Coxsackie Virus

A 3-in-1 Medical Reference

Medical Dictionary

Bibliography &

Annotated Research Guide

to Internet References

ICON Group International, Inc.

Coxsackie Virus

A Medical Dictionary, Bibliography,
and Annotated Research Guide to
Internet References

James N. Parker, M.D.
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ICON Health Publications
ICON Group International, Inc.
4370 La Jolla Village Drive, 4th Floor
San Diego, CA 92122 USA

Printed in the United States of America.

Last digit indicates print number: 10 9 8 7 6 4 5 3 2 1

Publisher, Health Care: Philip Parker, Ph.D.
Editor(s): James Parker, M.D., Philip Parker, Ph.D.

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Cataloging-in-Publication Data

Parker, James N., 1961-
Parker, Philip M., 1960-

Coxsackie Virus: A Medical Dictionary, Bibliography, and Annotated Research Guide to Internet References / James N. Parker and Philip M. Parker, editors
p. cm.
Includes bibliographical references, glossary, and index.
ISBN: 0-497-00308-2
1. Coxsackie Virus-Popular works. I. Title.

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Acknowledgements

The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this book which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which produce publications on Coxsackie virus. Books in this series draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this book. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany Freeman for her excellent editorial support.

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."[1] Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with Coxsackie virus is indexed in search engines, such as **www.google.com** or others, a non-systematic approach to Internet research can be not only time consuming, but also incomplete. This book was created for medical professionals, students, and members of the general public who want to know as much as possible about Coxsackie virus, using the most advanced research tools available and spending the least amount of time doing so.

In addition to offering a structured and comprehensive bibliography, the pages that follow will tell you where and how to find reliable information covering virtually all topics related to Coxsackie virus, from the essentials to the most advanced areas of research. Public, academic, government, and peer-reviewed research studies are emphasized. Various abstracts are reproduced to give you some of the latest official information available to date on Coxsackie virus. Abundant guidance is given on how to obtain free-of-charge primary research results via the Internet. **While this book focuses on the field of medicine, when some sources provide access to non-medical information relating to Coxsackie virus, these are noted in the text.**

E-book and electronic versions of this book are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). If you are using the hard copy version of this book, you can access a cited Web site by typing the provided Web address directly into your Internet browser. You may find it useful to refer to synonyms or related terms when accessing these Internet databases. **NOTE:** At the time of publication, the Web addresses were functional. However, some links may fail due to URL address changes, which is a common occurrence on the Internet.

For readers unfamiliar with the Internet, detailed instructions are offered on how to access electronic resources. For readers unfamiliar with medical terminology, a comprehensive glossary is provided. For readers without access to Internet resources, a directory of medical libraries, that have or can locate references cited here, is given. We hope these resources will prove useful to the widest possible audience seeking information on Coxsackie virus.

The Editors

[1] From the NIH, National Cancer Institute (NCI): **http://www.cancer.gov/cancerinfo/ten-things-to-know**.

CHAPTER 1. STUDIES ON COXSACKIE VIRUS

Overview

In this chapter, we will show you how to locate peer-reviewed references and studies on Coxsackie virus.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and Coxsackie virus, you will need to use the advanced search options. First, go to **http://chid.nih.gov/index.html**. From there, select the "Detailed Search" option (or go directly to that page with the following hyperlink: **http://chid.nih.gov/detail/detail.html**). The trick in extracting studies is found in the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type "Coxsackie virus" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is what you can expect from this type of search:

- **Periodontal and Soft-Tissue Abnormalities**

  Source: Dental Clinics of North America. 39(4): 837-850. October 1995.

  Summary: This article reviews periodontal and soft-tissue abnormalities as they may be found in young children. Topics include normal gingival tissues and gingivitis in young children; periodontitis and tooth loss in young children, including that caused by neutropenia, Papillon-Lefevre syndrome, metabolic disorders, histiocytosis X, and hypophosphatasia; congenital lesions; developmental lesions including geographic tongue, fissured tongue, retrocuspid papillae, and gingival fibromatosis; benign tumors, including hemangioma, lymphangioma, mucocele, and fibroma; odontogenic cysts, including parulis, eruption cyst and hematoma; infectious diseases, such as herpes virus infection, **Coxsackie virus,** hand-foot-and-mouth disease, recurrent aphthous ulceration, candidiasis, impetigo, and HIV infection; hematologic diseases, notably leukemias; and

factitial injuries. The author recommends periodic review of soft-tissue lesions to help the dental team recognize both common and rare abnormalities affecting young children. 5 figures. 14 references.

Federally Funded Research on Coxsackie Virus

The U.S. Government supports a variety of research studies relating to Coxsackie virus. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.[2] CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other institutions.

Search the CRISP Web site at **http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen**. You will have the option to perform targeted searches by various criteria, including geography, date, and topics related to Coxsackie virus.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally funded studies use animals or simulated models to explore Coxsackie virus. The following is typical of the type of information found when searching the CRISP database for Coxsackie virus:

- **Project Title: CAR PROTEIN AND AUTO IMMUNITY**

  Principal Investigator & Institution: Finberg, Robert W.; Professor; Medicine; Univ of Massachusetts Med Sch Worcester Office of Research Funding Worcester, Ma 01655

  Timing: Fiscal Year 2002; Project Start 30-SEP-1999; Project End 28-FEB-2003

  Summary: Many auto-immune diseases are thought to be triggered by viral infections. In particular auto-immune diabetes and myocarditis are said to follow infections with enteroviruses. Histopathologic studies indicate that mumps and adenoviruses are viruses associated with myocarditis. In addition the Group B Coxsackie viruses have been isolated from patients who subsequently develop diabetes or myocarditis. Studies of humans with acute myocarditis and diabetes indicate the infiltrating T cells have a restricted usage of T-cell receptor genes suggesting that they may be directed at a particular antigen. Animal models indicate that both auto-immune diabetes and myocarditis can be initiated by Coxsackie B viruses. In addition to evidence that T cells can transfer the disease, a role of cytokines has been postulated for auto-immune diabetes and myocarditis. Studies in knock-out mice indicate a role for chemokines in the initiation of the inflammatory process that leads to Coxsackie B virus induced myocarditis. Hypotheses concerning the pathogenesis of auto-immune responses have generally focused on either a viral epitope mimicking a cellular protein (e.g. the GAD protein and a Coxsackie B4 protein), or suggested that the inflammatory response stimulated by the infectious event might damage the cell causing inflammatory changes that subsequently result in the generation of an immune response to host tissues. Whether the inflammation stimulates T cells that recognize host proteins or there is persistence of viral proteins has been hard to define in most model systems. In addition it is unclear how the type of auto- immune response relates to the tropism of the viral

[2] Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

agent. We have recently defined a host cell surface protein that serves as the receptor for all group B Coxsackie viruses, the fiber binding protein of most adenoviruses, and a major determinant in mumps infection. The distribution of this protein suggests that its expression correlates with the ability of these viruses to induce auto-immune diseases. We plan to define the role of this protein in the induction of auto-immune disease and use transgenic and knock-out mice to define the mechanisms by which viruses stimulate autoimmune responses.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: CORRECTION OF INHERITED CARDIOMYOPATHY USING AAV VECTORS**

  Principal Investigator & Institution: Byrne, Barry J.; Professor & Associate Chair; University of Florida Gainesville, Fl 32611

  Timing: Fiscal Year 2002; Project Start 30-SEP-2002; Project End 31-AUG-2003

  Summary: We have focused in the initial award of this program grant on a model of inherited cardiomyopathy with the goal of establishing and characterizing the model as well as evaluating local vector delivery for correction of the genetic defect. We have successfully generated a model of Pompe disease or infantile acid maltase deficiency, which is an autosomal recessive cardiac and skeletal myopathy which results in hypertrophic cardiomyopathy. The disorder is caused by a deficiency in the mysosomal enzyme, acid alpha-glucosidase (GAA). Enzyme deficiency leads to glycogen accumulation in lysosomes of striated muscle, and in the infantile form, affected infants die of heart failure within the first year of life. This disease like many forms of cardiomyopathy would benefit from global delivery of the corrective gene to myocardium. To continue the progress made in the initial period of the program, we propose to develop gene transfer strategies to myocardium which would be effective for Pompe disease as well as other conditions where global gene delivery are required. The initial strategies used adeno-associated virus serotype 2 for muscle transduction. Recent work on alternative vector capsids and capsid mutants suggest that other serotypes of selective targeting of capsids to a given tissue will improve the efficiency and distribution of gene delivery. We hypothesize that increase efficiency of vector delivery can be accomplished by use of alternative AAV serotypes and specific targeting to cardiac muscle. To test this hypothesis, we will utilize the Pompe disease model to evaluate the delivery of GAA by vectors with AAV serotypes 1, 2, and 5 as well as hybrid having properties of each know serotype. Additionally, we will screen cardiac tissue and coronary microvascular endothelium for novel specific ligand by phage display. Known ligands from cardiotrophic adeno and **Coxsackie virus** as well as novel ligands derived from phage display will be incorporated into capsid mutants developed in Subproject 3. Outcomes of vector distribution and biochemical effect will be test4ed by new MRI/MRS techniques. Additionally, we propose to test the physical delivery methods which will result in efficient and clinically relevant gene transfer to cardiac muscle.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: DEPRESSION AND TRIAL OF VARICELLA VACCINE IN THE ELDERLY**

  Principal Investigator & Institution: Irwin, Michael R.; Professor; Psychiatry & Biobehav Sciences; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

Timing: Fiscal Year 2002; Project Start 15-MAY-2000; Project End 30-APR-2004

Summary: (adapted from investigator's abstract): Compelling evidence has shown that inescapable stress, a putative animal model of depression, increases susceptibility to viral diseases such as herpes simplex, influenza, and **Coxsackie virus** infections via alterations in immune function. However, translation of these basic observations into the clinical setting is limited, and the immunological consequences of major depression and their possible clinical relevance to infectious diseases remain unknown. Moreover, immunological studies of depressed subjects have not evaluated disease specific immune measures nor assayed in vivo immune responses that correlate with outcome. This study hypothesizes that older adults with major depression are at increased risk for reactivation of varicella-zoster virus (VZV) infection. Because much evidence indicates that cell mediated immunity plays a critical role in limiting the occurrence of herpes zoster (HZ) and its complications, the effect of major depression on VZV-specific cellular immunity will be examined. Using a disease specific approach, this study will also evaluate the integrity of an integrated, in vivo immune response to VZV vaccine in depressed subjects as compared to controls. The specific aims of this project are to: 1) determine whether major depressive disorder is associated with declines in VZV specific immunity in adults 60 years of age and older; and 2) evaluate whether major depressive disorder attenuates the magnitude or duration of vaccine-stimulated virtue of their older age are at increased risk for HZ and assaying VZV specific immunological measures that are known to correlate with the occurrence and severity of HZ and its complications, this study advances our model, another major strength, will yield substantial new information about how the immune system of depressed subjects responds to an antigen of an infectious pathogen.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: LOW AFFINITY CD8+ T CELLS IN DIABETES**

  Principal Investigator & Institution: Sherman, Linda A.; Professor; Scripps Research Institute Tpc7 La Jolla, Ca 92037

  Timing: Fiscal Year 2002

  Summary: Thymic and peripheral deletion represent important safeguards to eliminate potentially autoreactive T cells. However, in the interest of maximizing diversity in the T cell repertoire, deletion is a mechanisms used sparingly and reserved for those T cells expressing TCRs with relatively high affinity for self-epitopes. As a result of this rather conservative approach, many T cells with specificity for self-epitopes persist. The main hypothesis of this proposal is that these otherwise innocuous T cells become important effector cells in autoimmune diabetes. Our goal is to test this hypothesis using a transgenic model in which the influenza hemagglutinin (HA), is expressed uniquely in the pancreatic islets (Ins-HA) and a TCR transgenic murine line expressing a TCR from a HA specific CD8+ T cell clone. (Clone 1 TCR). Importantly, this clone was derived from an Ins-HA mouse that demonstrates tolerance to HA and the TCR demonstrates relatively low affinity for HA as compared with TCRs from HA specific CTL from conventional mice. Some of the experimental parameters that may prove autoimmunity by the Clone 1 T cells that will be evaluated in this study include conditions that promote an inflammatory environment locally in the islets, such as occurs in NOD mice, or by creating an inflammatory environment in non- diabetes prone mice using HA specific, activated CD4+ T cells, or **Coxsackie virus.** Also to be evaluated is the hypothesis that eliminating such potentially autoimmune CD8+ T cells from the repertoire, by the use of a DNA vaccine expressing the target antigen, may prevent

autoimmunity in NOD mice. Two different antigens will be evaluated in this context, an endogenous beta cell antigen, GAD65, and the HA transgene product.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: MECHANISM OF COXSACKIE VIRUS MEDIATED AUTOREACTIVITY**

  Principal Investigator & Institution: Sarvetnick, Nora E.; Associate Member; Scripps Research Institute Tpc7 La Jolla, Ca 92037

  Timing: Fiscal Year 2002; Project Start 01-JUL-1999; Project End 30-JUN-2004

  Summary: (Adapted from the applicant's abstract) The etiology of autoimmune diseases is unknown, but previous exposure to environmental pathogens is thought to play an important role. In this application, the connection between **Coxsackie virus** infection and the prevalent autoimmune disease Insulin Dkependent Diabetes Mellitus is investigated. **Coxsackie virus** has been implicated to be causally associated with diabetes, but the pathway from infection to disease has not been defined. In the current project, three mechanistic hypotheses are tested experimentally to determine how the virus induces disease. The first hypothesis tested is that the virus shares a pathogenic similarity with the host, so that upon infection, the immune response to the virus also recognizes the host. This potential antigenic similarity has recently been demonstrated between the **Coxsackie virus** P2-C antigen and the pancreatic islet antigen glutamic acid decarboxylase, a target antigen strongly associated with pathogenesis of diabetes in both humans and spontaneous animal models. A second possible mechanism for the initiation of autoimmunity is that virus infection of the pancreas leads to immune activation and the elicitation of host defense molecules "bystander damage" hypothesis then predicts that these released antigens could cause the priming of naïve islet-specific T cells. Lastly, previous exposure to pathogens causes the immune system to accumulate memory to those agents. The third hypothesis predicts that the re- exposure to the same or similar antigens causes reactivation of those specificities and a pathogenic T cells response is initiated, destroying the pancreatic beta cells. In the proposed experiments, specific predictions of these three mechanistic hypotheses will be approached experimentally using a murine system in which diabetes-prone strains are infected with the **Coxsackie virus** and either studied directly for the development of pancreatic islet sensitization or used as donors in a series of adoptive transfer protocols designed specifically to address each mechanism. They anticipate that these studies will lead to increased understanding of the mechanism of virus induced autoimmunity.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: MECHANISM OF SELENOPROTEIN SYNTHESIS IN EUKARYOTES**

  Principal Investigator & Institution: Berry, Marla J.; Professor of Cell and Molecular Biology; Cell and Molecular Biology; University of Hawaii at Manoa Honolulu, Hi 96822

  Timing: Fiscal Year 2002; Project Start 01-AUG-1994; Project End 31-JUL-2004

  Summary: Selenium is an essential trace element which has provoked considerable interest due to identification of a growing number of enzymes that contain the amino acid, selenocysteine. A number of these enzymes catalyze reactions that are critical to health or life. The first identified mammalian selenoenzymes, the glutathione peroxidases, catalyze detoxification of peroxides and thus, protection from oxidative stress. Another class of redox selenoenzymes, the thioredoxin reductases, play roles in proper transcription factor folding and generating reducing equivalents for deoxribonucleotide synthesis. The iodothyronine deiodinases, also selenoenzymes,

catalyze thyroid hormone activation and inactivation and are thus essential to regulation of the many functions of thyroid hormone. Additional classes of selenoproteins are being discovered, with evidence for intruiging and important functions in many biological processes. In addition to cellular functions, a growing body of data is accumulating implicating selenium in the pathology of a number of viruses. Selenium status appears to affect HIV replication and the progression of AIDS, host selection for virulent strains of **Coxsackie virus,** and sensitivity to apoptosis in Molluscum contagiosum poxvirus infection. Studies have also implicated selenium in protection from lung, colon, and prostate cancer. Incorporation of selenocysteine into proteins requires a novel translation step in which UGA specifies selenocysteine insertion. Selenoproteins are found in eukaryotes, eubacteria, and archae, but the mechanisms of incorporation are distinct. While much is known about selenocysteine incorporation in bacteria, our knowledge about the eukaryotic process, where some of the more intriguing mechanistic questions lie, has lagged behind. The focus of this proposal is to further our understanding of the process of selenocysteine incorporation in eukaryotes, through investigation of the RNA and protein factors mediating this process, and their interactions. This includes continuing structural studies of the RNA sequences that direct selenocysteine incorporation, and intriguingly, some recently identified polymorphisms in these structures that appear to have consequences for human disease. We are also focusing on identification and characterization of the protein factors that interact with these RNAs to mediate incorporation at the ribosome. Finally, proposed studies include investigation of the functions and mechanisms of regulation of newly identified selenoproteins.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: PEPTIDE VACCINE FOR EXPERIMENTAL AUTOIMMUNE MYOCARDITIS**

  Principal Investigator & Institution: Zimmerman, Daniel H.; Cel-Sci Corporation 8229 Boone Blvd, Ste 802 Vienna, Va 22182

  Timing: Fiscal Year 2003; Project Start 01-MAY-2003; Project End 31-OCT-2004

  Summary: (provided by the applicant): In A/J Mice Experimental Autoimmune Myocarditis (EAM) can be induced by infection with **Coxsackie virus** B 3 or by immunization with murine or porcine cardiac myosin or a cardiogenic peptide from the murine cardiac myosin (My-l). In all these three cases the mice develop autoantibodies to cardiac myosin, and the disease is characterized by a Th2 phenotype. Previously one of us has shown that the EAM disease process can be blocked by: (1) cobra venom factor (CVF), which depletes complement; or by (2) monoclonal antibodies to the complement receptors involved with the innate immune system; or by (3) antibodies to IL-4 or by (4) Interferon-gamma, which inhibit the Th2 pathway of the inductive immune system. Furthermore, anti-IFN-gamma, treatment exacerbated the EAM. More recently one of our (NRR) studies has demonstrated that IL-10 has a disease inhibiting effect during the later effector phase (after day 10) and not in the early inductor phase (before day 10) using a revised the model which eliminates the Pertussis toxin and results in a slower milder form of disease. Other recent reports also have show a role for IL-10 in disease control in EAM, including use of pentoxifylline which was reported as being used in the human condition. In preliminary studies we have found that pretreatment with a peptide conjugate of the cardiogenic peptide My-l, J-My-l, which is designed to promote a Th1 response against the My-1 antigen, has significantly reduced disease severity. In this study, we intend to examine in more detail and define the role and the effect this conjugate has using the slower progressing EAM model by eliminating the Pertussis

toxin. While from a commercialization point the ultimate goal is a product that can be used after disease is diagnosed in this phase I SBIR we will determine whether administration of J-My-1 is beneficial if performed before (1) induction of disease, or (2) during either the induction or (3) effector phases. The specific aims are three Specific Aim 1 To evaluate and compare efficacy of the My-1 L.E.A.P.S. construct, J-My-l, as either an immunotherapeutic vaccine and/or prophylactic treatment for My-1 induced EAM in A/J mice. Specific Aim 2 To evaluate the TH1 and TH2 cytokine(s) profiles and apoptosis markers in spleen lymphocytes obtained from individual NJ mice immunized with J-My-1 to define some aspects of disease induction by the My-1 and the mode of action of J-My-land elucidate the cell population associated with the Thl, Th2 cytokines. The effects of J-My-1 administration on the presence and frequency of this cell type will be evaluated. Our goal is to demonstrate that the severity of EAM can be reduced by J-My-1 administration in animals with EAM.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: PROTEIN STABILITY IN HUMAN RHINOVIRUS**

  Principal Investigator & Institution: Post, Carol B.; Professor; Medicinal Chem/Molecular Pharm; Purdue University West Lafayette West Lafayette, in 479072040

  Timing: Fiscal Year 2002; Project Start 01-FEB-1997; Project End 31-JAN-2006

  Summary: Computational studies on protein stability and conformational dynamics of capsid proteins from human rhinovirus (HRV) and small globular patterns are proposed. As well as the mean thermodynamic properties enthalpy and entropy, fluctuation properties such as heat capacity and compressibility are useful for understanding contributions to stability. Compressibility of globular proteins will be studied using molecular dynamics simulations to elucidate the basis for the variation in measured compressibility values among proteins. Regarding HRV, the capsid proteins present an interesting case study in stability in that the capsid must be conformationally variable to meet the demands of the viral life cycle. The virus is stable outside the host cell, yet also capable of releasing RNA, or uncoating, once the virus has entered the cell. This switch in conformation is thought to be triggered by contact with the cell receptor, and to be effected by some antiviral compounds. HRV is a member of the picornavirus family and the leading causative agent for the common cold. Other important human pathogens among the members of the picornaviruses are poliovirus, **Coxsackie virus** and hepatitis A virus. Several features associated with the uncoating process will be investigated by the proposed studies. A hydrophobic pocket in VP1 binds long alkylchain molecules, or pocket-factors. This hydrophobic pocket in VP1 also is the site for binding antiviral compounds. Ligand effects on compressibility, energetics and protein-protein interactions will be characterized for a variety of HRV14 complexes. Different models have been generated to explain the receptor-induced conformational changes of picornaviruses and the mechanism of uncoating. Molecular dynamics simulations provide a means to examine in atomic detail certain features of these models. We seek a description that provides insight into physical behavior of the viral capsid proteins and their complexes with antiviral compounds or host cell receptor.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: SELENOPROTEIN SNPS AND HAPLOTYPES IN HIV AND CANCER**

  Principal Investigator & Institution: Foster, Charles B.; Pediatrics; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

Timing: Fiscal Year 2002; Project Start 30-AUG-2002; Project End 31-JUL-2005

Summary: (provided by applicant): Selenium deficiency has been associated with an increased risk of prostate, esophageal, gastric, lung, thyroid and ovarian cancer, colonic adenomas, and hepatocellular carcinoma. Selenium deficiency has also been correlated with accelerated disease progression and increased mortality in both HIV-infected children and adults. In animal models selenium deficiency is associated with enhanced oxidative stress, anthracycline induced cardiotoxicity and virulent **Coxsackie virus** infection. In humans selenium supplementation may reduce the rate of specific cancers including lung, prostate, and colon. In the form of selenocysteine (the 21st amino acid), selenium is incorporated into the primary structure of at least 16 human proteins, most of which have important antioxidant properties. Given the important role that selenium and selenoenzymes play in protecting against oxidative stress, it is possible that genetic variations in selenoenzymes may be risk factors for specific cancers or for severe inflammatory or infectious complications of disease. To help unravel the role of selenium in cancer and infectious diseases, this grant proposes to identify and confirm novel SNPs in selenium containing genes, with a focus on glutathione peroxidase and thioredoxin reductase. Functional studies will define the biologic importance of SNPs and haplotypes. The generated data will provide a critical foundation for interpreting clinical association studies designed to correlate genetic variants in selenoenzyme genes with risk of HIV progression or of developing cancer.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine.[3] The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to use. If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with Coxsackie virus, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "Coxsackie virus" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for Coxsackie virus (hyperlinks lead to article summaries):

- **"Coxsackie virus in diabetes mellitus".**
  Author(s): Pandya JK, Jhala CI.
  Source: Indian J Pathol Microbiol. 1980 April; 23(2): 139-42. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6256289

[3] PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

- **A case of pleurodynia associated with Coxsackie virus type A9.**
  Author(s): Madhavan HN, Badrinath S, Chandrasekar S.
  Source: J Assoc Physicians India. 1977 July; 25(7): 491-2. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=207663

- **A case of protracted Coxsackie virus meningoencephalitis in a marginally immunodeficient child treated successfully with intravenous immunoglobulin.**
  Author(s): Geller TJ, Condie D.
  Source: Journal of the Neurological Sciences. 1995 April; 129(2): 131-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7608726

- **A clustering outbreak of hand, foot, and mouth disease caused by Coxsackie virus A10.**
  Author(s): Itagaki A, Ishihara J, Mochida K, Ito Y, Saito K, Nishino Y, Koike S, Kurimura T.
  Source: Microbiology and Immunology. 1983; 27(11): 929-35.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6321911

- **A follow-up study of 15 cases of neonatal meningoencephalitis due to Coxsackie virus B5.**
  Author(s): Farmer K, MacArthur BA, Clay MM.
  Source: The Journal of Pediatrics. 1975 October; 87(4): 568-71.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1159585

- **A rapid assay for evaluation of antiviral activity against Coxsackie virus B3, influenza virus A, and herpes simplex virus type 1.**
  Author(s): Schmidtke M, Schnittler U, Jahn B, Dahse H, Stelzner A.
  Source: Journal of Virological Methods. 2001 June; 95(1-2): 133-43.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11377720

- **A recent epidemic of Coxsackie virus type A24 acute haemorrhagic conjunctivitis in Singapore.**
  Author(s): Yin-Murphy M, Baharuddin-Ishak, Phoon MC, Chow VT.
  Source: The British Journal of Ophthalmology. 1986 November; 70(11): 869-73.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3024697

- **A seroepidemiological study on illnesses resembling epidemic myalgia in relation to Coxsackie virus group B infection.**
  Author(s): Kusama T.
  Source: Fukushima J Med Sci. 1969 August; 16(1): 1-24. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5380737

- **Acute liver failure associated with Coxsackie virus B2 infection in a neonate.**
  Author(s): Wallot MA, Metzger-Boddien C, Auth M, Kehle J, Enders G, Dirsch O, Fiedler M, Voit T.
  Source: European Journal of Pediatrics. 2004 February; 163(2): 116-7. Epub 2003 December 18.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14685852

- **Acute transmural myocardial infarction associated with active Coxsackie virus B infection.**
  Author(s): Woods JD, Nimmo MJ, Mackay-Scollay EM.
  Source: American Heart Journal. 1975 March; 89(3): 283-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1167729

- **Acute transverse myelitis caused by Coxsackie virus B4 infection: a case report.**
  Author(s): Ku B, Lee K.
  Source: Journal of Korean Medical Science. 1998 August; 13(4): 449-53.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9741555

- **Acute transverse myelitis caused by Coxsackie virus B5 infection.**
  Author(s): Minami K, Tsuda Y, Maeda H, Yanagawa T, Izumi G, Yoshikawa N.
  Source: Journal of Paediatrics and Child Health. 2004 January-February; 40(1-2): 66-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=14718010

- **Adult heart disease due to the Coxsackie virus B infection.**
  Author(s): Sainani GS, Krompotic E, Slodki SJ.
  Source: Medicine; Analytical Reviews of General Medicine, Neurology, Psychiatry, Dermatology, and Pediatrics. 1968 March; 47(2): 133-47. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4869872

- **Adult heart disease due to the Coxsackie virus group B.**
  Author(s): Smith WG.
  Source: British Heart Journal. 1966 March; 28(2): 204-20.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4378154

- **An illness associated with Coxsackie virus B2 in a residential school.**
  Author(s): Broughton DH, Gostling JV.
  Source: The Practitioner. 1969 February; 202(208): 285-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5385446

- **An immunofluorescent study of generalized Coxsackie virus B3 infection in a newborn infant.**
  Author(s): Iwasaki T, Monma N, Satodate R, Kawana R, Kurata T.
  Source: Acta Pathol Jpn. 1985 May; 35(3): 741-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2994361

- **An outbreak of acute conjunctivitis caused by Coxsackie virus A 24.**
  Author(s): Madhavan HN, Malathy J, Priya K.
  Source: Indian J Ophthalmol. 2000 June; 48(2): 159. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11116516

- **An outbreak of acute hemorrhagic conjunctivitis due to Coxsackie virus type A24 variant in Japan.**
  Author(s): Aoki K, Sawada H, Ishikawa H, Shimoji T, Kamada R.
  Source: Japanese Journal of Ophthalmology. 1988; 32(1): 1-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2842526

- **An outbreak of Coxsackie virus type B2 among neonates in an obstetrical ward.**
  Author(s): Eilard T, Kyllerman M, Wennerblom I, Eeg-Olofsson O, Lycke E.
  Source: Acta Paediatr Scand. 1974 January; 63(1): 103-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4830399

- **An outbreak of diarrhea in school children associated with Coxsackie virus B-3 infection.**
  Author(s): Oishi I, Maeda A, Otsu K, Minekawa Y, Kitaura T.
  Source: Biken J. 1979 March; 22(1): 21-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=231430

- **Analysis of antibody responses against Coxsackie virus B4 protein 2C and the diabetes autoantigen GAD(65).**
  Author(s): Vreugdenhil GR, Batstra MR, Aanstoot HJ, Melchers WJ, Galama JM.
  Source: Journal of Medical Virology. 1999 October; 59(2): 256-61.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10459165

- **Antibodies to glutamic acid decarboxylase and P2-C peptides in sera from Coxsackie virus B4-infected mice and IDDM patients.**
  Author(s): Hou J, Said C, Franchi D, Dockstader P, Chatterjee NK.
  Source: Diabetes. 1994 October; 43(10): 1260-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7523207

- **Antidiabetic treatment and Coxsackie virus in diabetes.**
  Author(s): Pandya JK, Jhala CI, Goel RK.
  Source: Indian J Pathol Microbiol. 1983 April; 26(2): 71-5. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6317551

- **Basal ganglia damage and subcortical dementia after possible insidious Coxsackie virus encephalitis.**
  Author(s): Peatfield RC.
  Source: Acta Neurologica Scandinavica. 1987 November; 76(5): 340-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3425221

- **Cardiac complications of Coxsackie virus group B infection.**
  Author(s): Dawson KP, Rogen AS.
  Source: The Practitioner. 1970 September; 205(227): 333-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5484911

- **Cardiac involvement in Coxsackie virus infection.**
  Author(s): Krishnan NR, Rai J, Ghosh MM, Kher HL, Kuppuswamy G.
  Source: Indian Heart J. 1985 January-February; 37(1): 13-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2989158

- **Cellular immunity to a determinant common to glutamate decarboxylase and Coxsackie virus in insulin-dependent diabetes.**
  Author(s): Atkinson MA, Bowman MA, Campbell L, Darrow BL, Kaufman DL, Maclaren NK.
  Source: The Journal of Clinical Investigation. 1994 November; 94(5): 2125-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7962558

- **Clinical outcome and left ventricular function 23 years after acute Coxsackie virus myopericarditis.**
  Author(s): Remes J, Helin M, Vaino P, Rautio P.
  Source: European Heart Journal. 1990 February; 11(2): 182-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2311617

- **Constrictive epicarditis following Coxsackie virus infection.**
  Author(s): Cooper DK, Sturridge MF.
  Source: Thorax. 1976 August; 31(4): 472-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=968807

- **Constrictive pericarditis following Coxsackie virus infection.**
  Author(s): Matthews JD, Cameron SJ, George M.
  Source: Thorax. 1970 September; 25(5): 624-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5489188

- **Counterelectrophoresis on human serum in Coxsackie virus infections.**
  Author(s): MacWilliam KM, Cook KM.
  Source: Journal of Clinical Pathology. 1975 November; 28(11): 926.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1236634

- **Coxsackie virus A 24 variant as the etiological agent of the acute haemorrhagic conjunctivitis epidemic at Vellore, in 1986.**
  Author(s): Ponnuraj EM, Mukundan P.
  Source: The Indian Journal of Medical Research. 1989 September; 89: 283-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2560770

- **Coxsackie virus A24 infection presenting as acute flaccid paralysis.**
  Author(s): Chaves SS, Lobo S, Kennett M, Black J.
  Source: Lancet. 2001 February 24; 357(9256): 605.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11558489

- **Coxsackie virus AI6 infection adversely affecting the outcome of a pregnancy.**
  Author(s): Bryce F, Conway SP, Batcup G.
  Source: The Journal of Infection. 1988 May; 16(3): 307-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2840467

- **Coxsackie virus and diabetes revisited.**
  Author(s): Jones DB, Armstrong NW.
  Source: Nature Medicine. 1995 April; 1(4): 284.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7585050

- **Coxsackie virus and heart disease.**
  Author(s): White RW.
  Source: British Heart Journal. 1969 May; 31(3): 394-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5401839

- **Coxsackie virus and rheumatic fever. A correlative study.**
  Author(s): Suresh L, Chandrasekar S, Rao RS, Ravi V, Badrinath S.
  Source: J Assoc Physicians India. 1989 September; 37(9): 582-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2561125

- **Coxsackie virus and urogenital pathology.**
  Author(s): Scalia G, Panella P, Pepe F, Scifo M, Boemi G, Panella M, Pepe P, Condorelli F, Stivala A, Ninfa C, et al.
  Source: Clin Exp Obstet Gynecol. 1989; 16(2-3): 55-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2547535

- **Coxsackie virus B antibodies are increased in HLA DR3-MICA5.1 positive type 1 diabetes patients in the Linkoping region of Sweden.**
  Author(s): Gupta M, Nikitina-Zake L, Landin-Olsson M, Kockum I, Sanjeevi CB.
  Source: Human Immunology. 2003 September; 64(9): 874-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12941542

- **Coxsackie virus B3 calcific pancarditis and hydrops fetalis.**
  Author(s): Bates HR Jr.
  Source: American Journal of Obstetrics and Gynecology. 1970 February 15; 106(4): 629-30.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4904919

- **Coxsackie virus from blood of two cases of encephalitis.**
  Author(s): Sarkar JK, Biswas ML, Chatterjee SN, Guha SK, Chakravarty SK.
  Source: The Indian Journal of Medical Research. 1966 October; 54(10): 905-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5976995

- **Coxsackie virus group A, type 7 infection in Maryland.**
  Author(s): Walker SH, Togo Y, Keefer MM.
  Source: Md State Med J. 1967 February; 16(2): 73-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6037127

- **Coxsackie virus group B infections and the hemolytic-uremic syndrome.**
  Author(s): Austin TW, Ray CG.
  Source: The Journal of Infectious Diseases. 1973 June; 127(6): 698-701.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4707312

- **Coxsackie virus heart disease and cardiomyopathy.**
  Author(s): Levi GF, Proto C, Quadri A, Ratti S.
  Source: American Heart Journal. 1977 April; 93(4): 419-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=842436

- **Coxsackie virus heart disease: 15 years after.**
  Author(s): Levi G, Scalvini S, Volterrani M, Marangoni S, Arosio G, Quadri A.
  Source: European Heart Journal. 1988 December; 9(12): 1303-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3229424

- **Coxsackie virus heart diseases.**
  Author(s): Grist NR, Bell EJ.
  Source: British Medical Journal. 1968 August 31; 3(617): 556.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5676960

- **Coxsackie virus heart diseases.**
  Author(s): Longson M.
  Source: British Medical Journal. 1968 August 31; 3(617): 555.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5676959

- **Coxsackie virus heart diseases.**
  Author(s): Sainani GS.
  Source: British Medical Journal. 1968 August 10; 3(614): 375.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5668196

- **Coxsackie virus infection in acute myocardial infarction.**
  Author(s): Nicholls AC, Thomas M.
  Source: Lancet. 1977 April 23; 1(8017): 883-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=67289

- **Coxsackie virus infection in association with heart affection in man.**
  Author(s): Petrovicova A, Cervenka J, Egnerova A.
  Source: J Hyg Epidemiol Microbiol Immunol. 1987; 31(3): 251-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2824602

- **Coxsackie virus infection of the placenta associated with neurodevelopmental delays in the newborn.**
  Author(s): Euscher E, Davis J, Holzman I, Nuovo GJ.
  Source: Obstetrics and Gynecology. 2001 December; 98(6): 1019-26.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11755547

- **Coxsackie virus infection simulating smallpox.**
  Author(s): Mukherjee MK, Sarkar JK, Mitra AC, De S, Roy I, Dumbell KR, Almeida JD.
  Source: Indian J Dermatol. 1976 October; 22(1): 86-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1029722

- **Coxsackie virus infection.**
  Author(s): Gray W, Moffat MA, Schonell ME, Geddes AM.
  Source: Scott Med J. 1969 August; 14(8): 282-5. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5812046

- **Coxsackie virus infections (1964-65-66) in the Montreal area.**
  Author(s): Joncas J, Podoski MO, Lussier G, Pavilanis V.
  Source: Canadian Journal of Public Health. Revue Canadienne De Sante Publique. 1968 June; 59(6): 236-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5670715

- **Coxsackie virus infections and heart disease.**
  Author(s): Dana JB.
  Source: J Maine Med Assoc. 1968 July; 59(7): 147. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5661188

- **Coxsackie virus infections and heart disease.**
  Author(s): Brown GC.
  Source: American Heart Journal. 1968 February; 75(2): 145-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4951311

- **Coxsackie virus infections in patients with acute cardiac disease and chest pain.**
  Author(s): Bell EJ, Grist NR.
  Source: Scott Med J. 1968 February; 13(2): 47-51. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5636355

- **Coxsackie virus infections in rheumatic fever.**
  Author(s): Zaher SR, Kassem AS, Hughes JJ.
  Source: Indian J Pediatr. 1993 March-April; 60(2): 289-98.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8244506

- **Coxsackie virus infections producing neurological lesions in Singapore children.**
  Author(s): Paul FM, Yin-Murphy M.
  Source: Singapore Med J. 1982 December; 23(6): 311-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7167819

- **Coxsackie virus infections.**
  Author(s): Hart RJ.
  Source: Curr Med Drugs. 1968 April; 8(8): 17-26. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5728655

- **Coxsackie virus myopericarditis. A microbiological and clinical review.**
  Author(s): Hirschman SZ, Hammer GS.
  Source: The American Journal of Cardiology. 1974 August; 34(2): 224-32. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4602042

- **Coxsackie virus valvulitis and myocarditis observed at routine autopsy.**
  Author(s): Burch GE, Sun SC, Colcolough HL, Sohal RS, De Pasquale NP.
  Source: Experientia. 1967 December 15; 23(12): 1041-2. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4865127

- **Coxsackie virus: a review.**
  Author(s): Torres A, Garib J, Recurt ML.
  Source: Bol Asoc Med P R. 1984 February; 76(2): 49-51. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6584110

- **Coxsackie virus-induced acute pancreatitis in a long-term dialysis patient.**
  Author(s): Lal SM, Fowler D, Losasso CJ, Berg GG.
  Source: American Journal of Kidney Diseases : the Official Journal of the National Kidney Foundation. 1988 May; 11(5): 434-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2835903

- **Coxsackie virus-like particles in skeletal muscle from a case of polymyositis.**
  Author(s): Mastaglia FL, Walton JN.
  Source: Journal of the Neurological Sciences. 1970 December; 11(6): 593-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5490731

- **Demonstration of Coxsackie virus RNA in formalin-fixed tissue sections from childhood myocarditis cases by in situ hybridization and the polymerase chain reaction.**
  Author(s): Hilton DA, Variend S, Pringle JH.
  Source: The Journal of Pathology. 1993 May; 170(1): 45-51.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8326459

- **Diabetes and Coxsackie virus B5 infection.**
  Author(s): Champsaur H, Dussaix E, Samolyk D, Fabre M, Bach C, Assan R.
  Source: Lancet. 1980 February 2; 1(8162): 251.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6101692

- **Diabetes induced by Coxsackie virus: initiation by bystander damage and not molecular mimicry.**
  Author(s): Horwitz MS, Bradley LM, Harbertson J, Krahl T, Lee J, Sarvetnick N.
  Source: Nature Medicine. 1998 July; 4(7): 781-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9662368

- **Epidemic acute haemorrhagic conjunctivitis due to Coxsackie virus A24 variant in Ghana.**
  Author(s): Brandful JA, Yoshii T, Addy ET, Adiku TK, Osei-Kwasi M, Mingle JA.
  Source: East Afr Med J. 1990 December; 67(12): 878-86.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1964635

- **Epidemic outbreak of Coxsackie virus meningitis. Note I. Clinico-epidemiological features.**
  Author(s): Vata A, Mihul V, Dimitriu S, Scurtu C, Turcu T, Cotor F, Zavate O.
  Source: Virologie. 1976 October-December; 27(4): 283-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1006985

- **Epidemic outbreak of Coxsackie virus meningitis. Note II. Virological and serological investigations.**
  Author(s): Zavate O, Ivan FC.
  Source: Virologie. 1976 October-December; 27(4): 289-92.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1006986

- **Epidemiology of hand, foot, and mouth disease in a summer camp due to Coxsackie virus A16.**
  Author(s): Kushner PG, Krebs M.
  Source: J Am Osteopath Assoc. 1972 November; 72(3): 281-3. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4485545

- **Factors influencing response of volunteers to inoculation with Coxsackie virus A type 21.**
  Author(s): Couch RB, Knight V, Gerone PJ, Cate TR, Douglas RG.
  Source: Am Rev Respir Dis. 1969 January; 99(1): 24-30. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5762110

- **Fatal Coxsackie virus infections of the newborn.**
  Author(s): Hwang WS, Chan MC, Wong HB, Lee LH.
  Source: Singapore Med J. 1975 December; 16(4): 244-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1224215

- **Fatal myocarditis in a young female caused by Coxsackie virus group B type two.**
  Author(s): Chandrasekar S, Radhakrishna Prabhu M, Veliath AJ, Madhavan HN.
  Source: J Assoc Physicians India. 1975 June; 23(6): 401-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1184570

- **Group B, Coxsackie virus infection in infants with acute lower respiratory disease.**
  Author(s): Eckert HL, Portnoy B, Salvatore MA, Ressler R.
  Source: Pediatrics. 1967 April; 39(4): 526-31.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6022930

- **Hand, foot, and mouth syndrome. Report of six cases due to Coxsackie virus, group A, type 16.**
  Author(s): Cherry JD, Jahn CL.
  Source: Pediatrics. 1966 April; 37(4): 637-43.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5930026

- **Hand-foot-and-mouth disease: Coxsackie virus types A 5, A 10, and A 16 infections.**
  Author(s): Seddon JH, Duff MF.
  Source: N Z Med J. 1971 December; 74(475): 368-73. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5291880

- **Heart disease caused by Coxsackie virus B infection.**
  Author(s): Sainani GS, Dekate MP, Rao CP.
  Source: British Heart Journal. 1975 August; 37(8): 819-23.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=127598

- **Hemophagocytic syndrome associated with Coxsackie virus A 9 infection in a non-immunosuppressed adult.**
  Author(s): Guerin C, Pozzetto B, Berthoux F.
  Source: Intensive Care Medicine. 1989; 15(8): 547-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2558130

- **Hepatitis associated with myocarditis. Unusual manifestation of infection with Coxsackie virus group B, type 3.**
  Author(s): Sun NC, Smith VM.
  Source: The New England Journal of Medicine. 1966 January 27; 274(4): 190-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5902617

- **Hydrocution in a case of Coxsackie virus infection.**
  Author(s): Priemer F, Keil W, Kandolf R.
  Source: International Journal of Legal Medicine. 1999; 112(6): 368-71.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10550596

- **Incidence of Coxsackie virus infection in patients with dilated cardiomyopathy.**
  Author(s): Riecansky I, Schreinerova Z, Egnerova A, Petrovicova A, Bzduchova O.
  Source: Cor Vasa. 1989; 31(3): 225-30.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2788555

- **Interacting nutritional and infectious etiologies of Keshan disease. Insights from Coxsackie virus B-induced myocarditis in mice deficient in selenium or vitamin E.**
  Author(s): Levander OA, Beck MA.
  Source: Biological Trace Element Research. 1997 January; 56(1): 5-21. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9152508

- **Intrauterine Coxsackie virus, group B type 1, infection: viral cultivation from amniotic fluid in the third trimester.**
  Author(s): Strong BS, Young SA.
  Source: American Journal of Perinatology. 1995 March; 12(2): 78-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7779200

- **Invasiveness of Salmonella typhimurium in HEp-2 cell cultures pretreated with UV-inactivated Coxsackie virus.**
  Author(s): Bukholm G, Holberg-Petersen M, Degre M.
  Source: Acta Pathol Microbiol Immunol Scand [b]. 1985 February; 93(1): 61-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2984878

- **Involvement of T lymphocytes in the pathogenesis of Coxsackie virus B3 heart disease.**
  Author(s): Woodruff JF, Woodruff JJ.
  Source: Journal of Immunology (Baltimore, Md. : 1950). 1974 December; 113(6): 1726-34.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4610045

- **Isolation of a Coxsackie virus group B, type 5, from the heart of a fatal case of myocarditis in an adult.**
  Author(s): Longson M, Cole FM, Davies D.
  Source: Journal of Clinical Pathology. 1969 November; 22(6): 654-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5365336

- **Isolation of Coxsackie virus group A, type 4, from a patient with hemolytic-uremic syndrome.**
  Author(s): Glasgow LA, Balduzzi P.
  Source: The New England Journal of Medicine. 1965 September 30; 273(14): 754-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5825687

- **Isolation of type A4 Coxsackie virus from the blood serum of a child with rapidly fatal illness marked by severe central nervous system manifestations.**
  Author(s): Carey DE, Myers RM.
  Source: The Indian Journal of Medical Research. 1969 April; 57(4): 765-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5805379

- **Lipopolysaccharide suppresses cytokine release from Coxsackie virus-infected human monocytes.**
  Author(s): Henke A, Spengler HP, Stelzner A, Nain M, Gemsa D.
  Source: Research in Immunology. 1992 January; 143(1): 65-70.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1314406

- **Localized thigh swelling mimicking a neoplastic process: involvement of Coxsackie virus type A21.**
  Author(s): Dekel B, Yoeli R, Shulman L, Padeh S, Passwell JH.
  Source: Acta Paediatrica (Oslo, Norway : 1992). 2002; 91(3): 357-9.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12022313

- **Molecular mimicry in type 1 diabetes: immune cross-reactivity between islet autoantigen and human cytomegalovirus but not Coxsackie virus.**
  Author(s): Roep BO, Hiemstra HS, Schloot NC, De Vries RR, Chaudhuri A, Behan PO, Drijfhout JW.
  Source: Annals of the New York Academy of Sciences. 2002 April; 958: 163-5.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12021098

- **Mononucleosis-like syndrome associated with a multisystem Coxsackie virus type B3 infection in adolescence.**
  Author(s): Begovac J, Puntaric V, Borcic D, Barsic B, Zrinscak J, Beus I, Presecki V.
  Source: European Journal of Pediatrics. 1988 May; 147(4): 426-7.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2840291

- **Myocardial lesions by Coxsackie virus B3 and cytomegalovirus infection in infants.**
  Author(s): Iwasaki T, Monma N, Satodate R, Segawa I, Oyama K, Kawana R, Kurata T.
  Source: Heart Vessels Suppl. 1985; 1: 167-72.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3038831

- **Myopericarditis associated with Coxsackie virus infection.**
  Author(s): Blattner RJ.
  Source: The Journal of Pediatrics. 1968 December; 73(6): 932-5. Review.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4880148

- **Neurogenic diabetes insipidus in a child with fatal Coxsackie virus B1 encephalitis.**
  Author(s): Lee YJ, Yang D, Shyur SD, Chiu NC.
  Source: J Pediatr Endocrinol Metab. 1995 October-December; 8(4): 301-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8821910

- **No evidence for an association of Coxsackie virus infections during pregnancy and early childhood with development of islet autoantibodies in offspring of mothers or fathers with type 1 diabetes.**
  Author(s): Fuchtenbusch M, Irnstetter A, Jager G, Ziegler AG.
  Source: Journal of Autoimmunity. 2001 December; 17(4): 333-40.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11771958

- **Oxidative stress in patients with acute Coxsackie virus myocarditis.**
  Author(s): Xie B, Zhou JF, Lu Q, Li CJ, Chen P.
  Source: Biomed Environ Sci. 2002 March; 15(1): 48-57.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12046548

- **Pancreatic isleitis with Coxsackie virus B5 infection.**
  Author(s): Ahmad N, Abraham AA.
  Source: Human Pathology. 1982 July; 13(7): 661-2.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6282732

- **Para-encephalitic parkinsonism. Report of an acute case due to Coxsackie virus type B 2 and re-examination of the etiologic concepts of postencephalitic parkinsonism.**
  Author(s): Poser CM, Huntley CJ, Poland JD.
  Source: Acta Neurologica Scandinavica. 1969; 45(2): 199-215.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5800856

- **Placental and fetal pathology in Coxsackie virus A9 infection: a case report.**
  Author(s): Batcup G, Holt P, Hambling MH, Gerlis LM, Glass MR.
  Source: Histopathology. 1985 November; 9(11): 1227-35.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4085986

- **Polymyositis accompanying Coxsackie virus B2 infection.**
  Author(s): Schiraldi O, Iandolo E.
  Source: Infection. 1978; 6(1): 32-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=631901

- **Prospective study of a mixed Coxsackie virus B3 and B4 outbreak of upper respiratory illness in a children's home.**
  Author(s): Hierholzer JC, Mostow SR, Dowdle WR.
  Source: Pediatrics. 1972 May; 49(5): 744-52.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=5035418

- **Severe Coxsackie virus B infection in preterm newborns treated with pleconaril.**
  Author(s): Bauer S, Gottesman G, Sirota L, Litmanovitz I, Ashkenazi S, Levi I.
  Source: European Journal of Pediatrics. 2002 September; 161(9): 491-3. Epub 2002 July 23.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12200608

- **Spontaneous abortion after hand-foot-and-mouth disease caused by Coxsackie virus A16.**
  Author(s): Ogilvie MM, Tearne CF.
  Source: British Medical Journal. 1980 December 6; 281(6254): 1527-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6254606

- **Streptococcus, ASO titre, Coxsackie virus and rheumatic fever.**
  Author(s): Mishra BK.
  Source: J Assoc Physicians India. 1991 February; 39(2): 224-5. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1885497

- **Successive overlapping outbreaks of a febrile illness associated with Coxsackie virus type B4 and ECHO virus type 9 in a kibbutz.**
  Author(s): Nishmi M, Yodfat Y.
  Source: Isr J Med Sci. 1973 July; 9(7): 895-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=4732925

- **Survival following myocarditis and myocardial calcification associated with infection by Coxsackie virus B-4.**
  Author(s): Barson WJ, Craenen J, Hosier DM, Brawley RL, Hilty MD.
  Source: Pediatrics. 1981 July; 68(1): 79-81.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=6264379

- **T-cell reactivity to GAD65 peptide sequences shared with Coxsackie virus protein in recent-onset IDDM, post-onset IDDM patients and control subjects.**
  Author(s): Schloot NC, Roep BO, Wegmann DR, Yu L, Wang TB, Eisenbarth GS.
  Source: Diabetologia. 1997 March; 40(3): 332-8.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9084973

- **The intestinal absorption of cadmium increases during a common viral infection (Coxsackie virus B3) in mice.**
  Author(s): Glynn AW, Lind Y, Funseth E, Ilback NG.
  Source: Chemico-Biological Interactions. 1998 May 1; 113(1): 79-89.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9630849

- **Type 1 diabetes and Coxsackie virus infection.**
  Author(s): Di Pietro C, Del Guercio MJ, Paolino GP, Barbi M, Ferrante P, Chiumello G.
  Source: Helv Paediatr Acta. 1979; 34(6): 557-61.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=232095

- **Variations in Coxsackie virus pathogenicity in the course of routine isolations in suckling mice and cell cultures.**
  Author(s): Ciugarin-Brailoiu M.
  Source: Virologie. 1975; 26(2): 81-86.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=1224536

- **Vesiculopapular rash as a single presentation in intrauterine Coxsackie virus infection.**
  Author(s): Theodoridou M, Kakourou T, Laina I, Mostrou G, Tsakris A.
  Source: European Journal of Pediatrics. 2002 July; 161(7): 412-3.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=12174826

CHAPTER 2. NUTRITION AND COXSACKIE VIRUS

Overview

In this chapter, we will show you how to find studies dedicated specifically to nutrition and Coxsackie virus.

Finding Nutrition Studies on Coxsackie Virus

The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements; National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: 301-435-2920, Fax: 301-480-1845, E-mail: ods@nih.gov). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.[4] The IBIDS includes references and citations to both human and animal research studies.

As a service of the ODS, access to the IBIDS database is available free of charge at the following Web address: **http://ods.od.nih.gov/databases/ibids.html**. After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only.

Now that you have selected a database, click on the "Advanced" tab. An advanced search allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "Coxsackie virus" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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[4] Adapted from **http://ods.od.nih.gov**. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

The following information is typical of that found when using the "Full IBIDS Database" to search for "Coxsackie virus" (or a synonym):

- **Selenite inhibition of Coxsackie virus B5 replication: implications on the etiology of Keshan disease.**
  Author(s): Dipartimento di Scienze Igienistiche, Microbiologiche e Biostatistiche, Universita di Modena e Reggio Emilia, Italia. c.cermelli@unimo.it
  Source: Cermelli, Claudio Vinceti, Marco Scaltriti, Elisa Bazzani, Erika Beretti, Francesca Vivoli, Gianfranco Portolani, Marinella J-Trace-Elem-Med-Biol. 2002; 16(1): 41-6 0946-672X
- **Trace element distribution in heart tissue sections studied by nuclear microscopy is changed in Coxsackie virus B3 myocarditis in methyl mercury-exposed mice.**
  Author(s): Toxicology Division, National Food Administration, Uppsala, Sweden.
  Source: Ilback, N G Lindh, U Wesslen, L Fohlman, J Friman, G Biol-Trace-Elem-Res. 2000 Winter; 78(1-3): 131-47 0163-4984

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition: **http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0**
- The United States Department of Agriculture's Web site dedicated to nutrition information: **www.nutrition.gov**
- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General: **http://www.surgeongeneral.gov/topics/obesity/**
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **http://vm.cfsan.fda.gov/**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **http://www.usda.gov/cnpp/**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **http://www.nal.usda.gov/fnic/**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **http://www.fns.usda.gov/fns/**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=174&layer=&from=subcats**

- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**
- Google: **http://directory.google.com/Top/Health/Nutrition/**
- Healthnotes: **http://www.healthnotes.com/**
- Open Directory Project: **http://dmoz.org/Health/Nutrition/**
- Yahoo.com: **http://dir.yahoo.com/Health/Nutrition/**
- WebMD®Health: **http://my.webmd.com/nutrition**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**

CHAPTER 3. ALTERNATIVE MEDICINE AND COXSACKIE VIRUS

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to Coxsackie virus. At the conclusion of this chapter, we will provide additional sources.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov/**) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to Coxsackie virus and complementary medicine. To search the database, go to the following Web site: **http://www.nlm.nih.gov/nccam/camonpubmed.html**. Select "CAM on PubMed." Enter "Coxsackie virus" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine that are related to Coxsackie virus:

- **239 cases of high fever in viral upper respiratory infection (URI) treated with xiang shi qing jie (XSQJ) bag tea.**
  Author(s): Liu Z, Li H, Peng Z, Sun B, Zhang L, Zhao S, Jiang H.
  Source: J Tradit Chin Med. 1996 June; 16(2): 101-4.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9389133

- **A bicistronic retrovirus vector containing a picornavirus internal ribosome entry site allows for correction of X-linked CGD by selection for MDR1 expression.**
  Author(s): Sokolic RA, Sekhsaria S, Sugimoto Y, Whiting-Theobald N, Linton GF, Li F, Gottesman MM, Malech HL.
  Source: Blood. 1996 January 1; 87(1): 42-50.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8547675

- **A prenyloxycoumarin from Psiadia dentata.**
  Author(s): Fortin H, Tomasi S, Jaccard P, Robin V, Boustie J.
  Source: Chemical & Pharmaceutical Bulletin. 2001 May; 49(5): 619-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=11383617

- **Activities and mechanisms of action of halogen-substituted flavanoids against poliovirus type 2 infection in vitro.**
  Author(s): Conti C, Genovese D, Santoro R, Stein ML, Orsi N, Fiore L.
  Source: Antimicrobial Agents and Chemotherapy. 1990 March; 34(3): 460-6.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2159258

- **Antiviral properties of garlic: in vitro effects on influenza B, herpes simplex and Coxsackie viruses.**
  Author(s): Tsai Y, Cole LL, Davis LE, Lockwood SJ, Simmons V, Wild GC.
  Source: Planta Medica. 1985 October; (5): 460-1.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=3001801

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: **http://www.herbmed.org/**
- AOL: **http://search.aol.com/cat.adp?id=169&layer=&from=subcats**
- Chinese Medicine: **http://www.newcenturynutrition.com/**
- drkoop.com®: **http://www.drkoop.com/InteractiveMedicine/IndexC.html**
- Family Village: **http://www.familyvillage.wisc.edu/med_altn.htm**
- Google: **http://directory.google.com/Top/Health/Alternative/**
- Healthnotes: **http://www.healthnotes.com/**
- MedWebPlus: **http://medwebplus.com/subject/Alternative_and_Complementary_Medicine**
- Open Directory Project: **http://dmoz.org/Health/Alternative/**
- HealthGate: **http://www.tnp.com/**
- WebMD®Health: **http://my.webmd.com/drugs_and_herbs**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**
- Yahoo.com: **http://dir.yahoo.com/Health/Alternative_Medicine/**

The following is a specific Web list relating to Coxsackie virus; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Herbs and Supplements**

  Astragalus Mem
  Alternative names: Huang-Qi; Astragalus membranaceus
  Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at **http://www.nlm.nih.gov/medlineplus/alternativemedicine.html**. This Web site provides a general overview of various topics and can lead to a number of general sources.

CHAPTER 4. BOOKS ON COXSACKIE VIRUS

Overview

This chapter provides bibliographic book references relating to Coxsackie virus. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on Coxsackie virus include the Combined Health Information Database and the National Library of Medicine. Your local medical library also may have these titles available for loan.

Chapters on Coxsackie Virus

In order to find chapters that specifically relate to Coxsackie virus, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and Coxsackie virus using the "Detailed Search" option. Go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." Type "Coxsackie virus" (or synonyms) into the "For these words:" box. The following is a typical result when searching for book chapters on Coxsackie virus:

- **Viral Infection**

  Source: in Lamey, P.J.; Lewis, M.A.O. Clinical Guide to Oral Medicine. 2nd ed. Hampshire, United Kingdom: British Dental Journal (BDJ), Stockton Press. 1997. p. 19-25.

  Contact: Available from British Dental Journal (BDJ). Marketing Department, Stockton Press, Houndsmill, Basingstoke, Hampshire, RG21 6XS, United Kingdom. Telephone +44 (0) 1256 351898. Fax +44(0) 1256 328339. PRICE: $41.00. ISBN: 0904588505.

  Summary: This chapter on viral infection is from a clinical guide to oral medicine. The book is a compilation of pathology photographs designed to improve competence in the recognition of diseases involving the oral and para-oral structures. The book includes summaries of the management of conditions most frequently seen in practice. The authors note that members of the herpes group of viruses are responsible for the majority of viral conditions which present to the dental practitioner. Mucosal ulceration

is the most frequent clinical presentation, although viruses not belonging to the herpes group may occasionally be responsible for salivary gland swelling or localized epithelial hyperplasia (overgrowth). Diagnosis of viral infection is important, since treatment which can alleviate symptoms and reduce the likelihood of spread of infection is available. Also, the recognition of intra-oral viral infection can have important implications, since it may be an indication of underlying conditions such as leukemia, HIV infection, or child abuse. Topics include primary herpetic gingivostomatitis, secondary herpes simplex infection, chicken pox, shingles, infectious mononucleosis, salivary gland inclusion disease **Coxsackie virus,** paramyxoviruses (measles, mumps), papillomaviruses, squamous cell papilloma, condyloma acuminata, verruca vulgaris, focal focal epithelial hyperplasia, and squamous cell carcinoma. Oral viral lesions with an atypical presentation and prolonged duration of viral lesions in the oral cavity may indicate the presence of underlying systemic disease. Full color photographs illustrate the chapter. 17 figures.

- **Infectious Diseases and Specific Infections**

  Source: in Miller, R.L., et al. General and Oral Pathology for the Dental Hygienist. St. Louis, MO: Mosby-Year Book, Inc. 1995. p. 48-80.

  Contact: Available from Mosby-Year Book, Inc. 11830 Westline Industrial Drive, St. Louis, MO 63146-9934. (800) 426-4545 or (314) 872-8370; Fax (800) 535-9935 or (314) 432-1380; E-mail: customer.support@mosby.com; http://www.mosby.com. PRICE: $43.00 plus shipping and handling. ISBN: 0801670241. Stock Number 07024.

  Summary: This chapter, from a textbook on pathology for dental hygiene students, presents a discussion of infectious diseases and specific infections. Topics include the factors that contribute to the virulence of organisms; common host defense factors, including external barriers, inflammation, and internal barriers; the pathogenesis of viral diseases, including the mode of cellular injury; specific viral diseases, including herpes simplex type 1, varicella-zoster virus, **Coxsackie virus,** mumps, measles, Epstein-Barr virus, and hepatitis; bacterial diseases, including recurrent aphthous stomatitis, chronic periodontitis, streptococcal pharyngitis, tuberculosis, and syphilis; fungal diseases, including candidiasis, and deep fungal infections; HIV infection; and special care and treatment-planning procedures necessary to better treat HIV and AIDS patients. The chapter includes a list of learning objectives; illustrative case studies; and recommended readings. 30 figures. 2 tables.

APPENDICES

APPENDIX A. PHYSICIAN RESOURCES

Overview

In this chapter, we focus on databases and Internet-based guidelines and information resources created or written for a professional audience.

NIH Guidelines

Commonly referred to as "clinical" or "professional" guidelines, the National Institutes of Health publish physician guidelines for the most common diseases. Publications are available at the following by relevant Institute[5]:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Institute of General Medical Sciences (NIGMS); fact sheets available at **http://www.nigms.nih.gov/news/facts/**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Cancer Institute (NCI); guidelines available at **http://www.cancer.gov/cancerinfo/list.aspx?viewid=5f35036e-5497-4d86-8c2c-714a9f7c8d25**
- National Eye Institute (NEI); guidelines available at **http://www.nei.nih.gov/order/index.htm**
- National Heart, Lung, and Blood Institute (NHLBI); guidelines available at **http://www.nhlbi.nih.gov/guidelines/index.htm**
- National Human Genome Research Institute (NHGRI); research available at **http://www.genome.gov/page.cfm?pageID=10000375**
- National Institute on Aging (NIA); guidelines available at **http://www.nia.nih.gov/health/**

[5] These publications are typically written by one or more of the various NIH Institutes.

- National Institute on Alcohol Abuse and Alcoholism (NIAAA); guidelines available at **http://www.niaaa.nih.gov/publications/publications.htm**
- National Institute of Allergy and Infectious Diseases (NIAID); guidelines available at **http://www.niaid.nih.gov/publications/**
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at **http://www.niams.nih.gov/hi/index.htm**
- National Institute of Child Health and Human Development (NICHD); guidelines available at **http://www.nichd.nih.gov/publications/pubskey.cfm**
- National Institute on Deafness and Other Communication Disorders (NIDCD); fact sheets and guidelines at **http://www.nidcd.nih.gov/health/**
- National Institute of Dental and Craniofacial Research (NIDCR); guidelines available at **http://www.nidr.nih.gov/health/**
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at **http://www.niddk.nih.gov/health/health.htm**
- National Institute on Drug Abuse (NIDA); guidelines available at **http://www.nida.nih.gov/DrugAbuse.html**
- National Institute of Environmental Health Sciences (NIEHS); environmental health information available at **http://www.niehs.nih.gov/external/facts.htm**
- National Institute of Mental Health (NIMH); guidelines available at **http://www.nimh.nih.gov/practitioners/index.cfm**
- National Institute of Neurological Disorders and Stroke (NINDS); neurological disorder information pages available at **http://www.ninds.nih.gov/health_and_medical/disorder_index.htm**
- National Institute of Nursing Research (NINR); publications on selected illnesses at **http://www.nih.gov/ninr/news-info/publications.html**
- National Institute of Biomedical Imaging and Bioengineering; general information at **http://grants.nih.gov/grants/becon/becon_info.htm**
- Center for Information Technology (CIT); referrals to other agencies based on keyword searches available at **http://kb.nih.gov/www_query_main.asp**
- National Center for Complementary and Alternative Medicine (NCCAM); health information available at **http://nccam.nih.gov/health/**
- National Center for Research Resources (NCRR); various information directories available at **http://www.ncrr.nih.gov/publications.asp**
- Office of Rare Diseases; various fact sheets available at **http://rarediseases.info.nih.gov/html/resources/rep_pubs.html**
- Centers for Disease Control and Prevention; various fact sheets on infectious diseases available at **http://www.cdc.gov/publications.htm**

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.[6] Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full-text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:[7]

- **Bioethics:** Access to published literature on the ethical, legal, and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: **http://www.nlm.nih.gov/databases/databases_bioethics.html**
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: **http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html**
- **NLM Online Exhibitions:** Describes "Exhibitions in the History of Medicine": **http://www.nlm.nih.gov/exhibition/exhibition.html**. Additional resources for historical scholarship in medicine: **http://www.nlm.nih.gov/hmd/hmd.html**
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: **http://www.ncbi.nlm.nih.gov/**
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: **http://www.nlm.nih.gov/databases/databases_population.html**
- **Cancer Information:** Access to cancer-oriented databases: **http://www.nlm.nih.gov/databases/databases_cancer.html**
- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: **http://www.profiles.nlm.nih.gov/**
- **Chemical Information:** Provides links to various chemical databases and references: **http://sis.nlm.nih.gov/Chem/ChemMain.html**
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: **http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html**
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): **http://www.nlm.nih.gov/databases/databases_space.html**
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: **http://www.nlm.nih.gov/databases/databases_medline.html**

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[6] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).

[7] See **http://www.nlm.nih.gov/databases/databases.html**.

- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: **http://sis.nlm.nih.gov/Tox/ToxMain.html**
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies: **http://www.nlm.nih.gov/research/visible/visible_human.html**

The NLM Gateway[8]

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing one-stop searching for many of NLM's information resources or databases.[9] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "Coxsackie virus" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	13279
Books / Periodicals / Audio Visual	67
Consumer Health	923
Meeting Abstracts	18
Other Collections	11
Total	14298

HSTAT[10]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[11] These documents include clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.[12] Simply search by "Coxsackie virus" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

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[8] Adapted from NLM: **http://gateway.nlm.nih.gov/gw/Cmd?Overview.x**.

[9] The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

[10] Adapted from HSTAT: **http://www.nlm.nih.gov/pubs/factsheets/hstat.html**.

[11] The HSTAT URL is **http://hstat.nlm.nih.gov/**.

[12] Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services' *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

Coffee Break: Tutorials for Biologists[13]

Coffee Break is a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. Here you will find a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.[14] Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.[15] This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for general background information. You can access the Coffee Break Web site at the following hyperlink: **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are some examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see **http://www.ohsu.edu/cliniweb/**.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see **http://www.mwsearch.com/**.

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[13] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[14] The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

[15] After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called "Fact Sheets" or "Guidelines." They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on Coxsackie virus can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

Patient Guideline Sources

The remainder of this chapter directs you to sources which either publish or can help you find additional guidelines on topics related to Coxsackie virus. Due to space limitations, these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

The National Institutes of Health

The NIH gateway to patients is located at **http://health.nih.gov/**. From this site, you can search across various sources and institutes, a number of which are summarized below.

Topic Pages: MEDLINEplus

The National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages" which list links to available materials relevant to Coxsackie virus. To access this system, log on to **http://www.nlm.nih.gov/medlineplus/healthtopics.html**. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following when searched for "Coxsackie virus":

Amyotrophic Lateral Sclerosis
http://www.nlm.nih.gov/medlineplus/amyotrophiclateralsclerosis.html

Herpes Simplex
http://www.nlm.nih.gov/medlineplus/herpessimplex.html

Influenza
http://www.nlm.nih.gov/medlineplus/influenza.html

Meningitis
http://www.nlm.nih.gov/medlineplus/meningitis.html

Viral Infections
http://www.nlm.nih.gov/medlineplus/viralinfections.html

You may also choose to use the search utility provided by MEDLINEplus at the following Web address: **http://www.nlm.nih.gov/medlineplus/**. Simply type a keyword into the search box and click "Search." This utility is similar to the NIH search utility, with the exception that it only includes materials that are linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The NIH Search Utility

The NIH search utility allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is "crawled" and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to Coxsackie virus. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

A number of Web sites are available to the public that often link to government sites. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=168&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/specific.htm**
- Google: **http://directory.google.com/Top/Health/Conditions_and_Diseases/**
- Med Help International: **http://www.medhelp.org/HealthTopics/A.html**
- Open Directory Project: **http://dmoz.org/Health/Conditions_and_Diseases/**
- Yahoo.com: **http://dir.yahoo.com/Health/Diseases_and_Conditions/**
- WebMD®Health: **http://my.webmd.com/health_topics**

Finding Associations

There are several Internet directories that provide lists of medical associations with information on or resources relating to Coxsackie virus. By consulting all of associations listed in this chapter, you will have nearly exhausted all sources for patient associations concerned with Coxsackie virus.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about Coxsackie virus. For more information, see the NHIC's Web site at **http://www.health.gov/NHIC/** or contact an information specialist by calling 1-800-336-4797.

Directory of Health Organizations

The Directory of Health Organizations, provided by the National Library of Medicine Specialized Information Services, is a comprehensive source of information on associations. The Directory of Health Organizations database can be accessed via the Internet at **http://www.sis.nlm.nih.gov/Dir/DirMain.html**. It is composed of two parts: DIRLINE and Health Hotlines.

The DIRLINE database comprises some 10,000 records of organizations, research centers, and government institutes and associations that primarily focus on health and biomedicine. To access DIRLINE directly, go to the following Web site: **http://dirline.nlm.nih.gov/**. Simply type in "Coxsackie virus" (or a synonym), and you will receive information on all relevant organizations listed in the database.

Health Hotlines directs you to toll-free numbers to over 300 organizations. You can access this database directly at **http://www.sis.nlm.nih.gov/hotlines/**. On this page, you are given the option to search by keyword or by browsing the subject list. When you have received your search results, click on the name of the organization for its description and contact information.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "Coxsackie virus". Type the following hyperlink into your Web browser: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." Type "Coxsackie virus" (or synonyms) into the "For these words:" box. You should check back periodically with this database since it is updated every three months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by health topic. You can access this database at the following Web site: **http://www.rarediseases.org/search/orgsearch.html**. Type "Coxsackie virus" (or a synonym) into the search box, and click "Submit Query."

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Your local public library and medical libraries have interlibrary loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.[16]

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit **http://nnlm.gov/members/adv.html** or call 1-800-338-7657.

Medical Libraries in the U.S. and Canada

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries with reference facilities that are open to the public. The following is the NLM's list and includes hyperlinks to each library's Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of

[16] Adapted from the NLM: **http://www.nlm.nih.gov/psd/cas/interlibrary.html**.

libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)[17]:

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), **http://www.uab.edu/infonet/**
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute)
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), **http://www.samaritan.edu/library/bannerlibs.htm**
- **California:** Kris Kelly Health Information Center (St. Joseph Health System, Humboldt), **http://www.humboldt1.com/~kkhic/index.html**
- **California:** Community Health Library of Los Gatos, **http://www.healthlib.org/orgresources.html**
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, **http://www.colapublib.org/services/chips.html**
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), **http://www-med.stanford.edu/healthlibrary/**
- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), **http://sfghdean.ucsf.edu/barnett/PERC/default.asp**
- **California:** Redwood Health Library (Petaluma Health Care District), **http://www.phcd.org/rdwdlib.html**
- **California:** Los Gatos PlaneTree Health Library, **http://planetreesanjose.org/**
- **California:** Sutter Resource Library (Sutter Hospitals Foundation, Sacramento), **http://suttermedicalcenter.org/library/**
- **California:** Health Sciences Libraries (University of California, Davis), **http://www.lib.ucdavis.edu/healthsci/**
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System, Pleasanton), **http://gaelnet.stmarys-ca.edu/other.libs/gbal/east/vchl.html**
- **California:** Washington Community Health Resource Library (Fremont), **http://www.healthlibrary.org/**
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), **http://www.saintjosephdenver.org/yourhealth/libraries/**
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), **http://www.harthosp.org/library/**
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), **http://library.uchc.edu/departm/hnet/**

[17] Abstracted from **http://www.nlm.nih.gov/medlineplus/libraries.html**.

- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital, Waterbury), **http://www.waterburyhospital.com/library/consumer.shtml**
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute, Wilmington), **http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm**
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine, Wilmington), **http://www.delamed.org/chls.html**
- **Georgia:** Family Resource Library (Medical College of Georgia, Augusta), **http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm**
- **Georgia:** Health Resource Center (Medical Center of Central Georgia, Macon), **http://www.mccg.org/hrc/hrchome.asp**
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library, Honolulu), **http://hml.org/CHIS/**
- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center, Coeur d'Alene), **http://www.nicon.org/DeArmond/index.htm**
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Chicago), **http://www.nmh.org/health_info/hlc.html**
- **Illinois:** Medical Library (OSF Saint Francis Medical Center, Peoria), **http://www.osfsaintfrancis.org/general/library/**
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital, Lexington), **http://www.centralbap.com/education/community/library.cfm**
- **Kentucky:** University of Kentucky - Health Information Library (Chandler Medical Center, Lexington), **http://www.mc.uky.edu/PatientEd/**
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation, New Orleans), **http://www.ochsner.org/library/**
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, **http://lib-sh.lsuhsc.edu/**
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital, Farmington), **http://www.fchn.org/fmh/lib.htm**
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center, Lewiston), **http://www.cmmc.org/library/library.html**
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare, Bangor), **http://www.emh.org/hll/hpl/guide.htm**
- **Maine:** Maine Medical Center Library (Maine Medical Center, Portland), **http://www.mmc.org/library/**
- **Maine:** Parkview Hospital (Brunswick), **http://www.parkviewhospital.org/**
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center, Biddeford), **http://www.smmc.org/services/service.php3?choice=10**
- **Maine:** Stephens Memorial Hospital's Health Information Library (Western Maine Health, Norway), **http://www.wmhcc.org/Library/**

- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), **http://www.umanitoba.ca/libraries/units/health/reference/chis.html**
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre, Winnipeg), **http://www.deerlodge.mb.ca/crane_library/about.asp**
- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Dept. of Public Libraries, Wheaton Regional Library), **http://www.mont.lib.md.us/healthinfo/hic.asp**
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), **http://www.baystatehealth.com/1024/**
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), **http://med-libwww.bu.edu/library/lib.html**
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital, Lowell), **http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm**
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital, Boston), **http://www.nebh.org/health_lib.asp**
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital, Southcoast Health System, New Bedford), **http://www.southcoast.org/library/**
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), **http://www.mgh.harvard.edu/library/chrcindex.html**
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School, Worchester), **http://healthnet.umassmed.edu/**
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), **http://www.botsfordlibrary.org/consumer.htm**
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), **http://www.providence-hospital.org/library/**
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), **http://www.mgh.org/center.html**
- **Michigan:** Patient Education Resouce Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center, Ann Arbor), **http://www.cancer.med.umich.edu/learn/leares.htm**
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information (Detroit), **http://www.henryford.com/body.cfm?id=39330**
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center, Missoula)
- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), **http://caphis.mlanet.org/directory/index.html**
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, **http://nnlm.gov/**
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), **http://nnlm.gov/members/**

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), **http://www.lvccld.org/special_collections/medical/index.htm**
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), **http://www.dartmouth.edu/~biomed/resources.htmld/conshealth.htmld/**
- **New Jersey:** Consumer Health Library (Rahway Hospital, Rahway), **http://www.rahwayhospital.com/library.htm**
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center, Englewood), **http://www.englewoodhospital.com/links/index.htm**
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center, Englewood), **http://www.geocities.com/ResearchTriangle/9360/**
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, **http://www.nypl.org/branch/health/links.html**
- **New York:** Health Information Center (Upstate Medical University, State University of New York, Syracuse), **http://www.upstate.edu/library/hic/**
- **New York:** Health Sciences Library (Long Island Jewish Medical Center, New Hyde Park), **http://www.lij.edu/library/library.html**
- **New York:** ViaHealth Medical Library (Rochester General Hospital), **http://www.nyam.org/library/**
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), **http://www.akrongeneral.org/hwlibrary.htm**
- **Oklahoma:** The Health Information Center at Saint Francis Hospital (Saint Francis Health System, Tulsa), **http://www.sfh-tulsa.com/services/healthinfo.asp**
- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center, The Dalles), **http://www.mcmc.net/phrc/**
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center, Hershey), **http://www.hmc.psu.edu/commhealth/**
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center, Danville), **http://www.geisinger.edu/education/commlib.shtml**
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital, Scranton), **http://www.mth.org/healthwellness.html**
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System, Pittsburgh), **http://www.hsls.pitt.edu/guides/chi/hopwood/index_html**
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), **http://www.collphyphil.org/kooppg1.shtml**
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System, Williamsport), **http://www.shscares.org/services/lrc/index.asp**
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), **http://www.upmc.edu/passavant/library.htm**
- **Quebec, Canada:** Medical Library (Montreal General Hospital), **http://www.mghlib.mcgill.ca/**

- **South Dakota:** Rapid City Regional Hospital Medical Library (Rapid City Regional Hospital), **http://www.rcrh.org/Services/Library/Default.asp**
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), **http://hhw.library.tmc.edu/**
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), **http://www.kvch.com/**
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center, Vancouver), **http://www.swmedicalcenter.com/body.cfm?id=72**

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.): **http://www.medterms.com/Script/Main/hp.asp**
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.): **http://www.intelihealth.com/IH/**
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: **http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html**
- On-line Medical Dictionary (CancerWEB): **http://cancerweb.ncl.ac.uk/omd/**
- Rare Diseases Terms (Office of Rare Diseases): **http://ord.aspensys.com/asp/diseases/diseases.asp**
- Technology Glossary (National Library of Medicine) - Health Care Technology: **http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm**

Beyond these, MEDLINEplus contains a very patient-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia can be accessed at **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**. ADAM is also available on commercial Web sites such as drkoop.com (**http://www.drkoop.com/**) and Web MD (**http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a**).

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries:

- Medical Dictionaries: Medical & Biological (World Health Organization): **http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical**
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): **http://mel.lib.mi.us/health/health-dictionaries.html**
- Patient Education: Glossaries (DMOZ Open Directory Project): **http://dmoz.org/Health/Education/Patient_Education/Glossaries/**
- Web of Online Dictionaries (Bucknell University): **http://www.yourdictionary.com/diction5.html#medicine**

COXSACKIE VIRUS DICTIONARY

The definitions below are derived from official public sources, including the National Institutes of Health [NIH] and the European Union [EU].

Abdominal: Having to do with the abdomen, which is the part of the body between the chest and the hips that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. [NIH]

Actin: Essential component of the cell skeleton. [NIH]

Acute renal: A condition in which the kidneys suddenly stop working. In most cases, kidneys can recover from almost complete loss of function. [NIH]

Adenocarcinoma: A malignant epithelial tumor with a glandular organization. [NIH]

Adolescence: The period of life beginning with the appearance of secondary sex characteristics and terminating with the cessation of somatic growth. The years usually referred to as adolescence lie between 13 and 18 years of age. [NIH]

Adoptive Transfer: Form of passive immunization where previously sensitized immunologic agents (cells or serum) are transferred to non-immune recipients. When transfer of cells is used as a therapy for the treatment of neoplasms, it is called adoptive immunotherapy (immunotherapy, adoptive). [NIH]

Affinity: 1. Inherent likeness or relationship. 2. A special attraction for a specific element, organ, or structure. 3. Chemical affinity; the force that binds atoms in molecules; the tendency of substances to combine by chemical reaction. 4. The strength of noncovalent chemical binding between two substances as measured by the dissociation constant of the complex. 5. In immunology, a thermodynamic expression of the strength of interaction between a single antigen-binding site and a single antigenic determinant (and thus of the stereochemical compatibility between them), most accurately applied to interactions among simple, uniform antigenic determinants such as haptens. Expressed as the association constant (K litres mole -1), which, owing to the heterogeneity of affinities in a population of antibody molecules of a given specificity, actually represents an average value (mean intrinsic association constant). 6. The reciprocal of the dissociation constant. [EU]

Algorithms: A procedure consisting of a sequence of algebraic formulas and/or logical steps to calculate or determine a given task. [NIH]

Allergen: An antigenic substance capable of producing immediate-type hypersensitivity (allergy). [EU]

Alternative medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used instead of standard treatments. Alternative medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Amber: A yellowish fossil resin, the gum of several species of coniferous trees, found in the alluvial deposits of northeastern Germany. It is used in molecular biology in the analysis of organic matter fossilized in amber. [NIH]

Ameloblastoma: An epithelial tumor of the jaw originating from the epithelial rests of Malassez or from other epithelial remnants of the developing period of the enamel. [NIH]

Amino Acid Sequence: The order of amino acids as they occur in a polypeptide chain. This is referred to as the primary structure of proteins. It is of fundamental importance in

determining protein conformation. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH2) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH2) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

Amnion: The extraembryonic membrane which contains the embryo and amniotic fluid. [NIH]

Amniotic Fluid: Amniotic cavity fluid which is produced by the amnion and fetal lungs and kidneys. [NIH]

Anaesthesia: Loss of feeling or sensation. Although the term is used for loss of tactile sensibility, or of any of the other senses, it is applied especially to loss of the sensation of pain, as it is induced to permit performance of surgery or other painful procedures. [EU]

Anaphylatoxins: The family of peptides C3a, C4a, C5a, and C5a des-arginine produced in the serum during complement activation. They produce smooth muscle contraction, mast cell histamine release, affect platelet aggregation, and act as mediators of the local inflammatory process. The order of anaphylatoxin activity from strongest to weakest is C5a, C3a, C4a, and C5a des-arginine. The latter is the so-called "classical" anaphylatoxin but shows no spasmogenic activity though it contains some chemotactic ability. [NIH]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Animal model: An animal with a disease either the same as or like a disease in humans. Animal models are used to study the development and progression of diseases and to test new treatments before they are given to humans. Animals with transplanted human cancers or other tissues are called xenograft models. [NIH]

Annealing: The spontaneous alignment of two single DNA strands to form a double helix. [NIH]

Anthracycline: A member of a family of anticancer drugs that are also antibiotics. [NIH]

Antibiotics: Substances produced by microorganisms that can inhibit or suppress the growth of other microorganisms. [NIH]

Antibodies: Immunoglobulin molecules having a specific amino acid sequence by virtue of which they interact only with the antigen that induced their synthesis in cells of the lymphoid series (especially plasma cells), or with an antigen closely related to it. [NIH]

Antibody: A type of protein made by certain white blood cells in response to a foreign substance (antigen). Each antibody can bind to only a specific antigen. The purpose of this binding is to help destroy the antigen. Antibodies can work in several ways, depending on the nature of the antigen. Some antibodies destroy antigens directly. Others make it easier for white blood cells to destroy the antigen. [NIH]

Antigen: Any substance which is capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, that is, with specific antibody or specifically sensitized T-lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the antigenic determinant (q.v.) combines with antibody or a specific receptor on a lymphocyte. Abbreviated Ag. [EU]

Antigen-Antibody Complex: The complex formed by the binding of antigen and antibody

molecules. The deposition of large antigen-antibody complexes leading to tissue damage causes immune complex diseases. [NIH]

Antioxidant: A substance that prevents damage caused by free radicals. Free radicals are highly reactive chemicals that often contain oxygen. They are produced when molecules are split to give products that have unpaired electrons. This process is called oxidation. [NIH]

Antiviral: Destroying viruses or suppressing their replication. [EU]

Anus: The opening of the rectum to the outside of the body. [NIH]

Aphthous Stomatitis: Inflammation of the mucous membrane of the mouth. [NIH]

Apoptosis: One of the two mechanisms by which cell death occurs (the other being the pathological process of necrosis). Apoptosis is the mechanism responsible for the physiological deletion of cells and appears to be intrinsically programmed. It is characterized by distinctive morphologic changes in the nucleus and cytoplasm, chromatin cleavage at regularly spaced sites, and the endonucleolytic cleavage of genomic DNA (DNA fragmentation) at internucleosomal sites. This mode of cell death serves as a balance to mitosis in regulating the size of animal tissues and in mediating pathologic processes associated with tumor growth. [NIH]

Arterial: Pertaining to an artery or to the arteries. [EU]

Arteries: The vessels carrying blood away from the heart. [NIH]

Aspartate: A synthetic amino acid. [NIH]

Assay: Determination of the amount of a particular constituent of a mixture, or of the biological or pharmacological potency of a drug. [EU]

Astringents: Agents, usually topical, that cause the contraction of tissues for the control of bleeding or secretions. [NIH]

Asymptomatic: Having no signs or symptoms of disease. [NIH]

Atypical: Irregular; not conformable to the type; in microbiology, applied specifically to strains of unusual type. [EU]

Autoantibodies: Antibodies that react with self-antigens (autoantigens) of the organism that produced them. [NIH]

Autoantigens: Endogenous tissue constituents that have the ability to interact with autoantibodies and cause an immune response. [NIH]

Autodigestion: Autolysis; a condition found in disease of the stomach: the stomach wall is digested by the gastric juice. [NIH]

Autoimmune disease: A condition in which the body recognizes its own tissues as foreign and directs an immune response against them. [NIH]

Autoimmunity: Process whereby the immune system reacts against the body's own tissues. Autoimmunity may produce or be caused by autoimmune diseases. [NIH]

Autopsy: Postmortem examination of the body. [NIH]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Bacterium: Microscopic organism which may have a spherical, rod-like, or spiral unicellular or non-cellular body. Bacteria usually reproduce through asexual processes. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of

donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

Benign: Not cancerous; does not invade nearby tissue or spread to other parts of the body. [NIH]

Benign tumor: A noncancerous growth that does not invade nearby tissue or spread to other parts of the body. [NIH]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Biliary: Having to do with the liver, bile ducts, and/or gallbladder. [NIH]

Biliary Tract: The gallbladder and its ducts. [NIH]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Biochemical reactions: In living cells, chemical reactions that help sustain life and allow cells to grow. [NIH]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic engineering) is a central focus; laboratory methods used include transfection and cloning technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Bladder: The organ that stores urine. [NIH]

Blastocyst: The mammalian embryo in the post-morula stage in which a fluid-filled cavity, enclosed primarily by trophoblast, contains an inner cell mass which becomes the embryonic disc. [NIH]

Blood vessel: A tube in the body through which blood circulates. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins. [NIH]

Bone Marrow: The soft tissue filling the cavities of bones. Bone marrow exists in two types, yellow and red. Yellow marrow is found in the large cavities of large bones and consists mostly of fat cells and a few primitive blood cells. Red marrow is a hematopoietic tissue and is the site of production of erythrocytes and granular leukocytes. Bone marrow is made up of a framework of connective tissue containing branching fibers with the frame being filled with marrow cells. [NIH]

Cadmium: An element with atomic symbol Cd, atomic number 48, and atomic weight 114. It is a metal and ingestion will lead to cadmium poisoning. [NIH]

Cadmium Poisoning: Poisoning occurring after exposure to cadmium compounds or fumes. It may cause gastrointestinal syndromes, anemia, or pneumonitis. [NIH]

Calcification: Deposits of calcium in the tissues of the breast. Calcification in the breast can be seen on a mammogram, but cannot be detected by touch. There are two types of breast calcification, macrocalcification and microcalcification. Macrocalcifications are large deposits and are usually not related to cancer. Microcalcifications are specks of calcium that may be found in an area of rapidly dividing cells. Many microcalcifications clustered together may be a sign of cancer. [NIH]

Calcium: A basic element found in nearly all organized tissues. It is a member of the alkaline earth family of metals with the atomic symbol Ca, atomic number 20, and atomic weight 40. Calcium is the most abundant mineral in the body and combines with phosphorus to form calcium phosphate in the bones and teeth. It is essential for the normal functioning of nerves and muscles and plays a role in blood coagulation (as factor IV) and in

many enzymatic processes. [NIH]

Candidiasis: Infection with a fungus of the genus Candida. It is usually a superficial infection of the moist cutaneous areas of the body, and is generally caused by C. albicans; it most commonly involves the skin (dermatocandidiasis), oral mucous membranes (thrush, def. 1), respiratory tract (bronchocandidiasis), and vagina (vaginitis). Rarely there is a systemic infection or endocarditis. Called also moniliasis, candidosis, oidiomycosis, and formerly blastodendriosis. [EU]

Candidosis: An infection caused by an opportunistic yeasts that tends to proliferate and become pathologic when the environment is favorable and the host resistance is weakened. [NIH]

Capsid: The outer protein protective shell of a virus, which protects the viral nucleic acid. [NIH]

Carbon Dioxide: A colorless, odorless gas that can be formed by the body and is necessary for the respiration cycle of plants and animals. [NIH]

Carcinogenic: Producing carcinoma. [EU]

Carcinoma: Cancer that begins in the skin or in tissues that line or cover internal organs. [NIH]

Cardiac: Having to do with the heart. [NIH]

Cardiogenic: Originating in the heart; caused by abnormal function of the heart. [EU]

Cardiomyopathy: A general diagnostic term designating primary myocardial disease, often of obscure or unknown etiology. [EU]

Cardiotoxicity: Toxicity that affects the heart. [NIH]

Case report: A detailed report of the diagnosis, treatment, and follow-up of an individual patient. Case reports also contain some demographic information about the patient (for example, age, gender, ethnic origin). [NIH]

Cell: The individual unit that makes up all of the tissues of the body. All living things are made up of one or more cells. [NIH]

Cell Death: The termination of the cell's ability to carry out vital functions such as metabolism, growth, reproduction, responsiveness, and adaptability. [NIH]

Cell Division: The fission of a cell. [NIH]

Central Nervous System: The main information-processing organs of the nervous system, consisting of the brain, spinal cord, and meninges. [NIH]

Chemokines: Class of pro-inflammatory cytokines that have the ability to attract and activate leukocytes. They can be divided into at least three structural branches: C (chemokines, C), CC (chemokines, CC), and CXC (chemokines, CXC), according to variations in a shared cysteine motif. [NIH]

Chemotactic Factors: Chemical substances that attract or repel cells or organisms. The concept denotes especially those factors released as a result of tissue injury, invasion, or immunologic activity, that attract leukocytes, macrophages, or other cells to the site of infection or insult. [NIH]

Chest Pain: Pressure, burning, or numbness in the chest. [NIH]

Cholera: An acute diarrheal disease endemic in India and Southeast Asia whose causative agent is vibrio cholerae. This condition can lead to severe dehydration in a matter of hours unless quickly treated. [NIH]

Chromatin: The material of chromosomes. It is a complex of DNA, histones, and nonhistone proteins (chromosomal proteins, non-histone) found within the nucleus of a cell. [NIH]

Chromosomal: Pertaining to chromosomes. [EU]

Chronic: A disease or condition that persists or progresses over a long period of time. [NIH]

Clinical trial: A research study that tests how well new medical treatments or other interventions work in people. Each study is designed to test new methods of screening, prevention, diagnosis, or treatment of a disease. [NIH]

Cloning: The production of a number of genetically identical individuals; in genetic engineering, a process for the efficient replication of a great number of identical DNA molecules. [NIH]

Codon: A set of three nucleotides in a protein coding sequence that specifies individual amino acids or a termination signal (codon, terminator). Most codons are universal, but some organisms do not produce the transfer RNAs (RNA, transfer) complementary to all codons. These codons are referred to as unassigned codons (codons, nonsense). [NIH]

Cofactor: A substance, microorganism or environmental factor that activates or enhances the action of another entity such as a disease-causing agent. [NIH]

Colon: The long, coiled, tubelike organ that removes water from digested food. The remaining material, solid waste called stool, moves through the colon to the rectum and leaves the body through the anus. [NIH]

Complement: A term originally used to refer to the heat-labile factor in serum that causes immune cytolysis, the lysis of antibody-coated cells, and now referring to the entire functionally related system comprising at least 20 distinct serum proteins that is the effector not only of immune cytolysis but also of other biologic functions. Complement activation occurs by two different sequences, the classic and alternative pathways. The proteins of the classic pathway are termed 'components of complement' and are designated by the symbols C1 through C9. C1 is a calcium-dependent complex of three distinct proteins C1q, C1r and C1s. The proteins of the alternative pathway (collectively referred to as the properdin system) and complement regulatory proteins are known by semisystematic or trivial names. Fragments resulting from proteolytic cleavage of complement proteins are designated with lower-case letter suffixes, e.g., C3a. Inactivated fragments may be designated with the suffix 'i', e.g. C3bi. Activated components or complexes with biological activity are designated by a bar over the symbol e.g. C1 or C4b,2a. The classic pathway is activated by the binding of C1 to classic pathway activators, primarily antigen-antibody complexes containing IgM, IgG1, IgG3; C1q binds to a single IgM molecule or two adjacent IgG molecules. The alternative pathway can be activated by IgA immune complexes and also by nonimmunologic materials including bacterial endotoxins, microbial polysaccharides, and cell walls. Activation of the classic pathway triggers an enzymatic cascade involving C1, C4, C2 and C3; activation of the alternative pathway triggers a cascade involving C3 and factors B, D and P. Both result in the cleavage of C5 and the formation of the membrane attack complex. Complement activation also results in the formation of many biologically active complement fragments that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complementary and alternative medicine: CAM. Forms of treatment that are used in addition to (complementary) or instead of (alternative) standard treatments. These practices are not considered standard medical approaches. CAM includes dietary supplements, megadose vitamins, herbal preparations, special teas, massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementary medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used to enhance or complement the standard treatments. Complementary medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Computational Biology: A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets. [NIH]

Condyloma: C. acuminatum; a papilloma with a central core of connective tissue in a treelike structure covered with epithelium, usually occurring on the mucous membrane or skin of the external genitals or in the perianal region. [EU]

Conjunctiva: The mucous membrane that lines the inner surface of the eyelids and the anterior part of the sclera. [NIH]

Conjunctivitis: Inflammation of the conjunctiva, generally consisting of conjunctival hyperaemia associated with a discharge. [EU]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Consciousness: Sense of awareness of self and of the environment. [NIH]

Contraindications: Any factor or sign that it is unwise to pursue a certain kind of action or treatment, e. g. giving a general anesthetic to a person with pneumonia. [NIH]

Cornea: The transparent part of the eye that covers the iris and the pupil and allows light to enter the inside. [NIH]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Coronary Thrombosis: Presence of a thrombus in a coronary artery, often causing a myocardial infarction. [NIH]

Cortical: Pertaining to or of the nature of a cortex or bark. [EU]

Cutaneous: Having to do with the skin. [NIH]

Cyst: A sac or capsule filled with fluid. [NIH]

Cysteine: A thiol-containing non-essential amino acid that is oxidized to form cystine. [NIH]

Cytokine: Small but highly potent protein that modulates the activity of many cell types, including T and B cells. [NIH]

Cytomegalovirus: A genus of the family Herpesviridae, subfamily Betaherpesvirinae, infecting the salivary glands, liver, spleen, lungs, eyes, and other organs, in which they produce characteristically enlarged cells with intranuclear inclusions. Infection with Cytomegalovirus is also seen as an opportunistic infection in AIDS. [NIH]

Cytoplasm: The protoplasm of a cell exclusive of that of the nucleus; it consists of a continuous aqueous solution (cytosol) and the organelles and inclusions suspended in it (phaneroplasm), and is the site of most of the chemical activities of the cell. [EU]

Decarboxylation: The removal of a carboxyl group, usually in the form of carbon dioxide, from a chemical compound. [NIH]

Decidua: The epithelial lining of the endometrium that is formed before the fertilized ovum reaches the uterus. The fertilized ovum embeds in the decidua. If the ovum is not fertilized, the decidua is shed during menstruation. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or

involving degeneration; causing or tending to cause degeneration. [EU]

Deletion: A genetic rearrangement through loss of segments of DNA (chromosomes), bringing sequences, which are normally separated, into close proximity. [NIH]

Dementia: An acquired organic mental disorder with loss of intellectual abilities of sufficient severity to interfere with social or occupational functioning. The dysfunction is multifaceted and involves memory, behavior, personality, judgment, attention, spatial relations, language, abstract thought, and other executive functions. The intellectual decline is usually progressive, and initially spares the level of consciousness. [NIH]

Denaturation: Rupture of the hydrogen bonds by heating a DNA solution and then cooling it rapidly causes the two complementary strands to separate. [NIH]

Dentigerous Cyst: Most common follicular odontogenic cyst. Occurs in relation to a partially erupted or unerupted tooth with at least the crown of the tooth to which the cyst is attached protruding into the cystic cavity. May give rise to an ameloblastoma and, in rare instances, undergo malignant transformation. [NIH]

Depressive Disorder: An affective disorder manifested by either a dysphoric mood or loss of interest or pleasure in usual activities. The mood disturbance is prominent and relatively persistent. [NIH]

Detoxification: Treatment designed to free an addict from his drug habit. [EU]

Diabetes Insipidus: A metabolic disorder due to disorders in the production or release of vasopressin. It is characterized by the chronic excretion of large amounts of low specific gravity urine and great thirst. [NIH]

Diabetes Mellitus: A heterogeneous group of disorders that share glucose intolerance in common. [NIH]

Diagnostic procedure: A method used to identify a disease. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Digestion: The process of breakdown of food for metabolism and use by the body. [NIH]

Digestive tract: The organs through which food passes when food is eaten. These organs are the mouth, esophagus, stomach, small and large intestines, and rectum. [NIH]

Dihydrotestosterone: Anabolic agent. [NIH]

Dilated cardiomyopathy: Heart muscle disease that leads to enlargement of the heart's chambers, robbing the heart of its pumping ability. [NIH]

Direct: 1. Straight; in a straight line. 2. Performed immediately and without the intervention of subsidiary means. [EU]

Discrete: Made up of separate parts or characterized by lesions which do not become blended; not running together; separate. [NIH]

Disease Progression: The worsening of a disease over time. This concept is most often used for chronic and incurable diseases where the stage of the disease is an important determinant of therapy and prognosis. [NIH]

Dissociation: 1. The act of separating or state of being separated. 2. The separation of a molecule into two or more fragments (atoms, molecules, ions, or free radicals) produced by the absorption of light or thermal energy or by solvation. 3. In psychology, a defense mechanism in which a group of mental processes are segregated from the rest of a person's mental activity in order to avoid emotional distress, as in the dissociative disorders (q.v.), or in which an idea or object is segregated from its emotional significance; in the first sense it is roughly equivalent to splitting, in the second, to isolation. 4. A defect of mental integration in which one or more groups of mental processes become separated off from normal

consciousness and, thus separated, function as a unitary whole. [EU]

Drug Tolerance: Progressive diminution of the susceptibility of a human or animal to the effects of a drug, resulting from its continued administration. It should be differentiated from drug resistance wherein an organism, disease, or tissue fails to respond to the intended effectiveness of a chemical or drug. It should also be differentiated from maximum tolerated dose and no-observed-adverse-effect level. [NIH]

Duct: A tube through which body fluids pass. [NIH]

Dura mater: The outermost, toughest, and most fibrous of the three membranes (meninges) covering the brain and spinal cord; called also pachymeninx. [EU]

Dysphoric: A feeling of unpleasantness and discomfort. [NIH]

Effector: It is often an enzyme that converts an inactive precursor molecule into an active second messenger. [NIH]

Effector cell: A cell that performs a specific function in response to a stimulus; usually used to describe cells in the immune system. [NIH]

Efficacy: The extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideal conditions. Ideally, the determination of efficacy is based on the results of a randomized control trial. [NIH]

Electrons: Stable elementary particles having the smallest known negative charge, present in all elements; also called negatrons. Positively charged electrons are called positrons. The numbers, energies and arrangement of electrons around atomic nuclei determine the chemical identities of elements. Beams of electrons are called cathode rays or beta rays, the latter being a high-energy biproduct of nuclear decay. [NIH]

Embryo: The prenatal stage of mammalian development characterized by rapid morphological changes and the differentiation of basic structures. [NIH]

Encephalitis: Inflammation of the brain due to infection, autoimmune processes, toxins, and other conditions. Viral infections (see encephalitis, viral) are a relatively frequent cause of this condition. [NIH]

Encephalitis, Viral: Inflammation of brain parenchymal tissue as a result of viral infection. Encephalitis may occur as primary or secondary manifestation of Togaviridae infections; Herpesviridae infections; Adenoviridae infections; Flaviviridae infections; Bunyaviridae infections; Picornaviridae infections; Paramyxoviridae infections; Orthomyxoviridae infections; Retroviridae infections; and Arenaviridae infections. [NIH]

Endocarditis: Exudative and proliferative inflammatory alterations of the endocardium, characterized by the presence of vegetations on the surface of the endocardium or in the endocardium itself, and most commonly involving a heart valve, but sometimes affecting the inner lining of the cardiac chambers or the endocardium elsewhere. It may occur as a primary disorder or as a complication of or in association with another disease. [EU]

Endogenous: Produced inside an organism or cell. The opposite is external (exogenous) production. [NIH]

Endothelium: A layer of epithelium that lines the heart, blood vessels (endothelium, vascular), lymph vessels (endothelium, lymphatic), and the serous cavities of the body. [NIH]

Endothelium, Lymphatic: Unbroken cellular lining (intima) of the lymph vessels (e.g., the high endothelial lymphatic venules). It is more permeable than vascular endothelium, lacking selective absorption and functioning mainly to remove plasma proteins that have filtered through the capillaries into the tissue spaces. [NIH]

Endothelium, Vascular: Single pavement layer of cells which line the luminal surface of the

entire vascular system and regulate the transport of macromolecules and blood components from interstitium to lumen; this function has been most intensively studied in the blood capillaries. [NIH]

Endotoxins: Toxins closely associated with the living cytoplasm or cell wall of certain microorganisms, which do not readily diffuse into the culture medium, but are released upon lysis of the cells. [NIH]

Environmental Health: The science of controlling or modifying those conditions, influences, or forces surrounding man which relate to promoting, establishing, and maintaining health. [NIH]

Enzymatic: Phase where enzyme cuts the precursor protein. [NIH]

Enzyme: A protein that speeds up chemical reactions in the body. [NIH]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Epidemiological: Relating to, or involving epidemiology. [EU]

Epidermal: Pertaining to or resembling epidermis. Called also epidermic or epidermoid. [EU]

Epidermoid carcinoma: A type of cancer in which the cells are flat and look like fish scales. Also called squamous cell carcinoma. [NIH]

Epigastric: Having to do with the upper middle area of the abdomen. [NIH]

Epithelial: Refers to the cells that line the internal and external surfaces of the body. [NIH]

Epithelium: One or more layers of epithelial cells, supported by the basal lamina, which covers the inner or outer surfaces of the body. [NIH]

Epitope: A molecule or portion of a molecule capable of binding to the combining site of an antibody. For every given antigenic determinant, the body can construct a variety of antibody-combining sites, some of which fit almost perfectly, and others which barely fit. [NIH]

Erythrocytes: Red blood cells. Mature erythrocytes are non-nucleated, biconcave disks containing hemoglobin whose function is to transport oxygen. [NIH]

Esophageal: Having to do with the esophagus, the muscular tube through which food passes from the throat to the stomach. [NIH]

Esophagus: The muscular tube through which food passes from the throat to the stomach. [NIH]

Eukaryotic Cells: Cells of the higher organisms, containing a true nucleus bounded by a nuclear membrane. [NIH]

Excitatory: When cortical neurons are excited, their output increases and each new input they receive while they are still excited raises their output markedly. [NIH]

Exocrine: Secreting outwardly, via a duct. [EU]

Exogenous: Developed or originating outside the organism, as exogenous disease. [EU]

Extravasation: A discharge or escape, as of blood, from a vessel into the tissues. [EU]

Family Planning: Programs or services designed to assist the family in controlling reproduction by either improving or diminishing fertility. [NIH]

Fathers: Male parents, human or animal. [NIH]

Fatigue: The state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli. [NIH]

Febrile: Pertaining to or characterized by fever. [EU]

Fetus: The developing offspring from 7 to 8 weeks after conception until birth. [NIH]

Fibroma: A benign tumor of fibrous or fully developed connective tissue. [NIH]

Fixation: 1. The act or operation of holding, suturing, or fastening in a fixed position. 2. The condition of being held in a fixed position. 3. In psychiatry, a term with two related but distinct meanings : (1) arrest of development at a particular stage, which like regression (return to an earlier stage), if temporary is a normal reaction to setbacks and difficulties but if protracted or frequent is a cause of developmental failures and emotional problems, and (2) a close and suffocating attachment to another person, especially a childhood figure, such as one's mother or father. Both meanings are derived from psychoanalytic theory and refer to 'fixation' of libidinal energy either in a specific erogenous zone, hence fixation at the oral, anal, or phallic stage, or in a specific object, hence mother or father fixation. 4. The use of a fixative (q.v.) to preserve histological or cytological specimens. 5. In chemistry, the process whereby a substance is removed from the gaseous or solution phase and localized, as in carbon dioxide fixation or nitrogen fixation. 6. In ophthalmology, direction of the gaze so that the visual image of the object falls on the fovea centralis. 7. In film processing, the chemical removal of all undeveloped salts of the film emulsion, leaving only the developed silver to form a permanent image. [EU]

Flaccid: Weak, lax and soft. [EU]

Follicular Cyst: Cyst due to the occlusion of the duct of a follicle or small gland. [NIH]

Frameshift: A type of mutation which causes out-of-phase transcription of the base sequence; such mutations arise from the addition or delection of nucleotide(s) in numbers other than 3 or multiples of 3. [NIH]

Frameshift Mutation: A type of mutation in which a number of nucleotides not divisible by three is deleted from or inserted into a coding sequence, thereby causing an alteration in the reading frame of the entire sequence downstream of the mutation. These mutations may be induced by certain types of mutagens or may occur spontaneously. [NIH]

Free Radicals: Highly reactive molecules with an unsatisfied electron valence pair. Free radicals are produced in both normal and pathological processes. They are proven or suspected agents of tissue damage in a wide variety of circumstances including radiation, damage from environment chemicals, and aging. Natural and pharmacological prevention of free radical damage is being actively investigated. [NIH]

Fungus: A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, moulds, smuts, etc., which are characterized by the absence of chlorophyll and by the presence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose. They are usually of simple morphological form or show some reversible cellular specialization, such as the formation of pseudoparenchymatous tissue in the fruiting body of a mushroom. The dimorphic fungi grow, according to environmental conditions, as moulds or yeasts. [EU]

GABA: The most common inhibitory neurotransmitter in the central nervous system. [NIH]

Ganglia: Clusters of multipolar neurons surrounded by a capsule of loosely organized connective tissue located outside the central nervous system. [NIH]

Ganglion: 1. A knot, or knotlike mass. 2. A general term for a group of nerve cell bodies located outside the central nervous system; occasionally applied to certain nuclear groups within the brain or spinal cord, e.g. basal ganglia. 3. A benign cystic tumour occurring on a aponeurosis or tendon, as in the wrist or dorsum of the foot; it consists of a thin fibrous capsule enclosing a clear mucinous fluid. [EU]

Gangrenous: A circumscribed, deep-seated, suppurative inflammation of the subcutaneous tissue of the eyelid discharging pus from several points. [NIH]

Gas: Air that comes from normal breakdown of food. The gases are passed out of the body through the rectum (flatus) or the mouth (burp). [NIH]

Gastric: Having to do with the stomach. [NIH]

Gastrin: A hormone released after eating. Gastrin causes the stomach to produce more acid. [NIH]

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein. [NIH]

Genetic testing: Analyzing DNA to look for a genetic alteration that may indicate an increased risk for developing a specific disease or disorder. [NIH]

Genital: Pertaining to the genitalia. [EU]

Genitourinary: Pertaining to the genital and urinary organs; urogenital; urinosexual. [EU]

Genotype: The genetic constitution of the individual; the characterization of the genes. [NIH]

Gestation: The period of development of the young in viviparous animals, from the time of fertilization of the ovum until birth. [EU]

Gingivitis: Inflammation of the gingivae. Gingivitis associated with bony changes is referred to as periodontitis. Called also oulitis and ulitis. [EU]

Gland: An organ that produces and releases one or more substances for use in the body. Some glands produce fluids that affect tissues or organs. Others produce hormones or participate in blood production. [NIH]

Glucose: D-Glucose. A primary source of energy for living organisms. It is naturally occurring and is found in fruits and other parts of plants in its free state. It is used therapeutically in fluid and nutrient replacement. [NIH]

Glucose Intolerance: A pathological state in which the fasting plasma glucose level is less than 140 mg per deciliter and the 30-, 60-, or 90-minute plasma glucose concentration following a glucose tolerance test exceeds 200 mg per deciliter. This condition is seen frequently in diabetes mellitus but also occurs with other diseases. [NIH]

Glutamate: Excitatory neurotransmitter of the brain. [NIH]

Glutamate Decarboxylase: A pyridoxal-phosphate protein that catalyzes the alpha-decarboxylation of L-glutamic acid to form gamma-aminobutyric acid and carbon dioxide. The enzyme is found in bacteria and in invertebrate and vertebrate nervous systems. It is the rate-limiting enzyme in determining gaba levels in normal nervous tissues. The brain enzyme also acts on L-cysteate, L-cysteine sulfinate, and L-aspartate. EC 4.1.1.15. [NIH]

Glutamic Acid: A non-essential amino acid naturally occurring in the L-form. Glutamic acid (glutamate) is the most common excitatory neurotransmitter in the central nervous system. [NIH]

Glutathione Peroxidase: An enzyme catalyzing the oxidation of 2 moles of glutathione in the presence of hydrogen peroxide to yield oxidized glutathione and water. EC 1.11.1.9. [NIH]

Glycogen: A sugar stored in the liver and muscles. It releases glucose into the blood when cells need it for energy. Glycogen is the chief source of stored fuel in the body. [NIH]

Governing Board: The group in which legal authority is vested for the control of health-related institutions and organizations. [NIH]

Granule: A small pill made from sucrose. [EU]

Hair follicles: Shafts or openings on the surface of the skin through which hair grows. [NIH]

Haplotypes: The genetic constitution of individuals with respect to one member of a pair of allelic genes, or sets of genes that are closely linked and tend to be inherited together such as those of the major histocompatibility complex. [NIH]

Haptens: Small antigenic determinants capable of eliciting an immune response only when coupled to a carrier. Haptens bind to antibodies but by themselves cannot elicit an antibody response. [NIH]

Headache: Pain in the cranial region that may occur as an isolated and benign symptom or as a manifestation of a wide variety of conditions including subarachnoid hemorrhage; craniocerebral trauma; central nervous system infections; intracranial hypertension; and other disorders. In general, recurrent headaches that are not associated with a primary disease process are referred to as headache disorders (e.g., migraine). [NIH]

Heart failure: Loss of pumping ability by the heart, often accompanied by fatigue, breathlessness, and excess fluid accumulation in body tissues. [NIH]

Hematologic Diseases: Disorders of the blood and blood forming tissues. [NIH]

Hematoma: An extravasation of blood localized in an organ, space, or tissue. [NIH]

Hemolytic: A disease that affects the blood and blood vessels. It destroys red blood cells, cells that cause the blood to clot, and the lining of blood vessels. HUS is often caused by the Escherichia coli bacterium in contaminated food. People with HUS may develop acute renal failure. [NIH]

Hemolytic-Uremic Syndrome: Syndrome of hemolytic anemia, thrombocytopenia, and acute renal failure, with pathological finding of thrombotic microangiopathy in kidney and renal cortical necrosis. [NIH]

Hepatitis: Inflammation of the liver and liver disease involving degenerative or necrotic alterations of hepatocytes. [NIH]

Hepatocellular: Pertaining to or affecting liver cells. [EU]

Hepatocellular carcinoma: A type of adenocarcinoma, the most common type of liver tumor. [NIH]

Hepatocytes: The main structural component of the liver. They are specialized epithelial cells that are organized into interconnected plates called lobules. [NIH]

Heredity: 1. The genetic transmission of a particular quality or trait from parent to offspring. 2. The genetic constitution of an individual. [EU]

Herpes: Any inflammatory skin disease caused by a herpesvirus and characterized by the formation of clusters of small vesicles. When used alone, the term may refer to herpes simplex or to herpes zoster. [EU]

Herpes virus: A member of the herpes family of viruses. [NIH]

Herpes Zoster: Acute vesicular inflammation. [NIH]

Heterogeneity: The property of one or more samples or populations which implies that they are not identical in respect of some or all of their parameters, e. g. heterogeneity of variance. [NIH]

Histiocytosis: General term for the abnormal appearance of histiocytes in the blood. Based on the pathological features of the cells involved rather than on clinical findings, the histiocytic diseases are subdivided into three groups: Langerhans cell histiocytosis, non-Langerhans cell histiocytosis, and malignant histiocytic disorders. [NIH]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird and the scales of a fish, (b) antigen and its specific antibody, (c) allelic chromosomes. [EU]

Hormone: A substance in the body that regulates certain organs. Hormones such as gastrin help in breaking down food. Some hormones come from cells in the stomach and small intestine. [NIH]

Hybrid: Cross fertilization between two varieties or, more usually, two species of vines, see also crossing. [NIH]

Hydrogen: The first chemical element in the periodic table. It has the atomic symbol H, atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas. Hydrogen ions are protons. Besides the common H1 isotope, hydrogen exists as the stable isotope deuterium and the unstable, radioactive isotope tritium. [NIH]

Hydrogen Peroxide: A strong oxidizing agent used in aqueous solution as a ripening agent, bleach, and topical anti-infective. It is relatively unstable and solutions deteriorate over time unless stabilized by the addition of acetanilide or similar organic materials. [NIH]

Hydrophobic: Not readily absorbing water, or being adversely affected by water, as a hydrophobic colloid. [EU]

Hydrops Fetalis: Edema of the entire body due to abnormal accumulation of serous fluid in the tissues, associated with severe anemia and occurring in fetal erythroblastosis. [NIH]

Hyperaemia: An excess of blood in a part; engorgement. [EU]

Hyperplasia: An increase in the number of cells in a tissue or organ, not due to tumor formation. It differs from hypertrophy, which is an increase in bulk without an increase in the number of cells. [NIH]

Hypersensitivity: Altered reactivity to an antigen, which can result in pathologic reactions upon subsequent exposure to that particular antigen. [NIH]

Hypertrophic cardiomyopathy: Heart muscle disease that leads to thickening of the heart walls, interfering with the heart's ability to fill with and pump blood. [NIH]

Hypertrophy: General increase in bulk of a part or organ, not due to tumor formation, nor to an increase in the number of cells. [NIH]

Hypokinesia: Slow or diminished movement of body musculature. It may be associated with basal ganglia diseases; mental disorders; prolonged inactivity due to illness; experimental protocols used to evaluate the physiologic effects of immobility; and other conditions. [NIH]

Immune response: The activity of the immune system against foreign substances (antigens). [NIH]

Immune Sera: Serum that contains antibodies. It is obtained from an animal that has been immunized either by antigen injection or infection with microorganisms containing the antigen. [NIH]

Immune system: The organs, cells, and molecules responsible for the recognition and disposal of foreign ("non-self") material which enters the body. [NIH]

Immunity: Nonsusceptibility to the invasive or pathogenic effects of foreign microorganisms or to the toxic effect of antigenic substances. [NIH]

Immunization: Deliberate stimulation of the host's immune response. Active immunization involves administration of antigens or immunologic adjuvants. Passive immunization involves administration of immune sera or lymphocytes or their extracts (e.g., transfer factor, immune RNA) or transplantation of immunocompetent cell producing tissue (thymus or bone marrow). [NIH]

Immunologic: The ability of the antibody-forming system to recall a previous experience

with an antigen and to respond to a second exposure with the prompt production of large amounts of antibody. [NIH]

Immunology: The study of the body's immune system. [NIH]

Immunotherapy: Manipulation of the host's immune system in treatment of disease. It includes both active and passive immunization as well as immunosuppressive therapy to prevent graft rejection. [NIH]

Impetigo: A common superficial bacterial infection caused by staphylococcus aureus or group A beta-hemolytic streptococci. Characteristics include pustular lesions that rupture and discharge a thin, amber-colored fluid that dries and forms a crust. This condition is commonly located on the face, especially about the mouth and nose. [NIH]

In situ: In the natural or normal place; confined to the site of origin without invasion of neighbouring tissues. [EU]

In Situ Hybridization: A technique that localizes specific nucleic acid sequences within intact chromosomes, eukaryotic cells, or bacterial cells through the use of specific nucleic acid-labeled probes. [NIH]

In vitro: In the laboratory (outside the body). The opposite of in vivo (in the body). [NIH]

In vivo: In the body. The opposite of in vitro (outside the body or in the laboratory). [NIH]

Incontinence: Inability to control the flow of urine from the bladder (urinary incontinence) or the escape of stool from the rectum (fecal incontinence). [NIH]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

Infancy: The period of complete dependency prior to the acquisition of competence in walking, talking, and self-feeding. [NIH]

Infantile: Pertaining to an infant or to infancy. [EU]

Infarction: A pathological process consisting of a sudden insufficient blood supply to an area, which results in necrosis of that area. It is usually caused by a thrombus, an embolus, or a vascular torsion. [NIH]

Infection: 1. Invasion and multiplication of microorganisms in body tissues, which may be clinically unapparent or result in local cellular injury due to competitive metabolism, toxins, intracellular replication, or antigen-antibody response. The infection may remain localized, subclinical, and temporary if the body's defensive mechanisms are effective. A local infection may persist and spread by extension to become an acute, subacute, or chronic clinical infection or disease state. A local infection may also become systemic when the microorganisms gain access to the lymphatic or vascular system. 2. An infectious disease. [EU]

Infectious Mononucleosis: A common, acute infection usually caused by the Epstein-Barr virus (Human herpesvirus 4). There is an increase in mononuclear white blood cells and other atypical lymphocytes, generalized lymphadenopathy, splenomegaly, and occasionally hepatomegaly with hepatitis. [NIH]

Infiltration: The diffusion or accumulation in a tissue or cells of substances not normal to it or in amounts of the normal. Also, the material so accumulated. [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Influenza: An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva, and by headache and severe, often generalized, myalgia. [NIH]

Ingestion: Taking into the body by mouth [NIH]

Initiation: Mutation induced by a chemical reactive substance causing cell changes; being a step in a carcinogenic process. [NIH]

Insight: The capacity to understand one's own motives, to be aware of one's own psychodynamics, to appreciate the meaning of symbolic behavior. [NIH]

Insulin: A protein hormone secreted by beta cells of the pancreas. Insulin plays a major role in the regulation of glucose metabolism, generally promoting the cellular utilization of glucose. It is also an important regulator of protein and lipid metabolism. Insulin is used as a drug to control insulin-dependent diabetes mellitus. [NIH]

Insulin-dependent diabetes mellitus: A disease characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. Autoimmune, genetic, and environmental factors are involved in the development of type I diabetes. [NIH]

Intestinal: Having to do with the intestines. [NIH]

Intestines: The section of the alimentary canal from the stomach to the anus. It includes the large intestine and small intestine. [NIH]

Intracellular: Inside a cell. [NIH]

Intravenous: IV. Into a vein. [NIH]

Intrinsic: Situated entirely within or pertaining exclusively to a part. [EU]

Invasive: 1. Having the quality of invasiveness. 2. Involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Involuntary: Reaction occurring without intention or volition. [NIH]

Ischemia: Deficiency of blood in a part, due to functional constriction or actual obstruction of a blood vessel. [EU]

Kb: A measure of the length of DNA fragments, 1 Kb = 1000 base pairs. The largest DNA fragments are up to 50 kilobases long. [NIH]

Labile: 1. Gliding; moving from point to point over the surface; unstable; fluctuating. 2. Chemically unstable. [EU]

Leukemia: Cancer of blood-forming tissue. [NIH]

Life cycle: The successive stages through which an organism passes from fertilized ovum or spore to the fertilized ovum or spore of the next generation. [NIH]

Ligament: A band of fibrous tissue that connects bones or cartilages, serving to support and strengthen joints. [EU]

Ligands: A RNA simulation method developed by the MIT. [NIH]

Lipid: Fat. [NIH]

Lipid Peroxidation: Peroxidase catalyzed oxidation of lipids using hydrogen peroxide as an electron acceptor. [NIH]

Liver: A large, glandular organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile. [NIH]

Localized: Cancer which has not metastasized yet. [NIH]

Lymph: The almost colorless fluid that travels through the lymphatic system and carries

cells that help fight infection and disease. [NIH]

Lymphadenopathy: Disease or swelling of the lymph nodes. [NIH]

Lymphatic: The tissues and organs, including the bone marrow, spleen, thymus, and lymph nodes, that produce and store cells that fight infection and disease. [NIH]

Lymphatic system: The tissues and organs that produce, store, and carry white blood cells that fight infection and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes and a network of thin tubes that carry lymph and white blood cells. These tubes branch, like blood vessels, into all the tissues of the body. [NIH]

Lymphocytes: White blood cells formed in the body's lymphoid tissue. The nucleus is round or ovoid with coarse, irregularly clumped chromatin while the cytoplasm is typically pale blue with azurophilic (if any) granules. Most lymphocytes can be classified as either T or B (with subpopulations of each); those with characteristics of neither major class are called null cells. [NIH]

Lymphoid: Referring to lymphocytes, a type of white blood cell. Also refers to tissue in which lymphocytes develop. [NIH]

Lytic: 1. Pertaining to lysis or to a lysin. 2. Producing lysis. [EU]

Major Histocompatibility Complex: The genetic region which contains the loci of genes which determine the structure of the serologically defined (SD) and lymphocyte-defined (LD) transplantation antigens, genes which control the structure of the immune response-associated (Ia) antigens, the immune response (Ir) genes which control the ability of an animal to respond immunologically to antigenic stimuli, and genes which determine the structure and/or level of the first four components of complement. [NIH]

Malignant: Cancerous; a growth with a tendency to invade and destroy nearby tissue and spread to other parts of the body. [NIH]

Mammogram: An x-ray of the breast. [NIH]

Mastitis: Inflammatory disease of the breast, or mammary gland. [NIH]

Mediate: Indirect; accomplished by the aid of an intervening medium. [EU]

MEDLINE: An online database of MEDLARS, the computerized bibliographic Medical Literature Analysis and Retrieval System of the National Library of Medicine. [NIH]

Membrane: A very thin layer of tissue that covers a surface. [NIH]

Memory: Complex mental function having four distinct phases: (1) memorizing or learning, (2) retention, (3) recall, and (4) recognition. Clinically, it is usually subdivided into immediate, recent, and remote memory. [NIH]

Meninges: The three membranes that cover and protect the brain and spinal cord. [NIH]

Meningitis: Inflammation of the meninges. When it affects the dura mater, the disease is termed pachymeningitis; when the arachnoid and pia mater are involved, it is called leptomeningitis, or meningitis proper. [EU]

Meningoencephalitis: An inflammatory process involving the brain (encephalitis) and meninges (meningitis), most often produced by pathogenic organisms which invade the central nervous system, and occasionally by toxins, autoimmune disorders, and other conditions. [NIH]

Mental: Pertaining to the mind; psychic. 2. (L. mentum chin) pertaining to the chin. [EU]

Mercury: A silver metallic element that exists as a liquid at room temperature. It has the atomic symbol Hg (from hydrargyrum, liquid silver), atomic number 80, and atomic weight 200.59. Mercury is used in many industrial applications and its salts have been employed therapeutically as purgatives, antisyphilitics, disinfectants, and astringents. It can be

absorbed through the skin and mucous membranes which leads to mercury poisoning. Because of its toxicity, the clinical use of mercury and mercurials is diminishing. [NIH]

Metabolic disorder: A condition in which normal metabolic processes are disrupted, usually because of a missing enzyme. [NIH]

Microbiological: Pertaining to microbiology : the science that deals with microorganisms, including algae, bacteria, fungi, protozoa and viruses. [EU]

Microbiology: The study of microorganisms such as fungi, bacteria, algae, archaea, and viruses. [NIH]

Microcalcifications: Tiny deposits of calcium in the breast that cannot be felt but can be detected on a mammogram. A cluster of these very small specks of calcium may indicate that cancer is present. [NIH]

Microorganism: An organism that can be seen only through a microscope. Microorganisms include bacteria, protozoa, algae, and fungi. Although viruses are not considered living organisms, they are sometimes classified as microorganisms. [NIH]

Microscopy: The application of microscope magnification to the study of materials that cannot be properly seen by the unaided eye. [NIH]

Mitosis: A method of indirect cell division by means of which the two daughter nuclei normally receive identical complements of the number of chromosomes of the somatic cells of the species. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Molecule: A chemical made up of two or more atoms. The atoms in a molecule can be the same (an oxygen molecule has two oxygen atoms) or different (a water molecule has two hydrogen atoms and one oxygen atom). Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms. [NIH]

Monitor: An apparatus which automatically records such physiological signs as respiration, pulse, and blood pressure in an anesthetized patient or one undergoing surgical or other procedures. [NIH]

Monoclonal: An antibody produced by culturing a single type of cell. It therefore consists of a single species of immunoglobulin molecules. [NIH]

Monoclonal antibodies: Laboratory-produced substances that can locate and bind to cancer cells wherever they are in the body. Many monoclonal antibodies are used in cancer detection or therapy; each one recognizes a different protein on certain cancer cells. Monoclonal antibodies can be used alone, or they can be used to deliver drugs, toxins, or radioactive material directly to a tumor. [NIH]

Monocytes: Large, phagocytic mononuclear leukocytes produced in the vertebrate bone marrow and released into the blood; contain a large, oval or somewhat indented nucleus surrounded by voluminous cytoplasm and numerous organelles. [NIH]

Mononuclear: A cell with one nucleus. [NIH]

Muscle Fibers: Large single cells, either cylindrical or prismatic in shape, that form the basic unit of muscle tissue. They consist of a soft contractile substance enclosed in a tubular sheath. [NIH]

Myalgia: Pain in a muscle or muscles. [EU]

Myelitis: Inflammation of the spinal cord. Relatively common etiologies include infections; autoimmune diseases; spinal cord; and ischemia (see also spinal cord vascular diseases). Clinical features generally include weakness, sensory loss, localized pain, incontinence, and other signs of autonomic dysfunction. [NIH]

Myocardial infarction: Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Myocarditis: Inflammation of the myocardium; inflammation of the muscular walls of the heart. [EU]

Myocardium: The muscle tissue of the heart composed of striated, involuntary muscle known as cardiac muscle. [NIH]

Myopathy: Any disease of a muscle. [EU]

Myosin: Chief protein in muscle and the main constituent of the thick filaments of muscle fibers. In conjunction with actin, it is responsible for the contraction and relaxation of muscles. [NIH]

Nasal Mucosa: The mucous membrane lining the nasal cavity. [NIH]

Necrosis: A pathological process caused by the progressive degradative action of enzymes that is generally associated with severe cellular trauma. It is characterized by mitochondrial swelling, nuclear flocculation, uncontrolled cell lysis, and ultimately cell death. [NIH]

Neonatal: Pertaining to the first four weeks after birth. [EU]

Neoplasm: A new growth of benign or malignant tissue. [NIH]

Nervous System: The entire nerve apparatus composed of the brain, spinal cord, nerves and ganglia. [NIH]

Neurons: The basic cellular units of nervous tissue. Each neuron consists of a body, an axon, and dendrites. Their purpose is to receive, conduct, and transmit impulses in the nervous system. [NIH]

Neurotransmitter: Any of a group of substances that are released on excitation from the axon terminal of a presynaptic neuron of the central or peripheral nervous system and travel across the synaptic cleft to either excite or inhibit the target cell. Among the many substances that have the properties of a neurotransmitter are acetylcholine, norepinephrine, epinephrine, dopamine, glycine, y-aminobutyrate, glutamic acid, substance P, enkephalins, endorphins, and serotonin. [EU]

Neutropenia: An abnormal decrease in the number of neutrophils, a type of white blood cell. [NIH]

Neutrophils: Granular leukocytes having a nucleus with three to five lobes connected by slender threads of chromatin, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes. [NIH]

Nuclear: A test of the structure, blood flow, and function of the kidneys. The doctor injects a mildly radioactive solution into an arm vein and uses x-rays to monitor its progress through the kidneys. [NIH]

Nucleic acid: Either of two types of macromolecule (DNA or RNA) formed by polymerization of nucleotides. Nucleic acids are found in all living cells and contain the information (genetic code) for the transfer of genetic information from one generation to the next. [NIH]

Nucleus: A body of specialized protoplasm found in nearly all cells and containing the chromosomes. [NIH]

Odontogenic Cysts: Cysts found in the jaws and arising from epithelium involved in tooth formation. They include follicular cysts (e.g., primordial cyst, dentigerous cyst, multilocular cyst), lateral periodontal cysts, and radicular cysts. They may become keratinized (odontogenic keratocysts). Follicular cysts may give rise to ameloblastomas and, in rare

cases, undergo malignant transformation. [NIH]

Organelles: Specific particles of membrane-bound organized living substances present in eukaryotic cells, such as the mitochondria; the golgi apparatus; endoplasmic reticulum; lysomomes; plastids; and vacuoles. [NIH]

Ovum: A female germ cell extruded from the ovary at ovulation. [NIH]

Oxidation: The act of oxidizing or state of being oxidized. Chemically it consists in the increase of positive charges on an atom or the loss of negative charges. Most biological oxidations are accomplished by the removal of a pair of hydrogen atoms (dehydrogenation) from a molecule. Such oxidations must be accompanied by reduction of an acceptor molecule. Univalent o. indicates loss of one electron; divalent o., the loss of two electrons. [EU]

Oxidative Stress: A disturbance in the prooxidant-antioxidant balance in favor of the former, leading to potential damage. Indicators of oxidative stress include damaged DNA bases, protein oxidation products, and lipid peroxidation products (Sies, Oxidative Stress, 1991, pxv-xvi). [NIH]

Pachymeningitis: Inflammation of the dura mater of the brain, the spinal cord or the optic nerve. [NIH]

Pancreas: A mixed exocrine and endocrine gland situated transversely across the posterior abdominal wall in the epigastric and hypochondriac regions. The endocrine portion is comprised of the Islets of Langerhans, while the exocrine portion is a compound acinar gland that secretes digestive enzymes. [NIH]

Pancreatic: Having to do with the pancreas. [NIH]

Pancreatitis: Acute or chronic inflammation of the pancreas, which may be asymptomatic or symptomatic, and which is due to autodigestion of a pancreatic tissue by its own enzymes. It is caused most often by alcoholism or biliary tract disease; less commonly it may be associated with hyperlipaemia, hyperparathyroidism, abdominal trauma (accidental or operative injury), vasculitis, or uraemia. [EU]

Papilloma: A benign epithelial neoplasm which may arise from the skin, mucous membranes or glandular ducts. [NIH]

Paralysis: Loss of ability to move all or part of the body. [NIH]

Parkinsonism: A group of neurological disorders characterized by hypokinesia, tremor, and muscular rigidity. [EU]

Particle: A tiny mass of material. [EU]

Pathogen: Any disease-producing microorganism. [EU]

Pathologic: 1. Indicative of or caused by a morbid condition. 2. Pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Pathologic Processes: The abnormal mechanisms and forms involved in the dysfunctions of tissues and organs. [NIH]

Pelvic: Pertaining to the pelvis. [EU]

Pentoxifylline: A methylxanthine derivative that inhibits phosphodiesterase and affects blood rheology. It improves blood flow by increasing erythrocyte and leukocyte flexibility. It also inhibits platelet aggregation. Pentoxifylline modulates immunologic activity by stimulating cytokine production. [NIH]

Peptide: Any compound consisting of two or more amino acids, the building blocks of proteins. Peptides are combined to make proteins. [NIH]

Perianal: Located around the anus. [EU]

Pericarditis: Inflammation of the pericardium. [EU]

Pericardium: The fibroserous sac surrounding the heart and the roots of the great vessels. [NIH]

Periodontal Cyst: An epithelium-lined sac containing fluid; usually found at the apex of a pulp-involved tooth. The lateral type occurs less frequently along the side of the root. [NIH]

Periodontitis: Inflammation of the periodontal membrane; also called periodontitis simplex. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Pharyngitis: Inflammation of the throat. [NIH]

Pharynx: The hollow tube about 5 inches long that starts behind the nose and ends at the top of the trachea (windpipe) and esophagus (the tube that goes to the stomach). [NIH]

Phenotype: The outward appearance of the individual. It is the product of interactions between genes and between the genotype and the environment. This includes the killer phenotype, characteristic of yeasts. [NIH]

Phosphodiesterase: Effector enzyme that regulates the levels of a second messenger, the cyclic GMP. [NIH]

Physiologic: Having to do with the functions of the body. When used in the phrase "physiologic age," it refers to an age assigned by general health, as opposed to calendar age. [NIH]

Picornavirus: Any of a group of tiny RNA-containing viruses including the enteroviruses and rhinoviruses. [NIH]

Placenta: A highly vascular fetal organ through which the fetus absorbs oxygen and other nutrients and excretes carbon dioxide and other wastes. It begins to form about the eighth day of gestation when the blastocyst adheres to the decidua. [NIH]

Plants: Multicellular, eukaryotic life forms of the kingdom Plantae. They are characterized by a mainly photosynthetic mode of nutrition; essentially unlimited growth at localized regions of cell divisions (meristems); cellulose within cells providing rigidity; the absence of organs of locomotion; absense of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

Plasma: The clear, yellowish, fluid part of the blood that carries the blood cells. The proteins that form blood clots are in plasma. [NIH]

Plasma cells: A type of white blood cell that produces antibodies. [NIH]

Platelet Aggregation: The attachment of platelets to one another. This clumping together can be induced by a number of agents (e.g., thrombin, collagen) and is part of the mechanism leading to the formation of a thrombus. [NIH]

Pneumonia: Inflammation of the lungs. [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Polymerase: An enzyme which catalyses the synthesis of DNA using a single DNA strand as a template. The polymerase copies the template in the 5'-3'direction provided that sufficient quantities of free nucleotides, dATP and dTTP are present. [NIH]

Polymerase Chain Reaction: In vitro method for producing large amounts of specific DNA or RNA fragments of defined length and sequence from small amounts of short oligonucleotide flanking sequences (primers). The essential steps include thermal denaturation of the double-stranded target molecules, annealing of the primers to their

complementary sequences, and extension of the annealed primers by enzymatic synthesis with DNA polymerase. The reaction is efficient, specific, and extremely sensitive. Uses for the reaction include disease diagnosis, detection of difficult-to-isolate pathogens, mutation analysis, genetic testing, DNA sequencing, and analyzing evolutionary relationships. [NIH]

Polysaccharide: A type of carbohydrate. It contains sugar molecules that are linked together chemically. [NIH]

Posterior: Situated in back of, or in the back part of, or affecting the back or dorsal surface of the body. In lower animals, it refers to the caudal end of the body. [EU]

Practice Guidelines: Directions or principles presenting current or future rules of policy for the health care practitioner to assist him in patient care decisions regarding diagnosis, therapy, or related clinical circumstances. The guidelines may be developed by government agencies at any level, institutions, professional societies, governing boards, or by the convening of expert panels. The guidelines form a basis for the evaluation of all aspects of health care and delivery. [NIH]

Precursor: Something that precedes. In biological processes, a substance from which another, usually more active or mature substance is formed. In clinical medicine, a sign or symptom that heralds another. [EU]

Progression: Increase in the size of a tumor or spread of cancer in the body. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Prone: Having the front portion of the body downwards. [NIH]

Prostate: A gland in males that surrounds the neck of the bladder and the urethra. It secretes a substance that liquifies coagulated semen. It is situated in the pelvic cavity behind the lower part of the pubic symphysis, above the deep layer of the triangular ligament, and rests upon the rectum. [NIH]

Protein S: The vitamin K-dependent cofactor of activated protein C. Together with protein C, it inhibits the action of factors VIIIa and Va. A deficiency in protein S can lead to recurrent venous and arterial thrombosis. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Proteolytic: 1. Pertaining to, characterized by, or promoting proteolysis. 2. An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with formation of smaller polypeptides). [EU]

Protozoa: A subkingdom consisting of unicellular organisms that are the simplest in the animal kingdom. Most are free living. They range in size from submicroscopic to macroscopic. Protozoa are divided into seven phyla: Sarcomastigophora, Labyrinthomorpha, Apicomplexa, Microspora, Ascetospora, Myxozoa, and Ciliophora. [NIH]

Public Policy: A course or method of action selected, usually by a government, from among alternatives to guide and determine present and future decisions. [NIH]

Pustular: Pertaining to or of the nature of a pustule; consisting of pustules (= a visible collection of pus within or beneath the epidermis). [EU]

Pyridoxal: 3-Hydroxy-5-(hydroxymethyl)-2-methyl-4- pyridinecarboxaldehyde. [NIH]

Radicular Cyst: Slow-growing fluid-filled epithelial sac at the apex of a tooth with a nonvital pulp or defective root canal filling. [NIH]

Radioactive: Giving off radiation. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects

are assigned by chance to separate groups that compare different treatments. [NIH]

Reactivation: The restoration of activity to something that has been inactivated. [EU]

Receptor: A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell. [NIH]

Recombinant: A cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

Rectum: The last 8 to 10 inches of the large intestine. [NIH]

Red blood cells: RBCs. Cells that carry oxygen to all parts of the body. Also called erythrocytes. [NIH]

Reductase: Enzyme converting testosterone to dihydrotestosterone. [NIH]

Refer: To send or direct for treatment, aid, information, de decision. [NIH]

Regimen: A treatment plan that specifies the dosage, the schedule, and the duration of treatment. [NIH]

Retrovirus: A member of a group of RNA viruses, the RNA of which is copied during viral replication into DNA by reverse transcriptase. The viral DNA is then able to be integrated into the host chromosomal DNA. [NIH]

Reversion: A return to the original condition, e. g. the reappearance of the normal or wild type in previously mutated cells, tissues, or organisms. [NIH]

Rheology: The study of the deformation and flow of matter, usually liquids or fluids, and of the plastic flow of solids. The concept covers consistency, dilatancy, liquefaction, resistance to flow, shearing, thixotrophy, and viscosity. [NIH]

Rhinitis: Inflammation of the mucous membrane of the nose. [NIH]

Rhinovirus: A genus of Picornaviridae inhabiting primarily the respiratory tract of mammalian hosts. It includes the human strains associated with common colds. [NIH]

Ribosome: A granule of protein and RNA, synthesized in the nucleolus and found in the cytoplasm of cells. Ribosomes are the main sites of protein synthesis. Messenger RNA attaches to them and there receives molecules of transfer RNA bearing amino acids. [NIH]

Rigidity: Stiffness or inflexibility, chiefly that which is abnormal or morbid; rigor. [EU]

Risk factor: A habit, trait, condition, or genetic alteration that increases a person's chance of developing a disease. [NIH]

Saliva: The clear, viscous fluid secreted by the salivary glands and mucous glands of the mouth. It contains mucins, water, organic salts, and ptylin. [NIH]

Salivary: The duct that convey saliva to the mouth. [NIH]

Salivary glands: Glands in the mouth that produce saliva. [NIH]

Screening: Checking for disease when there are no symptoms. [NIH]

Sebaceous: Gland that secretes sebum. [NIH]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Selenocysteine: A naturally occurring amino acid in both eukaryotic and prokaryotic organisms. It is found in tRNAs and in the catalytic site of some enzymes. The genes for glutathione peroxidase and formate dehydrogenase contain the TGA codon, which codes for this amino acid. [NIH]

Semen: The thick, yellowish-white, viscid fluid secretion of male reproductive organs discharged upon ejaculation. In addition to reproductive organ secretions, it contains spermatozoa and their nutrient plasma. [NIH]

Sensitization: 1. Administration of antigen to induce a primary immune response; priming; immunization. 2. Exposure to allergen that results in the development of hypersensitivity. 3. The coating of erythrocytes with antibody so that they are subject to lysis by complement in the presence of homologous antigen, the first stage of a complement fixation test. [EU]

Sensory loss: A disease of the nerves whereby the myelin or insulating sheath of myelin on the nerves does not stay intact and the messages from the brain to the muscles through the nerves are not carried properly. [NIH]

Septicaemia: A term originally used to denote a putrefactive process in the body, but now usually referring to infection with pyogenic micro-organisms; a genus of Diptera; the severe type of infection in which the blood stream is invaded by large numbers of the causal. [NIH]

Sequencing: The determination of the order of nucleotides in a DNA or RNA chain. [NIH]

Serotypes: A cause of haemorrhagic septicaemia (in cattle, sheep and pigs), fowl cholera of birds, pasteurellosis of rabbits, and gangrenous mastitis of ewes. It is also commonly found in atrophic rhinitis of pigs. [NIH]

Serous: Having to do with serum, the clear liquid part of blood. [NIH]

Serum: The clear liquid part of the blood that remains after blood cells and clotting proteins have been removed. [NIH]

Sex Characteristics: Those characteristics that distinguish one sex from the other. The primary sex characteristics are the ovaries and testes and their related hormones. Secondary sex characteristics are those which are masculine or feminine but not directly related to reproduction. [NIH]

Skeletal: Having to do with the skeleton (boney part of the body). [NIH]

Skeleton: The framework that supports the soft tissues of vertebrate animals and protects many of their internal organs. The skeletons of vertebrates are made of bone and/or cartilage. [NIH]

Small intestine: The part of the digestive tract that is located between the stomach and the large intestine. [NIH]

Smallpox: A generalized virus infection with a vesicular rash. [NIH]

Somatic: 1. Pertaining to or characteristic of the soma or body. 2. Pertaining to the body wall in contrast to the viscera. [EU]

Specialist: In medicine, one who concentrates on 1 special branch of medical science. [NIH]

Species: A taxonomic category subordinate to a genus (or subgenus) and superior to a subspecies or variety, composed of individuals possessing common characters distinguishing them from other categories of individuals of the same taxonomic level. In taxonomic nomenclature, species are designated by the genus name followed by a Latin or Latinized adjective or noun. [EU]

Specificity: Degree of selectivity shown by an antibody with respect to the number and types of antigens with which the antibody combines, as well as with respect to the rates and the extents of these reactions. [NIH]

Spinal cord: The main trunk or bundle of nerves running down the spine through holes in the spinal bone (the vertebrae) from the brain to the level of the lower back. [NIH]

Spinal Cord Vascular Diseases: Hypoxic-ischemic and hemorrhagic disorders of the spinal cord. Arteriosclerosis, emboli, and vascular malformations are potential causes of these

conditions. [NIH]

Spirochete: Lyme disease. [NIH]

Spleen: An organ that is part of the lymphatic system. The spleen produces lymphocytes, filters the blood, stores blood cells, and destroys old blood cells. It is located on the left side of the abdomen near the stomach. [NIH]

Splenomegaly: Enlargement of the spleen. [NIH]

Squamous: Scaly, or platelike. [EU]

Squamous cell carcinoma: Cancer that begins in squamous cells, which are thin, flat cells resembling fish scales. Squamous cells are found in the tissue that forms the surface of the skin, the lining of the hollow organs of the body, and the passages of the respiratory and digestive tracts. Also called epidermoid carcinoma. [NIH]

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Squamous cells: Flat cells that look like fish scales under a microscope. These cells cover internal and external surfaces of the body. [NIH]

Staphylococcus: A genus of gram-positive, facultatively anaerobic, coccoid bacteria. Its organisms occur singly, in pairs, and in tetrads and characteristically divide in more than one plane to form irregular clusters. Natural populations of Staphylococcus are membranes of warm-blooded animals. Some species are opportunistic pathogens of humans and animals. [NIH]

Staphylococcus aureus: Potentially pathogenic bacteria found in nasal membranes, skin, hair follicles, and perineum of warm-blooded animals. They may cause a wide range of infections and intoxications. [NIH]

Stimulus: That which can elicit or evoke action (response) in a muscle, nerve, gland or other excitable issue, or cause an augmenting action upon any function or metabolic process. [NIH]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Stool: The waste matter discharged in a bowel movement; feces. [NIH]

Strand: DNA normally exists in the bacterial nucleus in a helix, in which two strands are coiled together. [NIH]

Streptococcal: Caused by infection due to any species of streptococcus. [NIH]

Streptococci: A genus of spherical Gram-positive bacteria occurring in chains or pairs. They are widely distributed in nature, being important pathogens but often found as normal commensals in the mouth, skin, and intestine of humans and other animals. [NIH]

Streptococcus: A genus of gram-positive, coccoid bacteria whose organisms occur in pairs or chains. No endospores are produced. Many species exist as commensals or parasites on man or animals with some being highly pathogenic. A few species are saprophytes and occur in the natural environment. [NIH]

Stress: Forcibly exerted influence; pressure. Any condition or situation that causes strain or tension. Stress may be either physical or psychologic, or both. [NIH]

Subacute: Somewhat acute; between acute and chronic. [EU]

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other

disease or abnormality. [EU]

Supplementation: Adding nutrients to the diet. [NIH]

Symphysis: A secondary cartilaginous joint. [NIH]

Symptomatic: Having to do with symptoms, which are signs of a condition or disease. [NIH]

Syphilis: A contagious venereal disease caused by the spirochete Treponema pallidum. [NIH]

Systemic: Affecting the entire body. [NIH]

Systemic disease: Disease that affects the whole body. [NIH]

Testosterone: A hormone that promotes the development and maintenance of male sex characteristics. [NIH]

Thermal: Pertaining to or characterized by heat. [EU]

Thigh: A leg; in anatomy, any elongated process or part of a structure more or less comparable to a leg. [NIH]

Thioredoxin: A hydrogen-carrying protein that participates in a variety of biochemical reactions including ribonucleotide reduction. Thioredoxin is oxidized from a dithiol to a disulfide during ribonucleotide reduction. The disulfide form is then reduced by NADPH in a reaction catalyzed by thioredoxin reductase. [NIH]

Thrombocytopenia: A decrease in the number of blood platelets. [NIH]

Thrombosis: The formation or presence of a blood clot inside a blood vessel. [NIH]

Thrush: A disease due to infection with species of fungi of the genus Candida. [NIH]

Thymus: An organ that is part of the lymphatic system, in which T lymphocytes grow and multiply. The thymus is in the chest behind the breastbone. [NIH]

Thyroid: A gland located near the windpipe (trachea) that produces thyroid hormone, which helps regulate growth and metabolism. [NIH]

Tissue: A group or layer of cells that are alike in type and work together to perform a specific function. [NIH]

Titre: The quantity of a substance required to produce a reaction with a given volume of another substance, or the amount of one substance required to correspond with a given amount of another substance. [EU]

Tolerance: 1. The ability to endure unusually large doses of a drug or toxin. 2. Acquired drug tolerance; a decreasing response to repeated constant doses of a drug or the need for increasing doses to maintain a constant response. [EU]

Tooth Loss: The failure to retain teeth as a result of disease or injury. [NIH]

Toxic: Having to do with poison or something harmful to the body. Toxic substances usually cause unwanted side effects. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Toxin: A poison; frequently used to refer specifically to a protein produced by some higher plants, certain animals, and pathogenic bacteria, which is highly toxic for other living organisms. Such substances are differentiated from the simple chemical poisons and the vegetable alkaloids by their high molecular weight and antigenicity. [EU]

Trace element: Substance or element essential to plant or animal life, but present in extremely small amounts. [NIH]

Trachea: The cartilaginous and membranous tube descending from the larynx and branching into the right and left main bronchi. [NIH]

Transcriptase: An enzyme which catalyses the synthesis of a complementary mRNA molecule from a DNA template in the presence of a mixture of the four ribonucleotides (ATP, UTP, GTP and CTP). [NIH]

Transduction: The transfer of genes from one cell to another by means of a viral (in the case of bacteria, a bacteriophage) vector or a vector which is similar to a virus particle (pseudovirion). [NIH]

Transfection: The uptake of naked or purified DNA into cells, usually eukaryotic. It is analogous to bacterial transformation. [NIH]

Transfer Factor: Factor derived from leukocyte lysates of immune donors which can transfer both local and systemic cellular immunity to nonimmune recipients. [NIH]

Translation: The process whereby the genetic information present in the linear sequence of ribonucleotides in mRNA is converted into a corresponding sequence of amino acids in a protein. It occurs on the ribosome and is unidirectional. [NIH]

Transplantation: Transference of a tissue or organ, alive or dead, within an individual, between individuals of the same species, or between individuals of different species. [NIH]

Trauma: Any injury, wound, or shock, must frequently physical or structural shock, producing a disturbance. [NIH]

Tremor: Cyclical movement of a body part that can represent either a physiologic process or a manifestation of disease. Intention or action tremor, a common manifestation of cerebellar diseases, is aggravated by movement. In contrast, resting tremor is maximal when there is no attempt at voluntary movement, and occurs as a relatively frequent manifestation of Parkinson disease. [NIH]

Tropism: Directed movements and orientations found in plants, such as the turning of the sunflower to face the sun. [NIH]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of Mycobacterium. [NIH]

Typhimurium: Microbial assay which measures his-his+ reversion by chemicals which cause base substitutions or frameshift mutations in the genome of this organism. [NIH]

Ulcer: A localized necrotic lesion of the skin or a mucous surface. [NIH]

Ulceration: 1. The formation or development of an ulcer. 2. An ulcer. [EU]

Uraemia: 1. An excess in the blood of urea, creatinine, and other nitrogenous end products of protein and amino acids metabolism; more correctly referred to as azotemia. 2. In current usage the entire constellation of signs and symptoms of chronic renal failure, including nausea, vomiting anorexia, a metallic taste in the mouth, a uraemic odour of the breath, pruritus, uraemic frost on the skin, neuromuscular disorders, pain and twitching in the muscles, hypertension, edema, mental confusion, and acid-base and electrolyte imbalances. [EU]

Urethra: The tube through which urine leaves the body. It empties urine from the bladder. [NIH]

Urinary: Having to do with urine or the organs of the body that produce and get rid of urine. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in

the bladder, and leaves the body through the urethra. [NIH]

Urogenital: Pertaining to the urinary and genital apparatus; genitourinary. [EU]

Vaccine: A substance or group of substances meant to cause the immune system to respond to a tumor or to microorganisms, such as bacteria or viruses. [NIH]

Vagina: The muscular canal extending from the uterus to the exterior of the body. Also called the birth canal. [NIH]

Vaginitis: Inflammation of the vagina characterized by pain and a purulent discharge. [NIH]

Varicella: Chicken pox. [EU]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vasculitis: Inflammation of a blood vessel. [NIH]

VE: The total volume of gas either inspired or expired in one minute. [NIH]

Vector: Plasmid or other self-replicating DNA molecule that transfers DNA between cells in nature or in recombinant DNA technology. [NIH]

Vein: Vessel-carrying blood from various parts of the body to the heart. [NIH]

Venereal: Pertaining or related to or transmitted by sexual contact. [EU]

Venom: That produced by the poison glands of the mouth and injected by the fangs of poisonous snakes. [NIH]

Venous: Of or pertaining to the veins. [EU]

Ventricle: One of the two pumping chambers of the heart. The right ventricle receives oxygen-poor blood from the right atrium and pumps it to the lungs through the pulmonary artery. The left ventricle receives oxygen-rich blood from the left atrium and pumps it to the body through the aorta. [NIH]

Ventricular: Pertaining to a ventricle. [EU]

Ventricular Function: The hemodynamic and electrophysiological action of the ventricles. [NIH]

Verruca: A circumscribed, cutaneous excrescence having a papilliferous surface; a small, circumscribed, epidermal tumor. [NIH]

Vesicular: 1. Composed of or relating to small, saclike bodies. 2. Pertaining to or made up of vesicles on the skin. [EU]

Veterinary Medicine: The medical science concerned with the prevention, diagnosis, and treatment of diseases in animals. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Viral Proteins: Proteins found in any species of virus. [NIH]

Virulence: The degree of pathogenicity within a group or species of microorganisms or viruses as indicated by case fatality rates and/or the ability of the organism to invade the tissues of the host. [NIH]

Virulent: A virus or bacteriophage capable only of lytic growth, as opposed to temperate phages establishing the lysogenic response. [NIH]

Virus: Submicroscopic organism that causes infectious disease. In cancer therapy, some viruses may be made into vaccines that help the body build an immune response to, and kill, tumor cells. [NIH]

Vitro: Descriptive of an event or enzyme reaction under experimental investigation occurring outside a living organism. Parts of an organism or microorganism are used together with artificial substrates and/or conditions. [NIH]

Vivo: Outside of or removed from the body of a living organism. [NIH]

Vulgaris: An affection of the skin, especially of the face, the back and the chest, due to chronic inflammation of the sebaceous glands and the hair follicles. [NIH]

White blood cell: A type of cell in the immune system that helps the body fight infection and disease. White blood cells include lymphocytes, granulocytes, macrophages, and others. [NIH]

Windpipe: A rigid tube, 10 cm long, extending from the cricoid cartilage to the upper border of the fifth thoracic vertebra. [NIH]

Xenograft: The cells of one species transplanted to another species. [NIH]

X-ray: High-energy radiation used in low doses to diagnose diseases and in high doses to treat cancer. [NIH]

Yeasts: A general term for single-celled rounded fungi that reproduce by budding. Brewers' and bakers' yeasts are Saccharomyces cerevisiae; therapeutic dried yeast is dried yeast. [NIH]

Zoster: A virus infection of the Gasserian ganglion and its nerve branches, characterized by discrete areas of vesiculation of the epithelium of the forehead, the nose, the eyelids, and the cornea together with subepithelial infiltration. [NIH]

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