*)

α-L-Rhamnopyranosyl-(1→3)-α-D-galactopyranosyl-(1→3)-L-fucose R-24

6-Deoxy-α-L-mannopyranosyl-(1→3)-α-D-galactopyranosyl-(1→3)-6-deoxy-L-galactose, 9CI
[71144-75-7]

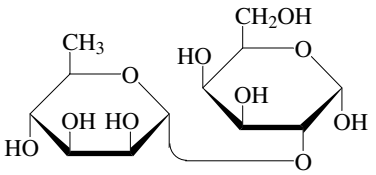


Pyranose–*form*

$C_{18}H_{32}O_{14}$ 472.442
Isol. from the partial acid hydrolysate of mucilage from the edible water plant junsai (*Brasenia schreberi*).
$[\alpha]_D^{25}$ +21.6 (c, 2.0 in H_2O).

Kakuta, M. *et al., Agric. Biol. Chem.*, 1979, **43**, 1269 (*isol*)

2-*O*-α-D-Rhamnopyranosyl-D-galactose R-25



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3

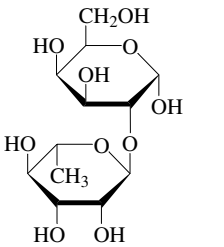
α-Pyranose-*form*

Hepta-Ac: [87236-43-9]
$C_{26}H_{36}O_{17}$ 620.56
Plates (EtOH). Mp 150°. $[\alpha]_D^{20}$ +103 (c, 2.0 in $CHCl_3$).

Konishi, F. *et al., Agric. Biol. Chem.*, 1983, **47**, 1629 (*synth, pmr*)
Ray, A.K. *et al., Carbohydr. Res.*, 1990, **197**, 93

2-*O*-α-L-Rhamnopyranosyl-D-galactose, 9CI R-26

[96048-26-9]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Isol. from the partial acid hydrolysate of acetylated α-solanine. Constituent in the repeating unit of the *O*-antigen of *E. coli* serotype 069.

α-Pyranose-*form*

Hepta-Ac: [35904-56-4]
$C_{26}H_{36}O_{17}$ 620.56
Plates (EtOH). Mp 197-199°.

β-Pyranose-*form*

Hepta-Ac: [35904-57-5]
Needles (EtOH). Mp 183-184°. $[\alpha]_D^{25}$ +2.53 (c, 1.74 in MeOH).

*Me glycoside: Methyl 2-*O*-α-L-rhamnopyranosyl-β-D-galactopyranoside, 9CI*
[128962-66-3]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{24}$ -46 (c, 1.0 in MeOH).

*Me glycoside, 4,6-*O*-benzylidene, 3-benzyl, 2′,3′,4′-tri-Ac:* [129031-02-3]
$C_{33}H_{40}O_{13}$ 644.671
Mp 98-100°. $[\alpha]_D^{24}$ -8.6 (c, 2.1 in $CHCl_3$).

*Me glycoside, 4,6-*O*-benzylidene, tetrabenzyl:* [129031-03-4]
$C_{48}H_{52}O_{10}$ 788.933
Mp 149-151°. $[\alpha]_D^{24}$ -20 (c, 2.4 in $CHCl_3$).

Me glycoside, 2′,3,3′,4′-tetrabenzyl:
[128962-65-2]
$C_{41}H_{48}O_{10}$ 700.824
Mp 136-138°. $[\alpha]_D^{24}$ -11 (c, 1.2 in $CHCl_3$).

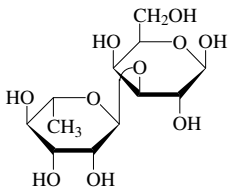
Me glycoside, 2′,3,3′,4′,6-pentabenzyl:
$C_{48}H_{54}O_{10}$ 790.949
Mp 142°. $[\alpha]_D^{24}$ -54 (c, 1.3 in $CHCl_3$).

[127753-85-9]

Kuhn, R. *et al., Chem. Ber.*, 1955, **88**, 1492 (*isol*)
Erbing, C. *et al., Carbohydr. Res.*, 1977, **56**, 371 (*occur*)
Konishi, F. *et al., Agric. Biol. Chem.*, 1983, **47**, 1629
Ray, A.K. *et al., Carbohydr. Res.*, 1990, **197**, 93 (*Me gly*)

3-*O*-α-L-Rhamnopyranosyl-D-galactose, 9CI R-27

[55639-86-6]



β-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Fragment of the main chain of the *O*-antigenic polysaccharides of *Salmonella* serological groups A,D and B. Cryst. (MeOH).
Mp 208-210°. $[\alpha]_D^{23}$ -7.6 (c, 2.23 in MeOH). $[\alpha]_D^{20}$ 0 → +7.4 (c, 1.48 in H_2O). $[\alpha]_D^{20}$ +8.1 (H_2O).

2-Ac: [83906-22-3]
$C_{14}H_{24}O_{11}$ 368.337
Constituent of bacterial cell-wall polysaccharides. Cryst. (MeOH/EtOAc).
Mp 141-143°. $[\alpha]_D$ +9 (c, 0.3 in H_2O).

6-Ac: [83906-26-7]
$C_{14}H_{24}O_{11}$ 368.337
Constituent of bacterial cell-wall polysaccharides. Cryst. (MeOH/EtOAc).
Mp 178-181°. $[\alpha]_D$ +10 (c, 0.6 in H_2O).

β-Pyranose-*form* [79902-94-6]

Hepta-Ac: [55639-94-6]
$C_{26}H_{36}O_{17}$ 620.56
$[\alpha]_D^{19}$ +14.6 (c, 2.23 in $CHCl_3$).

*Benzyl glycoside, 4,6-*O*-benzylidene, 2-Ac:* [83906-20-1]
$C_{28}H_{34}O_{11}$ 546.57
Cryst. (EtOH). Mp 215-218°. $[\alpha]_D$ +16 (c, 0.3 in Py).

*Benzyl glycoside, 4,6-*O*-benzylidene, tetrabenzyl:* [83906-23-4]
$C_{54}H_{56}O_{10}$ 865.03
Cryst. (cyclohexane). Mp 108-110°.
$[\alpha]_D$ +18 (c, 0.9 in $CHCl_3$).

Benzyl glycoside, 2-Ac: [83906-21-2]
$C_{21}H_{30}O_{11}$ 458.461
Cryst. (EtOH). Mp 202-206°. $[\alpha]_D$ -48 (c, 0.5 in Py).

Benzyl glycoside, 2,2′,3′,4,4′-pentabenzyl: [83906-24-5]
$C_{54}H_{58}O_{10}$ 867.046
Amorph. $[\alpha]_D$ -26 (c, 1.0 in $CHCl_3$).

*Me glycoside: Methyl 3-*O*-α-L-rhamnopyranosyl-β-D-galactopyranoside, 9CI*
[116981-69-2]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{25}$ -14 (c, 1.2 in H_2O).

*Me glycoside, 4,6-*O*-benzylidene, 2-benzyl, 2′,3′,4′-tri-Ac:* [131433-05-1]
$C_{33}H_{40}O_{13}$ 644.671
Cryst. (EtOH). Mp 152-153°. $[\alpha]_D$ -19 (c, 1.1 in $CHCl_3$).

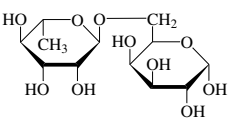
*Me glycoside, 4,6-*O*-benzylidene, tetrabenzyl:*
$C_{48}H_{52}O_{10}$ 788.933
Cryst. (EtOH). Mp 204-206°. $[\alpha]_D$ -37 (c, 0.3 in $CHCl_3$).

[76222-16-7]

Luderitz, O. *et al., Angew. Chem.*, 1966, **3**, 172 (*occur*)
Torgov, A.I. *et al., Bioorg. Khim.*, 1980, **6**, 1860; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 989 (*synth*)
Szurmai, Z. *et al., Carbohydr. Res.*, 1982, **107**, 33 (*derivs*)
Maddali, U.B. *et al., Carbohydr. Res.*, 1990, **208**, 59 (*Me gly*)

6-*O*-α-L-Rhamnopyranosyl-D-galactose R-28

*6-*O*-(6-Deoxy-α-L-mannopyranosyl)-D-galactose, 9CI, 8CI. Robinobiose*
[17074-00-9]



α-Pyranose-*form*

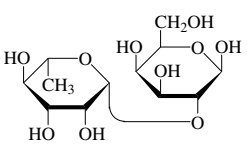
$C_{12}H_{22}O_{10}$ 326.3
Sugar present in various glycosides, esp. flavonoids.
$[\alpha]_D$ 0 → +2.7 (H_2O).

Hepta-Ac:
$C_{26}H_{36}O_{17}$ 620.56
Mp 84-85° (113°). $[\alpha]_D$ -9.9 ($CHCl_3$).
$[\alpha]_D$ -19 (H_2O).

*1-Bromo-1-deoxy, hexa-Ac: Hexa-*O*-acetyl-α-robinobiosyl bromide*
$C_{24}H_{33}BrO_{15}$ 641.42
Mp 180° dec. $[\alpha]_D^{26}$ -5.1.

Zemplén, G. *et al., Ber.*, 1935, **68**, 2054; 1938, **71**, 774; 2511 (*isol, hepta-Ac*)
Kamiya, S. *et al., Agric. Biol. Chem.*, 1967, **31**, 261 (*synth*)
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1980, **85**, 209 (*synth*)

2-*O*-β-L-Rhamnopyranosyl-D-galactose R-29



β-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Constituent in the repeating unit of the *O*-antigen of *Salmonella* serogroups C_2 and C_3.

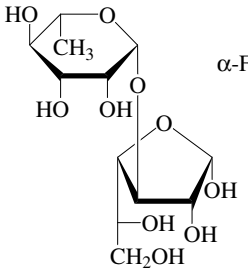
β-Pyranose-*form*

*Me glycoside: Methyl 2-*O*-β-L-rhamnopyranosyl-β-D-galactopyranoside, 9CI*
[128962-64-1]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{24}$ +17 (c, 1.2 in MeOH).

Kenne, L. *et al., The Polysaccharides*, Academic press, London and New York, Ed. Aspinall, G.O., 1983, **2**, 300 (*occur*)
Ray, A.K. *et al., Carbohydr. Res.*, 1990, **197**, 93

3-*O*-β-L-Rhamnopyranosyl-D-galactose, 9CI R-30

[77777-85-6]



α-Furanose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Cryst. (MeOH). Mp 203-204°. $[\alpha]_D^{20}$ +100 → +111 (c, 1.72 in H_2O). $[\alpha]_D^{20}$ +41 (c, 0.9 in MeOH).

α-Furanose-*form*

1,2:5,6-Di-O-*isopropylidene, 2′,3′,4′-tribenzyl:*
$C_{39}H_{48}O_{10}$ 676.802
Syrup. $[\alpha]_D^{20}$ +15.1 (c, 0.5 in CH_2Cl_2).

β-Pyranose-*form* [79902-95-7]

*Me glycoside: Methyl 3-*O*-β-L-rhamnopyranosyl-β-D-galactopyranoside*
[116981-68-1]
$C_{13}H_{24}O_{10}$ 340.327
$[\alpha]_D^{25}$ -1.1 (c, 1.1 in H_2O).

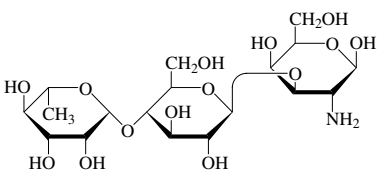
*Me glycoside, 4,6-*O*-benzylidene, tetrabenzyl:*
$C_{48}H_{52}O_{10}$ 788.933
Mp 204-206°. $[\alpha]_D$ -37 (c, 0.3 in $CHCl_3$).

*Benzyl glycoside, 4,6-*O*-benzylidene, tetra-Ac:*
$C_{34}H_{40}O_{14}$ 672.682
Mp 268-270°. $[\alpha]_D$ +38 (c, 0.8 in $CHCl_3$).

*Benzyl glycoside, 4,6-*O*-benzylidene, 2-benzoyl:*
$C_{33}H_{36}O_{11}$ 608.641
Mp 220-222°. $[\alpha]_D$ +42 (c, 0.9 in $CHCl_3$).

Torgov, V.I. *et al., Bioorg. Khim.*, 1980, **6**, 1860; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 989 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3233
Szurmai, Z. *et al., Carbohydr. Res.*, 1982, **107**, 33; 1990, **200**, 201
Maddali, U.B. *et al., Carbohydr. Res.*, 1990, **208**, 59 (*Me gly*)

β-L-Rhamnopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →3)-2-amino-2-deoxy-D-galactose R-31



$C_{18}H_{33}NO_{14}$ 487.457

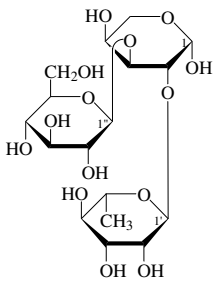
β-Pyranose-*form*

N-*Ac:* [143918-38-1]
$C_{20}H_{35}NO_{15}$ 529.494
Constit. of the capsular polysaccharide of *Streptococcus pneumoniae* type 7F.

Van Steijn, A.M.P. *et al., J. Coord. Chem.*, 1992, **11**, 665 (*synth, cmr, pmr*)

α-L-Rhamnopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-L-arabinose R-32

6-Deoxy-α-L-mannopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-L-arabinose, 9CI
[86049-17-4]



β-Pyranose-*form*

$C_{17}H_{30}O_{14}$ 458.416
Amorph. $[\alpha]_D$ 0 (c, 0.74 in H_2O).

β-Pyranose-*form* [86117-16-0]

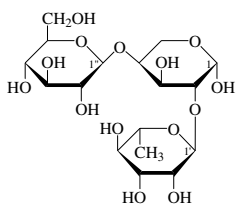
Benzyl glycoside, 2′,3′,4,4′-tetrabenzyl, 2′′,3′′,4′′,6′′-tetra-Ac: [86049-15-2]
$C_{60}H_{68}O_{18}$ 1077.186
Syrup. $[\alpha]_D$ +45 (c, 0.36 in $CHCl_3$).

[86049-29-8, 86117-17-1]

Liptak, A. *et al., Tetrahedron*, 1982, **38**, 3489 (*synth, β-benzyl pyr tetra-Ac deriv, pmr, cmr*)

α-L-Rhamnopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →4)]-L-arabinose R-33

6-Deoxy-α-L-mannopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →4)]-L-arabinose, 9CI
[86049-16-3]



β-Pyranose-*form*

$C_{17}H_{30}O_{14}$ 458.416
Constit. of Hederacolchiside E (triterpenoid oligosaccharide), isol. from the leaves of *Hedera colchica* (colchis ivy). Amorph. $[\alpha]_D$ +19 (c, 0.48 in H_2O).

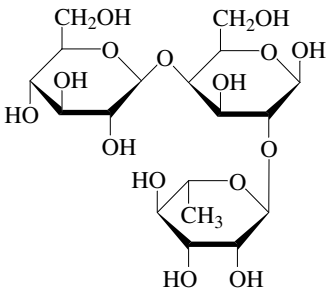
β-Pyranose-*form*

Benzyl glycoside, 2′,3,3′,4′-tetrabenzyl, 2′′,3′′,4′′,6′′-tetra-Ac: [86049-14-1]
$C_{60}H_{68}O_{18}$ 1077.186
Syrup. $[\alpha]_D$ +42 (c, 0.79 in $CHCl_3$).

[86117-15-9]

Dekanosidze, G.E. *et al., Khim. Prir. Soedin.*, 1970, **6**, 484; *Chem. Nat. Compd. (Engl. Transl.)*, 1970, **6**, 502 (*isol*)
Liptak, A. *et al., Tetrahedron*, 1982, **38**, 3489 (*β-benzyl pyr tetra-Ac deriv, pmr, cmr*)

α-L-Rhamnopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →4)]-D-galactose R-34



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Repeating unit of the capsular polysaccharide from *Streptococcus pneumoniae* type 23.

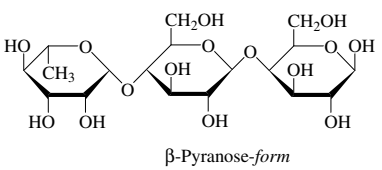
β-Pyranose-*form*

Me glycoside:
$C_{19}H_{34}O_{15}$ 502.469
$[\alpha]_D^{24}$ -42 (c, 1.2 in H_2O).

Me glycoside, 2′′,3′′,4′′,6′′-tetra-Ac, pentabenzyl:
$C_{62}H_{72}O_{19}$ 1121.239
Mp 163°. $[\alpha]_D^{24}$ -38 (c, 1.1 in $CHCl_3$).

Jones, C. *et al., Carbohydr. Res.*, 1985, **139**, 75 (*pmr, struct*)
Van Steijn, A.M.P. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1989, **108**, 374
Ray, A.K. *et al., Carbohydr. Res.*, 1990, **197**, 73

β-L-Rhamnopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →4)-D-galactose R-35



β-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Constit. of the capsular polysaccharide of *Streptococcus pneumoniae* type 23F.

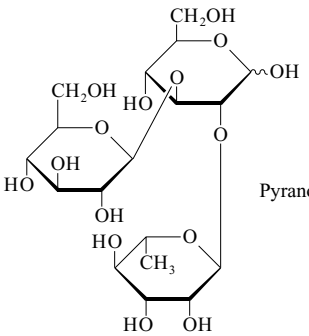
β-Pyranose-*form*

3-Aminopropyl glycoside: $[\alpha]_D$ +15 (c, 0.2 in H_2O).

Van Steijn, A.M.P. *et al., J. Carbohydr. Chem.*, 1992, **11**, 665 (*synth, cmr, pmr*)

α-L-Rhamnopyranosyl-(1 →2)-[β-D-glucopyranosyl-(1 →3)]-D-glucose R-36

2-O-*α-L-Rhamnopyranosyllaminaribiose*
[28140-20-7]



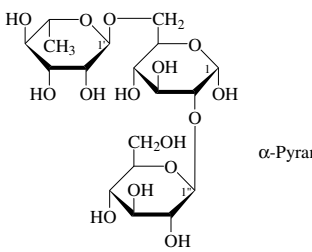
Pyranose–*form*

$C_{18}H_{32}O_{15}$ 488.442
Isol. from a polysaccharide of Poplar and from Dode pollen (*Populus yunnanensis*). Mp 169-170° dec. (softens at 125°). $[\alpha]_D^{20}$ -13.7 (15 min.) → +8.2 (24h) (c, 2.08 in H_2O).

Sosa, F. *et al., Bull. Soc. Chim. Belg.*, 1969, **51**, 625
Sosa, F. *et al., Phytochemistry*, 1970, **9**, 441 (*isol*)

α-L-Rhamnopyranosyl-(1 →6)-[β-D-glucopyranosyl-(1 →2)]-D-glucose R-37

6-Deoxy-α-L-mannopyranosyl-(1 →6)-[β-D-glucopyranosyl-(1 →2)]-D-glucose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{15}$ 488.442
Isol. from fruits and flowers of certain *Begonia, Clivia, Rubus, Prunus* and *Ribis* spp.

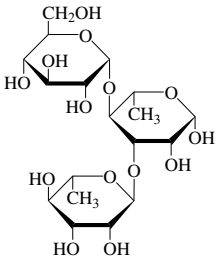
α-Pyranose-*form*

Me glycoside: [130542-01-7]
$C_{19}H_{34}O_{15}$ 502.469
Amorph. powder. $[\alpha]_D^{21}$ +13.1 (c, 3.0 in MeOH).

Me glycoside, nona-Ac: [130542-03-9]
$C_{37}H_{52}O_{24}$ 880.803
Cryst. (EtOH). Mp 167-169°. $[\alpha]_D^{21}$ +11 (c, 1.1 in $CHCl_3$).

Hausmann, C.F. *et al., Carbohydr. Res.*, 1990, **204**, 221 (*occur, α-Me pyr derivs, pmr*)

α-L-Rhamnopyranosyl-(1 →3)-[α-D-glucopyranosyl(1 →4)]-L-rhamnose R-38



α-Pyranose-*form*

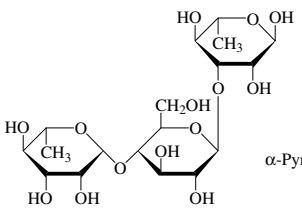
$C_{18}H_{32}O_{14}$ 472.442
Component of *Shigella flexneri* serotype 2a *O*-antigen.

α-Pyranose-*form*

Me glycoside:
$C_{19}H_{34}O_{14}$ 486.469
Powder + $1H_2O$. $[\alpha]_D$ +5 (c, 1.0 in MeOH).

Mulard, L.A. *et al., J. Carbohydr. Chem.*, 2000, **19**, 849-877

β-L-Rhamnopyranosyl-(1 →4)-β-D-glucopyranosyl-(1 →3)-L-rhamnose R-39



α-Pyranose-*form*

$C_{18}H_{32}O_{14}$ 472.442
Constit. of the capsular polysaccharide of *Streptococcus pneumoniae* type 2.

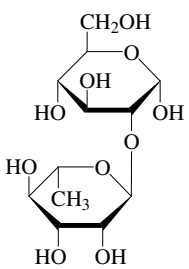
α-Pyranose-*form*

3-Aminopropyl glycoside:
Powder. $[\alpha]_D$ -12 (c, 0.6 in H_2O).

Van Steijn, A.M.P. *et al., J. Carbohydr. Chem.*, 1992, **11**, 665 (*synth, cmr, pmr*)

2-*O*-α-L-Rhamnopyranosyl-D-glucose R-40

2-O-*(6-Deoxy-α-L-mannopyranosyl)-D-glucose, 9CI*. ***Neohesperidose***. *Sophorabiose*
[17074-02-1]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Occurs in plants as disaccharide component of and many other glycosides. Prisms $+1H_2O$ (EtOH aq.).
Mp 191-192°. $[\alpha]_D^{22}$ -53.3 (7 min) → -3.9 (c, 3.0 in H_2O).

β-Pyranose-*form*

Hepta-Ac: [19949-47-4]
$C_{26}H_{36}O_{17}$ 620.56
Needles (EtOH aq.). Mp 152-153°. $[\alpha]_D^{25}$ +3.4 (c, 4.2 in Me_2CO).

Butyl glycoside: Butyl neohesperidoside
$C_{16}H_{30}O_{10}$ 382.407
Constit. of *Geranium caespitosum*.
$[\alpha]_D$ -76 (c, 0.006 in MeOH).

Butyl glycoside, 4′-O-hexadecanoyl: [596811-12-0]
$C_{32}H_{60}O_{11}$ 620.819
Constit. of *Geranium caespitosum*.

Butyl glycoside, 3′-O-butanoyl, 4,4′,6-tris-(2-methylpropanoyl): [596811-14-2]
$C_{32}H_{54}O_{14}$ 662.77
Constit. of *Geranium caespitosum*. Semisolid. $[\alpha]_D$ -43 (c, 0.012 in $CHCl_3$).

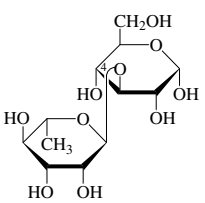
Butyl glycoside, 2′-O-butanoyl, 4,4′,6-tris(2-methylpropanoyl), 3′-Ac: [596811-15-3]
$C_{34}H_{56}O_{15}$ 704.807
Constit. of *Geranium caespitosum*. Semisolid. $[\alpha]_D$ -51 (c, 0.017 in $CHCl_3$).

Butyl glycoside, 6-O-hexadecanoyl, 4′-O-butanoyl: [596811-13-1]
$C_{36}H_{66}O_{12}$ 690.91
Constit. of *Geranium caespitosum*.
Gum. $[\alpha]_D$ -54 (c, 0.016 in $CHCl_3$).

Zemplén, G. *et al., Ber.*, 1938, **71**, 2511 (*isol*)
Horowitz, R.M. *et al., Tetrahedron*, 1963, **19**, 773 (*isol, struct*)
Kamiya, S. *et al., Agric. Biol. Chem.*, 1967, **31**, 261 (*synth*)
Koeppen, B.H. *et al., Tet. Lett.*, 1968, 2393-2394 (*cryst struct*)
Koeppen, B.H. *et al., Tetrahedron*, 1968, **24**, 4963-4966 (*synth*)
Stermitz, F.R. *et al., Bioorg. Med. Chem. Lett.*, 2003, **13**, 1915-1918 (*Geranium esters*)

3-*O*-α-L-Rhamnopyranosyl-D-glucose R-41

3-O-*(6-Deoxy-α-L-mannopyranosyl)-D-glucose, 9CI*. ***Rungiose***
[36506-90-8]



α-D-Pyranose-*form*

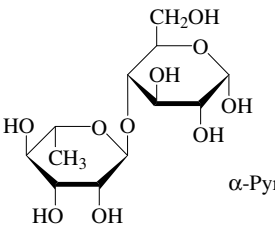
$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D^{20}$ -15.1 (c, 1.25 in H_2O).

4-O-*(4-Hydroxy*-E-*cinnamoyl):* ***Cistanoside I***
[104806-91-9]
$C_{21}H_{28}O_{12}$ 472.445
Isol. from *Cistanche salsa* (crude drug Cistanche herba). The crude drug is a tonic in oriental medicine. Hemihydrate.
$[\alpha]_D^{20}$ -82.2 (c, 1.5 in MeOH).

4-O-*(3,4-Dihydroxy*-E-*cinnamoyl): **Cistanoside F***
[97411-47-7]
$C_{21}H_{28}O_{13}$ 488.444
Isol. from *Cistanche salsa*. Amorph. powder. $[\alpha]_D^{25}$ -83.5 (c, 0.9 in MeOH).
Birkofer, L. *et al., Annalen*, 1973, 731-739 (*synth*)
Imperato, F. *et al., J.O.C.*, 1976, **41**, 3478-3479 (*synth*)
Kobayashi, H. *et al., Chem. Pharm. Bull.*, 1985, **33**, 1452-1457 (*Cistanoside F*)
Karasawa, H. *et al., Yakugaku Zasshi*, 1986, **106**, 562-566 (*Cistanoside I*)

4-*O*-α-L-Rhamnopyranosyl-D-glucose, 9CI R-42

[49815-10-3]



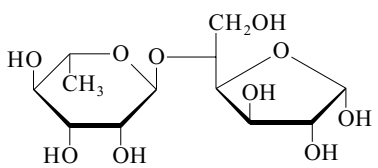
α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. Isol. from *Acacia senegal* gum (gum arabic). Constit. in Papyrioside L-IIA (see 11-Hydroxy-3,21-dioxo-12-oleanen-28-oic acid) and other saponins.
$[\alpha]_D$ -6 (c, 1 in H_2O).
Phenylosazone: Mp 165-167°.

α-Pyranose-*form*

Heptabenzoyl: [72360-34-0]
$C_{61}H_{50}O_{17}$ 1055.056
Needles. Mp 108-110°. $[\alpha]_D^{22}$ +84 (c, 0.5 in $CHCl_3$).
Aspinall, G.O. *et al., J.C.S.*, 1963, 1696 (*isol*)
Frolova, G.M. *et al., CA*, 1972, **76**, 5996s (*occur*)
Imperato, F. *et al., Carbohydr. Res.*, 1977, **58**, 217 (*synth*)
Takeda, T. *et al., Carbohydr. Res.*, 1979, **76**, 101
Fügedi, P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 377-398 (*synth, pmr, cmr*)
Batistelli, C.L. *et al., J. Carbohydr. Chem.*, 1999, **18**, 69-86 (*Me α-gly, synth*)

5-*O*-α-L-Rhamnopyranosyl-D-glucose R-43



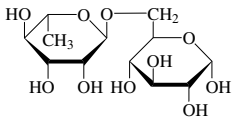
$C_{12}H_{22}O_{10}$ 326.3

α-Furanose-*form*

1,2-O-*Isopropylidene, penta-Ac:* [76951-68-3]
$C_{25}H_{36}O_{15}$ 576.55
Syrup. $[\alpha]_D$ -35.8 (c, 1.4 in $CHCl_3$).
Backinovskii, L.V. *et al., Carbohydr. Res.*, 1980, **85**, 209

6-*O*-α-L-Rhamnopyranosyl-D-glucose R-44

6-O-*(6-Deoxy-α-L-mannopyranosyl)-D-glucose, 9CI, 8CI. **Rutinose**. Lusitanicose*
[90-74-4]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Sugar moiety of many glycosides, esp. flavonoids. Hygroscopic powder. Mp 189-192° dec. (softens at 140°). $[\alpha]_D^{10}$ +3.2 → -0.8 (H_2O).

Pyranose-*form*

1-O-*(4-Hydroxycinnamoyl): 1*-O-p-*Coumaroylrutinose*
$C_{21}H_{28}O_{12}$ 472.445
Constit. of the petals of *Lathyrus odoratus*. Anomeric form not determined.

α-Pyranose-*form*

*Benzyl glycoside: **Benzyl α-rutinoside***
[88510-10-5]
$C_{19}H_{28}O_{10}$ 416.424
Constit. of *Margyricarpus setosus*.
$[\alpha]_D^{25}$ -50 (c, 1 in MeOH).

1-Chloro, hexa-Ac: Acetochlororutinose
$C_{24}H_{33}ClO_{15}$ 596.968
Mp 149°. $[\alpha]_D$ +68.2 (c, 1 in $CHCl_3$).

1-Bromo, hexa-Ac: Acetobromorutinose
$C_{24}H_{33}BrO_{15}$ 641.42
Cryst. (Et_2O). Mp 127-128°. $[\alpha]_D$ +91 (c, 0.5 in $CHCl_3$).

β-Pyranose-*form*

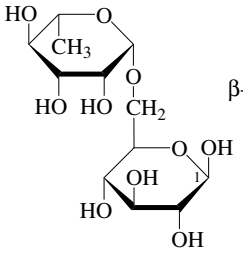
Hepta-Ac: Hepta-O-*acetyl-β-rutinose*
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 169°. $[\alpha]_D^{19}$ -30.5 (c, 2.5 in $CHCl_3$).

1-O-*(4-Hydroxybenzoyl): 1*-O-*(4-Hydroxybenzoyl)rutinose*
[166322-00-5]
$C_{19}H_{26}O_{12}$ 446.407
Constit. of *Ocotea vellosiana*.

1-O-*(3,4-Dihydroxycinnamoyl)*(E-*): 1*-O-*Caffeoylrutinose. **Swertiamacroside***
[128585-97-7]
$C_{21}H_{28}O_{13}$ 488.444
Constit of *Swertia macrosperma*.
Zemplen, G. *et al., Ber.*, 1934, **67**, 2049; 1935, **68**, 1318; 1937, **70**, 1098 (*synth, struct*)
Gorin, P.A.J. *et al., Can. J. Chem.*, 1959, **37**, 1930 (*abs config*)
Harborne, J.B. *et al., Biochem. J.*, 1961, **81**, 242 (*1-p-Coumaroylrutinose*)
Bognar, R. *et al., Carbohydr. Res.*, 1967, **5**, 241 (*synth*)
Koeppen, B.H. *et al., Carbohydr. Res.*, 1969, **10**, 105 (*synth*)
Zhou, H.M. *et al., Yaoxue Xuebao*, 1990, **25**, 123 (*Swertiamacroside*)
Garcez, W.S. *et al., Phytochemistry*, 1995, **39**, 815-816 (*4-hydroxybenzoate*)
De Tommasi, N. *et al., Phytochemistry*, 1996, **42**, 163-167 (*benzyl glycoside*)

6-*O*-β-L-Rhamnopyranosyl-D-glucose R-45

[53008-87-0]



β-Pyranose-*form*

$C_{12}H_{22}O_{10}$ 326.3
Reducing disaccharide. $[\alpha]_D$ +63.7 (c, 0.8 in H_2O).

Pyranose-*form*

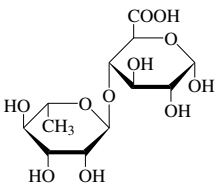
Hepta-Ac: [75828-89-6]
$C_{26}H_{36}O_{17}$ 620.56
$[\alpha]_D$ +65 (c, 1 in $CHCl_3$).

β-Pyranose-*form*

1,2,3,4,4′-Penta-Ac, 2′,3′-carbonate:
[74526-08-2]
$C_{23}H_{30}O_{16}$ 562.48
$[\alpha]_D^{20}$ +26.1 (c, 1.1 in $CHCl_3$).
Backinowsky, L.V. *et al., Carbohydr. Res.*, 1980, **85**, 209; 225 (*synth, pmr, cmr*)

α-L-Rhamnopyranosyl-(1→4)-D-glucuronic acid R-46

[115175-82-1, 115175-95-6]



α-Pyranose-*form*

$C_{12}H_{20}O_{11}$ 340.283
Fragment in bacterial polysaccharides. End group in gum arabic. Foam. $[\alpha]_D$ -18.1 (c, 0.99 in H_2O).

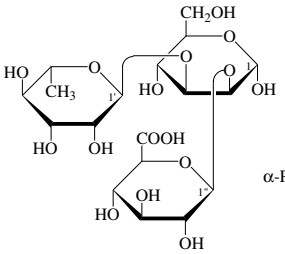
Me ester:
[115193-06-1, 115193-07-2]
$C_{13}H_{22}O_{11}$ 354.31
Foam. $[\alpha]_D$ -7.4 (c, 1.48 in H_2O).

α-Pyranose-*form*

Me glycoside: Methyl 4-O-α-L-*rhamnopyranosyl-α-D-glucopyranosiduronic acid*
[221002-16-0]
$C_{13}H_{22}O_{11}$ 354.31
Amorph. solid.
Fügedi, P. *et al., J. Carbohydr. Chem.*, 1987, **6**, 377-398 (*synth, pmr, cmr, Me ester*)
Battistelli, C.L. *et al., J. Carbohydr. Chem.*, 1999, **18**, 69-86 (*Me gly, synth*)

α-L-Rhamnopyranosyl-(1 →3)-[β-D-glucuronopyranosyl-(1 →2)]-D-mannose R-47

6-Deoxy-α-L-mannopyranosyl-(1 →3)-[β-D-glucopyranuronosyl-(1 →2)]-D-mannose, 9CI



α-Pyranose-*form*

$C_{18}H_{30}O_{16}$ 502.425

Constit. of the repeating units of capsular polysaccharides from *Klebsiella* types K-53 and K-67.

α-Pyranose-*form*

Me glycoside: [129230-47-3]
$C_{19}H_{32}O_{16}$ 516.452
Syrup. $[\alpha]_D^{24}$ -11.5 (H_2O).

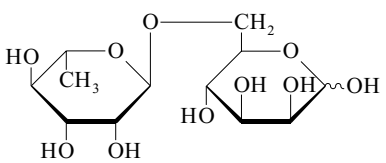
Me glycoside, 2′,3′,4,4′,6-pentabenzyl, 6′′-Me, 2′′,3′′,4′′-tri-Ac: [129230-46-2]
$C_{61}H_{70}O_{19}$ 1107.213
Cryst. (EtOH/EtOAc). Mp 148°. $[\alpha]_D^{24}$ -22.5 (c, 1.2 in $CHCl_3$).

Dutton, G.G.S. *et al., Carbohydr. Res.*, 1980, **87**, 107; 1983, **119**, 157 (*occur, struct*)

Ray, A.K. *et al., Indian J. Chem., Sect. B*, 1990, **29**, 335 (*α-Me pyr derivs, pmr*)

6-*O*-α-L-Rhamnopyranosyl-D-mannose R-48

6-O-(6-Deoxy-α-L-mannopyranosyl)-D-mannose



Pyranose–*form*

$C_{12}H_{22}O_{10}$ 326.3

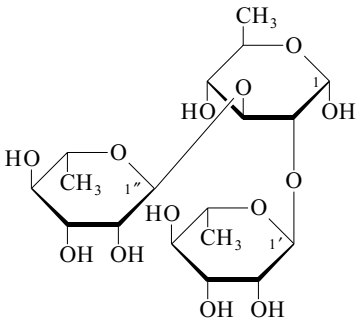
Reducing disaccharide. Amorph. powder. $[\alpha]_D^{15}$ -8.2 (c, 1 in H_2O).

Hepta-Ac:
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 160°. $[\alpha]_D^{15}$ -5.2 (c, 3.2 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1967, **31**, 267 (*synth*)

α-L-Rhamnopyranosyl-(1 →2)-[α-L-rhamnopyranosyl-(1 →3)]-6-deoxy-D-glucose R-49

6-Deoxy-α-L-mannopyranosyl-(1 →2)-[6-deoxy-α-L-mannopyranosyl-(1 →3)]-6-deoxy-D-glucose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

Constit. of saponins in the herb *Luffa operculata*.

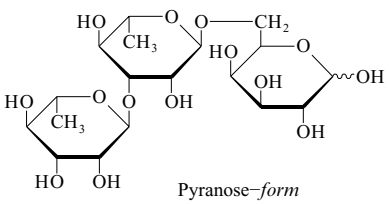
α-Pyranose-*form*

Me glycoside: [124761-27-9]
$C_{19}H_{34}O_{13}$ 470.47
Amorph. powder. $[\alpha]_D^{20}$ -6.2 (c, 1.70 in MeOH).

Okabe, H. *et al., Chem. Pharm. Bull.*, 1989, **37**, 895 (*α-Me pyr, pmr, cmr*)

α-L-Rhamnopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →6)-D-galactose R-50

[50675-72-4]



Pyranose–*form*

$C_{18}H_{32}O_{14}$ 472.442

Constituent of polysaccharides of *Rhamnus rhamnus*.

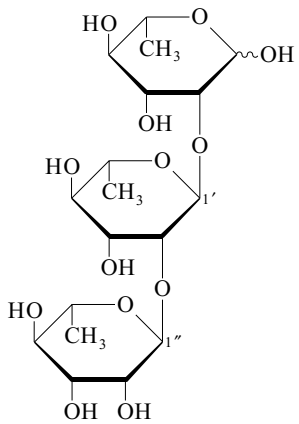
Mp 140° (153-155°). $[\alpha]_D^{20}$ -43.5 (2 min) → -40.6 (c, 0.4 in H_2O).

Nona-Ac:
$C_{36}H_{50}O_{23}$ 850.777
Cryst. (EtOH). Mp 215-216°. $[\alpha]_D^{20}$ -2.2 (c, 1.3 in $CHCl_3$).

Pratviel-Sosa, F. *et al., Carbohydr. Res.*, 1973, **28**, 109

α-L-Rhamnopyranosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →2)-α-L-rhamnopyranose R-51

6-Deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranose



$C_{18}H_{32}O_{13}$ 456.443

Reducing trisaccharide. Component of the antigen polysaccharide of group B streptococci. Inhibitor of antigen antibody interaction and implicated in onset of bacterial infection.

Me glycoside: [112107-29-6]
$C_{19}H_{34}O_{13}$ 470.47
Amorph. powder. $[\alpha]_D$ -57.7 (c, 1 in H_2O).

Me glycoside, 3,3′,4,4′-Tetrabenzyl: [112107-28-5]
$C_{47}H_{58}O_{13}$ 830.967
Syrup. $[\alpha]_D^{20}$ -35.8 (c, 0.43 in CH_2Cl_2).

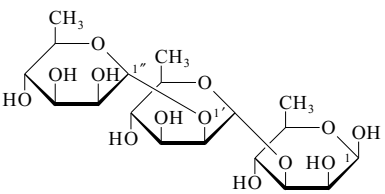
Jennings, H.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 155

Michon, F. *et al., Biochemistry*, 1987, **26**, 476

Pozsgay, V. *et al., Can. J. Chem.*, 1987, **65**, 2764 (*synth, pmr, cmr*)

α-D-Rhamnopyranosyl-(1 →2)-α-D-rhamnopyranosyl-(1 →3)-D-rhamnose R-52

6-Deoxy-α-D-mannopyranosyl-(1 →2)-6-deoxy-α-D-mannopyranosyl-(1 →3)-6-deoxy-D-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

β-Pyranose-*form*

1,2-O-(1-Cyanoethylidene), 2′′,3′,4,4′,4′′-pentabenzoyl: [121947-65-7]
$C_{56}H_{53}NO_{18}$ 1028.031
Amorph. $[\alpha]_D^{20}$ -99 (c, 2.2 in $CHCl_3$).

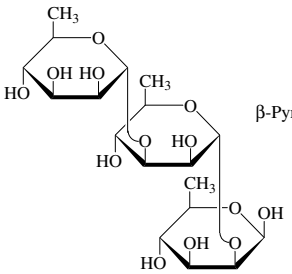
1,2-O-(1-Cyanoethylidene), 2′′,3′,4,4′,4′′-pentabenzoyl, 3′′-Ac: [122873-17-0]
$C_{58}H_{55}NO_{19}$ 1070.068
Amorph. $[\alpha]_D^{20}$ -111.5 (c, 1.4 in $CHCl_3$).

1,2-O-(1-Cyanoethylidene), 2′′,3′,4,4′,4′′-pentabenzoyl, 3′′-trityl: [121947-66-8]
$C_{75}H_{67}NO_{18}$ 1270.35
Amorph. $[\alpha]_D^{20}$ -61 (c, 2.0 in $CHCl_3$).

Tsvetkov, Y.E. *et al., Carbohydr. Res.*, 1989, **193**, 75 (*cyanoethylidene pentabenzoyl derivs, pmr*)
Arsenault, T.L. *et al., Can. J. Chem.*, 1991, **69**, 1273

α-D-Rhamnopyranosyl-(1 → 3)-α-D-rhamnopyranosyl-(1 →2)-D-rhamnose R-53

6-Deoxy-α-D-mannopyranosyl-(1 →3)-6-deoxy-α-D-mannopyranosyl-(1 →2)-6-deoxy-D-mannose, 9CI



β-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Constit. of the repeating unit of the *O*-specific polysaccharide from *Pseudomonas cepacia, Pseudomonas aeruginosa* and *Pseudomonas syringae*.

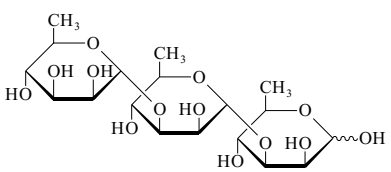
α-Pyranose-*form*
Syrup.

β-Pyranose-*form* [76440-68-1]
$[\alpha]_D$ +22 (H_2O).

Knirel, Y.A. *et al., Bioorg. Khim.*, 1980, **6**, 1851
Smith, A.R.W. *et al., Eur. J. Biochem.*, 1985, **149**, 73 (*isol, pmr, cmr*)
Shashkov, A.S. *et al., Carbohydr. Res.*, 1986, **146**, 346-349 (*nmr*)
Yokota, S. *et al., Eur. J. Biochem.*, 1987, **167**, 203 (*struct, occur*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1409-1421 (*synth, pmr, cmr*)

α-D-Rhamnopyranosyl-(1 → 3)-α-D-rhamnopyranosyl-(1 →3)-D-rhamnose R-54

6-Deoxy-α-D-mannopyranosyl-(1 →3)-6-deoxy-α-D-mannopyranosyl-(1 →3)-6-deoxy-D-mannose, 9CI



Pyranose–*form*

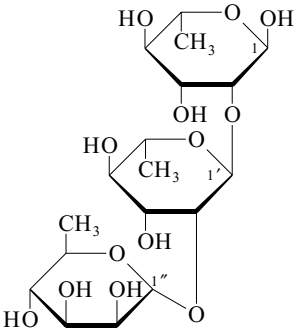
$C_{18}H_{32}O_{13}$ 456.443
Constit. of A-band lipopolysaccharide from a mutant (AK 1401) of *Pseudomonas aeruginosa* strain PA01 (serotype 05).

[122727-12-2]

Arsenault, T.L. *et al., Can. J. Chem.*, 1991, **69**, 1273 (*occur, pmr, cmr, chromatog*)

α-D-Rhamnopyranosyl-(1 → 2)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose R-55

6-Deoxy-α-D-mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

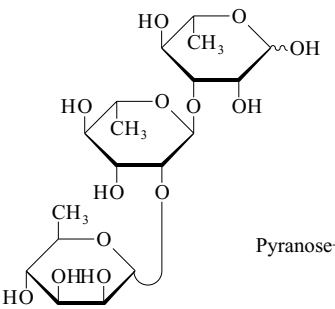
α-Pyranose-*form*

1,4-Dibenzyl, 3,3′-dibenzoyl, 2′′,3′′,4′,4′′-tetra-Ac: [89734-06-5]
$C_{54}H_{60}O_{19}$ 1013.057
Amorph. solid. $[\alpha]_D^{18}$ +42.2 (c, 0.4 in $CHCl_3$).

Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 205 (*dibenzyl dibenzoyl tetra-Ac, cmr*)

α-D-Rhamnopyranosyl-(1 → 2)-α-L-rhamnopyranosyl-(1 →3)-L-rhamnose R-56

[89748-04-9]



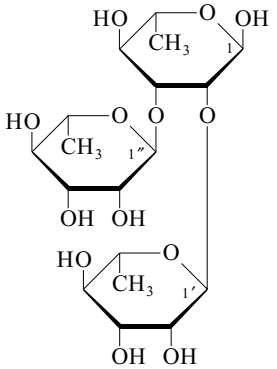
Pyranose–*form*

$C_{18}H_{32}O_{13}$ 456.443
Used to generate monoclonal antibodies toward the antigenic determinates of the *Shigella flexneri* variants X and Y. Mp 110-112°. $[\alpha]_D^{18}$ +2.8 (c, 0.85 in MeOH).

Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 205 (*synth, pmr, cmr*)
Carlin, N.I.A. *et al., J. Immunol.*, 1986, **137**, 2361

α-L-Rhamnopyranosyl-(1 →2)-[α-L-rhamnopyranosyl-(1 →3)]-L-rhamnose R-57

6-Deoxy-α-L-mannopyranosyl-(1 →2)-[6-deoxy-α-L-mannopyranosyl-(1 →3)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

α-Pyranose-*form*

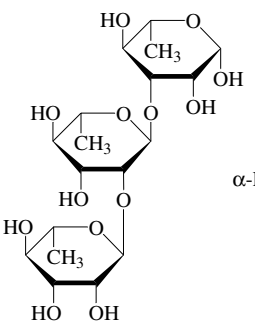
Me glycoside: [130062-84-9]
$C_{19}H_{34}O_{13}$ 470.47
Syrup. $[\alpha]_D^{29}$ -56.8 (c, 2.0 in $CHCl_3$).

Me glycoside, 2′,2′′,3′,3′′,4,4′,4′′-heptabenzoyl: [135129-56-5]
$C_{68}H_{62}O_{20}$ 1199.226
Syrup. $[\alpha]_D^{28}$ +178.8 (c, 0.9 in $CHCl_3$).

Lipkind, G.M. *et al., Can. J. Chem.*, 1990, **68**, 1238 (*α-Me pyr, pmr, conformn*)
Nifantev, P.E. *et al., Bioorg. Khim.*, 1991, **17**, 517; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1991, **17**, 292 (*α-Me pyr heptabenzoyl*)

α-L-Rhamnopyranosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →3)-L-rhamnose R-58

6-Deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI
[89734-07-6]



α-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Constit. of the repeating unit of the *O*-antigen in *Shigella flexneri* and in the surface layer glycoprotein of *Bacillus stearothermophilus*. Amorph. solid. $[\alpha]_D^{18}$ -40.9 (c, 0.5 in MeOH).

α-Pyranose-*form* [105239-66-5]

3′,3′′,4,4′,4′′-Pentabenzyl, 2-benzoyl, 2′′-Ac: [109714-41-2]
$C_{62}H_{68}O_{15}$ 1053.21
Syrup.

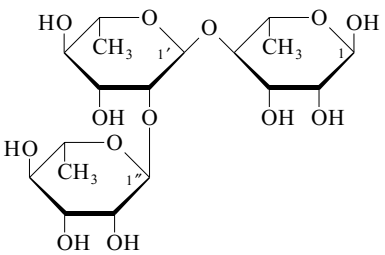
Allyl glycoside, 3′,3″,4,4′,4″-pentabenzyl, 2-benzoyl, 2″-Ac: [109744-31-2]
$C_{65}H_{72}O_{15}$ 1093.275
$[\alpha]_D^{25}$ -1 (c, 1.4 in CH_2Cl_2).

[103951-26-4, 105239-66-5, 122805-33-8, 122825-84-7, 122873-14-7, 122920-37-0]

Kenne, L. *et al., Eur. J. Biochem.*, 1976, **64**, 491 (*occur*)
Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 205 (*synth, pmr, cmr*)
Christian, R. *et al., Carbohydr. Res.*, 1986, **126**, 265 (*occur*)
Pinto, B.M. *et al., J.C.S. Perkin 1*, 1987, 9 (*α-L deriv synth, pmr, cmr*)
Tsvetkov, Y.E. *et al., Bioorg. Khim.*, 1989, **15**, 231; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 126 (*β-L derivs*)

α-L-Rhamnopyranosyl-(1 →2)-α-L-rhamnopyranosyl-(1 →4)-L-rhamnose R-59

6-Deoxy-α-L-mannopyranosyl-(1 →2)-6-deoxy-α-L-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



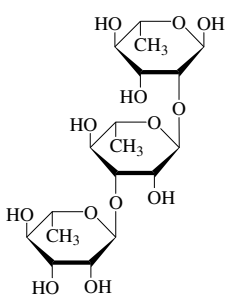
$C_{18}H_{32}O_{13}$ 456.443
Oligosaccharide repeating unit of the phenolic glycolipid antigen from *Mycobacterium haemophilum*. Pathogen occurs in immunosuppressed patients.

α-Pyranose-*form*

4-Methylphenyl glycoside, 2,2″,3,3′,3″-penta-Me: [134705-43-4]
$C_{30}H_{48}O_{13}$ 616.701
Syrup.

Besra, G.S. *et al., Biochemistry*, 1991, **30**, 7772 (*occur, isol, pmr, glc, ms*)

α-L-Rhamnopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →2)-L-rhamnose R-60



α-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Component of bacterial cell walls. Constit. of the repeating unit of the capsular antigen of *Klebsiella* serotype K9. Amorph. $[\alpha]_D$ -52 (c, 0.5 in H_2O).

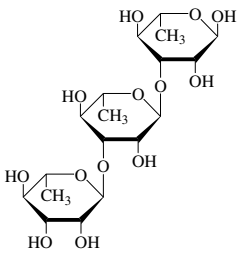
α-Pyranose-*form* [73223-31-1]

Benzyl glycoside, 3,4-dibenzyl: [78161-43-0]
$C_{39}H_{50}O_{13}$ 726.816
Foam. $[\alpha]_D$ -66 (c, 1.0 in MeOH).

Benzyl glycoside, 3,4-dibenzyl, penta-Ac: [78161-40-7]
$C_{49}H_{60}O_{18}$ 937.002
$[\alpha]_D$ -42 (c, 0.9 in $CHCl_3$).

Pozsgay, V. *et al., Chem. Comm.*, 1979, 828 (*cmr*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1981, **90**, 215-231 (*synth, pmr, cmr, benzyl glycoside dibenzyl*)

α-L-Rhamnopyranosyl-(1 →3)-α-L-rhamnopyranosyl-(1 →3)-L-rhamnose R-61



α-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Component of bacterial cell walls. Constit. of the repeating unit of the type specific antigen of *Streptococcus pneumoniae* type 2 and the repeating unit of the capsular antigen of *Klebsiella* serotype K36 and other bacteria. Amorph. $[\alpha]_D$ -48 (c, 0.4 in H_2O).

α-Pyranose-*form* [78161-41-8]

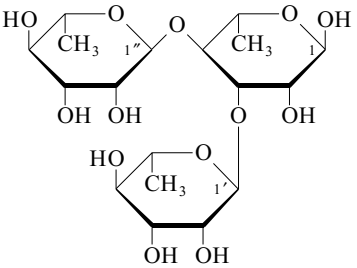
Benzyl glycoside, 2,4-dibenzyl: [78166-78-6]
$C_{39}H_{50}O_{13}$ 726.816
Syrup. $[\alpha]_D$ -73.5 (c, 0.7 in MeOH).

Benzyl glycoside, 2,4-dibenzyl, penta-Ac: [72384-20-4]
$C_{49}H_{60}O_{18}$ 937.002
Syrup. $[\alpha]_D$ -37 (c, 0.8 in $CHCl_3$).

Kenne, L. *et al., Carbohydr. Res.*, 1975, **40**, 69 (*occur*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1981, **90**, 215-231 (*synth, pmr, cmr, occur, benzyl glycoside dibenzyl*)
Ferriera, F. *et al., Carbohydr. Res.*, 1991, **210**, 255 (*isol, pmr, cmr*)

α-L-Rhamnopyranosyl-(1 →3)-[α-L-rhamnopyranosyl-(1 →4)]-L-rhamnose R-62

6-Deoxy-α-L-mannopyranosyl-(1 →3)-[6-deoxy-α-L-mannopyranosyl-(1 →4)]-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443
Constit. of the basic chain of *O*-antigenic polysaccharides of *Shigella flexneri*.

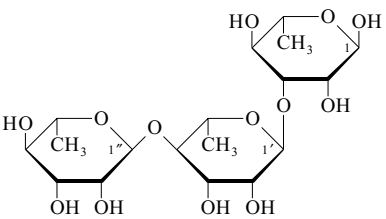
α-Pyranose-*form*

1,2-O-(1-Cyanoethylidene), 3′,3″,4′,4″-benzoyl, 2′,2″-di-Ac: [101069-05-0]
$C_{53}H_{53}NO_{19}$ 1007.997
Syrup. $[\alpha]_D^{20}$ +62.4 (c, 1.5 in $CHCl_3$).

Byramova, N.E. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1985, 1134; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1985, 1036 (*cyanoethylidene deriv, cmr*)

α-L-Rhamnopyranosyl-(1 →4)-α-L-rhamnopyranosyl-(1 →3)-L-rhamnose R-63

6-Deoxy-α-L-mannopyranosyl-(1 →4)-6-deoxy-α-L-mannopyranosyl-(1 →3)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

α-Pyranose-*form*

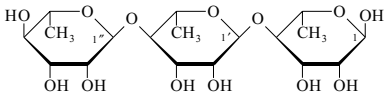
Me glycoside: [92976-04-0]
$C_{19}H_{34}O_{13}$ 470.47
Cryst. Mp 92-96°. $[\alpha]_D^{23}$ -86 (c, 0.6 in H_2O).

Me glycoside, 2′,3′-O-isopropylidene, 2,4-dibenzyl, 2″,3″,4″-tri-Ac: [92976-00-6]
$C_{42}H_{56}O_{16}$ 816.895
Syrup. $[\alpha]_D$ -47 (c, 1.1 in $CHCl_3$).

Liptak, A. *et al., Carbohydr. Res.*, 1984, **131**, 39 (*α-Me pyr derivs, cmr*)

α-L-Rhamnopyranosyl-(1 →4)-α-L-rhamnopyranosyl-(1 →4)-L-rhamnose R-64

6-Deoxy-α-L-mannopyranosyl-(1 →4)-6-deoxy-α-L-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



$C_{18}H_{32}O_{13}$ 456.443

α-Pyranose-*form*

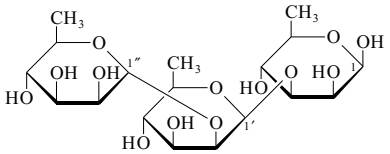
Me glycoside: [87985-51-1]
$C_{19}H_{34}O_{13}$ 470.47
Cryst. Mp 148-151°. $[\alpha]_D$ -113 (c, 0.8 in H_2O).

Me glycoside, 2,3:2′,3′-di-O-*isopropylidene, 2″,3″,4″-tri-Ac:* [92975-99-0]
$C_{31}H_{48}O_{16}$ 676.711
Cryst. (EtOH aq.). Mp 76-81°. $[\alpha]_D$ -72 (c, 0.7 in $CHCl_3$).

Liptak, A. *et al., Carbohydr. Res.*, 1984, **131**, 39 (*α-Me pyr derivs, cmr*)

α-D-Rhamnopyranosyl-(1 →2)-β-D-rhamnopyranosyl-(1 →3)-D-rhamnose R-65

6-Deoxy-α-D-mannopyranosyl-(1 →2)-6-deoxy-β-D-mannopyranosyl-(1 →3)-6-deoxy-D-mannose, 9CI
[103707-66-0]



$C_{18}H_{32}O_{13}$ 456.443
Constit. of the O-antigen of *Pseudomonas cepacia*.

β-Pyranose-*form*

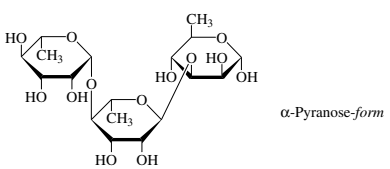
1,2-O-*(1-Cyanoethylidene), 2″,3′,4,4′,4″-pentabenzoyl, 3″-Ac:* [122805-28-1]
$C_{58}H_{55}NO_{19}$ 1070.068
Amorph. $[\alpha]_D^{20}$ -143.5 (c, 1.9 in $CHCl_3$).

Lipkind, G.M. *et al., Bioorg. Khim.*, 1986, **12**, 780; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1986, **12**, 423 (*pmr, cmr, occur*)

Tsvetkov, Y.E. *et al., Carbohydr. Res.*, 1989, **193**, 75 (*cyanoethylidene deriv, pmr*)

β-L-Rhamnopyranosyl-(1 →4)-α-L-rhamnopyranosyl-(1 →3)-D-rhamnose R-66

6-Deoxy-β-L-mannopyranosyl-(1 →4)-6-deoxy-α-L-mannopyranosyl-(1 →3)-6-deoxy-D-mannose, 9CI



α-Pyranose-*form*

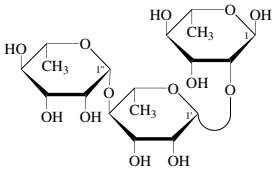
$C_{18}H_{32}O_{13}$ 456.443
Constit. of the O-specific polysaccharide of *Pseudomonas syringae* pv lachrymans strain 7591 (serogroup IX).

α-Pyranose-*form* [135702-91-9]
Syrup.

Shashkov, A.S. *et al., Carbohydr. Res.*, 1991, **212**, 301 (*isol, chromatog*)

β-L-Rhamnopyranosyl-(1 →4)-β-L-rhamnopyranosyl-(1 →2)-L-rhamnose R-67

6-Deoxy-β-L-mannopyrananosyl-(1 →4)-6-deoxy-β-L-mannopyranosyl-(1 →2)-6-deoxy-L-mannose, 9CI
[88493-97-4]



α-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Constit. of the repeating unit of the O-specific side chain of the lipopolysaccharide isol. from *Shigella flexneri* serotype 6.
$[\alpha]_D^{20}$ +2 (c, 0.5 in MeOH).

α-Pyranose-*form*

Benzyl glycoside, 2″,3,3′,3″,4,4″-hexabenzyl: [88493-95-2]
$C_{67}H_{74}O_{13}$ 1087.314
Syrup. $[\alpha]_D^{20}$ +18.5 (c, 1.5 in $CHCl_3$).

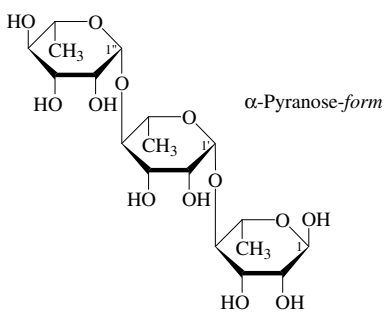
Benzyl glycoside, 2″,3,3′,3″,4,4″-hexabenzyl, 2′-Ac: [88493-96-3]
$C_{69}H_{76}O_{14}$ 1129.351
Syrup. $[\alpha]_D^{20}$ +35.2 (c, 1.0 in $CHCl_3$).

[88493-94-1]

Paulsen, H. *et al., Carbohydr. Res.*, 1983, **120**, 25 (*L-form, α-L-benzyl pyr derivs, pmr, cmr*)

β-L-Rhamnopyranosyl-(1 →4)-β-L-rhamnopyranosyl-(1 →4)-L-rhamnose R-68

6-Deoxy-β-L-mannopyranosyl-(1 →4)-6-deoxy-β-L-mannopyranosyl-(1 →4)-6-deoxy-L-mannose, 9CI



α-Pyranose-*form*

$C_{18}H_{32}O_{13}$ 456.443
Constit. of the repeating unit of the O-specific side chain of the lipopolysaccharide isol. from *Shigella flexneri* (serotype 6).

α-Pyranose-*form* [86449-28-7]
Amorph. powder. $[\alpha]_D^{20}$ +16.6 (c, 1.0 in H_2O).

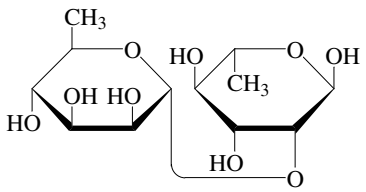
Benzyl glycoside, 2″,3′,3″,4″-tetrabenzyl: [86449-27-6]
$C_{53}H_{62}O_{13}$ 907.065
Syrup. $[\alpha]_D^{20}$ -1.4 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2″,3′,3″,4″-tetrabenzyl, 2,3-O-*isopropylidene:* [86449-26-5]
$C_{56}H_{66}O_{13}$ 947.13
Syrup. $[\alpha]_D^{20}$ +4.3 (c, 0.8 in $CHCl_3$).

Paulsen, H. *et al., Annalen*, 1983, 557 (*synth, α-benzyl pyr derivs, pmr, cmr, occur*)

2-*O*-α-D-Rhamnopyranosyl-L-rhamnose R-69

6-Deoxy-2-O-*(6-deoxy-α-D-mannopyranosyl)-L-mannose*
[89734-16-7]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Reducing disaacharide. Amorph. $[\alpha]_D^{18}$ +49 (c, 0.6 in EtOH).

Hexa-Ac: [89734-17-8]
$C_{24}H_{34}O_{15}$ 562.524
$[\alpha]_D^{18}$ +30 (c, 0.3 in $CHCl_3$).

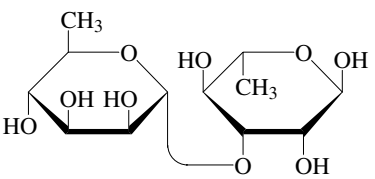
α-Pyranose-*form*

Benzyl glycoside, 3-benzoyl, 4-benzyl, 2′,3′,4′-tri-Ac: [89734-15-6]
$C_{39}H_{44}O_{13}$ 720.769
Syrup. $[\alpha]_D^{18}$ +51 (c, 1.05 in $CHCl_3$).

Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 191 (*synth, cmr*)

3-*O*-α-D-Rhamnopyranosyl-L-rhamnose R-70

6-Deoxy-3-O-*(6-deoxy-α-D-mannopyranosyl)-L-mannose. 6-Deoxy-α-D-mannopyranosyl(1 →3)-6-deoxy-L-mannose*
[89734-24-7]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3
Reducing disaccharide. Amorph. $[\alpha]_D$ +44 (c, 0.35 in EtOH).

Hexa-Ac:
$C_{24}H_{34}O_{15}$ 562.524
$[\alpha]_D$ +24.5 (c, 0.4 in $CHCl_3$).

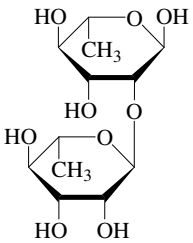
α-Pyranose-*form*

Benzyl glycoside, 2-benzoyl, 4-benzyl, tri-Ac:
$C_{39}H_{44}O_{13}$ 720.769
Amorph. $[\alpha]_D$ +56 (c, 0.8 in $CHCl_3$).

Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 91 (*synth*)

2-*O*-α-L-Rhamnopyranosyl-L-rhamnose R-71

*6-Deoxy-2-*O*-(6-deoxy-α-L-mannopyranosyl)-L-mannose. 6-Deoxy-α-L-mannopyranosyl-(1→2)-6-deoxy-α-L-mannose*
[70086-87-2]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. Constit. of the repeating unit of the capsular antigens of *Klebsiella* K9, K34 and of *E. coli* K12 and K82 and of the *O*-antigen of *E. coli* 069 and *Shigella flexneri*. $[\alpha]_D^{18}$ -29 (c, 0.8 in H_2O) (-24).

α-Pyranose-*form* [73246-48-7]

Me glycoside: [71348-36-2]
$C_{13}H_{24}O_9$ 324.327
$[\alpha]_D^{20}$ -95 (c, 1 in H_2O).

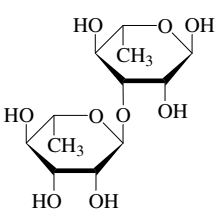
Me glycoside, penta-Ac:
$C_{23}H_{34}O_{14}$ 534.513
Needles (EtOH aq.). Mp 151-152°.
$[\alpha]_D$ -45 (c, 1 in $CHCl_3$).

Me glycoside, 2′,3′,4′-tri-Ac, 3,4-dibenzyl: [71348-34-0]
$C_{33}H_{42}O_{12}$ 630.688
Needles (Et_2O). Mp 125-126°.

Pozsgay, V. *et al., Carbohydr. Res.*, 1981, **90**, 215
Kenne, L. *et al., The Polysaccharides*, Academic Press, ed. Aspinall, G.O., 1983, **2**, 301; 302; 316; 318; 322 (*occur*)
Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 191 (*synth, cmr*)
Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 55 (*Me gly*)

3-*O*-α-L-Rhamnopyranosyl-L-rhamnose R-72

*6-Deoxy-3-*O*-(6-deoxy-α-L-mannopyranosyl)-L-mannose. 6-Deoxy-α-L-mannopyranosyl-(1→3)-6-deoxy-α-L-mannose*
[68355-18-0]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. Constit. of the repeating unit of the capsular antigen of *Klebsiella* spp. and of the *O*-antigens of *Pseudomonas aeruginosa* immunotype 5, *Shigella flexneri, Shigella dysenteriae* type 1 and *Klebsiella* 07. Cryst. (MeOH/$CHCl_3$).
Mp 141-142°. $[\alpha]_D$ -41 (c, 0.9 in H_2O) (-21).

α-Pyranose-*form* [22393-20-0]

Hexa-Ac: [68355-16-8]
$C_{24}H_{34}O_{15}$ 562.524
Solid (EtOH). Mp 78-80.5° (75-76°).
$[\alpha]_D$ -43.6 (c, 0.51 in $CHCl_3$).

Me glycoside: [71348-37-3]
$C_{13}H_{24}O_9$ 324.327
Cryst. (MeOH/diisopropyl ether).
Mp 181-183.5°. $[\alpha]_D$ -78 (c, 1.52 in H_2O). $[\alpha]_D^{20}$ -59 (c, 1 in $CHCl_3$).

*Me glycoside, 2-Me: Methyl 3-*O*-(α-L-rhamnopyranosyl)-2-*O*-methyl-α-L-rhamnopyranoside*
[136933-77-2]
$C_{14}H_{26}O_9$ 338.354
Residue present in *Mycobacterium bovis* glycolipids.
$[\alpha]_D^{26}$ -68.3 (c, 0.44 in $CHCl_3$).

Me glycoside, 2′,3′,4′,4-tetra-Ac: [73113-82-3]
$C_{21}H_{32}O_{13}$ 492.476
Cryst. (Et_2O/EtOAc). Mp 166-166.5°.
$[\alpha]_D^{20}$ -61 (c, 1.2 in $CHCl_3$).

Me glycoside, penta-Ac: [68355-15-7]
$C_{23}H_{34}O_{14}$ 534.513
Needles. Mp 134-136° (125°). $[\alpha]_D^{25}$ -48 (c, 0.5 in $CHCl_3$).

Benzyl glycoside, 2,4-dibenzyl: [78161-37-2]
$C_{33}H_{40}O_9$ 580.674
Syrup. $[\alpha]_D$ -59 (c, 1.3 in $CHCl_3$).

Benzyl glycoside, 2,4-dibenzyl, tri-Ac: [72384-19-1]
$C_{39}H_{46}O_{12}$ 706.785
Syrup. $[\alpha]_D$ -57 (c, 1 in $CHCl_3$).

*Octyl glycoside, 4-*O*-hexanoyl, 2′,3′-di-Ac:* ***Mezzettiaside 9***
[215668-61-4]
$C_{30}H_{52}O_{12}$ 604.734
Constit. of *Mezzettia leptopoda*. Exhibits weak cytotoxic activity. Gum. $[\alpha]_D$ -56.4 (c, 0.1 in $CHCl_3$).

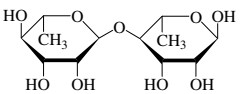
*Octyl glycoside, 4-*O*-hexanoyl, 2′,4′-di-Ac:* ***Mezzettiaside 10***
[215668-79-4]
$C_{30}H_{52}O_{12}$ 604.734
Constit. of *Mezzettia leptopoda*. Gum. $[\alpha]_D$ -54.4 (c, 0.1 in $CHCl_3$).

*Octyl glycoside, 4-*O*-hexanoyl, 2′,3′,4′-tri-Ac:* ***Mezzettiaside 11***
[215668-80-7]
$C_{32}H_{54}O_{13}$ 646.771
Constit. of *Mezzettia leptopoda*. Cytotoxic agent. Gum. $[\alpha]_D$ -48.6 (c, 0.1 in $CHCl_3$).

Laffite, C. *et al., Carbohydr. Res.*, 1978, **67**, 91
Schwarzenbach, D. *et al., Carbohydr. Res.*, 1980, **81**, 323
Liptak, A. *et al., Tetrahedron*, 1980, **36**, 1261 (*Me gly*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1981, **90**, 215 (*benzyl gly*)
Kenne, L. *et al., The Polysaccharides*, Academic Press, ed. Aspinall, G.O., 1983, **2**, 302 (*occur*)
Jaworska, A. *et al., Carbohydr. Res.*, 1984, **126**, 91 (*synth, cmr*)
Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 2351 (*synth*)
Gurjar, M.K. *et al., J. Carbohydr. Chem.*, 1991, **10**, 481-485 (*2-Me*)
Cui, B *et al., J. Nat. Prod.*, 1998, **61**, 1535-1538 (*Mezzettiasides, activity*)

4-*O*-α-L-Rhamnopyranosyl-L-rhamnose R-73

*6-Deoxy-4-*O*-(6-deoxy-α-L-mannopyranosyl)-L-mannose. (6-Deoxy-α-L-mannopyranosyl)-(1→4)-6-deoxy-α-L-mannose*
[31675-07-7]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. Constit. of the repeating unit of an acid isol. from the cell walls of *Bacillus megaterium* and the *O*-antigen of *Pseudomonas maltophilia* strain. Syrup. $[\alpha]_D$ -68 (c, 2.2 in H_2O).

α-Pyranose-*form* [75364-78-2]

Me glycoside: [31002-15-0]
$C_{13}H_{24}O_9$ 324.327
Syrup. $[\alpha]_D$ -109 (c, 2.5 in H_2O).

Me glycoside, penta-Ac:
$C_{23}H_{34}O_{14}$ 534.513
Mp 182-183° (180-181°). $[\alpha]_D$ -52.6 (c, 1.48 in $CHCl_3$).

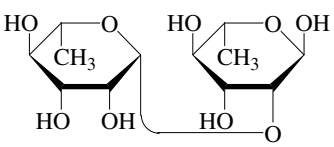
*Me glycoside, 2,3;2′,3′-di-*O*-isopropylidene:*
$C_{19}H_{32}O_9$ 404.456
$[\alpha]_D^{23}$ -46 (c, 1.5 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 2′,3′,4′-tri-Ac:* [53130-93-1]
Syrup. $[\alpha]_D$ -74 (c, 2 in $CHCl_3$). $[\alpha]_D$ -69 (c, 1.5 in $CHCl_3$).

Bebault, G.M. *et al., Carbohydr. Res.*, 1974, **34**, 174 (*synth*)
Backinowskii, L.V. *et al., Carbohydr. Res.*, 1980, **85**, 209
Liptak, A. *et al., Tetrahedron*, 1980, **36**, 1261 (*cmr, Me gly*)
Neal, D.J. *et al., Eur. J. Biochem.*, 1982, **128**, 143 (*occur*)
Liptak, A. *et al., Carbohydr. Res.*, 1984, **131**, 39 (*diisopropylidene*)

2-*O*-β-L-Rhamnopyranosyl-L-rhamnose R-74

*6-Deoxy-2-*O*-(6-deoxy-β-L-mannopyranosyl)-L-mannose*
[71164-87-9]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. $[\alpha]_D^{20}$ +10.2 (c, 0.9 in MeOH).

α-Pyranose-*form* [88547-61-9]

Benzyl glycoside, 2′,4′-di-Ac, tribenzyl:
$C_{44}H_{50}O_{11}$ 754.872
Syrup. $[\alpha]_D^{20}$ +34.2 (c, 1.2 in $CHCl_3$).

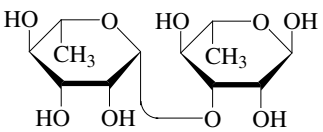
Benzyl glycoside, 3,3′,4-tribenzyl, 4′-Ac:
$C_{42}H_{48}O_{10}$ 712.835
Syrup. $[\alpha]_D^{20}$ +19.2 (c, 1.1 in $CHCl_3$).

Paulsen, H. *et al., Carbohydr. Res.*, 1983, **120**, 25 (*synth*)

Lipkind, G.M. *et al., Bioorg. Khim.*, 1984, **10**, 1670; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1984, **10**, 912 (*noe, conformn*)

3-*O*-β-L-Rhamnopyranosyl-L-rhamnose R-75

*6-Deoxy-3-*O*-(6-deoxy-β-L-mannopyranosyl)-L-mannose. 6-Deoxy-β-L-mannopyranosyl(1→3)-6-deoxy-L-mannose*



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

α-Pyranose-*form*

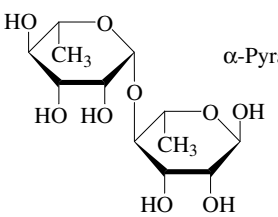
Me glycoside: [79681-54-2]
$C_{13}H_{24}O_9$ 324.327
$[\alpha]_D$ +15 (c, 1.6 in H_2O).

*Me glycoside, 2′,3′-*O*-cyclohexylidene, 4′-benzoyl, 4-Ac:*
$C_{28}H_{38}O_{11}$ 550.602
Syrup. $[\alpha]_D$ +44.9 (c, 1 in $CHCl_3$).

Iversen, T. *et al., J.O.C.*, 1981, **46**, 5389 (*Me gly*)

4-*O*-β-L-Rhamnopyranosyl-L-rhamnose R-76

*6-Deoxy-4-*O*-(6-deoxy-β-L-mannopyranosyl)-L-mannose. 6-Deoxy-β-L-mannopyranosyl-(1→4)-6-deoxy-α-L-mannose*
[71164-86-8]



α-Pyranose-*form*

$C_{12}H_{22}O_9$ 310.3

Reducing disaccharide. Constit. of the repeating unit of the capsular antigen of *Klebsiella* K32, of the type specific antigen of *Streptococcus pneumoniae* type 17F, and of the extracellular polysaccharides from various strains of *Rhizobium japonicum*. Syrup. $[\alpha]_D^{20}$ +10.1 (c, 1.3 in MeOH). $[\alpha]_D^{20}$ +4.3 (c, 2 in H_2O).

Pyranose-*form*

Hexa-Ac: [75828-91-0]
$C_{24}H_{34}O_{15}$ 562.524
$[\alpha]_D$ -14.5 (c, 2.5 in $CHCl_3$).

α-Pyranose-*form*

Me glycoside: [74517-07-0]
$C_{13}H_{24}O_9$ 324.327
$[\alpha]_D$ -12 (c, 1.2 in H_2O). $[\alpha]_D$ -16.5 (c, 2.5 in H_2O).

*Me glycoside, 2,3-*O*-isopropylidene, 2′,3′,4′-tri-Ac:* [75795-31-2]
$C_{22}H_{34}O_{12}$ 490.503
Amorph. $[\alpha]_D$ +56.2 (c, 1.05 in $CHCl_3$).

*Benzyl glycoside, 2′,3′,4′-tribenzyl, 2,3-*O*-isopropylidene:*
$C_{43}H_{50}O_9$ 710.863
$[\alpha]_D^{20}$ +15.7 (c, 1.2 in $CHCl_3$).

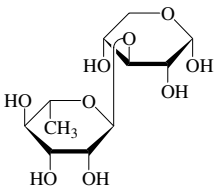
Bakinovskii, L.V. *et al., Carbohydr. Res.*, 1980, **84**, 225 (*Me gly*)

Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 3233 (*synth*)

Iversen, T. *et al., J.O.C.*, 1981, **46**, 5389 (*Me gly*)

Kenne, L. *et al., The Polysaccharides*, Academic Press, ed. Aspinall, G.O., 1983, **2**, 322; 329; 336 (*occur*)

3-*O*-α-L-Rhamnopyranosyl-D-xylose R-77



α-Pyranose-*form*

$C_{11}H_{20}O_9$ 296.274

α-Pyranose-*form*

*Me glycoside: Methyl 3-*O*-α-L-rhamnopyranosyl-α-D-xylopyranoside, 9CI*
[99104-67-3]
$C_{12}H_{22}O_9$ 310.3
Needles (Me_2CO) or cryst. (H_2O). Mp 113-115°. $[\alpha]_D^{20}$ +16 (c, 1.0 in MeOH).

*Me glycoside, 2′,3′,4′-tri-Ac: Methyl 3-*O*-(2,3,4-tri-*O*-acetyl-α-L-rhamnopyranosyl)-α-D-xylopyranoside*
[99104-76-4]
$C_{18}H_{28}O_{12}$ 436.412
Needles (EtOH). Mp 152-154°. $[\alpha]_D^{20}$ +16 (c, 1.0 in $CHCl_3$).

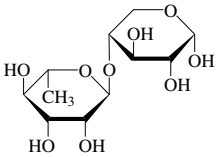
*Me glycoside, penta-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-(2,3,4-tri-*O*-acetyl-α-L-rhamnopyranosyl)-α-D-xylopyranoside*
[99104-77-5]
$C_{22}H_{32}O_{14}$ 520.486
Amorph. powder. $[\alpha]_D^{20}$ +33 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,4-dibenzoyl, tri-Ac: Methyl 2,4-di-*O*-benzoyl-3-*O*-(2,3,4-tri-*O*-acetyl-α-L-rhamnopyranosyl)-α-D-xylopyranoside*
[99119-94-5]
$C_{32}H_{36}O_{14}$ 644.628
$[\alpha]_D^{20}$ +10 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,4-dibenzyl, tri-Ac: Methyl 2,4-di-*O*-benzyl-3-*O*-(2,3,4-tri-*O*-acetyl-α-L-rhamnopyranosyl)-α-D-xylopyranoside*
[99104-75-3]
$C_{32}H_{40}O_{12}$ 616.661
Syrup. $[\alpha]_D^{20}$ -32 (c, 1.0 in $CHCl_3$).

Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 2351

4-*O*-α-L-Rhamnopyranosyl-D-xylose R-78



α-Pyranose-*form*

$C_{11}H_{20}O_9$ 296.274
Autohydrolytic product from the mucilage of the green seaweed alga *Urospora penicilliformis*.

α-Pyranose-*form*

*Me glycoside: Methyl 4-*O*-α-L-rhamnopyranosyl-α-D-xylopyranoside, 9CI*
[99104-71-9]
$C_{12}H_{22}O_9$ 310.3
Monohydrate. $[\alpha]_D^{10}$ +47 (c, 3.5 in MeOH).

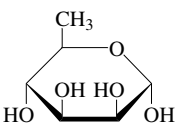
*Me glycoside, 2,3-dibenzoyl, tri-Ac: Methyl 2,3-dibenzoyl-4-*O*-(2,3,4-tri-*O*-acetyl-α-L-rhamnopyranosyl)-α-D-xylopyranoside*
[99104-82-2]
$C_{32}H_{36}O_{14}$ 644.628
Amorph. $[\alpha]_D^{15}$ -40 (c, 1.2 in $CHCl_3$).

Bourne, E.J. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1974, **1**, 235 (*occur*)

Kamiya, S. *et al., Agric. Biol. Chem.*, 1985, **49**, 2351 (*Me gly*)

Rhamnose R-79

6-Deoxymannose. Mannomethylose



α-D-Pyranose-*form*

$C_6H_{12}O_5$ 164.158
An aq. soln. at 44° contains 60% α-pyr, 40% β-pyr and 0.01% aldehyde.

D-*form* [634-74-2]
Present in the hydrol. prod. of the capsular polysaccharide of some gram-negative bacteria.
Mp 90-91° (monohydrate). $[\alpha]_D$ -8.2 (H_2O).

4-Bromophenylhydrazone: Mp 167°.

Phenylosazone: Mp 191°. $[\alpha]_D^{20}$ -95.2 (Py).

*1-*O*-(3,4-Dihydroxycinnamoyl):*
1-O-Caffeoylrhamnose
$C_{15}H_{18}O_8$ 326.302
Isol. from blooms of *Lantana hybrida*.

2-Me: *2-*O*-Methyl-D-rhamnose*
$C_7H_{14}O_5$ 178.185
Component of lipopolysaccharides of *Bacterium faecalis alcaligenes*. Syrup. $[\alpha]_D$ -28 (c, 1.12 in H_2O).

α-D-Pyranose-*form*

Me glycoside: See Methyl rhamnopyranoside, M-207

D-Furanose-*form*

Me glycoside: See Methyl rhamnofuranoside, M-206

L-*form* *Isodulcitol. Lokaose*
[3615-41-6]
Constit. of many glycosides in plants. Present in leaves of poison ivy *Rhus toxicodendron*, in polysaccharides of gums, mucilages, numerous immunological polysaccharides of bacterial origin and in cardiac glycosides. Quercetin (main constit. of lemon flavin) and Naringin (from grapefruit-canning wastes) have been used as sources. Obt. comly. from oak bark. Relatively inexpensive starting material for chiral synthesis.
Crystallises as α- and β-forms which equilibrate in soln.
Mp 93-95° (hydrate). $[\alpha]_D$ +8.9 (H_2O, at equilibrium).

Phenylhydrazone: Mp 159°. $[\alpha]_D$ +54.2 → +27 (H_2O).

2,4-Dinitrophenylhydrazone: Mp 164-165°.

Phenylosazone: Mp 190°.

Tetranitrate:
$C_6H_8N_4O_{13}$ 344.148
Mp 135°. $[\alpha]_D$ -68.4 (MeOH).

Di-Me acetal:
$C_8H_{18}O_6$ 210.227
Mp 123-124°. $[\alpha]_D^{20}$ +10 (c, 0.4 in H_2O).

Di-Et dithioacetal:
$C_{10}H_{22}O_4S_2$ 270.413
Mp 135-137°.

Dibenzyl dithioacetal:
$C_{20}H_{26}O_4S_2$ 394.555
Mp 125°. $[\alpha]_D$ +35.3 (Py).

*2-Me: 6-Deoxy-2-*O*-methyl-L-mannose, 8CI. 2-*O*-Methyl-L-rhamnose*
[29839-06-3]
$C_7H_{14}O_5$ 178.185
Component of *Rhizobium* extracellular polysaccharides. Cryst. (prev. reported as syrup).
Mp 113-114°. $[\alpha]_D$ +31 (+24) (H_2O).

*3-Me: 6-Deoxy-3-*O*-methyl-L-mannose, 9CI. 3-*O*-Methyl-L-rhamnose.* ***Acofriose***
[4060-08-6]
[4598-54-3] Hydrol. prod. of plant glycosides, e.g. A constit. of Klebsiella K73:010 and Mycoside G. Also from *Rhizobium* extracellular polysaccharides.
Mp 118-119° (109-111°). $[\alpha]_D^{22}$ +39.1 (H_2O) (+30).

3-Me, phenylosazone:
Yellow needles (Et_2O/pentane). Mp 138-142°. $[\alpha]_D^{15}$ +128.2 → +53.2 (EtOH/Py).

*4-Me: 6-Deoxy-4-*O*-methyl-L-mannose. 4-*O*-Methyl-L-rhamnose*
$C_7H_{14}O_5$ 178.185
Mp 125-126°. $[\alpha]_D$ +13 (MeOH).

*5-Me: 6-Deoxy-5-*O*-methyl-L-mannose. 5-*O*-Methyl-L-rhamnose*
$C_7H_{14}O_5$ 178.185
Mp 102-103°. $[\alpha]_D$ -4.3 (H_2O).

*2,3-Di-Me: 6-Deoxy-2,3-di-*O*-methyl-L-mannose, 9CI. 2,3-Di-*O*-methyl-L-rhamnose*
[39687-52-0]
$C_8H_{16}O_5$ 192.211
Syrup. $[\alpha]_D$ +47.6 (H_2O).

*2,4-Di-Me: 6-Deoxy-2,4-di-*O*-methyl-L-mannose. 2,4-Di-*O*-methyl-L-rhamnose*
$C_8H_{16}O_5$ 192.211
Hydrol. prod. of *Pneumococcus* and other bacterial polysaccharides and of flax hemicellulose.
Mp 91-93°. $[\alpha]_D$ +10.6 (H_2O).

*3,4-Di-Me: 6-Deoxy-3,4-di-*O*-methyl-L-mannose, 9CI, 8CI. 3,4-Di-*O*-methyl-L-rhamnose*
[4060-11-1]
$C_8H_{16}O_5$ 192.211
Mp 98-99°. $[\alpha]_D$ +24 → +18.5 (H_2O).

*2,3,4-Tri-Me: 6-Deoxy-2,3,4-tri-*O*-methyl-L-mannose, 9CI. 2,3,4-Tri-*O*-methyl-L-rhamnose*
[7439-05-6]
$C_9H_{18}O_5$ 206.238
Syrup. $[\alpha]_D$ +26 (H_2O).

α-L-Pyranose-*form* [6014-42-2]
Rods + 1H_2O (H_2O or EtOH). Mp 93-94°. On heating loses H_2O of cryst. and partly changes to the β-form. V. sweet taste.

*1,2,4-Tri-Ac: 1,2,4-Tri-*O*-acetyl-6-deoxy-α-L-mannopyranose. 1,2,4-Tri-*O*-acetyl-α-L-rhamnopyranose*
$C_{12}H_{18}O_8$ 290.269
Fine needles. Mp 145-149°. $[\alpha]_D$ -41 (c, 1.1 in $CHCl_3$).

*1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-deoxy-α-L-mannopyranose. 1,2,3,4-Tetra-*O*-acetyl-α-L-rhamnopyranose*
[27821-11-0]
$C_{14}H_{20}O_9$ 332.307
$[\alpha]_D^{23}$ -63 (c, 2.3 in $CHCl_3$).

*2-O-(4-Hydroxycinnamoyl)(*E*-), 3-Ac:* ***Ningposide C***
$C_{17}H_{20}O_8$ 352.34
Constit. of *Scrophularia ningpoensis*.
Oil. $[\alpha]_D^{20}$ +79.6 (c, 0.38 in Me_2CO).

*3-O-(4-Methoxycinnamoyl)(*E*-), 2-Ac:* ***Buergeriside B₁***
$C_{18}H_{22}O_8$ 366.367
Constit. of *Scrophularia buergeriana*.
Amorph. powder. λ_{max} 231 (log ε 2.52); 279 (log ε 2.35); 311 (log ε 1.06) (MeOH).

*3-O-(4-Methoxycinnamoyl)(*Z*-), 2-Ac:* ***Buergeriside B₂***
Constit. of *Scrophularia buergeriana*.
Amorph. powder. λ_{max} 231 (log ε 2.52); 278 (log ε 2.34); 311 (log ε 1.04) (MeOH).

*4-O-(4-Methoxycinnamoyl)(*E*-): Buergeriside C₁*
[163358-97-2]
$C_{16}H_{20}O_7$ 324.33
Constit. of the roots of *Scrophularia ningpoensis* and *Scrophularia buergeriana*.
Pale yellow powder. λ_{max} 232 (log ε 2.54); 311 (log ε 1.22) (MeOH).

*3,4-Bis-*O*-(4-methoxycinnamoyl)(*E,E*-), 2-Ac:* ***Buergeriside A₁***
$C_{28}H_{30}O_{10}$ 526.539
Constit. of *Scrophularia buergeriana*.
Yellowish needles. λ_{max} 232 (log ε 2.54); 289 (log ε 1.82); 311 (log ε 1.22) (MeOH).

*2-O-(4-Hydroxy-3-methoxycinnamoyl)(*E*-), 3-Ac:* ***Ningposide A***
$C_{18}H_{22}O_9$ 382.366
Constit. of *Scrophularia ningpoensis*.
Oil. $[\alpha]_D^{20}$ +116.3 (c, 0.63 in Me_2CO).

*2-O-(4-Hydroxy-3-methoxycinnamoyl)(*E*-), 4-Ac: 4-*O*-Acetyl-2-*O*-feruloyl-α-L-rhamnopyranose.* ***Ningposide B***
$C_{18}H_{22}O_9$ 382.366
Constit. of *Scrophularia ningpoensis*.
Oil. $[\alpha]_D^{20}$ +87.2 (c, 0.24 in Me_2CO).

*4-O-(3,4-Dimethoxy-*E*-cinnamoyl):* ***Lagotoside B***
$C_{17}H_{22}O_8$ 354.356
Constit. of *Lagotis yunnanensis*. Pale yellow powder. λ_{max} 233 (log ε 3.7); 265 (log ε 3.22); 321 (log ε 3.84) (MeOH).

*4-O-(3,4-Dimethoxy-*Z*-cinnamoyl):* ***Lagotoside C***
$C_{17}H_{22}O_8$ 354.356
Constit. of *Lagotis yunnanensis*. Pale yellow powder.

Me glycoside: See Methyl rhamnopyranoside, M-207

Benzyl glycoside: See Benzyl rhamnoside, B-20

Ph glycoside: Phenyl 6-deoxy-α-L-mannopyranoside. Phenyl α-L-rhamnopyranoside
$C_{12}H_{16}O_5$ 240.255
Constit. of the fruit of *Moringa oleifera* (horseradish tree).
Mp 75-77°. $[\alpha]_D^{18}$ -106 (H_2O).

*Ph glycoside, tri-Ac: Phenyl 2,3,4-tri-*O*-acetyl-6-deoxy-α-L-mannopyranoside. Phenyl 2,3,4-tri-*O*-acetyl-α-L-rhamnopyranoside*
$C_{18}H_{22}O_8$ 366.367
Mp 130-131°. $[\alpha]_D^{18}$ -80 ($CHCl_3$).

β-L-Pyranose-*form*
Needles (anhyd. Me_2CO/EtOH). Mp 123.5-124.5°. Hygroscopic, converts to the α-form on exp. to moist air.

*1,2,3-Tri-Ac: 1,2,3-Tri-*O*-acetyl-6-deoxy-β-L-mannopyranose. 1,2,3-Tri-*O*-acetyl-β-L-rhamnopyranose*
$C_{12}H_{18}O_8$ 290.269
Mp 164-167°. $[\alpha]_D$ +34 (c, 0.9 in $CHCl_3$).

*1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-6-deoxy-β-L-mannopyranose. 1,2,3,4-Tetra-*O*-acetyl-β-L-rhamnopyranose*
$C_{14}H_{20}O_9$ 332.307
Mp 98-99°. $[\alpha]_D^{19}$ +14.1 ($C_2H_2Cl_4$).

Me glycoside: See Methyl rhamnopyranoside, M-207

Benzyl glycoside: See Benzyl rhamnoside, B-20

Ph glycoside: Phenyl 6-deoxy-β-L-mannopyranoside. Phenyl β-L-rhamnopyranoside
$C_{12}H_{16}O_5$ 240.255
Mp 159-161°. $[\alpha]_D^{18}$ +87.5 (H_2O).

*Ph glycoside, tri-Ac: Phenyl 2,3,4-tri-*O*-acetyl-6-deoxy-β-L-mannopyranoside. Phenyl 2,3,4-tri-*O*-acetyl-β-L-rhamnopyranoside*
$C_{18}H_{22}O_8$ 366.367
Mp 147-148°. $[\alpha]_D^{18}$ +52.5 ($CHCl_3$).

L-Furanose-*form*

Me glycoside: See Methyl rhamnofuranoside, M-206

Et glycoside: See Ethyl rhamnoside, E-27

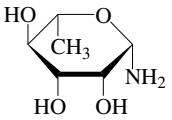
Benzyl glycoside: See Benzyl rhamnoside, B-20

[10030-85-0]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 908B (*pmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 191A (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 169 (*β-L-pyr tetra-Ac, L-tetranitrate, β-L-Ph pyr, α-L-Ph pyr, α-L-Ph pyr tri-Ac, β-L-Ph pyr tri-Ac*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 266 (*L-Me ethers, rev*)
Muhr, H. *et al., Helv. Chim. Acta*, 1955, **38**, 499 (*synth, 3-Me*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 202 (*α-L-form, isol*)
Pacsu, E. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 354 (*α-L-Me pyr tri-Ac*)
Stanek, J. *et al., The Monosaccharides*, Academic Press, N.Y. and London, 1963, 544; 600 (*L-form phenylhydrazones, L-form thioacetals, rev*)
Killean, A.C.G. *et al., Acta Cryst. B*, 1971, **27**, 1707 (*cryst struct*)
Butterworth, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 279 (*deoxy sugars, props, rev*)
Brimacombe, J.S. *et al., J.C.S.(C)*, 1971, 613 (*synth, pmr, 3-Me*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 589 (*occur*)
Schaffer, R. *et al., The Carbohydrates*, (Pigman, W. *et al*, Ed.), Academic Press,N.Y. and London, 2nd Ed., 1972, 98 (*rev, isol*)
Bebault, G.M. *et al., Carbohydr. Res.*, 1974, **34**, 174 (*α-L-pyr tetra-Ac*)
Gorin, P.J. *et al., Can. J. Chem.*, 1975, **53**, 1212 (*cmr*)
Imperato, F. *et al., Phytochemistry*, 1975, **14**, 2725 (*1-O-Caffeoylrhamnose*)
de Bruyn, A. *et al., Carbohydr. Res.*, 1976, **47**, 158 (*pmr*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1980, **80**, 196 (*cmr, acetates*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1980, **81**, 184 (*synth, 2-Me, 3-Me*)
Kennedy, L.D. *et al., Carbohydr. Res.*, 1980, **87**, 156; 158 (*occur, 2-Me, 3-Me*)
Lipták, A. *et al., Carbohydr. Res.*, 1982, **107**, 300 (*D-2-Me*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Joroncic, L.D. *et al., Carbohydr. Res.*, 1989, **191**, 130 (*L-Me*)
Lee, E. *et al., Carbohydr. Res.*, 1990, **197**, 270 (*synth, cryst struct, β-L-pyr 1,2,3-tri-Ac; synth, pmr, α-L-pyr 1,2,4-tri-Ac*)
Ogawa, K. *et al., Biosci., Biotechnol., Biochem.*, 1997, **61**, 539 (*isol, pmr, 3-Me*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2421
Kim, S.R. *et al., Phytochemistry*, 2000, **54**, 503-509 (*Buergerisides*)
Li, Y.M. *et al., Phytochemistry*, 2000, **54**, 923-925 (*Ningposides*)
Merck Index, 13th edn., 2001, No. 8256 (*L-form, bibl*)
Ramm, M. *et al., Carbohydr. Res.*, 2003, **338**, 109-112 (*D-form, isol*)
Yang, X.-D. *et al., J. Asian Nat. Prod. Res.*, 2003, **5**, 223-226 (*Lagotosides*)
Francis, J.A. *et al., Helv. Chim. Acta*, 2004, **87**, 317-326 (*Phenyl rhamnoside, isol*)

Rhamnosylamine R-80

6-Deoxymannosylamine



β-L-Pyranose-*form*

$C_6H_{13}NO_4$ 163.173

L-Pyranose-*form* [7321-62-2]

Hemi-MeOH solvate: Mp 116° dec. $[\alpha]_D$ +38 (H_2O).

Hemi-EtOH solvate: Mp 80°. $[\alpha]_D$ +28 (H_2O).

N-*Me:* N-*Methyl-L-rhamnopyranosylamine*
$C_7H_{15}NO_4$ 177.2
Mp 126-127°.

N-*Et:* N-*Ethyl-L-rhamnopyranosylamine*
$C_8H_{17}NO_4$ 191.227
Mp 141-142°.

N-*Ph:* N-*Phenyl-L-rhamnopyranosylamine*
$C_{12}H_{17}NO_4$ 239.271
Mp 121-127° dec. (144°). $[\alpha]_D$ +136.9 → +77.1 (EtOH).

N-*(p-Nitrophenyl):* Mp 208°. $[\alpha]_D$ +320 (Py).

N-*(p-Nitrophenyl), 2,3,4-tri-Ac:* [38730-26-6]
Bright-yellow needles. Mp 212° (209°). $[\alpha]_D$ +123 (c, 1.0 in $CHCl_3$). $[\alpha]_D$ +149 ($CHCl_3$).

N-*(4-Methylphenyl):* Mp 151-154°. $[\alpha]_D$ +92 → +80 (MeOH).

β-L-Pyranose-*form*

Mp 116° (105-110°). $[\alpha]_D$ +38 (H_2O).

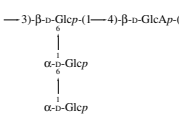
N-*Ac:* N-*Acetyl-β-L-rhamnopyranosylamine*
$C_8H_{15}NO_5$ 205.21
Mp 210-211°. $[\alpha]_D$ +65.7 (H_2O).

N,*2,3,4-Tetra-Ac:* *1*N,*2,3,4-Tetra*-O-*acetyl-β-L-rhamnopyranosylamine*
$C_{14}H_{21}NO_8$ 331.322
Mp 135-137°. $[\alpha]_D$ +6.2 ($CHCl_3$).

Lobry de Bruyn, C.A. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1895, **14**, 134 (*synth*)
Irvine, J.C. *et al., J.C.S.*, 1910, **97**, 1449 (N-*Ph*)
Votoček, E. *et al., Coll. Czech. Chem. Comm.*, 1934, **6**, 77 (N-*Et*, N-*Me*)
Frèrejacque, M. *et al., C. R. Hebd. Seances Acad. Sci.*, 1938, **207**, 638 (N-p-*nitrophenyl*)
Inoue, Y. *et al., Nippon Nogei Kagaku Kaishi*, 1948, **22**, 70 (N-*tolyl*)
Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*rev*)
Magnin, A. *et al., Tetrahedron*, 1972, **28**, 3069
Cusack, N.J. *et al., J.C.S. Perkin 1*, 1974, 73 (*L-Pyr.*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 255 (N-*Ac, tri-Ac*)

Rhamsan R-81

[96949-21-2]



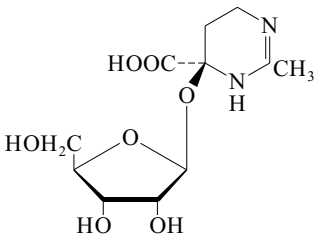
Isol. from *Alcaligenes* spp.

Jansson, P.-E. *et al., Carbohydr. Res.*, 1986, **156**, 157 (*struct*)
Talashek, T.A. *et al., Carbohydr. Res.*, 1987, **160**, 303 (*conformn, props*)
Lee, E.J. *et al., Carbohydr. Res.*, 1991, **214**, 11 (*conformn*)
Robinson, G. *et al., Spec. Publ. - R. Soc. Chem.*, 1991, **82**, 22 (*conformn*)
Campana, S. *et al., Carbohydr. Res.*, 1992, **231**, 31 (*struct, props*)

Rhizolotine R-82

1,4,5,6-Tetrahydro-2-methyl-4-(β-D-ribofuranosyloxy)-4-pyrimidinecarboxylic acid, 9CI

[102731-62-4]



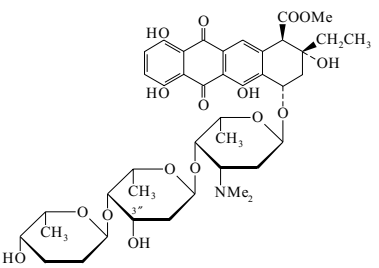
$C_{11}H_{18}N_2O_7$ 290.272

Nucleoside-type antibiotic. Prod. by *Rhizobium loti* on *Lotus* spp. Cryst. (MeOH).

Shaw, G.J. *et al., Chem. Comm.*, 1986, 180 (*struct*)
Scott, D.B. *et al., J. Bacteriol.*, 1987, **169**, 278 (*isol*)

Rhodirubin A R-83

[64253-73-2]



$C_{42}H_{55}NO_{16}$ 829.894

Anthracycline antibiotic. Isol. from *Streptomyces* spp. Shows antitumour props.
Mp 141-143°. $[\alpha]_D^{20}$ +120 (c, 1 in $CHCl_3$).

▶ QI9279170

3″-Deoxy: ***Rhodirubin B***
[64502-82-5]
$C_{42}H_{55}NO_{15}$ 813.894
From *Streptomyces* spp. Sol. MeOH, acids, DMSO, C_6H_6, toluene; fairly sol. Et_2O; poorly sol. H_2O, hexane.
Mp 135-137°. $[\alpha]_D^{20}$ +190 (c, 0.1 in $CHCl_3$). λ_{max} 235 (E1%/1cm 593); 257 (E1%/1cm 307); 295 (E1%/1cm 113); 457 (E1%/1cm 153); 490 (E1%/1cm 187) (MeOH) (Berdy).

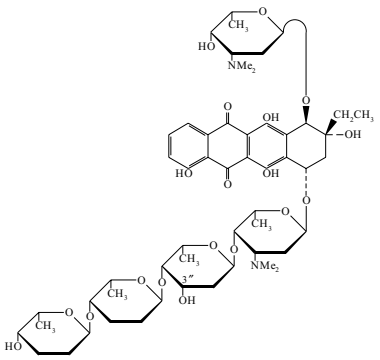
▶ LD_{50} (mus, ipr) 10 - 12.6 mg/kg.
QI9290000

Kitamura, I. *et al., J. Antibiot.*, 1977, **30**, 616
Matsuzawa, Y. *et al., J. Antibiot.*, 1981, **34**, 1596 (*props*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RHA125; RHA150

β-Rhodomycin V R-84

[12628-90-9]



$C_{54}H_{78}N_2O_{19}$ 1059.212

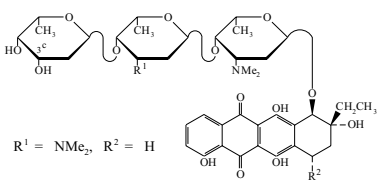
Anthracycline antibiotic. Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria, and mycoplasmas. Red powder. Sol. MeOH, $CHCl_3$, bases, acids; fairly sol. C_6H_6; poorly sol. H_2O, hexane. $[\alpha]_D$ -40 ($CHCl_3$). λ_{max} 232; 252; 496 (MeOH) (Berdy).

3″-Deoxy:
$C_{54}H_{78}N_2O_{18}$ 1043.213
From *Streptomyces purpurascens*. Active against gram-positive bacteria and mycobacteria. Red powder.

Ger. Pat., 1971, 2 012 808; *CA*, **76**, 44690 (*isol*)
Brockmann, H. *et al., Tet. Lett.*, 1973, 3699 (*isol, deriv*)

γ-Rhodomycin III R-85

γ-Rhodomycin-Roa$_2$-deoFuc



$C_{42}H_{58}N_2O_{14}$ 814.925

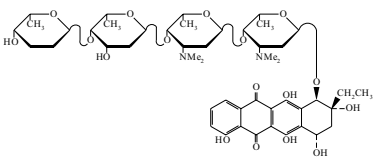
Anthracycline antibiotic. Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria. Red powder.

3^C-Deoxy: γ-Rhodomycin-Roa$_2$-Rod
$C_{42}H_{58}N_2O_{13}$ 798.926
Active against gram-positive bacteria and mycobacteria. Red powder. λ_{max} 499 (E1%/1cm 194) ($CHCl_3$) (Berdy).

Brockmann, H. *et al., Naturwissenschaften*, 1961, **48**, 717; 1963, **50**, 43 (*isol*)
Brockmann, H. *et al., Tet. Lett.*, 1969, 415; 1973, 3699 (*struct*)

γ-Rhodomycin IV R-86

γ-Rhodomycin-Roa$_2$-deoFuc-Rod



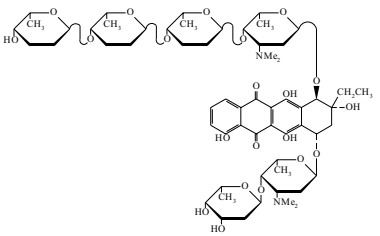
$C_{48}H_{68}N_2O_{17}$ 945.068

Anthracycline antibiotic. Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria. Red powder.

Brockmann, H. *et al., Naturwissenschaften*, 1961, **48**, 717; 1963, **50**, 43 (*isol*)
Brockmann, H. *et al., Tet. Lett.*, 1969, 415 (*struct*)

β-Rhodomycin S3 R-87

β-Rhodomycin-Roa$_2$-Rod$_3$-deoFuc
[55898-18-5]



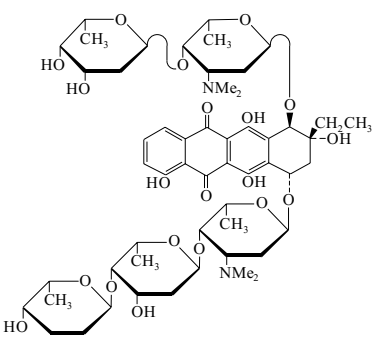
$C_{60}H_{88}N_2O_{21}$ 1173.356

Anthracycline antibiotic. Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria. Red powder. λ_{max} 500 (E1%/1cm 125) (MeOH) (Berdy).

Brockmann, H. *et al., Tet. Lett.*, 1975, 831 (*isol*)

β-Rhodomycin S4 R-88

β-Rhodomycin-Roa$_2$-deoFuc$_2$-Rod
[55898-16-3]



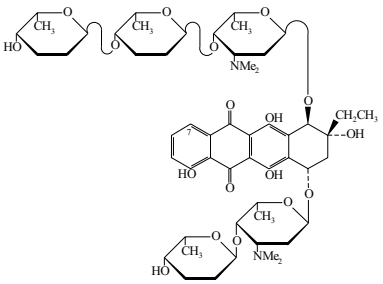
$C_{54}H_{78}N_2O_{20}$ 1075.212

Anthracycline antibiotic. Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria. Red powder.

Brockmann, H. *et al., Tet. Lett.*, 1975, 831 (*isol*)

β-Rhodomycin S1B R-89

[55898-17-4]



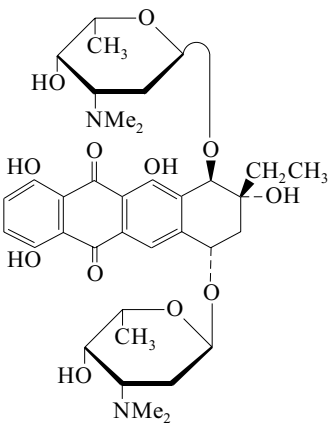
$C_{54}H_{78}N_2O_{18}$ 1043.213

Anthracycline antibiotic. Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria. Red powder.

7-Hydroxy: ***β-Isorhodomycin S1A***
$C_{54}H_{78}N_2O_{19}$ 1059.212
Isol. from *Streptomyces purpurascens*. Active against gram-positive bacteria. Red powder.

Brockmann, H. *et al., Tet. Lett.*, 1975, 831 (*isol*)

α$_2$-Rhodomycin-Roa$_2$ R-90

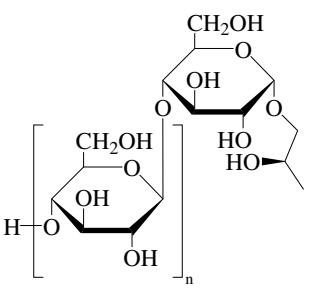


$C_{36}H_{48}N_2O_{12}$ 700.781

Anthracycline antibiotic. Isol. from *Streptomyces* sp. Active against gram-positive bacteria. Red powder.

Brockmann, H. *et al., Tet. Lett.*, 1969, 415 (*isol, struct*)

Rhynchosporosides R-91



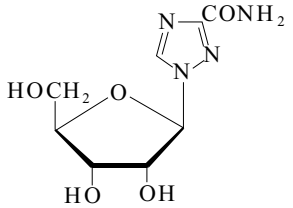
Polysaccharide antibiotics. A family of fungal toxins prod. by *Rhyncosporium*

secalis. Causal agent of scald disease in barley. Isol. and struct. elucidation of these compds. has not been fully completed.

Beier, R.C. *et al., Carbohydr. Res.*, 1983, **121**, 79 (*synth, struct*)
Nicolaou, K.C. *et al., J.A.C.S.*, 1985, **107**, 5556 (*synth, bibl*)

Ribavirin, INN, USAN R-92

*1-β-D-Ribofuranosyl-1*H*-1,2,4-triazole-3-carboxamide, 9CI.* ***Tribavirin, BAN.*** *Copegus. Rebetol. Ribamidil. Vilona. Viramid. Viratek. Virazid. Virazide. Virazole. VirustazCotronak*
[36791-04-5]



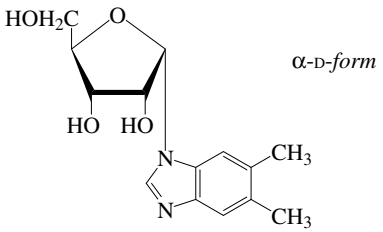
$C_8H_{12}N_4O_5$ 244.207
Antiviral agent. Usually administered as an aerosol. As Ribetron, in combination with Interferon Alfa 2b, used for the treatment of malignant melanoma, Kaposi's sarcoma, warts, hairy cell leukaemia, hepatits B and C and non-Hodgkin's lymphoma. Marketed drug. Approved for clinical use in the EU (1999). Approved by FDA (July 2003) for treatment of pediatric hepatitis CSol. H_2O. Mp 174-176°. $[\alpha]_D^{25}$ -36.5. Log P -3.58 (calc). Analogue of Tiazofurine, T-114.

▶ Possible human teratogen and other adverse effects by inhalation. LD_{50} (rat, orl) 2700 mg/kg. Exp. reprod. and teratogenic effects. XZ4250000

Kreishman, G.P. *et al., J.A.C.S.*, 1972, **94**, 5894 (*pmr, cmr*)
Sidwell, R.W. *et al., Science (Washington, D.C.)*, 1972, **177**, 705 (*pharmacol*)
Witkowski, J.T. *et al., J. Med. Chem.*, 1973, **16**, 935 (*synth, pharmacol*)
Prusiner, P. *et al., Nature (London), New Biol.*, 1973, **244**, 116 (*cryst struct*)
Ito, Y. *et al., Tet. Lett.*, 1979, 2521 (*synth*)
Chang, T.W. *et al., Drugs*, 1981, **22**, 111 (*rev, pharmacol*)
Canonica, P.G. *et al., Antibiotics (N.Y.)*, 1983, **6**, 161 (*rev*)
Canonica, P.G. *et al., Antiviral Res.*, 1985, 75 (*rev*)
Smith, R.A. *et al., Int. Congr. Symp. Ser. R. Soc. Med.*, 1986, **108**, 3
Johnson, E.M. *et al., J. Am. Coll. Toxicol.*, 1990, **9**, 551 (*tox, rev*)
Patterson, J.L. *et al., Rev. Infect. Dis.*, 1990, **6**, 1139 (*rev*)
Snell, N.J.C. *et al., Antiviral Chem. Chemother.*, 1991, **2**, 257 (*rev*)
Arnold, S.D. *et al., Appl. Occup. Environ. Hyg.*, 1991, **6**, 271 (*tox*)
Shults, R.A. *et al., J. Occup. Environ. Med.*, 1996, **38**, 257 (*tox*)
Harvie, P. *et al., J. Pharmacol. Exp. Ther.*, 1996, **279**, 1009 (*pharmacol*)
Omar, R.F. *et al., Toxicol. Appl. Pharmacol.*, 1997, **143**, 140 (*tox*)
Nishimura, N. *et al., Carbohydr. Res.*, 1998, **307**, 211-215 (*synth*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 626
Scott, L.J. *et al., Drugs*, 2002, **62**, 507-556 (*rev*)
Keating, G.M. *et al., Drugs*, 2003, **63**, 701-730 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RJA500

Ribazole R-93

5,6-Dimethyl-1-ribofuranosylbenzimidazole



α-D-*form*

$C_{14}H_{18}N_2O_4$ 278.307

α-D-*form* [132-13-8]
Obtained by degradn. of Vitamin B_{12}, V-26. Intermed. in biosynth. of Vitamin B_{12} V-26.
Mp 192-196°.

Picrate: [19887-69-5]
Mp 211°. $[\alpha]_D^{20}$ +13.5 (c, 3 in Py).

2,3,5-Tri-Ac: [16162-41-7]
$C_{20}H_{24}N_2O_7$ 404.419
$[\alpha]_D^{20}$ +50.7 (c, 2.1 in $CHCl_3$).

2,3,5-Tribenzoyl: [16205-58-6]
$C_{35}H_{30}N_2O_7$ 590.631
$[\alpha]_D^{20}$ -53.2 (c, 1.9 in $CHCl_3$).

*2,3-*O*-Isopropylidene:*
$C_{17}H_{22}N_2O_4$ 318.372
Mp 177-179°. $[\alpha]_D^{20}$ -82.3 (c, 0.91 in $CHCl_3$).

2,3,5-Tribenzyl:
$C_{35}H_{36}N_2O_4$ 548.68
$[\alpha]_D^{20}$ +56.7 (c, 2.1 in $CHCl_3$).

β-D-*form* [13082-84-3]
Cryst. (MeOH). Mp 202-203° (191-193°). $[\alpha]_D^{20}$ -51.9 (c, 2 in Py).

Picrate: Mp 192° (174-175°).

2,3,5-Tri-Ac: [30747-25-2]
$[\alpha]_D^{20}$ -41.4 (c, 2.2 in $CHCl_3$).

2,3,5-Tri-Ac, picrate: [16162-45-1]
Mp 173-175°. $[\alpha]_D^{20}$ -13.2 (c, 1.2 in $CHCl_3$).

2,3,5-Tribenzoyl: [16205-55-3]
Mp 136-137°. $[\alpha]_D^{20}$ -121 (c, 1 in $CHCl_3$).

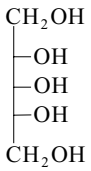
2,3,5-Tribenzoyl, picrate: [16205-56-4]
Mp 165-166°. $[\alpha]_D^{20}$ -85.8 (c, 2 in $CHCl_3$).

*2,3-*O*-Isopropylidene:* Mp 189-190°. $[\alpha]_D^{20}$ -29.8 (c, 1.3 in $CHCl_3$).

Brink, N.G. *et al., J.A.C.S.*, 1950, **72**, 1866
Weygand, F. *et al., Chem. Ber.*, 1952, **85**, 1001 (*β-D-form*)
Kaczka, E.A. *et al., J.A.C.S.*, 1952, **74**, 5549 (*α-D-form, isol*)
Revankar, G.R. *et al., J. Het. Chem.*, 1968, **5**, 615 (*β-D-form*)
Stevens, J.D. *et al., J.O.C.*, 1968, **33**, 1799; 1806 (*α-D-tri-Ac, β-D-tri-Ac*)
Renz, P. *et al., Methods Enzymol.*, (Colowick, S.P., Ed.), Academic Press, N.Y., 1971, **18**, 82; *CA*, **75**, 117118j (*synth*)
Blanche, F. *et al., Angew. Chem., Int. Ed.*, 1995, **34**, 383 (*rev*)

Ribitol, 9CI, 8CI R-94

Adonitol
[488-81-3]



$C_5H_{12}O_5$ 152.147
A *meso* compd. but chiral derivs. (e.g. isopropylidene derivs.) have been prepd. The abs. config. of these is given by the numbering scheme for the D-ribitol skeleton. Occurs free in the plants *Adonis vernalis* and *Bupleurum falcatum* and in bound form in bacterial cell wall teichoic acids and in Riboflavine, R-95. Cryst. (EtOH). Mp 102°.

▶ VJ0800000

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoylribitol*
$C_{26}H_{24}O_8$ 464.471
Cryst. (Et_2O/petrol). Mp 102°.

*2,3,4-Tribenzoyl, 1,5-ditrityl: 2,3,4-Tri-*O*-benzoyl-1,5-di-*O*-tritylribitol*
$C_{64}H_{52}O_8$ 949.11
Cryst. (EtOH). Mp 161°.

*2,3,4-Tribenzoyl, 1,5-ditosyl: 2,3,4-Tri-*O*-benzoyl-1,5-di-*O*-tosylribitol*
$C_{40}H_{36}O_{12}S_2$ 772.849
Mp 161-162°.

2,3,4-Tribenzoyl, 1,5-diphosphate:
$C_{26}H_{26}O_{14}P_2$ 624.43
Mp 166-168°.

Pentakis(4-hydroxybenzoyl): ***Buccinulin.*** *Kelletinin A*
[112727-22-7]
$C_{40}H_{32}O_{15}$ 752.684
Metab. of the marine mollusc *Buccinulum corneum*. HIV reverse transcriptase (HIV-rt) inhibitor. Exhibits antibacterial props.

*2,4-*O*-Methylene, 1,5-dibenzoyl: 1,5-Di-*O*-benzoyl-2,4-*O*-methyleneribitol*
[31569-33-2]
$C_{20}H_{20}O_7$ 372.374
Mp 164-166°.

*2,4-*O*-Methylene, 1,5-dibenzoyl, 3-mesyl: 1,5-Di-*O*-benzoyl-3-*O*-mesyl-2,4-*O*-methyleneribitol*
[31569-37-6]
$C_{21}H_{22}O_9S$ 450.465
Cryst. (EtOH). Mp 180-182°.

*1,2:3,5-Diisopropylidene: 1,2:3,5-Di-*O*-isopropylideneribitol*
$C_{11}H_{20}O_5$ 232.276
Mp 119-120° (as *p*-Nitrobenzoyl). Referred to as 1,3:4,5-diisopropylidene in the ref.

*1,2:4,5-Diisopropylidene: 1,2:4,5-Di-*O*-isopropylideneribitol*
$C_{11}H_{20}O_5$ 232.276
Syrup.

*1,2:4,5-Diisopropylidene, 3-benzoyl: 3-*O*-Benzoyl-1,2:4,5-di-*O*-isopropylideneribitol*
$C_{18}H_{24}O_6$ 336.384
Mp 69-71°.

*1,3:2,5-Diisopropylidene: 1,3:2,5-Di-*O*-isopropylideneribitol*
$C_{11}H_{20}O_5$ 232.276
Syrup. Mp 128-219° (as *p*-nitrobenzoyl).

*1,4:2,3-Diisopropylidene: 1,4:2,3-Di-*O*-isopropylideneribitol*
$C_{11}H_{20}O_5$ 232.276
Cryst. (petrol). Mp 105-107° (101-102°).

*2,3:4,5-Diisopropylidene: 2,3:4,5-Di-*O*-isopropylidene-D-ribitol*
$C_{11}H_{20}O_5$ 232.276
Syrup. $[\alpha]_D$ +24 (c, 1.8 in $CHCl_3$) (+7).

*2,3:4,5-Diisopropylidene, 1-benzoyl: 1-*O*-Benzoyl-2,3:4,5-di-*O*-isopropylidene-D-ribitol*
$C_{18}H_{24}O_6$ 336.384
Mp 82-83° (79-80°). $[\alpha]_D$ -33 (c, 1.3 in $CHCl_3$). DL-form also prepd.

2,3:4,5-Diisopropylidene, 1-tosyl:
$C_{18}H_{26}O_7S$ 386.465
Cryst. (2-propanol). Mp 91-92°.
Unstable at r.t.

*2,5:3,4-Di-*O*-isopropylidene: 2,5:3,4-Di-*O*-isopropylidene-D-ribitol*
$C_{11}H_{20}O_5$ 232.276
Cryst. (C_6H_6/petrol). Mp 94-100°. $[\alpha]_D$ -84 (c, 1.1 in $CHCl_3$).

*2,5:3,4-Diisopropylidene, 1-benzoyl: 1-*O*-Benzoyl-2,5:3,4-di-*O*-isopropylidene-D-ribitol*
$C_{18}H_{24}O_6$ 336.384
Syrup. $[\alpha]_D$ -70 (c, 1 in $CHCl_3$).

*2,4-*O*-Benzylidene: 2,4-*O*-Benzylideneribitol*
[20638-70-4]
$C_{12}H_{16}O_5$ 240.255
Needles ($CHCl_3$). Mp 133-135°. $[\alpha]_D^{27}$ 0 (c, 2 in EtOH).

*2,4-*O*-Benzylidene, 1,5-dibenzoyl: 1,5-Di-*O*-benzoyl-2,4-*O*-benzylideneribitol*
[31569-21-8]
$C_{26}H_{24}O_7$ 448.471
Cryst. (EtOH). Mp 137-138°.

*2,4-*O*-Benzylidene, 1,5-dibenzoyl, 3-mesyl: 1,5-Di-*O*-benzoyl-2,4-*O*-benzylidene-3-*O*-mesylribitol*
[31569-30-9]
$C_{27}H_{26}O_9S$ 526.563
Cryst. (EtOH). Mp 135-137°.

*2,3:4,5-Di-*O*-benzylidene: 2,3:4,5-Di-*O*-benzylideneribitol*
$C_{19}H_{20}O_5$ 328.364
Needles (petrol). Mp 174-175° (164-165°). $[\alpha]_D^{27}$ -35.7 (c, 4 in $CHCl_3$).

*2,3:4,5-Di-*O*-benzylidene, 1-Ac: 1-*O*-Acetyl-2,3:4,5-di-*O*-benzylideneribitol*
$C_{21}H_{22}O_6$ 370.401
Cryst. (EtOH). Mp 143-144°. $[\alpha]_D^{20}$ -57 (c, 1.1 in $CHCl_3$).

*2,3,4-Tribenzyl, 1,5-dityrityl: 2,3,4-Tri-*O*-benzyl-1,5-di-*O*-tritylribitol*
$C_{64}H_{58}O_5$ 907.159
Cryst. (Et_2O/petrol). Mp 106°.

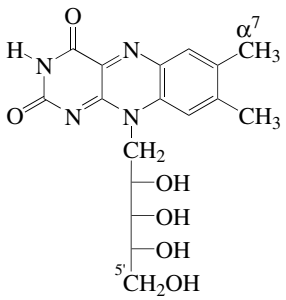
*3,4-Di-*O*-α-D-glucopyranoside:*
$C_{17}H_{32}O_{15}$ 476.431
Isol. from hydrolyate of *Lactobacillus arabinosaceous* techoic acid.
Mp 118-121°. $[\alpha]_D$ +137 (H_2O).

*1-*O*-β-D-Ribofuranoside: 1-*O*-β-D-Ribofuranosyl-D-ribitol*
$C_{10}H_{20}O_9$ 284.263
Constit. unit of *Haemophilus influenzae* type b antigen, as the phosphate. $[\alpha]_D^{22}$ -27 (c, 0.55 in H_2O) (as phosphate di-Na salt).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 185A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 288A (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 119 (*rev, derivs*)
Raphael, R.A. *et al., J.C.S.*, 1949, S44 (*synth, dibenzylidene*)
Archibald, A.R. *et al., Biochem. J.*, 1961, **81**, 124 (*diglucoside*)
Potgieter, D.J.J. *et al., J.O.C.*, 1961, **26**, 3934 (*benzylidene, dibenzylidene, dibenzylidene Ac, benzylidene dibenzoyl*)
Applegath, D.A. *et al., J.C.S.*, 1965, 1213 (*tribenzoyl, tribenzoyl ditrityl, tribenzoyl diphosphate, tribenzyl dityrityl*)
Kim, H.S. *et al., Acta Cryst. B*, 1969, **25**, 2223 (*cryst struct*)
Knoblich, J.M. *et al., J.O.C.*, 1971, **36**, 3407 (*benzylidene dibenzoyl mesyl, methylene dibenzoyl, methylene dibenzoyl mesyl*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1972, **23**, 121 (*pmr*)
Harness, J. *et al., J.C.S. Perkin 1*, 1972, 38 (*tribenzoyl dityrityl, tribenzoyl ditosyl*)
Brimacombe, J.S. *et al., The Carbohydrates*, 1972, **1A**, 479 (*rev*)
Colson, P. *et al., Can. J. Chem.*, 1975, **53**, 1030 (*cmr*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1980, **86**, 293 (*1-riboside phosphate*)
Minami, N. *et al., J.A.C.S.*, 1982, **104**, 1109 (*total synth*)
Holland, D. *et al., J.C.S. Perkin 1*, 1983, 1553 (*synth*)
Aslani-shotorbani, G. *et al., Carbohydr. Res.*, 1985, **136**, 37 (*isopropylidene derivs*)
Cimino, G. *et al., J. Nat. Prod.*, 1987, **50**, 1171 (*Buccinulin*)
Awal, A. *et al., Carbohydr. Res.*, 1990, **205**, 173 (*diisopropylidene derivs*)
Kopf, J. *et al., Carbohydr. Res.*, 1992, **233**, 35 (*cryst struct, penta-Ac*)
Rozenberg, M. *et al., Carbohydr. Res.*, 2000, **328**, 307-319 (*ir*)
Boto, A. *et al., J.O.C.*, 2003, **68**, 5310-5319 (*2,3:4,5-diisopropylidene, synth, pmr, cmr, ir*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RIF000

Riboflavine, 9CI, BAN, INN R-95

1-Deoxy-1-(3,4-dihydro-7,8-dimethyl-2,4-dioxobenzo[g]pteridin-10(2H)-yl)-D-ribitol, 9CI. Flavaxin. Lactoflavine. Ovoflavine. Vitamin B_2. Vitamin G. Russupteridine yellow III. E101. Many other names
[83-88-5]



$C_{17}H_{20}N_4O_6$ 376.368
Widely distributed, but occurs naturally in free form only in the retina, in whey and in urine. Main forms occurring in tissues and cells are flavine mononucleotide and flavine-adenine dinucleotide. Colour additive in food. Used as adsorption indicator in titrimetric detn. of Ag. Nutrient supplement. Vitamin cofactor. Orange needles. Sol. EtOH; spar. sol. H_2O. Mp 280° dec. $[\alpha]_D$ -9.8 (H_2O). $[\alpha]_D$ -125 (20*N* NaOH). pK_{a1} 1.9; pK_{a2} 10.2 (25°). Green fluor. in soln. λ_{max} 220; 265; 365; 455 (H_2O).

▶ LD_{50} (rat, ipr) 560 mg/kg. VJ1400000

5′-Phosphate: Riboflavine 5′-(dihydrogen phosphate), 9CI. Flavin mononucleotide. Lactoflavin phosphate. Monophosphoriboflavin. Riboflavin monophosphate. Vitamin B_2 phosphate. FMN. Bisulase
[146-17-8]
[130-40-5]
$C_{17}H_{20}N_4O_9P$ 455.34
The prosthetic group of various flavine enzymes. Enzyme co-factor, vitamin. Sodium salt used as dietary and nutrient supplement. Yellow cryst. + $2H_2O$. Tends to isomerise to isomeric phosphates.

▶ LD_{50} (mus, ivn) 365 mg/kg. VJ1350000

4′,5′-Cyclic phosphate: ***Riboflavine 4′,5′-cyclic phosphate***
[986-54-9]
$C_{17}H_{19}N_4O_8P$ 438.333
Isol. from the brown alga *Scytosiphon lomentaria*. Autofluorescent agent.

5′-Adenosine diphosphate: See Flavine adenine dinucleotide in *The Combined Chemical Dictionary.*

5′-α-D-Ribofuranoside: ***Lampteroflavin***
[114590-52-2]
$C_{22}H_{28}N_4O_{10}$ 508.484
Isol. from the toxic luminous mushroom *Lampteromyces japonicus*. Fluorescent. λ_{max} 265 (ε); 368 (ε); 445 (ε) (H_2O) (Derep).

2′,3′,4′,5′-Tetra-Ac: [752-13-6]
Mp 250-252°.

2′,3′,4′,5′-Tetrabutanoyl: Riboflavine 2′,3′,4′,5′-tetrabutanoate, 9CI. Riboflavine butyrate. Riboflavine tetrabutyrate. Vitamin B_2 tetrabutyrate. Many other names
[752-56-7]
$C_{33}H_{44}N_4O_{10}$ 656.731
Widely used food additive. Antiatherosclerotic and antihyperlipidaemic agent. Transparent red plates (MeOH). Mp 149° (142-146°).
► VJ1755000

2′,3′-Bis(3-pyridinecarbonyl), 4′(5′)-phosphate: Riboflavine 2′,3′-di-3-pyridinecarboxylate monodihydrogen phosphate (ester), 9CI. FMN-dinicotinate
[36119-03-6]
$C_{29}H_{27}N_6O_{11}P$ 666.54
Used in treatment of diabetic neuropathy.

2′,3′,4′,5′-Tetrakis(3-pyridinecarbonyl): Riboflavine 2′,3′,4′,5′-tetra-3-pyridinecarboxylate, 9CI. Riboflavine nicotinate. RN-4
[14984-66-8]
$C_{41}H_{32}N_8O_{10}$ 796.751
Antilipidaemic agent. Mp 154-155°.

*3*N*-Me, tetra-Ac:* [21066-33-1]
Mp 189-191°.

5′-Carboxylic acid: ***Schizoflavin 1****. Vitamin B_2 acid*
[59224-03-2]
$C_{17}H_{18}N_4O_7$ 390.352
Metab. of *Schizophyllum commune* and other basidiomycetes. Shows antialgal activity vs. *Chartonella antigua* in red tides. Yellow needles (EtOH).
Mp 250° dec.

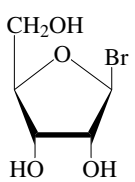
5′-Aldehyde: Vitamin B_2 aldehyde. ***Schizoflavin 2***
[59224-04-3]
$C_{17}H_{18}N_4O_6$ 374.352
Prod. by *Schizophyllum commune*.

α^7-Hydroxy: α^7-Hydroxyriboflavine, 9CI. ***Nekoflavin***
[86073-07-6]
$C_{17}H_{20}N_4O_7$ 392.368
Isol. from the choroids of cats eye. Fine yellow cryst. (EtOH).
Mp 196.5-198°.

[6184-17-4, 129569-92-2, 129569-93-3]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 895B (*ir*)
Viscontini, M. *et al., Helv. Chim. Acta*, 1952, **35**, 457 (*synth, phosphate*)
Forrest, H.S. *et al., J.C.S.*, 1952, 2530 (*synth, 4′,5′-cyclic phosphate*)
Kotaki, A. *et al., J. Vitaminol.*, 1968, **14**, 247 (*synth, tetranicotinate*)
Tanaka, N. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 1546 (*cryst struct*)
Paterson, T. *et al., Chem. Comm.*, 1969, 290 (*biosynth*)
Beach, R. *et al., Tet. Lett.*, 1969, 3489 (*synth*)
Mayhew, S.S. *et al., Biochim. Biophys. Acta*, 1971, **235**, 289-302 (*synth, uv, 1,5-dihydro 5′-phosphate*)
Kainosho, M. *et al., Biochemistry*, 1972, **11**, 741 (*P-31 nmr, phosphate*)
Bishop, E. *et al., Indicators*, Pergamon, Oxford, 1972, (*use*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 2610 (*occur*)
McCormick, D.A. *et al., J. Het. Chem.*, 1974, **11**, 969
Tachibana, S. *et al., J. Nutr. Sci. Vitaminol.*, 1975, **21**, 347; 1979, **25**, 361; 1980, **66**, 333 (*Schizoflavins*)
Yagi, K. *et al., Biochemistry*, 1976, **15**, 2877 (*N-15 nmr*)
Yoneda, F. *et al., J.A.C.S.*, 1976, **98**, 830 (*synth*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **24**, 108 (*rev, synth*)
Holmgren, A. *et al., Experientia*, 1980, **36**, 149 (*rev, FAD*)
Walt, D.R. *et al., J.A.C.S.*, 1980, **102**, 7805 (*synth, 5′-phosphate*)
Merrill, A.H. *et al., Methods Enzymol.*, 1980, **66**, 287 (*phosphate, synth*)
Tachibana, S. *et al., Methods Enzymol.*, 1980, **66**, 333 (*Schizoflavin 1*)
Van Schagen, C.G *et al., Eur. J. Biochem.*, 1981, **120**, 33-39 (*synth, cmr, 1,5-dihydro 5′-phosphate*)
Brown, G.M. *et al., Adv. Enzymol. Relat. Areas Mol. Biol.*, 1982, **53**, 345 (*rev, biosynth*)
Bacher, A. *et al., J.A.C.S.*, 1982, **104**, 3754 (*biosynth*)
Tachibana, S. *et al., Mol. Cell. Biochem.*, 1983, **51**, 149-160 (*Schizoflavins, isol, struct*)
Ulrich, E.L. *et al., Tet. Lett.*, 1983, **24**, 473 (*pmr*)
Keller, P.J. *et al., Tetrahedron*, 1983, **39**, 3471 (*biosynth*)
Moonem, C.T.W. *et al., Biochemistry*, 1984, **23**, 4859-4867 (*pmr, cmr, conformn, tetra-Ac, 5′-phosphate, 1,5-dihydro 5′-phosphate*)
Cooperman, J.M. *et al., Food Sci. Technol.*, 1984, **13**, 299 (*rev, metab, props*)
Nielsen, P. *et al., Methods Enzymol.*, 1986, **122**, 209 (*synth, phosphates*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 4425; 4473; 7551
Ebitani, M. *et al., Chem. Pharm. Bull.*, 1989, **37**, 2273 (*cryst struct, tetrabutyrate*)
Al-Shammary, F.J. *et al., Anal. Profiles Drug Subst.*, 1990, **19**, 429 (*rev*)
Isobe, M. *et al., Tet. Lett.*, 1990, **31**, 717 (*Lampteroflavin*)
Uyakul, D. *et al., Tetrahedron*, 1990, **46**, 1367 (*Lampteroflavin*)
Takahashi, H. *et al., Tetrahedron*, 1991, **47**, 6215 (*Lampteroflavin*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1054
Matsui, K. *et al., J. Biochem. (Tokyo)*, 1996, **119**, 441-447 (*Nekoflavin*)
Yamano, K. *et al., Z. Naturforsch., C*, 1996, **51**, 155 (*4′,5′-cyclic phosphate*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2431-2435 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RIF500; RIK000

Ribofuranosyl bromide R-96



β-D-*form*

$C_5H_9BrO_4$ 213.028

β-D-*form*

3,5-Dibenzoyl: 3,5-Di-O*-benzoyl-β-D-ribofuranosyl bromide*
$C_{19}H_{17}BrO_6$ 421.244
$[\alpha]_D$ +109 ($CHCl_3$).

3,5-Dibenzoyl, 2-Ac: 2-O*-Acetyl-3,5-di*-O*-benzoyl-β-D-ribofuranosyl bromide*
$C_{21}H_{19}BrO_7$ 463.281
$[\alpha]_D$ -52 ($CHCl_3$).

3,5-Dibenzoyl, 2-(4-nitrobenzoyl): $[\alpha]_D$ +8 ($CHCl_3$).

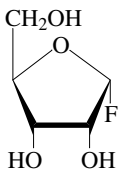
Tribenzoyl: 2,3,5-Tri-O*-benzoyl-β-D-ribofuranosyl bromide*
[16205-60-0]
[22860-91-9]
$C_{26}H_{21}BrO_7$ 525.352
$[\alpha]_D$ -11 ($CHCl_3$).

Tris(4-nitrobenzoyl): [59279-38-8]
Needles (CH_2Cl_2). Mp 100-105°. $[\alpha]_D^{20}$ +55.4 (c, 1.6 in $CHCl_3$).

2,3-O*-Isopropylidene, 5-(4-nitrobenzoyl):* [57274-19-8]
Cryst. (CH_2Cl_2/Et_2O/petrol). Mp 118.5-120.5°. $[\alpha]_D^{25}$ -67.5 (c, 1.5 in $CHCl_3$). λ_{max} 255 nm (ϵ 13 200) (Et_2O).

Gorin, P.A.J. *et al., Can. J. Chem.*, 1962, **40**, 275 (*β-D-dibenzoyl, β-D-dibenzoyl Ac, β-D-dibenzoyl nitrobenzoyl, β-D-tribenzoyl*)
El-Khadem, H.S. *et al., Carbohydr. Res.*, 1976, **47**, 233 (*β-D-trisnitrobenzoyl*)
De Bernado, S. *et al., J.O.C.*, 1976, **41**, 287 (*β-D-isopropylidene nitrobenzoyl*)

Ribofuranosyl fluoride R-97



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form*

Tribenzoyl: 2,3,5-Tri-O*-benzoyl-α-D-ribofuranosyl fluoride, 8CI*
[2924-33-6]
$C_{26}H_{21}FO_7$ 464.446
Syrup. $[\alpha]_D^{22}$ +44.8 (c, 1.1 in $CHCl_3$).

Tri-Me: 2,3,5-Tri-O*-methyl-α-D-ribofuranosyl fluoride*
[115130-27-3]
$C_8H_{15}FO_4$ 194.202
Syrup. $[\alpha]_D^{20}$ +49 (c, 1.35 in $CHCl_3$).

5-Benzyl, 2,3-di-Me: 5-O*-Benzyl-2,3-di*-O*-methyl-α-D-ribofuranosyl fluoride*
[115130-25-1]
$C_{14}H_{19}FO_4$ 270.3
Syrup. $[\alpha]_D^{28}$ +40.1 (c, 2.7 in $CHCl_3$).

2,3-Dibenzyl, 5-Me: 2,3-Di-O*-benzyl-5*-O*-methyl-α-D-ribofuranosyl fluoride*
[115130-29-5]
$C_{20}H_{23}FO_4$ 346.398
Syrup. $[\alpha]_D^{27}$ +39.5 (c, 1.33 in $CHCl_3$).

Tribenzyl: 2,3,5-Tri-O*-benzyl-α-D-ribofuranosyl fluoride*
$C_{26}H_{27}FO_4$ 422.495
Oil. $[\alpha]_D^{19}$ +32 (c, 1.1 in $CHCl_3$).

β-D-*form*

2,5-Dibenzoyl: 2,5-Di-O*-benzoyl-β-D-ribofuranosyl fluoride*
$C_{19}H_{17}FO_6$ 360.338
Cryst. (CH_2Cl_2/pentane). Mp 131-133°. $[\alpha]_D^{22}$ +50.5 (c, 0.2 in $CHCl_3$).

*2,5-Dibenzoyl, 3-Ac: 3-*O*-Acetyl-2,5-di-*O*-benzoyl-β-D-ribofuranosyl fluoride*
[22224-46-0]
$C_{21}H_{19}FO_7$ 402.375
Syrup. $[\alpha]_D^{22}$ +103 (c, 0.4 in $CHCl_3$).

*2,3-Dibenzoyl, 5-Ac: 5-*O*-Acetyl-2,3-di-*O*-benzoyl-β-D-ribofuranosyl fluoride*
[22224-44-8]
$C_{21}H_{19}FO_7$ 402.375
Syrup. $[\alpha]_D^{22}$ +93.6 (c, 0.5 in $CHCl_3$).

*3,5-Dibenzoyl: 3,5-Di-*O*-benzoyl-β-D-ribofuranosyl fluoride*
[10096-02-3]
$C_{19}H_{17}FO_6$ 360.338
Cryst. (Et_2O/pentane). Mp 102-105°. $[\alpha]_D^{22}$ +98 (c, 0.4 in $CHCl_3$).

*3,5-Dibenzoyl, 2-Ac: 2-*O*-Acetyl-3,5-di-*O*-benzoyl-β-D-ribofuranosyl fluoride*
[22224-45-9]
$C_{21}H_{19}FO_7$ 402.375
Syrup. $[\alpha]_D^{22}$ +52.7 (c, 0.9 in $CHCl_3$).

*Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-β-D-ribofuranosyl fluoride*
[2924-34-7]
$C_{26}H_{21}FO_7$ 464.446
Cryst. (Et_2O/pentane). Mp 81-83°. $[\alpha]_D^{22}$ +120.3 (c, 4.0 in $CHCl_3$).

*Tri-Me: 2,3,5-Tri-*O*-methyl-β-D-ribofuranosyl fluoride*
[115130-26-2]
$C_8H_{15}FO_4$ 194.202
Syrup. $[\alpha]_D^{20}$ +81 (c, 1.68 in $CHCl_3$).

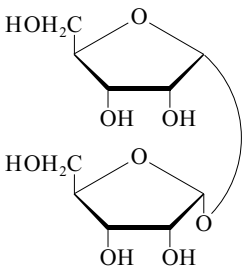
*5-Benzyl, 2,3-di-Me: 5-*O*-Benzyl-2,3-di-*O*-methyl-β-D-ribofuranosyl fluoride*
[115130-24-0]
$C_{14}H_{19}FO_4$ 270.3
Syrup. $[\alpha]_D^{27}$ +54.8 (c, 2.78 in $CHCl_3$).

*2,3-Dibenzyl, 5-Me: 2,3-Di-*O*-benzyl-5-*O*-methyl-β-D-ribofuranosyl fluoride*
[115130-28-4]
$C_{20}H_{23}FO_4$ 346.398
Cryst. (pentane). Mp 43.9-44°. $[\alpha]_D^{26}$ +67.9 (c, 2.01 in $CHCl_3$).

*Tribenzyl: 2,3,5-Tri-*O*-benzyl-β-D-ribofuranosyl fluoride*
$C_{26}H_{27}FO_4$ 422.495
Needles. Mp 45-45.5°. $[\alpha]_D^{21}$ +52 (c, 1.0 in $CHCl_3$).

Gregerson, N. *et al., Acta Chem. Scand.*, 1968, **22**, 1307 (*synth*)
Hall, L.D. *et al., Can. J. Chem.*, 1970, **48**, 1155 (*pmr, nmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 682; 1976, **30**, 727 (*synth, nmr, cmr*)
Mukaiyama, T. *et al., Chem. Lett.*, 1983, 935 (*tribenzyl, pmr, cmr*)
Hayashi, M. *et al., Chem. Lett.*, 1984, 1747 (*α/β-D-tribenzyl*)
Szarek, W.A. *et al., Chem. Lett.*, 1984, 1751 (*α/β-D-tribenzoyl*)
Araki, Y. *et al., Carbohydr. Res.*, 1987, **171**, 125 (*derivs, synth, pmr, F-19 nmr*)

α-D-Ribofuranosyl α-D-ribofuranoside R-98



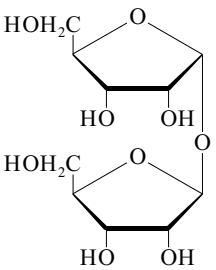
$C_{10}H_{18}O_9$ 282.247

Hexabenzyl: [91110-25-7]
$C_{52}H_{54}O_9$ 822.993
Syrup. $[\alpha]_D$ +147 (c, 1.0 in $CHCl_3$).

Araki, Y. *et al., Carbohydr. Res.*, 1984, **127**, C5 (*synth*)

β-D-Ribofuranosyl α-D-ribofuranoside, 9CI R-99

α-D-Ribofuranosyl β-D-ribofuranoside
[71508-22-0]

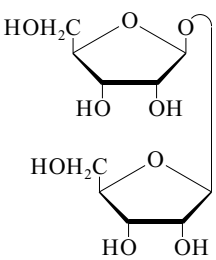


$C_{10}H_{18}O_9$ 282.247
Cryst. (2-propanol). Mp 180-182°. $[\alpha]_{Hg}^{20}$ +56.4 (c, 0.93 in H_2O).

*Di-*O*-isopropylidene:* [71508-14-0]
$C_{16}H_{26}O_9$ 362.376
Syrup. $[\alpha]_{Hg}^{20}$ -22.7 (c, 2.33 in $CHCl_3$).

Schmidt, R.R. *et al., Chem. Ber.*, 1979, **112**, 2659 (*synth, pmr*)
Giarcia Ruiz, P.A. *et al., An. Quim., Ser. C*, 1982, **78**, 420; *CA*, **98**, 161055k

β-D-Ribofuranosyl β-D-ribofuranoside, 9CI R-100



$C_{10}H_{18}O_9$ 282.247
Basic repeating unit of polyribophosphate, type-specific substance from *Haemophilus influenzae*. Cryst. (EtOH). Mp 158-160°. $[\alpha]_D^{22}$ -100 (c, 0.48 in H_2O).

*Hexa-Ac: 2,3,5-Tri-*O*-acetyl-β-D-ribofuranosyl 2,3,5-tri-*O*-acetyl-β-D-ribofuranoside, 9CI*
[128420-79-1]
$C_{22}H_{30}O_{15}$ 534.47
Long needles (EtOH). Mp 107°. $[\alpha]_D^{26}$ -49.5 (c, 0.54 in $CHCl_3$).

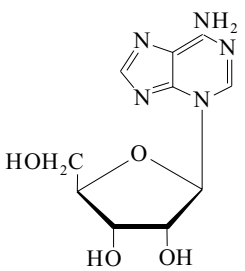
*Hexabenzoyl: 2,3,5-Tri-*O*-benzoyl-β-D-ribofuranosyl 2,3,5-tri-*O*-benzoyl-β-D-ribofuranoside, 9CI*
[62374-52-1]
$C_{52}H_{42}O_{15}$ 906.895
Cryst. (EtOH). Mp 143-145° (softens > 130°). $[\alpha]_D^{25}$ +34.1 (c, 0.5 in $CHCl_3$).

*Hexabenzyl: 2,3,5-Tri-*O*-benzyl-β-D-ribofuranosyl 2,3,5-tri-*O*-benzyl-β-D-ribofuranoside, 9CI*
[91110-23-5]
$C_{52}H_{54}O_9$ 822.993
$[\alpha]_D$ +25 (c, 1.0 in $CHCl_3$).

Rosenberg, E. *et al., J. Biol. Chem.*, 1961, **236**, 2845; 1962, **237**, 1040 (*isol, synth, hexabenzoyl*)
Zderic, J.A. *et al., Experientia*, 1964, **20**, 48 (*synth, hexabenzoyl*)
Araki, Y. *et al., Carbohydr. Res.*, 1984, **127**, C5 (*hexabenzyl*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1990, **199**, 116; **207**, 138 (*synth, hexa-Ac, hexabenzoyl*)

3-Ribofuranosyladenine, 8CI R-101

*3-Ribofuranosyl-3*H*-purin-6-amine, 9CI. 3-Isoadenosine*



$C_{10}H_{13}N_5O_4$ 267.244

β-D-*form* [2273-78-1]
Mp 210-211° dec. $[\alpha]_D^{25}$ -29.4 (c, 0.5 in 0.05N HCl). pK_a 5 (H_2O). λ_{max} 277 (ε 10 900) (H_2O), 274 nm (13 900) (0.1N HCl).

2′,3′,5′-Tri-Ac:
$C_{16}H_{19}N_5O_7$ 393.355
Mp 224-225°. $[\alpha]_D^{26}$ -11 (c, 0.54 in DMF). pK_a 5.6 (H_2O).

2′,3′,5′-Tribenzoyl:
$C_{31}H_{25}N_5O_7$ 579.568
Mp 246-247° dec. $[\alpha]_D^{26}$ -69 (c, 0.89 in DMF).

*2′,3′-*O*-Isopropylidene:*
$C_{13}H_{17}N_5O_4$ 307.308
Mp 250-251°.

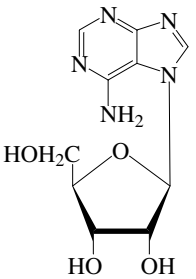
5′-Diphenyl phosphate, 2′,3′-dibenzoyl:
[2864-26-8]
$C_{36}H_{30}N_5O_9P$ 707.635
Yellow cryst. Mp 158-160°. $[\alpha]_D^{26}$ -52 (c, 0.51 in $CHCl_3$).

Leonard, N.J. *et al., J.A.C.S.*, 1963, **85**, 2027 (*synth*)
Leonard, N.J. *et al., Biochemistry*, 1965, **4**, 354; 365 (*β-D-form, synth*)

Asai, M. *et al., Agric. Biol. Chem.*, 1967, **31**, 319
Miyaki, M. *et al., Chem. Pharm. Bull.*, 1970, **18**, 1446 (*pmr*)
Schmidt, C.L. *et al., J.O.C.*, 1972, **37**, 2300 (*synth*)
Tindall, C.G. *et al., J.O.C.*, 1972, **37**, 3985 (*synth, pmr*)

7-Ribofuranosyladenine R-102

*7-Ribofuranosyl-7*H*-purin-6-amine, 9CI*



β-D-*form*

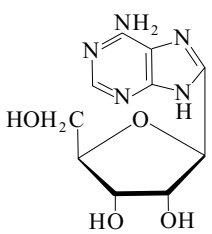
$C_{10}H_{13}N_5O_4$ 267.244

α-D-*form* [4710-71-8]
Residue present in Pseudovitamin B_{12}. Mp 220-227°. $[\alpha]_D^{25}$ 0 (c, 0.4 in H_2O).

β-D-*form* [485-08-5]
Nucleoside from Pseudovitamin B_{12}. Mp 246°. $[\alpha]_D^{25}$ -84.9 (c, 0.4 in H_2O).
Montgomery, J.A. *et al., J.A.C.S.*, 1965, **87**, 5442 (*synth, pmr*)
Rousseau, R.J. *et al., J.O.C.*, 1968, **33**, 2828 (*β-D-form, synth*)
Friedmann, H.C. *et al., J.O.C.*, *CA*, 1971, **75**, 136927p (*synth*)
Chenon, M.T. *et al., J.A.C.S.*, 1975, **97**, 4627 (*cmr*)

8-Ribofuranosyladenine, 8CI R-103

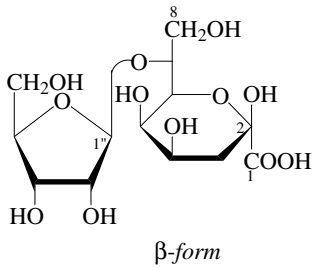
*8-Ribofuranosyl-1*H*-purin-6-amine, 9CI*



$C_{10}H_{13}N_5O_4$ 267.244

β-D-*form* [23316-74-7]
Cryst. (H_2O). Mp 260°. $[\alpha]_D^{25}$ -70.1 (c, 0.3 in H_2O).
Bobek, M. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 247 (*synth*)
Igolen, J. *et al., Eur. J. Med. Chem. (Chim. Ther.)*, 1972, **7**, 207; *CA*, **77**, 114766z (*β-D-tribenzoyl*)
Lefebvre-Soubeyran, O. *et al., C. R. Hebd. Seances Acad. Sci.*, 1975, **281**, 655 (*conformn, struct*)

β-D-Ribofuranosyl-(1→7)-3-deoxy-D-*manno*-2-octulopyranosonic acid, 9CI R-104

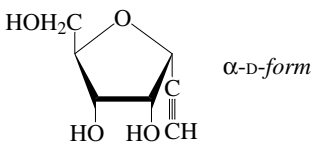


β-*form*

$C_{13}H_{22}O_{12}$ 370.31

β-*form*
Me glycoside: [93215-11-3]
$C_{14}H_{24}O_{12}$ 384.336
Glass + H_2O (as Na salt). $[\alpha]_D^{20}$ -22.6 (c, 1.1 in H_2O). CAS no. refers to Na salt.
Me glycoside, Me ester: [93215-10-2]
$C_{15}H_{26}O_{12}$ 398.363
Syrup + 1.5H_2O. $[\alpha]_D^{20}$ -3.5 (c, 0.87 in MeOH).
[93215-09-9, 94528-58-2]
Kosma, P. *et al., Carbohydr. Res.*, 1984, **132**, 261 (*β-Me gly, β-Me gly Me ester, pmr*)
Neszmelyi, A. *et al., Carbohydr. Res.*, 1985, **139**, 13 (*cmr*)

Ribofuranosylethyne R-105



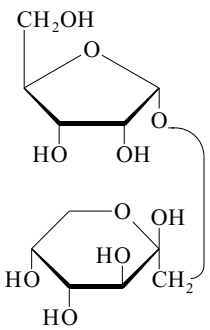
α-D-*form*

$C_7H_{10}O_4$ 158.154

α-D-*form*
*3,6-Anhydro-1,2-dideoxy-D-*altro*-hept-1-ynitol*
Cryst. (EtOAc). Mp 102-103°. $[\alpha]_D^{24}$ +9.8 (c, 2.04 in MeOH).
*Tri-Ac: 4,5,7-Tri-*O*-acetyl-3,6-anhydro-1,2-dideoxy-D-*altro*-hept-1-ynitol*
$C_{13}H_{16}O_7$ 284.265
Syrup. $[\alpha]_D^{24}$ +109.4 (c, 1.06 in $CHCl_3$).
*2,3-*O*-Isopropylidene: 3,6-Anhydro-1,2-dideoxy-4,5-*O*-isopropylidene-D-*altro*-hept-1-ynitol*
$C_{10}H_{14}O_4$ 198.218
Mp 40-41°. $[\alpha]_D^{22}$ -48.3 (c, 1.1 in $CHCl_3$).
*2,3-*O*-Isopropylidene, 5-trityl: 3,6-Anhydro-1,2-dideoxy-4,5-*O*-isopropylidene-7-*O*-trityl-D-*altro*-hept-1-ynitol*
$C_{29}H_{28}O_4$ 440.538
Foam. $[\alpha]_D^{22}$ -23.8 (c, 0.4 in $CHCl_3$).
*Tribenzyl: 3,6-Anhydro-4,5,7-tri-*O*-benzyl-1,2-dideoxy-D-*altro*-hept-1-ynitol*
$C_{28}H_{28}O_4$ 428.527
Cryst. (EtOH aq.). Mp 52-53°.

β-D-*form* *3,6-Anhydro-1,2-dideoxy-D-*allo*-hept-1-ynitol*
Mp 63-64°. $[\alpha]_D^{23}$ -18.2 (c, 0.71 in MeOH).
*2,3-*O*-Isopropylidene: 3,6-Anhydro-1,2-dideoxy-4,5-*O*-isopropylidene-D-*allo*-hept-1-ynitol*
$C_{10}H_{14}O_4$ 198.218
$[\alpha]_D^{22}$ -21.2 (c, 0.94 in $CHCl_3$).
*Tribenzyl: 3,6-Anhydro-4,5,7-tri-*O*-benzyl-1,2-dideoxy-D-*allo*-hept-1-ynitol*
$C_{28}H_{28}O_4$ 428.527
Cryst. (EtOH). Mp 63-64°. $[\alpha]_D$ +9.7 (c, 4.9 in $CHCl_3$).
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1974, 1943; 1975, 1191 (*α-D-form, α-D-isopropylidene, α-D-isopropylidene trityl, α-D-tribenzyl, β-D-form, derivs*)
Buchanan, J.G. *et al., Carbohydr. Res.*, 1975, **45**, 312 (*α-D-form, α-D-tri-Ac, β-D-isopropylidene*)
Buchanan, J.G. *et al., Carbohydr. Res.*, 1985, **136**, 37 (*synth*)

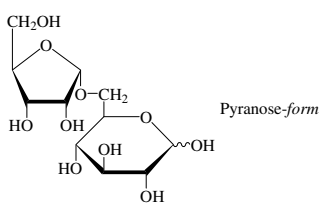
1-*O*-α-D-Ribofuranosyl-D-fructose R-106



$C_{11}H_{20}O_{10}$ 312.273

β-Pyranose-*form*
*2,3:4,5-Di-*O*-isopropylidene, tribenzyl:* [88999-60-4]
$C_{38}H_{46}O_{10}$ 662.775
$[\alpha]_D$ +37.7 (c, 2.5 in $CHCl_3$).
Dourtoglou, V. *et al., J. Carbohydr. Chem.*, 1983, **2**, 57

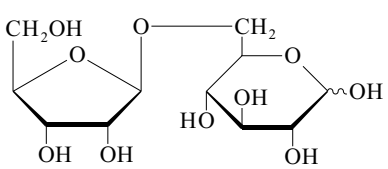
6-*O*-α-D-Ribofuranosyl-D-glucose R-107



Pyranose-*form*

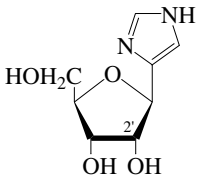
$C_{11}H_{20}O_{10}$ 312.273
Reducing disaccharide. $[\alpha]_D$ +77 (H_2O).
Gorin, P.A.J. *et al., Can. J. Chem.*, 1962, **40**, 275

6-*O*-β-D-Ribofuranosyl-D-glucose R-108



$C_{11}H_{20}O_{10}$ 312.273
Reducing disaccharide. $[\alpha]_D$ 0 (H_2O).
Gorin, P.A.J. *et al., Can. J. Chem.*, 1962, **40**, 275

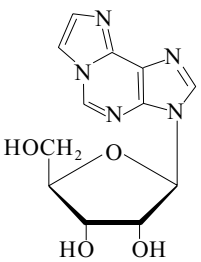
4(5)-Ribofuranosyl-1*H*-imidazole R-109



$C_8H_{12}N_2O_4$ 200.194

β-D-*form*
Amorph. solid. $[\alpha]_D^{20}$ -30.2 (c, 1.67 in MeOH).
2′-Deoxy: 4(5)-(2-Deoxyribofuranosyl)-1H-imidazole
[138806-27-6]
$C_8H_{12}N_2O_3$ 184.194
Prisms (MeOH/$CHCl_3$). Mp 164-166°. $[\alpha]_D^{20}$ +24 (c, 1.0 in MeOH).
Bergstrom, D.E. *et al., J.C.S. Perkin 1*, 1994, 3029 (*2′-deoxy*)
Harusawa, S. *et al., J.O.C.*, 1996, **61**, 4405 (*synth, ir, pmr, cmr*)

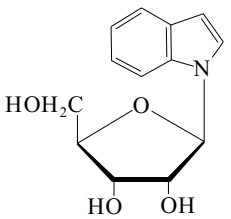
3-Ribofuranosylimidazo[2,1-*i*]purine R-110



$C_{12}H_{13}N_5O_4$ 291.266

β-D-*form*
1,N^6-Ethenoadenosine. ϵ-Adenosine
[39007-51-7]
Readily prepd. from Adenosine and chloroacetaldehyde. Fluorescent biol. probe.
Numerous analogues have been synthesised, some showing antitumour props.
3′-Phosphate: 3′-ϵAMP
$C_{12}H_{14}N_5O_7P$ 371.246
Monohydrate. Mp 190-192° dec.
5′-Phosphate: 5′-ϵAMP
$C_{12}H_{14}N_5O_7P$ 371.246
Monohydrate. Mp 190-192° dec.
5′-Diphosphate: ϵADP
[38806-39-2]
$C_{12}H_{15}N_5O_{10}P_2$ 451.225
Fluorescent analogue of ADP with high affinity for ATPase and ADP binding sites. Monohydrate (as Na salt). Mp 202-204° dec.
5′-Triphosphate: ϵATP. Etheno-ATP
[37482-17-0]
$C_{12}H_{16}N_5O_{13}P_3$ 531.205
Dihydrate (as Di-Na salt). Mp 192-194° dec. pK_{a1} 4.3; pK_{a2} 6.7.
Barrio, J.R. *et al., Biochem. Biophys. Res. Commun.*, 1972, **46**, 597-604 (*use*)
Secrist, J.A. *et al., Biochemistry*, 1972, **11**, 3499-3506 (*synth, triphosphate, use*)
Hilborn, D.A. *et al., Biochemistry*, 1973, **12**, 983-990 (*biochem*)
Roberts, R.E. *et al., Bioorg. Chem.*, 1975, **4**, 181-187 (*purifn, pmr, biochem, phosphate*)
Bhat, G.A. *et al., J.C.S. Perkin 1*, 1981, 2387 (*bibl*)
Jaskólski, M. *et al., Acta Cryst. B*, 1982, **38**, 3171 (*cryst struct*)
Schubert, B. *et al., Anal. Biochem.*, 1995, **226**, 288-292 (*synth, triphosphate*)

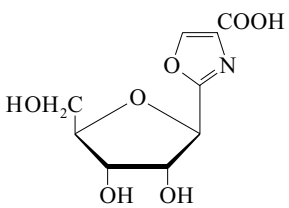
1-Ribofuranosylindole, 8CI R-111



$C_{13}H_{15}NO_4$ 249.266

β-D-*form* [15040-74-1]
Cryst. (H_2O). Mp 143-145°. $[\alpha]_D$ -94 (c, 1.0 in H_2O). λ_{max} 287.5 (ϵ 3 300), 276 (5 300), 264 (6 400), 218 nm (32 700) (H_2O).
2′,3′,5′-Tribenzoyl:
$C_{34}H_{27}NO_7$ 561.59
Glass. $[\alpha]_D$ -57 (c, 1.0 in $CHCl_3$). λ_{max} 289 (ϵ 3 800), 266 (9 800), 222.5 nm (55 800) (EtOH).
5′-Trityl, 2′,3′-di-Ac:
$C_{36}H_{33}NO_6$ 575.66
$[\alpha]_D^{20}$ +18.4 (c, 1.5 in $CHCl_3$).
Preobrazhenskaya, M.N. *et al., Tetrahedron*, 1967, **23**, 4653 (*β-D-form, synth*)
Walton, E. *et al., J.O.C.*, 1968, **33**, 192 (*synth, pmr*)
Preobrazhenskaya, M.N. *et al., CA*, 1970, **73**, 45779j (*rev*)

2-β-D-Ribofuranosyl-4-oxazolecarboxylic acid, 9CI R-112



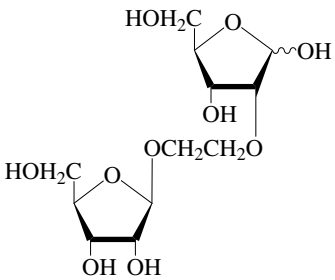
$C_9H_{11}NO_7$ 245.188
Shows antineoplastic activity. Needles. Mp 132-134°. Log P -3.39 (calc). Less potent analogue of antineoplastic agent Tiazofurine, T-114.

Me ester: [129149-88-8]
$C_{10}H_{13}NO_7$ 259.215
Needles. Mp 114-115°.

Amide: 2-(β-D-Ribofuranosyl)-4-oxazolecarboxamide, 9CI. Oxazofurin
[129149-89-9]
$C_9H_{12}N_2O_6$ 244.204
Oxygen analogue of tiazofurin and Selenazofurin, S-25.
Franchetti, P. *et al., J. Med. Chem.*, 1990, **33**, 2849 (*synth, uv, pmr*)
Goldstein, B.M. *et al., J. Med. Chem.*, 1994, **37**, 1684 (*amide, cryst struct*)

2-*O*-[2-(β-D-Ribofuranosyloxy)ethyl] β-D-ribofuranoside, 9CI R-113

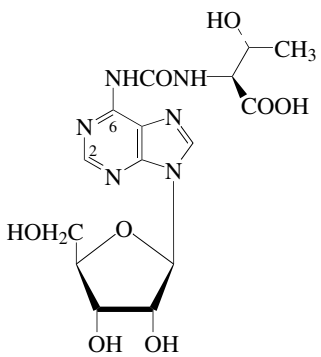
Ethylene glycol 1,1′:2,2″-diribofuranoside
[244136-64-9]



$C_{12}H_{22}O_{10}$ 326.3
Constit. of *Polianthes tuberosa*.
$[\alpha]_D^{26}$ +14.3 (c, 0.6 in MeOH).
Firdous, S. *et al., Fitoterapia*, 1999, **70**, 203-204

N-[[(9-β-D-Ribofuranosyl-9*H*-purin-6-yl)amino]carbonyl]threonine, 9CI R-114

N-[(9-β-D-Ribofuranosylpurin-6-yl)carbamoyl]threonine. N^6-(N-Threonylcarbonyl)adenosine. t^{6}A
[24719-82-2]



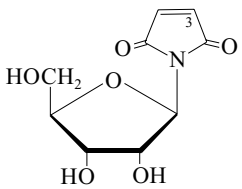
$C_{15}H_{20}N_6O_8$ 412.358
Modified nucleoside present in tRNAs.
Cryst. (MeCN).
Mp 204-207°.

N^6-Me: [[(9-β-D-Ribofuranosylpurin-6-yl)methyl]carbamoyl]threonine. N^6-Methyl-N^6-(N-threonylcarbonyl)-adenosine. mt^{6}A
[39667-81-7]
$C_{16}H_{22}N_6O_8$ 426.385
Modified nucleoside present in tRNAs.
Cryst. + 2H_2O (EtOH).
Mp 159-160°. $[\alpha]_D^{23}$ -5.3 (c, 0.5 in H_2O).

2-(Methylthio): N-*[(2-Methylthio-9-β-D-ribofuranosylpurin-6-yl)carbamoyl]-threonine. ms^{2}t^{6}A*
[70333-82-3]
$C_{16}H_{22}N_6O_8S$ 458.451
Modified nucleoside present in tRNAs.
Hong, C.I. *et al., J. Med. Chem.*, 1971, **14**, 748; 1973, **16**, 139 (*synth, uv, ir, pmr*)
Dutta, S.P. *et al., Biochemistry*, 1975, **14**, 3144 (*synth, Me deriv*)
Kasai, H. *et al., Eur. J. Biochem.*, 1976, **69**, 435 (*uv, pmr, ms*)
Parthasarathy, R. *et al., Biochemistry*, 1977, **16**, 4999 (*cryst struct*)
Yamaizumi, Z. *et al., J.A.C.S.*, 1979, **101**, 2224 (*isol, methylthio deriv*)
Vold, B.S. *et al., J. Bacteriol.*, 1981, **148**, 869 (*isol*)

1-Ribofuranosyl-1*H*-pyrrole-2,5-dione R-115

N-*Ribofuranosylmaleimide*



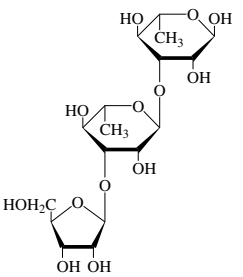
$C_9H_{11}NO_6$ 229.189

β-D-*form*
Synthetic nucleoside antibiotic. Less active analogue of Showdomycin.
Cryst. (MeOH/EtOAc). Mp 75-85°. $[\alpha]_D^{25}$ -32 (c, 0.11 in H_2O).

3-Chloro: [77405-91-5]
$C_9H_{10}ClNO_6$ 263.634
Shows *in vitro* antineoplastic activity.
Amorph. $[\alpha]_D^{25}$ -28 (c, 0.11 in H_2O).

3-Methyl: [77405-90-4]
$C_{10}H_{13}NO_6$ 243.216
Shows *in vitro* antineoplastic activity. Oil. $[\alpha]_D^{25}$ -26 (c, 0.11 in H_2O).
Numao, N. *et al., J. Med. Chem.*, 1981, **24**, 515 (*synth*)

β-D-Ribofuranosyl-(1→3)-α-L-rhamnopyranosyl-(1→3)-L-rhamnose R-116

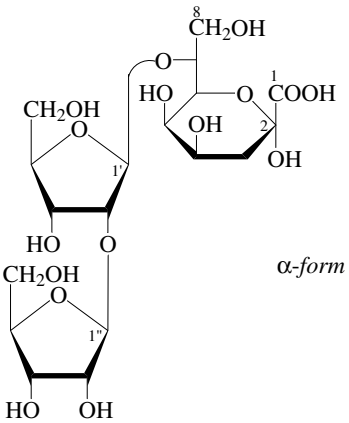


α-Pyranose-*form*

$C_{17}H_{30}O_{13}$ 442.416
Repeating trisaccharide unit of the *O*-specific polysaccharide of *Citrobacter freundii* 028, Ic.
Mp 135-137°. $[\alpha]_D^{21}$ -59 (c, 0.6 in MeOH).
Mixture of α- and β-pyranose anomers.

α-Pyranose-*form*
Me glycoside:
$C_{18}H_{32}O_{13}$ 456.443
Mp 125-127°. $[\alpha]_D^{22}$ -96 (c, 0.4 in MeOH).
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 2001, **74**, 1679-1694 (*synth, pmr, cmr, α-Me pyr*)

β-D-Ribofuranosyl-(1→2)-β-D-ribofuranosyl-(1→7)-3-deoxy-D-*manno*-2-octulopyranosonic acid, 9CI R-117



α-*form*

$C_{18}H_{30}O_{16}$ 502.425

α-*form*
Me glycoside: [93215-28-2]
$C_{19}H_{32}O_{16}$ 516.452
Glass (as Na salt). $[\alpha]_D^{20}$ -10.4 (c, 0.52 in H_2O). CAS no. refers to Na salt.

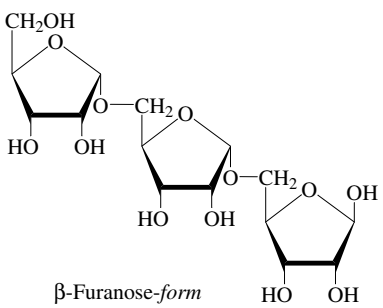
β-*form*
Me glycoside: [93215-21-5]
Glass (as Na salt). $[\alpha]_D^{20}$ -16.5 (c, 0.4 in H_2O). CAS no. refers to Na salt.

[93215-20-4, 93215-27-1]

Kosma, P. *et al., Carbohydr. Res.*, 1984, **132**, 261 (*α-Me gly, β-Me gly, pmr*)

α-D-Ribofuranosyl-(1→5)-α-D-ribofuranosyl-(1→5)-D-ribose, 9CI R-118

[71508-20-8]



β-Furanose-*form*

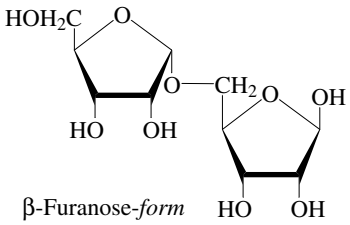
$C_{15}H_{26}O_{13}$ 414.363
Hygroscopic syrup. $[\alpha]_{Hg}^{20}$ +122.6 (c, 1.34 in MeOH).

β-Furanose-*form*
*2,3;2′,3′;2″,3″-Tri-*O-*isopropylidene:*
[71508-16-2]
$C_{24}H_{38}O_{13}$ 534.556
Cryst. (petrol). Mp 111-112°. $[\alpha]_{Hg}^{20}$ +29.5 (c, 0.77 in $CHCl_3$).

*Me glycoside, 2,3;2′,3′;2″,3″-tri-*O-*isopropylidene:* [60949-71-5]
$C_{25}H_{40}O_{13}$ 548.583
Mp 106°. $[\alpha]_{Hg}^{20}$ +20.8 (c, 0.26 in $CHCl_3$).

*Benzyl glycoside, 2,3;2′,3′;2″,3″-tri-*O-*isopropylidene:* [71508-11-7]
$C_{31}H_{44}O_{13}$ 624.681
$[\alpha]_{Hg}^{20}$ -4 (c, 1.93 in $CHCl_3$).
Schmidt, R.R. *et al., Chem. Ber.*, 1979, **112**, 2659 (*synth, β-triisopropylidene, β-Me fur deriv, β-benzyl fur deriv, pmr*)

5-*O*-α-D-Ribofuranosyl-D-ribose R-119



β-Furanose-*form*

$C_{10}H_{18}O_9$ 282.247
Oil. $[\alpha]_{Hg}^{20}$ +64.8 (c, 1.16 in MeOH).

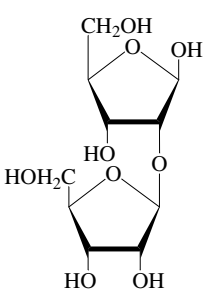
β-Furanose-*form*
*2,3:2′,3′-Di-*O-*isopropylidene: 2,3-*O-*Isopropylidene-5-*O-*(2,3-*O-*isopropylidene-α-D-ribofuranosyl)-β-D-ribofuranose*
[71508-15-1]
$C_{16}H_{26}O_9$ 362.376
$[\alpha]_{Hg}^{20}$ +18.8 (c, 0.79 in $CHCl_3$).

*Me glycoside, 2,3-*O-*isopropylidene: Methyl 2,3-*O-*isopropylidene-5-*O-*α-D-ribofuranosyl-β-D-ribofuranoside*
[71508-18-4]
$C_{14}H_{24}O_9$ 336.338
$[\alpha]_{Hg}^{20}$ +11.4 (c, 1.19 in $CHCl_3$).

*Me glycoside, 2,3:2′,3′-di-*O-*isopropylidene: Methyl 2,3-*O-*isopropylidene-5-*O-*(2,3-*O-*isopropylidene-α-D-ribofuranosyl)-β-D-ribofuranoside*
[70209-78-8]
$C_{17}H_{28}O_9$ 376.403
$[\alpha]_D^{20}$ -1.7 (c, 1.0 in $CHCl_3$).
Schmidt, R.R. *et al., Angew. Chem., Int. Ed.*, 1979, **18**, 466 (*synth, pmr, glycoside*)
Schmidt, R.R. *et al., Chem. Ber.*, 1979, **112**, 2659 (*synth*)

2-*O*-β-D-Ribofuranosyl-D-ribose, 9CI R-120

[85277-34-5]



β-Furanose-*form*

$C_{10}H_{18}O_9$ 282.247

β-Furanose-*form*

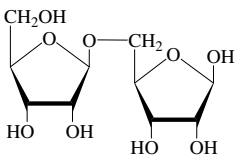
2′,3′,5,5′-Tetrabenzoyl, 1,3-di-Ac: 1,3-Di-O-acetyl-5-O-benzoyl-2-O-(2,3,5-tri-O-benzoyl-β-D-ribofuranosyl)-β-D-ribofuranose, 9CI
$C_{42}H_{38}O_{15}$ 782.753
Cryst. (EtOAc/pentane). Mp 75-78°. $[\alpha]_D^{20}$ +38 (c, 0.39 in $CHCl_3$).

Benzyl glycoside, 3-benzyl, 2′,3′,5,5′-tetrabenzoyl: Benzyl 5-O-benzoyl-3-O-benzyl-2-O-(2,3,5-tri-O-benzoyl-β-D-ribofuranosyl)-β-D-ribofuranoside
[93215-14-6]
$C_{52}H_{46}O_{13}$ 878.928
Syrup. $[\alpha]_D^{20}$ +8.6 (c, 0.37 in $CHCl_3$).

Me glycoside: Methyl 2-O-β-D-ribofuranosyl-β-D-ribofuranoside, 9CI
[93245-43-3]
$C_{11}H_{20}O_9$ 296.274
Syrup. $[\alpha]_D^{20}$ -59 (c, 0.85 in H_2O).

Kosma, P. *et al., Carbohydr. Res.*, 1984, **132**, 261; 1985, **141**, 239 (*synth, pmr*)

5-*O*-β-D-Ribofuranosyl-D-ribose R-121



β-Furanose-*form*

$C_{10}H_{18}O_9$ 282.247

β-Furanose-*form*

Me glycoside, 2,3:2′,3′-Di-O-isopropylidene: Methyl 2,3-O-isopropylidene-5-O-(2,3-O-isopropylidene-β-D-ribofuranosyl)-β-D-ribofuranoside, 9CI
[70209-72-2]
$C_{17}H_{28}O_9$ 376.403
Oil. $[\alpha]_D^{20}$ -72.1 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2,3:2′,3′-Di-O-isopropylidene: Benzyl 2,3-O-isopropylidene-5-O-(2,3-O-isopropylidene-β-D-ribofuranosyl)-β-D-ribofuranoside, 9CI
[70209-73-3]
$C_{23}H_{32}O_9$ 452.5
Oil. $[\alpha]_D^{20}$ -83.4 (c, 1.0 in $CHCl_3$).

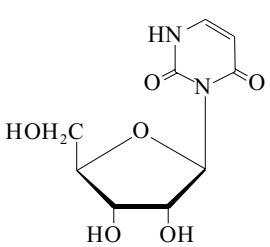
[20881-14-5]

Stoddart, J.F. *et al., Can. J. Chem.*, 1968, **46**, 3061

Schmidt, R.R. *et al., Angew. Chem., Int. Ed.*, 1979, **18**, 466 (*synth, pmr, glycosides*)

3-Ribofuranosyluracil, 8CI R-122

3-Ribofuranosyl-2,4(1H,3H)-pyrimidinedione, 9CI. Isouridine



$C_9H_{12}N_2O_6$ 244.204

β-D-*form* [6745-33-1]
Mp 200-202°. $[\alpha]_D^{37}$ -38.7 (c, 1.0 in H_2O). λ_{max} 262 (ε 7 700) (pH 1), 292 nm (10 600) (pH 11).

2′,3′,5′-Tri-Ac: [29031-50-3]
$C_{15}H_{18}N_2O_9$ 370.315
Cryst. (EtOAc/Et_2O/heptane). Mp 132-134°.

2′,3′,5′-Tribenzoyl: [29706-92-1]
$C_{30}H_{24}N_2O_9$ 556.528
$[\alpha]_D^{23}$ +24 ($CHCl_3$).

2′-Deoxy: 3-(2′-Deoxy-β-D-ribofuranosyl)uracil
$C_9H_{12}N_2O_5$ 228.204
Cryst. (2-propanol). Mp 82-90° (2-propanolate) Mp 169-170°. $[\alpha]_D$ +105.3 (c, 1.0 in H_2O).

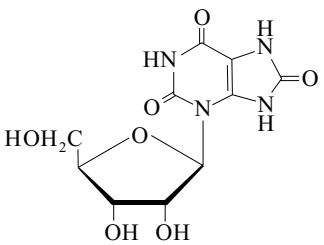
Pichat, L. *et al., Bull. Soc. Chim. Fr.*, 1970, 1833 (*β-D-form*)

Winkley, M.W. *et al., J.C.S.(C)*, 1970, 1365 (*β-D-tri-Ac 2-deoxy*)

Polazzi, J.O. *et al., J.O.C.*, 1974, **39**, 3114 (*synth, pmr, 2-deoxy*)

3-Ribofuranosyluric acid, 8CI R-123

7,9-Dihydro-3-ribofuranosyl-1H-purine-2,6,8(3H)-trione, 9CI. Uric acid riboside



$C_{10}H_{12}N_4O_7$ 300.227

β-D-*form* [2124-54-1]
Isol. from beef blood.
Cryst. (MeOH).
Mp 220° dec. $[\alpha]_D^{24}$ -19 (0.1*N* NaOH).

2,3,5-Tribenzoyl:
$C_{31}H_{24}N_4O_{10}$ 612.551
Mp 200°. $[\alpha]_D^{22}$ +38 (c, 6.4 in Me_2CO).

Forrest, H.S. *et al., J.C.S.*, 1961, 963 (*isol, uv, struct*)

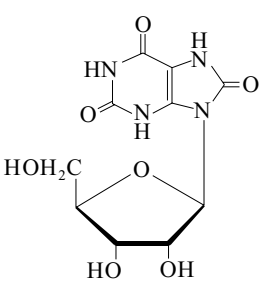
Hatfield, D. *et al., J.C.S.*, 1963, 899 (*isol, deriv*)

Lohrmann, R. *et al., J.C.S.*, 1964, 451 (*synth*)

Nishimura, T. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 441 (*β-D-form, synth*)

9-Ribofuranosyluric acid, 8CI R-124

Uric acid riboside. 8-Hydroxyxanthosine



$C_{10}H_{12}N_4O_7$ 300.227

β-D-*form* [21082-30-4]
Metab. of *Lactobacillus plantarum*.
Mp 240°. $[\alpha]_D^{29}$ -41.2 (c, 1.02 in 0.1N NaOH). λ_{max} 293, 241 (H_2O); 288, 238 (pH 1); 302, 251 nm (pH 11).

5′-Phosphate: [21082-31-5]
$C_{10}H_{13}N_4O_{10}P$ 380.207
λ_{max} 289, 240.5 (pH 2); 292, 246.5 nm (pH 11).

Falconer, R. *et al., J.C.S.*, 1939, 1369 (*occur*)

Hatfield, D. *et al., Biochim. Biophys. Acta*, 1964, **91**, 160

Holmes, R.E. *et al., J.A.C.S.*, 1965, **87**, 1772 (*synth, pmr*)

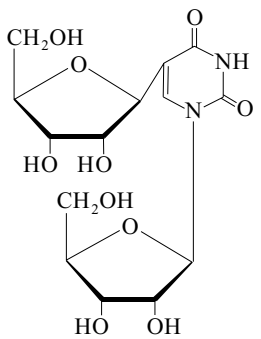
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1968, **16**, 1330 (*synth*)

Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1968, **16**, 1616 (*synth*)

Schulz, B.S. *et al., Helv. Chim. Acta*, 1987, **70**, 210 (*synth*)

5-Ribofuranosyluridine R-125

1,5-Diribofuranosyluracil



$C_{14}H_{20}N_2O_{10}$ 376.319

β-D-*form* [4089-10-5]
Isol. from *E. coli*. Intermediate in the biochemical interconversion of Uridine and Pseudouridine.
Mp 241-244°. λ_{max} 265 (9 800) (pH 2 and 12).

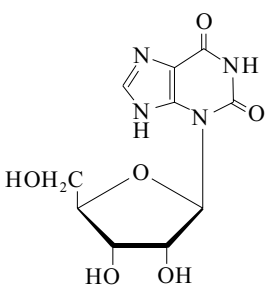
Pollak, J.K. *et al., Biochim. Biophys. Acta*, 1962, **55**, 798

Lis, A.W. *et al., Biochim. Biophys. Acta*, 1962, **61**, 799

Brown, D.M. *et al., J.C.S.(C)*, 1968, 1053 (*synth*)

3-Ribofuranosylxanthine, 8CI R-126

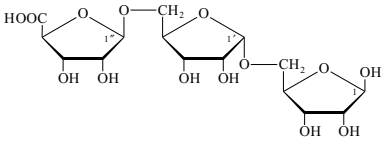
3,7-Dihydro-3-ribofuranosyl-1H-purine-2,6-dione, 9CI. 3-Isoxanthosine



$C_{10}H_{12}N_4O_6$ 284.228

β-D-*form* [13601-91-7]
Mp 203-205°. $[\alpha]_D^{25}$ -26.5 (c, 0.36 in H_2O). pK_a 8. λ_{max} 267 nm (ϵ 11 700) (H_2O).
Lipkin, D. *et al., J. Het. Chem.*, 1969, **6**, 995 (*synth*)
Schmidt, C.L. *et al., J. Het. Chem.*, 1973, **10**, 687

β-D-Ribofuranuronosyl-(1 → 5)-α-D-ribofuranosyl-(1 →5)-D-ribose, 9CI R-127

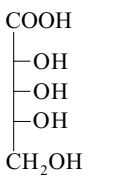


$C_{15}H_{24}O_{14}$ 428.346

β-Furanose-*form*
Me glycoside, 2,3;2′,3′;2′′,3′′-tri-O-*isopropylidene, Me ester:* [60949-70-4]
$C_{26}H_{40}O_{14}$ 576.594
Oil.
Benzyl glycoside, 2,3;2′,3′;2′′,3′′-tri-O-*isopropylidene, Me ester:* [71536-13-5]
$C_{32}H_{44}O_{14}$ 652.691
Oil.
Schmidt, R.R. *et al., Chem. Ber.*, 1979, **112**, 2659 (*β-Me fur Me ester deriv, β-benzyl fur Me ester deriv, pmr*)

Ribonic acid, 9CI, 8CI R-128

[17812-24-7]



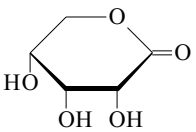
D–*form*

$C_5H_{10}O_6$ 166.13

D-*form* [642-98-8]
Readily obt. by equilib. of Arabinonic acid, A-825.
Cryst. (MeOH). Mp 112-113°. $[\alpha]_D^{25}$ -17 (H_2O).
Me ester: Methyl D-*ribonate*
[20769-97-5]
$C_6H_{12}O_6$ 180.157
Syrup. $[\alpha]_D$ -5.1 (c, 3.3 in H_2O). n_D^{21} 1.4892.
Tetra-Ac: Tetra-O-*acetyl*-D-*ribonic acid*
[61212-28-0]
$C_{13}H_{18}O_{10}$ 334.279
Cryst. (AcOH). Mp 139-140°. $[\alpha]_D^{25}$ -27.5 (c, 4 in AcOH).
2,4:3,5-Dibenzylidene: 2,4:3,4-Di-O-*benzylidene*-D-*ribonic acid*
[20603-34-3]
$C_{19}H_{18}O_6$ 342.348
Needles ($CHCl_3$/petrol). Mp 189.5-190.5°. $[\alpha]_D$ -48.8 (c, 2.84 in DMF).
2,4:3,5-Dibenzylidene, Me ester: Methyl 2,4:3,5-di-O-*benzylidene*-D-*ribonate*
[20603-37-6]
$C_{20}H_{20}O_6$ 356.374
Needles (Me_2CO aq.). Mp 135.5-137.5°. $[\alpha]_D$ -44.4 (c, 2.33 in $CHCl_3$).
1,4-Lactone: D-*Ribono-1,4-lactone.* D-ribo-*1,4-Pentonolactone*
[5336-08-3]
$C_5H_8O_5$ 148.115
Mp 80°. $[\alpha]_D$ +18.4.
1,4-Lactone, tri-Ac: 2,3,5-Tri-O-*acetyl*-D-*ribono-1,4-lactone*
[41162-32-7]
$C_{11}H_{14}O_8$ 274.227
Cryst. (Et_2O/petrol). Mp 55-56°. $[\alpha]_D^{25}$ +27 ($CHCl_3$).
1,4-Lactone, 2,3-O-*isopropylidene: 2,3*-O-*Isopropylidene*-D-*ribono-1,4-lactone*
[30725-00-9]
$C_8H_{12}O_5$ 188.18
Cryst. (Me_2CO/cyclohexane). Mp 138-139°. $[\alpha]_D$ -57.5 → -16.1 (c, 2.3 in Py).
1,4-Lactone, 2,3-O-*isopropylidene, 5-Ac: 5*-O-*Acetyl-2,3*-O-*isopropylidene*-D-*ribono-1,4-lactone*
[32257-17-3]
$C_{10}H_{14}O_6$ 230.217
Mp 47.5°. $[\alpha]_D^{19}$ -59 (c, 1 in $CHCl_3$).
1,4-Lactone, 2,3-O-*isopropylidene, 5-tosyl: 2,3*-O-*Isopropylidene-5*-O-*tosyl*-D-*ribono-1,4-lactone*
[40519-00-4]
$C_{15}H_{18}O_7S$ 342.369
Prisms (MeOH). Mp 117.5-118°. $[\alpha]_D^{24}$ -15.8 (c, 2.4 in AcOH).
1,4-Lactone, 2,3-O-*cyclohexylidene: 2,3*-O-*Cyclohexylidene*-D-*ribono-1,4-lactone*
[27304-20-7]
$C_{11}H_{16}O_5$ 228.244
Cryst. (EtOAc). Mp 128-130°. $[\alpha]_D^{22}$ -54 (c, 1.53 in $CHCl_3$).
1,4-Lactone, 5-Me: 5-O-*Methyl*-D-*ribono-1,4-lactone*
[78508-92-6]
$C_6H_{10}O_5$ 162.142
Cryst. (EtOAc). Mp 110-111°. $[\alpha]_D^{25}$ +26.
1,4-Lactone, 5-Me, 2,3-O-*isopropylidene: 2,3*-O-*Isopropylidene-5*-O-*methyl*-D-*ribono-1,4-lactone*
[71671-16-4]
$C_9H_{14}O_5$ 202.207
Syrup. $Bp_{0.00001}$ 90-100°. $[\alpha]_D^{27}$ -56.8 (c, 3.0 in EtOH).
1,4-Lactone, 3,5-di-Me: 3,5-Di-O-*methyl*-D-*ribono-1,4-lactone*
[41107-30-6]
$C_7H_{12}O_5$ 176.169
Cryst. (Et_2O/petrol). Mp 55-56.5°. $[\alpha]_D$ +5.6.
1,5-Lactone: See 1,5-Ribonolactone, R-129

L-*form*
Readily obt. by equilib. of Arabinonic acid, A-825. Mp 105°. $[\alpha]_D^{20}$ +17.6 → -4.6 (H_2O).
1,4-Lactone: L-*Ribono-1,4-lactone*
[133908-85-7]
$C_5H_8O_5$ 148.115
Mp 86°. $[\alpha]_D$ -18 → -6.8 (H_2O).
[3327-63-7, 160549-52-0]
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 705D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1136A; 1136B (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 116; 119 (*rev*)
Ladenburg, K. *et al., J.A.C.S.*, 1944, **66**, 1217 (D-*form, synth*)
Hough, L. *et al., Can. J. Chem.*, 1958, **36**, 1720 (D-*lactone isopropylidene,* D-*lactone isopropylidene tosyl,* D-*lactone isopropylidene Me,* D-*lactone Me*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 13 (*synth, lactone*)
Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 21 (*tetra-Ac*)
Zinner, H. *et al., Carbohydr. Res.*, 1968, **7**, 38 (D-*dibenzylidene*)
Sepulchre, A.-M. *et al., Carbohydr. Res.*, 1972, **24**, 311 (D-*lactone cyclohexylidene*)
Ogura, H. *et al., J.O.C.*, 1972, **37**, 72 (D-*lactone isopropylidene,* D-*lactone isopropylidene Ac*)
Aspinall, G.O. *et al., Can. J. Chem.*, 1973, **51**, 394 (D-*lactone tri-Ac,* D-*lactone di-Me*)
Kinoshita, Y. *et al., Carbohydr. Res.*, 1981, **92**, 1 (*cryst struct, lactone*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 111 (*pmr, cmr, conformn, lactone*)
Kold, H. *et al., Acta Chem. Scand.*, 1994, **48**, 675 (*synth, lactone*)
Defoin, A. *et al., Synthesis*, 2000, 1719-1726 (D-*lactone isopropylidene Ac*)

1,5-Ribonolactone R-129



D–*form*

$C_5H_8O_5$ 148.115

D-*form*
2,4-Benzylidene: 2,4-O-*Benzylidene*-D-*ribono-1,5-lactone*
$C_{12}H_{12}O_5$ 236.224
Needles ($CHCl_3$/C_6H_6). Mp 160-164°. $[\alpha]_D$ -70.2 (c, 1.23 in DMF).
2,4-Benzylidene, 3-Ac: 3-O-*Acetyl-2,4*-O-*benzylidene*-D-*ribono-1,5-lactone*
$C_{14}H_{14}O_6$ 278.261
Cryst. (MeOH aq.). Mp 143-145.5°. $[\alpha]_D$ -71.2 (c, 1.5 in $CHCl_3$).
2,4-Benzylidene, 3-benzoyl: 3-O-*Benzoyl-2,4*-O-*benzylidene*-D-*ribono-1,5-lactone*
$C_{19}H_{16}O_6$ 340.332
Platelets. Mp 181-182.5°. $[\alpha]_D$ -75.4 (c, 1.72 in $CHCl_3$).
3,4-Cyclohexylidene: 3,4-O-*Cyclohexylidene*-D-*ribono-1,5-lactone*
[27304-21-8]
$C_{11}H_{16}O_5$ 228.244
Cryst. (C_6H_6). Mp 148-150°. $[\alpha]_D$ -133 (c, 1.01 in $CHCl_3$).
*3,4-Benzylidene (*R-*): 3,4*-O-*(*R*)-Benzylidene*-D-*ribono-1,5-lactone*
[20603-45-6]
$C_{12}H_{12}O_5$ 236.224
Needles (Me_2CO/petrol). Mp 237-238° (230-231.5°). $[\alpha]_D$ -177 (c, 2.4 in DMF). Originally assigned the 1,4-lactone struct.

L-*form*

*3,4-Benzylidene: 3,4-*O*-Benzylidene-L-ribono-1,5-lactone*
$C_{12}H_{12}O_5$ 236.224
Cryst. (Me_2CO). Mp 230-232°. $[\alpha]_D^{20}$ +173 (c, 2 in DMF).

[134877-40-0]

Zinner, H. *et al., Carbohydr. Res.*, 1968, **7**, 38 (*2,4-benzylidene derivs*)
Sepulchre, A.M. *et al., Carbohydr. Res.*, 1972, **34**, 311 (*D-3,4-cyclohexylidene*)
Chen, S.-Y. *et al., J.O.C.*, 1984, **49**, 2168 (*synth, D-3,4-benzylidene*)
Baggett, N. *et al., Chem. Comm.*, 1985, 1826 (*synth, struct, D-3,4-benzylidene*)
Gan, L.X. *et al., Carbohydr. Res.*, 1991, **220**, 117 (*3,4-benzylidene*)

Ribonucleic acid, 9CI, 8CI R-130

RNA

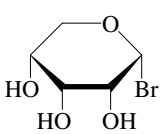
Polynucleotide of Adenosine, Guanosine, Cytidine, Uridine and some minor nucleosides linked by phosphate diester bonds from the 3′-hydroxyl of one D-ribose to the 5′-hydroxyl of the next. There are several types of RNA. Ribosomal RNA (rRNA) is a metabolically stable form comprising 80% of DNA in cells and it is an important component of ribosomes. Two high molecular weight (ca. 10^6) spp. have been isol. from bacterial cells and at least one sp. of low molecular weight has been identified. Messenger RNA (mRNA) is a short-lived high molecular weight material which is complementary to one strand of DNA. It acts as a template for protein synthesis in the cell. Transfer RNA(tRNA) is a low molecular weight ($23\text{-}28 \times 10^3$) polymer containing 75-90 nucleotides. Each tRNA is specific for one amino acid and during protein synthesis it binds the amino acid, locates the relevant codon on mRNA, places the amino acid correctly for attachment in the growing polypeptide chain and binds the polypetide to the ribosome.

ent*-*form

Readily synthesised from D-glucose. Recommended as a superior material for non-biochemical studies on RNA props.

Holley, R.W. *et al., Science (Washington, D.C.)*, 1965, **147**, 1462
Craig, N.C. *et al., MTP Int. Rev. Sci.: Biochem.*, 1974, **6**, 255
Nishimura, S. *et al., MTP Int. Rev. Sci.: Biochem.*, 1974, **6**, 289
Watts, R.L. *et al., MTP Int. Rev. Sci.: Biochem.*, 1975, **7**, 255
Quigley, G.J. *et al., Science (Washington, D.C.)*, 1976, **194**, 796
Pitsch, S. *et al., Helv. Chim. Acta*, 1997, **80**, 2286-2314 (*synth, uv, cd, ent-form*)

Ribopyranosyl bromide R-131



α-D-*form*

$C_5H_9BrO_4$ 213.028

α-D-*form*

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-ribopyranosyl bromide*
[13035-48-8]
$C_{26}H_{21}BrO_7$ 525.352
Mp 164-165°. $[\alpha]_D^{20}$ +78 ($CHCl_3$).

β-D-*form*

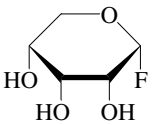
*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-ribopyranosyl bromide. Acetobromoribose*
[3068-30-2]
$C_{11}H_{15}BrO_7$ 339.139
Mp 96°. $[\alpha]_D^{25}$ -210 (c, 1.1 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-ribopyranosyl bromide*
[13035-44-4]
Mp 155-158°. $[\alpha]_D^{20}$ -203 ($CHCl_3$).

Tris(4-methylbenzoyl): $[\alpha]_D^{21}$ -159 (c, 2.3 in $CHCl_3$).

Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*rev, derivs*)
Zinner, H. *et al., J. Prakt. Chem.*, 1962, **18**, 79 (*β-D-tritoluoyl*)
Capon, B. *et al., J.C.S.*, 1964, 3242 (*β-D-tri-Ac*)

Ribopyranosyl fluoride R-132



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form*

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-ribopyranosyl fluoride*
[2924-35-8]
$C_{26}H_{21}FO_7$ 464.446
Cryst. Mp 205-206°.

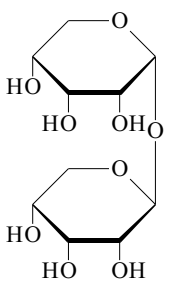
β-D-*form*

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-ribopyranosyl fluoride*
[4163-49-9]
$C_{26}H_{21}FO_7$ 464.446
Cryst. Mp 139-140° (135-137°).

Pedersen, C. *et al., J.A.C.S.*, 1960, **82**, 941; 945 (*deriv*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 19 (*tribenzoyl, pmr, F-19 nmr*)

β-D-Ribopyranosyl α-D-ribopyranoside, 9CI R-133

α-D-Ribopyranosyl β-D-ribopyranoside
[133008-06-7]

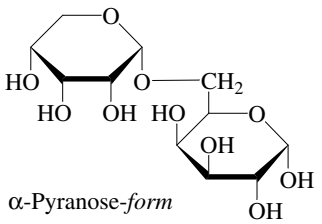


$C_{10}H_{18}O_9$ 282.247
Mp 100°. $[\alpha]_D^{20}$ +44 (c, 0.3 in DMSO).

*Hexa-Ac: 2,3,4-Tri-*O*-acetyl-β-D-ribopyranosyl 2,3,4-tri-*O*-acetyl-α-D-ribopyranoside, 9CI*
$C_{22}H_{30}O_{15}$ 534.47
Mp 63°. $[\alpha]_D^{20}$ +31.4 (c, 0.5 in $CHCl_3$).

Dahlhoff, W.V. *et al., Z. Naturforsch., B*, 1990, **45**, 1669 (*synth, pmr, cmr, ms*)

6-*O*-α-D-Ribopyranosyl-D-galactose R-134



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

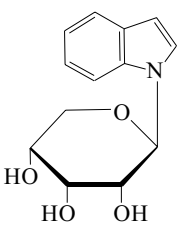
α-Pyranose-*form*

*1,2:3,4-Di-*O*-isopropylidene:* [132970-05-9]
$C_{17}H_{28}O_{10}$ 392.402
Mp 128°. $[\alpha]_D^{20}$ +12.2 (c, 0.7 in EtOH).

*1,2:3,4-Di-*O*-isopropylidene, tri-Ac:*
$C_{23}H_{34}O_{13}$ 518.514
Mp 57-59°. $[\alpha]_D^{20}$ +28 (c, 1.0 in $CHCl_3$).

Dahlhoff, W.V. *et al., Z. Naturforsch., B*, 1990, **45**, 1669

1-(Ribopyranosyl)indole, 8CI R-135



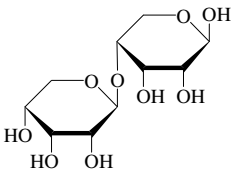
$C_{13}H_{15}NO_4$ 249.266

β-D-*form* [7660-91-5]
$[\alpha]_D$ -20 (c, 1.0 in $CHCl_3$). λ_{max} 286 (ε 3 060), 276 (5 150), 265 (6 300), 218 nm (31 900) (H_2O).

2′,3′,4′-Tri-Ac: [4627-31-0]
$C_{19}H_{21}NO_7$ 375.377
Mp 169-171°. $[\alpha]_D$ +40 (c, 1.0 in $CHCl_3$). λ_{max} 288 (ε 2 880), 276 (5 400), 264 (7 240), 220 nm (41 500) (EtOH).

Cushley, R.J. *et al., Chem. Comm.*, 1968, 1611 (*config, pmr*)
Walton, E. *et al., J.O.C.*, 1968, **33**, 192 (*synth*)
Preobrazhenskaya, M.N. *et al., Dokl. Akad. Nauk SSSR*, 1969, **185**, 617; *CA*, **71**, 30653y (*conformn, pmr*)

4-*O*-β-D-Ribopyranosyl-D-ribose R-136



β-Pyranose-*form*

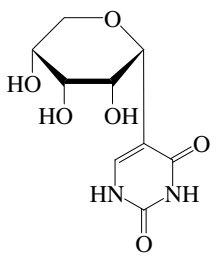
$C_{10}H_{18}O_9$ 282.247

β-Pyranose-*form*

*2,3-Anhydro, benzyl glycoside: Benzyl 2,3-anhydro-4-*O*-β-D-ribopyranosyl-β-D-ribopyranoside, 9CI*
[69932-63-4]
$C_{17}H_{22}O_8$ 354.356
Cryst. (MeOH). Mp 200-205°. $[\alpha]_D^{20}$ -164 (c, 0.5 in H_2O).
De Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1978, **87**, 783 (*synth, cnr, pmr*)

5-Ribopyranosyluracil R-137

*5-Ribopyranosyl-2,4(1*H*,3*H*)-pyrimidinedione, 9CI. Pseudouridine A*



α-*form*

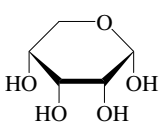
$C_9H_{12}N_2O_6$ 244.204

α-D-*form*
Produced by acid treatment of Pseudouridine C, P-102. λ_{max} 263 (pH 7), 285 (pH 12), 278 nm (pH 14).

β-D-*form* [4804-00-6] Produced by acid treatment of Pseudouridine C, P-102. λ_{max} 262 (pH 7), 286 (pH 12), 281 nm (pH 14).
Cohn, W.E. *et al., J. Biol. Chem.*, 1960, **235**, 1488 (*isol, struct*)
Chambers, R.W. *et al., Biochemistry*, 1964, **3**, 326
Petrissant, G. *et al., Ann. Biol. Anim. Biochim. Biophys.*, 1967, **7**, 105; *CA*, **67**, 96935r (*isol*)
Kritzyn, A.M. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 3211 (*synth*)
Habermehl, G. *et al., Annalen*, 1978, 427 (*synth*)

Ribose R-138

Carnose



α-D-Pyranose-*form*

$C_5H_{10}O_5$ 150.131
An aq. soln at 31° contains 21.5% α-pyr, 58.5% β-pyr, 6.5% α-fur, 13.5% β-fur, and 0.05% aldehyde.

D-*form* [50-69-1]
A constit. of nucleic acids, several coenzymes and bacterial polysaccharides from *Salmonella*. Also occurs in plant glycosides and free in plants. Obt. comly. from yeast, or by redn. of Ribonic acid, R-128 which can be obt. by oxidn. then epimerisation of Arabinose, A-850. Inexpensive starting material for chiral synth. Hygroscopic. Mp 95° (87°). $[\alpha]_D$ -21.5 → -19.5 (H_2O). pK_{a1} 12.22 (25°). Sweet taste, sweetness = 0.33 x sucrose.
► VJ2275000

4-Bromophenylhydrazone: Mp 164-165°. $[\alpha]_D$ +10 (EtOH).

Di-Et dithioacetal: See Ribose diethyl dithioacetal, R-140

Dipropyl dithioacetal: See Ribose dipropyl dithioacetal, R-142

*2,3:4,5-Di-*O*-isopropylidene: 2,3:4,5-Di-*O*-isopropylidene-D-ribose*
[50866-82-5]
$C_{11}H_{18}O_5$ 230.26
Mobile liq. $[\alpha]_D$ -17 (c, 1.1 in $CHCl_3$) (-11.8).

*2-Me: 2-*O*-Methyl-D-ribose*
[32452-36-1]
$C_6H_{12}O_5$ 164.158
$[\alpha]_D^{25}$ -22 (c, 3.4 in MeOH).

*3-Me: 3-*O*-Methyl-D-ribose*
[30724-97-1]
$C_6H_{12}O_5$ 164.158
Component of *Rhizobium* extracellular polysaccharides. Tentative identification.

α-D-Pyranose-*form* [7296-59-5]

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylideneribose, I-73 *1,2-*O*-Isopropylidene-α-D-ribopyranose*

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-*O*-isopropylidene-α-D-ribopyranose*
$C_{11}H_{18}O_5$ 230.26
Mp 68-69°. $[\alpha]_D$ -51 ($CHCl_3$).

Me glycoside: See Methyl ribopyranoside, M-209

β-D-Pyranose-*form* [7296-60-8]

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-β-D-ribopyranose*
[4049-34-7]
$C_{13}H_{18}O_9$ 318.28
Cryst. (EtOH). Mp 109-110°. $[\alpha]_D^{20}$ -57 (c, 1 in $CHCl_3$).

*3,4-*O*-Isopropylidene: 3,4-*O*-Isopropylidene-β-D-ribopyranose*
[58645-35-5]
$C_8H_{14}O_5$ 190.196
Cryst. (EtOAc). Mp 115-117°. $[\alpha]_D^{20}$ -85 → -82 (c, 1.1 in H_2O).

*3,4-*O*-Isopropylidene, 1,2-di-Ac: 1,2-Di-*O*-acetyl-3,4-*O*-isopropylidene-β-D-ribopyranose*
[58645-38-8]
$C_{12}H_{18}O_7$ 274.27
Syrup. $[\alpha]_D^{20}$ -133 (c, 1.1 in $CHCl_3$).

Me glycoside: See Methyl ribopyranoside, M-209

Benzyl glycoside: See Benzyl riboside, B-21

α-D-Furanose-*form* [32445-75-3]

1-Phosphate: [14075-00-4]
$C_5H_{11}O_8P$ 230.111
No phys. props. reported.

5-Phosphate:
[4300-28-1]
$C_5H_{11}O_8P$ 230.111
Important constit. of nucleic acids.

*1,2,3-Tri-Ac: 1,2,3-Tri-*O*-acetyl-α-D-ribofuranose*
[119240-35-6]
$C_{11}H_{16}O_8$ 276.243
$[\alpha]_D^{15}$ +77.5 (c, 1.54 in EtOH).

*1,3,5-Tribenzoyl: 1,3,5-Tri-*O*-benzoyl-α-D-ribofuranose*
[22224-41-5]
$C_{26}H_{22}O_8$ 462.455
Mp 125-129°. $[\alpha]_D^{20}$ +85 (c, 1 in $CHCl_3$).

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylideneribose, I-73

*2,3-*O*-Isopropylidene:* See 2,3-*O*-Isopropylideneribose, I-74

*1,2-*O*-Benzylidene: 1,2-*O*-Benzylidene-α-D-ribofuranose*
$C_{12}H_{14}O_5$ 238.24
Cryst. (EtOAc/petrol). Mp 92-93°. $[\alpha]_D^{23}$ +36.4 (c, 1.05 in $CHCl_3$).

Me glycoside: See Methyl ribofuranoside, M-208

β-D-Furanose-*form* [36468-53-8]

*1,2,3-Tri-Ac: 1,2,3-Tri-*O*-acetyl-β-D-ribofuranose*
[130792-81-3]
$C_{11}H_{16}O_8$ 276.243
$[\alpha]_D^{10}$ +3.3 (c, 0.75 in EtOH).

*Tetra-Ac: 1,2,3,5-Tetra-*O*-acetyl-β-D-ribofuranose*
[13035-61-5]
$C_{13}H_{18}O_9$ 318.28
Cryst. (EtOH). Mp 56-58° Mp 82-83° (double mp). $[\alpha]_D^{20}$ -12.4 (c, 5 in $CHCl_3$). $[\alpha]_D^{24}$ -15.4 (c, 7 in MeOH). $[\alpha]_D^{22}$ -13 (c. 1.4 in $CHCl_3$). Dimorphic.

*2,3,5-Tribenzoyl, 1-Ac: 1-*O*-Acetyl-2,3,5-tri-*O*-benzoyl-β-D-ribofuranose*
[6974-32-9]
[14215-97-5]
$C_{28}H_{24}O_9$ 504.492
Cryst. (2-propanol or EtOH). Mp 131-132°. $[\alpha]_D^{20}$ +24.3 (c, 1 in Py). $[\alpha]_D^{20}$ +44.2 (c, 1 in $CHCl_3$).

*2,3-*O*-Benzylidene (*R*-): 2,3-*O*-(*R*)-Benzylidene-β-D-ribofuranose*
[39809-35-3]
$C_{12}H_{14}O_5$ 238.24
Cryst. (C_6H_6). Mp 125-126°. $[\alpha]_D^{23}$ -27.8 (c, 1.01 in MeOH).

*2,3-*O*-Benzylidene (*S*-): 2,3-*O*-(*S*)-Benzylidene-β-D-ribofuranose*
[39809-36-4]
$C_{12}H_{14}O_5$ 238.24
Needles (EtOAc/petrol). Mp 107-108°. $[\alpha]_D^{23}$ -14 (c, 1.15 in MeOH).

*2,3-*O*-Benzylidene, 1,5-di-Ac (*R*-): 1,5-Di-*O*-acetyl-2,3-*O*-(*R*)-benzylidene-β-D-ribofuranose*
[39809-37-5]
$C_{16}H_{18}O_7$ 322.314
Needles (EtOH). Mp 78-79°. $[\alpha]_D^{23}$ -68.8 (c, 1.82 in $CHCl_3$).

*2,3-*O*-Benzylidene, 1,5-di-Ac (*S*-): 1,5-Di-*O*-acetyl-2,3-*O*-(*S*)-benzylidene-β-D-ribofuranose*
[39809-38-6]
$C_{16}H_{18}O_7$ 322.314
Syrup. $Bp_{0.015}$ 150-160°. $[\alpha]_D^{23}$ -44.1 (c, 2.9 in $CHCl_3$).

Me glycoside: See Methyl ribofuranoside, M-208

Benzyl glycoside: See Benzyl riboside, B-21

L-*form* [24259-59-4]
Mp 87°. $[\alpha]_D$ +18.8 (H_2O).

4-Bromophenyllhydrazone: Mp 170-172°. $[\alpha]_D$ -11 (EtOH).

*2-Me: 2-*O*-Methyl-L-ribose*
$C_6H_{12}O_5$ 164.158
Syrup. $[\alpha]_D$ +25.3 (H_2O).

Me glycoside: See Methyl ribofuranoside, M-208

Benzyl glycoside: See Benzyl riboside, B-21

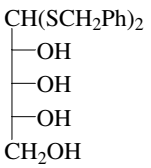
DL-*form*
Mp 83-84°.

[7296-61-9, 7296-62-0, 41546-19-4, 41546-20-7]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 189C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 291B; 292A; 1057A (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 650B (*ir*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 115; 118
Visconti, M. *et al., Helv. Chim. Acta*, 1954, **37**, 1373-1378 (*β-D-fur tetra-Ac*)
Tener, G.M. *et al., J.A.C.S.*, 1957, **79**, 441-443 (*1-phosphate*)
Ness, R.K. *et al., J.O.C.*, 1957, **22**, 1965-1969 (*β-D-fur 2,3,5-tribenzoyl 1-Ac*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 81 (*purifn*)
Humoller, F.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 83 (*synth, L-form*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1965, **1**, 171 (*α-D-pyr isopropylidene, α-D-pyr diisopropylidene*)
Guthrie, R.D. *et al., Chem. Ind. (London)*, 1968, 547-548 (*furanose tetra-Ac, synth*)
Stevens, J.D. *et al., J.O.C.*, 1968, **33**, 1799-1805 (*β-D-fur 2,3,5-tribenzoyl 1-Ac, pmr*)
Guthrie, R.D. *et al., Biochem. Prep.*, 1971, **13**, 1 (*tetra-Ac*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1972, **25**, 187 (*α-D-fur benzylidene, β-D-fur benzylidene (R), β-D-fur benzylidene derivs, pmr*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 580 (*occur*)
Schaffer, R. *et al., The Carbohydrates*, Academic Press, 1972, **1A**, 69
Morgenlie, S. *et al., Carbohydr. Res.*, 1975, **41**, 77 (*β-D-pyr 3,4-isopropylidene*)
Gelas, J. *et al., Carbohydr. Res.*, 1975, **45**, 181 (*β-D-pyr 3,4-isopropylidene di-Ac, β-D-pyr 3,4-isopropylidene, β-D-pyr tetra-Ac*)
Poppleton, B.J. *et al., Acta Cryst. B*, 1976, **32**, 2702-2705 (*β-D-fur tetra-Ac, cryst struct*)
Kennedy, L.D. *et al., Carbohydr. Res.*, 1976, **52**, 259; 1980, **87**, 156 (*occur, D-3-Me*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1977, **34**, 179 (*α-D-fur benzylidene, α-D-fur isopropylidene, β-D-fur isopropylidene, β-D-fur benzylidene, rev*)
Kam, B.C. *et al., Carbohydr. Res.*, 1979, **69**, 135-142 (*β-D-fur tetra-Ac, pmr, cmr*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. Ed.), Acad. Press, London and New York, 1982, **13**, 38; 41 (*cmr, pmr*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 145 (*cmr*)
Mathlouthi, M. *et al., Carbohydr. Res.*, 1983, **122**, 31 (*ir, Raman*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Aslani-shotorbani, G. *et al., Carbohydr. Res.*, 1985, **136**, 37 (*2,3:4,5-diisopropylidene*)
Koziol, A.E. *et al., Acta Cryst. C*, 1991, **47**, 2076 (*5-phosphate, cryst struct*)
Lacourt-Gadras, B. *et al., Carbohydr. Res.*, 1992, **235**, 281 (*synth, D-form*)
Benesi, A.J. *et al., Carbohydr. Res.*, 1994, **258**, 27 (*pmr, cmr*)
Boryski, J. *et al., Synthesis*, 1999, 625-628 (*β-D-fur tetra-Ac*)
Agaki, M. *et al., Chem. Pharm. Bull.*, 2002, **50**, 866-868 (*L-form, synth*)
Takahashi, H. *et al., Org. Lett.*, 2002, **4**, 2401-2403 (*ribose, synth*)
Shi, Z.-D. *et al., Tetrahedron*, 2002, **58**, 3287-3296 (*L-form, synth*)
Bombicz, P. *et al., Angew. Chem., Int. Ed.*, 2003, **42**, 1957-1960 (*β-D-fur tetra-Ac, polymorphism, cryst struct, bibl*)

Ribose dibenzyl dithioacetal R-139

Ribose dibenzyl mercaptal. 5,5-Bis(benzylthio)-1,2,3,4-pentanetetrol†



D-*form*

$C_{19}H_{24}O_4S_2$ 380.528

D-*form* [64780-55-8]
Cryst. (H_2O). Mp 79.5-80°. $[\alpha]_D^{24}$ -24.2 (MeOH).

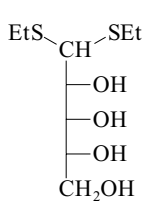
*2,3,5-Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-D-ribose dibenzyl dithioacetal*
$C_{40}H_{36}O_7S_2$ 692.852
Cryst. (MeOH). Mp 92-93°.

*2,3,5-Tri-Me: 2,3,5-Tri-*O*-methyl-D-ribose dibenzyl dithioacetal*
[58886-12-7]
$C_{22}H_{30}O_4S_2$ 422.609
Syrup. $[\alpha]_D^{21}$ -142 (c, 3.0 in $CHCl_3$).

Zinner, H. *et al., Chem. Ber.*, 1950, **83**, 275-277 (*D-form*)
Hardegger, E. *et al., Helv. Chim. Acta*, 1950, **33**, 1159-1164 (*D-form*)
Van Es, T. *et al., Chem. Ber.*, 1976, **46**, 237-244 (*D-2,3,5-tri-Me*)
Birtwistle, I. *et al., Synth. Commun.*, 2001, **31**, 3807-3815 (*D-2,3,5-tribenzoyl*)

Ribose diethyl dithioacetal R-140

5,5-Bis(ethylthio)-1,2,3,4-pentanetetrol



D−*form*

$C_9H_{20}O_4S_2$ 256.387

D-*form* [7152-47-8]
Mp 82-83°. $[\alpha]_D$ -41.5 (H_2O). $[\alpha]_D$ -25.9 (MeOH).

*2,4-Isopropylidene: 2,4-*O*-Isopropylidene-D-ribose diethyl dithioacetal*
[25572-72-9]
$C_{12}H_{24}O_4S_2$ 296.451
$[\alpha]_D$ -17 (c, 1 in $CHCl_3$).

*3,4-Isopropylidene: 3,4-*O*-Isopropylidene-D-ribose diethyl dithioacetal*
[100423-66-3]
$C_{12}H_{24}O_4S_2$ 296.451
$[\alpha]_D$ -26 (c, 2.3 in $CHCl_3$). Minor component (yield 1%) of the mixt. from kinetic acetalisation.

*4,5-Isopropylidene: 4,5-*O*-Isopropylidene-D-ribose diethyl dithioacetal*
[25572-71-8]
$C_{12}H_{24}O_4S_2$ 296.451
$[\alpha]_D$ +10 (3.7 in $CHCl_3$).

*2,3:4,5-Diisopropylidene: 2,3:4,5-Di-*O*-isopropylidene-D-ribose diethyl dithioacetal*
[70337-20-1]
$C_{15}H_{28}O_4S_2$ 336.516
Syrup. $[\alpha]_D$ -94 (c, 1 in $CHCl_3$). The structs. of the main isopropylidenation prods. have been confused before 1985 according to Aslani-Shotorbani *et al*.

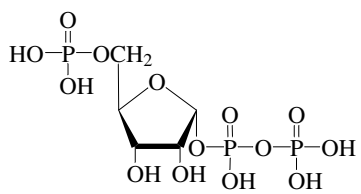
*2,5:3,4-Diisopropylidene: 2,5:3,4-Di-*O*-isopropylidene-D-ribose diethyl dithioacetal*
[76491-02-6]
$C_{15}H_{28}O_4S_2$ 336.516
Syrup. $[\alpha]_D$ -21.5 (c, 0.9 in $CHCl_3$).

*4,5-Cyclohexylidene: 4,5-*O*-Cyclohexylidene-D-ribose diethyl dithioacetal*
[99773-15-6]
$C_{15}H_{28}O_4S_2$ 336.516
Syrup. $[\alpha]_D^{24}$ +6 (c, 2.43 in $CHCl_3$).

Aslani-Shotorbani, G. *et al., Carbohydr. Res.*, 1985, **136**, 37 (*synth, struct, pmr, cmr, bibl, isopropylidene derivs*)
Grindley, T.B. *et al., Carbohydr. Res.*, 1985, **140**, 215 (*4,5-cyclohexylidene*)

Ribose 1-diphosphate 5-phosphate R-141

5-Phosphoribosyl-1-pyrophosphate. 5-(Dihydrogen phosphate) 1-(trihydrogen diphospate) ribose. pRpp



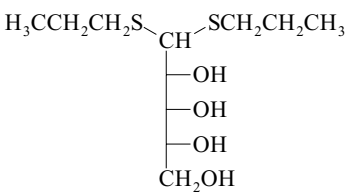
$C_5H_{13}O_{14}P_3$ 390.071
Obt. by enzymatic transfer of pyrophosphate from ATP to ribose 5-phosphate. Intermed. in biosynth. of histidine and tryptophan, also in biosynth. of purines and pyrimidines.

α-D-Furanose-*form* [7540-64-9]
[13270-65-0]
Solid. Unstable in acid and alkaline soln.

Tener, G.M. *et al., J.A.C.S.*, 1958, **80**, 1999-2004 (*synth*)

Flaks, J.G. *et al., Methods Enzymol.*, 1963, **6**, 473-479 (*isol*)
Becker, M.A. *et al., Adv. Enyzmol.*, 1979, **49**, 281-306 (*rev*)
Smithers, G.W. *et al., J. Appl. Biochem.*, 1979, **1**, 344-353; *CA*, **92**, 15992x (*purifn*)
Gross, A. *et al., J.A.C.S.*, 1983, **105**, 7428-7435 (*synth, P-31 nmr*)

Ribose dipropyl dithioacetal R-142



$C_{11}H_{24}O_4S_2$ 284.44

D-*form*

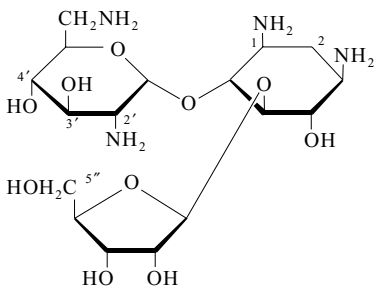
*2,4-Benzylidene: 2,4-*O*-Benzylidene-D-ribose dipropyl dithioacetal*
$C_{18}H_{28}O_4S_2$ 372.549
Cryst. (C_6H_6/petrol). Mp 101.5-102.5°. $[\alpha]_D^{24}$ -27.1 (c, 4 in MeOH).

*2,4:3,5-Dibenzylidene: 2,4:3,5-Di-*O*-benzylidene-D-ribose dipropyl dithioacetal*
[120443-91-6]
$C_{25}H_{32}O_4S_2$ 460.657
Needles (EtOH). Mp 110.5-111.5°. $[\alpha]_D^{27}$ -61.5 (c, 4 in $CHCl_3$).

Potgieter, D.J.J. *et al., J.O.C.*, 1961, 3934 (*synth*)

Ribostamycin, BAN, INN R-143

2,6-Diamino-2,6-dideoxy-α-D-glucopyranosyl-(1→4)-[β-D-ribofuranosyl-(1→5)]-2-deoxy-D-streptamine, 8CI. Hetangmycin. SF 733. Antibiotic SF 733. Dekamycin IV
[25546-65-0]



$C_{17}H_{34}N_4O_{10}$ 454.476

Aminoglycoside antibiotic belonging to the Neomycin group. Isol. from *Streptomyces ribosidificus* and *Pseudomonas* BN-246. Active against gram-positive and -negative bacteria. Cryst. (MeOH). Mp 192-195° dec. $[\alpha]_D^{23}$ +42 (c, 1 in H_2O). Log P -6.97 (uncertain value) (calc). Isomeric with Xylostacin, X-87.

▶ LD_{50} (rat, ipr) 4400 mg/kg. Exp. reprod. and teratogenic effects (large doses). WK2299000

*Sulfate (2:1): **Ribostamycin sulfate, JAN**. Vistamycin*
[53797-35-6]
Powder. $[\alpha]_D^{20}$ +39 (c, 1 in H_2O).

▶ LD_{50} (rat, scu) 5600 mg/kg. LD_{50} (rat, ipr) 3080 mg/kg. WK2300000

*N^3-Ac: **Antibiotic SF 733D**. SF 733D. N^3-Acetylribostamycin*
[52212-97-2]
$C_{19}H_{36}N_4O_{11}$ 496.514
Prod. by *Streptomyces ribosidificus* SF-733. Powder.
Mp 160°. $[\alpha]_D^{24}$ +18 (c, 1 in H_2O).

*N^1-Me: 1-*N*-Methylribostamycin*
[52275-05-5]
$C_{18}H_{36}N_4O_{10}$ 468.503
Semisynthetic. Sol. H_2O.

▶ LD_{50} (mus, ivn) 100 mg/kg; LD_{50} (mus, ivn) 100 - 300 mg/kg. WK2299500

*N^3-Carboxymethyl: **Antibiotic SF 733X**. SF 733X. N^3-Carboxymethylribostamycin*
[52212-98-3]
$C_{19}H_{36}N_4O_{12}$ 512.513
Prod. by *Streptomyces ribosidificus* SF-733. Powder.
Mp 172-178°. $[\alpha]_D^{24}$ +63 (c, 1.32 in H_2O).

3′,4′-Dideoxy: 3′,4′-Dideoxyribostamycin
[39535-80-3]
$C_{17}H_{34}N_4O_8$ 422.478
Semisynthetic. Shows similar activity to parent compd. Mp 155-156° dec. $[\alpha]_D^{20}$ +35 (c, 1 in H_2O).

3′,4′,5′′-Trideoxy: [39535-84-7]
$C_{17}H_{34}N_4O_7$ 406.478
Semisynthetic. Less active than parent compd. $[\alpha]_D^{14}$ +56 (c, 0.7 in H_2O).

*2α-Hydroxy: 2-Hydroxyribostamycin. 2-Hydroxy-*scyllo*-ribostamycin*
[52198-59-1]
$C_{17}H_{34}N_4O_{11}$ 470.476
Semisynthetic. Sol. H_2O.

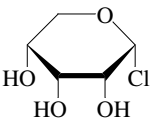
▶ LD_{50} (mus, ivn) 100 - 300 mg/kg. WK2298000

*2β-Hydroxy: 2-Hydroxy-*myo*-ribostamycin*
[52248-05-2]
$C_{17}H_{34}N_4O_{11}$ 470.476
Semisynthetic. Sol. H_2O.

▶ LD_{50} (mus, ivn) 100 - 300 mg/kg. NM7524500

Ito, T. *et al., Antimicrob. Agents Chemother.*, 1970, 33; *Agric. Biol. Chem.*, 1970, **34**, 980 (*synth, ir, pmr*)
Akita, E. *et al., J. Antibiot.*, 1970, **23**, 155; 173 (*isol, struct*)
Ikeda, D. *et al., Bull. Chem. Soc. Jpn.*, 1973, **46**, 3210 (*synth, derivs*)
Kojima, M. *et al., J. Antibiot.*, 1973, **26**, 784 (*biosynth, derivs*)
Kojima, M. *et al., J. Antibiot.*, 1975, **28**, 42-47; 48-55 (*SF 733C, SF 733X*)
Fukami, H. *et al., Agric. Biol. Chem.*, 1977, **41**, 1689 (*synth*)
Suami, T. *et al., Carbohydr. Res.*, 1977, **56**, 415 (*synth*)
Kumar, V. *et al., J.O.C.*, 1981, **46**, 4298 (*synth*)
Miyadoh, S. *et al., CA*, 1982, **96**, 50625 (*isol*)
Inouye, S. *et al., CA*, 1982, **98**, 83105 (*rev, pharmacol*)
Yoshikawa, M. *et al., Chem. Lett.*, 1984, 2097 (*synth*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 4622
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 196
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RIP000; XQJ650

Ribosyl chloride R-144



α-D-Pyranose-*form*

$C_5H_9ClO_4$ 168.576

α-D-Pyranose-*form*

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-ribopyranosyl chloride*
[13035-47-7]
$C_{26}H_{21}ClO_7$ 480.9
Needles ($CHCl_3$/Et_2O). Mp 203-204°. $[\alpha]_D^{20}$ +60 (c, 0.9 in $CHCl_3$).

β-D-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-ribopyranosyl chloride*
[4049-36-9]
$C_{11}H_{15}ClO_7$ 294.688
Cryst. (Et_2O). Mp 95°. $[\alpha]_D^{22}$ -169.6 ($CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-ribopyranosyl chloride*
[13035-43-3]
$C_{26}H_{21}ClO_7$ 480.9
Prisms (CH_2Cl_2/Et_2O). Mp 162-163°. $[\alpha]_D^{20}$ -147 ($CHCl_3$).

Tris(chlorosulfate): [18417-46-4]
Cryst. (EtOH aq.). Mp 132°. $[\alpha]_D$ -108 (c, 0.8 in $CHCl_3$).

D-Furanose-*form*

*3,5-Dibenzoyl: 3,5-Di-*O*-benzoyl-D-ribofuranosyl chloride*
[63592-86-9]
$C_{19}H_{17}ClO_6$ 376.792
Cryst. (CH_2Cl_2/CCl_4/pentane). Mp 123-124° dec Mp 94-96°. Mp dependent on rate of heating.

*2-Benzyl, 3,5-di-Ac: 3,5-Di-*O*-acetyl-2-*O*-benzyl-D-ribofuranosyl chloride*
[70798-07-1, 70798-08-2]
$C_{16}H_{19}ClO_6$ 342.775
No phys. props. reported.

*2,3-*O*-Isopropylidene, 5-methoxymethyl: 2,3-*O*-Isopropylidene-5-*O*-methoxymethyl-D-ribofuranosyl chloride*
[72050-22-7, 72050-23-8]
$C_{10}H_{17}ClO_5$ 252.694
Oil. $Bp_{0.005}$ 70-80° (kugelrohr). $[\alpha]_D^{25}$ -45 (c, 1.14 in $CHCl_3$). Anomonic ratio α/β 1:10.

α-D-Furanose-*form*

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-α-D-ribofuranosyl chloride*
[105499-44-3]
$C_{11}H_{15}ClO_7$ 294.688
Syrup. $[\alpha]_D^{22}$ +40 (c, 4.03 in $CHCl_3$) (approx.).

*Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-α-D-ribofuranosyl chloride*
[50909-47-2]
$C_{26}H_{21}ClO_7$ 480.9
Characterised spectroscopically.

2,3-O-*Isopropylidene, 5-(*tert-*butyldimethylsilyl): 5*-O-tert-*Butyldimethylsilyl-2,3*-O-*isopropylidene-α-D-ribofuranosyl chloride*
[102690-94-8]
$C_{14}H_{27}ClO_4Si$ 322.903
$[\alpha]_D^{25}$ +56 (c, 0.015 in CCl_4).

β-D-Furanose-*form* [143291-70-7]

Tri-Ac: 2,3,5-Tri-O-*acetyl-β-D-ribofuranosyl chloride*
[53402-29-2]
Cryst. (diisopropyl ether). Mp 50-51.5°. $[\alpha]_D^{27}$ -25.9 (c, 1.5 in $CHCl_3$).

Tribenzoyl: 2,3,5-Tri-O-*benzoyl-β-D-ribofuranosyl chloride*
[29706-90-9]
$C_{26}H_{21}ClO_7$ 480.9
Syrup.

2,3-O-*Isopropylidene, 5-(*tert-*butyldimethylsilyl): 5*-O-tert-*Butyldimethylsilyl-2,3*-O-*isopropylidene-β-D-ribofuranosyl chloride*
[102690-95-9]
$C_{14}H_{27}ClO_4Si$ 322.903
$[\alpha]_D^{25}$ -44 (c, 0.16 in CCl_4).

2,3-O-*Isopropylidene, 5-mesyl: 2,3*-O-*Isopropylidene-5*-O-*mesyl-β-D-ribofuranosyl chloride*
[162518-81-2]
$C_9H_{15}ClO_6S$ 286.733
$[\alpha]_D^{22}$ -43.5 (c, 1.5 in CH_2Cl_2).

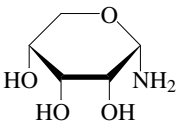
2,3-O-*Isopropylidene, 5-Me: 2,3*-O-*Isopropylidene-5*-O-*methyl-β-D-ribofuranosyl chloride*
[65904-36-1]
$C_9H_{15}ClO_4$ 222.668
Oil. $[\alpha]_D^{27}$ -71 (c, 1.8 in $CHCl_3$). Evaporative distillation carried out at 60-70° (0.03 mmHg).

2,3-O-*Isopropylidene, 5-methoxymethyl: 2,3*-O-*Isopropylidene-5*-O-*methoxymethyl-α-D-ribofuranosyl chloride*
[72050-22-7]
$C_{10}H_{17}ClO_5$ 252.694
Syrup. $Bp_{0.005}$ 70-80°. $[\alpha]_D^{25}$ -45 (c, 1.1 in $CHCl_3$).

5-Trityl, 2,3-O-*isopropylidene: 2,3*-O-*Isopropylidene-5*-O-*trityl-β-D-ribofuranosyl chloride*
$C_{27}H_{27}ClO_4$ 450.961
Cryst. Mp 114-115°.

Zinner, H. *et al., Chem. Ber.*, 1950, **83**, 153-156 (*α-D-fur tri-Ac, β-D-tri-Ac*)
Ness, R.K. *et al., J.A.C.S.*, 1951, **73**, 959 (*α-D-tribenzoyl, β-D-tribenzoyl*)
Ali, S.S. *et al., Carbohydr. Res.*, 1967, **5**, 118 (*β-D-trichlorosulfate*)
Durette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 57 (*β-D-tri-Ac, pmr, conformn*)
Guibe, L. *et al., J. Chem. Phys.*, 1973, **58**, 5579 (*conformn, nmr*)
Ohrui, H. *et al., Tet. Lett.*, 1973, 1951-1954 (*β-D-fur isopropylidene trityl*)
Hanessian, S. *et al., Can. J. Chem.*, 1974, **52**, 1280-1293 (*β-D-tribenzoyl*)
Earl, R.A. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1974, **1**, 177 (*β-D-fur tri-Ac, pmr*)
Klein, R.S. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1974, **1**, 265-269 (*β-D-fur isopropylidene trityl*)
Ireland, R.E. *et al., J.O.C.*, 1978, **43**, 786-787 (*β-D-fur isopropylidene Me*)
Schmidt, R.R. *et al., Chem. Br.*, 1979, **112**, 1689-1704 (*D-fur di-Ac benzyl*)
Ireland, R.E. *et al., J.O.C.*, 1980, **45**, 48-61 (*D-fur isopropylidene methoxymethyl*)
Dommisse, R.A. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1981, **8**, 331-343 (*D-fur 3,5-dibenzoyl, pmr, cmr*)
Wilcox, C.S. *et al., Tet. Lett.*, 1986, **27**, 1011-1014 (*α-D-fur tert-butyldimethylsilyl isopropylidene, β-D-fur tert-butyldimethylsilyl isopropylidene*)
Chin, T.-M. *et al., J. Chin. Chem. Soc. (Taipei)*, 1997, **44**, 413-416 (*α-D-fur tribenzoyl*)
Fleetwood, A. *et al., Carbohydr. Res.*, 1999, **317**, 204-209 (*β-D-fur isopropylidene mesyl*)

Ribosylamine R-145



α-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-Pyranose-*form*

D-Ribopyranosylamine
[43179-09-5]
Mp 128-129° dec. $[\alpha]_D$ -35.3 → -17.4 (c, 1.0 in H_2O). Crystallises as β-anomer.

N,*2,3,4-Tetra-Ac:* N-*Acetyl-2,3,4-tri*-O-*acetyl-D-ribosylamine*
$C_{13}H_{19}NO_8$ 317.295
Cryst. Mp 128-130°. $[\alpha]_D^{22}$ +35.3 (c, 1.3 in $CHCl_3$).

α-D-Pyranose-*form*

N-*Ac:* N-*α-D-Ribopyranosylacetamide*
$C_7H_{13}NO_5$ 191.183
Cryst. (EtOH). Mp 198-200°. $[\alpha]_D^{23}$ +17.8 (c, 1.0 in H_2O).

N-*Ph:* N-*Phenyl-α-D-ribopyranosylamine. Ribose anilide*
[79549-86-3]
$C_{11}H_{15}NO_4$ 225.244
Mp 135-136°. $[\alpha]_D$ +129 (c, 1 in Py). $[\alpha]_D$ +178 (Py). The usual reaction of ribose and aniline produces crystalline anomeric mixtures of the pyranose isomer; one crystalline isolate Mp 115° was formerly erroneously assigned a furanose struct.

β-D-Pyranose-*form*

N-*Ac:* N-*β-D-Ribopyranosylacetamide*
$C_7H_{13}NO_5$ 191.183
Cryst. (EtOH). Mp 195-197°. $[\alpha]_D^{21}$ -23.4 (c, 1.0 in H_2O).

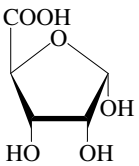
α-D-Furanose-*form*

N-*Ac:* N-*α-D-Ribofuranosylacetamide. N-Acetyl-α-D-ribofuranosylamine*
$C_7H_{13}NO_5$ 191.183
Syrup. $[\alpha]_D^{20}$ +70.9 (c, 0.5 in MeOH).

Tipson, R.S. *et al., J.O.C.*, 1961, **26**, 2462; 4698 (*D-form, synth, α-D-pyr N-Ac, β-D-pyr N-Ac*)
Cusack, N.J. *et al., J.C.S. Perkin 1*, 1973, 1720 (*synth*)
De Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1976, **85**, 605 (*pmr*)
Ellis, G.P. *et al., Carbohydr. Res.*, 1981, **95**, 304 (*N-Ph*)
Chavis, C. *et al., Carbohydr. Res.*, 1983, **113**, 1 (*D-form, D-N-Ph*)
Klemer, A. *et al., J. Carbohydr. Chem.*, 1988, **7**, 785-797 (*α-D-fur N-Ac*)
Rajsekhar, G. *et al., Carbohydr. Res.*, 2003, **338**, 801-805 (*synth, cryst struct*)

Riburonic acid, 8CI R-146

[30923-20-7]



α-D-Furanose-*form*

$C_5H_8O_6$ 164.115
Aq. solns. contain mixts. of acyclic (hydrated) furanose and lactone forms.

D-*form* [77481-15-3]
Constit. of an extracellular polysaccharide of *Rhizobium meliloti*.
Syrup. $[\alpha]_D^{20}$ +24.8 (c, 0.8 in H_2O).
Brucine salt: Mp 196-197°.

α-D-Furanose-*form*

1,2-O-*Isopropylidene, Me ester: Methyl 1,2*-O-*isopropylidene-α-D-ribofuranuronate*
[35570-20-8]
$C_9H_{14}O_6$ 218.206
Bp_5 110° (bath). $[\alpha]_D$ +34 (c, 1.0 in MeOH).

β-D-Furanose-*form*

2,3-O-*Isopropylidene: 2,3*-O-*Isopropylidene-β-D-riburonofuranose*
[68673-90-5]
$C_8H_{12}O_6$ 204.179
Cryst. (toluene). Mp 154-156°.

2,3-O-*Isopropylidene, Me ester: Methyl 2,3*-O-*isopropylidene-β-D-ribofuranuronate*
[68673-88-1]
$C_9H_{14}O_6$ 218.206
Cryst. (petrol). Mp 77°. $[\alpha]_D^{20}$ +19.9 (c, 1.3 in $CHCl_3$).

1,5-Lactone, 2,3-O-*isopropylidene: 2,3*-O-*Isopropylidene-β-D-riburonofurano-1,5-lactone*
$C_8H_{10}O_5$ 186.164
Cryst. (petrol). Mp 99-100°. Bp_{12} 130°.

Me glycoside, Me ester: Methyl (methyl-β-D-ribofuranosid)uronate
[72086-43-2]
$C_7H_{12}O_6$ 192.168
$[\alpha]_{278}^{25}$ +79.5 (c, 0.6 in DMSO).

Me glycoside, 2,3-O-*isopropylidene: Methyl 2,3*-O-*isopropylidene-β-D-ribofuranuronoside*
[54622-95-6]
$C_9H_{14}O_6$ 218.206
Needles. Mp 125-126°. $Bp_{0.1}$ 100° subl.

Me glycoside, 2,3-O-*isopropylidene, Me ester: Methyl (methyl 2,3*-O-*isopropylidene-β-D-ribofuranosid)uronate*
[50767-74-3]
$C_{10}H_{16}O_6$ 232.233
$Bp_{0.001}$ 80°. n_D^{25} 1.4437.

Me glycoside, 2,3-O-*isopropylidene, isopropyl ester: Isopropyl (methyl 2,3*-O-*isopropylidene-β-D-ribofuranosid)uronate*
[54837-40-0]
$C_{12}H_{20}O_6$ 260.286

$Bp_{0.001}$ 57°. n_D^{20} 1.4434.

Benzyl glycoside: Benzyl β-D-ribofuranosiduronic acid

$C_{12}H_{14}O_6$ 254.239

Cryst. (EtOAc). Mp 104-105°. $[\alpha]_D^{20}$ -63.3 (c, 1.0 in H_2O).

Benzyl glycoside, 2,3-O-isopropylidene: Benzyl 2,3-O-isopropylidene-β-D-ribofuranuronoside

[68673-83-6]

$C_{15}H_{18}O_6$ 294.304

Cryst. (petrol). Mp 80-82°.

Benzyl glycoside, 2,3-O-isopropylidene, Me ester: Methyl (benzyl 2,3-O-isopropylidene-β-D-ribofuranosid)uronate

[68673-85-8]

$C_{16}H_{20}O_6$ 308.33

$Bp_{0.01}$ 125°.

L-form

Viscous syrup. $[\alpha]_D^{26}$ -21.9 (c, 4.8 in H_2O).

Brucine salt:

Cryst. (EtOH aq.). Mp 201-203°.

[134616-29-8, 134679-12-2, 134679-16-6]

Heyns, K. *et al., Chem. Ber.*, 1961, **94**, 348 (*D-form*)

Schmidt, R.R. *et al., Annalen*, 1974, 1856 (*β-D-Me fur isopropylidene, β-D-Me fur isopropylidene Me ester, β-D-Me fur isopropylidene isopropyl ester*)

Walker, T.E. *et al., Carbohydr. Res.*, 1974, **32**, 413 (*L-form*)

Hampton, A. *et al., Carbohydr. Res.*, 1974, **37**, 359 (*β-D-Me fur isopropylidene*)

Schmidt, R.R. *et al., Chem. Ber.*, 1978, **111**, 3311 (*β-D-fur isopropylidene, β-D-fur isopropylidene lactone, β-D-benzyl fur isopropylidene, β-D-benzyl fur isopropylidene Me ester*)

Jung, K.-H. *et al., Annalen*, 1979, 1426 (*β-D-Me fur Me ester*)

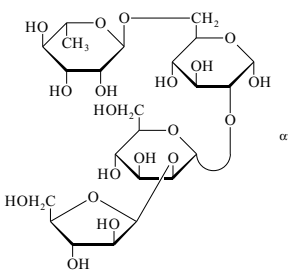
Morgenlie, S. *et al., Carbohydr. Res.*, 1979, **59**, 73 (*α-D-fur isopropylidene Me ester*)

Amemura, A. *et al., Carbohydr. Res.*, 1981, **91**, 59 (*D-form, isol*)

Wu, J. *et al., Carbohydr. Res.*, 1991, **210**, 51 (*pmr, cmr*)

Ristotetrose R-147

β-D-Arabinofuranosyl-(1→2)-α-D-mannopyranosyl-(1→2)-[α-L-rhamnopyranosyl-(1→6)]-D-glucose



α–Pyranose–*form*

$C_{23}H_{40}O_{19}$ 620.558

The Ara residue was originally considered to be in the pyranose-form. Equilib. appears to take place under the conditions of hydrol. Obt. from the acid catalysed acetolysis of Ristomycin A.

Propyl glycoside:

$C_{26}H_{46}O_{19}$ 662.638

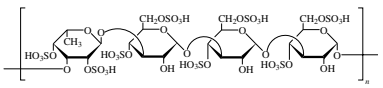
Syrup. $[\alpha]_D^{20}$ +42 (c, 0.6 in H_2O).

Neszmelyi, A. *et al., J. Antibiot.*, 1978, **31**, 974 (*cmr*)

Sztaricskai, F. *et al., J.A.C.S.*, 1980, **102**, 7093 (*isol, pmr*)

Medakovic, D. *et al., Carbohydr. Res.*, 1990, **198**, 15 (***struct**, synth*)

Rosacelose R-148



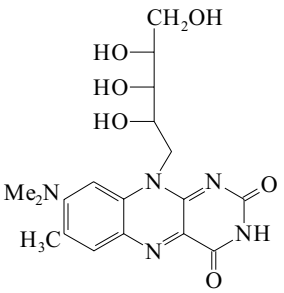
Polymer of sulfated D-glucose/L-fucose in approx. 3:1 ratio. Idealised struct. shown. Isol. from the marine sponge *Mixylla rosacea*. Shows anti-HIV props.

Cimino, P. *et al., Carbohydr. Res.*, 2001, **334**, 39-47 (*isol, pmr, cmr, struct*)

Roseoflavin R-149

8-Demethyl-8-(dimethylamino)riboflavin, 9CI

[51093-55-1]



$C_{18}H_{23}N_5O_6$ 405.41

Prod. by *Streptomyces davawensis*. Riboflavin antagonist. Active against gram-positive bacteria. Deep-red needles. Mp 276-278°. $[\alpha]_D$ -315 (c, 1 in 0.1M NaOH). pK_a 10.8.

▶ VJ1300000

Tetra-Ac: [51093-57-3]

Red-brown cryst. (MeOH). Mp 279-280°.

Miuri, R. *et al., Chem. Comm.*, 1973, 703 (*cryst struct*)

Otani, S. *et al., J. Antibiot.*, 1974, **27**, 88 (*isol*)

Kasai, S. *et al., Bull. Chem. Soc. Jpn.*, 1975, **48**, 2877 (*uv, nmr*)

Rudziv, E.A. *et al., Khim.-Farm. Zh.*, 1978, **12**, 52 (*synth*)

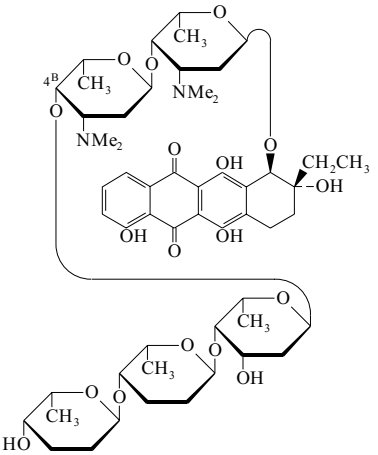
Light, D.R. *et al., Anal. Biochem.*, 1980, **109**, 87 (*hplc*)

Matsui, K. *et al., CA*, 1980, **93**, 200647 (*biosynth*)

Otani, S. *et al., Methods Enzymol.*, 1980, **66**, 235 (*rev*)

Roseorubicin A R-150

[70559-00-1]



$C_{54}H_{78}N_2O_{18}$ 1043.213

Anthracycline antibiotic. Isol. from *Actinomyces roseoviolaceus*. Active against gram-positive and -negative bacteria. Red powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O.

Mp 143-147°. λ_{max} 237 (E1%/1cm 354); 256 (E1%/1cm 300); 295 (E1%/1cm 80); 495 (E1%/1cm 152); 530 (E1%/1cm 117); 580 (E1%/1cm 26) (MeOH) (Berdy).

▶ QI9425400

*4^B-Deglycosyl: **γ-Rhodomycin II**. Roseorubicin B. γ-Rhodomycin-Roa$_2$*

[70559-01-2]

$C_{36}H_{48}N_2O_{11}$ 684.782

Isol. from *Actinomyces roseoviolaceus* and *Streptomyces purpurascens*. Active against gram-positive and -negative bacteria. Red powder.

Mp 122-124°.

▶ QI9425300

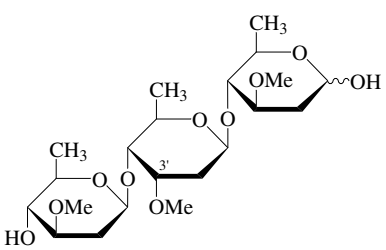
Brockmann, H. *et al., Tet. Lett.*, 1969, 415 (*γ-Rhodomycin II*)

Matsuzawa, Y. *et al., J. Antibiot.*, 1979, **32**, 420; 1981, **34**, 1596 (*Roseorubicins*)

Royleose R-151

2,6-Dideoxy-3-O-methyl-β-D-arabino-hexopyranosyl-(1→4)-2,6-dideoxy-3-O-methyl-β-D-ribo-hexopyranosyl-(1→4)-2,6-dideoxy-3-O-methyl-β-D-arabino-hexopyranoside. β-D-Oleandropyranosyl-(1→4)-β-D-cymaropyranosyl-(1→4)-β-D-oleandropyranose

[205488-06-8]



$C_{21}H_{38}O_{10}$ 450.525

Constit. of *Marsdenia roylei*.
$[\alpha]_D$ +12 (c, 0.34 in $CHCl_3$).

3′-O-De-Me: β-D-Oleandropyranosyl-(1→4)-β-D-digitoxopyranosyl-(1→4)-β-D-oleandropyranose. ***Deniose***
$C_{20}H_{36}O_{10}$ 436.498
Constit. of *Marsdenia roylei*.
$[\alpha]_D$ +25 (c, 0.4 in $CHCl_3$).

Kumar, A. *et al., Phytochemistry*, 1999, **52**, 675-679

RP 31177 R-152

Glycopeptide. Prod. by *Streptomyces calidus* NRRL 8141. Inhibits glucosidases such as amylase, maltase and sucrase. Sol. H_2O.

Ger. Pat., 1977, 2 702 417; *CA*, **87**, 116426u (*isol*)

RP 34129 R-153

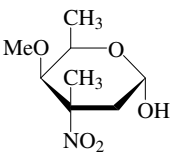
[69913-45-7]

Glycopeptide; struct. unknown. Prod. by *Streptomyces stimulosus* DS 25556. Shows immunostimulating properties. Amorph. powder. Sol. H_2O.

Ger. Pat., 1979, 2 833 799; *CA*, **90**, 184901g (*isol*)

Rubranitrose R-154

2,3,6-Trideoxy-3-C-methyl-4-O-methyl-3-nitro-xylo-hexopyranose



α-D-Pyranose-*form*

$C_8H_{15}NO_5$ 205.21

D-*form*
Mp 154-156°. $[\alpha]_D$ +115 → +86 (c, 0.5 in EtOH).

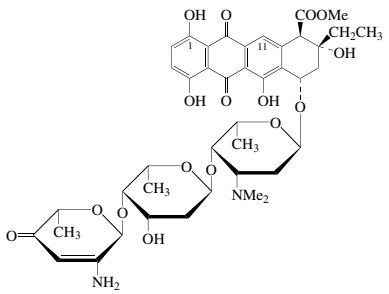
L-*form*
Mp 152-154° (147-148°). $[\alpha]_D^{22}$ -76 (c, 0.48 in EtOH). $[\alpha]_D$ -114.5 → -83 (c, 0.4 in EtOH).

α-L-*form*
Me glycoside: Methyl 2,3,6-trideoxy-3-C-methyl-4-O-methyl-3-nitro-α-L-xylo-hexopyranoside
$C_9H_{17}NO_5$ 219.237
Mp 92-93°. $[\alpha]_D$ -171 (c, 0.7 in $CHCl_3$).

Mizsak, S.A. *et al., J. Antibiot.*, 1979, **32**, 771; 773 (*occur, struct*)
Brimacombe, J.S. *et al., Carbohydr. Res.*, 1983, **114**, C1 (*D-form, L-form, α-L-Me pyr, synth*)
Yoshimura, J. *et al., Carbohydr. Res.*, 1986, **155**, 236 (*synth*)
Giuliano, R.M. *et al., J.O.C.*, 1986, **51**, 2304 (*partial synth, D-form*)

Rudolfomycin R-155

Pyrrocycline C. Rudolphomycin
[69245-38-1]



$C_{42}H_{52}N_2O_{16}$ 840.877

Anthracycline-type antibiotic. Component of Bohemic acid complex. Isol. from *Actinosporangium* spp. Antimicrobial and antitumour agent. Red solid. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 171-175°. λ_{max} 233 (ε 44600); 257 (ε 27900); 280 (ε 29800); 490 (ε 13800) (MeOH) (Berdy).

▶ QI9279600

1-Deoxy: ***Aclacinomycin X***†
$C_{42}H_{52}N_2O_{15}$ 824.877
Prod. by *Streptomyces galilaeus*. Antitumour agent. Yellow powder.
Mp 169-172°. $[\alpha]_D^{20}$ +103.4 (c, 0.09 in MeOH). λ_{max} 228 (log ε 4.77); 262 (log ε 4.64); 280 (log ε 4.65); 431 (log ε 4.26) (MeOH).

1-Deoxy, 11-hydroxy: ***11-Hydroxyaclacinomycin X***
[176665-19-3]
$C_{42}H_{52}N_2O_{16}$ 840.877
Prod. by *Streptomyces galilaeus*. Red powder.
Mp 184-187°. $[\alpha]_D$ +56 (c, 0.1 in $CHCl_3$). λ_{max} 234 (log ε 4.55); 254 (log ε 4.37); 284 (log ε 4.33); 492 (log ε 4.08) (MeOH).

U.S. Pat., 1978, 4 123 608; *CA*, **91**, 18343c (*isol*)
DuVernay, V.H. *et al., Anthracyclines [Proc. Workshop]*, Academic Press, N.Y., 1979, 61 (*rev*)
Doyle, T.W. *et al., J.A.C.S.*, 1979, **101**, 7041 (*struct, cmr*)
DuVernay, V.H. *et al., Mol. Pharmacol.*, 1979, **15**, 341 (*struct*)
Nettleton, D.E. *et al., J. Nat. Prod.*, 1980, **43**, 242
Matsuzawa, Y. *et al., J. Antibiot.*, 1981, **34**, 1596 (*props*)
Kim, H.S. *et al., Biosci., Biotechnol., Biochem.*, 1996, **60**, 906 (*Aclacinomycin X*)
Kim, H.S. *et al., J. Antibiot.*, 1996, **49**, 355 (*11-Hydroxyaclacinomycin X*)

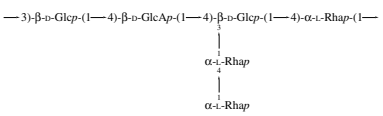
S2 S-1

Glycoprotein. Isol. from *Coriolus versicolor*. Shows antitumour activity.

Eur. Pat., 1996, 725 077; *CA*, **125**, 216871g (*isol*)

S-657 S-2

[125005-87-0]



Elaborated by *Xanthomonas* ATCC 53159.

Chowdhury, T.A. *et al., Carbohydr. Res.*, 1987, **164**, 117 (*struct*)

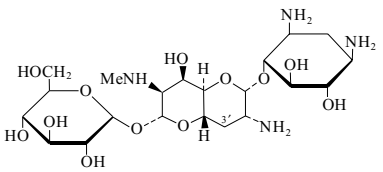
Lee, E.J. *et al., Carbohydr. Res.*, 1991, **214**, 11 (*struct*)

Campana, S. *et al., Carbohydr. Res.*, 1992, **231**, 31 (*struct, props*)

Saccharocin S-3

4″-Deamino-4″-hydroxyapramycin. KA 5685. Antibiotic KA 5685

[86630-31-1]



$C_{21}H_{40}N_4O_{12}$ 540.567

Aminoglycoside antibiotic. Prod. by *Saccharopolyspora hirsuta* and *Saccharopolyspora* sp. AC 3440. Highly active against gram-positive and -negative bacteria incl. aminoglycoside resistant strains, except *E. coli*. Basic powder + $2H_2O$.

Mp 188-190°. $[\alpha]_D^{24}$ +163.5 (c, 1 in H_2O).

3′-Hydroxy: ***3′-Hydroxysaccharocin***. *3′-Oxysaccharocin*

$C_{21}H_{40}N_4O_{13}$ 556.566

From *Saccharopolyspora* sp. AC 3440. Active against gram-positive and -negative bacteria. Sol. H_2O; poorly sol. Me_2CO, C_6H_6, EtOAc.

Mp 230° dec. $[\alpha]_D^{24}$ +162 (c, 0.25 in H_2O).

Ger. Pat., 1983, 3 245 836; *CA*, **99**, 211136 (*isol*)

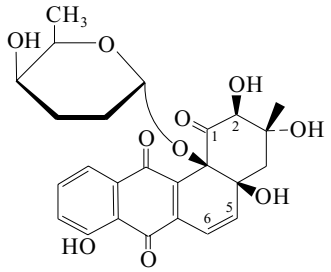
Awata, M. *et al., J. Antibiot.*, 1983, **36**, 651 (*isol, uv, ir, pmr, cmr, props*)

Kamiya, K. *et al., J. Antibiot.*, 1983, **36**, 738 (*isol, ir, pmr*)

Tatsuta, K. *et al., Bull. Chem. Soc. Jpn.*, 1984, **57**, 529 (*synth, pmr*)

Sakyomicin A S-4

[86413-75-4]



$C_{25}H_{26}O_{10}$ 486.474

Angucycline antibiotic. Isol. from *Nocardia* sp. Active against gram-positive bacteria. Orange cryst. (hexane/Me_2CO). Sol. MeOH, $CHCl_3$; poorly sol. H_2O.

Mp 205-207°. $[\alpha]_D^{20}$ -99.4 (c, 0.8 in EtOH). λ_{max} 216 (ϵ 28500); 238 (ϵ 15900); 310 (ϵ 5300); 415 (ϵ 4500) (EtOH) (Derep).

▶ LD_{50} (mus, ipr) 20 mg/kg.

2-Deoxy: ***Sakyomicin C***

[86413-76-5]

$C_{25}H_{26}O_9$ 470.475

From *Nocardia* spp. Active against gram-positive bacteria. Orange cryst. Sol. MeOH, $CHCl_3$; poorly sol. H_2O.

Mp 143-145°. $[\alpha]_D^{21}$ -82.7 (c, 0.8 in MeOH). λ_{max} 216 (ϵ 28500); 238 (ϵ 15900); 310 (ϵ 5300); 415 (ϵ 4500) (EtOH) (Derep). λ_{max} 216 (ϵ 2000); 240 (ϵ 11500); 310 (ϵ 3500); 415 (ϵ 4400) (EtOH) (Berdy).

Irie, H. *et al., Chem. Comm.*, 1983, 174 (*isol, cryst struct*)

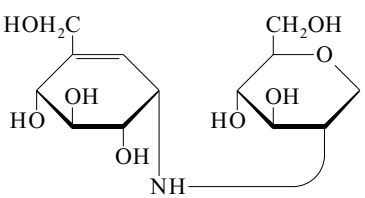
Nagasawa, T. *et al., J. Antibiot.*, 1984, **37**, 693 (*isol, props*)

Nagasawa, T. *et al., J. Antibiot.*, 1986, **39**, 550-556; 557-561 (*isol, props*)

Salbostatin S-5

1,5-Anhydro-2-deoxy-2-[[4,5,6-trihydroxy-3-(hydroxymethyl)-2-cyclohexen-1-yl]amino]-L-arabino-hexitol, 9CI

[128826-89-1]



$C_{13}H_{23}NO_8$ 321.327

Aminoglycoside antibiotic. Prod. by *Streptomyces albus*. Inhibitor of trehalase and potential plant pesticide. Amorph. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{20}$ +115 (c, 1 in H_2O).

Vertesy, L. *et al., Angew. Chem., Int. Ed.*, 1994, **33**, 1844 (*isol, pmr, cmr, struct*)

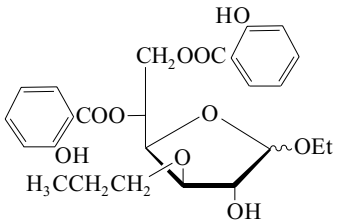
Yamagishi, T. *et al., Bioorg. Med. Chem. Lett.*, 1995, **5**, 487 (*synth*)

Yamagishi, T. *et al., Chem. Eur. J.*, 1995, **1**, 634 (*synth, pmr, cmr*)

Salprotoside, INN S-6

Ethyl 3-O-propyl-D-glucofuranoside 5,6-bis(2-hydroxybenzoate), 9CI. Ethyl 3-O-propyl-D-glucofuranoside 5,6-disalicylate

[33779-37-2]



$C_{25}H_{30}O_{10}$ 490.506

Antiinflammatory agent, analgesic. Never marketed$[\alpha]_D^{20}$ -43 (c, 1.3 in $CHCl_3$). Log P 4.79 (calc).

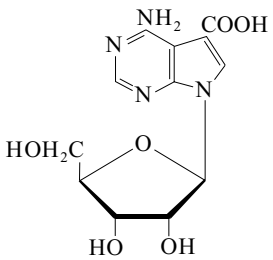
[50452-43-2]

Swiss Pat., 1973, 535 757, (*Ciba-Geigy*); *CA*, **79**, 79131f (*synth, pharmacol*)

Sangivamycic acid S-7

4-Amino-7-β-D-ribofuranosyl-7H-pyrrolo-[2,3-d]pyrimidine-5-carboxylic acid, 8CI

[18418-00-3]



$C_{12}H_{14}N_4O_6$ 310.266

Cryst. (H_2O). Mp 238° dec.

Hydrochloride: [21090-38-0]

Plates (MeOH). Mp 236-238°.

Me ester: ***5-(Methoxycarbonyl)tubercidin***

[18440-68-1]

$C_{13}H_{16}N_4O_6$ 324.293

Isol. from the sponge *Jaspis johnstoni*. Cytotoxic agent. Cryst. (MeOH/$CHCl_3$). Sol. MeOH, $CHCl_3$; poorly sol. hexane. Mp 216-218°. λ_{max} 211; 232 (sh); 281 (MeOH).

Me ester; hydrochloride:

Prisms (MeOH). Mp 216-218°.

Amide: ***Sangivamycin***. *B 14437. BA 90912. NSC 65346. OS 1998. Antibiotic B 14437. Antibiotic BA 90912*

[18417-89-5]

$C_{12}H_{15}N_5O_5$ 309.281

Produced by a strain of *Streptomyces rimosus*. Possesses cytotoxicity against HeLa cells and exhibits significant activity against leukaemia 1210 in mice.

Mp 260°. $[\alpha]_D^{26}$ -45.7 (c, 1 in 0.1*M* HCl). λ_{max} 229 (ϵ 8200); 278 (ϵ 15100) (EtOH).

▶ LD_{50} (mus, orl) 11 mg/kg. UY9355000

Nitrile: 4-Amino-7-β-D-ribofuranosyl-7H-pyrrolo[2,3-d]pyrimidine-5-carbonitrile, 9CI. ***Toyocamycin***. *Cyanotubercidin. Unamycin B. Vengicide. E 212. Antibiotic*

1037. Antibiotic E 212. Anhygroscopin B. Naritheracin
[606-58-6]
$C_{12}H_{13}N_5O_4$ 291.266
Isol. from *Streptomyces toyocaensis* and *Streptomyces fungicidicus*. Active against gram-positive organisms; shows some exp. antineoplastic activity. Needles or prisms + $1H_2O$.
Mp 243°. $[\alpha]_D^{26}$ -55.6 (c, 1 in 0.1*M* HCl). λ_{max} 235 (ϵ 22100); 273 (ϵ 16300) (0.1*N* HCl) (Derep). λ_{max} 235 (ϵ 11600); 280 (ϵ 16600) (0.1*N* NaOH) (Derep). λ_{max} 207 (ϵ); 232 (ϵ 11060); 274 (sh) (ϵ); 278 (ϵ 15700); 289 (sh) (ϵ) (MeOH) (Derep).
▶ LD_{50} (mus, orl) 8 mg/kg. UY9100000

Nitrile, 5′-O-α-D-glucopyranoside: ***Toyocamycin 5′-α-D-glucopyranose***
[117456-79-8]
$C_{18}H_{23}N_5O_9$ 453.408
From *Tolypothrix tenuis* and *Plectonema radiosum*. Cytotoxic and antifungal agent. Amorph. Sol. H_2O. $[\alpha]_D^{25}$ +2.1 (c, 0.03 in H_2O). λ_{max} 230 (ϵ 7400); 278 (ϵ 10000) (H_2O) (Derep).

5′-Deoxy, nitrile: ***5′-Deoxytoyocamycin***
[65562-55-2]
$C_{12}H_{13}N_5O_3$ 275.266
Prod. by *Streptomyces* sp. A14345. Cryst. + $\frac{1}{2}H_2O$ (H_2O).
Mp 187-188°. λ_{max} 235 (ϵ 22100); 273 (ϵ 16300) (0.1*N* HCl) (Derep). λ_{max} 235 (ϵ 11600); 280 (ϵ 16600) (0.1*N* NaOH) (Derep). λ_{max} 207 (ϵ); 232 (ϵ 11060); 274 (sh) (ϵ); 278 (ϵ 15700); 289 (sh) (ϵ) (MeOH) (Derep).

Suzuki, S. *et al., J. Antibiot., Ser. A*, 1961, **14**, 343
Aszalos, A. *et al., J. Antibiot.*, 1966, **19**, 285
Rao, K.V. *et al., J. Med. Chem.*, 1968, **11**, 939 (*Sangivamycin, isol, struct*)
Tolman, R.L. *et al., J.A.C.S.*, 1968, **90**, 524; 1969, **91**, 2102 (*Sangivamycic acid, Sangivamycin, Toyocamycin, struct, synth*)
U.S. Pat., 1969, 3 423 398; *CA*, **70**, 86268y (*Sangivamycin*)
Uematsu, T. *et al., J. Biol. Chem.*, 1970, **245**, 4365 (*biosynth*)
Japan. Pat., 1970, 70 19 638; *CA*, **73**, 108253f (*isol*)
Nichol, C.A. *et al., Handb. Exp. Pharmacol.*, 1975, **38**, 434 (*rev, pharmacol*)
Chenon, M.-T. *et al., J.A.C.S.*, 1975, **97**, 4627 (*nmr*)
Wang, Y. *et al., Carbohydr. Res.*, 1977, **59**, 449 (*5′-Deoxytoyocamycin*)
Prusiner, P. *et al., Acta Cryst. B*, 1978, **34**, 517 (*cryst struct, deriv*)
Bergstrom, D.E. *et al., J.O.C.*, 1981, **46**, 1423-1431 (*synth, Methoxycarbonyltubercidin*)
Stewart, J.B. *et al., J. Antibiot.*, 1988, **41**, 1048 (*deriv*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Osada, H. *et al., J. Antibiot.*, 1989, **42**, 102 (*props*)
Zabriskie, T.M. *et al., J. Nat. Prod.*, 1989, **52**, 1353-1356 (*Methoxycarbonyltubercidin*)
Isaac, B.G. *et al., J. Antibiot.*, 1991, **44**, 729 (*5′-Deoxytoyocamycin*)
Iimori, T. *et al., Tet. Lett.*, 1991, **32**, 7273 (*pmr, conformn*)
Sharma, M. *et al., Nucleosides Nucleotides*, 1993, **12**, 643 (*synth, Toyocamycin*)
Porcari, A.R. *et al., Nucleosides Nucleotides*, 1999, **18**, 153-159 (*synth, Toyocamycin*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SAU000; VGZ000

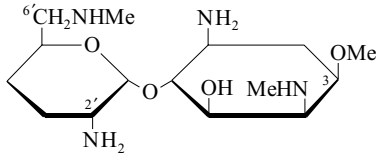
Sankaranin S-8

Peptidoglycan. Isol. from Sangkarani (*Baleria* roots). Shows antimicrobial activity; immunostimulant. Sol. H_2O; fairly sol. DMSO, DMF, Py; poorly sol. EtOH, hexane, Me_2CO.

Japan. Pat., 1987, 87 19 526; *CA*, **106**, 182631u (*isol*)

Sannamycin C S-9

KA 7038 VI. Antibiotic KA 7038VI. 3-Episannamycin B
[73522-71-1]



$C_{15}H_{32}N_4O_4$ 332.442
Aminoglycoside antibiotic. Prod. by *Streptomyces sannanensis*. Weakly active against gram-positive bacteria. Solid + $\frac{1}{2}$ H_2O. Sol. H_2O, MeOH; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane. $[\alpha]_D^{25}$ +59 (c, 1 in H_2O). This strain also prod. Istamycins A, Ao, Xo, Yo and Antibiotic KA 7038-IV.
▶ LD_{50} (mus, ivn) 300 - 700 mg/kg. NM7521620

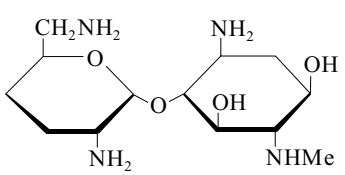
N$^{2'}$-(N-Formylglycyl): ***Sannamycin F****. KA 7038VIII. Antibiotic KA 7038VIII*
[83931-91-3]
$C_{18}H_{35}N_5O_6$ 417.504
Prod. by *Streptomyces sannanensis*. Weakly active against gram-positive and -negative bacteria. Solid. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{23}$ +100.5 (c, 1 in H_2O).

6′-N-De-Me: ***Sannamycin J****. KA 7038 IX. Antibiotic KA 7038IX*
[83997-42-6]
$C_{14}H_{30}N_4O_4$ 318.415
Prod. by *Streptomyces sannanensis*. Weakly active against gram-positive and -negative bacteria. Solid. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{23}$ +82 (c, 1 in H_2O).

Ger. Pat., 1980, 2 928 373; *CA*, **92**, 196387
Deushi, T. *et al., J. Antibiot.*, 1980, **33**, 1274 (*isol, struct, ir, nmr*)
Iwasaki, A. *et al., Int. J. Syst. Bacteriol.*, 1981, **31**, 280 (*isol*)
Watanabe, I. *et al., Nippon Kagaku Kaishi*, 1982, 1696; *CA*, **98**, 14108 (*isol*)

Sannamycin E S-10

KA 7038 II. Antibiotic KA 7038 II
[73051-92-0]



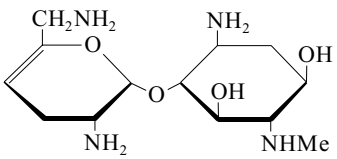
$C_{13}H_{28}N_4O_4$ 304.389
Aminoglycoside antibiotic. Prod. by *Streptomyces sannanensis*. Weakly active against gram-positive bacteria. Powder. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. Me_2CO, hexane.
Mp 85-102°. $[\alpha]_D^{25}$ +61 (c, 1 in H_2O). This strain also produces Istamycins A, Ao, Xo, Yo and Antibiotic KA 7038 IV.
▶ NM7522567

N-*De-Me:* ***Sannamycin L****. KA 7038 XI. Antibiotic KA 7038 XI*
[83946-32-1]
$C_{12}H_{26}N_4O_4$ 290.362
Prod. by *Streptomyces sannanensis*. Weakly active against gram-positive and -negative bacteria. Solid. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{23}$ +95 (c, 1 in H_2O).

Japan. Pat., 1979, 79 141 701; *CA*, **93**, 6123 (*isol*)
Watanabe, I. *et al., Nippon Kagaku Kaishi*, 1982, 1696; *CA*, **98**, 14108 (*isol, struct*)

Sannamycin K S-11

4′,5′-Didehydrosannamycin E. KA 7038X. Antibiotic KA 7038X
[83919-30-6]

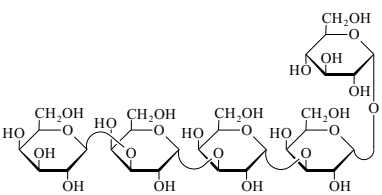


$C_{13}H_{26}N_4O_4$ 302.373
Aminoglycoside antibiotic. Prod. by *Streptomyces sannanensis*. Weakly active against gram-positive and -negative bacteria. Solid. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{23}$ +103.5 (c, 1 in H_2O).

Watanabe, I. *et al., Nippon Kagaku Kaishi*, 1982, 1696; *CA*, **98**, 14108 (*isol*)

Saponarose S-12

α-D-Glucopyranosyl β-D-galactopyranosyl-(1→3)-α-D-galactopyranosyl-(1→3)-α-D-galactopyranosyl-(1→3)-α-D-galactopyranoside
[28441-40-9]



$C_{30}H_{52}O_{26}$ 828.725
Isol. from the roots of *Saponaria officinalis*. Cryst. ($MeOH/Me_2CO$).
Mp 272-275°. $[\alpha]_D^{20}$ +167 (c, 1.2 in H_2O).

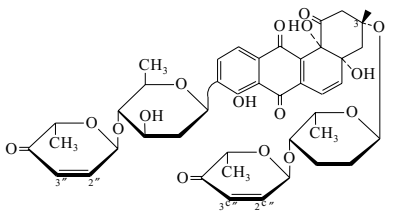
Heptadeca-Ac: [28441-39-6]
$C_{64}H_{86}O_{43}$ 1543.358
Cryst. (EtOH aq.). Mp 105-107°. $[\alpha]_D^{20}$ +154 (c, 2.4 in $CHCl_3$).

Heptadeca-Me: [28441-41-0]
$C_{47}H_{86}O_{26}$ 1067.181
Oil. $[\alpha]_D^{20}$ +132 (c, 6.0 in $CHCl_3$).

Bukharov, V.G. *et al., Khim. Prir. Soedin.*, 1969, **5**, 469; *Chem. Nat. Compd. (Engl. Transl.)*, 1969, **5**, 391 (*isol*)

Saquayamycin A S-13

[99260-65-8]



$C_{43}H_{48}O_{16}$ 820.843

Anthracycline-type antibiotic. Isol. from *Streptomyces nodosus*. Active against gram-positive bacteria and P388 leukaemia cells. Orange powder. Sol. MeOH, $CHCl_3$, butyl acetate; poorly sol. H_2O, hexane.

Mp 149-152° dec. $[\alpha]_D^{24}$ +77 (c, 0.4 in $CHCl_3$). λ_{max} 218 (ϵ 30500); 317 (ϵ 4840); 425 (ϵ 5250) (MeOH/HCl) (Derep). λ_{max} 217 (ϵ 49300); 285 (ϵ 9540); 390 (ϵ 3210); 540 (ϵ 5260) (0.01*N* NaOH) (Derep). λ_{max} 218 (ϵ 25000); 317 (ϵ 4000); 425 (ϵ 5000) (MeOH) (Derep). λ_{max} 215 (E1%/1cm 1120); 269 (E1%/1cm 138); 520 (E1%/1cm 68) (MeOH-NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 8 - 12 mg/kg. CX4900300

3-O-*Deglycosyl:* ***Saquayamycin A1***
[99260-66-9]
$C_{31}H_{32}O_{12}$ 596.587
Prod. by a *Streptomyces* sp. Active against gram-positive bacteria and P388 leukaemia cells.

2″,3″,2$^{C″}$,3$^{C″}$-Tetrahydro: ***Saquayamycin C***
[99260-70-5]
$C_{43}H_{52}O_{16}$ 824.874
From *Streptomyces nodosus*. Active against gram-positive bacteria and P388 leukaemia cells. Orange powder. Sol. MeOH, $CHCl_3$, butyl acetate; poorly sol. H_2O, hexane.
Mp 142-142.5° dec. $[\alpha]_D^{24}$ -53.3 (c, 0.3 in $CHCl_3$). λ_{max} 218 (ϵ 30500); 317 (ϵ 4840); 425 (ϵ 5250) (MeOH/HCl) (Derep). λ_{max} 217 (ϵ 49300); 285 (ϵ 9540); 390 (ϵ 3210); 540 (ϵ 5260) (0.01*N* NaOH) (Derep). λ_{max} 218 (ϵ 25000); 317 (ϵ 4000); 425 (ϵ 5000) (MeOH) (Derep). λ_{max} 218 (E1%/1cm 318); 316 (E1%/1cm 58); 425 (E1%/1cm 65) (MeOH-HCl) (Berdy). λ_{max} 215 (E1%/1cm 1198); 520 (E1%/1cm 67) (MeOH-NaOH) (Berdy).

3-O-*Deglycosyl, 2″,3″-dihydro:* ***Saquayamycin C1***
[99260-69-2]
$C_{31}H_{34}O_{12}$ 598.602
Prod. by a *Streptomyces* sp. Active against gram-positive bacteria and P388 leukaemia cells.

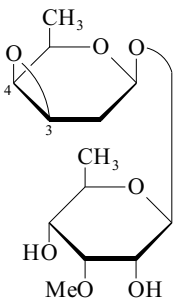
2^{C},3^{C}-Dihydro: ***Saquayamycin E***
[178484-51-0]
$C_{43}H_{50}O_{16}$ 822.858
Prod. by Actinomycetes strain MK290-AF1. Inhibitor of farnesyl protein transferase. Orange powder. Sol. MeOH, $CHCl_3$, EtOAc; poorly sol. H_2O, hexane. Mp 150-153° dec. $[\alpha]_D^{23}$ -11.5 (c, 0.2 in $CHCl_3$). λ_{max} 218 (ϵ 28183); 318 (ϵ 4571); 425 (ϵ 5754) (MeOH) (Berdy).

2″,3″-Dihydro: ***Saquayamycin F***
[178484-52-1]
$C_{43}H_{50}O_{16}$ 822.858
Prod. by Actinomycetes strain MK290-AF1. Inhibitor of farnesyl protein transferase. Orange powder. Sol. MeOH, EtOAc, $CHCl_3$; poorly sol. H_2O, hexane. Mp 148-152° dec. $[\alpha]_D^{25}$ -120 (c, 0.2 in $CHCl_3$). λ_{max} 218 (ϵ 30900); 318 (ϵ 4571); 425 (ϵ 5754) (MeOH) (Berdy).

Uchida, T. *et al., J. Antibiot.*, 1985, **38**, 1171 (*isol, uv, ir, pmr, cmr, ms*)
Eur. Pat., 1986, 191 399; *CA*, **105**, 189468 (*isol, struct*)
Sekizawa, R. *et al., J. Antibiot.*, 1996, **49**, 487 (*Saquayamycins E,F*)

Sarcobiose S-14

*3,4-Anhydro-2,6-dideoxy-β-D-*lyxo*-hexopyranosyl 6-deoxy-3-*O*-methyl-β-D-allopyranoside, 9CI*
[73852-93-4]



$C_{13}H_{22}O_7$ 290.313
Isol. from the dried twigs of *Sarcostemma brevistigma* (Asclepiadaceae). Rhombs. Mp 103-104° Mp 169-172°. $[\alpha]_D^{16}$ +68 (c, 0.7 in MeOH).

*3,4-Diepimer: 3,4-Anhydro-2,6-dideoxy-β-D-*ribo*-hexopyranosyl 6-deoxy-3-*O*-methyl-β-D-allopyranoside*
$C_{13}H_{22}O_7$ 290.313
Isol. from *Gymnema tingens, Dregea volubilis* and *Dregea abyssinica*. Rhombs (Me_2CO/Et_2O). Mp 203-206°. $[\alpha]_D$ +129 (c, 0.63 in MeOH).

Khare, D.P. *et al., Carbohydr. Res.*, 1980, **81**, 275; 285 (*isol, pmr, ms*)

Sargassan, 8CI S-15

[37271-13-9]

Branched sulfated polysaccharide based on a linear glucuronomannan chain. Isol. from the brown alga *Sargassum pallidum*.
$[\alpha]_D^{20}$ -40 (H_2O).

Ovodov, Y.S. *et al., Khim. Prir. Soedin.*, 1970, **6**, 285; *Chem. Nat. Compd. (Engl. Transl.)*, 1970, **6**, 285 (*isol*)
Khomenko, V.A. *et al., Khim. Prir. Soedin.*, 1971, **7**, 393; 396; *Chem. Nat. Compd. (Engl. Transl.)*, 1971, **7**, 375; 378 (*struct*)
Ovodov, Y.S. *et al., Khim. Prir. Soedin.*, 1975, **11**, 300; *Chem. Nat. Compd. (Engl. Transl.)*, 1975, **11**, 319 (*struct, rev*)
Pavlenko, A.F. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1976, **12**, 515 (*struct*)

Sargramostim, BAN, INN, USAN S-16

23-L-Leucine colony-stimulating factor 2 (human clone pHG25 protein moiety). Granulocyte-macrophage colony-stimulating factor. Leukine. Prokine. BI 61.012. GM-CSF
[123774-72-1]
$C_{639}H_{1002}N_{168}O_{196}S_8$ 14430.481
Single chain, glycosylated polypeptide of 127 AA residues. Isol. from *Saccharomyces cerevisiae*. Used as an adjuvant in cancer chemotherapies. Immunostimulant. Used for treatment of secondary neutropenia. Launched 1991 (US)

Burr, J.M. *et al., Clin. Pharm.*, 1991, **10**, 947 (*use*)
Gibaldi, M. *et al., Perspect. Clin. Pharm.*, 1991, **9**, 57
Milkovich, G. *et al., Pharmacotherapy (Carlisle, Mass.)*, 2000, **20**, 1432-1440 (*rev*)
Balducci, L. *et al., Drugs*, Suppl. 1, 2002, **62**, 47-63 (*rev*)
Smith, J.W. *et al., J. Immunother.*, 2003, **26**, 130-138 (*clin trial*)
Xu, J. *et al., Trends Pharmacol. Sci.*, 2004, **25**, 254-258 (*pharmacol*)

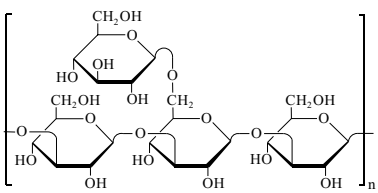
SATS 6504 S-17

Glycoprotein, MW >100000. Isol. from *Vibrio* SCRC-6504. Shows antitumour activity. Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane.

Japan. Pat., 1991, 91 22 994; *CA*, **115**, 112817w (*isol*)

Schizophyllan S-18

Sizofiran, 9CI, INN, JAN*. Sonfilan. SPG*
[9050-67-3]



$C_{24}H_{40}O_{20}$ 648.568

Polysaccharide antibiotic. Minimum formula given. A highly (1→6) branched (1→3) β-D-glucan. Polymeric. Isol. from *Schizophyllum commune*. Antineoplastic agent showing activity against sarcoma-180 ascites. Also augments antineoplastic props. of Interleukin 2 in mice. Immunostimulant. Launched 1985Sol. H_2O; poorly sol. MeOH, hexane, EtOH. Possesses triple-helical struct.

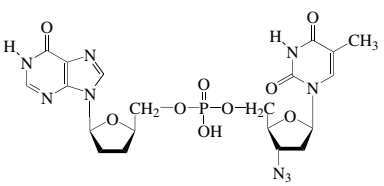
▶ VX2600000

Stereoisomer: ***Scleroglucan****. Betasizofiran, INN. Sclerosan. Sclerogum*
[39464-87-4]
$C_{24}H_{40}O_{20}$ 648.568
Isol. from *Sclerotium glucanicum*. Used for coating paper, and used in the food industry as a noncaloric, stable gelling agent. Shows antineoplastic activity. Sol. H_2O, MeOH; poorly sol. EtOH, Me_2CO, hexane. $[\alpha]_D$ -1 (NaOH aq.).

Belg. Pat., 1964, 639 361, (*Pillsbury*); *CA*, **62**, 11119e (*Scleroglucan, isol*)
Komatsu, N. *et al., Gann*, 1969, **60**, 137 (*isol, props*)
Kikumoto, S. *et al., Nippon Nogei Kagaku Kaishi*, 1970, **44**, 337; 1971, **45**, 162 (*isol, struct*)
Singh, P.P. *et al., Carbohydr. Res.*, 1974, **37**, 245 (*Scleroglucan, pharmacol*)
Saito, H. *et al., Carbohydr. Res.*, 1979, **74**, 227 (*cmr, struct*)
Cottrell, I.W. *et al., ACS Symp. Ser.*, 1980, **126**, 251 (*rev*)
Rinaudo, M. *et al., Carbohydr. Res.*, 1980, **100**, 117 (*deriv*)
Tabata, K. *et al., Carbohydr. Res.*, 1981, **89**, 121
Rinaudo, M. *et al., Carbohydr. Polym.*, 1982, **2**, 135 (*deriv, cmr, struct, conformn*)
Bluhm, T.L. *et al., Carbohydr. Res.*, 1982, **100**, 117 (*conformn*)
Van, K. *et al., Polym. J. (Tokyo)*, 1984, **16**, 61 (*ord*)
Takeo, K. *et al., Carbohydr. Res.*, 1986, **145**, 293 (*synth*)
Furue, H. *et al., Drugs of Today (Barcelona)*, 1987, **23**, 335 (*rev*)
Pretus, H.A. *et al., J. Pharmacol. Exp. Ther.*, 1991, **257**, 500 (*Scleroglucan*)
Ikeuchi, K. *et al., Keio J. Med.*, 1991, **40**, 132 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1412
Teramoto, A. *et al., Biopolymers*, 1995, **36**, 803 (*conformn*)
Coviello, T. *et al., Molecules*, 2005, **10**, 6-33 (*Scleroglucan, rev, use*)

Scriptene S-19

3′-Azido-3′-deoxythymidylyl-(5′→5′)-2′,3′-dideoxyinosine, 9CI. IVX-E-59. AZT-P-DDI
[121135-53-3]



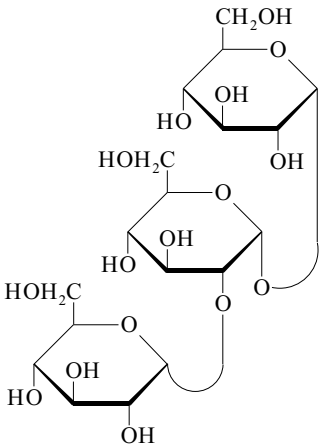
$C_{20}H_{24}N_9O_9P$ 565.438
Anti-HIV agent. No phys. props. accessible.

[188631-03-0, 188631-43-8]

Schinazi, R.F. *et al., Antimicrob. Agents Chemother.*, 1990, **34**, 1061-1067 (*pharmacol*)
Zhou, X-J. *et al., J. Clin. Pharmacol.*, 1997, **37**, 201-213 (*pharmacokinet*)
Japan. Pat., 1997, 09 48 793, (*Yamasa Shoyu*); *CA*, **126**, 251356k (*synth, salts*)

Selaginose S-20

α-D-Glucopyranosyl α-D-glucopyranosyl-(1→2)-α-D-glucopyranoside. 2-O-α-D-Glucopyranosyl-α-α-trehalose
[58546-68-2]

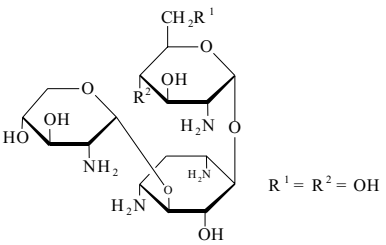


$C_{18}H_{32}O_{16}$ 504.441
Isol. from *Selaginella kraussiana*.
$[\alpha]_D^{22}$ +185 (c, 2.46 in H_2O).

Fischer, M. *et al., Phytochemistry*, 1975, **14**, 2629 (*isol*)

Seldomycin 1 S-21

XK 88-1. Antibiotic XK 88-1
[56276-04-1]

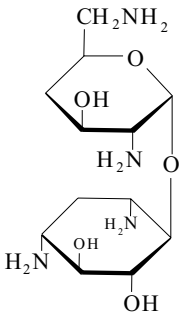


$C_{17}H_{34}N_4O_{10}$ 454.476
Aminoglycoside antibiotic. Isol. from *Streptomyces hofunensis*. Active against gram-positive bacteria. Amorph. powder. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane, EtOH.
▶ LD_{50} (mus, ivn) 1000 - 2000 mg/kg. WK1969240
Sulfate: Mp 200-240° dec. $[\alpha]_D^{25}$ +77.9 (c, 1.08 in H_2O).

Nara, T. *et al., J. Antibiot.*, 1977, **30**, 17 (*isol*)
Sato, S. *et al., J. Antibiot.*, 1977, **30**, 25 (*synth, chromatog, ir*)
Egan, R.S. *et al., J. Antibiot.*, 1977, **30**, 31 (*struct*)

Seldomycin 2 S-22

XK 88-2. Antibiotic XK 88-2
[54333-78-7]



$C_{12}H_{26}N_4O_5$ 306.361
Aminoglycoside antibiotic. Isol. from *Streptomyces hofunensis*. Active against a number of gram-positive organisms. Amorph. powder.
▶ WK2210000
Sulfate: Mp 225-250° dec. $[\alpha]_D^{25}$ +74.7 (c, 0.56 in H_2O).

Nara, T. *et al., J. Antibiot.*, 1977, **30**, 17 (*isol, props*)
Sato, S. *et al., J. Antibiot.*, 1977, **30**, 25 (*props, chromatog, ir, synth*)
Egan, R.S. *et al., J. Antibiot.*, 1977, **30**, 31 (*struct*)

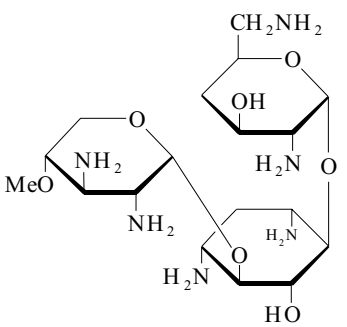
Seldomycin 3 S-23

XK 88-3. Antibiotic XK 88-3
[56276-05-2]
As Seldomycin 1, S-21 with $R^1 = NH_2$, $R^2 = OH$
$C_{17}H_{35}N_5O_9$ 453.492
Aminoglycoside antibiotic. Isol. from *Streptomyces hofunensis*. Shows antibacterial activity similar to Seldomycin 1, S-21. Amorph. powder. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane, EtOH.
Sulfate: Mp 215-240° dec. $[\alpha]_D^{25}$ +87.3 (c, 0.53 in H_2O).

Nara, T. *et al., J. Antibiot.*, 1977, **30**, 17 (*isol*)
Sato, S. *et al., J. Antibiot.*, 1977, **30**, 25 (*ir, chromatog, synth*)
Egan, R.S. *et al., J. Antibiot.*, 1977, **30**, 31 (*struct*)

Seldomycin 5 S-24

XK 88-5. Antibiotic XK 88-5
[56276-26-7]



$C_{18}H_{38}N_6O_7$ 450.534

Aminoglycoside antibiotic. Isol. from *Streptomyces hofunensis*. Similar antibacterial spectrum to other components but more active. Amorph. powder. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.

► LD_{50} (mus, ivn) 365 mg/kg, LD_{50} (mus, ipr) 500 mg/kg. WK2360000

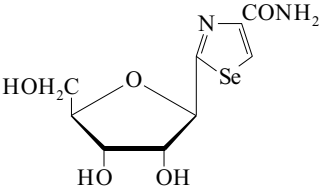
Sulfate: Mp 215-240° dec. $[\alpha]_D^{25}$ +93.9 (c, 0.54 in H_2O).

Nara, T. *et al., J. Antibiot.*, 1977, **30**, 17 (*isol*)
Sato, S. *et al., J. Antibiot.*, 1977, **30**, 25 (*chromatog, ir*)
McAlpine, J.B. *et al., J. Antibiot.*, 1977, **30**, 39 (*struct*)
Matsushima, H. *et al., Bull. Chem. Soc. Jpn.*, 1978, **51**, 3553 (*pharmacol*)
Shimizu, M. *et al., Agric. Biol. Chem.*, 1978, **42**, 653 (*manuf*)

Selenazofurin S-25

2-β-D-Ribofuranosyl-4-selenazolecarboxamide, 9CI. Selenazole†. NSC 340847. CI 935

[83705-13-9]



$C_9H_{12}N_2O_5Se$ 307.164

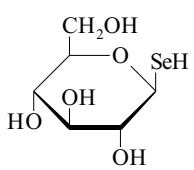
Nucleoside-type antibiotic. Synthetic. Antineoplastic and antiviral agent. Cryst. (2-propanol). Mp 131-133°. Log P -2.9 (calc). Five times more cytotoxic than S analogue Tiazofurine, T-114.

► VS6551500

Srivastava, P. *et al., J. Med. Chem.*, 1983, **26**, 445 (*synth*)
Sidwell, R.W. *et al., Antimicrob. Agents Chemother.*, 1985, **28**, 375 (*activity*)
Boritzki, T.J. *et al., Biochem. Pharmacol.*, 1985, **34**, 1109 (*pharmacol*)
Goldstein, B.M. *et al., J.A.C.S.*, 1985, **107**, 1394; 1990, **112**, 8265 (*cryst struct, Se nmr*)
Hennen, W.J. *et al., J.O.C.*, 1985, **50**, 1741 (*synth, cmr*)
Cook, P.D. *et al., J. Het. Chem.*, 1986, **23**, 155 (*synth*)
Smee, D.F. *et al., Antiviral Res.*, 1993, **20**, 57 (*activity*)

1-Selenoglucose S-26

1-Deoxy-1-selenoglucose



$C_6H_{12}O_5Se$ 243.118

β-D-Pyranose-*form*

Cryst. powder. Mp 190-200°. $[\alpha]_D^{20}$ +11.6 (c, 4 in H_2O). Mp varies with rate of heating, turns brown >100°. Dec. with further heating (gas evolved) and residue resolidifies above 215°.

Se-*Na salt:* Mp 190-200°. $[\alpha]_D^{20}$ +11.6 (c, 4 in H_2O).

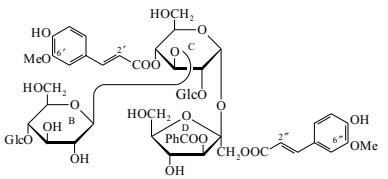
*1-*Se-*benzoyl, tetra-Ac:*
$C_{21}H_{24}O_{10}Se$ 515.375
Mp 112-115°. $[\alpha]_D^{20}$ -15.2 (c, 4 in $CHCl_3$).

*Ph glycoside, tetra-Ac: Phenyl 2,3,4,6-tetra-*O*-acetyl-1-seleno-β-glucopyranoside*
$C_{20}H_{24}O_9Se$ 487.364
$[\alpha]_D^{22}$ +240 (c, 1.0 in CH_2Cl_2).

Kocourek, J. *et al., Chem. Ind. (London)*, 1963, 1397 (*synth*)
Mehta, S. *et al., J.O.C.*, 1993, **58**, 3269 (*Ph glycoside*)

Senegose D S-27

[151466-63-6]



$C_{57}H_{72}O_{33}$ 1285.176

Constit. of the roots of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $2H_2O$. $[\alpha]_D^{23}$ -6.9 (c, 1 in MeOH). λ_{max} 220 (ε 28180); 233 (ε 29510); 284 (sh) (ε 17780); 299 (sh) (ε 24550); 325 (ε 33880) (MeOH).

6^B-Ac: ***Senegose C***
[151466-62-5]
$C_{59}H_{74}O_{34}$ 1327.213
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $2H_2O$. $[\alpha]_D^{23}$ -16 (c, 1.3 in MeOH). λ_{max} 219 (ε 33110); 233 (ε 33880); 284 (sh) (ε 20420); 297 (sh) (ε 26910); 327 (ε 40740) (MeOH).

6^C-Ac: ***Senegose B***
[151466-61-4]
$C_{59}H_{74}O_{34}$ 1327.213
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $1H_2O$. $[\alpha]_D^{23}$ -10.2 (c, 1.2 in MeOH). λ_{max} 220 (ε 38020); 233 (ε 38020); 284 (sh) (ε 24550); 299 (sh) (ε 30200); 327 (ε 43650) (MeOH).

6^B,6^C-Di-Ac: ***Senegose A***
[151466-60-3]
$C_{61}H_{76}O_{35}$ 1369.25
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $4\frac{1}{2}H_2O$. $[\alpha]_D^{23}$ -9.9 (c, 1.2 in MeOH). λ_{max} 220 (ε 33110); 233 (ε 33110); 284 (sh) (ε 20420); 299 (sh) (ε 26300); 328 (ε 38900) (MeOH).

6^B,6^C-Di-Ac, 2′-Z-isomer: ***Senegose E***
[151530-27-7]
$C_{61}H_{76}O_{35}$ 1369.25
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $3H_2O$. $[\alpha]_D^{23}$ +64.5 (c, 0.6 in MeOH). λ_{max} 220 (ε 35480); 232 (ε 35480); 284 (sh) (ε 19500); 301 (sh) (ε 25700); 327 (ε 36310) (MeOH).

4^B-Deglucosyl, 6^B-Ac: ***Senegose G***
[156031-87-7]
$C_{53}H_{64}O_{29}$ 1165.071
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $3H_2O$. $[\alpha]_D$ +1.2 (c, 1.2 in MeOH). λ_{max} 220 (ε 29510); 233 (ε 30200); 285 (sh) (ε 17380); 299 (sh) (ε 22910); 327 (ε 34670) (MeOH).

4^B-Deglucosyl, 6^C-Ac: ***Senegose H***
[156031-88-8]
$C_{53}H_{64}O_{29}$ 1165.071
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $2\frac{1}{2}H_2O$. $[\alpha]_D$ -3 (c, 0.66 in MeOH). λ_{max} 219 (ε 38020); 233 (ε 38020); 286 (sh) (ε 22390); 301 (sh) (ε 29510); 328 (ε 43650) (MeOH).

4^B-Deglucosyl, 6^B,6^C-di-Ac: ***Senegose F***
[156031-89-9]
$C_{55}H_{66}O_{30}$ 1207.108
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $3H_2O$. $[\alpha]_D^{22}$ -11.5 (c, 1.2 in MeOH). λ_{max} 219 (ε 38020); 233 (ε 38020); 285 (sh) (ε 22910); 299 (sh) (ε 28840); 327 (ε 43650) (MeOH).

2^C-Deglucosyl, 6^B,6^C-Di-Ac: ***Senegose I***
[156031-86-6]
$C_{55}H_{66}O_{30}$ 1207.108
Constit. of *Polygala senega* var. *latifolia* (Polygalaceae). Amorph. powder + $2\frac{1}{2}H_2O$. $[\alpha]_D^{22}$ -29.1 (c, 0.8 in MeOH). λ_{max} 220 (ε 35480); 234 (ε 35480); 287 (sh) (ε 21880); 300 (sh) (ε 26910); 328 (ε 40740) (MeOH).

6″-Demethoxy, 6^C-Ac: ***Senegose K***
[156250-47-4]
$C_{58}H_{72}O_{33}$ 1297.187
Constit. of *Polygala senega* (Polygalaceae). Amorph. powder + $3H_2O$. $[\alpha]_D^{25}$ -2.6 (c, 1 in MeOH). λ_{max} 223 (ε 26910); 231 (ε 28840); 287 (sh) (ε 20890); 302 (sh) (ε 28180); 319 (ε 33880) (MeOH).

6′-Demethoxy, 6^C-Ac: ***Senegose M***
[156250-49-6]
$C_{58}H_{72}O_{33}$ 1297.187
Constit. of *Polygala senega* (Polygalaceae). $[\alpha]_D^{25}$ +4.4 (c, 0.6 in MeOH). λ_{max} 223 (ε 32360); 232 (ε 34670); 287 (sh) (ε 22910); 302 (sh) (ε 29510); 320 (ε 36310) (MeOH).

6′-Demethoxy, 6^B,6^C-di-Ac: ***Senegose L***
[156250-48-5]
$C_{60}H_{74}O_{34}$ 1339.224
Constit. of *Polygala senega* (Polygalaceae). Amorph. powder + $4H_2O$. $[\alpha]_D^{25}$ -6.3 (c, 1 in MeOH). λ_{max} 222 (ε 22910); 232 (ε 25120); 286 (sh) (ε 16980); 302 (sh) (ε 23440) (MeOH).

6″-Demethoxy, 6^B,6^C-di-Ac: ***Senegose J***
[156250-46-3]
$C_{60}H_{74}O_{34}$ 1339.224
Constit. of *Polygala senega* (Polygalaceae). Amorph. powder + $4H_2O$. $[\alpha]_D^{25}$ -6.6 (c, 1.1 in MeOH). λ_{max} 224 (ε 27540); 231 (ε 30200); 288 (sh) (ε 22910); 303 (sh) (ε 30900); 320 (ε 38020) (MeOH).

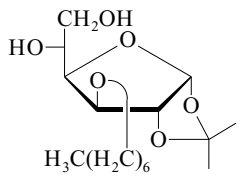
6″-Demethoxy, 6^B,6^C-di-Ac, 2′-Z-isomer:
Senegose N
[156317-48-5]
$C_{60}H_{74}O_{34}$ 1339.224
Constit. of *Polygala senega* (Polygalaceae). Amorph. powder + $5H_2O$. $[\alpha]_D^{25}$ +39.6 (c, 0.8 in MeOH). λ_{max} 224 (ϵ 23990); 230 (ϵ 25120); 286 (sh) (ϵ 18620); 302 (sh) (ϵ 25120); 318 (ϵ 30200) (MeOH).

6″-Demethoxy, 6^B,6^C-di-Ac, 2″Z-isomer:
Senegose O
[156317-49-6]
$C_{60}H_{74}O_{34}$ 1339.224
Constit. of *Polygala senega* (Polygalaceae). Amorph. powder + $4H_2O$. $[\alpha]_D^{25}$ -13.1 (c, 0.7 in MeOH). λ_{max} 220 (ϵ 2690); 230 (ϵ 2630); 286 (sh) (ϵ 1740); 301 (sh) (ϵ 2240); 320 (ϵ 2630) (MeOH).

Saitoh, H. *et al., Chem. Pharm. Bull.*, 1993, **41**, 1127; 2125; 1994, **42**, 641 (*isol, uv, pmr, cmr*)

Seprilose, USAN S-28

3-O-*Heptyl-1,2*-O-*(1-methylethylidene)-α-D-glucofuranose. 3*-O-*Heptyl-1,2*-O-*isopropylidene-α-D-glucofuranose. GW 80126*
[133692-55-4]

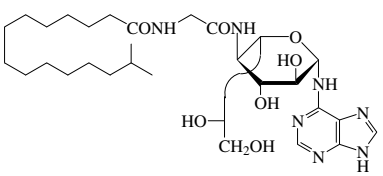


$C_{16}H_{30}O_6$ 318.409
Investigated for the treatment of autoimmune disorders, including rheumatoid arthritis. No phys. props. reported.

Eur. Pat., 1990, 379 397, (*Greenwich*); *CA*, **114**, 229286t (*synth, pharmacol, pmr*)

Septacidin S-29

LIA 0191A. Antibiotic LIA 0191A. NSC 65104
[62362-59-8]

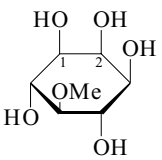


$C_{30}H_{51}N_7O_7$ 621.776
Nucleoside antibiotic. Diastereoisomer of Spicamycin, S-65. Prod. by *Streptomyces fimbriatus* ATCC15051 and *Streptomyces spheroides* NRRL15600. Active against fungi and tumours. Cryst. Sol. DMF, bases, AcOH, Py; fairly sol. MeOH, 1-propanol, Me_2CO, butanol, EtOH; poorly sol. H_2O, EtOAc, acids, hexane.
Mp 215-220° dec. $[\alpha]_D^{23}$ +6.6 (c, 1 in DMF). Darkens at 188°. λ_{max} 273 (ϵ 16000) (MeOH/HCl) (Derep). λ_{max} 272 (ϵ 14000) (MeOH/NaOH) (Derep). λ_{max} 264 (ϵ 16000) (MeOH) (Derep). λ_{max} 265 (E1%/1cm 253); 271 (E1%/1cm 220) (MeOH) (Berdy). λ_{max} 272 (E1%/1cm 275) (NaOH) (Berdy). λ_{max} 273 (E1%/1cm 229) (HCl) (Berdy).
▶ LD_{50} (mus, ipr) .5 - 1.5 mg/kg. MJ9850000

Dutcher, J.D. *et al., Antimicrob. Agents Chemother.*, 1963, 8
Agahigin, H. *et al., J.O.C.*, 1965, **30**, 1085 (*struct*)
Acton, E.M. *et al., J. Med. Chem.*, 1977, **20**, 1362
Mitrofanova, V.G. *et al., Antibiotiki (Moscow)*, 1978, **23**, 579 (*isol, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SBZ000

Sequoyitol S-30

5-O-*Methyl*-myo-*inositol*
[523-92-2]



$C_7H_{14}O_6$ 194.184
Occurs in all gymnosperms and two families of dicotyledons. Also isol. from ferns *Nephrolepsis auriculata* and *Nephrolepsis biserrata*.
Mp 243°. Opt. inactive (*meso*-). The sample from *N. auriculata* was reported to have $[\alpha]_D$ + 40°, which is impossible.

1,2-O-*Isopropylidene:*
$C_{10}H_{18}O_6$ 234.249
Mp 115°.

1,2-O-*Isopropylidene, 3,4,6-tri-Ac:*
$C_{16}H_{24}O_9$ 360.36
Mp 107-108°.

Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-5*-O-*methyl*-myo-*inositol*
[20254-33-5]
$C_{17}H_{24}O_{11}$ 404.37
Mp 203-204°.

Anderson, L. *et al., J.A.C.S.*, 1957, **79**, 1171-1174 (*isol, synth, struct*)
Angyal, S.J. *et al., J.C.S.*, 1957, 1417-1422 (*synth*)
Kindl, H. *et al., Prog. Chem. Org. Nat. Prod.*, 1966, **24**, 149 (*rev*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 281 (*bibl, occur*)
Cannon, J.R. *et al., Aust. J. Chem.*, 1980, **33**, 2229-2236 (*cryst struct*)
Murakami, T. *et al., Yakugaku Zasshi*, 1985, **105**, 649 (*isol*)
Sultana, N. *et al., Phytochemistry*, 1999, **50**, 1249-1253 (*isol, pmr, cmr*)

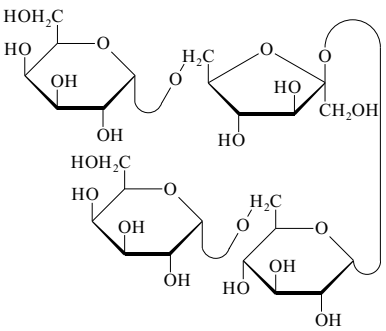
Serum gonadotrophin, BAN, INN S-31

PMSG. Pregnant mare serums gonadotropin. Equine cyonin. Gormon. Eleagol. Priatin. Serotropin. Gestyl. Antostab. Many other names
[9002-70-4]
Glycoprotein from blood of pregnant mares. Gonadotropic hormone.
▶ Exp. reprod. effects. TU4517000

Goss, H. *et al., Endocrinology (Baltimore)*, 1940, **26**, 244 (*isoln*)
Allen, W.R. *et al., Curr. Top. Vet. Med. Anim. Sci.*, 1978, **1**, 50 (*rev, biol*)
Moore, W.T. *et al., Chorionic Gonadotropin, [Proc. Conf.]*, 1979, 89 (*rev, props, activity*)
Combarnous, Y. *et al., Biochim. Biophys. Acta*, 1981, **667**, 267 (*props*)
Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 5932
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SCA750

Sesamose S-32

α-D-Galactopyranosyl-(1→6)-[α-D-galactopyranosyl-(1→6)-α-D-glucopyranosyl-(1→2)]-β-D-fructofuranoside. α-D-Galactopyranosyl-(1→6)-β-D-fructofuranosyl-(2→1)-[α-D-galactopyranosyl-(1→6)]-α-D-glucopyranoside

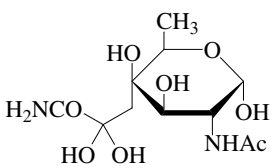


$C_{24}H_{42}O_{21}$ 666.583
Tentative struct. Isol. from seeds of *Sesamum indicum* (sesame). Not obt. pure.

Hatanaka, S. *et al., Arch. Biochem. Biophys.*, 1959, **82**, 188

Shewanellose S-33

2-Acetamido-4-C-*(2-carboxamido-2,2-dihydroxyethyl)-2,6-dideoxygalactose. 2-Acetamido-4*-C-*(3-amino-2,2-dihydroxy-3-oxopropyl)-2,6-dideoxygalactopyranose*
[463963-03-3]



$C_{11}H_{20}N_2O_8$ 308.288
Hydrated α-ketoamide.

D-form
Constit. of the *O*-specific polysaccharides of *Morganella morganii* and of *Shewanella putrefaciens* strain A6.

Shashkov, A.S. *et al., Carbohydr. Res.*, 2002, **337**, 1119-1127 (*occur, struct, pmr, cmr*)
Kilcoyne, M. *et al., Carbohydr. Res.*, 2002, **337**, 1697-1702 (*occur, struct, pmr, cmr*)
Knirel, Yu. A. *et al., Adv. Carbohydr. Chem. Biochem.*, 2003, **58**, 371-417 (*rev*)

Shinnamins S-34

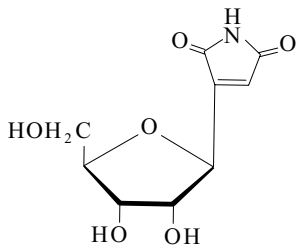
Glycoproteins. Isol. from *Flammulina velutipes*. Shows antitumour activity. Sol. H_2O; poorly sol. hexane. Phys. and chem. props. of 9 Shinnamins are reported.

[80456-09-3, 80456-10-6, 80456-11-7, 80456-12-8, 80456-13-9, 80456-14-0, 80456-15-1, 80456-16-2, 80456-17-3, 80456-18-4, 80456-19-5]

Japan. Pat., 1981, 81 127 317; *CA*, **96**, 40890d (*isol*)

Showdomycin S-35

*3-(β-D-Ribofuranosyl)-1*H*-pyrrole-2,5-dione, 9CI. 2-(β-D-Ribofuranosyl)maleimide, 8CI. NSC 93047*
[16755-07-0]



$C_9H_{11}NO_6$ 229.189

Nucleoside antibiotic. Isol. from *Streptomyces showdoensis*. Exhibits antitumour activity. Leaflets (Me_2CO/C_6H_6). Sol. H_2O, EtOH, Me_2CO, dioxan, DMF, butanol, MeOH; fairly sol. EtOAc, $CHCl_3$; poorly sol. C_6H_6, hexane, Et_2O. Mp 160-161°. $[\alpha]_D^{22.5}$ +49.9 (c, 1 in H_2O). pK_a 9.29 (H_2O). λ_{max} 222 (ε 12600); 272 (sh) (ε 6000) (95% EtOH) (Derep). λ_{max} 221 (E1%/1cm 442) (H_2O) (Berdy). λ_{max} 222 (ε 12600) (EtOH) (Berdy).

► LD_{50} (mus, ipr) 25 mg/kg; LD_{50} (mus, ivn) 110 mg/kg; LD_{50} (mus, scu) 18 mg/kg. ON6200000

Tri-Ac:
$C_{15}H_{17}NO_9$ 355.301
Mp 115-116°.

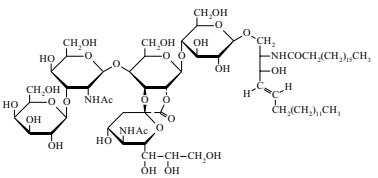
2′,3′-Isopropylidene:
$C_{12}H_{13}NO_6$ 267.238
Mp 140.5-141°.

*1′-Epimer: 3-(α-D-Ribofuranosyl)-1*H*-pyrrole-2,5-dione, 9CI*
[79934-05-7]
$C_9H_{11}NO_6$ 229.189
Cryst. Mp 137-139°. $[\alpha]_D^{20}$ -75.6 (c, 0.1 in H_2O).

Tsukuda, Y. *et al., Chem. Comm.*, 1967, 975 (*cryst struct*)
Darnall, K.R. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1967, **57**, 548 (*ir, uv, ms, struct, nmr, cryst struct*)
Kalvoda, L. *et al., Tet. Lett.*, 1970, 2297 (*synth, ir, uv, nmr*)
Trummlitz, G. *et al., J.O.C.*, 1973, **38**, 1841 (*synth, ir, uv, nmr*)
Sato, T. *et al., Tet. Lett.*, 1978, 1829 (*synth, uv, ir, nmr*)
Visser, D.W. *et al., Antibiotics (N.Y.)*, 1979, **5**, 363 (*rev, props*)
Buchanan, J.G. *et al., J.C.S. Perkin 1*, 1979, 225 (*synth*)
Buchanan, J.G. *et al., Chem. Comm.*, 1984, 1515; 1517 (*biosynth*)
Barrett, A.G.M. *et al., J.O.C.*, 1984, **49**, 3673; 1986, **51**, 495 (*synth, bibl*)
Takayama, H. *et al., Chem. Pharm. Bull.*, 1987, **35**, 433 (*synth*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Araki, Y. *et al., Tet. Lett.*, 1988, **29**, 351 (*synth*)
Pino Gonzalez, M.S. *et al., Tetrahedron*, 1988, **44**, 3715 (*synth*)
Trost, B.M. *et al., J.O.C.*, 1999, **64**, 5427-5435 (*synth, pmr, cmr*)
Hungerford, N.L. *et al., Synthesis*, 2003, 1837-1843 (*synth, ir, pmr, cmr, 1′ epimer*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RIU000

Siagoside, INN S-36

II^3α-N-*Acetylneuraminosyl*-II^2β *internal ester gangliotetraglycosyl-ceramide. GM_1 Monosialoganglioside inner ester. Sinassial. AGF_2*
[100345-64-0]



$C_{73}H_{129}N_3O_{30}$ 1528.824

Synthetic ganglioside. Neuroprotective agent. Used to treat ischaemic stroke in acute phase.

Martindale, The Extra Pharmacopoeia, 28th/29th edn., Pharmaceutical Press, 1982, 16820
Aldinio, C. *et al., Int. J. Dev. Neurosci.*, 1984, **2**, 267 (*pharmacol*)
Raiteri, M. *et al., Eur. J. Pharmacol.*, 1985, **118**, 347 (*pharmacol*)
Samson, J.C. *et al., Drugs of Today (Barcelona)*, 1986, **22**, 73 (*rev*)

Sialic acids S-37

Nonulosaminic acid. Neuraminic acids

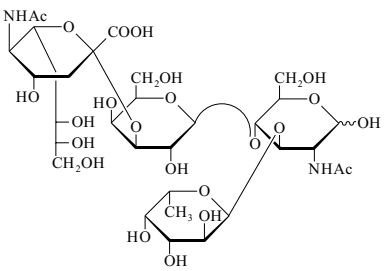
A family of acylated amino nonulosonic acids of which Neuraminic acid, N-35 is the parent. They are widely distributed throughout the animal kingdom in mucopolysaccharides, mucoproteins and lipolysaccharides (mucolipids), mostly in association with 2-Amino-2-deoxyglucose, A-266 and 2-Amino-2-deoxygalactose, A-206. Involved in receptor recognition, cell adhesion, aggregation, antigenicity masking, metastatic potential, nerve-signal transmission, viral replication and some genetic disorders.

α(2→8)-Homopolymer: See *N*-Acetylneuraminic acid, A-20

Zilliken, F. *et al., Adv. Carbohydr. Chem.*, 1958, **13**, 237-263 (*rev*)
Gottschalk, A. *et al., The Chemistry and Biology of Sialic Acids and Related Substances*, Cambridge Univ. Press., 1960, (*book*)
Blix, G. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 246-250 (*isol*)
Sharon, N. *et al., Complex Carbohydrates*, Addison-Welsey Publishing Co., 1975, 142
Codington, J.F. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 226-232 (*isol, detn*)
Downs, F. *et al., Methods Carbohydr. Chem.*, 1976, **7**, 233-240 (*detn*)
Schauer, R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1982, **40**, 131-234 (***rev***)
Sialic Acids: Chem. Metab. and Function, Ed. Schauer, R., Springer-Verlag, 1982, (*book*)

Sialyl-Lewis x tetrasaccharide S-38

*α-(*N*-Acetylneuraminosyl-(2→3)-β-D-galactopyranosyl)-(1→4)-[α-L-fucopyranosyl-(1→3)]-2-acetamido-2-deoxy-D-glucose. S Le^x*
[98603-84-0]
[136514-66-4, 136599-51-4]



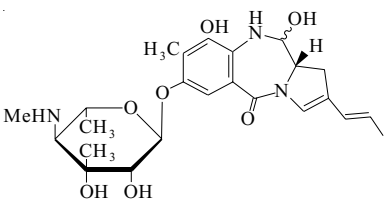
$C_{31}H_{52}N_2O_{23}$ 820.751

Present at the terminus of glycolipids attached to the surface of white blood cells. Ligand for cell surface receptors of selectins. Plays an important role in inflammatory response by mediating the binding of the. Solid. $[\alpha]_D^{25}$ +5.8 (c, 0.24 in MeOH). Opt. rotn. refers to anomeric mixture (α:β 3:2).

Nicolaou, C. *et al., Chem. Comm.*, 1991, 870-872 (*synth, pmr*)
Ichikawa, Y. *et al., J.A.C.S.*, 1992, **114**, 9283-9298 (*synth, pmr, cmr*)
de Vries, T. *et al., FEBS Lett.*, 1993, **330**, 243-248 (*synth, pmr*)
Ichikawa, Y. *et al., Chem. Br.*, 1994, 117 (*rev*)
Schuster, M. *et al., J.A.C.S.*, 1994, **116**, 1135 (*synth*)
Jahnke, W. *et al., Angew. Chem., Int. Ed.*, 1997, **36**, 2603-2607 (*conformn*)
Dekany, G. *et al., J. Carbohydr. Chem.*, 1997, **16**, 983-999 (*synth, pmr, ms*)
Baba, K. *et al., Biosci., Biotechnol., Biochem.*, 1998, **62**, 590-592 (*synth*)

Sibiromycin S-39

Antibiotic 4761
[12684-33-2]



$C_{24}H_{33}N_3O_7$ 475.541

Isol. from *Streptosporangium sibiricum*. DNA intercalator. Antineoplastic antibiotic. Sol. MeOH, $CHCl_3$, CH_2Cl_2, acids, bases, Py, DMF, EtOAc, butanol; fairly sol. C_6H_6; poorly sol. H_2O, hexane, CCl_4, Et_2O.

Mp 120° dec. $[\alpha]_D$ +525 (DMF). Log P 0.13 (uncertain value) (calc). λ_{max} 235 (ε 14300); 303 (ε 16800); 445 (ε 2400) (HCl for 1h) (Derep). λ_{max} 247 (ε 13000); 309

(ϵ 19100) (MeOH/NaOH) (Derep). λ_{max} 230 (ϵ 19200); 310 (ϵ 19900) (MeOH) (Derep). λ_{max} 230 (E1%/1cm 405); 310 (E1%/1cm 420) (MeOH) (Berdy). λ_{max} 270 (E1%/1cm 315); 305 (E1%/1cm 410) (HCl) (Berdy). λ_{max} 244 (E1%/1cm 330); 319 (E1%/1cm 445) (NaOH) (Berdy).

► V. toxic by all routes of administration. LD_{50} (rat, ipr) 0.006 mg/kg. LD_{50} (mus, orl) 0.46 mg/kg. Mutagenic props. ;LD_{50} (mus, ivn) 58 mg/kg, LD_{50} (mus, ipr) 32 mg/kg, LD_{50} (mus, scu) 84 mg/kg, LD_{50} (mus, orl) 459 mg/kg. UY8495000

Brazhnikova, M.G. *et al., J. Antibiot.*, 1972, **25**, 668 (*isol, uv*)
Hurley, L.H. *et al., Tet. Lett.*, 1976, 1419 (*biosynth*)
Hurley, L.H. *et al., Biochemistry*, 1979, **18**, 4230 (*biosynth, cmr*)
Hurley, L.H. *et al., Acc. Chem. Res.*, 1980, **13**, 263 (*rev*)
Giuliano, R.M. *et al., Diss. Abstr. Int., B*, 1982, **42**, 3687 (*rev*)
Parker, K.A. *et al., J.A.C.S.*, 1982, **104**, 7330 (*struct*)
Leber, J.D. *et al., J.A.C.S.*, 1988, **110**, 2992 (*pmr, struct*)

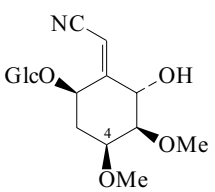
Silenan S-40

Pectic polysaccharide consisting of linear α-(1→4)-galacturonan backbone with α-Rha sidechains. Isol. from *Silene vulgaris*. Shows immunomodulating activity.

Günter, E.A. *et al., Carbohydr. Res.*, 2002, **337**, 1641-1645 (*isol, bibl*)

Simmondsin S-41

[6-(β-D-Glucopyranosyloxy)-2-hydroxy-3,4-dimethoxycyclohexylidene]acetonitrile, 9CI. 2-Cyanomethylene-1-glucosyloxy-3-hydroxy-4,5-dimethoxycyclohexane
[51771-52-9]



$C_{16}H_{25}NO_9$ 375.375
Constit. of *Simmondsia californica* and *Simmondsia chinensis* (jojoba). Appetite suppressant. Waxy solid.
Mp 95-100°. $[\alpha]_D^{25}$ -78 (c, 1 in MeOH).

► AM0250000

Penta-Ac: Mp 165-166°.

2′-O-(4-Hydroxy-3-methoxy-E-cinnamoyl): Simmondsin 2′-ferulate
[179466-18-3]
[67411-22-7, 179466-19-4]
$C_{26}H_{33}NO_{12}$ 551.546
Constit. of the seeds of jojoba.

3-O-De-Me, 2′-(4-hydroxy-3-methoxy-Z-cinnamoyl): [162290-39-3]
[179466-20-7]
$C_{25}H_{31}NO_{12}$ 537.519
Constit. of jojoba meal.

4-O-De-Me: ***De-O-methylsimmondsin***
[135105-75-8]
$C_{15}H_{23}NO_9$ 361.348
Constit. of jojoba meal.

4-O-De-Me, 2′-(4-hydroxy-3-methoxy-E-cinnamoyl): [162290-38-2]
[179601-21-9]
$C_{25}H_{31}NO_{12}$ 537.519
Constit. of jojoba meal.

Di-O-de-Me: ***Dide-O-methylsimmondsin***
[135074-86-1]
$C_{14}H_{21}NO_9$ 347.321
Constit. of jojoba meal. Amorph. $[\alpha]_D^{20}$ -50 (c, 0.52 in H_2O). λ_{max} 215 (log ϵ 3.97) (H_2O).

Di-O-de-Me, 4-O-α-D-glucopyranoside: ***Dide-O-methyl-4-O-α-D-glucopyranosylsimmondsin***
[370068-00-1]
$C_{20}H_{31}NO_{14}$ 509.463
Constit. of jojoba meal (*Simmonsia chinensis*).

Di-O-de-Me, 2-O-(3-methyl-2-butenoyl): ***Ehretioside A3***
[156368-87-5]
$C_{19}H_{27}NO_{10}$ 429.423
Constit. of *Ehretia philippinensis*. Waxy solid. $[\alpha]_D^{25}$ -53 (c, 1 in MeOH). Has (*E*)-config. (change of Cahn-Ingold-Prelog priorities).

Di-O-de-Me, 3-O-(3-methyl-2-butenoyl): ***Ehretioside A1***
[156368-85-3]
$C_{19}H_{27}NO_{10}$ 429.423
Constit. of *Ehretia philippinensis*. Amorph. $[\alpha]_D^{25}$ +39 (c, 1 in Py).

Di-O-de-Me, 4-O-(3-methyl-2-butenoyl): ***Ehretioside A2***
[156368-86-4]
$C_{19}H_{27}NO_{10}$ 429.423
Constit. of *Ehretia philippinensis*. Waxy solid. $[\alpha]_D^{25}$ -53 (c, 1 in MeOH).

Di-O-de-Me, 2-O-benzoyl: ***Lanceolin A***
[158022-45-8]
$C_{21}H_{25}NO_{10}$ 451.429
Constit. of *Lophira lanceolata*. Amorph. solid. Has (*E*)-config. (change of Cahn-Ingold priorities).

Di-O-de-Me, 3-O-benzoyl: ***Lanceolin C***
[221149-42-4]
$C_{21}H_{25}NO_{10}$ 451.429
Constit. of *Lophira alata*. Amorph. solid.

Di-O-de-Me, 4-O-benzoyl: ***Lanceolin B***
[151197-19-2]
$C_{21}H_{25}NO_{10}$ 451.429
Constit. of *Lophira lanceolata*. Amorph. solid.

Di-O-de-Me, 2,4-di-O-benzoyl: ***Lophiroside A2***
[151171-81-2]
$C_{28}H_{29}NO_{11}$ 555.537
Constit. of the bark of *Lophira alata*. Amorph. $[\alpha]_D^{20}$ -22.6 (c, 0.93 in MeOH). λ_{max} 229 (log ϵ 4.54); 274 (log ϵ 3.26) (MeOH).

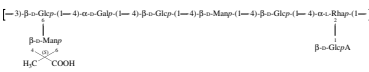
Di-O-de-Me, 3,4-di-O-benzoyl: ***Lophiroside A1***
[151171-80-1]
$C_{28}H_{29}NO_{11}$ 555.537
Constit. of the bark of *Lophira alata*. Amorph. $[\alpha]_D^{20}$ +11.5 (c, 0.87 in MeOH). λ_{max} 229 (log ϵ 4.54); 274 (log ϵ 3.26) (MeOH).

Di-O-de-Me, 2-O-E-cinnamoyl, 4-O-benzoyl: ***Lophiroside B2***
[151171-83-4]
$C_{30}H_{31}NO_{11}$ 581.575
Constit. of the bark of *Lophira alata*. Amorph. $[\alpha]_D^{20}$ -22.9 (c, 0.83 in MeOH). Has (*E*)-config. (change of Cahn-Ingold-Prelog priorities). λ_{max} 222 (log ϵ 4.25); 279 (log ϵ 4.14) (MeOH).

Di-O-de-Me, 3-O-E-cinnamoyl, 4-O-benzoyl: ***Lophiroside B1***
[151171-82-3]
$C_{30}H_{31}NO_{11}$ 581.575
Constit. of the bark of *Lophira alata*. Amorph. $[\alpha]_D^{20}$ +63 (c, 0.54 in MeOH). λ_{max} 222 (log ϵ 4.25); 279 (log ϵ 4.14) (MeOH).

Elliger, C.A. *et al., J.O.C.*, 1974, **39**, 2930 (*struct*)
Elliger, C.A. *et al., Phytochemistry*, 1974, **13**, 2319 (*isol*)
Verbiscar, A.J. *et al., J. Agric. Food Chem.*, 1978, **26**, 1456-1459 (*2′-ferulate*)
Chida, N. *et al., J.C.S. Perkin 1*, 1992, 1131 (*synth, abs config*)
Van Boven, M. *et al., J. Agric. Food Chem.*, 1993, **41**, 1605; 1994, **42**, 2684; 1996, **44**, 2239-2243 (*isol, cryst struct, derivs*)
Murakami, A. *et al., Phytochemistry*, 1993, **32**, 1461-1466 (*Lophirosides*)
Tih, A.E. *et al., J. Nat. Prod.*, 1994, **57**, 971-974 (*Lanceolin A, Lanceolin B*)
Simpol, L.R. *et al., Phytochemistry*, 1994, **36**, 91-95 (*Ehretiosides*)
Messanga, B.B. *et al., Fitoterapia*, 1998, **79**, 439-442 (*Lanceolin C*)
Van Boven, M. *et al., J. Agric. Food Chem.*, 2001, **49**, 4278-4283 (*Didemethyl-4-glucosylsimmondsin*)

Simusan S-42

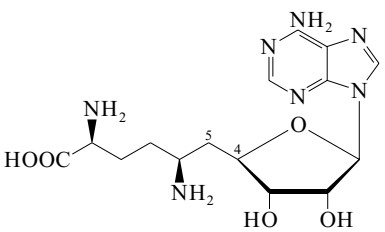


Major exopolysaccharide prod. by an ethanol-utilising *Arthrobacter* sp.

Senchenkova, S.N. *et al., Carbohydr. Res.*, 1995, **266**, 103-113 (*isol, struct, pmr, cmr*)

Sinefungin, INN, USAN S-43

A 9145. RP 32232. Antibiotic A 9145. Antibiotic RP 32232. Lilly 57926
[58944-73-3]



$C_{15}H_{23}N_7O_5$ 381.391
Nucleoside antibiotic. From *Streptomyces griseolus* and *Streptomyces incarnatus*. Antiviral agent with antifungal props. Never marketed. Log P -6.43 (calc). λ_{max} 207 (ϵ 15900); 258 (ϵ 11100) (H_2O/HCl) (Derep). λ_{max} 256 (ϵ 14400) (0.1*N* NaOH) (Derep). λ_{max} 207 (ϵ 19800); 258 (ϵ 12400) (H_2O) (Derep).

► LD_{50} (mus, orl) 1000 mg/kg. HE3140000

δ-Lactam: ***Antibiotic RP 35391***. *RP 35391*
[67214-43-1]

$C_{15}H_{21}N_7O_4$ 363.375

From *Streptomyces griseolus* and *Streptomyces incarnatus*. Antifungal agent.

▶ AU7356000

4,5-Didehydro: ***Dehydrosinefungin***. *A 9145C. Antibiotic A 9145C. C-Factor. SF 1306A. Antibiotic SF 1306A*

[66753-47-7]

[52934-70-0]

$C_{15}H_{21}N_7O_5$ 379.375

From *Streptomyces griseolus* and *Streptomyces echinatus*. Antifungal agent. $[\alpha]_D^{25}$ -15.8 (H_2O).

Boeck, L.D. *et al., Antimicrob. Agents Chemother.*, 1973, **3**, 49 (*isol*)

Nagarajan, R. *et al., j Intersci. Conf. Antimicrob. Agents Chemoth., 17th*, 1977, Abstr. 50 (*struct*)

Berry, D.R. *et al., J. Antibiot.*, 1978, **31**, 185-191 (*biosynth*)

Pugh, C.S.G. *et al., J. Biol. Chem.*, 1978, **253**, 4075-4077 (*props*)

U.K. Pat., 1980, 1 567 871; *CA*, **94**, 2930 (*isol*)

Geze, M. *et al., J.A.C.S.*, 1983, **105**, 7638-7640 (*synth*)

Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711-1739 (*rev*)

Japan. Pat., 1988, 88 132 839; *CA*, **110**, 88607b (*SF 1306A*)

Maguire, M.P. *et al., J.O.C.*, 1990, **55**, 948-955 (*synth, abs config, bibl*)

Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1991, 981-985 (*synth*)

Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **3**, 594 (*activity*)

Parry, R.J. *et al., Tetrahedron*, 1991, **47**, 6069-6078 (*biosynth*)

Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 526

Ghosh, A.K. *et al., J.C.S. Perkin 1*, 1999, 3597-3601 (*synth, bibl*)

Sinistrin S-44

[37311-25-4]

A mixed-type β-D-fructan comprising (2→1)-linked and (2→6)-linked unbranched β-D-Fru*f* residues and α-D-Glc*p* residues. Isol. from red squill (*Urginea maritima*). Used as a diagnostic test of renal function (alternative to inulin). Sol. H_2O. $[\alpha]_D^{20}$ -45.5 (c, 1 in H_2O). Molecular weight distribution 800-16000.

Schlubach, H.H. *et al., Annalen*, 1940, **544**, 111

McDonald, E.J. *et al., Adv. Carbohydr. Chem.*, 1946, **2**, 253 (*rev*)

Nitsch, E. *et al., Carbohydr. Res.*, 1979, **72**, 1 (*isol, struct*)

Eigner, W.-D. *et al., Carbohydr. Res.*, 1988, **180**, 87 (*struct*)

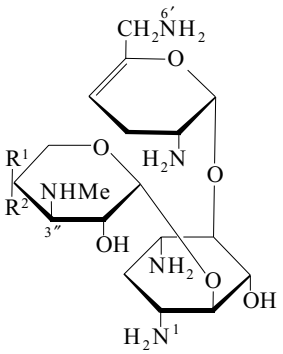
Praznik, W. *et al., Carbohydr. Res.*, 1992, **235**, 221; 1993, **243**, 91 (*struct*)

Soper, C.P.R. *et al., Eur. J. Clin. Chem. Clin. Biochem.*, 1995, **33**, 497 (*use*)

Sisomicin, INN, USAN S-45

Sissomicin, BAN. *Rickamicin. Antibiotic 6640. Many other names*

[32385-11-8]



R^1 = OH, R^2 = CH_3

$C_{19}H_{37}N_5O_7$ 447.531

Aminoglycoside antibiotic. Isol. from *Micromonospora inyoensis*. Shows broad-spectrum activity. Similar to Gentamicins. Cryst. + $1H_2O$ (EtOH). Sol. H_2O; fairly sol. MeOH, $CHCl_3$; poorly sol. Me_2CO, hexane. Mp 198-201°. $[\alpha]_D^{26}$ +189 (c, 0.3 in H_2O). Log P -4.65 (uncertain value) (calc).

▶ Renal and otological effects reported when used therapeutically. LD_{50} (mus, scu) 288 mg/kg. Exp. reprod. effects; LD_{50} (mus, ivn) 34 mg/kg, LD_{50} (mus, ipr) 221 mg/kg, LD_{50} (mus, scu) 288 mg/kg. WK2284900

Sulfate (1:2.5): ***Sisomicin sulfate, JAN, USAN***. *Siseptin*

[53179-09-2]

▶ LD_{50} (rat, scu) 500 mg/kg; LD_{50} (mus, scu) 272 mg/kg. WK2288000

Penta-Ac:

$C_{20}H_{39}N_5O_7$ 461.557

Amorph. powder. Mp 185-190°. $[\alpha]_D^{26}$ +194.6 (MeOH).

2′-N-*Formyl:* ***Antibiotic G 367S$_1$***. *G 367S$_1$. 2-N′-Formylsisomicin. G 367-1*

[76647-54-6]

$C_{20}H_{37}N_5O_8$ 475.541

Prod. by *Dactylosporangium thailandense*. Active against gram-positive and -negative bacteria. Powder. Sol. H_2O, MeOH; poorly sol. Me_2CO, C_6H_6. Mp 130-133°. $[\alpha]_D^{24}$ +188.9 (c, 1 in H_2O).

N^1-*Me:* N^1-*Methylsisomycin*

[59711-89-6]

$C_{20}H_{39}N_5O_7$ 461.557

Semisynthetic. Sol. H_2O. $[\alpha]_D$ +153 (H_2O).

6′-N-*Me:* ***Antibiotic G 52***. *G 52*

[51909-61-6]

$C_{20}H_{39}N_5O_7$ 461.557

From *Micromonospora inyoensis*. Broad spectrum antibiotic. Sol. H_2O. $[\alpha]_D^{26}$ +157.

▶ LD_{50} (mus, scu) 400 mg/kg; LD_{50} (mus, ivn) 50 mg/kg, LD_{50} (mus, ipr) 200 mg/kg, LD_{50} (mus, scu) 400 mg/kg. WK2195000

N-*De-Me:* ***3″-N-Demethylsisomicin***. *Antibiotic 66-40G*

[66762-58-1]

$C_{18}H_{35}N_5O_7$ 433.504

Isol. from *Micromonospora inyoensis* and *Micromonospora sagamiensis*. Active against gram-positive and -negative bacteria. Mp 168-178°. $[\alpha]_D^{26}$ +158.4 (H_2O).

Stereoisomer: ***Antibiotic G 367S$_2$***. *G 367S$_2$. G 367-2*

[78779-60-9]

$C_{19}H_{37}N_5O_7$ 447.531

Prod. by *Dactylosporangium thailandense*. Active against gram-negative bacteria. Powder. Sol. H_2O, MeOH; poorly sol. Me_2CO, C_6H_6. Mp 151-155°. $[\alpha]_D^{24}$ +159.8 (c, 1 in H_2O).

N-*De-Me, 3″*-N-*Et: 3″*-N-*Demethyl-3″*-N-*ethylsisomicin*. ***Etisomicin, BAN***. *BAY V1 4718*

[70639-48-4]

$C_{20}H_{39}N_5O_7$ 461.557

Semisynthetic. $[\alpha]_D^{20}$ +179 (c, 1 in H_2O).

[79056-20-5]

Weinstein, M.J. *et al., J. Antibiot.*, 1970, **23**, 551 (*isol*)

Cooper, D.J. *et al., Chem. Comm.*, 1971, 285 (*pmr, ir, struct*)

Reimann, H. *et al., Chem. Comm.*, 1971, 924 (*pmr*)

Reimann, H. *et al., J.O.C.*, 1974, **39**, 1451 (*struct, nmr, ir, ms*)

Cleophax, J. *et al., Chem. Comm.*, 1975, 11 (*synth, struct*)

Testa, R.T. *et al., J. Antibiot.*, 1975, **28**, 573 (*biosynth*)

U.S. Pat., 1977, 4 002 742; *CA*, **87**, 6298 (*derivs*)

Nagabhushan, T.L. *et al., J. Antibiot.*, 1978, **31**, 43 (*synth*)

Kugelman, M. *et al., J. Antibiot.*, 1978, **31**, 643 (*isol, pmr, cmr, deriv*)

Davies, D.M. *et al., J. Med. Chem.*, 1978, **21**, 189 (*deriv*)

Ger. Pat., 1979, 2 737 264; *CA*, **91**, 57416y (*Etisomicin*)

Belg. Pat., 1980, 884 925; *CA*, **95**, 148692j (*N-formyl*)

Japan. Pat., 1980, 133 394; *CA*, **94**, 101309 (*N-formyl*)

Ger. Pat., 1981, 3 000 841; *CA*, **95**, 187602z (*Etisomicin*)

Japan. Pat., 1981, 81 01 893; *CA*, **95**, 5118 (*isol, deriv*)

U.K. Pat., 1981, 2 053 895; *CA*, **95**, 130966 (*deriv*)

Satoi, S. *et al., J. Antibiot.*, 1983, **36**, 1 (*N-formyl*)

Noone, P. *et al., Drugs*, 1984, **27**, 548 (*rev, pharmacol, props*)

Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 5531

Eneva, G.I. *et al., Magn. Reson. Chem.*, 1992, **30**, 841 (*pmr, cmr*)

Eneva, G.I. *et al., J. Mol. Struct.*, 1993, **291**, 191 (*pmr, conformn*)

Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 201

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, APY500; GAA100; SDY750

Sisomicin B S-46

Antibiotic 66-40B

[53797-16-3]

As Sisomicin, S-45 with R^1 = H, R^2 = OH

$C_{18}H_{35}N_5O_7$ 433.504

Aminoglycoside antibiotic. Minor prod. from *Micromonospora inyoensis*. Shows

broad-spectrum activity. Amorph. Sol. H_2O.
Mp 91-102° (111-114°). $[\alpha]_D$ +152.8 (c, 0.3 in H_2O).

▶ LD_{50} (mus, ivn) 70 mg/kg. WK2280000

Davies, D.H. *et al., J.C.S. Perkin 1*, 1975, 814 (*struct*)
Lee, B.K. *et al., J. Antibiot.*, 1976, **29**, 677 (*isol*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1976, 1078; 1981, 2209 (*ms, cmr*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 843 (*synth*)
Daniels, P.J.L. *et al., J.C.S. Perkin 1*, 1981, 2209 (*cmr, ms*)

Sisomicin D S-47

Antibiotic 66-40D
[53759-50-5]
As Sisomicin, S-45 with
R^1 = OH, R^2 = H

$C_{18}H_{35}N_5O_7$ 433.504

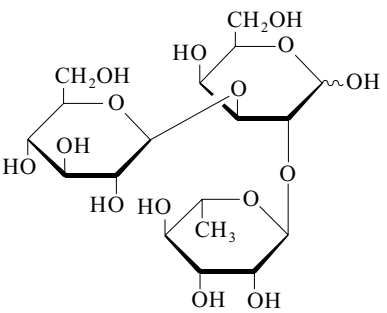
Aminoglycoside antibiotic. Minor component from *Micromonospora inyoensis*. Broad spectrum antibiotic. Sol. H_2O. Mp 102-103°. $[\alpha]_D^{22}$ +158.1 (c, 0.3 in H_2O).

▶ LD_{50} (mus, ivn) 83 mg/kg. CB9395750

Davies, D. *et al., J.C.S. Perkin 1*, 1975, 814 (*struct*)
Paulsen, H. *et al., Chem. Ber.*, 1981, **114**, 843 (*synth*)

Solatriose S-48

O-*α-L-Rhamnopyranosyl-(1 → 2)-[O-β-D-glucopyranosyl-(1 → 3)]-D-galactopyranose*

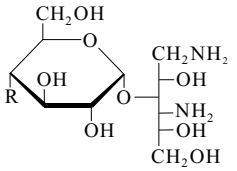


$C_{18}H_{32}O_{15}$ 488.442
Present in alkaloidal glycosides α-Solanine, α-Solamarine and Solasonine (see for example under Spirosol-5-en-3-ol.
Mp 160-200° dec Mp 145-160° (foaming) Mp 195-197° dec. $[\alpha]_D^{20}$ -4.5 (c, 1.64 in H_2O) (equilib.).

*Deca-Ac:*Mp 73-77°.

Kühn, R. *et al., Chem. Ber.*, 1955, **88**, 1492
Boll, P.M. *et al., Acta Chem. Scand.*, 1963, **17**, 2126
Briggs, L.H. *et al., J.C.S.*, 1963, 2848
Bohlmann, F. *et al., Chem. Ber.*, 1969, **102**, 1037; 1970, **103**, 3419
Takeo, K. *et al., Carbohydr. Res.*, 1983, **121**, 328 (*synth*)

Sorbistin A S-49



Sorbistin A_1 R = $NHCOCH_2CH_3$

Sorbistin A_2 R = $NHCOCH_2CH_2CH_3$

Aminoglycoside antibiotic complex. Isol. from *Pseudomonas fluorescens* and *Streptoverticillium netropsis*. Active against gram-positive and -negative bacteria.

Sorbistin A_1
Antibiotic P 2563I. Antibiotic P 2563P. Antibiotic BN 186A. Antibiotic BU 2183A. Antibiotic GIA1. BN 186A. BU 2183A. GIA1. P 2563I. P 2563P
[60534-70-5]
$C_{15}H_{31}N_3O_9$ 397.425
$[\alpha]_D$ +87.1 (c, 1 in H_2O).

▶ LZ4377000

Hydrochloride:
Prisms + $2H_2O$. Mp 105-115°. $[\alpha]_D^{25}$ +60.3 (c, 1 in H_2O).

Carbonate (2:1): $[\alpha]_D$ +78.5 (c, 1 in H_2O).

Sorbistin A_2 *BU 2183A_2. Antibiotic BU 2183A_2*
[60534-69-2]
$C_{16}H_{33}N_3O_9$ 411.451
Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ivn) 2000 mg/kg. LZ4376000

Carbonate (2:1): $[\alpha]_D$ +79.1 (c, 1 in H_2O).

Tsukiura, H. *et al., J. Antibiot.*, 1976, **29**, 1137; 1147; 1152 (*isol, uv, ir, pmr*)
Kirby, J.P. *et al., J. Antibiot.*, 1977, **30**, 344 (*isol*)
Nara, K. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1075; 1083; 1091; 20 (*abs config, cryst struct, cmr*)
Kamiya, K. *et al., Chem. Pharm. Bull.*, 1978, **26**, 2040 (*cryst struct*)
Ponpipom, M.M. *et al., J. Med. Chem.*, 1978, **21**, 221 (*synth, analogues*)
Japan. Pat., 1978, 78 116 312; *CA*, **90**, 166564 (*isol*)
Ogawa, T. *et al., Tetrahedron*, 1980, **36**, 2727 (*synth*)

Sorbistin B S-50

P 2563 II. Antibiotic P 2563 II. BN 186B. Antibiotic BN 186B. BU 2183B. Antibiotic BU 2183B. GIA_2. Antibiotic GIA_2. P 2563A. Antibiotic P 2563A
[60502-99-0]
As Sorbistin A, S-49 with
R = NHAc

$C_{14}H_{29}N_3O_9$ 383.398

Aminoglycoside antibiotic. Isol. from *Pseudomonas sorbicinii* and *Pseudomonas fluorescens*. Shows antibiotic props. against gram-negative and -positive bacteria. Powder.
Mp 148-150° dec. $[\alpha]_D^{23}$ +76.1 (c, 1 in H_2O). pK_{a1} 7.2; pK_{a2} 9.5 (20°, H_2O).

▶ LZ4290800

Carbonate:
Amorph. $[\alpha]_D$ +85 (c, 1 in H_2O).

N-*Di-Ac:*Mp 159-162°.

Tsukiura, H. *et al., J. Antibiot.*, 1976, **29**, 1137 (*isol, pmr, ir, ms, struct*)
Konishi, M. *et al., J. Antibiot.*, 1976, **29**, 1152 (*isol, ir, uv, pmr, pharmacol*)
Nara, K. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1075; 1083; 1091 (*isol, props, abs config*)
U.S. Pat., 1978, 4 108 724; *CA*, **90**, 136232t (*synth*)

Sorbistin C S-51

[61566-57-2]
As Sorbistin A, S-49 with
R = OH

$C_{12}H_{26}N_2O_9$ 342.345

Aminoglycoside antibiotic. Isol. from *Pseudomonas sorbicinii*. Shows antibiotic props. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.

▶ LD_{50} (mus, ivn) 2500 mg/kg, LD_{50} (mus, scu) 1000 mg/kg.

Carbonate:
Amorph. $[\alpha]_D$ +81.5 (c, 1 in H_2O).

N-*Di-Ac:*Mp 121-124°.

Tsukiura, H. *et al., J. Antibiot.*, 1976, **29**, 1137 (*isol, ir, ms, pmr, struct*)
Konishi, M. *et al., J. Antibiot.*, 1976, **29**, 1152 (*isol, ir, uv,, nmr, pharmacol*)

Sorbistin D S-52

P 2563 III. Antibiotic P 2563 III. BU 2183D. Antibiotic BU 2183D
[60502-98-9]
As Sorbistin A, S-49 with
R = NH_2

$C_{12}H_{27}N_3O_8$ 341.361

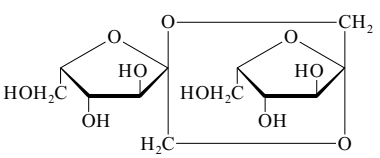
Aminoglycoside antibiotic. Isol. from *Pseudomonas sorbicinii* and *Pseudomonas fluorescens*. Active against gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. butanol, hexane.
Mp 110-117°.

Carbonate:
Amorph. $[\alpha]_D$ +71 (c, 1 in H_2O).

N-*Tri-Ac:*Mp 160-162°.

Tsukiura, H. *et al., J. Antibiot.*, 1976, **29**, 1137 (*isol, ir, ms, pmr, struct*)
Konishi, M. *et al., J. Antibiot.*, 1976, **29**, 1152 (*isol, ir, uv, nmr, pharmacol*)
Nara, K. *et al., Chem. Pharm. Bull.*, 1978, **26**, 1075 (*isol, props*)
U.S. Pat., 1978, 4 108 724; *CA*, **90**, 136232t (*synth*)

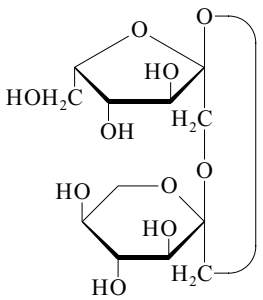
α-L-Sorbofuranose β-L-sorbofuranose 1,2′:2,1′-dianhydride S-53



$C_{12}H_{20}O_{10}$ 324.284
Non-reducing disaccharide. Product formed from Sorbose, S-60 under acidic or Fischer glycosidation conditions.
Mp 198-200°. $[\alpha]_D$ -11 (c, 1.3 in H_2O).

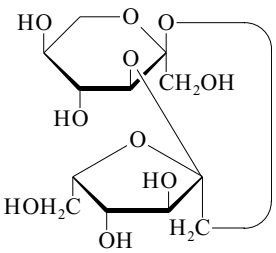
Hexa-Ac:
$C_{24}H_{32}O_{16}$ 576.507
Mp 155-156°. $[\alpha]_D$ -25.3 (c, 1.2 in $CHCl_3$).
Defaye, J. *et al., Carbohydr. Res.*, 1986, **152**, 89 (*synth*)

α-L-Sorbofuranose α-L-sorbopyranose 1,2′:2,1′-dianhydride S-54
[90366-22-6]



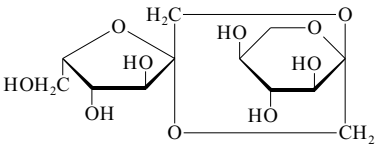
$C_{12}H_{20}O_{10}$ 324.284
Non-reducing disaccharide. Prod. formed from Sorbose, S-60 under dehydrating conditions. Mp 198-199°. $[\alpha]_D$ -118 (c, 0.5 in $CHCl_3$).
Hexa-Ac: [90335-41-4]
$C_{24}H_{32}O_{16}$ 576.507
Syrup. $[\alpha]_D$ -106.6 (c, 0.44 in $CHCl_3$).
Defaye, J. *et al., Carbohydr. Res.*, 1986, **152**, 89 (*synth*)

α-L-Sorbofuranose α-L-sorbopyranose 1,2′:2,3′-dianhydride S-55
[110044-77-4]



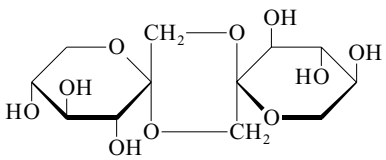
$C_{12}H_{20}O_{10}$ 324.284
Non-reducing disaccharide. Prod. formed from Sorbose, S-60 under dehydrating conditions. Syrup. $[\alpha]_D$ -21.5 (c, 2.6 in H_2O).
Hexa-Ac: [108787-30-0]
$C_{24}H_{32}O_{16}$ 576.507
Mp 157-158°. $[\alpha]_D$ -52.9 (c, 1.4 in $CHCl_3$).
Defaye, J. *et al., Carbohydr. Res.*, 1986, **152**, 89 (*synth*)

β-L-Sorbofuranose α-L-sorbopyranose 1,2′:2,1′-dianhydride S-56



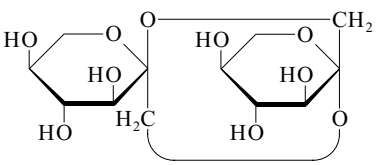
$C_{12}H_{20}O_{10}$ 324.284
Non-reducing disaccharide. Prod. formed together with the isomeric anhydride from Sorbose, S-60 dehydration. Mp 189-190°. $[\alpha]_D^{20}$ 0 (c, 1 in H_2O).
Hexa-Ac:
$C_{24}H_{32}O_{16}$ 576.507
Mp 177-179° (171-172°). $[\alpha]_D$ -19 (c, 2.1 in $CHCl_3$).
Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5334 (*synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1986, **152**, 89 (*synth*)

α-D-Sorbopyranose α-L-sorbopyranose 1,2′:2,1′-dianhydride S-57
[137253-44-2]



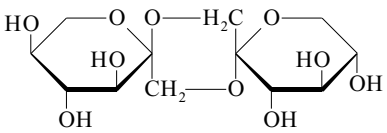
$C_{12}H_{20}O_{10}$ 324.284
Readily obt. from DL-sorbose/anhyd. HF. Almost insol. cold H_2O; spar. sol. hot H_2O. Mp 320°.
Hexa-Ac:
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (CH_2Cl_2/Et_2O). Mp 280-282°. $[\alpha]_D$ 0 (c, 1.2 in $CHCl_3$).
Bock, K. *et al., Carbohydr. Res.*, 1991, **216**, 141 (*synth, pmr, cmr*)

α-L-Sorbopyranose β-L-sorbopyranose 1,2′:2,1′-dianhydride, 9CI S-58
[108865-41-4]



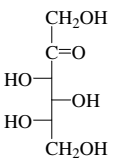
$C_{12}H_{20}O_{10}$ 324.284
Non-reducing disaccharide. Prod. formed from Sorbose, S-60 under dehydrating conds. Mp 249-250° (233-235°). $[\alpha]_D^{20}$ -11.5 (c, 2.6 in H_2O).
Hexa-Ac: [108865-42-5]
$C_{24}H_{32}O_{16}$ 576.507
Mp 172-173°. $[\alpha]_D$ +3.7 (c, 3.3 in $CHCl_3$).
Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 5334 (*synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1986, **152**, 89 (*synth, pmr, cmr*)

α-L-Sorbopyranose-α-L-sorbopyranose 1,2′:2,1′-dianhydride S-59
Di-α-L-sorbopyranose-1,2′:2,1′-dianhydride
[99530-15-1]

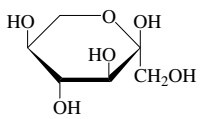


$C_{12}H_{20}O_{10}$ 324.284
Cryst. (MeOH/EtOH). Mp 239-241°. $[\alpha]_D^{20}$ -210 (c, 0.9 in H_2O).
Hexa-Ac: [108865-45-8]
$C_{24}H_{32}O_{16}$ 576.507
Cryst. (EtOH). Mp 183-184°. $[\alpha]_D^{20}$ -119 (c, 1.6 in $CHCl_3$).
Defaye, J. *et al., Carbohydr. Res.*, 1986, **152**, 89 (*synth, pmr, cmr*)

Sorbose, 9CI, 8CI S-60
xylo-*Hexulose. Sorbinose*



L-*form*



α-L-Pyranose-*form*

$C_6H_{12}O_6$ 180.157
A 4*M* aq. soln. at 31° contains 93% α-pyr, 2% β-pyr, 4% α-fur, 1% β-fur, and 0.3% ketone.

L-*form* [87-79-6]
Formed by *Acetobacter xylinum* oxidn. of Glucitol, G-247. Also occurs free in wood of *Symphoricarpos rivularis*. Inexpensive starting material for synthesis. Used in manuf. of Vitamin C (see Ascorbic acid, A-868).
Mp 165°. $[\alpha]_D^{20}$ -43.2 (H_2O). Sweet taste.
Phenylosazone: Mp 164°. $[\alpha]_D^{15}$ -13 (Py/EtOH).
Di-Me acetal:
$C_8H_{18}O_7$ 226.226
$[\alpha]_D$ -42 (c, 0.9 in EtOH).
*Penta-Ac: 1,3,4,5,6-Penta-*O*-acetyl-L-sorbose*
[35304-04-2]
$C_{16}H_{22}O_{11}$ 390.343
Mp 69-70°.
*6-Me: 6-*O*-Methyl-L-sorbose*
[58794-62-0]
$C_7H_{14}O_6$ 194.184
Mp 60-62°. $[\alpha]_D^{22}$ -46.7 (c, 2 in H_2O).
*5,6-Di-Me: 5,6-Di-*O*-methyl-L-sorbose*
$C_8H_{16}O_6$ 208.211
$[\alpha]_D^{20}$ +13.5 (c, 1 in H_2O).

α-L-Pyranose-*form*
*Penta-Ac: Penta-*O*-acetyl-α-L-sorbopyranose*
$C_{16}H_{22}O_{11}$ 390.343
Cryst. (Et_2O/$CHCl_3$). Mp 97°. $[\alpha]_D^{20}$ -56.3 (c, 1.3 in $CHCl_3$).

1,3,4,5-Tetrabenzoyl: 1,3,4,5-Tetra-O-benzoyl-α-L-sorbopyranose
[17187-62-1]
$C_{34}H_{28}O_{10}$ 596.589
Prisms (EtOH). Mp 133-135°. $[\alpha]_D^{22}$ +2 (c, 1 in $CHCl_3$).

1,3,4,5-Tetrabenzoyl, 2-Ac: 2-O-Acetyl-1,3,4,5-tetra-O-benzoyl-α-L-sorbopyranose
$C_{36}H_{30}O_{11}$ 638.626
Needles (EtOH). Mp 172-173°. $[\alpha]_D^{21}$ +8.3 (c, 1 in $CHCl_3$).

1,2-Isopropylidene: 1,2-O-Isopropylidene-α-L-sorbopyranose
[18604-34-7]
$C_9H_{16}O_6$ 220.222
Needles (EtOAc). Mp 142-143°. $[\alpha]_D^{20}$ -85.2 (c, 1.5 in H_2O).

1,2-O-Isopropylidene, 3,4,5-trimesyl: 1,2-O-Isopropylidene-3,4,5-tri-O-mesyl-α-L-sorbopyranose
$C_{12}H_{22}O_{12}S_3$ 454.497
Mp 125-127°. $[\alpha]_D^{24}$ -41 (c, 0.9 in $CHCl_3$).

1,2-O-Isopropylidene, 5-tosyl: 1,2-O-Isopropylidene-5-O-tosyl-α-L-sorbopyranose
[53821-65-1]
$C_{16}H_{22}O_8S$ 374.411
Cryst. (EtOH). Mp 130-131°. $[\alpha]_D^{25}$ -52.1 (c, 1.1 in $CHCl_3$).

1,3,4,5-Tetrabenzyl: 1,3,4,5-Tetra-O-benzyl-α-L-sorbopyranose
$C_{34}H_{36}O_6$ 540.655
Mp 48-51°. $[\alpha]_D$ -11.3 (c, 1.5 in $CHCl_3$).

2-Chloro, 2-deoxy, 1,3,4,5-tetrabenzoyl: 1,3,4,5-Tetra-O-benzoyl-α-L-sorbopyranosyl chloride
$C_{34}H_{27}ClO_9$ 615.035
Cryst. (Et_2O). Mp 132-135°. $[\alpha]_D^{22}$ +22.7 (c, 1 in CH_2Cl_2).

2-Bromo, 2-deoxy, 1,3,4,5-tetrabenzoyl: 1,3,4,5-Tetra-O-benzoyl-α-L-sorbopyranosyl bromide
$C_{34}H_{27}BrO_9$ 659.486
Mp 146-148° dec. $[\alpha]_D^{23}$ -8.2 (c, 1 in CH_2Cl_2).

Me glycoside: See Methyl sorboside, M-210

β-L-Pyranose-*form*

Penta-Ac: Penta-O-acetyl-β-L-sorbopyranose
[25019-52-7]
$C_{16}H_{22}O_{11}$ 390.343
Needles (Et_2O). Mp 114°. $[\alpha]_D^{20}$ +74.4 ($CHCl_3$).

1,3,4,5-Tetrabenzoyl, 2-Ac: 2-O-Acetyl-1,3,4,5-tetra-O-benzoyl-β-L-sorbopyranose
$C_{36}H_{30}O_{11}$ 638.626
$[\alpha]_D^{23}$ +58.3 (c, 1 in $CHCl_3$).

Me glycoside: See Methyl sorboside, M-210

α-L-Furanose-*form*

2,3-O-Isopropylidene: 2,3-O-Isopropylidene-α-L-sorbofuranose
[17682-71-2]
$C_9H_{16}O_6$ 220.222
Mp 88-90°.

2,3-O-Isopropylidene, 1,4,6-tris(4-nitrobenzoyl):
Cryst. (MeCN). Mp 191-192°.

2,3:4,6-Di-O-isopropylidene: 2,3:4,6-Di-O-isopropylidene-α-L-sorbofuranose
[17682-70-1]
$C_{12}H_{20}O_6$ 260.286
Mp 96-99°. $[\alpha]_D^{25}$ -16.6 (butanone). $[\alpha]_D$ -10.2 (c, 0.4 in EtOH).

Me glycoside: See Methyl sorboside, M-210

β-L-Furanose-*form*

Me glycoside: See Methyl sorboside, M-210

D-*form* [3615-56-3]
Obtainable from L-glucitol by conversion with *Pseudomonas* sp. Mp 165°. $[\alpha]_D^{20}$ +42.9 (H_2O). Sweet taste.

Phenylosazone: Mp 160°. $[\alpha]_D$ +12 (EtOH/Py).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 193C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 297C; 298A (*nmr*)
Schlubach, H.H. *et al., Annalen*, 1937, **532**, 211 (*α-L-pyr penta-Ac, β-L-pyr penta-Ac*)
Ohle, H. *et al., Ber.*, 1938, **71**, 562 (*1,2-isopropylidene*)
Karabinos, J.V. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 99 (*rev*)
Olin, S.M. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 148 (*D-form, L-form*)
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Cocker, W. *et al., Perfum. Essent. Oil Res.*, 1963, **54**, 171 (*isol*)
Paulsen, H. *et al., Chem. Ber.*, 1967, **100**, 2669 (*α-L-pyr tetrabenzoyl derivs, β-L-pyr tetrabenzoyl Ac*)
Maeda, T. *et al., Bull. Chem. Soc. Jpn.*, 1969, **42**, 2021 (*β-L-pyr penta-Ac*)
Brady, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 197 (*rev, acetals*)
Glass, R.S. *et al., Carbohydr. Res.*, 1973, **26**, 181 (*α-L-fur isopropylidene trisnitrobenzoyl*)
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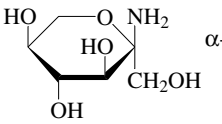
Nordenson, S. *et al., Acta Cryst. B*, 1979, **35**, 1005 (*cryst struct*)
Helleur, R. *et al., Carbohydr. Res.*, 1981, **89**, 83 (*tetrabenzyl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **44**, 15 (*equilib*)
Dhawale, M.R. *et al., Carbohydr. Res.*, 1986, **155**, 262 (*synth, D-form*)
Bock, K. *et al., Carbohydr. Res.*, 1991, **216**, 141 (***synth, D-form***)
Huwig, A. *et al., Carbohydr. Res.*, 1996, **281**, 183 (*synth, bibl, D-form*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2628-2629
Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1998, **313**, 69-89 (*rev, use*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SKV400

Sorbosylamine S-61



α-L-Pyranose-*form*

$C_6H_{13}NO_5$ 179.172

L-*form*
Cryst. (MeOH). Mp 119.5° dec.

N-*Benzyl:*
$C_{13}H_{19}NO_5$ 269.297
Cryst. (EtOAc). Mp 117°.

N-*Cyclohexyl:*
$C_{12}H_{23}NO_5$ 261.317
Mp 103-104° dec.

N-*Ph:*
$C_{12}H_{17}NO_5$ 255.27
Cryst. (EtOH). Mp 164-165° dec. $[\alpha]_D^{21}$ -196.2 (c, 2.7 in Py).

N-*4-Methylphenyl:* Mp 160-161° dec. $[\alpha]_D^{21}$ -201 → -199.5 (c, 1.7 in Py).

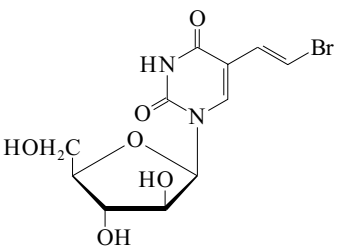
L-Furanose-*form*

4,6-O-Isopropylidene, N-*tosyl:* [63767-74-8]
Needles (EtOH/Et_2O). Mp 124° dec. $[\alpha]_D^{20}$ +20 (c, 2.1 in DMSO).

Ellis, G.P. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 95 (*rev*)
Heyns, K. *et al., Chem. Ber.*, 1955, **88**, 1551 (*N-benzyl, N-cyclohexyl*)
Kuhn, R. *et al., Annalen*, 1957, **612**, 55 (*N-Ph, N-tolyl*)
Heyns, K. *et al., Chem. Ber.*, 1957, **90**, 2039 (*L-form, synth, N-tolyl*)
Lofthouse, R. *et al., J.C.S. Perkin 1*, 1977, 997 (*isopropylidene deriv*)

Sorivudine, BAN, INN, USAN S-62

1-β-D-Arabinofuranosyl-5-(2-bromoethenyl)-2,4(1H,3H)-pyrimidinedione, 9CI. 1-β-D-Arabinofuranosyl-5-(2-bromovinyl)-uracil. Brovavir. BV-araU. Usevir. YN 72. SQ 32 756
[77181-69-2]



$C_{11}H_{13}BrN_2O_6$ 349.137
Antiviral agent. Launched 1993 (Japan)-
Log P -1.66 (uncertain value) (calc).

▶ LD_{50} (rat, ipr) > 2000 mg/kg. Exp. reprod., fetotoxic and teratogenic effects. Fatalities reported when used in combination anticancer chemotherapies. UV9009810

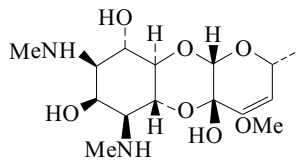
[80434-16-8, 134528-32-8]

Machida, H. *et al., Antimicrob. Agents Chemother.*, 1981, **20**, 47; 420 (*activity*)

Busson, R. *et al., Nucleic Acids Symp. Ser.*, 1981, **9**, 49 (*synth, activity*)
Reefschlaeger, J. *et al., Antiviral Res.*, 1983, **3**, 175 (*synth, pharmacol*)
Lin, J.C. *et al., Antimicrob. Agents Chemother.*, 1988, **32**, 1068 (*pharmacol*)
Suzutani, T. *et al., Antimicrob. Agents Chemother.*, 1988, **32**, 1547 (*activity*)
Yokota, T. *et al., Mol. Pharmacol.*, 1989, **36**, 312 (*pharmacol*)
Robins, M.J. *et al., Tet. Lett.*, 1990, **31**, 5633 (*synth, pmr, bibl*)
Whigan, D.B. *et al., J. Chromatogr.*, 1991, **568**, 385 (*hplc*)
Rabasseda, X. *et al., Drugs of Today (Barcelona)*, 1993, **29**, 555 (*rev*)
Suzutani, T. *et al., Microbiol. Immunol.*, 1993, **37**, 511 (*pharmacol*)
Nature (London), 1994, **369**, 697 (*tox, man*)

Spenolimycin S-63

5a,6,7,8,9,9a-Hexahydro-4-methoxy-2-methyl-6,8-bis(methylamino)-2H-pyrano[2,3-b][1,4]benzodioxin-4a,7,9(10aH)-triol, 9CI. Acmimycin
[95041-97-7]



$C_{15}H_{26}N_2O_7$ 346.38

Aminoglycoside-type antibiotic. Isol. from *Streptomyces gilvospiralis* and *Streptomyces* sp. AC 4559. Active against a wide variety of anaerobic gram-positive and -negative bacteria. Hemihydrate. Mp 123° dec. $[\alpha]_D^{24}$ +44.2 (c, 1 in H_2O). Related to Spectinomycin, Acmimycin has not been definitely proven identical with Spenolimycin but has the same plane formula. (Incorrectly given as $C_{14}H_{24}N_2O_6$ in CA). Phys. props. given refer to Acmimycin.

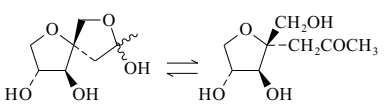
Sulfate: $[\alpha]_D^{22}$ +24 (c, 0.9 in MeOH aq.).

[90755-71-8]

Fr. Pat., 1984, 2 532 950; *CA*, **101**, 37205 (*isol, struct, uv, ir, pmr, Acmimycin*)
Karwowski, J.P. *et al., J. Antibiot.*, 1984, **37**, 1513 (*isol*)
McAlpine, J.B. *et al., J. Antibiot.*, 1984, **37**, 1519 (*isol, struct*)
Vojtko, C.M. *et al., J. Antibiot.*, 1984, **37**, 1525 (*props*)

Sphydrofuran, 8CI S-64

3,4,5′-Trihydroxy-5′-methyl-2,3′-spirobi(tetrahydrofuran)
[11072-19-8]



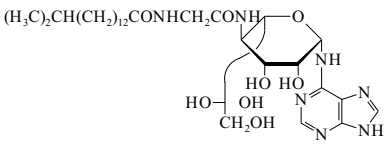
$C_8H_{14}O_5$ 190.196

Prod. by unidentified *Streptomyces* sp. Unstable cryst. (Me_2CO). Sol. H_2O, EtOH, MeOH, Me_2CO, DMSO, Py; poorly sol. EtOAc, hexane.
Mp 99.5-101°. $[\alpha]_D^{22}$ +18 (c, 1 in H_2O).

Umezawa, S. *et al., J. Antibiot.*, 1971, **24**, 85 (*isol*)
Usui, T. *et al., J. Antibiot.*, 1971, **24**, 93 (*struct*)
Bindseil, K.U. *et al., Helv. Chim. Acta*, 1991, **74**, 1281 (*abs config*)
Maliakel, B.P. *et al., J. Carbohydr. Chem.*, 1993, **12**, 415-424 (*synth*)
Yu, P. *et al., J.O.C.*, 1997, **62**, 6359-6366 (*synth*)
Di Florio, R. *et al., J.O.C.*, 1998, **63**, 8595-8598 (*synth*)

Spicamycin S-65

[87099-85-2]



$C_{30}H_{51}N_7O_7$ 621.776

Nucleoside antibiotic. Diastereoisomer of Septacidin, S-29. Prod. by *Streptomyces alanosinicus*. Shows antitumour props. Potent inducer of differentiation of human promyelocytic leukemia cells. Powder. Sol. MeOH, DMSO, bases, Py, butanol; fairly sol. EtOAc; poorly sol. Me_2CO, C_6H_6, acids, H_2O, hexane. Mp 215-220° dec. λ_{max} 264 nm (MeOH). May contain minor components of varying fatty acid chains. λ_{max} 273 (ε 16000) (MeOH/HCl) (Derep). λ_{max} 272 (ε 14000) (MeOH/NaOH) (Derep). λ_{max} 264 (ε 16000) (MeOH) (Derep).

▶ LD_{50} (mus, ipr) 40 mg/kg. MJ9857000

Hayakawa, Y. *et al., J. Antibiot.*, 1983, **36**, 934 (*isol, props*)
Hayakawa, Y. *et al., Agric. Biol. Chem.*, 1985, **49**, 2685 (*isol, struct, props*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Sakai, T. *et al., J. Antibiot.*, 1995, **48**, 899; 1467 (*abs config, activity*)
Suzuki, T. *et al., J.O.C.*, 2002, **67**, 2874-2880 (*synth*)

Spirulan S-66

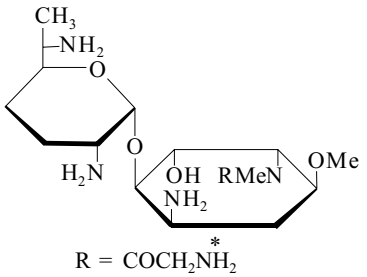
[172929-12-3]

Sulfated polysaccharide antibiotic of unknown struct. Composed of two types of repeating disaccharide units; *O*-rhamnosylacofriose and *O*-hexuronosylrhamnose (aldobiuronic acid). Characterised as the Ca deriv. Calcium spirulan, to which CAS no. refers. Isol. from the blue-green alga *Spirulina platensis*. Antiviral agent. Amorph. powder. (as Ca deriv.). $[\alpha]_D$ +14.7 (c, 0.6 in H_2O) (Ca deriv.).

Hayashi, T. *et al., J. Nat. Prod.*, 1996, **59**, 83-87; 1998, **61**, 1101-1104 (*isol, purifn, hplc, activity, ms*)
Lee, J.-B. *et al., J. Nat. Prod.*, 2000, **63**, 136-138 (*ms, struct*)

Sporaricin A S-67

KA 6606-I. Antibiotic KA 6606-I
[68743-79-3]



$C_{17}H_{35}N_5O_5$ 389.494

Aminoglycoside antibiotic. From *Saccharopolyspora hirsuta* ssp. *kobensis*. Antibacterial agent. Basic solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. EtOAc, hexane.
Mp 115-125°. $[\alpha]_D^{25}$ +104 (c, 1 in H_2O).

▶ LD_{50} (mus, ipr) 200-400 mg/kg; LD_{50} (mus, ivn) 73 mg/kg; LD_{50} (mus, scu) 310 mg/kg. WH1332550

N-*Formimidoyl:* ***2″-Formimidoylsporaricin A***
$C_{18}H_{36}N_6O_5$ 416.52
From *Saccharopolyspora hirsuta* ssp. *kobensis*. Active against gram-positive and -negative bacteria. Powder + $4H_2O$ (as sulfate salt). $[\alpha]_D^{27}$ +65.8 (c, 0.5 in H_2O) (sulfate).

Deushi, T. *et al., J. Antibiot.*, 1979, **32**, 173; 187 (*isol, struct*)
Torii, T. *et al., Carbohydr. Res.*, 1983, **116**, 289 (*analogues*)
Umezawa, H. *et al., J. Antibiot.*, 1987, **40**, 91 (*derivs*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SLF500

Sporaricin B S-68

KA 6606II. Antibiotic KA 6606II
[68743-78-2]
As Sporaricin A, S-67 with
R = H

$C_{15}H_{32}N_4O_4$ 332.442

Aminoglycoside antibiotic. Obt. from *Saccharopolyspora hirsuta* ssp. *kobensis*. Antibacterial agent. Basic solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. EtOAc, hexane.
Mp 88-93° dec. $[\alpha]_D^{25}$ +139.5 (c, 1 in H_2O).

▶ NM7522560

O-*De-Me:* ***Antibiotic KA 6606XI***. *KA 6606XI. Sporaricin XI*
[75106-35-3]
$C_{14}H_{30}N_4O_4$ 318.415
From *Saccharopolyspora hirsuta*. Weakly active against gram-positive and -negative bacteria. Sol. H_2O, MeOH; poorly sol. EtOAc, hexane, $CHCl_3$. $[\alpha]_D^{25}$ +140 (c, 2 in H_2O) (as carbonate salt).

Deushi, T. *et al., J. Antibiot.*, 1979, **32**, 173; 187 (*isol, struct*)
Eur. Pat., 1982, 44 477; *CA*, **96**, 216048 (*isol*)

Sporaricin C S-69

4-N-*Carbamoylglycylsporaricin B. KA 6606III. Antibiotic KA 6606III*

[68743-80-6]

As Sporaricin A, S-67 with R = $-COCH_2NHCONH_2$

$C_{18}H_{36}N_6O_6$ 432.519

Aminoglycoside antibiotic. Isol. from *Saccharopolyspora hirsuta* ssp. *kobensis* ATCC20501. Active against gram-negative and -positive bacteria incl. aminoglycoside resistant strains. Basic solid. Sol. H_2O; fairly sol. MeOH, EtOH; poorly sol. EtOAc, hexane. Mp 145-152° dec. $[\alpha]_D$ +103 (c, 1 in H_2O).

► LD_{50} (mus, ivn) 300 mg/kg. NM7521511

Carbonate:

Monohydrate. $[\alpha]_D^{23}$ +126 (c, 1 in H_2O).

1,2′,6′-Tri-N-*Ac:*

Solid. $[\alpha]_D^{23}$ +106 (c, 0.5 in H_2O).

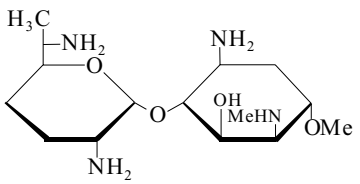
Ger. Pat., 1978, 2 813 021; *CA*, **90**, 53128 (*isol*)

Deushi, T. *et al., J. Antibiot.*, 1981, **34**, 811 (*isol*)

Sporaricin E S-70

2-Deoxyfortimicin B. KA 6606VI. Antibiotic KA 6606VI

[71657-28-8]



$C_{15}H_{32}N_4O_4$ 332.442

Aminoglycoside antibiotic. Isol. from *Saccharopolyspora hirsuta*. Shows broad antimicrobial activity. Solid. Sol. H_2O. $[\alpha]_D^{23}$ +54 (c, 1 in H_2O).

Tetra-N-*Ac:* $[\alpha]_D^{24}$ +112 (c, 1 in H_2O).

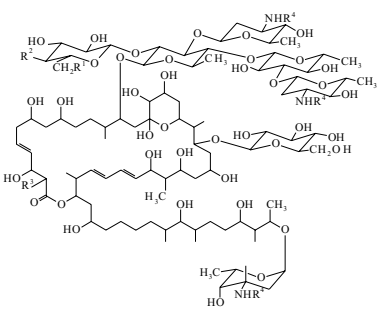
Martin, J.R. *et al., J. Antibiot.*, 1980, **33**, 810 (*synth*)

Iwasaki, A. *et al., J. Antibiot.*, 1982, **35**, 517 (*isol*)

Sporaviridin, 9CI S-71

SVD

[72497-34-8]



SVD–A_1	R^1= H	R^2= OH	R^3= C_2H_5	R^4= H
SVD–A_2	R^1= H	R^2= OH	R^3= CH_3	R^4= H
SVD–B_1	R^1= H	R^2= NH_2	R^3= C_2H_5	R^4= H
SVD–B_2	R^1= H	R^2= NH_2	R^3= CH_3	R^4= H
SVD–C_1	R^1= OH	R^2= OH	R^3= C_2H_5	R^4= H
SVD–C_2	R^1= OH	R^2= OH	R^3= CH_3	R^4= H

Aminoglycoside antibiotic complex. Isol. from *Streptosporangium viridogriseum*. Active against gram-positive bacteria, trichophyton and acid-fast bacteria. Basic, amorph. powder. Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane. $[\alpha]_D^{29}$ -12 (c, 1 in MeOH). λ_{max} 233 (E1%/1cm 178) (MeOH) (Berdy). λ_{max} 233 (E1%/1cm 178) (H_2O) (Berdy). λ_{max} 227 (E1%/1cm 174); 233 (E1%/1cm 178); 242 (E1%/1cm 174) (NaOH) (Berdy).

► LD_{50} (mus, ivn) .46 mg/kg, LD_{50} (mus, ipr) .92 mg/kg, LD_{50} (mus, scu) 2.2 mg/kg, LD_{50} (mus, orl) 27 mg/kg. WH1484500

Sporaviridin A_1, 9CI [107021-77-2]

$C_{100}H_{179}N_3O_{41}$ 2079.51

Powder. Sol. H_2O. Mp 190-192°. $[\alpha]_D^{25}$ -8.8 (c, 0.41 in MeOH). λ_{max} 232 (ϵ 8710) (EtOH) (Derep). λ_{max} 232 (ϵ 8750) (MeOH) (Berdy).

Sporaviridin A_2 [107021-78-3]

$C_{99}H_{177}N_3O_{41}$ 2065.483

Powder. Sol. H_2O. Mp 190-193°. $[\alpha]_D^{25}$ -9.6 (c, 0.57 in MeOH). λ_{max} 232 (ϵ 8710) (EtOH) (Derep). λ_{max} 232 (ϵ 46000) (MeOH) (Berdy).

Sporaviridin B_1 [107021-79-4]

$C_{100}H_{180}N_4O_{40}$ 2078.525

Powder. Sol. H_2O. Mp 196-199°. $[\alpha]_D^{25}$ -13.6 (c, 0.56 in MeOH). λ_{max} 232 (ϵ 8710) (EtOH) (Derep). λ_{max} 232 (ϵ 30800) (MeOH) (Berdy).

Sporaviridin B_2 [107021-83-0]

$C_{99}H_{178}N_4O_{40}$ 2064.498

Powder. Sol. H_2O. Mp 191-193°. $[\alpha]_D^{25}$ -10 (c, 0.66 in MeOH). λ_{max} 232 (ϵ 8710) (EtOH) (Derep). λ_{max} 232 (ϵ 25200) (MeOH) (Berdy).

Sporaviridin C_1 [107021-82-9]

$C_{100}H_{179}N_3O_{42}$ 2095.509

Sol. H_2O. Mp 194-196°. $[\alpha]_D^{25}$ -13.5 (c, 0.97 in MeOH). λ_{max} 232 (ϵ 8710) (EtOH) (Derep). λ_{max} 232 (ϵ 16000) (MeOH) (Berdy).

Sporaviridin C_2 [107021-81-8]

$C_{99}H_{177}N_3O_{42}$ 2081.482

Sol. H_2O. Mp 196-198°. $[\alpha]_D^{25}$ -8 (c, 0.48 in MeOH). λ_{max} 232 (ϵ 8710) (EtOH) (Derep). λ_{max} 232 (ϵ 31500) (MeOH) (Berdy).

Okuda, T. *et al., J. Antibiot., Ser. A*, 1966, **19**, 85 (*isol, props*)

Penco, S. *et al., Heterocycles*, (Spec. Issue), 1979, **13**, 281 (*struct*)

Harada, K. *et al., Chem. Pharm. Bull.*, 1982, **30**, 4288 (*struct*)

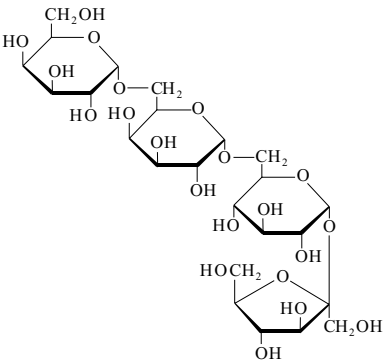
Kimura, I. *et al., Tet. Lett.*, 1987, **28**, 1917; 1921 (*struct*)

Harada, K. *et al., J. Antibiot.*, 1989, **42**, 1056 (*isol, ms, struct*)

Stachyose S-72

β-D-Fructofuranosyl O-*α-D-galactopyranosyl-(1→6)*-O-*α-D-galactopyranosyl-(1→6)-α-D-glucopyranoside, 9CI, 8CI. Manneotetrose. β-Galactan. Cicerose. Lupeose*

[470-55-3]



$C_{24}H_{42}O_{21}$ 666.583

Isol. from many plants, e.g. twigs of white jasmine, seeds of yellow lupin (*Lupinus luteus*), lentils and ash manna (*Fraxinus ornus*). Cryst. + 4 or $5H_2O$.

Mp 101-105° (sealed tube) Mp 167-170° (anhyd.). $[\alpha]_D^{23}$ +131.3 (c, 4.5 in H_2O).

Tetradeca-Ac: Mp 95-96°. $[\alpha]_D^{20}$ +120 (c, 3.8 in EtOH).

Tetradecakis-4-nitrobenzoyl: Mp 166°.

Tetradeca-Me:

Syrup. $[\alpha]_D^{24.5}$ +139.2 ($CHCl_3$).

[10094-58-3]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 197C (*ir*)

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 913D (*nmr*)

Wolfrom, M.L. *et al., J.A.C.S.*, 1952, **74**, 6299 (*synth*)

Wolfrom, M.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 368 (*isol*)

Pazur, J.H. *et al., The Carbohydrates*, Academic Press, 2nd Ed., 1970, 69 (*rev*)

Allerhand, A. *et al., J.A.C.S.*, 1971, **93**, 2777 (*cmr*)

Kamerling, J.P. *et al., Tetrahedron*, 1972, **28**, 3037 (*pmr*)

Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 672 (*occur, bibl*)

Gilardi, R.D. *et al., J.A.C.S.*, 1975, **97**, 6264 (*cryst struct*)

Gilardi, G. *et al., Acta Cryst. C*, 1987, **43**, 806 (*cryst struct*)

McIntyre, D.D. *et al., J. Nat. Prod.*, 1989, **52**, 1008 (*pmr*)

Jeffrey, G.A. *et al., Carbohydr. Res.*, 1991, **210**, 89 (*cryst struct*)

Staphylocidin S-73

[88507-21-5]

Peptidoglycan; struct. unknown. Prod. by *Rothia dentocariosa*. Shows antimicrobial activity.

Eur. Pat., 1983, 91 745; *CA*, **100**, 50045x (*isol*)

Staphylococcal acid glycoprotein S-74

SAGP

Glycoprotein consisting of subunits each of MW approx. 5000. Isol. from *Streptococcus haemolyticus*. Shows antitumour activity. Sol. H_2O.

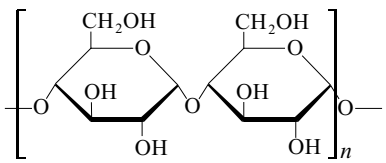
Yoshida, J. *et al., Gann*, 1985, **76**, 213-223; *CA*, **103**, 50949g (*isol*)

Yoshida, J. *et al., J. Antibiot.*, 1989, **42**, 448-453 (*isol*)

Starch, 9CI, 8CI S-75

Amylum. Polyamylose

[9005-25-8]



Starch is composed of Amylose and Amylopectin. Amylose is preponderantly a linear polymer of several thousand D-glucose units mainly α-(1→4) linked. Amylopectin is a branched polymer composed largely of α-D-(1→4)-linked glucose units. The branch is α-(1→6) and occurs at the 6 position every 20-25 glucose units. Pullulanase, *R*-enzyme and Isoamylase hydrol. the α-D-(1→6) linkages. Polymeric. Minimum formula given. Graft polymers with acrylates are used as water-absorbent resins.

▶ Starch dust is a respiratory tract irritant OES (8-hr TWA) total inhalable dust 10 mg m^{-3}, respirable dust 5 mg m^{-3}. Mod. explosive when exposed to flame.

Phosphate: [11120-02-8]
[39373-98-3] Industrial material with various uses depending on level of phosphorylation. Used in food processing. Many different structs. are present at different phosphorylation levels.

Carboxymethyl ether: [9057-06-1] Modified starch used as thickening agent in food industry and pharmaceuticals. Powder.

2-Hydroxyethyl ether: Pentastarch
[9005-27-0] Modified starch used as sizing agent in textile industry. Used in artificial blood.

2-Hydroxypropyl ether: [9049-76-7] Modified starch used as sizing agent and adhesive.

Oxiranylmethyl ether: ***Amilomer, INN.*** *Starch-epichlorohydrin ether. 2,3-Epoxypropyl starch. Spherex*
[42615-49-6] Chemoembolisation agent. No phys. props. reported. Spherical particles prep. by crosslinking partially hydrolysed potato starch using epichlorohydrin as a cross-linking agent.

Unbranched-*form*

Amylose

[9005-82-7]

Stored in all parts of plants as insol. granules. Coml. starches come mainly from corn (maize), sorghum grains, tapioca root and potato tuber. Most starch samples contain 20 ± 5% Amylose which can be pptd. from aq. starch soln. with, e.g., Thymol. Used in particulate form as a dusting powder, as a gelling agent in processed foods, as a flocculant and pigment retainer in paper manuf. and in dried film form for sizing paper and textiles. Used in photometric detn. of I_2; as an indicator in iodometry. Pharmaceutical aid and excipient (binder, diluent and disintegrant). $[\alpha]_D$ +200 (H_2O). $[\alpha]_D$ +162 (1*M* NaOH). $[\alpha]_D$ +175 (DMSO). Hydrol. by acid, α-Amylase and β-Amylase. Forms inclusion complexes, gives a deep-blue colour with I_2. Four polymorphs (A,B,C and V amyloses) have been studied structurally and differ in helical conformation and packing.

Per-Ac:
[9045-28-7] Many uses in food processing. $[\alpha]_D$ +175 ($CHCl_3$).

Percarbanilate: $[\alpha]_D$ -82.5 (Py).

Branched-*form* *Amylopectin*
[9037-22-3]
$[\alpha]_D$ +200 (H_2O). $[\alpha]_D$ +163 (1*M* NaOH).

Per-Ac:
[9045-28-7] $[\alpha]_D$ +170 ($CHCl_3$).

Percarbanilate: $[\alpha]_D$ -62 (Py).

Sulfated form: Amylopectin sulfate

Sulfated form, Na salt: Sodium amylosulfate, USAN. Depepsen
[9010-01-9] Enzyme inhibitor.

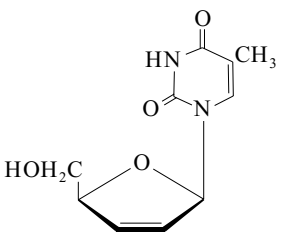
[9063-38-1, 11116-64-6, 56780-58-6]

Welcher, F.J. *et al., Organic Analytical Reagents*, Van Nostrand, NY, 1948, **4**, 283 (*use*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1964, **4**, 3
Paschall, E.F. *et al., Methods Carbohydr. Chem.*, 1964, **4**, 294-296 (*rev, phosphate*)
Whistler, R.L. *et al., Arch. Biochem. Biophys.*, 1969, **135**, 396-401 (***synth****, phosphate*)
Greenwood, C.T. *et al., The Carbohydrates*, Academic Press, 1970, **2B**, 471
U.K. Pat., 1973, 1 309 473; *CA*, **79**, 116473s (***synth****, props, phosphate*)
U.S. Pat., 1974, 3 842 071; *CA*, **82**, 74775w (*synth, props, phosphate*)
U.S. Pat., 1974, 3 795 671, (*USDA*); *CA*, **81**, 27522f (*amilomer, manuf*)
Banks, W. *et al., Starch and its Components*, Edinburgh University Press, 1975, (*book*)
St. Jacques, M. *et al., J.A.C.S.*, 1976, **98**, 4386 (*pmr*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **21**, 492 (*rev*)
Rappenecker, G. *et al., Carbohydr. Res.*, 1981, **89**, 11 (*cryst struct, V-amylose*)
Dais, P. *et al., Carbohydr. Res.*, 1982, **100**, 103 (*cmr, Amylopectin*)
Whistler, R.L. *et al., Starch: Chem. Technol.*, 2nd Ed., Academic Press, 1984,
Takeda, Y. *et al., Carbohydr. Res.*, 1986, **148**, 299 (*purifn, amylose*)
Marczenko, Z. *et al., Separation and Spectrophotometric Determination of Elements*, Ellis Horwood, Chichester, 1986, 316
Modif. Starches: Prop. Uses. 1987, (ed. Wurzburg, O.B.), CRC Press, 1987, 79-96 (*rev*)
Starch: Properties and Potential, (Ed., Gulliard, T.), Wiley, 1987, (*book*)
Saito, H. *et al., Bull. Chem. Soc. Jpn.*, 1991, **64**, 3528 (*cmr, bibl, struct, amyloses*)
Chinnaswamy, R. *et al., Starch/Staerke*, 1991, **43**, 396 (*rev, graft polymers*)
Zhang, J. *et al., J. Appl. Polym. Sci.*, 1992, **46**, 369-374 (*carboxymethyl ether*)
Takeda, Y. *et al., Carbohydr. Res.*, 1993, **240**, 265 (*bibl, struct*)
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 483-488
Tomasik, P. *et al., Adv. Carbohydr. Chem. Biochem.*, 1995, **51**, 243 (*rev, modification*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1377
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2643-2675 (*use, props, modification*)
Hamdi, G. *et al., J. Microencapsul.*, 2001, **18**, 373-383 (*amilomer, formulation*)
Mukerjea, R. *et al., Carbohydr. Res.*, 2002, **337**, 1015-1022 (*biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SLJ500

Stavudine, BAN, INN, USAN S-76

2′,3′-Didehydro-3′-deoxythymidine, 9CI. 1-(2,3-Dideoxy-β-D-glycero-pent-2-enofuranosyl)thymine, 8CI. 3′-Deoxy-2′,3′-didehydrothymidine. Zerit. D4T. BMY 27857

[3056-17-5]



$C_{10}H_{12}N_2O_4$ 224.216

Anti-HIV agent. Marketed drug. Launched 1994 (US)Mp 165-166°. $[\alpha]_D^{25}$ -42 (c, 0.69 in H_2O). Log P -0.48 (calc). λ_{max} 266 (ε 9910) (H_2O).

▶ XP2075000

5′-Ac: [77421-68-2]
$C_{12}H_{14}N_2O_5$ 266.253
Solid. Mp 179-181°.

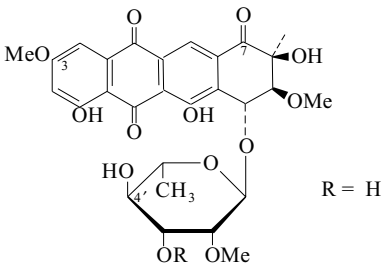
5′-O-Trityl: $[\alpha]_D^{25}$ -32 (c, 0.85 in EtOH).

Horwitz, J.P. *et al., J.O.C.*, 1966, **31**, 205 (*synth*)
Ferrier, R.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1969, **24**, 199 (*rev*)
Verheyden, J. *et al., J.O.C.*, 1974, **39**, 3573
Zemlicka, J. *et al., J.A.C.S.*, 1975, **97**, 4089 (*pmr*)
Lin, T.S. *et al., Biochem. Pharmacol.*, 1987, **36**, 2713 (*rev*)
Mansuri, M.M. *et al., J. Med. Chem.*, 1989, **32**, 461 (*synth, pharmacol*)
Chu, C.K. *et al., J.O.C.*, 1989, **54**, 2217; 1990, **55**, 1418 (*synth, pharmacol, bibl*)
Mansuri, M.M. *et al., J.O.C.*, 1989, **54**, 4780 (*synth, pmr, cmr, Ac*)
Vial, J.-M. *et al., Nucleosides Nucleotides*, 1990, **9**, 245 (*synth*)
Hitchcock, M.J.M. *et al., Antiviral Chem. Chemother.*, 1991, **2**, 125 (*rev*)
Harte, W.E. *et al., Biochem. Biophys. Res. Commun.*, 1991, **175**, 298 (*cryst struct*)
Cosford, N.D.P. *et al., J.O.C.*, 1991, **56**, 2161 (*synth, bibl*)
Van Roey, P. *et al., J.A.C.S.*, 1993, **115**, 5365 (*cryst struct, bibl*)

Tortolani, D.R. *et al., J. Pharm. Sci.*, 1994, **83**, 339 (*derivs*)
Lea, A.P. *et al., Drugs*, 1996, **51**, 846 (*rev, pharmacokinet*)
Hurst, M. *et al., Drugs*, 1999, **58**, 919-949 (*rev*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 625
Cheer, S.M. *et al., Drugs*, 2002, **62**, 2667-2674 (*rev*)
Ewing, D.F. *et al., Tetrahedron*, 2003, **59**, 941-945 (*synth*)

Steffimycin, INN, USAN S-77

Steffisburgensimycin. U 20661. Antibiotic U 20661
[11033-34-4]



$C_{28}H_{30}O_{13}$ 574.537

Anthracycline antibiotic. Isol. from *Streptomyces steffisburgensis, Streptomyces elgreteus* and *Actinoplanes utahensis*. Antibacterial and antineoplastic agent. Orange-yellow cryst. Sol. MeOH, C_6H_6; poorly sol. H_2O, Et_2O, hexane.
Mp 257-265°. $[\alpha]_D^{25}$ +85 (c, 0.05 in MeOH). Log P -0.64 (uncertain value) (calc). Shows opposite stereochem. to most anthracyclines. λ_{max} 227 (ϵ 29500); 263 (ϵ 24500); 353 (ϵ 4170); 528 (ϵ 11200) (MeOH/NaOH) (Derep). λ_{max} 214 (ϵ 25900); 236 (ϵ 29300); 257 (sh) (ϵ 22400); 279 (ϵ 20100); 298 (sh) (ϵ 13500); 439 (ϵ 14900) (MeOH) (Derep). λ_{max} 214 (ϵ 25700); 236 (ϵ 29500); 278 (ϵ 19950); 439 (ϵ 14800) (MeOH) (Berdy). λ_{max} 214 (ϵ 25120); 236 (ϵ 29500); 278 (ϵ 19950); 439 (ϵ 12900) (MeOH-HCl) (Berdy).
► LD_{50} (mus, ipr) 562 mg/kg. QI9456000

4′-Me ether: ***Steffimycin B****. U 40615. Antibiotic U 40615*
[54526-94-2]
$C_{29}H_{32}O_{13}$ 588.564
Isol. from *Streptomyces elgreteus*. Antibacterial and antineoplastic agent. Orange cryst. Sol. MeOH, $CHCl_3$; fairly sol. C_6H_6;poorly sol. hexane, H_2O.
Mp 240-246°. $[\alpha]_D^{25}$ +94 (c, 1 in $CHCl_3$). λ_{max} 227 (ϵ 29500); 263 (ϵ 24500); 353 (ϵ 4170); 528 (ϵ 11200) (MeOH/NaOH) (Derep). λ_{max} 214 (ϵ 25900); 236 (ϵ 29300); 257 (sh) (ϵ 22400); 279 (ϵ 20100); 298 (sh) (ϵ 13500); 439 (ϵ 14900) (MeOH) (Derep). λ_{max} 234 (E1%/1cm 473); 274 (E1%/1cm 333); 439 (EtOH) (Berdy). λ_{max} 223 (E1%/1cm 587); 259 (E1%/1cm 457); 353; 528 (EtOH-NaOH) (Berdy). λ_{max} 234 (E1%/1cm 467); 254 (E1%/1cm 366); 274 (E1%/1cm 330); 440 (EtOH-HCl) (Berdy).
► LD_{50} (mus, scu) 600 mg/kg. QI9450000

7-Alcohol: 10-Dihydrosteffimycin
[75086-96-3]
$C_{28}H_{32}O_{13}$ 576.553
Semisynthetic. Cryst. (Me_2CO).
Mp 253-255°.

7-Alcohol, 4′-Me ether: 10-Dihydrosteffimycin B
[75086-97-4]
$C_{29}H_{34}O_{13}$ 590.58
Semisynthetic. Cryst. (Me_2CO).
Mp 245-248°. λ_{max} 227 (ϵ 29750); 267 (ϵ 18700); 285 (ϵ 15930); 430 (ϵ 12500) (EtOH) (Berdy).

7-Deoxo: ***Steffimycin D***
[132354-06-4]
$C_{28}H_{32}O_{12}$ 560.554
From *Streptomyces* sp. Collagenase inhibitor.

7-Deoxo, 4′-Me ether: ***Steffimycin C***
[98813-22-0]
$C_{29}H_{34}O_{12}$ 574.58
From *Streptomyces elgreteus*. Only active against *Streptococcus pneumoniae*. Orange cryst. Sol. MeOH, $CHCl_3$, EtOAc; poorly sol. H_2O, hexane. λ_{max} 225 (ϵ 36300); 266 (ϵ 20000); 287 (ϵ 17800); 434 (ϵ 11200) (MeOH) (Derep).

7-Deoxo, O³-de-Me: ***Demethylsteffimycin***
[132354-18-8]
$C_{27}H_{30}O_{12}$ 546.527
From *Streptomyces* sp. Orange powder.

9-Demethoxy: ***9-Demethoxysteffimycin****. 8-Demethoxysteffimycin*
[193472-10-5]
$C_{27}H_{28}O_{12}$ 544.511
Prod. by *Streptomyces steffisburgensis*. Orange powder. λ_{max} 280; 440 (MeOH). λ_{max} 440 (MeOH) (Berdy).

9-Demethoxy, 7-deoxo: ***9-Demethoxysteffimycin D****. 8-Demethoxysteffimycin D*
[193472-08-1]
$C_{27}H_{30}O_{11}$ 530.527
Prod. by *Streptomyces steffisburgensis*. Orange powder. λ_{max} 280; 440 (MeOH). λ_{max} 440 (MeOH) (Berdy).

*9-Demethoxy, 7-deoxo, 2′-*O*-de-Me:* ***8-Demethoxy-2′-de-O-methylsteffimycin D***
[193472-12-7]
$C_{26}H_{28}O_{11}$ 516.501
Prod. by *Streptomyces steffisburgensis*. Orange powder. λ_{max} 280; 440 (MeOH). λ_{max} 440 (MeOH) (Berdy).

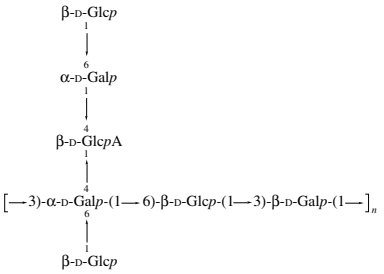
*3,9-Bisdemethoxy, 7-deoxo, 2′-*O*-de-Me:* ***2,8-Didemethoxy-2′-de-O-methylsteffimycin D***
[193472-14-9]
$C_{25}H_{26}O_{10}$ 486.474
Prod. by *Streptomyces steffisburgensis*. Orange powder. Incorrect struct. and MF assigned in CA. λ_{max} 270; 430 (MeOH).

Aglycone: Steffimycinone. 2-Demethoxyaranciamycinone
[57847-74-2]
$C_{21}H_{18}O_9$ 414.368
Active against mycobacteria.

[91310-99-5, 91382-92-2]

Bergy, M.E. *et al., Experientia*, 1967, **23**, 254 (*isol*)
Brodasky, T.F. *et al., J. Antibiot.*, 1974, **27**, 809; 1985, **38**, 849 (*isol, uv, ir, pmr, cmr, ms, struct*)
Vaněk, Z. *et al., Folia Microbiol. (Prague)*, 1977, **22**, 139 (*biosynth, struct, pmr, cmr, ms*)
Wiley, P.F. *et al., J.O.C.*, 1977, **42**, 3591; 1978, **43**, 3457 (*Steffimycin B*)
Wiley, P.F. *et al., J. Antibiot.*, 1980, **33**, 819 (*isol, uv, ir, pmr, cmr*)
Krohn, K. *et al., J.O.C.*, 1984, **49**, 3766 (*config*)
Suzukake-Tsuchiya, K. *et al., J. Antibiot.*, 1990, **43**, 1489 (*Steffimycin D*)
Brodasky, T.F. *et al., J. Antibiot.*, 1990, **43**, 1489 (*Steffimycin C*)
Kunnari, T. *et al., J. Antibiot.*, 1997, **50**, 496-501 (*Demethoxysteffimycins*)

Stewartan S-78

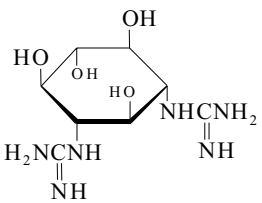


Capsular polysaccharide from the corn pathogenic organism *Erwinia stewartii*.

Nimtz, M. *et al., Carbohydr. Res.*, 1996, **288**, 189-201 (*isol, pmr, ms, struct*)

Streptidine S-79

N,N′-Bis(aminoiminomethyl)streptamine, 9CI. N,N′-*Diamidinostreptamine*
[85-17-6]



$C_8H_{18}N_6O_4$ 262.268
Degradn. prod. of Streptomycin, S-83. Shows no Mp behaviour. Opt. inactive (*meso*-).

Hydrochloride (1:2): [6160-28-7]
Mp 170-210° dec.
► WK2200000

*Dipicrate:*Mp 285°.

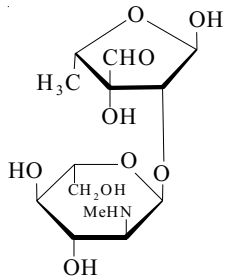
Octa-Ac:
$C_{24}H_{34}N_6O_{12}$ 598.566
Cryst. (EtOH aq.). Mp 259-261°.

Peck, R.L. *et al., J.A.C.S.*, 1946, **68**, 776 (*struct*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1950, **72**, 1727 (*synth, octa-Ac*)
Dyer, J.R. *et al., J.A.C.S.*, 1963, **85**, 3896 (*config*)
Munro, M.H. *et al., J.A.C.S.*, 1975, **97**, 4782 (*biosynth*)

Streptobiosamine, 8CI S-80

5-Deoxy-2-O-[2-deoxy-2-(methylamino)-α-L-glucopyranosyl]-3-C-formyl-L-lyxofuranose, 9CI

[126-05-6]



$C_{13}H_{23}NO_9$ 337.326

Degradn. prod. of Streptomycin, S-83.

Tetra-Ac:

$C_{21}H_{31}NO_{13}$ 505.475

Mp 188-189°. $[\alpha]_D$ -78.4 (c, 1.0 in $CHCl_3$).

Hepta-Ac:

$C_{27}H_{39}NO_{16}$ 633.602

Hydrate. Mp 151-152°. $[\alpha]_D$ -106 (c, 0.70 in $CHCl_3$).

Lemieux, R.U. *et al., Adv. Carbohydr. Chem.*, 1948, **3**, 337 (*rev*)

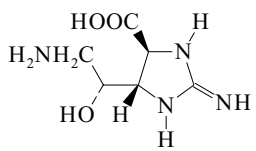
Kuehl, F.A. *et al., J.A.C.S.*, 1949, **71**, 1445 (*config, hepta-Ac*)

Lodhi, S. *et al., Biochim. Biophys. Acta*, 1976, **426**, 781 (*pharmacol*)

Streptolidine S-81

2-Amino-5-(2-amino-1-hydroxyethyl)-4,5-dihydro-1H-imidazole-4-carboxylic acid, 9CI. Geamine. Roseonine

[29307-61-7]



$C_6H_{12}N_4O_3$ 188.186

Hydrol. prod. of many *Streptomyces* antibiotics, e.g. Geomycin. pK_{a1} 2.5; pK_{a2} 8.72; pK_{a3} 11.3 (H_2O). pK_{a1} 3.95; pK_{a2} 9.1; pK_{a3} 12.65 (66% DMF).

Hydrochloride (1:2): Mp 175-180° dec Mp 208-215° dec Mp 220° Mp 239° dec. $[\alpha]_D$ +56.

Dipicrate:

Deep yellow prisms (H_2O). Mp 237° dec.

Bis[4-(4-hydroxyphenylazo)benzenesulfonate]:

Cryst. + $2H_2O$ (H_2O). Mp 254-258°. $[\alpha]_D^{21}$ +22.1 (c, 0.29 in MeOH).

Carter, H.E. *et al., J.A.C.S.*, 1961, **83**, 4296 (*isol, struct*)

Borders, D.B. *et al., Tet. Lett.*, 1967, 4187 (*pmr, ir, struct, derivs*)

Bycroft, B.W. *et al., Chem. Comm.*, 1972, 652 (*cryst struct*)

Goto, T. *et al., Tet. Lett.*, 1974, 1413 (*synth, ir, ms, nmr*)

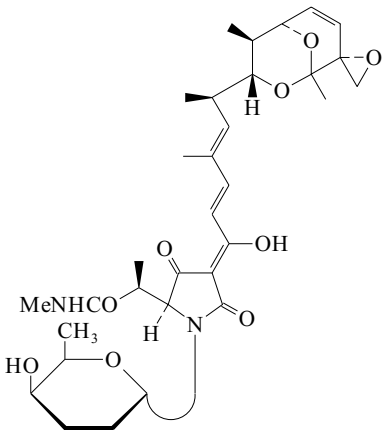
Kusumoto, S. *et al., Bull. Chem. Soc. Jpn.*, 1976, **49**, 3611 (*pmr, synth*)

Kinoshita, M. *et al., Bull. Chem. Soc. Jpn.*, 1977, **50**, 2375 (*synth*)

Streptolydigin, 9CI S-82

Portamycin. Afragilimycin A

[7229-50-7]



$C_{32}H_{44}N_2O_9$ 600.708

Nucleoside antibiotic. Prod. by *Streptomyces lydicus* and *Streptomyces neohygroscopicus afragilimyceticus*. Active against gram-positive bacteria. RNA-polymerase inhibitor. Cryst. + H_2O (Me_2CO).

Mp 147-148° Mp 190-195°. $[\alpha]_D^{25}$ -93 (c, 1.6 in $CHCl_3$). $[\alpha]_D^{25}$ -65.7 (c, 2.28 in 0.005*M* NaOH). λ_{max} 240 (ε 8000); 357 (ε 35500); 370 (ε 33700) (EtOH/HCl) (Derep). λ_{max} 262 (ε 13600); 291 (ε 16400); 335 (ε 20000) (EtOH/NaOH) (Derep).

▶ WK4250000

Na salt: Mp 225°. $[\alpha]_D^{25}$ +153 (c, 1.35 in $CHCl_3$). λ_{max} 240 (ε 7280); 360 (ε 29400); 373 (ε 29500) (50% MeOH/HCl) (Derep). λ_{max} 257 (ε 10800); 296 (sh) (ε 13100); 310 (sh) (ε 13600); 336 (ε 17900) (50% MeOH) (Derep). λ_{max} 259 (ε 11200); 296 (sh) (ε 13700); 336 (ε 18500) (MeOH aq./NaOH) (Derep).

[76559-69-8]

Rinehart, K.L. *et al., J.A.C.S.*, 1963, **85**, 4035; 4037; 4038 (*struct, uv, ir, ms, pmr*)

Stevens, C.L. *et al., J.A.C.S.*, 1964, **86**, 3592 (*isol*)

Duchamp, D.J. *et al., J.A.C.S.*, 1973, **95**, 4077 (*cryst struct, stereochem*)

Von Meyenburg, K. *et al., Antimicrob. Agents Chemother.*, 1978, **13**, 324

Lee, V.J. *et al., J. Antibiot.*, 1980, **33**, 408 (*cmr*)

McClure, W.R. *et al., J. Biol. Chem.*, 1980, **255**, 1610 (*props*)

Japan. Pat., 1980, 80 127 398; *CA*, **94**, 101308 (*Afragilimycin A*)

Pearce, C.J. *et al., J. Antibiot.*, 1983, **36**, 1536 (*biosynth*)

Perez, J.P. *et al., Diss. Abstr. Int., B*, 1984, **45**, 1781 (*synth*)

Ireland, R.E. *et al., J.A.C.S.*, 1988, **110**, 854 (*synth*)

Bols, M. *et al., J. Antibiot.*, 1991, **44**, 678 (*Afragilimycin A*)

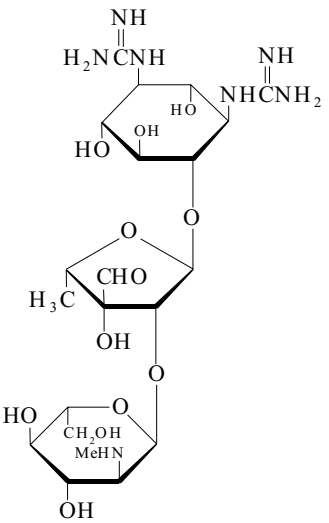
Chen, H. *et al., Org. Lett.*, 2004, **6**, 4033-4036 (*biosynth*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SLW475

Streptomycin, BAN, INN S-83

N-*Methyl-L-glucosamidinostreptosidostreptidine. Estreptomicina. Streptomisin. Agrept. Agrimycin. Merstep. NSC 14083. Many other names*

[57-92-1]



$C_{21}H_{39}N_7O_{12}$ 581.579

Aminoglycoside antibiotic. Isol. from *Streptomyces griseus*. Clinically used broad spectrum antibacterial (tuberculostatic) agent. Neuromuscular blocking agent. Phospholipase D inhibitor. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Log P -7.17 (uncertain value) (calc). Indefinite Mp.

▶ Hypersensitivity reactions reported when used therapeutically or occupationally. Adverse side-effects also include vestibular ototoxicity and neurotoxicity. LD_{50} (rat, orl) 9000 mg/kg; LD_{50} (mus, ivn) 200 mg/kg. Human and exp. reprod. and teratogenic effects. WK4375000

Hydrochloride (1:3): [6160-32-3] $[\alpha]_D$ -86.7 (c, 1 in H_2O).

▶ WK5045000

Sulfate (2:3): ***Streptomycin sulfate, JAN, USAN.*** *Ambistryn S*

[3810-74-0]

Powder. Dec. at >*ca*. 230°.

▶ LD_{50} (ham, orl) 400 mg/kg. Exp. reprod. and teratogenic effects. WK4990000

Dihydro:

$C_{21}H_{41}N_7O_{12}$ 583.595

Mp 190-195° dec. (as trihydrochloride).

Helianthate: Mp 220-226° dec.

Reineckate: Mp 162-164° dec.

N-*De-Me:* **N-*Demethylstreptomycin.*** *L-Glucosamidinostreptosidostreptidine*

[19022-67-4]

$C_{20}H_{37}N_7O_{12}$ 567.552

Isol. from *Streptomyces griseus*. Shows low antimicrobial activity. Sol. H_2O; poorly sol. MeOH.

2-Deoxy: 2-Deoxystreptomycin. Deoxystreptomycin A
[60029-13-2]
$C_{21}H_{39}N_7O_{11}$ 565.579
Semisynthetic. Sol. H_2O. Discontinued

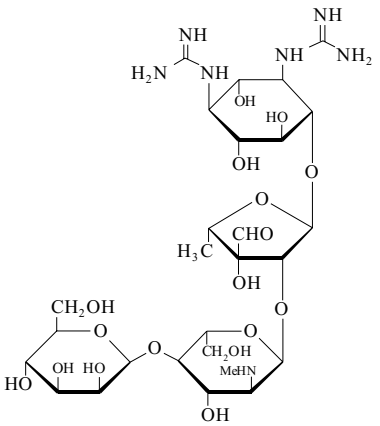
Isonicotinoyl hydrazone: Streptonicozid, BAN, USAN. ***Streptoniazid, INN.*** *Streptohydrazid. Hidramicin. Nicostreptil. Striazide*
[4480-58-4]
$C_{27}H_{44}N_{10}O_{12}$ 700.704
Tuberculostatic agent. Cryst. Dec. at *ca.* 230°.

▶ NS1765000

Kuehl, F.A. *et al., J.A.C.S.*, 1947, **69**, 1234 (*struct*)
Emery, W.B. *et al., Chem. Ind. (London)*, 1952, 254 (*rev*)
Pennington, F.C. *et al., J.A.C.S.*, 1953, **75**, 2261 (*synth*)
Heding, H. *et al., Acta Chem. Scand.*, 1968, **22**, 1649; 1969, **23**, 1275 (*Demethylstreptomycin*)
Neidle, S. *et al., Tet. Lett.*, 1968, 4725 (*cryst struct*)
Bock, K. *et al., J. Antibiot.*, 1974, **27**, 139 (*cmr*)
Umezawa, S. *et al., J. Antibiot.*, 1974, **27**, 997 (*synth*)
Munro, M.H.G. *et al., J.A.C.S.*, 1975, **97**, 4782 (*biosynth*)
U.S. Pat., 1976, 3 956 295, (*MIT*); *CA*, **85**, 107460g (*Deoxystreptomycin*)
U.S. Pat., 1976, 3 993 554, (*MIT*); *CA*, **86**, 104447t (*Deoxystreptomycin*)
Wallace, B.J. *et al., Antibiotics (N.Y.)*, 1979, **5**, 272 (*rev, props*)
Umezawa, S. *et al., J. Antibiot.*, 1979, **32**, S60 (*rev, synth*)
Munro, M.H.G. *et al., J. Antibiot.*, 1982, **35**, 1331 (*cmr*)
Aminoglycosides, (Ed. Whelton, A. *et al*), M. Dekker, 1982, (*book*)
Mossa, J.S. *et al., Anal. Profiles Drug Subst.*, 1987, **16**, 507 (*rev, synth, anal*)
Pesticide Manual, 9th edn., 1991, No. 10970
Textbook of Adverse Drug Reactions, 4th edn., (ed. Davies, D.M.), Oxford University Press, 1991,
Agrochemicals Handbook, 3rd edn., Royal Society of Chemistry, 1992, A481
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 203
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 8762 (*synonyms*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SLW500; SLY500

Streptomycin B, 8CI S-84

Mannosidostreptomycin
[128-45-0]



$C_{27}H_{49}N_7O_{17}$ 743.721
Aminoglycoside antibiotic. Occurs together with Streptomycin in certain cultures of *Streptomyces griseus*. Shows antibacterial activity similar to Streptomycin.

▶ WK4725000

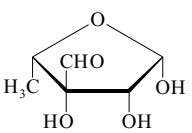
Hydrochloride (1:3):
Monohydrate. Sol. H_2O; poorly sol. butanol, hexane. Mp 190-200° dec. $[\alpha]_D^{25}$ -47 (c, 1.35 in H_2O).

Reineckate:
Cryst. + $2H_2O$ (H_2O). Mp 178° dec.

Peck, R.L. *et al., J.A.C.S.*, 1948, **70**, 3968 (*struct*)
Fried, J. *et al., J.A.C.S.*, 1949, **71**, 135; 1952, **74**, 5461 (*struct*)
Wallace, B.J. *et al., Antibiotics (N.Y.)*, 1979, **5**, 272 (*rev*)
Whall, T.J. *et al., J. Chromatogr.*, 1981, **219**, 89 (*hplc*)
Sax, N.I. *et al., Dangerous Properties of Industrial Materials, 7th edn., Van Nostrand Reinhold*, 1989, 2467

Streptose S-85

5-Deoxy-3-C-formyllyxose, 9CI, 8CI



β-L-Furanose-*form*

$C_6H_{10}O_5$ 162.142

L-*form* [13008-73-6]
Carbohydrate component of Streptomycin, S-83 and Bluensomycin, B-44. Strongly hygroscopic glass. $[\alpha]_D^{20}$ -18 (c, 0.65 in H_2O).

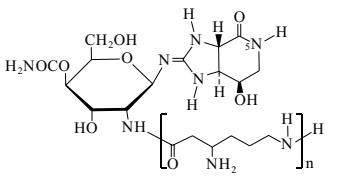
β-L-Furanose-*form*

1,2-O-Isopropylidene: 5-Deoxy-3-C-formyl-1,2-O-isopropylidene-β-L-lyxofuranose
[35522-71-5]
$C_9H_{14}O_5$ 202.207
Cryst. (Me_2CO). Mp 80-82°. $[\alpha]_D^{20}$ +43 (c, 1.0 in dioxan).

Candy, D.J. *et al., Biochem. J.*, 1965, **96**, 526 (*biosynth*)
Dyer, J.R. *et al., J.A.C.S.*, 1965, **87**, 654 (*L-form, synth*)
McGilveray, I.J. *et al., J.A.C.S.*, 1965, **87**, 4003 (*config*)
Kuehl, F.A. *et al., Methods Carbohydr. Chem.*, 1966, **1**, 268 (*synth*)
Paulsen, H. *et al., Chem. Ber.*, 1972, **105**, 1978 (*L-form, synth, β-L-fur isopropylidene*)
Binkley, R.W. *et al., J. Carbohydr. Chem.*, 1982, **1**, 213-227 (*synth*)

Streptothricin S-86

[54003-27-9]



n = 1,2,3,4,5,6,7
for Streptothricins F,E,D,C,B,A and X respectively

Nucleoside-type antibiotic complex. Should not be confused with the antibiotic from *S. fradiae* and now called Neomycin A (see Neomycin A, N-22). Struct. revised in 1982. Isol. from *Streptomyces* sp. Shows broad spectrum of activity, but acutely toxic.

▶ LD_{50} (mus, ivn) 8 mg/kg. WK5750000

Streptothricin A
Aerosporin. Polymycin A
[3484-67-1]
$C_{49}H_{94}N_{18}O_{13}$ 1143.394
Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D$ -9.2 (MeOH).

▶ NJ5830500

Streptothricin B
Polymycin B. NT 1009. Antibiotic NT 1009. Racemomycin E. A 53930C. Antibiotic A 53930C
[3484-68-2]
$C_{43}H_{82}N_{16}O_{12}$ 1015.221
Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. Mp 61-65°. $[\alpha]_D$ -12.8 (c, 0.5 in H_2O).

▶ LD_{50} (mus, ivn) 7.5 mg/kg. NJ5830700

Streptothricin C
Racemomycin D. OP 2D. Antibiotic OP 2D
[3776-36-1]
$C_{37}H_{70}N_{14}O_{11}$ 887.047
Prod. by *Streptomyces lavendulae*. Shows activity against insects, bacteria, viruses and fungi. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D$ -17 (H_2O).

▶ LD_{50} (mus, scu) 0.07 mg/kg. LD_{50} (mus, ivn) approx. 9 mg/kg. NJ5830800

Sulfate: $[\alpha]_D$ -17 (H_2O).

Streptothricin D *Boseimycin III. Phytobacteriomycin D. Racemomycin B. Streptolin A*
[3776-37-2]
$C_{31}H_{58}N_{12}O_{10}$ 758.874
$[\alpha]_D$ -58.6 (H_2O). Streptolin was the name applied to Streptothricins D and E.

► LD_{50} (mus, scu) 0.215 mg/kg. LD_{50} (mus, ivn) 52 mg/kg. NJ5830850

N^{β}-*Ac:* ***Antibiotic AN 201II***. *AN 201II*
[89020-28-0]
$C_{33}H_{60}N_{12}O_{11}$ 800.911
From *Streptomyces nojiriensis*. Active against gram-positive bacteria, certain tumour cells, viruses and weakly against gram-negative bacteria. Powder. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

N^{5}-*Me:* ***N*^{5}*-Methylstreptothricin D***
$C_{32}H_{60}N_{12}O_{10}$ 772.9
From a *Streptomyces* sp. Amorph. powder. Sol. H_2O, MeOH; fairly sol. butanol; poorly sol. EtOH, hexane, $CHCl_3$.
Mp 200° dec. $[\alpha]_D^{25}$ -34 (c, 0.1 in H_2O).

Streptothricin E *Boseimycin II. Racemomycin C. Yazumycin C. E 977C. S 15-1B. Antibiotic E 977C. Antibiotic S 15-1B*
[3776-38-3]
$C_{25}H_{46}N_{10}O_9$ 630.7
$[\alpha]_D$ -41 (H_2O).
► LD_{50} (mus, ivn) 170 mg/kg. NJ5830870

N^{β}-*Ac:* ***Antibiotic AN 201I***. *AN 201I*
[89020-29-1]
$C_{27}H_{48}N_{10}O_{10}$ 672.737
From *Streptomyces nojiriensis*. Active against gram-positive bacteria, certain tumour cells and viruses. Weakly active against gram-negative bacteria. Powder. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

Streptothricin F *Akimycin. Boseimycin I. Grisemin. Pleocidin I. Racemomycin A. Streptolin B. Yazumycin A. AY 24546. E 977A. S 151A. Antibiotic 861A. Antibiotic AY 24546. Antibiotic E 977A. Antibiotic S 15-1A*
[3808-42-2]
$C_{19}H_{34}N_8O_8$ 502.526
From *Streptomyces* sp. and *Streptomyces roseolutaceus pallidus*. Antibiotic. $[\alpha]_D$ -53 (H_2O).
► LD_{50} (mus, ipr) 250 mg/kg. NJ5830900

Hydrochloride (1:3): Mp 210° (dec.). $[\alpha]_D^{13}$ -49 (c, 0.14 in H_2O).

N^{β}-*Ac:* ***Antibiotic AN 201III***. *AN 201III*
$C_{21}H_{36}N_8O_9$ 544.564
From *Streptomyces nojiriensis*. Active against gram-positive and -negative bacteria and tumours. Powder. Sol. H_2O, MeOH, EtOH; poorly sol. Me_2CO, butanol, $CHCl_3$.

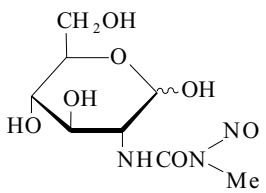
N^{5}-*Me:* ***N*^{5}*-Methylstreptothricin F. A 37812. Antibiotic A 37812***
[99237-10-2]
$C_{20}H_{36}N_8O_8$ 516.553
From *Bacillus subtilis*. Similar antimicrobial activity to Streptothricin F. Sol. H_2O; fairly sol. MeOH; poorly sol. Me_2CO, hexane.

Streptothricin X [24543-64-4]
$C_{55}H_{106}N_{20}O_{14}$ 1271.568
From *Streptomyces* sp. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

Peck, R.L. *et al., J.A.C.S.*, 1946, **68**, 772
Larson, L.M. *et al., J.A.C.S.*, 1953, **75**, 2036 (*isol*)
v. Tamelen, E.E. *et al., J.A.C.S.*, 1956, **78**, 4817; 1961, **83**, 4295 (*struct*)
Taniyama, H. *et al., J. Antibiot.*, 1971, **24**, 390
Khoklov, A.S. *et al., J. Antibiot.*, 1972, **25**, 501 (*struct, synth*)
Sawada, T. *et al., Chem. Pharm. Bull.*, 1977, **25**, 1302; **26**, 885 (*synth*)
Kokhlov, A.S. *et al., J. Chromatogr. Libr.*, 1978, **15**, 617 (*rev*)
Takemoto, T. *et al., Chem. Pharm. Bull.*, 1980, **28**, 2884 (*props*)
Kusumoto, S. *et al., Chem. Lett.*, 1981, 1317
Kusumoto, S. *et al., J. Antibiot.*, 1982, **35**, 925 (*struct*)
Kusumoto, S. *et al., Tet. Lett.*, 1982, **23**, 2961 (*synth*)
Jonak, J. *et al., Antibiotics (N.Y.)*, 1983, **6**, 238 (*rev, pharmacol, tox*)
Martinkus, K.J. *et al., Diss. Abstr. Int., B*, 1983, **43**, 3600
Thrum, H. *et al., Drugs Pharm. Sci.*, 1984, **22**, 367 (*rev*)
Keeratipibul, S. *et al., J. Ferment. Technol.*, 1984, **62**, 19 (*isol*)
Hunt, A.H. *et al., J. Antibiot.*, 1985, **38**, 987 (*deriv*)
Ando, T. *et al., J. Antibiot.*, 1987, **40**, 1140 (*derivs*)
Jin, T. *et al., CA*, 1989, **111**, 228633 (*Streptothricin F, deriv*)
Inamori, Y. *et al., Chem. Pharm. Bull.*, 1990, **38**, 2296 (*Streptothricin D, props*)
Kim, B.T. *et al., J. Antibiot.*, 1994, **47**, 1333 (*N-Methylstreptothricin D*)
Hisamoto, M. *et al., J. Antibiot.*, 1998, **51**, 607-617 (*A 53930C*)
Jackson, M.D. *et al., J.O.C.*, 2002, **67**, 2934-2941 (*Streptothricin F, biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RAG300

Streptozotocin S-87

2-Deoxy-2-[[(methylnitrosoamino)carbonyl]amino]glucose, 9CI. ***Streptozocin, INN, USAN.*** *Zanosar. NSC 85998. U 9889. Antibiotic U 9889. Antibiotic 1006-60*
[18883-66-4]



$C_8H_{15}N_3O_7$ 265.222
Aminoglycoside antibiotic. Prod. by *Streptomyces achromogenes*. Antineoplastic agent. Pointed platelets or prisms (EtOH).
Mp 115° dec. $[\alpha]_D^{25}$ +39 (equilibrium in H_2O). Log P -2.7 (calc). With alkali → CH_2N_2. λ_{max} 223 (ϵ) (MeOH/NaOH) (Derep). λ_{max} 228 (ϵ 6360); 380 (ϵ 136) (MeOH) (Derep).
► Possible human carcinogen. Nephrotoxic, hepatotoxic and gastrointestinal adverse effects reported when used therapeutically. LD_{50} (mus, orl) 264 mg/kg. Exp. carcinogenic, reprod. and teratogenic effects.
LZ5775000

Tetra-Ac: Mp 111-114° dec. $[\alpha]_D^{25}$ +41 (c, 0.78 in 95% EtOH).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1313B (*nmr*)
Herr, R.R. *et al., Antibiot. Annu.*, 1959, 60; 236 (*isol*)
Herr, R.R. *et al., J.A.C.S.*, 1967, **89**, 4808 (*struct, synth*)
Hardegger, E. *et al., Helv. Chim. Acta*, 1969, **52**, 2555 (*synth*)
Hessler, E.-J. *et al., J.O.C.*, 1970, **35**, 245 (*synth*)
IARC Monog., 1978, **17**, 337; *Suppl.* 7, 72 (*rev, tox*)
Wiley, P.F. *et al., J.O.C.*, 1979, **44**, 9 (*struct*)
Kurahashi, K. *et al., Antibiotics (N.Y.)*, 1981, **4**, 325 (*rev*)
Agarwal, M.K. *et al., Streptozotocin: Fundam. Ther.*, Elsevier, 1981, (*book*)
Weiss, R.B. *et al., Cancer Treat. Rep.*, 1982, **66**, 427 (*rev, pharmacol, tox*)
Srivastava, L.M. *et al., Trends Pharmacol. Sci.*, 1982, **3**, 376 (*rev, props*)
Mo, C. *et al., CA*, 1991, **115**, 227913 (*isol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 500
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SMD000

Strongylostatin S-88

Isol. from the sea urchin *Strongylocentrotus droebachiensis*. Shows antitumour activity.

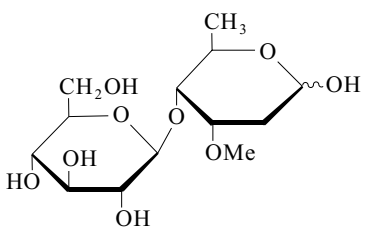
Strongylostatin 1 [71950-63-5]
Glycoprotein.
► LD_{50} (mus, ipr) 10 mg/kg.

Strongylostatin 2 [80893-49-8]
Glycoprotein. Fairly sol. H_2O; poorly sol. MeOH, hexane.

Pettit, G.R. *et al., J. Nat. Prod.*, 1979, **42**, 407-409; 1981, **44**, 701-704 (*isol*)

Strophanthobiose S-89

*2,6-Dideoxy-4-*O*-β-*D*-glucopyranosyl-3-*O*-methyl-*D*-*ribo*-hexose, 9CI. β-*D*-Glucopyranosyl-(1→4)-2,6-dideoxy-3-*O*-methyl-*D*-ribo-hexose. Periplobiose*
[7724-04-1]



$C_{13}H_{24}O_9$ 324.327

Pyranose-*form*
Obt. by acid hydrol. of *K*-Strophanthin-β; isol. from seeds of *Strophanthus kombe*. Sugar from the glycosides K-Strophanthoside and Echujin.
Needles (MeOH).
Mp 144-146°. $[\alpha]_D^{20}$ +33.8 (c, 2.1 in H_2O). A higher-melting point of 208° initially reported (1937), could not be reproduced.

Penta-Ac: Pentaacetylstrophanthobiose
$C_{23}H_{34}O_{14}$ 534.513
Mp 174-175°. $[\alpha]_D^{20}$ +11.9 (c, 1.05 in $CHCl_3$).

6′-β-D-Glucopyranosyl: β-D-Glucopyranosyl(1→6)-β-D-glucopyranosyl(1→4)-2,6-dideoxy-3-O-methyl-D-ribo-hexose. Strophanthotriose
$C_{19}H_{34}O_{14}$ 486.469
Isol. from the mild acid hydrolysis of glycosides Echujin and K-Strophanthoside.
Mp 222°. $[\alpha]_D$ +7.7 (H_2O).

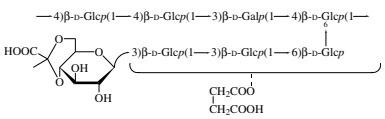
6′-β-D-Glucopyranosyl, octa-Ac: Octaacetylstrophanthotriose
$C_{35}H_{50}O_{22}$ 822.767
Mp 190°. $[\alpha]_D$ -5.8 ($CHCl_3$).

3-De-Me, 6′-β-D-glucopyranosyl: β-D-Glucopyranosyl-(1→6)-β-D-glucopyranosyl-(1→4)-2,6-dideoxy-D-ribo-hexose. Odorotriose
$C_{18}H_{32}O_{14}$ 472.442
Isol. from the partial acid hydrolysate of the glycoside Odoroside K (see Uzarigenin).
$[\alpha]_D$ -1.4 (H_2O).

Stoll, A. *et al., Helv. Chim. Acta*, 1937, **20**, 1484-1510 (*Strophanthobiose, isol*)
Hess, J.C. *et al., Helv. Chim. Acta*, 1952, **35**, 2202-2226 (*Strophanthotriose, isol, octa-Ac*)
Rittel, W. *et al., Helv. Chim. Acta*, 1954, **37**, 1361-1373 (*Odorotriose*)
Lichti, H. *et al., Helv. Chim. Acta*, 1961, **44**, 238-249 (*Strophanthobiose, isol, penta-Ac*)
Nakagawa, T. *et al., Tet. Lett.*, 1982, **23**, 5431-5434 (*Me glycoside, cmr*)

Succinoglycan S-90

EPS I
[73667-50-2]

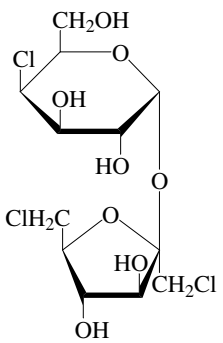


Exopolysaccharide prod. by *Pseudomonas* and *Rhizobium* spp. Props. somewhat similar to those of Xanthan, X-1.

Gravanis, G. *et al., Cah. Phys.*, 1987, **160**, 259 (*props*)
Zevenhuizen, L.P.T.M. *et al., Carbohydr. Polym.*, 1997, **33**, 139-144 (*rev*)

Sucralose, BAN S-91

1,6-Dichloro-1,6-dideoxy-β-D-fructofuranosyl 4-chloro-4-deoxy-α-D-galactopyranoside, 9CI. 4,1′,6′-Trichloro-4,1′,6′-trideoxygalactosucrose. Trichlorogalactosucrose. Splenda
[56038-13-2]



$C_{12}H_{19}Cl_3O_8$ 397.635

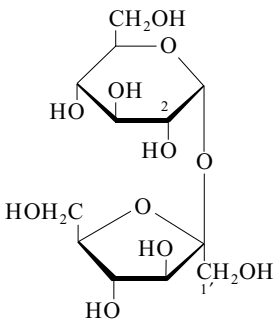
Noncalorific sweetener with good taste props. Mp 130° (114.5°). $[\alpha]_D$ +85.6 (c, 1.0 in H_2O). Sweetness approx. 650 × sucrose. Use currently (1999) permitted in Canada, Australia, Russia, Romania, Mexico and USA.

Penta-Ac: [55832-20-7]
Mp 92-94°. $[\alpha]_D$ +66.8 ($CHCl_3$).

Fairclough, P.H. *et al., Carbohydr. Res.*, 1975, **40**, 285-298 (*synth*)
Eur. Pat., 1981, 31 651, (*Tate and Lyle*); *CA*, **95**, 169700a (*synth*)
Kanters, J.A. *et al., Carbohydr. Res.*, 1988, **180**, 175-182 (*cryst struct*)
Jenner, M.R. *et al., J. Food Sci.*, 1989, **54**, 1646-1649 (*props*)
Jenner, M.R. *et al., ACS Symp. Ser.*, 1991, **450**, 68-87 (*rev*)
Miller, G.A. *et al., Food Sci. Technol.*, 1991, **48**, 173-195 (*rev, props, synth, anal, use, tox*)
Knight, I. *et al., Can. J. Physiol. Pharmacol.*, 1994, **72**, 435-439 (*rev*)
Suami, T. *et al., J. Carbohydr. Chem.*, 1994, **13**, 1079-1082 (*pharmacol*)
Hutchinson, S.A. *et al., Food Res. Int.*, 1995, **15**, 249-261 (*rev, degradn*)
Bouchemal-Chibani, N. *et al., Int. J. Biol. Macromol.*, 1995, **17**, 177-182 (*conformn*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1378
U.S. Pat., 1996, 5 498 709, (*McNeil-PPC*); *CA*, **124**, 343978 (*synth*)
Auger, D.J. *et al., Angew. Chem., Int. Ed.*, 1998, **37**, 1803-1817 (*rev, synth*)

Sucrose S-92

β-D-Fructofuranosyl α-D-glucopyranoside, 9CI, 8CI. Saccharose. Cane sugar. Beet sugar
[57-50-1]



$C_{12}H_{22}O_{11}$ 342.299
Widespread in seeds, leaves, fruits, flowers and roots of plants, where it functions as an energy store for metabolism and as a carbon source for biosynth. Annual world production is in excess of 90 × 10^6 tons mainly from the juice of sugar cane and sugar beet which contain respectively *ca.* 20% and *ca.* 17% of the sugar. Sweetening agent and food source assimilated by most organisms. Also used in food products as a preservative, antioxidant, moisture control agent, stabiliser and thickening agent. Reference material used in elemental microanalysis. Cryst. (H_2O or EtOH). Mp 185-187°. $[\alpha]_D$ +66.5 (H_2O). Log P -5.72 (uncertain value) (calc). Does not reduce Fehling's soln., form an osazone or mutarotate. Hydrol. with invertase or acid gives D-glucose and D-fructose.

▶ OES long-term 10 mg m^{-3}; short-term 20 mg m^{-3}. LD_{50} (rat, orl) 29700 mg/kg. Exp. teratogen (very large doses).
WN6500000*Biosynthetic intermed. to sucrose*

6′-Phosphate: [4549-10-4]
[22372-29-8, 36064-19-4]
$C_{12}H_{23}O_{14}P$ 422.279
Microcryst. powder (as di-K salt). $[\alpha]_D^{20}$ +34 (c, 1 in H_2O). Ba salt also prepared.

Octakis-O-sulfate: See Sucrosofate, S-94

1′,2,3,3′,4′,6-Hexa-Ac: [56038-06-3]
$C_{24}H_{34}O_{17}$ 594.522
$[\alpha]_D^{20}$ +36.9 (c, 1 in $CHCl_3$).

Octa-Ac: FEMA 3038
[126-14-7]
$C_{28}H_{38}O_{19}$ 678.597
Flavouring ingredient, alcohol denaturant. Cryst. with intensely bitter flavour. Mp 84° (69°). $[\alpha]_D$ +59.6 ($CHCl_3$).

▶ WN6620000

6-O-[3-(4-Hydroxy-3-methoxyphenyl)propanoyl]: 6-Dihydroferuloylsucrose. ***Segetoside A***
[211567-44-1]
$C_{22}H_{32}O_{14}$ 520.486
Constit. of the seeds of *Vaccaria segetalis*. Oil. $[\alpha]_D^{24}$ +38.2 (c, 0.6 in MeOH).

6-O-(3-Methylbutanoyl): [70284-38-7]
$C_{17}H_{30}O_{12}$ 426.417
Constit. of green coffee beans (*Coffea arabica*).

2,3′,6′-Tris(3-methylbutanoyl), 1′-(2S-methylbutanoyl): ***Atractysucrose IIIb***
$C_{32}H_{54}O_{15}$ 678.77
Constit. of the rhizomes of *Atractylodes lancea*.

2,3′,6′-Tris(3-methylbutanoyl), 1′-(2S-methylbutanoyl), 4′-(2-methylpropanoyl): ***Atractysucrose IId***
$C_{36}H_{60}O_{16}$ 748.86
Constit. of the rhizomes of *Atractylodes lancea*.

2,3′,6′-Tris(3-methylbutanoyl), 4′-(2S-methylbutanoyl), 1′-(2-methylpropanoyl): ***Atractysucrose IIb***
$C_{36}H_{60}O_{16}$ 748.86
Constit. of the rhizomes of *Atractylodes lancea*.

1′,2,3′,6′-Tetrakis(3-methylbutanoyl): ***Atractysucrose IIIa***
$C_{32}H_{54}O_{15}$ 678.77
Constit. of the rhizomes of *Atractylodes lancea*.

1′,2,3′,6′-Tetrakis(3-methylbutanoyl), 4′-(2-methylpropanoyl): ***Atractysucrose IIc***
$C_{36}H_{60}O_{16}$ 748.86
Constit. of the rhizomes of *Atractylodes lancea*.

1′,2,3′,6′-Tetrakis(3-methylbutanoyl), 4′-(2S-methylbutanoyl): ***Atractysucrose Ic***
$C_{37}H_{62}O_{16}$ 762.887
Constit. of the rhizomes of *Atractylodes lancea*.

2,3′,4,4′-Tetrakis(3-methylbutanoyl):
[150302-81-1]
$C_{32}H_{54}O_{15}$ 678.77
Constit. of the rhizomes of *Atractylodes japonica*.

2,3′,4′,6-Tetrakis(3-methylbutanoyl):
[150302-82-2]
$C_{32}H_{54}O_{15}$ 678.77
Constit. of the rhizomes of *Atractylodes japonica*.

2,3′,4′,6′-Tetrakis(3-methylbutanoyl), 1′-(2-methylpropanoyl): ***Atractysucrose IIa***
$C_{36}H_{60}O_{16}$ 748.86
Constit. of the rhizomes of *Atractylodes lancea*.

*2,3′,4′,6′-Tetrakis(3-methylbutanoyl), 1′-(2*S*-methylbutanoyl):* ***Atractysucrose Ib***
$C_{37}H_{62}O_{16}$ 762.887
Constit. of the rhizomes of *Atractylodes lancea*.

1′,2,3′,4′,6′-Pentakis(3-methylbutanoyl): ***Atractysucrose Ia***
$C_{37}H_{62}O_{16}$ 762.887
Constit. of the rhizomes of *Atractylodes lancea* and the stem bark of *Vernonia guineensis*.
$[\alpha]_D^{20}$ +2.7 (c, 0.7 in CH_2Cl_2).

1′,2,3′,6,6′-Pentakis(3-methylbutanoyl):
$C_{37}H_{62}O_{16}$ 762.887
Constit. of the stem bark of *Vernonia guineensis*. Oil. $[\alpha]_D^{20}$ +15 (c, 0.45 in CH_2Cl_2).

2,3′,4,4′,6′-Pentakis(3-methylbutanoyl):
[150302-84-4]
$C_{37}H_{62}O_{16}$ 762.887
Constit. of the rhizomes of *Atractylodes japonica*.

2,3′,4′,6,6′-Pentakis(3-methylbutanoyl):
[150302-83-3]
$C_{37}H_{62}O_{16}$ 762.887
Constit. of *Atractylodes japonica* and *Euphorbia lathyris*.

*2,3,4-Tris(3*S*-methylpentanoyl), 6-Ac:*
[106033-38-9]
$C_{32}H_{54}O_{15}$ 678.77
Present in tobacco.
$[\alpha]_D$ +70 (c, 0.4 in EtOH).

2,3,4-Tris(5-methylhexanoyl): ***2,3,4-Tris(5-methylhexanoyl)sucrose***
$C_{33}H_{58}O_{14}$ 678.813
Constit. of the epigeal parts of *Petunia nyctaginiflora*.

2,3,4-Tris(6-methylheptanoyl): ***2,3,4-Tris(6-methylheptanoyl)sucrose***
$C_{36}H_{64}O_{14}$ 720.893
Constit. of the epigeal parts of *Petunia nyctaginiflora*.

Monohexadecanoyl: β-D-Fructofuranosyl α-D-glucopyranoside monohexadecanoate, 9CI. Sucrose monopalmitate, 8CI. Sucrapan P. Sucrodet. Ryoto Sugar Ester P-170
[26446-38-8]
$C_{28}H_{52}O_{12}$ 580.712
Enzymically synthesised by a transesterification reaction of sucrose with methyl palmitate. Inhibits deterioration of starch in wheat flour, and growth of microorganisms in soft drinks. Emulsifier, smooth texture agent, antifreeze and dispersing agent for foods. Component of protective coatings for fruit. Mp 60-62°. $[\alpha]_D^{20}$ +36 (c, 1 in EtOH).

Monooctadecanoyl: β-D-Fructofuranosyl α-D-glucopyranoside monooctadecanoate, 9CI. Sucrose monostearate, 8CI. Sucrapan S. Ryoto sugar Ester S-1170
[25168-73-4]
$C_{30}H_{56}O_{12}$ 608.765
Enzymically synthesised by a transesterification reaction of sucrose with methyl stearate. Used for similar purposes to Sucrapan P above. Mp 56-60°. $[\alpha]_D^{20}$ +36.2 (c, 1 in EtOH).

Octakis(alkanoyl): Olestra
[121854-29-3] Nondigestible fat substitute for low-calorie food.
Olestra stated to contain C-6, C-7 and C-8 alkanoyl residues.

1′-O-*Benzoyl:* ***1′-O-Benzoylsucrose***
$C_{19}H_{26}O_{12}$ 446.407
Constit. of *Paeonia obovata*. Tan power + $1^1/_4$ H_2O. $[\alpha]_D$ +43.2 (c, 0.48 in MeOH).

4,6-Di-O-*benzoyl, 3′*-O-*[α-L-rhamnopyranosyl-(→4)-4-hydroxy-3-methoxycinnamoyl]:* ***Reiniose D***
[162478-54-8]
$C_{42}H_{48}O_{20}$ 872.829
Constit. of the roots of *Polygala reinii*. Amorph. powder + $3H_2O$. $[\alpha]_D^{20}$ -51.1 (c, 0.94 in MeOH). Struct. revised in 1997.

4,6-Di-O-*benzoyl, 3′*-O-*[β-D-glucopyranosyl-(1→4)-α-L-rhamnopyranosyl-(→4)-(4-hydroxy-3-methoxycinnamoyl)]:* ***Fallaxose A***
[193814-40-3]
$C_{48}H_{58}O_{25}$ 1034.971
Constit. of *Polygala fallax*. Amorph. powder. $[\alpha]_D^{25}$ -6.2 (c, 0.5 in MeOH). λ_{max} 229 (log ϵ 4.5); 293 (log ϵ 4.11); 320 (log ϵ 4.11) (MeOH).

4,6-Di-O-*benzoyl, 3′*-O-*[β-D-glucopyranosyl-(1→3)-2*-O-*acetyl-α-L-rhamnopyranosyl-(→4)-4-hydroxy-3-methoxycinnamoyl]:* ***Fallaxose B***
[193814-77-6]
$C_{50}H_{60}O_{26}$ 1077.008
Constit. of *Polygala fallax*. Amorph. powder. $[\alpha]_D^{28}$ -27.4 (c, 0.3 in MeOH). λ_{max} 230 (log ϵ 4.5); 292 (log ϵ 4.15); 319 (log ϵ 4.13) (MeOH).

1′,2,3,3′,4,4′,8-Hepta-O-*benzoyl:* [303779-97-7]
$C_{61}H_{50}O_{18}$ 1071.055
$[\alpha]_D^{20}$ +65.4 (c, 1 in $CHCl_3$).

Octabenzoyl:
$C_{68}H_{54}O_{19}$ 1175.163
Mp 60-63°. $[\alpha]_D$ +32.6 ($CHCl_3$).

6-(4-Hydroxybenzoyl): 6-(4-Hydroxybenzoyl)sucrose. ***Sibiricose A3***
[139726-39-9]
$C_{19}H_{26}O_{13}$ 462.407
Constit. of *Crescentia cujete*, *Polygala tenuifolia* and from the roots of *Polygala sibirica*. Amorph. powder. $[\alpha]_D$ +22 (c, 0.5 in MeOH). $[\alpha]_D^{23}$ +29 (c, 1.3 in MeOH). λ_{max} 258 (log ϵ 4.03) (MeOH).

1′-O-*(3,4,5-Trihydroxybenzoyl):* ***1′-O-Galloylsucrose***
[115713-45-6]
$C_{19}H_{26}O_{15}$ 494.405
A tannin isol. from commercial Chinese rhubarb (*Rheum* spp.). Amorph. powder + $1H_2O$. $[\alpha]_D^{27}$ +47 (c, 0.84 in MeOH).

2-O-*(3,4,5-Trihydroxybenzoyl):* ***2-O-Galloylsucrose***
[115713-46-7]
$C_{19}H_{26}O_{15}$ 494.405
Isol. from the commercial Chinese rhubarb (*Rheum* spp.). Amorph. powder + $2H_2O$. $[\alpha]_D^{27}$ +67.1 (c, 0.79 in MeOH).

4′-O-*(3,4,5-Trihydroxybenzoyl):* ***4′-O-Galloylsucrose***
[115713-44-5]
$C_{19}H_{26}O_{15}$ 494.405
Tannin constit. of commercial Chinese rhubarb (*Rheum* spp.). Amorph. powder + $1H_2O$. $[\alpha]_D^{27}$ +14.9 (c, 0.72 in MeOH).

6-O-*(3,4,5-Trihydroxybenzoyl):* ***6-O-Galloylsucrose***
[115731-15-2]
$C_{19}H_{26}O_{15}$ 494.405
Isol. from commercial Chinese rhubarb (*Rheum* spp.). Amorph. powder + $1H_2O$. $[\alpha]_D^{27}$ +48 (c, 0.65 in MeOH).

6′-O-*(3,4,5-Trihydroxybenzoyl):* ***6′-O-Galloylsucrose***
[115713-43-4]
$C_{19}H_{26}O_{15}$ 494.405
Isol. from commercial Chinese rhubarb (*Rheum* spp.). Needles + $2H_2O$ (H_2O). Mp 149-151°. $[\alpha]_D^{28}$ +88.6 (c, 0.74 in MeOH).

6-O-*(4-Hydroxy-3-methoxybenzoyl):* ***6-O-Vanilloylsucrose***
$C_{20}H_{28}O_{14}$ 492.433
Constit. of cane sugar. λ_{max} 208; 220; 263; 291 (MeOH).

6-O-*(4-Hydroxy-3,5-dimethoxybenzoyl):* ***6-O-Syringoylsucrose***
$C_{21}H_{30}O_{15}$ 522.459
Constit. of cane sugar. λ_{max} 217; 276 (MeOH).

6-O-*Cinnamoyl(*E-*):* 6-O-*Cinnamoylsucrose.* ***Sibirioside A***
[173046-19-0]
$C_{21}H_{28}O_{12}$ 472.445
Constit. of *Veronicastrum sibiricum*. Prisms.
Mp 110-112°. $[\alpha]_D$ -29.6 (c, 0.2 in MeOH).

3′,6′-Di-O-*cinnamoyl(*E,E-*), 1′,2,4,6-tetra-Ac:* ***Niruriside***
[173268-90-1]
$C_{38}H_{42}O_{17}$ 770.74
Constit. of *Phyllanthus niruri* (Euphorbiaceae). Inhibitor of REV protein/RRE RNA. Amorph. powder. λ_{max} 204 (log ϵ 3.47); 217 (log ϵ 3.44); 221 (sh) (log ϵ 4.38); 280 (log ϵ 4.53) (MeOH).

6′-O-*(4-Hydroxy*-E-*cinnamoyl):* ***6′-O-p-Coumaroylsucrose***
$C_{21}H_{28}O_{13}$ 488.444
Constit. of *Bidens parviflora*. Powder. Mp 129-130°. $[\alpha]_D^{25}$ +56 (c, 0.48 in MeOH). λ_{max} 229 (log ϵ 4.34); 312 (log ϵ 4.64) (MeOH).

6′-O-*(4-Hydroxy*-E-*cinnamoyl), 1′,3,4,6-tetra-Ac:* ***Prunose II***
$C_{29}H_{36}O_{17}$ 656.593
Constit. of the flowers of *Prunus mume* (Japanese apricot). Powder. $[\alpha]_D^{28}$ +18.7 (c, 1 in MeOH). λ_{max} 228 (log ϵ 3.84); 315 (log ϵ 4.12) (MeOH).

6′-O-*(4-Hydroxy*-E-*cinnamoyl), 3,4,4′,6-tetra-Ac:* ***Prunose III***
$C_{29}H_{36}O_{17}$ 656.593

Constit. of the flowers of *Prunus mume* (Japanese apricot). Powder. $[\alpha]_D^{26}$ +27.8 (c, 0.9 in MeOH). λ_{max} 228 (log ϵ 3.96); 314 (log ϵ 4.24) (MeOH).

6′-O-*(4-Hydroxy*-E-*cinnamoyl), 1′,3,4,4′,6-penta-Ac:* ***Prunose I***
$C_{31}H_{38}O_{18}$ 698.63
Constit. of the flowers of *Prunus mume* (Japanese apricot). Powder. $[\alpha]_D^{27}$ +26.9 (c, 1 in MeOH). λ_{max} 229 (log ϵ 4.1); 316 (log ϵ 4.41) (MeOH).

3′,4-Bis-O-*(4-hydroxycinnamoyl):* ***3′,4-Di-p-coumaroylsucrose***
[138771-96-7]
$C_{30}H_{34}O_{15}$ 634.59
Constit. of *Lilium mackliniae*. Amorph. powder. $[\alpha]_D^{28}$ -88 (c, 0.1 in MeOH). λ_{max} 229 (log ϵ 4.52); 305 (sh) (log ϵ 4.76); 313 (log ϵ 4.79) (MeOH).

3′,4-Bis-O-*(4-hydroxycinnamoyl), 2-Ac:* ***2-Acetyl-3′,4-di-p-coumaroylsucrose***
[138797-41-8]
$C_{32}H_{36}O_{16}$ 676.627
Constit. of *Lilium mackliniae*. Amorph. powder. $[\alpha]_D^{26}$ -59.3 (c, 0.3 in MeOH). λ_{max} 229 (log ϵ 4.4); 304 (sh) (log ϵ 4.62); 313 (log ϵ 4.67) (MeOH).

3′,4-Bis-O-*(4-hydroxycinnamoyl), 3-Ac:* ***3-Acetyl-3′,4-di-p-coumaroylsucrose***
[138771-98-9]
$C_{32}H_{36}O_{16}$ 676.627
Constit. of *Lilium mackliniae*. Amorph. powder. $[\alpha]_D^{26}$ -5 (c, 0.2 in MeOH). λ_{max} 229 (log ϵ 4.35); 304 (sh) (log ϵ 4.59); 313 (log ϵ 4.64) (MeOH).

3′,6-Bis-O-*(4-hydroxycinnamoyl):* ***3′,6-Di-p-coumaroylsucrose***
[138771-97-8]
$C_{30}H_{34}O_{15}$ 634.59
Constit. of *Lilium mackliniae*. Amorph. powder. $[\alpha]_D^{28}$ -72 (c, 0.3 in MeOH). λ_{max} 229 (log ϵ 4.28); 305 (sh) (log ϵ 4.51); 313 (log ϵ 4.57) (MeOH).

3′,6′-Bis-O-*(4-hydroxy*-E-*cinnamoyl):* ***Lapathoside D***
$C_{30}H_{34}O_{15}$ 634.59
Constit. of *Polygonum lapathifolium*. Amorph. powder. $[\alpha]_D$ +10.3 (c, 0.15 in MeOH). λ_{max} 230 (log ϵ 4.15); 316 (log ϵ 4.46) (MeOH).

6,6′-Bis-O-*(4-hydroxy*-E-*cinnamoyl):* ***6,6′-Di-p-coumaroylsucrose***
$C_{30}H_{34}O_{15}$ 634.59
Constit. of *Bidens parviflora*. Powder. Mp 138-140°. $[\alpha]_D^{25}$ +61.4 (c, 0.64 in MeOH). λ_{max} 229 (log ϵ 3.1); 312 (log ϵ 3.29) (MeOH).

1′,3′,6′-Tris(4-hydroxycinnamoyl): 1′,3′,6′-Tricoumaroylsucrose. ***Hydropiperoside***
[87611-93-6]
[87592-83-4]
$C_{39}H_{40}O_{17}$ 780.735
Isol. from the root of *Polygonum hydropiper and of Polygonum lepathifolium*. Constit. of folk medicinal plant with anticancer allelopathic effects. Amorph. powder; prisms (as octa-Ac). Mp 84-84.5° (octa-Ac). $[\alpha]_D$ +61.9 (c, 0.31 in MeOH). λ_{max} 228 (ϵ 15000); 315 (ϵ 26000) (MeOH) (Derep).

1′,3′,6′-Tris-O-*(4-hydroxy*-E-*cinnamoyl), 2-Ac:* ***Vanicoside C***
[208707-83-9]
$C_{41}H_{42}O_{18}$ 822.772
Constit. of *Polygonum pensylvanicum*. Amorph. solid.
Mp 65.3°.

1′,3′,6,6′-Tetrakis-O-*(4-hydroxy*-E-*cinnamoyl):* ***Vanicoside D***
[208707-85-1]
$C_{48}H_{46}O_{19}$ 926.88
Constit. of *Polygonum pensylvanicum*. Amorph. solid.
Mp 147.6-154.2°.

3′-O-*(3,4-Dihydroxycinnamoyl), 2,3,4,6-tetra-Ac:* [162110-89-6]
$C_{29}H_{36}O_{18}$ 672.593
Constit. of the bark of *Prunus ssiori*. Amorph. powder. $[\alpha]_D^{20}$ +41.5 (c, 1.1 in MeOH).

6-O-*(3,4-Dihydroxycinnamoyl)(*E-*):* *6-Caffeoylsucrose*
$C_{21}H_{28}O_{14}$ 504.444
Constit. of *Salvia officinalis* (sage). Cryst. (MeOH).
Mp 210-212°. $[\alpha]_D^{23}$ +27.2 (c, 0.13 in MeOH).

6-O-*(4-Methoxycinnamoyl)(*E-*):* ***Sibiricoside B***
[173046-20-3]
$C_{22}H_{30}O_{13}$ 502.471
Constit. of *Veronicastrum sibiricum*. Prisms.
Mp 108-110°. $[\alpha]_D$ -20.2 (c, 0.34 in MeOH).

3′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl): 3′-Feruloylsucrose. Arillanin C.* ***Sibiricose A1***
[107912-97-0]
$C_{22}H_{30}O_{14}$ 518.471
Constit. of *Polygala arillata* and *Polygala sibirica*. Amorph. powder. $[\alpha]_D^{23}$ -6 (c, 2.3 in MeOH). λ_{max} 217 (sh) (log ϵ 3.89); 232 (sh) (log ϵ 3.79); 297 (sh) (log ϵ 3.75); 326 (log ϵ 3.91) (MeOH).

3′-O-*(4-Hydroxy-3-methoxycinnamoyl), 1′-Ac:* ***1′-Acetyl-3′-feruloylsucrose***
[98941-78-7]
$C_{24}H_{32}O_{15}$ 560.508
Constit. of *Polygala chamaebuxus*. Amorph. powder + $1H_2O$.
Mp 97-103°. λ_{max} 219 (ϵ 14200); 236 (ϵ 13000); 327 (ϵ 22300) (MeOH).

3′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 4*-O-*benzoyl:* ***Reiniose B***
[162478-52-6]
$C_{29}H_{34}O_{15}$ 622.579
Constit. of the roots of *Polygala reineii*. Amorph. powder + $2H_2O$. $[\alpha]_D^{20}$ -4.8 (c, 0.52 in MeOH).

3′-O-*(4-Hydroxy-3-methoxycinnamoyl), 6*-O-*benzoyl:* ***Reiniose C***
[162478-53-7]
$C_{29}H_{34}O_{15}$ 622.579
Constit. of the roots of *Polygala reinii*. Amorph. powder + $2H_2O$. $[\alpha]_D^{20}$ -29.3 (c, 0.87 in MeOH).

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl): 6*-O-*Feruloylsucrose.* ***Arillatose B***
$C_{22}H_{30}O_{14}$ 518.471
Constit. of the roots of *Polygala arillata*. Amorph. powder. $[\alpha]_D^{27}$ +15.8 (c, 0.13 in MeOH). λ_{max} 235 (log ϵ 3.73); 295 (log ϵ 3.66); 326 (log ϵ 3.76) (MeOH).

6′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 1′,2,4,6-tetra-Ac:*
$C_{30}H_{38}O_{18}$ 686.619
Constit. of *Sparganium stoloniferum*. Amorph. solid.
Mp 96-102°. $[\alpha]_D^{25}$ +45.1 (c, 0.1 in $CHCl_3$). λ_{max} 216 (log ϵ 4.21); 233 (log ϵ 4.12); 296 (log ϵ 4.08); 326 (log ϵ 4.22) (MeOH).

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 3′,6′-bis*-O-*(4-hydroxy*-E-*cinnamoyl):* ***Lapathoside C***
$C_{40}H_{42}O_{18}$ 810.761
Constit. of *Polygonum lapathifolium*. Amorph. powder. $[\alpha]_D$ -14.7 (c, 0.23 in MeOH). λ_{max} 230 (log ϵ 4.19); 316 (log ϵ 4.45) (MeOH).

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 1′,3′,6′-tris*-O-*(4-hydroxy*-E-*cinnamoyl):* ***Vanicoside B***
[155179-21-8]
$C_{49}H_{48}O_{20}$ 956.906
Constit. of *Polygonum pensylvanicum*. Protein kinase inhibitor. Amorph. solid.
Mp 156-159°.

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 1′,3′,6′-tris*-O-*(4-hydroxy*-E-*cinnamoyl), 2-Ac:* ***Vanicoside A***
[155179-22-9]
$C_{51}H_{50}O_{21}$ 998.943
Constit. of *Polygonum pensylvanicum*. Protein kinase inhibitor. Amorph. solid.
Mp 161-163°.

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 1′,3′,6′-tris*-O-*(4-hydroxy*-E-*cinnamoyl), 3-Ac:* ***Vanicoside F***
[208707-92-0]
$C_{51}H_{50}O_{21}$ 998.943
Constit. of *Polygonum pensylvanicum*. Pale yellow oil.

6-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 1′,3′,6′-tris*-O-*(4-hydroxy*-E-*cinnamoyl), 2,4-di-Ac:* ***Vanicoside E***
[208707-91-9]
$C_{53}H_{52}O_{22}$ 1040.981
Constit. of *Polygonum pensylvanicum*. Amorph. solid.
Mp 143.1-147.4°.

6′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 6-Ac:* ***6-Acetyl-6′-feruloylsucrose***
$C_{24}H_{32}O_{15}$ 560.508
Constit. of the rhizomes of *Smilax bracteata*. Amorph. powder. $[\alpha]_D$ +85 (c, 0.1 in MeOH). λ_{max} 237 (sh) (log ϵ 4.33); 291 (sh) (log ϵ 4.23); 324 (log ϵ 4.33) (MeOH).

6′-O-*(4-Hydroxy-3-methoxy*-E-*cinnamoyl), 1′*-O-*(4-hydroxy*-E-*cinnamoyl):* ***1′-p-Coumaroyl-6′-feruloylsucrose***
$C_{31}H_{36}O_{16}$ 664.616
Constit. of the rhizomes of *Smilax bracteata*. Amorph. powder. $[\alpha]_D$ -30 (c, 0.2 in MeOH). λ_{max} 231 (sh) (log ϵ 4.58); 292 (sh) (log ϵ 4.52); 318 (log ϵ 4.62) (MeOH).

1′,6-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 3′,6′-bis*-O-*(4-hydroxy*-E-*cinnamoyl):* ***Lapathoside A***
$C_{50}H_{50}O_{21}$ 986.932
Constit. of *Polygonum lapathifolium*.

Amorph. powder. $[\alpha]_D$ +22.7 (c, 0.26 in MeOH). λ_{max} 235 (log ϵ 4.35); 319 (log ϵ 4.6) (MeOH).

3′,6-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl):* ***3′,6-Diferuloylsucrose***
[107172-40-7]
$C_{32}H_{38}O_{17}$ 694.642
Constit. of *Lilium speciosum*. Amorph. $[\alpha]_D^{25}$ -80.2 (c, 1 in EtOH). Various acetates also isol. from *Lilium speciosum*.

3′,6-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 4,4′-di-Ac:* ***4,4′-Diacetyl-3′,6-diferuloylsucrose***
[138771-95-6]
$C_{36}H_{42}O_{19}$ 778.716
Constit. of *Lilium mackliniae*. Amorph. powder. $[\alpha]_D^{25}$ -75.2 (c, 0.5 in EtOH). λ_{max} 235 (log ϵ 4.33); 300 (sh) (log ϵ 4.43); 328 (log ϵ 4.58) (EtOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl): 3′,6′-Diferuloylsucrose.* ***Helonioside A***
[107647-20-1]
$C_{32}H_{38}O_{17}$ 694.642
Constit. of *Heloniopsis orientalis*. Amorph. powder. $[\alpha]_D^{23}$ +15.7 (c, 0.95 in MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 6-Ac: 6-Acetyl-3′,6′-diferuloylsucrose.* ***Helonioside B***
[107647-21-2]
$C_{34}H_{40}O_{18}$ 736.679
Constit. of *Heloniopsis orientalis*. Amorph. powder. $[\alpha]_D^{23}$ +16.9 (c, 1.02 in MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 2,6-di-Ac:*
$C_{36}H_{42}O_{19}$ 778.716
Constit. of *Polygonum perfoliatum*.

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 1′,2,6-tri-Ac:*
$C_{38}H_{44}O_{20}$ 820.754
Constit. of *Polygonum perfoliatum* and *Sparganium stoloniferum*. Yellowish glass or amorph. solid.
Mp 94-101°. $[\alpha]_D^{25}$ +73.4 (c, 0.06 in $CHCl_3$). λ_{max} 218 (log ϵ 4.39); 237 (log ϵ 4.34); 302 (log ϵ 4.38); 329 (log ϵ 4.55) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 2,4,6-tri-Ac:* ***Smiglaside C***
$C_{38}H_{44}O_{20}$ 820.754
Constit. of *Smilax glabra* and *Polygonum perfoliatum*. Yellowish glass. $[\alpha]_D$ +32.9 (c, 0.6 in MeOH). λ_{max} 217 (log ϵ 4.27); 328 (log ϵ 4.42) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxycinnamoyl)(*E,E-*), 1′,2,3,6-tetra-Ac:* [173614-60-3]
$C_{40}H_{46}O_{21}$ 862.791
Constit. of *Sparganium stoloniferum*. Amorph. solid.
Mp 91-97°. $[\alpha]_D^{25}$ +53.7 (c, 0.1 in $CHCl_3$). λ_{max} 204 (log ϵ 4.55); 217 (log ϵ 4.5); 235 (log ϵ 4.52); 300 (log ϵ 4.59); 328 (log ϵ 4.74) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxycinnamoyl)(*E,E-*), 1′,2,4,6-tetra-Ac:* [173614-59-0]
$C_{40}H_{46}O_{21}$ 862.791
Constit. of *Sparganium stoloniferum*. Amorph. solid.
Mp 94-100°. $[\alpha]_D^{25}$ +36.3 (c, 0.2 in $CHCl_3$). λ_{max} 204 (log ϵ 4.51); 216 (log ϵ 4.48); 235 (log ϵ 4.42); 300 (log ϵ 4.46); 328 (log ϵ 4.63) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxycinnamoyl)(*E,E-*), 1′,3,4,6-tetra-Ac:* [173614-58-9]
$C_{40}H_{46}O_{21}$ 862.791
Constit. of *Sparganium stoloniferum*. Amorph. solid.
Mp 86-92°. $[\alpha]_D^{25}$ +46.2 (c, 0.2 in $CHCl_3$). λ_{max} 203 (log ϵ 4.61); 215 (log ϵ 4.5); 234 (log ϵ 4.43); 298 (log ϵ 4.43); 328 (log ϵ 4.6) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 2,3,4,6-tetra-Ac: 2,3,4,6-Tetraacetyl-3′,6′-diferuloylsucrose*
[165132-57-0]
$C_{40}H_{46}O_{21}$ 862.791
Constit. of the wood of *Bhesa paniculata*. Amorph. solid. $[\alpha]_D^{25}$ +62.1 (c, 0.5 in MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 1′*-O-*(4-hydroxy*-E-*cinnamoyl):* ***1′-p-Coumaroyl-3′,6′-diferuloylsucrose***
$C_{41}H_{44}O_{19}$ 840.787
Constit. of the rhizomes of *Smilax bracteata*. Amorph. powder. $[\alpha]_D$ +36 (c, 0.2 in MeOH). λ_{max} 233 (sh) (log ϵ 4.68); 296 (sh) (log ϵ 4.68); 320 (log ϵ 4.77) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 1′*-O-*(4-hydroxy*-E-*cinnamoyl), 2,6-di-Ac:* ***Smiglaside E***
$C_{45}H_{48}O_{21}$ 924.862
Constit. of the rhizomes of *Smilax glabra*. Amorph. powder. $[\alpha]_D$ +123.8 (c, 0.4 in MeOH). λ_{max} 217 (log ϵ 4.46); 323 (log ϵ 4.62) (MeOH).

3′,6′-Bis-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 1′*-O-*(4-hydroxy*-E-*cinnamoyl), 2,4,6-tri-Ac:* ***Smiglaside D***
$C_{47}H_{50}O_{22}$ 966.899
Constit. of the rhizomes of *Smilax glabra*. Amorph. powder. $[\alpha]_D$ +67.1 (c, 0.5 in MeOH). λ_{max} 217 (log ϵ 4.45); 324 (log ϵ 4.64) (MeOH).

1′,3′,6′-Tris-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 2,6-di-Ac:* ***Smiglaside B***
$C_{46}H_{50}O_{22}$ 954.888
Constit. of the rhizomes of *Smilax glabra*. Pale yellow amorph. powder. $[\alpha]_D$ +36.6 (c, 0.7 in MeOH). λ_{max} 218 (log ϵ 4.2); 328 (log ϵ 4.35) (MeOH).

1′,3′,6′-Tris-O-*(4-hydroxy-3-methoxycinnamoyl)(*E,E,E-*), 2,4,6-tri-Ac:* ***Smiglaside A***
$C_{48}H_{52}O_{23}$ 996.925
Constit. of the rhizomes of *Smilax glabra*. Amorph. powder. $[\alpha]_D$ +79.5 (c, 0.4 in MeOH). λ_{max} 216 (log ϵ 4.52); 328 (log ϵ 4.68) (MeOH).

1′,6,6′-Tris-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 3′*-O-*(4-hydroxy*-E-*cinnamoyl):* ***Lapathoside B***
$C_{51}H_{52}O_{22}$ 1016.959
Constit. of *Polygonum lapathifolium*. Amorph. powder. $[\alpha]_D$ +18.6 (c, 0.2 in MeOH). λ_{max} 218 (log ϵ 4.29); 235 (log ϵ 4.24); 319 (log ϵ 4.5) (MeOH).

3′-O-*(3,4-Dimethoxycinnamoyl)(*E-*), 6*-O-*(4-hydroxybenzoyl):* [154287-50-0]
$C_{30}H_{36}O_{16}$ 652.605
Constit. of *Polygala tenuifolia*.

1′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl), 3′*-O-*(4-hydroxy-3-methoxycinnamoyl):* ***3′-Feruloyl-1′-sinapoylsucrose***
[98942-06-4]
$C_{33}H_{40}O_{18}$ 724.668
Constit. of *Polygala chamaebuxus*. Amorph. powder + $1^1/_2$ H_2O.
Mp 131-136°. λ_{max} 220 (ϵ 24100); 238 (ϵ 25800); 329 (ϵ 34800) (MeOH).

3′-O-*(4-Hydroxy-3,5-dimethoxy*-E-*cinnamoyl): 3′-Sinapoylsucrose.* ***Sibiricose A6***
[241125-75-7]
$C_{23}H_{32}O_{15}$ 548.497
Constit. of the roots of *Polygala sibirica*. Amorph. powder. $[\alpha]_D^{23}$ -2 (c, 0.72 in MeOH). λ_{max} 239 (log ϵ 4.03); 330 (log ϵ 4.04) (MeOH).

3′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl)(*E-*), 6*-O-*benzoyl:* [154287-46-4]
$C_{30}H_{36}O_{16}$ 652.605
Constit. of *Polygala tenuifolia* and *Polygala sibirica*.

3′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl), 6*-O-*(4-hydroxybenzoyl):* ***Tenuifoliside B***
[139726-36-6]
$C_{30}H_{36}O_{17}$ 668.604
Constit. of the roots of *Polygala tenuifolia*. Amorph. yellow powder. $[\alpha]_D^{24}$ -20.8 (c, 1.01 in MeOH).

3′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl)(*E-*), 6*-O-*(4-hydroxycinnamoyl)(*E-*):* ***Glomeratose B***
[202471-85-0]
$C_{32}H_{38}O_{17}$ 694.642
Constit. of *Polygala glomerata*. Amorph. powder. $[\alpha]_D^{27}$ -51.6 (c, 0.4 in MeOH). λ_{max} 207 (log ϵ 4.34); 227 (log ϵ 4.32); 315 (log ϵ 4.42) (MeOH).

3′-O-*(4-Hydroxy-3,5-dimethoxy*-E-*cinnamoyl), 6*-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl):* ***6-Feruloyl-3′-sinapoylsucrose***
$C_{33}H_{40}O_{18}$ 724.668
Constit. of *Ruta graveolens* (rue). Yellow powder. $[\alpha]_D^{25}$ -69.1 (c, 0.34 in MeOH). λ_{max} 202 (log ϵ 4.53); 238 (log ϵ 4.32); 328 (log ϵ 4.43) (MeOH).

3′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl), 6*-O-*(4-hydroxy-3-methoxycinnamoyl), 3*-O-*β*-D-*glucopyranoside:* ***Reiniose E***
[162478-55-9]
$C_{39}H_{50}O_{23}$ 886.81
Constit. of the roots of *Polygala reinii*. Amorph. powder + $^1/_4H_2O$. $[\alpha]_D^{20}$ -52.2 (c, 0.91 in MeOH).

6-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl): 6-Sinapoylsucrose.* ***Neohancoside D****. Sibiricose A1. Arillanin C*
[139726-40-2]
$C_{23}H_{32}O_{15}$ 548.497
Constit. of *Cynanchum hancockianum*, *Polygala arillata* and *Polygala sibirica*.
Needles ($CHCl_3$) (as per-Ac).
Mp 138-140° (per-Ac). $[\alpha]_D^{23}$ +18 (c, 4.4 in MeOH).

6-O-*(4-Hydroxy-3,5-dimethoxy*-E-*cinnamoyl), 3′*-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl): 3′*-O-*Feruloyl-6*-O-*sinapoylsucrose.* ***Arillanin A***
[154287-47-5]
$C_{33}H_{40}O_{18}$ 724.668
Constit. of *Polygala arillata*, *Polygala reinii* and *Polygala tenuifolia*.

6′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl)(*E-*), 3′*-O-*(4-hydroxy-3-methoxycinnamoyl)(*E-*), 6-Ac:* [154287-49-7]
$C_{35}H_{42}O_{19}$ 766.705
Constit. of *Polygala tenuifolia*.

6′-O-*(4-Hydroxy-3,5-dimethoxycinnamoyl)(*E-*), 3′*-O-*(4-hydroxy-3-methoxycinnamoyl)(*E-*), 4,6-di-Ac:* [154287-48-6]
$C_{37}H_{44}O_{20}$ 808.743
Constit. of *Polygala tenuifolia*.

6′-O-*(4-Hydroxy-3,5-dimethoxy*-E-*cinnamoyl), 3′*-O-*(4-hydroxy-3-methoxy*-E-*cinnamoyl), 1′,2,4,6-tetra-Ac:* ***Tenuifoliside E***
[162901-87-3]
$C_{41}H_{48}O_{22}$ 892.817
Constit. of the roots of *Polygala tenuifolia*. Amorph. powder. $[\alpha]_D^{24}$ -45.5 (c, 1.12 in MeOH).

1′,3′-Bis-O-*(4-hydroxy-3,5-dimethoxycinnamoyl):* ***1′,3′-Disinapoylsucrose***
[98941-77-6]
$C_{34}H_{42}O_{19}$ 754.694
Constit. of *Polygala chamaebuxus*. Amorph. powder + $1\frac{1}{2}H_2O$.
Mp 136-141°. λ_{max} 229 (ϵ 27000); 240 (ϵ 30500); 330 (ϵ 36500) (MeOH).

3′,4-Bis-O-*(4-hydroxy-3,5-dimethoxy*-E-*cinnamoyl):* ***Sibiricose A4****. 3′,4-Disinapoylsucrose*
[241125-73-5]
$C_{34}H_{42}O_{19}$ 754.694
Constit. of the roots of *Polygala sibirica* and *Polygala tenuifolia*. Amorph. powder. $[\alpha]_D^{23}$ -23 (c, 1.13 in MeOH). λ_{max} 234 (log ϵ 4.48); 316 (log ϵ 4.47) (MeOH).

3′,6-Bis-O-*(4-hydroxy-3,5-dimethoxycinnamoyl):* ***3′,6-Disinapoylsucrose***
[139891-98-8]
$C_{34}H_{42}O_{19}$ 754.694
Constit. of *Polygala virgata, Polygala reinii, Polygala tenuifolia, Raphanus sativus* and *Securidaca longipedunculata*. Yellow powder.
Mp 138-141°. $[\alpha]_D$ -94 (c, 0.2 in MeOH).

3′,6-Bis-O-*(4-hydroxy-3,5-dimethoxycinnamoyl), 4-Ac:* [148171-50-0]
$C_{36}H_{44}O_{20}$ 796.732
Constit. of *Polygala virgata*. Yellow powder.
Mp 124-127°. $[\alpha]_D$ -70 (c, 0.2 in MeOH).

3′,6-Bis-O-*(4-hydroxy-3,5-dimethoxycinnamoyl), 3*-O-*β*-D-*glucopyranoside:* ***Reiniose F***
[162478-56-0]
$C_{40}H_{52}O_{24}$ 916.836
Constit. of the roots of *Polygala reinii*. Amorph. powder + $1H_2O$. $[\alpha]_D^{20}$ -59 (c, 0.94 in MeOH).

3′,4′,6-Tris-O-*(4-hydroxy-3,5-dimethoxycinnamoyl):* ***3′,4′,6-Trisinapoylsucrose***
[145631-61-4]
$C_{45}H_{52}O_{23}$ 960.892
Constit. of the bark of *Securidaca longipedunculata*.
$[\alpha]_D^{25}$ -45.9 (c, 1 in MeOH).

3′-O-*(3,4,5-Trimethoxycinnamoyl)(*E-*):* ***Glomeratose A***
[202471-84-9]
$C_{24}H_{34}O_{15}$ 562.524
Constit. of *Polygala glomerata*. Amorph. powder. $[\alpha]_D^{25}$ +5.7 (c, 1.4 in MeOH). λ_{max} 207 (log ϵ 4.12); 230 (log ϵ 4.21); 307 (log ϵ 4.15) (MeOH).

3′-O-*(3,4,5-Trimethoxycinnamoyl), 4*-O-*benzoyl:* [154287-43-1]
$C_{31}H_{38}O_{16}$ 666.632
Constit. of the roots of *Polygala reinii* and *Polygala tenuifolia*.

3′-O-*(3,4,5-Trimethoxycinnamoyl), 6*-O-*benzoyl:* [154287-41-9]
$C_{31}H_{38}O_{16}$ 666.632
Constit. of the roots of *Polygala reinii* and *Polygala tenuifolia*.

3′-O-*(3,4,5-Trimethoxycinnamoyl), 6*-O-*(4-hydroxybenzoyl):* ***Tenuifoliside A***
[139726-35-5]
$C_{28}H_{32}O_{17}$ 640.551
Constit. of the roots of *Polygala tenuifolia*. Amorph. yellow powder. $[\alpha]_D^{24}$ -20.5 (c, 1.52 in MeOH). CAS name defective.

3′-O-*(3,4,5-Trimethoxy*-E-*cinnamoyl), 6*-O-*(4-hydroxy*-E-*cinnamoyl):* ***Glomeratose C***
[202471-87-2]
$C_{33}H_{40}O_{17}$ 708.669
Constit. of *Polygala glomerata*. Amorph. powder. $[\alpha]_D^{28}$ -71.2 (c, 0.6 in MeOH). λ_{max} 207 (log ϵ 4.2); 230 (log ϵ 4.35); 310 (log ϵ 4.37) (MeOH).

3′-O-*(3,4,5-Trimethoxycinnamoyl), 6*-O-*(4-hydroxy-3-methoxycinnamoyl):* ***Reiniose A***
[162478-51-5]
$C_{34}H_{42}O_{18}$ 738.695
Constit. of the roots of *Polygala reinii*. Amorph. powder + $1H_2O$. $[\alpha]_D^{20}$ -51.8 (c, 1.37 in MeOH).

3′-O-*(3,4,5-Trimethoxycinnamoyl), 6*-O-*(4-hydroxy-3,5-dimethoxycinnamoyl):* ***Tenuifoliside C***
[139726-37-7]
$C_{35}H_{44}O_{19}$ 768.721
Constit. of the roots of *Polygala tenuifolia*. Amorph. yellow powder. $[\alpha]_D^{24}$ -53.6 (c, 1.51 in MeOH).

6-O-*(3,4,5-Trimethoxy*-E-*cinnamoyl):* ***Sibiricose A2***
[241125-72-4]
$C_{24}H_{34}O_{15}$ 562.524
Constit. of the roots of *Polygala sibirica*. Amorph. powder. $[\alpha]_D^{23}$ +19 (c, 0.56 in MeOH). λ_{max} 230 (log ϵ 4.22); 308 (log ϵ 4.14) (MeOH).

3′,6-Bis-O-*(3,4,5-trimethoxycinnamoyl)(*E,E-*):* ***Glomeratose D***
[202471-88-3]
$C_{36}H_{46}O_{19}$ 782.748
Constit. of *Polygala glomerata*. Amorph. powder. $[\alpha]_D^{28}$ -55.8 (c, 0.5 in MeOH). λ_{max} 210 (log ϵ 4.63); 230 (log ϵ 4.76); 310 (log ϵ 4.69) (MeOH).

6-O-*[4-(β-*D-*Glucopyranosyloxy)-3-methoxycinnamoyl](*E-*), 3′*-O-*(4-hydroxy-3-methoxycinnamoyl)(*E-*):* [117591-89-6]
$C_{38}H_{48}O_{22}$ 856.784
Constit. of *Lilium henryi*. Amorph. powder. $[\alpha]_D^{29}$ -68 (c, 1.6 in MeOH). λ_{max} 234 (log ϵ 4.35); 300 (sh) (log ϵ 4.49); 322 (log ϵ 4.56) (MeOH).

6′-O-*(4-β-*D-*Glucopyranosyloxy-3-methoxycinnamoyl), 3′*-O-*(4-hydroxy-3-methoxycinnamoyl):* ***Helonioside C***
[107647-22-3]
$C_{38}H_{48}O_{22}$ 856.784
Constit. of *Heloniopsis orientalis*. Amorph. powder. $[\alpha]_D^{23}$ -17 (c, 1 in MeOH).

6′-O-*(4-β-*D-*Glucopyranosyloxy-3-methoxycinnamoyl), 3′*-O-*(4-hydroxy-3-methoxycinnamoyl), 6-Ac:* ***Helonioside D***
[107668-85-9]
$C_{40}H_{50}O_{23}$ 898.821
Constit. of *Heloniopsis orientalis*. Amorph. powder. $[\alpha]_D^{23}$ -6.2 (c, 0.97 in MeOH).

2-Tosyl:
$C_{19}H_{28}O_{13}S$ 496.488
Obt. in good yield by tosylation of sucrose in the presence of molecular sieve. Needles. Mp 156-157°.

1′,2,3,3′,4′,6,6′-Heptapivaloyl: [69075-32-7]
$C_{47}H_{78}O_{18}$ 931.122
Cryst. (petrol). Mp 100-102°. $[\alpha]_D$ +50 (c, 1.0 in MeOH).

1′,2,3,3′,4′,6,6′-Heptapivaloyl, 4-mesyl: [90653-38-6]
$C_{48}H_{80}O_{20}S$ 1009.214
Cryst. (petrol). Mp 76-77°. $[\alpha]_D$ +53 (c, 1 in MeOH).

4,6-O-*Isopropylidene, hexa-Ac:*
$C_{27}H_{38}O_{17}$ 634.587
$[\alpha]_D$ +46 ($CHCl_3$).

4,6-O-*Benzylidene, hexa-Ac:*
$C_{31}H_{38}O_{17}$ 682.631
Mp 155-157°. $[\alpha]_D$ +44.3 ($CHCl_3$).

4-Me: [59001-36-4]
$C_{13}H_{24}O_{11}$ 356.326
$[\alpha]_D$ +49.6 (H_2O).

1′,6′-Di-Me: [59001-40-0]
$C_{14}H_{26}O_{11}$ 370.353
$[\alpha]_D$ +70 (H_2O).

1′,6′,4-Tri-Me: [59183-59-4]
$C_{15}H_{28}O_{11}$ 384.38
$[\alpha]_D$ +67.1 (H_2O).

1′,6′,6-Tri-Me: [35674-01-2]
$C_{15}H_{28}O_{11}$ 384.38
$[\alpha]_D$ +69 (H_2O).

1′-Trityl:
$C_{31}H_{36}O_{11}$ 584.619
Mp 193-196°. $[\alpha]_D$ +70.4 (MeOH).

6-Trityl:
$C_{31}H_{36}O_{11}$ 584.619
Mp 99-101°. $[\alpha]_D$ +51.7 (DMF).

6′-Trityl:
$C_{31}H_{36}O_{11}$ 584.619
Mp 221-223°. $[\alpha]_D$ +40.1 ($CHCl_3$).

1′,6′-Ditrityl: [38431-01-5]
$C_{50}H_{50}O_{11}$ 826.938
Mp 129°.

1′,6′-Dityril, 2,3,3′,4′,6-penta-Ac: [56038-14-3]
$C_{60}H_{60}O_{16}$ 1037.124
Mp 105-107°. $[\alpha]_D$ +46.9 ($CHCl_3$).

1′,6′-Dityril, 2,3,3′,4,4′,6-hexa-Ac: [36474-61-0]
$C_{62}H_{62}O_{17}$ 1079.162
Mp 95-97°. $[\alpha]_D$ +65.3 ($CHCl_3$).

1′,6′,6-Tritrityl: [35674-14-7]
$C_{69}H_{64}O_{11}$ 1069.258
Mp 128-130°. $[\alpha]_D$ +62.2 ($CHCl_3$).

Octakis-(2-cyanoethyl): [18304-13-7]
$C_{36}H_{46}N_8O_{11}$ 766.806
$[\alpha]_D^{18.8}$ +36.4 (c, 0.08 in $CHCl_3$).

1′-Deoxy, 1′-fluoro: 1′-Deoxy-1′-fluorosucrose
[77453-90-8]
$C_{12}H_{21}FO_{10}$ 344.29
Cryst. (MeOH). Mp 192-193°. $[\alpha]_D$ +56.3 (c, 1. in H_2O).

[12738-64-6, 31835-06-0, 35867-41-5, 73264-44-5]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 196B; 625D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 305C; 1060A (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 477 (*rev*)
Lemieux, R.U. *et al., J.A.C.S.*, 1953, **75**, 4118 (*synth*)
Barker, S.A. *et al., J.C.S.*, 1963, 3403 (*octakis-2-cyanoethyl*)
Van der Veen, J.M. *et al., J.O.C.*, 1963, **28**, 564 (*pmr*)
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Kollonitsch, V. *et al., Sucrose Chemicals*, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (*rev*)
Allerhand, A. *et al., J.A.C.S.*, 1971, **93**, 2777 (*cmr*)
Analyst (London), 1972, **97**, 740 (*microanal*)
Buchanan, J.G. *et al., Carbohydr. Res.*, 1972, **21**, 283-292 (*6′-phosphate*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 654 (*occur*)
Hanson, J.C. *et al., Acta Cryst. B*, 1973, **29**, 797 (*cryst struct*)
Khan, R. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **33**, 235 (*rev*)
ACS Symp. Ser., 1977, **41**, (*rev*)
Pfeffer, P.E. *et al., J.A.C.S.*, 1979, **107**, 1265 (*cmr*)
Mathlouthi, M. *et al., Carbohydr. Res.*, 1980, **81**, 203; 213 (*Raman*)
Eur. Pat., 1980, 20 122; *CA*, **95**, 7697c (*Sucrapans*)
Block, K. *et al., Carbohydr. Res.*, 1982, **100**, 63 (*conformn*)
Opdyke, D.L.J. *et al., Food Chem. Toxicol.*, 1982, **20**, 827 (*rev, tox, octa-Ac*)
Hull, W.E. *et al., Two-Dimensional NMR Brochure*, Brüker Analytische Messtechnik, Karlsruhe, 1982, (*pmr*)
Fukuyama, Y. *et al., Phytochemistry*, 1983, **22**, 549-552 (*Hydropiperoside*)
Card, P.J. *et al., J.A.C.S.*, 1984, **106**, 5348 (*1′-fluoro, 1′-deoxy-1′-fluoro*)
Chowdhary, M.S. *et al., J.C.S. Perkin 1*, 1984, 419 (*heptapivaloyl*)
Hamburger, M. *et al., Phytochemistry*, 1985, **24**, 1793-1797 (*Polygala chamaebuxus derivs*)
Nakano, K. *et al., Chem. Pharm. Bull.*, 1986, **34**, 5005 (*Heloniosides*)
Shimomura, H. *et al., Phytochemistry*, 1986, **25**, 2897 (*diferuloyl*)
Machida, H. *et al., CA*, 1988, **109**, 229005x (*Sucrapans*)
Garegg, P.J. *et al., Carbohydr. Res.*, 1988, **181**, 89 (*2,3,4-tris-3-methylpentanoyl*)
Shimomura, H. *et al., Chem. Pharm. Bull.*, 1988, **36**, 2430-2446 (*3′-feruloyl, 6-4-glucosylferuloyl*)
Eur. Pat., 1988, 275 939; *CA*, 1989, **110**, 173692v (*Sucrapans*)
Kashiwada, Y. *et al., Phytochemistry*, 1988, **27**, 1469 (*gallates*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, SNH000
James, C.E. *et al., Prog. Chem. Org. Nat. Prod.*, 1989, **55**, 117 (*rev*)
Colquhoun, I.J. *et al., Carbohydr. Res.*, 1990, **205**, 53 (*pmr, cmr, octabenzoyl*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1990, **205**, 402 (*synth, bibl, acetates*)
Sashida, Y. *et al., Chem. Pharm. Bull.*, 1991, **39**, 2362 (*cinnamates*)
Ikeya, Y. *et al., Chem. Pharm. Bull.*, 1991, **39**, 2600; 1994, **42**, 2305 (*Tenuifolisides*)
Yamamoto, K. *et al., CA*, 1993, **119**, 167573b (*tetrakis(3-methylbutanoyl), pentakis(3-methylbutanoyl)*)
De Tommasi, N. *et al., J. Nat. Prod.*, 1993, **56**, 134 (*sinapoyl derivs*)
Lou, H. *et al., J. Nat. Prod.*, 1993, **56**, 1437 (*Neohancoside D*)
Bashir, A. *et al., Phytochemistry*, 1993, **32**, 741; 1633 (*acetylsinapoyl derivs*)
Lou, H. *et al., Phytochemistry*, 1993, **32**, 1283 (*6-Sinapoylsucrose*)
Miyase, T. *et al., CA*, 1994, **120**, 240064p (*isol, derivs*)
Saitoh, H. *et al., Chem. Pharm. Bull.*, 1994, **42**, 1879 (*Reinosides*)
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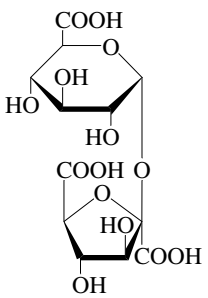
Zimmermann, M.L. *et al., J. Nat. Prod.*, 1994, **57**, 236 (*Vanicosides A-B*)
Abdallah, O.M. *et al., Phytochemistry*, 1994, **37**, 1689 (*tetra-Ac, caffeate*)
Kim, K.B. *et al., Carbohydr. Res.*, 1995, **270**, 71-75 (***synth, pmr, 6′-phosphate***)
Harrison, L.J. *et al., Phytochemistry*, 1995, **38**, 1497 (*tetraacetyldiferuloylsucrose*)
Mathlouthi, M. *et al., Sucrose*, Blackie, 1995, (*book*)
Lin, W.H. *et al., Yaoxue Xuebao*, 1995, **30**, 752 (*Sibiriosides*)
Qian-Cutrone, J. *et al., J. Nat. Prod.*, 1996, **59**, 196 (*Niruriside*)
Shirota, O. *et al., J. Nat. Prod.*, 1996, **59**, 242 (*Sparganium derivs*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1347; 1378; 1756
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2045; 2697; 2701; 2702 (*Olestra, Sucrapans*)
Shirota, O. *et al., Phytochemistry*, 1997, **44**, 695 (*Sparganium derivs*)
Zhang, D. *et al., Phytochemistry*, 1997, **45**, 733 (*Fallaxoses, Reinose D*)
Brown, L.L. *et al., J. Nat. Prod.*, 1998, **61**, 762-766 (*Vanicosides C-F*)
Zhang, D. *et al., Phytochemistry*, 1998, **47**, 45-52 (*Glomeratoses*)
Sang, S. *et al., Phytochemistry*, 1998, **48**, 569-571 (*Segetoside A*)
Wang, M. *et al., J. Nat. Prod.*, 1999, **62**, 454-456 (*6-Caffeoylsucrose*)
Miyase, T. *et al., J. Nat. Prod.*, 1999, **62**, 993-996 (*Sibiricoses A_1-A_6*)
Murakami, N. *et al., Bioorg. Med. Chem. Lett.*, 2000, **10**, 2629-2632 (*Atractysucroses*)
Tanaka, T. *et al., Chem. Pharm. Bull.*, 2000, **48**, 201-207 (*1′-Benzoylsucrose*)
Kobayashi, W. *et al., J. Nat. Prod.*, 2000, **63**, 1066-1069 (*Arillatose B-F*)
Sun, X. *et al., J. Nat. Prod.*, 2000, **63**, 1094-1097 (*Polygonum perfoliatum derivs*)
Chen, T. *et al., Phytochemistry*, 2000, **53**, 1051-1055 (*Smiglasides*)
Barros, M.T. *et al., Tetrahedron*, 2000, **56**, 6511-6516 (*hexa-Ac, heptabenzoyl*)
Wu, Z. *et al., CA*, 2001, **134**, 307877r (*Arillanins*)
Chen, C.-C. *et al., J. Nat. Prod.*, 2001, **64**, 990-992 (*6-Feruloyl-3′-sinapoylsucrose*)
Takasaki, M. *et al., J. Nat. Prod.*, 2001, **64**, 1305-1308 (*Lapathosides*)
Takara, K. *et al., Biosci., Biotechnol., Biochem.*, 2002, **66**, 29-35 (*6-Syringoylsucrose, 6-Vanilloylsucrose*)
Teranishi, K. *et al., Carbohydr. Res.*, 2002, **337**, 613-619 (*monotosyl derivs, bibl*)
Li, S.Y. *et al., J. Nat. Prod.*, 2002, **65**, 262-266 (*Smilax bracteata glycosides*)
Yoshikawa, M. *et al., J. Nat. Prod.*, 2002, **65**, 1151-1155 (*Prunoses I,II*)
Weckerle, B. *et al., Phytochemistry*, 2002, **60**, 409-414 (*3-methylbutanoyl ester*)
Matsuda, H. *et al., Chem. Pharm. Bull.*, 2003, **51**, 440-443 (*Prunose III*)
Wang, N. *et al., Phytochemistry*, 2003, **62**, 741-746 (*6′-Coumaroylsucrose, 6,6′-Dicoumaroylsucrose*)
Singh, A.P. *et al., Phytochemistry*, 2003, **63**, 485-489 (*Petunia nyctaginiflora constits*)
Tchinda, A.T. *et al., Phytochemistry*, 2003, **63**, 841-846 (*pentakis-3-methylbutanoyl*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SNH000

Sucrosetricarboxylic acid S-93

α-D-Glucopyranuronosyl-β-D-arabino-2-hexulofuranosidaric acid, 9CI
[109263-83-4]



$C_{12}H_{16}O_{14}$ 384.25
Characterised spectroscopically as salts.

Tri-Me ester: [289711-92-8]
$C_{15}H_{22}O_{14}$ 426.33
Oil.

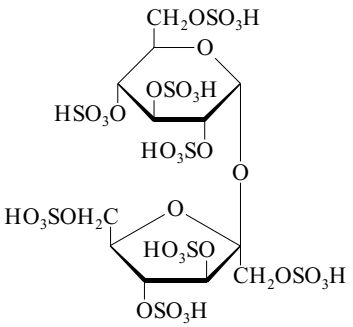
Penta-Ac, tri-Me ester: [258330-80-2]
$C_{25}H_{32}O_{19}$ 636.516
Solid. $[\alpha]_D^{21}$ +38 (c, 1 in CH_2Cl_2).

[226932-61-2, 289711-94-0]

Ger. Pat., 1987, 3 535 720; *CA*, **107**, 59408 (*synth*)
Lemoine, S. *et al., Carbohydr. Res.*, 2000, **326**, 176-184 (*synth, pmr, cmr*)

Sucrosofate, INN S-94

1,3,4,6-Tetra-O-*sulfo-β-D-fructofuranosyl α-D-glucopyranoside tetrakis(hydrogen sulfate). Sucrose octasulfate*
[57680-56-5]



$C_{12}H_{22}O_{35}S_8$ 982.813
Wound healing and antiulcer agent.
Log P -6 (uncertain value) (calc).

Octa-K salt, heptahydrate: ***Sucrosofate potassium, USAN****. Agent M-01*
[76578-81-9] Wound healing and antiulcer agent.
Needles or prisms. Mp 169° (needles) Mp 230° (prisms).

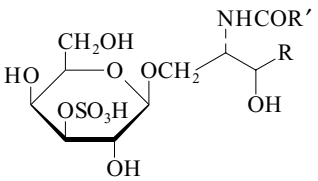
Compd. with Al(OH)$_3$: ***Sucralfate, BAN, INN, JAN, USAN****. Carafate. Many other names*
[54182-58-0] Antipeptic and antiulcer activity. Delays gastric emptying.

▶ BD0900000

Borella, L.E. *et al., Arzneim.-Forsch.*, 1979, **29**, 793 (*sucralfate*)
Nagashima, R. *et al., Arzneim.-Forsch.*, 1980, **30**, 78; 80; 84 (*pharmacol*)
Ochi, K. *et al., Chem. Pharm. Bull.*, 1980, **28**, 638 (*salts*)
Nawata, Y. *et al., Acta Cryst. B*, 1981, **37**, 246 (*cryst struct*)
Marano, A.R. *et al., Clin. Pharmacol. Ther. (St. Louis)*, 1985, **37**, 629 (*sucralfate, bibl*)
Eur. Pat., 1987, 230 023; *CA*, **108**, 11249n (*synth*)
Lucey, M.R. *et al., Am. J. Med.*, 1991, **91**, 52S (*pharmacol*)
Silvey, G.L. *et al., J. Pharm. Sci.*, 1992, **81**, 471 (*pmr*)
Volkin, D.B. *et al., Biochim. Biophys. Acta*, 1993, **1203**, 18 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 905
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 3208 (*synonyms*)
Desai, U.R. *et al., Carbohydr. Res.*, 1995, **275**, 391-401 (*pmr, cmr, conformn*)

Sulfatide S-95

3-Sulfogalactosylceramide



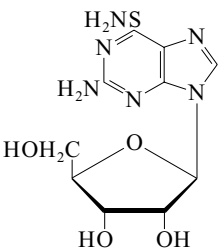
R, R′ = Alkyl

Isol. from mammalian brain and spinal cord. Accumulates abnormally in patients with metachromatic leukodystrophy. Major acidic glycosphingolipid responsible for negative charge on nerve cell membranes.

Ohashi, Y. *et al., Carbohydr. Res.*, 1991, **221**, 235 (*ms, struct, bibl*)
Tanahashi, E. *et al., J. Carbohydr. Chem.*, 1997, **16**, 831-858 (*synth, bibl*)

Sulfenosine S-96

*2-Amino-9-β-D-ribofuranosyl-9*H*-purine-6-sulfenamide*
[123002-38-0]



$C_{10}H_{14}N_6O_4S$ 314.324
Shows antineoplastic activity. Mp 196-198° dec.

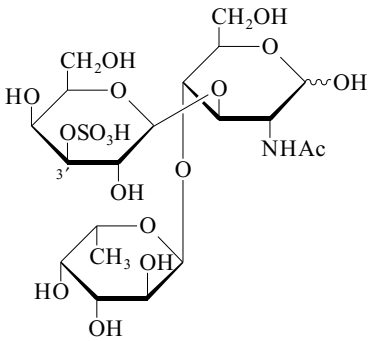
S-*Oxide:* ***Sulfinosine****. 2-Amino-9-β-D-ribofuranosyl-9*H*-purine-6-sulfinamide*
[124508-99-2]
$C_{10}H_{14}N_6O_5S$ 330.324
Shows antineoplastic activity. Cryst. + 1.5 H_2O. Mp 100° dec. Sinters and darkens before 100°.

S,S-*Dioxide:* ***Sulfonosine****. 2-Amino-9-β-D-ribofuranosyl-9*H*-purine-6-sulfonamide*
[123002-39-1]
$C_{10}H_{14}N_6O_6S$ 346.323
Shows antineoplastic activity. Sol. H_2O. Mp 210° dec.

[123002-46-0, 123002-47-1]

Pat. Coop. Treaty (WIPO), 1989, 89 05 817, (*Nucleic Acid Res Instit*); *CA*, **112**, 77867b (*synth, pharmacol*)
Larson, S.B. *et al., Acta Cryst. C*, 1990, **46**, 512 (*cryst struct, sulfonosine*)
Revankar, G.R. *et al., J. Med. Chem.*, 1990, **33**, 121; 1220; 1991, **34**, 526; 1994, **37**, 177 (*synth, ir, uv, pmr, pharmacol*)

3-*O*-Sulfo-β-D-galactopyranosyl(1 →3)-[(α-L-fucopyranosyl)(1 →4)]-2-acetamido-2-deoxy-D-glucopyranose S-97

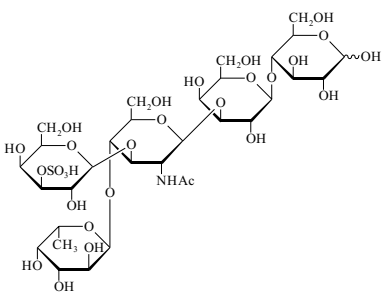


$C_{20}H_{35}NO_{18}S$ 609.558
Component of Le^a-type blood group substance.

Na salt: [153153-93-6]
$[\alpha]_D^{25}$ -38 (c, 0.42 in MeOH).

Nicolaou, K.C. *et al., J.A.C.S.*, 1993, **115**, 8843 (*synth, pmr*)
Lubineau, A. *et al., Bioorg. Med. Chem.*, 1994, **2**, 1143 (*synth, pmr, cmr*)

3-*O*-Sulfo-β-D-galactopyranosyl(1 →3)-[(α-L-fucopyranosyl)(1 →4)]-2-acetamido-2-deoxy-β-D-glucopyranosyl(1 →3)-β-D-galactopyranosyl(1 →4)-D-glucose S-98



$C_{32}H_{55}NO_{28}S$ 933.842
Component of Le^a-type blood group substance. Potent E-selectin ligand. $[\alpha]_D^{30}$ -19 (c, 1.42 in H_2O) (as Na salt).

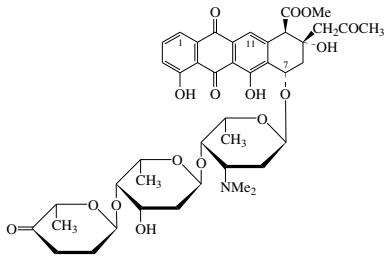
β-Pyranose-*form*

Benzyl glycoside, dodecabenzyl, 4′-Ac:
$[\alpha]_D^{28}$ -244 (c, 0.86 in CH_2Cl_2).

Lubineau, *et al., Bioorg. Med. Chem.*, 1994, **2**, 111 (*synth, pmr, cmr*)

Sulfurmycin A S-99

[78173-90-7]



$C_{43}H_{53}NO_{16}$ 839.889

Anthracycline antibiotic. Numbering systems vary. Isol. from *Streptomyces galilaeus* (OB111; ATCC31533; P4780). Active against gram-positive bacteria, mycobacteria and tumours. Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 140°. $[\alpha]_D^{20}$ -23.2 (c, 0.1 in $CHCl_3$). Strain also produces Sulfurmycin B, S-100, Auramycin A, A-875 and Auramycin B, A-876.

▶ LD_{50} (mus, ipr) 100 mg/kg. QI9290600

Aglycone: ***Sulfurmycinone***
[78173-88-3]
$C_{23}H_{20}O_9$ 440.406
From *Streptomyces galilaeus*. Yellow powder.
Mp 159°. $[\alpha]_D^{20}$ +232.2 (c, 0.1 in $CHCl_3$).

Aglycone, 7-deoxy: ***7-Deoxysulfurmycinone****. 4-Deoxysulfurmycinone, 9CI*
[78173-94-1]
$C_{23}H_{20}O_8$ 424.406
Prod. by *Streptomyces galilaeus*.
Mp 219.5°. $[\alpha]_D^{20}$ +73.9 ($CHCl_3$).

1-Hydroxy: ***1-Hydroxysulfurmycin A****. 10-Hydroxysulfurmycin A*
[79234-80-3]
$C_{43}H_{53}NO_{17}$ 855.888
Prod. by *Streptomyces galilaeus* (AC628) and *Streptomyces melanogenes* (AC180). Active against gram-positive bacteria and tumours. Sol. $CHCl_3$, MeOH; poorly sol. H_2O, hexane.
Mp 126°. $[\alpha]_D^{20}$ +57.88 (c, 0.1 in $CHCl_3$). λ_{max} 234 (E1%/1cm 570); 256 (E1%/1cm 345); 292 (E1%/1cm 115); 493 (E1%/1cm 175); 511 (E1%/1cm 165); 526 (ϵ 160); 570 (E1%/1cm 75) (MeOH) (Berdy). λ_{max} 241 (E1%/1cm 530); 292 (E1%/1cm 170); 565 (E1%/1cm 230); 602 (E1%/1cm 180) (MeOH/NaOH) (Berdy).

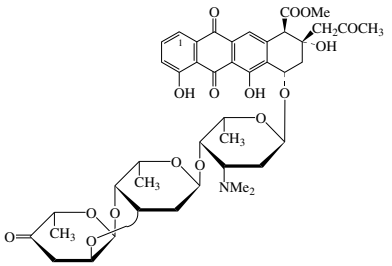
Aglycone, 1-hydroxy: 1-Hydroxysulfurmycinone. 10-Hydroxysulfurmycinone
[79206-71-6]
$C_{23}H_{20}O_{10}$ 456.405
Mp 169.5°.

Aglycone, 11-hydroxy: ***11-Hydroxysulfurmycinone***
[95663-90-4]
$C_{23}H_{20}O_{10}$ 456.405
Prod. by *Streptomyces* sp. (MST-77755). Red solid. $[\alpha]_D^{20}$ +54.5 (c, 0.008 in $CHCl_3$). λ_{max} 234 (ϵ 37000); 253 (ϵ 22000); 291 (ϵ 7600); 492 (ϵ 11400); 526 (ϵ 7700); 579 (ϵ 1000) (MeOH).

Fujiwara, A. *et al., J. Antibiot.*, 1981, **34**, 912-915; 1982, **35**, 164-175 (*isol, ir, pmr, cmr*)
Hoshino, T. *et al., J. Antibiot.*, 1984, **37**, 1469-1472 (*derivs*)
Clark, B. *et al., J. Nat. Prod.*, 2004, **67**, 1729-1731 (*11-Hydroxysulfurmycine*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SON520

Sulfurmycin B S-100

[78193-30-3]



$C_{43}H_{51}NO_{16}$ 837.873

Anthracycline antibiotic. Numbering systems vary. Isol. from *Streptomyces galilaeus* (OB111; ATCC31533; P4780). Active against gram-positive bacteria, mycobacteria and tumours. Yellow powder. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 149°. $[\alpha]_D^{20}$ -21.5 (c, 0.1 in $CHCl_3$).

▶ LD_{50} (mus, ipr) 100 mg/kg. QI9278000

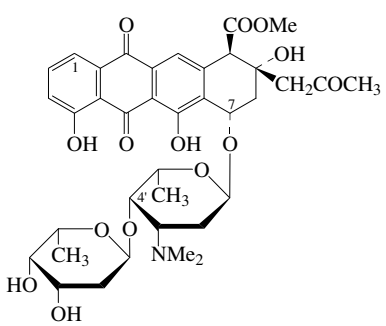
Aglycone: See Sulfurmycin A, S-99

1-Hydroxy: ***1-Hydroxysulfurmycin B****. 10-Hydroxysulfurmycin B*
[79217-18-8]
$C_{43}H_{51}NO_{17}$ 853.872
Prod. by *Streptomyces galilaeus* (AC628) and *Streptomyces melanogenes* (AC180). Active against gram-positive bacteria and tumours. Sol. MeOH, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 158.5°. $[\alpha]_D^{20}$ +60.33 (c, 0.1 in $CHCl_3$). λ_{max} 234 (E1%/1cm 545); 256 (E1%/1cm 340); 290 (E1%/1cm 110); 493 (E1%/1cm 175); 511 (E1%/1cm 160); 526 (E1%/1cm 160); 570 (E1%/1cm 85) (MeOH) (Berdy). λ_{max} 241 (E1%/1cm 540); 293 (E1%/1cm 165); 565 (E1%/1cm 190); 602 (E1%/1cm 190) (MeOH/NaOH) (Berdy).

Fujiwara, A. *et al., J. Antibiot.*, 1981, **34**, 912-915; 1982, **35**, 164-175 (*isol, ir, pmr, cmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SON525

Sulfurmycin C S-101

[83753-75-7]



$C_{37}H_{45}NO_{14}$ 727.761

Anthracycline antibiotic. Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and P388 tumour cells. Yellow powder. Sol. MeOH, C_6H_6, DMSO, $CHCl_3$, acids; poorly sol. H_2O, hexane.
Mp 146°. $[\alpha]_D^{20}$ +55.8 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 575); 257 (E1%/1cm 370); 288 (E1%/1cm 140); 433 (ϵ 175) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 460); 525 (E1%/1cm 185) (MeOH-NaOH) (Berdy).

▶ LD_{50} (mus, ipr) 90 mg/kg. QI9288990

4′-O-Deglycosyl: ***Sulfurmycin D***
[83753-74-6]
$C_{31}H_{35}NO_{11}$ 597.618
Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and P388 leukaemic cells. Sol. MeOH, acids, C_6H_6, $CHCl_3$, DMSO; poorly sol. H_2O, hexane.
Mp 128°. $[\alpha]_D^{20}$ +167.6 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 680); 257 (E1%/1cm 425); 288 (E1%/1cm 160); 433 (E1%/1cm 210) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 505); 525 (E1%/1cm 215) (MeOH-NaOH) (Berdy).

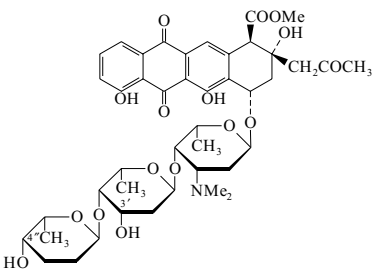
▶ QI9288994

3′′-Deoxy: Sulfurmycin H. 3′′-Deoxysulfurmycin C
[83759-50-6]
Prod. by *Streptomyces galilaeus* ATCC31534 and by hydrol. of Sulfurmycin G.
Yellow powder. Sol. MeOH, acids, $CHCl_3$, C_6H_6, DMSO; poorly sol. H_2O, hexane.
Mp 98.5°. λ_{max} 228; 258; 288; 433 (MeOH) (Berdy).

Fr. Pat., 1982, 2 492 386; *CA*, **98**, 3537 (*isol*)
Hoshino, T. *et al., J. Antibiot.*, 1982, **35**, 1271-1279 (*isol, uv, ir, pmr, cmr, struct*)

Sulfurmycin F S-102

[83829-33-8]



$C_{43}H_{55}NO_{16}$ 841.905

Anthracycline. Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and P388 leukemia cells. Yellow powder. Sol. MeOH, $CHCl_3$, C_6H_6, acids, DMSO; poorly sol. H_2O, hexane.
Mp 151.5°. $[\alpha]_D^{20}$ +7.9 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 475); 258 (E1%/1cm 300); 288 (E1%/1cm 115); 433 (E1%/1cm 120) (MeOH) (Berdy). λ_{max} 238 (E1%/1cm 515); 268 (E1%/1cm 180); 525 (E1%/1cm 165) (MeOH/NaOH) (Berdy).

4″-Epimer: ***Sulfurmycin E***
[83753-76-8]
$C_{43}H_{55}NO_{16}$ 841.905
Prod. by *Streptomyces galilaeus* ATCC31534. Active against gram-positive bacteria and leukaemia cells. Yellow powder. Sol. MeOH, acids, DMSO, C_6H_6, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 151°. $[\alpha]_D^{20}$ +19.6 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 530); 257 (E1%/1cm 340); 288 (E1%/1cm 126); 433 (E1%/1cm 155) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 405); 525 (E1%/1cm 165) (MeOH/NaOH) (Berdy).
► LD_{50} (mus, ipr) 20 - 40 mg/kg. QI9288992

3′-Deoxy: ***Sulfurmycin G***
[83753-81-5]
$C_{43}H_{55}NO_{15}$ 825.905
Prod. by *Streptomyces galilaeus*. Active against gram-positive bacteria and P388 leukaemia cells. Yellow powder. Sol. MeOH, $CHCl_3$, C_6H_6, acids, DMSO; poorly sol. H_2O, hexane.
Mp 139°. $[\alpha]_D^{20}$ +25.6 (c, 0.1 in $CHCl_3$). λ_{max} 228 (E1%/1cm 560); 257 (E1%/1cm 360); 288 (E1%/1cm 135); 433 (E1%/1cm 170) (MeOH) (Berdy). λ_{max} 237 (E1%/1cm 530); 525 (E1%/1cm 175) (MeOH-NaOH) (Berdy).
► LD_{50} (mus, ipr) 40 - 80 mg/kg. QI9288996

Fr. Pat., 1982, 2 492 386; *CA*, **98**, 3537 (*isol*)
Hoshino, T. *et al., J. Antibiot.*, 1982, **35**, 1271 (*isol, struct*)

Sulglicotide, INN S-103

Sulglycotide, BAN. *GLPS*
[54182-59-1]
Sulfated product of a glycopeptide isol. from porcine duodenum. Antiulcer, antipepsin and antigastric secretory activity.

Prino, G. *et al., Arzneim.-Forsch.*, 1971, **21**, 918 (*isol, pharmacol*)
Niada, R. *et al., Br. J. Pharmacol.*, 1973, **48**, 550 (*pharmacol, bibl*)
Niada, R. *et al., Pharmacol. Res. Commun.*, 1981, **13**, 695 (*pharmacol*)
Chirletti, P. *et al., Drugs Exp. Clin. Res.*, 1987, **13**, 711 (*pharmacol*)
Cavallini, G. *et al., Acta Ther.*, 1991, **17**, 173-178; *CA*, **115**, 150095s (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 906
Piotrowski, J. *et al., Gen. Pharmacol.*, 1994, **25**, 833; 969 (*activity*)

TA 2590 T-1

Glycoprotein. Prod. by *Streptomyces pluricolorescens*. Shows antitumour activity. Sol. H_2O, bases, MeOH aq., acids; poorly sol. AcOH, MeOH, hexane, Py. $[\alpha]_D^{17}$ -34.4. λ_{max} 278 (E1%/1cm 19.2) (HCl) (Berdy). λ_{max} 278 (E1%/1cm 19.2); 292 (E1%/1cm 13.9) (H_2O) (Berdy). λ_{max} 283 (E1%/1cm 18); 290 (E1%/1cm 16); 540 (E1%/1cm 2.2) (NaOH) (Berdy).

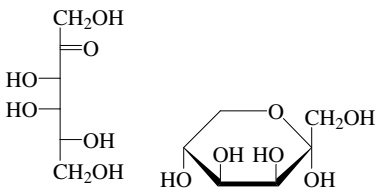
► LD_{50} (mus, ipr) 25-75 mg/kg.

Japan. Pat., 1970, 70 17 594; *CA*, **73**, 75658m

Tagatose, 9CI, 8CI T-2

lyxo-*2-Hexulose*

[17598-81-1]



D-*form* α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

An aq. soln. at 27° contains 79% α-pyr, 16% β-pyr, 1% α-fur, 4% β-fur and 0.6% ketone.

D-*form* [87-81-0]

Obt. as a hydrol. prod. from a gum exudate of the tropical tree *Sterculia setigera* and from the lichen *Rocella linearis*. Prepd. by alkaline isomerisation of D-Galactose or by oxidn. of D-Talitol with *Acetobacter suboxydans*. Used in the food industry.

Mp 134-135°. $[\alpha]_D^{20}$ -2.3 (c, 2.2 in H_2O). $[\alpha]_D^{25}$ -5 (c, 1.0 in H_2O). Sweetness ca. 0.75 - 0.92 x sucrose.

Phenylosazone: Mp 196-197°.

4-Bromophenylosazone: Mp 180-182°.

6-Phosphate:

[53798-20-2]

$C_6H_{13}O_9P$ 260.137

$[\alpha]_D^{25}$ +5.6 (c, 1.1 in H_2O) (as Ba salt).

α-D-Pyranose-*form*

Me glycoside: Methyl α-D-tagatopyranoside, 9CI

[60504-80-5]

$C_7H_{14}O_6$ 194.184

Mp 128°. $[\alpha]_D$ +56.8 (MeOH).

Me glycoside, tetra-Ac: Methyl 1,3,4,5-tetra-O-acetyl-α-D-tagatopyranoside

[86049-58-3]

$C_{15}H_{22}O_{10}$ 362.333

Mp 125°. $[\alpha]_D$ +23.8 ($CHCl_3$).

Me glycoside, tetra-Me: Methyl 1,3,4,5-tetra-O-methyl-α-D-tagatopyranoside

$C_{11}H_{22}O_6$ 250.291

Syrup. $[\alpha]_D$ +21.4 (MeOH).

β-D-Pyranose-*form*

Me glycoside, 3,4-O-isopropylidene: Methyl 3,4-O-isopropylidene-β-D-tagatopyranoside

[172291-64-4]

$C_{10}H_{18}O_6$ 234.249

Syrup. $[\alpha]_D$ -57 (c, 1.1 in $CHCl_3$).

1,2-O-Isopropylidene: 1,2-O-Isopropylidene-β-D-tagatopyranose

$C_9H_{16}O_6$ 220.222

$[\alpha]_D^{20}$ -83 (c, 2.3 in MeOH).

1,2-O-Isopropylidene, 3,4,5-tri-Ac: 3,4,5-Tri-O-acetyl-1,2-O-isopropylidene-β-D-tagatopyranose

$C_{15}H_{22}O_9$ 346.333

$[\alpha]_D^{20}$ -105.2 (c, 1.5 in CH_2Cl_2).

1,2-O-Isopropylidene, 3,4-anhydro: 3,4-Anhydro-1,2-O-isopropylidene-β-D-tagatopyranose

[56297-75-7]

$C_9H_{14}O_5$ 202.207

Mp 81-82°. $[\alpha]_D$ -80.7 ($CHCl_3$).

2,3-O-Isopropylidene, 1,4,5-tri-Ac: 1,4,5-Tri-O-acetyl-2,3-O-isopropylidene-β-D-tagatopyranose

[58238-49-6]

$C_{15}H_{22}O_9$ 346.333

Syrup. $[\alpha]_D^{20}$ -46.7 (c, 0.8 in $CHCl_3$).

α-D-Furanose-*form* [36441-92-6]

1,2:3,4-Di-O-isopropylidene: 1,2:3,4-Di-O-isopropylidene-α-D-tagatofuranose

[59686-31-6]

$C_{12}H_{20}O_6$ 260.286

Mp 65-66°. $[\alpha]_D$ +81.5 (Me_2CO).

1,2:3,4-Di-O-isopropylidene, 6-phosphate:

[76649-79-1]

$C_{12}H_{21}O_9P$ 340.266

Mp 113-114° dec. $[\alpha]_D$ +47 (c, 2.0 in MeOH).

1,2:3,4-Di-O-isopropylidene, 6-diphenylphosphate: [59671-20-4]

$C_{24}H_{29}O_9P$ 492.462

Mp 94-95°. $[\alpha]_D^{25}$ +32 (c, 2.0 in $CHCl_3$).

β-D-Furanose-*form* [512-20-9]

2,3-O-Isopropylidene: 2,3-O-Isopropylidene-β-D-tagatofuranose

[32087-62-0]

$C_9H_{16}O_6$ 220.222

Syrup. $[\alpha]_D^{25}$ +15.4 (c, 2.0 in $CHCl_3$).

2,3-O-Isopropylidene, 1,4,6-tri-Ac: 1,4,6-Tri-O-acetyl-2,3-O-isopropylidene-β-D-tagatofuranose

[32077-83-1]

$C_{15}H_{22}O_9$ 346.333

Syrup. $[\alpha]_D$ -3.9 ($CHCl_3$).

2,3-O-Isopropylidene, 1,6-dibenzoyl: 1,6-Di-O-benzoyl-2,3-O-isopropylidene-β-D-tagatofuranose

[38088-19-6]

$C_{23}H_{24}O_8$ 428.438

Mp 96°. $[\alpha]_D^{24}$ +12.4 (c, 2.6 in $CHCl_3$).

2,3-O-Isopropylidene, 1,6-ditosyl: 2,3-O-Isopropylidene-1,6-di-O-tosyl-β-D-tagatofuranose

[32253-41-1]

$C_{23}H_{28}O_{10}S_2$ 528.6

Syrup. $[\alpha]_D^{20}$ +7.8 (c, 1.0 in EtOH).

L-*form* [17598-82-2]

Mp 133-135°. $[\alpha]_D$ +6.7 (c, 8.4 in H_2O) (after 16h).

Phenylosazone: Mp 184-185°.

α-L-Pyranose-*form*

Me glycoside: Methyl α-L-tagatopyranoside

[143731-44-6]

$C_7H_{14}O_6$ 194.184

Cryst. (Me_2CO). Mp 126-128°. $[\alpha]_D$ -43 (MeOH).

[20197-42-6, 40461-86-7, 41846-98-4, 41846-99-5, 41847-58-9, 41847-59-0]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 1142D (*ir*)

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 302A (*nmr*)

Karabinos, J.V. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 99 (*synth, rev*)

Totton, E.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 155 (*synth, D-form*)

Jochims, J.C. *et al., Tet. Lett.*, 1967, 4363 (*pmr*)

Takagi, S. *et al., Carbohydr. Res.*, 1969, **11**, 156 (*cryst struct*)

Brady, R.F. *et al., Adv. Carbohydr. Chem. Biochem.*, 1971, **26**, 197 (*rev, acetals*)

Al-Jobore, A.A.H. *et al., Carbohydr. Res.*, 1971, **16**, 474 (*synth, D-form*)

Heyns, K. *et al., Chem. Ber.*, 1975, **108**, 3619 (*β-D-pyr isopropylidene tri-Ac*)

Angyal, S.J. *et al., Aust. J. Chem.*, 1976, **29**, 1249 (*cmr, conformn*)

Koerner, T.A. *et al., J. Biol. Chem.*, 1976, **251**, 2983 (*6-phosphate derivs*)

Mukuyama, T. *et al., Chem. Lett.*, 1982, 1169 (*synth, L-form*)

Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)

Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)

Barili, P.L. *et al., Carbohydr. Res.*, 1991, **212**, C5 (*synth, L-form, Me α-L-gly*)

Fessner, W.-D. *et al., Angew. Chem., Int. Ed.*, 1992, **31**, 56 (*synth*)

Barili, P. *et al., Carbohydr. Res.*, 1995, **274**, 197-208 (*synth, D-form*)

Freimund, S. *et al., J. Carbohydr. Chem.*, 1996, **15**, 115-120 (*D-form, synth*)

Huwig, A. *et al., Carbohydr. Res.*, 1998, **305**, 337-339 (*synth, L-form*)

Frank, M. *et al., Carbohydr. Res.*, 1999, **318**, 167-170 (*L-form, derivs, synth*)

Food Chem. News, 2001, **43(40)**, 8-9 (*use, status*)

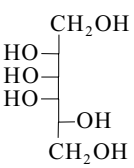
Eder, B. *et al., J. Carbohydr. Chem.*, 2001, **20**, 647-657 (*β-D-pyr 1,2-isopropylidene, β-D-pyr 1,2-isopropylidene tri-Ac*)

Ekeberg, D. *et al., Carbohydr. Res.*, 2002, **337**, 779-786 (*synth*)

Talitol, 9CI, 8CI T-3

Altritol, 9CI, 8CI. talo-*Hexitol.* altro-*Hexitol*

[5552-13-6]



D-*form*

$C_6H_{14}O_6$ 182.173

D-*form* [643-03-8]
Isol. from various brown algae incl. *Himanthalia elongata* and *Notheia anomala*.
Cryst. (MeOH).
Mp 88°. $[\alpha]_D$ +3.2 (c, 1.8 in H_2O).

Hexa-Ac: 1,2,3,4,5,6-Hexa-O-*acetyl-D-talitol*
$C_{18}H_{26}O_{12}$ 434.396
Mp 81-83°. $[\alpha]_D^{25}$ -0.6 (c, 16 in $CHCl_3$).

2,4-O-*Methylene: 2,4*-O-*Methylene-D-talitol*
$C_7H_{14}O_6$ 194.184
Mp 144-145°. $[\alpha]_D^{20}$ -4.2 (c, 1.2 in H_2O).

2,4-O-*Methylene, tetra-Ac: 1,3,5,6-Tetra*-O-*acetyl-2,4*-O-*methylene-D-talitol*
$C_{15}H_{22}O_{10}$ 362.333
Mp 67-68°. $[\alpha]_D^{20}$ +37.8 (c, 0.94 in $CHCl_3$).

1,3:4,6-Di-O-*methylene: 1,3:4,6-Di*-O-*methylene-D-talitol*
$C_8H_{14}O_6$ 206.195
Prisms (EtOH). Mp 182-183°. $[\alpha]_D^{20}$ -41.2 (c, 0.81 in H_2O).

2,3:4,5-Di-O-*methylene: 2,3:4,5-Di*-O-*methylene-D-talitol*
$C_8H_{14}O_6$ 206.195
Plates (H_2O). Mp 261-262°. $[\alpha]_D^{60}$ -1 (c, 0.41 in H_2O).

1,3:2,4:5,6-Tri-O-*methylene: 1,3:2,4:5,6-Tri*-O-*methylene-D-talitol*
$C_9H_{14}O_6$ 218.206
Mp 118-119°. $[\alpha]_D^{20}$ -32.1 (c, 0.42 in H_2O).

1,2:5,6-Di-O-*isopropylidene: 1,2:5,6-Di*-O-*isopropylidene-D-talitol*
$C_{12}H_{22}O_6$ 262.302
Cryst. (petrol). Mp 64.5-65.5°. $[\alpha]_D^{22}$ +5.2 (c, 2.4 in $CHCl_3$).

L-*form*
Needles (EtOH). Mp 87-88°. $[\alpha]_D$ -2.9 (c, 5 in H_2O).

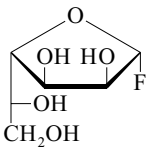
DL-*form*
Prisms (EtOH). Mp 96°.

Hexa-Ac: Hexa-O-*acetyl-DL-talitol*
$C_{18}H_{26}O_{12}$ 434.396
Mp 85-86°.

[45007-61-2]

Humoller, F.L. *et al., J.A.C.S.*, 1945, **67**, 1226 (*L-form, DL-form*)
Hann, R.M. *et al., J.A.C.S.*, 1947, **69**, 624 (*D-form, synth, D-methylene derivs*)
Barker, S.A. *et al., Adv. Carbohydr. Chem.*, 1952, **7**, 137 (*acetals, rev*)
Sugihara, J.M. *et al., J.A.C.S.*, 1957, **79**, 5780 (*D-form, synth, D-diisopropylidene*)
Wright, L. *et al., J.O.C.*, 1961, **26**, 1588 (*D-hexa-Ac, DL-hexa-Ac*)
Chudek, J.A. *et al., Phytochemistry*, 1984, **23**, 1081-1082 (*isol*)
Kopf, J. *et al., Carbohydr. Res.*, 1991, **217**, 1 (*cryst struct, D-form*)
Kopf, J. *et al., Carbohydr. Res.*, 1992, **229**, 17 (*cryst struct, hexa-Ac*)
Evans, P.A. *et al., J.O.C.*, 1998, **63**, 6768-6769 (*synth*)
Raven, J.A. *et al., Phytochemistry*, 2001, **58**, 389-394 (*occur*)

Talofuranosyl fluoride T-4



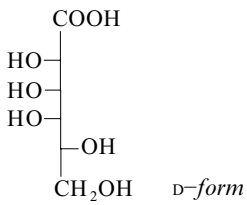
$C_6H_{11}FO_5$ 182.148

α-D-*form*
Tetrabenzoyl: 2,3,5,6-Tetra-O-*benzoyl-α-D-talofuranosyl fluoride*
[51785-57-0]
$C_{34}H_{27}FO_9$ 598.58
Syrup. $[\alpha]_D^{24}$ -90.3 (c, 3.9 in $CHCl_3$).

Bock, K. *et al., Acta Chem. Scand.*, 1973, **27**, 3586 (*tetrabenzoyl, pmr*)

Talonic acid, 9CI, 8CI T-5

talo-*Hexonic acid*
[20246-52-0]



D–*form*

$C_6H_{12}O_7$ 196.157

For stereoisomers see Allonic acid, A-78, Altronic acid, A-102, Galactonic acid, G-23, Gluconic acid, G-250, Gulonic acid, G-584, Idonic acid, I-4 and Mannonic acid, M-36.

D-*form* [20246-35-9]
Mp 138-139°. $[\alpha]_D$ +19 (H_2O).

K salt: Mp 171-172°. $[\alpha]_D^{20}$ +3 (H_2O).

NH_4 salt: Mp 148°. $[\alpha]_D^{25}$ +2.9 (H_2O).

Penta-Ac: 2,3,4,5,6-Penta-O-*acetyl-D-talonic acid*
$C_{16}H_{22}O_{12}$ 406.343
Mp 142-144°. $[\alpha]_D$ +1.8 ($CHCl_3$).

1,4-Lactone: D-Talono-1,4-lactone
[23666-11-7]
$C_6H_{10}O_6$ 178.141
Mp 135-137°. $[\alpha]_D^{25}$ -34.6 → -28.4 (H_2O).

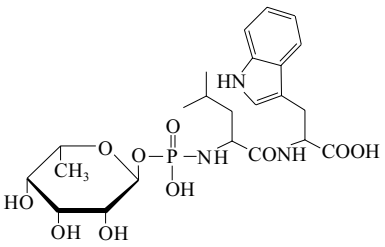
L-*form*
K salt: Mp 170-171° (165-166°). $[\alpha]_D$ -2.4 (c, 2.0 in H_2O).

1,4-Lactone: L-Talono-1,4-lactone
$C_6H_{10}O_6$ 178.141
Mp 133-134.5°. $[\alpha]_D^{17}$ +34.4 → +29.3 (H_2O).

Hedenburg, O.T. *et al., J.A.C.S.*, 1927, **49**, 478 (*D-form, synth*)
Bonnett, H.T. *et al., J.A.C.S.*, 1933, **55**, 1245 (*D-lactone*)
Fukunaga, S. *et al., Bull. Chem. Soc. Jpn.*, 1938, **13**, 272
Glatthaar, C. *et al., Helv. Chim. Acta*, 1938, **21**, 3 (*L-lactone*)
Petersson, G. *et al., Carbohydr. Res.*, 1974, **33**, 47 (*glc*)
Lundt, I. *et al., Synthesis*, 1993, 720 (*L-form*)

Talopeptin T-6

MK1
[84235-60-9]



$C_{23}H_{34}N_3O_{10}P$ 543.509

Nucleotide antibiotic. Isol. from *Streptomyces mozunensis* MK23. Metalloproteinase inhibitor. Powder. Sol. butanol, AcOH; poorly sol. $CHCl_3$, hexane. Mp 146-147° dec. Related to Phosphoramidon. λ_{max} 220 (ε 20000); 281 (ε 6000); 288 (ε 5000) (H_2O) (Derep).

▶ YN6690000

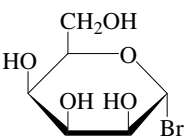
Di-Na salt:
Cryst. (MeOH/propanol). Mp 243-244° dec.

Di-K salt:
Cryst. (MeOH/propanol). Mp 238° dec.

[73804-40-7, 79733-80-5]

Murao, S. *et al., Agric. Biol. Chem.*, 1980, **44**, 701 (*isol*)
Japan. Pat., 1981, 81 77 296; *CA*, **96**, 4952 (*isol*)
Fukuhara, K. *et al., Agric. Biol. Chem.*, 1982, **46**, 1707 (*props*)
Fukuhara, K. *et al., Tet. Lett.*, 1982, **23**, 2319 (*struct*)
Kitagashi, K. *et al., J. Biochem. (Tokyo)*, 1983, **93**, 47; 55 (*props*)

Talopyranosyl bromide T-7



α-D-*form*

$C_6H_{11}BrO_5$ 243.054

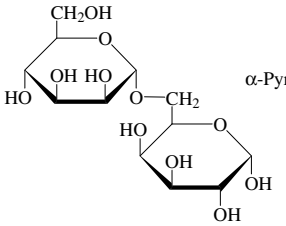
α-D-*form*
Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-α-D-talopyranosyl bromide*
[14227-54-4]
$C_{14}H_{19}BrO_9$ 411.203
Yellow oil.

[114718-45-5]

Lowery, T.L. *et al., Can. J. Chem.*, 2002, **80**, 1112-1130 (*synth, pmr*)

6-*O*-α-D-Talopyranosyl-D-galactose, 9CI T-8

[40592-71-0]



α-Pyranose-*form*

$C_{12}H_{22}O_{11}$ 342.299
Amorph. powder. $[\alpha]_D^{22}$ +101 (c, 0.64 in H_2O).

α-Pyranose-*form*

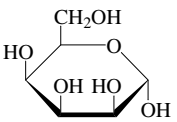
1,2:3,4-Di-O-*isopropylidene:*
$C_{18}H_{30}O_{11}$ 422.428
Oil. $[\alpha]_D^{23}$ +10 (c, 0.5 in DMF).

1,2:3,4-Di-O-*isopropylidene, tetra-Ac:*
$C_{26}H_{38}O_{15}$ 590.577
Oil. $[\alpha]_D^{23}$ +13 (c, 1.3 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1973, **51**, 42

Talose, 9CI T-9

[30077-17-9]



α-D-Pyranose-*form*

$C_6H_{12}O_6$ 180.157

An aq. soln. at 22° contains 42% α-pyr, 29% β-pyr, 16% α-fur, 13% β-fur, and 0.03% aldehyde.

D-*form* [2595-98-4]

o-*Nitrophenylhydrazone:* Mp 148-149°. $[\alpha]_D$ +88 (MeOH).

Pentabenzyl: 2,3,4,5,6-Penta-O-*benzyl-D-talose*
[158420-43-0]
$C_{41}H_{42}O_6$ 630.779
Oil. $[\alpha]_D$ -9.3 (c, 0.77 in $CHCl_3$).

Phenylosazone: See Hexose phenylosazones, H-90

α-D-Pyranose-*form* [7282-81-7]
Mp 133-134°. $[\alpha]_D$ +68 → +20.8 (H_2O).

Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-α-D-talopyranose*
[19186-39-1]
$C_{16}H_{22}O_{11}$ 390.343
Mp 104-105°. $[\alpha]_D^{20}$ +68 (c, 6.0 in $CHCl_3$).

Me glycoside: Methyl α-D-talopyranoside
[51224-40-9]
$C_7H_{14}O_6$ 194.184
Syrup. $[\alpha]_D^{24}$ +98 (c, 1.3 in H_2O).

Me glycoside, 4,6-di-Ac, 2,3-isopropylidene: Methyl 4,6-di-O-*acetyl-2,3*-O-*isopropylidene-α-D-talopyranoside*
[63167-73-7]
$C_{14}H_{22}O_8$ 318.323
Cryst. (petrol). Mp 115-116°. $[\alpha]_D$ +39.1 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3,4-tri-Ac, 6-trityl: Methyl 2,3,4-tri-O-*acetyl-6*-O-*trityl-α-D-talopyranoside*
[63167-74-8]
$C_{32}H_{34}O_9$ 562.615
Mp 176-178°.

Me glycoside, tetra-Ac: [73136-69-3]
$C_{15}H_{22}O_{10}$ 362.333
Oil. $[\alpha]_D$ +64.7 (c, 0.9 in $CHCl_3$).

β-D-Pyranose-*form* [7283-11-6]
Mp 120-121°. $[\alpha]_D$ +13.12 → +21 (H_2O).

Me glycoside: Methyl β-D-talopyranoside
[51224-41-0]
$C_7H_{14}O_6$ 194.184
Syrup. $[\alpha]_D^{24}$ -28.5 (c, 1.5 in H_2O).

1,2-O-*Isopropylidene:* See 1,2-*O*-Isopropylidenetalose, I-75

α-D-Furanose-*form* [51076-04-1]

Pentabenzoyl: 1,2,3,5,6-Penta-O-*benzoyl-α-D-talofuranoside*
[51785-58-1]
$C_{41}H_{32}O_{11}$ 700.697
Syrup. $[\alpha]_D^{24}$ -30.3 (c, 1.5 in $CHCl_3$).

Tetrabenzoyl, 1-(4-nitrobenzoyl): [51819-87-5]
Cryst. (CH_2Cl_2/MeOH). Mp 189-190°. $[\alpha]_D^{20}$ -27 (c, 2.8 in $CHCl_3$).

Me glycoside: Methyl α-D-talofuranoside
[56654-34-3]
$C_7H_{14}O_6$ 194.184
Syrup. $[\alpha]_D^{23}$ +37 (c, 1.6 in H_2O).

β-D-Furanose-*form* [41847-63-6]

Me glycoside: Methyl β-D-talofuranoside
[56654-35-4]
$C_7H_{14}O_6$ 194.184
Cryst. (EtOAc/MeOH). Mp 128-130°. $[\alpha]_D^{23}$ -113 (c, 0.9 in H_2O).

L-*form* [23567-25-1]
$[\alpha]_D$ -16.9 (H_2O).

o-*Nitrophenylhydrazone:* Mp 144-146°. $[\alpha]_D$ -77 (MeOH).

N-*Methyl*-N-*phenylhydrazone:* Mp 155-156°. $[\alpha]_D^{24}$ +8.4 (c, 1.00 in MeOH).

L-Furanose-*form*

5-Me, 2,3-isopropylidene: 2,3-O-*Isopropylidene-5*-O-*methyl-L-talofuranose*
[140934-13-0, 140934-14-1]
$C_{10}H_{18}O_6$ 234.249
Syrup. $[\alpha]_D^{25}$ +31 (c, 0.8 in $CHCl_3$). Mixt. of anomers α:β 9:1.

α-L-Furanose-*form*

Me glycoside, 2,3-isopropylidene: Methyl 2,3-O-*isopropylidene-α-L-talofuranoside*
[157752-60-8]
$C_{10}H_{18}O_6$ 234.249
$[\alpha]_D^{25}$ -44.2 (c, 2.34 in MeOH).

Me glycoside, 2,3-isopropylidene, dibenzoyl: Methyl 5,6-di-O-*benzoyl-2,3*-O-*isopropylidene-α-L-talofuranoside*
$C_{24}H_{26}O_8$ 442.465
Syrup. $[\alpha]_D^{23}$ -51 (c, 1.46 in $CHCl_3$).

5-Me, tetra-Ac: 1,2,3,6-Tetra-O-*acetyl-5*-O-*methyl-α-L-talofuranose*
[140934-17-4]
$C_{15}H_{22}O_{10}$ 362.333
Syrup. $[\alpha]_D^{24}$ -19 (c, 2.5 in $CHCl_3$).

[12773-32-9, 36978-43-5, 40461-83-4, 54808-89-8]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 301C (*nmr*)
Pigman, W.W. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1937, **19**, 189 (*α-D-pyr, α-D-pyr-penta-Ac, β-D-pyr*)
Tipson, R.S. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 157 (*α-D-pyr, β-D-pyr, synth*)
Staněk, J. *et al., The Monosaccharides*, Academic Press, 1963, 99 (*rev*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1972, **24**, 283 (*α-D-Me pyr Me, α-D-Me pyr Me derivs*)
Paulsen, H. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 147 (*α-D-pyr penta-Ac*)
Bock, K. *et al., Acta Chem. Scand.*, 1973, **27**, 3586 (*α-D-fur-tetrabenzoyl nitrobenzoyl*)
Angyal, S.J. *et al., Aust. J. Chem.*, 1975, **28**, 1541 (*α-D-Me pyr, α-D-Me pyr tri-Ac trityl, β-D-Me pyr, α-D-Me fur, β-D-Me fur*)
Hansen, L.K. *et al., Acta Chem. Scand., Ser. A*, 1977, **31**, 187 (*cryst struct*)
Evans, M.E. *et al., Carbohydr. Res.*, 1977, **54**, 105-114 (*D-form, α-D-Me pyr, α-D-Me pyr di-Ac 2,3-isopropylidene, α-D-Me pyr tri-Ac, trityl*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1983, **41**, 27 (*cmr*)
Ko, S.Y. *et al., Science (Washington, D.C.)*, 1983, **220**, 749 (*total synth*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Chida, N. *et al., J. Carbohydr. Chem.*, 1992, **11**, 137-148 (*L-fur 5-Me 2,3-isopropylidene, α-L-fur 5-Me tetra-Ac*)
Krülle, T. *et al., Carbohydr. Res.*, 1994, **254**, 141 (*pentabenzyl*)
Lerner, L.M. *et al., Carbohydr. Res.*, 1994, **259**, 191 (*L-form, L-2,3-isopropylidene*)
Hodosi, G. *et al., J. Carbohydr. Chem.*, 1998, **17**, 557-565 (*D-form, synth*)
Lowery, T.L. *et al., Can. J. Chem.*, 2002, **80**, 1112-1130 (*α-D-pyr penta Ac, α-D-Me pyr tetra-Ac*)

Tamarindose T-10

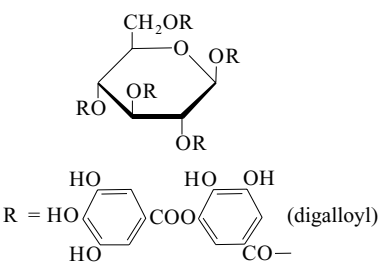
$C_{34}H_{58}O_{29}$ 930.815

Struct. uncertain. A hexasaccharide possibly contg. Gal + 3Glc +2Xyl. Isol. from seeds of *Tamarindus indica* (tamarind) after autolysis.
Mp 228-230°. $[\alpha]_D^{30}$ +43.6 (MeOH).

Rao, P.S. *et al., CA*, 1953, **47**, 6875

Tannin, 9CI, 8CI T-11

Tannic acid. Gallotannic acid. Gallotannin. Chinese tannin. Glycerite. FEMA 3042
[1401-55-4]



approximate composition

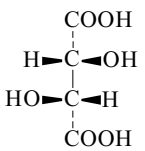
Chinese gallotannin is a mixt. of isomers and closely related compounds whose average composition corresponds to that of Penta-*O*-(*m*-digalloyl)-β-D-glucose. There are also some trigalloyl units. See also individual entries for separately characterised tannin components. A major constit. of galls of many spp. of oak (e.g. *Quercus lusitanica*), the leaves of Stagshorn (*Rhus typhina*) and pods of tara (*Caesalpinia spinosa*). Used as a mordant in dyeing, ink manuf., tanning, clarifying beer and wine and photography and as a coagulant in rubber manuf. Can be used as an astringent. Used as 3% aq. soln. for gravimetric detn. of Nb, Ta, Ti, U, W; separation of Ta and Nb. Astringent. Yellowish powder. Sol. H_2O, EtOH, Me_2CO; sl. sol. Et_2O.
Mp 210-215° dec. $[\alpha]_D^{20}$ +12 → +18.4 (c, 2 in Me_2CO) (from Chinese galls, Sicilian sumach or Stagshorn sumach). $[\alpha]_D^{20}$ +21.7 → +23.2 (c, 2 in Me_2CO) (from Turkish galls). Forms precipitates with metal salts, alkaloids, albumen and gelatin.

▶ Fl. p. 199° (oc), autoignition temp. 527°.
FM3015000

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 544C (*ir*)
Schoeller, W.R. *et al., Analyst (London)*, 1931, **56**, 795; 1932, **57**, 284; 1935, **60**, 284 (*use*)
Welcher, F.J. *et al., Organic Analytical Reagents*, Van Nostrand, New York, 1947, **2**, 142 (*use*)
Schmidt, O.T. *et al., Prog. Chem. Org. Nat. Prod.*, 1956, **13**, 70
Armitage, R. *et al., J.C.S.*, 1961, 1842
Britton, G. *et al., J.C.S.(C)*, 1966, 783
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2726
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, CDM250; QBJ000; MQV250; SOY500; TAD750

Tartaric acid T-12

2,3-Dihydroxybutanedioic acid, 9CI



(2*R*,3*R*)–*form*

$C_4H_6O_6$ 150.088
DL-Nomenclature, although frequently used, is ambiguous when applied to Tartaric acid. The coml. product is normally the natural (2*R*,3*R*)-isomer. Some metal salts have separate entries. Log P -3.27 (calc).

(2R,3R)-form

L-form. L-Threaric acid. FEMA 3044. E334
[87-69-4]
[526-83-0] Occurs in many plants and fruit. Comly. available from the KH salt deposited in fermenting grape juice. Acidulant for beverages, foods and pharmaceuticals, firming agent, flavour enhancer, humectant, other uses in food. Used to clean metals for plating, as a mordant for dyeing and in calico printing. Resolving agent for bases. Monomer used in biodegradable polyesters and polyurethanes useful as controlled release agents. Used as a masking agent for metals; gravimetric detn. of K; KH-tartrate is used as primary alkalimetric standard. The acid and many of its derivs. are inexpensive resolving agents for chiral bases. Monomer for optically active polyamides. Pharmaceutical aid (buffering agent).
Mp 169-170°. $[\alpha]_D^{20}$ +12 (c, 20.0 in H_2O). pK_{a1} 2.98; pK_{a2} 4.34 (25°). Log P -3.27 (calc).

▶ Strong solns. mildly irritant ADI 30 mg/kg b.w. (1974, 1978). WW7875000

Mono-Na salt: [526-94-3]
[6131-98-2]
$C_4H_5NaO_6$ 172.07
$[\alpha]_D^{19}$ +21.8 (H_2O).

▶ WW8225000

Mono-K salt: Potassium bitartrate. Potassium acid tartrate. Cream of tartar. E336
[868-14-4]
$C_4H_5KO_6$ 188.178
Obt. from sediment in wine manuf. Cryst. Sol. H_2O.

Di-Na salt: Sodium tartrate. E335
[868-18-8]
$C_4H_4Na_2O_6$ 194.052
Cryst. + $2H_2O$. Loses H_2O at 120°.

K-Na salt: Sodium potassium tartrate. Rochelle salt. E337
[304-59-6]
$C_4H_4KNaO_6$ 210.16
Used in electroplating. Mild saline cathartic. Cryst. + $4H_2O$. Mp 70-80°. Loses $3H_2O$ at 100° and becomes anhyd. at 130-140°; dec. >220°.

Di-NH_4 salt: [3164-29-2]
[14307-43-8] $[\alpha]_D^{15}$ +34.6 (H_2O).

▶ WW8050000

(Na,K)Sb salt: See Bis[μ-[tartrato(4-)]] diantimonate(2-) in *The Combined Chemical Dictionary.*

Mono-Me ester: Monomethyl tartrate
[3333-46-8]
$C_5H_8O_6$ 164.115
Prisms (H_2O). Mp 76°. $[\alpha]_D^{18}$ +18.7 (H_2O).

Di-Me ester: Dimethyl tartrate
[608-68-4]
$C_6H_{10}O_6$ 178.141
Used in synth. of optically active 2-bromo ketones. Mp 48° Mp 62° (dimorph.).

Mono-Et ester: Monoethyl tartrate
[608-89-9]
$C_6H_{10}O_6$ 178.141
Prisms (EtOH). Mp 90° approx. $[\alpha]_D$ +21.8 (c, 2.2 in H_2O).

Di-Et ester: Diethyl tartrate. FEMA 2378
[87-91-2]
$C_8H_{14}O_6$ 206.195
Flavouring ingredient. d_4^{20} 1.2. Mp 17°. Bp_{15} 155-156°. $[\alpha]_D^{20}$ +7.5 ($CHCl_3$). n_D^{20} 1.4476.

▶ Fl. p. 93°.

Diisopropyl ester: Diisopropyl tartrate
[2217-15-4]
$C_{10}H_{18}O_6$ 234.249
Reagent for kinetic resolution of allylic alcohols. Hygroscopic. Mp 117-119°. Bp_{12} 152°. $[\alpha]_D^{20}$ +17 (neat).

▶ WW8100000

Dibutyl ester: Dibutyl tartrate
[87-92-3]
[15763-01-6]
$C_{12}H_{22}O_6$ 262.302
Mp 21-22°. Bp_5 175°. $[\alpha]_D^{20}$ +11.5 (neat).

*Mono-*tert*-butyl ester: Mono-*tert*-butyl tartrate*
[210056-53-4]
$C_8H_{14}O_6$ 206.195
Cryst. ($CHCl_3/C_6H_6$Mp 85°. $[\alpha]_{Hg}^{22}$ +9.88 (c, 1.0 in Me_2CO). CAS no. refers to Na salt.

*Di-*tert*-butyl ester: Di-*tert*-butyl tartrate*
[117384-45-9]
$C_{12}H_{22}O_6$ 262.302
Mp 91°. $[\alpha]_{Hg}^{22}$ +12.2 (c, 1.0 in Me_2CO).

Di-2-propenyl ester: Diallyl tartrate
[57833-54-2]
$C_{10}H_{14}O_6$ 230.217
Liq. d^{20} 1.2. Bp_4 162°. n_D^{20} 1.4738. Undergoes radical homopolym. and copolym.

Di-Ph ester: Diphenyl tartrate
[143262-88-8]
$C_{16}H_{14}O_6$ 302.283
Needles. Mp 101-102°.

Dibenzyl ester: [622-00-4]
$C_{18}H_{18}O_6$ 330.337
Cryst. Mp 49-50°. $[\alpha]_D^{24}$ -10.2 (c, 1.03 in $CHCl_3$).

Amide, Me ester: [67812-37-7]
$C_5H_9NO_5$ 163.13
Cryst. ($MeOH/CHCl_3$). Mp 136.5-140°.

Diamide: Tartramide
[634-63-9]
$C_4H_8N_2O_4$ 148.118
Mp 195-196°. $[\alpha]_D$ +106.5 (H_2O).

Methylamide: 2,3-Dihydroxy-4-(methylamino)-4-oxobutanoic acid, 9CI
[190712-89-1]
$C_5H_9NO_5$ 163.13
Cryst. (EtOAc/hexane). Mp 154-156°. $[\alpha]_D^{20}$ +86.8 (c, 1 in H_2O).

Methylamide, Me ester: [190712-93-7]
$C_6H_{11}NO_5$ 177.157
Cryst. ($MeOH/Et_2O$). Mp 139-143°. $[\alpha]_D^{20}$ +130.5 (c, 1 in H_2O).

*Methylamide, amide: 2,3-Dihydroxy-*N*-methylbutanediamide, 9CI*
[190712-95-9]
$C_5H_{10}N_2O_4$ 162.145
Cryst. (MeOH aq.). Mp 202-204°. $[\alpha]_D^{20}$ +126 (c, 1 in H_2O).

*Bis(methylamide): 2,3-Dihydroxy-*N,N′*-butanediamide, 9CI*
[38115-91-2]
$C_6H_{12}N_2O_4$ 176.172
Cryst. (MeOH). Mp 198-200°. $[\alpha]_D^{20}$ +138.1 (c, 1 in MeOH).

Dimethylamide: 4-(Dimethylamino)-2,3-dihydroxy-4-oxobutanoic acid
[190712-90-4]
$C_6H_{11}NO_5$ 177.157
Thick oil. $[\alpha]_D^{20}$ +3.6 (c, 1 in $CHCl_3$).

Dimethylamide, amide: 2,3-Dihydroxy-

N,N-*dimethylbutanediamide, 9CI*
[190712-97-1]
$C_6H_{12}N_2O_4$ 176.172
Needles (EtOAc). Mp 145-148°. $[\alpha]_D^{20}$ +29 (c, 1 in MeOH).

Dimethylamide, Me ester: [137618-60-1]
$C_7H_{13}NO_5$ 191.183
Cryst. (EtOAc/Et_2O). Mp 48-51°. $[\alpha]_D^{21}$ -20 (c, 1 in MeOH).

*Dimethylamide, methylamide: 2,3-Dihydroxy-*N,N,N′*-trimethylbutanediamide, 9CI*
[190712-99-3]
$C_7H_{14}N_2O_4$ 190.199
Oil. $[\alpha]_D^{20}$ +38.3 (c, 1 in MeOH).

Bis(dimethylamide): [26549-65-5]
$C_8H_{16}N_2O_4$ 204.225
Cryst. (MeOH/EtOAc). Mp 189-190°. $[\alpha]_D^{20}$ +45 (c, 3 in EtOH).

Bis(2-propenylamide): N,N′*-Diallyltartramide*
[58477-85-3]
[28843-34-7]
$C_{10}H_{16}N_2O_4$ 228.247
Cross-linking agent for polyacrylamide gels. Plates (EtOH/EtOAc). Mp 183°. $[\alpha]_D^{20}$ +119.8 (c, 2.9 in MeOH).

Bis(benzylamide): [88393-56-0]
$C_{18}H_{20}N_2O_4$ 328.367
Catalyst for the synth. of chiral epoxides. Mp 198-200°. $[\alpha]_D^{20}$ +83 (c, 5.5 in Py).

Dianilide: [5470-13-3]
$C_{16}H_{16}N_2O_4$ 300.313
Solid (EtOAc). Mp 258°. $[\alpha]_D^{20}$ +196.8 (c, 1 in Py).

Imide: See 3,4-Dihydroxy-2,5-pyrrolidinedione in *The Combined Chemical Dictionary.*

*Di-Ac: 2,3-Di-*O*-acetyltartaric acid. Diacetoxysuccinic acid*
[51591-38-9]
$C_8H_{10}O_8$ 234.162
Cryst. + 3H_2O (Et_2O). Sol. H_2O. Mp 58°. $[\alpha]_D^{22}$ -23.04 (H_2O).

*Di-Ac, anhydride: 3,4-Diacetoxy-3,4-dihydro-2,5(*2H,5H*)-furandione, 9CI*
[6283-74-5]
$C_8H_8O_7$ 216.147
Mp 133-134°. $[\alpha]_D^{20}$ +97.2 (c, 0.47 in $CHCl_3$).

Bis(2,2-dimethylpropanoyl): Dipivaloyltartaric acid
[65259-81-6]
$C_{14}H_{22}O_8$ 318.323
Catalyst for asymmetric protonations. Mp 130-132°. $[\alpha]_D^{25}$ -24 (c, 1.7 in dioxan).

Monobenzoyl: Monobenzoyltartaric acid
[87172-82-5]
$C_{11}H_{10}O_7$ 254.196
Mp 203°. $[\alpha]_D^{20}$ -6.4 (c, 1.16 in EtOH).

Dibenzoyl: Dibenzoyltartaric acid
[2743-38-6]
$C_{18}H_{14}O_8$ 358.304
Resolving agent. Mp 152-155° Mp 84-87° (45.5°). Bp_7 234°. $[\alpha]_D$ -125 (c, 1.13 in EtOH) (-116). Forms a monohydrate.

*Bis-4-methylbenzoyl: Di-*p*-toluoyl tartrate*
[32634-66-5]
$C_{20}H_{18}O_8$ 386.357
Resolving agent. Mp 169-171°. $[\alpha]_D$ -141 (EtOH).

*Mono(4-hydroxy-*E*-cinnamoyl):* **trans-*Coutaric acid***. trans-p-*Coumaroyltartaric acid*
[27174-07-8]
[69222-59-9]
$C_{13}H_{12}O_8$ 296.233
Constit. of grapes. Cryst. + 1H_2O (H_2O). Mp 194-195° dec.

Mono(4-hydroxy-Z-cinnamoyl): **cis-*Coutaric acid***. cis-p-*Coumaroyltartaric acid*
[67920-37-0]
$C_{13}H_{12}O_8$ 296.233
Constit. of grapes.

Mono(3,4-dihydroxycinnamoyl): Monocaffeoyltartaric acid. ***Caftaric acid****. Caffeoyltartaric acid*
[67879-58-7]
$C_{13}H_{12}O_9$ 312.232
Constit. of grapes. Also isol. from *Echinacea* spp. and *Orthosiphon aristatus*. Powder.
Mp 125° dec. $[\alpha]_D$ -28.2.

2-(3,4-Dihydroxycinnamoyl), 3-(4-hydroxycinnamoyl): ***Caffeoyl-*p*-coumaroyltartaric acid***
[116064-67-6]
$C_{22}H_{18}O_{11}$ 458.378
Isol. from *Echinacea purpurea*. Yellow powder.
Mp 200° dec.

Bis(3,4-dihydroxycinnamoyl): See Chicoric acid in *The Combined Chemical Dictionary.*

Mono(4-hydroxy-3-methoxycinnamoyl): ***Feruloyltartaric acid****. Monoferuloyltartaric acid*
[1044-65-1]
$C_{14}H_{14}O_9$ 326.259
Isol. from *Ferula purpurea*. Beige powder.
Mp 175° dec.

*2,3-*O*-Isopropylidene, di-Me ester:* See 2,2-Dimethyl-1,3-dioxolane-4,5-dicarboxylic acid in *The Combined Chemical Dictionary.*

*2,3-*O*-Benzylidene, di-Me ester: Dimethyl-2-phenyl-1,3-dioxolane-4,5-dicarboxylate*
[38270-72-3]
$C_{13}H_{14}O_6$ 266.25
Cryst. ($CHCl_3$/hexane). Mp 74-76°. $[\alpha]_D^{20}$ -47.2 (c, 1 in MeOH).

*2,3-*O*-Benzylidene, di-Et ester:* [35572-31-7]
$C_{15}H_{18}O_6$ 294.304
Yellow cryst. Mp 45°. $[\alpha]_D^{20}$ -30.7 (c, 2.20 in $CHCl_3$).

Mono-Me ether: 2-Hydroxy-3-methoxybutanedioic acid
[87172-83-6]
$C_5H_8O_6$ 164.115
Prisms (Et_2O). Mp 179°. $[\alpha]_D$ +45.2 (c, 2 in H_2O).

Di-Me ether: See 2,3-Dimethoxybutanedioic acid, D-722

Di-Et ether: 2,3-Diethoxybutanedioic acid
[123529-99-7]
$C_8H_{14}O_6$ 206.195
Prisms (H_2O). Mp 126-128°. $[\alpha]_D^{20}$ +66.3 (c, 10 in H_2O). pK_a 3.01.

*Mono-*tert*-butyl ether: 2-*tert*-Butoxy-3-hydroxybutanedioic acid*
[119197-65-8]
$C_8H_{14}O_6$ 206.195
Mp 67°. $[\alpha]_D^{22}$ +46 (c, 1.0 in Me_2CO).

*Di-*tert*-butyl ether: 2,3-Di-*tert*-butoxybutanedioic acid*
[119197-66-9]
$C_{12}H_{22}O_6$ 262.302
Mp 134°. $[\alpha]_{Hg}^{22}$ +54.7 (c, 1 in Me_2CO).

(2*S*,3*S*)-*form*

D-form. D-Threaric acid
[147-71-7]
Found only in fruits and leaves of the West African tree *Bankinia reticulata* and combined as Chicoric acid (see below). Mp 169-170°. $[\alpha]_D^{20}$ -20 (c, 20.0 in H_2O). Not used commercially.

Mono-Me ester: [89395-25-5]
$[\alpha]_D^{20}$ -2.6 (c, 3.3 in H_2O).

Di-Me ester: [13171-64-7]
Mp 48°. $Bp_{11.5}$ 158°.

Di-Et ester: [13811-71-7] Bp_{19} 162°.

Diisopropyl ester: [62961-64-2] Catalyst for asymmetric epoxidations. $[\alpha]_D^{23}$ -17 (neat).

Bis(dimethylamide): [63126-52-3]
Mp 185°. $[\alpha]_D^{20}$ -45 (EtOH).

Bis(benzylamide): [108321-43-3] Catalyst for the synth. of chiral epoxides.
Mp 198-200°. $[\alpha]_D^{20}$ -83 (c, 5.5 in Py).

Bis(2,2-dimethylpropanoyl): [76969-55-6]
Mp 127-130°. $[\alpha]_D^{20}$ +24 (c, 1 in dioxan).

Monobenzoyl: [65582-57-2]
Mp 205-206°. $[\alpha]_D^{24}$ -5.1 (c, 1.3 in EtOH).

Dibenzoyl: [17026-42-5]
[52223-88-8] Resolving agent. Mp 154-156°. Bp 93°. $[\alpha]_D^{28}$ +116 (c, 9 in EtOH).

Bis-4-methylbenzoyl: [32634-68-7] Resolving agent for amines.
Cryst. (C_6H_6). Mp 173°. $[\alpha]_D^{20}$ +140 (c, 1 in EtOH).

Mono(3,4-dihydroxycinnamoyl): ***Monocaffeoyl(-)-tartaric acid***
$C_{13}H_{12}O_9$ 312.232
Isol. from chicory (*Cichorium intybus*).
Mp 146-147°. $[\alpha]_D$ +37 (H_2O).

Bis(3,4-dihydroxycinnamoyl): See Chicoric acid in *The Combined Chemical Dictionary.*

*2,3-*O*-Isopropylidene, di-Me ester:* See 2,2-Dimethyl-1,3-dioxolane-4,5-dicarboxylic acid in *The Combined Chemical Dictionary.*

*2,3-*O*-Benzylidene, di-Me ester:* [91326-83-9] Used to synthesise chiral tartrate-derived diols and epoxides.
Cryst. ($CHCl_3$/hexane). Mp 74-76°. $Bp_{0.15}$ 147-149°. $[\alpha]_D^{23}$ +46.3 (c, 1.02 in MeOH).

(2*RS*,3*RS*)-*form*

(±)-form. Paratartaric acid
[133-37-9]
Formed by heating the (+)-acid. Mp 205-206°. The first racemate to be separated into its enantiomers.
▶ Fl. p. 210° (oc), autoignition temp. 425°.

Di-Me ester: [608-69-5]
Mp 84° Mp 90° (dimorph.). Bp_{12} 158°.

Di-Et ester: [57968-71-5] $Bp_{11.5}$ 157°.

Di-Ac, dinitrile:
$C_8H_8N_2O_4$ 196.162
Mp 97-98°.

Di-Me ether: See 2,3-Dimethoxybutanedioic acid, D-722

(2RS,3SR)-form

meso-*form*. *Racemic acid. Mesotartaric acid. Erythraric acid*
[147-73-9]
Mp 159-160°. pK_{a1} 3.17; pK_{a2} 4.91 (25°). Not found in nature.

Di-Me ester: [5057-96-5]
Mp 111°.

Di-Et ester: [21066-72-8]
Mp 55°.

Dinitrile: [76110-75-3]
$C_4H_4N_2O_2$ 112.088
Plates or prisms (Et_2O). Sol. H_2O. Mp 131° dec. Unstable.

Monobenzoyl: Benzoyl meso-*tartaric acid*
[65621-34-3]
$C_{11}H_{10}O_7$ 254.196
Constit. of alfalfa (*Medicago sativa*).
Cryst.
Mp 192-196° (190-193°).

Dibenzoyl, anhydride:
$C_{18}H_{12}O_7$ 340.289
Mp 207-208°.

*Mono(4-hydroxy-*E*-cinnamoyl): Mono-*trans-p-*coumaroylmesotartaric acid*
[27174-06-7]
[37551-71-6]
$C_{13}H_{12}O_8$ 296.233
Constit. of spinach leaves (*Spinacia oleracea*). Platelets + ½H_2O (H_2O).
Mp 198-200° dec.

*2-*O*-(4-Hydroxy-*E*-cinnamoyl), 3-Ac:* ***2-O-Acetyl-*trans*-coutaric acid***. *2-*O*-Acetyl-3-*trans-O-p-*coumaroyltartaric acid*
[106928-35-2]
[35214-72-3]
$C_{15}H_{14}O_9$ 338.27
Constit. of spinach.
Mp 194-198° dec. λ_{max} 226; 312 (MeOH).

*Mono(4-hydroxy-*Z*-cinnamoyl): Mono-***cis-p-coumaroylmesotartaric acid***
$C_{13}H_{12}O_8$ 296.233
Constit. of spinach leaves (*Spinacea oleracea*).

*2-*O*-(4-Hydroxy-*Z*-cinnamoyl), 3-Ac:* ***2-O-Acetyl-*cis*-coutaric acid***. *2-*O*-Acetyl-3-*O-cis-p-*coumaroyltartaric acid*
$C_{15}H_{14}O_9$ 338.27
Constit. of spinach leaves (*Spinacea oleracea*).

Mono-Me ether: $Bp_{0.04}$ 100-105°.

Di-Me ether: See 2,3-Dimethoxybutanedioic acid, D-722

[133-48-2, 921-53-9, 1234-09-9, 3164-34-9, 3715-17-1, 6381-58-4, 6381-59-5, 14475-11-7, 18261-99-9, 38270-70-1, 40968-90-9, 84519-50-6, 117384-46-0, 174873-60-0]

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Welcher, F.J. *et al., Organic Analytical Reagents*, Van Nostrand, New York, 1947, **2**, 176 (*use*)
Bijvoet, J.M. *et al., Nature (London)*, 1951, **168**, 271-272 (*cryst struct*)
Van Bommel, A.J. *et al., Acta Cryst.*, 1958, **11**, 61-70 (*cryst struct*)
Scarpati, M.L. *et al., Ric. Sci.*, 1960, **30**, 1746 (*Monocaffeoyl(-)tartaric acid*)
Org. Synth., Coll. Vol., 4, 1963, 242 (*anhydride*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1967, **1**, 351; **13**, 124; 276; **11**, 298 (*use*)
Minoura, Y. *et al., J. Polym. Sci., Part A-1*, 1967, **5**, 2441-2451 (*polyamides*)
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Yoshihara, T. *et al., Agric. Biol. Chem.*, 1977, **41**, 2427-2429 (*benzoyltartaric acid*)
Stothers, J.B. *et al., Can. J. Chem.*, 1977, **55**, 841-848 (*cmr*)
Musich, J.A. *et al., J.A.C.S.*, 1978, **100**, 4865-4872 (*isopropylidene, di-Me ester, synth*)
Albertsson, J. *et al., J. Appl. Crystallogr.*, 1979, **12**, 537-544 (*cryst struct*)
Ohata, T. *et al., J. Polym. Sci., Polym. Chem. Ed.*, 1980, **18**, 467-475; 1011-1019 (*polym, diallyl ester*)
Ul Hasan, B. *et al., Org. Magn. Reson.*, 1980, **14**, 309-311 (*cmr*)
Baronowski, J.D. *et al., Am. J. Enol. Vitic.*, 1981, **32**, 5-13 (*Caftaric acid, isol*)
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Becker, H. *et al., Z. Naturforsch., C*, 1985, **40**, 585-587 (*Chicoric acid derivs*)
Castaldi, G. *et al., Angew. Chem., Int. Ed.*, 1986, **25**, 259-260 (*use, di-Me ester*)
Strack, D. *et al., Phytochemistry*, 1987, **26**, 107-111 (*Coutaric acids*)
DiBenedetto, L.J. *et al., Polym. Mater. Sci. Eng.*, 1987, **57**, 404-407; 1988, **59**, 812-816 (*polymers*)
Soicke, H. *et al., Planta Med.*, 1988, **54**, 175 (*Chicoric acid analogues*)
Uray, G. *et al., Tetrahedron*, 1988, **44**, 4357-4362 (*tert-butyl esters, tert-butyl ethers*)
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Org. Synth., Coll. Vol., 9, 1998, 39-45 (*benzylidene Et ester*)
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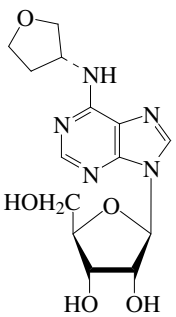
Goetz, G. *et al., Phytochemistry*, 1999, **52**, 759-767 (*Coutaric acids*)
Bergman, M. *et al., Phytochemistry*, 2001, **58**, 143-152 (*Spinacea coumaroyl esters*)
Massicot, F. *et al., Synthesis*, 2001, 2441-2444 (*dianilide, bisbenzylamide*)
Luner, P. *et al., Acta Cryst. C*, 2002, **58**, o333-o335 (*cryst struct*)
Bretherick, L. *et al., Handbook of Reactive Chemical Hazards, 2nd edn., Butterworths*, 1979, 486
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, DCH000; TAF750

Tecadenoson, INN, USAN T-13

N-*(Tetrahydro-3-furanyl)adenosine.* N-*(3-Tetrahydrofuranyl)-6-aminopurine riboside. CVT 510*
[204512-89-0]
[204512-90-3, 204512-92-5]



$C_{14}H_{19}N_5O_5$ 337.335
Adenosine A_1 receptor agonist.
Antirrhythmic agent.

Pat. Coop. Treaty (WIPO), 1998, 98 08 855, (*CV Therapeutics*); *CA*, **128**, 230635b (*synth, isomers, pharmacol*)
Snowdy, S. *et al., Br. J. Pharmacol.*, 1999, **126**, 137-146 (*pharmacol*)
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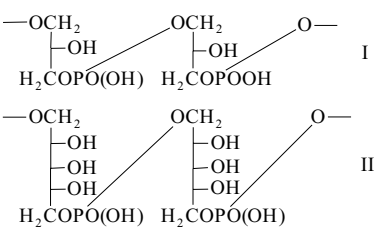
Fraser, H. *et al., J. Pharmacol. Exp. Ther.*, 2003, **305**, 225-231 (*pharmacol*)

Teichoic acid T-14

[9041-38-7]



I

II

Teichoic acids are polymers of glycerol or ribitol phosphate in which some of the free hydroxyl groups may be glycosylated or esterified with D-alanine. Prominent constits. (along with peptidoglycan and other heteropolysaccharides) of the cell walls or envelopes which surround the cytoplasmic membrane of gram-positive bacteria cells. There are two major classes; those which occur in the wall, covalently linked to the peptidoglycan, and those known as lipoteichoic acids, which are situated on the surface of the cytoplasmic membrane and are covalently linked to the glycolipid located within the membrane. The former class of polymers contain glycerol and ribitol phosphates (I and II) and they comprise a major part of the purified cell walls (30-50%). The lipoteichoic acids are formed exclusively from glycerol phosphate (I); see separate entry Lipoteichoic acids, L-45.

Archibald, A.R. *et al., Adv. Carbohydr. Chem.*, 1966, **21**, 323 (*rev*)
Baddiley, J. *et al., Essays Biochem.*, 1972, **8**, 35 (*rev*)
Archibald, A.R. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 162 (*isol*)
Sharon, N. *et al., Complex Carbohydrates*, Addison-Wesley, 1975, 322
Duckworth, M. *et al., Surf. Carbohydr. Prokaryotic Cell*, Academic Press, 1977, 177 (*rev*)
Tarelli, E. *et al., Carbohydr. Res.*, 1979, **75**, 31-37 (*cmr*)
Pooley, H.M. *et al., New Compr. Biochem.*, 1994, **27**, 187 (*rev*)

Teichuronic acid T-15

[37251-79-9]

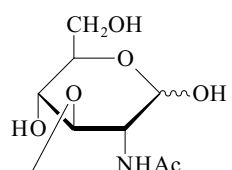
α-D-Glc*p*-(1→4)-[β-D-Man*p*N*Ac*A-(1→6)-α-D-Glc*p*]$_n$Cell wall component of some Gram positive bacteria incl. members of the genrera *Bacillus* and *Micrococcus*. Struct. shown is that of the teichuronic acid from *M. luteus*. Those from other souces vary.

Hase, S. *et al., J. Biochem. (Tokyo)*, 1972, **72**, 1549 (*struct*)
Ivatt, R.J. *et al., J. Biol. Chem.*, 1979, **254**, 2759 (*isol*)
Johnson, S.D. *et al., Biochemistry*, 1981, **20**, 4781 (*isol, cmr*)
Goustin, A. *et al., Carbohydr. Res.*, 1983, **119**, 258 (*isol, pmr*)
Shashkov, A.S. *et al., Biochim. Biophys. Acta*, 1994, **1201**, 333 (*occur*)

Temurtide, BAN, INN, USAN T-16

N^2-*[N-(N-Acetylmuramoyl)-L-threonyl]-D-α-glutamine, 9CI. RS 37449*

[66112-59-2]



$H_3CCHCO{-}L{-}Thr{-}D{-}Glu(OH){-}NH_2$

$C_{20}H_{34}N_4O_{12}$ 522.508

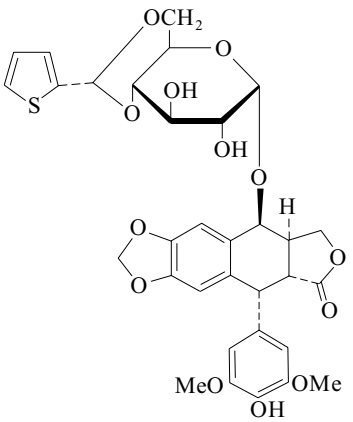
Immunostimulant, immunomodulator. $[\alpha]_D^{27}$ +51.3 (c, 0.4 in EtOH).

Kobayashi, S. *et al., Bull. Chem. Soc. Jpn.*, 1980, **53**, 2570 (*synth*)
Azuma, I. *et al., Infect. Immun.*, 1980, **29**, 1193 (*activity*)
Waters, R.V. *et al., J. Reticuloendothel. Soc.*, 1980, **28**, 457 (*activity*)
Waters, R.V. *et al., Infect. Immun.*, 1986, **51**, 816 (*pharmacol*)
Allison, A.C. *et al., Mol. Immunol.*, 1991, **28**, 279 (*props*)

Teniposide, BAN, INN, USAN T-17

9-(4,6-O-2-Thienylidene-β-D-glucopyranoside)-4′-demethylepipodophyllotoxin, 8CI. Vumon. EPT. NSC 122819. Vehem-Sanoloz. VM 26

[29767-20-2]



$C_{32}H_{32}O_{13}S$ 656.663

Closely related to Etoposide, E-31. DNA topoisomerase II inhibitor. Antineoplastic agent. Used in combination therapies. Cryst. (EtOH). Mp 242-246°. $[\alpha]_D^{20}$ -107 ($CHCl_3$/MeOH). Log P -0.75 (uncertain value) (calc).

▶ Adverse haemopoietic and other effects when used therapeutically. LD_{50} (mus, ipr) 29.6 mg/kg. Exp. reprod. and teratogenic effects. Probable human carcinogen (IARC 2A). KC0180000

[89301-94-0]

Stähelin, H. *et al., Eur. J. Cancer*, 1970, **6**, 303 (*pharmacol*)
U.S. Pat., 1970, 3 524 844, (*Sandoz*); *CA*, **70**, 78340a (*synth*)
Allen, L. *et al., Drug Metab. Rev.*, 1978, **8**, 119 (*rev, metab*)
Issell, B.F. *et al., Cancer Chemother. Pharmacol.*, 1982, **7**, 73; 87; 93; 133
Kettenes-van den Bosch, J.J. *et al., Anal. Profiles Drug Subst.*, 1990, **19**, 575 (*rev*)
Stähelin, H.F. *et al., Cancer Res.*, 1991, **51**, 5 (*rev*)
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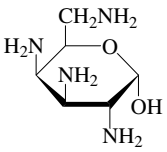
Cragg, G. *et al., Anticancer Drugs: Antimetabolite Metabolism and Natural Anticancer Agents*, (ed. Powis, G.), Pergamon Press, 1994, 364 (*rev*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 602
Andreassen, P.R. *et al., J. Cell Biol.*, 1997, **136**, 29 (*pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, EQP000

2,3,4,6-Tetraamino-2,3,4,6-tetradeoxygalactose T-18



α-D-Pyranose-*form*

$C_6H_{16}N_4O_2$ 176.218

D-Pyranose-*form*

Cryst. (as tetrahydrochloride). Mp 270° dec. (tetrahydrochloride). $[\alpha]_D^{20}$ +6 → 0 (c, 0.5 in H_2O).

2N,3N,4N,6N-Tetra-Ac: [28079-69-8]
$C_{14}H_{24}N_4O_6$ 344.367
Cryst. Mp 205-207°. $[\alpha]_D^{20}$ +48 → +31.5 (c, 1.0 in H_2O).

α-D-Pyranose-*form*

Me glycoside, 2N,3N,4N,6N-tetra-Ac: [17117-70-3]
$C_{15}H_{26}N_4O_6$ 358.394
Cryst. (2-propanol). Mp 285° dec. $[\alpha]_D^{21}$ +118 (c, 0.35 in H_2O).

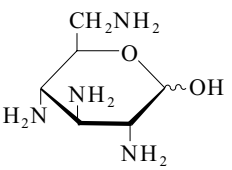
Benzyl glycoside: [33648-16-7]
$C_{13}H_{22}N_4O_2$ 266.342
Cryst. (EtOH aq.) (as tetrahydrochloride). Mp 181-183° (tetrahydrochloride). $[\alpha]_D^{20}$ +99 (c, 1.0 in H_2O).

Benzyl glycoside, 2N,3N,4N,6N-tetra-Ac: [33648-17-8]
$C_{21}H_{30}N_4O_6$ 434.491
Cryst. (EtOH). Mp 276-277°. $[\alpha]_D^{20}$ +183.5 (c, 1.0 in DMSO).

[33640-19-6]

Ali, Y. *et al., J.C.S.(C)*, 1968, 1764 (*α-D-Me pyr tetra-Ac*)
Meyer zu Reckendorf, W. *et al., Chimia*, 1970, **24**, 16 (*α-D-benzyl pyr derivs*)

2,3,4,6-Tetraamino-2,3,4,6-tetradeoxyglucose T-19



$C_6H_{16}N_4O_2$ 176.218

D-*form*

Hydrochloride (1:4): [52887-78-2]
Mp 166° dec. $[\alpha]_D$ +8 → +10 (c, 1.0 in H_2O).

α-D-Pyranose-*form*

Tetra-N-Ac: 2,3,4,6-Tetraacetamido-2,3,4,6-tetradeoxy-α-D-glucopyranose
$C_{14}H_{24}N_4O_6$ 344.367
Mp 273-274°. $[\alpha]_D$ +55 → +33.5 (c, 1.0 in H_2O).

N-*Tetrabenzoyl:* [52887-75-9]
$C_{34}H_{32}N_4O_6$ 592.65
Cryst. (EtOH). Mp 275-285° dec. $[\alpha]_D^{20}$ +68 (c, 0.5 in Py).

Benzyl glycoside: Benzyl 2,3,4,6-tetraamino-2,3,4,6-tetradeoxy-α-D-glucopyranoside
$C_{13}H_{22}N_4O_2$ 266.342
$[\alpha]_D^{20}$ +88 (c, 0.5 in H_2O). Obt. as tetrahydrochloride.

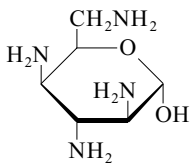
Benzyl glycoside, hydrochloride (1:4):
[52887-72-6]
Hygroscopic powder. $[\alpha]_D^{20}$ +88 (c, 0.5 in H_2O).

*Benzyl glycoside, tetra-*N*-Ac: Benzyl 2,3,4,6-tetraacetamido-2,3,4,6-tetradeoxy-α-D-glucopyranoside*
$C_{21}H_{30}N_4O_6$ 434.491
Mp 351-352°. $[\alpha]_D$ +135 (c, 0.5 in DMSO).

*Benzyl glycoside, tetra-*N*-benzoyl: Benzyl 2,3,4,6-tetrabenzamido-2,3,4,6-tetradeoxy-α-D-glucopyranoside*
$C_{41}H_{38}N_4O_6$ 682.774
Mp 325-327°. $[\alpha]_D^{20}$ +158 (c, 0.5 in 3:1 $CHCl_3$/DMSO).

Meyer zu Reckendorf, W. *et al., Chem. Ber.*, 1974, **107**, 1188 (*synth*)

2,3,4,6-Tetraamino-2,3,4,6-tetradeoxyidose T-20



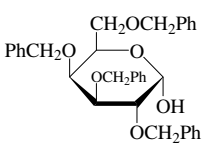
$C_6H_{16}N_4O_2$ 176.218

α-D-Pyranose-*form*

*Me glycoside, 2*N*,3*N*,4*N*,6*N*-tetra-Ac: Methyl 2,3,4,6-tetraacetamido-2,3,4,6-tetradeoxy-α-D-idopyranoside*
[17014-18-5]
$C_{15}H_{26}N_4O_6$ 358.394
Cryst. (EtOH aq.). $[\alpha]_D^{21}$ +42 (c, 0.5 in H_2O). Dec. >260° without melting.

Ali, Y. *et al., Chem. Comm.*, 1967, 554 (*tetra-Ac*)
Ali, Y. *et al., J.C.S.(C)*, 1968, 1764 (*tetra-Ac, pmr*)

2,3,4,6-Tetra-*O*-benzylgalactose, 9CI T-21



α-D-Pyranose-*form*

$C_{34}H_{36}O_6$ 540.655

α-D-Pyranose-*form*
Cryst. (Et_2O/petrol). Mp 72°. $[\alpha]_D^{20}$ +80.6 (c, 1 in C_6H_6).

*Ac: 1-*O*-Acetyl-2,3,4,6-tetra-*O*-benzyl-α-D-galactopyranose*
$C_{36}H_{38}O_7$ 582.692
Cryst. (Et_2O/petrol). Mp 67-69°. $[\alpha]_D$ +95 (c, 2 in C_6H_6).

*Tetramethylphosphoramidate: 2,3,4,6-Tetra-*O*-benzyl-α-D-galactopyranosyl tetramethylphosphoramidate*
$C_{38}H_{47}N_2O_7P$ 674.772
No phys. props. reported.

β-D-Pyranose-*form*

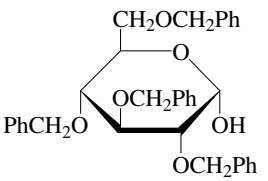
*Ac: 1-*O*-Acetyl-2,3,4,6-tetra-*O*-benzyl-β-D-galactopyranose*
$C_{36}H_{38}O_7$ 582.692
Mp 99-101°. $[\alpha]_D$ +24 (c, 2.9 in C_6H_6).

4-Nitrobenzoyl: [53081-29-1]
Mp 105.5-106°. $[\alpha]_D$ -43 (c, 1 in $CHCl_3$).

*Me glycoside: Methyl 2,3,4,6-tetra-*O*-benzyl-β-D-galactopyranoside*
[3879-79-6]
$C_{35}H_{38}O_6$ 554.682
Mp 84-85°. $[\alpha]_D^{25}$ +17 (c, 3.6 in dioxan).

Austin, P.W. *et al., J.C.S.*, 1965, 1419 (*α-D-pyr, α-D-pyr Ac,β-D-pyr Ac*)
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056 (*β-D-nitrobenzoyl*)
Brodde, O.-E. *et al., Carbohydr. Res.*, 1976, **48**, 299 (*α-D-pyr*)
Bieg, T. *et al., Carbohydr. Res.*, 1990, **205**, C10 (*synth*)
Hashimoto, S. *et al., Tet. Lett.*, 1992, **33**, 3523 (*phosphoramidate*)
Xie, J. *et al., J. Carbohydr. Chem.*, 1999, **18**, 481-498 (*synth*)

2,3,4,6-Tetra-*O*-benzylglucose T-22



α-D-*form*

$C_{34}H_{36}O_6$ 540.655

α-D-Pyranose-*form* [6564-72-3]
[38768-81-9]
Needles (MeOH). Mp 151-152°. $[\alpha]_D^{20}$ +21.7 (c, 2.2 in $CHCl_3$).

1-(4-Nitrobenzoyl):
Needles (diisopropyl ether). Mp 127-129°. $[\alpha]_D^{21}$ +73 (c, 2.1 in $CHCl_3$).

*Me glycoside: Methyl 2,3,4,6-tetra-*O*-benzyl-α-D-glucopyranoside*
[17791-37-6]
$C_{35}H_{38}O_6$ 554.682
Syrup. $[\alpha]_D^{20}$ +23.8 ($CHCl_3$).

β-D-Pyranose-*form*
[38768-81-9]

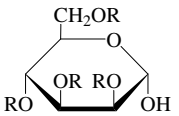
1-(4-Nitrobenzoyl): Mp 96-98°. $[\alpha]_D$ -26 (c, 6.0 in dioxan).

*Me glycoside: Methyl 2,3,4,6-tetra-*O*-benzyl-β-D-glucopyranoside*
[19488-61-0]
$C_{35}H_{38}O_6$ 554.682
Mp 68-69°. $[\alpha]_D^{23}$ +11 (c, 5.0 in dioxan).

*1-Hexadecanoyl: 2,3,4,6-Tetra-*O*-benzyl-1-O-hexadecanoyl-β-D-glucopyranose*
[59473-44-8]
$C_{50}H_{66}O_7$ 779.067
Cryst. (EtOH). Mp 52-53°. $[\alpha]_D^{25}$ -9.1 (c, 1.0 in CH_2Cl_2).

Tate, M.E. *et al., Can. J. Chem.*, 1963, **41**, 1801 (*α-D-pyr, synth, α-D-pyr nitrobenzoyl, α-D-Me pyr*)
Perrine, T.D. *et al., J.O.C.*, 1967, **32**, 664 (*α-D-pyr, synth*)
Glaudemans, C.P.J. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 373 (*synth, α-D-pyr, α-D-pyr nitrobenzoyl, β-D-pyr nitrobenzoyl*)
Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4056 (*β-D-Me pyr*)
Pfeffer, P.E. *et al., J.O.C.*, 1976, **41**, 2925 (*β-D-pyr 1-hexadecanoyl*)
Bieg, T. *et al., Carbohydr. Res.*, 1990, **205**, C10 (*synth*)

2,3,4,6-Tetra-*O*-benzylmannose T-23



α-D-Pyranose-*form*

R = CH_2Ph

$C_{34}H_{36}O_6$ 540.655

D-Pyranose-*form* [78609-16-2]
Syrup. $[\alpha]_D^{20}$ +11 (c, 0.9 in $CHCl_3$). Anomeric mixt.

α-D-Pyranose-*form*
$[\alpha]_D$ +12.8 (c, 1.5 in $CHCl_3$).

*Ac: 1-*O*-Acetyl-2,3,4,6-tetra-*O*-benzyl-α-D-mannopyranose*
[83462-68-4]
$C_{36}H_{38}O_7$ 582.692
Syrup. $[\alpha]_D^{27}$ +29.3 (c, 1.3 in $CHCl_3$).

4-Nitrobenzoyl: [61375-73-3]
Cryst. (diisopropyl ether). Mp 106.5-107°. $[\alpha]_D^{20}$ +59 (c, 0.8 in $CHCl_3$).

*Me glycoside: Methyl 2,3,4,6-tetra-*O*-benzyl-α-D-mannopyranoside*
[61330-62-9]
$C_{35}H_{38}O_6$ 554.682
Syrup. $Bp_{0.01}$ 240-245°. $[\alpha]_D^{25}$ +31.57 (c, 1.38 in $CHCl_3$).

β-D-Pyranose-*form* [78609-17-3]

4-Nitrobenzoyl: [61375-74-4]
Syrup. $[\alpha]_D^{20}$ -11 (c, 0.5 in $CHCl_3$).

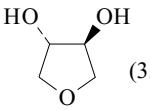
*Methyl glycoside: Methyl 2,3,4,6-tetra-*O*-benzyl-β-D-mannopyranoside*
[71526-33-5]
$C_{35}H_{38}O_6$ 554.682
Solid (petrol or MeOH). Mp 71-72°. $[\alpha]_D^{24}$ -55.1 (c, 0.44 in CH_2Cl_2).

[61330-61-8, 103368-00-9]

Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1976, **49**, 2639-2640 (*synth, α-D-Me pyr*)
Wulff, G. *et al., Chem. Ber.*, 1979, **112**, 2847-2853 (*β-D-Me pyr*)
Tamura, J. *et al., Carbohydr. Res.*, 1990, **207**, 153-165 (*α-D-pyr Ac*)
Liao, W. *et al., J. Carbohydr. Chem.*, 1997, **16**, 877-890 (*synth*)
Zhang, G. *et al., Synth. Commun.*, 1997, **27**, 1907-1917 (*α-D-Me pyr*)

Tetrahydro-3,4-furandiol, 9CI T-24

3,4-Dihydroxytetrahydrofuran
[27725-58-2]



(3*S*,4*S*)–*form*

$C_4H_8O_3$ 104.105

(3*S*,4*S*)-*form*
(-)-trans-*form. 1,4-Anhydro-L-threitol. L-Threitan*
[22554-74-1]
Hygroscopic liq. cryst. on standing. Mp 63-64°. $[\alpha]_D^{20}$ -4 (c, 7.2 in H_2O).

(3*RS*,4*RS*)-*form*
(±)-trans-*form. DL-Threitan*
[59727-71-8] Co-monomer in poly(alkylene phosphates). Mp 40°. Bp_{30} 59-60°.

(3*RS*,4*SR*)-*form*
cis-*form. 1,4-Anhydroerythritol. Erythritan*
[4358-64-9] Synthetic intermed. Monomer used in epoxy resins.
Hygroscopic liq. or cryst. which quickly liquefy on standing. $Bp_{0.1}$ 86-88°. n_D^{22} 1.4812.

Bis-4-nitrobenzoyl: Mp 176-177° (173-174°).

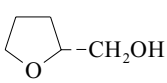
Bis(4-methylbenzenesulfonyl):
Cryst. (MeOH). Mp 91.5-92.5°.

[473-85-8, 84709-85-3]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 387A (*nmr*)
Klosterman, H. *et al., J.A.C.S.*, 1952, **74**, 5336 (*synth*)
Brimacombe, J.S. *et al., Tetrahedron*, 1958, **4**, 351 (*synth*)
Haines, A.H. *et al., Carbohydr. Res.*, 1973, **27**, 261 (*synth*)
Ritchie, R.G.S. *et al., Can. J. Chem.*, 1975, **53**, 1424 (*cmr*)
Goodwin, J.C. *et al., Carbohydr. Res.*, 1975, **44**, 106
Wachenfeld, E. *et al., Polymer*, 1987, **28**, 817 (*epoxy resins*)
Lapienis, G. *et al., J. Polym. Sci., Part A: Polym. Chem.*, 1990, **28**, 1743 (*polymers*)
Terfort, A. *et al., Synthesis*, 1992, 951 (*synth, ms, ir, pmr, cmr*)

Tetrahydro-2-furanmethanol, 9CI T-25

Tetrahydrofurfuryl alcohol, 8CI. Oxolan-2-methanol. 2-Hydroxymethyltetrahydrofuran. FEMA 3056
[97-99-4]



(*R*)–*form*

$C_5H_{10}O_2$ 102.133

► Eye, skin and respiratory tract irritant. LD_{50} (rat, orl) 2500 mg/kg. Fl. p. 70/71°, autoignition temp. 280/282°. LU2450000

(*R*)-*form* [22415-59-4] Bp_{18} 85°. $[\alpha]_D^{22}$ -17.1 (c, 5.4 in $CHCl_3$). $[\alpha]_D^{20}$ -2.18 (neat).

Hydrogen phthalate:
Rhombs (Et_2O/petrol). Mp 82-83°.

Ac: [52689-54-0]
$C_7H_{12}O_3$ 144.17
$[\alpha]_D^{20}$ -17.3.

(*S*)-*form* [57203-01-7] Bp_{14} 74.5°. $[\alpha]_D^{24}$ +15.5.

3,5-Dinitrobenzoyl: Mp 77.5-78.5°. $[\alpha]_D^{24}$ +20.5.

(±)-*form* [72074-94-3]
Used as solvent for fats, waxes, resins, etc. Bp_{750} 177-178° Bp_{20} 80-82°.

α-Naphthylurethane:
Needles (petrol). Mp 88-90°.

Ac: FEMA 3055
[637-64-9] Flavouring ingredient. d_{20}^{20} 1.06. Bp_{740} 192-194° Bp_{18} 88-90°. n_D^{20} 1.4475.
► Fl. p. 88°.

Propanoyl: FEMA 3058
[637-65-0]
$C_8H_{14}O_3$ 158.197
Flavouring ingredient. d 1.04. Bp 204-207° Bp_3 85-87°. n_D^{23} 1.4370.

Butanoyl: Tetrahydrofurfuryl butyrate. FEMA 3057
[92345-48-7]
[2217-33-6]
$C_9H_{16}O_3$ 172.224
Flavouring agent with heavy sweet odour resembling apricot/pineapple. Liq. Insol. H_2O. d 1.01. Bp 227°.

2-Propenoyl: Tetrahydrofurfuryl acrylate
[2399-48-6]
$C_8H_{12}O_3$ 156.181
d_4^{20} 1.06. Bp_9 87°. n_D^{20} 1.4580.

2-Methyl-2-propenoyl: [2455-24-5]
$C_9H_{14}O_3$ 170.208
d_4^{20} 1.04. $Bp_{0.4}$ 52°. n_D^{20} 1.4585.

9Z-Octadecenoyl: [5420-17-7]
$C_{23}H_{42}O_3$ 366.583
d^{25} 0.92. Bp_2 222-227°. n_D^{25} 1.4655.

Benzoyl: [2217-32-5]
$C_{12}H_{14}O_3$ 206.241
$Bp_{0.1}$ 89°.

3,5-Dinitrobenzoyl:
Small needles (EtOH). Mp 83-84°.

Cinnamoyl: Tetrahydrofurfuryl cinnamate. FEMA 3320
[65505-25-1]
$C_{14}H_{16}O_3$ 232.279
Flavouring agent with sweet vinous odour. Sl. viscous liq. Insol. H_2O. d 1.11. Bp >300°.

Me ether: Tetrahydro-2-(methoxymethyl)-furan, 8CI
[19354-27-9]
$C_6H_{12}O_2$ 116.16
Bp 141-144° (140°). n_D^{20} 1.4260.

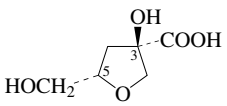
Et ether: 2-(Ethoxymethyl)tetrahydrofuran
[62435-71-6]
$C_7H_{14}O_2$ 130.186
Bp_{726} 152-154° Bp_{11} 47-55°.

(ξ)-*form*
Found in fermented soya hydrolysate (shoyu) and tobacco.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 240B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 384A; 1089B (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 317B (*ir*)
Kirner, W.R. *et al., J.A.C.S.*, 1930, **52**, 3251-3256 (*synth*)
Burdick, H.E. *et al., J.A.C.S.*, 1934, **56**, 438-442 (*synth*)
Fein, M.L. *et al., J.A.C.S.*, 1944, **66**, 1201-1203 (*2-propenoyl*)
Rehberg, C.E. *et al., J.O.C.*, 1949, **14**, 1094-1098 (*2-methyl-2-propenoyl, acrylate, methacrylate, synth*)
Moshkin, P.A. *et al., CA*, 1959, **53**, 15051a (*octadecanoyl*)
Hartman, F.C. *et al., J.O.C.*, 1964, **29**, 873-877 (*synth*)
Defaye, J. *et al., J. Het. Chem.*, 1969, **6**, 229-234 (*synth*)
Butler, J.D. *et al., J.C.S.(C)*, 1969, 173-176 (*synth*)
Durette, P.L. *et al., Chem. Ber.*, 1974, **107**, 937-950 (*synth*)
Lloyd, R.A. *et al., Tob. Sci.*, 1976, **20**, 125-133 (*isol*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **11**, 520 (*rev*)
Descours, D. *et al., Helv. Chim. Acta*, 1991, **74**, 1757-1763 (*abs config*)
Fenaroli's Handbook of Flavor Ingredients, 3rd edn., (ed. Burdock, G.A.), CRC Press, 1995, **1**, 743-744 (*esters*)
Alajarin, R. *et al., J. Med. Chem.*, 1995, **38**, 2830-2841 (***synth**, pmr*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2758-2762 (*esters*)
Mravik, A. *et al., Chem. Eur. J.*, 1998, **4**, 1621-1627 (*resoln*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TCT000

Tetrahydro-3-hydroxy-5-hydroxymethyl-3-furancarboxylic acid, 9CI T-26

1,4-Anhydro-2-C-carboxy-3-deoxypentitol, 9CI. 2′,4-Anhydro-3-deoxy-2-C-(hydroxymethyl)pentonic acid, 9CI. 1,4-Anhydro-3-deoxypentitol-2-carboxylic acid. Anhydroisosaccharinic acid
[58534-87-5]



(3*R*,5*S*)-*form*

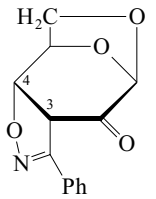
$C_6H_{10}O_5$ 162.142

The 3 different systematic names have different numbering schemes; numbering shown is for the furan name; *erythro* and *threo* stereodescriptors depend on which nomenclature is used.

[100897-01-6, 100897-02-7]

Petersson, G. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 27-30 (*synth, ms*)
Alen, R. *et al., Carbohydr. Res.*, 1984, **144**, 163-168 (*synth, chromatog*)
Niemela, K. *et al., Carbohydr. Res.*, 1987, **162**, 303-306 (*bibl*)
Furneaux, R.H. *et al., J.C.S. Perkin 1*, 1988, 49-51 (*synth, cmr, lactone, Me esters*)

3*a*,7,8,8*a*-Tetrahydro-3-phenyl-5,8-epoxyoxepino[4,5-*d*]isoxazol-4(5*H*)-one T-27



(3*R*,4*S*)–*form*

$C_{13}H_{11}NO_4$ 245.234

Carbohydrate numbering shown. Synthetically useful monosaccharide deriv.

(3*R*,4*S*)-*form*

D-ribo-*form*

[117248-87-0]

Prisms (Et_2O). Mp 177-178°. $[\alpha]_D^{32}$ +146 (c, 0.5 in $CHCl_3$).

(3*S*,4*R*)-*form*

D-lyxo-*form*

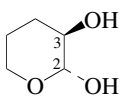
Cryst. (hexane/Et_2O). Mp 134-135°.

Blake, A.J. *et al., Tetrahedron*, 1992, **48**, 8053 (*synth, pmr, cryst struct*)

Tetrahydro-2*H*-pyran-2,3-diol, 9CI T-28

2,3-Dihydroxytetrahydropyran. 3,4-Dideoxy-glycero-*pentopyranose*

[86728-74-7]



(2*R*,3*R*)-*form*

$C_5H_{10}O_3$ 118.132

(2*R*,3*R*)-*form*

D-trans-*form*

*2-Me ether: Methyl 3,4-dideoxy-β-D-*glycero-*pentopyranoside. Tetrahydro-2-methoxy-2*H*-pyran-3-ol. 3-Hydroxy-2-methoxytetrahydropyran*

[109668-75-9]

$C_6H_{12}O_3$ 132.159

Bp_{20} 100°. $[\alpha]_D^{20}$ -102 (c, 0.76, $CHCl_3$).

(2*S*,3*R*)-*form*

D-cis-*form*

*2-Me ether: Methyl 3,4-dideoxy-α-D-*glycero-*pentopyranoside*

[104011-38-3]

$C_6H_{12}O_3$ 132.159

Liq.

(2*S*,3*S*)-*form*

L-trans-*form*

*2-Me ether: Methyl 3,4-dideoxy-β-L-*glycero-*pentopyranoside*

[109668-74-8]

$C_6H_{12}O_3$ 132.159

Bp_{20} 100° Bp_8 78.5-79.5°. $[\alpha]_{365}^{20}$ +287 (c, 1 in $CHCl_3$).

(2*RS*,3*RS*)-*form*

(±)-trans-*form*

[97102-63-1]

2-Me ether: [40984-76-7]

[6559-02-0]

Liq. Bp_{20} 110-120°.

2-Me ether, 3-Ac: [40985-10-2]

$C_8H_{14}O_4$ 174.196

Liq. Bp_{20} 120°.

(2*RS*,3*SR*)-*form*

(±)-cis-*form*

[97102-62-0]

2-Me ether: [40984-75-6]

[6559-11-1]

Liq. Bp_{20} 110-120°.

2-Me ether, 3-Ac: [40985-09-9]

Liq. Bp_{20} 120°.

Sweet, F. *et al., Can. J. Chem.*, 1967, **45**, 1007-1011 (*synth*)

Chmielewski, M. *et al., Rocz. Chem.*, 1972, **46**, 1767-1775 (*(±)-form 2-Me ether derivs*)

Frimer, A.A. *et al., Synthesis*, 1977, 578-579 (*2S,3S-form 2-Me ether*)

Hoffmann, R.V. *et al., J.O.C.*, 1983, **48**, 3308-3314 (*2-Me ethers*)

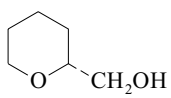
Anker, G. *et al., Carbohydr. Res.*, 1987, **159**, 159-164 (*2-Me ethers*)

Hague, M. *et al., Chem. Pharm. Bull.*, 1987, **35**, 1016-1029 (*2S,3R-form 2-Me ether*)

Tetrahydro-2*H*-pyran-2-methanol, 9CI T-29

2-Hydroxymethyltetrahydropyran. Tetrahydro-2-(hydroxymethyl)pyran. 5-Hydroxymethyl-δ-valerolactone

[100-72-1]



(*R*)–*form*

$C_6H_{12}O_2$ 116.16

►Severe skin and eye irritant. UQ0175000

(*R*)-*form* [70766-06-2]

Bp_{15} 85-88°. $[\alpha]_D^{20}$ -3.3 (c, 1.12 in H_2O).

(*S*)-*form*

$Bp_{0.5}$ 130-140°. $[\alpha]_D^{20}$ +42 (+35) (c, 1.0 in $CHCl_3$).

Ac: $[\alpha]_D^{20}$ +20 (c, 0.98 in CCl_4).

(±)-*form*

Liq. d_4^{25} 1.04. Bp_{14} 74°.

Ac: [5440-83-5]

$C_8H_{14}O_3$ 158.197

Bp_{20} 80-85°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 243C (*ir*)

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 390B (*nmr*)

Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 322A (*ir*)

Misono, A. *et al., CA*, 1968, **68**, 104887q (*synth*)

Colonge, J. *et al., Bull. Soc. Chim. Fr.*, 1969, 956 (*synth*)

Lafuma, F. *et al., Can. J. Chem.*, 1978, **56**, 2076 (*synth*)

Jurczak, J. *et al., J.O.C.*, 1979, **44**, 3347 (*synth*)

Corey, E.J. *et al., Tet. Lett.*, 1983, **24**, 4883 (*S-form*)

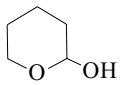
Pianetti, P. *et al., J. Carbohydr. Chem.*, 1988, **7**, 811-815 (*S-form*)

Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MDS500

Tetrahydro-2*H*-pyran-2-ol, 9CI T-30

2-Hydroxytetrahydropyran

[694-54-2]



$C_5H_{10}O_2$ 102.133

Major tautomeric form of 5-Hydroxypentanal, H-189.

(±)-*form* [118992-14-6]

The tetrahydropyranyloxy group is a useful acid-labile protecting group. Therefore many ethers known.

Oil. Bp_6 66-67°.

Et ether: 2-Ethoxytetrahydropyran

[4819-83-4]

[132759-43-4]

$C_7H_{14}O_2$ 130.186

Oil. Bp_{13} 44°.

*2-Propynyl ether: Tetrahydro-2-(2-propynyloxy)-2*H*-pyran, 9CI*

[6089-04-9]

[69841-59-4]

$C_8H_{12}O_2$ 140.182

Bp_9 63-65°. n_D^{20} 1.4580.

3-Butynyl ether: [40365-61-5]

$C_9H_{14}O_2$ 154.208

Used for the synth. of γ-hydroxy-α,β-acetylenic acids, esters and ketones. Liq. d 0.98. Bp_{18} 92-95°. n_D^{20} 1.4570.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 520A (*nmr*)

Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 1592C (*ir*)

Schnipp, L.F. *et al., J.A.C.S.*, 1946, **68**, 1646-1648 (*synth*)

Org. Synth., Coll. Vol., 3, 1955, 470-471 (*synth*)

de Hoog, A.J. *et al., Org. Magn. Reson.*, 1974, **6**, 233-235 (*ethers, cmr*)

Birch, A.J. *et al., J.C.S. Perkin 1*, 1990, 1423 (*3-butynyl ether, synth, ir, pmr*)

Griffiths, J. *et al., Tetrahedron*, 1992, **48**, 5543-5556 (*3-butynyl ether*)

Miller, M. *et al., J.O.C.*, 1993, **58**, 6679 (*3-butynyl ether*)

Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **7**, 4773-4775 (*2-propynyl ether, use*)

Org. Synth., 1999, **76**, 178-188 (*2-propynyl ether, synth, ir, pmr, cmr*)

1,2,4,5-Tetrahydroxy-2,5-bis(hydroxymethyl)-3-pentanone T-31

2,4-Bis-C-*(hydroxymethyl)-3-pentulose, 9CI*

[74042-85-6]

$(HOCH_2)_2C(OH)COC(OH)(CH_2OH)_2$

$C_7H_{14}O_7$ 210.183

Prod. from formaldehyde polym. under controlled conditions. Syrup.

Shigemasa, Y. *et al., Carbohydr. Res.*, 1980, **80**, C1 (*synth, pmr, cmr*)

Shigemasa, Y. *et al., Bull. Chem. Soc. Jpn.*, 1990, **63**, 389 (*synth*)

4,5,6,7-Tetrahydroxydecyl glucosinolate T-32

$H_3CCH_2CH_2CH(OH)CH(OH)CH(OH)$-$CH(OH)(CH_2)_3C(SGlc)=NOSO_3H$

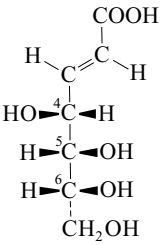
$C_{17}H_{33}NO_{13}S_2$ 523.579

Stereochem. not known. Isol. from *Capparis grandis*.

Gaind, K.N. *et al., Phytochemistry*, 1975, **14**, 1415 (*isol*)

4,5,6,7-Tetrahydroxy-2-heptenoic acid T-33

2,3-Dideoxyhept-2-enonic acid, 9CI, 8CI



$C_7H_{12}O_6$ 192.168

(2E,4R,5S,6R)-form

trans-D-arabino-*form*
[27304-31-0]
Cryst. (EtOH/Et_2O). Mp 175-177°. $[\alpha]_D^{21}$ +17.7 (c, 0.83 in H_2O).

4,5:6,7-Diisopropylidene: [65391-46-0]
$C_{13}H_{20}O_6$ 272.297
Cryst. (CH_2Cl_2/MeOH). Mp 131.5-132°. $[\alpha]_D^{22}$ -3.6 (c, 1.85 in $CHCl_3$).

4,5,6,7-Tetra-Ac: 4,5,6,7-Tetra-O-*acetyl-2,3-dideoxy-D*-arabino-*hept-2-enonic acid*
$C_{15}H_{20}O_{10}$ 360.317
Cryst. (toluene). Mp 132°. $[\alpha]_D^{24}$ +39 (c, 2.0 in $CHCl_3$).

Me ester, 4,5:6,7-diisopropylidene: [65371-70-2]
$C_{14}H_{22}O_6$ 286.324
Syrup. $[\alpha]_D^{24}$ +6.6 (c, 3.0 in EtOH).

Me ester, 4,5,6,7-tetra-Ac: [27304-27-4]
$C_{16}H_{22}O_{10}$ 374.344
Cryst. (2-propanol). Mp 116-117°. $[\alpha]_D^{26}$ +35 (c, 1.0 in $CHCl_3$).

Et ester, 4,5:6,7-di-O-*isopropylidene:*
[65391-47-1]
$C_{15}H_{24}O_6$ 300.351
Syrup. $[\alpha]_D^{22}$ -2.2 (c, 2.5 in EtOH).

(2E,4S,5R,6S)-form

trans-L-arabino-*form*

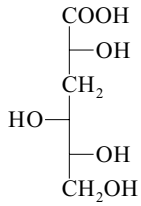
Me ester, 4,5,6,7-tetra-Ac:
$C_{16}H_{22}O_{10}$ 374.344
Mp 117-118°.

[77970-35-5]

Charon, D. *et al., Carbohydr. Res.*, 1969, **11**, 447 (*synth, pmr*)
Dijong, I. *et al., Annalen*, 1970, **735**, 138 (*synth*)
Dyong, I. *et al., Chem. Ber.*, 1977, **110**, 3655
Horton, D. *et al., Chem. Comm.*, 1981, 88
Horton, D. *et al., Carbohydr. Res.*, 1983, **21**, 135

2,4,5,6-Tetrahydroxyhexanoic acid T-34

3-Deoxyhexonic acid. Metasaccharinic acid



(2R,4R,5R)–form

$C_6H_{12}O_6$ 180.157

(2R,4R,5R)-form

D-xylo-*form. α-D-Galactometasaccharinic acid*
[18521-63-6]
$[\alpha]_D$ +27.4 (H_2O) (as Ba salt).

Anilide:
$C_{12}H_{17}NO_5$ 255.27
Mp 108-109°. $[\alpha]_D$ +57.3 (H_2O).

Phenylhydrazide: Mp 113-115° Mp 145°. $[\alpha]_D^{20}$ +34.4 (H_2O).

1,4-Lactone: 3-Deoxy-D-xylo-*hexono-1,4-lactone*
[6936-66-9]
$C_6H_{10}O_5$ 162.142
Cryst. (MeOH). Mp 142-143°. $[\alpha]_D$ -48 (H_2O) (-45.6).

1,4-Lactone, tri-Ac: 2,5,6-Tri-O-*acetyl-3-deoxy-D*-xylo-*hexono-1,4-lactone*
[79595-91-8]
$C_{12}H_{16}O_8$ 288.254
Syrup.

(2R,4R,5S)-form

L-arabino-*form. β-L-Glucometasaccharinic acid*

1,4-Lactone: 3-Deoxy-L-arabino-*hexono-1,4-lactone*
[134524-29-1]
$C_6H_{10}O_5$ 162.142
Syrup. $[\alpha]_D$ +4 (c, 1.2 in H_2O).

(2R,4S,5R)-form

D-ribo-*form. α-D-Glucometasaccharinic acid. Glucometasaccharin. Metasaccharin*
[498-43-1]
[104760-52-3]
Alkaline degradation product of Laminarin, L-20. $[\alpha]_D^{20}$ -5 (H_2O) (as Ca salt).

Phenylhydrazide: Mp 108-109°. $[\alpha]_D^{20}$ 0 (c, 0.94 in MeOH).

1,4-Lactone: 3-Deoxy-D-ribo-*hexono-1,4-lactone*
[499-87-6]
$C_6H_{10}O_5$ 162.142
Mp 108-109°. $[\alpha]_D$ +26.2 (c, 1.0 in H_2O).

1,4-Lactone, tri-Ac: 2,5,6-Tri-O-*acetyl-3-deoxy-D*-ribo-*hexono-1,4-lactone*
[72599-55-4]
$C_{12}H_{16}O_8$ 288.254
Oil. $[\alpha]_D^{20}$ +14 (c, 1.0 in $CHCl_3$).

1,5-Lactone, tribenzoyl: 2,4,6-Tri-O-*benzoyl-3-deoxy-D*-ribo-*hexono-1,5-lactone*
[66107-89-9]
$C_{27}H_{22}O_8$ 474.466
Mp 115-117°. $[\alpha]_D^{20}$ -10 (90% Me_2CO aq.).

(2R,4S,5S)-form

L-lyxo-*form. L-Parasaccharinic acid. β-L-Galactometasaccharinic acid*

1,4-Lactone, tri-Ac: 2,5,6-Tri-O-*acetyl-3-deoxy-L*-lyxo-*hexono-1,4-lactone*
[104731-91-1]
$C_{12}H_{16}O_8$ 288.254
Cryst. (Et_2O/pentane). Mp 97.5-98.5°. $[\alpha]_D^{20}$ +10.9 (c. 0.3 in $CHCl_3$).

(2S,4R,5R)-form

D-lyxo-*form. D-Parasaccharinic acid. β-D-Galactometasaccharinic acid*
[30923-12-7]
$[\alpha]_D$ -1.3 (H_2O) (as Ba salt).

Phenylhydrazide: Mp 85-90°. $[\alpha]_D$ -1.9 (H_2O).

1,4-Lactone: 3-Deoxy-D-lyxo-*hexono-1,4-lactone*
[55658-88-3]
$C_6H_{10}O_5$ 162.142
Mp 55-60°. $[\alpha]_D$ -63 (H_2O).

(2S,4R,5S)-form

D-ribo-*form. α-L-Glucometasaccharinic acid*

1,4-Lactone: 3-Deoxy-L-ribo-*hexono-1,4-lactone*
[104760-51-2]
Cryst. (EtOH). Mp 104-15°. $[\alpha]_D^{20}$ -27 (c, 1.4 in H_2O).

1,4-Lactone, tri-Ac: 2,5,6-Tri-O-*acetyl-3-deoxy-L*-ribo-*hexono-1,4-lactone*
[104731-86-4]
$C_{12}H_{16}O_8$ 288.254
$[\alpha]_D^{20}$ -28.3 (c, 0.64 in $CHCl_3$).

(2S,4S,5R)-form

D-arabino-*form. β-D-Glucometasaccharinic acid*
[1518-59-8] Alkaline degradation product of Laminarin, L-20.
Cryst. (H_2O)(as Ca salt). Mp 161-162°. $[\alpha]_D^{20}$ -24 (H_2O) (as Ca salt).

Phenylhydrazide:
Cryst. (MeOH/Et_2O). Mp 128-129°. $[\alpha]_D^{13}$ -46.7 (c, 1.2 in MeOH).

2,4,5,6-Tetra-Ac, Me ester: [72599-58-7]
$C_{15}H_{22}O_{10}$ 362.333
Oil. $[\alpha]_D^{20}$ +86 (c, 1 in $CHCl_3$).

1,4-Lactone: 3-Deoxy-D-arabino-*hexono-1,4-lactone*
[50480-80-3]
$C_6H_{10}O_5$ 162.142
Cryst. (EtOH/pentane). Mp 92-93°. $[\alpha]_D$ +7 (c, 1 in H_2O).

1,4-Lactone, tri-Ac: 2,5,6-Tri-O-*acetyl-3-deoxy-D*-arabino-*hexono-1,4-lactone*
[72599-56-5]
$C_{12}H_{16}O_8$ 288.254
Oil. $[\alpha]_D^{20}$ +37 (c, 1.0 in $CHCl_3$).

1,4-Lactone, 2-Me: 3-Deoxy-2-O-*methyl-D*-arabino-*hexono-1,4-lactone*
[197296-31-4]
$C_7H_{12}O_5$ 176.169
Syrup. $[\alpha]_D$ +5.6 (c, 0.8 in MeOH).

1,5-Lactone, tri-Ac: [72599-57-6]
$C_{12}H_{16}O_8$ 288.254
Oil. $[\alpha]_D^{20}$ +16 (c, 1 in $CHCl_3$).

1,5-Lactone, tribenzoyl: 2,4,6-Tri-O-*benzoyl-3-deoxy-D*-arabino-*hexono-1,5-lactone*

[53942-34-0]
$C_{27}H_{22}O_8$ 474.466
Mp 158-160°. $[\alpha]_D$ +27 (c, 0.8 in 90% Me_2CO aq.).

(2*S*,4*S*,5*S*)-*form*
L-xylo-*form*. α-L-*Galactometasaccharinic acid*

*1,4-Lactone: 3-Deoxy-L-*xylo-*hexono-1,4-lactone*
[79645-44-6]
$C_6H_{10}O_5$ 162.142
Syrup. $[\alpha]_D$ +44.8 (c, 1.5 in H_2O) (+35).

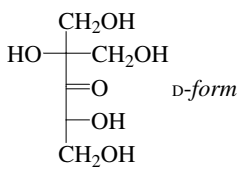
*1,4-Lactone, tri-Ac: 2,5,6-Tri-*O*-acetyl-3-deoxy-L-*xylo-*hexono-1,4-lactone*
[79580-62-4]
$C_{12}H_{16}O_8$ 288.254
Syrup.

[104760-51-2, 136345-69-2, 176722-42-2, 181263-17-2]

Sowden, J.C. *et al., Adv. Carbohydr. Chem.*, 1957, **12**, 35-79 (***rev***)
Wood, H.B. *et al., J.O.C.*, 1961, **26**, 1969-1973 (*D-arabino, D-ribo-1,4-lactone*)
Corbett, W.M. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 480 (*D-arabino, D-ribo*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 483 (*D-xylo*)
de Lederkremer, R.M. *et al., Carbohydr. Res.*, 1974, **36**, 185-187 (*D-arabino derivs*)
Kučár, Š. *et al., Coll. Czech. Chem. Comm.*, 1975, **40**, 457-461 (*D-arabino-1,4-lactone, D-lyxo-1,4-lactone, D-ribo-1,4-lactone, D-xylo-1,4-lactone*)
Hall, R.H. *et al., J.C.S. Perkin 1*, 1977, 2236-2241 (*D-ribo-1,5-lactone*)
Eitelman, S.J. *et al., Carbohydr. Res.*, 1979, **77**, 213-217 (*D-1,4-lactone Ac derivs*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 155-162; 1986, **40**, 163-171 (*D-xylo-1,4-lactone, D-lyxo-1,4-lactone, L-xylo-1,4-lactone, L-ribo-1,4-lactone*)
Best, W.M. *et al., Aust. J. Chem.*, 1994, **47**, 2023-2031 (*D-ribo-1,4-lactone*)
Choquet-Fornier, C. *et al., Carbohydr. Res.*, 1997, **303**, 185-191 (*L-arabino-1,4-lactone, D-arabino-1,4-lactone, L-xylo-1,4-lactone, synth, pmr, cmr*)

1,2,4,5-Tetrahydroxy-2-hydroxymethyl-3-pentanone T-35

2-C-Hydroxymethyl-3-pentulose



D-*form*

$C_6H_{12}O_6$ 180.157

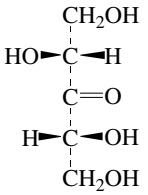
(±)-*form* [125507-93-9]
Prod. of base-catalysed oligomerisation of formaldehyde (formose reacn.).
Syrup.

1,2′,4,5-tetra-Ac: [125507-92-8]
$C_{14}H_{20}O_{10}$ 348.306
Syrup.

Shigemasa, Y. *et al., J. Carbohydr. Chem.*, 1989, **8**, 669-673; 1991, **10**, 593-605 (*synth, pmr, cmr, tetra-Ac*)

1,2,4,5-Tetrahydroxy-3-pentanone, 9CI, 8CI T-36

3-Pentulose



(2*R*,4*R*)-*form*

$C_5H_{10}O_5$ 150.131

(2*R*,4*R*)-*form*
D-threo-*form*
[16848-09-2]
Syrup. $[\alpha]_D^{20}$ -118 (c, 1.0 in H_2O) (-85).

2,5-Dichlorophenylhydrazone: [23176-95-6]
Solid ($CHCl_3$). Mp 146-147°.

(2*S*,4*S*)-*form*
L-threo-*form*
[20100-17-8]
Syrup. $[\alpha]_D^{29}$ +81.5 (c, 1.85 in H_2O).

Tetra-Ac: [68536-28-7]
$C_{13}H_{18}O_9$ 318.28
Syrup.

Tetrabenzoyl: [68536-23-2]
$C_{33}H_{26}O_9$ 566.563
Cryst. (EtOH). Mp 142-143°. $[\alpha]_D^{15}$ +40.5 (c, 0.37 in $CHCl_3$).

(2*RS*,3*RS*)-*form*
(±)-threo-*form*
One of the major prods. formed in the formose reacn. (base-cat. poymerisation of ormaldehyde).
Syrup.

(2*RS*,4*SR*)-*form*
meso-*form*. erythro-*form*
[20561-84-6]
Syrup.

2,5-Dichlorophenylhydrazone: [23176-94-5]
Solid ($CHCl_3$). Mp 126-127°.

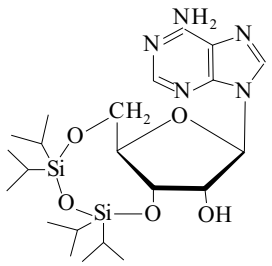
Tetra-Ac, 2,5-dichlorophenylhydrazone:
[55287-58-6]
Solid. Mp 97-99°.

1,2:4,5-diisopropylidene: [53928-55-5]
$C_{11}H_{18}O_5$ 230.26
Syrup.

Ashwell, G. *et al., J.A.C.S.*, 1955, **77**, 1062-1063 (*RS,SR-form, biosynth*)
Stoodley, R.J. *et al., Can. J. Chem.*, 1961, **39**, 2593-2601 (*RS,SR-form, synth, uv*)
Sticzay, T. *et al., Carbohydr. Res.*, 1968, **6**, 418-422 (*R,R-form, RS,SR-form, uv, ord*)
Stankovic, L. *et al., Carbohydr. Res.*, 1969, **10**, 579-583 (*R,R-form, RS,SR-form, synth, dichlorophenylhydrazones*)
Havlicek, J. *et al., Acta Chem. Scand.*, 1972, **26**, 2205-2216 (*RS,RS-form, RS,SR-form, glc, ms*)
Kovacik, V. *et al., Carbohydr. Res.*, 1974, **38**, 300-304 (*RS,SR-form, tetra-Ac, dichlorophenylhydrazone, ms*)
Okuda, T. *et al., Carbohydr. Res.*, 1978, **67**, 117-126 (*RS,SR-form, synth, pmr, ms, diisopropylidene, S,S-form, tetra-Ac, tetrabenzoyl*)
Bystricky, S. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 475-481 (*2R,4R-form, cd*)
Decker, P. *et al., Carbohydr. Res.*, 1982, **107**, 1-6 (*synth, glc*)
Shigemasa, Y. *et al., Tet. Lett.*, 1994, **35**, 1263-1266 (*RS,RS-form, RS,SR-form, synth, pmr, cmr*)
Saimoto, H. *et al., Tet. Lett.*, 1995, **36**, 937-938 (*RS,SR-form, synth*)

3′,5′-*O*-(Tetraisopropyldisiloxane-1,3-diyl)adenosine T-37

*3′,5′-*O*-[1,1,3,3-Tetrakis(1-methylethyl)-1,3-disiloxanediyl]adenosine, 9CI. 3′,5′-*O*-(Tetraisopropyldisiloxanyl)adenosine*
[69304-45-6]



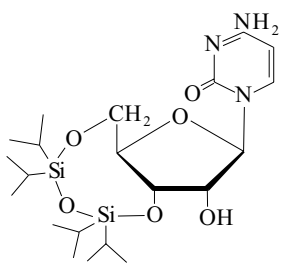
$C_{22}H_{39}N_5O_5Si_2$ 509.752
3′,5′-Protected nucleoside. Cryst. (MeCN). Mp 98-99.5°.

2′-Phenylthionocarbonate: [76700-77-1]
Oil.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 675A (*nmr*)
Markiewicz, W.T. *et al., Nucleic Acids Res., Spec. Publ.*, 1978, **4**, S185
Markiewicz, W.T. *et al., J. Chem. Res., Synop.*, 1979, 24; *J. Chem. Res., Miniprint*, 1979, 181 (*synth*)
Verdegaal, C.H.M. *et al., Tet. Lett.*, 1980, 1571 (*isom*)
Robins, M.J. *et al., J.A.C.S.*, 1983, **105**, 4059 (*synth, ms*)

3′,5′-*O*-(Tetraisopropyldisiloxane-1,3-diyl)cytidine T-38

*3′,5′-*O*-[1,1,3,3-Tetrakis(1-methylethyl)-1,3-disiloxanediyl]cytidine, 9CI*
[69304-42-3]



$C_{21}H_{39}N_3O_6Si_2$ 485.727

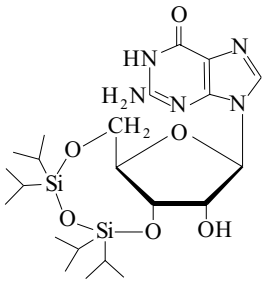
*4-*N*-Ac: 4-*N*-Acetyl-3′,5′-*O*-(tetraisopropyldisiloxane-1,3-diyl)cytidine*
$C_{23}H_{41}N_3O_7Si_2$ 527.764
Protected cytidine deriv. useful in synthesis. Cryst. (EtOH). Mp 111-113°.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 674C (*nmr*)
Markiewicz, W.T. *et al., J. Chem. Res., Synop.*, 1979, 24 (*silylation technique*)
Verdegaal, C.H.M. *et al., Tet. Lett.*, 1980, 1571 (*rearrangement*)
Verdegaal, C.H.M. *et al., Acta Cryst. B*, 1981, **37**, 1924 (*cryst struct*)

Robins, M.J. *et al., J.A.C.S.*, 1983, **105**, 4059 (*4-N-Ac, synth, ms*)

3′,5′-*O*-(Tetraisopropyldisiloxane-1,3-diyl)guanosine T-39

*3′,5′-*O*-[1,1,3,3-Tetrakis(1-methylethyl)-1,3-disiloxanediyl]guanosine, 9CI*
[69304-44-5]



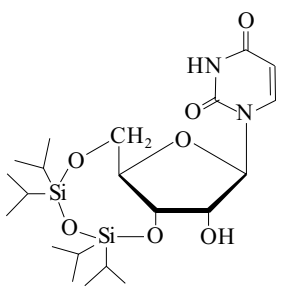
$C_{22}H_{39}N_5O_6Si_2$ 525.751
3′,5′-Protected nucleoside. Cryst. (EtOH). Mp 250° dec.

2′-Phenylthionocarbonate:
Cryst. (EtOH). Mp 255-258°.

Markiewicz, W.T. *et al., J. Chem. Res., Synop.*, 1979, 24; *J. Chem. Res., Miniprint*, 1979, 181 (*synth*)
Verdegaal, C.H.M. *et al., Tet. Lett.*, 1980, 1571 (*synth*)
Verdegaal, C.H.M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1981, **100**, 200 (*synth, pmr, cmr*)
Robins, M.J. *et al., J.A.C.S.*, 1983, **105**, 4059 (*phenylthionocarbonate, uv, synth, ms*)

3′,5′-*O*-(Tetraisopropyldisiloxane-1,3-diyl)uridine T-40

*3′,5′-*O*-[1,1,3,3-Tetrakis(1-methylethyl)-1,3-disiloxanediyl]uridine, 9CI. 3′,5′-*O*-(Tetraisopropyldisiloxanyl)uridine*
[69304-38-7]

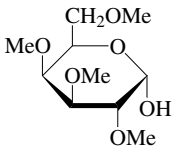


$C_{21}H_{38}N_2O_7Si_2$ 486.711
Oil. λ_{max} 262 nm (ϵ 9 600) (MeOH).

2′-Phenyl thionocarbonate: [76700-78-2]
Oil. λ_{max} 262, 232 nm. λ_{min} 245 nm (MeOH).

Markiewicz, W.T. *et al., Nucleic Acids Res., Spec. Publ.*, 1978, **4**, S185
Markiewicz, W.T. *et al., J. Chem. Res., Synop.*, 1979, 24
Verdegaal, C.H.M. *et al., Tet. Lett.*, 1980, 1571
Robins, M.J. *et al., J.A.C.S.*, 1983, **105**, 4059 (*synth, ms*)

2,3,4,6-Tetra-*O*-methylgalactose, 9CI, 8CI T-41



α-D-Pyranose-*form*

$C_{10}H_{20}O_6$ 236.264

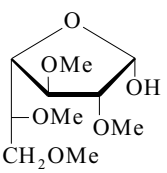
α-D-Pyranose-*form* [34361-56-3]
Mp 71-73°. $[\alpha]_D$ +150 → +114 (H_2O).

β-D-Pyranose-*form* [34361-57-4]
Syrup. $[\alpha]_D$ +102.2 → +109.5 (H_2O).

Me glycoside: See Methyl β-D-galactopyranoside, M-186

Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **23**, 275 (*pmr*)
Abbas, S.A. *et al., J.C.S. Perkin 1*, 1976, 1351 (*cmr*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)

2,3,5,6-Tetra-*O*-methylgalactose T-42



α–D–Furanose–*form*

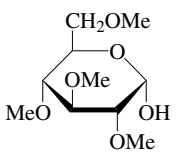
$C_{10}H_{20}O_6$ 236.264

D-Furanose-*form*
Syrup. $Bp_{0.05}$ 136°. $[\alpha]_D^{20}$ -32 (c, 2.12 in H_2O).

α-D-Furanose-*form*
*Me glycoside: Methyl 2,3,5,6-tetra-*O*-methyl-α-D-galactofuranoside*
[10225-58-8]
$C_{11}H_{22}O_6$ 250.291
Syrup. $Bp_{0.015}$ 112°. $[\alpha]_D$ -46.3 (c, 1.42 in EtOH).

Haworth, W.N. *et al., J.C.S.*, 1924, **125**, 2468 (*D-fur-form, synth, α-D-Me fur*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Gelpi, M.E. *et al., An. Asoc. Quim. Argent.*, 1973, **61**, 28; *CA*, **78**, 160008x (*α-D-Me fur*)

2,3,4,6-Tetra-*O*-methylglucose, 9CI, 8CI T-43
[7506-68-5]



α-D-Pyranose-*form*

$C_{10}H_{20}O_6$ 236.264

α-D-Pyranose-*form* [6163-35-5]
Cryst. (petrol). Mp 94-97°. $[\alpha]_D^{30}$ +106 → +78.5 (c, 2.8 in H_2O).

*Benzoyl: 1-*O*-Benzoyl-2,3,4,6-tetra-*O*-methyl-α-D-glucopyranose*
[40632-16-4]
$C_{17}H_{24}O_7$ 340.372
Syrup. $[\alpha]_D^{20}$ +123.3 (c, 0.6 in $CHCl_3$).

*Tosyl: 2,3,4,6-Tetra-*O*-methyl-1-O-tosyl-α-D-glucopyranose*
$C_{17}H_{26}O_8S$ 390.454
Mp 79-80° dec. $[\alpha]_D^{22}$ +175.9 (C_6H_6).

*Me glycoside: Methyl 2,3,4,6-tetra-*O*-methyl-α-D-glucopyranoside*
[605-81-2]
$C_{11}H_{22}O_6$ 250.291
Syrup. $[\alpha]_D$ +1.51 (Me_2CO).

β-D-Pyranose-*form* [19146-17-9]
Mp 50°. $[\alpha]_D^{20}$ +73.1 → +83.1 (H_2O).

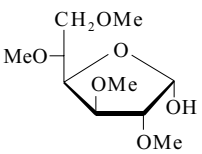
*Benzoyl: 1-*O*-Benzoyl-2,3,4,6-tetra-*O*-methyl-β-D-glucopyranose*
[40632-17-5]
$C_{17}H_{24}O_7$ 340.372
Syrup. $[\alpha]_D^{20}$ -27.55 (c, 0.9 in $CHCl_3$).

*Me glycoside: Methyl 2,3,4,6-tetra-*O*-methyl-β-D-glucopyranoside*
[3149-65-3]
$C_{11}H_{22}O_6$ 250.291
Mp 40°. $[\alpha]_D$ -17.43 (EtOH).

[3615-47-2]

Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Org. Synth., Coll. Vol., 3, 1955, 800 (*D-form, synth*)
Hultman, D.P. *et al., J.C.S. Perkin 2*, 1972, 1525 (*α-D-pyr, synth, β-D-Me pyr*)
Brown, A. *et al., J.A.C.S.*, 1973, **95**, 1593 (*α-D-pyr benzoyl, β-D-pyr benzoyl*)
Streefkerk, D.G. *et al., Carbohydr. Res.*, 1976, **49**, 13 (*pmr*)
Abbas, S.A. *et al., J.C.S. Perkin 1*, 1976, 1351 (*cmr*)

2,3,5,6-Tetra-*O*-methylglucose, 9CI T-44
[13554-83-1]



α–D–Furanose–*form*

$C_{10}H_{20}O_6$ 236.264

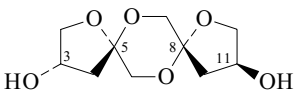
D-Furanose-*form*
Syrup. $Bp_{0.2}$ 117°. $[\alpha]_D^{25}$ -7.6 (c, 2.8 in H_2O).

α-D-Furanose-*form*
*Me glycoside: Methyl 2,3,5,6-tetra-*O*-methyl-α-D-glucofuranoside*
[13266-47-2]
$C_{11}H_{22}O_6$ 250.291
Mp 11°. $Bp_{0.04}$ 94°. $[\alpha]_D^{18}$ +102 ($CHCl_3$).

β-D-Furanose-*form*
*Me glycoside: Methyl 2,3,5,6-tetra-*O*-methyl-β-D-glucofuranoside*
$C_{11}H_{22}O_6$ 250.291
Syrup. $[\alpha]_D$ -72.7 (MeOH).

Haworth, W.N. *et al., J.C.S.*, 1932, 2254 (*D-fur-form, synth*)
Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Gelpi, M.E. *et al., Carbohydr. Res.*, 1973, **28**, 147 (*D-fur-form, synth*)

1,6,9,13-Tetraoxadispiro[4.2.4.2]tetradecane-3,11-diol T-45

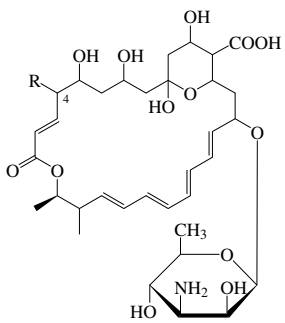


$C_{10}H_{16}O_6$ 232.233

(3*S*,5*R*,8*R*,11*S*)-*form*
*Di-(3-deoxy-D-*glycero*-pentulose) 1,2′:2,1′-dianhydride*
Isol. in small yield from alkaline aqueous solns. of Lactose, L-13. Mp 148-149°. $[\alpha]_D^{20}$ +12 (c, 0.23 in H_2O).
French, A.D. *et al., Carbohydr. Res.*, 1994, **260**, 1 (*synth, pmr, cmr, cryst struct*)

Tetrin A, 9CI, 8CI T-46

[34280-28-9]



R = H

$C_{34}H_{51}NO_{13}$ 681.776
Macrolide antibiotic. Isol. from *Streptomyces* sp. Illinois 155-2. Antifungal agent. Fine needles (MeOH/butanol aq.). $[\alpha]_D^{21}$ +8.3 (c, 0.72 in Py). $[\alpha]_D^{28}$ +27.5 (c, 1.0 in Py). Dec. >350°. λ_{max} 214 (ϵ 13000); 278 (ϵ 35800); 290 (ϵ 55800); 303 (ϵ 78600); 318 (ϵ 75900) (80% MeOH) (Derep).

N-*Ac:* [62008-34-8]
Needles (MeOH/EtOAc). Mp 167-171°. $[\alpha]_D^{25}$ +97 (EtOH) ((+54)).

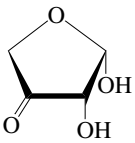
4-Hydroxy: ***Tetrin B***
[34280-27-8]
$C_{34}H_{51}NO_{14}$ 697.775
Macrolide antibiotic. Isol. from *Streptomyces* sp. Illinois 155-2. Antifungal agent. Brown amorph. powder. Mp 360°. $[\alpha]_D^{24}$ +43.5 (c, 0.14 in MeOH). $[\alpha]_D^{28}$ +45 (c, 0.3 in Py). Darkens at 160-165°, blackens at 250-295°. λ_{max} 214 (ϵ 13000); 278 (ϵ 35800); 290 (ϵ 55800); 303 (ϵ 78600); 318 (ϵ 75900) (80% MeOH) (Derep).

5-Deoxy, 4,5-epoxide: ***Tetrin C***
$C_{34}H_{49}NO_{13}$ 679.76
Isol. from *Streptomyces* sp. GK9244. Antifungal agent. Pale yellow solid. $[\alpha]_D^{23}$ +19.3 (c, 1.5 in MeOH). λ_{max} 280; 292; 304; 318 (MeOH).

Pandey, R.C. *et al., J.A.C.S.*, 1971, **93**, 3738 (*struct, ir, nmr, ms*)
Rinehart, K.L. *et al., J.A.C.S.*, 1971, **93**, 3747 (*isol, Tetrin B*)
Pandey, R.C. *et al., J. Antibiot.*, 1976, **29**, 1035 (*cmr, uv*)
Dornberger, K. *et al., Tetrahedron*, 1976, **32**, 3069 (*struct, cmr, Tetrin B*)
Ryu, G. *et al., J. Nat. Prod.*, 1999, **62**, 917-919 (*Tetrin C*)

glycero-Tetros-3-ulose T-47

glycero-*Tetrofuranos-3-ulose*



α-D-*form*

$C_4H_6O_4$ 118.089

α-D-*form*
*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-D-*glycero*-tetrofuranos-3-ulose*
[34693-28-2]
$C_7H_{10}O_4$ 158.154
Needles (hexane). Mp 61-62° (50-60°). $[\alpha]_D^{28}$ +140 (c, 1.6 in $CHCl_3$). $[\alpha]_D$ +151 (c, 1.9 in $CHCl_3$).

*1,2-*O*-Isopropylidene, covalent hydrate: Tetrahydro-2,2-dimethylfuro[2,3-*d*]-1,3-dioxole-6,6-diol, 9CI*
[25018-71-7]
$C_7H_{12}O_5$ 176.169
Needles. Mp 65-80°. $[\alpha]_D$ +79.5 (c, 1.0 in $CHCl_3$).

α-L-*form*
*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-α-L-*glycero*-tetrofuranos-3-ulose, 8CI*
[22528-94-5]
$C_7H_{10}O_4$ 158.154
Mp 56-58°. $[\alpha]_D^{18}$ -157 (c, 1.2 in $CHCl_3$).

*1,2-*O*-Isopropylidene, covalent hydrate:*
[22403-86-7]
Mp 60-75°. $[\alpha]_D^{18}$ -73.4 (c, 1.0 in $CHCl_3$).

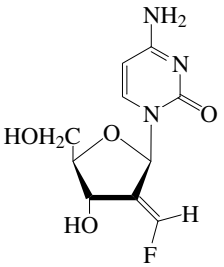
*1,2-*O*-Isopropylidene, oxime:* [22893-96-5]
$C_7H_{11}NO_4$ 173.168
Cryst. (hexane). Mp 95-100.6°. $[\alpha]_D$ -117.5 (c, 0.6 in EtOH).

*1,2-*O*-Isopropylidene,* p-*nitrophenylhydrazone:* [29360-16-5]
Mp 127-128°.

Carey, F.A. *et al., Carbohydr. Res.*, 1966, **3**, 205 (*α-D-isopropylidene*)
Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1970, **53**, 1174 (*α-L-isopropylidene, α-L-isopropylidene hydrate*)
Ezekiel, A.D. *et al., Carbohydr. Res.*, 1971, **20**, 251 (*α-D-isopropylidene, α-D-isopropylidene hydrate*)
Tronchet, J.M.J. *et al., Carbohydr. Res.*, 1975, **41**, 1 (*pmr*)

Tezacitabine, INN, USAN T-48

2′-Deoxy-2′-(fluoromethylene)cytidine, 9CI. FMdC. MDL 101731
[171233-40-2]



$C_{10}H_{12}FN_3O_4$ 257.221
Ribonucleotide-diphosphate reductase inhibitor. Antineoplastic agent. Designated an orphan drug by FDA (2003) for treatment of cancer of the oesophagus and stomach. USAN name refers to the monohydrate.

(2′*E*)-*form* [130306-02-4]
Cryst. (EtOAc). Mp 166-168°. Pharmacol. active isomer.

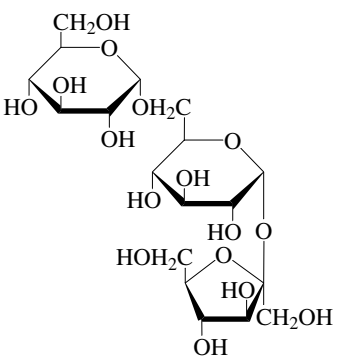
(2′*Z*)-*form* [130306-01-3]
Solid. Mp 166-168°.

[171176-43-5]

Eur. Pat., (Merrell Dow), 1990, 372 268; *CA*, **113**, 212579x (*synth, pharmacol*)
McCarthy, J.R. *et al., Tetrahedron*, 1996, **52**, 4558 (*synth, isomers*)
Sun, L.Q. *et al., Cancer Res.*, 1997, **57**, 4023-4028; 1998, **58**, 5411-5417; 1999, **59**, 5219-5226 (*pharmacol*)
Masuda, N. *et al., Invest. New Drugs*, 1998, **16**, 245-254 (*pharmacol*)
Woessner, R.D. *et al., Drugs of the Future*, 1999, **24**, 502-510 (*rev*)
Flaherty, K.T. *et al., Cancer (Philadelphia)*, 2003, **97**, 1985-1990 (*clin trial*)

Theanderose T-49

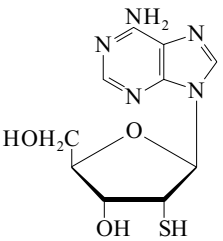
β-D-Fructofuranosyl α-D-glucopyranosyl-(1→6)-α-D-glucopyranoside, 9CI. α-Isomaltosyl-β-D-fructoside. 6^G-α-D-Glucosylsucrose
[21291-36-1]



$C_{18}H_{32}O_{16}$ 504.441
Main component of the sweetener Theandeoligo. Constit. of honey and tobacco. Prod. by *Aspergillus* spp. and *Mucor* spp. Anticariogenic agent. Cryst. (EtOH).

Mp 118-120°. $[\alpha]_D^{18}$ +102.5 (c, 2 in H_2O).
Barker, S.A. *et al., J.C.S.*, 1957, 2064-2067 (*synth*)
Siddiqui, I.R. *et al., Tob. Int.*, 1983, **185**, 27-31 (*occur*)
Morel de Boil, P.G. *et al., Int. Sugar J.*, 1992, **94**, 90-94 (*synth*)
Japan. Pat., 1995, 95 51 084; *CA*, **122**, 313069x
Japan. Pat., 1995, 95 75 588; *CA*, **122**, 289074x (*synth*)

2′-Thioadenosine T-50

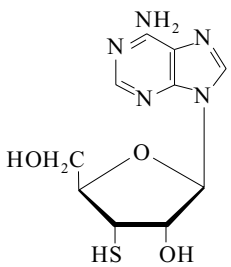


$C_{10}H_{13}N_5O_3S$ 283.31
Prisms. Mp 150° dec. $[\alpha]_D^{20}$ -92 (c, 0.59 in DMSO).

*2′S,3′*O-*Isopropylidene:*
$C_{13}H_{17}N_5O_3S$ 323.375
Cryst. (EtOH). Mp 213-214.5°.
Marriott, J.H. *et al., Carbohydr. Res.*, 1991, **216**, 257 (*synth, pmr, cmr*)

3′-Thioadenosine, 8CI T-51

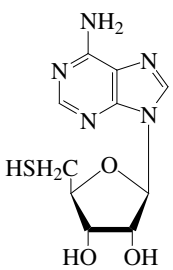
[16136-70-2]



$C_{10}H_{13}N_5O_3S$ 283.31
Mp 179-181°. $[\alpha]_D^{25}$ -13 (H_2O). λ_{max} 259 (ε 14 500) (H_2O), 257 (14 400) (pH 1), 259 nm (15 100) (pH 13).
Acton, E.M. *et al., J.A.C.S.*, 1967, **89**, 467 (*synth*)
Ryan, K.J. *et al., J.O.C.*, 1968, **33**, 1783 (*synth*)
Shaw, S.J. *et al., J.A.C.S.*, 1970, **92**, 2510 (*ms*)

5′-Thioadenosine, 9CI T-52

6-Amino-9-(5-thioribofuranosyl)purine
[67805-97-4]



$C_{10}H_{13}N_5O_3S$ 283.31
Cryst. (H_2O). Mp 75-77°.

S-*Me: 5′*-S-*Methyl-5′-thioadenosine, 9CI, 8CI. Adenine thiomethylpentoside*
[2457-80-9]
$C_{11}H_{15}N_5O_3S$ 297.337
Isol. from yeast. Involved in biological transmethylations. Needles (MeOH aq.). Mp 213-214°. $[\alpha]_D$ +12.2 (1% H_2SO_4 aq.).
▶ AU7410000

S-*Me, 2′,3′*-O-*isopropylidene:*
$C_{14}H_{19}N_5O_3S$ 337.402
Mp 143°.

S-*Me, tritosyl:* [80860-53-3]
$C_{32}H_{33}N_5O_9S_4$ 759.905
Mp 158-160°.

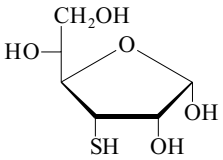
S-*Me,* S-*oxide(*R-*): 5′-Deoxy-5′-(methylsulfinyl)adenosine, 9CI*
[897-42-7]
[3387-65-3]
$C_{11}H_{15}N_5O_4S$ 313.337
Prod. by *Ganoderma lucidum* (reishi). Platelet aggregation inhibitor. Cryst. Sol. H_2O, MeOH.
Mp 185-187°. $[\alpha]_D^{20}$ -23.5 (c, 1.4 in H_2O). λ_{max} 270 (H_2O) (Berdy).

S-*Me,* S-*oxide(*S-*):* [737-74-6]
$C_{11}H_{15}N_5O_4S$ 313.337
Prod. by *Ganoderma lucidum* (reishi). Cryst.
Mp 210-211°. $[\alpha]_D$ -93.3 (c, 1 in H_2O).

S-*(2-Methylpropyl):* [35899-54-8]
$C_{14}H_{21}N_5O_3S$ 339.418
Cryst. (EtOH). Mp 126-128°. $[\alpha]_D^{24}$ 0 (c, 0.85 in MeOH).

3′-Epimer, S-*Me:* ***9-(5-S-Methyl-5-thio-β-D-xylofuranosyl)adenine***
[53458-29-0]
$C_{11}H_{15}N_5O_3S$ 297.337
Isol. from the mollusc *Doris verrucosa*. Glass.
Mp 199-201° (as picrate).
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 219C (*nmr*)
Weygand, F. *et al., Ber.*, 1951, **84**, 633 (*synth*)
Baddiley, J. *et al., J.C.S.*, 1951, 1348 (*synth*)
Satoh, K. *et al., Nature (London)*, 1951, **167**, 238 (*S-Me struct, S-Me tritosyl, S-Me isopropylidene*)
Trauth, O. *et al., Nature (London)*, 1951, **167**, 359 (*S-Me, synth*)
Kuhn, R. *et al., Chem. Ber.*, 1965, **98**, 1699-1704 (*synth*)
Zappia, V. *et al., J. Biol. Chem.*, 1969, **244**, 4499 (*S-Me, biochem*)
Hildesheim, J. *et al., Biochimie*, 1971, **53**, 1067-1071 (S-*2-methylpropyl*)
Montgomery, J.A. *et al., J. Med. Chem.*, 1974, **17**, 1197-1207 (*synth*)
Sugimoto, Y. *et al., Arch. Microbiol.*, 1976, **108**, 175
Borkakoti, N. *et al., Acta Cryst. B*, 1978, **34**, 867 (*S-Me, cryst struct*)
Porcelli, M. *et al., Adv. Exp. Med. Biol.*, 1988, **250**, 219-228 (*3′-epimer-S-Me*)
Porcelli, M. *et al., Biochem. J.*, 1989, **263**, 635-640 (*3′-epimer-S-Me*)
Marriott, J.H. *et al., Tet. Lett.*, 1990, **31**, 7485 (*synth, pmr*)
Robins, M.J. *et al., Can. J. Chem.*, 1991, **69**, 1468 (*S-Me, uv, pmr, cmr, ms*)
Kawagishi, H. *et al., Phytochemistry*, 1993, **32**, 239-241 (*S-Me-S-oxide*)
Pignot, M. *et al., Eur. J. Org. Chem.*, 2000, 549-555 (*synth, pmr, cmr*)

3-Thioallose T-53



$C_6H_{12}O_4S$ 180.224

α-D-Furanose-*form*

1,2-Isopropylidene, S-*Ac: 3*-S-*Acetyl-1,2*-O-*isopropylidene-3-thio-α-D-allofuranose*
$C_{11}H_{18}O_6S$ 278.326
Needles ($CHCl_3$/hexane). Mp 105°. $[\alpha]_D^{25}$ +117.4 (c, 1.02 in $CHCl_3$).

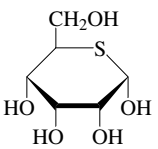
*1,2-Isopropylidene, 5,6,*S-*tri-Ac: 5,6-Di*-O-*acetyl-3*-S-*acetyl-1,2*-O-*isopropylidene-3-thio-α-D-allofuranose*
$C_{15}H_{22}O_8S$ 362.4
Mp 99°. $[\alpha]_D$ +102.2 (c, 1.02 in $CHCl_3$).

1,2:5,6-Diisopropylidene: 1,2:5,6-Di-O-*isopropylidene-3-thio-α-D-allofuranose*
$C_{12}H_{20}O_5S$ 276.353
Mp 35-36°. $[\alpha]_D^{28}$ +70.9 (c, 1 in $CHCl_3$).

1,2:5,6-Diisopropylidene, S-*Ac: 3*-S-*Acetyl-1,2:5,6-di*-O-*isopropylidene-3-thio-α-D-allofuranose*
$C_{14}H_{22}O_6S$ 318.39
Cryst. (Et_2O/hexane). Mp 88°. $[\alpha]_D^{25}$ +107.2 (c, 1.014 in $CHCl_3$).
Nayak, U.G. *et al., J.O.C.*, 1969, **34**, 3819
Risbood, P.A. *et al., Carbohydr. Res.*, 1981, **94**, 101 (*α-D-fur diisopropylidene*)

5-Thioallose T-54

5-Deoxy-5-thioallose (incorr.)



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

D-Pyranose-*form*
Mp 170-174°. $[\alpha]_D$ +75 → +115 (equilib.) (c, 1 in H_2O). Incorr. named 5-thio-D-altrose in 11CI.

α-D-Pyranose-*form*

Me glycoside: Methyl 5-thio-α-D-allopyranoside
[103130-68-3]
$C_7H_{14}O_5S$ 210.251
Syrup. $[\alpha]_D$ +289 (c, 0.5 in MeOH).

Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-O-*acetyl-5-thio-α-D-allopyranoside*
[103090-85-3]
$C_{15}H_{22}O_9S$ 378.399
Syrup. $[\alpha]_D$ +183 (c, 1.2 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 5-thio-β-D-allopyranoside
[103130-69-4]
$C_7H_{14}O_5S$ 210.251
Cryst. (EtOAc). $[\alpha]_D$ -98 (c, 0.6 in MeOH).

*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-β-*D*-allopyranoside*
[103090-86-4]
$C_{15}H_{22}O_9S$ 378.399
Cryst. (diisopropyl ether). Mp 118-120°. $[\alpha]_D$ -42 (c, 0.7 in $CHCl_3$).

α-D-Furanose-*form*

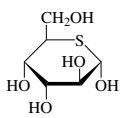
*1,2:5,6-Diisopropylidene: 1,2-*O*:5,6-*S,O*-Diisopropylidene-5-thio-α-*D*-allofuranose*
[72045-04-6]
$C_{12}H_{20}O_5S$ 276.353
Cryst. (petrol). Mp 67-69°. $[\alpha]_D$ -37 (c, 0.6 in $CHCl_3$).

*1,2:5,6-Diisopropylidene, Ac: 3-*O*-Acetyl-1,2-*O*:5,6-*S,O*-diisopropylidene-5-thio-α-*D*-allofuranose*
[103090-83-1]
$C_{14}H_{22}O_6S$ 318.39
Cryst. (petrol). Mp 64-65°. $[\alpha]_D$ +27 (c, 0.9 in CH_2Cl_2).

*1,2:5,6-Diisopropylidene, benzoyl: 3-*O*-Benzoyl-1,2-*O*:5,6-*S,O*-diisopropylidene-5-thio-α-*D*-allofuranose*
[103090-84-2]
$C_{19}H_{24}O_6S$ 380.461
Cryst. (EtOH). Mp 101-102°. $[\alpha]_D$ +34 (c, 0.9 in $CHCl_3$).

L-*form* [157675-35-9]
Mp 146-148°. $[\alpha]_D^{25}$ -73 (c, 1.0 in H_2O).
Al-Masoudi, N.A.L. *et al., Carbohydr. Res.*, 1986, **148**, 25 (*D-forms, synth, pmr, cmr*)
Emery, F. *et al., J. Carbohydr. Chem.*, 1994, **13**, 555-563 (*L-form, synth*)

5-Thioaltrose T-55



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

D-*form*
Cryst. (EtOH). Mp 177-178°. $[\alpha]_D$ -68 → -48 (equilib.) (c, 0.9 in H_2O).

α-D-Pyranose-*form*

*Me glycoside: Methyl 5-thio-α-*D*-altropyranoside*
$C_7H_{14}O_5S$ 210.251
Syrup. $[\alpha]_D$ +151 (c, 1 in MeOH).

*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-α-*D*-altropyranoside*
$C_{15}H_{22}O_9S$ 378.399
Cryst. (diisopropyl ether). Mp 92-93°. $[\alpha]_D$ +122.

*Me glycoside, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-5-thio-α-*D*-altropyranoside*
$C_{10}H_{18}O_5S$ 250.315
Cryst. (Et_2O). Mp 63-65°. $[\alpha]_D$ +152 (c, 0.8 in $CHCl_3$).

β-D-Pyranose-*form*

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-thio-β-*D*-altropyranose*
$C_{16}H_{22}O_{10}S$ 406.41
$[\alpha]_D$ -122 (c, 1 in $CHCl_3$).

*Me glycoside: Methyl 5-thio-β-*D*-altropyranoside*
$C_7H_{14}O_5S$ 210.251
Cryst. (EtOAc). Mp 143-145°. $[\alpha]_D$ -130 (c, 1 in MeOH).

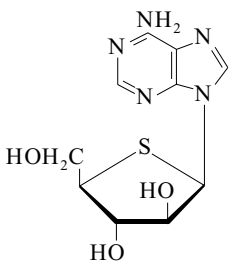
*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-β-*D*-altropyranoside*
$C_{15}H_{22}O_9S$ 378.399
Cryst. (diisopropyl ether). Mp 125-127°. $[\alpha]_D$ -152 (c, 0.6 in $CHCl_3$).

L-*form*
Cryst. (EtOH). Mp 175-179°. $[\alpha]_D$ +63 → +58 (final) (c, 1.0 in H_2O).

L-furanose-*form*

*1,2,3,6,*S*-Penta-Ac: 1,2,3,6-Tetra-*O*-acetyl-5-*S*-acetyl-5-thio-L-altrofuranose*
$C_{16}H_{22}O_{10}S$ 406.41
Syrup. Mixt. of anomers.
Al-Masoudi, N.A.J. *et al., Carbohydr. Res.*, 1986, **148**, 39 (*synth, pmr, cmr*)
Hughes, N.A. *et al., Carbohydr. Res.*, 2000, **326**, 323-325 (*L-form, synth, cmr*)

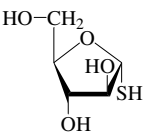
9-(4-Thioarabinofuranosyl)adenine, 8CI T-56



$C_{10}H_{13}N_5O_3S$ 283.31

β-D-*form* [15023-77-5]
Mp 135-142° (monohydrate). $[\alpha]_D^{21}$ -8 (c, 0.5 in H_2O). λ_{max} 260 (ϵ 15 400) (H_2O), 259 (14 800) (pH 1), 260 nm (15 400) (pH 13).
Reist, E.J. *et al., J.O.C.*, 1968, **33**, 189 (*synth*)

1-Thioarabinose T-57



α-D-Furanose-*form*

$C_5H_{10}O_4S$ 166.198

α-D-Furanose-*form*

*Et glycoside, 3-benzyl: Ethyl 3-*O*-benzyl-1-thio-α-*D*-arabinofuranoside*
[282107-56-6]
$C_{14}H_{20}O_4S$ 284.376
$[\alpha]_D^{25}$ +115 (c, 1.1 in $CHCl_3$).

*Et glycoside, 3-benzyl, 2-benzoyl: Ethyl 2-*O*-benzoyl-3-*O*-benzyl-1-thio-α-*D*-arabinofuranoside*
[282107-51-1]
$C_{21}H_{24}O_5S$ 388.484
Oil. $[\alpha]_D^{25}$ +178 (c, 1.1 in $CHCl_3$).

L-*form*

Na salt:
Hydrate. Mp 155° dec. $[\alpha]_D$ +69 → +93 (H_2O).

*Tetra-Ac: 2,3,4-Tri-*O*-acetyl-1-*S*-acetyl-1-thio-L-arabinose. 1-*S*,2,3,4-Tetra-*O*-acetyl-1-thio-L-arabinose*
$C_{13}H_{18}O_8S$ 334.346
Mp 79°. $[\alpha]_D$ +42 ($CHCl_3$).

α-L-Pyranose-*form*

*Et glycoside, tri-Ac: Ethyl 2,3,4-tri-*O*-acetyl-1-thio-α-L-arabinopyranoside*
$C_{13}H_{20}O_7S$ 320.363
$[\alpha]_D^{22}$ -5 (c, 0.8 in $CHCl_3$).

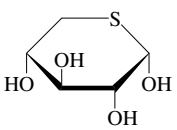
*Et glycoside, tribenzoyl: Ethyl 2,3,4-tri-*O*-benzoyl-1-thio-α-L-arabinopyranoside*
$C_{28}H_{26}O_7S$ 506.575
$[\alpha]_D^{22}$ +214 (c, 1.8 in $CHCl_3$).

*Benzyl glycoside, tri-Ac: Benzyl 2,3,4-tri-*O*-acetyl-1-thio-α-L-arabinopyranoside*
$C_{18}H_{22}O_7S$ 382.434
Mp 148°. $[\alpha]_D$ -45 ($CHCl_3$).

α-L-Furanose-*form*

Et glycoside, tribenzoyl:
$C_{28}H_{26}O_7S$ 506.575
Needles (EtOH). Mp 70-72°. $[\alpha]_D$ -34.4 (c, 1 in $CHCl_3$).
Gehrke, M. *et al., Ber.*, 1931, **64**, 2696-2702 (*L-tetra-Ac*)
Pakulski, Z. *et al., Tetrahedron*, 1994, **50**, 2975 (*synth, pmr, Et gly derivs*)
Timmers, C.M. *et al., Eur. J. Org. Chem.*, 1998, 91-97 (*α-L-Et fur, tribenzyl*)
Sanchez, S. *et al., Eur. J. Org. Chem.*, 2002, 3864-3873 (*α-D-Et fur 3-benzyl*)

5-Thioarabinose T-58



α-D-Pyranose-*form*

$C_5H_{10}O_4S$ 166.198

α-D-Pyranose-*form*

*Me glycoside: Methyl 5-thio-α-*D*-arabinopyranoside*
$C_6H_{12}O_4S$ 180.224
Cryst. (EtOAc). Mp 122-124°. $[\alpha]_D$ +149 (c, 0.9 in MeOH).

β-D-Pyranose-*form*
Cryst. (EtOH). Mp 172-175°. $[\alpha]_D$ -250 (c, 0.6 in H_2O).

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-thio-β-L-arabinopyranose*
$C_{13}H_{18}O_8S$ 334.346
Cryst. (EtOH). Mp 116-118°. $[\alpha]_D$ +295 (c, 1 in $CHCl_3$).

*Me glycoside: Methyl 5-thio-β-*D*-arabinopyranoside*
$C_6H_{12}O_4S$ 180.224
Cryst. (EtOH). Mp 185-186°. $[\alpha]_D$ -452 (c, 0.6 in MeOH).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-5-thio-β-*D*-arabinopyranoside*
$C_{12}H_{18}O_7S$ 306.336
Cryst. (EtOAc/petrol). Mp 66-68°. $[\alpha]_D$ +85 (c, 1 in $CHCl_3$).

*Me glycoside, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-5-thio-β-D-arabinopyranoside*
$C_9H_{16}O_4S$ 220.289
Syrup. $[\alpha]_D$ -25 (c, 1.2 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 5-thio-β-L-arabinopyranoside
$C_6H_{12}O_4S$ 180.224
Mp 170-180°. $[\alpha]_D$ +457 (c, 0.5 in H_2O).

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-thio-β-L-arabinopyranose*
$C_{13}H_{18}O_8S$ 334.346
Cryst. (EtOH). Mp 120-122°. $[\alpha]_D$ +299.

L-*form*

Cryst. (EtOH). Mp 172-174°. $[\alpha]_D$ +303 (5 min.) → +281 (24 h) (c, 0.5 in H_2O). β-Anomer in cryst. state.

*2,3-Isopropylidene: 2,3-*O*-Isopropylidene-5-thio-L-arabinopyranose*
$C_8H_{14}O_4S$ 206.262
Cryst. (hexane). Mp 123-125°. $[\alpha]_D$ +252 (5 min.) → +230 (24 h) (c, 1 in Py). Anomeric mixt. α:β 1:9 in cryst. state.

*2,3-Isopropylidene, 4-benzoyl: 4-*O*-Benzoyl-2,3-*O*-isopropylidene-5-thio-L-arabinopyranose*
$C_{15}H_{18}O_5S$ 310.37
Syrup. $[\alpha]_D$ +215. Mixt. of anomers α:β 15:85.

β-L-Furanose-*form*

*1,2-Isopropylidene, 3,5(*S*)-di-Ac: 3-*O*-Acetyl-5-*S*-acetyl-1,2-*O*-isopropylidene-5-thio-β-L-arabinofuranoside. 3,5-*S*-Diacetyl-1,2-*O*-isopropylidene-5-thio-β-L-arabinofuranoside*
$C_{12}H_{18}O_6S$ 290.337
Mp 85°. $[\alpha]_D$ -14 ($CHCl_3$).

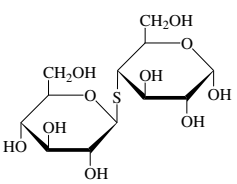
*1,2-*O*-Isopropylidene, 5(*S*)-benzyl: 5-*S*-Benzyl-1,2-*O*-isopropylidene-5-thio-β-L-arabinopyranoside*
$C_{15}H_{20}O_4S$ 296.387
Mp 72°. $[\alpha]_D$ +30 ($CHCl_3$).

Me glycoside, disulfide:
$C_{12}H_{22}O_8S_2$ 358.433
Mp 184°. $[\alpha]_D$ +403 ($CHCl_3$).

Whistler, R.L. *et al., J.O.C.*, 1964, **29**, 1259 (*L-Fur derivs*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1985, **136**, 397; 1994, **257**, 299 (*synth, pmr, cmr, Pyr derivs*)
Bozó, E. *et al., Carbohydr. Res.*, 1998, **311**, 191-202 (*synth, derivs*)

Thiocellobiose T-59

*4-*S*-β-D-Glucopyranosyl-4-thio-D-glucose*
[80951-92-4]


α-Pyranose-*form*

$C_{12}H_{22}O_{10}S$ 358.366

Reducing disaccharide. Inducer of cellulose degradating enzymes. Hygroscopic solid (MeOH/Et_2O). Mp 175°. $[\alpha]_D^{20}$ -16 (c, 1 in H_2O).

2,3,6-Tribenzoyl, 1,2′,3′,4′,6′-penta-Ac:
[92051-21-3, 92051-22-4]
$C_{43}H_{44}O_{18}S$ 880.876
Cryst. (EtOH). Props refer to a mixt. of α and β anomers at C-1 (OAc). Mp 228° dec. $[\alpha]_D^{20}$ +55 (c, 1 in $CHCl_3$).

α-Pyranose-*form*

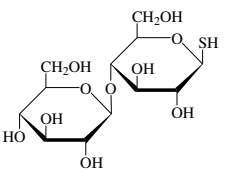
Me glycoside, 2,3,6-tribenzoyl, tetra-Ac:
[92051-20-2]
$C_{42}H_{44}O_{17}S$ 852.865
Cryst. (EtOH). Mp 194-195°. $[\alpha]_D^{20}$ +60 (c, 1 in $CHCl_3$).

Octa-Ac: [140484-29-3]
$C_{28}H_{38}O_{18}S$ 694.663
Cryst. (Et_2O). Mp 175-177°. $[\alpha]_D$ +23 (c, 0.9 in $CHCl_3$). Incorrectly indexed in CAS as β-D-pyranose form.

Hrmova, M. *et al., Arch. Microbiol.*, 1984, **138**, 371-376 (*props*)
Hamacher, K. *et al., Carbohydr. Res.*, 1984, **128**, 291-295 (*synth, pmr*)
Orgeret, C. *et al., Carbohydr. Res.*, 1992, **224**, 29-40 (*synth, octa-Ac*)
Moreau, V. *et al., Carbohydr. Res.*, 1997, **30**, 271-277 (*synth*)
Ibatullin, F.M. *et al., Synthesis*, 2001, 419-422 (*α-Me pyr tribenzoyl tetra-Ac*)

1-Thiocellobiose T-60

*4-*O*-β-Glucopyranosyl-1-thio-D-glucose, 9CI*


β-D-Pyranose-*form*

$C_{12}H_{22}O_{10}S$ 358.366

β-D-Pyranose-*form*

Powder (MeOH). Mp 110° (dec.). $[\alpha]_D^{20}$ -33.3 (30 min.) → +14.8 (6d) (c, 1.25 in 50% EtOH aq.).

*Hepta-Ac: 2,2′,3,3′,4′,6,6′-Hepta-*O*-acetyl-1-thio-β-D-cellobiose. 4-*O*-(2,3,4,6-Tetra-*O*-acetyl-β-D-glucopyranosyl)-2,3,6-tri-*O*-acetyl-1-thio-β-D-glucopyranose*
[68636-40-8]
$C_{26}H_{36}O_{17}S$ 652.626
Cryst. (MeOH). Mp 209-212°. $[\alpha]_D^{27}$ -10.3 (c, 1 in $CHCl_3$).

*Octa-Ac: Octa-*O*-acetyl-1-thio-β-D-cellobiose*
$C_{28}H_{38}O_{18}S$ 694.663
Mp 205°.

*Me glycoside: Methyl 1-thio-β-D-cellobioside. Methyl 4-*O*-β-D-glucopyranosyl-1-thio-β-D-glucopyranoside*
[125739-49-3]
$C_{13}H_{24}O_{10}S$ 372.393
Cryst. (EtOH/Et_2O). Mp 220°. $[\alpha]_D^{20}$ -30.7 (c, 1.8 in H_2O).

Me glycoside, hepta-Ac:
$C_{27}H_{38}O_{17}S$ 666.653
Cryst. (EtOH). Mp 200°. $[\alpha]_D^{20}$ -20.4 (c, 1.6 in $CHCl_3$).

*Et glycoside: Ethyl 1-thio-β-D-cellobioside. Ethyl 4-*O*-β-D-glucopyranosyl-1-thio-β-D-glucopyranoside*
$C_{14}H_{26}O_{10}S$ 386.419
Cryst. (EtOH). Mp 219°. $[\alpha]_D^{20}$ -37.9 (c, 1.58 in H_2O).

Et glycoside, hepta-Ac:
$C_{28}H_{40}O_{17}S$ 680.68
Cryst. (EtOH). Mp 193°. $[\alpha]_D^{20}$ -26.9 (c, 2.7 in $CHCl_3$).

*Benzyl glycoside: Benzyl 1-thio-β-D-cellobiose. Phenylmethyl 4-*O*-β-D-glucopyranosyl-1-thio-β-D-glucopyranoside, 9CI*
[68636-46-4]
$C_{19}H_{28}O_{10}S$ 448.49
Cryst. (2-propanol). Mp 185-186°. $[\alpha]_D^{27}$ -128 (c, 1 in MeOH).

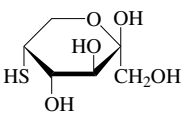
Benzyl glycoside, hepta-Ac: [68636-45-3]
$C_{33}H_{42}O_{17}S$ 742.751
Cryst. (EtOH). Mp 191-193°. $[\alpha]_D^{27}$ -70.5 (c, 1 in $CHCl_3$).

4-Aminophenyl glycoside: p-*Aminophenyl 1-thio-β-D-cellobioside. 4-Aminophenyl 4-*O*-β-D-glucopyranosyl-1-thio-β-D-glucopyranoside, 9CI*
[68636-51-1]
$C_{18}H_{27}NO_{10}S$ 449.478
Improved functional affinity ligand for cellulases. Cryst. (EtOH aq.). Mp 258-260° (247-250°). $[\alpha]_D^{27}$ -50.9 (c, 0.5 in H_2O).

4-Aminobenzyl glycoside: p-*Aminobenzyl 1-thio-β-D-cellobioside. (4-Aminophenyl)methyl 4-*O*-β-D-glucopyranosyl-1-thio-β-D-glucopyranoside, 9CI*
[68636-49-7]
$C_{19}H_{29}NO_{10}S$ 463.505
Functional affinity ligand for cellulases. Cryst. (EtOH/MeOH). Mp 206-208°. $[\alpha]_D^{27}$ -116 (c, 0.5 in H_2O).

Wrede, F. *et al., Hoppe-Seyler's Z. Physiol. Chem.*, 1927, **172**, 167-178 (*synth, Me gly, Et gly*)
Durette, P.L. *et al., Carbohydr. Res.*, 1978, **67**, 484-490 (*4-aminophenyl gly, 4-amniobenzyl gly*)
Tomme, P. *et al., Methods Enzymol.*, 1988, **160**, 187-193 (*4-aminobenzyl gly, use*)
Piyachomkwan, K. *et al., Carbohydr. Res.*, 1997, **303**, 255-259 (*4-aminophenyl gly, synth, use*)

5-Thiofructose T-61


β-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

D-*form*

$[\alpha]_D^{20}$ -7 (c, 1.1 in MeOH) (-4).

*Penta-Ac: 1,3,4,6-Tetra-*O*-acetyl-5-*S*-acetyl-5-thio-D-fructose. 1-*O*,3-*O*,4-*O*,5-*S*,6-*O*-Pentaacetyl-5-thio-D-fructose*
[53821-71-9]
$C_{16}H_{22}O_{10}S$ 406.41
Mp 91-92°. $[\alpha]_D^{25}$ +14.1 (c, 0.501 in $CHCl_3$).

β-D-Pyranose-*form*

*3,4,5-Tri-Ac: 3,4-Di-*O*-acetyl-5-*S*-acetyl-5-thio-β-D-fructopyranose. 3-*O*,4-*O*,5-*S*-Triacetyl-5-thio-β-D-fructopyranose*
[53821-68-4]
$C_{12}H_{18}O_8S$ 322.335
Cryst. (EtOAc/Et_2O). Mp 118-120°. $[\alpha]_D^{25}$ -68.9 (c, 0.75 in $CHCl_3$).

*Penta-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-*S*-acetyl-5-thio-β-D-fructopyranose. 1-*O*,2-*O*,3-*O*,4-*O*,5-*S*-Pentaacetyl-5-thio-β-D-fructopyranose*
[53821-64-0]
$C_{16}H_{22}O_{10}S$ 406.41
Cryst. (EtOAc/hexane). Mp 104-105°. $[\alpha]_D^{25}$ -116.7 (c, 0.87 in $CHCl_3$).

*Me glycoside, 4,5-di-Ac: Methyl 4-*O*-acetyl-5-*S*-acetyl-5-thio-β-D-fructopyranoside. Methyl 4-*O*,5-*S*-diacetyl-5-thio-β-D-fructopyranoside*
[53821-55-9]
$C_{11}H_{18}O_7S$ 294.325
Cryst. (EtOAc/hexane). Mp 127-128°. $[\alpha]_D^{25}$ -190.7 (c, 1.02 in $CHCl_3$).

*Me glycoside, tetra-Ac: Methyl 1,3,4-tri-*O*-acetyl-5-*S*-acetyl-5-thio-β-D-fructopyranoside. Methyl 1-*O*,3-*O*,4-*O*,5-*S*-tetra-*O*-acetyl-5-thio-β-D-fructopyranoside*
[53821-56-0]
$C_{15}H_{22}O_9S$ 378.399
Oil. $[\alpha]_D^{25}$ -108.9 (c, 1.12 in $CHCl_3$).

*Me glycoside, 1,3-benzylidene, 4,5-di-Ac: Methyl 4-*O*-acetyl-5-*S*-acetyl-1,3-*O*-benzylidene-5-thio-β-D-fructopyranoside. Methyl 4-*O*,5-*S*-diacetyl-1,3-*O*-benzylidene-β-D-fructopyranoside*
[53821-54-8]
$C_{18}H_{22}O_7S$ 382.434
Mp 123-124°. $[\alpha]_D^{25}$ -117.8 (c, 1.35 in $CHCl_3$).

α-D-Furanose-*form*

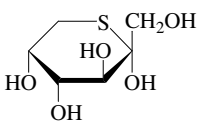
*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-thio-α-D-fructofuranose*
[53821-69-5]
$C_{16}H_{22}O_{10}S$ 406.41
Mp 107-108°. $[\alpha]_D^{25}$ +153.8 (c, 0.67 in $CHCl_3$).

β-D-Furanose-*form*

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-thio-β-D-fructofuranose*
[53821-70-8]
$C_{16}H_{22}O_{10}S$ 406.41
Mp 70-73°. $[\alpha]_D^{25}$ -91.3 (c, 0.87 in $CHCl_3$).

Chmielewski, M. *et al., J.O.C.*, 1975, **40**, 639 (*synth, pmr*)
Tatibouët, A. *et al., Carbohydr. Res.*, 2001, **333**, 327-334 (*synth*)

6-Thiofructose T-62



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224
Exists as β-Pyranose form in cryst. state. In soln. rapidly equilibrates with 10-15% of α-Pyr (v. fast mutarotation).

D-*form* [70228-77-2]
Cryst. (EtOH/$CHCl_3$ at -20°). Mp 63-64°. $[\alpha]_D^{25}$ -210 → -185 ($t_{½}$ 4.6 sec) (H_2O). Sweeter than fructose. Nontoxic.

*1,3,4,5,6*S*-Penta-Ac: 1,3,4,5-Tetra-*O*-acetyl-6-*S*-acetyl-6-thio-D-fructose*
[61403-00-7]
$C_{16}H_{22}O_{10}S$ 406.41
Cryst. (EtOH). Mp 90-91°. $[\alpha]_D$ +47 (c, 1 in $CHCl_3$). Deriv. of the open-chain form.

β-D-Pyranose-*form* [56578-20-2]
Cryst. (EtOH/$CHCl_3$ at -20°). Mp 63-64°. $[\alpha]_D^{25}$ -194 (c, 1 in H_2O).

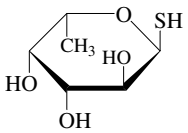
*1,3,4,5-Tetra-Ac: 1,3,4,5-Tetra-*O*-acetyl-6-thio-β-D-fructopyranose*
$C_{14}H_{20}O_9S$ 364.373
Cryst. (EtOH). Mp 155-156°. $[\alpha]_D^{25}$ -150 (c, 1.6 in $CHCl_3$).

[69685-31-0]

Chmielewski, M. *et al., Carbohydr. Res.*, 1976, **49**, 479; 1979, **69**, 259 (*β-D-form, synth, pmr*)
Grimshaw, C.E. *et al., Carbohydr. Res.*, 1980, **82**, 353 (*equilib*)
Lambert, J.B. *et al., Carbohydr. Res.*, 1983, **115**, 33 (*pmr, cmr*)
Woods, R.J. *et al., Carbohydr. Res.*, 1989, **193**, 1 (*cryst struct, β-D-form*)

1-Thiofucose T-63

6-Deoxy-1-thiogalactose



α-L-Pyranose-*form*

$C_6H_{12}O_4S$ 180.224

β-D-Pyranose-*form*

*Et glycoside, tri-Ac: Ethyl 2,3,4-tri-*O*-acetyl-1-thio-β-D-fucopyranoside*
[160533-93-7]
$C_{14}H_{22}O_7S$ 334.39
Foam. $[\alpha]_D^{20}$ -28 (c, 1 in $CHCl_3$).

*Ph glycoside, tri-Ac: Phenyl 2,3,4-tri-*O*-acetyl-1-thio-β-D-fucopyranoside*
[141193-62-6]
$C_{18}H_{22}O_7S$ 382.434
Syrup. $[\alpha]_D^{20}$ +11.9 (c, 1.0 in $CHCl_3$).

α-L-Pyranose-*form*

Ph glycoside, tribenzyl, S*-oxide: Phenyl 2,3,4-tri-*O*-benzyl-α-L-fucopyranosyl sulfoxide*
[157135-66-5]
$C_{33}H_{34}O_5S$ 542.695
Glycosylating agent. No phys. props. reported.

β-L-Pyranose-*form*

Me glycoside: Methyl 1-thio-β-L-fucopyranoside
[114853-38-2]
$C_7H_{14}O_4S$ 194.251
Needles. Mp 103-105°. $[\alpha]_D$ +21 (c, 1.0 in $CHCl_3$).

*Me glycoside, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-1-thio-β-L-fucopyranoside*
[130572-04-2]
$C_{10}H_{18}O_4S$ 234.316
Needles (Et_2O). Mp 69° (63-65°). $[\alpha]_D$ -47.5 (c, 1.0 in $CHCl_3$) (-44).

*Me glycoside, 2,3-dibenzoyl: Methyl 2,3-di-*O*-benzoyl-1-thio-β-L-fucopyranoside*
$C_{21}H_{22}O_6S$ 402.467
Syrup. $[\alpha]_D$ -96.2 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2-Me: Methyl 2-*O*-methyl-1-thio-β-L-fucopyranoside*
[151669-17-9]
$C_8H_{16}O_4S$ 208.278
$[\alpha]_D$ +17 (c, 0.86 in $CHCl_3$).

*Me glycoside, 2-Me, 3,4-isopropylidene: Methyl 3,4-*O*-isopropylidene-2-*O*-methyl-1-thio-β-L-fucopyranoside*
[151669-16-8]
$C_{11}H_{20}O_4S$ 248.343
Cryst. (cyclohexane). Mp 95°. $[\alpha]_D$ -1.5 (c, 1.5 in $CHCl_3$).

*Me glycoside, 2-Me, 3,4-benzylidene(*endo*): Methyl 3,4-*O*-benzylidene-2-*O*-methyl-1-thio-β-L-fucopyranoside*
[151669-18-0]
$C_{15}H_{20}O_4S$ 296.387
$[\alpha]_D$ +17 (c, 0.99 in $CHCl_3$).

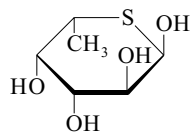
Et glycoside: Ethyl 1-thio-β-L-fucopyranoside
[132799-10-1]
$C_8H_{16}O_4S$ 208.278
Cryst. (Et_2O). Mp 83.5-84.5°. $[\alpha]_D^{25}$ +42.4 (c, 0.5 in $CHCl_3$).

*Et glycoside, 2,4-di-Ac: Ethyl 2,4-di-*O*-acetyl-1-thio-β-L-fucopyranoside*
[162467-81-4]
$C_{12}H_{20}O_6S$ 292.352
Cryst. (2-propanol). Mp 120.5-121.5°. $[\alpha]_D^{25}$ +5.6 (c, 0.5 in $CHCl_3$).

Paulsen, H. *et al., Annalen*, 1992, 747-758 (*β-D-Ph gly tri-Ac*)
Kerékgyártó, J. *et al., Carbohydr. Res.*, 1993, **245**, 65-80 (*β-L-Me gly 2-Me, Me gly isopropylidene*)
Ando, T. *et al., Carbohydr. Res.*, 1993, **249**, 275-280 (*synth, pmr, β-L-Me gly, Me gly dibenzoyl*)
Dekany, G. *et al., J. Carbohydr. Chem.*, 1995, **14**, 227-236 (*derivs*)
Yan, L. *et al., J.A.C.S.*, 1996, **118**, 9239-9248 (*α-L-Ph gly tribenzyl S-oxide*)
Joosten, J.A.F. *et al., Eur. J. Org. Chem.*, 2003, 3569-3586 (*β-D-Et gly tri-Ac*)
Xia, J. *et al., J.O.C.*, 2003, **68**, 2752-2759 (*β-L-Me glycoside 3,4-isopropylidene, synth, pmr, cmr*)
Ruttens, B. *et al., Synthesis*, 2004, 2505-2508 (*β-L-Et pyr*)

5-Thiofucose T-64

6-Deoxy-5-thiomannose



$C_6H_{12}O_4S$ 180.224

L-*form*
Potent inhibitor of bovine α-fucosidase.

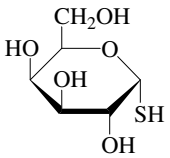
α-L-Pyranose-*form* [131064-76-1]
Mp 159-160°. $[\alpha]_D^{22}$ -259.1 (c, 1.2 in H_2O).

Tetra-Ac: 1,2,3,4-Tetra-O-*acetyl-5-thio-α-L-fucopyranose*
[130792-92-6]
$C_{14}H_{20}O_8S$ 348.373
Mp 132-133°. $[\alpha]_D^{23}$ -269.2 (c, 1.0 in $CHCl_3$).

1,2-Isopropylidene: 1,2-O-*Isopropylidene-5-thio-α-L-fucopyranose*
[130995-78-7]
$C_9H_{16}O_4S$ 220.289
Mp 157-158°. $[\alpha]_D$ +41.7 (c, 1.0 in CH_2Cl_2).

Hashimoto, H. *et al., J. Carbohydr. Chem.*, 1990, **9**, 683-694 (*synth, pmr, cmr, biochem*)
Takahashi, S. *et al., J.C.S. Perkin 1*, 1997, 607-612 (*synth, pmr, cmr*)

1-Thiogalactose T-65



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

α-D-Pyranose-*form*

Penta-Ac: [130796-15-5]
$C_{16}H_{22}O_{10}S$ 406.41
Solid (Et_2O). Mp 119°. $[\alpha]_D$ +48 (c, 0.8 in $CHCl_3$).

Et glycoside: Ethyl 1-thio-α-D-galactopyranoside
[73494-52-7]
$C_8H_{16}O_5S$ 224.277
Needles (EtOH). Mp 154°. $[\alpha]_D^{27}$ +320 (c, 0.55 in H_2O).

Et glycoside, tetra-Ac: Ethyl 2,3,4,6-tetra-O-*acetyl-1-thio-α-D-galactopyranoside*
[126187-25-5]
$C_{16}H_{24}O_9S$ 392.426
Cryst. (Et_2O/hexane). Mp 108-109°. $[\alpha]_D$ +218 ($CHCl_3$).

Isopropyl glycoside: Isopropyl 1-thio-α-D-glucopyranoside
[26112-89-0]
$C_9H_{18}O_5S$ 238.304
Cryst. (dioxan). Mp 110°.

Benzyl glycoside, tetrabenzyl: Benzyl 2,3,4,6-tetra-O-*benzyl-1-thio-α-D-galactopyranoside*
[437757-82-9]
$C_{41}H_{42}O_5S$ 646.846
Oil. $[\alpha]_D^{20}$ +148.2 (c, 0.9 in $CHCl_3$).

β-D-Pyranose-*form* [49858-49-3]

Me glycoside: Methyl 1-thio-β-D-galactopyranoside
[155-30-6]
$C_7H_{14}O_5S$ 210.251
Cryst. (EtOH). Mp 174-175°. $[\alpha]_D^{20}$ +11 (H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-galactopyranoside*
[55722-48-0]
$C_{15}H_{22}O_9S$ 378.399
Needles (EtOH). Mp 108°. $[\alpha]_D^{17}$ +3 ($CHCl_3$).

Et glycoside: Ethyl 1-thio-β-D-galactopyranoside
[56245-60-4]
$C_8H_{16}O_5S$ 224.277
Cryst. (EtOH/EtOAc). Mp 122°. $[\alpha]_D^{26}$ -24 (c, 0.9 in H_2O).

Et glycoside, tetra-Ac: Ethyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-galactopyranoside*
[55722-49-1]
$C_{16}H_{24}O_9S$ 392.426
Mp 74-75°. $[\alpha]_D^{26}$ -8 (c, 2.1 in $CHCl_3$).

Isopropyl glycoside: Isopropyl 1-thio-β-D-galactopyranoside. 1 PTG
[367-93-1]
$C_9H_{18}O_5S$ 238.304
Inducer of β-galactosidase activity in bacteria, used to detect lac gene activity.
Cryst. or cryst. + $1H_2O$. Mp 109-110.5° Mp 126° (hydrate). $[\alpha]_D^{20}$ -31.5 (c, 1 in H_2O).

Benzyl glycoside, tetrabenzyl: Benzyl 2,3,4,6-tetra-O-*benzyl-1-thio-β-D-galactopyranoside*
[210358-01-3]
$C_{41}H_{42}O_5S$ 646.846
Oil. $[\alpha]_D^{20}$ -34.9 (c, 3.1 in $CHCl_3$).

Ph glycoside: Phenyl 1-thio-β-D-galactopyranoside
[16758-34-2]
$C_{12}H_{16}O_5S$ 272.321
Hemihydrate. Mp 123-124°. $[\alpha]_D$ -44.6 (c, 0.88 in MeOH).

Ph glycoside, tetra-Ac: Phenyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-galactopyranoside*
[24404-53-3]
$C_{20}H_{24}O_9S$ 440.47
Solid (also descr. as syrup). Mp 73-76°. $[\alpha]_D$ +3.7 (c, 1.00 in $CHCl_3$). $[\alpha]_D$ +7.83 (c, 1.06 in CH_2Cl_2).

Ph glycoside, 2,3,4-tribenzoyl: Phenyl 2,3,4-tri-O-*benzoyl-1-thio-β-D-galactopyranoside*
$C_{33}H_{28}O_8S$ 584.645
$[\alpha]_D$ +123 (c, 1.0 in $CHCl_3$).

Ph glycoside, tetrabenzoyl: Phenyl 2,3,4,6-tetra-O-*benzoyl-1-thio-β-D-galactopyranoside*
$C_{40}H_{32}O_9S$ 688.753
$[\alpha]_D$ +92.2 (c, 1.0 in $CHCl_3$).

Ph glycoside, 2,3,4,6-tetrapivaloyl, S-*oxide: Phenyl 2,3,4,6-tetra*-O-*pivaloyl-β-D-galactopyranosyl sulphoxide*
[157239-66-2]
[183875-03-8, 183875-04-9]
$C_{32}H_{48}O_{10}S$ 624.791
Glycosylating agent.
Obt. as a 2.1:1 diastereomeric mixt. at S.

Ph glycoside, 3,4-O-*isopropylidene: Phenyl 3,4*-O-*isopropylidene-1-thio-β-D-galactopyranoside*
[120095-47-8]
$C_{15}H_{20}O_5S$ 312.386
Prisms + $2H_2O$. Mp 42-43°. $[\alpha]_D$ -6.8 (c, 0.52 in MeOH).

Ph glycoside, 2,3,6-tribenzyl: Phenyl 2,3,6-tri-O-*benzyl-1-thio-β-D-galactopyranoside*
[144781-45-3]
$C_{33}H_{34}O_5S$ 542.695
Syrup. $[\alpha]_D^{23}$ -10.5 (c, 1.06 in $CHCl_3$).

Ph glycoside, 3,4,6-tribenzyl, 2-pivaloyl, S-*oxide: Phenyl 3,4,6-tri*-O-*benzyl-2*-O-*pivaloyl-β-D-galactopyranosyl sulfoxide*
[183875-11-8, 183875-12-9]
$C_{38}H_{42}O_7S$ 642.812
Glycosylating agent.
Obt. as a 2.1:1 diastereomeric mixture at S.

Ph glycoside, tetrabenzyl: Phenyl 2,3,4,6-tetra-O-*benzyl-1-thio-β-D-galactopyranoside*
[74801-29-9]
$C_{40}H_{40}O_5S$ 632.819
Cryst. Mp 70°. $[\alpha]_D$ +16.5 (c, 1 in CH_2Cl_2).

α-D-Furanose-*form*

Et glycoside: Ethyl 1-thio-α-D-galactofuranoside
[89825-83-2]
$C_8H_{16}O_5S$ 224.277
Syrup. $[\alpha]_D$ +124 (c, 1.4 in H_2O).

Et glycoside, tetra-Ac: Ethyl 2,3,4,6-tetra-O-*acetyl-1-thio-α-D-galactofuranoside*
$C_{16}H_{24}O_9S$ 392.426
Cryst. (Et_2O/petrol). Mp 51°. $[\alpha]_D$ +118 ($CHCl_3$).

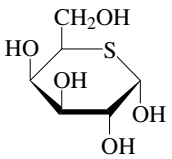
Et glycoside, tetrabenzoyl: Ethyl 2,3,4,6-tetra-O-*benzoyl-1-thio-α-D-galactofuranoside*
[89755-46-4]
$C_{36}H_{32}O_9S$ 640.709
Syrup. $[\alpha]_D$ +77 (c, 1.0 in $CHCl_3$).

Ph glycoside: Phenyl 1-thio-α-D-galactofuranoside
[89755-47-5]
$C_{12}H_{16}O_5S$ 272.321
Cryst. ($CHCl_3$). Mp 123-125°. $[\alpha]_D$ +176 (c, 0.8 in Py).

Fried, J. *et al., J.A.C.S.*, 1949, **71**, 140 (*α-D-pyr Et gly, β-D-pyr Et gly, α-D-pyr Et gly tetra-Ac, β-D-pyr Et gly tetra-Ac*)
Helferich, B. *et al., Chem. Ber.*, 1953, **86**, 873 (*β-D-pyr Me gly, β-D-pyr Me gly tetra-Ac*)
Burckhardt, H. *et al., Chem. Ber.*, 1956, **89**, 2215 (*β-D-pyr isopropyl gly*)
Wolfrom, M.L. *et al., J.O.C.*, 1959, **24**, 1529; 1964, **29**, 454 (*α-D-fur Et gly, α-D-fur Et gly tetra-Ac, α-D-fur Ph gly*)
Horton, D. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 368 (*β-D-pyr Me gly, β-D-pyr Me gly tetra-Ac*)
Schmidt, R.R. *et al., Annalen*, 1983, 1249 (*β-D-pyr isopropyl gly, synth, pmr*)
Berman, E. *et al., Carbohydr. Res.*, 1983, **116**, 144 (*β-D-pyr isopropyl gly, cmr*)
Ferrier, R.J. *et al., Carbohydr. Res.*, 1984, **127**, 157 (*α-D-fur Et gly tetrabenzoyl, α-D-fur Ph gly*)
Cho, S. *et al., Biochem. Biophys. Res. Commun.*, 1985, **128**, 1268 (*β-D-pyr isopropyl gly, use*)
Matias, P.M. *et al., Carbohydr. Res.*, 1986, **153**, 217 (*β-D-pyr isopropyl gly, cryst struct*)
Pozsgay, V. *et al., Tet. Lett.*, 1987, **28**, 1375 (*β-D-pyr Me gly tetra-Ac*)
Blanc-Muesser, M. *et al., Tet. Lett.*, 1990, **31**, 3869-3870 (*α-D-pyr penta-Ac*)
Carlsson, U *et al., Protein Eng.*, 1991, **4**, 1019 (*β-D-pyr isopropyl gly, !synth, pmr, use*)
Pakulski, Z. *et al., Tetrahedron*, 1994, **50**, 2975 (*synth, derivs*)
Nagao, Y. *et al., Chem. Pharm. Bull.*, 1995, **43**, 1536 (*β-D-pyr Ph gly*)
Das, S.K. *et al., Carbohydr. Res.*, 1996, **296**, 275-277 (*Et gly tetra-Ac, !synth*)
Yan, L. *et al., J.A.C.S.*, 1996, **118**, 9239-9248 (*Ph gly S-oxides*)

Cao, S. *et al., J. Carbohydr. Chem.*, 1998, **17**, 609-631 (*β-D-Pyr 2,3,4-tribenzoyl, β-D-Pyr tetrabenzoyl*)
Xie, J. *et al., J. Carbohydr. Chem.*, 1999, **18**, 481-498 (*Ph β-D-pyr tetra-Ac, Ph β-D-pyr tetrabenzyl*)
Kramer, S. *et al., J. Carbohydr. Chem.*, 2000, **19**, 891-921 (*Et glycoside derivs*)
Ibatullin, F.M. *et al., Synthesis*, 2001, 419-422 (*β-D-pyr Et gly tetra-Ac*)
Griffin, F.K. *et al., Eur. J. Org. Chem.*, 2002, 1305-1322 (*α-D-pyr benzyl gly tetrabenzyl, β-D-pyr benzyl gly tetrabenzyl*)
Faltin, F. *et al., Synthesis*, 2002, 1851-1856 (*β-D-pyr Ph gly tribenzyl*)

5-Thiogalactose T-66



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

Equilib. composition for free sugar α:β 83:17 after 3 d in D_2O.

α-D-Pyranose-*form*

Me glycoside: Methyl 5-thio-α-D-galactopyranoside
$C_7H_{14}O_5S$ 210.251
Cryst. (EtOAc). Mp 91-93°. $[\alpha]_D$ +347.7 (c, 0.72 in MeOH).

*Me glycoside, 2,3,4,6-tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-α-D-galactopyranoside*
$C_{15}H_{22}O_9S$ 378.399
Cryst. (EtOAc/hexane or MeOH). Mp 96-98°. $[\alpha]_D$ +225.5 (c, 1.4 in $CHCl_3$).

β-D-Pyranose-*form*

Me glycoside: Methyl 5-thio-β-D-galactopyranoside
$C_7H_{14}O_5S$ 210.251
Cryst. Mp 142-145°. $[\alpha]_D$ -12.2 (c, 2.8 in H_2O).

*Me glycoside, 2,3,4,6-tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-β-D-galactopyranoside*
$C_{15}H_{22}O_9S$ 378.399
Cryst. (MeOH). Mp 102-103°. $[\alpha]_D$ +9.5 (c, 4.2 in $CHCl_3$).

β-D-Furanose-*form*

*1,2,3,5*S*,6-Penta-Ac: 1,2,3,6-Tetra-*O*-acetyl-5-*S*-acetyl-5-thio-β-D-galactofuranose. 1-*O*,2-*O*,3-*O*,5-*S*,6-*O*-Pentaacetyl-5-thio-β-D-galactofuranose*
$C_{16}H_{22}O_{10}S$ 406.41
Cryst. (EtOH). Mp 112°. $[\alpha]_D$ -67.4 (c, 1.7 in $CHCl_3$).

*Et glycoside, 2,3,5*S*,6-tetra-Ac: Ethyl 2,3,6-tri-*O*-acetyl-5-*S*-acetyl-5-thio-β-D-galactofuranoside. Ethyl 2-*O*,3-*O*,5-*S*,6-O-tetraacetyl-β-D-galactofuranoside*
$C_{16}H_{24}O_9S$ 392.426
Cryst. (MeOH). Mp 61°. $[\alpha]_D$ -69.7 (c, 1.3 in $CHCl_3$).

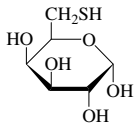
L-*form*
Cryst. (EtOH). Mp 178-180°.

L-Pyranose-*form*

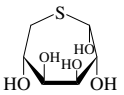
*1,2,3,4,6-Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-thio-L-galactopyranose*
$C_{16}H_{22}O_{10}S$ 406.41
Amorph. solid. $[\alpha]_D^{19}$ -199 (c, 1.0 in $CHCl_3$).

Shin, J.E.N. *et al., Carbohydr. Res.*, 1979, **76**, 165 (*synth, pmr, cmr*)
Hashimoto, H. *et al., Carbohydr. Res.*, 1996, **282**, 207-221 (*synth, pmr, cmr, L-form, L-pyr-penta-Ac*)

6-Thiogalactose T-67



α-D-Pyranose-*form*



α-D-Thioseptanose-*form*

$C_6H_{12}O_5S$ 196.224

α-D-Pyranose-*form*

*1,2,3,4,6-Penta-Ac: 1,2,3,4,6-Pentaacetyl-6-thio-α-D-galactopyranose. 1,2,3,4-Tetra-*O*-acetyl-6-*S*-acetyl-6-thio-α-D-galactopyranose*
$C_{16}H_{22}O_{10}S$ 406.41
Mp 113°. $[\alpha]_D^{25}$ +130 (c, 1.03 in $CHCl_3$).

*Ph glycoside, 2,3,4,6-tetra-Ac: Phenyl 2,3,4,6-tetraacetyl-6-thio-α-D-galactopyranoside. Phenyl 2,3,4-tri-*O*-acetyl-6-*S*-acetyl-6-thio-α-D-galactopyranose*
$C_{20}H_{24}O_9S$ 440.47
Cryst. (EtOH). Mp 84-85°. $[\alpha]_D$ +242 (c, 1.0 in $CHCl_3$).

*4-Benzoyl, 1,2,3,6-tetra-Ac: 1,2,3,6-Tetraacetyl-4-benzoyl-6-thio-α-D-galactopyranose. 1,2,3-Tri-*O*-acetyl-6-*S*-acetyl-4-*O*-benzoyl-6-thio-α-D-galactopyranose*
$C_{21}H_{24}O_{10}S$ 468.481
Glass. $[\alpha]_D$ +141.4 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*

*Ph glycoside, 2,3,4,6-tetra-Ac: Phenyl 2,3,4,6-tetraacetyl-6-thio-β-D-galactopyranoside. Phenyl 2,3,4-tri-*O*-acetyl-6-*S*-acetyl-6-thio-β-D-galactopyranose*
$C_{20}H_{24}O_9S$ 440.47
Cryst. (EtOH). Mp 110°. $[\alpha]_D^{25}$ +47 (c, 1.0 in $CHCl_3$).

α-D-Thioseptanose-*form*

*1,2,3,4,5-Penta-Ac: 1,2,3,4,5-Penta-*O*-acetyl-6-thio-α-D-galactoseptanose*
$C_{16}H_{22}O_{10}S$ 406.41
Cryst. (Et_2O). Mp 155°. $[\alpha]_D^{26}$ -3 (c, 1.52 in $CHCl_3$).

β-D-Thioseptanose-*form*

*1,2,3,4,5-Penta-Ac: 1,2,3,4,5-Penta-*O*-acetyl-6-thio-β-D-galactoseptanose*
$C_{16}H_{22}O_{10}S$ 406.41
Mp 148-149°. $[\alpha]_D^{25}$ -233 (c, 1.54 in $CHCl_3$).

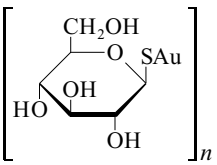
Me glycoside: Methyl 6-thio-β-D-galactoseptanoside
$C_7H_{14}O_5S$ 210.251
Cryst. (Me_2CO/Et_2O). Mp 90-91°. $[\alpha]_D^{25}$ -235 (c, 1.09 in MeOH).

*Me glycoside, 2,3,4,5-tetra-Ac: Methyl 2,3,4,5-tetra-*O*-acetyl-6-thio-β-D-galactoseptanoside*
$C_{15}H_{22}O_9S$ 378.399
Cryst. (Et_2O/pentane). Mp 99-100°. $[\alpha]_D^{25}$ -211 (c, 1.49 in $CHCl_3$).

Whistler, R.L. *et al., Carbohydr. Res.*, 1966, **2**, 93 (*α-D-pyr penta-Ac, αD-pyr Ph gly tetra-Ac, β-D-pyr Ph gly tetra-Ac*)
Whistler, R.L. *et al., J.O.C.*, 1966, **31**, 816 (*thioseptanose derivs*)
Yeagley, D.A. *et al., Carbohydr. Res.*, 1996, **289**, 189-191 (*α-D-pyr 4-benzoyl tetra-Ac*)

(1-Thioglucopyranosato)gold, 9CI T-68

(1-Glucosylthio)gold. ***Aurothioglucose, INN, USAN.*** *Aureotan. Aurumine. Oronol. Romosol. Solganal. Solganol B. Many other names*



$C_6H_{11}AuO_5S$ 392.182

Polymeric. Antiarthritic agent.

D-form [12192-57-3]
Antiarthritic agent.
Yellow cryst. (EtOH aq.). Sol. H_2O, insol. org. solvs.

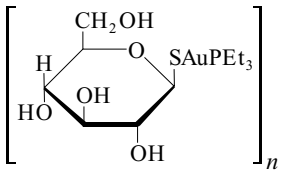
▶ Range of adverse effects reported from parenteral administration of soluble gold compds. LD_{50} (mus, ipr) 2000 mg/kg. Exp. carcinogen. Exp. reprod. and teratogenic effects. MD6475000

Tetra-Ac: (1-Thioglucopyranosato-2,3,4,6-tetraacetato)gold, 10CI
[69849-37-2]
$C_{14}H_{19}AuO_9S$ 560.331
Antiarthritic agent. Pale yellow cryst. (2-propanol/Et_2O). Mp 146-148°. $[\alpha]_D^{25}$ -56.9 (c, 1 in MeOH). Polymeric.

[74610-70-1, 82475-04-5]

Sadler, P.J. *et al., Struct. Bonding (Berlin)*, 1976, **29**, 171 (*rev*)
IARC Monog., 1977, **13**, 39 (*tox, rev*)
Lorber, A. *et al., Gold Bull.*, 1979, **12**, 149 (*rev*)
U.S. Pat., 1979, 4 133 952, (*SmithKline*); *CA*, **90**, 152549g (*deriv*)
Brown, D.H. *et al., Chem. Soc. Rev.*, 1980, **9**, 217 (*rev*)
Shaw, C.F. *et al., J. Inorg. Biochem.*, 1981, **14**, 267 (*rev, cmr*)
Brown, K. *et al., J.A.C.S.*, 1981, **103**, 4943 (*Mössbauer*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 7
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 7th edn., Akademie-Verlag*, 1994, 581 (*synonyms*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, ART250

(1-Thioglucopyranosato-*S*)(triethylphosphine)gold, 9CI T-69



$C_{12}H_{26}AuO_5PS$ 510.341

Polymeric. Antiarthritic agent.

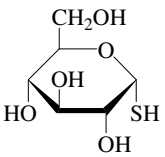
β-D-*form* [34031-29-3]
Antiarthritic agent.

Tetra-Ac: See Auranofin, A-879

Ger. Pat., 1971, 2 051 495, (*SmithKline and French*); *CA*, **75**, 77223f
Sutton, B.M. *et al., J. Med. Chem.*, 1972, **15**, 1095 (*use*)
Sadler, P.J. *et al., Struct. Bonding (Berlin)*, 1976, **29**, 171 (*rev*)
Lorber, A. *et al., Gold Bull.*, 1979, **12**, 149 (*rev*)
U.S. Pat., 1979, 4 124 759, (*SmithKline*); *CA*, **90**, 104297b (*use*)
Brown, D.H. *et al., Chem. Soc. Rev.*, 1980, **9**, 217 (*rev*)

1-Thioglucose, 9CI, 8CI T-70

Glucothiose



α-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

Occurs widely in plants in a variety of complex glycosides from which it can usually be obt. by alkaline hydrol.

D-*form* [7211-44-1]
Amorph. solid + $1H_2O$. Forms crystalline salts. Gold deriv. produces obesity in mice and is used as an antiarthritic drug (see (1-Thioglucopyranosato)gold, T-68).

Na salt: [10593-29-0]
Cryst. + $2H_2O$. Mp 173° dec. $[\alpha]_D$ +18 (H_2O) (+14.1).

α-D-Pyranose-*form*

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-1-thio-α-D-glucopyranose*
[92691-83-3]
$C_{14}H_{20}O_9S$ 364.373
Solid (EtOH). Mp 92-93°. $[\alpha]_D^{20}$ +171 (c, 0.8 in $CHCl_3$) (+165).

Penta-Ac: 1,2,3,4,6-Pentaacetyl-1-thio-α-D-glucopyranose. 2,3,4,6-Tetra-O-*acetyl-1*-S-*acetyl-1-thio-α-D-glucopyranose*
[62860-10-0]
$C_{16}H_{22}O_{10}S$ 406.41
Cryst. (Et_2O/pentane or EtOH). Mp 123-125°. $[\alpha]_D$ +143.5 (c, 1.95 in $CHCl_3$).

Me glycoside: Methyl 1-thio-α-D-glucopyranoside
[84416-01-3]
$C_7H_{14}O_5S$ 210.251
Needles (EtOAc). Mp 137°. $[\alpha]_D^{30}$ +124.5 (H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-O-*acetyl-1-thio-α-D-glucopyranoside*
$C_{15}H_{22}O_9S$ 378.399
Mp 89°. $[\alpha]_D^{23}$ +150 ($CHCl_3$).

Me glycoside, tetrabenzyl: Methyl 2,3,4,6-tetra-O-*benzyl-1-thio-α-D-glucopyranoside*
[139903-43-8]
$C_{35}H_{38}O_5S$ 570.748
Needles (MeOH). Mp 57-58°. $[\alpha]_D^{20}$ +106.7 (c, 1.0 in $CHCl_3$).

Et glycoside: Ethyl 1-thio-α-D-glucopyranoside
[13533-58-9]
$C_8H_{16}O_5S$ 224.277
Mp 117°. $[\alpha]_D$ +269 (H_2O).

Et glycoside, tetra-Ac: Ethyl 2,3,4,6-tetra-O-*acetyl-1-thio-α-D-glucopyranoside*
[41670-79-5]
$C_{16}H_{24}O_9S$ 392.426
Mp 97.5°. $[\alpha]_D$ +207 ($CHCl_3$).

Et glycoside, 2,3,4-tribenzoyl: Ethyl 2,3,4-tri-O-*benzoyl-1-thio-α-D-glucopyranoside*
$C_{29}H_{28}O_8S$ 536.601
Solid. Mp 114-115°. $[\alpha]_D^{14}$ +87.5 (c, 1.0 in $CHCl_3$).

tert-*Butyl glycoside, tetra-Ac:* tert-*Butyl 2,3,4,6-tetra*-O-*acetyl-1-thio-α-D-glucopyranoside*
[64495-85-8]
$C_{18}H_{28}O_9S$ 420.48
Cryst. (hexane). Mp 62-64° (59°). $[\alpha]_D^{29}$ +183 (c, 0.5 in $CHCl_3$).

Benzyl glycoside: Benzyl 1-thio-α-D-glucopyranoside
[105026-43-5]
$C_{13}H_{18}O_5S$ 286.348
Mp 112-114°. $[\alpha]_D$ +175.7 (H_2O).

Benzyl glycoside, tetra-Ac: Benzyl 2,3,4,6-tetra-O-*acetyl-1-thio-α-D-glucopyranoside*
[64495-82-5]
$C_{21}H_{26}O_9S$ 454.497
Mp 77°. $[\alpha]_D$ +200.8 (EtOH).

Benzyl glycoside, tetrabenzyl: Benzyl 2,3,4,6-tetra-O-*benzyl-1-thio-α-D-glucopyranoside*
[211759-49-8]
$C_{41}H_{42}O_5S$ 646.846
Needles (MeOH). Mp 82.5-83.5°. $[\alpha]_D^{20}$ +161.6 (c, 1.0 in $CHCl_3$).

Ph glycoside: Phenyl 1-thio-α-D-glucopyranoside
[13992-15-9]
$C_{12}H_{16}O_5S$ 272.321
Needles (EtOH). Mp 156-157°. $[\alpha]_D^{20}$ +258 (c, 0.6 in Py).

Ph glycoside, tetra-Ac: Phenyl 2,3,4,6-tetra-O-*acetyl-1-thio-α-D-glucopyranoside*
[13992-16-0]
$C_{20}H_{24}O_9S$ 440.47
Cryst. (Et_2O/hexane). Mp 90-91°. $[\alpha]_D^{22}$ +153.8 (c, 1.8 in $CHCl_3$). $[\alpha]_D^{25}$ +8.5 (c, 0.5 in EtOH).

β-D-Pyranose-*form* [7534-35-2]

2,3,4,6-Tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-1-thio-β-D-glucopyranose*
[19879-84-6]
$C_{14}H_{20}O_9S$ 364.373
Mp 113-114°. $[\alpha]_D^{20}$ -2.1 (c, 2.8 in $C_2H_2Cl_4$). $[\alpha]_D^{20}$ +3.6 (c, 1.07 in CH_2Cl_2).

Penta-Ac: Penta-O-*acetyl-1-thio-β-D-glucopyranoside*
[13639-50-4]
$C_{16}H_{22}O_{10}S$ 406.41
Mp 119-121°. $[\alpha]_D$ +11 ($CHCl_3$).

1-Benzoyl, 2,3,4,6-tetra-Ac: 2,3,4,6-Tetra-O-*acetyl-1*-O-*benzoyl-1-thio-β-D-glucopyranoside*
[6767-60-8]
$C_{21}H_{24}O_{10}S$ 468.481
Mp 126°. $[\alpha]_D^{20}$ -12.4 (c, 2.73 in $C_2H_4Cl_2$).

Me glycoside: Methyl 1-thio-β-D-glucopyranoside
$C_7H_{14}O_5S$ 210.251
Syrup. $[\alpha]_D^{15}$ -18.1 (H_2O).

Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-glucopyranoside*
[13350-45-3]
$C_{15}H_{22}O_9S$ 378.399
Mp 94-95°. $[\alpha]_D^{20}$ -18.6 (c, 2.6 in $C_2H_2Cl_4$).

Me glycoside, tetrabenzyl: Methyl 2,3,4,6-tetra-O-*benzyl-1-thio-β-D-glucopyranoside*
[104992-64-5]
$C_{35}H_{38}O_5S$ 570.748
Needles (MeOH). Mp 69-70.5°. $[\alpha]_D^{20}$ +9.7 (c, 1.0 in $CHCl_3$).

*Me glycoside, 4,6-*O-*benzylidene: Methyl 4,6-*O-*benzylidene-1-thio-β-D-glucopyranoside*
$C_{14}H_{18}O_5S$ 298.359
Mp 184-185°. $[\alpha]_D$ -49 (c, 0.55 in $CHCl_3$).

*Me glycoside, 4,6-*O-*benzylidene, 2-benzoyl: Methyl 2-*O-*benzoyl-4,6-*O-*benzylidene-1-thio-β-D-glucopyranoside*
[38992-99-3]
$C_{21}H_{22}O_6S$ 402.467
Mp 187-188°. $[\alpha]_D^{20}$ -26 (c, 1.1 in $CHCl_3$).

*Me glycoside, 4,6-*O-*benzylidene, 3-benzoyl: Methyl 3-*O-*benzoyl-4,6-*O-*benzylidene-1-thio-β-D-glucopyranoside*
[38993-00-9]
$C_{21}H_{22}O_6S$ 402.467
Mp 158-159°. $[\alpha]_D$ -117 (c, 1.1 in $CHCl_3$).

Et glycoside: Ethyl 1-thio-β-D-glucopyranoside
[7473-36-1]
$C_8H_{16}O_5S$ 224.277
Mp 100°. $[\alpha]_D$ -57 (H_2O).

Et glycoside, 2,3,4,6-tetra-Ac: Ethyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-glucopyranoside*
[52645-73-5]
$C_{16}H_{24}O_9S$ 392.426
Mp 83°. $[\alpha]_D$ -28 ($CHCl_3$).

*Et glycoside, 4,6-*O-*benzylidene: Ethyl 4,6-*O-*benzylidene-1-thio-β-D-glucopyranoside*
$C_{15}H_{20}O_5S$ 312.386
Mp 145°. $[\alpha]_D$ -65 (c, 1 in $CHCl_3$). $[\alpha]_D$ +47 (c, 1 in $CHCl_3$). No explanation offered for differing sign of rotation. The +ve value is presumably incorrect.

tert-*Butyl glycoside, tetra-Ac:* tert-*Butyl 2,3,4,6-tetra*-O-*acetyl-1-thio-β-D-glucopyranoside*
[13639-55-9]
$C_{18}H_{28}O_9S$ 420.48
Cryst. (hexane). Mp 144-146°. $[\alpha]_D^{18}$ -6 (c, 0.9 in $CHCl_3$).

Benzyl glycoside, tetra-Ac: Benzyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-glucopyranoside*
[6612-63-1]
$C_{21}H_{26}O_9S$ 454.497
Mp 98°. $[\alpha]_D$ -93.1 ($CHCl_3$).

Benzyl glycoside, tetrabenzyl: Benzyl 2,3,4,6-tetra-O-*benzyl-1-thio-β-D-glucopyranoside*
[53269-95-7]
$C_{41}H_{42}O_5S$ 646.846
Needles (MeOH). Mp 65-67°. $[\alpha]_D^{20}$ -42.2 (c, 1.0 in $CHCl_3$).

Ph glycoside: Phenyl 1-thio-β-D-glucopyranoside
[2936-70-1]
$C_{12}H_{16}O_5S$ 272.321
Needles. Mp 105-107° (100°). $[\alpha]_D^{23}$ -219.6 (c, 1.0 in EtOH).

Ph glycoside, tetra-Ac: Phenyl 2,3,4,6-tetra-O-*acetyl-1-thio-β-D-glucopyranoside*
[23661-28-1]
$C_{20}H_{24}O_9S$ 440.47
Needles (EtOH). Mp 117-118°. $[\alpha]_D$ -16 ($CHCl_3$).

Ph glycoside, tetra-Ac, S-*oxide:*
$C_{20}H_{24}O_{10}S$ 456.47
Glycosylating agent. Mp 189.5°. $[\alpha]_D^{24}$ -26.9 (c, 1.0 in $CHCl_3$).

Octyl glycoside: Octyl 1-thio-β-D-glucopyranoside
[85618-21-9]
$C_{14}H_{28}O_5S$ 308.438
Nonionic, dialysable detergent for solubilising membrane proteins. Resistant to β-glucosidases, stable over a relatively wide pH range. $[\alpha]_D^{26}$ -52 (c, 1 in MeOH).

α-D-Furanose-*form*

Et glycoside: Ethyl 1-thio-α-D-glucofuranoside
[4137-33-1]
$C_8H_{16}O_5S$ 224.277
Mp 153°. $[\alpha]_D$ +120.8.

Et glycoside, tetra-Ac: Ethyl 2,3,5,6-tetra-O-*acetyl-1-thio-α-D-glucofuranoside*
$C_{16}H_{24}O_9S$ 392.426
Mp 62-64°.

Ph glycoside: Phenyl 1-thio-α-D-glucofuranoside
[13992-19-3]
$C_{12}H_{16}O_5S$ 272.321
Cryst. (EtOAc). Mp 119-121°. $[\alpha]_D^{20}$ +216 (c, 0.9 in Py).

Ph glycoside, S-*oxide: α-D-Glucofuranosyl phenyl sulfoxide*
$C_{12}H_{16}O_6S$ 288.321
Glycosylating agent. Mp 150-155°. $[\alpha]_D^{20}$ +4 (c, 1.1 in H_2O).

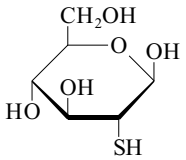
β-D-Furanose-*form*

Et glycoside: Ethyl 1-thio-β-D-glucofuranoside
[66141-60-4]
$C_8H_{16}O_5S$ 224.277
Mp 46-47° (monohydrate) Mp 153° (anhyd.). $[\alpha]_D$ +120.8.

Ph glycoside, tetrabenzyl: Phenyl 2,3,5,6-tetra-O-*benzyl-1-thio-β-D-glucofuranoside*
$C_{40}H_{40}O_5S$ 632.819
Oil. $[\alpha]_D$ -92.5 (c, 0.94 in CH_2Cl_2).

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 625C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1057C (*nmr*)
Schneider, W. *et al., Ber.*, 1918, **51**, 220; 1931, **64**, 1321 (*α-D-pyr Me gly, α-D-pyr Me gly tetra-Ac, β-D-pyr Me gly, β-D-pyr Et gly, β-D-gly derivs*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 295 (*rev*)
Bonner, W.A. *et al., J.A.C.S.*, 1948, **70**, 2455 (*β-D-pyr Ph gly tetra-Ac S-oxide*)
Fried, J. *et al., J.A.C.S.*, 1949, **71**, 140 (*α-D-pyr Et gly, α-D-pyr Et gly tetra-Ac, β-D-pyr Et gly, β-D-pyr Et gly tetra-Ac*)
Kocourek, J. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 316 (*synth*)
Zissis, E. *et al., Carbohydr. Res.*, 1966, **2**, 461 (*α-D-fur Ph S-oxide, α-D-pyr Ph gly, α-D-fur Ph gly*)
Parthasarathy, R. *et al., Acta Cryst.*, 1967, **23**, 1049 (*cryst struct*)
Holland, C.V. *et al., J.O.C.*, 1967, **32**, 3077 (*pmr*)
Bock, K. *et al., J.C.S. Perkin 2*, 1974, 293 (*cmr*)
Jarrell, H.C. *et al., Carbohydr. Res.*, 1979, **76**, 45-57 (*cmr*)
Ferrier, R.J. *et al., Methods Carbohydr. Chem.*, 1980, **8**, 251 (*β-D-pyr Ph gly tetra-Ac*)
Berman, E. *et al., Carbohydr. Res.*, 1983, **116**, 144 (*cmr, derivs*)
Ferrier, R.J. *et al., Carbohydr. Res.*, 1984, **127**, 157 (*α-D-fur Ph gly*)
Lopez, F.J. *et al., Carbohydr. Res.*, 1987, **163**, 29 (*α-D-pyr tert-butyl gly tetra-Ac, β-D-pyr tert-butyl gly tetra-Ac*)
Fugedi, P. *et al., Carbohydr. Res.*, 1987, **164**, 297 (*β-D-pyr Me gly tetra-Ac, β-D-pyr Me gly benzylidene, β-D-pyr Me gly benzylidene benzoyl*)
Bhat, V.S. *et al., Indian J. Chem., Sect. B*, 1987, **26**, 514 (*α-D-pyr Ph gly tetra-Ac*)
Dasgupta, F. *et al., Acta Chem. Scand.*, 1989, **43**, 471 (*β-D-pyr Ph gly tetra-Ac*)
Gadelle, A. *et al., Carbohydr. Res.*, 1990, **200**, 497 (*α-D-pyr penta-Ac*)
Van Steijn, A.M.P. *et al., Carbohydr. Res.*, 1992, **225**, 229 (*β-D-pyr Et gly benzylidene*)
Defaye, J. *et al., Carbohydr. Res.*, 1994, **253**, 185-194 (*α-D-pyr tetra-Ac*)
Pakulski, Z. *et al., Tetrahedron*, 1994, **50**, 2975 (*synth, derivs*)
Griffin, C.C. *et al., Carbohydr. Res.*, 1995, **276**, 183-197 (*isol, props*)
Das, S.K. *et al., Carbohydr. Res.*, 1996, **296**, 275-277 (***synth, β-D-pyr Et gly tetra-Ac***)
Galema, S.A. *et al., Carbohydr. Res.*, 1997, **303**, 423-434 (*synth, alkyl glycosides*)
Peerlings, H.W.I. *et al., Eur. J. Org. Chem.*, 1998, 1879-1886 (*β-D-pyr tetra-Ac*)
Gelin, M. *et al., Eur. J. Org. Chem.*, 2000, 1423-1431 (*β-D-fur Ph gly tetrabenzyl*)
Ibatullin, F.M. *et al., Synthesis*, 2001, 419-422 (*β-D-pyr penta-Ac*)
Furneaux, R.H. *et al., Carbohydr. Res.*, 2002, **337**, 1999-2004 (*Ph β-D-gly*)
Griffin, F.K. *et al., Eur. J. Org. Chem.*, 2002, 1305-1322 (*Me glycosides, benzyl glycosides*)
Hashihayata, T. *et al., Bull. Chem. Soc. Jpn.*, 2003, **76**, 1829-1848 (*α-D-Et pyr tribenzoyl*)
Fujihara, T. *et al., J. Carbohydr. Chem.*, 2003, **22**, 73-78 (*α-tetra-Ac, synth*)

2-Thioglucose T-71



$C_6H_{12}O_5S$ 196.224

β-D-Pyranose-*form*

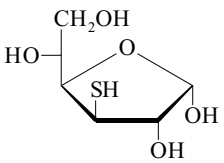
S-*Et: 2*-S-*Ethyl-2-thio-D-glucopyranose*
[15356-38-4]
$C_8H_{16}O_5S$ 224.277
Cryst. (EtOH). Mp 158-160°. $[\alpha]_D^{21}$ +63 (c, 1.0 in H_2O) (equilib.). Crystallises as the β-anomer, rapidly equilibrates in DMSO to an equilib. mixt. containing 60% α-Pyr and 40% β-Pyr.

S-*Et, tetra-Ac: 1,3,4,6-Tetra*-O-*acetyl-2*-S-*ethyl-2-thio-β-D-glucopyranose*
$C_{16}H_{24}O_9S$ 392.426
Mp 78-79°. $[\alpha]_D^{21}$ +43 (c, 1.0 in $CHCl_3$).

[15356-42-0]

El Ashmawy, A.E. *et al., Carbohydr. Res.*, 1968, **6**, 299 (*synth, pmr*)

3-Thioglucose T-72



$C_6H_{12}O_5S$ 196.224

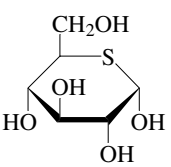
α-D-Furanose-*form*

1,2:5,6-Diisopropylidene: 1,2:5,6-Di-O-*isopropylidene-3-thio-α-D-glucofuranose*
$C_{12}H_{20}O_5S$ 276.353
Syrup. $Bp_{0.15}$ 112-114°.

1,2:5,6-Di-O-*isopropylidene,* S-*Ac: 3*-S-*Acetyl-1,2:5,6-di*-O-*isopropylidene-3-thio-α-D-glucofuranose*
$C_{14}H_{22}O_6S$ 318.39
$Bp_{0.4}$ 133-137°. $[\alpha]_D^{22}$ -43.6 (c, 1.3 in $CHCl_3$). n_D^{19} 1.4836.

Heap, J.M. *et al., J.C.S.(C)*, 1970, 707 (*diisopropylidene α-D-fur*)
Nayak, U.G. *et al., J.O.C.*, 1971, **36**, 3714 (*diisopropylidene α-D-fur*)
Risbood, P.A. *et al., Carbohydr. Res.*, 1981, **94**, 101 (*diisopropylidene α-D-fur*)

5-Thioglucose, 9CI, 8CI T-73



α-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224
A soln. contains 85% α-pyr and 15% β-pyr.

D-*form* [16505-91-2]
Inhibitor of glucose transport across biol. membranes and of insulin release. Interferes with spermatogenesis; exhibits diabetogenic activity in rats; effective against malignant cultured cells. Needles ($CHCl_3$/MeOH). Mp 135-136°. $[\alpha]_D^{20}$ +188 (c, 1.56 in H_2O).

α-D-Pyranose-*form* [20408-97-3]

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-thio-α-D-glucopyranose*
[10227-18-6]
$C_{16}H_{22}O_{10}S$ 406.41
Mp 103°. $[\alpha]_D^{23}$ +213 (c, 1.56 in $CHCl_3$).

Me glycoside: Methyl 5-thio-α-D-glucopyranoside
[28585-88-8]
$C_7H_{14}O_5S$ 210.251
Cryst. (MeOH). Mp 126°. $[\alpha]_D^{25}$ +326.3 (c, 1.61 in MeOH).

*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-α-D-glucopyranoside*
[28585-86-6]
$C_{15}H_{22}O_9S$ 378.399
Cryst. (Et_2O/hexane). Mp 98-99°. $[\alpha]_D^{25}$ +224.8 (c, 1.8 in $CHCl_3$).

Me glycoside, 6-phosphate:
$C_7H_{15}O_8PS$ 290.23
$[\alpha]_D^{25}$ +123 (c, 1.29 in H_2O).

*1-Bromo-1-deoxy, tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-5-thio-α-D-glucopyranosyl bromide*
$C_{14}H_{19}BrO_8S$ 427.269
Cryst. (hexane). Mp 59-61°. $[\alpha]_D^{20}$ +227 (c, 1 in $CHCl_3$).

β-D-Pyranose-*form*

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-thio-β-D-glucopyranose*
[35827-66-8]
$C_{16}H_{22}O_{10}S$ 406.41
Needles (EtOH). Mp 114°. $[\alpha]_D^{23}$ -11.9 (c, 1.3 in $CHCl_3$).

Me glycoside: Methyl 5-thio-β-D-glucopyranoside
$C_7H_{14}O_5S$ 210.251
$[\alpha]_D^{25}$ -51.4 (c, 2.7 in MeOH).

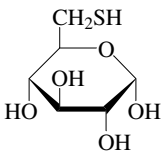
*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-β-D-glucopyranoside*
[28585-87-7]
$C_{15}H_{22}O_9S$ 378.399
Cryst. (Et_2O/hexane). Mp 92-93°. $[\alpha]_D^{25}$ -26.9 (c, 1.85 in $CHCl_3$).

*1-Bromo-1-deoxy, tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-5-thio-β-D-glucopyranosyl bromide*
$C_{14}H_{19}BrO_8S$ 427.269
Cryst. (Et_2O/petrol). Mp 102-104°. $[\alpha]_D^{20}$ -6.5 (c, 1 in $CHCl_3$).

Nayak, U.G. *et al., J.O.C.*, 1969, **34**, 97 (*α-D-pyr penta-Ac*)
Whistler, R.L. *et al., Carbohydr. Res.*, 1970, **13**, 15 (*α-D-pyr Me gly tetra-Ac, β-D-pyr Me gly tetra-Ac, α-D-pyr Me gly, α-D-pyr Me gly phosphate*)
Whistler, R.L. *et al., Biochem. J.*, 1972, **130**, 919 (*pharmacol*)
Suzuki, M. *et al., Carbohydr. Res.*, 1972, **22**, 473 (*synth, α-D-pyr penta-Ac, β-D-pyr penta-Ac, pmr*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 286 (*synth, α-D-pyr penta-Ac*)
U.S. Pat., 1976, 3 932 625; *CA*, **84**, 99624a (*use*)
Lambert, J.B. *et al., J.O.C.*, 1981, **46**, 3193 (*conformn, pmr, cmr*)
Driguez, H. *et al., Tet. Lett.*, 1981, **22**, 5061 (*synth*)
Korytynk, W. *et al., Carbohydr. Res.*, 1982, **108**, 293 (*α-D-pyr bromide tetra-Ac, β-D-pyr bromide tetra-Ac*)
Berman, E. *et al., Carbohydr. Res.*, 1983, **116**, 144 (*cmr, derivs*)
Hashimoto, H. *et al., Carbohydr. Res.*, 1996, **282**, 207-221 (*synth, derivs*)
Das, S.K. *et al., Carbohydr. Res.*, 1996, **296**, 275-277 (***synth, β-Et gly tetra-Ac***)
Tsuda, Y. *et al., Chem. Pharm. Bull.*, 1996, **44**, 1465-1475 (*synth*)
Uenishi, J. *et al., Tetrahedron*, 2003, **59**, 7011-7022 (*synth, pmr, cmr*)

6-Thioglucose T-74

[13406-56-9]



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

α-D-Pyranose-*form*

*Ph glycoside, 2,3,4,6-tetra-*O*(S)-Ac: Phenyl 2,3,4,6-tetraacetyl-6-thio-α-D-glucopyranoside*
$C_{20}H_{24}O_9S$ 440.47
Cryst. (petrol/Me_2CO). Mp 128°. $[\alpha]_D^{25}$ +161 (c, 0.09 in $CHCl_3$).

β-D-Pyranose-*form*

*1,2,3,4,6-Penta-*O*(S)-Ac:*
$C_{16}H_{22}O_{10}S$ 406.41
Cryst. (EtOH). Mp 127-128°. $[\alpha]_D^{25}$ -15 (c, 3.4 in $CHCl_3$).

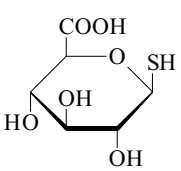
*Ph glycoside, 2,3,4,6-tetra-*O*(S)-Ac: Phenyl 2,3,4,6-tetraacetyl-6-thio-β-D-glucopyranoside*
$C_{20}H_{24}O_9S$ 440.47
Cryst. (petrol). Mp 97-98°. $[\alpha]_D^{25}$ -10 (c, 1.0 in $CHCl_3$).

α-D-Furanose-*form*

*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-6-thio-α-D-glucofuranose*
$C_9H_{16}O_5S$ 236.288
Mp 96-97°. $[\alpha]_D$ -14 ($CHCl_3$).

Whistler, R.L. *et al., Carbohydr. Res.*, 1966, **2**, 93 (*Ph-gly and Ac*)

1-Thioglucuronic acid T-75



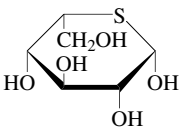
$C_6H_{10}O_6S$ 210.207

β-D-Pyranose-*form*

*Et glycoside, 2,3,4-tribenzyl, Me ester: Methyl (ethyl 2,3,4-tri-*O*-benzyl-1-thio-β-D-glucopyranosid)uronate*
$C_{30}H_{34}O_6S$ 522.661
Mp 128-130°. $[\alpha]_D$ -11 (c, 1.1 in $CHCl_3$).

Garegg, P.J. *et al., J.O.C.*, 1995, **60**, 2200

5-Thioidose T-76



α-L-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

L-Pyranose-*form*

*Penta-Ac: 1,2,3,4,6-Penta-*O*-acetyl-5-deoxy-5-thio-L-idopyranose*
$C_{16}H_{22}O_{10}S$ 406.41
Mp 90-92°. $[\alpha]_D^{23}$ +41 (c, 2.0 in $CHCl_3$).

α-L-Pyranose-*form*

Me glycoside: Methyl 5-thio-α-L-idopyranoside
$C_7H_{14}O_5S$ 210.251
Syrup. $[\alpha]_D$ +130 (c, 1.0 in MeOH).

*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-α-L-idopyranoside*
$C_{15}H_{22}O_9S$ 378.399
Cryst. (EtOH). Mp 91-92°. $[\alpha]_D$ +74 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3:4,6-diisopropylidene: Methyl 2,3:4,6-di-*O*-isopropylidene-5-thio-α-L-idopyranoside*
$C_{13}H_{22}O_5S$ 290.38
Cryst. (petrol). Mp 96-97°. $[\alpha]_D$ -171 (c, 0.8 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 5-thio-β-L-idopyranoside
$C_7H_{14}O_5S$ 210.251
Syrup. $[\alpha]_D$ -124 (c, 1.0 in MeOH).

*Me glycoside, tetra-Ac: Methyl 2,3,4,6-tetra-*O*-acetyl-5-thio-β-L-idopyranoside*
$C_{15}H_{22}O_9S$ 378.399
Syrup. $[\alpha]_D$ -90 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3:4,6-diisopropylidene: Methyl 2,3:4,6-di-*O*-isopropylidene-5-thio-β-L-idopyranoside*
$C_{13}H_{22}O_5S$ 290.38
Cryst. (petrol). Mp 112-114°. $[\alpha]_D$ +73 (c, 0.8 in $CHCl_3$).

β-L-Furanose-*form*

*1,2:5,6-Diisopropylidene: 1,2-*O*:5-*S*,6-*O*-Diisopropylidene-5-thio-β-L-idofuranose*
$C_{12}H_{20}O_5S$ 276.353
Cryst. (Et_2O/petrol). Mp 102-104°. $[\alpha]_D$ +40 (c, 1.2 in $CHCl_3$).

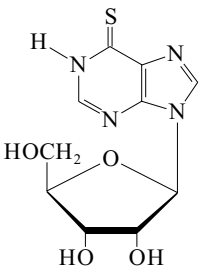
*1,2:5,6-Diisopropylidene, 3-mesyl: 1,2*O*:5*S*,6*O*-Diisopropylidene-3-*O*-mesyl-5-thio-β-L-idofuranose*
$C_{13}H_{22}O_7S_2$ 354.445
Syrup. $[\alpha]_D$ +18.5 (c, 0.6 in $CHCl_3$).

Adley, T.J. *et al., J.C.S.(C)*, 1966, 1287 (*synth*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1991, **216**, 119 (*synth, pmr, cmr, L-pyr derivs*)

Hashimoto, H. *et al., Carbohydr. Res.*, 1996, **282**, 207-231 (*synth, derivs*)
Calvo-Flores, F.G. *et al., J.O.C.*, 1997, **62**, 3944-3961 (*synth, ir, pmr, cmr, ms*)

6-Thioinosine, 9CI T-77

*9-β-D-Ribofuranosyl-9*H*-purine-6-thiol, 8CI. 6-Mercapto-9-β-D-ribofuranosyl-9*H*-purine. Thioinosine. Tioinosine. NSC 4911*
[574-25-4]



$C_{10}H_{12}N_4O_4S$ 284.295
Antileukaemic agent. Pale yellow cryst. or needles (AcOH aq.). Mp 210-211° dec. $[\alpha]_D^{25}$ -73 (c, 1 in 0.1*M* NaOH). Log P -4.17 (calc).

► LD_{50} (rat, orl) 900 mg/kg. Exp. reprod. and teratogenic effects. UP0710000

2′,3′,5′-Tri-Ac: [3021-21-4]
$C_{16}H_{18}N_4O_7S$ 410.407
Cryst. (Me_2CO aq.). Mp 255-256°.

2′,3′,5′-Tribenzoyl: [6741-90-8]
$C_{31}H_{24}N_4O_7S$ 596.619
Mp 228-230° (sealed tube).

S-*Me: 6-*S-*Methyl-6-thioinosine, 12CI. 6-(Methylthio)-9-β-D-ribofuranosyl-9*H*-purine, 9CI. 6-(Methylthio)inosine. NSC 40774*
[342-69-8]
$C_{11}H_{14}N_4O_4S$ 298.322
Antileukaemic agent. Cryst (EtOH). Mp 165-167°.

► LD_{50} (rat, ipr) 137 mg/kg. Exp. teratogenic effects. UO8985000

S-*(4-Nitrobenzyl):* [38048-32-7]
$C_{17}H_{17}N_5O_6S$ 419.417
Potent inhibitor of adenosine uptake. Cryst. (EtOAc). Mp 198°.

S-*(2-Hydroxy-5-nitrobenzyl):* [56964-73-9]
$C_{17}H_{17}N_5O_7S$ 435.417
Cryst. (EtOAc). Mp 157-161°.

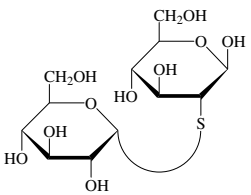
5′-Phosphate: 6-Thio-5′-inosinic acid, 9CI
[53-83-8]
[2133-82-6, 52416-88-3, 90269-33-3]
$C_{10}H_{13}N_4O_7PS$ 364.275
No phys. props. reported. λ_{max} 311 (ε 22200 pH13) (aq. alkali). λ_{max} 321 (ε 22600) (H_2O). λ_{max} 325 (ε 21500) (aq. acid).

2′,3′-Isopropylidene, 5′-phosphate:
$C_{13}H_{17}N_4O_7PS$ 404.34
Powder. Mp 275° dec.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 717D (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 216C; 220A (*nmr*)
Fox, J.J. *et al., J.A.C.S.*, 1958, **80**, 1669-1675
Montgomery, J.A. *et al., J.O.C.*, 1961, **26**, 1926-1929 (*synth, uv, phosphate*)
Biochem. Prep., 1963, **10**, 148-152 (*synth, bibl*)
Cass, C.E. *et al., Cancer Res.*, 1975, **35**, 1187-1193 (*S-4-nitrobenzyl, pharmacol*)
Paterson, A.R.P. *et al., Handb. Exp. Pharmacol.*, 1975, **38**, 384-403 (*pharmacol*)
Paul, B. *et al., J. Med. Chem.*, 1975, **18**, 968-973 (*S-4-nitrobenzyl*)
Chenon, M.T. *et al., J.A.C.S.*, 1975, **97**, 4627-4636 (*cmr*)
Roemming, C. *et al., Acta Chem. Scand., Ser. B*, 1976, **30**, 716-720 (*cryst struct, deriv*)
Lynch, T.P. *et al., Biochem. Pharmacol.*, 1978, **27**, 1303-1304 (*synth, phosphate*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1979, **27**, 2518-2521 (*deriv*)
Keyser, G.E. *et al., Tet. Lett.*, 1979, 3263-3264 (*synth, deriv*)
Engels, J. *et al., Synthesis*, 1981, 485-486 (*synth, phosphate*)
Lavi, L.E. *et al., Anal. Biochem.*, 1985, **144**, 514-521 (*hplc, phosphate*)
Lin, T.-S. *et al., J. Med. Chem.*, 1985, **28**, 1481-1485 (*synth, props*)
Nair, V. *et al., Synthesis*, 1986, 450-453
Fleming, S.A. *et al., J.O.C.*, 1992, **57**, 5968-5976 (*S-4-nitrobenzyl*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 503
Camins, A. *et al., Life Sci.*, 1996, **58**, 753-759 (*S-4-nitrobenzyl, pharmacol*)
Gangjee, A. *et al., J. Med. Chem.*, 1997, **40**, 479-485 (*Me ether*)
Worner, K. *et al., Helv. Chim. Acta*, 1999, **82**, 2094-2104 (*synth, pmr, cmr*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, MPU000; TFJ825

2-Thiokojibiose T-78

*2-*S*-α-D-Glucopyranosyl-2-thio-D-glucose*
[158213-24-2]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}S$ 358.366
Powder. $[\alpha]_D^{20}$ +113 (c, 0.8 in H_2O).

β-Pyranose-*form* [158213-25-3]

*Octa-Ac: 1,3,4,6-Tetra-*O*-acetyl-2-*S*-(2,3,4,6-tetra-*O*-acetyl-α-D-glucopyranosyl)-2-thio-β-D-glucopyranose*
[158213-20-8]
$C_{28}H_{38}O_{18}S$ 694.663
Shows anti-HIV activity. Cryst. (CH_2Cl_2/EtOH). Mp 220° (207-208°). $[\alpha]_D^{20}$ +140 (c, 1 in $CHCl_3$).

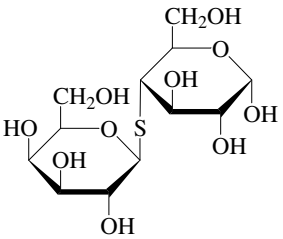
*Me glycoside, hepta-Ac: Methyl 3,4,6-tri-*O*-acetyl-2-*S*-(2,3,4,6-tetra-*O*-acetyl-α-D-glucopyranosyl)-2-thio-β-D-glucopyranose*
[289653-89-0]
$C_{27}H_{38}O_{17}S$ 666.653
Cryst. (EtOH). Mp 167-168°. $[\alpha]_D$ +130 (c, 0.5 in $CHCl_3$).

*Benzyl glycoside: Benzyl 2-*S*-α-D-glucopyranosyl-2-thio-β-D-glucopyranoside*
[159495-69-9]
$C_{19}H_{28}O_{10}S$ 448.49
Powder. Mp 165° dec.

Defaye, J. *et al., Carbohydr. Res.*, 1994, **253**, 185-194 (*synth, β-pyr-octa-Ac*)
Comber, R.N. *et al., Carbohydr. Res.*, 1994, **262**, 245-255 (*β-pyr-octa-Ac, β-benzyl pyr*)
Johnston, B.D. *et al., J.O.C.*, 2000, **65**, 4607-4617 (*β-Me-pyr tetra-Ac*)

Thiolactose T-79

*4-*S*-β-D-Galactopyranosyl-4-thio-D-glucopyranose*



α-*form*

$C_{12}H_{22}O_{10}S$ 358.366
Hygroscopic solid (MeOH aq.). $[\alpha]_D^{33}$ +5 → -8 (c, 1.0 in H_2O). Anomeric mixt.

Octa-Ac:
$C_{28}H_{38}O_{18}S$ 694.663
Amorph. powder. Mixt. of anomers.

α-form [79580-81-7]

Me glycoside: [79580-75-9]
$C_{13}H_{24}O_{10}S$ 372.393
Glass. $[\alpha]_D^{28}$ +27.1 (c, 1.0 in H_2O).

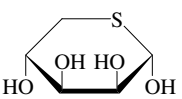
Me glycoside, hepta-Ac: [79580-76-0]
$C_{27}H_{38}O_{17}S$ 666.653
Cryst. (MeOH aq.). Mp 125°. $[\alpha]_D^{28}$ +42.2 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3,6-tribenzoyl, tetra-Ac:
$C_{42}H_{44}O_{17}S$ 852.865
Solid (EtOH). Mp 128-129°. $[\alpha]_D^{20}$ +64.7 (c, 1.0 in $CHCl_3$).

[79580-82-8, 107376-42-1]

Reed, L.A. *et al., Carbohydr. Res.*, 1981, **94**, 91-99 (*synth, cmr, octa-Ac, α-Me pyr*)
Ibatullin, F.M. *et al., Synthesis*, 2001, 419-422 (*α-Me pyr tribenzoyl tetra-Ac*)

5-Thiolyxose T-80



α-D-Pyranose-*form*

$C_6H_{10}O_4S$ 178.209

α-D-Pyranose-*form*
Cryst. (EtOH). Mp 170-174°. $[\alpha]_D$ +24 (c, 0.65 in H_2O).

Me glycoside: Methyl 5-thio-α-D-lyxopyranoside
$C_6H_{12}O_4S$ 180.224
Cryst. (2-propanol). Mp 154-155°. $[\alpha]_D$ +213 (c, 0.5 in MeOH).

β-D-Pyranose-*form*

Me glycoside: Methyl 5-thio-β-D-lyxopyranoside
$C_6H_{12}O_4S$ 180.224
Cryst. (EtOAc). Mp 152-154°. $[\alpha]_D$ -295 (c, 0.5 in MeOH).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-5-thio-β-D-lyxopyranoside*
$C_{12}H_{18}O_7S$ 306.336
Cryst. (Et_2O/petrol). Mp 107-109°. $[\alpha]_D$ -225 (c, 1.1 in $CHCl_3$).

α-D-Furanose-*form*

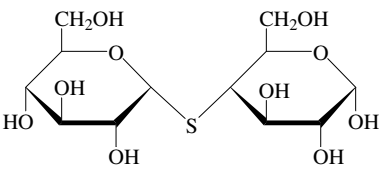
*Me glycoside, 2,3-isopropylidene, 5-*S*-Ac: Methyl 5-*S*-acetyl-2,3-*O*-isopropylidene-5-thio-α-D-lyxofuranoside*
$C_{11}H_{18}O_5S$ 262.326
Cryst. (MeOH aq.). $[\alpha]_D$ +65 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-isopropylidene, 5-*S*-benzoyl: Methyl 5-*S*-benzoyl-2,3-*O*-isopropylidene-5-thio-α-D-lyxofuranoside*
$C_{16}H_{20}O_5S$ 324.397
Cryst. (MeOH aq,). Mp 46-48°. $[\alpha]_D$ +46 (c, 1.1 in $CHCl_3$).

Hughes, N.A. *et al., Carbohydr. Res.*, 1985, **136**, 397 (*synth, pmr, cmr*)

Thiomaltose T-81

*4-*S*-α-D-Glucopyranosyl-4-thio-D-glucose*
[82097-84-5]



α-Pyranose-*form*

$C_{12}H_{22}O_{10}S$ 358.366
Foam. $[\alpha]_D$ +162 (c, 0.16 in H_2O). Mixture of α- and β-pyranose forms.

α-Pyranose-*form* [141870-82-8]

*Me glycoside: Methyl 4-*S*-α-D-glucopyranosyl-4-thio-α-D-glucopyranoside*
[68667-09-4]
$C_{13}H_{24}O_{10}S$ 372.393
Mp 201-205°. $[\alpha]_D^{20}$ +305 (c, 1 in H_2O).

Me glycoside, hepta-Ac: [68667-05-0]
$C_{27}H_{38}O_{17}S$ 666.653
$[\alpha]_D^{20}$ +192 (c, 2 in $CHCl_3$).

β-Pyranose-*form*

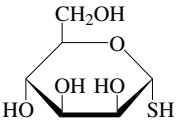
Octa-Ac: [81905-43-3]
$C_{28}H_{38}O_{18}S$ 694.663
Solid (EtOH). Mp 179-181°. $[\alpha]_D^{20}$ +127 (c, 0.44 in $CHCl_3$).

*Me glycoside: Methyl 4-*S*-α-D-glucopyranosyl-4-thio-β-D-glucopyranoside*
[156660-46-7]
$C_{13}H_{24}O_{10}S$ 372.393
Hygroscopic foam. $[\alpha]_D^{20}$ +140 (c, 0.12 in H_2O).

Me glycoside, hepta-Ac: [156660-48-9]
Mp 159-161.5°. $[\alpha]_D$ +29.3.

Blanc-Muesser, M. *et al., J.C.S. Perkin 1*, 1982, 15-18 (*synth, β-pyr-octa-Ac, α-Me pyr*)
Pérez, S. *et al., Acta Cryst. B*, 1984, **40**, 294-299 (*α-Me pyr, cryst struct*)
Bock, K. *et al., Carbohydr. Res.*, 1994, **253**, 51-67 (*β-Me pyr*)

1-Thiomannose T-82



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

α-D-Pyranose-*form* [154920-32-8]

*Tetra-Ac: 2,3,4,6-Tetra-*O*-acetyl-1-thio-α-D-mannopyranose*
[56981-51-2]
$C_{14}H_{20}O_9S$ 364.373
Syrup. Not fully purified. Stored under N_2.

*Et glycoside, tetra-Ac: Ethyl 2,3,4,6-tetra-*O*-acetyl-1-thio-α-D-mannopyranoside*
[79389-52-9]
$C_{16}H_{24}O_9S$ 392.426
Cryst. (Et_2O/hexane). Mp 107-108°. $[\alpha]_D^{25}$ +104 (c, 0.88 in $CHCl_3$).

*Et glycoside, 6-tosyl: Ethyl 1-thio-6-*O*-tosyl-α-D-mannopyranoside*
[145124-95-4]
$C_{15}H_{22}O_7S_2$ 378.467
$[\alpha]_D$ +115 (c, 0.34 in MeOH).

*Et glycoside, 2,3-*O*-isopropylidene, 6-tosyl: Ethyl 2,3-*O*-isopropylidene-1-thio-6-*O*-tosyl-α-D-mannopyranoside*
[145124-96-5]
$C_{18}H_{26}O_7S_2$ 418.531
$[\alpha]_D$ +86 (c, 0.20 in $CHCl_3$).

Benzyl glycoside: Benzyl 1-thio-α-D-mannopyranoside
[74590-47-9]
$C_{13}H_{18}O_5S$ 286.348
Cryst. Mp 102-106.5°. $[\alpha]_D^{27}$ +342 (c, 0.55 in MeOH).

*Benzyl glycoside, tetra-Ac: Benzyl 2,3,4,6-tetra-*O*-acetyl-1-thio-α-D-mannopyranoside*
[74590-46-8]
$C_{21}H_{26}O_9S$ 454.497
Cryst. (EtOH). Mp 137-138.5°. $[\alpha]_D^{27}$ +154 (c, 1 in $CHCl_3$).

*Benzyl glycoside, tetrabenzyl: Benzyl 2,3,4,6-tetra-*O*-benzyl-1-thio-α-D-mannopyranoside*
[437757-83-0]
$C_{41}H_{42}O_5S$ 646.846
Oil. $[\alpha]_D^{20}$ +106.4 (c, 2.2 in $CHCl_3$).

*Ph glycoside, 6-tosyl: Phenyl 1-thio-6-*O*-tosyl-α-D-mannopyranoside*
[151669-24-8]
$C_{19}H_{22}O_7S_2$ 426.511
$[\alpha]_D$ +147 (c, 0.40 in $CHCl_3$).

*Ph glycoside, 2,3-*O*-isopropylidene: Phenyl 2,3-*O*-isopropylidene-1-thio-α-D-mannopyranoside*
[126092-08-8]
$C_{15}H_{20}O_5S$ 312.386
Cryst. Mp 132-134°. $[\alpha]_D^{20}$ +194.5 (c, 1.12 in $CHCl_3$).

*Ph glycoside, 2,3-*O*-isopropylidene, 6-tosyl: Phenyl 2,3-*O*-isopropylidene-1-thio-6-*O*-tosyl-α-D-mannopyranoside*
[151669-25-9]
$C_{22}H_{26}O_7S_2$ 466.575
$[\alpha]_D$ +99 (c, 0.9 in $CHCl_3$).

*Ph glycoside, 4,6-*O*-isopropylidene: Phenyl 4,6-*O*-isopropylidene-1-thio-β-D-mannopyranoside*
[128848-59-9]
$C_{15}H_{20}O_5S$ 312.386
Cryst. (EtOAc). Mp 164-165°. $[\alpha]_D$ -99 (c, 1 in MeOH).

Ph glycoside, S*-oxide, tribenzyl: Phenyl 3,4,6-tri-*O*-benzyl-α-D-mannopyranosyl sulfoxide*
[173910-78-6]
$C_{33}H_{34}O_6S$ 558.694
Glycosylating agent for β-mannopyranoside synthesis.
Characterised spectroscopically.

β-D-Pyranose-*form* [135891-42-8] Sol. H_2O. λ_{max} 268 (ϵ 7260) (EtOH) (Berdy). λ_{max} 270 (ϵ 8150) (EtOH-HCl) (Berdy). λ_{max} 273 (ϵ 8300) (EtOH-NaOH) (Berdy).

Na salt: [66965-73-9]
Mp 189° dec. $[\alpha]_D^{14}$ -15 (c, 2.5 in H_2O).

*1-*S*,2,3,4,6-Penta-Ac: 2,3,4,6-Tetra-*O*-acetyl-1-*S*-acetyl-1-thio-β-D-mannopyranoside. 1-*S*,2,3,4,6-Pentaacetyl-1-thio-β-D-mannopyranoside*
[92217-68-0]
$C_{16}H_{22}O_{10}S$ 406.41
Needles. Mp 130-131°. $[\alpha]_D$ -29 (c, 1.75 in $CHCl_3$).

Et glycoside: Ethyl 1-thio-β-D-mannopyranoside
[73804-33-8]
$C_8H_{16}O_5S$ 224.277
Needles (EtOH). Mp 118-119°. $[\alpha]_D^{25}$ -83 (c, 0.6 in H_2O).

*Et glycoside, tetra-Ac: Ethyl 2,3,4,6-tetra-*O*-acetyl-1-thio-β-D-mannopyranoside*
[125354-48-5]
$C_{16}H_{24}O_9S$ 392.426
Cryst. (EtOH). Mp 161-162°. $[\alpha]_D^{24}$ -67 (c, 0.67 in $CHCl_3$).

Benzyl glycoside: Benzyl 1-thio-β-D-mannopyranoside
[74590-57-1]
$C_{13}H_{18}O_5S$ 286.348
Cryst. (MeOH/Et_2O). Mp 131.5-132.5°. $[\alpha]_D^{27}$ -229 (c, 1 in MeOH).

Ph glycoside: Phenyl 1-thio-β-D-mannopyranoside
[77481-63-1]
$C_{12}H_{16}O_5S$ 272.321
Mp 180° (sinters). $[\alpha]_D$ -76 (c, 1.1 in MeOH).

*Ph glycoside, 4,6-di-Ac: Phenyl 4,6-di-*O*-acetyl-1-thio-β-D-mannopyranoside*
[246875-61-6]
$C_{16}H_{20}O_7S$ 356.396
Mp 149-150°. $[\alpha]_D$ -125 (c, 1.4 in $CHCl_3$).

*Ph glycoside, di-*O*-isopropylidene: Phenyl 2,3:4,6-di-*O*-isopropylidene-1-thio-β-D-mannopyranoside*
[151662-55-4]
$C_{18}H_{24}O_5S$ 352.451
Cryst. Mp 140-142°. $[\alpha]_D$ -145 (c, 0.7 in $CHCl_3$).

α-L-Pyranose-*form*

Benzyl glycoside: Benzyl 1-thio-α-L-mannopyranoside
[74590-59-3]
$C_{13}H_{18}O_5S$ 286.348
Cryst. Mp 104-107.5°. $[\alpha]_D^{27}$ -347 (c, 0.5 in MeOH).

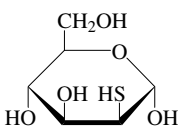
Benzyl glycoside, tetra-Ac: Benzyl 2,3,4,6-tetra-O-acetyl-1-thio-α-L-mannopyranoside
[74590-58-2]
$C_{21}H_{26}O_9S$ 454.497
Cryst. (EtOH). Mp 136-137.5°. $[\alpha]_D^{27}$ -159 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

Ph glycoside, tetrabenzyl: Phenyl 2,3,5,6-tetra-O-benzyl-1-thio-α-D-mannofuranoside
[147103-42-2]
$C_{40}H_{40}O_5S$ 632.819
Solid (petrol/Et_2O). Mp 84-86°. $[\alpha]_D$ +64 (c, 1.0 in CH_2Cl_2).

Fried, J. *et al., J.A.C.S.*, 1949, **71**, 140 (*β-D-pyr Et gly, α-D-pyr Et gly tetra-Ac, β-D-pyr Et gly tetra-Ac*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1955, **33**, 109 (*α-D-pyr Et gly tetra-Ac, β-D-pyr Et gly tetra-Ac*)
Tejima, S. *et al., Chem. Pharm. Bull.*, 1964, **12**, 528 (*β-D-pyr, β-D-pyr penta-Ac*)
Durette, P.L. *et al., Carbohydr. Res.*, 1980, **81**, 261 (*α-D-tetra-Ac, benzyl gly derivs*)
Chernyak, A.Ya. *et al., Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 616-628 (*α-D-Ph pyr isopropylidene*)
Li, Z.-J. *et al., Synth. Commun.*, 1990, **20**, 2169 (*α-D-Et gly tetrabenzyl*)
Pedretti, V. *et al., Tetrahedron*, 1990, **46**, 77-88 (*β-D-Ph pyr, β-D-Ph pyr isopropylidene*)
Kerékgyártó, J. *et al., Carbohydr. Res.*, 1993, **245**, 65 (*Et gly derivs, Ph gly derivs*)
Das, S.K. *et al., Carbohydr. Res.*, 1996, **296**, 275-277 (***synth, α-D-S-Et tetra Ac***)
Stork, G. *et al., J.A.C.S.*, 1996, **118**, 247 (*synth, pmr, cmr, S-Ph S-oxide tribenzyl*)
Pozsgay, V. *et al., J.O.C.*, 1999, **64**, 7277-7280 (*β-D-Ph pyr di-Ac*)
Gelin, M. *et al., Eur. J. Org. Chem.*, 2000, 1423-1431 (*α-D-fur Ph gly tetrabenzyl*)
Pozsgay, V. *et al., J. Carbohydr. Chem.*, 2001, **20**, 659-665 (*β-D-pyr Ph glycoside, di-Ac, diisopropylidene*)
Griffin, F.K. *et al., Eur. J. Org. Chem.*, 2002, 1305-1322 (*α-D-pyr benzyl gly tetrabenzyl*)

2-Thiomannose T-83



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

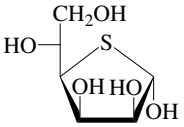
D-Pyranose-*form*

S-*Et: 2*-S-*Ethyl-2-thio-D-mannopyranose*
[15356-42-0]
$C_8H_{16}O_5S$ 224.277
Syrup.

S-*Et, tetra*-O-*Ac: 1,3,4,6-Tetra*-O-*acetyl-2*-S-*ethyl-2-thio-α-D-mannopyranose*
[30085-93-9]
$C_{16}H_{24}O_9S$ 392.426
Cryst. (CH_2Cl_2/Et_2O). Mp 115-116°. $[\alpha]_D^{23}$ +40 (c, 1 in $CHCl_3$).

Berrang, B. *et al., Chem. Comm.*, 1970, 1038 (*synth*)
Defaye, J. *et al., Carbohydr. Res.*, 1971, **16**, 133 (*synth, pmr*)

4-Thiomannose T-84



α-D-Furanose-*form*

$C_6H_{12}O_5S$ 196.224

D-*form*
$[\alpha]_D^{22}$ +40 (c, 0.15 in H_2O).

D-Furanose-*form*

2,3-Isopropylidene: 2,3-O-*Isopropylidene-4-thio-D-mannofuranose*
$C_9H_{16}O_5S$ 236.288
$[\alpha]_D^{22}$ +46 (c, 0.4 in MeOH).

2,3:5,6-Diisopropylidene: 2,3:5,6-Di-O-*isopropylidene-4-thio-D-mannofuranose*
$C_{12}H_{20}O_5S$ 276.353
Cryst. (toluene). Mp 121-123°. $[\alpha]_D^{22}$ +56 (c, 1 in $CHCl_3$).

α-D-Furanose-*form*

Penta-Ac: 1,2,3,5,6-Penta-O-*acetyl-4-thio-α-D-mannofuranose*
$C_{16}H_{22}O_{10}S$ 406.41
$[\alpha]_D$ +148 (c, 0.14 in $CHCl_3$).

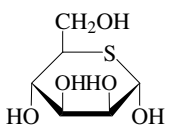
β-D-Furanose-*form*

Penta-Ac: 1,2,3,5,6-Penta-O-*acetyl-5-thio-β-D-mannofuranose*
$C_{16}H_{22}O_{10}S$ 406.41
$[\alpha]_D$ -103 (c, 0.15 in $CHCl_3$).

Shah, R.H. *et al., Carbohydr. Res.*, 1979, **77**, 107 (*synth, pmr*)
Classon, B. *et al., Carbohydr. Res.*, 1988, **174**, 369 (*synth, pmr*)

5-Thiomannose T-85

[127854-51-7]



α-D-Pyranose-*form*

$C_6H_{12}O_5S$ 196.224

D-Pyranose-*form* [110786-41-9]
Isol. from the sponge *Clathria pyramida*.

α-D-Pyranose-*form*
Syrup. $[\alpha]_D$ +49.7 (c, 0.78 in H_2O).

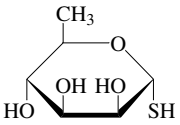
Penta-Ac: 1,2,3,4,6-Penta-O-*acetyl-5-thio-α-D-mannopyranose*
$C_{16}H_{22}O_{10}S$ 406.41
Amorph. Mp 85-87°. $[\alpha]_D^{21}$ +83.1 (c, 1.22 in $CHCl_3$).

[127854-50-6]

Capon, R.J. *et al., Chem. Comm.*, 1987, 1200-1201 (*isol, pmr*)
Yuasa, H. *et al., J. Carbohydr. Chem.*, 1989, **8**, 753-763 (*synth*)

1-Thiorhamnose T-86

6-Deoxy-1-thiomannose



α-D-Pyranose-*form*

$C_6H_{12}O_4S$ 180.224

α-D-Pyranose-*form*

*Et glycoside, 2,3-isopropylidene: Ethyl 2,3-*O-*isopropylidene-1-thio-α-D-rhamnopyranoside*
[145124-97-6]
$C_{11}H_{20}O_4S$ 248.343
$[\alpha]_D$ +178 (c, 1.2 in $CHCl_3$).

Et glycoside, 4-benzyl: Ethyl 4-O-*benzyl-1-thio-α-D-rhamnopyranoside*
$C_{15}H_{22}O_4S$ 298.402
Cryst. (hexane/EtOAc). Mp 94-95°. $[\alpha]_D$ +185 (c, 0.60 in $CHCl_3$). No CAS no. available.

Et glycoside, 4-benzyl, 2-Me: Ethyl 4-O-*benzyl-2*-O-*methyl-1-thio-α-D-rhamnopyranoside*
$C_{16}H_{24}O_4S$ 312.429
$[\alpha]_D$ +126 (c, 0.40 in $CHCl_3$). No CAS no. available.

Ph glycoside, 2,3-isopropylidene: Phenyl 2,3-O-*isopropylidene-1-thio-α-D-rhamnopyranoside*
$C_{15}H_{20}O_4S$ 296.387
Cryst. (EtOAc/hexane). Mp 82°. $[\alpha]_D$ +206 (c, 1.0 in $CHCl_3$). No CAS no. available.

Ph glycoside, 4-benzyl: Phenyl 4-O-*benzyl-1-thio-α-D-rhamnopyranoside*
$C_{19}H_{22}O_4S$ 346.446
Cryst. (EtOAc/hexane). Mp 117°. $[\alpha]_D$ +232 (c, 0.90 in $CHCl_3$). No CAS no. available.

Ph glycoside, 4-benzyl, 2,3-isopropylidene: Phenyl 4-O-*benzyl-2,3*-O-*isopropylidene-1-thio-α-D-rhamnopyranoside*
$C_{22}H_{26}O_4S$ 386.511
Cryst. (EtOH). Mp 90°. $[\alpha]_D$ +220 (c, 0.66 in $CHCl_3$). No CAS no. available.

α-L-Pyranose-*form*

Me glycoside: Methyl 1-thio-α-L-rhamnopyranoside
[115678-08-5]
$C_7H_{14}O_4S$ 194.251
Cryst. (EtOAc). Mp 104-105°. $[\alpha]_D$ -185 (c, 1.0 in H_2O).

Me glycoside, 4-benzoyl: Methyl 4-O-*benzoyl-1-thio-α-L-rhamnopyranoside*
[194347-74-5]
$C_{14}H_{18}O_5S$ 298.359
Foam. $[\alpha]_D^{20}$ -206.5 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,3-dibenzoyl: Methyl 2,3-di-O-*benzoyl-1-thio-α-L-rhamnopyranoside*
[172325-25-6]
$C_{21}H_{22}O_6S$ 402.467
Amorph. mass. $[\alpha]_D$ -5.9 (c, 1.0 in $CHCl_3$).

*Me glycoside, 2,3-isopropylidene: Methyl 2,3-*O*-isopropylidene-1-thio-α-L-rhamnopyranoside*
[115678-10-9]
$C_{10}H_{18}O_4S$ 234.316
Cryst. (Et_2O/hexane). Mp 76-77°. $[\alpha]_D$ -142 (c, 0.8 in $CHCl_3$).

Et glycoside: Ethyl 1-thio-α-L-rhamnopyranoside
[127753-94-0]
$C_8H_{16}O_4S$ 208.278
Syrup. $[\alpha]_D^{20}$ -223.4 (c, 0.75 in MeOH).

*Et glycoside, 2-Ac: Ethyl 2-*O*-acetyl-1-thio-α-L-rhamnopyranoside*
[135303-35-4]
$C_{10}H_{18}O_5S$ 250.315
$[\alpha]_D^{25}$ -135 (c, 1.6 in $CHCl_3$).

*Et glycoside, tri-Ac: Ethyl 2,3,4-tri-*O*-acetyl-1-thio-α-L-rhamnopyranoside*
[125520-01-6]
$C_{14}H_{22}O_7S$ 334.39
Mp 69-70°. $[\alpha]_D^{20}$ -117 (c, 1.5 in $CHCl_3$) (-113.5). Das *et. al.* report $[\alpha]_D$+86.7 ($CHCl_3$) without comment.

*Et glycoside, 2-benzoyl: Ethyl 2-*O*-benzoyl-1-thio-α-L-rhamnopyranoside*
[135303-36-5]
$C_{15}H_{20}O_5S$ 312.386
$[\alpha]_D^{25}$ -100 (c, 0.85 in $CHCl_3$).

*Et glycoside, 4-benzoyl: Ethyl 4-*O*-benzoyl-1-thio-α-L-rhamnopyranoside*
[145836-03-9]
$C_{15}H_{20}O_5S$ 312.386
Syrup. $[\alpha]_D^{22}$ -194 (c, 1.18 in $CHCl_3$).

*Et glycoside, 2,4-dibenzoyl: Ethyl 2,4-di-*O*-benzoyl-1-thio-α-L-rhamnopyranoside*
[135303-37-6]
$C_{22}H_{24}O_6S$ 416.494
Syrup. $[\alpha]_D^{25}$ -28 (c, 1.3 in $CHCl_3$).

*Et glycoside, 2,3-isopropylidene, 4-benzoyl: Ethyl 4-*O*-benzoyl-2,3-*O*-isopropylidene-1-thio-α-L-rhamnopyranoside*
[145836-02-8]
$C_{18}H_{24}O_5S$ 352.451
Cryst. Mp 120-121°. $[\alpha]_D^{22}$ -129 (c, 1.28 in $CHCl_3$).

Ph glycoside: Phenyl 1-thio-α-L-rhamnopyranoside
[131724-82-8]
$C_{12}H_{16}O_4S$ 256.322
Cryst. (diisopropyl ether). Mp 89-91°. $[\alpha]_D^{22}$ -247 (c, 0.75 in MeOH).

*Ph glycoside, 2,3-isopropylidene: Phenyl 2,3-*O*-isopropylidene-1-thio-α-L-rhamnopyranoside*
[131087-35-9]
$C_{15}H_{20}O_4S$ 296.387
Cryst. Mp 79-80°. $[\alpha]_D^{22}$ -211 (c, 1.45 in $CHCl_3$).

*Ph glycoside, 4-benzoyl: Phenyl 4-*O*-benzoyl-1-thio-α-L-rhamnopyranoside*
[145836-09-5]
$C_{19}H_{20}O_5S$ 360.43
Cryst. Mp 115-117°. $[\alpha]_D^{22}$ -290 (c, 1.08 in $CHCl_3$).

*Ph glycoside, 2,3-isopropylidene, 4-benzoyl: Phenyl 4-*O*-benzoyl-2,3-*O*-isopropylidene-1-thio-α-L-rhamnopyranoside*
[145836-08-4]
$C_{22}H_{24}O_5S$ 400.495
Cryst. Mp 76-77°. $[\alpha]_D^{22}$ -206 (c, 1.06 in $CHCl_3$).

β-L-Pyranose-*form*

Me glycoside: Methyl 1-thio-β-L-rhamnopyranoside
[115678-09-6]
Cryst. (EtOAc). $[\alpha]_D$ +114 (c, 0.6 in H_2O).

*Me glycoside, 2,3-isopropylidene: Methyl 2,3-*O*-isopropylidene-1-thio-β-L-rhamnopyranoside*
[120255-39-2]
Cryst. (Et_2O/petrol). Mp 73-74°. $[\alpha]_D$ +99 (c, 0.9 in $CHCl_3$).

Et glycoside: Ethyl 1-thio-β-L-rhamnopyranoside
[69558-01-6]
$C_8H_{16}O_4S$ 208.278
Cryst. (EtOH). Mp 145-146°. $[\alpha]_D^{20}$ +123.5 (c, 0.8 in MeOH).

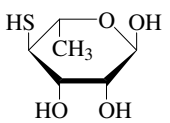
*Et glycoside, 2-Ac: Ethyl 2-*O*-acetyl-1-thio-β-L-rhamnopyranoside*
[135303-34-3]
$C_{10}H_{18}O_5S$ 250.315
Cryst. Mp 111-113°. $[\alpha]_D^{25}$ +90.5 (c, 0.8 in $CHCl_3$).

*Et glycoside, tri-Ac: Ethyl 2,3,4-tri-*O*-acetyl-1-thio-β-L-rhamnopyranoside*
[69558-02-7]
$C_{14}H_{22}O_7S$ 334.39
Cryst. (EtOH). Mp 166-167° (163-164°). $[\alpha]_D^{20}$ +70.5 (c, 0.71 in $CHCl_3$).

Lipták, A. *et al., J. Carbohydr. Chem.*, 1988, **7**, 687-689 (*Me gly derivs*)
Auzanneau, F.I. *et al., Carbohydr. Res.*, 1991, **212**, 13 (*Et α-L-gly, Et β-L-gly derivs*)
Pozsgay, V. *et al., Carbohydr. Res.*, 1992, **235**, 295 (*α-L-Ph gly, α-L-Ph gly derivs, α-L-Et gly derivs*)
Keglević, D. *et al., Carbohydr. Res.*, 1993, **241**, 131 (*Et α-L-gly, Et-β-L-gly*)
Kerékgyártó, J. *et al., Carbohydr. Res.*, 1993, **245**, 65 (*Et α-D-gly, Ph α-D-gly derivs*)
Ando, T. *et al., Carbohydr. Res.*, 1993, **249**, 275 (*α-L-Me gly 2,3-dibenzoyl*)
Das, S.K. *et al., Carbohydr. Res.*, 1996, **296**, 275-277 (*α-L Et gly tri-Ac*)
Lichtenthaler, F.W. *et al., Eur. J. Org. Chem.*, 2003, 3081-3093 (*α-L-Me pyr 4-benzoyl*)

4-Thiorhamnose T-87

6-Deoxy-4-thiomannose



α-L-Pyranose-*form*

$C_6H_{12}O_4S$ 180.224

L-*form*
$[\alpha]_D$ -62 → +63.7 (10 min.) (c, 0.8 in H_2O).

α-L-Pyranose-*form*

*S,1,2,3-Tetra-Ac: 1,2,3-Tri-*O*-acetyl-4-S-acetylthio-α-L-rhamnopyranose*
$C_{14}H_{20}O_8S$ 348.373
$[\alpha]_D$ -38.2 (c, 1.2 in $CHCl_3$).

*Me glycoside, 2,3-Di-Ac: Methyl 2,3-di-*O*-acetyl-4-thio-α-L-rhamnopyranoside*
$C_{11}H_{18}O_6S$ 278.326
$[\alpha]_D$ -44.2 (c, 0.7 in $CHCl_3$).

α-L-Furanose-*form*

*Tetra-Ac: 1,2,3,5-Tetra-*O*-acetyl-4-thio-α-L-rhamnofuranose*
$C_{14}H_{20}O_8S$ 348.373
Mp 74-76°. $[\alpha]_D$ -256 (c, 0.8 in $CHCl_3$).

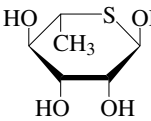
β-L-Furanose-*form*

*Tetra-Ac: 1,2,3,5-Tetra-*O*-acetyl-4-thio-β-L-rhamnofuranose*
$C_{14}H_{20}O_8S$ 348.373
$[\alpha]_D$ +82.5 (c, 0.9 in $CHCl_3$).

Zunszain, P.A. *et al., Carbohydr. Res.*, 1991, **222**, 131

5-Thiorhamnose T-88

6-Deoxy-5-thiomannose



α-L-Pyranose-*form*

$C_6H_{12}O_4S$ 180.224

L-Pyranose-*form*
Syrup. $[\alpha]_D^{25}$ -55.6 (c, 1 in MeOH).

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-thio-L-rhamnopyranose*
$C_{14}H_{20}O_8S$ 348.373
Syrup. $[\alpha]_D^{25}$ -134 (c, 1 in $CHCl_3$). Mixt. of anomers.

β-L-Pyranose-*form*

*Tetrakis(4-nitrobenzoyl): 1,2,3,4-Tetrakis-*O*-(p-nitrobenzoyl)-5-thio-β-L-rhamnopyranose*
Mp 202°. $[\alpha]_D^{25}$ +62.9 (c, 2 in $CHCl_3$).

α-L-Furanose-*form*

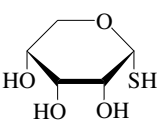
Me glycoside, 2,3-isopropylidene, S*-Ac: Methyl 5-*S*-acetyl-2,3-*O*-isopropylidene-5-thio-α-L-rhamnofuranoside*
$C_{12}H_{20}O_5S$ 276.353
Cryst. (hexane). Mp 48°. $[\alpha]_D^{25}$ -69.9 (c, 1 in $CHCl_3$).

β-L-Furanose-*form*

*Tetra-Ac: 1,2,3-Tri-*O*-acetyl-5-*S*-acetyl-5-thio-β-L-rhamnofuranoside. 1-*O*,2-*O*,3-*O*,5-*S*-Tetraacetyl-5-thio-β-L-rhamnofuranoside*
$C_{14}H_{20}O_8S$ 348.373
Cryst. (Et_2O/hexane). Mp 98°. $[\alpha]_D^{25}$ -128 (c, 0.8 in $CHCl_3$).

Anisuzzaman, A.K.M. *et al., Carbohydr. Res.*, 1977, **55**, 205

1-Thioribose T-89



α-D-Pyranose-*form*

$C_5H_{10}O_4S$ 166.198

D-*form*
Mp 165° dec. (as Na salt). $[\alpha]_D$ -79 → 0 (Na salt).

Tetra-Ac:
$C_{13}H_{18}O_8S$ 334.346
Cryst. (EtOH). Mp 85-87°. $[\alpha]_D^{17}$ +11 (c, 1.97 in $CHCl_3$).

α-D-Furanose-*form*

Et glycoside: Ethyl 1-thio-α-D-ribofuranoside
$C_7H_{14}O_4S$ 194.251
Mp 71-72° (75° hemihydrate). $[\alpha]_D^{20}$ +175 (c, 4 in H_2O).

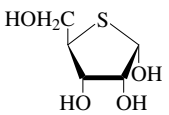
Et glycoside, tri-Ac: Ethyl 2,3,5-tri-O-acetyl-1-thio-α-D-ribofuranoside
$C_{13}H_{20}O_7S$ 320.363
Mp 62°. $[\alpha]_D^{20}$ +206 (c, 2.0 in $CHCl_3$).

Et glycoside, tribenzyl: Ethyl 2,3,5-tri-O-benzyl-1-thio-α-D-ribofuranoside
[160497-06-3]
$C_{28}H_{32}O_4S$ 464.624
Pale yellow oil. $[\alpha]_D^{20}$ +90.7 (c, 1.3 in $CHCl_3$).

Ph glycoside, S-*oxide, tribenzoyl: 2,3,5-Tri-O-benzoyl-β-D-ribofuranosyl phenyl sulfoxide*
$C_{32}H_{26}O_8S$ 570.619
Glycosylating agent for ribofuranosyl synthesis.
Characterised spectroscopically.

Horton, D. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 368 (*α-D fur Et gly, α-D-fur Et gly tri-Ac*)
Tejima, S. *et al., Chem. Pharm. Bull.*, 1964, **12**, 528 (*synth, tetra-Ac*)
Chanteloup, L. *et al., Tet. Lett.*, 1992, **33**, 5347 (*synth, pmr, cmr, Ph gly S-oxide tribenzoyl*)
Griffin, F.K. *et al., Eur. J. Org. Chem.*, 2002, 1305-1322 (*α-D fur Et gly tribenzyl*)

4-Thioribose T-90



α-D-Furanose-*form*

$C_5H_{10}O_4S$ 166.198

D-Furanose-*form*
D-Ribothiafuranose
[36793-11-0]
Syrup.

α-D-Furanose-*form*

Tetra-Ac:
$C_{13}H_{18}O_8S$ 334.346
Syrup. $[\alpha]_D^{25}$ +123 (c, 2 in $CHCl_3$).

β-D-Furanose-*form*

Tetra-Ac: Mp 64-66°. $[\alpha]_D^{25}$ -102 (c, 2 in $CHCl_3$).

L-Furanose-*form* *L-Ribothiafuranose*
Syrup.

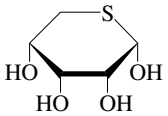
Tetra-Ac: $[\alpha]_D^{25}$ +56 (c, 1.3 in $CHCl_3$).

*Tetrakis-*p-*nitrobenzoyl:* Mp 216-217°. $[\alpha]_D^{25}$ +30 (c, 1.3 in $CHCl_3$).

Reist, E.J. *et al., J.A.C.S.*, 1963, **85**, 3715 (*synth, L-form*)
Bobek, M. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 292 (*synth, D-form derivs*)

5-Thioribose, 9CI T-91

Ribothiapyranose
[41355-64-0]



α-D-Pyranose-*form*

$C_5H_{10}O_4S$ 166.198

D-*form*
S-*Me: 5-Thiomethylribose*
$C_6H_{12}O_4S$ 180.224
Component of Adeninethiomethylpentoside (see 5′-Thioadenosine, T-52).
Syrup.

α-D-Pyranose-*form* [15354-46-8]
Mp 160°. $[\alpha]_D^{23}$ +127 (2 min) → +25 (c, 0.6 in H_2O).

*1,2:3,4-Di-*O*-isopropylidene: 1,2:3,4-Di-O-isopropylidene-5-thio-α-D-ribopyranose*
[56265-50-0]
$C_{11}H_{18}O_4S$ 246.327
Cryst. (petrol). Mp 66-67°. $[\alpha]_D$ -90 (c, 0.25 in $CHCl_3$).

Me glycoside: Methyl 5-thio-α-D-ribopyranoside
$C_6H_{12}O_4S$ 180.224
Cryst. (C_6H_6). Mp 73°. $[\alpha]_D^{26}$ +301 (c, 0.9 in MeOH).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-acetyl-5-thio-α-D-ribopyranoside
$C_{12}H_{18}O_7S$ 306.336
Plates (MeOH aq.). Mp 65-66°. $[\alpha]_D^{21}$ +227 (c, 0.8 in MeOH).

β-D-Pyranose-*form* [15354-47-9]
Mp 142-144°. $[\alpha]_D^{24}$ -37 (3 min) → +28 (c, 1.1 in H_2O).

Tetra-Ac:
$C_{13}H_{18}O_8S$ 334.346
Mp 122-123°. $[\alpha]_D^{20}$ -61 (c, 1 in MeOH).

Me glycoside: Methyl 5-thio-β-D-ribopyranoside
$C_6H_{12}O_4S$ 180.224
Mp 124°. $[\alpha]_D^{25}$ -246 (c, 1.1 in MeOH).

Me glycoside, tri-Ac: Methyl 2,3,4-tri-O-acetyl-5-thio-β-D-ribopyranoside
$C_{12}H_{18}O_7S$ 306.336
Syrup. $[\alpha]_D^{25}$ -78 (c, 1.0 in MeOH).

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 2,3-O-isopropylidene-5-thio-β-D-ribopyranoside*
$C_9H_{16}O_4S$ 220.289
Cryst. (petrol). Mp 75-76°. $[\alpha]_D$ -12 (c, 0.52 in $CHCl_3$).

*Me glycoside, 3,4-*O*-isopropylidene: Methyl 3,4-O-isopropylidene-5-thio-β-D-ribopyranoside*
$C_9H_{16}O_4S$ 220.289
Cryst. (petrol). Mp 83-84°. $[\alpha]_D$ -22 (c, 0.3 in $CHCl_3$).

*2,3-Isopropylidene: 2,3-*O*-Isopropylidene-5-thio-β-D-ribopyranose*
$C_8H_{14}O_4S$ 206.262
Mp 136-138°. $[\alpha]_D$ -37 → -30 (final) (c, 1.4 in MeOH).

2,3-Isopropylidene, 1,4-di-Ac: 1,4-Di-O-acetyl-2,3-isopropylidene-5-thio-β-D-ribopyranose
$C_{12}H_{18}O_6S$ 290.337
Mp 95-97°. $[\alpha]_D$ -64.5 (c, 0.8 in CH_2Cl_2).

β-D-Furanose-*form*

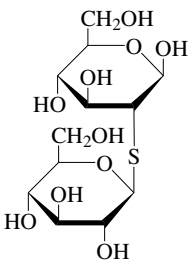
*Me glycoside, 2,3-isopropylidene: Methyl 2,3-*O*-isopropylidene-5-thio-β-D-ribofuranoside*
$C_9H_{16}O_4S$ 220.289
$[\alpha]_D^{20}$ -86 (c, 0.6 in $CHCl_3$).

Me glycoside, S-*Me, 2,3-isopropylidene: Methyl 2,3-*O*-isopropylidene-5-*S*-methyl-5-thio-β-D-ribofuranoside*
$C_{10}H_{18}O_4S$ 234.316
$[\alpha]_D^{20}$ -102 (c, 1.6 in $CHCl_3$).

Weygand, F. *et al., Chem. Ber.*, 1950, **83**, 563 (*S-Me*)
Clayton, C.J. *et al., Chem. Ind. (London)*, 1962, 1795 (*synth, α-D-Me pyr tri-Ac, β-D-Me pyr, β-D-pyr tetra-Ac*)
Clayton, C.J. *et al., Carbohydr. Res.*, 1967, **4**, 32 (*α-D-pyr, α-D-Me pyr, α-D-Me pyr tri-Ac, β-D-pyr, β-D-Me pyr derivs, β-D-pyr tetra-Ac*)
Hughes, N.A. *et al., Carbohydr. Res.*, 1976, **49**, 225 (*isopropylidene derivs*)
Pakulski, Z. *et al., Tetrahedron*, 1994, **50**, 2975 (*β-D-fur derivs*)
Fleetwood, A. *et al., Carbohydr. Res.*, 1999, **317**, 204-209 (*β-D-2,3-isopropylidene*)
Lalot, J. *et al., Carbohydr. Res.*, 2002, **337**, 1411-1416 (*synth*)

2-Thiosophorose T-92

*2-*S*-β-D-Glucopyranosyl-2-thio-D-glucose*
[92051-25-7]



β-Pyranose-*form*

$C_{12}H_{22}O_{10}S$ 358.366
Reducing disaccharide. Potential enzyme inducer. Hygroscopic solid (MeOH/Et_2O), or cryst. (MeOH). Mp 102° (as hygroscopic solid) Mp 178-180° (as cryst.). $[\alpha]_D^{20}$ -23 (c, 1 in H_2O). $[\alpha]_D$ -8 (3 min.) → -13.1 (equilib.) (c, 0.3 in H_2O). Readily equilibrates with the 2-epimer.

*2-Epimer: 2-*S*-β-D-Glucopyranosyl-2-thio-D-mannose. 2-Thioepisophorose*
[148228-88-0]
$C_{12}H_{22}O_{10}S$ 358.366
Syrup. $[\alpha]_D$ -30.2 (c, 0.6 in H_2O).

β-Pyranose-*form* [158213-28-6]

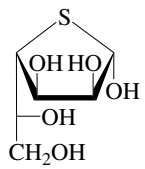
Octa-Ac: [92051-24-6]
$C_{28}H_{38}O_{18}S$ 694.663
Cryst. (Et_2O). Mp 160-161°. $[\alpha]_D^{20}$ +4 (c, 1 in $CHCl_3$).

[158213-27-5, 176842-72-1, 176842-73-2]

Hamacher, K. *et al., Carbohydr. Res.*, 1984, **128**, 291-295 (*synth, pmr, octa-Ac*)

Defaye, J. *et al., Carbohydr. Res.*, 1994, **253**, 185-194 (*synth, pmr, cmr*)
Petrusova, M. *et al., Carbohydr. Res.*, 1996, **283**, 73-80 (*synth, pmr, cmr, epimer*)

4-Thiotalose T-93



$C_6H_{12}O_5S$ 196.224

α-D-Furanose-*form*

Me glycoside: Methyl 4-thio-α-D-talofuranoside
$C_7H_{14}O_5S$ 210.251
$[\alpha]_D$ +55 (c, 1 in H_2O).

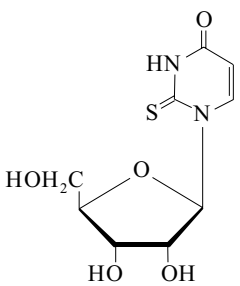
*Me glycoside, tetra-Ac: Methyl 2,3,5,6-tetra-*O*-acetyl-4-thio-α-D-talofuranoside*
$C_{15}H_{22}O_9S$ 378.399
$[\alpha]_D$ +122 (c, 0.13 in $CHCl_3$).

*Me glycoside, tetrabenzyl: Methyl 2,3,5,6-tetra-*O*-benzyl-4-thio-α-D-talofuranoside*
$C_{35}H_{38}O_5S$ 570.748
$[\alpha]_D$ -16 (c, 1 in EtOH).

Classon, B. *et al., J. Carbohydr. Chem.*, 1987, **6**, 593-597 (*α-D-fur, Me gly, Me gly tetra-Ac, Me gly-tetrabenzyl*)

2-Thiouridine, 9CI, 8CI T-94

[20235-78-3]



$C_9H_{12}N_2O_5S$ 260.27
Modified nucleoside found in tRNAs. Mp 208-209° (213°). $[\alpha]_D^{22}$ +38 (c, 1.0 in H_2O). λ_{max} 244 (ε 4 800) (H_2O); 239 (22 600), 271 nm (14 200) (0.1*N* NaOH).

2′,3′,5′-Tri-Ac: [28542-31-6]
$C_{15}H_{18}N_2O_8S$ 386.382
λ_{max} 222, 282 nm (EtOH); 244, 276 sh nm (NaOH).

2′,3′,5′-Tribenzoyl: [21052-18-6]
$C_{30}H_{24}N_2O_8S$ 572.594
$[\alpha]_D^{22}$ -33 (c, 2.5 in $CHCl_3$).

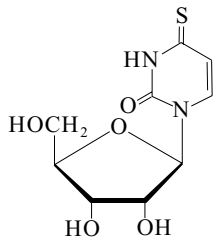
2′,3′-O-*Isopropylidene:*
$C_{12}H_{16}N_2O_5S$ 300.335
Mp 192°.

2′-Me:
$C_{10}H_{14}N_2O_5S$ 274.297
Solid.

Brown, D.M. *et al., J.C.S.*, 1958, 3028 (*synth*)
Rogers, G.T. *et al., J.C.S.(C)*, 1971, 2995 (*synth*)
Pal, B.C. *et al., J.O.C.*, 1971, **36**, 3026 (*synth*)
Paszyc, S. *et al., Bull. Acad. Pol. Sci., Ser. Sci. Chim.*, 1975, **23**, 477; *CA*, **83**, 193624b (*conformn, pmr*)
Nawrot, B. *et al., Nucleosides Nucleotides*, 1989, **8**, 1499 (*synth*)
Smith, W.S. *et al., J.A.C.S.*, 1992, **114**, 7989 (*conformn, pmr*)
Okamoto, I. *et al., J.O.C.*, 2003, **68**, 9971-9982 (*2′-Me*)

4-Thiouridine, 9CI, 8CI T-95

[13957-31-8]



$C_9H_{12}N_2O_5S$ 260.27
Constit. of t-RNA from *E. coli*. Also prod. by *Streptomyces libani*. Possesses antibacterial and cytotoxic props. Used as an intrinsic photoaffinity probe of nucleic acid structure and interactions. Yellow needles (EtOH/cyclohexane).
Mp 139-140°. $[\alpha]_D^{20}$ +49.7 (c, 0.67 in H_2O). λ_{max} 330 (ε 20 600), 243 nm (3 400) (pH 7). λ_{max} 243 (ε 3400); 330 (ε 20600) (H_2O pH 7) (Derep). λ_{max} 260 (H_2O) (Berdy).

2′,3′-Di-Ac: [23661-08-7]
$C_{13}H_{16}N_2O_7S$ 344.345
Syrup. λ_{max} 330, 245 sh nm.

2′,3′,5′-Tri-Ac: [55003-25-3]
$C_{15}H_{18}N_2O_8S$ 386.382
$[\alpha]_D^{20}$ +18.4 (c, 0.67 in EtOH). λ_{max} 328 (ε 15 850), 245 nm (3 890) (EtOH).

5′-Benzoyl: [23661-06-5]
$C_{16}H_{16}N_2O_6S$ 364.378
Yellow rods (EtOAc/hexane). Mp 198-199°.

2′,3′-O-*Isopropylidene:*
$C_{12}H_{16}N_2O_5S$ 300.335
Yellow needles (EtOH/cyclohexane). Mp 171-173°. λ_{max} 329, 245 nm (EtOH).

2′,3′-O-*Isopropylidene, 5′-Ac:*
$C_{14}H_{18}N_2O_6S$ 342.372
Mp 143-144°. λ_{max} 329 (ε 19 600), 247 nm (4 450) (MeOH).

2′,5′-Di-O-*trityl:* [56889-12-4]
$C_{47}H_{40}N_2O_5S$ 744.909
Yellow needles (C_6H_6/cyclohexane). Mp 223-225°.

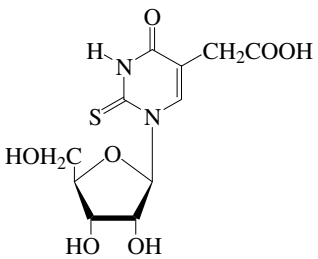
5′-Diphosphate:
$C_9H_{14}N_2O_{11}P_2S$ 420.23
λ_{max} 330, 243 nm (H_2O, pH 7).

5′-Triphosphate:
$C_9H_{15}N_2O_{14}P_3S$ 500.21
λ_{max} 330, 245 nm (H_2O, pH 7).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 373B (*nmr*)
Lipsett, M.N. *et al., J. Biol. Chem.*, 1967, **242**, 4072
Scheit, K.H. *et al., Chem. Ber.*, 1969, **101**, 1141 (*synth, isopropylidene Ac, diphosphate, triphosphate*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1969, **17**, 181 (*synth, isopropylidene, di-Ac*)
Saenger, W. *et al., Eur. J. Biochem.*, 1973, **32**, 473 (*cryst struct*)
Schweizer, M.P. *et al., J.A.C.S.*, 1973, **95**, 3770 (*pmr, cmr*)
Saneyoshi, M. *et al., Chem. Pharm. Bull.*, 1975, **23**, 1146 (*ditrityl*)
Shiue, C.-Y. *et al., J.O.C.*, 1975, **40**, 2971 (*pmr*)
Igarashi-Yamamoto, N. *et al., Biochim. Biophys. Acta*, 1981, **656**, 1 (*cd, mcd, uv*)
Lesyng, B. *et al., Z. Naturforsch., C*, 1981, **36**, 956 (*cryst struct*)
Sung, W.L. *et al., Chem. Comm.*, 1982, 522 (*synth*)
Smith, D.L. *et al., Biomed. Mass Spectrom.*, 1983, **10**, 269 (*ms*)
Favre, A. *et al., Bioorg. Photochem.*, 1990, **1**, 379 (*rev, use*)
Dubreuil, Y.L. *et al., Nucleic Acids Res.*, 1991, **19**, 3653
Nishikiori, T. *et al., J. Antibiot.*, 1992, **45**, 1376 (*isol, props*)

2-Thiouridine-5-acetic acid T-96

5-Carboxymethyl-2-thiouridine
[58479-77-9]

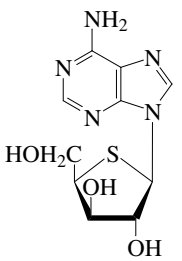


$C_{11}H_{14}N_2O_7S$ 318.307

Me ester: 5-(Methoxycarbonylmethyl)-2-thiouridine
[20299-15-4]
$C_{12}H_{16}N_2O_7S$ 332.334
Modified nucleoside found in tRNA's. Cryst. (MeOH aq.).
Mp 196-197°. $[\alpha]_D$ +19.8 (c, 0.5 in H_2O). λ_{max} 220 (log ε 4.2); 278 (log ε 4.2) (H_2O).

Vorbruggen, H. *et al., Chem. Ber.*, 1973, **106**, 3039-3061 (*synth*)
Hillen, W. *et al., Biochemistry*, 1978, **17**, 5314-5320 (*cryst struct*)
Laten, H.M. *et al., Biochim. Biophys. Acta*, 1983, **741**, 1-6 (*isol*)

9-(4-Thioxylofuranosyl)adenine T-97



β-*form*

$C_{10}H_{13}N_5O_3S$ 283.31

α-D-*form* [15023-72-0]
Mp 248-251°. $[\alpha]_D^{23}$ +15 (c, 0.45 in 2-methoxyethanol). λ_{max} 260 (ϵ 15480) (H_2O). λ_{max} 258 (ϵ 15030) (pH 1). λ_{max} 261 (ϵ 15620) (pH 13).

*3′,5′-*O*-Isopropylidene:*
$C_{13}H_{17}N_5O_3S$ 323.375
Mp 267-270°. $[\alpha]_D^{21}$ +19 (c, 0.91 in 2-methoxyethanol).

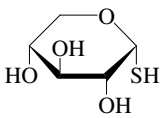
β-D-*form* [15023-73-1]
Mp 217-220°. $[\alpha]_D^{24}$ -29 (c, 0.5 in 2-methoxyethanol). λ_{max} 260 (ϵ 14900) (H_2O). λ_{max} 258 (ϵ 14400) (pH 1). λ_{max} 260 (ϵ 14900) (pH 13).

2′-Mesyl: [15023-76-4]
Mp 168-172°. $[\alpha]_D^{21}$ -17 (c, 0.98 in MeOH).

*2′-Mesyl, 3′,5′-*O*-isopropylidene:* Mp 204-206°. $[\alpha]_D^{22}$ -20 (c, 0.88 in $CHCl_3$).

Reist, E.J. *et al., J.O.C.*, 1968, **33**, 189 (*synth, pmr*)

1-Thioxylose T-98



α-D-Pyranose-*form*

$C_5H_{10}O_4S$ 166.198

D-*form*
$[\alpha]_D$ -20 → +2 (H_2O).

K salt: Mp 160° dec. $[\alpha]_D$ -17 (H_2O).

Tetra-Ac:
$C_{13}H_{18}O_8S$ 334.346
Mp 99°. $[\alpha]_D^{24}$ -7 ($CHCl_3$).

α-D-Pyranose-*form*
tert-*Butyl glycoside, tri-Ac:* tert-*Butyl 2,3,4-tri-*O*-acetyl-1-thio-α-D-xylopyranoside*
$C_{15}H_{24}O_7S$ 348.416
Cryst. (hexane). Mp 127-129°. $[\alpha]_D^{18}$ +155 (c, 1.3 in $CHCl_3$).

β-D-Pyranose-*form*
Tri-Ac:
$C_{11}H_{16}O_7S$ 292.309
Cryst. (MeOH). Mp 123-129°. $[\alpha]_D$ -17 (c, 0.542 in $CHCl_3$).

Me glycoside: Methyl 1-thio-β-D-xylopyranoside
$C_6H_{12}O_4S$ 180.224
Mp 173-174° (167-168.5°). $[\alpha]_D$ -73 ($CHCl_3$).

*Me glycoside, tri-Ac: Methyl 2,3,4-tri-*O*-acetyl-1-thio-β-D-xylopyranoside*
$C_{12}H_{18}O_7S$ 306.336
Mp 90-91°. $[\alpha]_D^{21}$ -75 (c, 1.25 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene: Methyl 2,3-*O*-isopropylidene-1-thio-β-D-xylopyranoside*
$C_9H_{16}O_4S$ 220.289
Cryst. (Et_2O). Mp 94-96°. $[\alpha]_D^{20}$ -61 (c, 1.1 in $CHCl_3$).

*Me glycoside, 2,3-*O*-isopropylidene, 4-Ac: Methyl 4-*O*-acetyl-2,3-*O*-isopropylidene-1-thio-β-D-xylopyranoside*
$C_{11}H_{18}O_5S$ 262.326
Syrup. $[\alpha]_D^{20}$ -90 (c, 1.0 in $CHCl_3$).

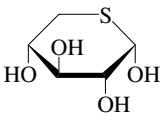
tert-*Butyl glycoside, tri-Ac:* tert-*Butyl 2,3,4-tri-*O*-acetyl-1-thio-β-D-xylopyranoside*
$C_{15}H_{24}O_7S$ 348.416
Cryst. (hexane/Et_2O). Mp 84-86°. $[\alpha]_D^{16}$ -42 (c, 1 in $CHCl_3$).

S-*Ph,* S-*Oxide, tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-xylopyranosyl phenyl sulfoxide*
$C_{17}H_{20}O_8S$ 384.406
Glycosylating agent for introduction of xyl residues. Mp 154°. $[\alpha]_D^{24}$ -86.8 (c, 1.1 in $CHCl_3$).

Gehrke, M. *et al., Ber.*, 1931, **64**, 2696 (*tetra-Ac*)
Bonner, W.A. *et al., J.A.C.S.*, 1948, **70**, 2435 (*S-Ph, S-oxide tri-Ac*)
Staněk, J. *et al., Coll. Czech. Chem. Comm.*, 1965, **30**, 297 (*tri-Ac*)
Lopez Aparicio, F.J. *et al., Carbohydr. Res.*, 1987, **163**, 29 (*tert-butyl gly tri-Ac*)
Takeo, K. *et al., Carbohydr. Res.*, 1990, **201**, 261 (*Me gly, Me gly derivs*)

5-Thioxylose, 9CI T-99

Xylothiapyranose
[56265-48-6]



α-D-Pyranose-*form*

$C_5H_{10}O_4S$ 166.198
Mp 122-123°. $[\alpha]_D^{20}$ +202 → +178 (c, 2 in H_2O).

α-D-Pyranose-*form*
*1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-thio-α-D-xylopyranose*
$C_{13}H_{18}O_8S$ 334.346
Mp 99-100°. $[\alpha]_D^{20}$ +219 (c, 2.2 in $CHCl_3$).

β-D-Pyranose-*form*
*1,2,3,4-Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-5-thio-β-D-xylopyranose*
$C_{13}H_{18}O_8S$ 334.346
Mp 157-158.5°. $[\alpha]_D^{21}$ -49 (c, 2.3 in $CHCl_3$).

Me glycoside, S,S-*dioxide:* [19460-65-2]
$C_6H_{12}O_6S$ 212.223
Mp 197°. $[\alpha]_D^{20}$ -65.5 (c, 1.7 in H_2O).

α-D-Furanose-*form*
*1,2-*O*-Isopropylidene: 1,2-*O*-Isopropylidene-5-thio-α-D-xylofuranose*
$C_8H_{14}O_4S$ 206.262
Mp 85-87°. $[\alpha]_D^{20}$ -52 (c, 1.99 in $CHCl_3$).

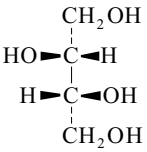
*1,2-*O*-Isopropylidene, 5-*S*-Me:* [18685-26-2]
$C_9H_{16}O_4S$ 220.289
Mp 90-91°. $[\alpha]_D^{27}$ -61.8 (c, 0.94 in $CHCl_3$).

*1,2-*O*-Isopropylidene, 5-*S*-benzyl, 3-Me:* [20789-56-4]
$C_{16}H_{22}O_4S$ 310.413
Mp 68°. $[\alpha]_D^{18}$ +25.6 (c, 5 in $CHCl_3$).

Schwarz, J.C.P. *et al., Proc. Chem. Soc., London*, 1961, 417 (*synth, isopropylidene, tetra-Ac*)
Rowell, R.M. *et al., Carbohydr. Res.*, 1967, **5**, 337 (*Me gly dioxide*)
Inokawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1968, **41**, 1472 (*isopropylidene 5-S-benzyl 3-Me*)
Nestadt, B. *et al., Tetrahedron*, 1968, **24**, 1973 (*isopropylidene 5-S-Me*)
Lambert, J. *et al., Carbohydr. Res.*, 1983, **115**, 33 (*pmr, cmr*)
Rahman, A.U. *et al., J. Chem. Soc. Pak.*, 1986, 8; 397 (*synth*)

Threitol T-100

*(*R,R*)-1,2,3,4-Butanetetrol, 9CI*
[7493-90-5]



(2*R*,3*R*)–*form*

$C_4H_{10}O_4$ 122.121
For (*R*,*S*)-*meso*-form see Erythritol, E-14.
Log P -3.02 (calc).

(2*R*,3*R*)-*form*
D-form
[2418-52-2]
Found in the edible fungus *Armillaria mellea*. Constit. of bark, stem and leaf of jute (*Corchorus capsularis* and *Corchorus olitorius* (Jew's mallow)), bark, stem and leaf of the pigeon pea plant (*Cajanus cajan*); also traces found in the lichen *Parmotrema cetratum*.
Needles (EtOH). V. sol. hot EtOH.
Mp 72-74° Mp 88.5-89°. $[\alpha]_D^{20}$ +6 (c, 2 in Me_2CO). $[\alpha]_D^{20}$ +4.6 (c, 6 in H_2O). $[\alpha]_D^{20}$ -11.5 (c, 5 in EtOH).

*Tetrabenzoyl: 1,2,3,4-Tetra-*O*-benzoyl-D-threitol*
[114926-25-9]
$C_{32}H_{26}O_8$ 538.553
Mp 97°.

*2,3-*O*-Isopropylidene: 2,2-Dimethyl-1,3-dioxolane-4,5-dimethanol, 9CI. 2,3-*O*-Isopropylidene-D-threitol*
[73346-74-4]
$C_7H_{14}O_4$ 162.185
Cryst. (diisopropyl ether). Mp 48-51°. $Bp_{0.01}$ 91-93°. $[\alpha]_D^{26}$ -4.8 (c, 10.3 in $CHCl_3$). $[\alpha]_D^{26}$ +3.1 (c, 10 in EtOH).

*2,3-*O*-Isopropylidene, 1,4-ditosyl: 2,3-*O*-Isopropylidene-1,4-di-*O*-tosyl-D-threitol*
[51064-65-4]
$C_{21}H_{26}O_8S_2$ 470.564
Precursor to chiral diphosphine metal complexes used as catalysts. Mp 89-91°. $[\alpha]_D^{20}$ +12.1 (c, 8.8 in $CHCl_3$).

*2,3-*O*-Benzylidene: 2,3-*O*-Benzylidene-D-threitol. 2-Phenyl-1,3-dioxolane-4,5-dimethanol, 9CI*
[58383-35-0]
$C_{11}H_{14}O_4$ 210.229
Cyclosporin A intermed. Mp 72-74°. $[\alpha]_D^{18}$ +11 (c, 2 in MeOH).

*1,2:3,4-Dibenzylidene: 1,2:3,4-Di-*O*-benzylidene-D-threitol*
$C_{18}H_{18}O_4$ 298.338
Mp 231-234°. $[\alpha]_D^{25}$ -79.3 (c, 0.64 in $CHCl_3$).

2-Benzyl: [124909-02-0]
Cryst. (CH_2Cl_2). Mp 75-76°. $[\alpha]_D^{25}$ +17.5 (c, 1.14 in EtOH).

*1-Benzyl, 2,3-*O*-isopropylidene: 2,2-Dimethyl-5-[(phenylmethoxy)methyl]-1,3-dioxolane-4-methanol, 9CI. 1-*O*-Benzyl-2,3-*O*-isopropylidene-D-threitol*
[78469-77-9]
$C_{14}H_{20}O_4$ 252.31
Syrup. $[\alpha]_D$ -8.2 (c, 1.13 in $CHCl_3$).

*1,4-Dibenzyl: 1,4-Di-*O*-benzyl-D-threitol*
[91604-41-0]
$C_{18}H_{22}O_4$ 302.369
Chiral synthon. Cryst. (Et_2O/petrol). Mp 55-57°. $[\alpha]_D^{20}$ +6 (c, 5 in $CHCl_3$).

*2,3-Dibenzyl: 3,4-Bis(phenylmethoxy)-1,2-butanediol, 9CI. 2,3-Di-*O*-benzyl-D-threitol*
[113350-84-8]
$C_{18}H_{22}O_4$ 302.369
Cryst. (hexane/EtOAc). Mp 45-46°. $[\alpha]_D^{21.5}$ -22.5 (c, 0.50 in EtOH).

1,4-Bis(4-chlorobenzyl): [85362-86-3]
$C_{18}H_{20}Cl_2O_4$ 371.259
Mp 76-78°. $[\alpha]_D^{20}$ +6 (c, 3 in $CHCl_3$).

(2*S*,3*S*)-*form*
L-form
[2319-57-5]
Needles (EtOH). V. sol. H_2O, hot EtOH. Mp 88°. $[\alpha]_D^{20}$ -4 (c, 7 in H_2O). $[\alpha]_D^{27}$ +13 (c, 2 in EtOH).

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-L-threitol*
[49560-29-4]
$C_{12}H_{18}O_8$ 290.269
$Bp_{0.05}$ 145°. $[\alpha]_D^{25}$ -32 (c, 2 in EtOH).

1,4-Dimesyl: ***Treosulfan, BAN, INN****. Amebisan. Dihydroxybusulfan. Ovastat. Threosulphan. Treoforon. Leo 40067. NSC 39069*
[299-75-2]
$C_6H_{14}O_8S_2$ 278.304
Antineoplastic agent. Log P -2.2 (calc).
▶ Human carcinogen (IARC group 1), mutagen. XO8500000

*1,4-Ditosyl: 1,4-Di-*O*-tosyl-L-threitol*
[57495-46-2]
$C_{18}H_{22}O_8S_2$ 430.499
Cryst. ($CHCl_3$). Mp 76-77°. $[\alpha]_D^{20}$ -4.6 (c, 2.1 in Me_2CO).

*2,3-*O*-Isopropylidene: 2,3-*O*-Isopropylidene-L-threitol*
[50622-09-8]
$C_7H_{14}O_4$ 162.185
Cryst. (diisopropyl ether). Mp 48-51°. $Bp_{0.01}$ 91-93°. $[\alpha]_D^{20}$ +5.1 (c, 5 in $CHCl_3$).

*2,3-*O*-Isopropylidene, 1,4-ditosyl: 2,3-*O*-Isopropylidene-1,4-di-*O*-tosyl-L-threitol*
[37002-45-2]
$C_{21}H_{26}O_8S_2$ 470.564
Mp 92-93°. $[\alpha]_D^{23}$ -12.3 (c, 8.8 in $CHCl_3$).

*1,3-*O*-Benzylidene: 1,3-*O*-Benzylidene-L-threitol. 5-Hydroxy-2-phenyl-1,3-dioxane-4-methanol*
[81577-58-4]
$C_{11}H_{14}O_4$ 210.229
Cryst. (EtOAc/petrol). Mp 139-141° (133-134°). $[\alpha]_D$ +8 (c, 1.2 in Py).

*2,3-*O*-Benzylidene: 2,3-*O*-Benzylidene-L-threitol*
[35572-34-0]
$C_{11}H_{14}O_4$ 210.229
Cyclosporin A intermed. Mp 72-74°. $[\alpha]_D^{20}$ -10.5 (c, 2 in MeOH).

*1,2:3,4-Di-*O*-benzylidene: 1,2:3,4-Di-*O*-benzylidene-L-threitol*
$C_{18}H_{18}O_4$ 298.338
Mp 231-233°. $[\alpha]_D^{25}$ +79.

*1,2-Dibenzyl: 1,2-Di-*O*-benzyl-L-threitol*
[107938-30-7]
$C_{18}H_{22}O_4$ 302.369
Oil. $[\alpha]_D$ +28.7 (c, 5.4 in $CHCl_3$).

*1,4-Dibenzyl: 1,4-Di-*O*-benzyl-L-threitol*
[17401-06-8]
$C_{18}H_{22}O_4$ 302.369
Chiral synthon. Cryst. (Et_2O/petrol). Mp 55-57°. $[\alpha]_D^{20}$ -6 (c, 5 in $CHCl_3$).

*1-Benzyl, 2,3-*O*-isopropylidene: 1-*O*-Benzyl-2,3-*O*-isopropylidene-L-threitol*
[78513-03-8]
$C_{14}H_{20}O_4$ 252.31
Syrup. $[\alpha]_D$ +8.7 (c, 1.2 in $CHCl_3$).

2,3-Di-Me ether: 2,3-Dimethoxy-1,4-butanediol
[24679-72-9]
$C_6H_{14}O_4$ 150.174
Hygroscopic cryst. ($CHCl_3$/Et_2O). Mp 37-38°. $Bp_{0.005}$ 92-94°. $[\alpha]_D^{21}$ +5.1 (c, 5 in EtOH).

(±)-*form* [6968-16-7]
Cryst. (EtOH). V. sol. H_2O. Mp 72°.

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-DL-threitol*
[65167-69-3]
$C_{12}H_{18}O_8$ 290.269
Mp 54-55°.

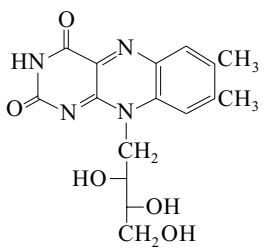
*1,2:3,4-Di-*O*-benzylidene: 1,2:3,4-Di-*O*-benzylidene-DL-threitol*
$C_{18}H_{18}O_4$ 298.338
Mp 221-223°.

[20638-61-3, 50623-73-9, 71641-34-4, 102779-61-3, 114924-93-5]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 184D; 247D; 248A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 287B; 287C; 400B; 400C (*nmr*)
Aldrich Library of FT-IR Spectra: Vapor Phase, 1989, **3**, 327C; 327D (*ir*)
Maquenne, L. *et al., C. R. Hebd. Seances Acad. Sci.*, 1900, **130**, 1402 (*synth*)
Ness, R.K. *et al., J.A.C.S.*, 1951, **73**, 4759 (*synth*)
Foster, A.B. *et al., J.C.S.*, 1961, 5005 (*1,3-benzylidene*)
Feit, P.W. *et al., J. Med. Chem.*, 1964, **7**, 14; 1970, **13**, 1173 (*isopropylidene derivs*)
Institoris, L. *et al., Arzneim.-Forsch.*, 1967, **17**, 145 (*pharmacol*)
Hilden, J. *et al., J. Antibiot.*, 1976, **29**, 58 (*use*)
Bourson, J. *et al., Bull. Soc. Chim. Fr.*, 1977, 1241 (*L-form, synth*)
Curtis, W.D. *et al., J.C.S. Perkin 1*, 1977, 1756 (*dibenzyl ethers*)
Holý, A. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 593 (*1,3-benzylidene*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
IARC Monog., 1981, **26**, 341; *Suppl*. 7, 363; *Suppl*. 6, 528 (*rev, tox, Treosulfan*)
Double, J.A. *et al., Br. J. Cancer*, 1983, **48**, 739 (*use*)
Wenger, R.M. *et al., Helv. Chim. Acta*, 1983, **66**, 2308-2321 (*2,3-benzylidene*)
Hawkes, G.E. *et al., J.C.S. Perkin 2*, 1984, 2073 (*pmr, conformn*)
Kocienski, P. *et al., Synth. Commun.*, 1984, **14**, 1087-1092 (*2,3-benzylidene*)
Bogatsky, A.V. *et al., Synthesis*, 1984, 139 (*L-form, isopropylidene*)
Andrews, M.A. *et al., J.O.C.*, 1989, **54**, 5257 (*synth*)
Köpf-Maier, P. *et al., Cancer Chemother. Pharmacol.*, 1992, **31**, 103 (*Treosulfan, clin trial*)
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1992, **223**, 11 (*cryst struct, D-threitol*)
Kopf, J. *et al., Carbohydr. Res.*, 1993, **247**, 119 (*cryst struct*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 503
Corradi da Silva, M. de L. *et al., Phytochemistry*, 1993, **34**, 715 (*isol*)
Kakinuma, H. *et al., Carbohydr. Res.*, 1994, **264**, 237 (*1-benzyl 2,3-isopropylidene*)
Batsanov, A.S. *et al., J.C.S. Perkin 1*, 1995, 1281 (*D-form isopropylidene, synth, ir, pmr, cmr*)
Mukai, C. *et al., J.C.S. Perkin 1*, 1995, 2849 (*dibenzyl ether, synth, ir, pmr, cmr*)
Marco, J.A. *et al., Annalen*, 1996, 1801 (*1,2-dibenzyl ether*)
Org. Synth., Coll. Vol., 9, 1998, 31-45 (*2-benzyl, synth, pmr*)
Rozenberg, M. *et al., Carbohydr. Res.*, 1999, **315**, 89-97 (*ir, Raman*)
Kitajima, J. *et al., Chem. Pharm. Bull.*, 1999, **47**, 988-992 (*isol, pmr, cmr*)
Bachir-Lesage, S. *et al., J. Carbohydr. Chem.*, 2002, **22**, 35-46 (*alkyl derivs*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TFU500

Threoflavin T-101

6,7-Dimethyl-9-(1-D-threityl)isoalloxazine

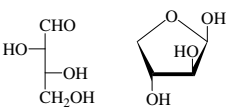


$C_{16}H_{18}N_4O_5$ 346.342
Brick-red needles (6M HCl). Mp 282° dec. $[\alpha]_D^{15}$ +30.

Uehara, K. *et al., J. Biochem. (Tokyo)*, 1963, **54**, 267

Threose, 9CI, 8CI T-102

*(*R,S*)-2,3,4-Trihydroxybutanal*
[29884-64-8]



β-D-Furanose-*form*

$C_4H_8O_4$ 120.105

D-*form* [95-43-2]
Mp 126-132°. $[\alpha]_D^{20}$ -13 (c, 1.0 in H_2O).
Phenylosazone: Mp 164-165°.

*2,4-*O*-Benzylidene: 2,4-*O*-Benzylidene-D-threose. 5-Hydroxy-2-phenyl-1,3-dioxane-4-carboxaldehyde, 9CI*
[99274-32-5]
[6195-62-6]
$C_{11}H_{12}O_4$ 208.213
Cryst. (EtOH). Mp 165.5° (160-161°). $[\alpha]_D^{22}$ +77.6 (c, 2 in Py).

4-Me: 4-O-*Methyl-D-threose*
[24707-32-2]
$C_5H_{10}O_4$ 134.132
Syrup. $[\alpha]_D^{21}$ +5 (c, 1.3 in H_2O).

D-Furanose-*form*

Tri-Ac: Tri-O-*acetyl-D-threofuranose*
[17019-49-7]
$C_{10}H_{14}O_7$ 246.216
Cryst. (EtOH). Mp 117-118°. $[\alpha]_D^{28}$ +35.3 (c, 4.1 in $CHCl_3$).

α-D-Furanose-*form*

Me glycoside: Methyl α-D-threofuranoside
[64609-20-7]
$C_5H_{10}O_4$ 134.132
Syrup. $[\alpha]_D^{20}$ +101 (c, 0.9 in H_2O).

β-D-Furanose-*form*

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-β-D-threofuranose*
[37669-00-4]
$C_7H_{12}O_4$ 160.169
Needles (Et_2O/pentane). Mp 84°.
$[\alpha]_D^{22}$ -15.27 (c, 2.3 in Me_2CO).

1,2-O-*Isopropylidene, 3-Ac: 3*-O-*Acetyl-1,2*-O-*isopropylidene-β-D-threofuranose*
[29412-22-4]
$C_9H_{14}O_5$ 202.207
Syrup. $[\alpha]_D^{18}$ -46.5 (c, 3.47 in $CHCl_3$).

Me glycoside: Methyl β-D-threofuranoside
[25158-75-2]
$C_5H_{10}O_4$ 134.132
Syrup. $[\alpha]_D^{20}$ -191 (c, 0.6 in H_2O).

L-form [95-44-3]
Syrup. $[\alpha]_D$ +12 (c, 1 in H_2O).

2,4-O-*Benzylidene: 2,4*-O-*Benzylidene-L-threose*
$C_{11}H_{12}O_4$ 208.213
Hemihydrate. Mp 119-120°.

2,3-O-*Isopropylidene, di-Me dithioacetal:*
[14917-29-4]
$C_9H_{18}O_3S_2$ 238.371
Syrup. $[\alpha]_D^{23}$ -56.4 (c, 1.41 in $CHCl_3$).

2,3-Di-Me: 2,3-Di-O-*methyl-L-threose*
[24679-70-7]
$C_6H_{12}O_4$ 148.158
Syrup. $[\alpha]_D^{21}$ +12 (c, 1.6 in MeOH).

L-Furanose-*form*

Tri-Ac: Tri-O-*acetyl-L-threofuranose*
[17019-52-2]
$C_{10}H_{14}O_7$ 246.216
Cryst. (EtOH). Mp 117-118°. $[\alpha]_D^{28}$ -35.5 (c, 4.2 in $CHCl_3$).

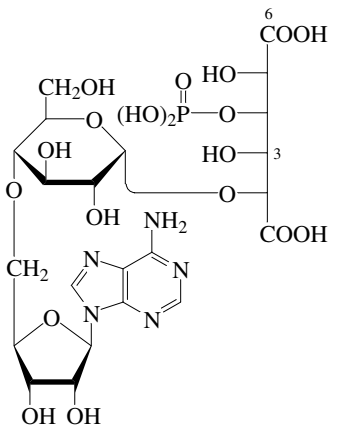
β-L-Furanose-*form*

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-β-L-threofuranose*
[34693-27-1]
$C_7H_{12}O_4$ 160.169
Cryst. (Et_2O/petrol). Mp 84-85°. $[\alpha]_D$ +13 (c, 1 in Me_2CO).

Hockett, R.C. *et al., J.A.C.S.*, 1935, **57**, 2260-2264; 1938, **60**, 278-280 (*D-form, L-form*)
Steiger, M. *et al., Helv. Chim. Acta*, 1936, **19**, 1016-1019 (*β-D-fur isopropylidene*)
Perlin, A.S. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 68-70 (*D-form, L-form, synth*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem.*, 1965, **20**, 219-302 (*cyclic acetals, rev*)
Zinner, H. *et al., Carbohydr. Res.*, 1967, **3**, 389-402 (*L-di-Me-dithioacetal isopropylidene*)
Murray, D.H. *et al., J. Pharm. Sci.*, 1967, **56**, 865-870 (*D-tri-Ac, L-tri-Ac*)
Dutton, G.G.S. *et al., Can. J. Chem.*, 1969, **47**, 2494-2498 (*D-Me, L-di-Me*)
Tronchet, J.M.J. *et al., Helv. Chim. Acta*, 1970, **53**, 1174-1180 (*β-D-fur isopropylidene Ac*)
Morgenlie, S. *et al., Acta Chem. Scand.*, 1972, **26**, 2146-2147 (*L-form, synth, β-L-fur isopropylidene*)
Sonogashira, K. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2616-2620 (*DL-form, synth*)
Linek, K. *et al., Carbohydr. Res.*, 1972, **21**, 326-330 (*D-form*)
Jary, J. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 3571 (*α-D-Me fur, β-D-Me fur*)
Blackburn, G.M. *et al., Chem. Comm.*, 1988, 317-319 (*1,2-isopropylidene-β-L-fur*)
Francisco, C.G. *et al., J.O.C.*, 2001, **66**, 6967-6976 (*β-L-fur 1,2-isopropylidene, synth, pmr, cmr, ms*)

Thuringiensin T-103

Bacillus thuringiensis *Exotoxin. β-Exotoxin. Thurintox*
[23526-02-5]



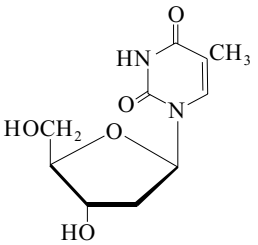
$C_{22}H_{32}N_5O_{19}P$ 701.491
Nucleotide toxin. Isol. from *Bacillus thuringiensis* var. *gelechiae*. Specific inhibitor of DNA-dependent RNA polymerase. Insecticide. Cytotoxic. $[\alpha]_D^{25}$ +30.9 (c, 0.5 in H_2O). Thermostable. λ_{max} 260 (ϵ 13700) (H_2O) (Derep). λ_{max} 260 (ϵ 10500) (H_2O) (Berdy).
▶ Mutagen. BA0270000

6→3-Lactone: ***Anhydrothuringiensin***
[62512-16-7]
$C_{22}H_{30}N_5O_{18}P$ 683.476
Prod. by *Bacillus thuringiensis* var. *gelechiae*. Cytotoxic agent.

Sebesta, K. *et al., Coll. Czech. Chem. Comm.*, 1969, **34**, 891
Farkas, J. *et al., Coll. Czech. Chem. Comm.*, 1977, **42**, 909 (*uv, ir, pmr, cmr, ms, struct, bibl*)
Japan. Pat., 1980, 31 043; *CA*, **93**, 236924a (*Anhydrothuringiensin*)
Isono, K. *et al., J. Antibiot.*, 1988, **41**, 1711 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, BAC125

Thymidine, 8CI T-104

*1-(2-Deoxy-β-D-*erythro-*pentofuranosyl)-5-methyl-2,4(1*H,3H*)-pyrimidinedione, 9CI. 1-(2-Deoxy-β-D-ribofuranosyl)-5-methyluracil. Thymine 2-desoxyriboside. Thymosine. NSC 21548*
[50-89-5]



$C_{10}H_{14}N_2O_5$ 242.231
Isol. from plant sources, e.g. seedlings of *Phaseolus vulgaris* (kidney bean). A principal constit. of DNA.
Mp 186-187°. $[\alpha]_D$ +18.5 (H_2O). $[\alpha]_D^{25}$ +30.6 (c, 1.0 in H_2O). pK_{a1} 9.8; pK_{a2} 12.9 (25°). λ_{max} 207 (ϵ 9800); 267 (ϵ 9700) (no solvent reported) (pH 7.2).
▶ Exp. reprod. and teratogenic effects (large dose), human adverse systemic effects (large dose), exp. antineoplastic agent (and in co-administration with methotrexate, see Methotrexate). LD_{50} (mus, ipr) 2512 mg/kg. XP2071000

3′-Phosphate: See Thymidine 3′-phosphate, T-107

5′-Phosphate: See Thymidine 5′-phosphate, T-108

5′-Diphosphate: See Thymidine diphosphate, T-105

3′-Ac: [21090-30-2]
$C_{12}H_{16}N_2O_6$ 284.268
Mp 176°. $[\alpha]_D$ +0.7 (95% EtOH).

5′-Ac: [35898-31-8]
$C_{12}H_{16}N_2O_6$ 284.268
Mp 146°.

3′,5′-Di-Ac: [6979-97-1]
$C_{14}H_{18}N_2O_7$ 326.305
Mp 126-128°.

3-Benzoyl: [94189-75-0]
$C_{17}H_{18}N_2O_6$ 346.339
Key intermediate for oligodeoxyribonucleotide synth. Hygroscopic foamy solid.

3′-Benzoyl: [17331-53-2]
$C_{17}H_{18}N_2O_6$ 346.339
Intermed. for oligodeoxyribonucleotide synth. Cryst. (EtOH or EtOAc). Mp 215-217°.

3′,5′-Dibenzoyl: [35898-30-7]
$C_{24}H_{22}N_2O_7$ 450.447
Mp 196°. $[\alpha]_D$ -53.4 (Py).

3′-Mesyl: [34308-10-6]
$C_{11}H_{16}N_2O_7S$ 320.323
Mp 116°.

3′,5′-Dimesyl: [56822-33-4]
$C_{12}H_{18}N_2O_9S_2$ 398.414
Mp 168-169° dec.

5′-Tosyl: [7253-19-2]
$C_{17}H_{20}N_2O_7S$ 396.42
Mp 172° dec.

►XP2085000

5′-Trityl: [7791-71-1]
$C_{29}H_{28}N_2O_5$ 484.551
Mp 125°. $[\alpha]_D$ +11.4 (Me_2CO).

5′-Trityl, 3-Ac: [23583-46-2]
$C_{31}H_{30}N_2O_6$ 526.588
Subl. 105. $[\alpha]_D$ +18.6 (95% EtOH).

5′-(4-Methoxytrityl): [42926-80-7]
$C_{30}H_{30}N_2O_6$ 514.577
Protected deriv. for oligodeoxyribonucleotide synth. Cryst. (toluene). Mp 103-105°.

5′-(4,4′-Dimethoxytrityl): [40615-39-2]
$C_{31}H_{32}N_2O_7$ 544.603
Protected deriv. for oligodeoxyribonucleotide synth. Research tool for antiviral and anticancer studies. Cryst. (cyclohexane/C_6H_6 or EtOAc/petrol). Mp 119-122° (114-116°) Mp 123-124°.

3-Me: [958-74-7]
$C_{11}H_{16}N_2O_5$ 256.258
Mp 131-132°.

4-Ph: [92447-15-9]
$C_{16}H_{18}N_2O_5$ 318.329
Cryst. (EtOAc). Mp 160-162°.

3′-tert-*Butyldimethylsilyl:* [40733-27-5]
$C_{16}H_{28}N_2O_5Si$ 356.493
Protected deriv. Needles + $\frac{1}{3}H_2O$ (EtOH aq.). Mp 118-120° Mp 83-84°.

1-Epimer: α-Thymidine
[4449-43-8]
$C_{10}H_{14}N_2O_5$ 242.231
Solid. Mp 187°.

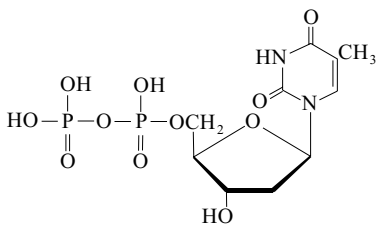
β-L-*form* *L-Thymidine.* ***Telbivudine, INN, USAN.*** *Epavudine. NV 02B*
[3424-98-4]
Antiviral agent.
Cryst. (EtOH). Mp 179-181°. $[\alpha]_D^{20}$ -19.9 (c, 1.15 in H_2O).

[50-88-4]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 815A; 818A (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 370B; 376B (*nmr*)
Levene, P.A. *et al., J. Biol. Chem.*, 1929, **83**, 793 (*isol*)
Michelson, A.M. *et al., J.C.S.*, 1955, 816 (*config*)
Fox, J.J. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 283 (*rev*)
Shaw, G. *et al., J.C.S.*, 1959, 50 (*synth*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1961, **39**, 110; 116 (*conformn*)
Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3821-3827 (*5′-methoxytrityl, 5′-dimethoxytrityl*)
Ulbricht, T.L.V. *et al., Tet. Lett.*, 1964, 695 (*ord*)
Young, D.W. *et al., Acta Cryst. B*, 1969, **25**, 1423 (*cryst struct*)
Gupta, V.S. *et al., Can. J. Chem.*, 1971, **49**, 719 (*synth*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1972, **37**, 4072-4087 (*telbivudine, synth*)
Ogilvie, K.K. *et al., Can. J. Chem.*, 1973, **51**, 3799-3807 (*3′-tert-butyldimethylsilyl*)
Krugh, T.R. *et al., J.A.C.S.*, 1973, **95**, 4761 (*cmr*)
Davies, D.B. *et al., J.C.S. Perkin 2*, 1975, 1703 (*pmr*)
de Rooji, J.F.M. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1979, **98**, 537-548 (*3′-benzoyl*)
Denny, W.A. *et al., Helv. Chim. Acta*, 1982, **65**, 2372-2391 (*3′-benzoyl*)
Mathlouthi, M. *et al., Carbohydr. Res.*, 1984, **134**, 23 (*ir, Raman*)
Reese, C.B. *et al., J.C.S. Perkin 1*, 1984, 1263 (*deriv, synth, uv, pmr*)
Sekine, M. *et al., Synthesis*, 1987, 1119 (*3-benzoyl*)
Breiner, R.G. *et al., J. Med. Chem.*, 1990, **33**, 2596-2602 (*3′-tert-butyldimethylsilyl*)
Bleasdale, C. *et al., J.C.S. Perkin 1*, 1990, 803-805 (*5′-dimethoxytrityl, synth, pmr*)
Quadflieg, P.J.L.M. *et al., J.O.C.*, 1990, **55**, 122-127 (*5′-methoxytrityl*)
Schouten, A. *et al., Acta Cryst. C*, 1991, **47**, 1320 (*cryst struct, 3′-Ac*)
Spadari, S. *et al., J. Med. Chem.*, 1992, **35**, 4214-4220, telbivudine, synth, pharmacol)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1420
Tsuboi, M. *et al., Bull. Chem. Soc. Jpn.*, 1994, **67**, 1483 (*Raman*)
Larsen, E. *et al., J. Het. Chem.*, 1995, **32**, 1645 (*α-Thymidine*)
Hatleid, J. *et al., Acta Chem. Scand.*, 1998, **52**, 1270-1274 (*3′,5′-di-Ac*)
Org. Synth., 2000, **77**, 162-175 (*3′,5′-dibenzoyl, synth, pmr*)
Moyroud, E. *et al., Tetrahedron*, 2000, **56**, 1475-1484 (*synth, pmr, cmr*)
Hernandez-Santiago, B. *et al., Antimicrob. Agents Chemother.*, 2002, **46**, 1728-1733 (*telbivudine, pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TFX790

Thymidine diphosphate T-105

Thymidine 5′-(trihydrogen diphosphate), 9CI. Thymidine 5′-pyrophosphate. TDP
[491-97-4]

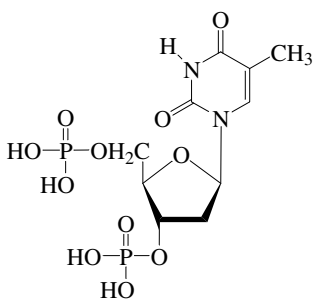


$C_{10}H_{16}N_2O_{11}P_2$ 402.191

Griffin, B.E. *et al., J.C.S.*, 1958, 1389 (*synth*)
Michelson, A.M. *et al., J.C.S.*, 1958, 1957 (*synth*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711
Labotka, R.J. *et al., J.A.C.S.*, 1976, **98**, 3699 (*pmr*)

Thymidine 3′,5′-diphosphate T-106

3′-Thymidylic acid 5′-(dihydrogen phosphate), 11CI. 5′-O-Phosphono-3′-thymidylic acid, 9CI. Thymidine 3′,5′-bis(phosphate)
[2863-04-9]



$C_{10}H_{16}N_2O_{11}P_2$ 402.191

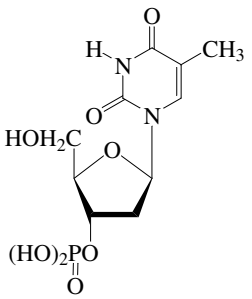
λ_{max} 266 (no solvent reported).

Tetrabrucine salt:
Small needles (EtOH aq.). Mp 182-184°.

Dekker, C.A. *et al., J.C.S.*, 1953, 947-951 (*synth*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Nikolenko, L.N. *et al., Zh. Obshch. Khim.*, 1970, **40**, 2136-2137; *CA*, **74**, 64364g (*synth*)
Niemczura, W.P. *et al., Can. J. Chem.*, 1980, **58**, 472-478 (*cmr*)
Niemczura, W.P. *et al., Biopolymers*, 1981, **20**, 1671-1690 (*pmr*)

Thymidine 3′-phosphate T-107

Thymidine 3′-(dihydrogen phosphate), 9CI. 3′-Thymidylic acid
[2642-43-5]



$C_{10}H_{15}N_2O_8P$ 322.211

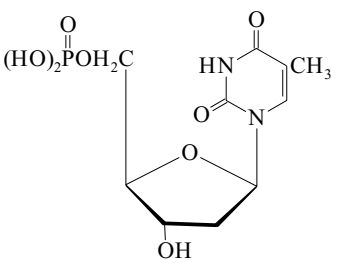
Ba salt: [73603-30-2]
Needles (H_2O). $[\alpha]_D^{20}$ +7.3 (c, 1.5 in H_2O).

Mono(4-nitrophenyl) ester: [16562-50-8]
[95648-79-6] λ_{max} 271 (as NH_4 salt).

Michelson, A.M. *et al., J.C.S.*, 1953, 951-956 (*synth*)
Turner, A.F. *et al., J.A.C.S.*, 1959, **81**, 4651-4656 (*synth*)
Tenner, G.M. *et al., J.A.C.S.*, 1961, **83**, 159-168 (*synth*)
Wood, D.J. *et al., Can. J. Chem.*, 1974, **52**, 3353-3366 (*pmr*)

Thymidine 5′-phosphate T-108

Thymidine 5′-(dihydrogen phosphate), 10CI. 5′-Thymidylic acid, 9CI
[365-07-1]



$C_{10}H_{15}N_2O_8P$ 322.211
Occurs in tRNA, human lymphocytes, brain and liver. pK_{a1} 6.36; pK_{a2} 9.9 (25°).

►XP2090000

Di-Na salt: [33430-62-5]
Dihydrate. Mp 300°.

Ba salt: $[\alpha]_D^{17}$ -3 (*c*, 2 in H_2O).

Dibrucine salt:

Needles (EtOH aq.). Mp 175°.

Dibenzyl ester:
$C_{24}H_{27}N_2O_8P$ 502.46
Foam ($CHCl_3$/cyclohexane).

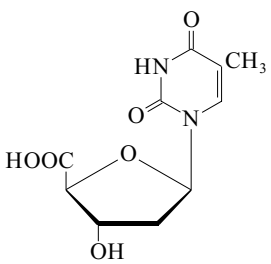
3′-Ac: [4304-30-7]
$C_{12}H_{17}N_2O_9P$ 364.248
Powder. Free acid very hygroscopic, usually stored as the pyridine salt or as a solution in anhydrous pyridine.

[83918-61-0]

Gilham, P.T. *et al., J.A.C.S.*, 1958, **80**, 6212-6222 (*3′-Ac*)
Gregor, I. *et al., Helv. Chim. Acta*, 1975, **58**, 712-738 (*3′-Ac*)
Sprecher, C.A. *et al., Biopolymers*, 1977, **16**, 2243 (*cd*)
Sagi, J.T. *et al., Nucleic Acids Res.*, 1977, **4**, 2767 (*synth*)
George, A.L. *et al., Can. J. Chem.*, 1978, **56**, 1170 (*pmr, conformn*)
Niemezura, W.P. *et al., Can. J. Chem.*, 1980, **58**, 472 (*cmr, conformn*)
Samanta, S.T. *et al., Appl. Spectrosc.*, 1982, **36**, 306 (*Raman*)
Stawinski, J. *et al., Bull. Pol. Acad. Sci., Chem.*, 1983, **31**, 17 (*synth*)
Cadet, J. *et al., J. Chromatogr.*, 1983, **259**, 111 (*tlc*)
Sekine, M. *et al., Tet. Lett.*, 1983, **24**, 5741 (*deriv*)
Sato, T. *et al., Acta Cryst. C*, 1984, **40**, 736 (*cryst struct*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424 (*ms*)
Horn, T. *et al., Tet. Lett.*, 1986, **27**, 4705 (*synth, hplc, nmr, tlc*)
Massoud, S.S. *et al., Inorg. Chem.*, 1988, **27**, 1447 (*props*)

Thymidine-5′-carboxylic acid T-109

*1,2-Dideoxy-1-[3,4-dihydro-5-methyl-2,4-dioxo-1(2H)-pyrimidinyl]-β-D-*erythro-*pentofuranuronic acid, 9CI*
[3544-99-8]



$C_{10}H_{12}N_2O_6$ 256.215
Constit. of the ascidian *Aplidium fuscum*. Inhibitor of thymidine and thymidylate kinase. Cryst. (H_2O).
Mp 263-265° dec. (250-251°).

Me ester: [50700-64-6]
$C_{11}H_{14}N_2O_6$ 270.241
Mp 247° dec. (237-238°).

Amide: Thymidine-5′-carboxamide
[52995-48-9]
$C_{10}H_{13}N_3O_5$ 255.23
Mp 251-252° dec. (240°).

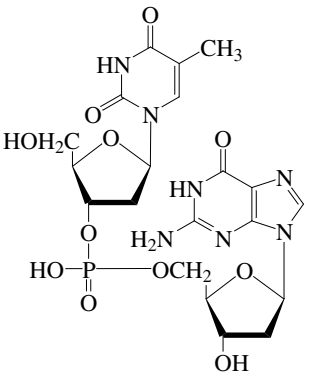
Nitrile: [52995-49-0]
$C_{10}H_{11}N_3O_4$ 237.215
Cryst. Mp 235°.

[37781-47-8]

Moss, G.P. *et al., J.C.S.*, 1963, 1149 (*synth*)
Suck, D. *et al., Biochim. Biophys. Acta*, 1974, **361**, 1 (*cryst struct*)
Baker, J.J. *et al., J. Med. Chem.*, 1974, **17**, 764 (*synth*)
Schinazi, R.F. *et al., J. Med. Chem.*, 1978, **21**, 1141 (*synth*)
Montgomery, J.A. *et al., Nucleic Acids Symp. Ser.*, 1981, **9**, 95 (*synth*)
Dematte, N. *et al., Comp. Biochem. Physiol., B: Comp. Biochem.*, 1986, **84**, 11 (*isol*)

Thymidylyl-(3′ →5′)-2′-deoxyguanosine, 9CI T-110

d(TpG)
[4251-20-1]

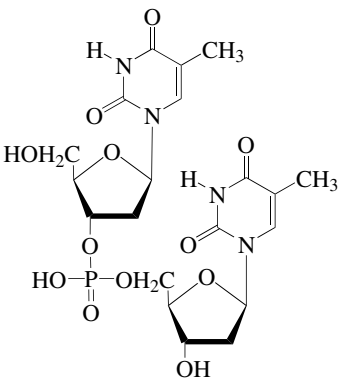


$C_{20}H_{26}N_7O_{11}P$ 571.44

Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3821-3827 (*synth*)
Hayatsu, H. *et al., J.A.C.S.*, 1967, **89**, 3880-3887 (*synth, uv*)
Melby, L.R. *et al., J.O.C.*, 1969, **34**, 427-431 (*synth, uv*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)

Thymidylyl-(3′ →5′)-thymidine, 9CI T-111

TpT
[1969-54-6]

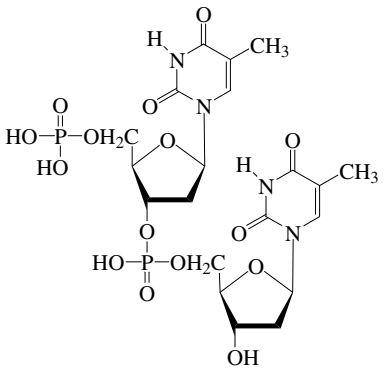


$C_{20}H_{27}N_4O_{12}P$ 546.427

Weimann, G. *et al., J.A.C.S.*, 1962, **84**, 4329-4341 (*synth*)
Schaller, H. *et al., J.A.C.S.*, 1963, **85**, 3828-3835 (*synth*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Cantor, C.R. *et al., Biopolymers*, 1970, **9**, 1059-1077 (*cd*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Ravikumar, V.T. *et al., Tetrahedron*, 1994, **50**, 9255-9266 (*synth, P-31 nmr*)

Thymidylyl-(5′ →3′)-5′-thymidylic acid, 9CI T-112

5′-O-Phosphorylthymidylyl-(3′ →5′)-thymidine, 8CI
[2642-45-7]



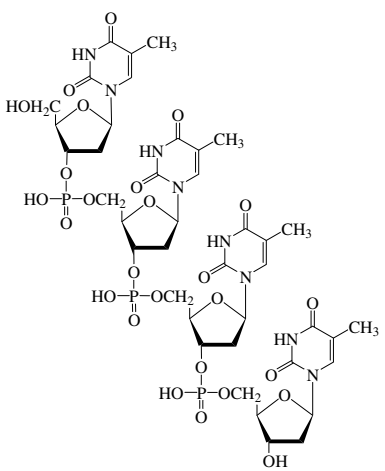
$C_{20}H_{28}N_4O_{15}P_2$ 626.407
No phys. props. reported.

[19887-54-8]

Eckstein, F. *et al., Angew. Chem., Int. Ed.*, 1966, **5**, 671-672 (*synth*)
Blackburn, G.M. *et al., J.C.S.(C)*, 1967, 2438-2442 (*synth*)
Kathawala, F. *et al., Annalen*, 1968, **712**, 195-200 (*synth, uv*)
Cantor, C.R. *et al., Biochemistry*, 1969, **8**, 3610-3617 (*cd, uv*)
Freist, W. *et al., Chem. Ber.*, 1970, **103**, 3122-3127 (*synth*)

Thymidylyl-(3′ →5′)-thymidylyl-(3′ →5′)-thymidylyl-(3′ →5′)-thymidine, 9CI T-113

TpTpTpT
[2476-57-5]



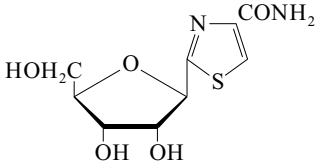
$C_{40}H_{53}N_8O_{26}P_3$ 1154.818

Letsinger, R.L. *et al., J.A.C.S.*, 1969, **91**, 3350-3355; 3360-3365 (*synth*)

Garcia-Echeverria, C. *et al., Tetrahedron*, 1996, **52**, 3933-3938 (*synth*)
Dumontet, V. *et al., Tetrahedron*, 1996, **52**, 6913-6930 (*synth*)

Tiazofurine, INN T-114

2-β-D-Ribofuranosyl-4-thiazolecarboxamide, 9CI. ***Tiazofurin, USAN****. Riboxamide. CI 909. ICN 4221. NSC 286193*
[60084-10-8]



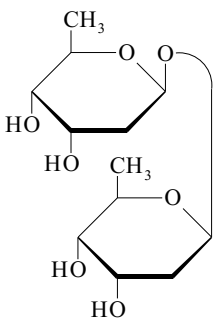
$C_9H_{12}N_2O_5S$ 260.27
Inosine monophosphate dehydrogenase inhibitor. Antineoplastic agent showing broad-spectrum antiviral activity. Light yellow needles (EtOH/EtOAc). Mp 145-146°. $[\alpha]_D^{25}$ -9 (c, 0.5 in EtOH). Log P -2.73 (calc).

▶ LD_{50} (mus, ipr) 1684 mg/kg. XJ3600000

Fuertes, M. *et al., J.O.C.*, 1976, **41**, 4074 (*synth*)
Srivastava, P. *et al., J. Med. Chem.*, 1977, **20**, 256 (*synth, pmr*)
Goldstein, B.M. *et al., J.A.C.S.*, 1983, **105**, 7416 (*cryst struct, abs config*)
Meltzer, N.M. *et al., J. Chromatogr.*, 1984, **307**, 216; 361 (*hplc*)
Hennen, W.J. *et al., J.O.C.*, 1985, **50**, 1741 (*synth*)
Riley, C.M. *et al., J. Chromatogr.*, 1990, **531**, 295 (*anal, rev*)
Li, H. *et al., Biochemistry*, 1994, **33**, 23 (*bibl, sar, enzyme complex, cryst struct*)
Mitrovic, D.M. *et al., J. Chemother.*, 1995, **7**, 543 (*bibl, pharmacol*)
Olah, E. *et al., Anticancer Res.*, 1996, **16**, 2469; 3313 (*rev, pharmacol*)
Timar, J. *et al., Eur. J. Cancer*, Part A, 1996, **32**, 152 (*pharmacol*)
Vitale, M. *et al., Cytometry*, 1997, **30**, 61 (*pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, RJF500

Tigmobiose T-115

*2,6-Dideoxy-β-D-*ribo*-hexopyranosyl 2,6-dideoxy-β-D-*ribo*-hexopyranoside. β-D-Digitoxopyranosyl β-D-digitoxopyranoside*
[73491-08-4]



$C_{12}H_{22}O_7$ 278.302
Isol. from twigs of *Sarcostemma brevistigma*. Rhombs (Me_2CO/Et_2O). Mp 90-93°. $[\alpha]_D^{26}$ +19 (c, 0.14 in MeOH).

Tetra-Ac:
$C_{20}H_{30}O_{11}$ 446.45
Rhombs (MeOH). Mp 82-83°. $[\alpha]_D^{26}$ +42 (c, 0.33 in MeOH).

Khare, D.P. *et al., Carbohydr. Res.*, 1980, **79**, 287 (*isol, pmr, ms*)

Tinzaparin sodium, BAN, INN, USAN T-116

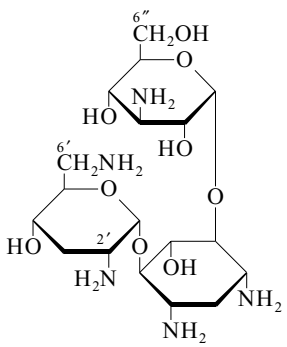
Longiparin. Innohep. LHN-1
Low MW heparin (see Heparin, H-5). Prepd. by enzymatic degradation of heparin obt. from the intestinal mucosa of pigs. Anticoagulant used for prophylaxis of venous thromboembolism during surgery. Launched 1991

[9041-08-1]

Matzsch, T. *et al., Thromb. Haemostasis*, 1987, **57**, 97 (*synth, activity*)
Padilla, A. *et al., Br. J. Haematol*, 1992, **82**, 406 (*pharmacol*)
Kher, A. *et al., Low Mol. Weight Heparins Clin. Pract.*, 1992, 209 (*rev*)
Simoneau, G. *et al., Thromb. Res.*, 1992, **66**, 603 (*pharmacol*)
Carrie, D. *et al., Br. J. Haematol*, 1993, **83**, 622 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 232
Brindley, C.J. *et al., Xenobiotica*, 1993, **23**, 575 (*pharmacol*)
Friedel, H.A. *et al., Drugs*, 1994, **48**, 638 (*rev*)
Pinhal, M.A.S. *et al., Thromb. Res.*, 1994, **74**, 143 (*pharmacol*)
Mousa, S.A. *et al., Cardiovasc. Drug Rev.*, 2002, **20**, 199-216 (*rev*)
Cheer, S.M. *et al., Drugs*, 2004, **64**, 1479-1502 (*rev*)

Tobramycin, BAN, INN, JAN, USAN T-117

Nebramycin VI. Nebramycin factor 6. Tobramycetin. Tobi. Many other names
[32986-56-4]



$C_{18}H_{37}N_5O_9$ 467.518
Aminoglycoside antibiotic. Isol. from *Streptomyces* spp. Antibacterial, antibiotic. Used to treat pulmonary infections. Approved for clinical use in the UK (1999). Cryst. Sol. H_2O, MeOH; fairly sol. EtOH; poorly sol. butanol, hexane. $[\alpha]_D^{25}$ +131 (c, 1 in H_2O). pK_{a1} 5.8; pK_{a2} 6.8; pK_{a3} 7.1; pK_{a4} 7.9; pK_{a5} 9.3. Log P -7.32 (uncertain value) (calc).

▶ Ototoxic, nephrotoxic and other adverse effects reported when used therapeutically. LD_{50} (mus, ipr) 445 mg/kg; LD_{50} (mus, ivn) 120 mg/kg. Exp. teratogen. WK2100000

Sulfate: Nebcin. Obracine. Tobracin
[49842-07-1]

▶ Adverse CNS effects reported when used therapeutically. LD_{50} (mus, ipr) 262 mg/kg. WK2110000

*6″-*N*-Carbamoyl:* ***Nebramycin factor 13****. Nebramycin XIII*
[64332-35-0]
$C_{19}H_{38}N_6O_{10}$ 510.543
Prod. by *Streptomyces tenebrarius*. Cryst. (MeOH/EtOH). Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.

*6″-*O*-Carbamoyl:* ***Nebramycin factor 5′****. Nebramycin V″*
[51736-77-7]
$C_{19}H_{38}N_6O_{10}$ 510.543
Prod. by *Streptomyces* spp. Sol. H_2O, DMF, DMSO, Py, EtOH; poorly sol. Me_2CO, hexane. $[\alpha]_D$ +120 (c, 1 in H_2O).

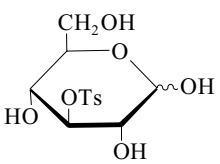
▶ LD_{50} (mus, ivn) 99 mg/kg. WK1935000

*2′-*N*-Carbamoyl:* ***Nebramycin factor 11****. Nebramycin XI*
[64332-33-8]
$C_{19}H_{38}N_6O_{10}$ 510.543
Prod. by *Streptomyces tenebrarius*. Solid. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{25}$ +123.5 (H_2O).

Stark, W.M. *et al., Antimicrob. Agents Chemother.*, 1967, 314; 324; 332; 341
Stark, W.M. *et al., Folia Microbiol. (Prague)*, 1971, **16**, 205
Koch, K.F. *et al., J. Antibiot.*, 1973, **26**, 745
Dorman, D.E. *et al., J.A.C.S.*, 1976, **98**, 6885
Miyake, T. *et al., Bull. Chem. Soc. Jpn.*, 1977, **50**, 2362 (*synth, cmr*)
Okutani, T. *et al., J.A.C.S.*, 1977, **99**, 1278 (*synth*)
Koch, K.F. *et al., J.O.C.*, 1978, **43**, 1430 (*isol, cmr, nmr, ms*)
Lightbown, J.W. *et al., J. Biol. Stand.*, 1982, **10**, 157 (*synth*)
Szilagyi, L. *et al., Carbohydr. Res.*, 1987, **170**, 1 (*pmr, cmr*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 5084
Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **2**, 904 (*rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 218
Cheer, S.M. *et al., Drugs*, 2003, **63**, 2501-2520 (*rev*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TGI250; TGI500

3-*O*-Tosylglucose T-118

*3-*O*-p-Toluenesulfonylglucose. 3-*O*-(4-Methylbenzenesulfonyl)glucose*



$C_{13}H_{18}O_8S$ 334.346

D-*form*

Mp 124-125°. $[\alpha]_D^{22}$ +31 (c, 1 in EtOH).

*1,2:5,6-Di-*O*-Isopropylidene:* See 1,2:5,6-Di-*O*-isopropylideneglucofuranose, D-717

Yamada, M. *et al., Carbohydr. Res.*, 1981, **96**, 121

TP 1 T-119

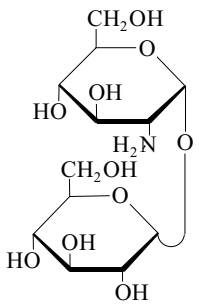
Glycoprotein. Isol. from the inflorescence of *Trachycarpus fortunei*. Shows antifungal activity.

Du, L. *et al., CA*, 1993, **119**, 245599f (*isol*)

2-Trehalosamine T-120

α-D-Glucopyranosyl 2-amino-2-deoxy-α-D-glucopyranoside. 2-Amino-2-deoxy-α,α-trehalose. Trehalosamine. Antibiotic I 4200. I 4200

[27208-79-3]



$C_{12}H_{23}NO_{10}$ 341.314

Aminoglycoside. Isol. from *Streptomyces*. Weakly active against gram-positive bacteria. Sol. H_2O; poorly sol. MeOH, hexane. λ_{max} 272 (MeOH) (Berdy). λ_{max} 281 (H_2SO_4) (Berdy).

▶ LD_{50} (mus, ivn) 5422 mg/kg.

Hydrochloride: [20204-85-7]

Cryst. (MeOH aq.). Mp 145° dec. $[\alpha]_D$ +183 (c, 0.9 in H_2O).

▶ XX1946300

Arcamone, F. *et al., Gazz. Chim. Ital.*, 1957, **87**, 896 (*isol*)

Umezawa, S. *et al., J. Antibiot., Ser. A*, 1967, **20**, 388 (*synth*)

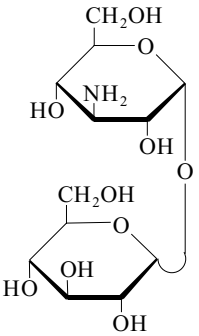
Paulsen, H. *et al., Chem. Ber.*, 1979, **112**, 3203 (*synth*)

Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1981, **54**, 2728 (*synth, conformn, cmr*)

3-Trehalosamine T-121

α-D-Glucopyranosyl 3-amino-3-deoxy-α-D-glucopyranoside, 9CI. 3-Amino-3-deoxy-α,α-trehalose

[75060-25-2]



$C_{12}H_{23}NO_{10}$ 341.314

Aminoglycoside antibiotic. Isol. from *Nocardiopsis trehalosei*. Weakly active against gram-positive bacteria.

Hydrochloride:

Cryst. Sol. H_2O, acids, bases; poorly sol. MeOH, hexane. Mp 200° dec. $[\alpha]_D$ +161 (c, 13.7 in H_2O).

▶ LD_{50} (mus, ipr) 800-1600 mg/kg.

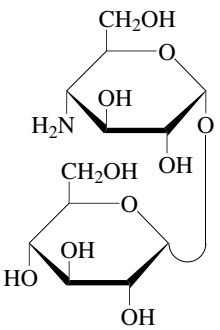
Baer, H.H. *et al., Carbohydr. Res.*, 1979, **75**, 175 (*synth*)

Dolak, L.A. *et al., J. Antibiot.*, 1980, **33**, 690 (*isol*)

4-Trehalosamine T-122

α-D-Glucopyranosyl 4-amino-4-deoxy-α-D-glucopyranoside, 9CI. 4-Amino-4-deoxy-α,α-trehalose

[51855-99-3]



$C_{12}H_{23}NO_{10}$ 341.314

Aminoglycoside antibiotic. Metab. of a *Streptomyces* spp. MD303-SF1. Shows weak antibacterial activity against gram-positive bacteria. Sol. H_2O; poorly sol. butanol, hexane. Mp 140°. $[\alpha]_D$ +179 (c, 0.5 in H_2O). Also descr. as a syrup.

▶ LD_{50} (mus, ivn) 1000 mg/kg. XX1946000

N,O,O,O,O,O,O,O-*Octa-Ac:* [129785-37-1]

$C_{28}H_{39}NO_{18}$ 677.612

Mp 134-137°. $[\alpha]_D$ +132.

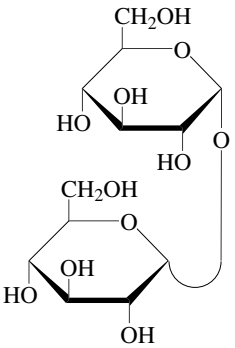
Naganawa, H. *et al., J. Antibiot.*, 1974, **27**, 145

Bassily, R.W. *et al., Carbohydr. Res.*, 1993, **239**, 197 (*synth*)

α,α-Trehalose T-123

α-D-Glucopyranosyl-α-D-glucopyranoside, 9CI, 8CI. Mycose. Mushroom sugar. Trehalose

[99-20-7]



$C_{12}H_{22}O_{11}$ 342.299

By-product in industrial fermentations. Occurs in fungi, moulds, ergot, algae, yeast and many insects. *Selaginella lepidophylla* contains the free disaccharide. Found in high concs. in anhydrobiotic organisms, those resitant to dehydration. Probable energy reserve in many organisms and important cellular protectant in drought resistant organisms. Associated with maintenance of the integrity of biol. membranes in organisms subject to severe thermal stresses. Exists in various anhydrous forms and a dihydrate. Mp 97° (hydrate) Mp 214-216° (anhyd.). $[\alpha]_D^{20}$ +178.3 (H_2O) (hydrate). $[\alpha]_D^{20}$ +199 (H_2O) (anhyd.). Sweet taste. Sweetness = 0.36 × sucrose. Fermented by yeast.

2-Sulfate: [141923-45-7]

$C_{12}H_{22}O_{14}S$ 422.363

Core carbohydrate of the sulfatides of *Mycobacterium tuberculosis*. V. hygroscopic solid (as NH_4 salt).

Mp 150° (browns) (NH_4 salt). $[\alpha]_D^{22}$ +151 (c, 0.6 in MeOH).

6-Phosphate: [4484-88-2]

Prod. by *Streptomyces hygroscopicus, Mycobacterium smegmatis* and yeasts. $[\alpha]_D$ +185 (H_2O).

2,2′,3,3′,4,4′-Hexa-Ac:

$C_{24}H_{34}O_{17}$ 594.522

Cryst. (EtOH/petrol). Mp 93-96°. $[\alpha]_D^{19}$ +158 ($CHCl_3$).

2,2′,3,3′,4,4′,6-Hepta-Ac: [113842-79-8]

$C_{26}H_{36}O_{18}$ 636.56

Mp 124-126° (EtOH). $[\alpha]_D$ +167.5 (c, 0.7 in $CHCl_3$).

Octa-Ac: [25018-27-3]

$C_{28}H_{38}O_{19}$ 678.597

Mp 100-102°. $[\alpha]_D$ +163 ($CHCl_3$).

6,6′-Dihexadecanoyl: α,α-Trehalose-6,6′-dipalmitate

[3317-99-5]

$C_{44}H_{82}O_{13}$ 819.124

Chord factor analogue.

Mp 158.5-160°. $[\alpha]_D$ +78 (c, 1 in $CHCl_3$).

6,6′-Dimesyl, hexa-Ac: [23089-73-8]

$C_{26}H_{38}O_{21}S_2$ 750.706

Cryst. (EtOH). Mp 168-169.5°. $[\alpha]_D$ +143 (c, 1.6 in $CHCl_3$).

6,6′-Ditosyl: [23235-67-8]
$C_{26}H_{34}O_{15}S_2$ 650.678
Cryst. (MeOH aq.). Mp 106-110°. $[\alpha]_D$ +90 (c, 0.2 in MeOH/$CHCl_3$).

6,6′-Ditosyl, hexa-Ac: [23089-74-9]
$C_{38}H_{46}O_{21}S_2$ 902.901
Cryst. (MeOH). Mp 170-172°. $[\alpha]_D$ +132 (c, 0.5 in $CHCl_3$).

4,6:4′,6′-Di-O-ethylidene:
$C_{16}H_{26}O_{11}$ 394.375
Mp 285° dec. $[\alpha]_D^{23}$ +143 (c, 0.4 in H_2O).

Octa-Me: [25018-29-5]
$C_{20}H_{38}O_{11}$ 454.514
Syrup. $Bp_{0.03}$ 170°. $[\alpha]_D^{20}$ +199.8 (C_6H_6).

6-Trityl, hepta-Ac: [113842-78-7]
$C_{45}H_{50}O_{18}$ 878.879
Mp 203-205° (EtOH). $[\alpha]_D$ +134 (c, 0.7 in $CHCl_3$).

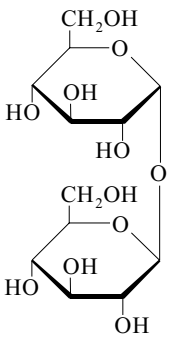
6,6′-Ditrityl, hexa-Ac: [75869-80-6]
$C_{62}H_{62}O_{17}$ 1079.162
Mp 246-248°. $[\alpha]_D$ +112 (c, 1 in $CHCl_3$).

[6138-23-4]

Aldrich Library of NMR Spectra, 2nd edn., 1983, **2**, 912C (*nmr*)
Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 196A (*ir*)
Robison, R. *et al., Biochem. J.*, 1928, **22**, 1277 (*synth, phosphate*)
Bredereck, H. *et al., Ber.*, 1930, **63**, 959 (*hexa-Ac*)
Richtmyer, N.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 370 (*isol*)
Birch, G. *et al., Adv. Carbohydr. Chem.*, 1963, **18**, 201 (*rev*)
MacDonald, D.L. *et al., Biochim. Biophys. Acta*, 1964, **86**, 390 (*synth, phosphate*)
Birch, G. *et al., J.C.S.(C)*, 1966, 1072 (*synth*)
Birch, G. *et al., Carbohydr. Res.*, 1968, **8**, 411 (*6,6′-dimesyl hexa-Ac, 6,6′-ditosyl hexa-Ac, 6,6′-ditosyl*)
Pazur, J.H. *et al., The Carbohydrates*, (Eds., Pigman, W., *et al*), 2nd edn., Academic Press, 1970, **2A**, 106 (*rev*)
Lapp, D. *et al., J. Biol. Chem.*, 1971, **246**, 4567 (*synth, phosphate*)
Taga, T. *et al., Acta Cryst. B*, 1972, **28**, 3258 (*cryst struct*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 644 (*occur*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*conformn, cmr*)
Elbein, A.D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1974, **30**, 227 (*rev*)
Usui, T. *et al., Carbohydr. Res.*, 1974, **33**, 105 (*pmr, config*)
Hough, L. *et al., Pure Appl. Chem.*, 1977, **49**, 1069 (*rev*)
Pfeffer, P.E. *et al., J.A.C.S.*, 1979, **107**, 1265 (*cmr*)
Lee, G.K. *et al., Dev. Food Carbohydr.*, Applied Science Pub., 1980, **2**, 1 (*rev*)
Liav, A. *et al., Carbohydr. Res.*, 1984, **127**, 211 (*2-sulfate*)
Bottle, S. *et al., Chem. Comm.*, 1984, 385 (*dipalmitate*)
Jeffrey, G.A. *et al., Carbohydr. Res.*, 1985, **137**, 21 (*cryst struct*)
Szurmai, Z. *et al., Carbohydr. Res.*, 1987, **164**, 313 (*hepta-Ac, pmr*)
Abbate, S. *et al., Carbohydr. Res.*, 1991, **210**, 1 (*ir, Raman*)
Rønnow, T.E.C.L. *et al., Carbohydr. Res.*, 1994, **260**, 323 (*synth, 6-phosphate, 6,6′-diphosphate*)
Tarelli, E. *et al., Carbohydr. Res.*, 1994, **261**, 25 (*synth, phosphates*)
Hull, S.R. *et al., Carbohydr. Res.*, 1995, **266**, 147-157 (*isol*)
Gilbertson, S.R. *et al., J.O.C.*, 1995, **60**, 6226 (*hexa-Me, hexabenzyl*)
Mueller, J. *et al., Plant Sci. (Limerick, Irel.)*, 1995, **112**, 1 (*rev, occur*)
Gil, A.M. *et al., Spectrochim. Acta A*, 1996, **52**, 1649-1659 (*ir, Raman, pmr, cmr*)
Sussich, F. *et al., Carbohydr. Res.*, 1999, **322**, 113-119 (*bibl*)
Food Chem. News, 2000, **42(42)**, 6; 2001, **43(20)**, 15 (*use*)
Sussich, F. *et al., Carbohydr. Res.*, 2001, **334**, 165-176 (*solution props*)
Akao, K. *et al., Carbohydr. Res.*, 2001, **334**, 233-241 (*ir, props*)
Nagase, H. *et al., Carbohydr. Res.*, 2002, **337**, 167-173 (*polymorphism*)
Wingler, A. *et al., Phytochemistry*, 2002, **60**, 437-440 (*rev, biosynth*)
Haines, A.H. *et al., Carbohydr. Res.*, 2003, **338**, 813-818 (*L-enantiomer*)
Pratt, M.R. *et al., Org. Lett.*, 2003, **5**, 3185-3188 (*synth*)

α,β-Trehalose T-124

β-D-Glucopyranosyl α-D-glucopyranoside, 9CI, 8CI. α-D-Glucopyranosyl β-D-glucopyranoside. Neotrehalose
[585-91-1]



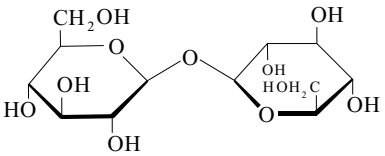
$C_{12}H_{22}O_{11}$ 342.299
Constit. of honey.
Mp 149°. $[\alpha]_D^{22}$ +83.5 (c, 2 in H_2O).
Considerable variations in props. reported in the lit., probably owing to variations in purity.

Octa-Ac: [22554-66-1]
$C_{28}H_{38}O_{19}$ 678.597
Mp 140-141°. $[\alpha]_D^{18}$ +79.6 (c, 0.7 in $CHCl_3$).

Burckhardt, H. *et al., Chem. Ber.*, 1956, **89**, 314 (*synth*)
Birch, G. *et al., Adv. Carbohydr. Chem.*, 1963, **18**, 201 (*rev*)
Usui, T. *et al., J.C.S. Perkin 1*, 1973, 2425 (*conformn, cmr*)
Usui, T. *et al., Carbohydr. Res.*, 1974, **33**, 105 (*config, pmr*)
Pfeffer, P.E. *et al., J.A.C.S.*, 1979, **101**, 1265 (*cmr*)
Parrish, F.W. *et al., Carbohydr. Res.*, 1987, **168**, 129 (*purifn, props, cmr, bibl*)
Rønnow, T.E.C.L. *et al., J. Carbohydr. Chem.*, 1995, **14**, 197-211 (*synth, pmr, cmr*)
Taga, T. *et al., Acta Cryst. C*, 1997, **53**, 234-236 (*cryst struct*)

β,β-Trehalose T-125

β-D-Glucopyranosyl β-D-glucopyranoside, 9CI, 8CI. Isotrehalose
[499-23-0]



$C_{12}H_{22}O_{11}$ 342.299
Plates (Me_2CO aq.). Mp 135-140°. $[\alpha]_D^{17}$ -40.2 (H_2O).

Octa-Ac:
$C_{28}H_{38}O_{19}$ 678.597
Mp 181.5-182.5°. $[\alpha]_D^{25}$ -18 (c, 3.0 in $CHCl_3$).

Octa-Me:
$C_{20}H_{38}O_{11}$ 454.514
$Bp_{0.015}$ 160°. $[\alpha]_D^{24}$ -39.2 (C_6H_6).

Octabenzyl: [25018-28-4]
$C_{68}H_{70}O_{11}$ 1063.294
Mp 115-116°. $[\alpha]_D$ +8 (c, 0.9 in $CHCl_3$).

Burckhardt, H. *et al., Chem. Ber.*, 1956, **89**, 314 (*synth*)
Allen, P.Z. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 372 (*synth*)
Birch, G. *et al., Adv. Carbohydr. Chem.*, 1963, **18**, 201 (*rev*)
Usui, T. *et al., Carbohydr. Res.*, 1974, **33**, 105 (*config, pmr*)
Cook, S.J. *et al., J. Carbohydr. Chem.*, 1984, **3**, 343-348 (***synth***)
Lee, C. *et al., Acta Cryst. C*, 1993, **49**, 621 (*cryst struct*)
Rønnow, T.E.C.L. *et al., J. Carbohydr. Chem.*, 1995, **14**, 197-211 (*synth, pmr, cmr*)
Hirooka, M. *et al., Bull. Chem. Soc. Jpn.*, 1998, **71**, 2893-2902 (*octabenzyl*)

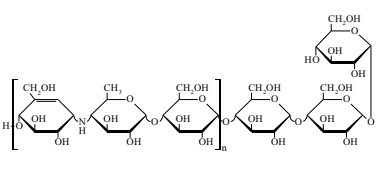
α,α-Trehalose 6,6′-dimycolate T-126

Cord Factor
The 6,6′-dimycolates of Trehalose are present as mixtures in *Mycobacterium tuberculosis* and other microorganisms. Sol. $CHCl_3$, hexane.

Noll, H. *et al., Biochim. Biophys. Acta*, 1956, **20**, 299
Brochère-Ferréol, G. *et al., Bull. Soc. Chim. Fr.*, 1958, 714 (*synth*)
Prome, J.-C. *et al., Eur. J. Biochem.*, 1976, **63**, 543
Rodd's Chem. Carbon Compd. (2nd edn.), 1976, **1E**, 432

Trestatin A T-127

Antibiotic Ro 09-0183. Ro 09-0183
[71884-70-3]



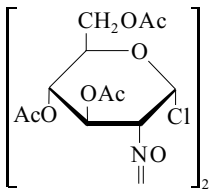
$C_{56}H_{94}N_2O_{40}$ 1435.348
Polysaccharide antibiotic. Isol. from *Streptomyces dimorphogenes*. Potent α-amylase inhibitor. Shows antiproliferative activity, which is strongly

enhanced by sulfation. Powder. Sol. H_2O, DMSO; poorly sol. MeOH, hexane.
Mp 221-232° dec. $[\alpha]_D^{24}$ +177 (c, 1 in H_2O).

► LZ5855400

Yokose, K. *et al., J. Antibiot.*, 1983, **36**, 1157; 1166 (*isol, struct, props*)
Yokose, K. *et al., J. Antibiot.*, 1984, **37**, 182 (*isol, derivs*)
Wessel, H.D. *et al., Carbohydr. Res.*, 1990, **204**, 131 (*activity*)

3,4,6-Tri-*O*-acetyl-2-deoxy-2-nitrosoglucopyranosyl chloride, 9CI T-128



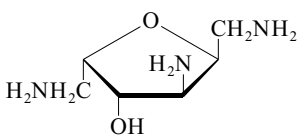
dimer

$C_{12}H_{16}ClNO_8$ 337.713
Exists as dimer.

α-D-*form* [40626-68-4]
Mp 129-130°. $[\alpha]_D^{24}$ +149 (c, 2.0 in $CHCl_3$).

Lemieux, R.U. *et al., Can. J. Chem.*, 1968, **46**, 413
Lemieux, R.U. *et al., Methods Carbohydr. Chem.*, 1972, **6**, 492 (*synth*)
Lemieux, R.U. *et al., Can. J. Chem.*, 1973, **51**, 1 (*pmr*)

1,3,6-Triamino-2,5-anhydro-1,3,6-trideoxyiditol T-129



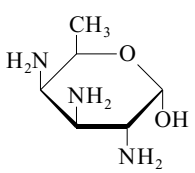
$C_6H_{15}N_3O_2$ 161.203

L-*form* [78136-10-4]
Foam (as trihydrochloride) (not pure). CAS no. refers to trihydrochloride.

1N,3N,4,6N-Tetra-Ac: 1,3,6-Triacetamido-4-O-acetyl-2,5-anhydro-1,3,6-trideoxy-L-iditol
[78136-12-6]
$C_{14}H_{23}N_3O_6$ 329.352
Foam (impure).

Kuszmann, J. *et al., Carbohydr. Res.*, 1981, **89**, 103 (*synth, L-form, tetra-Ac*)

2,3,4-Triamino-2,3,4,6-tetradeoxygalactose T-130



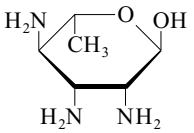
$C_6H_{15}N_3O_2$ 161.203

α-D-Pyranose-*form*

Benzyl glycoside, 2,3,4-tri-N-Ac: Benzyl 2,3,4-triacetamido-2,3,4,6-tetradeoxy-α-D-galactopyranoside
$C_{19}H_{27}N_3O_5$ 377.439
Cryst. Mp 233°. $[\alpha]_D^{20}$ +158 (c, 0.54 in EtOH).

Sarfati, S.R. *et al., Carbohydr. Res.*, 1983, **117**, 309 (*synth, pmr, cmr, deriv*)

2,3,4-Triamino-2,3,4,6-tetradeoxymannose T-131



$C_6H_{15}N_3O_2$ 161.203

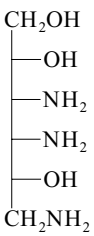
α-L-Pyranose-*form*

Me glycoside, 2N,3N,4N-tri-Ac: Methyl 2,3,4-triacetamido-2,3,4,6-tetradeoxy-α-L-mannopyranoside
[29788-90-7]
$C_{13}H_{23}N_3O_5$ 301.342
Cryst. Mp 248-250°. $[\alpha]_D$ -98 (c, 0.5 in MeOH).

Lichtenthaler, F.W. *et al., Chem. Comm.*, 1970, 1081 (*Me gly deriv, pmr*)

3,4,6-Triamino-3,4,6-trideoxyallitol T-132

1,3,4-Triamino-1,3,4-trideoxyallitol



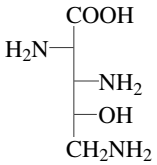
$C_6H_{17}N_3O_3$ 179.219
For the enantiomer illustrated the name 3,4,6-triamino-3,4,6-trideoxy-D-allitol takes precedence over 1,3,4-triamino-1,3,4-trideoxy-L-allitol, according to the IUPAC special rules for carbohydrates.

D-*form*

3N,4N,6N-Tribenzoyl: [81058-45-9]
$C_{27}H_{29}N_3O_6$ 491.543
Cryst. (EtOH). Mp 242-245° dec. $[\alpha]_D^{20}$ +24 (c, 0.5 in DMSO).

Meyer zu Reckendorf, W. *et al., Annalen*, 1982, 137 (*tribenzoyl, ir*)

2,3,5-Triamino-2,3,5-trideoxyarabinonic acid T-133



$C_5H_{13}N_3O_3$ 163.176

D-*form*
Occurs as a constituent of streptolidine. Exists in solution as an equilibrium mixture with the 1,4-lactone.

1,4-Lactone: 2,3,5-Triamino-2,3,5-trideoxy-D-arabinono-1,4-lactone
[53332-17-5]
$C_5H_{11}N_3O_2$ 145.161
Mp 103° dec. (as trihydrobromide).

1,4-Lactone, tri-N-Ac: 2,3,5-Triacetamido-2,3,5-trideoxy-D-arabinono-1,4-lactone
[53332-25-5]
$C_{11}H_{17}N_3O_5$ 271.272
Hygroscopic powder. Mp 125-130°.

1,4-Lactone, tri-N-benzoyl: 2,3,5-Tribenzamido-2,3,5-trideoxy-D-arabinono-1,4-lactone
[53332-11-9]
$C_{26}H_{23}N_3O_5$ 457.485
Cryst. (dioxan aq.). Mp 217-218° (236-237°). $[\alpha]_D^{28}$ -102.4 (c, 1.4 in DMF).

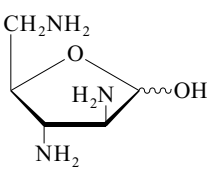
1,4-Lactone, tris-N-benzyloxycarbonyl:
[53332-16-4]
$C_{29}H_{29}N_3O_8$ 547.563
Cryst. (C_6H_6). Mp 89-91°. $[\alpha]_D^{18}$ -26 (c, 0.9 in $CHCl_3$).

1,5-Lactam, 2,3-bis-N-benzyloxycarbonyl: 5-Amino-2,3-bis(benzyloxycarbonylamino)-2,3,5-trideoxy-D-arabinono-1,5-lactam
$C_{21}H_{23}N_3O_6$ 413.429
Needles (MeOH). Mp 208-209°. $[\alpha]_D^{25}$ -122 (c, 0.84 in DMF).

2N,3N-Carboimido: See Streptolidine, S-81

Kusumoto, S. *et al., Bull. Chem. Soc. Jpn.*, 1974, **47**, 2690 (*lactone, lactone tribenzoyl*)
Goto, T. *et al., Tet. Lett.*, 1974, 1413 (*lactone, lactone tri-Ac*)
Kusumoto, S. *et al., Tet. Lett.*, 1974, 1417 (*lactone*)
Kinoshita, M. *et al., Bull. Chem. Soc. Jpn.*, 1977, **50**, 2375; 1978, **51**, 3261 (*lactam di-Boc, lactone tris-Boc*)

2,3,5-Triamino-2,3,5-trideoxyarabinose T-134



D–Furanose–*form*

$C_5H_{13}N_3O_2$ 147.177

D-Furanose-*form*

2N,3N,5N-Tri-Ac: 2,3,5-Triacetamido-2,3,5-trideoxy-D-arabinofuranose
[53332-24-4]
$C_{11}H_{19}N_3O_5$ 273.288
Amorph. powder. Mp 226-230° dec.

2N,3N,5N-Tribenzoyl: 2,3,5-Tribenzamido-2,3,5-trideoxy-D-arabinofuranose
[55024-31-2]
$C_{26}H_{25}N_3O_5$ 459.501
Cryst. ($CHCl_3$).

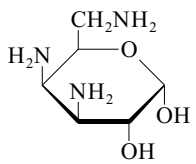
β-D-Furanose-*form*

Me glycoside: Methyl 2,3,5-triamino-2,3,5-trideoxy-β-D-arabinofuranoside
[53332-14-2]
$C_6H_{15}N_3O_2$ 161.203
Needles (MeOH/H_2O/Et_2O) (as trihydrochloride). Mp 240° dec. (trihydrochloride). $[\alpha]_D^{19}$ -57.1 (c, 1.81 in H_2O). CAS no. refers to trihydrochloride.

Me glycoside, 2N,3N,5N-tri-Ac: Methyl 2,3,5-triacetamido-2,3,5-trideoxy-β-D-arabinofuranoside
[53332-21-1]
$C_{12}H_{21}N_3O_5$ 287.315
Mp 293-294.5°. $[\alpha]_D$ -0.84 ($CHCl_3$/MeOH 4:1).

Kusumoto, S. *et al., Bull. Chem. Soc. Jpn.*, 1974, **4**, 2690 (*D-fur deriv, β-D-fur deriv, ir*)
Goto, T. *et al., Tet. Lett.*, 1974, 1413; 1417 (*D-fur deriv, β-D-fur deriv*)

3,4,6-Triamino-3,4,6-trideoxygalactose T-135



$C_6H_{15}N_3O_3$ 177.203

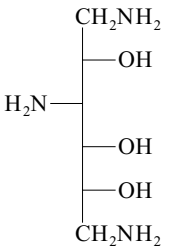
α-D-Pyranose-*form*

1,2-O-Isopropylidene, 3N,4N,6N-tri-Ac:
[80564-61-0]
$C_{15}H_{25}N_3O_6$ 343.379
Cryst. (2-propanol). Mp 243-245° dec. $[\alpha]_D^{20}$ +125.5 (c, 0.95 in DMSO).

1,2-O-Isopropylidene, 3N,4N,6N-tribenzoyl: [80564-60-9]
$C_{30}H_{31}N_3O_6$ 529.591
Cryst. (EtOH). Mp 245-246° dec. $[\alpha]_D^{20}$ +50 (c, 1.2 in DMSO).

Meyer zu Reckendorf, W. *et al., Annalen*, 1981, 1982 (*isopropylidene, ir, pmr*)

1,3,6-Triamino-1,3,6-trideoxyglucitol T-136

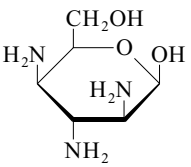


$C_6H_{17}N_3O_3$ 179.219

DL-*form* [128823-76-7]
Syrup.

Kammerer, J. *et al., Angew. Chem., Int. Ed.*, 1990, **29**, 1038 (*synth*)

2,3,4-Triamino-2,3,4-trideoxyidose T-137



$C_6H_{15}N_3O_3$ 177.203

β-D-Pyranose-*form*

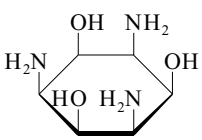
1,6-Anhydro: 2,3,4-Triamino-1,6-anhydro-2,3,4-trideoxy-β-D-idopyranose
[15910-82-4]
$C_6H_{13}N_3O_2$ 159.188
Cryst. + H_2O (dec.) (as trihydrochloride). Mp 189-190° (trihydrochloride). $[\alpha]_D^{20}$ -48.3 (c, 0.8 in H_2O). CAS no. refers to trihydrochloride.

1,6-Anhydro, 2N,3N,4N-tri-Ac: 2,3,4-Triacetamido-1,6-anhydro-2,3,4-trideoxy-β-D-idopyranose
[15910-83-5]
$C_{12}H_{19}N_3O_5$ 285.299
Needles (EtOH). Mp 267-268° (257-258°). $[\alpha]_D^{20}$ -50 (c, 1 in $CHCl_3$).

Lichtenthaler, F.W. *et al., Angew. Chem., Int. Ed.*, 1967, **6**, 568 (*tri-Ac, pmr*)
Lichtenthaler, F.W. *et al., Chem. Ber.*, 1968, **101**, 1846 (*anhydro, pmr*)

1,3,5-Triamino-1,3,5-trideoxyinositol T-138

2,4,6-Triamino-1,3,5-cyclohexanetriol



$C_6H_{15}N_3O_3$ 177.203

(1α,2α,3α,4α,5α,6α)-*form*
cis-*form*
Complexing agent.
Cryst. mass + $1H_2O$ (EtOH). Mp 203-204° (browns).

Hydrochloride (1:3): Mp 280° dec.

Tri-N-Ac:
$C_{12}H_{21}N_3O_6$ 303.314
Mp 310-311°.

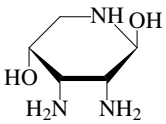
N,N′,N″,O,O′,O″-Hexa-Ac:
$C_{18}H_{27}N_3O_9$ 429.426
Mp 276-278° (browns).

N,N,N′,N′,N″,N″-Hexa-Me: 1,3,5-Trideoxy-1,3,5-tris(dimethylamino)inositol, 9CI. 2,4,6-Tris(dimethylamino)-1,3,5-cyclohexanetriol
[104973-98-0]
$C_{12}H_{27}N_3O_3$ 261.364
Complexing agent. Cryst. (hexane). Mp 118-119°.

N,N,N′,N′,N″,N″-Hexa-Me; hydrochloride (1:3):
Solid + $2H_2O$ (MeOH).

Lichtenthaler, F.W. *et al., Chem. Ber.*, 1966, **99**, 903 (*synth*)
Hegetschweiler, K. *et al., Helv. Chim. Acta*, 1990, **73**, 97; 1992, **75**, 2233 (*synth, cryst struct, pmr, cmr, derivs*)
Hegetschweiler, K. *et al., Chem. Eur. J.*, 1995, **1**, 74
Schmalle, H.W. *et al., Acta Cryst. C*, 1996, **52**, 1288-1293 (*N-hexa-Me, cryst struct*)
Reib, G.J. *et al., Acta Cryst. C*, 1999, **55**, 123-126 (*cryst struct*)

2,3,5-Triamino-2,3,5-trideoxyribose T-139



β-D-Pyranose-*form*

$C_5H_{13}N_3O_2$ 147.177

β-D-Pyranose-*form*

2N,3N,5N-Tri-Ac: 2,3,5-Triacetamido-2,3,5-trideoxy-β-D-ribopyranose
[86204-40-2]
$C_{11}H_{19}N_3O_5$ 273.288
Needles (EtOH). Mp 251°. $[\alpha]_D^{20}$ +36.5 (c, 0.5 in MeOH).

1,2N,3N,4,5N-Penta-Ac: 2,3,5-Triacetamido-1,4-di-O-acetyl-2,3,5-trideoxy-β-D-ribopyranose
[86204-42-4]
$C_{15}H_{23}N_3O_7$ 357.363
Amorph. solid.

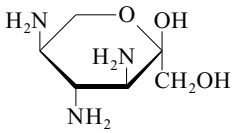
β-D-Furanose-*form*

2N,3N,5N-Tri-Ac: 2,3,5-Triacetamido-2,3,5-trideoxy-β-D-ribofuranose
[86204-35-5]
$C_{11}H_{19}N_3O_5$ 273.288
Prisms (EtOH/Et_2O). Mp 187-188°. $[\alpha]_D^{15}$ -10.5 (c, 0.3 in MeOH).

Benzyl glycoside, 2N,3N,5N-tri-Ac: Benzyl 2,3,5-triacetamido-2,3,5-trideoxy-β-D-ribofuranoside
[74593-12-7]
$C_{18}H_{25}N_3O_5$ 363.413
Cryst. (EtOH/Et_2O). Mp 166°. $[\alpha]_D^{20}$ -74 (c, 0.3 in MeOH).

Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **81**, 23 (*β-fur deriv, ir, pmr*)
Okumura, H. *et al., Agric. Biol. Chem.*, 1983, **47**, 839 (*β-fur deriv, β-pyr deriv, pmr*)

3,4,5-Triamino-3,4,5-trideoxysorbose T-140



$C_6H_{15}N_3O_3$ 177.203

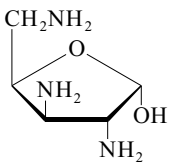
α-L-Pyranose-*form*

1,2-O-Isopropylidene, 3N,4N,5N-tri-Ac:
[113863-57-3]
$C_{15}H_{25}N_3O_6$ 343.379
Needles (EtOH). Mp 143-144°. $[\alpha]_D^{21}$ -57 (c, 0.3 in MeOH).

Benzyl glycoside, 3N,4N,5N-tri-Ac:
[113863-50-6]
$C_{19}H_{27}N_3O_6$ 393.439
Cryst. ($CHCl_3$). Mp 121-123°. $[\alpha]_D^{25}$ -81 (c, 1.0 in MeOH).

Lichtenthaler, F.W. *et al., Carbohydr. Res.*, 1987, **164**, 357 (*tri-N-Ac derivs, pmr*)

2,3,5-Triamino-2,3,5-trideoxyxylose T-141



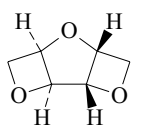
$C_5H_{13}N_3O_2$ 147.177

α-D-Furanose-*form*

1,2N,3N,5N-Tetra-Ac: 2,3,5-Triacetamido-1-O-acetyl-2,3,5-trideoxy-α-D-xylofuranose
[74590-36-6]
$C_{13}H_{21}N_3O_6$ 315.325
Needles (EtOH). Mp 229-231° dec. $[\alpha]_D^{20}$ +132 (c, 0.3 in DMF).

Hasegawa, A. *et al., Carbohydr. Res.*, 1980, **81**, 23 (*tetra-Ac, ir*)

1,3:2,5:4,6-Trianhydroiditol T-142



D–*form*

$C_6H_8O_3$ 128.127

D-*form*
Cryst. (Et_2O/hexane). Mp 51-52°. $[\alpha]_D^{20}$ -49.3 (c, 0.9 in $CHCl_3$).

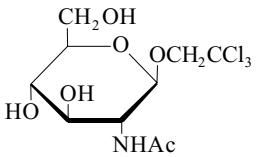
L-*form*
Cryst. Mp 62-64° Mp 163-164.5°. $[\alpha]_D^{20}$ -14.1 (c, 1.5 in $CHCl_3$).

Köll, P. *et al., Tet. Lett.*, 1983, **24**, 2557 (*synth, pmr*)

Köll, P. *et al., Annalen*, 1987, 199; 205 (*synth, pmr*)

2,2,2-Trichloroethyl 2-acetamido-2-deoxyglucopyranoside T-143

2,2,2-Trichloroethyl 2-(acetylamino)-2-deoxyglucopyranoside, 9CI



$C_{10}H_{16}Cl_3NO_6$ 352.598

β-D-*form* [56569-97-2]
Cryst. + ½ H_2O (C_6H_6/Me_2CO). Mp 170-171°. $[\alpha]_D^{25}$ -33.9 (c, 1 in H_2O).

Tri-Ac: 2,2,2-Trichloroethyl 2-acetamido-3,4,6-tri-O-acetyl-2-deoxy-β-D-glucopyranoside
[56569-96-1]
$C_{16}H_{22}Cl_3NO_9$ 478.709
Cryst. (EtOAc). Mp 192-194° (188-189°). $[\alpha]_D^{25}$ -26 (c, 1.0 in H_2O).

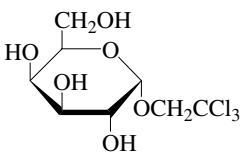
4,6-O-Benzylidene: 2,2,2-Trichloroethyl 2-acetamido-4,6-O-benzylidene-2-deoxy-β-D-glucopyranoside
[56569-98-3]
$C_{17}H_{20}Cl_3NO_6$ 440.706
Cryst. (MeOH/2-propanol). Mp 234° dec. $[\alpha]_D^{25}$ -73.8 (c, 1.0 in MeOH).

Lemieux, R.U. *et al., J.A.C.S.*, 1975, **97**, 4063 (*synth, pmr, cmr*)

Lemieux, R.U. *et al., ACS Symp. Ser.*, 1976, **39**, 90 (*β-D-form, pmr, cmr*)

McLaren, J.M. *et al., Aust. J. Chem.*, 1977, **30**, 2689 (*β-D-tri-Ac*)

2,2,2-Trichloroethyl galactopyranoside T-144



α-D-*form*

$C_8H_{13}Cl_3O_6$ 311.545

α-D-*form* [77453-95-3]
Syrup. $[\alpha]_D^{20}$ +130 (c, 1.0 in $CHCl_3$).

Tetra-Ac: 2,2,2-Trichloroethyl 2,3,4,6-tetra-O-acetyl-α-D-galactopyranoside, 9CI
[77453-93-1]
$C_{16}H_{21}Cl_3O_{10}$ 479.694
Cryst. (CH_2Cl_2/hexane). Mp 127°. $[\alpha]_D^{20}$ +125.2 (c, 1.0 in $CHCl_3$).

2,3,6-Tribenzoyl: 2,2,2-Trichloroethyl 2,3,6-tri-O-benzoyl-α-D-galactopyranoside
[77453-98-6]
$C_{29}H_{25}Cl_3O_9$ 623.869
Syrup. $[\alpha]_D^{20}$ +133.8 (c, 1.0 in $CHCl_3$).

2,3,6-Tribenzoyl, 4-Ac: 2,2,2-Trichloroethyl 4-O-acetyl-2,3,6-tri-O-benzoyl-α-D-galactopyranoside
[77454-02-5]
$C_{31}H_{27}Cl_3O_{10}$ 665.906
Cryst. (CCl_4/hexane). Mp 133°. $[\alpha]_D^{20}$ +121.6 (c, 1.0 in $CHCl_3$).

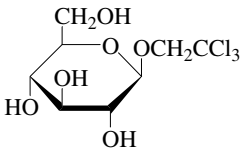
β-D-*form*

Tetra-Ac: 2,2,2-Trichloroethyl 2,3,4,6-tetra-O-acetyl-β-D-galactopyranoside, 9CI
[77453-96-4]
$C_{16}H_{21}Cl_3O_{10}$ 479.694
Cryst. (Et_2O/hexane). Mp 109°. $[\alpha]_D^{20}$ -23.4 (c, 1.0 in $CHCl_3$).

Magnusson, G. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 213 (*synth, pmr, cmr*)

Risbood, P.A. *et al., Carbohydr. Res.*, 1981, **88**, 245 (*synth, pmr*)

2,2,2-Trichloroethyl glucopyranoside T-145



β-D-*form*

$C_8H_{13}Cl_3O_6$ 311.545

α-D-*form*

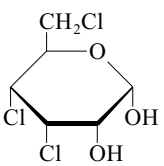
2,3,4,6-Tetra-Ac: 2,2,2-Trichloroethyl 2,3,4,6-tetra-O-acetyl-α-D-glucopyranoside
$C_{16}H_{21}Cl_3O_{10}$ 479.694
Mp 99-100°. $[\alpha]_D^{20}$ +134 ($CHCl_3$).

β-D-*form*

2,3,4,6-Tetra-Ac: 2,2,2-Trichloroethyl 2,3,4,6-tetra-O-acetyl-β-D-glucopyranoside
$C_{16}H_{21}Cl_3O_{10}$ 479.694
Mp 143-144°. $[\alpha]_D^{28}$ -26.4 ($CHCl_3$).

Magnusson, G. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 213

3,4,6-Trichloro-3,4,6-trideoxyallose T-146



$C_6H_9Cl_3O_3$ 235.493

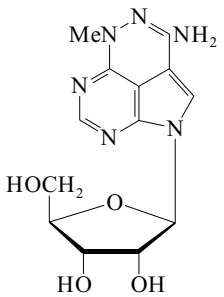
α-D-Pyranose-*form*

Me glycoside: Methyl 3,4,6-trichloro-3,4,6-trideoxy-α-D-allopyranoside
$C_7H_{11}Cl_3O_3$ 249.52
Needles (H_2O). Mp 116°. $[\alpha]_D^{21}$ +159 (c, 1.8 in MeOH).

Jennings, H.J. *et al., Can. J. Chem.*, 1965, **43**, 2372

Triciribine, INN T-147

1,5-Dihydro-5-methyl-1-β-D-ribofuranosyl-1,4,5,6,8-pentaazaacenaphthylen-3-amine, 9CI. 3-Amino-1,5-dihydro-5-methyl-1-β-D-ribofuranosyl-1,4,5,6,8-pentaazaacenaphthylene. NSC 154020. TCN
[35943-35-2]



$C_{13}H_{16}N_6O_4$ 320.307
Antineoplastic, antileukaemic agent. Possesses anti-HIV activity. In Phase II clinical trials (1993). Found to be ineffective and had unacceptable toxic effects

▶ RY8455000

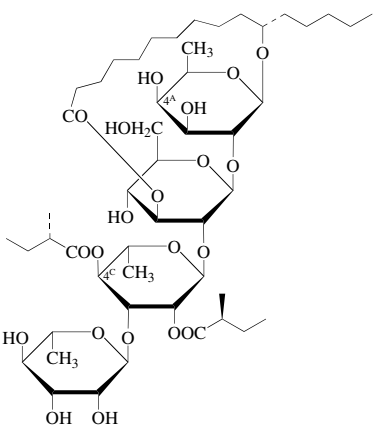
Phosphate salt: ***Triciribine phosphate, USAN****. NSC 280594*
[61966-08-3]
Solid (H_2O).

▶ LD_{50} (mus, ipr) 193 mg/kg. RY8450000

Plagemann, P.G.W. *et al., J. Biol. Chem.*, 1977, **252**, 2010 (*metab*)
Bennett, L.L. *et al., Biochem. Pharmacol.*, 1978, **27**, 233 (*pharmacol*)
U.S. Pat., 1978, 4 123 524; *CA*, **89**, 44130j (*synth, pharmacol, tox*)
Schweinsberg, P.D. *et al., Diss. Abstr. Int., B*, 1981, **42**, 1420 (*metab*)
Schilcher, R.B. *et al., J. Chromatogr.*, 1985, **337**, 55 (*hplc*)
Wotring, L.L. *et al., Cancer Res.*, 1990, **50**, 4891 (*pharmacol*)
Kucera, L.S. *et al., AIDS Res. Hum. Retroviruses*, 1993, **9**, 307 (*activity*)
Hoffman, K. *et al., Cancer Chemother. Pharmacol.*, 1996, **37**, 254-258 (*clin trial*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TJE870

Tricolorin A T-148

[149155-65-7]



$C_{50}H_{86}O_{21}$ 1023.217
Constit. of *Ipomoea tricolor*. Plant growth inhibitor. Cytotoxic. Needles (MeOH). Sol. MeOH, $CHCl_3$; poorly sol. H_2O. Mp 118-120°. $[\alpha]_D$ -30.3 (c, 1.5 in MeOH).

4^A-Epimer: ***Tricolorin E***
$C_{50}H_{86}O_{21}$ 1023.217
Constit. of *Ipomoea tricolor*.
Mp 115-116°. $[\alpha]_D$ -58 (c, 1 in MeOH).

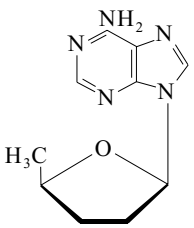
4^CO-Deacyl, 4^C-O-(2-methylpropanoyl): ***Tricolorin B***
$C_{49}H_{84}O_{21}$ 1009.19
Constit. of *Ipomoea tricolor*.
Mp 119-120°. $[\alpha]_D$ -38 (c,1 in MeOH).

*4^CO-Deacyl, 4^C-O-(3-hydroxy-2-methylbutanoyl)(2*R*,3*R*-):* ***Tricolorin C***
$C_{50}H_{86}O_{22}$ 1039.216
Constit. of *Ipomoea tricolor*.
Mp 125-126°. $[\alpha]_D$ -29 (c,1 in MeOH).

Pereda-Miranda, R. *et al., J. Nat. Prod.*, 1993, **56**, 571-582 (*isol*)
Bah, M. *et al., Tetrahedron*, 1996, **52**, 13063-13080 (*isol, pmr, cmr, ms*)
Lu, S.-F. *et al., J.O.C.*, 1997, **62**, 8400-8405 (*synth*)
Larson, D.P. *et al., J.O.C.*, 1997, **62**, 8406-8418 (*synth*)
Fuerstner, A. *et al., J.O.C.*, 1998, **63**, 424-425 (*synth*)
Rencurosi, A. *et al., Angew. Chem., Int. Ed.*, 2004, **43**, 5918-5922 (*cryst struct*)

2′,3′,5′-Trideoxyadenosine, 9CI, 8CI T-149

[6612-70-0]

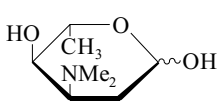


$C_{10}H_{13}N_5O$ 219.246
Inhibits 5′-phosphoribosyl 1-pyrophosphate synth. in lymphoblastomas. Mp 159-160°. $[\alpha]_D^{25.5}$ -36.2 (c, 1.1 in MeOH). λ_{max} 259.5 nm (ε 15 400) (MeOH).

Robins, M.J. *et al., Biochemistry*, 1966, **5**, 224 (*synth, pmr*)
Miles, D.W. *et al., J. Phys. Chem.*, 1968, **72**, 1483 (*ord, cd*)
Weinryb, I. *et al., Biochim. Biophys. Acta*, 1974, **334**, 218

2,3,6-Trideoxy-3-dimethylamino-*ribo*-hexose T-150

Megosamine



$C_8H_{17}NO_3$ 175.227

L-*form*
Obt. from Megalomicin A elaborated by *Micromonospora megalomicea*.

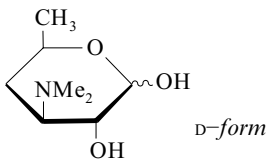
α-L-Pyranose-*form*
*Me glycoside: Methyl 2,3,6-trideoxy-3-dimethylamino-α-L-*ribo*-hexopyranoside*
$C_9H_{19}NO_3$ 189.254
$[\alpha]_D^{26}$ -38.4 (c, 0.3 in MeOH).

β-L-Pyranose-*form*
*Me glycoside: Methyl 2,3,6-trideoxy-3-dimethylamino-β-L-*ribo*-hexopyranoside*
$C_9H_{19}NO_3$ 189.254
$[\alpha]_D^{26}$ +116.3 (c, 0.3 in MeOH).

Bartner, P. *et al., J.C.S. Perkin 1*, 1979, 1600 (*nmr L-Me gly*)

3,4,6-Trideoxy-3-dimethylamino-*xylo*-hexose T-151

Desosamine*. Picrocin. Pikrocin*



$C_8H_{17}NO_3$ 175.227

D-*form* [5779-39-5]
Component of Erythromycin, E-18, Narbomycin, N-3, Picromycin, Methymycin, Neomethymycin, N-21, Oleandomycin, Griseomycin and Plicacetin, P-79.
Cryst. (Et_2O/petrol).
Mp 83-83.5°.

Hydrochloride:
Needles (EtOH/Et_2O). Mp 189-190° Mp 130° (hydrate). $[\alpha]_D^{20}$ +51 (equilib., c, 2.0 in H_2O).

Di-Ac:
$C_{12}H_{21}NO_5$ 259.302
Cryst. ($C_2H_4Cl_2$/Et_2O). Mp 194-195° dec.

α-D-Pyranose-*form*
*Me glycoside: Methyl 3,4,6-trideoxy-3-dimethylamino-α-D-*xylo*-hexopyranoside, 9CI*
[2484-75-5]
$C_9H_{19}NO_3$ 189.254
$[\alpha]_D^{18}$ +138.6 (c, 0.81 in H_2O).

*Et glycoside: Ethyl 3,4,6-trideoxy-3-dimethylamino-α-D-*xylo*-hexopyranoside*
$C_{10}H_{21}NO_3$ 203.281
$[\alpha]_D^{25}$ +57 (c, 0.79 in $CHCl_3$).

β-D-Pyranose-*form*
*Et glycoside: Ethyl 3,4,6-trideoxy-3-dimethylamino-β-D-*xylo*-hexopyranoside*
$C_{10}H_{21}NO_3$ 203.281
$[\alpha]_D^{25}$ -73 (c, 0.52 in $CHCl_3$).

L-*form* [51970-28-6]
$[\alpha]_D$ -42.4 (c, 0.85 in H_2O).

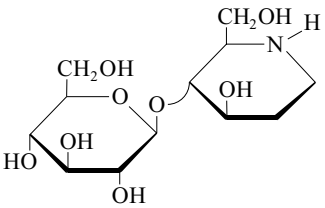
Hydrochloride:
Cryst. (EtOH/Et_2O). Mp 183-184° dec.
$[\alpha]_D$ -64 → -52 (c, 0.75 in H_2O).

Flynn, E.H. *et al., J.A.C.S.*, 1954, **76**, 3120 (*D-form, isol, D-di-Ac*)
Bolton, C.H. *et al., J.C.S.*, 1961, 4831
Bolton, C.H. *et al., Chem. Ind. (London)*, 1962, 1945 (*D-form, isol, config*)
Wiley, P.F. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 257 (*isol*)

Newman, H. *et al., Chem. Ind. (London)*, 1963, 372 (*DL-form, synth*)
Weatherston, J. *et al., Z. Naturforsch., B*, 1966, **21**, 331 (*biosynth*)
Baer, H.H. *et al., Can. J. Chem.*, 1974, **52**, 122 (*L-form, synth*)
Nourse, J.G. *et al., J.A.C.S.*, 1975, **97**, 4584 (*pmr*)
Torssell, K. *et al., Acta Chem. Scand., Ser. B*, 1977, **31**, 7 (*DL-form, synth*)
Bauer, T. *et al., Tetrahedron*, 1997, **53**, 4763-4768 (*α-D-Me glycoside, synth, nmr*)

1,2,5-Trideoxy-4-*O*-(β-D-glucopyranosyl)-1,5-imino-D-*arabino*-hexitol T-152

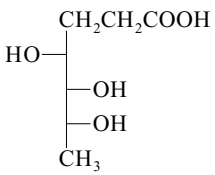
4-O-*(β-D-Glucopyranosyl)fagomine*
[96602-64-1]



$C_{12}H_{23}NO_8$ 309.316
Isol. from seed of *Xanthocercis zambesiaca*.
Mp 232-233°. $[\alpha]_D^{20}$ -3.1 (c, 1.2 in H_2O).
Appears to be wrongly named in CA.

Evans, S.V. *et al., Tet. Lett.*, 1985, 1465

2,3,7-Trideoxy-*arabino*-heptonic acid T-153



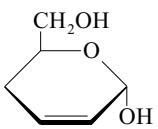
$C_7H_{14}O_5$ 178.185

D-*form*

*1,4-Lactone: 2,3,7-Trideoxy-D-*arabino-*heptono-1,4-lactone*
[116386-16-4]
Cryst. (EtOAc). Mp 103-105°. $[\alpha]_D^{20}$ -66.5 (c, 1.1 in H_2O).

Bock, K. *et al., Carbohydr. Res.*, 1988, **174**, 331 (*synth, pmr, cmr*)

2,3,4-Trideoxy-*glycero*-hex-2-enose T-154



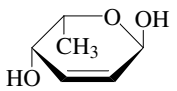
$C_6H_{10}O_3$ 130.143

DL-*form*

6-Ac: 6-O-*Acetyl-2,3,4-trideoxy-DL-*glycero-*hex-2-enose*
$C_8H_{12}O_4$ 172.18
Cryst. Mp 84°.

Krajewski, J.W. *et al., Carbohydr. Res.*, 1984, **125**, 203 (*cryst struct, α-DL-6-Ac*)

2,3,6-Trideoxy-*threo*-hex-2-enose T-155



$C_6H_{10}O_3$ 130.143

α-L-Pyranose-*form*

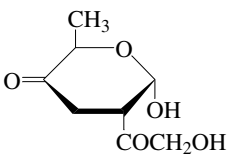
*Me glycoside: Methyl 2,3,6-trideoxy-α-L-*threo-*hex-2-enopyranoside*
[91463-72-8]
$C_7H_{12}O_3$ 144.17
Solid by subl. Mp 66-67°. $[\alpha]_D^{23}$ +148.2 (c, 0.96 in $CHCl_3$).

Me glycoside, Ac: Methyl 4-O-*acetyl-2,3,6-trideoxy-α-L-*threo-*hex-2-enopyranoside*
[63902-57-8]
$C_9H_{14}O_4$ 186.207
Oil. $[\alpha]_D$ +136 (c, 1 in MeOH).

Cardillo, G. *et al., J.O.C.*, 1984, **49**, 3951-3953 (*α-L-Me pyr, α-L-Me pyr Ac*)
Pauls, H.W. *et al., J. Carbohydr. Chem.*, 1985, **4**, 1-14 (*α-L-pyr Me gly*)
Servi, S. *et al., J.O.C.*, 1985, **50**, 5865-5867 (*α-L-Me pyr*)

2,3,6-Trideoxy-2-*C*-hydroxyacetyl-*erythro*-hexopyranos-4-ulose T-156

*Dihydro-6-hydroxy-5-(hydroxyacetyl)-2-methyl-2*H-*pyran-3(4*H*)-one, 9CI*



α-D-*form*

$C_8H_{12}O_5$ 188.18
This struct. has been assigned erroneously to the sugar component of Pillaromycin A, P-72.

α-D-*form*

Et glycoside, 2′-benzoyl: [57800-47-2]
$C_{17}H_{20}O_6$ 320.341
Fibrous cryst. (Et_2O). Mp 85.5-87°. $[\alpha]_D^{23}$ +77.2 (c, 0.93 in $CHCl_3$).

β-L-*form*

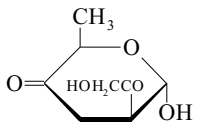
*Me glycoside: Methyl 2,3,6-trideoxy-2-*C-*hydroxyacetyl-β-L-*erythro-*hexopyranos-4-uloside*
[61196-32-5]
$C_9H_{14}O_5$ 202.207
Syrup. $[\alpha]_D^{20}$ +86.7 (c, 1.1 in $CHCl_3$).

Me glycoside, 1′-(ethylenedithioacetal):
[63847-19-8]
$C_{11}H_{18}O_4S_2$ 278.393
Syrup. $[\alpha]_D^{20}$ -10.3 (c, 1.1 in $CHCl_3$).

Walker, D.L. *et al., J.A.C.S.*, 1975, **97**, 6250; 6251 (*occur, struct*)
Paulsen, H. *et al., Chem. Ber.*, 1977, **110**, 2127 (*β-L Me gly derivs, pmr*)
Fraser-Reid, B. *et al., Can. J. Chem.*, 1980, **58**, 2694 (*α-D-Et gly deriv, pmr*)

2,3,6-Trideoxy-2-*C*-hydroxyacetyl-*threo*-hexopyranos-4-ulose T-157

*6-Hydroxy-5-(hydroxyacetyl)-2-methyl-2*H-*pyran-3(4*H*)-one, 9CI*



$C_8H_{12}O_5$ 188.18

α-D-*form*

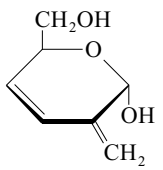
*Et glycoside: Ethyl 2,3,6-trideoxy-2-*C-*hydroxyacetyl-α-D-*threo-*hexopyranos-4-uloside*
[76101-58-1]
$C_{10}H_{16}O_5$ 216.233
Oil. $[\alpha]_D^{20}$ +135.7 (c, 1.03 in $CHCl_3$). $[\alpha]_D^{23}$ +174 (c, 2.8 in $CHCl_3$).

Et glycoside, 2′-benzoyl: [57800-46-1]
$C_{17}H_{20}O_6$ 320.341
Flaky cryst. (Et_2O/hexane). Mp 85.5-86°. $[\alpha]_D^{23}$ +219 (c, 1.34 in $CHCl_3$).

Et glycoside, 2′-trityl: [76101-57-0]
$C_{29}H_{30}O_5$ 458.553
Needles (Et_2O). Mp 108-109°. $[\alpha]_D^{23}$ +108 (c, 1.80 in $CHCl_3$).

Walker, D.L. *et al., J.A.C.S.*, 1975, **97**, 6250; 6251 (*struct, pmr*)
Fraser-Reid, B. *et al., Can. J. Chem.*, 1980, **58**, 2694 (*α-D-Et gly derivs, pmr*)

2,3,4-Trideoxy-2-methylene-hex-3-enopyranose T-158



$C_7H_{10}O_3$ 142.154

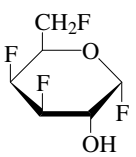
α-D-*form*

tert-*Butyl glycoside, 6-Ac:* tert-*Butyl 6*-O-*acetyl-2,3,4-trideoxy-2-methylene-α-D-*glycero-*hex-3-enopyranoside*
[79698-72-9]
$C_{13}H_{20}O_4$ 240.299
$[\alpha]_D$ +108.8.

Hanessian, S. *et al., J.A.C.S.*, 1981, **103**, 6243 (*synth*)

3,4,6-Trideoxy-3,4,6-trifluorogalactopyranosyl fluoride T-159

*2,4,5-Trifluoro-6-(fluoromethyl)tetrahydro-2*H-*pyran-2-ol, 9CI*



α-D-*form*

$C_6H_8F_4O_2$ 188.122

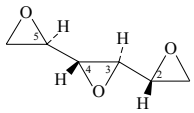
α-D-*form* [83566-51-2]
Flaky cryst. Mp 120.5-122°. $[\alpha]_D^{22}$ +96.05 (c, 2.0 in MeOH).

Ac: [83566-50-1]
$C_8H_{10}F_4O_3$ 230.159
Cryst. Mp 59-60°. $[\alpha]_D^{22}$ +124.2 (c, 2.0 in $CHCl_3$).

Klemm, G.H. *et al., Tet. Lett.*, 1982, 2927 (*synth, α-D-form, Ac, pmr, F-19 nmr*)

1,2:3,4:5,6-Triepoxyhexane T-160

Trianhydrohexitol. 2,3-Dioxiranyloxirane



(2*R*,3*R*,4*R*,5*R*)−*form*

$C_6H_8O_3$ 128.127

(2*R*,3*R*,4*R*,5*R*)-*form*
D-Trianhydromannitol
[89196-13-4]
Mp 36-37°. $[\alpha]_D$ +22.7 (c, 1.1 in $CHCl_3$). Racemate also prepd.

(2*R*,3*S*,4*S*,5*R*)-*form*
D-Trianhydroiditol
[89196-14-5]
Mp 51-52°. $[\alpha]_D$ -49.3 (c, 1.0 in $CHCl_3$). Racemate also prepd.

(2*RS*,3*SR*,4*SR*,5*SR*)-*form*
(±)-Trianhydroglucitol
[89196-16-7]
Syrup.

(2*RS*,3*RS*,4*SR*,5*SR*)-*form*
Trianhydroallitol
[128899-62-7]
Mp 30° approx. *meso*-.

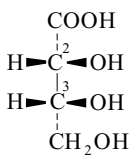
(2*RS*,3*RS*,4*SR*,5*RS*)-*form*
(±)-Trianhydroaltritol
[128899-63-8]
Oil.

Köll, P. *et al., Annalen*, 1987, 199 (*synth, pmr, cmr, ms, cryst struct*)

Kammerer, J. *et al., Angew. Chem., Int. Ed.*, 1990, **29**, 1038 (*synth, cryst struct*)

2,3,4-Trihydroxybutanoic acid, 9CI T-161

[10191-35-2]



(2*R*,3*R*)−*form*

$C_4H_8O_5$ 136.104
Useful synthon of which all 4 stereoisomers are readily obt. from inexpensive starting materials.

(2*R*,3*R*)-*form*
D-Erythronic acid
[488-16-4]
Syrup. Sol. H_2O. Evapn. of aq. soln. → lactone.

Phenylhydrazide: Mp 129-130°. $[\alpha]_D$ +19 (c, 0.3 in H_2O).

Amide: D-Erythronamide
[73713-13-0]
$C_4H_9NO_4$ 135.119
Needles. Mp 95° (91-92°). $[\alpha]_D^{25}$ +26.2 (c, 0.041 in H_2O).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-D-erythronic acid*
$C_{25}H_{20}O_8$ 448.428
Cryst. (C_6H_6). Mp 138-139°. $[\alpha]_D^{21}$ +27 (c, 0.5 in $CHCl_3$).

*Tribenzoyl, amide: 2,3,4-Tri-*O*-benzoyl-D-erythronamide*
$C_{25}H_{21}NO_7$ 447.443
Needles (EtOH aq. or Me_2CO aq.). Mp 205-206° (201°). $[\alpha]_D^{25}$ +9.6 (c, 0.089 in $CHCl_3$).

*1,4-Lactone: 3,4-Dihydroxydihydro-2(3*H*)-furanone, 9CI, 8CI. D-Erythrono-1,4-lactone*
[15667-21-7]
$C_4H_6O_4$ 118.089
Found in tobacco. Oxidn. prod. of starch. Long needles (EtOAc).
Mp 104-105° (98°). $[\alpha]_D$ -71 (c, 0.8 in H_2O).

*1,4-Lactone, 2,3-isopropylidene: Dihydro-2,2-dimethylfuro[3,4-*d*]-1,3-dioxol-4(3*aH*)-one, 9CI*
[25581-41-3]
$C_7H_{10}O_4$ 158.154
Cryst. (Et_2O/hexane at 0°). Mp 68-68.5°. $[\alpha]_D^{25}$ -112.5 (c, 1 in H_2O).

1,4-Lactone, 3-(4-methylbenzenesulfonyl):
[136060-76-9]
$C_{11}H_{12}O_6S$ 272.278
Cryst. (EtOAc). Mp 181-184°. $[\alpha]_D^{15}$ -13.2 (c, 1 in Py).

*Lactone, dibenzoyl: 2,3-Di-*O*-benzoyl-D-erythrono-1,4-lactone*
[53176-87-7]
$C_{18}H_{14}O_6$ 326.305
Needles (MeOH aq.). Mp 110-111°. $[\alpha]_D^{25}$ -176.9 (c, 0.035 in $CHCl_3$).

(2*R*,3*S*)-*form*
L-Threonic acid
[7306-96-9]
Syrup + $1H_2O$ (as Ca salt). $[\alpha]_D^{25}$ +14.6 (c, 1.0 in H_2O) (Ca salt).

Phenylhydrazide:
Laminae (EtOH). Mp 160-161°. $[\alpha]_D^{20}$ +29 (c, 0.3 in H_2O).

Amide: L-Threonamide
$C_4H_9NO_4$ 135.119
Cryst. (EtOAc). Mp 105.5-107°. $[\alpha]_D^{25}$ +77.46 (c, 1.01 in MeOH).

*4-*O*-(3,4-Dihydroxycinnamoyl):* ***4-O-Caffeoyl-L-threonic acid***
[147199-44-8]
$C_{13}H_{14}O_8$ 298.249
Constit. of *Chelidonium majus* and *Cornus controversa*. Yellow powder.
Mp 195-198°. $[\alpha]_D^{20}$ -23.7 (c, 1.27 in H_2O). λ_{max} 219 (log ε 4.02); 235 (sh) (log ε 3.89); 243 (log ε 3.9); 305 (sh) (log ε 4.04); 327 (log ε 4.09) (MeOH).

*4-*O*-(3,4-Dihydroxy-*E*-cinnamoyl)2-*O*-(3,4,5-trihydroxybenzoyl):* ***4-Caffeoyl-2-galloyl-L-threonic acid***
$C_{20}H_{18}O_{12}$ 450.355
Constit. of the leaves of *Cornus controversa*. Amorph. brown powder. Mp 128-130°. $[\alpha]_D^{20}$ -27 (c, 0.09 in MeOH). λ_{max} 255 (log ε 4.98); 294 (log ε 5.28); 330 (log ε 5.27) (MeOH).

*4-*O*-(3,4-Dihydroxy-*E*-cinnamoyl), 2,3-bis-*O*-(3,4,5-trihydroxybenzoyl):* ***4-Caffeoyl-2,3-digalloyl-L-threonic acid***
$C_{27}H_{22}O_{16}$ 602.461
Constit. of the leaves of *Cornus controversa*. Amorph. brown powder. Mp 215-217°. $[\alpha]_D^{20}$ -38 (c, 0.05 in MeOH). λ_{max} 220 (log ε 2.79); 282 (log ε 2.45); 331 (log ε 2.22) (MeOH).

*2,3-*O*-Isopropylidene, Me ester: Methyl 2,3-*O*-isopropylidene-L-threonate*
$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D$ -8.1 (c, 0.5 in $CHCl_3$).

*3,4-*O*-Isopropylidene, Me ester: Methyl 3,4-*O*-isopropylidene-L-threonate*
[92973-40-5]
$C_8H_{14}O_5$ 190.196
Bp_{12} 125°. $[\alpha]_D^{20}$ +18.5 (c, 2 in Me_2CO). n_D^{20} 1.4470.

1,4-Lactone: L-Threono-1,4-lactone
$C_4H_6O_4$ 118.089
Cryst. (EtOAc/Et_2O). Mp 75-77° (66°). $[\alpha]_D^{25}$ +48.4 (c, 0.98 in MeCN). $[\alpha]_D$ +30 (c, 0.9 in H_2O).

*1,4-Lactone, 2-*O*-(3,4-dihydroxycinnamoyl):* ***2-O-Caffeoyl-L-threonolactone***
$C_{13}H_{12}O_7$ 280.234
Constit. of *Chelidonium majus*.

(2*S*,3*R*)-*form*
D-Threonic acid
[20246-26-8]
Syrup.

Ca salt: [70753-61-6]
Cryst. $[\alpha]_D^{20}$ +16 (c, 1 in H_2O). Mp >300°.

Phenylhydrazide: Mp 160°. $[\alpha]_D^{20}$ -30 (c, 0.5 in H_2O).

2,3-Di-Ac, Me ester: [266688-35-1]
$C_9H_{14}O_7$ 234.205
Needles (Et_2O/petrol). Mp 75-76°.

*3,4-Isopropylidene: 3,4-*O*-Isopropylidene-D-threonic acid*
[98733-24-5]
$C_7H_{12}O_5$ 176.169
Used in the synthesis of chiral antibiotics. Cryst. (H_2O/Me_2CO/MeCN) (as Ca salt). Mp 257-261° dec. $[\alpha]_D^{25}$ +23.6 (c, 0.974 in H_2O).

2,3-Isopropylidene, Me ester: Methyl 2,3-O-isopropylidene-D-threonate
$C_8H_{14}O_5$ 190.196
Syrup. $[\alpha]_D$ +7.5 (c, 0.96 in $CHCl_3$).

*Tri-Me ether, Me ester: Methyl 3,4,5-tri-*O*-methyl-D-threonate*
$C_8H_{16}O_5$ 192.211
Bp_{13} 120°. $[\alpha]_D^{18}$ +49 (MeOH). $[\alpha]_D$ +31 (H_2O).

1,4-Lactone: D-Threono-1,4-lactone
$C_4H_6O_4$ 118.089
Mp 75-77°. $[\alpha]_D^{21}$ -29 (c, 0.8 in H_2O).

(2*S*,3*S*)-*form* *L-Erythronic acid*

Phenylhydrazide: Mp 130-131°. $[\alpha]_D$ -17 (c, 1 in H_2O).

Amide: L-Erythronamide
$C_4H_9NO_4$ 135.119

Needles. Mp 91-92°. $[\alpha]_D^{25}$ -26.2 (c, 0.049 in H_2O).

*Tribenzoyl, Me ester: Methyl 2,3,4-tri-*O*-benzoyl-L-erythronate*
$C_{26}H_{22}O_8$ 462.455
$[\alpha]_D^{25}$ -18 (c, 2.0 in $CHCl_3$).

*Tribenzoyl, Et ester: Ethyl 2,3,4-tri-*O*-benzoyl-L-erythronate*
$C_{27}H_{24}O_8$ 476.482
$[\alpha]_D^{25}$ -16.3 (c, 2.0 in $CHCl_3$).

*Tribenzoyl, amide: 2,3,4-Tri-*O*-benzoyl-L-erythronamide*
$C_{25}H_{21}NO_7$ 447.443
Needles (Me_2CO aq.). Mp 201°. $[\alpha]_D^{25}$ -9 (c, 0.019 in $CHCl_3$).

*2,3-Isopropylidene, amide: 2,3-*O*-Isopropylidene-L-erythronamide*
$C_7H_{13}NO_4$ 175.184
Cryst. (EtOH). Mp 116-117°.

1,4-Lactone: L-Erythrono-1,4-lactone
[23732-40-3]
$C_4H_6O_4$ 118.089
Needles (EtOAc). Mp 105° (100-101°). $[\alpha]_D$ +72 (c, 0.5 in H_2O).

*Lactone, dibenzoyl: 2,3-Di-*O*-Benzoyl-L-erythrono-1,4-lactone*
$C_{18}H_{14}O_6$ 326.305
Needles (MeOH aq.). V. sol. MeOH, EtOH, $CHCl_3$; sol. Et_2O; prac. insol. H_2O.

*Lactone, 2-tosyl: 2-*O*-Tosyl-L-erythrono-1,4-lactone*
[146864-79-1]
$C_{11}H_{12}O_6S$ 272.278
Cryst. (EtOAc). Mp 177-179°. $[\alpha]_D^{20}$ +45 (c, 2.0 in Me_2CO).

*Lactone, 2,3-*O*-isopropylidene: 2,3-*O*-Isopropylidene-L-erythrono-1,4-lactone*
$C_7H_{10}O_4$ 158.154
$[\alpha]_D$ +139 (c, 1.4 in $CHCl_3$).

(2*RS*,3*RS*)-*form*

DL-Erythronic acid
[13752-84-6] V. sol. H_2O, EtOH. V. readily lactonises.

Butyl ester: Butyl DL-erythronate
$C_8H_{16}O_5$ 192.211
Cryst. (Et_2O). V. sol. EtOH, Me_2CO, Et_2O. Mp 62-64°.

Lactone: DL-Erythrono-1,4-lactone
[17675-99-9]
$C_4H_6O_4$ 118.089
Cryst. (EtOAc). Mp 91-92°.

*Lactone, di-Ac: 2,3-Di-*O*-acetyl-DL-erythrono-1,4-lactone*
[65143-65-9]
$C_8H_{10}O_6$ 202.163
Cryst. (H_2O). Mp 52.5-53°.

(2*RS*,3*SR*)-*form*

DL-Threonic acid
[3909-12-4]
Mp 98-99°. Readily lactonises.

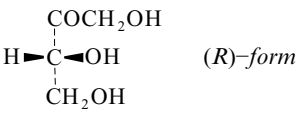
Lactone: DL-Threonolactone
$C_4H_6O_4$ 118.089
Mp 48-50°.

[15770-22-6, 28617-15-4, 78138-87-1, 88759-55-1, 88759-57-3]

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1135B (*nmr*)
Glattfeld, J.W.E. *et al., J.A.C.S.*, 1934, **56**, 1209; 1940, **62**, 974 (*synth, resoln*)
Reichstein, T. *et al., Helv. Chim. Acta*, 1935, **18**, 602 (*synth*)
Hardegger, E. *et al., Helv. Chim. Acta*, 1951, **34**, 2343 (***synth, abs config***)
Whistler, R.L. *et al., J.A.C.S.*, 1956, **78**, 4704 (*synth*)
MacDonald, D.L. *et al., J.A.C.S.*, 1958, **80**, 3379 (*D-Erythronamide, tribenzoyl derivs*)
Humphlett, W.J. *et al., Carbohydr. Res.*, 1967, **4**, 157 (*synth, L-erythronolactone*)
Petersson, G. *et al., Tetrahedron*, 1970, **26**, 3413 (*ms*)
Isbell, H.S. *et al., Carbohydr. Res.*, 1979, **72**, 301 (*synth, L-threonic acid*)
Wei, C.C. *et al., J.O.C.*, 1985, **50**, 3462 (*synth, pmr, Ca salt, isopropylidene derivs*)
Chung, C.W. *et al., J.O.C.*, 1985, **50**, 3465 (*methyl 3,4-isopropylidene-L-threonate*)
Org. Synth., 1985, **63**, 127 (*1,4-lactone, 2,3-isopropylidene, synth, ir, pmr*)
Dunigan, J. *et al., J.O.C.*, 1991, **56**, 6225 (*1,4-lactone, tosylate, synth, ir, pmr, cmr*)
Gais, H.-J. *et al., Synthesis*, 1992, 169 (*synth, D-erythronolactone*)
Lundt, I. *et al., Synthesis*, 1992, 1129 (*lactone, 2-tosyl*)
Hahn, R. *et al., Planta Med.*, 1993, **59**, 71 (*caffeoyl esters*)
Kakinuma, H. *et al., Carbohydr. Res.*, 1994, **264**, 237 (*isopropylidene derivs*)
Flasche, M. *et al., Acta Cryst. C*, 1996, **52**, 895 (*cryst struct, lactone benzylidene*)
Gypser, A. *et al., J.C.S. Perkin 1*, 1997, 1013-1016 (*lactone, isopropylidene, synth, pmr*)
Williams, S.J. *et al., J.A.C.S.*, 2000, **122**, 2223-2235 (*2S,3R-form, 2,3-di-Ac Me ester*)
Lee, D. *et al., Phytochemistry*, 2000, **53**, 405-407 (*Cornus caffeoyl derivs*)

1,3,4-Trihydroxy-2-butanone, 9CI T-162

Erythrulose. glycero-*Tetrulose*
[40031-31-0]



(*R*)−*form*

$C_4H_8O_4$ 120.105

(*R*)-*form*

D-form
[496-55-9]
$[\alpha]_D^{20}$ -11 (c, 1.0 in H_2O).

2-Nitrophenylhydrazone: Mp 151-153°.

*3,4-Dibenzoyl: 3,4-Di-*O*-benzoyl-D-glycero-tetrulose*
$C_{18}H_{16}O_6$ 328.321
$[\alpha]_D$ -32.2 ($CHCl_3$).

*Tribenzoyl: 1,3,4-Tri-*O*-benzoyl-D-glycero-tetrulose*
$C_{25}H_{20}O_7$ 432.429
Mp 118-119°. $[\alpha]_D$ +14.2 ($CHCl_3$).

Di-Me ketal, 1-phosphate:
$C_6H_{15}O_8P$ 246.153
Mp 160-165° (as dicyclohexylammonium salt monohydrate). $[\alpha]_D$ +13.3 (H_2O).

*1,3-Dibenzyl: 1,3-Di-*O*-benzyl-D-glycero-tetrulose*
$C_{18}H_{20}O_4$ 300.354
Oil. $[\alpha]_D^{20}$ +24 (c, 5.6 in C_6H_6).

(*S*)-*form*

L-form
[533-50-6] Produced by dehydrogenation of Erythritol, E-14 by *Acetobacter suboxydans*. $[\alpha]_D^{20}$ +13.3 (c, 2.25 in H_2O).

2-Nitrophenylhydrazone: [35816-30-9]
Mp 152-153°. $[\alpha]_D^{18}$ +45 (EtOH).

Phenylosazone: Mp 165-169°.

Di-Me ketal, 1-phosphate: Mp 165-167° (as dicyclohexylammonium salt monohydrate). $[\alpha]_D$ -13 (c, 2.0 in H_2O).

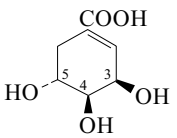
(±)-*form*

Prod. of base-cat. oligomerisation of formaldehyde (formose reacn.).
Syrup.

Chu, N.J. *et al., J.A.C.S.*, 1961, **83**, 1711 (*synth*)
Linek, K. *et al., CA*, 1970, **72**, 101058s (*synth*)
Ando, T. *et al., Bull. Chem. Soc. Jpn.*, 1972, **45**, 2611 (*synth*)
Haas, H.J. *et al., Annalen*, 1974, 342 (*synth*)
Wróblewski, A.E. *et al., Carbohydr. Res.*, 1984, **131**, 325 (*1,3-dibenzyl*)
Shigemasa, Y. *et al., J. Carbohydr. Chem.*, 1991, **10**, 593-605 (*±-form, synth, pmr, cmr*)

3,4,5-Trihydroxy-1-cyclohexene-1-carboxylic acid, 9CI T-163

[2306-23-2]



(3*R*,4*S*,5*R*)−*form*

$C_7H_{10}O_5$ 174.153

Care needed with numbering. Acc. to the system sometimes encountered in the literature, the ring is numbered in the opposite direction to that shown so that 3 becomes 5 and *vice-versa*.

(3*R*,4*S*,5*R*)-*form*

Shikimic acid
[138-59-0]
Constit. of many plants, particularly fruits of *Illicium religiosum*.
Key intermediate in biosynth. of phenylalanine, phenolic cinnamates and their metabolites, e.g. flavonoids, lignans, alkaloids
Cryst. (H_2O). Insol. EtOH, Et_2O, $CHCl_3$. Mp 178-180° Mp 190-191°. $[\alpha]_D^{22}$ -157 (c, 1 in H_2O).
▶ GW4600000

$MeNH_2$ salt: Mp 163-164°.

Me ester: [40983-58-2]
$C_8H_{12}O_5$ 188.18
Needles (AcOH/petrol). Mp 113-114°. $[\alpha]_D$ -130 (c, 1.88, EtOH).

Tri-Ac: [16613-47-1]
$C_{13}H_{16}O_8$ 300.265
Bp_1 200-210°.

3-(3-Acetoxyhexadecanoyl), 4,5-di-Ac:
[97857-21-1]
$C_{29}H_{46}O_{10}$ 554.676
Constit. of *Senecio erubescens*. Oil.

*3-*O*-(3,4,5-Trihydroxybenzoyl):* ***5-O-Galloylshikimic acid***
[110082-91-2]
$C_{14}H_{14}O_9$ 326.259

Isol. from the acorns of *Quercus mongolica*. Amorph. powder + H_2O. $[\alpha]_D^{24}$ -142 (c, 0.5 in Me_2CO).

4-O-(3,4,5-Trihydroxybenzoyl): ***4-O-Galloylshikimic acid***
[110082-90-1]
Isol. from the acorns of *Quercus mongolica*.
Amorph. powder + H_2O. $[\alpha]_D^{24}$ -138.9 (c, 0.4 in Me_2CO).

5-O-(3,4,5-Trihydroxybenzoyl): ***3-O-Galloylshikimic acid***
[95719-51-0]
$C_{14}H_{14}O_9$ 326.259
Constit. of leaves of *Castanopsis cuspidata* var. *sieboldii*. Powder + $1\frac{1}{2}H_2O$ (H_2O). Mp 255°. $[\alpha]_D^{24}$ -111.7 (c, 0.97 in Me_2CO).

5-O-[3,4,5-Trihydroxybenzoyl-(→?)-3,4,5-trihydroxybenzoyl]: ***3-O-Digalloylshikimic acid***
[95719-52-1]
$C_{21}H_{18}O_{13}$ 478.365
Gallotannin constit. of *Castanopsis cuspidata* var. *sieboldii*. Off-white amorph. powder + $2\frac{1}{2}H_2O$. $[\alpha]_D^{23}$ -72.8 (c, 1.1 in Me_2CO). Exact struct. of digalloyl group in cryst. material not detd. Shows ready migration of galloyl residue between *m*- and *p*-OH groups.

5-O-[3,4,5-Trihydroxybenzoyl-(→?)-3,4,5-trihydroxybenzoyl-(→?)-3,4,5-trihydroxybenzoyl]: ***3-O-Trigalloylshikimic acid***
[95783-31-6]
$C_{28}H_{22}O_{17}$ 630.472
Gallotannin isol. from the leaf of *Castanopsis cuspidata* var. *sieboldii*. Off-white amorph. powder + $3H_2O$. $[\alpha]_D^{23}$ -47.7 (c, 1.1 in Me_2CO). Full struct. of trigalloyl group not detd. Shows ready migration of galloyl residues between *m*- and *p*-OH groups.

4,5-Bis-O-(3,4,5-trihydroxybenzoyl): ***3,4-Di-O-galloylshikimic acid***
[95753-51-8]
$C_{21}H_{18}O_{13}$ 478.365
Constit. of *Castanopsis cuspidata*. Pale brown granules + $3H_2O$ (H_2O). Mp 268-270°. $[\alpha]_D^{24}$ -183.1 (c, 1 in Me_2CO).

3,5-Bis-O-(3,4,5-trihydroxybenzoyl): ***3,5-Di-O-galloylshikimic acid***
[95753-52-9]
$C_{21}H_{18}O_{13}$ 478.365
Constit. of *Castanopsis cuspidata*. Shows anti-HIV activity. Pale brown granules + $2\frac{1}{2}H_2O$ (H_2O). Mp 237-238°. $[\alpha]_D^{24}$ -168.3 (c, 1 in Me_2CO). Log P 0.13 (calc).

3,4,5-Tris(3,4,5-trihydroxybenzoyl): ***3,4,5-Tri-O-galloylshikimic acid***
[129159-07-5]
$C_{28}H_{22}O_{17}$ 630.472
Constit. of *Castanopsis hystrix*.

3-O-(4-Hydroxycinnamoyl)(E-): ***3-O-p-Coumaroylshikimic acid***
$C_{16}H_{16}O_7$ 320.298
Constit. of *Phegopteris connectilis*. Amorph. powder. $[\alpha]_D^{20}$ -129.8 (c, 0.64 in MeOH). λ_{max} 310 (MeOH).

3-O-(3,4-Dihydroxycinnamoyl): See 3-*O*-Caffeoylshikimic acid in *The Combined Chemical Dictionary.*

4-O-(3,4-Dihydroxycinnamoyl): See 4-*O*-Caffeoylshikimic acid in *The Combined Chemical Dictionary.*

5-O-(3,4-Dihydroxycinnamoyl): See 5-*O*-Caffeoylshikimic acid in *The Combined Chemical Dictionary.*

(3*R*,4*R*,5*R*)-*form*
Epishikimic acid
[21967-35-1]
Hygroscopic solid. Mp 60-64°. $[\alpha]_D^{22}$ -93 (c, 0.9 in H_2O).

(3*S*,4*S*,5*R*)-*form*
(-)-3-Epishikimic acid
[171963-37-4]
Constit. of *Sequoiadendron giganteum*.
Cryst. (MeOH).
Mp 181-183° Mp 164-165°. $[\alpha]_D$ -31 (c, 1 in H_2O).

Me ester: [171963-38-5]
Needles. Mp 133°. $[\alpha]_D^{20}$ -14 (c, 2 in MeOH).

(3*RS*,4*SR*,5*RS*)-*form*
(±)-Shikimic acid
Mp 191-192° (190°).

Tri-Ac, Me ester:
$C_{14}H_{18}O_8$ 314.291
Oil. $Bp_{0.01}$ 150°.

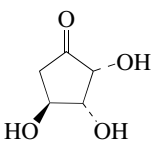
(3*RS*,4*RS*,5*RS*)-*form*
(±)-Epishikimic acid
[16661-31-7]
Mp 200-201°.

(3*RS*,4*SR*,5*SR*)-*form*
(±)-cis,cis-*form*.
(±)-5-Epishikimic acid
No phys. props. reported.

[10191-00-1]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 525B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 815A (*nmr*)
Fischer, H.O.L. *et al., Helv. Chim. Acta*, 1937, **20**, 705 (*config*)
Richardson, A. *et al., Nature (London)*, 1955, **175**, 43 (*isol*)
McCrindle, R. *et al., J.C.S.*, 1960, 1560 (*synth*)
Hall, L.D. *et al., J.O.C.*, 1964, **29**, 297 (*pmr*)
Bohm, B.A. *et al., Chem. Rev.*, 1965, **65**, 435 (*rev*)
Grewe, R. *et al., Chem. Ber.*, 1967, **100**, 2546 (*synth*)
Cleophax, J. *et al., Bull. Soc. Chim. Fr.*, 1973, 2992 (*ester*)
Snyder, C.D. *et al., J.A.C.S.*, 1973, **95**, 7821 (*synth, ms, uv*)
Haslam, E. *et al., The Shikimate Pathway*, Butterworths, (London), 1974, (*rev*)
Fukuoka, M. *et al., Chem. Pharm. Bull.*, 1982, **30**, 3219 (*5-Caffeoylshikimic acid*)
Coblens, K.E. *et al., J.O.C.*, 1982, **47**, 5041 (*synth*)
Fleet, G.W.J. *et al., Chem. Comm.*, 1983, 849 (*synth*)
Rajapaksa, D. *et al., Can. J. Chem.*, 1984, **62**, 826 (*5-Epishikimic acid*)
Mirza, S. *et al., Helv. Chim. Acta*, 1984, **67**, 1562 (*synth*)
Campbell, M.M. *et al., Tetrahedron*, 1984, **40**, 2461 (*synth*)
Nonaka, G. *et al., Chem. Pharm. Bull.*, 1985, **33**, 96 (*gallates*)
Bohlmann, F. *et al., Phytochemistry*, 1985, **24**, 1249-1261 (*acetoxyhexadecanoyl di-Ac*)
IARC Monog., 1986, **40**, 51; *Suppl.* 7, 71 (*rev, tox*)
Ogawa, S. *et al., Carbohydr. Res.*, 1987, **164**, 499 (*synth*)
Pawlak, J.L. *et al., J.O.C.*, 1987, **52**, 1765 (*synth*)
Ishimaru, K. *et al., Phytochemistry*, 1987, **26**, 1501 (*gallates*)
Abell, C. *et al., Acta Cryst. C*, 1988, **44**, 1204 (*cryst struct, bibl*)
Birch, A.J. *et al., J.O.C.*, 1988, **53**, 278 (*synth, pmr*)
Herbert, R.B. *et al., The Biosynthesis of Secondary Metabolites*, 2nd edn., Chapman and Hall, 1989, (*book*)
Nonaka, G. *et al., J. Nat. Prod.*, 1990, **53**, 587 (*gallate, activity*)
Haslam, E. *et al., Shikimic Acid. Metabolism and Metabolites*, Wiley, 1993, (*book*)
Campbell, M.M. *et al., Synthesis*, 1993, 179 (*rev, synth, biosynth*)
Geiger, H. *et al., Phytochemistry*, 1995, **40**, 1705-1707 (*3-epimer, isol, nmr, Me ester*)
Brettle, R. *et al., Tetrahedron*, 1996, **52**, 10547-10556 (*3-epimer, synth, nmr, Me ester*)
Jiang, S. *et al., J.C.S. Perkin 1*, 1997, 1805-1814 (*synth*)
Jiang, S. *et al., Tetrahedron*, 1998, **54**, 4697-4753 (*Shikimic acid, rev, synth*)
Adam, K.-P. *et al., Phytochemistry*, 1999, **52**, 929-934 (*3-Coumaroylshikimic acid*)
Takeuchi, M. *et al., Synthesis*, 2000, 1372-1379 (*Me ester*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, SCE000

2,3,4-Trihydroxycyclopentanone T-164

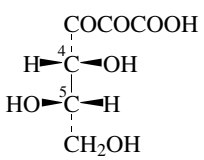


$C_5H_8O_4$ 132.116

(2*R*,3*R*,4*S*)-*form*
*2,3-Benzylidene: Tetrahydro-6-hydroxy-2-phenyl-4*H*-cyclopenta-1,3-dioxol-4-one, 9CI*
[107914-59-0]
$C_{12}H_{12}O_4$ 220.224
Oil. $[\alpha]_D^{20}$ +86.8 (c, 0.4 in $CHCl_3$).
Klemer, A. *et al., Annalen*, 1987, 683-686 (*3,4-benzylidene, synth, pmr, ms*)

4,5,6-Trihydroxy-2,3-dioxohexanoic acid T-165

2,3-Hexodiulosonic acid, 9CI. 2,3-Diketogulonic acid
[3409-57-2]



(4*R*,5*S*)-*form*

$C_6H_8O_7$ 192.125

(4*R*,5*S*)-*form*
L-threo-*form*
[3445-22-5] Formed by hydrol. of.
Cryst. (MeOH). Mp 140°. $[\alpha]_D^{23}$ +32 (1h) → 0 (5d).

Ca salt: $[\alpha]_D^{21}$ -8.3 (c, 1 in 0.1*M* HCl).

Ba salt: $[\alpha]_D^{22}$ -6.8 (c, 1 in 0.1*M* HCl).

2,3-Bis(2,4-dinitrophenylhydrazone):
[33012-61-2]
Mp 282° (dec.).

γ-Lactone: See Dehydroascorbic acid, D-21

(4*S*,5*R*)-*form*
D-threo-*form*

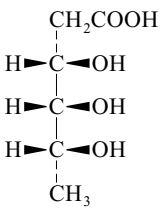
γ-Lactone: See Dehydroascorbic acid, D-21

(4*S*,5*S*)-*form*
L-erythro-*form*
[15573-96-3]
$[\alpha]_D^5$ -23.5 → -32 (c, 1.9 in H_2O) (as Na salt).

Erlbach, H. *et al., Ber.*, 1934, **67**, 555-563; 1750-1762 (*synth*)
Kenyon, J. *et al., J.C.S.*, 1948, 158-161 (*synth, bibl*)
Fujimura, K. *et al., CA*, 1957, **51**, 5145d (*synth*)
Zuluaga, J. *et al., Z. Naturforsch., A*, 1978, **33**, 1184-1189 (*synth, uv*)
Otsuka, M. *et al., Agric. Biol. Chem.*, 1986, **50**, 531-533 (*synth, uv, ir, pmr, ms*)

3,4,5-Trihydroxyhexanoic acid T-166

2,6-Dideoxyhexonic acid



$C_6H_{12}O_5$ 164.158

(3*S*,4*R*,5*R*)-*form*
D-ribo-*form. Digitoxonic acid. Digitoxic acid*
[24160-48-3]

*1,4-Lactone: 2,6-Dideoxy-D-*ribo-*hexono-1,4-lactone*
[24160-49-4]
$C_6H_{10}O_4$ 146.143
$[\alpha]_D^{25}$ +50 (EtOH).

1,4-Lactone, di-Ac:
$C_{10}H_{14}O_6$ 230.217
Mp 112-113°. $[\alpha]_D^{20}$ -17.4 (c, 2 in $CHCl_3$).

1,4-Lactone, phenylhydrazide:
Needles ($MeOH/Et_2O$). Mp 123° (120-121°).

O^3-*Me: 2,6-Dideoxy-3-*O-*methyl-*ribo-*hexonic acid. Ribonic acid*
$C_7H_{14}O_5$ 178.185
Mp 152-154° (as hydrazide). $[\alpha]_D^{24}$ 0 (c, 0.3 in MeOH) (hydrazide).

O^3-*Me, 4-*O-*[6-deoxy-3-*O-*methyl-β-D-allopyranosyl-(1→4)-β-D-oleandropyranosyl-(1→4)-β-D-cymaropyranoside]:*
$C_{28}H_{50}O_{15}$ 626.694
Constit. of *Hoya carnosa*. Amorph. solid (as Na salt). $[\alpha]_D^{25}$ -1.2 (c, 1.4 in MeOH) (Na salt).

O^3-*Me, 1,4-lactone: 2,6-Dideoxy-3-*O-*methyl-D-*ribo-*hexono-1,4-lactone*
$C_7H_{12}O_4$ 160.169
$Bp_{0.2}$ 110-111°. $[\alpha]_D^{25}$ -25 (H_2O).

O^3-*Me, 1,5-lactone: 2,6-Dideoxy-3-*O-*methyl-D-*ribo-*hexono-1,5-lactone*
$C_7H_{12}O_4$ 160.169
$Bp_{0.2}$ 88-90°. $[\alpha]_D^{27}$ +30 (H_2O).

O^3-*Me, 1,5-lactone, 4-*O-*[6-deoxy-3-*O-*methyl-β-D-allopyranosyl-(1→4)-β-D-cymaropyranosyl-(1→4)-β-D-cymaropyranoside]:* [257625-56-2]
$C_{28}H_{48}O_{14}$ 608.679
Constit. of *Hoya carnosa*. Needles. Mp 191-193°. $[\alpha]_D^{25}$ +15.8 (c, 0.4 in MeOH).

O^3-*Me, 1,5-lactone, 4-*O-*[6-deoxy-3-*O-*methyl-β-D-allopyranosyl-(1→4)-β-D-oleandropyranosyl-(1→4)-β-D-cymaropyranoside]:* [257625-57-3]
$C_{28}H_{48}O_{14}$ 608.679
Constit. of *Hoya carnosa*. Needles. Mp 193-195°. $[\alpha]_D^{25}$ +2.3 (c, 0.6 in MeOH).

O^3,O^4-*Di-Me, 1,5-lactone:*
$C_8H_{14}O_4$ 174.196
Syrup. $[\alpha]_D$ +48 ($CHCl_3$).

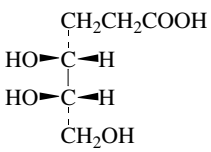
O^3,O^5-*Di-Me, 1,4-lactone:*
$C_8H_{14}O_4$ 174.196
$[\alpha]_D$ -58 ($CHCl_3$).

[71698-58-3]

Ederfield, R.C. *et al., J. Biol. Chem.*, 1935, **111**, 527
Allegeir, H. *et al., Helv. Chim. Acta*, 1968, **51**, 668
Domschke, W. *et al., CA*, 1970, **72**, 41248s
Ollis, W.D. *et al., Tetrahedron*, 1979, **35**, 105
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1986, **40**, 740 (*synth, cmr, pmr*)
Trivedi, R. *et al., Phytochemistry*, 1989, **28**, 1211; 1990, **29**, 3967 (*synth*)
Yoshikawa, K. *et al., J. Nat. Prod.*, 2000, **63**, 146-148 (*Hoya carnosa glycosides*)

4,5,6-Trihydroxyhexanoic acid T-167

2,3-Dideoxyhexonic acid, 9CI



(4*R*,5*S*)-*form*

$C_6H_{12}O_5$ 164.158

(4*R*,5*S*)-*form*
L-erythro-*form*

*1,4-Lactone: 2,3-Dideoxy-L-*erythro-*1,4-hexonolactone*
[137625-43-5]
$C_6H_{10}O_4$ 146.143
Oil. $[\alpha]_D$ -5.36 (c, 5.19 in MeOH).

*1,4-Lactone, 6-benzyl: 6-*O-*Benzyl-2,3-dideoxy-1,4-hexonolactone*
[184873-67-4]
$C_{13}H_{16}O_4$ 236.267
Oil. $[\alpha]_D$ -11.96 (c, 3.27 in $CHCl_3$).

(4*S*,5*R*)-*form*
D-erythro-*form*

*5,6-Isopropylidene, Me ester: Methyl 2,3-dideoxy-5,6-*O-*isopropylidene-D-*erythro-*hexonate*
$C_{10}H_{18}O_5$ 218.249
$[\alpha]_D$ +9.2 (+8.9) ($CHCl_3$).

*5,6-Isopropylidene, 4-tosyl, Me ester: Methyl 2,3-dideoxy-5,6-*O-*isopropylidene-4-*O-*tosyl-D-*erythro-*hexonate*
$C_{17}H_{24}O_7S$ 372.438
Cryst. (2-propanol). Mp 62-64.5°. $[\alpha]_D$ -16.5.

5,6-Isopropylidene, 4-(4-nitrobenzoyl), Me ester: [127530-09-0]
Cryst. (MeOH aq.). Mp 76-77.5°. $[\alpha]_D^{20}$ -11.9 (c, 1 in $CHCl_3$).

(4*S*,5*S*)-*form*
L-threo-*form*

*1,4-Lactone: 2,3-Dideoxy-L-*threo-*1,4-hexonolactone*
[56405-80-2]
$C_6H_{10}O_4$ 146.143
Oil. $[\alpha]_D^{25}$ +61.8 (c, 2.0 in MeOH).

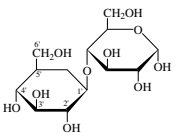
*1,4-Lactone, 5,6-di-Ac: 5,6-Di-*O-*acetyl-2,3-dideoxy-L-*threo-*1,4-hexonolactone*
[23791-01-7]
$C_{10}H_{14}O_6$ 230.217
Oil. $[\alpha]_D$ -2.83 (c, 2.30 in $CHCl_3$).

1,4-Lactone, 6-benzyl: [184873-70-9]
Solid. Mp 103°. $[\alpha]_D$ +45.96 (c, 1.88 in $CHCl_3$).

Knollman, R. *et al., Chem. Ber.*, 1975, **108**, 2021 (*synth, ir, pmr, ms*)
Regeling, H. *et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.)*, 1989, **108**, 330
Regeling, H. *et al., Carbohydr. Res.*, 1991, **216**, 79 (*synth, cmr*)
Lee, Jeewoo *et al., J. Med. Chem.*, 1996, **39**, 4912-4919 (*synth, ir, pmr, cmr*)

4-*O*-[2,3,4-Trihydroxy-5-(hydroxymethyl)cyclohexyl]glucose T-168

[105017-70-7]



(α-Pyranose,1′*R*,2′*R*,3′*S*,5′*R*,6′*R*)-*form*

$C_{13}H_{24}O_{10}$ 340.327

(α-D-Pyranose, 1′*R*,2′*R*,3′*S*,4′*R*,6′*R*)-*form*
5a-*Carba-β-D-glucopyranosyl-(1→4)-D-glucopyranose. 5a′-Carba-α-cellobiose*
[104976-67-2]
$[\alpha]_D^{20}$ +27.1 (c, 1.43 in H_2O). Mixture of α- and β-anomers.

Octa-Ac: [104976-68-3]
$C_{29}H_{40}O_{18}$ 676.624
Syrup. $[\alpha]_D^{19}$ +47 (c, 0.65 in $CHCl_3$). Contains about 15% β-anomer.

(α-D-Pyranose, 1′*R*,2′*S*,3′*S*,4′*R*,6′*R*)-*form*
5a-*Carba-β-D-mannopyranosyl-(1→4)-α-D-glucopyranose*

Octa-Ac:
Syrup. $[\alpha]_D^{21}$ +46 (c, 0.060 in $CHCl_3$). Contains about 15% β-anomer.

(α-D-Pyranose, 1′*S*,2′*R*,3′*S*,4′*R*,6′*R*)-*form*
5a-*Carba-α-D-glucopyranosyl-(1→4)-α-D-glucopyranose*

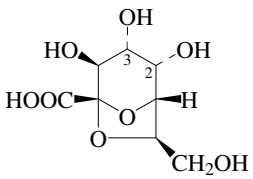
Octa-Ac:
Solid. $[\alpha]_D^{19}$ +77 (c, 0.55 in $CHCl_3$). Contains approx. 25% β-anomer.

Me glycoside: Methyl 5a′-carba-α-maltoside
[152203-02-6]
$C_{14}H_{26}O_{10}$ 354.353
Hygroscopic syrup. $[\alpha]_D^{23}$ +127 (c, 0.2 in MeOH).

(β-D-Pyranose, 1′*R*,2′*R*,3′*S*,4′*S*,6′*R*)-*form*
5a-Carba-β-D-galactopyranosyl-(1→4)-β-D-glucopyranose
Me glycoside: Methyl 5a′-carba-β-lactoside
[186824-51-1]
$C_{14}H_{26}O_{10}$ 354.353
Syrup. $[\alpha]_D^{28}$ -38 (c, 0.3 in H_2O). Incorrectly indexed by CAS as α-D-glucopyranose form.
Paulsen, H. *et al., Annalen*, 1987, 141-152 (*5a′-carbacellobiose*)
Tsunoda, H. *et al., Annalen*, 1996, 159-165 (*methyl 5a′-carba-α-maltoside*)
Ogawa, S. *et al., Eur. J. Org. Chem.*, 1998, 1099-1109 (*methyl 5a′-carba-β-lactoside*)
Ogawa, S. *et al., Synthesis*, 2001, 312-316 (*octa-Ac derivs*)

2,3,4-Trihydroxy-7-hydroxymethyl-6,8-dioxabicyclo[3.2.1]octane-5-carboxylic acid T-169

2,7-Anhydro-2-octulopyranosuronic acid

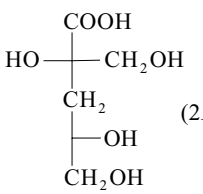


$C_8H_{12}O_8$ 236.178

(1*R*,2*S*,3*R*,4*S*,5*S*,7*R*)-*form*
D-glycero-*β*-D-galacto-*form*
3-O-(3,4-Dihydroxy-E-cinnamoyl):
$C_{17}H_{18}O_{11}$ 398.323
Constit. of the roots of *Smallanthus sonchifolius* (yacon). Amorph. solid.
2,3-Bis-O-(3,4-dihydroxy-E-cinnamoyl):
$C_{26}H_{24}O_{14}$ 560.467
Constit. of the roots of *Smallanthus sonchifolius* (yacon). Amorph. solid. λ_{max} 219 (ε 23300); 248 (ε 16000); 332 (ε 32100) (EtOH).
Takenaka, M. *et al., Tet. Lett.*, 2003, **44**, 999-1002 (*isol, cd, uv, pmr, cmr*)

2,4,5-Trihydroxy-2-(hydroxymethyl)pentanoic acid T-170

3-Deoxy-2-C-hydroxymethylpentonic acid, 9CI



(2*R*,4*S*)–*form*

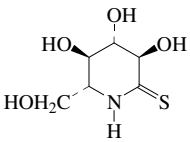
$C_6H_{12}O_6$ 180.157

(2*R*,4*S*)-*form*
D-threo-*form*. *β-D-Glucoisosaccharinic acid*
[1518-56-5]
Formed by alkaline rearr. of reducing sugars.
Ca salt: $[\alpha]_D^{20}$ +3 (c, 1.0 in H_2O).
Brucine salt:
Cryst. (EtOH). Mp 190-195° dec. $[\alpha]_D^{20}$ -20 (c, 1.0 in H_2O).
1,4-Lactone: 3-Deoxy-2-C-hydroxymethyl-D-threo-pentono-1,4-lactone
$C_6H_{10}O_5$ 162.142
$[\alpha]_D$ +28 (H_2O).
1,4-Lactone, tribenzoyl:
$C_{27}H_{22}O_8$ 474.466
Cryst. (MeOH). Mp 113.5-114.5°. $[\alpha]_D^{22}$ +42.5 (H_2O).

(2*S*,4*R*)-*form*
D-erythro-*form*. *α-D-Glucoisosaccharinic acid*
[1518-54-3] Formed by alkaline rearr. of reducing sugars. A principal alkaline degradn. prod. of cellulose.
Ca salt: [16835-77-1]
$[\alpha]_D^{20}$ -2 (c, 1.0 in H_2O).
Brucine salt: Mp 159-161°. $[\alpha]_D^{21}$ -25 (c, 1.0 in H_2O).
2,2′,4,5-Tetra-Ac: 2,2′,4,5-Tetra-O-acetyl-3-deoxy-2-C-hydroxymethyl-D-erythro-pentonic acid
$C_{14}H_{20}O_{10}$ 348.306
Syrup. $[\alpha]_D^{25}$ -11.7 (c, 2.5 in $CHCl_3$).
1,4-Lactone: 3-Deoxy-2-C-hydroxymethyl-D-erythro-pentono-1,4-lactone. α-Isosaccharino-1,4-lactone. α-Isosaccharin
[7397-89-9]
$C_6H_{10}O_5$ 162.142
Cryst. (EtOAc). Mp 94-95°. $[\alpha]_D^{22}$ +62.7 (c, 0.9 in H_2O).
1,4-Lactone, tribenzoyl: Mp 121-122°. $[\alpha]_D$ +46.6 (c, 1.0 in $CHCl_3$).
1,4-Lactone, ditosyl: 3-Deoxy-2-C-hydroxymethyl-2′,5-di-O-tosyl-D-erythro-pentono-1,4-lactone
[32976-18-4]
$C_{20}H_{22}O_9S_2$ 470.52
Cryst. ($CHCl_3$/petrol). Mp 109-110°. $[\alpha]_D^{25}$ +36 (c, 1.0 in $CHCl_3$).
1,4-Lactone, 2,1′-isopropylidene: 3-Deoxy-2-C-hydroxymethyl-2,1′-O-isopropylidene-D-erythro-pentonolactone
[78687-63-5]
$C_9H_{14}O_5$ 202.207
Cryst. (Et_2O/hexane). Mp 56°. $[\alpha]_D$ +43 (c, 1 in $CHCl_3$).
1,4-Lactone, 1′,2-isopropylidene, 5-tosyl: 3-Deoxy-2-C-(hydroxymethyl)-2,2′-O-isopropylidene-5-O-tosyl-D-erythro-1,4-pentonolactone
$C_{16}H_{20}O_7S$ 356.396
Cryst. (Et_2O/CH_2Cl_2). Mp 110°. $[\alpha]_D$ +57 (c, 1 in $CHCl_3$).
Corbett, W.M. *et al., J.C.S.*, 1954, 1789 (*D-threo- and D-erythro-forms, isol*)
Kenner, J. *et al., J.C.S.*, 1955, 1810 (*D-threo- and D-erythro-forms, synth, D-erythro-lactone*)
Whistler, R.L. *et al., J.O.C.*, 1961, **26**, 2886 (*synth*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 477 (*lactone tribenzoyl*)
Feast, A.A.J. *et al., Acta Chem. Scand.*, 1965, **19**, 1127 (*D-threo-lactone tribenzoyl, D-erythro-lactone tribenzoyl, D-threo- and D-erythro-lactones*)
v.Glehn, M. *et al., Chem. Comm.*, 1967, 291 (*D-erythro-form, cryst struct*)
Strobach, D.R. *et al., Carbohydr. Res.*, 1971, **17**, 457 (*D-erythro-ditosyl*)
Glittenberg, D. *et al., Chem. Ber.*, 1976, **109**, 3115 (*D-erythro-tetra-Ac*)
Gakhokidz, R.A. *et al., Russ. Chem. Rev. (Engl. Transl.)*, 1980, **49**, 222 (*rev*)
Hanessian, S. *et al., Tet. Lett.*, 1981, **22**, 1005 (*lactone isopropylidene*)
Bennani, F. *et al., Tetrahedron*, 1984, **40**, 4669 (*synth, pmr, cmr, ms*)
Florent, J.C. *et al., J.O.C.*, 1987, **52**, 1051 (*lactone isopropylidene tosyl*)
Alén, R. *et al., Acta Chem. Scand.*, 1995, **49**, 536 (*cryst struct, lactone*)
Kim, J. *et al., Carbohydr. Res.*, 2003, **338**, 705-710 (*1,4-lactone isopropylidene*)

3,4,5-Trihydroxy-6-(hydroxymethyl)-2-piperidinethione, 9CI T-171

5-Amino-5-deoxyhexonothiono-1,5-lactam. Hexonothiono-1,5-lactam



(3*R*,4*S*,5*R*,6*R*)-*form*

$C_6H_{11}NO_4S$ 193.223

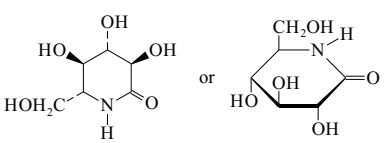
(3*R*,4*S*,5*R*,6*R*)-*form*
D-Glucothiono-1,5-lactam
[128732-72-9]
$[\alpha]_D$ +31 (c, 0.72 in MeOH).
O-*Tetrabenzyl: 2,3,4,6-Tetra-O-benzyl-D-glucothiono-1,5-lactam*
[153996-70-4]
$C_{34}H_{35}NO_4S$ 553.721
Mp 85°. $[\alpha]_D^{25}$ +136 (c, 0.5 in $CHCl_3$).

(3*R*,4*S*,5*S*,6*R*)-*form*
D-Galactonothiono-1,5-lactam
[153433-97-7]
$[\alpha]_D$ +85 (c, 1.33 in MeOH).

(3*S*,4*S*,5*R*,6*R*)-*form*
D-Mannonothiono-1,5-lactam
[149674-54-4]
$[\alpha]_D$ +53.3 (c, 0.69 in MeOH).
Papandreou, G. *et al., J.A.C.S.*, 1993, **115**, 11682-11690 (*synth, ir, pmr, cmr, ms*)
Granier, T. *et al., Helv. Chim. Acta*, 1997, **80**, 979-987 (*synth, gluco*)

3,4,5-Trihydroxy-6-(hydroxymethyl)-2-piperidinone, 9CI T-172

5-Amino-5-deoxyhexono-1,5-lactam. Hexono-1,5-lactam



(3*R*,4*S*,5*R*,6*R*)–*form* D–*gluco*–*form*

$C_6H_{11}NO_5$ 177.157

(3*R*,4*S*,5*R*,6*R*)-*form*

D-Glucono-1,5-lactam. D-Nojirilactam. Nojirimycin δ-lactam
[14904-83-7]
Powder (EtOH). Mp 204-205° (195-198°). $[\alpha]_D$ +63.4 (c, 0.51 in H_2O) (+57).

O-*Tetrabenzyl: 2,3,4,6-Tetra*-O-*benzyl-D-glucono-1,5-lactam*
[77174-08-4]
$C_{34}H_{35}NO_5$ 537.654
Needles (MeOH). Mp 102-103°. $[\alpha]_D$ +105.5 (c, 0.51 in $CHCl_3$).

(3*R*,4*S*,5*S*,6*R*)-*form*

D-Galactono-1,5-lactam. Galactostatin lactam
[108147-55-3]
Needles (EtOH aq.). Mp 204-206° (192-195°). $[\alpha]_D^{23}$ +122 (c, 1 in H_2O). $[\alpha]_D$ +160 (c, 0.26 in H_2O).

O-*Tetrabenzyl: 2,3,4,6-Tetra*-O-*benzyl-D-galactono-1,5-lactam*
[158349-25-8]
$C_{34}H_{35}NO_5$ 537.654
Yellow syrup. $[\alpha]_D$ +68 (c, 0.38 in $CHCl_3$).

(3*S*,4*S*,5*R*,6*R*)-*form*

D-Mannono-1,5-lactam
[62362-63-4] Emulsin inhibitor.
Cryst. (EtOH). Mp 169-170°. $[\alpha]_D$ +1.6 (c, 0.38 in H_2O).

O-*Tetrabenzyl: 2,3,4,6-Tetra*-O-*benzyl-D-mannono-1,5-lactam*
[158349-24-7]
$C_{34}H_{35}NO_5$ 537.654
Yellow syrup. $[\alpha]_D$ -73.2 (c, 0.40 in $CHCl_3$). Not obt. pure of its 5-epimer.

(3*R*,4*R*,5*S*,6*S*)-*form*

L-Mannono-1,5-lactam
[117821-09-7]
Mp 165-170°. $[\alpha]_D^{20}$ -2 (c, 1.0 in H_2O).

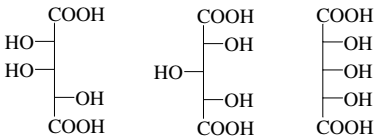
(3*S*,4*R*,5*S*,6*R*)-*form*

*(+)-5-*epi-*Nojirimycin δ-lactam. 5-Amino-5-deoxy-L-idonic-δ-lactam. L-Idono-1,5-lactam*
[223608-64-8]
$[\alpha]_D^{27}$ +23 (c, 0.86 in H_2O) (85% ee).

Miyake, Y. *et al., Agric. Biol. Chem.*, 1988, **52**, 661-666 (*synth, galacto*)
Shing, T.K.M. *et al., Chem. Comm.*, 1988, 1221 (*synth, manno*)
Fleet, G.W.J. *et al., Tetrahedron*, 1989, **45**, 319-326 (*synth, pmr, manno*)
Fleet, G.W.J. *et al., Tet. Lett.*, 1990, **31**, 409-412 (*synth, gluco*)
Hoos, R. *et al., Helv. Chim. Acta*, 1993, **76**, 1802-1807 (*synth, ir, pmr, gluco*)
Overkleeft, H.S. *et al., Tetrahedron*, 1994, **50**, 4215-4224 (*synth, pmr, cmr*)
Granier, T. *et al., Helv. Chim. Acta*, 1997, **80**, 979-987 (*synth, gluco*)
Kang, J. *et al., Tetrahedron: Asymmetry*, 1999, **10**, 657-660 (*synth, idono, pmr, cmr*)
Knight, J.G. *et al., Tetrahedron*, 2003, **59**, 281-286 (*manno, synth*)

2,3,4-Trihydroxypentanedioic acid, 9CI T-173

Trihydroxyglutaric acid
[488-31-3]



D-Arabinaric acid | Xylaric acid | Ribaric acid

$C_5H_8O_7$ 180.114
One (±)-form and two *meso*-forms exist.

D-*form*

D-Arabinaric acid, 9CI. D-Lyxaric acid
[20869-04-9]
Plates (H_2O); cryst. (Me_2CO). V. sol. H_2O; sol. EtOH. Mp 128°. $[\alpha]_D^{20}$ +22.2 (c, 5.1 in H_2O).

Tri-Me ether, di-Me ester:
$C_{10}H_{18}O_7$ 250.248
Bp_{15} 143° approx. $[\alpha]_D^{20}$ -39 (c, 0.4 in MeOH). $[\alpha]_D$ -42.5.

Tri-Me ether, diamide:
$C_8H_{16}N_2O_5$ 220.225
Mp 232-233° dec. $[\alpha]_D^{20}$ -49 (H_2O).

L-*form*

L-Arabinaric acid, 9CI. L-Lyxaric acid
[608-54-8]
Plates (EtOH). Mp 127°. $[\alpha]_D^{18}$ -23.3 (H_2O). pK_a 2.88.

2,3,4-Tri-Me: 2,3,4-Tri-O-*methyl-L-arabinaric acid*
[362513-01-7]
$C_8H_{14}O_7$ 222.194
Syrup, cryst. on standing. Mp 88-89°. $[\alpha]_D$ +32 (c, 1 in CH_2Cl_2).

Tri-Me ether, di-Me ester: [60192-32-7]
Syrup. Sol. H_2O. Bp_{18} 143° $Bp_{0.005}$ 74-76°. $[\alpha]_D$ +45 (H_2O).

Tri-Me ether, diamide: [362513-02-8]
Prisms (MeOH). Mp 232-233°. $[\alpha]_D$ +50 (H_2O).

(±)-*form*

DL-Arabinaric acid, 9CI.
DL-Lyxaric acid
[6703-05-5]
Cryst. (Me_2CO). V. sol. H_2O, EtOH. Mp 154.5° dec. pK_{a1} 3.08; pK_{a2} 4.21 (20°).

meso*(*xylo*)-*form

Xylaric acid, 9CI. xylo-*Saccharic acid. Xylosaccharic acid*
[10158-64-2]
Cryst. (EtOAc or Et_2O). V. sol. H_2O, hot EtOH. Mp 152° dec. pK_a 3.18.
Evap. of aq. soln. gives lactone.

Diamide: Xylaramide†
[55726-63-1]
$C_5H_{10}N_2O_5$ 178.144
Mp 188°.

Tri-Ac:
$C_{11}H_{14}O_{10}$ 306.226
Cryst. (Et_2O/petrol). Mp 154°.

Tri-Ac, diamide: Tri-O-*acetylxylaramide*
[85069-93-8]
$C_{11}H_{16}N_2O_8$ 304.256
Cryst. (EtOH aq.). Mp 206-207°.

Tri-Ac, diamide, di-N-*Ac:* N,N′-*Diacetyl-tri*-O-*acetylxylaramide*
[85069-94-9]
$C_{15}H_{20}N_2O_{10}$ 388.33
Cryst. (EtOAc/hexane). Mp 164-165°.

Tri-Ac, anhydride: [63181-58-8]
$C_{11}H_{12}O_9$ 288.21
Cryst. (EtOAc). Mp 146-147°.

1,2-Di-Me ether, di-Me ester:
$C_9H_{16}O_7$ 236.221
Oil. Bp_{12} 132°.

2,3,4-Tri-Me: 2,3,4-Tri-O-*methylxylaric acid*
[362513-10-8]
$C_8H_{14}O_7$ 222.194
Syrup.

Tri-Me ether, diamide: 2,3,4-Tri-O-*methylxylaramide*
[362513-11-9]
$C_8H_{16}N_2O_5$ 220.225
Mp 195-198°.

Di-Et ester: [115175-38-7]
$C_9H_{16}O_7$ 236.221
Cryst. Mp 69-70°.

meso*(*ribo*)-*form

Ribaric acid, 9CI, 8CI
[33012-62-3]
Syrup.

Diamide: Ribaramide
[55726-62-0]
Mp 155° dec. (149°).

Bis(2-phenylhydrazide): Mp 215-216°.

1,4-Lactone:
$C_5H_6O_6$ 162.099
Mp 185°.

1,4-Lactone, Me ester: [85069-95-0]
$C_6H_8O_6$ 176.126
Cryst. (EtOAc/hexane). Mp 112-113° dec.

Tri-Ac, diamide: Tri-O-*acetylribaramide*
[85069-96-1]
$C_{11}H_{16}N_2O_8$ 304.256
Cryst. (EtOH). Mp 191-192°.

Tri-Ac, diamide, N,N′-*di-Ac:* N,N′-*Diacetyltri*-O-*acetylribaramide*
[85069-97-2]
$C_{15}H_{20}N_2O_{10}$ 388.33
Cryst. (Me_2CO/hexane). Mp 184-185°.

[6703-05-5]

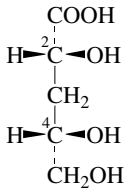
Fischer, E. *et al., Ber.*, 1896, **29**, 1961 (*synth, abs config*)
Ruff, O. *et al., Ber.*, 1899, **32**, 550 (*synth*)
Hirst, E.L. *et al., J.C.S.*, 1925, 358; 1928, 3147 (*synth*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1953, **75**, 4318 (*synth*)
Gall, R.E. *et al., Aust. J. Chem.*, 1975, **28**, 687 (*synth, pmr, ir*)
Kochetkov, N. *et al., Izv. Akad. Nauk SSSR, Ser. Khim.*, 1976, 635; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1976, 619 (*L-form tri-Me ether di-Me ester*)
Kiely, D.E. *et al., J. Carbohydr. Chem.*, 1982, **1**, 191-211 (*xylaramide derivs, ribaramide derivs*)
Hoagland, P.D. *et al., J. Carbohydr. Chem.*, 1987, **6**, 495-499 (*diethyl xylarate*)

Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 2001, **333**, 95-103 (*2,3,4-trimethyl-L-arabinaric acid, 2,3,4-trimethylxylaric acid*)

2,4,5-Trihydroxypentanoic acid T-174

3-Deoxypentonic acid, 9CI

[1518-60-1]



(2*R*,4*S*)-*form*

$C_5H_{10}O_5$ 150.131

(2*R*,4*S*)-*form*

D-erythro-*form*

[21569-62-0]

4,5-Isopropylidene, Me ester: [134455-80-4]
$C_9H_{16}O_5$ 204.222
$Bp_{0.05}$ 75° (bath).

1,4-Lactone: See 4,5-Dihydro-3-hydroxy-5-(hydroxymethyl)-2(3*H*)-furanone, D-673

(2*S*,4*R*)-*form*

L-erythro-*form*

Phenylhydrazide: Mp 149°. $[\alpha]_D^{18}$ +4.5 (c, 0.4 in EtOH).

1,4-Lactone: See 4,5-Dihydro-3-hydroxy-5-(hydroxymethyl)-2(3*H*)-furanone, D-673

(2*S*,4*S*)-*form*

D-threo-*form*

[21569-63-1]

[1518-60-1]

Phenylhydrazide:
Cryst. (EtOH). Mp 137-138°. $[\alpha]_D^{21}$ -35.5 (c, 0.31 in EtOH).

4,5-Isopropylidene, Me ester: [134455-79-1]
$Bp_{0.1}$ 71-78°. $[\alpha]_D$ +3 (c, 1.0 in MeOH).

4,5-Isopropylidene, 2-Ac, Me ester:
[134455-88-2]
$C_{11}H_{18}O_6$ 246.26
$Bp_{0.1}$ 71-78°. $[\alpha]_D$ +3 (c, 1 in MeOH).

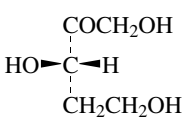
1,4-Lactone: See 4,5-Dihydro-3-hydroxy-5-(hydroxymethyl)-2(3*H*)-furanone, D-673

[29625-78-3, 97551-63-8, 102717-30-6, 132454-67-2, 132454-68-3]

Mukherjee, S. *et al., J.C.S.*, 1947, 969-973 (*synth*)
Corbett, W.M. *et al., J.C.S.*, 1957, 11-13 (*phenylhydrazide*)
Okabe, M. *et al., J.O.C.*, 1991, **56**, 4392-4397 (*4,5-isopropylidene Me ester, synth, ir, pmr*)

1,3,5-Trihydroxy-2-pentanone, 9CI T-175

4-Deoxy-2-pentulose



$C_5H_{10}O_4$ 134.132

(*S*)-*form*

L-glycero-*form*

[64307-91-1]

Prod. from D-glucitol using *Gluconobacter oxydans*.

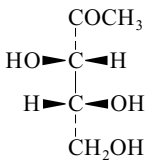
Syrup. $[\alpha]_D^{25}$ +10.9 → +12.8 (c, 1.0 in H_2O).

Phenylosazone: Mp 136-138°. $[\alpha]_D^{25}$ +30 → +5 (c, 1.0 in MeOH).

Linek, K. *et al., Carbohydr. Res.*, 1979, **76**, 290-294 (*synth*)

3,4,5-Trihydroxy-2-pentanone T-176

1-Deoxy-2-pentulose, 9CI



(3*S*,4*R*)–*form*

$C_5H_{10}O_4$ 134.132

Precursor of Pyridoxine and Thiamine in bacteria.

(3*R*,4*R*)-*form*

D-erythro-*form*

[66065-07-4]

Syrup. $[\alpha]_D^{21}$ -37 (c, 1.3 in H_2O) (equilib.).

2,4-Dinitrophenylhydrazone: [66065-08-5]
Cryst. (EtOAc). Mp 116-118°. $[\alpha]_D^{21}$ -53.7 (c, 0.3 in Me_2CO).

3,5-Benzylidene: 3,5-O-Benzylidene-1-deoxy-D-erythro-2-pentulose
[51970-09-3]
$C_{12}H_{14}O_4$ 222.24
Needles (EtOAc/petrol). Mp 82.5°.
$[\alpha]_D^{23}$ +40.5 (c, 1 in $CHCl_3$).

3,5-Benzylidene, 4-benzoyl: 4-O-Benzoyl-3,5-O-benzylidene-1-deoxy-D-erythro-2-pentulose
[66182-30-7]
$C_{19}H_{18}O_5$ 326.348
Cryst. (Et_2O/petrol). Mp 95-96°. $[\alpha]_D^{22}$ -23.1 (c, 1 in $CHCl_3$).

3,5-Ethylidene, 4-benzyl: 4-O-Benzyl-1-deoxy-3,5-O-ethylidene-D-erythro-2-pentulose
[162932-19-6]
$C_{14}H_{18}O_4$ 250.294
Yellow liq. $[\alpha]_D^{26}$ -6 (c, 0.97 in $CHCl_3$).

(3*S*,4*R*)-*form*

D-threo-*form. 1-Deoxy-D-xylulose*
[60299-43-6]
Metab. of *Streptomyces hygroscopicus*. Intermed. in biosynth. of thiamine in *E. coli*. *In vitro* inhibitor of *Mycobacterium avium*. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane.
Mp 61-63°. $[\alpha]_D$ +46 (c, 1.0 in H_2O).

5-Phosphate: [190079-18-6]
$C_5H_{11}O_7P$ 214.112
Biosynthetic precursor of non-mevalonate terpenoids.

(3*S*,4*S*)-*form*

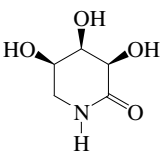
L-erythro-*form. 1-Deoxy-L-ribulose*

3,4-Isopropylidene, 5-benzyl: 5-O-Benzyl-1-deoxy-3,4-O-isopropylidene-L-erythro-2-pentulose
$C_{15}H_{20}O_4$ 264.321
$[\alpha]_D^{22}$ -50.6 (c, 1.84 in $CHCl_3$).

Slechta, L. *et al., J. Antibiot.*, 1976, **29**, 685 (*isol, D-threo*)
Hoeksema, H. *et al., J. Antibiot.*, 1976, **29**, 688 (*struct, ms, pmr, D-threo*)
Fischer, J.-C. *et al., Can. J. Chem.*, 1977, **55**, 4078-4089 (*D-erythro, synth, pmr, derivs*)
David, S. *et al., J.C.S. Perkin 1*, 1982, 2131-2137 (*D-erythro, synth*)
Kennedy, I.A. *et al., Can. J. Chem.*, 1995, **73**, 1329 (*synth*)
Backstrom, A.D. *et al., J. Carbohydr. Chem.*, 1995, **14**, 171-175 (*D-threo-form, synth*)
Munier, P. *et al., Tetrahedron*, 1995, **51**, 1229 (*D-erythro 3,5-ethylidene 4-benzyl, L-erythro 3,4-isopropylidene 5-benzyl*)
Kopper, S. *et al., Chem. Eur. J.*, 1998, **4**, 2442-2455 (*D-erythro, synth, pmr, cmr*)
Lichtenhaler, H.K. *et al., Annu. Rev. Plant Physiol.*, 1999, **50**, 47-65 (*rev, phosphate*)
Rohmer, M. *et al., Pure Appl. Chem.*, 1999, **71**, 2279-2284 (*rev, phosphate*)
Shabat, D. *et al., Tet. Lett.*, 1999, **40**, 1437-1440 (*synth*)
Fechter, M.H. *et al., J. Carbohydr. Chem.*, 2001, **29**, 833-839 (*synth*)
Hecht, S. *et al., J.O.C.*, 2001, **66**, 3948-3952 (*synth, phosphate*)
Hoeffler, J.-F. *et al., Tet. Lett.*, 2001, **42**, 3065-3067 (*synth*)
Eisenreich, W. *et al., Trends Plant Sci.*, 2001, **6**, 70-84 (*rev, phosphate*)
Kopper, S. *et al., Helv. Chim. Acta*, 2003, **86**, 827-843 (*D-erythro, synth, pmr, cmr*)
Meyer, O. *et al., Tetrahedron*, 2004, **60**, 12153-12162 (*synth*)

3,4,5-Trihydroxy-2-piperidinone, 9CI T-177

5-Amino-5-deoxypentono-1,5-lactam. Pentono-1,5-lactam



(3*R*,4*R*,5*R*)-*form*

$C_5H_9NO_4$ 147.13

(3*R*,4*R*,5*R*)-*form*

D-ribo-*form. 5-Amino-5-deoxy-D-ribono-1,5-lactam. D-Ribono-1,5-lactam*
[18908-35-5]
Cryst. (EtOH). Mp 250-251° (dec.).
$[\alpha]_D^{23}$ +33 (c, 0.5 in H_2O).

(3*R*,4*S*,5*R*)-*form*

D-xylo-*form. 5-Amino-5-deoxy-D-xylono-1,5-lactam. D-Xylono-1,5-lactam*
[172820-30-3]
Cryst. (EtOH). Mp 176-177°. $[\alpha]_D^{20}$ +7 (c, 0.5 in H_2O).

3,4-Dibenzyl ether: [266688-31-7]
$C_{19}H_{21}NO_4$ 327.379
Mp 107-108°.

(3*S*,4*R*,5*R*)-*form*
D-arabino-*form*. *5-Amino-5-deoxy-D-arabino-1,5-lactam*. *D-Arabino-1,5-lactam*
[187144-36-1]
Cryst. (EtOH). Mp 178°. $[\alpha]_D$ -172 (c, 1 in H_2O).

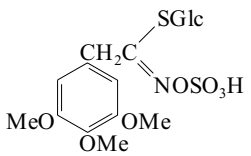
(3*S*,4*S*,5*R*)-*form*
D-lyxo-*form*. *5-Amino-5-deoxy-D-lyxono-1,5-lactam*. *D-Lyxono-1,5-lactam*
[182822-23-7]
Cryst. (EtOH). Mp 188-189°. $[\alpha]_D$ -54.7 (c, 1 in H_2O).

[127593-93-5, 175272-44-3]

Godskesen, M. *et al., Bioorg. Med. Chem.*, 1996, **4**, 1857-1865 (*synth*)
Kefurt, K. *et al., Coll. Czech. Chem. Comm.*, 1996, **61**, 1027-1036; 1997, **62**, 1919-1930 (*synth, ir, pmr, cmr, cd, conformn*)
Defoin, A. *et al., Helv. Chim. Acta*, 1998, **81**, 1417-1428 (*synth, ir, pmr, cmr*)
Williams, S.J. *et al., J.A.C.S.*, 2000, **122**, 2223-2235 (*3R,4S,5R-form, 3,4-dibenzyl ether*)

3,4,5-Trimethoxybenzyl glucosinolate T-178

[32214-77-0]

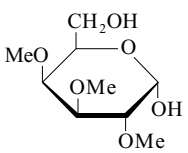


$C_{17}H_{25}NO_{12}S_2$ 499.516
Isol. from *Lepidium hyssopifolium* and *Lepidium sordidum*. Hygroscopic cryst. (as K salt).

Tetra-Ac: [34410-85-0]
Cryst. + $1H_2O$ (MeOH) (as K salt). Mp 190-195° dec. (K salt). $[\alpha]_D^{28}$ -11 (c, 0.6 in H_2O).

Kjaer, A. *et al., Phytochemistry*, 1971, **10**, 455; 2195 (*isol*)

2,3,4-Tri-*O*-methylgalactose, 9CI, 8CI T-179



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

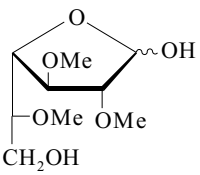
α-D-Pyranose-*form* [35775-21-4]
Mp 86° Mp 73° (monohydrate). $[\alpha]_D$ +156 → +119 (H_2O).

Me glycoside: Methyl 2,3,4-tri-O-*methyl-α-D-galactopyranoside*
[22323-68-8]
$C_{10}H_{20}O_6$ 236.264
Mp 30°. $[\alpha]_D$ +198.4 (+112) (H_2O).

β-D-Pyranose-*form* [35775-22-5]
1,6-Anhydro: 1,6-Anhydro-2,3,4-tri-O-*methyl-β-D-galactopyranose*
$C_9H_{16}O_5$ 204.222
Mp 61°. $[\alpha]_D$ -62.2 (EtOH).

Smith, F. *et al., J.C.S.*, 1939, 1724 (*synth*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **23**, 275 (*pmr*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)

2,3,5-Tri-*O*-methylgalactose, 8CI T-180



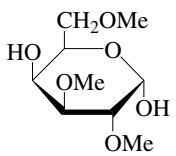
$C_9H_{18}O_6$ 222.238

D-*Furanose-form*
Syrup. $[\alpha]_D$ -8 (H_2O).

Me glycoside: Methyl 2,3,5-tri-O-*methyl-α-D-galactofuranoside*
$C_{10}H_{20}O_6$ 236.264
Syrup. $[\alpha]_D$ -55 (H_2O).

Alexander, B.H. *et al., J.A.C.S.*, 1951, **73**, 4658 (*synth*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Bayer, E. *et al., Anal. Chem.*, 1964, **36**, 1452 (*glc*)

2,3,6-Tri-*O*-methylgalactose, 9CI, 8CI T-181



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

D-Pyranose-*form* [4599-58-0]
$[\alpha]_D^{25}$ +95 (c, 0.6 in H_2O).

α-D-Pyranose-*form*
Me glycoside: Methyl 2,3,6-tri-O-*methyl-α-D-galactopyranoside*
$C_{10}H_{20}O_6$ 236.264
$[\alpha]_D^{25}$ +158 (c, 0.8 in $CHCl_3$).

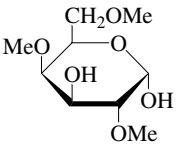
Me glycoside, tosyl: Mp 94°. $[\alpha]_D$ +126 (c, 0.3 in $CHCl_3$).

β-D-Pyranose-*form*
Me glycoside: Methyl 2,3,6-tri-O-*methyl-β-D-galactopyranoside*
$C_{10}H_{20}O_6$ 236.264
$[\alpha]_D^{20}$ -16 (c, 0.74 in $CHCl_3$).

Me glycoside, tosyl: Mp 131-132°. $[\alpha]_D^{21}$ +15 (c, 0.3 in $CHCl_3$).

Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Williams, N.R. *et al., J.O.C.*, 1964, **29**, 3434 (*synth*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **23**, 275 (*pmr*)

2,4,6-Tri-*O*-methylgalactose, 9CI, 8CI T-182



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

α-D-Pyranose-*form* [35775-25-8]
Mp 104-105° Mp 110-111°. $[\alpha]_D$ +124 → +93 (H_2O).

Me glycoside: Methyl 2,4,6-tri-O-*methyl-α-D-galactopyranoside*
[14187-56-5]
$C_{10}H_{20}O_6$ 236.264
Mp 73-74° Mp 37° (monohydrate).
$[\alpha]_D$ +163.9 (H_2O).

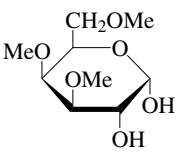
Me glycoside, tosyl: Methyl 2,4,6-tri-O-*methyl-3*-O-*tosyl-α-D-galactopyranoside*
[35780-84-8]
$C_{17}H_{26}O_8S$ 390.454
Mp 112°. $[\alpha]_D$ +150 ($CHCl_3$).

β-D-Pyranose-*form* [35775-26-9]
Me glycoside: Methyl 2,4,6-tri-O-*methyl-β-D-galactopyranoside*
[2296-49-3]
$C_{10}H_{20}O_6$ 236.264
Mp 111-112° Mp 83-85° (hemihydrate).
$[\alpha]_D$ -40.9 ($CHCl_3$).

Me glycoside, tosyl: Methyl 2,4,6-tri-O-*methyl-3*-O-*tosyl-β-D-galactopyranoside*
[35780-88-2]
$C_{17}H_{26}O_8S$ 390.454
Mp 130°. $[\alpha]_D$ +20.4 ($CHCl_3$).

Bell, D.J. *et al., J.C.S.*, 1938, 1196 (*synth*)
Percival, E.G.V. *et al., J.C.S.*, 1951, 1615 (*isol, struct*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Rathbone, E.B. *et al., Carbohydr. Res.*, 1972, **23**, 275 (*pmr*)
Vogt, D.C. *et al., Carbohydr. Res.*, 1990, **206**, 333 (*pmr, cmr*)

3,4,6-Tri-*O*-methylgalactose, 9CI, 8CI T-183



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

D-*form* [31655-52-4]
$[\alpha]_D^{20}$ -4.3 (MeOH).

Phenylosazone: Mp 130-131°. $[\alpha]_D^{23}$ +85 (Py).

α-D-Pyranose-*form* [35775-27-0]
Mp 88-89°. $[\alpha]_D^{24}$ +154 → +110 (H_2O).

1,2-O-Isopropylidene: See 1,2-*O*-Isopropylidenegalactopyranose, I-65

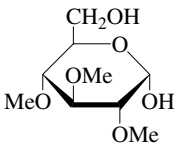
β-D-Pyranose-*form* [35775-28-1]

*Me glycoside, 2-mesyl: Methyl 2-*O*-mesyl-3,4,6-tri-*O*-methyl-β-D-galactopyranoside*
$C_{11}H_{22}O_8S$ 314.356
Cryst. (Me_2CO/diisopropyl ether). Mp 138°. $[\alpha]_D^{27}$ -22 (c, 0.5 in $CHCl_3$).

Levene, P.A. *et al., J. Biol. Chem.*, 1931, **92**, 257 (*D-form*)
Maher, G.G. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 273 (*rev*)
Kuhn, R. *et al., Chem. Ber.*, 1955, **88**, 1537 (*α-D-pyr*)
Gorin, P.A.J. *et al., Biochemistry*, 1970, **9**, 5023 (*D-form*)
Miljković, M. *et al., J.O.C.*, 1975, **40**, 1054 (*β-D-Me pyr mesyl*)

2,3,4-Tri-*O*-methylglucose, 9CI, 8CI T-184

[4060-09-7]



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

D-Pyranose-*form* [13704-10-4]
$Bp_{0.3}$ 162-166°. $[\alpha]_D$ +65 (+86) (H_2O).

*6-Benzyl: 6-*O*-Benzyl-2,3,4-tri-*O*-methyl-D-glucose*
$C_{16}H_{24}O_6$ 312.362
Oil. Mixt. of anomers.

α-D-Pyranose-*form*

*Me glycoside: Methyl 2,3,4-tri-*O*-methyl-α-D-glucopyranoside*
$C_{10}H_{20}O_6$ 236.264
Oil. $[\alpha]_D$ +162 (c, 1.4 in $CHCl_3$).

*Me glycoside, 6-benzyl: Methyl 6-benzyl-2,3,4-tri-*O*-methyl-α-D-glucopyranoside*
$C_{17}H_{26}O_6$ 326.389
Oil. $[\alpha]_D$ +124 (c, 1.6 in $CHCl_3$).

1,6-Bis(4-nitrobenzoyl): Mp 151-152°. $[\alpha]_D^{29}$ +22.6 (c, 1.1 in $CHCl_3$).

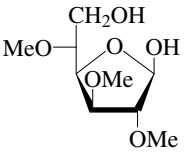
β-D-Pyranose-*form*

1,6-Bis(4-nitrobenzoyl): Mp 135-136°. $[\alpha]_D^{29}$ -13.6 (c, 1.0 in $CHCl_3$).

*Me glycoside: Methyl 2,3,4-tri-*O*-methyl-β-D-glucopyranoside*
[4267-13-4]
$C_{10}H_{20}O_6$ 236.264
Mp 92-95°. $Bp_{0.04}$ 125-130° (bath). $[\alpha]_D$ -25.1 (MeOH).

Smith, F. *et al., J.C.S.*, 1944, 131 (*β-D-Me pyr*)
Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Jones, J.K.N. *et al., Can. J. Chem.*, 1961, **39**, 192 (*D-pyr*)
Kubberoed, G. *et al., Acta Chem. Scand.*, 1972, **26**, 2544 (*glc*)
Molina Pinilla, I. *et al., Carbohydr. Res.*, 2003, **338**, 549-555 (*6-benzyl, Me α-D-pyr, Me 6-benzyl-α-D-pyr*)

2,3,5-Tri-*O*-methylglucose, 9CI T-185



β-D-*form*

$C_9H_{18}O_6$ 222.238

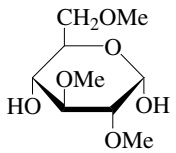
D-*form* [51885-67-7]
$[\alpha]_D^{20}$ -13.4 (c, 2.14 in H_2O) (+17).

β-D-Furanose-*form*

*Me glycoside: Methyl 2,3,5-tri-*O*-methyl-β-D-glucofuranoside*
$C_{10}H_{20}O_6$ 236.264
Cryst. (petrol). Mp 74-75°. $[\alpha]_D^{20}$ -69.7 (c, 1.8 in H_2O).

Smith, F. *et al., J.C.S.*, 1944, 571 (*D-form, synth*)
Dimler, R.J. *et al., J.A.C.S.*, 1946, **68**, 1377 (*D-form, synth*)
Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Coleman, G.H. *et al., J.O.C.*, 1957, **22**, 1336 (*D-form, synth, β-D-Me fur*)
Gelpi, M.E. *et al., CA*, 1974, **80**, 96264q (*D-form, synth*)

2,3,6-Tri-*O*-methylglucose, 9CI, 8CI T-186



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

α-D-Pyranose-*form* [19146-27-1]
Mp 121-123°. $[\alpha]_D$ +118 → +70 (H_2O).

*Me glycoside: Methyl 2,3,6-tri-*O*-methyl-α-D-glucopyranoside*
[23009-68-9]
$C_{10}H_{20}O_6$ 236.264
$[\alpha]_D$ +149 ($CHCl_3$).

Me glycoside, 4-(3,5-dinitrobenzoyl): Mp 147°. $[\alpha]_{625}$ +56.3 (Me_2CO).

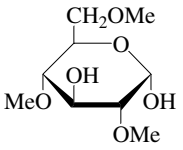
β-D-Pyranose-*form* [19146-45-3]

*Me glycoside: Methyl 2,3,6-tri-*O*-methyl-β-D-glucopyranoside*
[23262-64-8]
$C_{10}H_{20}O_6$ 236.264
Mp 58-60°. $[\alpha]_D$ -48 ($CHCl_3$).

Me glycoside, 4-benzenesulfonyl: Mp 83-84°. $[\alpha]_D$ -35.6 ($CHCl_3$).

Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Kooiman, P. *et al., Can. J. Chem.*, 1961, **39**, 889 (*synth*)
Casu, B. *et al., Tetrahedron*, 1967, **24**, 803 (*conformn, pmr*)
Petersson, G. *et al., CA*, 1969, **70**, 78300n (*ms*)

2,4,6-Tri-*O*-methylglucose, 9CI, 8CI T-187



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

α-D-Pyranose-*form* [19146-15-7]
Mp 123-126°. $[\alpha]_D$ +111 → +72 (H_2O).

*Me glycoside, 3-tosyl: Methyl 2,4,6-tri-*O*-methyl-3-*O*-tosyl-α-D-glucopyranoside*
$C_{17}H_{26}O_8S$ 390.454
Mp 123-124°. $[\alpha]_D$ +53.6 ($CHCl_3$).

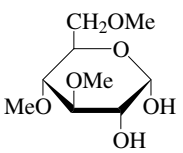
β-D-Pyranose-*form* [19146-16-8]

*Me glycoside: Methyl 2,4,6-tri-*O*-methyl-β-D-glucopyranoside*
[23262-66-0]
$C_{10}H_{20}O_6$ 236.264
Mp 70-71°. $[\alpha]_D$ -27.4 ($CHCl_3$).

*Me glycoside, 3-tosyl: Methyl 2,4,6-tri-*O*-methyl-3-*O*-tosyl-β-D-glucopyranoside*
$C_{17}H_{26}O_8S$ 390.454
Mp 104°. $[\alpha]_D$ -47 ($CHCl_3$).

Granitstädten, H. *et al., J.C.S.*, 1943, 54, (*isol, synth*)
Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Barker, S.A. *et al., J.C.S.*, 1953, 3084 (*α-D-form*)
Casu, B. *et al., Tetrahedron*, 1967, **24**, 803 (*conformn, pmr*)
Terui, T. *et al., Chem. Pharm. Bull.*, 1974, **22**, 2476 (*pmr*)

3,4,6-Tri-*O*-methylglucose, 9CI, 8CI T-188



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

α-D-Pyranose-*form* [13554-85-3]
Needles (diisopropyl ether). Mp 80.5-81.5° (76-77°). $[\alpha]_D^{22}$ +120 → +77 (c, 1.6 in H_2O).

*1-Ac: 1-*O*-Acetyl-3,4,6-tri-*O*-methyl-α-D-glucopyranose*
$C_{11}H_{20}O_7$ 264.275
Cryst. (diisopropyl ether). Mp 107.5-108.5°. $[\alpha]_D$ +146 ($CHCl_3$).

*2-Ac: 2-*O*-Acetyl-3,4,6-tri-*O*-methyl-α-D-glucopyranose*
$C_{11}H_{20}O_7$ 264.275
Cryst. (diisopropyl ether). Mp 103.5-105°. $[\alpha]_D$ +116 ($CHCl_3$).

*Di-Ac: 1,2-Di-*O*-acetyl-3,4,6-tri-*O*-methyl-α-D-glucopyranose*
$C_{13}H_{22}O_8$ 306.312
Prisms (diisopropyl ether). Mp 64-65°. $[\alpha]_D^{22}$ +122 (c, 1.9 in $CHCl_3$).

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-3,4,6-tri*-O-*methyl-α-D-glucopyranose*
$C_{12}H_{22}O_6$ 262.302
Syrup. Bp_{12} 138-139°. $[\alpha]_D$ -29.5 (MeOH).

Me glycoside: Methyl 3,4,6-tri-O-*methyl-α-D-glucopyranoside*
[13479-66-8]
$C_{10}H_{20}O_6$ 236.264
Syrup. $Bp_{0.3}$ 180-190°.

β-D-Pyranose-*form* [38184-02-0]
Prisms (diisopropyl ether). Mp 102-103°. $[\alpha]_D$ +41 → +77.6 (H_2O).

Me glycoside: Methyl 3,4,6-tri-O-*methyl-β-D-glucopyranoside*
[58462-87-6]
$C_{10}H_{20}O_6$ 236.264
Cryst. (Et_2O/petrol). Mp 51.5-52.5°. $[\alpha]_D^{25}$ -16.4 (c, 2.0 in $CHCl_3$).

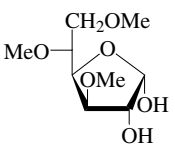
Me glycoside, 2-benzoyl: Methyl 2-O-*benzoyl-3,4,6-tri*-O-*methyl-β-D-glucopyranoside*
$C_{17}H_{24}O_7$ 340.372
Cryst. (petrol). Mp 79.5-80°. $[\alpha]_D^{20}$ +34.4 (c, 1.9 in $CHCl_3$).

Me glycoside, 2-tosyl: Methyl 3,4,6-tri-O-*methyl-2*-O-*tosyl-β-D-glucopyranoside*
$C_{17}H_{26}O_8S$ 390.454
Mp 67°. $[\alpha]_D$ -16 ($CHCl_3$).

Me glycoside, 2-benzyl: Methyl 2-O-*benzyl-3,4,6-tri*-O-*methyl-β-D-glucopyranoside*
$C_{17}H_{26}O_6$ 326.389
Mp 41.5-42°. $[\alpha]_D^{25}$ +9.9 (c, 2.0 in $CHCl_3$).

Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Greville, G.D. *et al., J.C.S.*, 1952, 1957 (*D-form, synth, β-D-Me pyr, β-D-Me pyr benzoyl*)
Wood, H.B. *et al., J.A.C.S.*, 1957, **79**, 1986 (*α-D-pyr, β-D-pyr, synth*)
Schroeder, L.R. *et al., J.C.S. Perkin 2*, 1972, 1063 (*α-D-pyr, α-D-pyr Ac derivs, β-D-pyr*)
Berry, J.F. *et al., Can. J. Chem.*, 1974, **52**, 291 (*β-D-form*)
Liav, A. *et al., Carbohydr. Res.*, 1984, **131**, C8 (*synth*)

3,5,6-Tri-*O*-methylglucose, 9CI T-189



α-D-Furanose-*form*

$C_9H_{18}O_6$ 222.238

D-*form*
$Bp_{0.04}$ 134° approx. $[\alpha]_D$ -44.1 (c, 1.5 in EtOH).

Phenylosazone:
Cryst. (EtOH aq.). Mp 70-72°.

α-D-Furanose-*form* [28436-51-3]

1,2-O-*Isopropylidene: 1,2*-O-*Isopropylidene-3,5,6-tri*-O-*methyl-α-D-glucofuranose*
[38930-65-3]
$C_{12}H_{22}O_6$ 262.302
$[\alpha]_D$ -29.5 (c, 1.6 in MeOH).

Me glycoside: Methyl 3,5,6-tri-O-*methyl-α-D-glucofuranoside*
$C_{10}H_{20}O_6$ 236.264
Syrup. $Bp_{0.4}$ 105-109°. $[\alpha]_D^{20}$ +93 (MeOH).

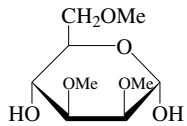
β-D-Furanose-*form*

Me glycoside: Methyl 3,5,6-tri-O-*methyl-β-D-glucofuranoside*
$C_{10}H_{20}O_6$ 236.264
Syrup. $Bp_{0.2}$ 145-150°. $[\alpha]_D^{20}$ -87 (MeOH).

Levene, P.A. *et al., J. Biol. Chem.*, 1927, **74**, 701 (*α-D-Me fur, β-D-Me fur*)
Anderson, C.G. *et al., J.C.S.*, 1929, 1329 (*D-form, D-phenylosazone, α-D-fur isopropylidene, synth*)
Bourne, E.J. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 145 (*rev*)
Gakhokidze, R.A. *et al., Zh. Obshch. Khim.*, 1976, **46**, 1620; *CA*, **85**, 192996d (*synth*)

2,3,6-Tri-*O*-methylmannose T-190

[5856-21-3]



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

D-*form*
$[\alpha]_D$ +6.9 → +5.9 (MeOH). $[\alpha]_D^{22}$ -11 (c, 2.0 in H_2O).

4-Ac: 4-O-*Acetyl-2,3,6-tri*-O-*methyl-D-mannose*
[29748-00-3]
$C_{11}H_{20}O_7$ 264.275
Cryst. (Me_2CO/hexane). Mp 95°. $[\alpha]_D^{25}$ +28.4 ($CHCl_3$).

α-D-Pyranose-*form* [16742-38-4]
$[\alpha]_D$ +5 (c, 2.83 in MeOH).

1,4-Bis(4-nitrobenzoyl): [32934-17-1]
Cryst. (MeOH). Mp 188°. $[\alpha]_D^{22}$ +34 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 2,3,6-tri-O-*methyl-α-D-mannopyranoside*
[27552-00-7]
$C_{10}H_{20}O_6$ 236.264
Gum. $[\alpha]_D^{22}$ +32 (c, 2.8 in $CHCl_3$).

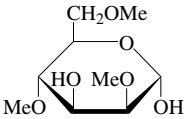
Me glycoside, 4-Ac: Methyl 4-O-*acetyl-2,3,6-tri*-O-*methyl-α-D-mannopyranoside*
[53767-31-0]
$C_{12}H_{22}O_7$ 278.302
Syrup. $[\alpha]_D^{25}$ +58.8 (c, 1.07 in $CHCl_3$).

Me glycoside, 4-tosyl: Methyl 2,3,6-tri-O-*methyl-4*-O-*tosyl-α-D-mannopyranoside*
[32934-14-8]
$C_{17}H_{26}O_8S$ 390.454
Cryst. (petrol). Mp 91-92°. $[\alpha]_D^{22}$ +38 (c, 1.0 in $CHCl_3$).

Ganguly, A.K. *et al., Chem. Comm.*, 1970, 911 (*D-4-Ac*)
Choy, Y.M. *et al., Carbohydr. Res.*, 1971, **17**, 439 (*D-form, synth, α-D-Me pyr, α-D-Me pyr tosyl*)
Baker, C.W. *et al., Carbohydr. Res.*, 1974, **33**, 372 (*α-D-pyr bisnitrobenzoyl, α-D-Me pyr Ac*)

2,4,6-Tri-*O*-methylmannose T-191

[58894-00-1]



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

D-*form*
Mp 53-57°. $[\alpha]_D^{22}$ +15.1 (c, 0.8 in H_2O).

α-D-Pyranose-*form*
Mp 89-90° (hydrate). $[\alpha]_D^{18}$ +23 → +16 (c, 1.0 in H_2O).

Me glycoside: Methyl 2,4,6-tri-O-*methyl-α-D-mannopyranoside*
[27539-48-6]
$C_{10}H_{20}O_6$ 236.264
$[\alpha]_D^{22}$ +51 (c, 2.0 in $CHCl_3$).

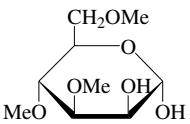
Me glycoside, 3-tosyl: Methyl 2,4,6-tri-O-*methyl-3*-O-*tosyl-α-D-mannopyranoside*
$C_{17}H_{26}O_8S$ 390.454
Cryst. (Et_2O). Mp 118-120°. $[\alpha]_D^{22}$ +44 (c, 1.0 in $CHCl_3$).

β-D-Pyranose-*form*
Mp 104-107°. $[\alpha]_D^{20}$ -5.7 → +19 (c, 2.1 in H_2O).

Haworth, W.N. *et al., J.C.S.*, 1941, 833 (*α-D-pyr, β-D-pyr*)
Choy, Y.M. *et al., Carbohydr. Res.*, 1971, **17**, 439 (*D-form, synth, α-D-Me pyr, α-D-Me pyr tosyl*)
Lipták, A. *et al., Acta Chim. Acad. Sci. Hung.*, 1977, **94**, 261 (*D-form, synth*)

3,4,6-Tri-*O*-methylmannose T-192

[53022-50-7]



α-D-Pyranose-*form*

$C_9H_{18}O_6$ 222.238

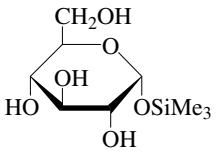
α-D-Pyranose-*form* [52194-59-9]
Cryst. (Et_2O). Mp 104-106°. $[\alpha]_D^{20}$ +20 → +8 (1 hr.) (c, 0.9 in H_2O).

Me glycoside: Methyl 3,4,6-tri-O-*methyl-α-D-mannopyranoside*
[6150-07-8]
$C_{10}H_{20}O_6$ 236.264
Amorph. $[\alpha]_D^{25}$ +8 (c, 1.2 in $CHCl_3$).

Me glycoside, 2-tosyl: Methyl 3,4,6-tri-O-*methyl-2*-O-*tosyl-α-D-mannopyranoside*
[53008-58-5]
$C_{17}H_{26}O_8S$ 390.454
Amorph. $[\alpha]_D^{25}$ +6 (c, 5.6 in $CHCl_3$).

Bott, H.G. *et al., J.C.S.*, 1930, 1395 (*α-D-pyr*)
Aspinall, G.O. *et al., Adv. Carbohydr. Chem.*, 1953, **8**, 217 (*rev*)
Berry, J.M. *et al., Can. J. Chem.*, 1974, **52**, 291 (*α-D-pyr*)

Trimethylsilyl glucopyranoside T-193



α-D-*form*

$C_9H_{20}O_6Si$ 252.339

α-D-*form*

*2,3,4,6-Tetrabenzyl: Trimethylsilyl 2,3,4,6-tetra-*O*-benzyl-α-D-glucopyranoside*
$C_{37}H_{44}O_6Si$ 612.836
$[\alpha]_D^{21}$ +24.4 (c, 1.3 in $CHCl_3$).

*2,3,4,6-Tetra-Me: Trimethylsilyl 2,3,4,6-tetra-*O*-methyl-α-D-glucopyranoside*
$C_{13}H_{28}O_6Si$ 308.446
$Bp_{0.5}$ 106°. $[\alpha]_D^{22}$ +118.5 (c, 1 in $CHCl_3$).

β-D-*form*

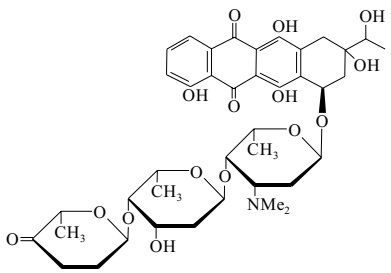
*2,3,4,6-Tetra-Ac: Trimethylsilyl 2,3,4,6-tetra-*O*-acetyl-β-D-glucopyranoside*
[19126-95-5]
$C_{17}H_{28}O_{10}Si$ 420.488
Mp 105°. $[\alpha]_D^{20}$ -6.8 (c, 1 in $CHCl_3$).

*2,3,4,6-Tetra-Me: Trimethylsilyl 2,3,4,6-tetra-*O*-methyl-β-D-glucopyranoside*
$C_{13}H_{28}O_6Si$ 308.446
$Bp_{0.5}$ 94°. $[\alpha]_D^{22}$ +5 (c, 1 in $CHCl_3$).

Klemer, A. *et al., Annalen*, 1970, **739**, 185 (*α-D-tetrabenzyl, α-D-tetra-Me, β-D-tetra-Me*)
Tietze, L.-F. *et al., Angew. Chem., Int. Ed.*, 1981, **20**, 969 (*β-D-tetra-Ac*)

Trisarubinicol T-194

[80470-08-2]



$C_{40}H_{51}NO_{15}$ 785.841

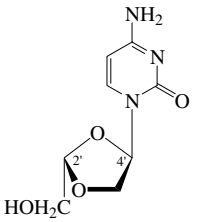
Anthracycline antibiotic. Isol. from *Streptomyces galilaeus*. Active against Murine leukemia, potent inhibitor of RNA synthesis. Dark-red cryst. Mp 149-152°. $[\alpha]_D^{23}$ +1.84 (c, 0.8 in $CHCl_3$). Prod. by glycosylation of carminomycinone compds. by *S. galilaeus*.

▶ QI9442000

Yoshimoto, A. *et al., J. Antibiot.*, 1981, **34**, 1492

Troxacitabine, INN, USAN T-195

*4-Amino-1-[2-(hydroxymethyl)-1,3-dioxolan-4-yl]-2(1*H*)-pyrimidinone, 9CI. β-L-Dioxolanecytidine. Troxatyl. BCH 4556*



(2'*S*,4'*S*)-*form*

$C_8H_{11}N_3O_4$ 213.193

Antineoplastic agent. Anti-HIV agent. Phase III clin. trials for acute myelogenous leukaemia (2002). The name troxacitabine refers to the (2*S*,4*S*)-form.

(2*R′*,4*R′*)-*form* [141196-84-1]
Mp 181-183°. $[\alpha]_D^{22}$ +35.2 (c, 1.0 in MeOH).

(2*R′*,4*S′*)-*form*
(-)-BCH 203
[141196-85-2]
Mp 188-190°. $[\alpha]_D^{22}$ -68.5 (c, 0.5 in MeOH).

(2*S′*,4*R′*)-*form* [145416-37-1]
Cryst. (CH_2Cl_2/hexane). Mp 192-193°. $[\alpha]_D^{25}$ +66.14 (c, 0.5 in MeOH). λ_{max} 278 (ϵ 13240) (pH2). λ_{max} 270 (ϵ 8780) (pH7). λ_{max} 269 (ϵ 9070) (pH11).

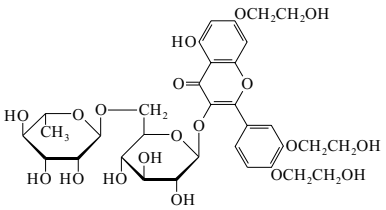
(2*S′*,4*S′*)-*form*
(-)-BCH 204
[145918-75-8]
Cryst. (CH_2Cl_2/hexane). Mp 176-177°. $[\alpha]_D^{24}$ -38.33 (c, 0.43 in MeOH). λ_{max} 278 (ϵ 11970) (pH2). λ_{max} 270 (ϵ 7770) (pH7). λ_{max} 269 (ϵ 8380) (pH11).

[126652-17-3, 145511-98-4, 151282-98-3]

Kim, H.O. *et al., J. Med. Chem.*, 1992, **35**, 1987-1995; 1993, **36**, 519-528 (*synth, isomers, pharmacol*)
Pat. Coop. Treaty (WIPO), 1992, 92 18 517, (*Yale Univ*); *CA*, **119**, 86018x (*synth, isomers, pharmacol*)
Belleau, B.R. *et al., Tet. Lett.*, 1992, **33**, 6949-6952 (*synth, isomers, cmr*)
Kadhim, S.A. *et al., Cancer Res.*, 1997, **57**, 4803-4810 (*pharmacol*)
Grove, K.L. *et al., Nucleosides Nucleotides*, 1997, **16**, 1229-1233 (*pharmacol*)
Ecker, G. *et al., Curr. Opin. Invest. Drugs*, 2002, **3**, 1533-1538 (*pharmacol*)
Belanger, K. *et al., J. Clin. Oncol.*, 2002, **20**, 2567-2574 (*pharmacol*)

Troxerutin, BAN, INN T-196

*2-[3,4-Bis(2-hydroxyethoxy)phenyl]-3-[[6-*O*-(6-deoxy-α-L-mannopyranosyl)-β-D-glucopyranosyl]oxy]-5-hydroxy-7-(2-hydroxyethoxy)-4*H*-1-benzopyran-4-one, 9CI. 3,5-Dihydroxy-3′,4′,7-tris(2-hydroxyethoxy)flavone 3-[6-*O*-(6-deoxy-α-L-mannopyranosyl)-β-D-glucopyranoside], 8CI. Vitamin P_4. Posorutin. Ruven. Veinamitol. Many other names*
[7085-55-4]



$C_{33}H_{42}O_{19}$ 742.683

Principal component of a mixt. which contains about 40% mono, di and tetrakis(hydroxyethyl)rutins. Used for venous disorders (haemorrhoids). Yellow powder. Insol. EtOH. Mp 181°.

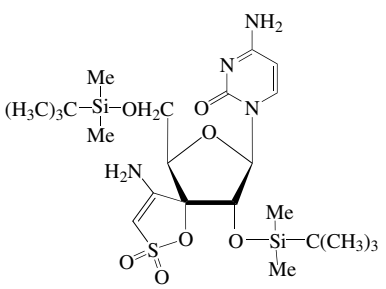
▶ LK8331500

Mixture: ***Oxerutins****. Factor P-Zyma. Parovan. Relvene. Venoruten. Verutil*
Yellow powder. Mp 156°.

U.K. Pat., 1960, 833 174; *CA*, **54**, 21135i
Courbat, P. *et al., Helv. Chim. Acta*, 1966, **49**, 1203; 1420 (*isol, struct*)
Mucharska, A. *et al., Farm. Pol.*, 1971, **27**, 149; *CA*, **75**, 80315t (*chromatog*)
Tomas, F. *et al., An. Quim.*, 1973, **69**, 357; *CA*, **79**, 57730y (*uv*)
Ger. Pat., 1973, 2 320 858; *CA*, **80**, 30699d
Hackett, A.M. *et al., Arzneim.-Forsch.*, 1976, **26**, 925 (*metab*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 7996 (*synonyms*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1342

TSAO-C T-197

*[1-[2′,5′-Bis-*O*-(*tert*-butyldimethylsilyl)-β-D-ribofuranosyl]cytosine]-3′-spiro-5″-(4′-amino-1″,2″-oxathiole 2″,2″-dioxide). 4-Amino-1-[4-amino-9-[[(1,1-dimethylethyl)dimethylsilyl]oxy]-6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2,2-dioxido-1,7-dioxa-2-thiaspiro[4.4]non-3-en-8-yl]-2(1*H*)-pyrimidinone, 9CI*
[142102-78-1]



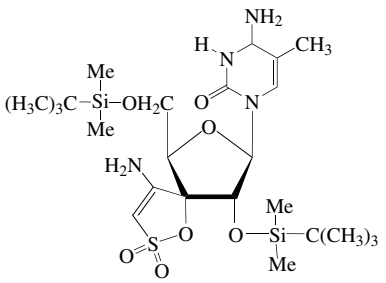
$C_{23}H_{42}N_4O_7SSi_2$ 574.844

Anti-HIV agent. Amorph. solid. Less antivirally effective than TSAO-T, T-198 but markedly less cytotoxic.

Balzarini, J. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 1073-1080 (*pharmacol*)
Perez-Perez, M.J. *et al., J. Med. Chem.*, 1992, **35**, 2988-2995; 1994, **37**, 453-460 (*synth, pmr, ir, pharmacol*)
Eur. Pat., 1993, 530 407, (*Stichting REGA*); *CA*, **119**, 226346e

TSAO-T T-198

[1-[2′,5′-Bis-O-*(*tert*-butyldimethylsilyl)-β-D-ribofuranosyl]thymine]-3′-spiro-5″-(4″-amino-1″,2″-oxathiole-2″,2″-dioxide). 1-[4-Amino-9-[[(1,1-dimethylethyl)dimethylsilyl]oxy]-6-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2,2-dioxido-1,7-dioxa-2-thiaspiro[4.4]non-3-en-8-yl]-5-methyl-2,4(1*H*,3*H*)-pyrimidinedione, 9CI*
[141781-17-1]



$C_{24}H_{43}N_3O_8SSi_2$ 589.856
Antiviral agent showing specificity for HIV-1. Amorph. solid.

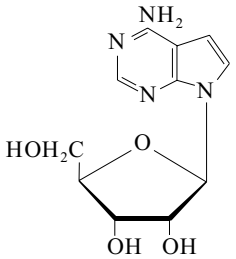
N^3-Me: TSAO-m^3T
[142102-79-2]
[150337-97-6]
$C_{25}H_{45}N_3O_8SSi_2$ 603.883
Anti-HIV agent. Foam.

[141684-45-9, 169106-47-2, 169106-48-3, 169106-49-4]

Balzarini, J. *et al., Antimicrob. Agents Chemother.*, 1992, **36**, 1073-1080 (*pharmacol*)
Camarasa, M.-J. *et al., J. Med. Chem.*, 1992, **35**, 2721-2727; 2988-2995 (*synth, ir, pmr, cmr, pharmacol, N-Me*)
Balzarini, J. *et al., Biochem. Pharmacol.*, 1993, **46**, 69-77 (*metab, N-Me*)
Eur. Pat., 1993, 530 407, (*Stichting REGA*); *CA*, **119**, 226346e (*synth, pharmacol*)
Ingate, S. *et al., Nucleosides Nucleotides*, 1995, **14**, 299-301; 585-594 (*synth, isomers, pharmacol*)

Tubercidin T-199

*7β-D-Ribofuranosyl-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-amine, 9CI. 4-Amino-7-β-D-ribofuranosyl-7*H*-pyrrolo[2,3-*d*]pyrimidine, 8CI. 7-Deazaadenosine. Sparsomycin A. B 79D. NSC 56408. U 10071. XK 101-1. Antibiotic B 79D. Antibiotic XK 101-1*
[69-33-0]



$C_{11}H_{14}N_4O_4$ 266.256
Nucleoside antibiotic. Isol. from *Streptomyces tubercidus*. Major cytotoxin of *Tolypothrix byssoidea*. Also prod. by *Micromonospora chalcea tubercidica*. Constit. of the sponge *Caulospongia biflabellata*. Antitumour, antifungal and antiviral agent. Nucleoside transporter substrate. Cryst.
Mp 247° dec. $[\alpha]_D^{17}$ -67 (50% AcOH). pK_a 5.3. λ_{max} 227 (ε 25000); 272 (ε 12200) (dil HCl) (Derep). λ_{max} 270 (ε 12100) (dil. NaOH) (Derep). λ_{max} 270 (ε 12100) (H_2O) (Derep).
▶ LD_{50} (rat, orl) 16 mg/kg. UY8870000

*5′-O-Sulfamoyl: **Antibiotic SF 2494**. SF 2494*
[114746-65-5]
$C_{11}H_{15}N_5O_6S$ 345.335
From *Streptomyces mirabilis*. Herbicide.

*5′-O-α-D-Glucopyranosyl: **Tubercidin 5′-α-D-glucopyranose***
[117456-78-7]
$C_{17}H_{24}N_4O_9$ 428.398
Found in *Plectonema radiosum* and *Tolypothrix distorta*. Cytotoxic. Antifungal. Sol. H_2O. $[\alpha]_D^{25}$ +10 (c, 0.01 in H_2O). λ_{max} 268 (ε 9300) (H_2O) (Derep).

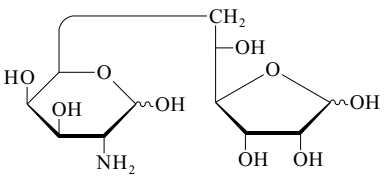
*5′-Deoxy: 7-(5-Deoxy-β-D-ribofuranosyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-amine, 9CI. **5′-Deoxytubercidin***
[41107-17-9]
$C_{11}H_{14}N_4O_3$ 250.257
Isol. from *Didemnum voeltzkowi*. Cryst. (EtOH/C_6H_6).
Mp 203-207°. $[\alpha]_D^{23}$ -70.3 (c, 0.48 in DMSO). λ_{max} 270 (ε 12700) (MeOH).

*5′-Deoxy, 5-bromo: 5-Bromo-7-(5-deoxy-β-D-ribofuranosyl)-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-amine. **5-Bromo-5′-deoxytubercidin, 9CI***
Isol. from *Didemnum voeltzkowi*.

Anzai, K. *et al., J. Antibiot., Ser. A*, 1957, **10**, 201 (*isol*)
Mizuno, Y. *et al., J.O.C.*, 1963, **28**, 3329 (*struct, uv, config*)
Smulson, M.E. *et al., J. Biol. Chem.*, 1967, **242**, 2872 (*cryst struct*)
Tolman, R.L. *et al., J.A.C.S.*, 1969, **91**, 2102 (*synth, uv, ir, nmr*)
Abola, J. *et al., Acta Cryst. B*, 1973, **29**, 697 (*cryst struct*)
Chenon, M.-T. *et al., J.A.C.S.*, 1975, **97**, 4627 (*pmr, cmr*)
Ektova, L.V. *et al., Bioorg. Khim.*, 1978, **4**, 1250 (*synth*)
Fukushima, K. *et al., J. Antibiot.*, 1978, **31**, 377 (*ms*)
Japan. Pat., 1978, 78 124 685; *CA*, **90**, 136241v (*isol*)
Uzawa, J. *et al., Org. Magn. Reson.*, 1979, **12**, 612 (*cmr*)
Barchi, J.J. *et al., Phytochemistry*, 1983, **22**, 2851 (*isol*)
Seela, F. *et al., Annalen*, 1984, 1972 (*synth, cmr*)
Yoo, J.C. *et al., J. Liq. Chromatogr.*, 1984, **7**, 151 (*hplc*)
Bergstrom, D.E. *et al., J. Med. Chem.*, 1984, **27**, 285 (*props*)
Ramasamy, K. *et al., Tet. Lett.*, 1987, **28**, 5107 (*synth*)
Iwata, M. *et al., CA*, 1988, **109**, 3509 (*deriv*)
Stewart, J.B. *et al., J. Antibiot.*, 1988, **41**, 1048 (*deriv*)
Isono, K. *et al., J. Antibiot.*, 1988, **42**, 1711 (*rev*)
Reddy, A.M. *et al., J. Het. Chem.*, 1990, **27**, 1297 (*ms*)
Plagemann, P.G. *et al., Biochem. Pharmacol.*, 1991, **42**, 247-252 (*pharmacol*)
Mitchell, S.S. *et al., J. Nat. Prod.*, 1996, **59**, 1000-1001 (*5′-Deoxytubercidin, 5-Bromo-5′-deoxytubercidin*)
Biabani, M.F. *et al., Pharm. Biol.*, 2002, **40**, 302-303 (*isol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, TNY500

Tunicamine T-200

2-Amino-2,6-dideoxy-L-allo-D-galacto-undecodialdose, 9CI
[66054-53-3]

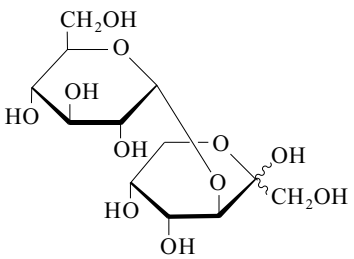


$C_{11}H_{21}NO_9$ 311.288
Characteristic sugar of antibiotics of the tunicamycin, streptovirudin and corynetoxin families (see *N*-Deacyltunicamycin, D-7).

Sasai, H. *et al., J. Carbohydr. Chem.*, 1985, **4**, 99-112 (*synth*)
Danishefsky, S. *et al., J.A.C.S.*, 1985, **107**, 7761 (*synth, deriv*)
Ramza, J. *et al., Carbohydr. Res.*, 1992, **228**, 205 (*synth, deriv*)

Turanose, 9CI, 8CI T-201

3-O-α-D-Glucopyranosyl-D-fructose
[547-25-1]



$C_{12}H_{22}O_{11}$ 342.299

An aq. soln. at 36° contains Obt. by hydrol. of Melezitose, M-129. Isol. from some plant pollens and from honey. Mp 157° (168°). $[\alpha]_D^{22}$ +22 → +75.3 (c, 3.9 in H_2O).

Phenylosazone: Needles (EtOH). Mp 200-205°. $[\alpha]_D^{20}$ +24.5 → +33 (c, 0.82 in 2:3 Py/EtOH).

Phenylosotriazole: Mp 193-194°. $[\alpha]_D^{20}$ +74.5 (c, 0.9 in H_2O).

α-Pyranose-*form*

Octa-Ac: Octa-O-*acetyl*-α-*turanopyranose* $C_{28}H_{38}O_{19}$ 678.597
Mp 194-195°. $[\alpha]_D^{20}$ +103.2 ($CHCl_3$).

1-Chloro, hepta-Ac: Acetochloroturanose $C_{26}H_{35}ClO_{17}$ 655.005
Mp 165°. $[\alpha]_D^{20}$ -0.4 ($CHCl_3$).

1-Bromo, hepta-Ac: Acetobromoturanose $C_{26}H_{35}BrO_{17}$ 699.456
Mp 133-134°. $[\alpha]_D^{20}$ -30.5 ($CHCl_3$).

β-Pyranose-*form*

1,4,5,2′,3′,4′,6′-Hepta-Ac: Hepta-O-*acetyl*-β-*turanopyranose* $C_{26}H_{36}O_{18}$ 636.56
Mp 140-141°. $[\alpha]_D^{20}$ +38.7 → +41.7 ($CHCl_3$).

Octa-Ac: Octa-O-*acetyl*-β-*turanopyranose* $C_{28}H_{38}O_{19}$ 678.597
Mp 216-217°. $[\alpha]_D^{20}$ +20.5 ($CHCl_3$).

Me glycoside: Methyl β-*turanopyranoside* $C_{13}H_{24}O_{11}$ 356.326
Mp 173-174°. $[\alpha]_D^{20}$ +3.6 (H_2O).

Me glycoside, hepta-Ac: Methyl hepta-O-*acetyl*-β-*turanopyranoside* $C_{27}H_{38}O_{18}$ 650.586
Mp 188-189°. $[\alpha]_D^{20}$ +27.5 ($CHCl_3$).

α-Furanose-*form*

Octa-Ac: Octa-O-*acetyl*-α-D-*turanofuranose* $C_{28}H_{38}O_{19}$ 678.597
Mp 158°. $[\alpha]_D^{20}$ +107 ($CHCl_3$).

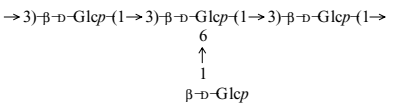
β-Furanose-*form*

Octa-Ac: Octa-O-*acetyl*-β-D-*turanofuranose* $C_{28}H_{38}O_{19}$ 678.597
Syrup. $[\alpha]_D^{20}$ +67.4 ($CHCl_3$).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 308C (*nmr*)
Hudson, C.S. *et al., Adv. Carbohydr. Chem.*, 1946, **2**, 1; 2 (*rev*)
Pacsu, E. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 353 (*synth*)
de Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1975, **84**, 799 (*pmr*)
Neuman, A. *et al., Acta Cryst. B*, 1978, **34**, 242 (*cryst struct*)
Bradbury, J.H. *et al., Carbohydr. Res.*, 1979, **71**, 15 (*pmr*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Lichtenthaler, F.W. *et al., J.C.S. Perkin 2*, 1990, 1489 (*equilib*)

Tylopilan T-202

[113834-61-0]

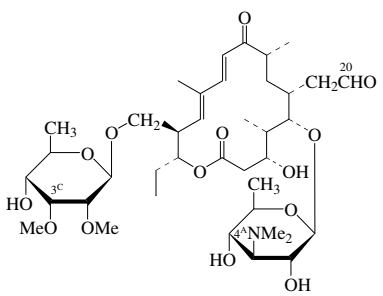


Branched tetrameric β-D-glucan. Glucan from carpophores of fungus *Tylopilus felleus*. Cytotoxic agent. Powder. Sol. H_2O. $[\alpha]_D^{20}$ +4.5 (c, 0.2 in H_2O).

Defaye, J. *et al., Carbohydr. Res.*, 1988, **173**, 316-323 (*isol, struct*)
Grzybek, J. *et al., Planta Med.*, 1990, **56**, 670-671; 675 (*activity*)

Tylosin B T-203

Desmycosin, 8CI. Demycarosyltylosin
[11032-98-7]



$C_{39}H_{65}NO_{14}$ 771.941
Hydrolysis prod. of Tylosin and isol. from *Streptomyces fradiae*. Cryst. ($CHCl_3$). Sol. H_2O, Et_2O, MeOH; poorly sol. hexane. Mp 114-116°. $[\alpha]_D^{25}$ -14.8 (c, 2 in MeOH). pK_a 8. λ_{max} 282 (E1%/1cm 285) (MeOH) (Berdy). λ_{max} 288 (E1%/1cm 275) (H_2O) (Berdy).

► LD_{50} (mus, orl) 5000 mg/kg.

2^A,4^A-Di-Ac: Rhombic cryst. (Me_2CO/petrol). Mp 199-200°. $[\alpha]_D^{20}$ -28.4 (c, 0.275 in $CHCl_3$).

2^A,3,4^A,4^C-Tetra-Ac: [56858-51-6] $[\alpha]_D^{20}$ +4.9 (c, 1.53 in $CHCl_3$).

3^C-O-*De-Me: 3^C*-O-*Demethyltylosin B.* ***Lactenocin*** [11049-05-1] $C_{38}H_{63}NO_{14}$ 757.914
From *Streptomyces fradiae*. Mainly active against gram-positive bacteria.

2^C,3^C-Di-O-*de-Me: 2^C,3^C-Di*-O-*demethyltylosin B.* ***2^C-De*-O-*methyllactenocin*** [81557-35-9] $C_{37}H_{61}NO_{14}$ 743.887
Prod. by *Streptomyces fradiae*. Powder. Sol. MeOH, C_6H_6; poorly sol. hexane. $[\alpha]_D$ -21.2 (MeOH). λ_{max} 283 (ϵ 22300) (EtOH). λ_{max} 283 (ϵ 22300) (EtOH) (Berdy).

20-Alcohol: ***20-Dihydrotylosin B****. 20-Dihydrodesmycosin* [66799-85-7] $C_{39}H_{67}NO_{14}$ 773.957
Prod. by *Streptomyces fradiae*. Powder. Sol. MeOH, C_6H_6; poorly sol. hexane.

20-Alcohol, 3^C-O-*de-Me:* ***20-Dihydrolactenocin*** [85179-33-5] $C_{38}H_{65}NO_{14}$ 759.93
Prod. by *Streptomyces fradiae*. Powder. Sol. MeOH, C_6H_6; poorly sol. hexane.

20-Alcohol, 2^C,3^C-di-O-*de-Me: 20-Dihydro-2^C-de*-O-*methyllactenocin* [85563-47-9] $C_{37}H_{63}NO_{14}$ 745.903
Prod. by *Streptomyces fradiae*. Powder. Sol. MeOH, C_6H_6; poorly sol. hexane.

Hamill, R.L. *et al., Antibiot. Chemother. (Washington, D.C.)*, 1961, **11**, 328 (*isol, props*)
Morin, R.B. *et al., Tet. Lett.*, 1964, 2339 (*isol, pmr*)
Achenbach, H. *et al., Chem. Ber.*, 1975, **108**, 2481 (*synth, deriv, pmr*)
Corcoran, J.W. *et al., J. Antibiot.*, 1977, **30**, 1012 (*props*)
Matsubara, H. *et al., Chem. Pharm. Bull.*, 1982, **30**, 97 (*synth, derivs*)
Kirst, H.A. *et al., J. Antibiot.*, 1982, **35**, 1675 (*props*)
Baltz, R.H. *et al., J. Antibiot.*, 1983, **36**, 131-141 (*Lactenocin derivs*)

Ukonans U-1

Neutral polysaccharides. Constits. of the rhizomes of *Curcuma longa* (turmeric). Show activity towards the reticuloendothelial system. Immunostimulant and phagocytosis-activating agents.

Ukonan A [128606-57-5]
Powder. $[\alpha]_D^{24}$ -16.7 (c, 0.1 in H_2O).

Ukonan B [128606-58-6]
Powder. $[\alpha]_D^{24}$ -40 (c, 0.1 in H_2O).

Ukonan C [128606-59-7]
Powder. $[\alpha]_D^{24}$ +37.3 (c, 0.1 in H_2O).

Ukonan D [141490-48-4]
Powder. $[\alpha]_D^{23}$ +81.7 (c, 0.1 in H_2O). Also contains a small amount of a peptide moiety.

Gonda, R. *et al., Chem. Pharm. Bull.*, 1990, **38**, 482-486; 1991, **39**, 441-444; 1992, **40**, 185-188; 990-993 (*isol, struct, props*)

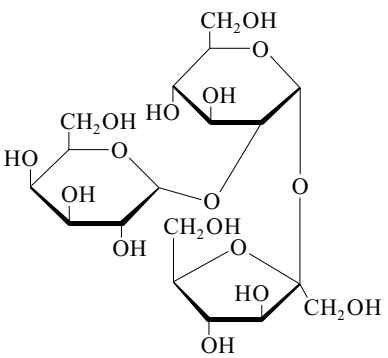
Ulvan U-2

Polysaccharide composed of partially sulfated Rha, Xyl and glucuronic acid. Isol. from cell walls of marine green algae *Ulva* spp., *cf. rigida* and *Ulva lacterca*. Shows cytotoxic props.

Ray, B. *et al., Carbohydr. Res.*, 1995, **274**, 313-318
Lahaye, M. *et al., Carbohydr. Res.*, 1996, **283**, 161-173
Kaeffer, B. *et al., Planta Med.*, 1999, **65**, 527-531 (*isol, activity*)

Umbelliferose U-3

β-D-Fructofuranosyl O-*α-D-galactopyranosyl-(1→2)-α-D-glucopyranoside, 9CI*
[546-60-1]

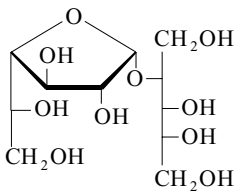


$C_{18}H_{32}O_{16}$ 504.441
Isol. from roots of *Angelica archangelica* (angelica) and other spp. in the Umbelliferae. Powder. $[\alpha]_D$ +125.3 (H_2O).

Wickstrom, A. *et al., Acta Chem. Scand.*, 1956, **10**, 1199; 1957, **11**, 1473 (*isol*)
Svendsen, A.B. *et al., Acta Chem. Scand.*, 1956, **10**, 1500
Hiller, K. *et al., Planta Med.*, 1969, **17**, 79; *CA*, **70**, 112394h (*isol*)
Hopf, H. *et al., Plant Physiol.*, 1974, **54**, 13; *CA*, **81**, 166424p (*biosynth*)
Hopf, W. *et al., Biochem. Physiol. Pflanz.*, 1976, **169**, 5; *CA*, **84**, 118600h

Umbilicin U-4

2-O-β-D-Galactofuranosyl-D-arabinitol, 9CI, 8CI
[536-35-6]



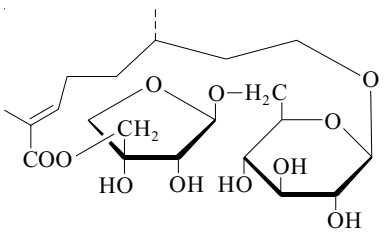
$C_{11}H_{22}O_{10}$ 314.289
Constit. of the lichen *Umbilicaria pustulata*.
Mp 138-139°. $[\alpha]_D^{20}$ -81 (c, 2.0 in H_2O).

Octa-Ac:
$C_{27}H_{38}O_{18}$ 650.586
Mp 84-85°. $[\alpha]_D^{20}$ -20 (c, 2.0 in $CHCl_3$).

Lindberg, B. *et al., Acta Chem. Scand.*, 1952, **6**, 1052 (*isol*)
Bering, H.F.G. *et al., Acta Chem. Scand.*, 1968, **22**, 193 (*synth*)
Boren, H. *et al., CA*, 1972, **77**, 102045a (*rev, synth*)
Nishikawa, Y. *et al., Chem. Pharm. Bull.*, 1973, **21**, 1014 (*glc*)

Urceolide U-5

[87442-02-2]



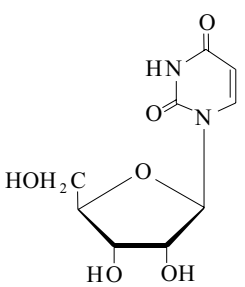
$C_{21}H_{34}O_{11}$ 462.493
Bitter constit. of *Viburnum urceolatum*.
Cryst. (Me_2CO).
Mp 155-156°. $[\alpha]_D^{26}$ -45.4 (c, 0.4 in MeOH).
λ_{max} 218 (ε 14000) (MeOH).

Iwagawa, T. *et al., Phytochemistry*, 1983, **22**, 255 (*isol, uv, pmr, ms*)

Uridine U-6

1-β-D-Ribofuranosyl-2,4(1H,3H)-pyrimidinedione, 9CI. 1-β-D-Ribofuranosyluracil, 8CI. NSC 20256
[58-96-8]

[26287-69-4]



$C_9H_{12}N_2O_6$ 244.204
Prepd. by hydrol. of yeast nucleic acid. Widely distributed in nature.
Mp 165°. $[\alpha]_D^{20}$ +4 (c, 2 in H_2O). λ_{max} 205 (ε 9800); 261 (ε 10100) (pH 7.3).
▶ LD_{50} (mus, ipr) 4335 mg/kg. YR1450000

3′-Ac: [4873-68-1]
$C_{11}H_{14}N_2O_7$ 286.241
Mp 172-174°.

5′-Ac: [6773-44-0]
$C_{11}H_{14}N_2O_7$ 286.241
Mp 163-165°.

2′,3′-Di-Ac: [29108-90-5]
$C_{13}H_{16}N_2O_8$ 328.278
Mp 142-143°.

3′,5′-Di-Ac: [6773-48-4]
$C_{13}H_{16}N_2O_8$ 328.278
Mp 152-155°.

2′,3′,5′-Tri-Ac: PN 401
[4105-38-8]
$C_{15}H_{18}N_2O_9$ 370.315
Orphan drug designated (2003) for the treatment of mitochondrial disease.
Mp 128-130°.

3′-Benzoyl: [16667-60-0]
$C_{16}H_{16}N_2O_7$ 348.312
Mp 212-214°. λ_{max} 231 (ε 15490); 260 (ε 11220) (95% EtOH).

2′,3′,5′-Tribenzoyl: [1748-04-5]
$C_{30}H_{24}N_2O_9$ 556.528
Mp 142-143°.

5′-Tosyl: [24380-35-6]
$C_{16}H_{18}N_2O_8S$ 398.393
Mp 162-163°.

2′,3′-O-Isopropylidene: 2′,3′-O-Isopropylideneuridine
[362-43-6]
$C_{12}H_{16}N_2O_6$ 284.268
Cryst. (H_2O). Mp 159-160°
Mp 165-166°. $[\alpha]_D$ -15.8 (MeOH).

2′,3′-O-Isopropylidene, 5′-Ac: [15922-23-3]
$C_{14}H_{18}N_2O_7$ 326.305
Mp 146-147°.

2′,3′-O-Benzylidene: [3257-71-4]
$C_{16}H_{16}N_2O_6$ 332.312
Mp 189-190°.

5′-Phosphate: See 5′-Uridylic acid, U-14

5′-Diphosphate: Uridine 5′-(trihydrogen diphosphate), 9CI. Uridine 5′-(trihydrogen pyrophosphate), 8CI. Uridine diphosphate. UDP
[58-98-0]
Isol. from calf's liver, thymus and yeast.
Mp 195° dec. (as tri-Na salt).

5′-Triphosphate: See Uridine 5′-triphosphate, U-10

5′-Trityl: [6554-10-5]
$C_{28}H_{26}N_2O_6$ 486.523
Mp 200°. $[\alpha]_D$ +9.5 (Me_2CO).

N-*Me: 3-Methyluridine, 9CI, 8CI*
[2140-69-4]
$C_{10}H_{14}N_2O_6$ 258.23
Present in the hydrolysates of yeast t-RNA.
Mp 119-120°. $[\alpha]_D^{26}$ +20.1 (H_2O). λ_{max} 263 (ε 9110) (no solvent reported).

N-*Me, 2′,3′-O-isopropylidene:* [32471-59-3]
$C_{13}H_{18}N_2O_6$ 298.295
Mp 116-118°.

N-*Me, 3′-mesyl:* [24514-40-7]
$C_{11}H_{16}N_2O_8S$ 336.322

Cryst. (EtOH). Mp 173-175°. $[\alpha]_D^{12}$ -12 (c, 0.25 in H_2O). λ_{max} 260 (ϵ 8500) (H_2O).

N-*Me, 2′,5′-dityryl:*
$C_{48}H_{42}N_2O_6$ 742.87
Mp 245-248° Mp 212-214°.

2′-Me: 2′-O-*Methyluridine*
[2140-76-3]
$C_{10}H_{14}N_2O_6$ 258.23
Occurs in ribosomal RNA of higher organisms. Found in the primary sequence of $tRNA^{ser}$ from yeast and rat liver, located in the d_1-region.
Mp 158-160°. $[\alpha]_D^{24}$ +41.8 (c, 0.18 in H_2O). λ_{max} 262 (ϵ 10700) (H_2O). λ_{max} 262 (ϵ 10700) (aq. acid, pH 1). λ_{max} 261 (ϵ 8100) (aq. alkali, pH 12).

5′-Me: 5′-O-*Methyluridine*
[39848-60-7]
$C_{10}H_{14}N_2O_6$ 258.23
Cryst. (EtOH/Et_2O). Mp 135°.

5′-Me, 2′,3′-O-*isopropylidene:* [67443-68-9]
$C_{13}H_{18}N_2O_6$ 298.295
Mp 115°. $[\alpha]_D$ +20 (c, 0.1 in MeOH).

*5′,*N-*Di-Me: 3-Methyl-5′*-O-*methyluridine, 9CI*
[120046-93-7]
$C_{11}H_{16}N_2O_6$ 272.257
No phys. props. reported.

*5′,*N-*Di-Me, 2′,3′*-O-*isopropylidene:*
[34311-40-5]
$C_{14}H_{20}N_2O_6$ 312.322
No phys. props. reported.

2′,3′-Di-Me: 2′,3′-Di-O-*Methyluridine*
$C_{11}H_{16}N_2O_6$ 272.257
Needles (EtOAc). Mp 175-176°. λ_{max} 262 (ϵ 10200) (aq. acid, pH 2). λ_{max} 262 (ϵ 7900) (aq. alkali, pH 12).

2′,3′,5′-Tri-Me: 2′,3′,5′-Tri-O-*Methyluridine*
$C_{12}H_{18}N_2O_6$ 286.284
Needles (EtOH). Mp 113.5-114.5°.

4-*OH-form*

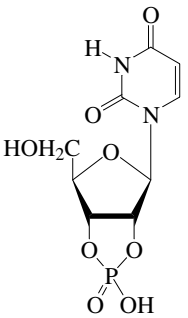
Et ether: 4-O-*Ethyluridine, 9CI*
[59495-20-4]
$C_{11}H_{16}N_2O_6$ 272.257
Sl. hygroscopic cryst. (EtOH). Mp 136-137.5°.

[19817-91-5]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 815B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 371B (*nmr*)
Ross, B.S. *et al., J. Het. Chem.*, 1944, **31**, 765 (*synth, 2-Me*)
Hall, R.H. *et al., J.A.C.S.*, 1954, **76**, 5056 (*phosphate*)
Miles, H.T. *et al., Biochim. Biophys. Acta*, 1956, **22**, 247 (*N-Me*)
Fox, J.J. *et al., Adv. Carbohydr. Chem.*, 1959, **14**, 283 (*rev*)
Chambers, R.W. *et al., J.A.C.S.*, 1959, **81**, 3032 (*phosphate*)
Biemann, K. *et al., J.A.C.S.*, 1962, **84**, 2005 (*ms*)
Hall, R.H. *et al., Biochim. Biophys. Acta*, 1963, **68**, 278 (*isol, 2-Me*)
Ulbricht, T.L.V. *et al., Tet. Lett.*, 1964, 695 (*ord*)
Hall, R.H. *et al., Biochemistry*, 1965, **4**, 661 (*isol, N-Me*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1967, **23**, 2315 (*5′-Ac, isopropylidene*)
Martin, D.M.G. *et al., Biochemistry*, 1968, **7**, 1406 (*synth, 2-Me*)
Staehelin, M. *et al., Nature (London)*, 1968, **219**, 1363 (*occur, 2-Me*)
Kikugawa, K. *et al., Chem. Pharm. Bull.*, 1969, **17**, 785 (*N-Me-3′-mesyl*)
Blank, H.U. *et al., Annalen*, 1970, **742**, 1 (*synth, N-Me*)
Green, E.A. *et al., Chem. Comm.*, 1971, 53 (*cryst struct*)
Mittleman, A. *et al., CA*, 1972, **77**, 162801d (*occur, 2-Me*)
Kusmierek, J.T. *et al., Biochemistry*, 1973, **12**, 194-200 (*synth, 2-Me, 5-Me*)
Kimura, J. *et al., Bull. Chem. Soc. Jpn.*, 1973, **12**, 194-200 (*5′-Me isopropylidene*)
Hruska, F.E *et al., Can. J. Chem.*, 1973, **51**, 1099 (*pmr, 2-Me*)
Krugh, T.R. *et al., J.A.C.S.*, 1973, **95**, 4761 (*cmr*)
Belikova, A.M. *et al., Tetrahedron*, 1973, **29**, 2277 (*conformn, pmr*)
Haines, A.H. *et al., Tetrahedron*, 1973, **29**, 2807 (*synth, 2-Me*)
Basic Princ. Nucleic Acid Chem., (Ts'O, P.O.P., Ed.), Academic Press, 1974, **1**, (*rev*)
Kikugawa, K. *et al., Chem. Pharm. Bull.*, 1975, **23**, 35 (*synth*)
Wilson, M.S. *et al., J.A.C.S.*, 1975, **97**, 3436 (*ms, 2-Me*)
Davies, D.B. *et al., J.C.S. Perkin 2*, 1975, 1703 (*pmr, N-Me*)
Viswamitra, M.A. *et al., Acta Cryst. B*, 1979, **35**, 1089 (*diphosphate, cryst struct*)
Plochocka, D. *et al., J.C.S. Perkin 2*, 1981, 82-89 (*3,5′-di-Me isopropylidene*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1985, **50**, 393-417 (*synth, uv, pmr, 5′-Me*)
Yamamoto, I. *et al., J. Med. Chem.*, 1987, **30**, 2227 (*deriv, synth, pmr*)
Matsuda, A. *et al., Chem. Pharm. Bull.*, 1988, **36**, 945-953 (*4-Et ether, synth, pmr*)
Bessodes, M. *et al., Synthesis*, 1988, 560-562, (*5′-Me isopropylidene*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1425
Ross, B.S. *et al., J. Het. Chem.*, 1994, **31**, 765 (*synth, 2-Me*)
Parmentier, G. *et al., Tetrahedron*, 1994, **50**, 5361 (*synth, uv, ir, pmr, cmr, 2-Me*)
Partridge, B.L. *et al., Acta Cryst. C*, 1995, **51**, 1929 (*cryst struct, N-Me*)
Hovinen, J. *et al., Helv. Chim. Acta*, 1997, **80**, 851-855 (*synth, uv, pmr, cmr, 5′-Me, 3,5′-di-Me*)
Kelsen, D.P. *et al., J. Clin. Oncol.*, 1997, **15**, 1511-1517; 2000, **18**, 167-177 (*PN 401, pharmacol*)
Ichikawa, S. *et al., J.O.C.*, 1997, **62**, 1368-1375 (*4-Et ether*)
Moyroud, E. *et al., Tetrahedron*, 1999, **55**, 1277-1284 (*L-form, synth, pmr, cmr*)
Saydoff, J.A. *et al., Brain Res.*, 2003, **994**, 44-54 (*PN 401, pharmacol*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, UVJ000

Uridine cyclic 2′,3′-(hydrogen phosphate), 9CI U-7

2′,3′-UMP
[606-02-0]

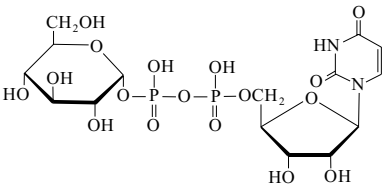


$C_9H_{11}N_2O_8P$ 306.168
λ_{max} 260 (ϵ 9600) (H_2O, pH 7).

Stockx, J. *et al., Bull. Soc. Chim. Belg.*, 1961, **70**, 595-596; 1962, **71**, 634-636 (*synth*)
Jardetzky, C.D. *et al., J.A.C.S.*, 1962, **84**, 62-66 (*pmr*)
Eckstein, F. *et al., Chem. Ber.*, 1968, **101**, 1670-1673 (*synth*)
Van Boom, J.H. *et al., J.C.S. Perkin 1*, 1973, 2513-2517 (*synth, uv*)
Wang, Y. *et al., Nucleic Acids Res.*, 1987, **15**, 929-305 (*synth, pmr*)

Uridine diphosphate glucose U-8

Uridine 5′-(trihydrogen diphosphate) mono-α-D-glucopyranosyl ester, 9CI. UDPG. UDP Glucose
[133-89-1]



$C_{15}H_{24}N_2O_{17}P_2$ 566.305
Biosynthetic prod. from the uridyl transferase catalysed reaction of UTP and glucose 1-phosphate. Coenzyme of the galactose phosphate → glucose phosphate transformation *in vivo*.
λ_{max} 262 nm (ϵ 10 000) (pH 7).

Di-Li salt: [27518-86-1]
Hexahydrate. $[\alpha]_D^{22}$ +43.6 (c, 0.34 in H_2O).

Di-Na salt: [28053-08-9]
Powder + $2H_2O$. λ_{max} 262 nm (pH 2).

6″-Carboxylic acid: Uridine 5′-diphosphate glucuronic acid. UDP-glucuronic acid. UDP-GlcUA
[2616-64-0]

[63700-19-6]
$C_{15}H_{22}N_2O_{18}P_2$ 580.289
Intermed. in glucuronide synth. in biol. systems. Pale yellow powder.

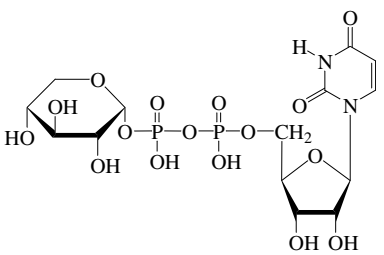
Caputto, R. *et al., J. Biol. Chem.*, 1950, **184**, 333 (*isol*)
Storey, I.D.E. *et al., Biochem. J.*, 1955, **59**, 279-288 (*UDP-glucuronic acid*)
Moffatt, J.G. *et al., J.A.C.S.*, 1958, **80**, 3756 (*synth*)

Michelson, A.M. *et al., Biochemistry*, 1962, **1**, 1171-1174 (*UDP-glucuronic acid*)
Honjo, M. *et al., Chem. Pharm. Bull.*, 1962, **10**, 225-231 (*UDP-glucuronic acid*)
Michelson, A.M. *et al., The Chemistry of Nucleosides and Nucleotides*, Academic Press, N.Y., 1963, 153 (*rev*)
Ger. Pat., 1975, 2 452 467; *CA*, **83**, 59225u (*cryst struct*)
Lee, C.-H. *et al., Biochemistry*, 1976, **15**, 697-704 (*pmr, conformn*)
Evans, P.E. *et al., FEBS Lett.*, 1979, **105**, 11-14 (*UDP-glucuronic acid, P-31 nmr*)
Sugawara, Y. *et al., Acta Cryst. C*, 1984, **40**, 389 (*cryst struct*)
Simon, E.S. *et al., Methods Enzymol.*, 1989, **179**, 275-287 (*UDP-glucuronic acid*)
Simon, E.S. *et al., J.O.C.*, 1990, **55**, 1834-1841; 1991, **56**, 5603-5606 (*UDP-glucuronic acid*)
Toone, E.J. *et al., J.O.C.*, 1991, **56**, 5603-5606 (*UDP-glucuronic acid, enzymic synth, pmr, cmr*)
Monteiro, C. *et al., Carbohydr. Res.*, 2000, **329**, 141-155 (*cmr, pmr, P-31 nmr, Mg-25 nmr*)
Ma, X. *et al., Carbohydr. Res.*, 2001, **333**, 159-163 (***synth***)

Uridine diphosphate xylose U-9

Uridine 5′-(trihydrogen diphosphate) mono-α-D-xylopyranosyl ester, 9CI. Uridine 5′-diphosphoxylose. Uridine pyrophosphate xylose ester
[3616-06-6]

[108320-89-4]

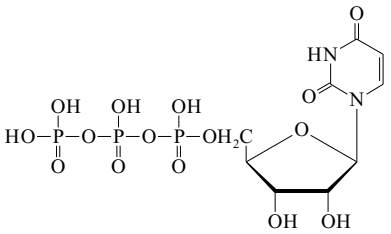


$C_{14}H_{22}N_2O_{16}P_2$ 536.279
Metabolic intermed. in plants. No phys. props. reported. Commercially available as Na salt.

Guisberg, V. *et al., J. Biol. Chem.*, 1956, **223**, 977 (*synth*)
Neufeld, E.F. *et al., J.A.C.S.*, 1958, **80**, 4430 (*synth*)
Feingold, D.S. *et al., J. Biol. Chem.*, 1960, **235**, 910 (*synth*)
Ankel, H. *et al., Biochemistry*, 1965, **4**, 1965 (*biosynth*)
Aspinall, G.O. *et al., Can. J. Biochem.*, 1972, **50**, 574 (*synth*)
Ii., T. *et al., Org. Mass Spectrom.*, 1993, **28**, 127 (*ms*)
Rush, J.S. *et al., J. Am. Soc. Mass Spectrom.*, 1996, **7**, 541 (*ms*)

Uridine 5′-triphosphate U-10

Uridine 5′-(tetrahydrogen triphosphate), 9CI. Uridine 5′-triphosphoric acid. UTP. Uridic triphosphate
[63-39-8]



$C_9H_{15}N_2O_{15}P_3$ 484.143
Isol. from yeast and other biol. sources. Pyrimidine analogue of ATP. Enzymatic prepn. from UDP and from ribonucleic acid. Purine P_{2y} receptor agonist.

▶ YU8083000

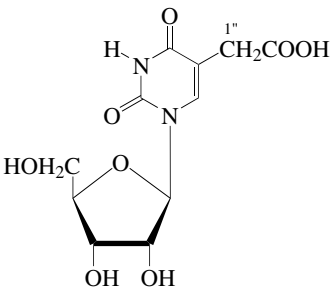
Tri-Na salt: [19817-92-6]
Dihydrate. Mp 140° dec.

[5095-93-2, 5497-23-4, 18609-47-7, 20701-19-3, 27908-31-2, 36792-23-1, 50694-75-2]

Lipton, S.H. *et al., J.A.C.S.*, 1953, **75**, 5449 (*isol, uv*)
Kenner, G.W. *et al., J.C.S.*, 1954, 2288 (*synth*)
Tanaka, K. *et al., Chem. Pharm. Bull.*, 1960, **8**, 749; 1962, **10**, 220 (*synth*)
Tarr, H.L.A. *et al., Can. J. Biochem.*, 1966, **44**, 197 (*biosynth*)
Adam, A. *et al., Biochemistry*, 1968, **7**, 875 (*synth*)
Filip, J. *et al., J. Labelled Compd.*, 1974, **10**, 489 (*biosynth*)
Tsujiaki, H. *et al., Chem. Comm.*, 1975, 196 (*synth, uv, chromatog*)
Labotka, R.J. *et al., J.A.C.S.*, 1976, **98**, 3699, (*P-31 nmr*)
Furusawa, K. *et al., J.C.S. Perkin 1*, 1976, 1711 (*synth*)
Takaku, H. *et al., Chem. Lett.*, 1977, 655 (*synth, uv, chromatog*)
Williams, J.C. *et al., Anal. Biochem.*, 1978, **91**, 46 (*tlc*)
Edelson, E.H. *et al., J. Chromatogr.*, 1979, **174**, 409 (*hplc*)
Wong, C.-H. *et al., J.A.C.S.*, 1983, **105**, 115 (*isol*)
Schilsky, R.L. *et al., J. Chromatogr.*, 1985, **337**, 63 (*hplc*)
Bennett, W.D. *et al., Am. J. Resp. Crit. Care Med.*, 1996, **153**, 1796-1801 (*pharmacol*)
King, B.F. *et al., Trends Pharmacol. Sci.*, 1998, **19**, 506-514 (*pharmacol*)

Uridine-5-acetic acid U-11

1,2,3,4-Tetrahydro-2,4-dioxo-1-β-D-ribofuranosyl-5-pyrimidineacetic acid, 9CI
[20964-06-1]



$C_{11}H_{14}N_2O_8$ 302.24
Cryst. (EtOH aq.). Mp 238-240° (230.5°). λ_{max} 265 (ε 9600) (H_2O).

Me ester: 5-(Methoxycarbonylmethyl)uridine. Methyl uridine-5-acetate
[29428-50-0]
$C_{12}H_{16}N_2O_8$ 316.267
Modified nucleoside present in tRNA's.
Cryst. (MeOH/Et_2O).
Mp 165-166°. λ_{max} 232 (ε 2200) (H_2O).

Amide: 5-(2-Amino-2-oxoethyl)uridine, 9CI. 5-(Carbamoylmethyl)uridine
[29569-30-0]
$C_{11}H_{15}N_3O_7$ 301.255
Modified nucleoside present in tRNA's.
Cryst. (MeOH aq.).
Mp 228-230°. λ_{max} 267 (ε 5800) (H_2O).

1″S-Hydroxy: 5-(Carboxyhydroxymethyl)uridine
[89708-80-5]
$C_{11}H_{14}N_2O_9$ 318.24
Modified nucleoside found in tRNA's.

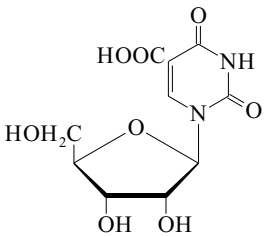
1″S-Hydroxy, Me ester: 5-(Methoxycarbonylhydroxymethyl)uridine
[89665-83-8]
$C_{12}H_{16}N_2O_9$ 332.266
Modified nucleoside found in tRNA's.

[89665-84-9, 127911-55-1]

Kondo, T. *et al., Nucleic Acids Symp. Ser.*, 1983, **12**, 127 (*synth, abs config, deriv*)
Hayakawa, H. *et al., Tetrahedron*, 1985, **41**, 1675 (*synth, uv, pmr*)
Inoue, H. *et al., Chem. Pharm. Bull.*, 1986, **34**, 4585 (*synth, uv, pmr*)
Ogawa, K. *et al., J. Biochem. (Tokyo)*, 1986, **99**, 527 (*isol, struct, amide*)
Sierzputowska-Gracz, H. *et al., J.A.C.S.*, 1987, **109**, 7171 (*occur, uv, pmr, cmr*)
Kawakami, M. *et al., J. Biochem. (Tokyo)*, 1988, **104**, 108 (*isol, deriv, uv, pmr, ms*)
Nawrot, B. *et al., Nucleosides Nucleotides*, 1989, **8**, 1499 (*synth, deriv*)

5-Uridinecarboxylic acid U-12

1,2,3,4-Tetrahydro-2,4-dioxo-1-β-D-ribofuranosyl-5-pyrimidinecarboxylic acid, 9CI
[3180-22-1]



$C_{10}H_{12}N_2O_8$ 288.213
Needles (EtOH aq.). Mp 118°. pK_a 9.5.

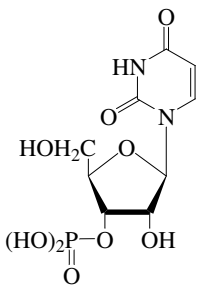
Amide: [110914-06-2]
$C_{10}H_{13}N_3O_7$ 287.229
Needles (EtOH). Mp 198-200° dec.

Nitrile: 5-Cyanouridine, 9CI
[4425-57-4]
$C_{10}H_{11}N_3O_6$ 269.213
Needles (EtOH). Mp 185°. $[\alpha]_D^{25}$ -4.7.

Imai, K. *et al., Chem. Pharm. Bull.*, 1965, **13**, 7 (*synth, uv*)
Cusack, N.J. *et al., J.C.S. Perkin 1*, 1973, 1720 (*nitrile*)
Agathocleous, D.C. *et al., J.C.S. Perkin 1*, 1991, 2317 (*amide, pmr*)

3′-Uridylic acid, 9CI U-13

Uridine 3′-(dihydrogen phosphate). Uridine 3′-monophosphate. Uridine 3′-phosphate. Uridine 3′-phosphoric acid. 3′-UMP
[84-53-7]



$C_9H_{13}N_2O_9P$ 324.184
Obt. by alkaline hydrol. of RNA.

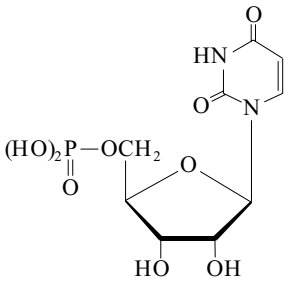
Di-Na salt: [35170-03-7]
Needles + $3H_2O$ (EtOH aq.).

Hall, R.D. *et al., J.O.C.*, 1963, **28**, 1506-1509 (*synth*)
Komiyama, M. *et al., Makromol. Chem. Rapid Commun.*, 1988, **9**, 453-455 (*synth*)

5′-Uridylic acid, 9CI, 8CI U-14

Uridine 5′-monophosphate. UMP. Uridine-5′-phosphoric acid. Uridine 5-phosphate
[58-97-9]

[27416-86-0]



$C_9H_{13}N_2O_9P$ 324.183
Nucleotide widely distributed in nature. pK_{a1} 1; pK_{a2} 6.5; pK_{a3} 9.9; pK_{a4} 13.8. λ_{max} 262 nm (ϵ 10 000) (pH 7).

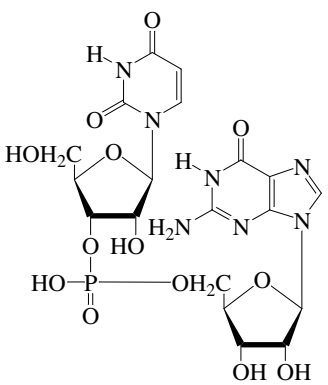
Di-Na salt: [3387-36-8]
Dihydrate. Mp 208-210° dec.
▶ YU7975000

[25618-56-8]

Biochem. Prep., 1961, **8**, 130 (*synth*)
Shefter, E. *et al., Acta Cryst.*, 1965, **18**, 1067 (*cryst struct*)
Mitsunobu, O. *et al., J.A.C.S.*, 1969, **91**, 6510 (*synth*)
Stothers, J.B. *et al., Carbon-13 NMR Spectroscopy*, Academic Press, N.Y., 1972, (*cmr*)
Takaku, O. *et al., Agric. Biol. Chem.*, 1975, **39**, 2373 (*pmr*)
Seshadri, T.P. *et al., Acta Cryst. B*, 1980, **36**, 925 (*cryst struct*)

Uridylyl-(3′→5′)-guanosine, 9CI U-15

UpG
[3474-04-2]

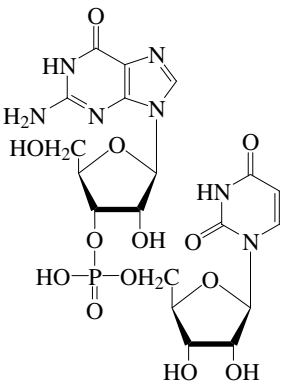


$C_{19}H_{24}N_7O_{13}P$ 589.412

Chladek, S. *et al., Coll. Czech. Chem. Comm.*, 1964, **29**, 214-233; 1966, **31**, 3198-3212 (*synth*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Rastogi, H. *et al., Nucleic Acids Res.*, 1995, **23**, 4872-4877 (*synth*)

Uridylyl-(5′→3′)-guanosine, 9CI U-16

Guanylyl-(3′→5′)-uridine. GpU
[4785-07-3]

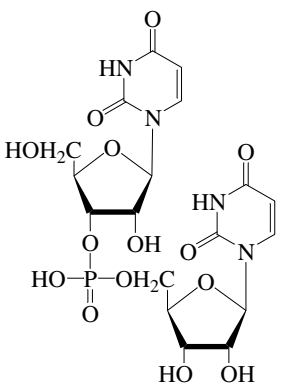


$C_{19}H_{24}N_7O_{13}P$ 589.412

Lohrmann, R. *et al., J.A.C.S.*, 1964, **86**, 4188-4194; 1966, **88**, 829-833 (*synth, uv*)
Walshaw, M.M. *et al., J. Mol. Biol.*, 1966, **20**, 29-38 (*ord*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Fromageot, H.P.M. *et al., Tetrahedron*, 1968, **24**, 3533-3540 (*synth, uv*)
Ts'o, P.O.P. *et al., Biochemistry*, 1969, **8**, 997-1029 (*pmr*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)

Uridylyl-(3′→5′)-uridine, 9CI U-17

UpU
[2415-43-2]

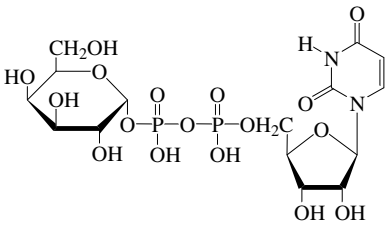


$C_{18}H_{23}N_4O_{14}P$ 550.372

Rammler, D.H. *et al., J.A.C.S.*, 1962, **84**, 3112-3122 (*synth*)
Hall, R.H. *et al., J.O.C.*, 1963, **28**, 1506-1509 (*synth, uv*)
Griffin, B.E. *et al., Tetrahedron*, 1967, **24**, 639-662 (*synth*)
Brimacombe, R. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2074-2086 (*synth, uv*)
Cerny, R.L. *et al., Anal. Biochem.*, 1986, **156**, 424-435 (*ms*)
Smith, W.S. *et al., J.A.C.S.*, 1992, **114**, 7989-7997 (*synth, pmr, cmr, conformn*)

Urochloralic acid U-18

2,2,2-Trichloroethyl β-D-glucopyranosiduronic acid, 9CI, 8CI
[97-25-6]



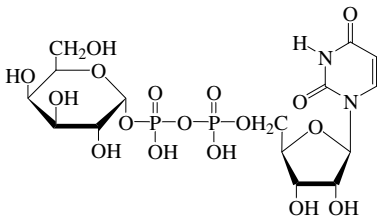
$C_8H_{11}Cl_3O_7$ 325.529
Synth. from trichloroethanol by rat liver microsomal fraction in the presence of UDP-glucuronic acid. Chloral hydrate and trichloroethanol metab.

Me ester, tri-Ac: Mp 160-161° (157-158°). $[\alpha]_D^{20}$ -38 (c, 1 in $CHCl_3$). $[\alpha]_D^{20}$ -53 (c, 0.15 in $CHCl_3$).

Honma, K. *et al., Chem. Pharm. Bull.*, 1976, **24**, 394 (*ester, cmr, pmr*)
Magnusson, G. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 213 (*synth*)
Ikeda, M. *et al., J. Chromatogr.*, 1984, **307**, 111 (*glc*)
Knadle, S.A. *et al., CA*, 1991, **114**, 137792b (*metab*)

UTP-galactose U-19

Uridine 5′-(trihydrogen diphosphate) mono-α-D-galactopyranosyl ester, 9CI
[2956-16-3]

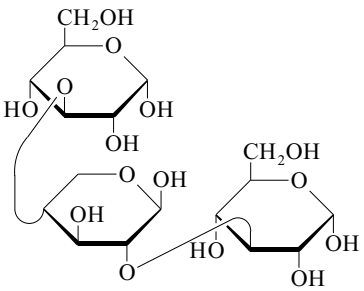


$C_{15}H_{24}N_2O_{17}P_2$ 566.305

O'Connor, J.V. *et al., Biochemistry*, 1979, **18**, 500-507 (*pmr, cmr, conformn*)
Tyagi, A.K. *et al., J. Biochem. Biophys. Methods*, 1979, **1**, 221-226 (*hplc*)
Robataille, P.M.L. *et al., J. Magn. Reson.*, 1991, **92**, 73-84 (*P-31 nmr*)
Wong, C.H. *et al., J.O.C.*, 1992, **57**, 4343-4344 (*synth*)
Wittmann, V. *et al., J.O.C.*, 1997, **62**, 2144-2147 (*synth*)

Vaccariose V-1

3-Deoxy-α-D-glucopyranosyl-(3→2)-4-deoxy-β-D-xylopyranosyl-(4→3)-α-D-glucopyranose
[133360-43-7]



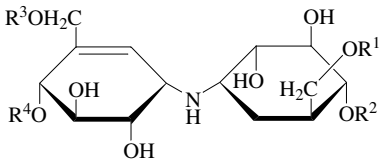
$C_{17}H_{30}O_{15}$ 474.415
Isol. from *Saponaria vaccaria*.
Mp 190-192°. $[\alpha]_D^{20}$ +271.4 (c, 1.1 in H_2O).

Deca-Ac:
$C_{37}H_{50}O_{25}$ 894.787
Mp 116-118°. $[\alpha]_D^{20}$ +54.08 (c, 0.94 in $CHCl_3$).

Kazmi, S.N. *et al., Fitoterapia*, 1990, **61**, 223 (*isol, pmr, cmr*)

Validamycin C V-2

[12650-70-3]



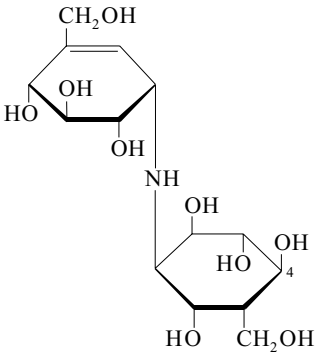
$R^1 = R^4 = H$, $R^2 = \beta$-Glc, $R^3 = \alpha$-Glc

$C_{26}H_{45}NO_{18}$ 659.637
Aminoglycoside antibiotic. Isol. from *Streptomyces hygroscopicus*. Weakly active against *Pellicularia sasakii*. Sol. H_2O, DMF, DMSO; poorly sol. EtOH, hexane.
Mp 142-160° dec. $[\alpha]_D$ +132.9 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 2000-4000 mg/kg.
YV9350300

Horii, S. *et al., J. Antibiot.*, 1972, **25**, 48 (*isol*)
Kameda, Y. *et al., J. Antibiot.*, 1988, **41**, 1488 (*cmr, struct*)
Miyamoto, Y. *et al., J.C.S. Perkin 1*, 1991, 2121 (*synth*)

Validoxylamine B V-3

[39318-73-5]



$C_{14}H_{25}NO_9$ 351.353
Isol. from *Streptomyces hygroscopicus*.
Thin needles (MeOH) (as nona-Ac). Sol. H_2O, MeOH, DMSO; poorly sol. EtOH, EtOAc, $CHCl_3$.
Mp 175-176° (nona-Ac).

4-O-β-D-Glucopyranoside: ***Validamycin B***
[102583-47-1]
$C_{20}H_{35}NO_{14}$ 513.495
Isol. from *Streptomyces hygroscopicus*. Active against rice sheath blight disease and *Pellicularia sasakii*. Sol. H_2O, MeOH, Py; fairly sol. Me_2CO, EtOH; poorly sol. EtOAc, hexane.
Mp 132-142° dec. $[\alpha]_D^{24}$ +102 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 2000 - 4000 mg/kg.
YV9350200

6-Deoxy: ***Validoxylamine A***
[38665-10-0]
$C_{14}H_{25}NO_8$ 335.353
Obt. from *Streptomyces hygroscopicus*. Shows antifungal props. Sol. H_2O. $[\alpha]_D$ +170 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 2000-4000 mg/kg.

6-Deoxy, 4-O-β-D-glucopyranoside: ***Validamycin A***. *T 7545A. Antibiotic T 7545A. Validamycin, JMAF. Validacin. Mycin. Rhizocin. Solacol*
[37248-47-8]
$C_{20}H_{35}NO_{13}$ 497.495
Isol. from *Streptomyces hygroscopicus* and *Streptomyces prasinus* as major component of Validamycin complex. Also obt. on chemical or enzymic hydrol. of Validamycin C, V-2, Validamycin E and Validamycin F. Used in control of fungal infection in rice, potatoes, strawberries and other crops. V. active against *Pellicularia sasakii*. Amorph. powder. Sol. H_2O, MeOH, DMSO, DMF; fairly sol. EtOH, Me_2CO; poorly sol. EtOAc, hexane, Et_2O. Mp 95° dec Mp 130-135° dec. $[\alpha]_D^{24}$ +112 (c, 1 in H_2O). pK_a 6.
▶ LD_{50} (mus, ivn) 2000-4000 mg/kg.
NM7540000

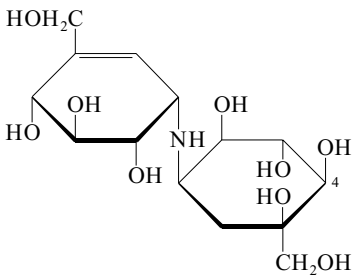
6-Deoxy, 4-O-[β-D-glucopyranosyl-(1→4)-β-D-glucopyranoside]: ***Validamycin E***
[12650-71-4]
$C_{26}H_{45}NO_{18}$ 659.637
Isol. from *Streptomyces hygroscopicus*. Active against *Pellicularia sasakii*. Sol. H_2O, DMSO, DMF; poorly sol. butanol, hexane.
Mp 265-268° dec. $[\alpha]_D$ +148.2 (c, 1 in H_2O).
▶ LD_{50} (mus, ivn) 2000 - 4000 mg/kg.
NM7524800

6-Deoxy, 4-O-[β-D-glucopyranosyl-(1→6)-β-D-glucopyranoside]: ***Validamycin H***
[130812-69-0]
$C_{26}H_{45}NO_{18}$ 659.637
From *Streptomyces hygroscopicus*.
Amorph. $[\alpha]_D^{25}$ +74.9 (c, 1 in H_2O).

Horii, S. *et al., Chem. Comm.*, 1972, 746
Horii, S. *et al., J. Antibiot.*, 1972, **25**, 48 (*isol*)
Ogawa, S. *et al., Chem. Lett.*, 1982, 279 (*deriv*)
Toyokumi, T. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 2999 (*synth*)
Asano, N. *et al., J. Antibiot.*, 1984, **37**, 859
Kameda, Y. *et al., J. Antibiot.*, 1986, **39**, 1491 (*deriv*)
Ogawa, S. *et al., J.C.S. Perkin 1*, 1988, 2675 (*synth, bibl*)
Asano, N. *et al., J. Antibiot.*, 1990, **43**, 1039 (*Validamycin H*)
Miyamoto, Y. *et al., Carbohydr. Res.*, 1992, **223**, 299 (*Validamycin H, synth*)
Fukase, H. *et al., J.O.C.*, 1992, **57**, 3651 (*synth*)
Pesticide Manual, 11th edn., 1997, No. 747 (*use*)
Pesticide Manual, 12th edn., 2000, No. 800 (*Validamycin*)
Mahmud, T. *et al., Chem. Rev.*, 2001, 300-301 (*rev, biosynth*)

Validoxylamine G V-4

[106054-18-6]



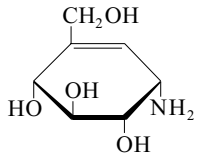
$C_{14}H_{25}NO_9$ 351.353
Isol. from *Streptomyces hygroscopicus* var. *limoneus*. Amorph. solid + H_2O. Sol. H_2O, MeOH, DMSO; poorly sol. EtOH, Me_2CO, hexane. $[\alpha]_D$ +118.6 (c, 1 in H_2O).

4-O-β-D-Glucopyranoside: ***Validamycin G***
[106054-17-5]
$C_{20}H_{35}NO_{14}$ 513.495
Prod. by *Streptomyces hygroscopicus* var. *limoneus*. Shows weak activity against rice blast disease. Amorph. + H_2O. Sol. H_2O, DMSO, MeOH; poorly sol. EtOH, hexane, Me_2CO. $[\alpha]_D^{25}$ +52.8 (c, 0.5 in H_2O).

Iwasa, T. *et al., J. Antibiot.*, 1971, **24**, 107; 114; 119 (*isol*)
Horii, S. *et al., J. Antibiot.*, 1972, **25**, 48 (*derivs*)
Kameda, Y. *et al., J. Antibiot.*, 1980, **33**, 764; 1986, **39**, 1491; 1988, **41**, 1488 (*derivs, cmr*)
Ogawa, S. *et al., Bull. Chem. Soc. Jpn.*, 1983, **56**, 499 (*synth, struct*)
Ogawa, S. *et al., Chem. Lett.*, 1983, 921 (*synth, struct*)
Jin, W.-Z. *et al., J. Antibiot.*, 1987, **40**, 329 (*pmr, cmr*)
Ogawa, S. *et al., J.C.S. Perkin 1*, 1988, 2675 (*synth, bibl*)
Miyamoto, Y. *et al., J.C.S. Perkin 1*, 1989, 1013 (*synth*)
Fukase, H. *et al., J.O.C.*, 1992, **57**, 3651 (*synth*)

Valienamine V-5

6-Amino-4-(hydroxymethyl)-4-cyclohexene-1,2,3-triol
[38231-86-6]



$C_7H_{13}NO_4$ 175.184

Aminocyclitol antibiotic. Prod. by *Streptomyces hygroscopicus* ssp. *limoneus*. Also formed by degradn. of Validamycins by soil bacteria. α-Glucosidase inhibitor; useful for treating hypoglycemia. Active against some *Bacillus* sp. Powder. Sol. H_2O.
Mp 69-71°. $[\alpha]_D$ +90 (c, 0.43, H_2O).

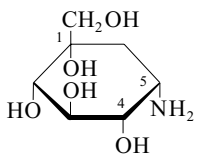
Hydrochloride: $[\alpha]_D^{23}$ +68.6 (1*M* HCl).

Penta-Ac: Mp 95°. $[\alpha]_D^{23}$ +30.2 ($CHCl_3$).

Kameda, Y. *et al., Chem. Comm.*, 1972, 746 (*struct*)
Kameda, Y. *et al., J. Antibiot.*, 1980, **33**, 1575; 1984, **37**, 1301 (*isol*)
Eur. Pat., 1982, 63 456; *CA*, **98**, 177495 (*isol, props*)
Japan. Pat., 1982, 82 59 813; *CA*, **97**, 61008 (*props*)
Yoshikaura, M. *et al., Chem. Pharm. Bull.*, 1988, **36**, 4236 (*synth*)
McAuliffe, J.C. *et al., Aust. J. Chem.*, 1997, **50**, 193 (*synth*)
Trost, B.M. *et al., J.A.C.S.*, 1998, **120**, 1732-1740 (*synth*)
Kapferer, P. *et al., Helv. Chim. Acta*, 1999, **82**, 645-656 (*synth*)
Tatsuta, K. *et al., J. Antibiot.*, 2000, **53**, 430-435 (*synth, pmr*)
Kok, S.H.-L. *et al., J.O.C.*, 2001, **66**, 7184-7190 (*synth, bibl*)
Chen, X. *et al., Chem. Rev.*, 2003, **103**, 1955-1977 (*rev*)
Chang, Y.-K. *et al., J.O.C.*, 2005, **70**, 3299-3302 (*synth*)

Valiolamine V-6

*5-Amino-1-hydroxymethyl-1,2,3,4-cyclohexanetetrol. 4-Amino-3,4-dideoxy-2-C-(hydroxymethyl)-D-*epi*-inositol*
[83465-22-9]



$C_7H_{15}NO_5$ 193.199

Numbering and stereochemical description of stereoisomers is complex depending on whether named as a cyclohexane or as a cyclitol. The numbering shown is based on the cyclohexanetetrol system. Prod. by *Streptomyces hygroscopicus* ssp. *limoneus*. α-Glucosidase inhibitor. Powder + H_2O. $[\alpha]_D^{20}$ +18.8 (c, 1.0 in H_2O). pK_a 8.6.

▶ NM7522300

O^1,O^2,O^3,O^4,N-*Penta-Ac:* [118014-37-2]
$C_{17}H_{25}NO_{10}$ 403.385
Cryst. (EtOAc); prisms (CH_2Cl_2/diisopropyl ether). Mp 137-138°. $[\alpha]_D^{25}$ -14.8 (c, 1 in $CHCl_3$).

N-*Benzyloxycarbonyl:* [94789-66-9]
Needles (H_2O). Mp 181-184°.

*1-Epimer: 1-Amino-1,6-dideoxy-5-C-(hydroxymethyl)-D-*chiro*-inositol, 9CI. **Epivaliolamine***
[90865-96-6]
$C_7H_{15}NO_5$ 193.199
Prod. by *Streptomyces hygroscopicus* ssp. *limoneus*. Weak α-glucosidase inhibitor. Powder. Sol. H_2O, DMSO, MeOH; poorly sol. EtOH, hexane. $[\alpha]_D^{25}$ +18.2 (c, 1.0 in H_2O).

*4-Epimer: 3-Amino-3,4-dideoxy-5-C-(hydroxymethyl)-D-*allo*-inositol*
[171339-40-5]
$C_7H_{15}NO_5$ 193.199
Amorph. solid. $[\alpha]_D^{22}$ -11.1 (c, 0.4 in H_2O).

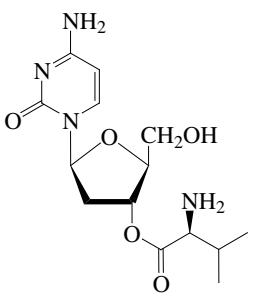
*5-Epimer: 2-Amino-1,2-dideoxy-6-C-(hydroxymethyl)-L-*chiro*-inositol*
[141042-85-5]
$C_7H_{15}NO_5$ 193.199
Amorph. solid. $[\alpha]_D^{20}$ -27.9 (c, 0.5 in H_2O).

*4,5-Diepimer: 4-Amino-3,4-dideoxy-2-C-(hydroxymethyl)-D-*allo*-inositol*
[171339-39-2]
$C_7H_{15}NO_5$ 193.199
Amorph. solid. $[\alpha]_D^{19}$ -13.7 (c, 0.5 in H_2O).

Eur. Pat., 1982, 63 950; *CA*, **98**, 161113 (*synth*)
Kameda, Y. *et al., J. Antibiot.*, 1984, **37**, 1301; 1985, **38**, 1816 (*isol, struct, nmr, props*)
Horii, S. *et al., Carbohydr. Res.*, 1985, **140**, 185-200 (*Valiolamine, Epivaliolamine, synth*)
Hayashida, M. *et al., J. Carbohydr. Chem.*, 1988, **7**, 83-94 (*penta-Ac, synth*)
Shing, T.K.M. *et al., J.O.C.*, 1996, **61**, 8468-8479 (*synth, ir, pmr, cmr, epimers*)
Sellier, O. *et al., Tet. Lett.*, 1999, **40**, 853-856 (*synth*)
Chen, X. *et al., Chem. Rev.*, 2003, **103**, 1955-1977 (*rev*)
Ogawa, S. *et al., Org. Biomol. Chem.*, 2004, **2**, 884-889 (*synth*)

Valtorcitabine, INN V-7

*L-Valine, 3′-ester with 4-amino-1-(2-deoxy-β-L-*erythro*-pentofuranosyl)-2(1H)-pyrimidinone, 9CI*
[380886-95-3]



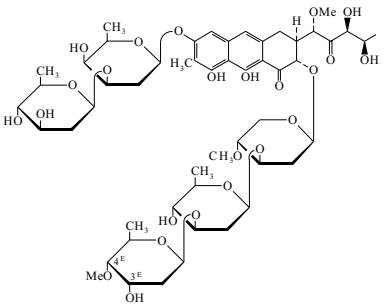
$C_{14}H_{22}N_4O_5$ 326.352
Antiviral agent for the treatment of hepatitis B.

*Hydrochloride (1:2): **Valtorcitabine dihydrochloride, USAN**. NM 147*
[359689-54-6]

Pat. Coop. Treaty (WIPO), 2001, 01 96 353, (*Novirio Pharmaceuticals*); *CA*, **136**, 42882w (*synth, pharmacol*)

Variamycin, 9CI V-8

3^E-Demethyl-4^E-O-methylmithramycin. Variamycin A
[12677-11-1]



$C_{52}H_{76}O_{24}$ 1085.158

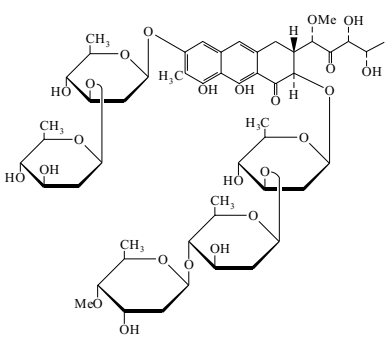
Chromomycin-type antibiotic. Isol. from *Actinomyces olivovariabilis*. Shows antitumour activity. Sol. MeOH, Et_2O, $CHCl_3$; poorly sol. H_2O, hexane.
Mp 162-165° dec. $[\alpha]_D$ -49 (c, 0.5 in EtOH). Similar to Mithramycin. λ_{max} 230 (E1%/1cm 174); 280 (E1%/1cm 380); 317 (E1%/1cm 60); 330 (E1%/1cm 50); 412 (E1%/1cm 80) (MeOH) (Berdy).

▶ LD_{50} (mus, ivn) 1.62 mg/kg , LD_{50} (mus, orl) 75 mg/kg. PZ2950000

Rudaya, S.M. *et al., Antibiotiki (Moscow)*, 1971, **16**, 969 (*isol*)
Lokshin, G.B. *et al., Bioorg. Khim.*, 1975, **1**, 479 (*ir, uv, nmr, struct*)
Thiem, J. *et al., Angew. Chem., Int. Ed.*, 1983, **22**, 58 (*struct, stereochem*)
Shashkov, A.S. *et al., Bioorg. Khim.*, 1991, **17**, 410 (*pmr, cmr, struct*)

Variamycin B V-9

[81600-25-1]



$C_{52}H_{76}O_{24}$ 1085.158

Chromomycin-type antibiotic. Prod. by *Streptomyces olivovariabilis*. Shows antitumour props. Yellow powder. Sol. MeOH, DMSO, Et_2O, EtOH; fairly sol. H_2O; poorly sol. hexane.
Mp 163-165° dec. $[\alpha]_D^{20}$ -30 (c, 0.5 in EtOH). A struct. alteration to

Variamycin A (1991) may also apply to Variamycin B. λ_{max} 230 (ϵ 18620); 279 (ϵ 39800); 317 (ϵ 3390); 330 (ϵ 5740); 415 (ϵ 8900) (MeOH) (Berdy).

▶ YW7365500

Zhdanovich, Yu.V. *et al., Antibiotiki (Moscow)*, 1982, **27**, 83; *CA*, **96**, 179353 (*isol, struct*)

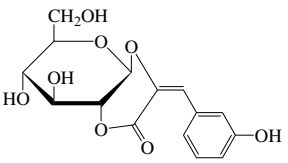
Varianose V-10

Heteropolysaccharide. Contains β-L-Ar*af*-(1→2)-β-D-Gal*f*-(1→3)-D-threitol units on a branched galactofuranosyl skeleton containing both α- and β-D-Gal*f* residues. Extracellular polysaccharide elaborated by *Penicillium varians*.

Jansson, P. *et al., Carbohydr. Res.*, 1980, **82**, 97

Venusol V-11

*1,2-*O*-[1-[(4-Hydroxyphenyl)methylene]-2-oxo-1,2-ethanediyl]-β-D-glucopyranose, 9CI*



(*E*)-*form*

$C_{15}H_{16}O_8$ 324.287

(E)-form

Constit. of *Umbilicus pendulinus*. λ_{max} 326 (no solvent reported).

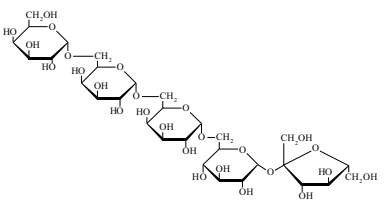
(Z)-form [80645-63-2]

Constit. of *Gunnera perpensa*, *Umbilicus pendulinus* and *Umbilicus ruperstris*. Needles.
Mp 259-260°. $[\alpha]_D^{20}$ +84.5 (c, 0.24 in MeOH). λ_{max} 323 (no solvent reported).

Proliac, A. *et al., Tet. Lett.*, 1981, 3583-3584 (*struct, uv, nmr, ir, ms*)
Viornery, L. *et al., Chem. Pharm. Bull.*, 2000, **48**, 1768-1770 (*isol, pmr, cmr*)
Khan, F. *et al., Phytochemistry*, 2004, **65**, 1117-1121 (*isol, pmr, cmr, ms, cryst struct*)

Verbascose, 8CI V-12

β-D-Fructofuranosyl O*-α-D-galactopyranosyl-(1→6) [*O*-α-D-galactopyranosyl-(1→6)]$_2$-α-D-glucopyranoside, 9CI*
[546-62-3]



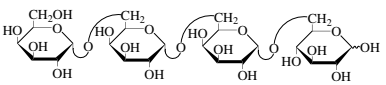
$C_{30}H_{52}O_{26}$ 828.725
Present in storage organs, tubers, rhizomes and seeds of some plants; accumulates in the seeds during maturation and disappears during germination. Commonest source is mullein (*Verbascum thapsus*) root.
Mp 220° (188-189°). $[\alpha]_D$ +169 (+148) (H_2O).

*Heptadeca-Ac:*Mp 132°. $[\alpha]_D$ +130.

Bourquelot, E. *et al., C. R. Hebd. Seances Acad. Sci.*, 1910, **151**, 760 (*synth*)
Herissey, H. *et al., C. R. Hebd. Seances Acad. Sci.*, 1954, **239**, 824
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 674 (*occur*)
Koike, K. *et al., CA*, 1976, **85**, 119615z (*isol*)
Price, K.R. *et al., Chem. Ind. (London)*, 1986, 180 (*isol, purifn*)

Verbascotetraose V-13

α-D-Galactopyranosyl-(1→6)-α-D-galactopyranosyl-(1→6)-α-D-galactopyranosyl-(1→6)-D-glucose



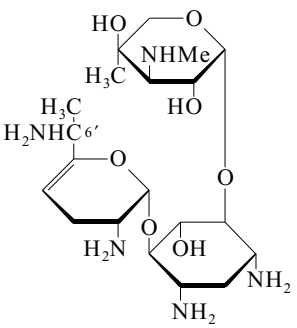
Pyranose-*form*

$C_{24}H_{42}O_{21}$ 666.583
Found in birch sap. Normal constit. of acid-resistant plant tissues.
Mp 240°. $[\alpha]_D$ +191.

Courtois, J.E. *et al., Bull. Soc. Chim. Biol.*, 1955, **37**, 1009
Haq, S. *et al., Can. J. Biochem.*, 1962, **40**, 989

Verdamicin V-14

Verdamicin I
[49863-48-1]



$C_{20}H_{39}N_5O_7$ 461.557
Aminoglycoside antibiotic. Isol. from *Micromonospora grisea*. Active against gram-positive and -negative bacteria. Sol. H_2O; fairly sol. MeOH, $CHCl_3$; poorly sol. Me_2CO, hexane. $[\alpha]_D$ +167 (c, 0.3 in H_2O).

▶ LD_{50} (mus, ivn) 75 mg/kg. WK2284000

*6′-*N*-Me:* ***6′-N-Methylverdamicin****. K 26-2a. VF3-1. Antibiotic K 26-2a. Antibiotic VF3-1*
[75804-31-8]
$C_{21}H_{41}N_5O_7$ 475.584
Semisynthetic. Sol. H_2O; poorly sol. Me_2CO, hexane.

Ger. Pat., 1973, 2 239 964; *CA*, **79**, 51820t (*isol*)
Weinstein, M.J. *et al., Antimicrob. Agents Chemother.*, 1975, **7**, 246 (*props*)
U.K. Pat., 1975, 1 405 283; *CA*, **84**, 57381p
Daniels, P.J. *et al., J.C.S. Perkin 1*, 1976, 1078 (*ms*)
Phillips, I. *et al., J. Antimicrob. Chemother.*, 1977, **3**, 403 (*props*)
Japan. Pat., 1979, 79 62 393; *CA*, **91**, 122151z (*isol*)

Kase, H. *et al., Agric. Biol. Chem.*, 1982, **46**, 515 (*6′-*N*-Methylverdamicin*)

Vesiculogen V-15

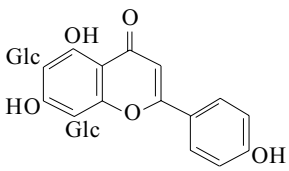
[72994-03-7]

Glycoprotein. Isol. from fruiting bodies of the fungus *Peziza vesiculosa*. Shows antitumour activity. Sol. H_2O; poorly sol. hexane.

Yadomae, T. *et al., Microbiol. Immunol.*, 1979, **23**, 997-1008 (*isol*)
Suzuki, I. *et al., Chem. Pharm. Bull.*, 1982, **30**, 1066-1068 (*activity*)

Vicenin 2 V-16

*6,8-Di-β-D-glucopyranosyl-5,7-dihydroxy-2-(4-hydroxyphenyl)-4*H*-1-benzopyran-4-one, 9CI. 6,8-Di-*C*-glucosyl-4′,5,7-trihydroxyflavone. 6,8-Di-*C*-glucopyranosyl-lapigenin. 6,8-Di-*C*-glucosylapigenin*
[23666-13-9]



$C_{27}H_{30}O_{15}$ 594.525
Constit. of the wood of *Vitex lucens* and of lemons *Citrus limon* and of many other plant spp. Cryst. (H_2O).
Mp 233-236° (214-216° dec.). $[\alpha]_D$ +25 (c, 0.21 in Py). $[\alpha]_D$ +71 (c, 0.36 in H_2O).

*7-*O*-β-D-Apiofuranoside:*
$C_{32}H_{38}O_{19}$ 726.641
Constit. of the aerial parts of *Lupinus hartwegii*. Yellow powder. λ_{max} 274 ; 328 (MeOH).

Mono-Ac: [50875-08-6]
$C_{29}H_{32}O_{16}$ 636.562
Constit. of the seeds of *Trigonella corniculata*.

*6‴-*O*-(4-Hydroxy-3-methoxy-*E*-cinnamoyl), 7-*O*-β-D-apiofuranoside:*
$C_{42}H_{46}O_{22}$ 902.812
Constit. of the aerial parts of *Lupinus hartwegii*. Yellow powder. λ_{max} 272 ; 291 (sh) ; 325 (MeOH).

*7-Me ether: 6,8-Di-*C*-glucopyranosyl-4′,5-dihydroxy-7-methoxyflavone.* ***6,8-Di-C-glucosylgenkwanin***
[128397-01-3]
$C_{28}H_{32}O_{15}$ 608.552
Isol. from *Galipea trifoliata*. λ_{max} 274 ; 332 (MeOH).

*2‴-*O*-Xylosyl, 7-Me ether:* ***6,8-Di-C-glucosyl-2‴-xylosylgenkwanin***
[128197-78-4]
$C_{33}H_{40}O_{19}$ 740.668
Isol. from *Galipea trifoliata*. λ_{max} 274 ; 330 (MeOH).

*6″-*O*-β-D-Glucopyranosyl: 6-Gentiobiosyl-8-glucopyranosyl-4′,5,7-trihydroxyflavone*
[94530-40-2]
$C_{33}H_{40}O_{20}$ 756.667
Isol. from *Stellaria holostea*.

2″,2‴-Di-O-*β*-D-*glucopyranosyl: 2″,2‴-Di*-O-*β*-D-*glucopyranosylvicenin 2. 6,8-Di*-C-*sophorosylapigenin*
$C_{39}H_{50}O_{25}$ 918.809
Constit. of *Ephedra aphylla*. Light yellow powder. λ_{max} 272 ; 332 (MeOH).

4″,4‴-Di-O-*β*-D-*glucopyranosyl: 4″,4‴-Di*-O-*β*-D-*glucopyranosylvicenin 2. 6,8-Di*-C-*β-cellobiosylapigenin*
$C_{39}H_{50}O_{25}$ 918.809
Constit. of *Cotoneaster orbicularis*. Pale yellow powder.

6″,6‴-Di-O-*β*-D-*glucopyranosyl: 6,8-Digentiobiosyl-4′,5,7-trihydroxyflavone.* ***6,8-Di*-C-*gentiobiosylapigenin***
[201417-00-7]
$C_{39}H_{50}O_{25}$ 918.809
Constit. of *Lonchocarpus speciosus*.

Seikel, M.K. *et al., Phytochemistry*, 1966, **5**, 439 (*isol*)
Gentili, B. *et al., J.O.C.*, 1968, **33**, 1571 (*isol, struct, pmr*)
Seshardri, T.R. *et al., Curr. Sci.*, 1973, **42**, 421 (*deriv*)
Bacon, J.D. *et al., Rev. Latinoam. Quim.*, 1976, **7**, 83; *CA*, **86**, 15873 (*uv*)
Osterdahl, B.G. *et al., Acta Chem. Scand., Ser. B*, 1978, **32**, 93 (*isol, cmr*)
Gaffield, W. *et al., Tetrahedron*, 1978, **34**, 3089 (*cd*)
Husein, S.Z. *et al., Phytochemistry*, 1981, **20**, 1171 (*occur*)
Bouillant, M.L. *et al., Phytochemistry*, 1984, **23**, 2653 (*6″-glucoside*)
Baktiar, A. *et al., Phytochemistry*, 1990, **29**, 1339-1340 (*6,8-Diglucosylgenkwanins*)
El-Sayed, N.H. *et al., Asian J. Chem.*, 1997, **9**, 738-741 (*Digentiobiosylapigenin*)
Hussein, S.A.M. *et al., Phytochemistry*, 1997, **45**, 1529 (*diglucosyl*)
El-Mousallamy, A.M.D. *et al., Phytochemistry*, 2000, **53**, 699-704 (*4″,4‴-Diglucosylvicenin 2*)
Xie, C. *et al., Chem. Pharm. Bull.*, 2003, **51**, 1204-1207 (*isol, pmr, cmr*)
Kamel, M.S. *et al., Phytochemistry*, 2003, **63**, 449-452 (*Lupinus apiofuranosides*)

Viilian V-17

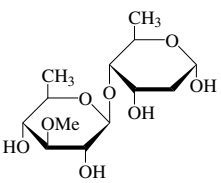
[234768-29-7]

Extracellular polysaccharide. Prod. by *Lactococcus lactis* ssp. *cremoris* SBT 0495.

Oba, T. *et al., Arch. Microbiol.*, 1999, **171**, 343-349 (*biosynth*)
Higashimura, M. *et al., Biopolymers*, 2000, **54**, 143-158 (*struct*)

Viminose V-18

2,6-Dideoxy-4-O-*(6-deoxy-3*-O-*methyl-β-*D-*glucopyranosyl)-*D-ribo-*hexose, 8CI. 3*-O-*Methylquinovosyl-(1→4)-*D-*digitoxose*
[20512-00-9]



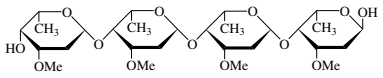
α-Pyranose-*form*

$C_{13}H_{24}O_8$ 308.328
Isol. from species of Asclepiadaceae. Component of pregnane glycosides of *Sarcostemma viminale* and *Vincetoxicum hirundinaria*. Syrup. $[\alpha]_D^{23}$ +21.3 (c, 1.2 in H_2O).

Allgeier, H. *et al., Helv. Chim. Acta*, 1968, **51**, 668 (*struct*)
Schaub, F. *et al., Helv. Chim. Acta*, 1968, **51**, 738 (*isol*)
Stoeckel, K. *et al., Helv. Chim. Acta*, 1969, **52**, 1175

Vimose V-19

β-L-Diginopyranosyl-(1→4)-β-L-digino-pyranosyl-(1→4)-β-L-diginopyranosyl-(1→4)-L-diginose
[94410-11-4]



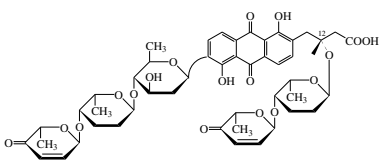
α-Pyranose-*form*

$C_{28}H_{50}O_{13}$ 594.695
Isol. from dried twigs of *Orthenthera viminea*. Amorph. $[\alpha]_D$ +66.

Tiwari, K.N. *et al., J. Carbohydr. Chem.*, 1984, **3**, 315-330

Vineomycin B_2 V-20

OS 4742B$_2$. *Antibiotic OS 4742B*$_2$
[66198-33-2]



$C_{49}H_{58}O_{18}$ 934.986
Anthraquinone antibiotic. Prod. by *Streptomyces malensis*. Active against gram-positive bacteria, sarcoma cells and tumours. Yellow amorph. powder. Sol. MeOH, C_6H_6; poorly sol. H_2O, hexane.
Mp 128-131°. $[\alpha]_D^{26}$ +30.8 (c, 0.5 in $CHCl_3$). λ_{max} 231 (ε 41700); 258 (ε 33900); 286 (ε 7080); 296 (ε 7762); 426 (ε 11200); 444 (ε 11200) (EtOH) (Derep). λ_{max} 230 (E1%/1cm 421); 258 (E1%/1cm 226); 294 (E1%/1cm 76); 427 (E1%/1cm 107); 440 (E1%/1cm 107) (MeOH) (Berdy).
► LD_{50} (mus, ipr) 100 - 150 mg/kg. CB9653360

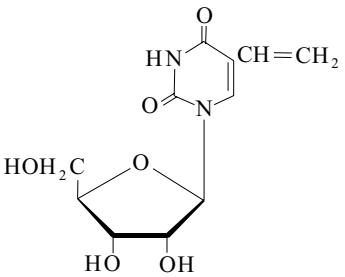
12-O-*Deglycosyl:* ***Vineomycin C***
[288104-96-1]
$C_{37}H_{42}O_{14}$ 710.73
Prod. by *Streptomyces* sp. Yellow powder. Mp 123-162°. $[\alpha]_D$ +110 (c, 1 in $CHCl_3$). λ_{max} 231 ; 258 ; 290 ; 442 (MeOH).

[80928-52-5]

Omura, S. *et al., J. Antibiot.*, 1977, **30**, 908 (*isol*)
Imamura, N. *et al., J. Antibiot.*, 1981, **34**, 1517; 1982, **35**, 602 (*biosynth*)
Danishefsky, S.J. *et al., J.A.C.S.*, 1985, **107**, 1285 (*aglycone*)
Tius, M.A. *et al., J.A.C.S.*, 1991, **113**, 5775 (*synth, bibl*)
Bolitt, V. *et al., J.A.C.S.*, 1991, **113**, 6320 (*synth*)
Matsumoto, T. *et al., J.A.C.S.*, 1991, **113**, 6982 (*synth*)
Alvi, K.A. *et al., J. Antibiot.*, 2000, **53**, 496-501 (*Vineomycin C*)

5-Vinyluridine V-21

5-Ethenyluridine, 9CI
[55520-64-4]



$C_{11}H_{14}N_2O_6$ 270.241
Mp 255-260° dec. (sinters at 160-165°). λ_{max} 237, 291 nm (ε 11 285, 9 450) (MeOH).

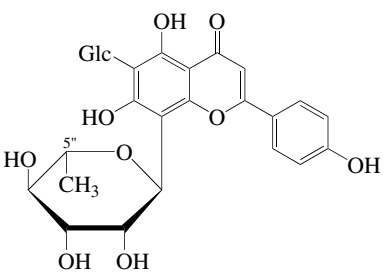
2′,3′,5′-Tribenzoyl:
$C_{32}H_{26}N_2O_9$ 582.565
Mp 141-142°.

2′-Deoxy: 2′-Deoxy-5-vinyluridine
$C_{11}H_{14}N_2O_5$ 254.242
Antiviral, antileukaemic *in vitro*, inactive *in vivo*. Needles ($CHCl_3$/MeOH).

Sharma, R.A. *et al., J.O.C.*, 1975, **40**, 2377 (*synth, pmr*)
Lee, L.-S. *et al., Biochemistry*, 1976, **15**, 3686 (*pharmacol*)
Jones, A.S. *et al., J.C.S. Perkin 1*, 1987, 457, (*2′-Deoxy-5-vinyluridine*)

Violanthin V-22

*8-(6-Deoxy-α-L-mannopyranosyl)-6-β-D-glucopyranosyl-5,7-dihydroxy-2-(4-hydroxyphenyl)-4*H-*1-benzopyran-4-one, 9CI. 6-Glucopyranosyl-8-rhamnopyranosyl-lapigenin. 6-Glucosyl-8-rhamnosylapigenin*
[40581-17-7]



$C_{27}H_{30}O_{14}$ 578.526
Isol. from *Viola tricolor, Angiopteris erecta* and other plant spp. Cryst. + $2.5H_2O$ (AcOH/MeOH aq.).
Mp 229°. λ_{max} 272 (log ε 4.16); 336 (log ε 4.45) (MeOH).

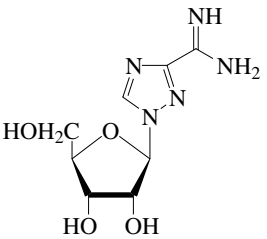
5″-Epimer: 8-(6-Deoxygulopyranosyl)-6-glucopyranosylapigenin. ***Violarvensin***
$C_{27}H_{30}O_{14}$ 578.526
Constit. of *Viola arvensis*. Amorph. yellow powder. $[\alpha]_D^{25}$ +14 (c, 0.7 in MeOH). λ_{max} 272 (log ε 4.09); 336 (log ε 4.37) (MeOH).

Hörhammer, L. *et al., Tet. Lett.*, 1965, 1707 (*isol*)

Biol, M.C. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1972, **275**, 1523 (*struct, synth*)
Wagner, H. *et al., Z. Naturforsch., B*, 1972, **27**, 954 (*synth*)
Gaffield, W. *et al., Tetrahedron*, 1978, **34**, 3089 (*cd*)
Wallace, J.W. *et al., Phytochemistry*, 1979, **18**, 1077 (*isol*)
Carnat, A.-P. *et al., J. Nat. Prod.*, 1998, **61**, 272-274 (*isol, uv, pmr, cmr, ms*)

Viramidine V-23

*1-β-D-Ribofuranosyl-1*H*-1,2,4-triazole-3-carboximidamide, 9CI. ICN 3142*
[119567-79-2]



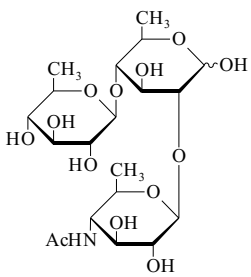
$C_8H_{13}N_5O_4$ 243.222
Antiviral agent. Prodrug of Ribavirin, R-92.

Hydrochloride: [40372-00-7]
Cryst. (MeCN/EtOH). Mp 177-179°.

Ger. Pat., 1972, 2 220 246, (*Int. Chemical Nuclear Corp.*); *CA*, **78**, 84766q (*synth, pharmacol*)
Witkowski, J.T. *et al., J. Med. Chem.*, 1973, **16**, 935-937 (*synth*)
Gabrielson, B. *et al., J. Med. Chem.*, 1992, **35**, 3231-3238 (*synth*)
Barnard, D. *et al., Curr. Opin. Invest. Drugs*, 2002, **3**, 1585-1589 (*rev*)
Lin, C.C. *et al., Antimicrob. Agents Chemother.*, 2003, **47**, 2458-2463 (*pharmacol, metab*)

Viridotriose B V-24

4-(Acetylamino)-4,6-dideoxy-β-D-glucopyranosyl-(1→2)[6-deoxy-β-D-glucopyranosyl-(1→4)]-6-deoxy-D-glucose, 9CI
[73793-36-9]



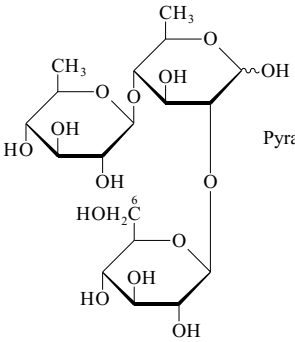
Pyranose–*form*

$C_{20}H_{35}NO_{13}$ 497.495
Component of Sporaviridin, S-71. Powder + H_2O.
Mp 216-219° dec. $[\alpha]_D^{23}$ +4.7 (c, 0.3 in MeOH).

Harada, K. *et al., Tet. Lett.*, 1982, **23**, 2481 (*ms*)
Harada, K. *et al., Chem. Pharm. Bull.*, 1983, **31**, 3829; 3844 (*struct, cmr*)

Viridotriose C V-25

6-Deoxy-β-D-glucopyranosyl-(1→4)-[β-D-glucopyranosyl-(1→2)]-6-deoxy-D-glucose, 9CI
[73942-74-2]



Pyranose–*form*

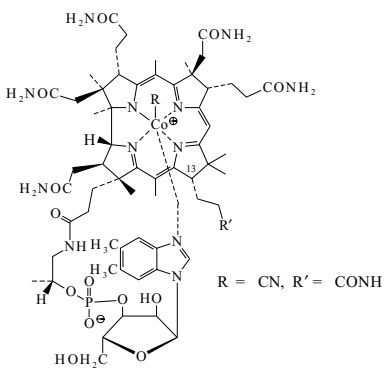
$C_{18}H_{32}O_{14}$ 472.442
Component of Sporaviridin, S-71. Powder $+H_2O$.
Mp 168-169° (dec.). $[\alpha]_D^{23}$ +12.3 (c, 0.3 in MeOH).

6-Deoxy: 6-Deoxy-β-D-glucopyranosyl-(1→2)-[6-deoxy-β-D-glucopyranosyl-(1→4)]-6-deoxy-D-glucose. ***Viridotriose A***
[73938-83-7]
$C_{18}H_{32}O_{13}$ 456.443
Component of Sporaviridin, S-71. Powder + H_2O.
Mp 235-238° dec. $[\alpha]_D^{23}$ +11.3 (c, 0.3 in MeOH).

Harada, K. *et al., Tet. Lett.*, 1982, **23**, 2481 (*ms*)
Harada, K. *et al., Chem. Pharm. Bull.*, 1983, **31**, 3829; 3844 (*struct, cmr*)

Vitamin B_{12} V-26

Cyanocobalamin, BAN, INN, USAN.
α-(5,6-Dimethylbenzimidazoyl)cobamide cyanide. Cobamin. Cykobemin. Factor II
[68-19-9]



R = CN, R′ = CONH

$C_{63}H_{88}CoN_{14}O_{14}P$ 1355.38
Antipernicious anaemia factor isol. from liver extracts; now obt. comly. from fermentation liquors of *Streptomyces griseus* and other microorganisms, e.g. *Propionibacterium shermanii*, *Pseudomonas denitrificans*. Haematopoietic vitamin. Red needles. Sol. H_2O, alcohols, AcOH. Mp 210-220° darkens Mp 300°. Isotopic variants contg. ^{57}Co ($t_{1/2}$ 270d), ^{58}Co ($t_{1/2}$ 71.3d) and ^{60}Co ($t_{1/2}$ 5.26y) are prepd. by fermentation in the presence of radiocobalt and are used for diagnostic purposes. Cyanocobalamin (57Co), INN, Cyanocobalamin (58 Co), INN and Cyanocobalamin (60 Co), INN. λ_{max} 279 ; 306 ; 322 ; 361 ; 520 ; 550 (no solvent reported).

▶ Exp. reprod. and teratogenic effects. GG3750000

13-Epimer: Cyanoneocobalamin. Neovitamin B_{12}
[32627-64-8] Formed by acid-catalysed epimerisation.
Red cryst. (Me_2CO aq.). CD; λ 330 nm, Δε + 8.4 (0.1*M* KCN). Dec. at *ca.* 200° without melting.

Decyano: Cobalamin
[13408-78-1]
$C_{62}H_{88}CoN_{13}O_{14}P^{\oplus}$ 1329.363

*Decyano, Co(*II*) complex: Vitamin B_{12r}. Cob(*II*)-alamin*
[14463-33-3]
$C_{62}H_{88}CoN_{13}O_{14}P$ 1329.363
Homolysis fragment of coenzyme Coenzyme B_{12} and Methylcobalamin.

[13115-03-2, 13422-53-2, 18195-32-9]

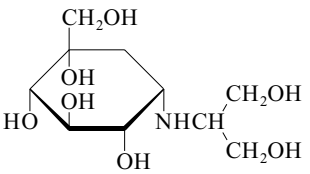
Bonnett, R. *et al., Chem. Rev.*, 1963, **63**, 573 (*rev*)
Nockolds, C.K. *et al., Nature (London)*, 1967, **214**, 129 (*cryst struct*)
Pratt, J.M. *et al., Inorg. Chem. of Vit. B12*, Academic Press, 1972, (*rev*)
Stöckli-Evans, H. *et al., J.C.S. Perkin 2*, 1972, 605 (*cryst struct*)
Woodward, R.B. *et al., Pure Appl. Chem.*, 1973, **33**, 145 (*synth*)
Bonnett, R. *et al., Philos. Trans. R. Soc. London*, 1976, **273**, 295 (*epimer*)
Schrauzer, G.N. *et al., Angew. Chem.*, 1977, **89**, 239
Rajoria, D.S. *et al., J. Inorg. Nucl. Chem.*, 1977, **39**, 1291 (*ir*)
Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **24**, 158 (*rev*)
Florent, J. *et al., Microb. Technol.*, 2nd edn., (eds. Peppler, H.J. *et al*), Academic Press, 1979, **1**, 497 (*rev, manuf*)
Zagalak, B. *et al., Vitamin B12*, Walter de Gruyter, New York, 1979,
Kirschbaum, J. *et al., Anal. Profiles Drug Subst.*, 1981, **10**, 183 (*rev*)
B12 [Twelve], (ed. Dolphin, D.), Wiley, New York, 1982, **1**, ; **2**,
Anton, D.L. *et al., Biochemistry*, 1982, **21**, 2372 (*cmr*)
Ellenbogen, L. *et al., Food Sci. Technol.*, 1984, **13**, 497 (*rev*)
Brown, K.L. *et al., J.A.C.S.*, 1984, **106**, 7894 (*P-31 nmr*)
Leeper, F.J. *et al., Nat. Prod. Rep.*, 1985, **2**, 19; 561; 1987, **4**, 441; 1989, **6**, 171 (*revs, biosynth*)
Battersby, A.R. *et al., Acc. Chem. Res.*, 1986, **19**, 147 (*rev, biosynth*)
Negwer, M. *et al., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag*, 1987, 8358
Eschenmoser, A. *et al., Angew. Chem., Int. Ed.*, 1988, **27**, 6 (*rev*)
Halpern, J. *et al., Bull. Soc. Chim. Fr.*, 1988, 187 (*rev, chem*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, VSZ000
Briois, V. *et al., J. Chim. Phys. Phys.-Chim. Biol.*, 1989, **86**, 1623 (*x-ray absorption*)
Kraeutler, B. *et al., J.A.C.S.*, 1989, **111**, 8936 (*Vitamin B_{12r}*)

Kurumaya, K. *et al., Chem. Pharm. Bull.*, 1990, **38**, 1058 (*biosynth, N-15 nmr*)
Sagi, I. *et al., J.A.C.S.*, 1990, **112**, 8639 (*Vitamin B_{12r} exafs*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1055
Scott, A.I. *et al., Tetrahedron*, 1994, **50**, 13315 (*rev, biosynth*)
Blanche, F. *et al., Angew. Chem., Int. Ed.*, 1995, **34**, 383 (*rev, biosynth*)
Nicolaou, K.C. *et al., Classics in Total Synthesis, Targets, Strategies, Methods*, VCH, 1996, 99 (*bibl, synth*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2926-2929 (*props*)
Kräutler, B. *et al., Vitamin B12 and B12-proteins*, Wiley-VCH, 1997,
Scott, A.I. *et al., J.O.C.*, 2003, **68**, 2529-2539 (*rev, biosynth*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, VSZ000

Voglibose, INN, USAN V-27

*3,4-Dideoxy-4-[[2-hydroxy-1-(hydroxymethyl)ethyl]amino]-2-*C*-(hydroxymethyl)-D-*epi*-inositol, 9CI. Basen. AO-128*

[83480-29-9]



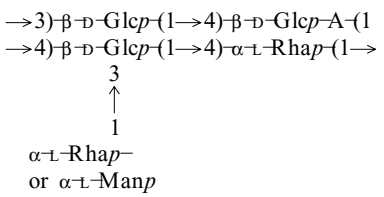
$C_{10}H_{21}NO_7$ 267.278

Claims that Voglibose is a natural product could not be verified. Reported as produced by *Streptomyces hygroscopicus-limoneus*. Potent α-glucosidase inhibitor. Potential oral antidiabetic agent. Launched 1994 (Japan). Cryst. Mp 162-163°. $[\alpha]_D^{25}$ +26.2 (c, 1 in H_2O).

Eur. Pat., 1982, 56 194, (*Takeda*); *CA*, **97**, 198515r (*synth, pharmacol*)
Horii, S. *et al., J. Med. Chem.*, 1986, **29**, 1038 (*synth*)
Odaka, H. *et al., J. Nutr. Sci. Vitaminol.*, 1992, **38**, 27 (*pharmacol*)
Fukase, H. *et al., J.O.C.*, 1992, **57**, 3651 (*synth, pmr*)

Welan W-1

S 130. Biozan



Microbial polysaccharide prod. by *Alcaligenes* ATCC 31555 by aerobic fermentation. Solns. v. viscous and pseudoplastic; used as an additive in oil and natural gas recovery. Also in specialised cement and concrete applications.

Jansson, P.-E. *et al., Carbohydr. Res.*, 1985, **139**, 217; 1994, **256**, 327 (*struct*)

O'Neill, M.A. *et al., Carbohydr. Res.*, 1986, **147**, 295 (*struct*)

Kuo, M.-S. *et al., Carbohydr. Res.*, 1986, **156**, 173 (*manuf*)

Talashek, T.A. *et al., Carbohydr. Res.*, 1987, **160**, 303 (*props*)

Kirk-Othmer Encycl. Chem. Technol., 4th edn., Wiley, 1991, **12**, 859; **16**, 590

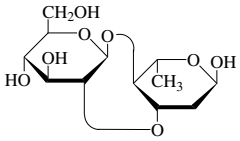
Stankowski, J.D. *et al., Carbohydr. Res.*, 1992, **224**, 337 (*struct*)

Campana, S. *et al., Carbohydr. Res.*, 1992, **231**, 31 (*conformn*)

Hember, M.W.N. *et al., Carbohydr. Res.*, 1994, **252**, 209 (*struct*)

Wilforibiose W-2

β-D-Glucopyranose L-olivopyranose 1′,4:2′,3-anhydride



α-Pyranose-*form*

$C_{12}H_{20}O_8$ 292.285

Isol. from hydrolysates of glucosides of *Cynanchum wilfordi*. Needles (MeOH). Mp 189-191°. $[\alpha]_D^{15.5}$ -23.5 (c, 0.98 in MeOH).

α-Pyranose-*form*

Tetra-Ac:

$C_{20}H_{28}O_{12}$ 460.434

Needles (MeOH/$CHCl_3$). Mp 206-210°. $[\alpha]_D^{19.5}$ -48.4 (c, 0.98 in $CHCl_3$).

Me glycoside: Methyl α-wilforibioside

$C_{13}H_{22}O_8$ 306.312

Needles (MeOH). Mp 200-203°. $[\alpha]_D^{15}$ -70 (c, 0.96 in MeOH).

β-Pyranose-*form*

Me glycoside: Methyl β-wilforibioside

$C_{13}H_{22}O_8$ 306.312

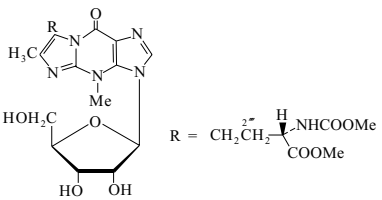
Needles + $1H_2O$ (MeOH). Mp 186-187°. $[\alpha]_D^{15}$ +36.3 (c, 0.98 in MeOH).

Tsukamoto, S. *et al., Chem. Pharm. Bull.*, 1986, **34**, 1067 (*isol, cryst struct, pmr, cmr*)

Wybutosine W-3

Y-Wyo. Nucleoside Y

[55196-46-8]



$C_{21}H_{28}N_6O_9$ 508.487

Nucleoside present in yeast t-RNA. Fluorescent.

Thiebe, R. *et al., Eur. J. Biochem.*, 1968, **5**, 546

Funamizu, M. *et al., J.A.C.S.*, 1971, **93**, 6706 (*synth, abs config*)

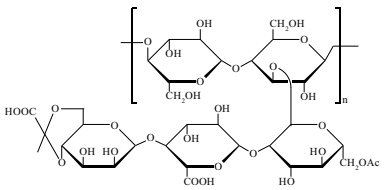
Blobstein, S.H. *et al., Arch. Biochem. Biophys.*, 1975, **167**, 668

Kasai, H. *et al., Biochemistry*, 1976, **15**, 898 (*bibl*)

Itaya, T. *et al., Chem. Pharm. Bull.*, 2002, **50**, 489-492 (*synth*)

Xanthan X-1

Xanthan gum. Biozan R. E415
[11138-66-2]

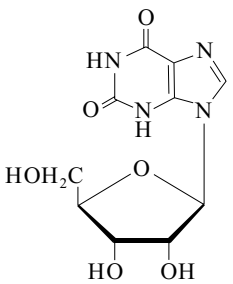


High molecular weight in range 10^6-10^7 with rodlike ordered struct. Extracellular bacterial polysaccharide from the plant pathogen *Xanthomonas campestris*. An emulsion stabilising and gelling agent.

Dea, I.C.M. *et al., Carbohydr. Res.*, 1977, **57**, 249
Southwick, J.G. *et al., Carbohydr. Res.*, 1980, **84**, 287
Norton, I.T. *et al., Coll. Czech. Chem. Comm.*, 1980, 545
Horton, D. *et al., Carbohydr. Res.*, 1985, **141**, 340 (*cmr*)
Gravanis, G. *et al., Carbohydr. Res.*, 1987, **160**, 259 (*props*)
Gamini, A. *et al., Carbohydr. Res.*, 1991, **220**, 33 (*cmr, O-17 nmr, struct*)
Bezemer, L. *et al., Carbohydr. Res.*, 1994, **263**, 197 (*conformn*)
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2961-2965 (*props, use*)

Xanthosine, 8CI X-2

3,9-Dihydro-9-β-D-ribofuranosyl-1H-purine-2,6-dione, 9CI. 9-β-D-Ribofuranosylxanthine
[146-80-5]



$C_{10}H_{12}N_4O_6$ 284.228
Prod. by guanine-free mutants of bacteria e.g. *Bacillus subtilis, Aerobacter aerogenes*. Also reported from seeds of *Trifolium alexandrinum*. Prismatic cryst. (H_2O). Spar. sol. cold H_2O; v. sol. hot H_2O. $[\alpha]_D^{30}$ -51.2 (c, 8.0 in 0.3*M* NaOH). pK_{a1} 5.67; pK_{a3} 12.85 (25°). λ_{max} 253 nm (ε 8 790) (H_2O). Dec. on heating with no distinct melting range.

3′-Phosphate: 3′-Xanthylic acid, 9CI, 8CI
[21089-32-7]
$C_{10}H_{13}N_4O_9P$ 364.208
Mp 200° (as brucine salt). $[\alpha]_D^{20}$ -61.66 (c, 5.0 in NaOH).

5′-Phosphate: Xanthosine 5′-(dihydrogen phosphate), 9CI. 5′-Xanthylic acid, 8CI. Xanthosine monophosphate. Xanthosine 5′-phosphate. XMP
[523-98-8]

[25899-70-1]
$C_{10}H_{13}N_4O_9P$ 364.208
Inhibitor of isoforms I and II of human inosine 5′-monophosphate dehydrogenase. No phys. props. reported.

5′-Triphosphate: [6253-56-1]

[50801-64-4, 90011-94-2]
$C_{10}H_{15}N_4O_{15}P_3$ 524.168
No phys. props. reported.

2′,3′-O-Isopropylidene: [4137-57-9]
$C_{13}H_{16}N_4O_6$ 324.293
Mp 240°.

3-Me: 3-Methylxanthosine
[3080-28-2]
$C_{11}H_{14}N_4O_6$ 298.255
Needles (H_2O). Mp 200° dec.

5′′-O-Sulfate: Xanthosine 5′-sulfate
$C_{10}H_{12}N_4O_9S$ 364.292
Isol. from the venom of the spider *Tegenaria agrestis*.

[5968-90-1]

Magasanik, B. *et al., J. Biol. Chem.*, 1954, **206**, 83 (*isol*)
Bolis, M.E. *et al., J. Biol. Chem.*, 1956, **219**, 917 (*biosynth*)
Jardetzky, C.D. *et al., J.A.C.S.*, 1960, **82**, 222 (*pmr*)
Krishnaswamy, N.P. *et al., Curr. Sci.*, 1966, **35**, 11 (*isol*)
Yoshikawa, M. *et al., Bull. Chem. Soc. Jpn.*, 1967, **40**, 2849-2853 (*5′-phosphate, synth*)
Yamazaki, A. *et al., J.O.C.*, 1967, **32**, 3258 (*synth*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1968, **33**, 2259 (*3′-Xanthylic acid*)
Jones, A.J. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1970, **65**, 27 (*cmr*)
De Pamphilis, M.L. *et al., Biochemistry*, 1973, **12**, 3714-3724 (*synth, uv, 5′-triphosphate*)
Sowa, T. *et al., Bull. Chem. Soc. Jpn.*, 1975, **48**, 2084-2090 (*phosphate*)
Westhof, E. *et al., Z. Naturforsch., C*, 1975, **30**, 131 (*pmr*)
Koyama, G. *et al., Acta Cryst. B*, 1976, **32**, 969 (*cryst struct*)
Itaya, T. *et al., Chem. Pharm. Bull.*, 1989, **37**, 1235 (*3-Methylxanthosine*)
Ortiz, B. *et al., Eur. J. Biochem.*, 1993, **212**, 263-270 (*pmr, 5′-triphosphate*)
Carr, S.F. *et al., J. Biol. Chem.*, 1993, **268**, 27286-28290 (*5′-phosphate, biol*)
Taggi, A.E. *et al., J.A.C.S.*, 2004, **126**, 10364-10369 (*5′-sulfate*)

Xylan, 9CI, 8CI X-3

[9014-63-5]

$C_5H_8O_4$ 132.116
A typical hemicellulose pentosan formed by chains of (1→4) linked β-D-xylopyranosyl residues. True xylans, composed exclusively of D-xylose residues, are extremely rare. Esparto grass D-xylan is an example. Polymeric. Minimum formula given. Occurs in all land plants and is a major component of hardwoods.
$[\alpha]_D^{21}$ -92 (c, 0.5 in 0.5*N* NaOH).

Poly(hydrogen sulfate): Pentosan polysulfate. Xylan hydrogen sulfate, 9CI. Xylan polysulfate. Cartrophen vet. Elmiron. Fibrase. Fibrezym. Hemoclar. Thrombocid. CB 8061. PZ 68. SP 54
[37300-21-3] Anticoagulant, antiinflammatory agent. Used in the treatment of interstitial cystitis. Plasminogen activator-releasing agent. Shows antithrombotic and antineoplastic activity. Inhibits accumulation of protease-resistant prion protein in a scrapie-infected cell line. $[\alpha]_D^{20}$ -57 (Na salt). Used as sodium salt (Pentosan polysulfate sodium, BAN, INN, USAN).
Approved by FDA (1996) (as sodium salt)

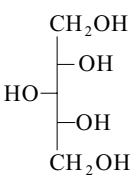
[37319-17-8, 116001-96-8]

Whistler, R.L. *et al., Adv. Carbohydr. Chem.*, 1950, **5**, 269 (*rev*)
Chanda, S.K. *et al., J.C.S.*, 1950, 1289 (*isol*)
Swiss Pat., 1953, 293 566; *CA*, **49**, 1787h (*synth, polysulfate*)
Paramelle, B. *et al., Therapie*, 1962, **17**, 719 (*activity, polysulfate*)
Adams, G.A. *et al., Methods Carbohydr. Chem.*, 1965, **5**, 170 (*synth*)
Mizuno, T. *et al., CA*, 1968, **68**, 3140k (*synth*)
Zelenev, Yu.V. *et al., CA*, 1968, **68**, 44624g (*pmr*)
Frandoli, G. *et al., Arzneim.-Forsch.*, 1972, **22**, 759 (*use*)
Marchessault, R.M. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **33**, 397 (*cryst struct*)
Wilkie, K.C.B. *et al., Adv. Carbohydr. Chem. Biochem.*, 1979, **36**, 215
Kindness, G. *et al., Biochem. Biophys. Res. Commun.*, 1979, **88**, 1062 (*pharmacol, polysulfate*)
Esquivel, C.O. *et al., Thromb. Res.*, 1982, **28**, 389 (*activity, polysulfate*)
Doctor, V.M. *et al., Thromb. Res.*, 1983, **30**, 573 (*isol, props, polysulfate*)
MacGregor, I.R. *et al., Thromb. Haemostasis*, 1984, **51**, 321 (*metab, polysulfate*)
Willuweit, B. *et al., Naunyn-Schmiedeberg's Arch. Pharmacol.*, 1988, **337**, 354 (*activity*)
Kiesel, J. *et al., Thromb. Res.*, 1991, **64**, 301 (*pharmacol*)
Zugmaier, G. *et al., J. Natl. Cancer Inst.*, 1992, **84**, 1716 (*pharmacol*)
Labrouche, S. *et al., Thromb. Haemostasis*, 1992, **68**, 556 (*pharmacol*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 233
Priola, S.A. *et al., Infect. Agents Dis.*, 1994, **3**, 54 (*activity*)
Sadhukhan, P.C. *et al., J. Urol. (Baltimore)*, 2002, **168**, 289-292 (*polysulfate, pharmacol*)
Dealler, S. *et al., j IDrugs*, 2003, **6**, 470-478 (*pentosan polysulfate, rev*)

Xylitol, 9CI X-4

Xylite. Xyliton. E967. Klinit. Kylit
[87-99-0]

[16277-71-7]



$C_5H_{12}O_5$ 152.147
Prod. industrially by redn. of Xylose, X-81 obt. from wood cellulose. Occurs in a variety of plants, in mushroom *Psalliota*

campestris and roots of *Primula officinalis*. Nutritive sweetener used in sugar free sweets and chewing gums and pharmaceuticals. Two forms: metastable, rhombic cryst. and stable, monoclinic cryst. Poorly sol. hexane.
Mp 61-61.5° (metastable) Mp 93-94.5° (stable). Opt. inactive (*meso*-).

▶ LD_{50} (mus, orl) 22000 mg/kg; adverse gastrointestinal effects (large dose).
ZF0800000

Penta-Ac: [13437-68-8]
$C_{15}H_{22}O_{10}$ 362.333
Mp 62.5-63°.

Pentabenzoyl: [36030-82-7]
$C_{40}H_{32}O_{10}$ 672.687
Mp 106-107°.

*2,3,4-Tri-Me: 2,3,4-Tri-*O*-methylxylitol*
$C_8H_{18}O_5$ 194.227
Syrup.

*2,3,4-Tri-Me, 1,5-ditosyl: 2,3,4-Tri-*O*-methyl-1,5-ditosylxylitol*
$C_{22}H_{30}O_9S_2$ 502.606
Cryst. (EtOAc/hexane). Mp 121-123°.
1,5-Dimesyl analogue also prepd.

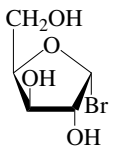
*1,2:3,4-Di-*O*-isopropylidene:*
$C_{11}H_{20}O_5$ 232.276
Mp 36°.

*1,2:4,5-Di-*O*-isopropylidene, 3-benzoyl:*
$C_{18}H_{24}O_6$ 336.384
Mp 114-116°.

*1,3:2,4-Di-*O*-benzylidene, 5-benzoyl:*
$C_{26}H_{24}O_6$ 432.472
Mp 173-175°.

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 185B (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 289A (*nmr*)
Wolfrom, M.L. *et al., J.A.C.S.*, 1942, **64**, 1739
Carson, J.F. *et al., J.A.C.S.*, 1943, **65**, 1777
Kratzl, K. *et al., Naturwissenschaften*, 1963, **50**, 154 (*occur*)
Baggett, N. *et al., J.C.S.*, 1965, 3382
Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272 (*occur*)
Barton, D.H.R. *et al., J.C.S. Perkin 1*, 1972, 542
Brimacombe, J.S. *et al., The Carbohydrates*, 1972, **1A**, 479
Chautemps, P. *et al., C. R. Hebd. Seances Acad. Sci. Ser. C*, 1977, **284**, 807 (*synth*)
Xylitol, Int. Symp., (Ed. Counsell, J.N.), Applied Science Publishers, London, 1978, (*book*)
Angyal, S.J. *et al., Carbohydr. Res.*, 1980, **84**, 201 (*cmr*)
Minami, N. *et al., J.A.C.S.*, 1982, **104**, 1109 (*total synth*)
Holland, D. *et al., J.C.S. Perkin 1*, 1983, 1553 (*synth*)
Lewis, R.J. *et al., Food Additives Handbook*, Van Nostrand Reinhold International, New York, 1989, XPJ000
Kopf, J. *et al., Carbohydr. Res.*, 1992, **233**, 35 (*cryst struct, penta-Ac*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1063
Handbook of Pharmaceutical Excipients, 2nd edn., (eds. Wade, A. *et al*), American Pharmaceutical Association/Pharmaceutical Press, 1994, 564-567
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1395
Encyclopedia of Food and Color Additives, (ed. Burdock, G.A.), CRC Press, 1997, 2967-2970
Rozenberg, M. *et al., Carbohydr. Res.*, 2000, **328**, 307-319 (*ir*)
Garcia-Martin, M.G. *et al., Carbohydr. Res.*, 2001, **333**, 95-103 (*2,3,4-tri-Me, 2,3,4-tri-Me ditosyl*)
Lewis, R.J. *et al., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold*, 1992, XPJ000

Xylofuranosyl bromide X-5



α-D-*form*

$C_5H_9BrO_4$ 213.028

α-D-*form*

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-α-D-xylofuranosyl bromide*
[55057-30-2]
$C_{11}H_{15}BrO_7$ 339.139
Syrup.

*Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-α-D-xylofuranosyl bromide*
[38837-18-2]
$C_{26}H_{21}BrO_7$ 525.352
Syrup.

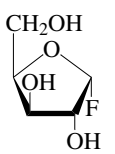
β-D-*form*

*Tri-Ac: 2,3,5-Tri-*O*-acetyl-β-D-xylofuranosyl bromide*
[55057-31-3]
$C_{11}H_{15}BrO_7$ 339.139
Syrup.

*Tribenzoyl: 2,3,5-Tri-*O*-benzoyl-β-D-xylofuranosyl bromide*
[38837-19-3]
$C_{26}H_{21}BrO_7$ 525.352
Syrup.

Wagner, G. *et al., Pharmazie*, 1972, **27**, 433, (*α-tribenzoyl, β-tribenzoyl*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1974, **28**, 1041; 1975, **29**, 185 (*α-tri-Ac, β-tri-Ac, pmr*)
Girodeau, J.M. *et al., J. Antibiot.*, 1984, **37**, 150 (*deriv*)

Xylofuranosyl fluoride X-6



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form*

*2-Me, 3,5-dibenzoyl: 3,5-Di-*O*-benzoyl-2-*O*-methyl-α-D-xylofuranosyl fluoride*
[38791-48-9]
$C_{20}H_{19}FO_6$ 374.365
Syrup. $[\alpha]_D^{25}$ -32.5 (c, 0.65 in $CHCl_3$).

β-D-*form*

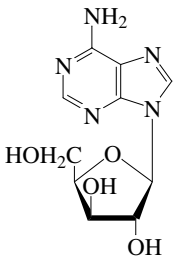
*Tri-Ac: 2,3,5-Tri-*O*-acetyl-β-D-xylofuranosyl fluoride*
[28072-59-5]
$C_{11}H_{15}FO_7$ 278.234
Syrup.

*2-Me, 3,5-dibenzoyl: 3,5-Di-*O*-benzoyl-2-*O*-methyl-β-D-xylofuranosyl fluoride*
[38791-49-0]
$C_{20}H_{19}FO_6$ 374.365
Cryst. (Et_2O/pentane). Mp 82-83°. $[\alpha]_D^{22}$ -133 (c, 1.6 in $CHCl_3$).

Hall, L.D. *et al., Can. J. Chem.*, 1970, **48**, 1155 (*tri-Ac, pmr, F-19 nmr*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1972, **26**, 1561 (*deriv, pmr, F-19 nmr*)

9-Xylofuranosyladenine, 8CI X-7

*9-Xylofuranosyl-9*H*-purin-6-amine, 9CI*



β-D-*form*

$C_{10}H_{13}N_5O_4$ 267.244

α-D-*form*

Cryst. (MeOH). Mp 98-100°. $[\alpha]_D^{20}$ +26.2 (c, 0.61 in DMSO).

β-D-*form* [524-69-6]
Mp 125-140°. $[\alpha]_D^{23}$ -53 (H_2O).

Picrate: Mp 210-222° dec.

2′,3′,5′-Tri-Ac: [15830-77-0]
$C_{16}H_{19}N_5O_7$ 393.355
$[\alpha]_D^{24}$ -14 (c, 0.56 in $CHCl_3$).

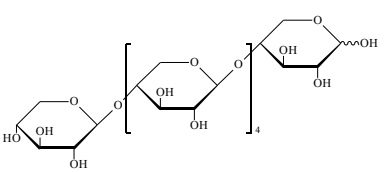
*3′,5′-*O*-Isopropylidene:*
$C_{13}H_{17}N_5O_4$ 307.308
Mp 204-207°. $[\alpha]_D^{27}$ -71.6 (c, 0.3 in DMF).

5′-Trityl:
$C_{29}H_{27}N_5O_4$ 509.563
Mp 198-199°. $[\alpha]_D^{27}$ -24.9 (c, 0.3 in $CHCl_3$).

Baker, B.R. *et al., J.O.C.*, 1957, **22**, 966 (*synth*)
Reist, E.J. *et al., J.O.C.*, 1968, **33**, 1600 (*synth*)
Ikehara, M. *et al., Chem. Pharm. Bull.*, 1971, **19**, 538 (*synth, pmr*)
Breitmaier, E. *et al., Tetrahedron*, 1973, **29**, 227 (*conformn, cmr*)
Lerner, L.M. *et al., J.O.C.*, 1975, **40**, 2400 (*β-D-form*)
Gosselin, G. *et al., J. Med. Chem.*, 1986, **29**, 203 (*α-D-form, synth, uv, pmr, ms*)

Xylohexaose X-8

O-β-D-Xylopyranosyl-(1→4)-[(O-β-D-xylopyranosyl)-(1→4)]$_4$-D-xylose
[49694-21-5]



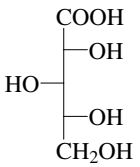
$C_{30}H_{50}O_{25}$ 810.71
Obt. by partial hydrol. of hardwood xylan. Mp 236-237° (dihydrate). $[\alpha]_D^{25}$ -72.8 (H_2O).

Tetradeca-Ac: Mp 260-261°. $[\alpha]_D^{25}$ -102 (c, 1.5 in $CHCl_3$).

Whistler, R.L. *et al., J.A.C.S.*, 1952, **74**, 3059; 4334 (*isol, synth*)
Kusakabe, I. *et al., CA*, 1976, **84**, 6713r (*isol*)

Xylonic acid, 9CI, 8CI X-9

[17828-56-7]



D-*form*

$C_5H_{10}O_6$ 166.13

D-*form* [526-91-0]
Prod. from xylose by various microorganisms, e.g. *Pullularia pullulans*.
Syrup. $[\alpha]_D$ -2.9 → +20.1 (H_2O).

NH_4 salt: [5461-96-1]
Mp 118-122°. $[\alpha]_D^{20}$ +19.1 (c, 2.0 in H_2O).

Ca salt: $[\alpha]_D^{20}$ +10.5 (c, 2.0 in H_2O). $[\alpha]_D^{20}$ +12.4 (c, 2.0 in H_2O) (dihydrate).

Pb salt:
Monohydrate. $[\alpha]_D^{20}$ -7 (c, 2.0 in H_2O).

Me ester: Methyl D-xylonate
[20603-41-2]
$C_6H_{12}O_6$ 180.157
Syrup. $[\alpha]_D$ +15.2 (c, 3.2 in H_2O).

Amide: D-Xylonamide
$C_5H_{11}NO_5$ 165.146
Mp 81-82°. $[\alpha]_D^{16}$ +44.5 → +23.8 (H_2O).

2,3,4,5-Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-D-xylonic acid
$C_{13}H_{18}O_{10}$ 334.279
Mp 86-88°. $[\alpha]_D^{20}$ +5 (c, 2.0 in EtOH).

2,4:3,5-Di-O-benzylidene: 2,4:3,5-Di-O-benzylidene-D-xylonic acid
$C_{19}H_{18}O_6$ 342.348
Mp 198.5-200°. $[\alpha]_D$ -21.3 (c, 1.0 in DMF).

2,4:3,5-Di-O-benzylidene, Me ester: Methyl 2,4:3,5-di-O-benzylidene-D-xylonate
$C_{20}H_{20}O_6$ 356.374
Mp 191.5-194.5°. $[\alpha]_D$ +8.8 (c, 1.7 in $CHCl_3$).

1,4-Lactone: See 1,4-Xylonolactone, X-10

1,5-Lactone: See 1,5-Xylonolactone, X-11

L-*form* [4172-44-5]

Brucine salt: Mp 177-178°. $[\alpha]_D$ +24.3 (H_2O).

2,3,4,5-Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-L-xylonic acid
$C_{13}H_{18}O_{10}$ 334.279
Mp 86-88°. $[\alpha]_D^{20}$ -4.5 (EtOH).

1,4-Lactone: See 1,4-Xylonolactone, X-10

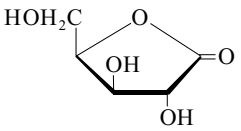
DL-*form* [20663-19-8]

2,3,4,5-Tetra-Ac: 2,3,4,5-Tetra-O-acetyl-DL-xylonic acid
$C_{13}H_{18}O_{10}$ 334.279
Mp 134-135°.

Rehorst, K. *et al., Annalen*, 1933, **503**, 143 (*synth*)
Menzinsky, G. *et al., Ber.*, 1935, **68**, 822 (*synth*)
Major, R.T. *et al., J.A.C.S.*, 1936, **58**, 2474 (*tetra-Ac*)
Kiessling, H. *et al., Acta Chem. Scand.*, 1962, **16**, 1858 (*isol*)
Isbell, H.S. *et al., Methods Carbohydr. Chem.*, 1963, **2**, 13 (*D-form, synth*)
Zinner, H. *et al., Carbohydr. Res.*, 1968, **7**, 38 (*dibenzylidene*)

1,4-Xylonolactone X-10

Xylono-γ-lactone. xylo-*1,4-Pentonolactone*
[18423-66-0]



D−*form*

$C_5H_8O_5$ 148.115

D-*form* [15384-37-9]
Cryst. (dioxan). Mp 98-101°. $[\alpha]_D^{20}$ +91.8 → +86.7 (c, 5 in H_2O).

2,3,5-Tri-Ac: 2,3,5-Tri-O-acetyl-D-1,4-xylonolactone
[79580-60-2]
$C_{11}H_{14}O_8$ 274.227
Light beige cryst. Mp 96-97°.

L-*form* [68035-75-6]
Cryst. (EtOH aq.). Mp 97°. $[\alpha]_D$ -82 (H_2O).

2,3-Di-Me: 2,3-Di-O-methyl-L-xylono-1,4-lactone
$C_7H_{12}O_5$ 176.169
Syrup. $Bp_{0.02}$ 115°. $[\alpha]_D^{23}$ +97 → +69 (H_2O).

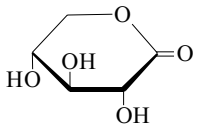
3,5-Di-Me: 3,5-Di-O-methyl-L-xylono-1,4-lactone
$C_7H_{12}O_5$ 176.169
Syrup. $Bp_{0.08}$ 105°. $[\alpha]_D^{21.5}$ +81.5 → +39 (H_2O).

2,3,5-Tri-Me: 2,3,5-Tri-O-methyl-L-xylono-1,4-lactone
$C_8H_{14}O_5$ 190.196
$Bp_{0.04}$ 105°. $[\alpha]_D$ +74.1 → +6.4 (c, 1.0 in H_2O).

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 1136C (*nmr*)
Haworth, W.N. *et al., J.C.S.*, 1926, 880-887; 1928, 611-618 (*L-3,5-di-Me, L-tri-Me*)
Rehorst, K. *et al., Annalen*, 1933, **503**, 143-166 (*D-form, synth*)
Isbell, H.S. *et al., J. Res. Natl. Bur. Stand. (U.S.)*, 1933, **11**, 649 (*D-form, synth*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 74; 139
Heyns, K. *et al., Annalen*, 1947, **558**, 194-201 (*L-form, synth*)
Skibiński, A. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1978, **52**, 1307-1309 (*L-form, synth*)
Serianni, A.S. *et al., J.O.C.*, 1980, **45**, 3329-3341 (*D-form, cmr*)
Horton, D. *et al., Carbohydr. Res.*, 1982, **105**, 111-129 (*pmr, cmr, conformn*)
Org. Synth., Coll. Vol., 9, 1998, 717-721, (*D-tri-Ac, synth, ir, pmr*)

1,5-Xylonolactone X-11

Xylono-δ-lactone



$C_5H_8O_5$ 148.115

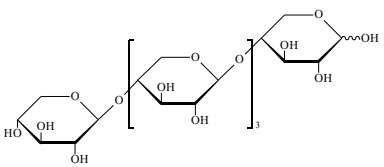
D-*form*

2,3,4-Tri-Me: 2,3,4-Tri-O-methyl-D-xylono-1,5-lactone
$C_8H_{14}O_5$ 190.196
Needles (petrol). Mp 56°. $Bp_{0.06}$ 115-120°. $[\alpha]_D^{15}$ -3.8 → +20.8 (H_2O).

Haworth, W.N. *et al., J.C.S.*, 1926, 880, (*D-tri-Me*)
Drew, H.D.K. *et al., J.C.S.*, 1927, 1237, (*D-tri-Me*)

Xylopentaose X-12

O-*β-D-Xylopyranosyl-(1→4)-[O-β-D-xylopyranosyl-(1→4)]$_3$-D-xylose*
[49694-20-4]



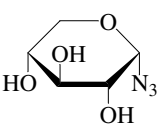
$C_{25}H_{42}O_{21}$ 678.594
Obt. by acid hydrol. of xylan.
Mp 231-232° (hemihydrate). $[\alpha]_D^{25}$ -66 (H_2O).

β-*Pyranose-form*

Dodeca-Ac: Mp 248-249°. $[\alpha]_D^{25}$ -97.5 (c, 1.1 in $CHCl_3$).

Whistler, R.L. *et al., J.A.C.S.*, 1952, **74**, 3609; 4334 (*isol, synth*)
Sakai, Y. *et al., Agric. Biol. Chem.*, 1975, **39**, 545 (*chromatog*)

Xylopyranosyl azide, 9CI X-13



α-D-Pyranose-*form*

$C_5H_9N_3O_4$ 175.144

α-D-*form* [100842-21-5]
Cryst. (EtOAc). Mp 148-150°. $[\alpha]_D^{23}$ +270 (c, 1.28 in H_2O).

Tri-Ac: 2,3,4-Tri-O-acetyl-α-D-xylopyranosyl azide
[100842-17-9]
$C_{11}H_{15}N_3O_7$ 301.255
$[\alpha]_D^{25}$ +138 (c, 1.03 in $CHCl_3$).

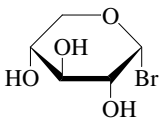
β-D-*form* [51368-20-8]
Mp 106°. $[\alpha]_D$ -56 (c, 1.2 in MeOH).

Tri-Ac: 2,3,4-Tri-O-acetyl-β-D-xylopyranosyl azide
[53784-33-1]

$C_{11}H_{15}N_3O_7$ 301.255
Mp 87°. $[\alpha]_D$ -86 (c, 1 in $CHCl_3$).

Györgydeàk, Z. *et al., Annalen*, 1986, 1393 (*synth*)
El Meslouti, A. *et al., Tet. Lett.*, 1994, **35**, 3913 (*synth*)

Xylopyranosyl bromide X-14



α-D-*form*

$C_5H_9BrO_4$ 213.028

α-D-*form*

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-xylopyranosyl bromide. Acetobromoxylose*
[3068-31-3]
$C_{11}H_{15}BrO_7$ 339.139
Mp 101-102°. $[\alpha]_D^{20}$ +212 (c, 1.4 in $CHCl_3$).

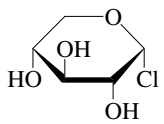
*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-xylopyranosyl bromide*
$C_{26}H_{21}BrO_7$ 525.352
Mp 134-135°. $[\alpha]_D^{20}$ +117 ($CHCl_3$).

β-D-*form*

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-xylopyranosyl bromide*
[50271-21-1]
$C_{26}H_{21}BrO_7$ 525.352
Mp 146-147°. $[\alpha]_D^{20}$ -143 (c, 1.0 in $CHCl_3$).

Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*rev, derivs*)
Capon, B. *et al., J.C.S.*, 1964, 3242 (*α-D-tri-Ac*)
Bock, K. *et al., J.C.S. Perkin 1*, 1973, 1456, (*β-D-tribenzoyl*)
Luger, P. *et al., Chem. Ber.*, 1974, **107**, 2615, (*β-D-tribenzoyl, conformn, cryst struct*)

Xylopyranosyl chloride X-15



α-*form*

$C_5H_9ClO_4$ 168.576

α-D-*form*

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-xylopyranosyl chloride. Acetochloroxylose*
[10343-54-1]
$C_{11}H_{15}ClO_7$ 294.688
Mp 105°. $[\alpha]_D^{20}$ +171 ($CHCl_3$).

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-xylopyranosyl chloride*
[32445-43-5]
$C_{26}H_{21}ClO_7$ 480.9
Cryst. (Et_2O/petrol). Mp 144-146°. $[\alpha]_D^{20}$ +88.1 (c, 1.2 in $CHCl_3$).

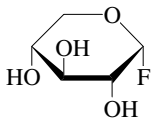
β-D-*form*

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-xylopyranosyl chloride*
[10300-18-2]
$C_{11}H_{15}ClO_7$ 294.688
Mp 112-113°. $[\alpha]_D^{20}$ -131 (CCl_4).

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-xylopyranosyl chloride*
[32445-44-6]
$C_{26}H_{21}ClO_7$ 480.9
Cryst. (Et_2O/petrol). Mp 143-144°. $[\alpha]_D^{20}$ -108.3 (c, 1.1 in $CHCl_3$).

Haynes, L.J. *et al., Adv. Carbohydr. Chem.*, 1955, **10**, 207 (*rev, derivs*)
Durrette, P.L. *et al., Carbohydr. Res.*, 1971, **18**, 57 (*α-D-tri-Ac, α-D-tribenzoyl, β-D-tri-Ac, β-D-tribenzoyl, pmr, conformn*)
Kothe, G. *et al., Carbohydr. Res.*, 1974, **37**, 283 (*β-D-tri-Ac, cryst struct*)

Xylopyranosyl fluoride X-16



α-D-*form*

$C_5H_9FO_4$ 152.122

α-D-*form* [4536-02-1]

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-xylopyranosyl fluoride*
[440-05-1]
$C_{11}H_{15}FO_7$ 278.234
Cryst. Mp 86-88°. $[\alpha]_D$ +67.2 (c, 1.0 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-xylopyranosyl fluoride*
[4163-50-2]
$C_{26}H_{21}FO_7$ 464.446
Needles (EtOH or Et_2O/pentane). Mp 119-120°. $[\alpha]_D^{20}$ +39.2 (c, 0.93 in $CHCl_3$).

*2-Me, 3,4-dibenzoyl: 3,4-Di-*O*-benzoyl-2-O-methyl-α-D-xylopyranosyl fluoride*
[38791-46-7]
$C_{20}H_{19}FO_6$ 374.365
Cryst. (Et_2O/pentane). Mp 120-121°. $[\alpha]_D^{23}$ -56.7 (c, 0.3 in $CHCl_3$).

*Tribenzyl: 2,3,4-Tri-*O*-benzyl-α-D-xylopyranosyl fluoride*
[95898-05-8]
$C_{26}H_{27}FO_4$ 422.495
Syrup.

β-D-*form* [108393-17-5]

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-β-D-xylopyranosyl fluoride*
[10369-21-8]
$C_{11}H_{15}FO_7$ 278.234
Mp 56-57° (52-55°). $[\alpha]_D^{23}$ -56.4 (c, 1.6 in $CHCl_3$).

*Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-β-D-xylopyranosyl fluoride*
[3862-87-1]
$C_{26}H_{21}FO_7$ 464.446
Prisms (EtOH). Mp 149-150°. $[\alpha]_D^{20}$ -39.4 (c, 1.04 in $CHCl_3$).

*2-Me, 3,4-dibenzoyl: 3,4-Di-*O*-benzoyl-2-O-methyl-β-D-xylopyranosyl fluoride*
[38791-47-8]
$C_{20}H_{19}FO_6$ 374.365
Cryst. (Et_2O/pentane). Mp 82-83°. $[\alpha]_D^{22}$ -133 (c, 1.6 in $CHCl_3$).

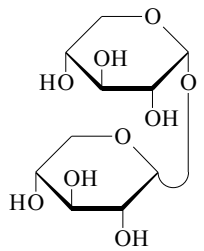
α-L-*form*

*Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-L-xylopyranosyl fluoride*
Plates (pentane/Et_2O). Mp 83-85°. $[\alpha]_D^{23}$ -61 (c, 0.76 in $CHCl_3$).

Brauns, D.K. *et al., J.A.C.S.*, 1923, **45**, 833, (*α-tri-Ac*)
Pedersen, C. *et al., Acta Chem. Scand.*, 1963, **17**, 1269 (*tribenzoyl*)
Lundt, K. *et al., Mikrochim. Acta*, 1966, 126, (*β-tri-Ac*)
Hall, L.D. *et al., Carbohydr. Res.*, 1967, **4**, 512; 1969, **9**, 11 (*pmr*)
Hall, L.D. *et al., Can. J. Chem.*, 1969, **47**, 19 (*tri-Ac, pmr, F-19 nmr*)
Jacobsen, S. *et al., Acta Chem. Scand.*, 1972, **26**, 1561 (*α-Me deriv, β-Me deriv, pmr*)
Kasumi, T. *et al., Biochemistry*, 1987, **26**, 3010 (*pmr, F-19 nmr*)
Yamada, H. *et al., Tet. Lett.*, 1987, **28**, 4315 (*tribenzyl*)
Takanashi, S. *et al., Liebigs Ann./Recl.*, 1997, 825-838; 1081-1084 (*α-L-tri-Ac*)

α-D-Xylopyranosyl α-D-xylopyranoside, 9CI X-17

[70214-78-7]



$C_{10}H_{18}O_9$ 282.247
Non-reducing disaccharide. Cryst. (MeOH). Mp 269-272°. $[\alpha]_D$ +215 (+120) (H_2O).

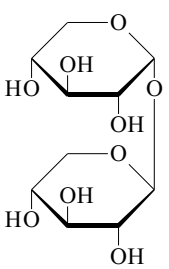
Hexa-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 249-251°. $[\alpha]_D$ +166.4 ($CHCl_3$).

Hexabenzyl: [77875-54-8]
$C_{52}H_{54}O_9$ 822.993
$[\alpha]_D^{22}$ +96.1 (c, 0.77 in $CHCl_3$).

Ball, D.H. *et al., J.C.S.*, 1958, 33 (*synth*)
Burckhardt, H. *et al., Ber.*, 1962, **95**, 2616 (*synth*)
Pavia, A.A. *et al., Can. J. Chem.*, 1981, **59**, 482 (*hexabenzyl, synth, cmr*)
Pavia, A.A. *et al., Nouv. J. Chim.*, 1981, **5**, 101 (*cmr, conformn*)

β-D-Xylopyranosyl α-D-xylopyranoside, 9CI X-18

α-D-Xylopyranosyl β-D-xylopyranoside
[72151-41-8]



$C_{10}H_{18}O_9$ 282.247

Non-reducing disaccharide. Cryst. (MeOH). Mp 208.5-210.5°. $[\alpha]_D$ +84.5 (H_2O).

Hexa-Ac: [72127-37-8]
$C_{22}H_{30}O_{15}$ 534.47
Cryst. (MeOH). Mp 175-176.5°. $[\alpha]_D$ +39.7 (H_2O).

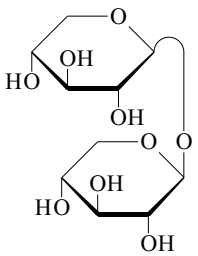
2,2′-Dibenzyl, 3,3′,4,4′-tetra-Ac: 3,4-Di-O-acetyl-2-O-benzyl-β-D-xylopyranosyl 3,4-di-O-acetyl-2-O-benzyl-α-D-xylopyranoside
$C_{32}H_{38}O_{13}$ 630.644
Cryst. (EtOH). Mp 172.5-174.5°. $[\alpha]_D^{22}$ +76.7 (c, 1.0 in $CHCl_3$).

Hexa-Me: 2,3,4-Tri-O-methyl-β-D-xylopyranosyl 2,3,4-tri-O-methyl-α-D-xylopyranoside, 9CI
[77735-24-1]
$C_{16}H_{30}O_9$ 366.408
Cryst. (cyclohexane). Mp 62-64°. $[\alpha]_D^{22}$ +59 (c, 0.7 in $CHCl_3$).

Helferich, B. *et al., Chem. Ber.*, 1958, **91**, 1794 (*synth*)
Jones, H.G. *et al., Can. J. Chem.*, 1962, **40**, 1339 (*glc*)
Burckhardt, H. *et al., Chem. Ber.*, 1962, **95**, 2616 (*synth*)
Schroeder, R.L. *et al., Carbohydr. Res.*, 1974, **37**, 368 (*hexa-Me*)
Kovac, P. *et al., Carbohydr. Res.*, 1979, **75**, 109 (*acetate*)
Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892 (*synth*)

β-D-Xylopyranosyl β-D-xylopyranoside, 9CI X-19

[126108-70-1]



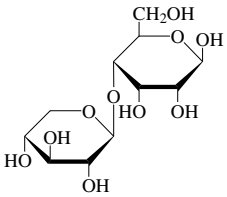
$C_{10}H_{18}O_9$ 282.247

Non-reducing disaccharide. Prod. from xylobiose by transxylosylation with *Aspergillus niger* β-xylosidase. Mp 211-213°. $[\alpha]_D$ -74.9 (H_2O).

Hexa-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Mp 137.5-139°. $[\alpha]_D$ -107.4 ($CHCl_3$).

Burckhardt, H. *et al., Chem. Ber.*, 1962, **95**, 2616 (*synth*)
Yasui, T. *et al., Agric. Biol. Chem.*, 1989, **53**, 3381 (*synth*)
Kizawa, H. *et al., Agric. Biol. Chem.*, 1991, **55**, 671 (*synth*)

4-*O*-β-D-Xylopyranosyl-D-allose X-20



$C_{11}H_{20}O_{10}$ 312.273
Isol. from opulus iridoids extracted from the leaves of the ornamental shrub *Viburnum opulus* (common snowball).

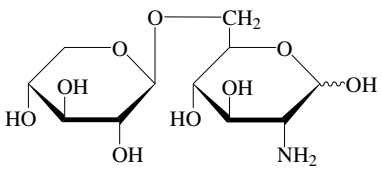
β-Pyranose-*form*

Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Cryst. (Et_2O). Mp 147-148°. $[\alpha]_D^{20}$ -31 (c, 0.3 in $CHCl_3$).

Bock, K. *et al., Phytochemistry*, 1978, **17**, 753 (*synth, cmr*)

6-*O*-β-D-Xylopyranosyl-2-amino-2-deoxy-D-glucose X-21

Primeverosamine

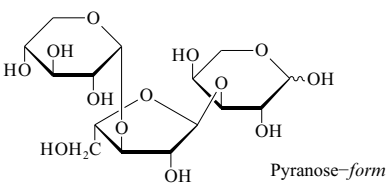


$C_{11}H_{21}NO_9$ 311.288

N-*Ac:*
$C_{13}H_{23}NO_{10}$ 353.325
No phys. props. reported.

Vetere, A. *et al., Carbohydr. Res.*, 1998, **311**, 79-83 (*N-Ac, synth, pmr*)

α-D-Xylopyranosyl-(1 →3)-α-L-arabinofuranosyl-(1 →3)-L-arabinose X-22

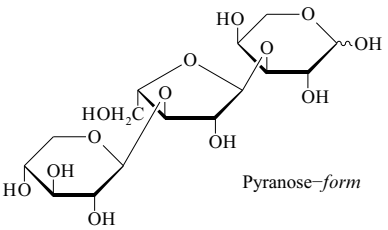


$C_{15}H_{26}O_{13}$ 414.363
Isol. from the mucilage of *Lepidum sativum*.
Mp 99-100°. $[\alpha]_D$ +98.2 → +95.2 (c, 0.34 in H_2O).

Tyler, J.M. *et al., J.C.S.*, 1965, 5288 (*isol*)

β-D-Xylopyranosyl-(1 →3)-α-L-arabinofuranosyl-(1 →3)-L-arabinose, 9CI X-23

[79409-35-1]

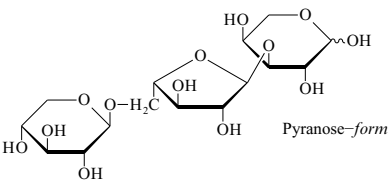


$C_{15}H_{26}O_{13}$ 414.363
Isol. from the mucilage of *Opuntia ficus-indica* (Indian fig).
$[\alpha]_D$ -21 (c, 0.57 in H_2O).

McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)

β-D-Xylopyranosyl-(1 →5)-α-L-arabinofuranosyl-(1 →3)-L-arabinose, 9CI X-24

[7268-42-0]

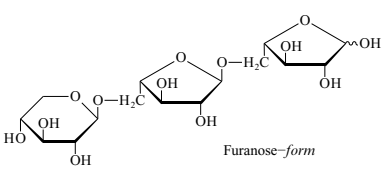


$C_{15}H_{26}O_{13}$ 414.363
Isol. from the mucilage of *Opuntia ficus-indica* (Indian fig) and from Cholla gum of *Opuntia fulgida*. Amorph. solid (Me_2CO/MeOH).
Mp 131-140°. $[\alpha]_D$ -32 (c, 0.47 in H_2O).
$[\alpha]_D$ -74.2 (c, 1.1 in H_2O).

Parikh, V.M. *et al., Can. J. Chem.*, 1966, **44**, 1531 (*isol*)
McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)

β-D-Xylopyranosyl-(1 →5)-α-L-arabinofuranosyl-(1 →5)-L-arabinose, 9CI X-25

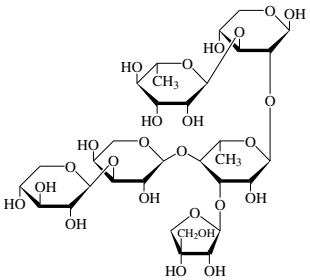
[79403-08-0]



$C_{15}H_{26}O_{13}$ 414.363
Isol. from the mucilage of *Opuntia ficus-indica* (Indian fig).
$[\alpha]_D$ -56.5 (c, 0.52 in H_2O).

McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)

β-D-Xylopyranosyl-(1 →3)-α-L-arabinopyranosyl-(1 →4)-[β-D-apiofuranosyl-(1 →3)]-α-L-rhamnopyranosyl-(1 →2)-[α-L-rhamnopyranosyl-(1 → 3)]-D-xylopyranose X-26



α-*form*

$C_{32}H_{54}O_{25}$ 838.764

Hexasaccharide constit. of Astersaponins C and D isol. from the root of *Aster tataricus* (Compositae).

α-form

Me glycoside:
$C_{33}H_{56}O_{25}$ 852.79
$[\alpha]_D^{24}$ -46.4 (c, 2.7 in MeOH).

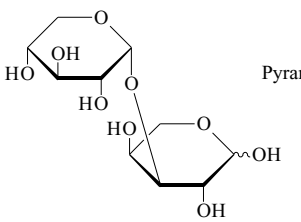
β-form

Me glycoside: [125085-19-0]
Amorph. powder. $[\alpha]_D^{24}$ -90.9 (c, 2.1 in MeOH).

Nagao, T. *et al., Chem. Pharm. Bull.*, 1989, **37**, 1977 (*isol, pmr, cmr, ms*)

3-*O*-α-D-Xylopyranosyl-L-arabinose, 9CI X-27

[4119-17-9]



Pyranose–*form*

$C_{10}H_{18}O_9$ 282.247

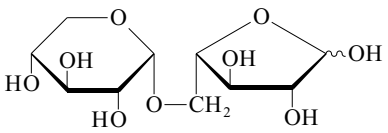
Isol. from the hydrolysates of golden apple (*Spondias cytherea*) gum, *Lepidum sativum* mucilage and corn hemicelluloses.
Cryst. + $1H_2O$ (EtOH aq.).
Mp 117-119°. $[\alpha]_D^{25}$ +175 → +183 (c, 1.0 in H_2O, 1h).

Phenylosazone: Mp 226°.

Hexa-Ac:
$C_{22}H_{30}O_{15}$ 534.47
Cryst. (MeOH). Mp 168-170°. $[\alpha]_D^{28}$ +106 (c, 1.0 in $CHCl_3$).

Andrews, P. *et al., J.C.S.*, 1954, 4134 (*isol*)
Whistler, R.L. *et al., J.A.C.S.*, 1955, **77**, 6328 (*isol*)
Montgomery, R. *et al., J.A.C.S.*, 1957, **79**, 698 (*isol*)
Tyler, J.M. *et al., J.C.S.*, 1965, 5288

5-*O*-α-D-Xylopyranosyl-L-arabinose X-28



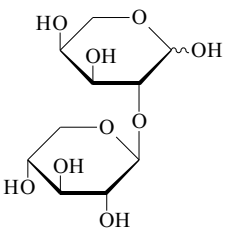
Furanose–*form*

$C_{10}H_{18}O_9$ 282.247

Tentative struct. Isol. from the partial acid hydrolysate of linseed (*Linum usitatissimum*) mucilage. Syrup. $[\alpha]_D$ +74 (H_2O).

Erskine, A.J. *et al., Can. J. Chem.*, 1957, **35**, 1174 (*isol*)

2-*O*-β-D-Xylopyranosyl-L-arabinose X-29



Pyranose–*form*

$C_{10}H_{18}O_9$ 282.247

Isol. from partial acid hydrolysates of esparto (*Stipa tennacissima*), barley husk and corn-cob hemicelluloses.
Mp 167-168° (anhyd.) Mp 80-81° (monohydrate) Mp 98-99° (trihydrate). $[\alpha]_D$ +33 (H_2O).

α-L-Pyranose-form

Me glycoside: Methyl 2-O-β-D-xylopyranosyl-α-L-arabinopyranoside, 9CI
[89734-27-0]
$C_{11}H_{20}O_9$ 296.274
Needles (MeOH/EtOAc). Mp 187.5-189°. $[\alpha]_D^{20}$ -48.5 (c, 0.92 in H_2O).

β-L-Pyranose-form

Me glycoside: Methyl 2-O-β-D-xylopyranosyl-β-L-arabinopyranoside, 9CI
[89734-31-6]
$C_{11}H_{20}O_9$ 296.274
Cryst. (EtOH/EtOAc). Mp 182-184°.
$[\alpha]_D^{26}$ +95.3 (c, 0.6 in H_2O).

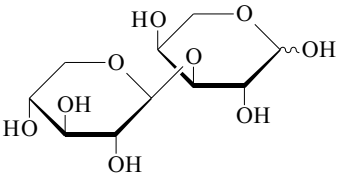
L-Furanose-*form*

5-O-(4-Hydroxy-3-methoxycinnamoyl) (E-): 2-O-β-D-Xylopyranosyl-5-O-feruloyl-L-arabinofuranose
[169697-21-6]
$C_{20}H_{26}O_{12}$ 458.418
Widespread component of grass cell walls.
Anomeric mixture.

Whistler, R.L. *et al., J.A.C.S.*, 1955, **77**, 1884; 3822 (*isol*)
Aspinall, G.O. *et al., J.C.S.*, 1957, 4188
Mizutani, K. *et al., Carbohydr. Res.*, 1984, **126**, 177 (*synth, Me gly, cmr*)
Wende, G. *et al., Phytochemistry*, 1997, **44**, 1011-1019 (*feruloyl deriv*)

3-*O*-β-D-Xylopyranosyl-L-arabinose X-30

[78248-68-7]



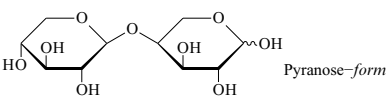
$C_{10}H_{18}O_9$ 282.247

Hydrolysate product from the stem mucilage of *Opuntia ficus-indica* (Indian fig) and from the water hyacinth (*Eichhornia crassipes*) mucin. Acid hydrolytic product of Trillenoside B. Syrup. $[\alpha]_D$ +15 (c, 0.76 in H_2O).

McGarvie, D.M. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol, struct*)
Komori, T. *et al., Annalen*, 1981, 683 (*ms*)
Anjaneyalu, Y.V. *et al., Phytochemistry*, 1983, **22**, 1961 (*isol, glc, ms*)

4-*O*-β-D-Xylopyranosyl-L-arabinose X-31

[51755-05-6]



Pyranose–*form*

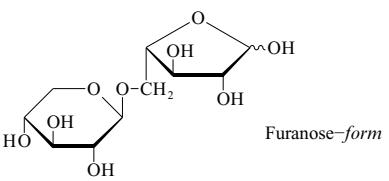
$C_{10}H_{18}O_9$ 282.247

Isol. from acid hydrolysate of peach gum.

Rosik, J. *et al., Chem. Zvesti*, 1973, **27**, 688; *CA*, **80**, 108782x (*isol*)
Czech. Pat., 1979, 180 902; *CA*, **92**, 215729e (*isol*)
Hrmova, M. *et al., Arch. Microbiol.*, 1984, **138**, 371; *CA*, **101**, 187678w (*isol*)

5-*O*-β-D-Xylopyranosyl-L-arabinose, 9CI X-32

[7268-80-6]



Furanose–*form*

$C_{10}H_{18}O_9$ 282.247

Isol. from partial acid hydrolysates of peach, Cholla (*Opuntia fulgida*), *Opuntia ficus-indica* (Indian fig) and *Virgilia oroboides* gums.
$[\alpha]_D$ -53 (c, 1.2 in H_2O). $[\alpha]_D^{23}$ -38 (c, 1.4 in H_2O).

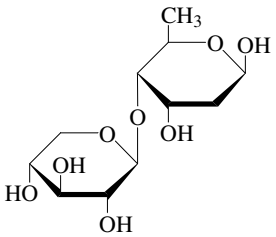
Phenylosazone:
Cryst. (EtOH/Et_2O). Mp 216° (214° dec.). $[\alpha]_D^{23}$ +51 (c, 0.8 in Py/EtOH, 3:2).

Andrews, P. *et al., J.C.S.*, 1953, 4090 (*isol*)
Ball, D.H. *et al., J.C.S.*, 1957, 4871 (*synth*)
Smith, F. *et al., J.C.S.*, 1961, 4892 (*isol*)
Parikh, V.M. *et al., Can. J. Chem.*, 1966, **44**, 1531 (*isol*)

McGarvie, D. *et al., Carbohydr. Res.*, 1981, **94**, 57 (*isol*)

4-*O*-β-D-Xylopyranosyl-D-digitoxose X-33

2,6-Dideoxy-4-O-*β-D-xylopyranosyl*-ribo-*hexose, 9CI. Erychrobiose. Gypsobiose*
[41094-28-4]



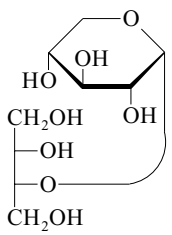
β-D-*form*

$C_{11}H_{20}O_8$ 280.274
Isol. from erycordin and *Erysimum gypsaceum*. Cryst.
Mp 88-90°. $[\alpha]_D^{20}$ +2.7 (c, 1.2 in Py).

Tursunova, R.N. *et al., J. Gen. Chem. USSR (Engl. Transl.)*, 1964, **34**, 2463
Makarevich, I.F. *et al., Khim. Prir. Soedin.*, 1973, **9**, 50; *Chem. Nat. Compd. (Engl. Transl.)*, 1973, **9**, 43

3-*O*-α-D-Xylopyranosyl-D-erythritol X-34

2-O-*α-D-Xylopyranosyl-L-erythritol*



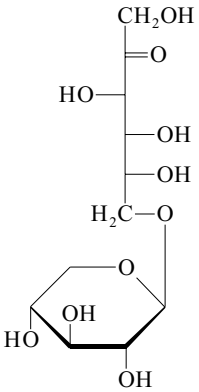
$C_9H_{18}O_8$ 254.236
$[\alpha]_D$ +91 (H_2O).

Hexabenzoyl:
$C_{51}H_{42}O_{14}$ 878.884
Mp 64-67°. $[\alpha]_D$ +98 ($CHCl_3$).

Venkataraman, R. *et al., Arch. Biochem. Biophys.*, 1958, **75**, 443 (*synth*)

6-*O*-β-D-Xylopyranosyl-D-fructose, 8CI X-35

Primeverulose
[26531-84-0]



Acyclic-*form*

$C_{11}H_{20}O_{10}$ 312.273
Synth. by the partial rearrangement of 6-*O*-β-D-Xylopyranosyl-D-glucose, X-47. Cryst. ($CHCl_3$/MeOH). Mp 213-215°. $[\alpha]_D^{20}$ -27.5 (c, 2.6 in MeOH).

Phenylosazone: Mp 228°. $[\alpha]_D^{20}$ -101.3 (6 min) → -54.2 (7d) (c, 1 in Py).

2,5-Dichlorophenylhydrazone: Mp 195° dec.

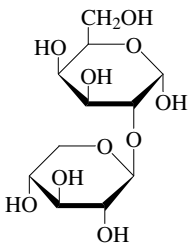
Phenylosotriazole:
Needles (EtOH). Mp 165-166°. $[\alpha]_D^{20}$ -49 (c, 1 in H_2O).

Phenylosotriazole, hexa-Ac:
Needles (EtOH/H_2O). Mp 91-92°. $[\alpha]_D^{20}$ -50.4 (c, 1.2 in $CHCl_3$).

Rutherford, D. *et al., Carbohydr. Res.*, 1969, **11**, 341 (*synth*)

2-*O*-β-D-Xylopyranosyl-D-galactose X-36

Lathyrose



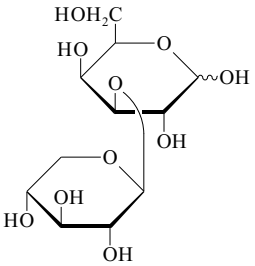
α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Present in *Aralia* spp. as cyanidin 3-lathyroside. Plates + ½H_2O (MeOH). Mp 188-189°. $[\alpha]_D^{20}$ +44.8 (c, 1 in H_2O).

Kawano, K. *et al., Agric. Biol. Chem.*, 1972, **36**, 27

3-*O*-β-D-Xylopyranosyl-D-galactose, 9CI X-37

Sinuatose
[78774-25-1]



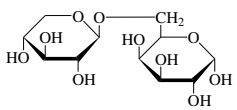
Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Constit. of Sinuatoside (see Aucubigenin. Amorph. $[\alpha]_D^{25}$ +31.7 (c, 1.6 in H_2O).

Bianco, A. *et al., Phytochemistry*, 1981, **20**, 465 (*isol, pmr*)

6-*O*-β-D-Xylopyranosyl-D-galactose, 9CI X-38

[50721-03-4]



α-D-Pyranose-*form*

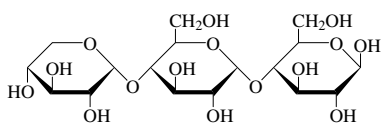
$C_{11}H_{20}O_{10}$ 312.273
Isol. from the partial acid hydrolysate of a polysaccharide from the red alga *Laingia pacifica*. Cryst. (MeOH).
Mp 193-196°. $[\alpha]_D$ -6.3 (c, 2.1 in H_2O). $[\alpha]_D$ -3.6 (H_2O).

α-Pyranose-*form*

1,2:3,4-Di-O-*isopropylidene, tri-Ac:*
$C_{23}H_{34}O_{13}$ 518.514
Mp 123-125°. $[\alpha]_D$ -75 (c, 1.85 in $CHCl_3$).

Ball, D.H. *et al., J.C.S.*, 1957, 4871 (*synth*)
Kochetkov, N.K. *et al., Zh. Org. Khim.*, 1973, **43**, 1832; *J. Org. Chem. USSR (Engl. Transl.)*, 1973, **43**, 1816 (*isol*)

α-D-Xylopyranosyl-(1→4)-α-D-glucopyranosyl-(1→4)-D-glucose, 9CI X-39



β-Pyranose-*form*

$C_{17}H_{30}O_{15}$ 474.415
Amorph. $[\alpha]_D^{23}$ +152 (c, 1.05 in H_2O).

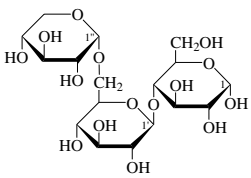
β-Pyranose-*form*

Benzyl glycoside, nonabenzyl:
[132628-10-5]
$C_{87}H_{90}O_{15}$ 1375.659
Syrup. $[\alpha]_D^{25}$ +35 (c, 1.5 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, β-benzyl pyr nonabenzyl, pmr, cmr*)

α-D-Xylopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →4)-D-glucose, 9CI X-40

[69637-98-5]



α-Pyranose-*form*

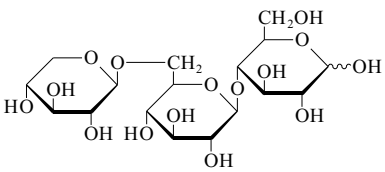
$C_{17}H_{30}O_{15}$ 474.415

Isol. from the enzymatic hydrolysates of tamarind polysaccharide, Jack pine (*Pinus banksiana*) glucomannan, leaves of *Nicotiana tabacum*, and other polysaccharide sources. Constituent in cell wall polysaccharide of immature barley plants. $[\alpha]_D$ +74 (c, 0.5 in H_2O) (+71).

Mori, M. *et al., Agric. Biol. Chem.*, 1979, **43**, 145 (*isol*)
Kato, Y. *et al., Agric. Biol. Chem.*, 1981, **45**, 2745 (*occur*)
Kato, Y. *et al., Carbohydr. Res.*, 1982, **109**, 233
Watanabe, T. *et al., Carbohydr. Res.*, 1984, **129**, 229
Zong, N. *et al., Agric. Biol. Chem.*, 1989, **53**, 2129 (*isol, hplc*)
York, W.S. *et al., Carbohydr. Res.*, 1990, **200**, 9 (*ms, cmr, pmr*)

β-D-Xylopyranosyl-(1 →6)-β-D-glucopyranosyl-(1 →4)-D-glucose, 9CI X-41

[88123-45-9]



Pyranose–*form*

$C_{17}H_{30}O_{15}$ 474.415

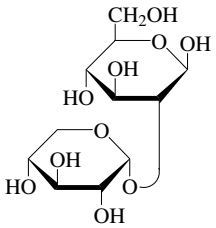
Transglucosylation product, formed by yeast *Cryptococcus albidus*. Cryst. (MeOH).

Mp 225-226°. $[\alpha]_D^{20}$ -3 (c, 1.0 in H_2O).

Biely, P. *et al., Carbohydr. Res.*, 1983, **123**, 97 (*synth, pmr*)

2-*O*-α-D-Xylopyranosyl-D-glucose X-42

[53735-82-3]



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

Reducing disaccharide. Cryst. (EtOH/H_2O). Mp 190-195°. $[\alpha]_{456}^{25}$ +194 → +165 (24h) (c, 1.1 in H_2O).

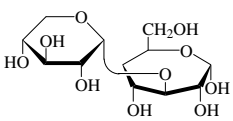
β-Pyranose-*form*

Hepta-Ac: [53735-81-2]
$C_{25}H_{34}O_{17}$ 606.533
Mp 174-175°. $[\alpha]_{456}^{25}$ +118 (c, 1 in $CHCl_3$).

Dick, W.E. *et al., Carbohydr. Res.*, 1974, **36**, 319 (*synth, pmr*)

3-*O*-α-D-Xylopyranosyl-D-glucose X-43

[39848-54-9]



α-Pyranose-*form*

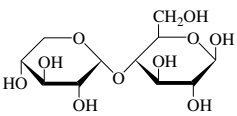
$C_{11}H_{20}O_{10}$ 312.273

Reducing disaccharide. Isol. from urine. $[\alpha]_D^{20}$ +103 (c, 1.9 in H_2O).

Lundblad, A. *et al., Biochemistry*, 1973, **12**, 307 (*isol*)

4-*O*-α-D-Xylopyranosyl-D-glucose, 9CI X-44

[132627-88-4]



β-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

Reducing disaccharide. Amorph. $[\alpha]_D^{25}$ +123 (c, 1.5 in H_2O).

β-Pyranose-*form*

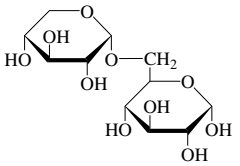
Hepta-Ac: [132627-94-2]
$C_{25}H_{34}O_{17}$ 606.533
Cryst. (EtOH). Mp 196-197°. $[\alpha]_D^{25}$ +40 (c, 1.2 in $CHCl_3$).

Benzyl glycoside, hexabenzyl:
[132627-95-3]
$C_{60}H_{62}O_{10}$ 943.144
Syrup. $[\alpha]_D^{25}$ +13 (c, 1.5 in $CHCl_3$).

Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, pmr*)

6-*O*-α-D-Xylopyranosyl-D-glucose, 9CI X-45

Isoprimeverose. Serotinose
[534-98-5]



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

Constit. of Nasturtium and tamarindus amyloids. Also from glucomannan of *Pinus banksiana* and *Tamarindus indica*. Mp 200-201°. $[\alpha]_D^{20}$ +151.3 → +121.3 (H_2O).

α-Pyranose-*form*

Me glycoside, hexa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Mp 123-124°. $[\alpha]_D^{20}$ +66 ($CHCl_3$).

1-Bromo-1-deoxy, , hexa-Ac: Acetobromoisoprimeverose
$C_{23}H_{31}BrO_{15}$ 627.393
Mp 155.5-157.5°. $[\alpha]_D^{20}$ +186.3 ($CHCl_3$).

β-Pyranose-*form*

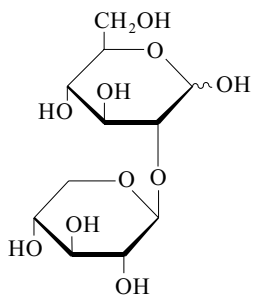
Hepta-Ac:
$C_{25}H_{34}O_{17}$ 606.533
Mp 107-110°. $[\alpha]_D^{20}$ +82.3 ($CHCl_3$).

4-Nitrophenyl glycoside: [108682-92-4]
$C_{17}H_{23}NO_{12}$ 433.368
Needles (H_2O). Mp 240-241°. $[\alpha]_D$ -49.3 (c, 1.4 in H_2O).

Zemplen, G. *et al., Ber.*, 1939, **72**, 1160 (*synth*)
Perila, O. *et al., Can. J. Chem.*, 1961, **39**, 815 (*isol*)
Le Dizet, P. *et al., Carbohydr. Res.*, 1972, **24**, 505 (*isol*)
Sone, Y. *et al., J. Carbohydr. Chem.*, 1986, **5**, 671-682 (*4-nitrophenyl glycoside*)

2-*O*-β-D-Xylopyranosyl-D-glucose, 9CI, 8CI X-46

Sambubiose
[26388-68-1]



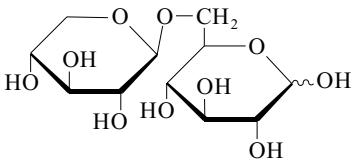
$C_{11}H_{20}O_{10}$ 312.273

Isol. from *Sambucus nigra* (elderberry). Mp 202-203°. $[\alpha]_D$ +32 → +17 (c, 1 in H_2O).

Reichel, L. *et al., Naturwissenschaften*, 1960, **47**, 40
Erbing, B. *et al., Acta Chem. Scand.*, 1969, **23**, 2213 (*synth*)
Erbing, B. *et al., CA*, 1976, **84**, 122160g (*rev*)

6-*O*-β-D-Xylopyranosyl-D-glucose, 9CI, 8CI X-47

O-*β-D-Xylopyranosyl-[1→6]-D-glucopyranose.* ***Primeverose, 9CI****. Primverose*
[26531-85-1]



$C_{11}H_{20}O_{10}$ 312.273
Constit. of a number of naturally occurring phenolic glycosides such as Primeverin and Primulaverin from *Primula officinalis*.
Mp 194-197° Mp 210° dec. $[\alpha]_D^{20}$ +23.8 → -3.4 (c, 2.5 in H_2O). Sweet taste.

Phenylosazone:
$C_{23}H_{30}N_4O_8$ 490.512
Mp 220°. $[\alpha]_D^{19}$ -109.7 (Py).

α-*Pyranose-form*

Hepta-Ac: Hepta-O-*acetyl-α-primeveropyranose*
$C_{25}H_{34}O_{17}$ 606.533
Mp 202-204°. $[\alpha]_D$ +33 ($CHCl_3$).

1-Chloro, hexa-Ac: Acetochloroprimeverose
$C_{23}H_{31}ClO_{15}$ 582.942
Mp 190-192°. $[\alpha]_D$ +70.8 ($CHCl_3$).

β-*Pyranose-form* [498-05-5]

Hepta-Ac: Hepta-O-*acetyl-β-primeveroside*
[18431-63-5]
$C_{25}H_{34}O_{17}$ 606.533
Mp 216°. $[\alpha]_D^{20}$ -23.5 ($CHCl_3$).

Me glycoside, hexa-Ac:
$C_{24}H_{34}O_{16}$ 578.523
Cryst. ($CHCl_3$/EtOH). Mp 219-220°. $[\alpha]_D^{20}$ -37 ($CHCl_3$).

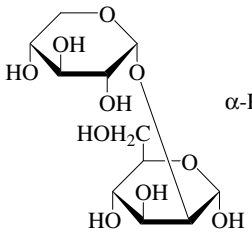
Benzyl glycoside: 1-O-*Benzyl-β-D-primeveroside*
$C_{18}H_{26}O_{10}$ 402.397
Isol. from green fruits of *Prunus laurocerasus*. Cryst. (EtOH).
Mp 188-189°. $[\alpha]_D^{20}$ -71.2 (c, 1 in H_2O).

1-O-*(*E*-4-Hydroxycinnamoyl): 1*-O-*Coumaroyl-β-D-primeveropyranoside*
$C_{20}H_{26}O_{12}$ 458.418
Constit. of the roots of *Asiasarum sieboldii*.

1-O-*(*E*-4-Hydroxy-3-methoxycinnamoyl):*
See 3-(4-Hydroxy-3-methoxyphenyl)-2-propenoic acid in *The Combined Chemical Dictionary.*

Helferich, B. *et al., Annalen*, 1927, **455**, 168 (*synth, constit*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate*, Edwards Bros. Inc., Ann Arbor, 4th Ed., 1935, 425
Begbie, R. *et al., Carbohydr. Res.*, 1966, **2**, 272 (*isol, struct*)
Haverkamp, J.P. *et al., Tetrahedron*, 1971, **27**, 4275 (*ms*)
Sone, Y. *et al., J. Carbohydr. Chem.*, 1986, **5**, 671-682 (*4-nitrophenyl glycoside, synth*)
Weinges, K. *et al., Annalen*, 1991, 703 (*benzyl glycoside*)

2-*O*-α-D-Xylopyranosyl-D-mannose X-48



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

α-Pyranose-*form*

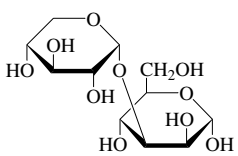
Me glycoside: Methyl 2-O-*α-D-xylopyranosyl-α-D-mannopyranoside, 9CI*
[68929-41-9]
$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D^{25}$ +102.4 (c, 3.34 in H_2O).

Benzyl glycoside: [68929-50-0]
$C_{18}H_{26}O_{10}$ 402.397
$[\alpha]_D^{25}$ +118 (c, 1.81 in H_2O).

Benzyl glycoside, 4,6-O-*benzylidene, 2′,3,3′,4′-tetra-Ac:* [68929-49-7]
$C_{33}H_{38}O_{14}$ 658.655
Mp 82°.

Lee, R.T. *et al., Carbohydr. Res.*, 1978, **67**, 389

3-*O*-α-D-Xylopyranosyl-D-mannose X-49



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

α-Pyranose-*form*

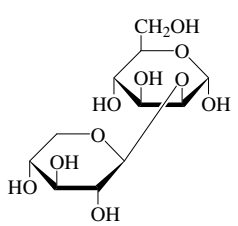
Me glycoside: Methyl 3-O-*α-D-xylopyranosyl-α-D-mannopyranoside, 9CI*
$C_{12}H_{22}O_{10}$ 326.3
Amorph. solid. $[\alpha]_D^{25}$ +115.4 (c, 2.28 in H_2O).

Benzyl glycoside: [68929-44-2]
$C_{18}H_{26}O_{10}$ 402.397
$[\alpha]_D^{25}$ +26.2 (c, 0.14 in H_2O).

Me glycoside, 4,6-O-*benzylidene, 2′,3′,4′-tri-Ac:* [68929-34-0]
$C_{25}H_{32}O_{13}$ 540.52
Mp 198-199°.

Lee, R.T. *et al., Carbohydr. Res.*, 1978, **67**, 389

2-*O*-β-D-Xylopyranosyl-D-mannose X-50



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273
Constit. of the side chain of the serological type B capsular polysaccharide in *Cryptococcus bacillisporus*.

α-Pyranose-*form* [68922-34-9]

Me glycoside: Methyl 2-O-*β-D-xylopyranosyl-α-D-mannopyranoside, 9CI*
[68929-40-8]
$C_{12}H_{22}O_{10}$ 326.3
$[\alpha]_D^{25}$ -14.3 (c, 5.19 in H_2O).

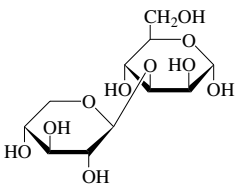
Me glycoside, 4,6-O-*benzylidene, 2′,3,3′,4′-tetra-Ac:* [68929-38-4]
$C_{27}H_{34}O_{14}$ 582.557
Cryst. (EtOH/C_6H_6/petrol). Mp 100-110°.

Benzyl glycoside: [68922-33-8]
$C_{18}H_{26}O_{10}$ 402.397
Cryst. (EtOH/Et_2O). Mp 94-95°. $[\alpha]_D^{25}$ -13.2 (c, 3.1 in H_2O).

Benzyl glycoside, 4,6-O-*benzylidene, 2′,3,3′,4′-tetra-Ac:* [68929-48-6]
$C_{33}H_{38}O_{14}$ 658.655
Mp 75-76°.

Lee, R.T. *et al., Carbohydr. Res.*, 1978, **67**, 389 (*deriv*)
Bhattarcharjee, A.K. *et al., Carbohydr. Res.*, 1980, **82**, 103

3-*O*-β-D-Xylopyranosyl-D-mannose X-51



α-Pyranose-*form*

$C_{11}H_{20}O_{10}$ 312.273

α-Pyranose-*form*
68929-47-5.
Cryst. (EtOH). Mp 194-196°.

Me glycoside: Methyl 3-O-*β-D-xylopyranosyl-α-D-mannopyranoside, 9CI*
[68929-36-2]
$C_{12}H_{22}O_{10}$ 326.3
Mp 218-219°. $[\alpha]_D^{24}$ +60.2 (c, 1.14 in H_2O).

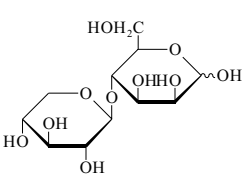
Benzyl glycoside: [68939-82-2]
$C_{18}H_{26}O_{10}$ 402.397
$[\alpha]_D^{25}$ +20.2 (c, 4.47 in H_2O).

Benzyl glycoside, 4,6-O-*benzylidene, 2′,3′,4′-tri-Ac:* [68939-83-3]
$C_{31}H_{36}O_{13}$ 616.618
Cryst. (EtOH/Et_2O). Mp 100-101°.

Lee, R.T. *et al., Carbohydr. Res.*, 1978, **67**, 389

4-*O*-β-D-Xylopyranosyl-D-mannose, 9CI X-52

[134409-73-7]



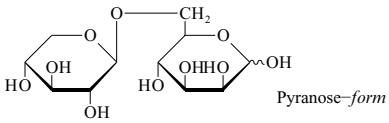
Pyranose–*form*

$C_{11}H_{20}O_{10}$ 312.273
Constituent in the major component of the type B polysaccharide of *Cryptococcus bacillisporus*.
$[\alpha]_D^{20}$ -41.1 (c, 0.9 in H_2O).

Bhattarcharjee, A.K. *et al., Carbohydr. Res.*, 1980, **82**, 103
Kizawa, H. *et al., Agric. Biol. Chem.*, 1991, **55**, 671 (*synth*)

6-*O*-β-D-Xylopyranosyl-D-mannose, 9CI X-53

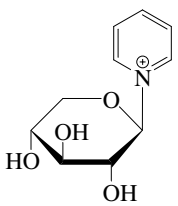
[134409-74-8]



$C_{11}H_{20}O_{10}$ 312.273
Constituent of leiocarpan A, a polysaccharide isolated from *Anogeissus leiocarpus* (Myrtales) gum.
$[\alpha]_D^{20}$ -26.8 (c, 0.5 in H_2O).

Aspinall, G.O. *et al., Can. J. Chem.*, 1975, **53**, 2189 (*struct*)
Kizawa, H. *et al., Agric. Biol. Chem.*, 1991, **55**, 671 (*synth*)

1-(Xylopyranosyl)pyridinium(1+) X-54



β-D-*form*

$C_{10}H_{14}NO_4^{\oplus}$ 212.225

α-D-*form*

Bromide:
$C_{10}H_{14}BrNO_4$ 292.129
Mp 157-159°. $[\alpha]_D$ -58.5 (c, 1.4 in H_2O).

2′,3′,4′-Tri-Ac, bromide:
$C_{16}H_{20}BrNO_7$ 418.24
Mp 169-170°. $[\alpha]_D$ -45.7 (c, 0.8 in $CHCl_3$).

4-Me ether, bromide:
$C_{11}H_{16}BrNO_4$ 306.156
Mp 155-157°. $[\alpha]_D$ -52.6 (c, 0.9 in H_2O).

2′,3′,4′-Tri-Ac, 4-Me, bromide:
$C_{17}H_{22}BrNO_7$ 432.267
Cryst. (Et_2O/Me_2CO). Mp 156-158°. $[\alpha]_D$ -38.9 (c, 1.0 in $CHCl_3$).

β-D-*form*

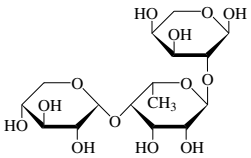
Bromide:
$C_{10}H_{14}BrNO_4$ 292.129
Mp 149-150°. $[\alpha]_D$ -5.6 (c, 1.0 in H_2O).

2′,3′,4′-Tri-Ac, bromide:
Cryst. (Me_2CO). Mp 167-169°. $[\alpha]_D$ -21.9 (c, 1 in $CHCl_3$).

Hosie, L. *et al., J.C.S. Perkin 2*, 1984, 1121

β-D-Xylopyranosyl-(1→4)-α-L-rhamnopyranosyl-(1→2)-L-arabinose X-55

β-D-Xylopyranosyl-(1→4)-6-deoxy-α-L-mannopyranosyl-(1→2)-L-arabinose, 9CI



α-Pyranose-*form*

$C_{16}H_{28}O_{13}$ 428.389
Constit. of Acutosides from *Luffa acutangula* (Chinese okra) (Cucurbitaceae). Constit. of Foetidissimoside, isol. from *Aster tartaricus* (Compositae). Fruits of *Luffa* used in Ayurvedic medicine as an anthelmintic and antipyretic while the seeds are used as an emetic and expectorant.

α-Pyranose-*form*

Me glycoside: [135545-80-1]
$C_{17}H_{30}O_{13}$ 442.416
Amorph. powder. $[\alpha]_D^{26}$ -50.5 (c, 1.0 in MeOH) (-45.3).

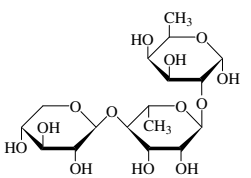
β-Pyranose-*form*

Me glycoside: [135545-81-2]
Amorph. powder. $[\alpha]_D^{26}$ +39.3 (c, 0.90 in MeOH) (+29.3).

Tanaka, R. *et al., Chem. Pharm. Bull.*, 1990, **38**, 1153 (*α-Me pyr, β-Me pyr, pmr, cmr, ms*)
Nagao, T. *et al., Chem. Pharm. Bull.*, 1991, **39**, 599 (*isol, α-Me pyr, β-Me pyr, pmr, cmr, ms*)

β-D-Xylopyranosyl-(1→4)-α-L-rhamnopyranosyl-(1→2)-D-fucose X-56

β-D-Xylopyranosyl-(1→4)-6-deoxy-α-L-mannopyranosyl-(1→2)-6-deoxy-D-galactose, 9CI



α-Pyranose-*form*

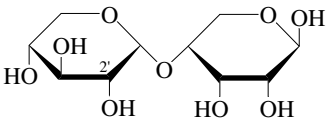
$C_{17}H_{30}O_{13}$ 442.416
Constit. of desacylsaponins from the bark of *Quillaja saponaria* (soap-bark tree). The bark (as saponin crude drug) is used as a detergent, dentrifrice and expectorant. Saponin mixt. exhibits strong adjurant activity and plasma cholesterol lowering effect.

α-Pyranose-*form*

Me glycoside: [107091-14-5]
$C_{18}H_{32}O_{13}$ 456.443
Hygroscopic powder. $[\alpha]_D$ +11.8 (c, 1.0 in MeOH).

Topping, D.L. *et al., Proc. Nutr. Soc. Aust.*, 1980, **5**, 195 (*use*)
Higuchi, R. *et al., Phytochemistry*, 1986, **26**, 229 (*isol, ir, cmr, ms*)

4-*O*-α-D-Xylopyranosyl-D-ribose X-57



β-Pyranose-*form*

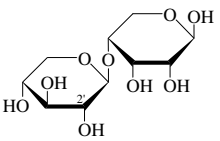
$C_{10}H_{18}O_9$ 282.247

β-Pyranose-*form*

2,3-Anhydro, benzyl glycoside, 2′,3′,4′-tribenzyl: Benzyl 2,3-anhydro-4-O-(2,3,4-tri-O-benzyl-α-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[132627-96-4]
$C_{38}H_{40}O_8$ 624.729
Syrup. $[\alpha]_D^{25}$ +41 (c, 0.9 in $CHCl_3$).

Kovac, P. *et al., Chem. Zvesti*, 1978, **32**, 514
Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth, pmr*)

4-*O*-β-D-Xylopyranosyl-D-ribose X-58



β-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247

β-Pyranose-*form*

2,3-Anhydro, Me glycoside, 3′,4′-di-Ac: Methyl 2,3-anhydro-4-O-(3,4-di-O-acetyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[72521-40-5]
$C_{15}H_{22}O_{10}$ 362.333
Mp 146-147°. $[\alpha]_D^{22}$ -46.5 (c, 1.0 in $CHCl_3$).

2,3-Anhydro, Me glycoside, 2′-benzyl: Methyl 2,3-anhydro-4-O-(2-O-benzyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[72127-31-2]
Cryst. (EtOAc). Mp 119.5-120.5°. $[\alpha]_D^{22}$ -41.6 (c, 1.0 in $CHCl_3$).

2,3-Anhydro, Me glycoside, 2′-benzyl, 3′,4′-di-Ac: Methyl 2,3-anhydro-4-O-(3,4-di-O-acetyl-2-O-benzyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[68977-77-5]
$C_{22}H_{28}O_{10}$ 452.457
Cryst. (EtOH). Mp 150.5-151.5°. $[\alpha]_D^{22}$ +3 (c, 1.0 in $CHCl_3$).

2,3-Anhydro, Me glycoside, 2′,3′,4′-tribenzyl: Methyl 2,3-anhydro-4-O-(2,3,4-tri-O-benzyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[63879-69-6]
$C_{32}H_{36}O_8$ 548.632
Mp 118-119°. $[\alpha]_D^{20}$ +9.6 (c, 1.25 in $CHCl_3$).

2,3-Anhydro, benzyl glycoside, 2′,3′,4′-tri-Ac: Benzyl 2,3-anhydro-4-O-(2,3,4-tri-O-acetyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[70751-52-9]
$C_{23}H_{28}O_{11}$ 480.468
Mp 134°. $[\alpha]_D$ -55 ($CHCl_3$) (-48).

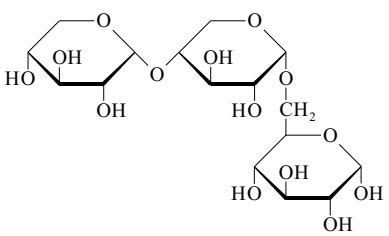
2,3-Anhydro, benzyl glycoside, 2′,3′,4′-tribenzoyl: Benzyl 2,3-anhydro-4-O-(2,3,4-tri-O-benzoyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[70751-51-8]
$C_{38}H_{34}O_{11}$ 666.68
Syrup. $[\alpha]_D$ -40 ($CHCl_3$).

2,3-Anhydro, benzyl glycoside, 2′,3′,4′-tribenzyl: Benzyl 2,3-anhydro-4-O-(2,3,4-tri-O-benzyl-β-D-xylopyranosyl)-β-D-ribopyranoside, 9CI
[80971-48-8]
$C_{38}H_{40}O_8$ 624.729
Mp 110-111° (107-108°). $[\alpha]_D^{25}$ +1 (c, 1.1 in $CHCl_3$). $[\alpha]_D^{22}$ -14.6 (c, 1.5 in Py).

Aspinall, G.O. *et al., J.C.S.*, 1961, 3674
Kovac, P.J. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1977, **4**, 165 (*Me gly, tribenzyl*)
De Bruyn, A. *et al., Bull. Soc. Chim. Belg.*, 1978, **87**, 783
Garegg, P.J. *et al., Acta Chem. Scand., Ser. B*, 1979, **33**, 116 (*benzyl gly, triesters*)
Kovac, P. *et al., Carbohydr. Res.*, 1979, **75**, 109 (*Me gly, 2-benzyl*)
Hirsch, J. *et al., Carbohydr. Res.*, 1979, **77**, 241 (*di-Ac*)
Petrakova, E. *et al., Chem. Zvesti*, 1981, **35**, 699
Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*benzyl gly, tribenzyl*)

α-D-Xylopyranosyl-(1 →4)-α-D-xylopyranosyl-(1 →6)-D-glucose, 9CI X-59

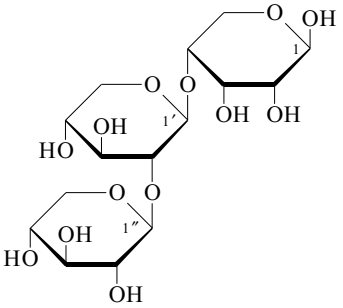
α-D-Xylosylisoprimeverose
[125583-30-4]



$C_{16}H_{28}O_{14}$ 444.389
Transxylosylation product, formed by the action of Bacillus α-D-xylosidase on 6-*O*-α-D-Xylopyranosyl-D-glucose, X-45.
$[\alpha]_D$ +143.5 (c, 0.29 in H_2O).

Zong, N. *et al., Agric. Biol. Chem.*, 1989, **53**, 3329 (*synth, pmr*)

β-D-Xylopyranosyl-(1 →2)-β-D-xylopyranosyl-(1 →4)-D-ribose, 9CI X-60



$C_{15}H_{26}O_{13}$ 414.363

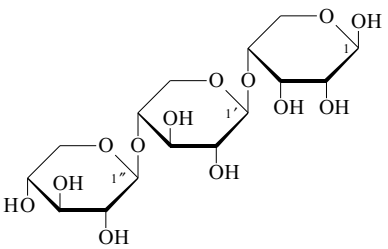
β-Pyranose-*form*

Me glycoside, 2,3-anhydro: [72521-35-8]
$C_{16}H_{26}O_{12}$ 410.374
Cryst. (MeOH). Mp 223-224°. $[\alpha]_D^{22}$ -47 (c, 1.0 in H_2O).

Me glycoside, 2,3-anhydro, 2′′,3′,3′′,4′,4′′-penta-Ac: [72521-34-7]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. Mp 157-158°. $[\alpha]_D^{22}$ -69 (c, 1.0 in $CHCl_3$).

Hirsch, J. *et al., Carbohydr. Res.*, 1979, **77**, 241 (*β-Me pyr anhydro derivs*)

β-D-Xylopyranosyl-(1 →4)-β-D-xylopyranosyl-(1 →4)-D-ribose X-61



$C_{15}H_{26}O_{13}$ 414.363

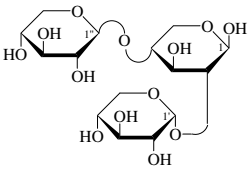
β-Pyranose-*form*

Me glycoside, 2,3-anhydro: [74972-65-9]
$C_{16}H_{26}O_{12}$ 410.374
Cryst. + 0.5 H_2O (Me_2CO aq.). Mp 111-114°. $[\alpha]_D^{22}$ -59.9 (c, 1.0 in H_2O).

Me glycoside, 2,3-anhydro, 2′,2′′,3′,3′′,4′′-penta-Ac: [74972-66-0]
$C_{26}H_{36}O_{17}$ 620.56
Cryst. (EtOH). Mp 129-131°. $[\alpha]_D^{22}$ -78.8 (c, 0.83 in $CHCl_3$).

Kovac, P. *et al., Chem. Zvesti*, 1980, **34**, 234, (*β-Me pyr anhydro derivs*)

α-D-Xylopyranosyl-(1 →2)-[β-D-xylopyranosyl-(1 →4)]-D-xylose, 9CI X-62



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363

Pyranose-*form* [81024-96-6]
Syrup. $[\alpha]_D^{22}$ +69.4 (c, 0.96 in H_2O).

β-Pyranose-*form*

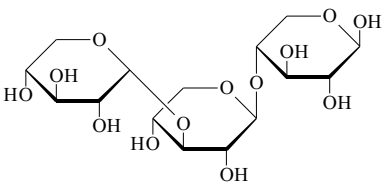
Benzyl glycoside, 2′′,3,3′′,4′′-tetrabenzyl: [81024-95-5]
$C_{50}H_{56}O_{13}$ 864.985
Cryst. (Et_2O/MeOH). Mp 161-163°. $[\alpha]_D^{22}$ +3.2 (c, 0.96 in $CHCl_3$).

Benzyl glycoside, 2′′,3,3′′,4′′-tetrabenzyl, tri-Ac: [81024-94-4]
$C_{56}H_{62}O_{16}$ 991.096
Cryst. Mp 83-85°. $[\alpha]_D^{22}$ +3.2 (c, 0.95 in $CHCl_3$).

[81024-98-8]

Petrakova, E. *et al., Chem. Zvesti*, 1981, **35**, 699 (*synth, β-benzyl pyr derivs, cmr*)

α-D-Xylopyranosyl-(1 →3)-β-D-xylopyranosyl-(1 →4)-D-xylose, 9CI X-63



$C_{15}H_{26}O_{13}$ 414.363

β-Pyranose-*form*

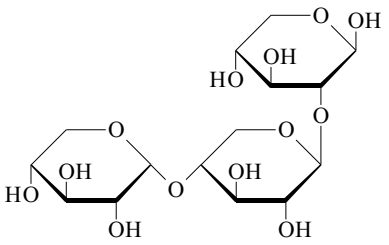
Me glycoside: [73654-67-8]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. Mp 223-225° (dimorph.) Mp 231-232°. $[\alpha]_D^{22}$ +31.5 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [73654-65-6]
$C_{30}H_{42}O_{20}$ 722.65
Needles (MeOH). Mp 120-127°. $[\alpha]_D^{22}$ -4 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Me: [73654-69-0]
$C_{23}H_{42}O_{13}$ 526.577
Cryst. (diisopropyl ether/hexane). Mp 64-65°. $[\alpha]_D^{22}$ +14.2 (c, 1.0 in $CHCl_3$).

Kovac, P. *et al., Carbohydr. Res.*, 1980, **79**, 303 (*β-Me pyr derivs, pmr*)
Vrsanska, M. *et al., Carbohydr. Res.*, 1990, **206**, 251 (*β-Me pyr, enzymic hydrol*)

α-D-Xylopyranosyl-(1 →4)-β-D-xylopyranosyl-(1 →2)-D-xylose X-64



$C_{15}H_{26}O_{13}$ 414.363

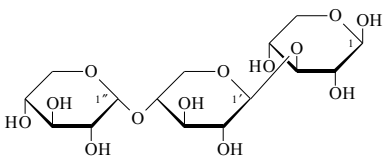
β-Pyranose-*form*

Me glycoside: [93070-17-8]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 135-138°. $[\alpha]_D^{22}$ +13.9 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [93070-13-4]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (EtOH). Mp 160-162°. $[\alpha]_D^{22}$ +9.2 (c, 1.0 in $CHCl_3$).

Hirsch, J. *et al., Chem. Zvesti*, 1984, **38**, 409, (*β-Me pyr derivs, cmr*)

α-D-Xylopyranosyl-(1 →4)-β-D-xylopyranosyl-(1 →3)-D-xylose, 9CI X-65



$C_{15}H_{26}O_{13}$ 414.363

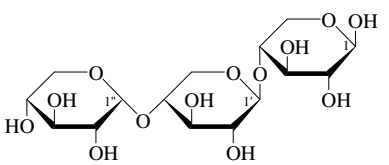
β-Pyranose-*form*

Me glycoside: [93070-15-6]
$C_{16}H_{28}O_{13}$ 428.389
Mp 211-212.5° (EtOH). $[\alpha]_D^{22}$ +18.3 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [93070-11-2]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (MeOH). Mp 189-190°. $[\alpha]_D^{22}$ -13.2 (c, 1.0 in $CHCl_3$).

Hirsch, J. *et al., Chem. Zvesti*, 1984, **38**, 409, (*β-Me pyr derivs, pmr, cmr*)

α-D-Xylopyranosyl-(1 →4)-β-D-xylopyranosyl-(1 →4)-D-xylose, 9CI X-66



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363

β-Pyranose-*form*

1,2,2′,2″,3,3′,3″-Hepta-Ac: [82970-34-1]
$C_{29}H_{40}O_{20}$ 708.623
Foam. $[\alpha]_D^{22}$ -1.7 (c, 1.0 in $CHCl_3$).

Octa-Ac: [83023-74-9]
$C_{31}H_{42}O_{21}$ 750.66
Cryst. (EtOH). Mp 113-119°. $[\alpha]_D^{22}$ -0.58 (c, 1.0 in $CHCl_3$).

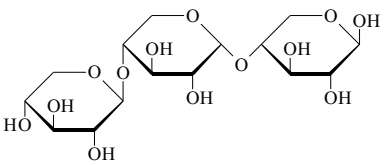
4″-Benzyl, hepta-Ac: [82970-28-3]
$C_{36}H_{46}O_{20}$ 798.747
Foam. $[\alpha]_D^{22}$ -4.4 (c, 1.0 in $CHCl_3$).

Me glycoside, 2,2′,2″,3,3′,3″-hexa-Ac: [81685-58-7]
$C_{28}H_{40}O_{19}$ 680.613
Amorph. solid. $[\alpha]_D^{22}$ -17 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Ac: [81685-61-2]
$C_{30}H_{42}O_{20}$ 722.65
Amorph. solid. $[\alpha]_D^{22}$ -16 (c, 1.0 in $CHCl_3$).

Kovac, P. *et al., Carbohydr. Res.*, 1982, **100**, 177 (*hepta-Ac, β-Me pyr Ac derivs, cmr*)
Hirsch, J. *et al., Carbohydr. Res.*, 1982, **106**, 203 (*hepta-Ac derivs, octa-Ac*)

β-D-Xylopyranosyl-(1 →4)-α-D-xylopyranosyl-(1 →4)-D-xylose, 9CI X-67



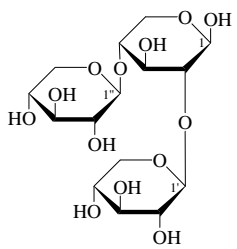
$C_{15}H_{26}O_{13}$ 414.363

β-Pyranose-*form*

Octa-Ac: [81846-55-1]
$C_{31}H_{42}O_{21}$ 750.66
Syrup. $[\alpha]_D^{21}$ -13.5 (c, 1.0 in $CHCl_3$).

Hirsch, J. *et al., Chem. Zvesti*, 1982, **36**, 125 (*octa-Ac, cmr*)

β-D-Xylopyranosyl-(1 →2)-[β-D-xylopyranosyl-(1 →4)]-D-xylose, 9CI X-68



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363

Pyranose-*form*

Amorph. powder. $[\alpha]_D^{22}$ +26 (c, 1.0 in H_2O).

β-Pyranose-*form* [80971-52-4]

Me glycoside: [72521-31-4]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 160-168° Mp 185-193° (dimorph.). $[\alpha]_D^{22}$ -79 (c, 1.0 in H_2O).

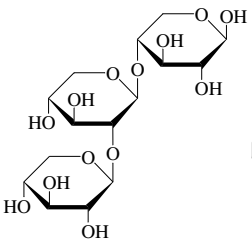
Me glycoside, 3-benzyl, hexa-Ac: [72521-29-0]
$C_{35}H_{46}O_{19}$ 770.737
Cryst. (EtOH). Mp 92-95° (sinters at 89°). $[\alpha]_D$ -82 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2″,3,3″,4″-tetrabenzyl: [80971-51-3]
$C_{50}H_{56}O_{13}$ 864.985
Cryst. (EtOH). Mp 169.5-171°. $[\alpha]_D^{22}$ -40.2 (c, 1.0 in $CHCl_3$).

[81024-97-7]

Hirsch, J. *et al., Carbohydr. Res.*, 1979, **77**, 241 (*β-Me pyr*)
Kovacik, V. *et al., Carbohydr. Res.*, 1981, **88**, 189 (*β-Me pyr deriv*)
Petrakova, E. *et al., Chem. Zvesti*, 1981, **35**, 699 (*synth, β-benzyl pyr deriv, cmr*)

β-D-Xylopyranosyl-(1 →2)-β-D-xylopyranosyl-(1 →4)-D-xylose, 9CI X-69



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363
Formed by a xylan degrading enzyme from the cells of *Cryptococcus albidus*.

β-Pyranose-*form*

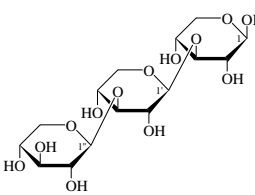
Me glycoside: [72521-36-9]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (EtOH). Mp 202-203°. $[\alpha]_D^{22}$ -80 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [72521-37-0]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (EtOAc/Et_2O). Mp 98-104°. $[\alpha]_D^{22}$ -94 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Me: [72521-38-1]
$C_{23}H_{42}O_{13}$ 526.577
Cryst. (diisopropyl ether). Mp 105-106°.

Hirsch, J. *et al., Carbohydr. Res.*, 1979, **77**, 241 (*β-Me pyr derivs, pmr*)
Vrsanka, M. *et al., Carbohydr. Res.*, 1990, **206**, 251 (*enzymic synth*)

β-D-Xylopyranosyl-(1 →3)-β-D-xylopyranosyl-(1 →3)-D-xylose, 9CI X-70



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363
Constit. of the cell walls of *Penicillus dumetosus*, *Rhodymenia palmata* and several other green algae.

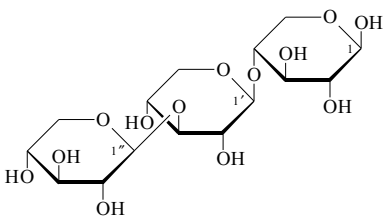
β-Pyranose-*form*

1,2,2′,2″,4,4′,4″-Hepta-Ac: [98264-08-5]
$C_{29}H_{40}O_{20}$ 708.623
Cryst. Mp 213°. $[\alpha]_D^{20}$ -70 (c, 1.0 in $CHCl_3$).

Percival, E.G.V. *et al., Nature (London)*, 1950, **166**, 787 (*isol*)
Freietal, E. *et al., Proc. R. Soc. London, B*, 1964, **160**, 293 (*occur*)
Dupeyre, D. *et al., Carbohydr. Res.*, 1984, **135**, C1 (*isol, hepta-Ac, pmr, cmr*)

β-D-Xylopyranosyl-(1 →3)-β-D-xylopyranosyl-(1 →4)-D-xylose, 9CI X-71

[32581-42-3]



$C_{15}H_{26}O_{13}$ 414.363
Obt. by the action of endoxylanases from *Cryptococcus albidus* and *Streptomyces* on Rhodymenan a water sol. xylan isol. from the marine alga *Rhadymenia palmata*; also by action of β-xylosidase from *Penicillium wortmanni* IFO 7237 on β(1 →4) xylobiose. Cryst.
Mp 224-225°. $[\alpha]_D^{20}$ -46 (c, 1.0 in H_2O) (-44.6°).

β-Pyranose-*form*

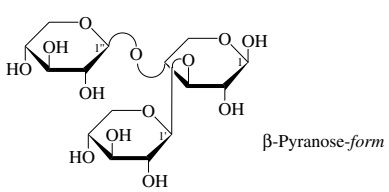
Me glycoside: [73654-66-7]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 197-204°. $[\alpha]_D^{22}$ -82 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [73654-64-5]
$C_{30}H_{42}O_{20}$ 722.65
Plates (MeOH). Mp 147-149°. $[\alpha]_D^{22}$ -99 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Me: [73654-68-9]
$C_{23}H_{42}O_{13}$ 526.577
Cryst. (diisopropyl ether/hexane). Mp 106-107°. $[\alpha]_D^{22}$ -83.6 (c, 1.0 in $CHCl_3$).

Howard, B. *et al., Biochem. J.*, 1957, **67**, 643 (*enzymic synth*)
Kovac, P. *et al., Carbohydr. Res.*, 1980, **79**, 303 (*β-Me pyr derivs, pmr*)
Biely, P. *et al., Eur. J. Biochem.*, 1983, **129**, 645 (*cmr*)
Biely, P. *et al., J. Bacteriol.*, 1984, **160**, 408
Chen, W.P. *et al., Agric. Biol. Chem.*, 1986, **50**, 1183; 1195 (*enzymic synth*)
Win, M. *et al., Agric. Biol. Chem.*, 1988, **52**, 1151 (*enzymic synth, hplc*)

β-D-Xylopyranosyl-(1 →3)-[β-D-xylopyranosyl-(1 →4)]-D-xylose, 9CI X-72



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363

β-Pyranose-*form*

Me glycoside: [70337-65-4]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 216.5-217.5°. $[\alpha]_D^{20}$ -78.2 (c, 1.0 in H_2O).

Me glycoside, 2′,2″,3′,3″,4′,4″-hexa-Ac: [70337-67-6]
$C_{28}H_{40}O_{19}$ 680.613
Cryst. (Me_2CO/EtOH). Mp 180-181°. $[\alpha]_D^{20}$ -108.7 (c, 1.2 in $CHCl_3$).

Me glycoside, 2-benzyl, hexa-Ac: [71072-44-1]
$C_{35}H_{46}O_{19}$ 770.737
Cryst. (EtOH). Mp 164.5-165.5°. $[\alpha]_D^{20}$ -73.8 (c, 1.0 in $CHCl_3$).

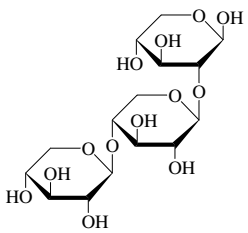
Me glycoside, hepta-Ac: [71110-95-7]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. Mp 149.5-151.5°. $[\alpha]_D^{20}$ -106 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Me: [71072-45-2]
$C_{23}H_{42}O_{13}$ 526.577
Cryst. (Et_2O). Mp 105-106°. $[\alpha]_D^{20}$ -104.8 (c, 1.05 in $CHCL_3$).

Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1979, **44**, 928

β-D-Xylopyranosyl-(1 →4)-β-D-xylopyranosyl-(1 →2)-D-xylose, 9CI X-73

[95050-87-6]



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363
Formed by a xylan degrading enzyme from the cells of *Cryptococcus albidus*.
Syrup. $[\alpha]_D^{22}$ -37.2 (c, 1.4 in H_2O).

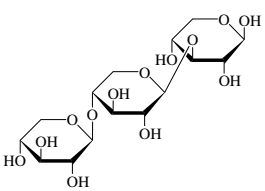
β-Pyranose-*form*

Me glycoside: [93070-18-9]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 158-159.5°. $[\alpha]_D^{22}$ -73.2 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [93070-14-5]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (Me_2CO/Et_2O 1:2). Mp 152-154°. $[\alpha]_D^{22}$ -80.2 (c, 1.0 in $CHCl_3$).

Hirsch, J. *et al., Chem. Zvesti*, 1984, **38**, 409, (*β-Me pyr derivs, cmr*)
Biely, P. *et al., FEBS Lett.*, 1984, **178**, 323 (*enzymic synth*)

β-D-Xylopyranosyl-(1 →4)-β-D-xylopyranosyl-(1 →3)-D-xylose, 9CI X-74



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363
Obt. by the action of a β-xylosidase prod. by *Penicillium wortmanni* IFO 7237 on β(1 →4) xylobiose.

β-Pyranose-*form*

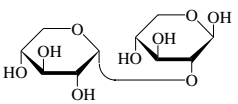
Me glycoside: [93070-16-7]
$C_{16}H_{28}O_{13}$ 428.389
Cryst. (MeOH). Mp 178-180° Mp 199-200° (dimorph.). $[\alpha]_D^{22}$ -77.4 (c, 1.0 in H_2O).

Me glycoside, hepta-Ac: [93070-12-3]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (Me_2CO/Et_2O). Mp 178-179°. $[\alpha]_D^{22}$ -101.2 (c, 1.0 in $CHCl_3$).

Hirsch, J. *et al., Chem. Zvesti*, 1984, **38**, 409, (*β-Me pyr derivs, synth, pmr, cmr*)
Win, M. *et al., Agric. Biol. Chem.*, 1988, **52**, 1151 (*enzymic synth*)
Vrsanka, M. *et al., Carbohydr. Res.*, 1990, **206**, 251 (*β-Me pyr, enzymic hydrol*)

2-*O*-α-D-Xylopyranosyl-D-xylose, 9CI X-75

[76491-01-5]



β-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Foam. $[\alpha]_D$ +140 (c, 0.1 in H_2O). $[\alpha]_D^{22}$ +105 (c, 1.4 in H_2O).

β-Pyranose-*form*

Me glycoside: Methyl 2-O-α-D-xylopyranosyl-β-D-xylopyranoside, 9CI
[74405-60-0]
$C_{11}H_{20}O_9$ 296.274
Mp 183-184°. $[\alpha]_D^{22}$ +70.2 (c, 1.0 in H_2O).

Me glycoside, penta-Ac: [74405-58-6]
$C_{21}H_{30}O_{14}$ 506.46
Cryst. (EtOH). Mp 159-160°. $[\alpha]_D^{22}$ +100.2 (c, 1.0 in $CHCl_3$).

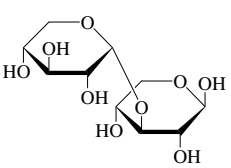
Benzylglycoside, 2′,3′,4′-tri-Ac, di-benzyl:
$C_{37}H_{42}O_{12}$ 678.732
Cryst. (MeOH). Mp 92-93.5°. $[\alpha]_D^{22}$ +48.7 (c, 1.0 in $CHCl_3$).

[78954-50-4]

Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892 (*Me gly, synth*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 193 (*cmr*)
Kovac, P. *et al., Chem. Zvesti*, 1984, **34**, 537; *CA*, **94**, 84400g
Zong, N. *et al., Agric. Biol. Chem.*, 1989, **53**, 2129

3-*O*-α-D-Xylopyranosyl-D-xylose, 9CI X-76

[6893-99-8]



β-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Mp 178°. $[\alpha]_D$ +125 (c, 0.5 in H_2O).

β-Pyranose-*form*

*Me glycoside: Methyl 3-*O*-α-D-xylopyranosyl-β-D-xylopyranoside, 9CI*
[74405-66-6]
$C_{11}H_{20}O_9$ 296.274
Cryst. (MeOH). Mp 195-196°. $[\alpha]_D^{22}$ +87 (c, 1.0 in H_2O).

*Me glycoside, penta-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-(2,3,4-tri-*O*-acetyl-α-D-xylopyranosyl)-β-D-xylopyranoside*
[74405-64-4]
$C_{21}H_{30}O_{14}$ 506.46
Cryst. (EtOH). Mp 150-151°. $[\alpha]_D^{22}$ +45.5 (c, 1.0 in $CHCl_3$).

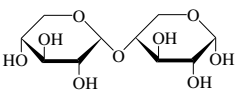
*Benzyl glycoside: Benzyl 3-*O*-α-D-xylopyranosyl-β-D-xylopyranoside*
$C_{17}H_{24}O_9$ 372.371
Cryst. (MeOH). Mp 215-217°. $[\alpha]_D$ +57 (H_2O).

[78954-49-1]

Ball, D.H. *et al., J.C.S.*, 1958, 33 (*synth*)
Ferrier, R.J. *et al., J.C.S.*, 1965, 7429 (*benzyl gly*)
Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892 (*Me gly*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 193 (*cmr*)
Zong, N. *et al., Agric. Biol. Chem.*, 1989, **53**, 2129

4-*O*-α-D-Xylopyranosyl-D-xylose, 9CI X-77

[82970-38-5]



α-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Occurs as side chains in the xylomannan polysaccharide obt. from mycelia of *Armillaria mellea* (honey mushroom). Amorph. $[\alpha]_D^{25}$ +108 (c, 1.5 in H_2O).

α-Pyranose-*form* [78932-92-0]

*Benzyl glycoside, 3′-Ac, tetrabenzyl: Benzyl 4-*O*-(3-*O*-acetyl-2,4-di-*O*-benzyl-α-D-xylopyranosyl)-2,3-di-*O*-benzyl-α-D-xylopyranoside*
[99388-75-7]
$C_{47}H_{50}O_{10}$ 774.906
$[\alpha]_D^{20}$ +86 (c, 1.8 in $CHCl_3$).

*Benzyl glycoside, 3′-benzoyl, tetrabenzyl: Benzyl 4-*O*-(3-*O*-benzoyl-2,4-di-*O*-benzyl-α-D-xylopyranosyl)-2,3-di-*O*-benzyl-α-D-xylopyranoside*
[99388-76-8]
$C_{52}H_{52}O_{10}$ 836.977
$[\alpha]_D^{20}$ +82 (c, 2.5 in $CHCl_3$).

β-Pyranose-*form*

*Hexa-Ac: 1,2,3-Tri-*O*-acetyl-4-*O*-(2,3,4-tri-*O*-acetyl-α-D-xylopyranosyl)-β-D-xylopyranose*
[63939-21-9]
$C_{22}H_{30}O_{15}$ 534.47
Cryst. (MeOH). Mp 136-137°. $[\alpha]_D^{25}$ +46 (c, 1.1 in $CHCl_3$).

*Benzyl glycoside, tetrabenzyl: Benzyl 2,3-di-*O*-benzyl-4-*O*-(2,4-di-*O*-benzyl-α-D-xylopyranosyl)-β-D-xylopyranoside*
$C_{45}H_{48}O_9$ 732.869
$[\alpha]_D^{20}$ +92 (c, 2.5 in $CHCl_3$).

*Me glycoside: Methyl 4-*O*-α-D-xylopyranosyl-β-D-xylopyranoside*
[73654-61-2]
$C_{11}H_{20}O_9$ 296.274
Cryst. (EtOH/Me_2CO). Mp 150-150.5°. $[\alpha]_D^{22}$ +57.5 (c, 1.0 in H_2O).

*Me glycoside, tetra-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-(2,4-di-*O*-acetyl-α-D-xylopyranosyl)-β-D-xylopyranoside*
[73654-62-3]
$C_{19}H_{28}O_{13}$ 464.422
Cryst. (MeOH). Mp 172-173°. $[\alpha]_D^{22}$ +29.5 (c, 1.0 in $CHCl_3$).

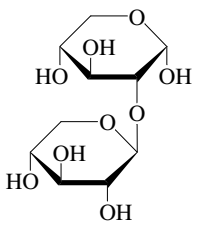
*Me glycoside, penta-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-(2,3,4-tri-*O*-acetyl-α-D-xylopyranosyl)-β-D-xylopyranoside*
[74405-70-2]
Cryst. (MeOH). Mp 150-155° Mp 168-169° (double Mp). $[\alpha]_D^{22}$ +29.6 (c, 1.0 in $CHCl_3$).

*Me glycoside, 3′-benzyl, tetra-Ac: Methyl 2,3-di-*O*-acetyl-4-*O*-(2,4-di-*O*-acetyl-3-*O*-benzyl-α-D-xylopyranosyl)-β-D-xylopyranoside*
[73654-58-7]
$C_{26}H_{34}O_{13}$ 554.547
Cryst. (EtOH). Mp 150-152°. $[\alpha]_D^{22}$ +5 (c, 1.0 in $CHCl_3$).

Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892
Kovac, P. *et al., Carbohydr. Res.*, 1981, **90**, C5 (*deriv*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 1464
Takeo, K. *et al., Carbohydr. Res.*, 1991, **209**, 167 (*synth*)

2-*O*-β-D-Xylopyranosyl-D-xylose, 9CI X-78

[43179-86-8]



α-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Constit. of opium poppy pectin. Isol. from the partial hydroysate of Plantasan, the seed mucilage of *Plantago major*.

α-Pyranose-*form* [76491-00-4]
Cryst. (MeOH). Mp 193-194.5°. $[\alpha]_D^{22}$ +10.4 → -8.4 (4 hr) (c, 1.0 in H_2O). $[\alpha]_D$ -28.9 (H_2O).

*Me glycoside: Methyl 2-*O*-β-D-xylopyranosyl-β-D-xylopyranoside*
[74405-61-1]
$C_{11}H_{20}O_9$ 296.274
Mp 153-154°. $[\alpha]_D^{22}$ -71 (c, 1.0 in H_2O).

*Me glycoside, penta-Ac: Methyl 3,4-di-*O*-acetyl-2-*O*-(2,3,4-tri-*O*-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside*
[74405-59-7]
$C_{21}H_{30}O_{14}$ 506.46
Cryst. (EtOH). Mp 142-143°. $[\alpha]_D^{22}$ -62.2 (c, 1.0 in $CHCl_3$).

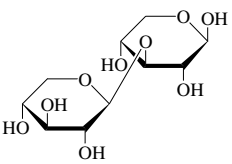
*Hexa-Me: Methyl 3,4-di-*O*-methyl-2-*O*-(2,3,4-tri-*O*-methyl-β-D-xylopyranosyl)-β-D-xylopyranoside*
[74405-63-3]
$C_{16}H_{30}O_9$ 366.408
Cryst. (hexane). Mp 66-67°. $[\alpha]_D^{22}$ -83.3 (c, 1.0 in $CHCl_3$).

*Benzyl glycoside, 3,4-dibenzyl: Benzyl 3,4-di-*O*-benzyl-2-*O*-β-D-xylopyranosyl-β-D-xylopyranoside*
[76490-99-8]
$C_{31}H_{36}O_9$ 552.62
Cryst. (EtOH). Mp 124-125.5°. $[\alpha]_D^{22}$ -46.2 (c, 1.0 in $CHCl_3$).

Wold, J.K. *et al., Acta Chem. Scand.*, 1970, **24**, 2472 (*occur*)
Tomoda, M. *et al., Chem. Pharm. Bull.*, 1973, **21**, 989 (*isol*)
Kovac, P. *et al., Chem. Zvesti*, 1980, **34**, 537; *CA*, **94**, 84400g (*synth*)
Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892 (*Me gly, synth*)
Bock, K. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 193 (*cmr*)

3-*O*-β-D-Xylopyranosyl-D-xylose X-79

Rhodymenabiose



β-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Isol. from a partial enzymatic hydrolysate of the seaweed polysaccharide rhodymenan from *Rhodymenia palmata*.
Mp 192-193°. $[\alpha]_D$ -22 (H_2O).

Phenylosazone: Mp 194-196°. $[\alpha]_D$ +47 (H_2O).

β-Pyranose-*form*

*Me glycoside: Methyl 3-*O*-β-D-xylopyranosyl-β-D-xylopyranoside*
[74405-67-7]
$C_{11}H_{20}O_9$ 296.274
Cryst. (2-propanol). Mp 161-162°. $[\alpha]_D^{22}$ -72 (c, 1.0 in H_2O).

*Me glycoside, penta-Ac: Methyl 2,4-di-*O*-acetyl-3-*O*-(2,3,4-tri-*O*-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside*
[74405-65-5]
$C_{21}H_{30}O_{14}$ 506.46
Mp 131-132°. $[\alpha]_D^{22}$ -93 (c, 1.0 in $CHCl_3$).

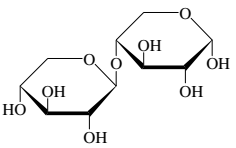
*Me glycoside, penta-Me: Methyl 2,4-di-*O*-methyl-3-*O*-(2,3,4-tri-*O*-methyl-β-D-xylopyranosyl)-β-D-xylopyranoside*
[74405-69-9]
$C_{16}H_{30}O_9$ 366.408
Cryst. (hexane). Mp 60-61°. $[\alpha]_D^{22}$ -73.7 (c, 1.0 in $CHCl_3$).

Benzyl glycoside, 2′,3′,4′-tri-Ac: Benzyl 3-O-(2,3,4-tri-O-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside
$C_{23}H_{30}O_{12}$ 498.483
Mp 173-174.5°. $[\alpha]_D$ +47 ($CHCl_3$).

Howard, B.H. *et al., Biochem. J.*, 1957, **67**, 643; 1960, **74**, 173 (*isol, synth*)
Curtis, E.J.C. *et al., Can. J. Chem.*, 1960, **38**, 1305 (*synth*)
Ferrier, R.J. *et al., J.C.S.*, 1965, 7429 (*benzyl glycoside*)
Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892 (*Me glycoside*)

4-*O*-β-D-Xylopyranosyl-D-xylose, 9CI, 8CI X-80

Xylobiose
[6860-47-5]



α-Pyranose-*form*

$C_{10}H_{18}O_9$ 282.247
Major or sole repeating unit in the main xylan chains of the plant xylans, arabinoxylans and glucuronoxylans. Isol. from the autohydrolysate of wheat-straw xylan; acid hydrolysates of linseed (*Linum usitatissimum*) mucilage, aspen (*Populus tremuloides*), western hemlock (*Tsuga heterophylla*), Scotch pine (*Pinus sylvestris*), black spruce (*Picea nigra*) hemicelluloses and of corn-cob hemicellulose. Prepd. by the action of various endoxylanases on xylans. The rumen protozoon *Epidinium ecaudatum* contains an exoxylanase which liberates xylobiose from xylans.
Mp 185-190°. $[\alpha]_D^{22}$ -32 → -25.5 (H_2O).

Phenylosazone: Mp 195-196° dec. $[\alpha]_D^{22}$ -22.5 → -77 (c, 0.65 in 7:3 Py/EtOH).

α-Pyranose-*form*

Benzyl glycoside, tetrabenzyl: Benzyl 4-O-(2,4-di-O-benzyl-β-D-xylopyranosyl)-2,3-di-O-benzyl-α-D-xylopyranoside
[99388-73-5]
$C_{45}H_{48}O_9$ 732.869
$[\alpha]_D^{20}$ +39 (c, 2.2 in $CHCl_3$).

β-Pyranose-*form* [552-71-6]

1,2,2′,3,3′-Penta-Ac: 4-O-(2,3-Di-O-acetyl-β-D-xylopyranosyl)-1,2,3-tri-O-acetyl-β-D-xylopyranose
[78423-92-4]
$C_{20}H_{28}O_{14}$ 492.433
Mp 180-181°. $[\alpha]_D^{22}$ -76 ($CHCl_3$).

Hexa-Ac: 4-O-(2,3,4-Tri-O-acetyl-β-D-xylopyranosyl)-1,2,3-tri-O-acetyl-β-D-xylopyranose
[35395-99-4]
$C_{22}H_{30}O_{15}$ 534.47
Cryst. (EtOH). Mp 155-156°. $[\alpha]_D^{25}$ -75 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl 4-O-β-D-xylopyranosyl-β-D-xylopyranoside
[69973-32-6]
$C_{11}H_{20}O_9$ 296.274
Mp 148.5-149.5°. $[\alpha]_D^{20}$ -75 (c, 1.0 in H_2O).

Me glycoside, 2,2′,3,3′-tetra-Ac: Methyl 2,3-di-O-acetyl-4-O-(2,3-di-O-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside
[78423-96-8]
$C_{19}H_{28}O_{13}$ 464.422
Mp 121-123°. $[\alpha]_D^{22}$ -104 (in $CHCl_3$).

Me glycoside, 2,2′,3,3′,4′-penta-Ac: Methyl 2,3-di-O-acetyl-4-O-(2,3,4-tri-O-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside
[68977-81-1]
$C_{21}H_{30}O_{14}$ 506.46
Mp 145-146°. $[\alpha]_D^{25}$ -99.7 (c, 5.0 in $CHCl_3$).

Me glycoside, 2′-benzyl: Methyl 4-O-(2-O-benzyl-β-D-xylopyranosyl)-β-D-xylopyranoside
[72127-38-9]
$C_{18}H_{26}O_9$ 386.398
Cryst. (MeOH). Mp 202.5-203°. $[\alpha]_D^{22}$ -73.5 (c, 0.6 in H_2O).

Me glycoside, 2′,3,3′,4′-tetrabenzyl: Methyl 3-O-benzyl-4-O-(2,3,4-tri-O-benzyl-β-D-xylopyranosyl)-β-D-xylopyranoside
[63879-70-9]
$C_{39}H_{44}O_9$ 656.771
Mp 102-103°. $[\alpha]_D^{20}$ -24 (c, 1.25 in $CHCl_3$).

Me glycoside, penta-Me: Methyl 2,3-di-O-methyl-4-O-(2,3,4-tri-O-methyl-β-D-xylopyranosyl)-β-D-xylopyranoside
[74405-72-4]
$C_{16}H_{30}O_9$ 366.408
Cryst. (hexane). Mp 87-88°. $[\alpha]_D^{22}$ -71.3 (c, 1.8 in $CHCl_3$).

Benzyl glycoside: Benzyl 4-O-β-D-xylopyranosyl-β-D-xylopyranoside
[75736-87-7]
$C_{17}H_{24}O_9$ 372.371
$[\alpha]_D^{18}$ -120 (c, 1.6 in H_2O).

Benzyl glycoside, penta-Ac: Benzyl 2,3-di-O-acetyl-4-O-(2,3,4-tri-O-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside
[72661-85-9]
$C_{27}H_{34}O_{14}$ 582.557
Cryst. (EtOH). Mp 125-127°. $[\alpha]_D^{22}$ -104.7 (c, 1.28 in $CHCl_3$).

Benzyl glycoside, 3-Me: Benzyl 3-O-methyl-4-O-(β-D-xylopyranosyl)-β-D-xylopyranoside
$C_{18}H_{26}O_9$ 386.398
$[\alpha]_D^{18}$ -115 (c, 2.0 in H_2O).

Benzyl glycoside, 3-Me, tetra-Ac: Benzyl 2-O-acetyl-3-O-methyl-4-O-(2,3,4-tri-O-acetyl-β-D-xylopyranosyl)-β-D-xylopyranoside
$C_{26}H_{34}O_{13}$ 554.547
Mp 154-156°. $[\alpha]_D^{18}$ -101 (c, 0.66 in $CHCl_3$).

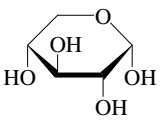
Benzyl glycoside, penta-Me: Benzyl 2,3-di-O-methyl-4-O-(2,3,4-tri-O-methyl-β-D-xylopyranosyl)-β-D-xylopyranoside
$C_{22}H_{34}O_9$ 442.505
Mp 88-90°. $[\alpha]_D^{18}$ -80 (c, 0.4 in $CHCl_3$).

4-Nitrophenyl glycoside: 4-Nitrophenyl β-xylobioside
[6819-07-4]
$C_{16}H_{21}NO_{11}$ 403.342
Chromogenic substrate for xylanases. Foamy solid. $[\alpha]_D^{20}$ -88.5 (c, 1 in MeOH).

Whistler, R.L. *et al., J.A.C.S.*, 1952, **74**, 3059; 3609 (*isol, synth*)
Aspinall, G.O. *et al., J.C.S.*, 1961, 3674, (*β-benzyl gly*)
Myhre, D.V. *et al., J.O.C.*, 1961, **26**, 4609 (*synth*)
Tu, C.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 357 (*synth*)
Bailey, R.W. *et al., Oligosaccharides*, Pergamon, 1965, 43 (*occur*)
Pazur, J.H. *et al., The Carbohydrates*, 2nd edn., (Eds., Pigman, W. *et al*), Academic Press, New York, 1970, 114 (*rev*)
Utille, J.-P. *et al., Carbohydr. Res.*, 1977, **53**, 259 (*β-hexa-Ac*)
Kovac, P. *et al., J. Carbohydr., Nucleosides, Nucleotides*, 1977, **4**, 165 (*β-Me gly*)
Kovac, P. *et al., Carbohydr. Res.*, 1979, **75**, 109; 1981, **90**, C5 (*β-Me gly derivs*)
Gast, J.C. *et al., Carbohydr. Res.*, 1980, **84**, 137 (*cmr*)
Kovac, P. *et al., Coll. Czech. Chem. Comm.*, 1980, **45**, 892 (*synth*)
Wise, W.B. *et al., J. Carbohydr. Chem.*, 1984, **3**, 513-524 (*Me β-pyr, pmr, cmr*)
Koto, S. *et al., Bull. Chem. Soc. Jpn.*, 1985, **58**, 1464 (*α-benzyl gly*)
Mechaly, A. *et al., Carbohydr. Res.*, 1997, **304**, 111-115 (*synth, 4-nitrophenyl gly*)

Xylose, 9CI, 8CI, USAN X-81

Wood sugar. Losan. Xylomed. Xylo-Pfan. FEMA 3606



α-D-Pyranose-*form*

$C_5H_{10}O_5$ 150.131
An aq. soln. at 31° contains 36.5% α-pyr, 63% β-pyr, <1% α- and β-fur and 0.02% aldehyde.

D-*form* [58-86-6]

Prod. industrially by hydrol. of wood. Found mainly in the form of Xylan or as glycosides. Present in wood (maple and cherry), straw, corncobs, cottonseed hulls and pecan shells. Sweetener. Inexpensive starting material for synthesis. Diagnostic aid (intestinal function determination).
Needles (EtOH).
Mp 153° (144-145°). $[\alpha]_D^{20}$ +19 (H_2O, equilib.). pK_{a1} 12.29 (25°). Weak sweet taste, sweetness =0.26 × sucrose.
▶ ZF2285000

p-*Bromophenylhydrazone:* Mp 128°. $[\alpha]_D$ -21.

Di-Et dithioacetal: See Xylose diethyl dithioacetal, X-83

2,3-Di-Ac: 2,3-Di-O-acetyl-D-xylose
[62891-41-2]
$C_9H_{14}O_7$ 234.205
Constit. of the glycopeptides of *Flavobacterium columnare*.

Tetra-Ac: Tetra-O-acetyl-D-xylose. Aldehydo-D-*Xylose tetraacetate*
[30571-56-3]
$C_{13}H_{18}O_9$ 318.28
Cryst. (Et_2O). Mp 87-89°. $[\alpha]_D^{20}$ -22.5 (c, 2.5 in $CHCl_3$).

2-Me: See 2-*O*-Methylxylose, M-306

3-Me: See 3-*O*-Methylxylose, M-307

α-D-Pyranose-*form* [6763-34-4]

*2,3,4-Tri-Ac: 2,3,4-Tri-*O*-acetyl-α-D-xylopyranose*
[10369-25-2]
$C_{11}H_{16}O_8$ 276.243
Mp 160°. $[\alpha]_D^{20}$ +94 → +64 (c, 1 in Py).

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-α-D-xylopyranose*
[4257-98-1]
$C_{13}H_{18}O_9$ 318.28
Needles (Et_2O/petrol). Mp 58.5°. $[\alpha]_D$ +88.9 (c, 1.42 in $CHCl_3$).

*1,2,4-Tribenzoyl: 1,2,4-Tri-*O*-benzoyl-α-D-xylopyranose*
[56933-08-5]
$C_{26}H_{22}O_{8}$ 462.455
Syrup. $[\alpha]_D^{20}$ +88 ($CHCl_3$).

*2,3,4-Tribenzoyl: 2,3,4-Tri-*O*-benzoyl-α-D-xylopyranose*
[56933-07-4]
$C_{26}H_{22}O_8$ 462.455
Mp 181-183°. $[\alpha]_D^{20}$ +24 ($CHCl_3$ 5 min).

*Tetrabenzoyl: 1,2,3,4-Tetra-*O*-benzoyl-α-D-xylopyranose*
[30319-44-9]
$C_{33}H_{26}O_9$ 566.563
Mp 119-121°. $[\alpha]_D^{20}$ +149 ($CHCl_3$).

*3,4-Dibenzyl: 3,4-Di-*O*-benzyl-α-D-xylopyranose*
$C_{19}H_{22}O_5$ 330.38
Cryst. Mp 135-136°.

*3,4-Dibenzyl, 1,2-di-Ac: 1,2-Di-*O*-acetyl-3,4-di-*O*-benzyl-α-D-xylopyranose*
$C_{23}H_{26}O_7$ 414.454
Syrup. $[\alpha]_D$ +127 (c, 0.7 in $CHCl_3$).
Predominantly α-anomer.

Me glycoside: See Methyl xylopyranoside, M-217

2,2,2-Trichloroethyl glycoside, tri-Ac:
$C_{13}H_{15}Cl_3O_8$ 405.615
Mp 117-120°. $[\alpha]_D^{20}$ +130.3 ($CHCl_3$).

β-D-Pyranose-*form* [2460-44-8]

*Tetra-Ac: 1,2,3,4-Tetra-*O*-acetyl-β-D-xylopyranose*
[4049-33-6]
$C_{13}H_{18}O_9$ 318.28
Mp 126-128°. $[\alpha]_D^{11}$ -24.4 ($CHCl_3$).

*Tetrabenzoyl: 1,2,3,4-Tetra-*O*-benzoyl-β-D-xylopyranose*
$C_{33}H_{26}O_9$ 566.563
Cryst. (Me_2CO aq.). Mp 177° (173°). $[\alpha]_D^{20}$ -42.1 (c, 2.3 in $CHCl_3$).

2,3,4-Tribenzyl, 1-(4-nitrobenzoyl): Mp 126-128°. $[\alpha]_D^{25}$ -52.4 (c, 1 in $CHCl_3$).

*Tetrabenzyl: 1,2,3,4-Tetra-*O*-benzyl-β-D-xylopyranose*
$C_{33}H_{34}O_5$ 510.629
Mp 76-80°. $[\alpha]_D$ -11.5 ($CHCl_3$).

Me glycoside: See Methyl xylopyranoside, M-217

2,2,2-Trichloroethyl glycoside, tri-Ac: Mp 155-157°. $[\alpha]_D^{20}$ -64.5 ($CHCl_3$).

Hexadecyl glycoside: Hexadecyl β-D-xylopyranoside. Cetyl β-D-xylopyranoside
[115211-19-3]
$C_{21}H_{42}O_5$ 374.56
Constit. of the red alga *Laurencia karlae*.
Solid.
Mp 94-95°. $[\alpha]_D$ -25 (c, 0.03 in $CHCl_3$).

α-D-Furanose-*form* [14795-83-6]

*Tetra-Ac: Tetra-*O*-acetyl-α-D-xylofuranose*
[61248-15-5]
$C_{13}H_{18}O_9$ 318.28
Oil. $[\alpha]_D^{20}$ +102.4 (c, 1.25 in $CHCl_3$).

*1,2-*O*-Isopropylidene:* See 1,2-*O*-Isopropylidenexylose, I-76

*1,2:3,5-Di-*O*-benzylidene (first isomer): 1,2:3,5-Di-*O*-benzylidene-α-D-xylofuranose*
[18422-74-7]
$C_{19}H_{18}O_5$ 326.348
Mp 155-156°. $[\alpha]_D$ +27 ($CHCl_3$).

*1,2:3,5-Di-*O*-benzylidene (second isomer):*
[18422-73-6]
Mp 132-133°. $[\alpha]_D$ +25 ($CHCl_3$).

*1,2-*O*-Cyclohexylidene:* See 1,2-*O*-Cyclohexylidenexylofuranose, C-191

Me glycoside: See Methyl xylofuranoside, M-216

β-D-Furanose-*form* [37110-85-3]

*Tetra-Ac: Tetra-*O*-acetyl-β-D-xylofuranose*
[23094-61-3]
$C_{13}H_{18}O_9$ 318.28
Oil. $[\alpha]_D^{20}$ -16.2 (c, 0.9 in $CHCl_3$).

*1-Benzoyl, 2,3,5-tri-Ac: 2,3,5-Tri-*O*-acetyl-1-*O*-benzoyl-β-D-xylofuranose*
[55734-49-1]
$C_{18}H_{20}O_9$ 380.351
Syrup. $[\alpha]_D^{25}$ -46.8 (c, 4.8 in $CHCl_3$).

Butyl glycoside: Butyl β-D-xylofuranoside
$C_9H_{18}O_5$ 206.238
Constit. of *Inula crithmoides*.

L-*form* [609-06-3]
Mp 144°. $[\alpha]_D^{20}$ -79.3 → -18.6 (H_2O).

Phenylosazone:
$C_{16}H_{20}N_4O_3$ 316.359
Mp 160-163°. $[\alpha]_D$ +0.1 (Py/EtOH).

2,4-Dinitrophenylhydrazone: Mp 165°.

*2,3:4,5-Diisopropylidene: 2,3:4,5-Di-*O*-isopropylidene-L-xylose*
[120522-10-3]
$C_{11}H_{18}O_5$ 230.26
$[\alpha]_D$ +26.1 (c, 1.9 in EtOH).

*2,4-Benzylidene: 2,4-*O*-Benzylidene-L-xylose*
[30608-02-7]
$C_{12}H_{14}O_5$ 238.24
Mp 162°. $[\alpha]_D$ +4.4.

*2,4-Benzylidene, 3-Me: 2,4-*O*-Benzylidene-3-*O*-methyl-L-xylose*
$C_{13}H_{16}O_5$ 252.266
Mp 168-170° (as 4-nitrophenylhydrazone).

α-L-Pyranose-*form* [7296-58-4]

*Tetrabenzoyl: Tetra-*O*-benzoyl-α-L-xylopyranose*
$C_{33}H_{26}O_9$ 566.563
Mp 115-116°. $[\alpha]_D^{20}$ -115 ($CHCl_3$).

β-L-Pyranose-*form* [7322-30-7]

*Tetra-Ac: Tetra-*O*-acetyl-β-L-xylopyranose*
[78088-17-2]
$C_{13}H_{18}O_9$ 318.28
Mp 126°. $[\alpha]_D^{25}$ +25.7 ($CHCl_3$).

*Tetrabenzoyl: 2,3,4,5-Tetra-*O*-benzoyl-β-L-xylopyranose*
$C_{33}H_{26}O_9$ 566.563
Mp 173-174°. $[\alpha]_D^{20}$ +44.5 ($CHCl_3$).

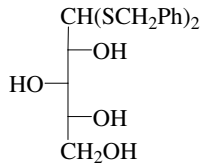
DL-*form* [41247-05-6]
Mp 129-131°.

[3154-36-7, 41546-29-6, 41546-30-9]

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **1**, 187C; 187D; 188C (*ir*)
Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **1**, 293C; 294A; 294B (*nmr*)
Tollens, B. *et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth*, 1935, 136 (*rev*)
Helferich, B. *et al., Ber.*, 1939, **72**, 1953 (*β-L-pyr tetra-Ac*)
Wolfrom, M. *et al., J.A.C.S.*, 1944, **66**, 204 (*aldehyde tetra-Ac*)
Fletcher, H.G. *et al., J.A.C.S.*, 1947, **69**, 921, (*α-D-pyr tetrabenzoyl, β-D-pyr tetrabenzoyl*)
Whistler, R.L. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 88 (*synth, D-form*)
Ness, R.K. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 90 (*synth, D-form*)
de Belder, A.N. *et al., Adv. Carbohydr. Chem. Biochem.*, 1965, **20**, 219; 1977, **34**, 179 (*acetals*)
Hough, L. *et al., Rodd's Chem. Carbon Compd. (2nd edn.)*, 1967, **1F**, 231 (*occur, isol*)
Durette, P.L. *et al., J.O.C.*, 1971, **36**, 2658 (*α-D-pyr tetra-Ac*)
Karrer, W. *et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 585 (*occur*)
Bock, K. *et al., Tet. Lett.*, 1973, **13**, 1037 (*cmr*)
Bock, K. *et al., Acta Chem. Scand., Ser. B*, 1975, **29**, 185; 258 (*β-D-fur tri-Ac benzoyl, cmr*)
Excoffer, G. *et al., Carbohydr. Res.*, 1975, **39**, 368 (*α-D-pyr tri-Ac*)
Batey, J.F. *et al., Carbohydr. Res.*, 1975, **43**, 43 (*α-D-pyr benzoyl derivs*)
Kam, B.L. *et al., Carbohydr. Res.*, 1979, **69**, 135 (*α,β-D-fur tetra-Ac*)
Magnusson, G. *et al., Acta Chem. Scand., Ser. B*, 1981, **35**, 213 (*β-D-trichloroethyl pyr tri-Ac*)
Bock, K. *et al., Annu. Rep. NMR Spectrosc.*, (Webb, G.A. ed.), Acad. Press, London and New York, 1982, **13**, 38; 41 (*pmr, cmr*)
Utille, J.P. *et al., Carbohydr. Res.*, 1982, **106**, 43 (*tri-Ac derivs*)
Decoster, E. *et al., J. Carbohydr. Chem.*, 1983, **2**, 329-341 (*β-D-pyr tetrabenzyl*)
Angyal, S.J. *et al., Adv. Carbohydr. Chem. Biochem.*, 1984, **42**, 15 (*equilib*)
Ray, R.N. *et al., J. Indian Chem. Soc.*, 1987, **64**, 371 (*L-2,4-benzylidene*)
Schmid, W. *et al., Annalen*, 1992, 95 (*synth, L-form*)
Kuszmann, J. *et al., Carbohydr. Res.*, 1992, **232**, 17 (*L-form, 3-Me-2,4-benzylidene*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 780
Benesi, A.J. *et al., Carbohydr. Res.*, 1994, **258**, 27 (*pmr, cmr*)
Yang, G. *et al., Carbohydr. Res.*, 1994, **258**, 49 (*3,4-dibenzyl*)
Zhong, Y.-L. *et al., CA*, 1996, **124**, 170194n (*hexadecyl glycoside*)
Martindale, The Extra Pharmacopoeia, 31st edn., Pharmaceutical Press, 1996, 1109
Dondoni, A. *et al., J.O.C.*, 1997, **62**, 6261-6267 (*L-diisopropylidene, synth, pmr*)
Yang, W.-B. *et al., Tetrahedron*, 2002, **58**, 253-259 (*L-form, synth*)
Vinogradov, E. *et al., Carbohydr. Res.*, 2003, **338**, 2653-2658 (*D-form, 2,3-di-Ac, occur*)
El-Lakany, A.M. *et al., Pharmazie*, 2003, **58**, 940-942 (*Butyl glycoside*)

Xylose dibenzyl dithioacetal X-82

Xylose dibenzyl mercaptal. 5,5-Bis (benzylthio)-1,2,3,4-pentanetetrol†



D-*form*

$C_{19}H_{24}O_4S_2$ 380.528

D-*form* [64780-54-7]
Needles (EtOAc). Mp 77-78°. $[\alpha]_D^{20}$ -129.5 (c, 1.82 in MeOH).

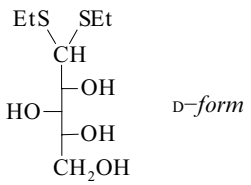
2,3,5-Tribenzoyl: 2,3,5-Tri-O-*benzoyl-D-xylose dibenzyl dithioacetal*
[58886-13-8]
$C_{40}H_{36}O_7S_2$ 692.852
Cryst. (MeOH). Mp 109-111°.

2,3,5-Tri-Me: 2,3,5-Tri-O-*methyl-D-xylose dibenzyl dithioacetal*
[58886-13-8]
$C_{22}H_{30}O_4S_2$ 422.609
Syrup. $[\alpha]_D^{27}$ -34 (c, 1.19 in $CHCl_3$).

2,3,5-Tribenzyl: 2,3,5-Tri-O-*benzyl-D-xylose dibenzyl dithioacetal*
[222191-90-4]
$C_{40}H_{42}O_4S_2$ 650.901
Yellow syrup. $[\alpha]_D^{20}$ -77.4 (c, 1.0 in $CHCl_3$).

Zinner, H. *et al., Chem. Ber.*, 1956, **89**, 2451-2454; 1957, **90**, 1761-1768 (*D-form*)
Van Es, T. *et al., Chem. Ber.*, 1976, **46**, 237-244 (*D-2,3,5-tri-Me*)
Wirsching, J. *et al., Eur. J. Org. Chem.*, 1999, 691-696 (*D-2,3,5-tribenzyl*)
Birtwistle, I. *et al., Synth. Commun.*, 2001, **31**, 3807-3815 (*D-2,3,5-tribenzoyl*)

Xylose diethyl dithioacetal, 9CI, 8CI X-83



D−*form*

$C_9H_{20}O_4S_2$ 256.387

D-*form* [13263-74-6]
Mp 63-65°. $[\alpha]_D$ -30.8 (H_2O).

Tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-D-xylose diethyl dithioacetal*
[7226-49-5]
$C_{17}H_{28}O_8S_2$ 424.535
Mp 46-48°. $[\alpha]_D$ +12.8 ($CHCl_3$).

2,4-Isopropylidene: 2,4-O-*Isopropylidene-D-xylose diethyl dithioacetal*
[16885-47-5]
$C_{12}H_{24}O_4S_2$ 296.451
Mp 117-118°.

2,5-Isopropylidene: 2,5-O-*Isopropylidene-D-xylose diethyl dithioacetal*
$C_{12}H_{24}O_4S_2$ 296.451
Mp 78.5-80°. $[\alpha]_D^{26}$ -3.6 (c, 2.26 in $CHCl_3$).

3,4-Isopropylidene: 3,4-O-*Isopropylidene-D-xylose diethyl dithioacetal*
[52545-16-1]
$C_{12}H_{24}O_4S_2$ 296.451
Syrup. $[\alpha]_D^{20}$ +45 (c, 1.48 in $CHCl_3$).

3,5-Isopropylidene: 3,5-O-*Isopropylidene-D-xylose diethyl dithioacetal*
$C_{12}H_{24}O_4S_2$ 296.451
Syrup. $[\alpha]_D^{24}$ +1 (c, 1.47 in $CHCl_3$).

4,5-Isopropylidene: 4,5-O-*Isopropylidene-D-xylose diethyl dithioacetal*
[16885-46-4]
$C_{12}H_{24}O_4S_2$ 296.451
Mp 76-77°. $[\alpha]_D^{24}$ +48 (c, 1.54 in $CHCl_3$).

2,3:4,5-Diisopropylidene: 2,3:4,5-Di-O-*isopropylidene-D-xylose diethyl dithioacetal*
[3673-14-1]
$C_{15}H_{28}O_4S_2$ 336.516
Mp 108-109°. $[\alpha]_D$ -67. $[\alpha]_D^{24}$ -54 (c, 1.44 in Me_2CO).

2,4:3,5-Diisopropylidene: 2,4:3,5-Di-O-*isopropylidene-D-xylose diethyl dithioacetal*
$C_{15}H_{28}O_4S_2$ 336.516
Cryst. (EtOH aq.). Mp 113.5-114°. $[\alpha]_D$ +8 (c, 1.04 in Me_2CO).

2,5-Cyclohexylidene: 2,5-O-*Cyclohexylidene-D-xylose diethyl dithioacetal*
$C_{15}H_{28}O_4S_2$ 336.516
Mp 82-84°. $[\alpha]_D^{24}$ -4 (c, 1.37 in $CHCl_3$).

4,5-Cyclohexylidene: 4,5-O-*Cyclohexylidene-D-xylose diethyl dithioacetal*
$C_{15}H_{28}O_4S_2$ 336.516
Mp 66-67°. $[\alpha]_D^{24}$ +21 (c, 1.02 in $CHCl_3$).

2,4:3,5-Dibenzylidene: 2,4:3,5-Di-O-*benzylidene-D-xylose diethyl dithioacetal*
[13231-44-2]
$C_{23}H_{28}O_4S_2$ 432.604
Needles (EtOH). Mp 179°. $[\alpha]_D^{20}$ -2.8 (c, 2.1 in $CHCl_3$).

2,3,4-Tri-Me: 2,3,4-Tri-O-*methyl-D-xylose diethyl dithioacetal*
[54623-08-4]
$C_{12}H_{26}O_4S_2$ 298.467
Syrup. $Bp_{0.01}$ 142-146°. $[\alpha]_D^{21}$ +20 (c, 1.6 in $CHCl_3$).

2,3,4,5-Tetra-Me: 2,3,4,5-Tetra-O-*methyl-D-xylose diethyl dithioacetal*
[52545-19-4]
$C_{13}H_{28}O_4S_2$ 312.494
Syrup. $[\alpha]_D^{25}$ +6 (c, 1.41 in $CHCl_3$).

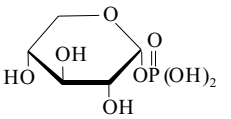
L-*form* [23259-79-2]
Mp 63-64°. $[\alpha]_D$ +70 ($CHCl_3$).

Tetra-Ac: 2,3,4,5-Tetra-O-*acetyl-L-xylose diethyldithioacetal*
[23259-80-5]
$C_{17}H_{28}O_8S_2$ 424.535
Mp 49-50°. $[\alpha]_D$ -13 ($CHCl_3$).

Wolfrom, M.L. *et al., J.A.C.S.*, 1931, **53**, 4379-4383 (*D-form, synth*)
Zissis, E. *et al., J.A.C.S.*, 1953, **75**, 129-131, (*D-form, synth*)
Zinner, H. *et al., Carbohydr. Res.*, 1966, **2**, 197 (*2,4:3,5-dibenzylidene*)
v. Es, T. *et al., Carbohydr. Res.*, 1974, **32**, 370-374 (*D-2,3,4,5-tetra-Me, D-isopropylidene derivs*)
Wander, J.D. *et al., Adv. Carbohydr. Chem. Biochem.*, 1976, **32**, 15
Grindley, T.B. *et al., Carbohydr. Res.*, 1985, **140**, 215 (*synth, pmr, cmr, isopropylidene, cyclohexylidene derivs*)

Xylose 1-dihydrogen phosphate X-84

Xylosyl phosphate. Xylose-1-phosphate



Pyranose−*form*

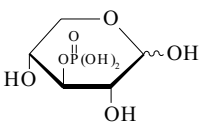
$C_5H_{11}O_8P$ 230.111

α-D-Pyranose-*form* [25799-81-9]
Ba salt: $[\alpha]_D$ +65 (c, 2.0 in H_2O).
Di-K salt: $[\alpha]_D$ +76 (c, 2.0 in H_2O).
Dicyclohexylammonium salt: Mp 152-158°. $[\alpha]_D^{26}$ +58 (c, 2.5 in H_2O).

β-D-Pyranose-*form*
Ba salt: $[\alpha]_D$ -13.3 (5% AcOH aq.).
Dicyclohexylammonium salt: Mp 144-150°. $[\alpha]_D^{26}$ +0.8 (c, 2.5 in H_2O).
Meagher, W.R. *et al., J.A.C.S.*, 1946, **68**, 2135 (*synth*)
Putman, E.W. *et al., J.A.C.S.*, 1957, **79**, 5057 (*synth*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Xylose 3-dihydrogen phosphate X-85

Xylose-3-phosphate



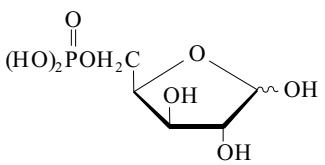
Pyranose−*form*

$C_5H_{11}O_8P$ 230.111

D-*form*
Ba salt: $[\alpha]_D^{22}$ +1.27 (c, 5.13 in H_2O).
Moffatt, J.G. *et al., J.A.C.S.*, 1956, **78**, 883 (*synth*)
MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Xylose 5-dihydrogen phosphate X-86

Xylose-5-phosphate



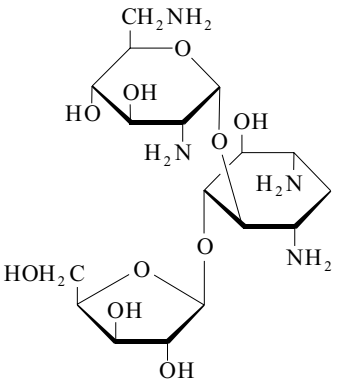
$C_5H_{11}O_8P$ 230.111

D-*form*
$[\alpha]_D^{20}$ +25 (c, 2.0 in H_2O).
Ba salt: $[\alpha]_D$ +8 (H_2O).
Na salt: $[\alpha]_D^{20}$ +10 → +4.4 (c, 2.0 in H_2O).
Dibrucine salt: Mp 150° dec. $[\alpha]_D^{20}$ -37.8 (c, 2.02 in $CHCl_3$).
Levene, P.A. *et al., J. Biol. Chem.*, 1933, **102**, 347 (*synth*)
Barnwell, J.L. *et al., Chem. Ind. (London)*, 1955, 173 (*synth*)

MacDonald, D.L. *et al., The Carbohydrates*, 2nd Ed., Academic Press, 1972, **1A**, 253 (*rev*)

Xylostacin X-87

O-*2,6-Diamino-2,6-dideoxy-α-D-glucopyranosyl-(1→4)*-O-*[β-D-xylofuranosyl-(1→5)]-2-deoxy-D-streptamine, 9CI*
[50474-67-4]



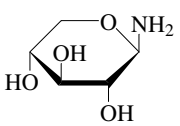
$C_{17}H_{34}N_4O_{10}$ 454.476

Aminoglycoside antibiotic. Isol. from *Bacillus circulans* and *Bacillus vitellinus*. Broad spectrum antibiotic. Cryst. Sol. H_2O; fairly sol. MeOH; poorly sol. butanol, hexane. $[\alpha]_D^{21}$ +34 (c, 1 in H_2O). Dec. on heating. Isomeric with Ribostamycin.

▶ LD_{50} (mus, ivn) 1000 mg/kg. WK2303000

Horii, S. *et al., Antimicrob. Agents Chemother.*, 1974, **5**, 578 (*isol, ir, nmr, struct*)
Ohashi, M. *et al., Biomed. Mass Spectrom.*, 1978, **5**, 578 (*ms*)
Furumai, T. *et al., J. Antibiot.*, 1978, **31**, 966; 1979, **32**, 891 (*isol, biosynth*)

Xylosylamine X-88



β-D-Pyranose-*form*

$C_5H_{11}NO_4$ 149.146

D-*form* [7322-34-1]
Mp 128-129°. $[\alpha]_D^{20}$ -19.6 (c, 2 in H_2O).

N-*Ac:* N-*Acetyl-D-xylosamine*
$C_7H_{13}NO_5$ 191.183
Mp 213-214°. $[\alpha]_D$ -0.7 (H_2O).

N,*2,3,4-Tetra-Ac:* N-*Acetyl-2,3,4-tri*-O-*acetyl-D-xylosamine*
[30595-24-5]
$C_{13}H_{19}NO_8$ 317.295
Cryst. ($CHCl_3$/petrol). Mp 172-173°. $[\alpha]_D$ +28.5 ($CHCl_3$).

L-*form*
Mp 138-139°. $[\alpha]_D$ +19.

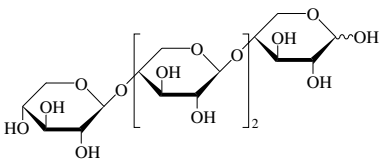
Tri-O-*Ac: 2,3,4-Tri*-O-*acetyl-L-xylosylamine*
$C_{11}H_{17}NO_7$ 275.258
Mp 173-175°. $[\alpha]_D^{20}$ -28 (c, 0.5 in EtOH).

N,*2,3,4-Tetra-Ac:* N-*Acetyl-2,3,4-tri*-O-*acetyl-L-xylosamine*
$C_{13}H_{19}NO_8$ 317.295
Mp 216-217°. $[\alpha]_D^{20}$ +2 (c, 0.5 in EtOH).

Isbell, H. *et al., J.O.C.*, 1958, **23**, 1309 (*D-form, synth, D-N-Ac, D-tetra-Ac*)
Smiatacz, Z. *et al., Pol. J. Chem. (Rocz. Chem.)*, 1970, **44**, 757 (*L-tri-Ac*)
Cerezo, A. *et al., Chem. Ind. (London)*, 1971, 96 (*pmr*)

Xylotetraose, 8CI X-89

β-D-Xylopyranosyl-(1→4)-[β-D-xylopyranosyl-(1→4)]$_2$-D-xylose
[22416-58-6]



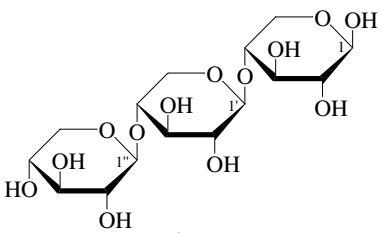
$C_{20}H_{34}O_{17}$ 546.478
Obt. by acid hydrol. of xylans.
Mp 219-220°. $[\alpha]_D^{25}$ -48.8 → -60 (H_2O).

Deca-Ac: Mp 201-202°. $[\alpha]_D^{25}$ -93.7 (c, 0.8 in $CHCl_3$).

Whistler, R.L. *et al., J.A.C.S.*, 1952, **74**, 4334 (*synth, isol*)
Kamiyama, Y. *et al., Agric. Biol. Chem.*, 1974, **38**, 2385 (*glc*)

Xylotriose, 9CI X-90

β-D-Xylopyranosyl-(1→4)-β-D-xylopyranosyl-(1→4)-D-xylose. 4-β-Xylosylxylobiose
[22416-59-7]



β-Pyranose-*form*

$C_{15}H_{26}O_{13}$ 414.363

See also under 4-*O*-β-D-Xylopyranosyl-D-xylose, X-80. Isol. from various acid and enzymic hydrolysates; see under 4-*O*-β-D-Xylopyranosyl-D-xylose X-80. Cryst. (MeOH).
Mp 204-206° (217-219°). $[\alpha]_D$ -47 (c, 1.0 in H_2O).

β-Pyranose-*form*

1,2,2′,2″,3,3′,3″-Hepta-Ac: [78423-94-6]
$C_{29}H_{40}O_{20}$ 708.623
(EtOH). Mp 216-218°. $[\alpha]_D^{22}$ -92.3 (c, 1.0 in $CHCl_3$).

Octa-Ac: [35395-98-3]
$C_{31}H_{42}O_{21}$ 750.66
Mp 109-110°. $[\alpha]_D$ -85 ($CHCl_3$).

4″-Benzyl, hepta-Ac: [78423-93-5]
$C_{36}H_{46}O_{20}$ 798.747
Cryst. (MeOH). Mp 104-109°. $[\alpha]_D^{22}$ -81.9 (c, 1.0 in $CHCl_3$).

Me glycoside: Methyl β-D-xylopyranosyl-(1→4)-β-D-xylopyranosyl-(1→4)-β-D-xylopyranoside
[74972-67-1]
$C_{16}H_{28}O_{13}$ 428.389
Mp 190-191°.

Me glycoside, 2,2′,2″,3,3′,3″-hexa-Ac:
[78437-57-7]
$C_{28}H_{40}O_{19}$ 680.613
Cryst. (MeOH/$CHCl_3$). Mp 144-148°. $[\alpha]_D^{22}$ -109 (c, 1.0 in $CHCl_3$).

Me glycoside, hepta-Ac: [74972-68-2]
$C_{30}H_{42}O_{20}$ 722.65
Cryst. (MeOH). Mp 110-114°. $[\alpha]_D$ -105 ($CHCl_3$).

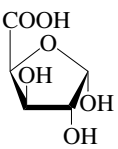
Me glycoside, 4″-benzyl, hexa-Ac:
[78423-97-9]
$C_{35}H_{46}O_{19}$ 770.737
Cryst. (MeOH). Mp 155-157°. $[\alpha]_D^{22}$ -98 (c, 1.0 in $CHCl_3$).

[47592-59-6, 83058-47-3]

Whistler, R.L. *et al., J.A.C.S.*, 1952, **74**, 3609; 4334 (*isol*)
Jones, J.K.N. *et al., J.C.S.*, 1952, 2750 (*isol*)
Bishop, C.T. *et al., Can. J. Chem.*, 1955, **33**, 1073
Erskine, A.J. *et al., Can. J. Chem.*, 1957, **35**, 1174 (*isol*)
Tu, C.C. *et al., Methods Carbohydr. Chem.*, 1962, **1**, 357 (*isol*)
Kamiyama, Y. *et al., Agric. Biol. Chem.*, 1974, **38**, 2385 (*glc*)
Gast, J.C. *et al., Carbohydr. Res.*, 1980, **84**, 137 (*cmr*)
Kovac, P. *et al., Carbohydr. Res.*, 1981, **90**, C5; 1982, **100**, 177 (*Me gly*)
Hirsch, J. *et al., Carbohydr. Res.*, 1982, **106**, 203 (*β-pyr derivs*)
Meagher, M.M. *et al., Carbohydr. Res.*, 1988, **173**, 273 (*enzymic synth*)
Summerfelt, S.T. *et al., Carbohydr. Res.*, 1990, **203**, 163 (*pmr*)

Xyluronic acid X-91

[30923-21-8]



α-D-Furanose-*form*

$C_5H_8O_6$ 164.115

Aq. solns. contain acyclic, furanose and 2,5-lactone forms.

D-*form*
Syrup. $[\alpha]_D^{25}$ -11.3 (c, 0.8 in H_2O).

α-D-Furanose-*form*

α-D-Xylofuranuronic acid
[134679-13-3]

1,2-Isopropylidene: 1,2-O-*Isopropylidene-α-D-xylofuranuronic acid*
[35522-89-5]
$C_8H_{12}O_6$ 204.179
Solid (H_2O). Mp 70°. $[\alpha]_D^{20}$ -32.6 (c, 2.1 in Me_2CO).

1,2-Isopropylidene, Me ester: Methyl 1,2-O-isopropylidene -α-D-xylofuranuronate
[35522-91-9]
$C_9H_{14}O_6$ 218.206

Prisms (Et_2O/pentane). Mp 104-106°. $[\alpha]_D^{20}$ -42.2 (c, 1.0 in $CHCl_3$).

1,2-Cyclohexylidene, Et ester:
[114743-68-9]
$C_{13}H_{20}O_6$ 272.297
Mp 115°.

1,2-Cyclohexylidene, 3-Ac: 3-O-Acetyl-1,2-O-cyclohexylidene-α-D-xylofuranouronic acid
[114743-65-6]
$C_{13}H_{18}O_7$ 286.281
Mp 137°.

1,2-Cyclohexylidene, 3-Ac, chloride:
[114743-66-7]
$C_{13}H_{17}ClO_6$ 304.726
Mp 97° (crude).

[134616-30-1, 134679-17-7]

Heyns, K. *et al., Chem. Ber.*, 1961, **94**, 348-352 (*D-form, synth*)

Weidmann, H. *et al., Monatsh. Chem.*, 1972, **103**, 210-217 (*α-D-fur 1,2-isopropylidene Me ester*)

Miljković, D. *et al., J. Carbohydr. Chem.*, 1987, **6**, 501-508 (*cyclohexylidene derivs*)

Lichtenthaler, W. *et al., Synthesis*, 1988, 790-792 (*α-D-fur 1,2-isopropylidene Me ester*)

Wu, J. *et al., Carbohydr. Res.*, 1991, **210**, 51-70 (*pmr, cmr*)

Davis, N.J. *et al., Tet. Lett.*, 1993, **34**, 1181-1184 (*α-D-fur 1,2-isopropylidene*)

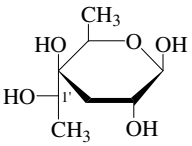
Yeastcidin Y-1

Glycoprotein. Prod. by *Aspergillus oryzae* G. Shows antimicrobial activity. Powder.

Hosaka, M. *et al., Hakko Kogaku Zasshi*, 1987, **65**, 191-197; *CA*, **107**, 112314q (*isol*)

Yersiniose Y-2

3,6-Dideoxy-4-C-(1-hydroxyethyl)-D-xylo-hexose. Yersiniose A



β-Pyranose-*form*

$C_8H_{16}O_5$ 192.211

CA refers to Yersiniose and Yersiniose A as different compds. and assigns two incorrect stereochemistries. (correct stereochem. is D-*xylo*-). Stereochemistry is complex. See Zubkov, *et al* for a discussion. Component of the antigenic lipopolysaccharide of *Yersinia frederiksenii* strain 867 and of *Yersinia pseudotuberculosis*.

$[\alpha]_D^{20}$ -6.1 (c, 0.6 in H_2O).

Tetra-Ac:

$C_{16}H_{24}O_9$ 360.36

$[\alpha]_D^{20}$ -20 (c, 0.4 in $CHCl_3$).

1′-Epimer: Yersiniose B

$C_8H_{16}O_5$ 192.211

Synthetic.

α-Pyranose-*form*

Me glycoside:

$C_9H_{18}O_5$ 206.238

Syrup. $[\alpha]_D$ +77 (c, 0.1 in H_2O).

β-Pyranose-*form*

Me glycoside: $[\alpha]_D^{20}$ -48.2 (c, 1.0 in H_2O).

[89367-91-9, 126786-43-4]

Gorshkova, R.P. *et al., Carbohydr. Res.*, 1984, **126**, 308 (*isol, cmr, pmr, deriv*)

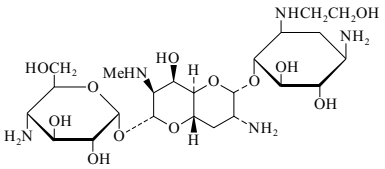
Gorshkova, R.P. *et al., Bioorg. Khim.*, 1989, **15**, 1627; *Sov. J. Bioorg. Chem. (Engl. Transl.)*, 1989, **15**, 878 (*isol, cmr*)

Zubkov, V.A. *et al., Carbohydr. Res.*, 1992, **225**, 189 (*synth, stereochem*)

Chen, H. *et al., J.A.C.S.*, 1998, **120**, 11796-11797 (*rev, biosynth*)

Youlemycin Y-3

[110207-81-3]



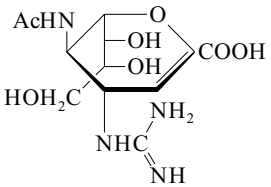
$C_{23}H_{45}N_5O_{12}$ 583.635

Aminoglycoside antibiotic. Prod. by *Streptomyces* sp. Sol. H_2O; poorly sol. butanol, hexane.

Ye, X. *et al., CA*, 1987, **107**, 112294 (*isol, struct*)

Zanamivir, BAN, USAN Z-1

*5-(Acetylamino)-4-[(aminoiminomethyl)amino]-2,6-anhydro-3,4,5-trideoxy-D-*glycero-*D*-galacto-*non-2-enoic acid, 9CI. 2,4-Dideoxy-2,3-dehydro-4-guanidino-*N*-acetylneuraminic acid. Relenza. GG 167. GR 121167X*
[139110-80-8]



$C_{12}H_{20}N_4O_7$ 332.313
Neuraminidase (sialidase) inhibitor. Inhibits influenza virus replication *in vitro* and in mice. Antiviral agent. Launched 1999 (Australia). Cryst. Mp 256° dec. $[\alpha]_D^{20}$ +40.9 (c, 0.9 in H_2O). Log P -4.81 (calc).

[139110-56-8]

Pat. Coop. Treaty (WIPO), 1991, 91 16 320, (*Glaxo*); *CA*, **117**, 49151y (*synth, pharmacol*)
Woods, J.M. *et al., Antimicrob. Agents Chemother.*, 1993, **37**, 1473 (*pharmacol*)
von Itzstein, M. *et al., Nature (London)*, 1993, **363**, 418 (*pharmacol*)
Ryan, D.M. *et al., Antimicrob. Agents Chemother.*, 1994, **38**, 2270 (*activity*)
Hayden, F.G. *et al., Antiviral Res.*, 1994, **25**, 123 (*activity*)
von Itzstein, M. *et al., Carbohydr. Res.*, 1994, **259**, 301 (*synth*)
Chandler, M. *et al., J.C.S. Perkin 1*, 1995, 1173-1180 (*synth, pmr, ir, uv*)
Scheigetz, J. *et al., Org. Prep. Proced. Int.*, 1995, **27**, 637-644 (*synth*)
Fromtling, R.A. *et al., Drugs of the Future*, 1996, **21**, 375-382 (*rev*)
Hayden, F.G. *et al., J. Am. Med. Assoc.*, 1996, **275**, 295-299 (*pharmacol*)
Smith, P.W. *et al., Spec. Publ. - R. Soc. Chem.*, 1997, **198**, 269-287 (*rev*)
Drugs, 1998, **55**, 721-725; 1999, **58**, 761 (*rev*)
Freund, B. *et al., Drug Saf.*, 1999, **21**, 267
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 630
Cheer, S.M. *et al., Drugs*, 2002, **62**, 71-106 (*rev*)

Zanflo Z-2

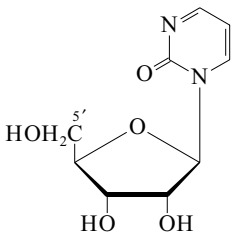
→3)-α-D-Glc*p*-(1→4)-β-D-GlcA*p*-(1→4)-α-L-Fuc*p*-(1→
4
↑
1
β-D-Gal*p*
partially acetylated (1.5 Ac groups per repeating unit)

Prod. by *Erwinia tahitica*. Industrial polysaccharide showing superior viscosity and dye compatibility props. than Xanthan, X-1.

Johannsson, A. *et al., Carbohydr. Res.*, 1994, **264**, 129 (*pmr, struct, bibl*)

Zebularine Z-3

1-β-D-Ribofuranosyl-2(1H)-pyrimidinone, 9CI, 8CI. 4-Deoxyuridine
[3690-10-6]



$C_9H_{12}N_2O_5$ 228.204
Antineoplastic agent, cytidine deaminase inhibitor. Mp 158-159° (156.5-157°). $[\alpha]_D^{25}$ +160.9 (c, 0.76 in MeOH). Log P -2.65 (calc).

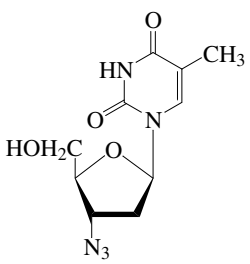
*2′,3′,5′-Tri-*O*-benzoyl:* Mp 165-167°.

[68926-06-7]

Ikehara, M. *et al., Chem. Pharm. Bull.*, 1960, **8**, 308 (*synth*)
Funakoshi, R. *et al., Chem. Pharm. Bull.*, 1961, **9**, 406 (*synth*)
Oeyen, T.B. *et al., Biochim. Biophys. Acta*, 1969, **186**, 237 (*synth*)
Hruska, F.E. *et al., Can. J. Chem.*, 1974, **52**, 497 (*pmr, conformn*)
Furberg, S. *et al., Acta Chem. Scand., Ser. B*, 1978, **32**, 478 (*cryst struct*)
Holy, A. *et al., Coll. Czech. Chem. Comm.*, 1985, **50**, 393 (*synth*)
Maeda, M. *et al., Nucleic Acids Symp. Ser.*, 1985, **16**, 77 (*synth, props*)
Driscoll, J.S. *et al., J. Med. Chem.*, 1991, **34**, 3280 (*synth, props*)
Laliberté, J. *et al., Cancer Chemother. Pharmacol.*, 1992, **30**, 7 (*pharmcol*)

Zidovudine, BAN, INN, USAN Z-4

3′-Azido-3′-deoxythymidine, 9CI. 3′-Azidothymidine. Apovir. Novo-AZT. Retrovir. Zidovir. AZT. BW A509U. NSC 602670
[30516-87-1]



$C_{10}H_{13}N_5O_4$ 267.244
Antiviral agent active exclusively against retroviruses, esp. AIDS virus and leukaemias. Drugs of choice for AIDS treatment. Nucleoside transporter substrate. Marketed drug. Lauched 1987. As Combivir (combination product with Lamivudine, L-23), worldwide 63rd best selling prescription drug ($0.88 bn, 2002) (GlaxoSmithKline) (Med Ad News). Needles (Et_2O). Mp 106-112° Mp 119-121° (after drying). $[\alpha]_D^{25}$ +99 (c, 0.5 in H_2O). pK_a 9.68. Component of Combivir.

▶ Possible human carcinogen (IARC 2B).
XP2072000

Phosphate (ester): 3′-Azido-3′-deoxy-5′-thymidylic acid, 9CI
[29706-85-2]
$C_{10}H_{14}N_5O_7P$ 347.224
Needles (as NH_4 salt). Mp 199-200° (NH_4 salt).

Phosphate, 2-(decyloxyl)-3-(dodecylthio)-propyl ester: See Fozivudine tidoxil, F-42

5′-Triphosphate: [92586-35-1]
$C_{10}H_{16}N_5O_{13}P_3$ 507.184
HIV reverse transcriptase inhibitor. Active metabolite of zidovudine. Oil.

5′-(Hydrogen phosphonate): ***Phosphazid***
[124930-59-2]
$C_{10}H_{14}N_5O_6P$ 331.224
Antiviral agent.

Aldrich Library of 13C and 1H FT NMR Spectra, 1992, **3**, 393A (*nmr*)
Horowitz, J.P. *et al., J.O.C.*, 1964, **29**, 2076 (*synth, uv*)
Lin, T.-S. *et al., J. Med. Chem.*, 1978, **21**, 109 (*synth*)
Mitsuya, H. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1985, **82**, 7096 (*pharmacol*)
Vrang, L. *et al., Antiviral Res.*, 1987, **7**, 139-149 (*5′-triphosphate, synth, pmr, P-31 nmr, uv, biochem*)
Dyer, I. *et al., Acta Cryst. C*, 1988, **44**, 767 (*cryst struct*)
Van Roey, P. *et al., J.A.C.S.*, 1988, **110**, 2277 (*cryst struct*)
Fleet, G.W.J. *et al., Tetrahedron*, 1988, **44**, 625 (*synth*)
Coe, D. *et al., Chem. Ind. (London)*, 1989, 724 (*phosphate, synth, ir, pmr, bibl*)
Collins, J.M. *et al., Clin. Pharmacokinet.*, 1989, **17**, 1 (*rev, pharmacokinet*)
Sethi, M.L. *et al., Anal. Profiles Drug Subst.*, 1991, **20**, 729 (*rev*)
Jung, M.E. *et al., J.O.C.*, 1991, **56**, 2614 (*synth*)
Dyatkina, N.B. *et al., Nucleosides Nucleotides*, 1991, **10**, 731-732; 1992, **11**, 177-196 (*phosphazid, synth*)
Good, S.S. *et al., Antiviral Chem. Chemother.*, 1992, **3**, 65 (*rev*)
Van Wijk, G.M.T. *et al., J. Lipid Res.*, 1992, **33**, 1211 (*phosphate, synth*)
Wilde, M.I. *et al., Drugs*, 1993, **46**, 515 (*rev*)
Hu, M. *et al., J. Pharm. Sci.*, 1993, **82**, 829-833 (*pharmacol*)
Boal, J.H. *et al., Nucleosides Nucleotides*, 1993, **12**, 1075-1084 (*phosphazid, synth*)
Nyce, J. *et al., Proc. Natl. Acad. Sci. U.S.A.*, 1993, **90**, 2960 (*phosphate, pharmacol*)
Herrlein, M.K. *et al., Helv. Chim. Acta*, 1994, **77**, 586-596 (*5′-triphosphate, synth, pmr, P-31 nmr, tlc*)
Sande, M.A. *et al., The Medical Management of Aids*, 4th edn., W.B. Saunders, 1995,
Acosta, E.P. *et al., Clin. Pharmacokinet.*, 1996, **30**, 251 (*rev, pharmacokinet*)
Danesi, R. *et al., Clin. Pharmacokinet.*, 1998, **34**, 173-180 (*rev*)
Martindale, The Extra Pharmacopoeia, 32nd edn., Pharmaceutical Press, 1999, 630
Machado, J. *et al., Nucleosides Nucleotides*, 1999, **18**, 901-906 (*phosphazid, pharmacol*)
Gauthier, C. *et al., Tetrahedron*, 2001, **57**, 7513-7517 (*synth*)
Clarke's Analysis of Drugs and Poisons, 3rd edn., (eds. Moffat, A.C. *et al*), Pharmaceutical Press, 2004, 1711 (*props, gc, hplc, uv, ir*)
IARC Monog. (Web),

Zosterine, 9CI Z-5

[11113-95-4]

Pectic polysaccharide, mol. wt. *ca*. 40000-45000. Contains galacturonan, apiogalacturonan and heteroglycanogalacturonan, interlinked by residues of galacturonic acid and rhamnose. Isol. from Zosteraceae spp. Shows antibacterial activity. $[\alpha]_D^{20}$ +230 (c, 0.5 in H_2O).

Ovodova, R.G. *et al., Carbohydr. Res.*, 1968, **6**, 328 (*isol*)
Ovodov, Y.S. *et al., Carbohydr. Res.*, 1971, **18**, 319 (*struct*)
Ovodova, R.G. *et al., Khim. Prir. Soedin.*, 1971, **7**, 246; 249; *Chem. Nat. Compd. (Engl. Transl.)*, 1971, **7**, 237; 240 (*struct*)
Shibaeva, V.I. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1974, **10**, 300 (*struct*)
Ovodov, Y.S. *et al., Carbohydr. Res.*, 1975, **42**, 197 (*struct*)
Ovodov, Y.S. *et al., Chem. Nat. Compd. (Engl. Transl.)*, 1975, **11**, 319 (*struct, rev*)

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gulo-Hexoses

ido-Hexoses

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1,4-Anhydrosugars

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3-Halogenosugars

4-Halogenosugars

5-Halogenosugars

6-Halogenosugars

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3-Amino-3-deoxysugars

4-Amino-4-deoxysugars

5-Amino-5-deoxysugars

6-Amino-6-deoxysugars

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3-Deoxy sugars

4-Deoxy sugars

5-Deoxy sugars

2,6-Dideoxy sugars

3,6-Dideoxy sugars

4,6-Dideoxy sugars

Polydeoxy sugars

6-Deoxyalloses

6-Deoxyaltroses

6-Deoxygalactoses

6-Deoxyglucoses

6-Deoxyguloses

6-Deoxyidoses

6-Deoxymannoses

6-Deoxytaloses

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Unsaturated sugars; 3-enes

Unsaturated sugars; 4-enes

Unsaturated sugars; 5-enes

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Dicarbonyl sugars; glycos-3-uloses

Dicarbonyl sugars; glycos-4-uloses

Dicarbonyl sugars; glycos-5-uloses

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Dialdoses

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Glycuronic acids and lactones

Aldaric acids and lactones

Ketoacid sugars and lactones

Higher sugar acids and lactones

Other sugar acids and lactones

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Pentitols

Hexitols

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Linear oligosaccharides

Cyclic oligosaccharides

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Glycosinolates

Nucleosides

Carbohydrates of unknown or partially unknown structure

GENERAL CHEMISTRY

SECOND EDITION

Dictionary of CARBOHYDRATES with CD-ROM

Edited by PETER M. COLLINS

An easy-to-use reference source for all scientists working with carbohydrates, the **Dictionary of Carbohydrates with CD-ROM, Second Edition** builds on the success of its previous edition by providing a substantially increased number of compounds. The presentation is sharpened by a careful review of existing entries. With 24,000 compounds, it represents a much enlarged and revised new edition of the dictionary first published in 1998. Each entry contains a wealth of information which includes: names and synonyms, molecular formulae, chemical structures, accurate mass, UV spectra, extensive source data, physical properties, uses and key literature citations.

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