VARICELLA ZOSTERS

A MEDICAL DICTIONARY, BIBLIOGRAPHY,
AND ANNOTATED RESEARCH GUIDE TO
INTERNET REFERENCES

JAMES N. PARKER, M.D.
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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 varicella zosters. 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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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 varicella zosters 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 varicella zosters, 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 varicella zosters, 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 varicella zosters. 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 varicella zosters, 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 varicella zosters.

The Editors

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

CHAPTER 1. STUDIES ON VARICELLA ZOSTERS

Overview

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

Federally Funded Research on Varicella Zosters

The U.S. Government supports a variety of research studies relating to varicella zosters. 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 varicella zosters.

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 varicella zosters. The following is typical of the type of information found when searching the CRISP database for varicella zosters:

- **Project Title: FOURTH INTERNATIONAL CONFERENCE--VARICELLA ZOSTER VIRUS**

  Principal Investigator & Institution: Gershon, Anne A. Professor; Pediatrics; Columbia University Health Sciences New York, NY 10032

  Timing: Fiscal Year 2001; Project Start 01-MAR-2001; Project End 30-APR-2002

[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).

Description (provided by applicant): Funds are being requested to support the Fourth International Conference on the Varicella-Zoster Virus (VZV). Previous conferences were held in Bethesda, MD, in 1992 (in conjunction with NIH), in Paris, France in 1994, and in Palm Beach, Florida in 1997. The purpose of these meetings is to provide a forum for researchers, academicians, and clinicians involved in VZV research to have a venue for scientific exchange. The meeting is planned to occur March 3-5, 2001 in LaJolla, CA. VZV is the agent that causes varicella (chickenpox) and zoster (shingles), both of which are important pathogens for humans. Zoster is particularly a medical problem for individuals over the age of 50 years in whom it can only be manifested as a skin rash but also may be associated with severe pain that may persist for months to years after the original illness, a condition termed post herpetic neuralgia (PHN). Topics to be discussed in the 2001 meeting will include clinical topics on the first day because the conference begins on a weekend when clinicians are more likely to be available. One session will be devoted to Varicella and the other to Zoster. The first formal sessions will be devoted to treatment and prevention of varicella and zoster, with an emphasis on new developments in vaccines and antiviral drugs. There will be a special workshop on PCR methods by Perkin-Elmer. On the second day, basic aspects of VZV research will be discussed and will include the topics of virus replication, gene regulation, virus-cell protein interaction, animal models, latency, and host responses. There will also be a series of "State of the Art" lectures by experts in the field who have not presented at past meetings. These talks will include a summary of important data presented at the meeting and will attempt to integrate old and new concepts concerning varicella and zoster.

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

- **Project Title: NEUROBIOLOGY OF VARICELLA ZOSTER VIRUS**

  Principal Investigator & Institution: Gilden, Donald H. Professor; Neurology; University of Colorado Hlth Sciences Ctr Uchsc at Fitzsimons Aurora, CO 800450508

  Timing: Fiscal Year 2001; Project Start 01-JUL-1987; Project End 30-JUN-2005

  Summary: This abstract is not available.

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

- **Project Title: PROTECTIVE IMMUNITY TO VARICELLA ZOSTER VIRUS AFTER BONE MARROW TRANSPLANTATION**

  Principal Investigator & Institution: Arvin, Ann M. Professor of Microbiology and Immunology; Stanford University Stanford, CA 94305

  Timing: Fiscal Year 2002; Project Start 11-JUL-2002; Project End 28-FEB-2007

  Summary: Reactivation of varicella-zoster virus (VZV) causes herpes zoster, which is common after bone marrow transplantation and is associated with considerable morbidity and even with life-threatening infection in some patients. The goals are to investigate the immunologic correlates of protection against VZV reactivation after hematopoietic cell transplantation (HCT), the role of viral tropism for human T cells in the pathogenesis of recurrent VZV infections, and the contributions of two novel VZV glycoproteins, gM and gN, to infectivity for T cells and skin. We propose to continue our studies of the reconstitution of VZV immunity by administration of inactivated varicella vaccine in a placebo controlled trial that incorporates a focus on refined analysis of the possible mechanisms and immunologic correlates of protection. The vaccine preparation to be tested will also be of higher initial virus content. The evidence from our current studies is that the inactivated vaccine accelerates reconstitution of VZV specific CD4 T

cells in autologous HCT recipients who are vaccinated before as well as after transplant. We will continue to evaluate VZV immune reconstitution using novel assays to quantitate the CD8 as well as CD4 T cell responses in vaccine recipients. Immunologic correlates of protection will be defined by prospective monitoring for VZV-specific memory T cell recovery, and for the occurrence of herpes zoster as well as subclinical VZV reactivations documented by real time polymerase chain reaction (PCR). VZV infects human CD4 and CD8 T cells, which allows transport of the virus to visceral organs; this lymphotropism is an important event in the pathogenesis of VZV infections after HCT since it is responsible for the most serious complications of herpes zoster, such as pneumonia and encephalitis. In viral pathogenesis experiments, we plan to continue our focus on the contributions of VZV glycoproteins. The objective is to use our cosmid approach to generate recombinant VZV strains with modifications or deletions of the newly identified VZV glycoprotein genes, gM and gN. These genes are likely to be dispensable in vitro, but may be manipulated to reduce VZV virulence in vivo, providing a new approach for VZV attenuation. VZV recombinants that have deletions or selected mutations in gM and gN will be evaluated for changes in skin and T cell tropism in vivo in the SCID-hu model. A comprehensive assessment of immunologic correlates of protection from herpes zoster after immunization with inactivated varicella vaccine should suggest ways to enhance the control of VZV reactivation after HCT through targeting restoration of particular host responses; this work should have direct relevance to strategies for optimal reconstitution of host responses to other viral pathogens in high risk patients who have impaired immune function. Better understanding of VZV tropism for T cells and skin, and the contributions of the viral glycoprotein genes to virulence will provide basic information that may allow the design of live attenuated VZV vaccines which are safe and immunogenic in immunocompromised patients.

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

- **Project Title: ROLE OF VARICELLA ZOSTER VIRUS GLYCOPROTEIN B DURING VIR**

  Principal Investigator & Institution: Heineman, Thomas C. Internal Medicine; St. Louis University St. Louis, MO 63110

  Timing: Fiscal Year 2001; Project Start 15-FEB-2000; Project End 31-JAN-2004

  Summary: Herpesviruses are responsible for several human diseases including chickenpox, shingles, oral and genital herpes, and life-threatening infections in persons with weakened immune systems. Varicella-zoster virus (VZV), like all herpesviruses, has an outer membrane that is essential for infectivity. It acquires its initial membrane upon the passage of viral capsids from the nucleus of infected cells through the inner nuclear membrane. After that, the precise mechanism by which VZV acquires its final infection-competent envelope, and the route it follows during egress from infected cells is unclear. It is known, however, that herpesvirus egress requires the golgi- dependent maturation of several virus-encoded glycoproteins. This emphasizes the critical importance of viral glycoprotein transport for herpesvirus assembly and egress. Glycoprotein B (gB), a protein represented in all herpesviruses, is thought to be vital for the normal egress of virus from infected cells. Unlike most herpesvirus membrane proteins, gB possesses a long cytoplasmic domain that has been implicated in its own intracellular transport as well as in viral egress. However, specific intracellular targeting sequences within the cytoplasmic domain gB have not been identified for any of the herpesviruses, nor is it known what impact mutations in these sequences may have on viral assembly and growth. We propose to (i) identify the specific signal sequences

within the cytoplasmic domain VZV gB that are required for its intracellular transport; (ii) determine whether disruption of gB intracellular transport affects virus assembly and egress; and (iii) determine how mutations that alter the transport of gB affect VZV growth in cultured cells and in human tissue. This research may identify critical viral metabolic pathways and may ultimately lead to the development of new antiviral therapies.

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

- **Project Title: STRUCTURE/FUNCTION OF VARICELLA ZOSTER DNA**

  Principal Investigator & Institution: Ruyechan, William T. Professor; Microbiology; State University of New York at Buffalo 402 Crofts Hall Buffalo, NY 14260

  Timing: Fiscal Year 2001; Project Start 01-AUG-1982; Project End 30-JUN-2003

  Summary: (adapted from the investigator's abstract): Of the seven human herpesviruses, **varicella zoster** virus (VZV) is still among the most important in terms of disease frequency and clinical problems. Primary infection with VZV results in chickenpox or varicella, usually unremarkable in normal children, but capable of developing serious consequences in leukemic children or young adults. Reactivation of VZV results in zoster or shingles. This is characterized by a painful vesicular eruption which resolves within a few weeks. However, as with chickenpox, complications can arise which include blindness, encephalitis, myelitis and post herpetic neuralgia. This last sequela of zoster can persist for years and is the cause of an increasing amount of suffering in the aging U.S. population. At present little concerning the molecular details of either varicella or zoster infection (including latency) are understood. Work from several laboratories has however shown that 1) promoter elements of VZV genes appear to be unique, 2) the properties of the gene regulatory proteins of VZV are often quite distinct from those of their herpes simplex virus (HSV) counterparts, and 3) during latency VZV expresses at least the mRNAs (and presumably the polypeptides) corresponding to several gene regulatory protteins that may make up the earliest events in the lytic cycle. We plan to examine these aspects of VZV infection via the following specific aims: 1) Fine mapping of two already identified VZV promoter elements, 2) Analysis of the mechanism of action of the VZV ORF29 protein in VZV gene regulation, 3) Analysis of the role of the ORF63 protein in VZV infection and 4) characterization of the interaction of a cellular protein with the VZV ORF62 protein.

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

- **Project Title: VA CSP #4 3 VARICELLA ZOSTER VACCINE FOR PREVENTION OF HERPES ZOSTER**

  Principal Investigator & Institution: Wright, Peter F.; Vanderbilt University 3319 West End Ave. Nashville, TN 372036917

  Timing: Fiscal Year 2001

  Summary: The immunization w/live, attenuated (Oka/Merck) varicella-zoster vaccine will reduce significantly the burden of illness associated w/HZ. This hypothesis will be tested by comparing the burden of illness due to HZ in the total population of vaccine and placebo recipients. The burben of illness due to HZ is defined by the areas under worst pain (rated on a 0 to 10 scale) versus time curves measured during the 6 month period following HZ rash onset in subjects who develop HZ. Subjects who do not develop HZ will be assigned a score of zero in the burden of illness analysis. The burden illness defined in this manner is sensitive to the incidence, the severity, and the duration of HZ-associated pain (149). The study is designed to have 98 percent power to detect a

50 percent reduction in mean burden of illness in the vaccine group relative to the placebo group. B. SPECIFIC AIM: The primary objective of this study is to determine whether immunization w/live-attenuated varicella-zoster vaccine (OKA/Merck Strain) can reduce the incidence and/or severity of herpes zoster (HZ) and its complications, primarily post-herpetic neuralgia (PHN), in persons 60 years of age and older. This will be accomplished by comparing a measure of the burden of illness due to HZ and PHN in vaccine and placebo recipients.

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

- **Project Title: VARICELLA ZOSTER VACCINE FOR PREVENTION OF HERPES ZOSTER AND ITS COMPLICATIONS**

  Principal Investigator & Institution: Betts, Robert; University of Rochester Orpa - Rc Box 270140 Rochester, NY 14627

  Timing: Fiscal Year 2001

  Summary: This abstract is not available.

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

- **Project Title: VARICELLA ZOSTER VACCINE FOR PREVENTION OF HERPES ZOSTER/COMPLICATIONS**

  Principal Investigator & Institution: Smith, Jean; University of Texas Hlth Sci Ctr San Ant 7703 Floyd Curl Dr San Antonio, TX 78229

  Timing: Fiscal Year 2001

  Summary: This study addresses the lack of therapy for post-herpetic neuralgia. It proposes that Varicella vaccine will significantly reduce the burden of illness due to herpes zoster and will protect against neuralgia. Enrolled subjects, all over the age of 60, will receive either vaccine or placebo (double-blinded) and then followed for three years or until 360 cases of herpes zoster have occurred.

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

- **Project Title: VARICELLA ZOSTER VIRUS PATHOGENESIS**

  Principal Investigator & Institution: Hay, John I. Professor; Microbiology; State University of New York at Buffalo 402 Crofts Hall Buffalo, NY 14260

  Timing: Fiscal Year 2001; Project Start 01-JUL-1996; Project End 24-SEP-2003

  Summary: (provided by applicant): **Varicella zoster** virus (VZV) is a ubiquitous human herpesvirus and is the infectious agent of chickenpox (varicella) and shingles (zoster). Both varicella and, particularly, zoster continue to be health problems. A vaccine is in widespread use in children and may be used in the future in older adults, but we still do not know much about the pathogenesis of VZV infections (e.g. we do not understand the basis for attenuation of the vaccine virus). The study of VZV has been hampered by its human host range and its poor growth in cell culture. During the last granting period, we formed a consortium to develop a SCIDhu mouse model for the study of VZV pathogenesis in human fetal skin and thymus/liver implants. In this model, the pathology of infections appears authentic, the virus produced resembles that from actual human lesions and the vaccine virus is attenuated. We produced a series of VZV mutants and discovered several virulence determinants for the virus. In this proposal we will capitalize on our success with this model and extend it to allow study of human neural tissues. We will also study, in detail, two viral proteins - IE62 and the ORF47 protein kinase; the first of these is a (the) major viral gene regulatory protein and the

second an indispensable (in SCIDhus) viral protein. Both in vitro and in vivo approaches will be taken and we will generate a new series of VZV mutants. In a new final aim, we will explore the structure of VZV particles, using the authentic material derived from SCIDhu growth. Understanding VZV pathogenesis will be the guide to designing "second generation" VZV vaccines.

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

- **Project Title: VARICELLA ZOSTER VIRUS REGULATORY PROTEINS**

  Principal Investigator & Institution: Kinchington, Paul R. Associate Professor; Ophthalmology; University of Pittsburgh at Pittsburgh 350 Thackeray Hall Pittsburgh, PA 15260

  Timing: Fiscal Year 2001; Project Start 01-MAY-1992; Project End 30-APR-2006

  Summary: (provided by applicant): **Varicella zoster** virus (VZV) is, by virological standards, one of the most successful of the human herpesviruses. It infects the majority of the population in childhood and decades later reappears to cause zoster (shingles) in the elderly. Both diseases are life-threatening in the immune compromised, and zoster causes long-term pain and severe ocular disease that can devastate vision. Despite the efforts of virologists, VZV remains a difficult virus to study, because the virus grows poorly outside the human host. Our research has focused on a critical subset of viral proteins that control viral gene expression, with the long-term objective that the elucidation of their functions will establish the foundations for novel antiviral strategies. We have previously focused on the key regulatory protein, IE62, which functions in the nucleus as the main activator of viral transcription. In this proposal, our studies extend to a viral protein kinase that we have discovered has a profound effect on the functions of IE62, by excluding it from the cell nucleus. We therefore hypothesize that the protein kinase is also involved in the control of gene transcription. In Specific Aim 1, we will test the hypothesis that the gene 66 protein kinase inhibits IE62 nuclear import by directly phosphorylating it and inhibiting binding of the nuclear import factors known as importins. The inhibited nuclear import by a viral kinase has not been reported for other herpesviruses, but is a model for a mechanism that is used by the host cell to control function through nuclear exclusion. In Specific Aim 2, we will test the hypothesis that host cell expression of gene 66 protein kinase will act as an 'intracellular vaccine', preventing VZV infection by inhibiting nuclear functions of IE62 made upon infection. Our results may establish a basis for using the kinase in an antiviral strategy targeted to VZV. Specific Aim 3 test the hypothesis that the gene 66 protein kinase targets IE62 through a specific amino acid motif, and that certain viral and cellular proteins with this motif are also phosphorylated by the protein kinase. These studies may elucidate other functional roles for the protein kinase in the course of VZV infection.

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

E-Journals: PubMed Central[3]

PubMed Central (PMC) is a digital archive of life sciences journal literature developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National

[3] Adapted from the National Library of Medicine: **http://www.pubmedcentral.nih.gov/about/intro.html**.

Library of Medicine (NLM).[4] Access to this growing archive of e-journals is free and unrestricted.[5] To search, go to **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Pmc**, and type "varicella zosters" (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for varicella zosters in the PubMed Central database:

- **Disseminated Herpes Simplex Virus and Varicella Zoster Virus Coinfection in a Patient Taking Thalidomide for Relapsed Multiple Myeloma.** by Curley MJ, Hussein SA, Hassoun PM. 2002 Jun;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=external&artid=130681
- **Infection of Cells by Varicella Zoster Virus: Inhibition of Viral Entry by Mannose 6-Phosphate and Heparin.** by Zhu Z, Gershon MD, Ambron R, Gabel C, Gershon AA. 1995 Apr 11;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=42204

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.[6] 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 varicella zosters, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "varicella zosters" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for varicella zosters (hyperlinks lead to article summaries):

- **A cluster of primary varicella cases among healthcare workers with false-positive varicella zoster virus titers.**
  Author(s): Behrman A, Schmid DS, Crivaro A, Watson B.
  Source: Infection Control and Hospital Epidemiology : the Official Journal of the Society of Hospital Epidemiologists of America. 2003 March; 24(3): 202-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12683513&dopt=Abstract

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[4] With PubMed Central, NCBI is taking the lead in preservation and maintenance of open access to electronic literature, just as NLM has done for decades with printed biomedical literature. PubMed Central aims to become a world-class library of the digital age.

[5] The value of PubMed Central, in addition to its role as an archive, lies in the availability of data from diverse sources stored in a common format in a single repository. Many journals already have online publishing operations, and there is a growing tendency to publish material online only, to the exclusion of print.

[6] 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.

- **Acute abdomen without cutaneous signs of varicella zoster virus infection as a late complication of allogeneic bone marrow transplantation: importance of empiric therapy with acyclovir.**
  Author(s): Yagi T, Karasuno T, Hasegawa T, Yasumi M, Kawamoto S, Murakami M, Uosima N, Nakamura H, Hiraoka A, Masaoka T.
  Source: Bone Marrow Transplantation. 2000 May; 25(9): 1003-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10800071&dopt=Abstract

- **Acute abdominal pain preceding cutaneous manifestations of varicella zoster infection after allogeneic bone marrow transplantation.**
  Author(s): Itoh M, Kawaguchi S, Yago K, Shimada H, Muro H.
  Source: The Tohoku Journal of Experimental Medicine. 2001 September; 195(1): 61-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11780725&dopt=Abstract

- **Acute central nervous system complications in varicella zoster virus infections.**
  Author(s): Koskiniemi M, Piiparinen H, Rantalaiho T, Eranko P, Farkkila M, Raiha K, Salonen EM, Ukkonen P, Vaheri A.
  Source: Journal of Clinical Virology : the Official Publication of the Pan American Society for Clinical Virology. 2002 December; 25(3): 293-301.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12423693&dopt=Abstract

- **Acute varicella zoster with postherpetic hyperhidrosis as the initial presentation of HIV infection.**
  Author(s): Chopra KF, Evans T, Severson J, Tyring SK.
  Source: Journal of the American Academy of Dermatology. 1999 July; 41(1): 119-21.
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10411424&dopt=Abstract

- **Acute, chronic, and recurrent varicella zoster virus neuropathy without zoster rash.**
  Author(s): Fox RJ, Galetta SL, Mahalingam R, Wellish M, Forghani B, Gilden DH.
  Source: Neurology. 2001 July 24; 57(2): 351-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11468330&dopt=Abstract

- **An unusual varicella zoster infection complicated by purpura fulminans and multiorgan failure in a healthy infant.**
  Author(s): Kalyoncu M, Odemis E, Aynaci M, Karacal UN, Okten A.
  Source: Scandinavian Journal of Infectious Diseases. 2003; 35(1): 74-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12685891&dopt=Abstract

- **Association of Henoch-Schonlein purpura with varicella zoster.**
  Author(s): Kalyoncu M, Odemis E, Yaris N, Okten A.
  Source: Indian Pediatrics. 2003 March; 40(3): 274-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12657772&dopt=Abstract

- **Cardiac complications in children following infection with varicella zoster virus.**
  Author(s): Abrams D, Derrick G, Penny DJ, Shinebourne EA, Redington AN.
  Source: Cardiology in the Young. 2001 November; 11(6): 647-52.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11813917&dopt=Abstract

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- **The seroprevalence of varicella zoster antibodies in Behcet's and other skin diseases.**
  Author(s): Akdeniz S, Harman M, Atmaca S, Akpolat N.
  Source: European Journal of Epidemiology. 2003; 18(1): 91-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12705629&dopt=Abstract

- **Transmission of chickenpox from Varicella zoster vaccination is possible.**
  Author(s): To E.
  Source: Aust Fam Physician. 2001 May; 30(5): 417. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11432009&dopt=Abstract

- **Typical varicella zoster (ophthalmicus) in an HIV-infected person.**
  Author(s): Sehgal VN, Kumart S, Jain S, Bhattacharya SN.
  Source: Journal of the European Academy of Dermatology and Venereology : Jeadv. 2000 January; 14(1): 59-60.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10877254&dopt=Abstract

- **Unilateral varicella zoster virus ophthalmicus and contralateral acute retinal necrosis.**
  Author(s): Matthews BN, Erb N, Gordon C, Callear AB, Murray PI, Salmon M.
  Source: Eye (London, England). 2002 November; 16(6): 778-80.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12439676&dopt=Abstract

- **Vaccination of immunocompetent elderly subjects with a live attenuated Oka strain of varicella zoster virus: a randomized, controlled, dose-response trial.**
  Author(s): Trannoy E, Berger R, Hollander G, Bailleux F, Heimendinger P, Vuillier D, Creusvaux H.
  Source: Vaccine. 2000 February 25; 18(16): 1700-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10689152&dopt=Abstract

- **Variable R1 region in varicella zoster virus in fulminant type of acute retinal necrosis syndrome.**
  Author(s): Abe T, Sato M, Tamai M.
  Source: The British Journal of Ophthalmology. 2000 February; 84(2): 193-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10655197&dopt=Abstract

- **Varicella zoster gastritis 3 years after bone marrow transplantation for treatment of acute leukemia.**
  Author(s): Rivera-Vaquerizo PA, Gomez-Garrido J, Vicente-Gutierrez M, Blasco-Colmenarejo M, Mayor-Lopez J, Perez-Flores R.
  Source: Gastrointestinal Endoscopy. 2001 June; 53(7): 809-10.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11375599&dopt=Abstract

- **Varicella zoster infection and IgG antibody formation in a 10-week-old preterm infant despite maternal immunity.**
  Author(s): Koehring J, Frosch M, Bramswig JH.
  Source: European Journal of Pediatrics. 2001 November; 160(11): 684-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11760029&dopt=Abstract

- **Varicella zoster infection associated rhabdomyolysis demonstrated by Tc-99m MDP imaging.**
  Author(s): Bhargava P, Bhutani C, Feng Q, Alavi A, Zhuang H.
  Source: Clinical Nuclear Medicine. 2003 July; 28(7): 594-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12819419&dopt=Abstract

- **Varicella zoster meningitis preceeded by thrombophlebitis in a patient with Hodgkin's disease.**
  Author(s): Saif MW, Hamilton JM, Allegra CJ.
  Source: Leukemia & Lymphoma. 2000 October; 39(3-4): 421-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11342324&dopt=Abstract

- **Varicella zoster meningoencephalitis following treatment for dermatomal zoster in an alloBMT patient.**
  Author(s): Tauro S, Toh V, Osman H, Mahendra P.
  Source: Bone Marrow Transplantation. 2000 October; 26(7): 795-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11042663&dopt=Abstract

- **Varicella zoster viraemia during herpes zoster is not associated with neoplasia.**
  Author(s): Bezold G, Lange M, Pillekamp H, Peter RU.
  Source: Journal of the European Academy of Dermatology and Venereology : Jeadv. 2002 July; 16(4): 357-60.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12224692&dopt=Abstract

- **Varicella zoster virus antigens in the epidermis of patients with herpes zoster before and after treatment with acyclovir: an immunohistochemical study.**
  Author(s): Kurokawa I, Yamamoto M, Kurata T.
  Source: J Int Med Res. 2001 May-June; 29(3): 198-203.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11471857&dopt=Abstract

- **Varicella zoster virus immune recovery stromal keratitis in a patient with AIDS.**
  Author(s): Naseri A, Margolis TP.
  Source: The British Journal of Ophthalmology. 2001 November; 85(11): 1390-1. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11702739&dopt=Abstract

- **Varicella zoster virus immunisation.**
  Author(s): Holzel H, Jumaa P.
  Source: Lancet. 1999 October 2; 354(9185): 1207.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10513734&dopt=Abstract

- **Varicella zoster virus immunization in pregnancy.**
  Author(s): Crowley B.
  Source: The Journal of Hospital Infection. 2001 October; 49(2): 154.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11567571&dopt=Abstract

- **Varicella zoster virus in human and rat tissue specimens.**
  Author(s): Annunziato PW, Lungu O, Panagiotidis C.
  Source: Arch Virol Suppl. 2001; (17): 135-42. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11339542&dopt=Abstract

- **Varicella zoster virus induced haemolytic crisis in a child with congenital spherocytosis.**
  Author(s): Tissieres P, Kernen Y, Gervaix A, Humbert J, Suter S.
  Source: European Journal of Pediatrics. 2000 October; 159(10): 788.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11039138&dopt=Abstract

- **Varicella zoster virus infection associated with erythema multiforme in children.**
  Author(s): Prais D, Grisuru-Soen G, Barzilai A, Amir J.
  Source: Infection. 2001 January-February; 29(1): 37-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11261757&dopt=Abstract

- **Varicella zoster virus infection complicated by Neisseria meningitidis bacteraemia in two children.**
  Author(s): Travaglini M, Gubler J, Buhlmann U, Goetschel P.
  Source: European Journal of Pediatrics. 2001 June; 160(6): 399.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11421426&dopt=Abstract

- **Varicella zoster virus infections following allogeneic bone marrow transplantation: frequency, risk factors, and clinical outcome.**
  Author(s): Koc Y, Miller KB, Schenkein DP, Griffith J, Akhtar M, DesJardin J, Snydman DR.
  Source: Biology of Blood and Marrow Transplantation : Journal of the American Society for Blood and Marrow Transplantation. 2000; 6(1): 44-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10707998&dopt=Abstract

- **Varicella zoster virus infections in neuroblastoma patients: a 31-year clinical study.**
  Author(s): Izbicki T, Mazur J, Izbicka E.
  Source: Anticancer Res. 2003 May-June; 23(3C): 3061-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12926162&dopt=Abstract

- **Varicella zoster virus transcription in latently-infected human ganglia.**
  Author(s): Cohrs RJ, Gilden DH.
  Source: Anticancer Res. 2003 May-June; 23(3A): 2063-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12894579&dopt=Abstract

- **Varicella zoster virus vasculopathy and disseminated encephalomyelitis.**
  Author(s): Gilden DH.
  Source: Journal of the Neurological Sciences. 2002 March 30; 195(2): 99-101.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11897238&dopt=Abstract

- **Varicella zoster virus. Recent advances in management.**
  Author(s): Rajan P, Rivers JK.
  Source: Can Fam Physician. 2001 November; 47: 2299-304. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11768928&dopt=Abstract

- **Varicella zoster virus-associated neurological disease in HIV-infected patients.**
  Author(s): Brown M, Scarborough M, Brink N, Manji H, Miller R.
  Source: International Journal of Std & Aids. 2001 February; 12(2): 79-83.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11236108&dopt=Abstract

- **Verrucous varicella zoster virus lesions associated with acquired immunodeficiency syndrome.**
  Author(s): Kimya-Asadi A, Tausk FA, Nousari HC.
  Source: International Journal of Dermatology. 2000 January; 39(1): 77-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10819618&dopt=Abstract

- **Visceral varicella zoster after bone marrow transplantation: an obscure cause of an "acute abdomen".**
  Author(s): O'Loughlin CJ, Karnam US, Barkin JS.
  Source: Digestive Diseases and Sciences. 2002 September; 47(9): 1962-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12353837&dopt=Abstract

- **Visual outcome in herpes simplex virus and varicella zoster virus uveitis: a clinical evaluation and comparison.**
  Author(s): Miserocchi E, Waheed NK, Dios E, Christen W, Merayo J, Roque M, Foster CS.
  Source: Ophthalmology. 2002 August; 109(8): 1532-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12153807&dopt=Abstract

CHAPTER 2. NUTRITION AND VARICELLA ZOSTERS

Overview

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

Finding Nutrition Studies on Varicella Zosters

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.[7] 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 "varicella zosters" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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[7] 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 "varicella zosters" (or a synonym):

- **Infection of cells by varicella zoster virus: inhibition of viral entry by mannose 6-phosphate and heparin.**
  Author(s): Department of Anatomy, Columbia University, College of Physicians and Surgeons, New York, NY 10032, USA.
  Source: Zhu, Z Gershon, M D Ambron, R Gabel, C Gershon, A A Proc-Natl-Acad-Sci-U-S-A. 1995 April 11; 92(8): 3546-50 0027-8424
- **Review of research leading to new anti-herpesvirus agents in clinical development: valaciclovir hydrochloride (256U, the L-valyl ester of acyclovir) and 882C, a specific agent for varicella zoster virus.**
  Author(s): Wellcome Research Laboratories, Beckenham, Kent, England.
  Source: Purifoy, D J Beauchamp, L M de Miranda, P Ertl, P Lacey, S Roberts, G Rahim, S G Darby, G Krenitsky, T A Powell, K L J-Med-Virol. 1993; Suppl 1139-45 0146-6615

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 VARICELLA ZOSTERS

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to varicella zosters. 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 varicella zosters 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 "varicella zosters" (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 varicella zosters:

- **A 51-year-old woman with disorientation and amnesia.**
  Author(s): Denays R, Collier A, Rubinstein M, Atsama P.
  Source: Lancet. 1999 November 20; 354(9192): 1786.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10577641&dopt=Abstract

- **Acute lymphoblastic leukemia of childhood: results of combination therapy.**
  Author(s): Hutter JJ Jr, Hays T, Holton CP, Mayer CM, Baum ES, Chapman KE, Phillips LK, Haerr M.
  Source: Rocky Mt Med J. 1974 November; 71(11): 645-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4372664&dopt=Abstract

- **Anti-herpesvirus activity of an extract of Ribes nigrum L.**
  Author(s): Suzutani T, Ogasawara M, Yoshida I, Azuma M, Knox YM.

Source: Phytotherapy Research : Ptr. 2003 June; 17(6): 609-13.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12820226&dopt=Abstract

- **Assembly and processing of the disulfide-linked varicella-zoster virus glycoprotein gpII(140).**
  Author(s): Montalvo EA, Grose C.
  Source: Journal of Virology. 1987 September; 61(9): 2877-84.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3039175&dopt=Abstract

- **Bell's palsy and herpesviruses.**
  Author(s): Gilbert SC.
  Source: Herpes : the Journal of the Ihmf. 2002 December; 9(3): 70-3. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12470604&dopt=Abstract

- **Bell's palsy: electrodiagnostics are not indicative of cerebrospinal fluid abnormalities.**
  Author(s): Birkmann C, Bamborschke S, Halber M, Haupt WF.
  Source: The Annals of Otology, Rhinology, and Laryngology. 2001 June; 110(6): 581-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11407851&dopt=Abstract

- **Characteristics of herpes zoster and varicella viruses propagated in vitro.**
  Author(s): Gold E.
  Source: Journal of Immunology (Baltimore, Md. : 1950). 1965 October; 95(4): 683-91.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4284677&dopt=Abstract

- **Cryopreservation of varicella-zoster virions without loss of structural integrity or infectivity.**
  Author(s): Grose C, Friedrichs WE, Smith KO.
  Source: Intervirology. 1981; 15(3): 154-60.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6270035&dopt=Abstract

- **Cytotoxic chemotherapy preceding apheresis of peripheral blood progenitor cells can affect the early reconstitution phase of naive T cells after autologous transplantation.**
  Author(s): Fagnoni FF, Lozza L, Zibera C, Zambelli A, Gibelli N, Oliviero B, Ponchio L, Fregoni V, Pavesi L, Perotti C, Da Prada G, Robustelli della Cuna G.
  Source: Bone Marrow Transplantation. 2003 January; 31(1): 31-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12621504&dopt=Abstract

- **Effect of hypnotic suggestion on the delayed-type hypersensitivity response.**
  Author(s): Locke SE, Ransil BJ, Zachariae R, Molay F, Tollins K, Covino NA, Danforth D.
  Source: Jama : the Journal of the American Medical Association. 1994 July 6; 272(1): 47-52.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8007079&dopt=Abstract

- **Effects of a behavioral intervention, tai chi chih, on varicella-zoster virus specific immunity and health functioning in older adults.**
  Author(s): Irwin MR, Pike JL, Cole JC, Oxman MN.
  Source: Psychosomatic Medicine. 2003 September-October; 65(5): 824-30.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14508027&dopt=Abstract

- **Explants of human oral epithelium exposed to viruses and cancer chemotherapeutics.**
  Author(s): Ebbesen P, Petersen PM, Jepsen A, Norskov-Lauritsen N, Nielsen CM, Philipsen HP, Arenholt-Bindslev D, Nara P.
  Source: Journal of Oral Pathology & Medicine : Official Publication of the International Association of Oral Pathologists and the American Academy of Oral Pathology. 1989 September; 18(8): 481-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2558179&dopt=Abstract

- **Fatal visceral varicella-zoster infection following rituximab and chemotherapy treatment in a patient with follicular lymphoma.**
  Author(s): Bermudez A, Marco F, Conde E, Mazo E, Recio M, Zubizarreta A.
  Source: Haematologica. 2000 August; 85(8): 894-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10942955&dopt=Abstract

- **Guidelines for environmental infection control in health-care facilities. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC).**
  Author(s): Sehulster L, Chinn RY; CDC; HICPAC.
  Source: Mmwr. Recommendations and Reports : Morbidity and Mortality Weekly Report. Recommendations and Reports / Centers for Disease Control. 2003 June 6; 52(Rr-10): 1-42.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12836624&dopt=Abstract

- **Guidelines for preventing opportunistic infections among HIV-infected persons--2002. Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America.**
  Author(s): Masur H, Kaplan JE, Holmes KK; U.S. Public Health Service; Infectious Diseases Society of America.
  Source: Annals of Internal Medicine. 2002 September 3; 137(5 Pt 2): 435-78.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12617574&dopt=Abstract

- **Guidelines for preventing opportunistic infections among HIV-infected persons--2002. Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America.**
  Author(s): Kaplan JE, Masur H, Holmes KK; USPHS; Infectious Disease Society of America.

Source: Mmwr. Recommendations and Reports : Morbidity and Mortality Weekly Report. Recommendations and Reports / Centers for Disease Control. 2002 June 14; 51(Rr-8): 1-52.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12081007&dopt=Abstract

- **Herpes Zoster-Varicella infections and lymphoma.**
  Author(s): Goffinet DR, Glatstein EJ, Merigan TC.
  Source: Annals of Internal Medicine. 1972 February; 76(2): 235-40.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4333227&dopt=Abstract

- **Herpesviruses.**
  Author(s): Bowers M.
  Source: Beta. 1995 December; : 33-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11363008&dopt=Abstract

- **Hodgkin's disease and granulomatous angiitis of the central nervous system.**
  Author(s): Greco FA, Kolins J, Rajjoub RK, Brereton HD.
  Source: Cancer. 1976 November; 38(5): 2027-32.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=186177&dopt=Abstract

- **Hodgkin's disease in children in southern Africa: epidemiological characteristics, morbidity and long-term outcome.**
  Author(s): Hesseling PB, Wessels G, Van Jaarsveld D, Van Riet FA.
  Source: Annals of Tropical Paediatrics. 1997 December; 17(4): 367-73.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9578798&dopt=Abstract

- **Improved yields of cell-free varicella-zoster virus.**
  Author(s): Schmidt NJ, Lennette EH.
  Source: Infection and Immunity. 1976 September; 14(3): 709-15.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=184051&dopt=Abstract

- **Inactivation of enveloped viruses by anthraquinones extracted from plants.**
  Author(s): Sydiskis RJ, Owen DG, Lohr JL, Rosler KH, Blomster RN.
  Source: Antimicrobial Agents and Chemotherapy. 1991 December; 35(12): 2463-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1810179&dopt=Abstract

- **Inhibitory effect of anti-pyretic and anti-inflammatory herbs on herpes simplex virus replication.**
  Author(s): Hsiang CY, Hsieh CL, Wu SL, Lai IL, Ho TY.
  Source: The American Journal of Chinese Medicine. 2001; 29(3-4): 459-67.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11789588&dopt=Abstract

- **Iontophoresis for enhancing penetration of dermatologic and antiviral drugs.**
  Author(s): Gangarosa LP Sr, Ozawa A, Ohkido M, Shimomura Y, Hill JM.
  Source: The Journal of Dermatology. 1995 November; 22(11): 865-75. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8557860&dopt=Abstract

- **Ocular manifestations of AIDS.**
  Author(s): Park KL, Smith RE, Rao NA.
  Source: Current Opinion in Ophthalmology. 1995 December; 6(6): 82-7. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10160424&dopt=Abstract

- **Parallel detection of five human herpes virus DNAs by a set of real-time polymerase chain reactions in a single run.**
  Author(s): Stocher M, Leb V, Bozic M, Kessler HH, Halwachs-Baumann G, Landt O, Stekel H, Berg J.
  Source: Journal of Clinical Virology : the Official Publication of the Pan American Society for Clinical Virology. 2003 January; 26(1): 85-93.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12589838&dopt=Abstract

- **Postherpetic ophthalmic neuralgia.**
  Author(s): Devulder JE.
  Source: Bull Soc Belge Ophtalmol. 2002; (285): 19-23. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12442339&dopt=Abstract

- **Psychologic modulation of the human immune response to varicella zoster.**
  Author(s): Smith GR Jr, McKenzie JM, Marmer DJ, Steele RW.
  Source: Archives of Internal Medicine. 1985 November; 145(11): 2110-2.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2998295&dopt=Abstract

- **Relapsing chickenpox in a young man with non-Hodgkin's lymphoma.**
  Author(s): Baxter JD, DiNubile MJ.
  Source: Clinical Infectious Diseases : an Official Publication of the Infectious Diseases Society of America. 1994 May; 18(5): 785-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8075271&dopt=Abstract

- **SPECT thallium-201 combined with Toxoplasma serology for the presumptive diagnosis of focal central nervous system mass lesions in patients with AIDS.**
  Author(s): Skiest DJ, Erdman W, Chang WE, Oz OK, Ware A, Fleckenstein J.
  Source: The Journal of Infection. 2000 May; 40(3): 274-81.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10908023&dopt=Abstract

- **Successful treatment of herpetic infections by autohemotherapy.**
  Author(s): Olwin JH, Ratajczak HV, House RV.

Source: Journal of Alternative and Complementary Medicine (New York, N.Y.). 1997 Summer; 3(2): 155-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9395705&dopt=Abstract

- **Successful treatment of progressive outer retinal necrosis using high-dose intravitreal ganciclovir.**
  Author(s): Meffert SA, Kertes PJ, Lim PL, Conway MD, Peyman GA.
  Source: Retina (Philadelphia, Pa.). 1997; 17(6): 560-2.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9428025&dopt=Abstract

- **Sympathetic activity-mediated neuropathic facial pain following simple tooth extraction: a case report.**
  Author(s): Kohjitani A, Miyawaki T, Kasuya K, Shimada M.
  Source: Cranio. 2002 April; 20(2): 135-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12002830&dopt=Abstract

- **Treatment of herpes zoster and postherpetic neuralgia.**
  Author(s): Carmichael JK.
  Source: American Family Physician. 1991 July; 44(1): 203-10. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1676237&dopt=Abstract

- **Treatment of herpes zoster with Clinacanthus nutans (bi phaya yaw) extract.**
  Author(s): Sangkitporn S, Chaiwat S, Balachandra K, Na-Ayudhaya TD, Bunjob M, Jayavasu C.
  Source: J Med Assoc Thai. 1995 November; 78(11): 624-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8576675&dopt=Abstract

- **Varicella in immunodepressed children.**
  Author(s): Moe PJ.
  Source: Postgraduate Medical Journal. 1985; 61 Suppl 4: 15-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3869844&dopt=Abstract

- **Viral infection in patients with multiple sclerosis and HLA-DR matched controls.**
  Author(s): Compston DA, Vakarelis BN, Paul E, McDonald WI, Batchelor JR, Mims CA.
  Source: Brain; a Journal of Neurology. 1986 April; 109 (Pt 2): 325-44.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3456817&dopt=Abstract

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 varicella zosters; 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:

- **General Overview**

  Shingles and Postherpetic Neuralgia
  Source: Healthnotes, Inc. www.healthnotes.com

- **Herbs and Supplements**

  Adenosine Monophosphate
  Source: Healthnotes, Inc. www.healthnotes.com

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. DISSERTATIONS ON VARICELLA ZOSTERS

Overview

In this chapter, we will give you a bibliography on recent dissertations relating to varicella zosters. We will also provide you with information on how to use the Internet to stay current on dissertations. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical dissertations that use the generic term "varicella zosters" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on varicella zosters, we have not necessarily excluded non-medical dissertations in this bibliography.

Dissertations on Varicella Zosters

ProQuest Digital Dissertations, the largest archive of academic dissertations available, is located at the following Web address: **http://wwwlib.umi.com/dissertations**. From this archive, we have compiled the following list covering dissertations devoted to varicella zosters. You will see that the information provided includes the dissertation's title, its author, and the institution with which the author is associated. The following covers recent dissertations found when using this search procedure:

- **Analysis of the Function of the Varicella Zoster Virus Ie63 Protein during Virus Infection** by Lynch, Jennifer Marie; Phd from State University of New York at Buffalo, 2003, 153 pages
  http://wwwlib.umi.com/dissertations/fullcit/3076506

Keeping Current

Ask the medical librarian at your library if it has full and unlimited access to the *ProQuest Digital Dissertations* database. From the library, you should be able to do more complete searches via **http://wwwlib.umi.com/dissertations**.

CHAPTER 5. CLINICAL TRIALS AND VARICELLA ZOSTERS

Overview

In this chapter, we will show you how to keep informed of the latest clinical trials concerning varicella zosters.

Recent Trials on Varicella Zosters

The following is a list of recent trials dedicated to varicella zosters.[8] Further information on a trial is available at the Web site indicated.

- **Tai Chi Chih and Varicella Zoster Immunity**

  Condition(s): Varicella

  Study Status: This study is currently recruiting patients.

  Sponsor(s): National Center for Complementary and Alternative Medicine (NCCAM)

  Purpose - Excerpt: A randomized control trial testing whether a relaxation response based intervention, Tai Chi Chih, will affect **Varicella Zoster** Virus (VZV) specific immunity measures of psychological adaptation and health function in the older adult.

  Phase(s): Phase II

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00029484

- **A Study of the Safety and Effectiveness of Varivax (the Chicken Pox Vaccine) in Children Who Have Received Kidney Transplants**

  Condition(s): Chickenpox; Kidney Transplantation; Varicella Zoster

  Study Status: This study is completed.

  Sponsor(s): National Institute of Allergy and Infectious Diseases (NIAID)

[8] These are listed at **www.ClinicalTrials.gov**.

Purpose - Excerpt: The purpose of this study is to find out whether Varivax is safe for use in children with kidney transplants and whether it protects children from serious infection. Varivax is a vaccine against **varicella zoster** virus (VZV), the virus that causes chicken pox (varicella) and shingles (zoster). Healthy children are already receiving Varivax shots to protect them from chicken pox. Few children with kidney transplants have received Varivax because doctors have been concerned that Varivax might cause serious reactions in them. On the other hand, VZV infection can be a life-threatening disease in these children. For this reason, doctors want to learn whether Varivax might safely prevent VZV infections in children who have had kidney transplants.

Phase(s): Phase I

Study Type: Interventional

Contact(s): see Web site below

Web Site: http://clinicaltrials.gov/ct/show/NCT00005009

Keeping Current on Clinical Trials

The U.S. National Institutes of Health, through the National Library of Medicine, has developed ClinicalTrials.gov to provide current information about clinical research across the broadest number of diseases and conditions.

The site was launched in February 2000 and currently contains approximately 5,700 clinical studies in over 59,000 locations worldwide, with most studies being conducted in the United States. ClinicalTrials.gov receives about 2 million hits per month and hosts approximately 5,400 visitors daily. To access this database, simply go to the Web site at **http://www.clinicaltrials.gov/** and search by "varicella zosters" (or synonyms).

While ClinicalTrials.gov is the most comprehensive listing of NIH-supported clinical trials available, not all trials are in the database. The database is updated regularly, so clinical trials are continually being added. The following is a list of specialty databases affiliated with the National Institutes of Health that offer additional information on trials:

- For clinical studies at the Warren Grant Magnuson Clinical Center located in Bethesda, Maryland, visit their Web site: **http://clinicalstudies.info.nih.gov/**
- For clinical studies conducted at the Bayview Campus in Baltimore, Maryland, visit their Web site: **http://www.jhbmc.jhu.edu/studies/index.html**
- For cancer trials, visit the National Cancer Institute: **http://cancertrials.nci.nih.gov/**
- For eye-related trials, visit and search the Web page of the National Eye Institute: **http://www.nei.nih.gov/neitrials/index.htm**
- For heart, lung and blood trials, visit the Web page of the National Heart, Lung and Blood Institute: **http://www.nhlbi.nih.gov/studies/index.htm**
- For trials on aging, visit and search the Web site of the National Institute on Aging: **http://www.grc.nia.nih.gov/studies/index.htm**
- For rare diseases, visit and search the Web site sponsored by the Office of Rare Diseases: **http://ord.aspensys.com/asp/resources/rsch_trials.asp**
- For alcoholism, visit the National Institute on Alcohol Abuse and Alcoholism: **http://www.niaaa.nih.gov/intramural/Web_dicbr_hp/particip.htm**

- For trials on infectious, immune, and allergic diseases, visit the site of the National Institute of Allergy and Infectious Diseases: **http://www.niaid.nih.gov/clintrials/**
- For trials on arthritis, musculoskeletal and skin diseases, visit newly revised site of the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health: **http://www.niams.nih.gov/hi/studies/index.htm**
- For hearing-related trials, visit the National Institute on Deafness and Other Communication Disorders: **http://www.nidcd.nih.gov/health/clinical/index.htm**
- For trials on diseases of the digestive system and kidneys, and diabetes, visit the National Institute of Diabetes and Digestive and Kidney Diseases: **http://www.niddk.nih.gov/patient/patient.htm**
- For drug abuse trials, visit and search the Web site sponsored by the National Institute on Drug Abuse: **http://www.nida.nih.gov/CTN/Index.htm**
- For trials on mental disorders, visit and search the Web site of the National Institute of Mental Health: **http://www.nimh.nih.gov/studies/index.cfm**
- For trials on neurological disorders and stroke, visit and search the Web site sponsored by the National Institute of Neurological Disorders and Stroke of the NIH: **http://www.ninds.nih.gov/funding/funding_opportunities.htm#Clinical_Trials**

CHAPTER 6. PATENTS ON VARICELLA ZOSTERS

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.[9] Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical patents that use the generic term "varicella zosters" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on varicella zosters, we have not necessarily excluded non-medical patents in this bibliography.

Patents on Varicella Zosters

By performing a patent search focusing on varicella zosters, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.). We will tell you how to obtain this information later in the chapter. The following is an

[9] Adapted from the United States Patent and Trademark Office: **http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm**.

example of the type of information that you can expect to obtain from a patent search on varicella zosters:

- **Human embryonic lung fibroblast diploid cell strain suitable for the production of virus and process for the production of varicella zoster virus using same**

  Inventor(s): Park; Joo Hong (Daejeon, KR), Kim; Jeong Min (Daejeon, KR), Park; Bock Ryeon (Daejeon, KR)

  Assignee(s): LG Chemical Ltd (KR)

  Patent Number: 5,952,227

  Date filed: October 14, 1997

  Abstract: A human embryonic lung fibroblast diploid cell strain LBHEL(KCTC 0127BP) is highly susceptible to varicella zoster virus(VZV). A cell-free varicella zoster virus (VZV) is produced by (a) culturing the human embryonic lung fibroblast diploid cell strain LBHEL(KCTC 0127BP) of claim 1 in a culture vessel to give cultured LBHEL cells; (b) infecting the cultured LBHEL cells with VZV to give VZV-infected cells; (c) culturing and harvesting the VZV-infected cells; (d) disrupting the harvested cells to obtain a cell homogenate; and (e) centrifuging the cell homogenate to obtain a supernatant containing the cell-free VZV.

  Excerpt(s): The present invention relates to a novel human embryonic lung fibroblast diploid cell strain suitable for producing a virus and a process for the preparation of varicella zoster virus using same as a host cell. Viruses cause various diseases such as measles, rubella, mumps, chickenpox, epidemic hemorrhagic fever, Japanese B encephalitis, infantile poliomyelitis, hepatitis A, hepatitis B, hepatitis C and variola. These viral diseases can be prevented by inoculation with vaccines prepared from inactivated or attenuated pathogenic viruses. Generally, embryonated chicken eggs, infant rat brain cells and diploid cells of mammals have been used as host cells for producing such virus vaccines. Although embryonated chicken eggs or infant rat brain cells may be used as host cells to reduce the production cost, they are disadvantageous due to their low susceptibility to viruses, complicated purification processes and side effects brought about by the presence of foreign protein contaminants. In contrast, the use of normal diploid cells originating from human can reduce the side effects caused by foreign proteins, and thus, they are more preferred in preparing virus vaccines.

  Web site: http://www.delphion.com/details?pn=US05952227__

- **Human monoclonal antibody to glycoprotein GPIII of varicella zoster virus**

  Inventor(s): Sugano; Toru (Machida, JP), Tomiyama; Takami (Hino, JP), Masuho; Yasuhiko (Hino, JP), Sasaki; Satoshi (Hachioji, JP), Matsumoto; Yohichi (Musashino, JP), Kawamura; Takashi (Hino, JP), Kimura; Tsuyoshi (Hino, JP)

  Assignee(s): Teijin Limited (Osaka, JP)

  Patent Number: 5,650,319

  Date filed: July 12, 1993

  Abstract: The human monoclonal antibody to the glycoprotein gpIII of varicella zoster virus (VZV), and hybridoma producing same, are provided. The hybridoma is obtained by immunizing human lymphocytes with gpIII antigen in the presence of a mitogen,

and selecting a monoclonal antibody which reacts with a cell monolayer ELISA plate but substantially does not react with a cell homogenate ELISA plate.

Excerpt(s): The present invention relates to human monoclonal antibodies (HuMAb) to the gpIII protein of the varicella zoster virus (VZV), and cell lines producing same. An object thereof is to provide HuMAb specific to VZV, useful for a diagnosis and prophylaxis, as well as treatment, of viral infections and diseases caused by VZV. It is known that varicella in immunocompromised hosts sometimes becomes fatal to the host, and zoster sometimes causes post herpetic neuralgia after recovery from the disease.

Web site: http://www.delphion.com/details?pn=US05650319__

- **Immunoreactive regions of glycoprotein GPII of varicella zoster virus**

  Inventor(s): Hauser; Hans-Peter (Elnhausen, DE), Gicklhorn; Dorothee (Gladenbach, DE), Eickmann; Markus (Marburg, DE), Radsak; Klaus (Marburg, DE), Giesendorf; Bernhard (Michelbach, DE)

  Assignee(s): Dade Behring Marburg GmbH (Marburg, DE)

  Patent Number: 6,414,116

  Date filed: December 23, 1998

  Abstract: The present invention relates to immunoreactive peptides that are homologous with the region encompassing amino acid positions 450 to 655 of glycoprotein II of varicella zoster virus. In this context, preference is given to those peptides corresponding to segments of amino acids 505 to 647, 517 to 597, 535 to 584 or 545 to 582. The immunoreactive peptides are useful for methods of diagnosing varicella zoster virus infection.

  Excerpt(s): The present invention relates to immunoreactive peptides that are homologous with the region encompassing amino acid positions 450 to 655 of glycoprotein II of varicella zoster virus. More particularly, the invention relates to peptides that correspond to amino acids 505 to 647, 517 to 597, 535 to 584 or 545 to 582 of the protein. The immunoreactive peptides can be used in methods for diagnosing a varicella zoster virus infection. In accordance with the classification of the International Committee on Taxonomy of Viruses (ICTV), Van Zoute Vin (VZV) is assigned to the Herpesviridae family. In 75% of cases, primary infections take place not later than the age of 15 and usually take an asymptomatic course. By contrast, infection of adults who have not previously had any contact with the virus and in persons who are naturally or therapeutically immunosuppressed can be associated with severe symptoms. Infection of the fetus also leads to severe symptoms since the virus is able to cross the placenta, and maternal antibodies afford no protection at this time. Following primary infection, the virus persists throughout life in sensory ganglia. After reactivation, the VZV spreads over the peripheral nerves in sensory ganglia and then gives rise to herpes zoster. Seventy open reading frames (ORF), including the open reading frames for the known glycoproteins gpI (ORF 68), gpII (ORF 31), gpIII (ORF 37), gpIV (ORF 67), gpV (ORF 14) and gpVI (ORF 60), can be deduced from the sequence of the VZV genome, which has been completely elucidated and has a length of 124,884 bp (Dumas strain; (A. J. Davison & J. E. Scott (1986), J. Gen. Virol. 67, 1759-1816)). In each case, the amino acid sequence deduced from the nucleotide sequence displays differing degrees of homology with glycoproteins gE, gB, gH, gI, gC and gL of herpes simplex virus (HSV). However, there is nothing to suggest that the sequence homology can also imply a homologous

function. The open reading frames of glycoproteins gpI, gpII, gpIII and gpV have been confirmed by means of molecular biology.

Web site: http://www.delphion.com/details?pn=US06414116__

- **Process for attenuated varicella zoster virus vaccine production**

  Inventor(s): Provost; Philip J. (Lansdale, PA), Krah; David L. (Lansdale, PA), Friedman; Paul A. (Rosemont, PA)

  Assignee(s): Merch & Co., Inc. (Rahway, NJ)

  Patent Number: 5,607,852

  Date filed: December 5, 1994

  Abstract: A live, attenuated varicella zoster virus vaccine is produced with enhanced yield of VZV. The new process makes mass production of a live VZV vaccine more practical. In addition, optimized monoloyer cell culture conditions provide a process for maximizing monolayer cell density which is useful for enhancing viral vaccine production. According to this process, cell densities approaching 500,000 cells/cm.sup.2 are routinely achieved in conventional culture vessels.

  Excerpt(s): Varicella zoster virus (VZV) causes chickenpox and zoster (shingles). Chickenpox is a highly contagious disease that occurs in persons with no VZV immunity. More than 90% of the population is exposed during the first two decades of life. The disease is a severe threat to the immunosuppressed and to adults. In many cases, VZV becomes latent in dorsal root ganglion cells. Shingles, a painful chronic condition, occurs when VZV is reactivated from the latent state. Prevention of chickenpox by vaccination is a desirable goal, and the institution of universal childhood vaccination with a live attenuated varicella vaccine is envisioned. The prior art has reported the propagation of VZV in various cell culture systems and the use of live, attenuated, cell-free VZV as a vaccine. U.S. Pat. No. 3,985,615 describes the production in guinea pig primary embryonic cells of the attenuated Oka strain of VZV, suitable for vaccine use. U.S. Pat. No. 4,008,317 describes the cultivation of a temperature-sensitive mutant of VZV in WI-38 cells for use as a vaccine stablilizer. Compositions useful for the maintainance of viable VZV, such as SPGA, are also known in the art. The major limitation to commercial production of a VZV vaccine is the yield of cell-free VZV from cell culture systems known in the art. Cell-free VZV yields are improved by about a factor of 5-20 fold by application of the new process of this invention.

  Web site: http://www.delphion.com/details?pn=US05607852__

- **Thermostable varicella zoster virus**

  Inventor(s): Wadsworth; Cathy Warren (North Wales, PA), Provost; Philip J. (Lansdale, PA)

  Assignee(s): Merck & Co., Inc. (Rahway, NJ)

  Patent Number: 5,728,386

  Date filed: May 22, 1996

  Abstract: A thermostable varicella zoster virus (tVZV) is useful for the preparation of a vaccine against chickenpox. The tVZV was selected from a population of virus which

survived stringent heat inactivation conditions. The surviving virus is used to provide seed virus to produce a new vaccine with enhanced stability.

Excerpt(s): This invention is concerned with the provision of a thermostable varicella virus for vaccine production. Varicella zoster virus (VZV) causes chicken-pox and zoster (shingles). Chickenpox is a highly contagious disease that occurs in persons with no VZV immunity. More than 90% of the population is exposed during the first two decades of life. The disease is a severe threat to the immunosuppressed and to adults. In many cases, VZV becomes latent in dorsal root ganglion cells. Shingles, a painful chronic condition, occurs when VZV is reactivated from the latent state. Prevention of chickenpox by vaccination is a desirable goal, and the institution of universal childhood vaccination with a live attenuated varicella vaccine is envisioned. The prior art has reported the propagation of VZV in various cell culture systems and the use of live, attenuated, cell-free VZV as a vaccine. U.S. Pat. No. 3,985,615 describes the production in guinea pig primary embryonic cells of attenuated varicella virus. Virus produced according to that process, the Oka strain of VZV, is suitable for vaccine use and has been deposited with the ATCC as VR-795, although other strains of varicella may be used to produce attenuated VZV according to the U.S. Pat. No. 3,985,615 and other known processes (see U.S. Pat. Nos. 5,024,836; and 4,000,256). U.S. Pat. No. 4,008,317 describes the cultivation of a temperature-sensitive mutant of VZV in WI-38 cells. Compositions useful for the maintenance of viable VZV, such as SPGA, are also known in the art, (see U.S. Pat. Nos. 4,147,772; 4,000,256; 4,337,242, and 4,338,335). A thermostable live attenuated varicella zoster virus (tVZV) is produced by selection and growth of virus which survives heat inactivation. It was not predictable that heat stable VZV would be produced. The tVZV is useful to produce a new live attenuated varicella zoster virus vaccine with innately increased thermostability.

Web site: http://www.delphion.com/details?pn=US05728386__

- **Variant varicella-zoster viruses and methods of use**

  Inventor(s): Santos; Richard (Iowa City, IA), Grose; Charles F. (Iowa City, IA)

  Assignee(s): University of Iowa Research Foundation (Iowa City, IA)

  Patent Number: 6,528,066

  Date filed: September 14, 2000

  Abstract: The present invention provides methods directed to detecting antibodies that specifically bind to a varicella zoster polypeptide, detecting the presence of a varicella zoster virus in an animal, diagnosing a disease caused by varicella zoster virus, and detecting a varicella zoster virus having a single nucleotide polymorphism in ORF68. The present invention also provides a vaccine composition, a method for producing a modified attenuated varicella zoster virus, isolated polynucleotides, and isolated polypeptides, and viruses.

  Excerpt(s): Varicella-zoster virus (VZV) is an ancient virus. Estimations of its origins have established that the modem herpesviruses arose some 60-80 million years ago. VZV is a member of the alphaherpesvirus subfamily of herpesviridae. It is the etiologic agent of chickenpox in childhood, after which the virus enters a latent state in the dorsal root ganglia; decades later, the same virus reactivates and causes the disease shingles (herpes zoster). The entire sequence of the 125 kbp VZV genome has been published (see Davison et al., J. Gen. Virol., 67:1759-1816 (1986)). With the subsequent publication of sequence data from other herpesviruses, the alphaherpesvimuses have now been

subdivided into two genera called Simplexvirus and Varicellovirus. VZV is considered to have one of the most stable genomes of all herpesviruses. The Oka strain of varicella vaccine derived from a Japanese child with chickenpox has a few minor genomic differences from North American strains, but to date no antigenic variation has been discovered amongst the major surface immunogens of the virion (Arvin et al., Annu. Rev. Microbiol., 50:59-100 (1996)). Based on their extensive analyses of herpesviral molecular evolutionary history, it has been estimated that herpesvirus DNA sequences mutate 10-100 times faster than the equivalent classes of sequences on the host genome. For glycoprotein gB, a highly conserved open reading frame (ORF) among all herpesviruses, it has been calculated that nonsynonymous substitutions have occurred at a rate of 2.7.times.10.sup.-8 substitutions per site per year and synonymous substitutions at 10.sup.-7 substitutions per site per year. Convincing arguments have been made in favor of the concept of cospeciation; in other words, herpesvirus lineages arise by way of co-evolution with their specific host. In the case of VZV, the progenitor virus most likely arose 60-70 million years before the present. Of all the human herpesviruses, VZV may undergo the fewest replication cycles during the lifetime of the infected host. Based on a probable schema of pathogenesis, the virus actively replicates for a period of 10-14 days after infection of the human host. During a bout of chickenpox, therefore, VZV has at most 20 replication cycles. Based on the current understanding of VZV latency and reactivation, no further replication occurs unless the individual develops herpes zoster in late adulthood. Because of the above scenario, the genetic stability of the VZV genome has been presumed.

Web site: http://www.delphion.com/details?pn=US06528066__

- **Varicella zoster virus (VZV) immunoreactive protein VP26 and its diagnostic use**

  Inventor(s): Hauser; Hans-Peter (Elnhausen, DE), Eickmann; Markus (Marburg, DE), Gicklhorn; Dorothee (Gladenback, DE), Radsak; Klaus (Marburg, DE), Giesendorf; Bernhard (Michelbach, DE)

  Assignee(s): Dade Behring Marburg GmbH (Marburg, DE)

  Patent Number: 6,258,363

  Date filed: December 23, 1998

  Abstract: Varicella zoster virus (VZV) immunoreactive protein VP26 and its diagnostic use are described. The invention relates to immunoreactive peptides which are homologous with the region of amino acid positions 12 to 235 of the varicella zoster virus protein VP26, to nucleic acids which encode these peptides and to the use of the peptides or nucleic acids for diagnosing an infection with varicella zoster virus.

  Excerpt(s): The present invention relates to immunoreactive peptides that are homologous with the region of amino acid positions 12 to 235 of the varicella zoster virus protein VP26, to nucleic acids which encode these peptides and to the use of the peptides and nucleic acids for diagnosing an infection with varicella zoster virus. In accordance with the classification of the International Committee on Taxonomy of Viruses (ICTV), Van Zoute Vin (VZV) is assigned to the Herpesviridae family. In 75% of cases, primary infections take place not later than the age of 15 and usually take an asymptomatic course. By contrast, infection of adults who have not previously had any contact with the virus and in persons who are naturally or therapeutically immunosuppressed can be associated with severe symptoms. Infection of the fetus also leads to severe symptoms since the virus is able to cross the placenta, and maternal antibodies afford no protection at this time. Following primary infection, the virus

persists throughout life in sensory ganglia. After reactivation, the VZV spreads over the peripheral nerves in sensory ganglia and then gives rise to herpes zoster. Seventy open reading frames (ORF), including the open reading frames for the known glycoproteins gpI (ORF 68), gpII (ORF 31), gpIII (ORF 37), gpIV (ORF 67), gpV (ORF 14) and gpVI (ORF 60), can be deduced from the sequence of the VZV genome, which has been completely elucidated and has a length of 124,884 bp (Dumas strain; (A. J. Davison & J. E. Scott (1986), J. Gen. Virol. 67, 1759-1816)). In each case, the amino acid sequence deduced from the nucleotide sequence displays differing degrees of homology with glycoproteins gE, gB, gH, gI, gC and gL of herpes simplex virus (HSV). However, there is nothing to suggest that the sequence homology can also imply a homologous function. The open reading frames of glycoproteins gpI, gpII, gpIII and gpV have been confirmed by means of molecular biology.

Web site: http://www.delphion.com/details?pn=US06258363__

Patent Applications on Varicella Zosters

As of December 2000, U.S. patent applications are open to public viewing.[10] Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to varicella zosters:

- **Immunoreactive regions of glycoprotein gpII of varicella zoster virus (VZV)**

  Inventor(s): Radsak, Klaus; (Marburg, DE), Hauser, Hans-Peter; (Elnhausen, DE), Eickmann, Markus; (Marburg, DE), Gicklhorn, Dorothee; (Gladenbach, DE), Giesendorf, Bernhard; (Michelbach, DE)

  Correspondence: HELLER EHRMAN WHITE & MCAULIFFE LLP; 1666 K STREET,NW; SUITE 300; WASHINGTON; DC; 20006; US

  Patent Application Number: 20020150889

  Date filed: April 23, 2002

  Abstract: The present invention relates to immunoreactive peptides that are homologous with the region encompassing amino acid positions 450 to 655 of glycoprotein II of varicella zoster virus. In this context, preference is given to those peptides corresponding to segments of amino acids 505 to 647, 517 to 597, 535 to 584 or 545 to 582. The immunoreactive peptides are useful for methods of diagnosing varicella zoster virus infection.

  Excerpt(s): The present invention relates to immunoreactive peptides that are homologous with the region encompassing amino acid positions 450 to 655 of glycoprotein II of varicella zoster virus. More particularly, the invention relates to peptides that correspond to amino acids 505 to 647, 517 to 597, 535 to 584 or 545 to 582 of the protein. The immunoreactive peptides can be used in methods for diagnosing a varicella zoster virus infection. In accordance with the classification of the International Committee on Taxonomy of Viruses (ICTV), Van Zoute Vin (VZV) is assigned to the Herpesviridae family. In 75% of cases, primary infections take place not later than the age of 15 and usually take an asymptomatic course. By contrast, infection of adults who have not previously had any contact with the virus and in persons who are naturally or

[10] This has been a common practice outside the United States prior to December 2000.

therapeutically immunosuppressed can be associated with severe symptoms. Infection of the fetus also leads to severe symptoms since the virus is able to cross the placenta, and maternal antibodies afford no protection at this time. Following primary infection, the virus persists throughout life in sensory ganglia. After reactivation, the VZV spreads over the peripheral nerves in sensory ganglia and then gives rise to herpes zoster. Seventy open reading frames (ORF), including the open reading frames for the known glycoproteins gpI (ORF 68), gpII (ORF 31), gpIII (ORF 37), gpIV (ORF 67), gpV (ORF 14) and gpVI (ORF 60), can be deduced from the sequence of the VZV genome, which has been completely elucidated and has a length of 124,884 bp (Dumas strain; (A. J. Davison & J. E. Scott (1986), J. Gen. Virol. 67, 1759-1816)). In each case, the amino acid sequence deduced from the nucleotide sequence displays differing degrees of homology with glycoproteins gE, gB, gH, gI, gC and gL of herpes simplex virus (HSV). However, there is nothing to suggest that the sequence homology can also imply a homologous function. The open reading frames of glycoproteins gpI, gpII, gpIII and gpV have been confirmed by means of molecular biology.

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Vaccines against varicella zoster virus gene 63 product**

  Inventor(s): Sadzot, Catherine; (Liege, BE), Rentier, Bernard; (Liege, BE)

  Correspondence: GLAXOSMITHKLINE; Corporate Intellectual Property - UW2220; P.O. Box 1539; King of Prussia; PA; 19406-0939; US

  Patent Application Number: 20010041183

  Date filed: May 25, 2001

  Abstract: The present invention relates to compositions for the treatment or prevention of Zoster of individuals infected with Varicella Zoster virus (VZV), and to the prevention and treatment of Varicella infections. The compositions of the invention comprise the protein encoded by VZV gene 63 or an immunologically active derivative thereof. The invention further relates to compositions containing DNA or RNA corresponding to VZV gene 63.

  Excerpt(s): The present invention relates to compositions for the treatment or prevention of Zoster of individuals infected with Varicella Zoster virus (VZV), and to the prevention and treatment of Varicella infections. The compositions of the invention comprise the protein encoded by VZV gene 63 or an immunologically active derivative thereof. The invention further relates to compositions containing DNA or RNA corresponding to VZV gene 63. Varicella Virus is a human alpha herpes virus which causes two human diseases: on primary infection VZV causes childhood chicken pox (Varicella) thereafter the virus becomes latent and frequently reactivates (often decades later) to produce shingles (Zoster). During chicken pox, the virus penetrates the peripheral nervous system where it remains latent until reactivates as the painful Zoster form. Whilst the virus is latent the expression of most viral genes are repressed. It is believed that cell mediated immunity plays a crucial role in the control of latency, since reactivation as Zoster (or shingles) is frequent in the elderly or in immunocompromised individuals. VZV infection is characterized by minimal presence of free virus. During latency and reactivation virus is mainly intracellular. Accordingly, recurrent disease is not prevented even by high levels of neutralizing antibodies and virus control depends on cell mediated immunity. In order to obtain protection by vaccination, it is therefore desirable to induce not just an antibody response, but also a CTL response. An effective

vaccine should prime CTL capable of acting as early as possible as soon as signs of reactivation of latent virus appear.

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Variant varicella-zoster viruses and methods of use**

  Inventor(s): Grose, Charles F. (Iowa City, IA), Santos, Richard; (Saint Louis, MO)

  Correspondence: MUETING, RAASCH & GEBHARDT, P.A. P.O. BOX 581415; MINNEAPOLIS; MN; 55458; US

  Patent Application Number: 20030166168

  Date filed: November 6, 2002

  Abstract: The present invention provides methods directed to detecting antibodies that specifically bind to a varicella zoster polypeptide, detecting the presence of a varicella zoster virus in an animal, diagnosing a disease caused by varicella zoster virus, and detecting a varicella zoster virus having a single nucleotide polymorphism in ORF68. The present invention also provides a vaccine composition, a method for producing a modified attenuated varicella zoster virus, isolated polynucleotides, and isolated polypeptides, and viruses.

  Excerpt(s): This application claims the benefit of U.S. Provisional Application Serial No. 60/153,779, filed Sep. 14, 1999, which is incorporated by reference herein. Varicella-zoster virus (VZV) is an ancient virus. Estimations of its origins have established that the modem herpesviruses arose some 60-80 million years ago. VZV is a member of the alphaherpesvirus subfamily of herpesviridae. It is the etiologic agent of chickenpox in childhood, after which the virus enters a latent state in the dorsal root ganglia; decades later, the same virus reactivates and causes the disease shingles (herpes zoster). The entire sequence of the 125 kbp VZV genome has been published (see Davison et al., J. Gen. Virol., 67:1759-1816 (1986)). With the subsequent publication of sequence data from other herpesviruses, the alphaherpesviruses have now been subdivided into two genera called Simplexvirus and Varicellovirus. VZV is considered to have one of the most stable genomes of all herpesviruses. The Oka strain of varicella vaccine derived from a Japanese child with chickenpox has a few minor genomic differences from North American strains, but to date no antigenic variation has been discovered amongst the major surface immunogens of the virion (Arvin et al., Annu. Rev. Microbiol., 50:59-100 (1996)). Based on their extensive analyses of herpesviral molecular evolutionary history, it has been estimated that herpesvirus DNA sequences mutate 10-100 times faster than the equivalent classes of sequences on the host genome. For glycoprotein gB, a highly conserved open reading frame (ORF) among all herpesviruses, it has been calculated that nonsynonymous substitutions have occurred at a rate of 2.7.times.10.sup.-8 substitutions per site per year and synonymous substitutions at 10.sup.-7 substitutions per site per year. Convincing arguments have been made in favor of the concept of cospeciation; in other words, herpesvirus lineages arise by way of co-evolution with their specific host. In the case of VZV, the progenitor virus most likely arose 60-70 million years before the present.

  Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

Keeping Current

In order to stay informed about patents and patent applications dealing with varicella zosters, you can access the U.S. Patent Office archive via the Internet at the following Web address: **http://www.uspto.gov/patft/index.html**. You will see two broad options: (1) Issued Patent, and (2) Published Applications. To see a list of issued patents, perform the following steps: Under "Issued Patents," click "Quick Search." Then, type "varicella zosters" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on varicella zosters.

You can also use this procedure to view pending patent applications concerning varicella zosters. Simply go back to **http://www.uspto.gov/patft/index.html**. Select "Quick Search" under "Published Applications." Then proceed with the steps listed above.

CHAPTER 7. MULTIMEDIA ON VARICELLA ZOSTERS

Overview

In this chapter, we show you how to keep current on multimedia sources of information on varicella zosters. We start with sources that have been summarized by federal agencies, and then show you how to find bibliographic information catalogued by the National Library of Medicine.

Bibliography: Multimedia on Varicella Zosters

The National Library of Medicine is a rich source of information on healthcare-related multimedia productions including slides, computer software, and databases. To access the multimedia database, go to the following Web site: **http://locatorplus.gov/**. Select "Search LOCATORplus." Once in the search area, simply type in varicella zosters (or synonyms). Then, in the option box provided below the search box, select "Audiovisuals and Computer Files." From there, you can choose to sort results by publication date, author, or relevance. The following multimedia has been indexed on varicella zosters:

- **Latency of herpes simplex and varicella zoster viruses in human ganglia [videorecording].** Year: 1990; Format: Videorecording; [Bethesda, Md.: NIAID, 1990]

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[11]:

- 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/**

[11] 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.[12] 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:[13]

- **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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[12] 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**).

[13] 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[14]

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.[15] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "varicella zosters" (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	0
Books / Periodicals / Audio Visual	0
Consumer Health	13
Meeting Abstracts	0
Other Collections	0
Total	13

HSTAT[16]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[17] 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.[18] Simply search by "varicella zosters" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

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

[15] 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).

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

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

[18] 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[19]

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.[20] 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.[21] 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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[19] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[20] 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.

[21] 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 varicella zosters 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 varicella zosters. 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 varicella zosters. 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 "varicella zosters":

- Other guides

  Chickenpox
  http://www.nlm.nih.gov/medlineplus/chickenpox.html

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

  Infections and Pregnancy
  http://www.nlm.nih.gov/medlineplus/infectionsandpregnancy.html

  Sexually Transmitted Diseases
  http://www.nlm.nih.gov/medlineplus/sexuallytransmitteddiseases.html

  Sexually Transmitted Diseases
  http://www.nlm.nih.gov/medlineplus/tutorials/sexuallytransmitteddiseasesloade.html

  Shingles
  http://www.nlm.nih.gov/medlineplus/shinglesherpeszoster.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 varicella zosters. 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**

Associations and Varicella Zosters

The following is a list of associations that provide information on and resources relating to varicella zosters:

- **Immunization Action Coalition/Hepatitis B Coalition**

  Telephone: (651) 647-9009

  Fax: (651) 647-9131

  Email: admin@immunize.org

  Web Site: http://www.immunize.org

  Background: The Immunization Action Coalition (IAC) is a nonprofit organization that works to prevent disease by creating and distributing educational materials for health professionals and the public that enhance delivery of safe and effective immunization services and increase their use. The Coalition also facilitates communication within the broad immunization community, including parents, concerning issues of safety, efficacy, and the use of vaccines. The Hepatitis B Coalition, a program of IAC, promotes hepatitis B vaccination for all children 0-18 years of age, HBsAg screening for all pregnant women, hepatitis B testing and vaccination for risk groups, and education and treatment for people who are chronically infected with hepatitis B. The IAC's educational materials include 3 print periodicals, NEEDLE TIPS and the Hepatitis B Coalition News, VACCINATE ADULTS!, and VACCINATE WOMEN. IAC also produces a weekly email news service containing current immunization information titled IAC EXPRESS. In addition, IAC creates and distributes print materials and audiovisual aids and maintains 4 websites, www.immunize.org, www.vaccineinformation.org, www.izcoalitions.org, and www.hepprograms.org.

- **VZV Research Foundation**

  Telephone: (212) 472-3181 Toll-free: (800) 472-8478

  Fax: (212) 861-7033

  Email: vzv@vzvfoundation.org

  Web Site: http://www.vzvfoundation.org

  Background: This non-profit public charity, formed in 1991, dissiminates information and raises funds for research on the varicella-zoster virus, which causes chickenpox, shingles and post-herrpetic neuralgia (PHN). The varicella-zoster virus first strikes individuals as chickenpox or varicella, a highly contagious disease affecting 95 percent of Americans by age 18. Later, the virus may lie dormant in nerve tissues but, in an estimated one of seven people, may reappear as shingles or herpes zoster. Complications resulting from shingles, a painful outbreak of a rash or blisters on the skin, include post-herpetic neuralgia, which can cause debilitating pain long after the shingles rash has healed. The VZV Research Foundation serves as an information resource to thousands of VZV sufferers, their families, and their physicians. It also

sponsors international scientific conferences on VZV and awards research grants to study various aspects of the disease.

Finding Associations

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

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 varicella zosters. 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 "varicella zosters" (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 "varicella zosters". 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 "varicella zosters" (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 "varicella zosters" (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.[22]

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

[22] 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)[23]:

- **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/**

[23] 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**

VARICELLA ZOSTERS DICTIONARY

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

Abdomen: That portion of the body that lies between the thorax and the pelvis. [NIH]

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]

Abdominal Pain: Sensation of discomfort, distress, or agony in the abdominal region. [NIH]

Abortion: 1. The premature expulsion from the uterus of the products of conception - of the embryo, or of a nonviable fetus. The four classic symptoms, usually present in each type of abortion, are uterine contractions, uterine haemorrhage, softening and dilatation of the cervix, and presentation or expulsion of all or part of the products of conception. 2. Premature stoppage of a natural or a pathological process. [EU]

Acceptor: A substance which, while normally not oxidized by oxygen or reduced by hydrogen, can be oxidized or reduced in presence of a substance which is itself undergoing oxidation or reduction. [NIH]

Acquired Immunodeficiency Syndrome: An acquired defect of cellular immunity associated with infection by the human immunodeficiency virus (HIV), a CD4-positive T-lymphocyte count under 200 cells/microliter or less than 14% of total lymphocytes, and increased susceptibility to opportunistic infections and malignant neoplasms. Clinical manifestations also include emaciation (wasting) and dementia. These elements reflect criteria for AIDS as defined by the CDC in 1993. [NIH]

Acute leukemia: A rapidly progressing cancer of the blood-forming tissue (bone marrow). [NIH]

Acute lymphoblastic leukemia: ALL. A quickly progressing disease in which too many immature white blood cells called lymphoblasts are found in the blood and bone marrow. Also called acute lymphocytic leukemia. [NIH]

Acute lymphocytic leukemia: ALL. A quickly progressing disease in which too many immature white blood cells called lymphoblasts are found in the blood and bone marrow. Also called acute lymphoblastic leukemia. [NIH]

Acyclovir: Functional analog of the nucleoside guanosine. It acts as an antimetabolite, especially in viruses. It is used as an antiviral agent, especially in herpes infections. [NIH]

Adverse Effect: An unwanted side effect of treatment. [NIH]

Allogeneic: Taken from different individuals of the same species. [NIH]

Allogeneic bone marrow transplantation: A procedure in which a person receives stem cells, the cells from which all blood cells develop, from a compatible, though not genetically identical, donor. [NIH]

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]

Amino acid: Any organic compound containing an amino (-NH2 and a carboxyl (- COOH)

group. The 20 a-amino acids listed in the accompanying table are the amino acids from which proteins are synthesized by formation of peptide bonds during ribosomal translation of messenger RNA; all except glycine, which is not optically active, have the L configuration. Other amino acids occurring in proteins, such as hydroxyproline in collagen, are formed by posttranslational enzymatic modification of amino acids residues in polypeptide chains. There are also several important amino acids, such as the neurotransmitter y-aminobutyric acid, that have no relation to proteins. Abbreviated AA. [EU]

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]

Amnesia: Lack or loss of memory; inability to remember past experiences. [EU]

Amplification: The production of additional copies of a chromosomal DNA sequence, found as either intrachromosomal or extrachromosomal DNA. [NIH]

Analog: In chemistry, a substance that is similar, but not identical, to another. [NIH]

Anatomical: Pertaining to anatomy, or to the structure of the organism. [EU]

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

Angiitis: Inflammation of a vessel, chiefly of a blood or a lymph vessel; called also vasculitis. [EU]

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]

Anthraquinones: An anthracene ring which contains two ketone moieties in any position. Can be substituted in any position except on the ketone groups. [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]

Antibodies, Anticardiolipin: Antiphospholipid antibodies found in association with systemic lupus erythematosus (lupus erythematosus, systemic), antiphospholipid syndrome, and in a variety of other diseases as well as in healthy individuals. The antibodies are detected by solid-phase immunoassay employing the purified phospholipid antigen cardiolipin. [NIH]

Antibodies, Antiphospholipid: Autoantibodies directed against phospholipids. These antibodies are characteristically found in patients with systemic lupus erythematosus, antiphospholipid syndrome, related autoimmune diseases, some non-autoimmune diseases, and also in healthy individuals. [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]

Anticoagulant: A drug that helps prevent blood clots from forming. Also called a blood thinner. [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]

Anti-inflammatory: Having to do with reducing inflammation. [NIH]

Antimetabolite: A chemical that is very similar to one required in a normal biochemical reaction in cells. Antimetabolites can stop or slow down the reaction. [NIH]

Antiphospholipid Syndrome: The presence of antibodies directed against phospholipids (antibodies, antiphospholipid). The condition is associated with a variety of diseases, notably systemic lupus erythematosus and other connective tissue diseases, thrombopenia, and arterial or venous thromboses. In pregnancy it can cause abortion. Of the phospholipids, the cardiolipins show markedly elevated levels of anticardiolipin antibodies (antibodies, anticardiolipin). Present also are high levels of lupus anticoagulant (lupus coagulation inhibitor). [NIH]

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

Apheresis: Components being separated out, as leukapheresis, plasmapheresis, plateletpheresis. [NIH]

Aponeurosis: Tendinous expansion consisting of a fibrous or membranous sheath which serves as a fascia to enclose or bind a group of muscles. [NIH]

Arabinofuranosyluracil: 1-beta-D-Arabinofuranosyluracil. A pyrimidine nucleoside formed in the body by the deamination of cytarabine. [NIH]

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

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

Arteritis: Inflammation of an artery. [NIH]

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

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

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

Atrophy: Decrease in the size of a cell, tissue, organ, or multiple organs, associated with a variety of pathological conditions such as abnormal cellular changes, ischemia, malnutrition, or hormonal changes. [NIH]

Attenuation: Reduction of transmitted sound energy or its electrical equivalent. [NIH]

Audiovisual Aids: Auditory and visual instructional materials. [NIH]

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

Autologous: Taken from an individual's own tissues, cells, or DNA. [NIH]

Autonomic: Self-controlling; functionally independent. [EU]

Autonomic Nervous System: The enteric, parasympathetic, and sympathetic nervous systems taken together. Generally speaking, the autonomic nervous system regulates the internal environment during both peaceful activity and physical or emotional stress. Autonomic activity is controlled and integrated by the central nervous system, especially the hypothalamus and the solitary nucleus, which receive information relayed from visceral afferents; these and related central and sensory structures are sometimes (but not here)

considered to be part of the autonomic nervous system itself. [NIH]

Bacteraemia: The presence of bacteria in the blood. [EU]

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]

Barbiturate: A drug with sedative and hypnotic effects. Barbiturates have been used as sedatives and anesthetics, and they have been used to treat the convulsions associated with epilepsy. [NIH]

Basal Ganglia: Large subcortical nuclear masses derived from the telencephalon and located in the basal regions of the cerebral hemispheres. [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]

Bilateral: Affecting both the right and left side of 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]

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 pressure: The pressure of blood against the walls of a blood vessel or heart chamber. Unless there is reference to another location, such as the pulmonary artery or one of the heart chambers, it refers to the pressure in the systemic arteries, as measured, for example, in the forearm. [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]

Bone Marrow Transplantation: The transference of bone marrow from one human or animal to another. [NIH]

Bowel: The long tube-shaped organ in the abdomen that completes the process of digestion. There is both a small and a large bowel. Also called the intestine. [NIH]

Bowel Movement: Body wastes passed through the rectum and anus. [NIH]

Branch: Most commonly used for branches of nerves, but applied also to other structures. [NIH]

Buccal: Pertaining to or directed toward the cheek. In dental anatomy, used to refer to the buccal surface of a tooth. [EU]

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]

Cardiolipins: Acidic phospholipids composed of two molecules of phosphatidic acid covalently linked to a molecule of glycerol. They occur primarily in mitochondrial inner membranes and in bacterial plasma membranes. They are the main antigenic components of the Wassermann-type antigen that is used in nontreponemal syphilis serodiagnosis. [NIH]

Carotene: The general name for a group of pigments found in green, yellow, and leafy vegetables, and yellow fruits. The pigments are fat-soluble, unsaturated aliphatic hydrocarbons functioning as provitamins and are converted to vitamin A through enzymatic processes in the intestinal wall. [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]

Case series: A group or series of case reports involving patients who were given similar treatment. Reports of case series usually contain detailed information about the individual patients. This includes demographic information (for example, age, gender, ethnic origin) and information on diagnosis, treatment, response to treatment, and follow-up after treatment. [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 Division: The fission of a cell. [NIH]

Cell Transplantation: Transference of cells within an individual, between individuals of the same species, or between individuals of different species. [NIH]

Cellulose: A polysaccharide with glucose units linked as in cellobiose. It is the chief constituent of plant fibers, cotton being the purest natural form of the substance. As a raw material, it forms the basis for many derivatives used in chromatography, ion exchange materials, explosives manufacturing, and pharmaceutical preparations. [NIH]

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

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Cerebrospinal: Pertaining to the brain and spinal cord. [EU]

Cerebrospinal fluid: CSF. The fluid flowing around the brain and spinal cord. Cerebrospinal fluid is produced in the ventricles in the brain. [NIH]

Cervical: Relating to the neck, or to the neck of any organ or structure. Cervical lymph nodes are located in the neck; cervical cancer refers to cancer of the uterine cervix, which is the lower, narrow end (the "neck") of the uterus. [NIH]

Chemotherapeutics: Noun plural but singular or plural in constructions : chemotherapy. [EU]

Chemotherapy: Treatment with anticancer drugs. [NIH]

Chickenpox: A mild, highly contagious virus characterized by itchy blisters all over the body. [NIH]

Chin: The anatomical frontal portion of the mandible, also known as the mentum, that contains the line of fusion of the two separate halves of the mandible (symphysis menti). This line of fusion divides inferiorly to enclose a triangular area called the mental

protuberance. On each side, inferior to the second premolar tooth, is the mental foramen for the passage of blood vessels and a nerve. [NIH]

Chorioretinitis: Inflammation of the choroid in which the sensory retina becomes edematous and opaque. The inflammatory cells and exudate may burst through the sensory retina to cloud the vitreous body. [NIH]

Choroid: The thin, highly vascular membrane covering most of the posterior of the eye between the retina and sclera. [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]

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

CIS: Cancer Information Service. The CIS is the National Cancer Institute's link to the public, interpreting and explaining research findings in a clear and understandable manner, and providing personalized responses to specific questions about cancer. Access the CIS by calling 1-800-4-CANCER, or by using the Web site at http://cis.nci.nih.gov. [NIH]

Clinical study: A research study in which patients receive treatment in a clinic or other medical facility. Reports of clinical studies can contain results for single patients (case reports) or many patients (case series or clinical trials). [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]

Coagulation: 1. The process of clot formation. 2. In colloid chemistry, the solidification of a sol into a gelatinous mass; an alteration of a disperse phase or of a dissolved solid which causes the separation of the system into a liquid phase and an insoluble mass called the clot or curd. Coagulation is usually irreversible. 3. In surgery, the disruption of tissue by physical means to form an amorphous residuum, as in electrocoagulation and photocoagulation. [EU]

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]

Collagen: A polypeptide substance comprising about one third of the total protein in mammalian organisms. It is the main constituent of skin, connective tissue, and the organic substance of bones and teeth. Different forms of collagen are produced in the body but all consist of three alpha-polypeptide chains arranged in a triple helix. Collagen is differentiated from other fibrous proteins, such as elastin, by the content of proline, hydroxyproline, and hydroxylysine; by the absence of tryptophan; and particularly by the high content of polar groups which are responsible for its swelling properties. [NIH]

Combination Therapy: Association of 3 drugs to treat AIDS (AZT + DDC or DDI + protease inhibitor). [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]

Conception: The onset of pregnancy, marked by implantation of the blastocyst; the formation of a viable zygote. [EU]

Cones: One type of specialized light-sensitive cells (photoreceptors) in the retina that provide sharp central vision and color vision. [NIH]

Congestion: Excessive or abnormal accumulation of blood in a part. [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]

Connective Tissue Diseases: A heterogeneous group of disorders, some hereditary, others acquired, characterized by abnormal structure or function of one or more of the elements of connective tissue, i.e., collagen, elastin, or the mucopolysaccharides. [NIH]

Constitutional: 1. Affecting the whole constitution of the body; not local. 2. Pertaining to the constitution. [EU]

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]

Contralateral: Having to do with the opposite side of the body. [NIH]

Coordination: Muscular or motor regulation or the harmonious cooperation of muscles or groups of muscles, in a complex action or series of actions. [NIH]

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

Corneum: The superficial layer of the epidermis containing keratinized cells. [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]

Cranial: Pertaining to the cranium, or to the anterior (in animals) or superior (in humans) end of the body. [EU]

Cultured cells: Animal or human cells that are grown in the laboratory. [NIH]

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

Cytarabine: An anticancer drug that belongs to the family of drugs called antimetabolites. [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]

Cytomegalovirus Infections: Infection with Cytomegalovirus, characterized by enlarged cells bearing intranuclear inclusions. Infection may be in almost any organ, but the salivary glands are the most common site in children, as are the lungs in adults. [NIH]

Cytomegalovirus Retinitis: Infection of the retina by cytomegalovirus characterized by retinal necrosis, hemorrhage, vessel sheathing, and retinal edema. Cytomegalovirus retinitis is a major opportunistic infection in AIDS patients and can cause blindness. [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]

Cytotoxic: Cell-killing. [NIH]

De novo: In cancer, the first occurrence of cancer in the body. [NIH]

Deamination: The removal of an amino group (NH2) 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]

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]

Density: The logarithm to the base 10 of the opacity of an exposed and processed film. [NIH]

Deoxyuridine: 2'-Deoxyuridine. An antimetabolite that is converted to deoxyuridine triphosphate during DNA synthesis. Laboratory suppression of deoxyuridine is used to diagnose megaloblastic anemias due to vitamin B12 and folate deficiencies. [NIH]

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

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

Digestive system: The organs that take in food and turn it into products that the body can use to stay healthy. Waste products the body cannot use leave the body through bowel movements. The digestive system includes the salivary glands, mouth, esophagus, stomach, liver, pancreas, gallbladder, small and large intestines, and rectum. [NIH]

Diploid: Having two sets of chromosomes. [NIH]

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

Discoid: Shaped like a disk. [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]

Disorientation: The loss of proper bearings, or a state of mental confusion as to time, place, or identity. [EU]

Dorsal: 1. Pertaining to the back or to any dorsum. 2. Denoting a position more toward the back surface than some other object of reference; same as posterior in human anatomy; superior in the anatomy of quadrupeds. [EU]

Double-blind: Pertaining to a clinical trial or other experiment in which neither the subject nor the person administering treatment knows which treatment any particular subject is receiving. [EU]

Double-blinded: A clinical trial in which neither the medical staff nor the person knows which of several possible therapies the person is receiving. [NIH]

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

Edema: Excessive amount of watery fluid accumulated in the intercellular spaces, most commonly present in subcutaneous tissue. [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]

Emaciation: Clinical manifestation of excessive leanness usually caused by disease or a lack of nutrition. [NIH]

Empiric: Empirical; depending upon experience or observation alone, without using scientific method or theory. [EU]

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]

Encephalomyelitis: A general term indicating inflammation of the brain and spinal cord, often used to indicate an infectious process, but also applicable to a variety of autoimmune and toxic-metabolic conditions. There is significant overlap regarding the usage of this term and encephalitis in the literature. [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]

Epidermis: Nonvascular layer of the skin. It is made up, from within outward, of five layers: 1) basal layer (stratum basale epidermidis); 2) spinous layer (stratum spinosum epidermidis); 3) granular layer (stratum granulosum epidermidis); 4) clear layer (stratum lucidum epidermidis); and 5) horny layer (stratum corneum epidermidis). [NIH]

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

Epithelial Cells: Cells that line the inner and outer 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]

Erythema: Redness of the skin produced by congestion of the capillaries. This condition may result from a variety of causes. [NIH]

Erythema Multiforme: A skin and mucous membrane disease characterized by an eruption of macules, papules, nodules, vesicles, and/or bullae with characteristic "bull's-eye" lesions usually occurring on the dorsal aspect of the hands and forearms. [NIH]

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

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

Extracellular: Outside a cell or cells. [EU]

Extraction: The process or act of pulling or drawing out. [EU]

Facial: Of or pertaining to the face. [EU]

Facial Pain: Pain in the facial region including orofacial pain and craniofacial pain. Associated conditions include local inflammatory and neoplastic disorders and neuralgic syndromes involving the trigeminal, facial, and glossopharyngeal nerves. Conditions which feature recurrent or persistent facial pain as the primary manifestation of disease are referred to as facial pain syndromes. [NIH]

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

Fat: Total lipids including phospholipids. [NIH]

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

Fibrosis: Any pathological condition where fibrous connective tissue invades any organ, usually as a consequence of inflammation or other injury. [NIH]

Fistula: Abnormal communication most commonly seen between two internal organs, or between an internal organ and the surface of the body. [NIH]

Fludarabine: An anticancer drug that belongs to the family of drugs called antimetabolites. [NIH]

Folate: A B-complex vitamin that is being studied as a cancer prevention agent. Also called folic acid. [NIH]

Fold: A plication or doubling of various parts of the body. [NIH]

Foramen: A natural hole of perforation, especially one in a bone. [NIH]

Gallbladder: The pear-shaped organ that sits below the liver. Bile is concentrated and stored in the gallbladder. [NIH]

Ganciclovir: Acyclovir analog that is a potent inhibitor of the Herpesvirus family including cytomegalovirus. Ganciclovir is used to treat complications from AIDS-associated cytomegalovirus infections. [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]

Gastritis: Inflammation of the stomach. [EU]

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]

Gene Expression: The phenotypic manifestation of a gene or genes by the processes of gene action. [NIH]

Gene Therapy: The introduction of new genes into cells for the purpose of treating disease by restoring or adding gene expression. Techniques include insertion of retroviral vectors, transfection, homologous recombination, and injection of new genes into the nuclei of single cell embryos. The entire gene therapy process may consist of multiple steps. The new genes may be introduced into proliferating cells in vivo (e.g., bone marrow) or in vitro (e.g., fibroblast cultures) and the modified cells transferred to the site where the gene expression is required. Gene therapy may be particularly useful for treating enzyme deficiency diseases, hemoglobinopathies, and leukemias and may also prove useful in restoring drug sensitivity, particularly for leukemia. [NIH]

Genetic Code: The specifications for how information, stored in nucleic acid sequence (base sequence), is translated into protein sequence (amino acid sequence). The start, stop, and order of amino acids of a protein is specified by consecutive triplets of nucleotides called codons (codon). [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]

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

Glossopharyngeal Nerve: The 9th cranial nerve. The glossopharyngeal nerve is a mixed motor and sensory nerve; it conveys somatic and autonomic efferents as well as general, special, and visceral afferents. Among the connections are motor fibers to the

stylopharyngeus muscle, parasympathetic fibers to the parotid glands, general and taste afferents from the posterior third of the tongue, the nasopharynx, and the palate, and afferents from baroreceptors and chemoreceptors of the carotid sinus. [NIH]

Glucuronic Acid: Derivatives of uronic acid found throughout the plant and animal kingdoms. They detoxify drugs and toxins by conjugating with them to form glucuronides in the liver which are more water-soluble metabolites that can be easily eliminated from the body. [NIH]

Glycine: A non-essential amino acid. It is found primarily in gelatin and silk fibroin and used therapeutically as a nutrient. It is also a fast inhibitory neurotransmitter. [NIH]

Glycoprotein: A protein that has sugar molecules attached to it. [NIH]

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

Graft: Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body. [NIH]

Growth: The progressive development of a living being or part of an organism from its earliest stage to maturity. [NIH]

Haploid: An organism with one basic chromosome set, symbolized by n; the normal condition of gametes in diploids. [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]

Hemiparesis: The weakness or paralysis affecting one side of the body. [NIH]

Hemiplegia: Severe or complete loss of motor function on one side of the body. This condition is usually caused by BRAIN DISEASES that are localized to the cerebral hemisphere opposite to the side of weakness. Less frequently, BRAIN STEM lesions; cervical spinal cord diseases; peripheral nervous system diseases; and other conditions may manifest as hemiplegia. The term hemiparesis (see paresis) refers to mild to moderate weakness involving one side of the body. [NIH]

Hemoglobinopathies: A group of inherited disorders characterized by structural alterations within the hemoglobin molecule. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Heparin: Heparinic acid. A highly acidic mucopolysaccharide formed of equal parts of sulfated D-glucosamine and D-glucuronic acid with sulfaminic bridges. The molecular weight ranges from six to twenty thousand. Heparin occurs in and is obtained from liver, lung, mast cells, etc., of vertebrates. Its function is unknown, but it is used to prevent blood clotting in vivo and vitro, in the form of many different salts. [NIH]

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

Herpesviridae: A family of enveloped, linear, double-stranded DNA viruses infecting a wide variety of animals. There are three subfamilies based on biological characteristics: Alphaherpesvirinae, Betaherpesvirinae, and Gammaherpesvirinae. [NIH]

Homogenate: A suspension of animal tissue that is ground in the all-glass "homogenizer" described by Potter and Elvehjem in 1936. [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]

Horny layer: The superficial layer of the epidermis containing keratinized cells. [NIH]

Host: Any animal that receives a transplanted graft. [NIH]

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

Hybridoma: A hybrid cell resulting from the fusion of a specific antibody-producing spleen cell with a myeloma cell. [NIH]

Hydroxyproline: A hydroxylated form of the imino acid proline. A deficiency in ascorbic acid can result in impaired hydroxyproline formation. [NIH]

Hyperhidrosis: Excessive sweating. In the localized type, the most frequent sites are the palms, soles, axillae, inguinal folds, and the perineal area. Its chief cause is thought to be emotional. Generalized hyperhidrosis may be induced by a hot, humid environment, by fever, or by vigorous exercise. [NIH]

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

Hypnotic: A drug that acts to induce sleep. [EU]

Hypoplasia: Incomplete development or underdevelopment of an organ or tissue. [EU]

Id: The part of the personality structure which harbors the unconscious instinctive desires and strivings of the individual. [NIH]

Immediate-Early Proteins: Proteins that are coded by immediate-early genes, in the absence of de novo protein synthesis. The term was originally used exclusively for viral regulatory proteins that were synthesized just after viral integration into the host cell. It is also used to describe cellular proteins which are synthesized immediately after the resting cell is stimulated by extracellular signals. [NIH]

Immune function: Production and action of cells that fight disease or infection. [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]

Immunocompromised: Having a weakened immune system caused by certain diseases or treatments. [NIH]

Immunocompromised Host: A human or animal whose immunologic mechanism is deficient because of an immunodeficiency disorder or other disease or as the result of the administration of immunosuppressive drugs or radiation. [NIH]

Immunodeficiency: The decreased ability of the body to fight infection and disease. [NIH]

Immunofluorescence: A technique for identifying molecules present on the surfaces of cells or in tissues using a highly fluorescent substance coupled to a specific antibody. [NIH]

Immunogenic: Producing immunity; evoking an immune response. [EU]

Immunoglobulin: A protein that acts as an antibody. [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]

Immunosuppressive: Describes the ability to lower immune system responses. [NIH]

Impairment: In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function. [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]

Indicative: That indicates; that points out more or less exactly; that reveals fairly clearly. [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]

Infection Control: Programs of disease surveillance, generally within health care facilities, designed to investigate, prevent, and control the spread of infections and their causative microorganisms. [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]

Inguinal: Pertaining to the inguen, or groin. [EU]

Inhalation: The drawing of air or other substances into the lungs. [EU]

Inlay: In dentistry, a filling first made to correspond with the form of a dental cavity and then cemented into the cavity. [NIH]

Insulator: Material covering the metal conductor of the lead. It is usually polyurethane or silicone. [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]

Intracellular Membranes: Membranes of subcellular structures. [NIH]

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]

Ipsilateral: Having to do with the same side of the body. [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]

Keratitis: Inflammation of the cornea. [NIH]

Kidney Transplantation: The transference of a kidney from one human or animal to another. [NIH]

Large Intestine: The part of the intestine that goes from the cecum to the rectum. The large intestine absorbs water from stool and changes it from a liquid to a solid form. The large intestine is 5 feet long and includes the appendix, cecum, colon, and rectum. Also called colon. [NIH]

Latency: The period of apparent inactivity between the time when a stimulus is presented and the moment a response occurs. [NIH]

Latent: Phoria which occurs at one distance or another and which usually has no troublesome effect. [NIH]

Lectin: A complex molecule that has both protein and sugars. Lectins are able to bind to the outside of a cell and cause biochemical changes in it. Lectins are made by both animals and plants. [NIH]

Leukapheresis: The preparation of leukocyte concentrates with the return of red cells and leukocyte-poor plasma to the donor. [NIH]

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

Leukocytes: White blood cells. These include granular leukocytes (basophils, eosinophils, and neutrophils) as well as non-granular leukocytes (lymphocytes and monocytes). [NIH]

Library Services: Services offered to the library user. They include reference and circulation. [NIH]

Lipid: Fat. [NIH]

Lipoprotein: Any of the lipid-protein complexes in which lipids are transported in the blood; lipoprotein particles consist of a spherical hydrophobic core of triglycerides or cholesterol esters surrounded by an amphipathic monolayer of phospholipids, cholesterol, and apolipoproteins; the four principal classes are high-density, low-density, and very-low-density lipoproteins and chylomicrons. [EU]

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]

Locomotion: Movement or the ability to move from one place or another. It can refer to humans, vertebrate or invertebrate animals, and microorganisms. [NIH]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Lymph: The almost colorless fluid that travels through the lymphatic system and carries cells that help fight infection and disease. [NIH]

Lymph node: A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Also known as a lymph gland. Lymph nodes are spread out along lymphatic vessels and contain many lymphocytes, which filter the lymphatic fluid (lymph). [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]

Lymphoblastic: One of the most aggressive types of non-Hodgkin lymphoma. [NIH]

Lymphoblasts: Interferon produced predominantly by leucocyte cells. [NIH]

Lymphocyte: A white blood cell. Lymphocytes have a number of roles in the immune system, including the production of antibodies and other substances that fight infection and diseases. [NIH]

Lymphocyte Count: A count of the number of lymphocytes in the blood. [NIH]

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

Lymphoma: A general term for various neoplastic diseases of the lymphoid tissue. [NIH]

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

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

Malignant tumor: A tumor capable of metastasizing. [NIH]

Manifest: Being the part or aspect of a phenomenon that is directly observable : concretely expressed in behaviour. [EU]

Medical Staff: Professional medical personnel who provide care to patients in an organized facility, institution or agency. [NIH]

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

Megaloblastic: A large abnormal red blood cell appearing in the blood in pernicious anaemia. [EU]

Melanocytes: Epidermal dendritic pigment cells which control long-term morphological color changes by alteration in their number or in the amount of pigment they produce and store in the pigment containing organelles called melanosomes. Melanophores are larger cells which do not exist in mammals. [NIH]

Melanoma: A form of skin cancer that arises in melanocytes, the cells that produce pigment.

Melanoma usually begins in a mole. [NIH]

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

Membrane Proteins: Proteins which are found in membranes including cellular and intracellular membranes. They consist of two types, peripheral and integral proteins. They include most membrane-associated enzymes, antigenic proteins, transport proteins, and drug, hormone, and lectin receptors. [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]

Mental Disorders: Psychiatric illness or diseases manifested by breakdowns in the adaptational process expressed primarily as abnormalities of thought, feeling, and behavior producing either distress or impairment of function. [NIH]

Metabolite: Any substance produced by metabolism or by a metabolic process. [EU]

MI: 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]

Mice Minute Virus: The type species of parvovirus prevalent in mouse colonies and found as a contaminant of many transplanted tumors or leukemias. [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]

Modification: A change in an organism, or in a process in an organism, that is acquired from its own activity or environment. [NIH]

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

Molecular Evolution: Multiple rounds of selection, amplification, and mutation leading to molecules with the desired properties. [NIH]

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]

Mucinous: Containing or resembling mucin, the main compound in mucus. [NIH]

Mucins: A secretion containing mucopolysaccharides and protein that is the chief constituent of mucus. [NIH]

Mucosa: A mucous membrane, or tunica mucosa. [EU]

Mucositis: A complication of some cancer therapies in which the lining of the digestive system becomes inflamed. Often seen as sores in the mouth. [NIH]

Multiple Myeloma: A malignant tumor of plasma cells usually arising in the bone marrow; characterized by diffuse involvement of the skeletal system, hyperglobulinemia, Bence-Jones proteinuria, and anemia. [NIH]

Multiple sclerosis: A disorder of the central nervous system marked by weakness, numbness, a loss of muscle coordination, and problems with vision, speech, and bladder control. Multiple sclerosis is thought to be an autoimmune disease in which the body's immune system destroys myelin. Myelin is a substance that contains both protein and fat (lipid) and serves as a nerve insulator and helps in the transmission of nerve signals. [NIH]

Mutate: To change the genetic material of a cell. Then changes (mutations) can be harmful, beneficial, or have no effect. [NIH]

Myelin: The fatty substance that covers and protects nerves. [NIH]

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]

Myeloma: Cancer that arises in plasma cells, a type of white blood cell. [NIH]

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

Naive: Used to describe an individual who has never taken a certain drug or class of drugs (e. g., AZT-naive, antiretroviral-naive), or to refer to an undifferentiated immune system cell. [NIH]

NCI: National Cancer Institute. NCI, part of the National Institutes of Health of the United States Department of Health and Human Services, is the federal government's principal agency for cancer research. NCI conducts, coordinates, and funds cancer research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention, and treatment of cancer. Access the NCI Web site at http://cancer.gov. [NIH]

Need: A state of tension or dissatisfaction felt by an individual that impels him to action toward a goal he believes will satisfy the impulse. [NIH]

Neoplasia: Abnormal and uncontrolled cell growth. [NIH]

Neoplasms: New abnormal growth of tissue. Malignant neoplasms show a greater degree of anaplasia and have the properties of invasion and metastasis, compared to benign neoplasms. [NIH]

Neoplastic: Pertaining to or like a neoplasm (= any new and abnormal growth); pertaining to neoplasia (= the formation of a neoplasm). [EU]

Nerve: A cordlike structure of nervous tissue that connects parts of the nervous system with other tissues of the body and conveys nervous impulses to, or away from, these tissues. [NIH]

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

Neural: 1. Pertaining to a nerve or to the nerves. 2. Situated in the region of the spinal axis, as the neutral arch. [EU]

Neuralgia: Intense or aching pain that occurs along the course or distribution of a peripheral or cranial nerve. [NIH]

Neuroblastoma: Cancer that arises in immature nerve cells and affects mostly infants and children. [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]

Neuropathy: A problem in any part of the nervous system except the brain and spinal cord. Neuropathies can be caused by infection, toxic substances, or disease. [NIH]

Neuroretinitis: Inflammation of the optic nerve head and adjacent retina. [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]

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]

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

Ocular: 1. Of, pertaining to, or affecting the eye. 2. Eyepiece. [EU]

Opacity: Degree of density (area most dense taken for reading). [NIH]

Open Reading Frames: Reading frames where successive nucleotide triplets can be read as codons specifying amino acids and where the sequence of these triplets is not interrupted by stop codons. [NIH]

Ophthalmic: Pertaining to the eye. [EU]

Opportunistic Infections: An infection caused by an organism which becomes pathogenic under certain conditions, e.g., during immunosuppression. [NIH]

Opsin: A protein formed, together with retinene, by the chemical breakdown of meta-rhodopsin. [NIH]

Optic Nerve: The 2nd cranial nerve. The optic nerve conveys visual information from the retina to the brain. The nerve carries the axons of the retinal ganglion cells which sort at the optic chiasm and continue via the optic tracts to the brain. The largest projection is to the

lateral geniculate nuclei; other important targets include the superior colliculi and the suprachiasmatic nuclei. Though known as the second cranial nerve, it is considered part of the central nervous system. [NIH]

Orofacial: Of or relating to the mouth and face. [EU]

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

Palsy: Disease of the peripheral nervous system occurring usually after many years of increased lead absorption. [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]

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

Paresis: A general term referring to a mild to moderate degree of muscular weakness, occasionally used as a synonym for paralysis (severe or complete loss of motor function). In the older literature, paresis often referred specifically to paretic neurosyphilis. "General paresis" and "general paralysis" may still carry that connotation. Bilateral lower extremity paresis is referred to as paraparesis. [NIH]

Parvovirus: A genus of the family Parvoviridae, subfamily Parvovirinae, infecting a variety of vertebrates including humans. Parvoviruses are responsible for a number of important diseases but also can be non-pathogenic in certain hosts. The type species is mice minute virus. [NIH]

Pathogenesis: The cellular events and reactions that occur in the development of disease. [NIH]

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]

Pelvis: The lower part of the abdomen, located between the hip bones. [NIH]

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

Perforation: 1. The act of boring or piercing through a part. 2. A hole made through a part or substance. [EU]

Perineal: Pertaining to the perineum. [EU]

Peripheral blood: Blood circulating throughout the body. [NIH]

Peripheral Nervous System: The nervous system outside of the brain and spinal cord. The peripheral nervous system has autonomic and somatic divisions. The autonomic nervous system includes the enteric, parasympathetic, and sympathetic subdivisions. The somatic nervous system includes the cranial and spinal nerves and their ganglia and the peripheral sensory receptors. [NIH]

Peripheral Nervous System Diseases: Diseases of the peripheral nerves external to the brain and spinal cord, which includes diseases of the nerve roots, ganglia, plexi, autonomic nerves, sensory nerves, and motor nerves. [NIH]

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

Phospholipids: Lipids containing one or more phosphate groups, particularly those derived from either glycerol (phosphoglycerides; glycerophospholipids) or sphingosine (sphingolipids). They are polar lipids that are of great importance for the structure and

function of cell membranes and are the most abundant of membrane lipids, although not stored in large amounts in the system. [NIH]

Phosphorylated: Attached to a phosphate group. [NIH]

Phosphorylating: Attached to a phosphate group. [NIH]

Pigments: Any normal or abnormal coloring matter in plants, animals, or micro-organisms. [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]

Plasmapheresis: Procedure whereby plasma is separated and extracted from anticoagulated whole blood and the red cells retransfused to the donor. Plasmapheresis is also employed for therapeutic use. [NIH]

Plateletpheresis: The preparation of platelet concentrates with the return of red cells and platelet-poor plasma to the donor. [NIH]

Pneumonia: Inflammation of the lungs. [NIH]

Poliomyelitis: An acute viral disease, occurring sporadically and in epidemics, and characterized clinically by fever, sore throat, headache, and vomiting, often with stiffness of the neck and back. In the minor illness these may be the only symptoms. The major illness, which may or may not be preceded by the minor illness, is characterized by involvement of the central nervous system, stiff neck, pleocytosis in the spinal fluid, and perhaps paralysis. There may be subsequent atrophy of groups of muscles, ending in contraction and permanent deformity. The major illness is called acute anterior p., infantile paralysis and Heine-Medin disease. The disease is now largely controlled by vaccines. [EU]

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]

Polymorphism: The occurrence together of two or more distinct forms in the same population. [NIH]

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

Population Density: Number of individuals in a population relative to space. [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]

Postherpetic Neuralgia: Variety of neuralgia associated with migraine in which pain is felt in or behind the eye. [NIH]

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]

Presumptive: A treatment based on an assumed diagnosis, prior to receiving confirmatory laboratory test results. [NIH]

Prodrug: A substance that gives rise to a pharmacologically active metabolite, although not itself active (i. e. an inactive precursor). [NIH]

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]

Promoter: A chemical substance that increases the activity of a carcinogenic process. [NIH]

Prophylaxis: An attempt to prevent disease. [NIH]

Protease: Proteinase (= any enzyme that catalyses the splitting of interior peptide bonds in a protein). [EU]

Protein C: A vitamin-K dependent zymogen present in the blood, which, upon activation by thrombin and thrombomodulin exerts anticoagulant properties by inactivating factors Va and VIIIa at the rate-limiting steps of thrombin formation. [NIH]

Protein Conformation: The characteristic 3-dimensional shape of a protein, including the secondary, supersecondary (motifs), tertiary (domains) and quaternary structure of the peptide chain. Quaternary protein structure describes the conformation assumed by multimeric proteins (aggregates of more than one polypeptide chain). [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]

Proteinuria: The presence of protein in the urine, indicating that the kidneys are not working properly. [NIH]

Psychic: Pertaining to the psyche or to the mind; mental. [EU]

Psychological Adaptation: The alteration of the selective response of a neural unit due to the received signals. [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]

Pulse: The rhythmical expansion and contraction of an artery produced by waves of pressure caused by the ejection of blood from the left ventricle of the heart as it contracts. [NIH]

Purpura: Purplish or brownish red discoloration, easily visible through the epidermis, caused by hemorrhage into the tissues. [NIH]

Radiation: Emission or propagation of electromagnetic energy (waves/rays), or the waves/rays themselves; a stream of electromagnetic particles (electrons, neutrons, protons, alpha particles) or a mixture of these. The most common source is the sun. [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]

Reading Frames: The sequence of codons by which translation may occur. A segment of mRNA 5'AUCCGA3' could be translated in three reading frames, 5'AUC. or 5'UCC. or 5'CCG., depending on the location of the start codon. [NIH]

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]

Recombination: The formation of new combinations of genes as a result of segregation in crosses between genetically different parents; also the rearrangement of linked genes due to crossing-over. [NIH]

Reconstitution: 1. A type of regeneration in which a new organ forms by the rearrangement of tissues rather than from new formation at an injured surface. 2. The restoration to original form of a substance previously altered for preservation and storage, as the restoration to a liquid state of blood serum or plasma that has been dried and stored. [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]

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

Regeneration: The natural renewal of a structure, as of a lost tissue or part. [EU]

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

Respiration: The act of breathing with the lungs, consisting of inspiration, or the taking into the lungs of the ambient air, and of expiration, or the expelling of the modified air which contains more carbon dioxide than the air taken in (Blakiston's Gould Medical Dictionary, 4th ed.). This does not include tissue respiration (= oxygen consumption) or cell respiration (= cell respiration). [NIH]

Restoration: Broad term applied to any inlay, crown, bridge or complete denture which restores or replaces loss of teeth or oral tissues. [NIH]

Retina: The ten-layered nervous tissue membrane of the eye. It is continuous with the optic nerve and receives images of external objects and transmits visual impulses to the brain. Its outer surface is in contact with the choroid and the inner surface with the vitreous body. The outer-most layer is pigmented, whereas the inner nine layers are transparent. [NIH]

Retinal: 1. Pertaining to the retina. 2. The aldehyde of retinol, derived by the oxidative enzymatic splitting of absorbed dietary carotene, and having vitamin A activity. In the retina, retinal combines with opsins to form visual pigments. One isomer, 11-cis retinal combines with opsin in the rods (scotopsin) to form rhodopsin, or visual purple. Another, all-trans retinal (trans-r.); visual yellow; xanthopsin) results from the bleaching of rhodopsin

by light, in which the 11-cis form is converted to the all-trans form. Retinal also combines with opsins in the cones (photopsins) to form the three pigments responsible for colour vision. Called also retinal, and retinene1. [EU]

Retinitis: Inflammation of the retina. It is rarely limited to the retina, but is commonly associated with diseases of the choroid (chorioretinitis) and of the optic nerve (neuroretinitis). The disease may be confined to one eye, but since it is generally dependent on a constitutional factor, it is almost always bilateral. It may be acute in course, but as a rule it lasts many weeks or even several months. [NIH]

Retinol: Vitamin A. It is essential for proper vision and healthy skin and mucous membranes. Retinol is being studied for cancer prevention; it belongs to the family of drugs called retinoids. [NIH]

Retroviral vector: RNA from a virus that is used to insert genetic material into cells. [NIH]

Rhabdomyolysis: Necrosis or disintegration of skeletal muscle often followed by myoglobinuria. [NIH]

Rhodopsin: A photoreceptor protein found in retinal rods. It is a complex formed by the binding of retinal, the oxidized form of retinol, to the protein opsin and undergoes a series of complex reactions in response to visible light resulting in the transmission of nerve impulses to the brain. [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]

Risk patient: Patient who is at risk, because of his/her behaviour or because of the type of person he/she is. [EU]

Rituximab: A type of monoclonal antibody used in cancer detection or therapy. Monoclonal antibodies are laboratory-produced substances that can locate and bind to cancer cells. [NIH]

Rubella: An acute, usually benign, infectious disease caused by a togavirus and most often affecting children and nonimmune young adults, in which the virus enters the respiratory tract via droplet nuclei and spreads to the lymphatic system. It is characterized by a slight cold, sore throat, and fever, followed by enlargement of the postauricular, suboccipital, and cervical lymph nodes, and the appearances of a fine pink rash that begins on the head and spreads to become generalized. Called also German measles, roetln, röteln, and three-day measles, and rubeola in French and Spanish. [EU]

Rural Population: The inhabitants of rural areas or of small towns classified as rural. [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]

Sclera: The tough white outer coat of the eyeball, covering approximately the posterior five-sixths of its surface, and continuous anteriorly with the cornea and posteriorly with the external sheath of the optic nerve. [EU]

Sclerosis: A pathological process consisting of hardening or fibrosis of an anatomical structure, often a vessel or a nerve. [NIH]

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

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]

Sequela: Any lesion or affection following or caused by an attack of disease. [EU]

Sequence Homology: The degree of similarity between sequences. Studies of amino acid and nucleotide sequences provide useful information about the genetic relatedness of certain species. [NIH]

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

Serology: The study of serum, especially of antigen-antibody reactions in vitro. [NIH]

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

Side effect: A consequence other than the one(s) for which an agent or measure is used, as the adverse effects produced by a drug, especially on a tissue or organ system other than the one sought to be benefited by its administration. [EU]

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

Soft tissue: Refers to muscle, fat, fibrous tissue, blood vessels, or other supporting tissue of the body. [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]

Spherocytes: Small, abnormal spherical red blood cells with more than the normal amount of hemoglobin. [NIH]

Spherocytosis: A condition in which there are abnormally thick, almost spherical, red blood cells or spherocytes in the blood. [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 Diseases: Pathologic conditions which feature spinal cord damage or dysfunction, including disorders involving the meninges and perimeningeal spaces surrounding the spinal cord. Traumatic injuries, vascular diseases, infections, and inflammatory/autoimmune processes may affect the spinal cord. [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]

Spinal Nerves: The 31 paired peripheral nerves formed by the union of the dorsal and ventral spinal roots from each spinal cord segment. The spinal nerve plexuses and the spinal roots are also included. [NIH]

Spinous: Like a spine or thorn in shape; having spines. [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]

Stem cell transplantation: A method of replacing immature blood-forming cells that were destroyed by cancer treatment. The stem cells are given to the person after treatment to help the bone marrow recover and continue producing healthy blood cells. [NIH]

Stem Cells: Relatively undifferentiated cells of the same lineage (family type) that retain the ability to divide and cycle throughout postnatal life to provide cells that can become specialized and take the place of those that die or are lost. [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]

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

Stroke: Sudden loss of function of part of the brain because of loss of blood flow. Stroke may be caused by a clot (thrombosis) or rupture (hemorrhage) of a blood vessel to the brain. [NIH]

Stromal: Large, veil-like cell in the bone marrow. [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]

Substance P: An eleven-amino acid neurotransmitter that appears in both the central and peripheral nervous systems. It is involved in transmission of pain, causes rapid contractions of the gastrointestinal smooth muscle, and modulates inflammatory and immune responses. [NIH]

Suppression: A conscious exclusion of disapproved desire contrary with repression, in which the process of exclusion is not conscious. [NIH]

Systemic: Affecting the entire body. [NIH]

Systemic lupus erythematosus: SLE. A chronic inflammatory connective tissue disease marked by skin rashes, joint pain and swelling, inflammation of the kidneys, inflammation of the fibrous tissue surrounding the heart (i.e., the pericardium), as well as other problems. Not all affected individuals display all of these problems. May be referred to as lupus. [NIH]

Tendon: A discrete band of connective tissue mainly composed of parallel bundles of collagenous fibers by which muscles are attached, or two muscles bellies joined. [NIH]

Thalidomide: A pharmaceutical agent originally introduced as a non-barbiturate hypnotic, but withdrawn from the market because of its known tetratogenic effects. It has been reintroduced and used for a number of immunological and inflammatory disorders. Thalidomide displays immunosuppresive and anti-angiogenic activity. It inhibits release of tumor necrosis factor alpha from monocytes, and modulates other cytokine action. [NIH]

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

Thorax: A part of the trunk between the neck and the abdomen; the chest. [NIH]

Thrombin: An enzyme formed from prothrombin that converts fibrinogen to fibrin. (Dorland, 27th ed) EC 3.4.21.5. [NIH]

Thrombomodulin: A cell surface glycoprotein of endothelial cells that binds thrombin and serves as a cofactor in the activation of protein C and its regulation of blood coagulation. [NIH]

Thrombopenia: Reduction in the number of platelets in the blood. [NIH]

Thrombophlebitis: Inflammation of a vein associated with thrombus formation. [NIH]

Thromboses: The formation or presence of a blood clot within a blood vessel during life. [NIH]

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

Thrombus: An aggregation of blood factors, primarily platelets and fibrin with entrapment of cellular elements, frequently causing vascular obstruction at the point of its formation. Some authorities thus differentiate thrombus formation from simple coagulation or clot formation. [EU]

Thymidine: A chemical compound found in DNA. Also used as treatment for mucositis. [NIH]

Thymidine Kinase: An enzyme that catalyzes the conversion of ATP and thymidine to ADP and thymidine 5'-phosphate. Deoxyuridine can also act as an acceptor and dGTP as a donor. (From Enzyme Nomenclature, 1992) EC 2.7.1.21. [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]

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

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

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]

Toxins: Specific, characterizable, poisonous chemicals, often proteins, with specific biological properties, including immunogenicity, produced by microbes, higher plants, or animals. [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]

Trigeminal: Cranial nerve V. It is sensory for the eyeball, the conjunctiva, the eyebrow, the skin of face and scalp, the teeth, the mucous membranes in the mouth and nose, and is motor to the muscles of mastication. [NIH]

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

Tumor Necrosis Factor: Serum glycoprotein produced by activated macrophages and other mammalian mononuclear leukocytes which has necrotizing activity against tumor cell lines and increases ability to reject tumor transplants. It mimics the action of endotoxin but differs from it. It has a molecular weight of less than 70,000 kDa. [NIH]

Tumour: 1. Swelling, one of the cardinal signs of inflammations; morbid enlargement. 2. A new growth of tissue in which the multiplication of cells is uncontrolled and progressive; called also neoplasm. [EU]

Unconscious: Experience which was once conscious, but was subsequently rejected, as the "personal unconscious". [NIH]

Uvea: The middle coat of the eyeball, consisting of the choroid in the back of the eye and the

ciliary body and iris in the front of the eye. [NIH]

Uveitis: An inflammation of part or all of the uvea, the middle (vascular) tunic of the eye, and commonly involving the other tunics (the sclera and cornea, and the retina). [EU]

Vaccination: Administration of vaccines to stimulate the host's immune response. This includes any preparation intended for active immunological prophylaxis. [NIH]

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]

Varicella: Chicken pox. [EU]

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

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

Vasculitis: Inflammation of a blood vessel. [NIH]

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

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

Ventricles: Fluid-filled cavities in the heart or brain. [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]

Viraemia: The presence of virus in blood or blood plasma. [NIH]

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

Viral Load: The quantity of measurable virus in the blood. Change in viral load, measured in plasma, is used as a surrogate marker in HIV disease progression. [NIH]

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

Viral Regulatory Proteins: Proteins which regulate the rate of transcription of viral structural genes. [NIH]

Virion: The infective system of a virus, composed of the viral genome, a protein core, and a protein coat called a capsid, which may be naked or enclosed in a lipoprotein envelope called the peplos. [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]

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]

Virus Replication: The process of intracellular viral multiplication, consisting of the synthesis of proteins, nucleic acids, and sometimes lipids, and their assembly into a new infectious particle. [NIH]

Visceral: , from viscus a viscus) pertaining to a viscus. [EU]

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]

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]

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]

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]

Zymogen: Inactive form of an enzyme which can then be converted to the active form, usually by excision of a polypeptide, e. g. trypsinogen is the zymogen of trypsin. [NIH]

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