LEPROSY

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

JAMES N. PARKER, M.D.
AND PHILIP M. PARKER, PH.D., EDITORS

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."[1] Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with leprosy 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 leprosy, 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 leprosy, 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 leprosy. 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 leprosy, 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 leprosy.

The Editors

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

CHAPTER 1. STUDIES ON LEPROSY

Overview

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

The Combined Health Information Database

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

- **No Effect of Anti-Leprosy Drugs in the Prevention of Alzheimer's Disease and B-Amyloid Neurotoxicity**

  Source: Journal of the Neurological Sciences. 165: 28-30. 1999.

  Summary: This journal article reports on two studies that examined the effects of anti-leprosy drugs on the incidence of Alzheimer's disease (AD) in leprosy patients, and on amyloid beta protein-induced neurotoxicity in vitro. In the first study, researchers reviewed the medical records of 196 patients with leprosy, aged 70 years or older. The prevalence of AD was 16.4 percent in patients who had been treated with anti-leprosy drugs during the previous 10 years, and 19.8 percent in those who had not been treated. The authors concluded that the difference was not significant. The second study tested the effects of anti-leprosy drugs on the neurotoxicity of amyloid beta peptides. Results showed that the drugs had no effect on the neurotoxicity. These findings suggest that

anti-leprosy drugs do not prevent the onset of AD or amyloid beta neurotoxicity. 1 figure, 1 table, 9 references.

Federally Funded Research on Leprosy

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

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

- **Project Title: AIDS AND TB TRAINING OPPORTUNITIES PROGRAM (ATTOP)**

  Principal Investigator & Institution: Mugyenyi, Peter N.; Joint Clinical Research Center Box 10005, Ring Rd Kampala,

  Timing: Fiscal Year 2002; Project Start 22-SEP-2002; Project End 21-SEP-2003

  Summary: (provided by applicant): Although the seroprevalence of HIV has declined in Uganda over the past 10 years, the HIV epidemic in Uganda is far from controlled. In the face of the HIV epidemic, tuberculosis rates are high and associated with significant mortality. With the advent of antiretroviral therapy, prevention strategies alone are no longer sufficient to meet the current needs in Uganda. There is now a moral imperative to bring the remarkable advances in the field of HIV to developing countries like Uganda. One key step in the rebuilding of the Ugandan public health infrastructure resulted from a unique collaboration between the Ugandan Ministry of Health, the Ministry of Defense and Makerere University to form the Joint Clinical Research Center (JCRC). The JCRC is a research and health care facility devoted entirely to HIV and leads the way in opening Africa to antiretroviral therapy. Through the years, the JCRC has formed strong collaborations with Case Western Reserve University, the National Tuberculosis and **Leprosy** Control Programme, and Mbarara University. The proposed training program will build on these strong relationships with the common mission of controlling HIV and TB. The goal of this proposal is to develop a comprehensive training program that will build the Ugandan capacity to translate basic and clinical research findings into public health policy and interventions. The training program will build on a growing number of clinical research projects on HI\I and TB and extend the findings of these studies to the public health and policy arena. The specific aims of this application are to form a planning committee, create an institutional develop plan, define research and training agendas, and develop plans for program evaluation. This

[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).

strategy will be developed through a year long series of planning exercises between the investigators at the Joint Clinical Research Center in Kampala, Uganda, Case Western Reserve University, in the US, Mbarara University of Sciences and Technology, National Tuberculosis and **Leprosy** Control Programme, and Kampala City Council.

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

- **Project Title: CHARACTERIZATION OF MICROBIAL AGENTS RESPONSIBLE FOR VILIUISK ENCEPHALOMYELITIS**

  Principal Investigator & Institution: Nerurkar, Vivek R.; University of Hawaii at Manoa Honolulu, Hi 96822

  Timing: Fiscal Year 2001

  Summary: Viliuisk encephalomyelitis (VE) is a progressive neurodegenerative disorder with a clinical course varying from a relatively acute disease with characteristics of a meningoencephalitis lasting 2 to 6 months to a more prolonged progressive panencephalitic syndrome with a fatal outcome in 1 to 6 years. Some patients develop global dementia and severe spasticity, a residual static condition that may last more than 20 years. For many years, VE was recognized exclusively in a small Middle Viliui region of Siberia. A significant migration from the Viliui valley to more densely populated regions during the 1950s brought VE to settlements in which this disease has previously been unknown. There is strong circumstantial evidence that VE is a communicable disease with a pattern of dissemination characteristic of **leprosy** and other latent and chronic infectious diseases. The high prevalence and mortality of Ve in some areas, the trend toward further geographic spread, the occurrence of among young people with resulting early incapacitation, combined with the absence of specific therapy, contribute to the seriousness of this emerging neurodegenerative disorder of probably infectious cause. The specific aim of the proposed collaborative research is to identify the etiologic agent, as well as host-derived disease-specific markers, of VE. Overall, the proposed studies will test the hypothesis that VE is caused by an infectious agent which cannot be cultivated using conventional microbiological techniques. The proposed project will be conducted as a multi-institutional, international, integrated collaboration between investigators at the University of Hawaii at Manoa (UHM), the National Institute of Neurological Disorders and Stroke and the Institute of Health, National Academy of Sciences of the Sakha (Yakut) Republic in Yakutsk, Russia. The applicant component of the project will focus on applying state-of-the-art molecular techniques, to search for non-host- and host- derived mRNA sequences in tissues and biological fluids from VE patients. A complementary approach, consisting of serological tests and consensus sequence-based PCR, will be employed by the collaborating component to identify specific microorganisms of general taxonomic groups which may be etiologically involved in VE. By taking full advantage of he complementary expertise and approaches of the applicant and collaborator, as well as the logistical support of clinical, field and laboratory research consultants, the probably of success should be greatly enhanced. Moreover, the close linkage between the applicant and a world-renowned expert on sensitive molecular technologies for new pathogen discovery will provide unparalleled opportunities for graduate students and post-doctoral fellows at UHM to obtain training in the new and emerging molecular strategies being employed in this collaborative research effort.

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

- **Project Title: DETERMINANTS OF TH1 CYTOKINE RESPONSES IN LEPROSY**

  Principal Investigator & Institution: Modlin, Robert L.; Professor; Medicine; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

  Timing: Fiscal Year 2001; Project Start 01-JAN-1991; Project End 29-FEB-2004

  Summary: (Adapted from the Applicant's Abstract): The long term objective of this proposal is to gain insight into mechanisms of cell- mediated immunity to infectious agents in humans, with particular emphasis on the generation of Th1 cytokine responses required for resistance to intracellular pathogens. **Leprosy,** caused by the intracellular pathogen M. leprae, presents as a clinical/ immunologic spectrum, providing an attractive model for investigating the regulation of immune responses to infection. Using **leprosy** as a model, the investigators propose to investigate mechanisms by which microbial antigens and cytokines regulate human Th1 responses. First, they hypothesize that VP6+ T cells, the predominant T cell in resistant lesions, selectively stimulates Th1 cytokine responses. They propose to investigate the mechanism by which this M. leprae antigen stimulates Th1 responses, by identifying the antigen, determining the cytokine pattern it elicits in **leprosy** patients and the MHC class II alleles involved in presentation to T cells. Second, they hypothesize that M. leprae lipoproteins have adjuvant activity in stimulating Th1 responses. They propose to investigate the mechanism by which microbial lipoproteins contribute to the induction of IL-12 in human infectious disease, by identifying and expressing M. leprae lipoproteins and measuring their ability to differentially induce IL-12 and I L-10 release from monocytes derived from **leprosy** patients. Experiments will be designed to ascertain whether the M. leprae signal sequence can adjuvant proteins to stimulate Th1 responses. Third, they hypothesize that a specific set of cytokines regulates IL-12RP2 expression and therefore determines the balance of Th1 vs. Th2 responses at the site of infection. They propose to investigate the mechanism by which IL-12 responsiveness is regulated by determining the cytokines that upregulate and downregulate IL-12RP2 and the mechanism by which IL-18 synergizes with IL-12 in augmenting M. leprae-induced T-cell production of IFN-gamma. The studies they propose are intended to provide a comprehensive analysis of the determinant of Th1 responses in humans in relation to a model of human infectious disease. Such insights, they would hope, would provide new avenues for development of immunomodulatory treatments for a variety of human infectious diseases.

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

- **Project Title: DEVELOP AND EVALUATE NEW LEPROSY AND TB VACCINES**

  Principal Investigator & Institution: Gillis, Thomas P.; Chief; National Hansen's Disease Program 1770 Physician Park Dr Baton Rouge, La 70816

  Timing: Fiscal Year 2001; Project Start 01-JUL-2000; Project End 30-JUN-2004

  Summary: (Adapted from Applicant's Abstract) Project Goals: The hypothesis to be tested is that vaccination against M. leprae with DNA vaccines and TB vaccines will (1) elicit a measurable immune response to appropriate antigens of M. leprae and (2) induce significant protection against a M. leprae challenge in the mouse footpad model. The DNA vaccines will also be tested for their ability to protect mice against challenge with virulent M. tuberculosis. Research Plan: The experimental design is to create and evaluate DNA vaccines expressing mycobacterial protein antigens known to elicit immune responses in humans infected with either M. leprae (ML) or M. tuberculosis (MT) and evaluate four newly created MT vaccines against **leprosy.** Specific-objectives are (1) prepare plasmid constructs (DNA vaccines) with genes expressing mycobacterial protein antigens and test immune response elicited by DNA vaccines delivered either by

the intramuscular (IM) or intradermal (ID) route, (2) evaluate the efficacy of 4 newly developed TB vaccines for their protective efficacy against ML challenge in mice. The TB vaccines are: 1) leucine auxotroph of BCG, 2) leucine auxotroph of MT, 3) MT culture filtrate in adjuvant prepared from the nontoxic derivative of lipid A from Salmonella minnesota (MPL, [plus IL-2]) and 4) pooled MT genomic vaccine, (3) test protective efficacy, potency and immunotherapeutic potential of DNA vaccines in the mouse foot pad model for **leprosy** and (4) test the protective efficacy and potency of ML DNA vaccine against MT challenge. Mice will be immunized with test vaccines and immune responses will be monitored by lymphoproliferative, cytokine and systemic antibody responses. ML challenge will be in the foot pad-and MT challenges will be by aerosol and intravenous injection. Quantitative bacteriology will be performed on both protection models and histopathology of the immunization sites will be performed. Potency and immunotherapy of vaccines will be tested in the **leprosy** footpad model by monitoring induction of long-lived protection and effects of vaccines following ML infection, respectively. Significance: **Leprosy** is a significant public health problem globally with new case estimates of over one-half million yearly and a worldwide prevalence of approximately 1.26 million. Elimination of **leprosy** will most certainly require more than chemotherapy. A new vaccine for **leprosy** would provide the greatest potential impact for controlling and possibly eliminating the disease. New vaccines for TB and **leprosy** are being created using new technologies such as DNA vaccination and auxotrophic mutants of new and existing bacteria. This study proposes to create and evaluate new vaccines for **leprosy** and tuberculosis and determine their cross-protective efficacy for both diseases.

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

- **Project Title: EXAMINING ART ADHERENCE ISSUES IN BANGALORE, INDIA**

  Principal Investigator & Institution: Ekstrand, Maria L.; Research Psychologist; Medicine; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 94122

  Timing: Fiscal Year 2003; Project Start 09-APR-2003; Project End 31-MAR-2006

  Summary: (provided by applicant): The recent decline in the cost of HIV antiretroviral therapy (ART) in India and the ongoing competition among generic manufacturers, combined with recent announcements by WHO and the Global Fund to Fight AIDS, TB and Malaria make it very likely that ART will soon be a viable option for a larger proportion of its HIV infected individuals. Unfortunately, treatment effectiveness requires high levels of adherence and the adherence literature on other chronic, infectious diseases in India, such as TB and **leprosy,** indicate that serious adherence barriers may exist. To date, there have been no published studies on ART adherence issues in India. Thus, there is an urgent need for research to better understand the forces that influence HIV treatment adherence in this culture. This essential research needs to include formative work to establish valid and culturally appropriate adherence measures and strategies, explore culturally specific interpersonal, interpersonal, and contextual adherence barriers and facilitators, and assess current rates and correlates of ART adherence. We also need a better understanding of provider behaviors, including the guidelines physicians follow when deciding to prescribe antiretroviral medication, how their decisions are influenced by patient characteristics, how adherence is monitored, and the extent to which these drugs are available to the population of HIV infected individuals in India. The proposed study has been designed to meet these needs. Its overall goal is to examine patient and provider ART adherence issues in the HIV clinic at St John's hospital in Bangalore, India. Culturally appropriate adherence

measures will be identified and barriers that interfere with adherence to HIV treatment as well as potential avenues to enhance adherence will be examined using both qualitative and quantitative methods. These data will subsequently be used to inform the development of an adherence intervention that can be evaluated in a future clinical trial. The study includes two phases in which we propose to: 1. Conduct qualitative interviews with 40 patients and 20 physicians at St John's hospital in Bangalore, India to: a) Assess prescription patterns and clinical monitoring of toxicity and medication efficacy as well as perceptions of patient adherence; b) Explore individual, interpersonal and environmental factors that may facilitate or hinder adherence to HIV treatment regimens among HIV infected clinic patients; c) Examine the feasibility and acceptability of US developed adherence measures and strategies in this setting and determine ways in which these measures and strategies may need to be modified. 2. Recruit and follow a longitudinal cohort of 180 HIV infected clinic patients for one year using a computer-assisted structured interview to: a) Evaluate ART adherence patterns as well as adherence barriers and facilitators; b) Compare the concordance between the subjective and objective measures and HIV plasma viral load.

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

- **Project Title: GENE KNOCK-OUT MICE AS MODELS FOR THE LEPROSY SPECTRUM**

  Principal Investigator & Institution: Adams, Linda B.; Associate Professor; National Hansen's Disease Program 1770 Physician Park Dr Baton Rouge, La 70816

  Timing: Fiscal Year 2002; Project Start 01-MAY-2002; Project End 30-APR-2007

  Summary: (provided by the applicant): The proposed studies will explore Mycobacterium leprae foot pad infection in knockout (KO) mouse strains carefully selected for their disruption in genes that play key roles in host cell mediated immunity (CMI) to mycobacterial pathogens. Growth of M. leprae in the foot pad will be monitored and the experimental granulomas which develop will be analyzed to determine if these KO mouse strains can serve as models for the key immunoregulatory elements of CMI that result in the unique immunopathological spectrum of human **leprosy.** CMI responses will be further modified in the KO mice by conditionally knocking-out additional gene products before or after infection with M. leprae or by selectively restoring certain disrupted gene functions after infection. Development of KO mouse models for discrete elements of the human **leprosy** spectrum should open investigation into the mechanisms underlying the instability inherent to the borderline area of this spectrum where downgrading and upgrading shifts toward the lepromatous and tuberculoid ends of the spectrum, respectively, are poorly understood. More importantly, KO mouse models of **leprosy** and the additional manipulations of these models that are proposed may afford insight into the mechanisms responsible for the abrupt onset of type 1 and type 2 reactions. Ultimately, this basic knowledge may permit prediction and prevention of these devastating reactions, which markedly enhance nerve damage. Numerous studies have been reported with M. tuberculosis in gene KO mice. We suggest that M. leprae-KO mouse studies will permit more detailed dissection of the mechanisms of CMI. Targeted removal of a number of isolated gene functions often greatly exacerbates experimental murine tuberculosis, perhaps by overwhelming certain compensatory mechanisms in host resistance. In marked contrast, M. leprae is a quiet, well adapted, obligate intracellular pathogen. This proposal is based on the likelihood that its characteristics of slow rate of growth, low virulence and chronic pathogenesis are the very attributes which will make the study of M. leprae in targeted gene KO mice an ideal model for analyzing the principal redundant and

compensatory mechanisms of CMI in host resistance to infection in general and to intracellular mycobacterial pathogens in particular.

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

- **Project Title: GENETICS OF TB: CYTOKINE RESPONSE AND IRON**

  Principal Investigator & Institution: Louie, Leslie G.; Children's Hospital & Res Ctr at Oakland Research Center at Oakland Oakland, Ca 94609

  Timing: Fiscal Year 2002; Project Start 01-APR-2002; Project End 31-JUL-2003

  Summary: (provided by applicant) Evidence from animal models and from other Mycobacterial diseases in humans (e.g., leprosy) implicates a role for cytokine profiles in determining the outcome of human infection with Mycobacterium tuberculosis (M.tb.). These profiles are influenced in part by the host's ability to respond to infection, antigenic stimulation of the host, and underlying predisposing conditions. HIV infection is a major predisposing factor in TB and is epidemic in Zimbabwe. Iron overload has also been documented in Zimbabwe and evidence exists that iron plays a role in host response to M.tb. infection. Thus, the immune response to M.tb. infection is complex and is likely to be influenced by both genetic and environmental factors. Our ongoing study, "Genetic Contribution of Host and Pathogen in African TB," (AI 40019) examines variation at host immune response genes in M.tb. infected controls and TB cases, both with and without HIV co-infection. The current application will expand the ongoing study to allow dietary nutrients and cytokine responses to be tested, and it will permit a greater range of immune response genes to be examined. The sample of extrapulmonary TB (EPTB) cases will be augmented in an effort to understand the role of host genetic risk factors and cytokine responses in disease progression among infected individuals. We will address the following hypotheses: 1) Genetic variants that affect the expression or function of cytokines and iron metabolism will influence risk of TB; 2) Impaired IFN- and IL-12 responses occur in tuberculosis and are more profound when extrapulmonary or disseminated disease exists; 3) HIV-1 stage of infection can influence the type of cytokine response to M. tb. infection; and 4) Differences in iron status and iron metabolism influence risk of TB. To this end, we will recruit HIV+ and HIV- patients with PTB, HIV+ patients with EPTB (pleural effusion or lymphadenitis), or HIV+ and HIV- controls without TB who are PPD skin-test positive (n=125 per group, total n=750 subjects). These subjects will be screened for HLA class I and II genes, cytokine genes, and iron metabolism gene variation. Cytokine production in response to stimulation by mycobacterial antigens and markers affecting iron will be measured. HIV-1 infection will be staged by viral load and CD4 cell count. By understanding the role of host genetic variation, cytokine response, HIV infection, and iron in susceptibility to TB infection and disease progression, public health control measures can be pursued, including vaccine design, vaccine testing, cytokine therapy, and dietary recommendations.

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

- **Project Title: GM-CSF IN TREATMENT OF PYODERMA GANGRENOSUM**

  Principal Investigator & Institution: Siddiqui, Furgan; Tulane University of Louisiana New Orleans, La New Orleans, La 70112

  Timing: Fiscal Year 2001

  Summary: The purpose of this compassionate use protocol is to evaluate the effectiveness of Granulocyte-Macrophage Colony Stimulating Factor (GM-CSF) injected subcutaneously into the perilesional area in this chronic, non-healing ulcer. Clinical

studies have predicated the safety and effectiveness of GM-CSF, and have shown its ability to cause human skin cell growth and speed healing in leg ulcers, pressure ulcers, and wounds in the skin of **leprosy** patients. GM-CSF has been shown to enhance several cellular functions known to be important in wound healing. GM-CSF stimulates proliferation and activation of neutrophils, monocytes, lymphocytes, keratinocytes, Langerhams' cells, and endothelial cells. GM-CSF has been shown to be superior to TNF and platelet-derived growth factor in stimulating accumulation of macrophages in wounds and production of a smooth muscle actin in fibroblasts, important for gramulation tissue formation. The activity of GM-CSF on cells involved in wound healing has led to reports of the use of GM-CSF in the treatment of ulcers of several etiologies, including diabetic foot ulcers venous stasis ulcers, and pyoderma gangrenosum.

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

- **Project Title: GORDON RESEARCH CONFERENCE ON BASEMENT MEMBRANES**

  Principal Investigator & Institution: Kramer, James M.; Professor; Gordon Research Conferences Box 984, 512 Liberty Ln West Kingston, Ri 02892

  Timing: Fiscal Year 2002; Project Start 09-JUN-2002; Project End 31-DEC-2002

  Summary: (provided by applicant): This application requests partial funding for the support of invited speakers for the 2002 Gordon Conference on Basement Membranes. This is the eleventh in a series of conferences, which have become an international forum for dissemination of new ideas and information about the structure and functions of basement membranes (BMs). These are complex, three dimensional, extracellular structures formed at epithelial mesenchymal interfaces and around mesenchymal cells, with important roles in the organization and function of most tissues and organs, e.g., blood vessels, lung, kidney, skin, peripheral nerves, and muscle. For example, basement membranes regulate the migration and organization of cells in the musculoskeletal system, as well as axons and synapses in the nervous system. Mutations in genes encoding basement membrane components result in severe inherited disorders in humans (e.g., epidermolysis bullosa of skin, congenital muscular dystrophy and associated nerve defects, Alport syndrome of kidney). Acquired defects in basement membranes also contribute to the pathogenesis of diabetic microvascular disease and serve as entry sites for infectious agents, such as **leprosy,** and for metastatic cancer cells. Traditionally, the conference has attracted scientists from a wide range of fields in basic research, including protein and carbohydrate structure, gene expression, cell and developmental biology, and neurobiology. In addition, it has been attended by clinicians and scientists involved in research and/or treatment of human disorders involving BM components of lung, blood vessels, skin, kidney, bone, muscle and immune systems. Basic studies of BM degradation and turnover are also of interest to scientists investigating dynamic processes such as angiogenesis, cancer metastasis, embryo implantation, and involution of the mammary gland and uterus. There has been substantial interest from clinicians and scientists in the pharmaceutical and biotechnology industries studying the roles of BMs in wound healing, angiogenesis, nerve regeneration, inflammation, and tissue repair. The Conference will present a diverse mixture of sessions on the basic science of basement membrane and extracellular matrix (ECM) structure, biosynthesis, assembly, turnover, and functions. Comparative studies of BM function in vertebrates and invertebrates and the roles of BM and ECM in embryonic development will also be incorporated into the program. In addition, emphasis will be given to studies on the genetic analyses of BM and ECM functions, and the generation of animal models of human BM disorders.

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

- **Project Title: INDUCTION OF ANERGY AND ALTERED SIGNAL TRANSDUCTION**

  Principal Investigator & Institution: Ochoa, Augusto C.; Associate Professor; Pediatrics; Louisiana State Univ Hsc New Orleans New Orleans, La 70112

  Timing: Fiscal Year 2001; Project Start 01-AUG-1999; Project End 31-JUL-2002

  Summary: Patients with chronic infectious diseases and cancer have an impaired immune response characterized by an absent delayed type hypersensitivity (DTH), a decreased cytotoxic function and a diminished proliferation to antigenic stimuli. The basis for this immune dysfunction has been poorly understood, however, it could present a barrier in the development of new therapeutic cancer vaccines and immunotherapy protocols. Multiple reports have demonstrated alterations in signal transduction molecules of T cells, suggesting that these could in part explain the immune dysfunction in these patients. Recent reports have also shown an impaired expression of costimulatory molecules in tumor associated antigen presenting cells which could lead to T cell anergy. Therefore, we hypothesize that chronic stimulation by tumor antigens, in the absence of adequate costimulation can induce T cell anergy and lead to an impaired expression of signal transduction molecules. Preliminary data from our laboratory demonstrates that in vitro chronic stimulation of the T cell receptor in the absence of costimulatory signals, results in altered expression of signal transduction molecules, similar to those described in patients with cancer, **leprosy** and other chronic inflammatory diseases. The present proposal will use this in vitro model to carry out the following Specific Aims: 1) to characterize the alterations in signal transduction molecules in T cells and in CD4 and CD8 T cell subsets, induced by chronic stimulation; 2) to study the kinetics of these changes and identify the intracellular mechanisms leading to such alterations; and 3) to test whether chronic stimulation of tumor specific T cell clones, with tumor specific antigens, can result in the induction of anergy and T cell signal transduction alterations.

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

- **Project Title: INTERACTIONS BETWEEN SIMIAN AIDS (SAIDS) & LEPROSY: MACAQUES**

  Principal Investigator & Institution: Gormus, Bobby J.; Tulane University of Louisiana New Orleans, La New Orleans, La 70112

  Timing: Fiscal Year 2001

  Summary: The remaining rhesus 13 monkeys from 2 prior studies of the effects of the AIDS virus on susceptibility to **leprosy** were necropsied and evaluated histopathologically for **leprosy.** Of the 13 animals, 10 represented control animals inoculated with Mycobacterium leprae (ML) alone and 3 were inoculated with ML and SIV 2-3 years prior to necropsy. Two of the 3 coinoculated animals were AIDS-positive but **leprosy** could not be confirmed in these 3 animals; 1 of the 10 ML-only inoculated animals was leprosy-positive. The final interpretation of these experiments, therefore, is that 16 of 20 animals inoculated with SIV + ML developed **leprosy** compared to 1 of 10 animals given ML only over the same time of observation (2-3 years). These results definitively show that the AIDS virus increases the susceptibility of rhesus monkeys to **leprosy.** FUNDING Base Grant, Venture Research PUBLICATIONS Gormus BJ, Xu K, Baskin GB, Martin LN, Bohm Jr RP, Blanchard JL, Mack PA, Ratterree MS, Meyers WM and Walsh GP. Experimental **Leprosy** in Rhesus Monkeys Transmission, Susceptibility,

Clinical and Immunological Findings. **Leprosy** Review 69:235-245, 1998. Gormus BJ, Xu K, Murphey-Corb M, Martin LN, Baskin GB, Mack PA, Ratterree MS, Gerone PJ, Scollard DM and Gillis TP. Mycobacterium leprae-AIDS Virus Interactions in Monkeys. 15th International **Leprosy** Congress, Beijing, Republic of China, September 10, 1998. [Abstract]

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

- **Project Title: LEPROSY BACILLUS,: FROM GENOTYPE TO PHENOTYPE**

  Principal Investigator & Institution: Brennan, Patrick J.; Professor; Microbiology, Immunology & Pathology; Colorado State University Fort Collins, Co 80523

  Timing: Fiscal Year 2001; Project Start 15-JUN-2001; Project End 30-APR-2006

  Summary: (Adapted from the Applicant's Abstract): The purpose of this completely revamped resubmission is the identification and implementation of new antigens for the diagnosis and epidemiological monitoring of **leprosy** and is based on the just-sequenced contiguous M. leprae genome, on the investigators' singular access to the bacillus, and driven by the extraordinary epidemiological conundrum of a convergence of falling prevalence and rising incidence. The other hypothesis-driven thrust is that a defective genotype must be reflected in a truncated phenotype, the definition of which will also provide knowledge and tools to help explain the peculiarities of **leprosy,** such as obligate intracellularism, characteristic cell tropism and reactions. S. Cole (Institut Pasteur) will complete the analysis and annotation of the genome and generate databases to provide the means for a two-laboratory effort (L'Institut Pasteur; CSU) to define the transcriptome, polymorphism within the infectious agent, and the entire simplified proteome through cloning of targeted genes and definition of the full array of in vivo expressed proteins. CSU will apply the genome and the structural knowledge of mycobacteria to define the simplified secondary gene products (LepLAM; LM; new extracellular lipids; peptidoglycan; etc.). CSU, Fio-Cruz (C. Pessolani), and Yonsei University (S.-N. Cho) will combine to test new products in guinea pigs for DTH responses, against PBMC's of **leprosy** patients for appropriate T-cell reactivity, and against sera for antibody responses, with a view to advancing the new skin antigen initiative and providing new blood assays for early diagnosis and identification of a t risk populations.

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

- **Project Title: MAPPING OF VITILIGO SUSCEPTIBILITY GENES**

  Principal Investigator & Institution: Spritz, Richard A.; Professor and Director; Biochem & Molecular Genetics; University of Colorado Hlth Sciences Ctr P.O. Box 6508, Grants and Contracts Aurora, Co 800450508

  Timing: Fiscal Year 2001; Project Start 01-SEP-1999; Project End 31-AUG-2003

  Summary: Generalized vitiligo is a common, non-contagious disorder, characterized by progressive patchy loss of pigmentation of the skin, overlying hair, oral mucosa, and occasionally eyes, due to progressive loss of pigment forming melanocytes in the affected areas Vitiligo is thought to be autoimmune in origin, and frequently is associated with other autoimmune disorders. The prevalence of vitiligo is approximately 0.1 to 0.3 percent in different ethnic or racial groups. Vitiligo is most significant in dark-skinned populations, for its pigmentary disfigurement produces social stigmatization and is often confused with **leprosy** or other socially terrifying infectious diseases. But it can be a devastating disorder to those affected in any population. In preparation for this study, we conducted a survey of vitiligo patients in

the United Kingdom, the largest ever done, thereby ascertaining a large cohort of families with vitiligo. These data were consistent with other studies in suggesting a total risk to first-degree relative of probands of about 7%. Further, one or more susceptibility loci appears to account for an apparent autosomal dominant inheritance of vitiligo. Further, one or more susceptibility loci appears to account for an apparent autosomal dominant inheritance of vitiligo in a fraction (approximately 8%) of families. However, the major gene(s) in these families does not account for the total increased risk for vitiligo in relatives, suggesting that susceptibility alleles with lower penetrance at the same or different loci are important in other families. These results suggest a mixed model for the inheritance of vitiligo, which has also been reported for many other complex disorders. The proposed studies will combine the UK vitiligo family cohort with a similarly sized vitiligo family cohort in the USA. Utilizing these resources, and 400 polymorphic markers spaced at approximately 10 cM intervals throughout the genome, we proposed a two-phased approach to mapping vitiligo susceptibility loci. The specific aims are: 1) Map autosomal dominant vitiligo susceptibility loci by parametric linkage analysis in families with 4 or more affected relatives; and (2) map other vitiligo susceptibility loci by parametric linkage analysis in families with 4 or more affected relatives; and (2) map other susceptibility genes using non-parametric linkage analysis in affected sib pairs. This rational and comprehensive approach will provide the greatest likelihood of mapping vitiligo susceptibility loci, thereby accelerating the identification, and the molecular, cellular, clinical, and epidemiological characterization, of the disease genes.

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

- **Project Title: MEDIATION OF ANTIBODY INDUCED GLOMERULAR INJURY**

  Principal Investigator & Institution: Salant, David J.; Boston University Medical Campus 715 Albany St, 560 Boston, Ma 02118

  Timing: Fiscal Year 2001

  Summary: Amyloid A (AA) amyloidosis, a complication of inflammatory diseases such as tuberculosis, **leprosy** and rheumatoid arthritis, occurs more frequently with increasing length of unchecked disease. AA fibrils are derived from apoSAA proteins (transient, injury-specific constituents of high density lipoprotein (HDL)). At the resolution of an acute inflammatory episode, elevated apoSAA appears to be catabolized by two pathways; one is cell-associated and theother involves secreted enzymes, either extracellularly or in phagolysosomes. When normal clearance is impaired, insoluble AA fibrils accumulate extracellularly. Here we study apoSAA catabolism as it relates to AA amyloidosis, using recombinant apoSAA3 and nonamyloidogenic isoforms such as apoSAA1 as controls. These apoSAA molecules are used for in vivo and in vitro studies of apoSAA catabolism in hepatocytes and macrophages from young and old, amyloidotic andnonamyloidotic, male and female hamsters. The goal is to achieve AA fibril formation in a deemed in vitro system, thereby establishing the requisite factors for AA fibril formation. The hypothesis that apoSAA clearance occurs as part of its normal function to interrupt reverse cholesterol transport is being tested. The ability of lipids and lipoproteins, serum amyloid P (SAP) andextracellular matrix (ECM) constituents to alter the capacity of lysosomal enzymes for complete catabolism of apoSAA is being investigated. The long range goals are to enhance the normal protective role of apoSAA in restoration of homeostasis, to prevent dysfunctions such as amyloidosis that occur as a complication of the chronic inflammatory conditions that are more prevalent with aging, and to understand in general how age-associated changes in regulated proteolysis can lead to amyloid fibril

formation. Electrospray ionization and ultraviolet and infrared matrix-assisted laser desorption/ionization have been used to verify the molecular weights andevaluate purity of recombinant human apoSAA, MW 11,832 Da, and of synthetic analogs of model peptides, MWs 2000-5000, whose sequences represent key portions of the SAA sequence.

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

- **Project Title: MOLECULAR DEFINITION OF MYCOBACTERIUM PARATUBERCULOSIS**

  Principal Investigator & Institution: Inamine, Julia M.; Associate Professor; Microbiology; Colorado State University Fort Collins, Co 80523

  Timing: Fiscal Year 2002; Project Start 01-JUN-2002; Project End 31-MAY-2006

  Summary: (provided by applicant): This proposal is in response to RFA AI- 01-004 "Infectious Etiology of Chronic Diseases: Novel Approaches to Pathogen Detection" and specifically addresses the study of Mycobacterium avium subspecies paratuberculosis (M. paratuberculosis). M. paratuberculosis is the etiological agent of Johne's disease, chronic granulomatous enteritis in cattle and other ruminants, and has been implicated as a possible cause of Crohn's disease in humans. The difficulty in confirming or refuting an etiological link between M. paratuberculosis and Crohn's disease is a reflection of two issues associated with M. paratuberculosis: 1) the very slow growth of the bacterium engenders a long incubation period in the host and hinders detection; and 2) there is a poor understanding of the biochemistry and genetics of this organism. It is our contention that the second issue can be best addressed by a molecular definition of M. paratuberculosis. This goal will be accomplished by four specific aims: 1) use standard proteomic methods and develop a new ICAT- based method to identify M. paratuberculosis-specific gene expression; 2) perform genomic analyses by using Suppression Subtractive Hybridization to identify M. paratuberculosis-specific sequences; 3) characterize the polysaccharides, lipoglycans and lipids expressed by M. paratuberculosis to provide a complete biochemical analysis that will assist in defining chemical markers for this organism; and 4) develop a proteome website and a reagent repository (including recombinant M. paratuberculosis-specific proteins and clinical isolates) as a service to other basic researchers and clinicians. We will employ the strategies that are currently used by the Mycobacteria Research Laboratories at Colorado State University to support tuberculosis and **leprosy** research throughout the world to provide a rapid and economic means to obtain information required to develop new diagnostics and vaccines, and elucidate the biochemical and genomic differences that allow M. paratuberculosis to maintain a specific biological niche that is not shared by the closely related M. avium subspecies avium.

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

- **Project Title: NATIONAL CHIMPANZEE BREEDING AND RESEARCH PROGRAM**

  Principal Investigator & Institution: Keeling, Michale E.; Asst Veterinarian and Asst Professor; Veterinary Science; University of Texas Md Anderson Can Ctr Cancer Center Houston, Tx 77030

  Timing: Fiscal Year 1999; Project Start 30-SEP-1986; Project End 31-AUG-2004

  Summary: This continuing cooperative agreement will set aside for breeding a demographically balanced population of 109 physically and behaviorally healthy chimpanzees. This self-sustaining complement of chimpanzees can contribute significantly to providing a stable supply of serologically pathogen free offspring for

investigative use that are behaviorally equipped to contribute to continued successful propagation in captivity after reaching adulthood. None of these animals are compromised by previous poor behavioral management or transmissible asymptomatic infectious disease research. To complement the health and behavioral management programs, we will continue to collaborate with Trinity University to maintain a comprehensive genetic management program using DNA probes and other techniques to establish positive paternity, determine population heterozygosity and identify genetic correlates of infertility or disease. We will continue our collaborations with the International Species Inventory System (ISIS) program documenting demographic data for the national program. The proposed plan and facilities have a 16 year track record to substantiate the success of the breeding program and the cost-effective delivery of high-quality husbandry and care. The progressively designed physical facilities insure a balance between an enriched and protected habitat. To complement the facilities, sufficient numbers of dedicated and experienced professional and technical personnel are available to assure a successful program. We offer a professional staff with a combined 47 years of experience in chimpanzee care and management and a technical and animal care cadre with a combined 50 years of experience. The animal care personnel to animal ratio (1:24) provides the ideal balance of quality care and efficiency. Because the facility design complements the social and physical health needs of the chimpanzee in all stages of development, this quality care and enriched environment can be provided cost- effectively. This dedicated colony will continue to provide a core resource to support relevant clinical investigations designed to complement the breeding program by improving chimpanzee health, well-being and productivity. Clinical investigations of positive reinforcement training, behavioral enrichment, reversible contraception, clinical **leprosy** and obesity will continue. We will also support a companion behavioral research grant for continuing applied studies to improve the care and well-being of captive chimpanzees. This program has been very productive during the last two award periods by supplying objective behavioral data on which to base our behavioral management decisions. New areas of investigation include continued documentation of relevant positive reinforcement training, behavioral interventions to address obesity, computer-assisted enrichment to challenge the chimpanzees' cognitive abilities, examination of predictability of animal care routines and animal control over environmental stimuli with regard to well-being. On-going studies comparing behavioral development and enclosure design will be completed.

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

- **Project Title: PATHOBIOLOGY OF HUMAN LEPROSY**

  Principal Investigator & Institution: Kaplan, Gilla; Full Member; Lab/Cell Physiol & Immunology; Rockefeller University New York, Ny 100216399

  Timing: Fiscal Year 2001; Project Start 01-APR-1986; Project End 31-JUL-2002

  Summary: (Adapted from the Applicant's Abstract): This is a revised competitive renewal application to conduct a clinical and laboratory investigation aimed at understanding the regulation of cell-mediated immunity (CMI) and how it is subverted in **leprosy.** The focus of the proposal is on the immunologic mechanisms underlying the long term sequelae and complications of **leprosy.** The studies will (1) analyze the nature and etiology of the reactional states of **leprosy** to determine whether genetic polymorphisms and/or bacillary load in the nerves contribute to the development of reversal reactions (RR) and erythema nodosum leprosum (ENL) and whether T cell activation plays a role in the pathogenesis and/or cure of ENL. (2) The proposed studies will examine the process of nerve damage and establish whether it affects cell

recruitment and activation and/or poor wound healing in the skin of **leprosy** patients. A variety of approaches will be used, including genetic analyses involving specific oligonucleotide probing, immunological assays involving cell activation and cytotoxicity as well as cytokine evaluation by ELISA and semiquantitative PCR, and morphologic analyses employing histology, immunocytochemistry, and electron microscopy, to evaluate the nature, interactions and secretory repertoire of the cells involved in the pathobiology of the disease. The studies will be carried out on patient samples and selected patient populations through collaborative efforts in Addis Ababa, Ethiopia and Kathmandu, Nepal. The proposed studies are an extension of the achievements reported in the prior grant period.

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

- **Project Title: PATHOGENESIS AND THERAPY OF TROPICAL DISEASES**

  Principal Investigator & Institution: Carvalho, Edgar M.; Federal University of Bahia Rua Augusto Viana Salvador,

  Timing: Fiscal Year 2001; Project Start 01-MAR-1991; Project End 30-JUN-2002

  Summary: The main objective of this program is to perform epidemiological, clinical and immunological studies to expand our knowledge of the pathogenesis, treatment and control of schistosomiasis, leishmaniasis and persistent diarrheal disease. The UFBA/UFC/UFRN/FIOCRUZ TROPICAL MEDICINE RESEARCH CENTER Consortium will bring together the expertise of investigators from the Northeast of Brazil. The TMRC will increase our collaboration with American scientists and will provide opportunities for United States investigators to conduct research on tropical disease. Major diseases which are endemic in the impoverished Northeast of Brazil include: leishmaniasis, schistosomiasis, filariasis, Chagas' disease, **leprosy,** malaria, diarrhea due to enteric infections and helminthiasis. The overall programmatic theme is the role of cytokines in pathogenesis and disease expression and novel approaches to treatment and control of schistosomiasis, leishmaniasis and persistent diarrhea. Project I. "S.mansoni: Hepatosplenism, HLA and T cell responses" will determine the influence of HLA class II alleles on the development of cellular immune responses to crude and defined schistosoma antigens that led to the development of severe hepatosplenism schistosomiasis. Project II. "Natural history and human immunogenetics of visceral leishmaniasis in Ceara and Rio Grande do Norte, Brazil" will characterize immunological and genetic factors associated with resistance or susceptibility to the development of visceral leishmaniasis. Project III. "Immunoregulation in leishmaniasis" will determine immunological events occurring early after the contact of leishmania with macrophages, the role of cytokines (GM-CSF and IL-12) as vaccine adjuvants and the immunological and clinical responses related to treatment of cutaneous leishmaniasis with IL-12 in combination with pentavalent antimony. Project IV. "Role of Cytokines, Cellular Immunologic Determinants and New Approaches to Treating Persistent diarrhea in population at high risk for Crytosporidium, enteroaggregative E. coli and other enteric infections" will define the role of enteric cytokines and cellular immunity in the physiologic derangements in persistent cryptosporidal, E. coli and other diarrhea illnesses and to examine novel, function-based approaches to their therapy.

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

- **Project Title: TARGETING M. LEPRAE SURVIVAL STRATEGIES IN THE PNS**

  Principal Investigator & Institution: Rambukkana, Anura; Lab/Bacterial Pathogenesis; Rockefeller University New York, Ny 100216399

Timing: Fiscal Year 2003; Project Start 15-DEC-2002; Project End 30-NOV-2007

Summary: (provided by applicant): **Leprosy** remains an important global health problem, and represents a classical example of infectious neuro-degenerative diseases of the peripheral nervous system (PNS). Mycobacterium leprae infection of the Schwann cell, the glial cell of the PNS, is the primary cause for the nerve damage in **leprosy.** We have recently shown that the non-myelinating Schwann cell, but not the myelinated Schwann cell, preferentially harbors M. leprae, and thus serves as the intracellular niche for persistent infection. Because M. leprae is an obligate intra-cellular pathogen with the longest doubling time and a limited number of genes in its genome, the establishment of productive infection within non-myelinated Schwann cells is the key for bacterial survival. However, the mechanisms of M. leprae survival within Schwann cells are unknown. Targeting of M. leprae survival strategies will provide the rational to develop new therapeutics to combat the neurological injury and disease progression. To study these aspects, we used primary human Schwann cells (isolated and purified from human peripheral nerves) as a model, since they phenotypically resemble non-myelinated Schwann cells in vivo. Intracellular M. leprae in vitro maintain viability for several weeks without causing any apoptosis or cytopathic effect to Schwann cells. Microarray analysis using Affymetrix human GeneChips with cRNA prepared from primary human Schwann cells infected with viable M. leprae for 30 days, we showed that the majority of differentially expressed Schwann cells genes are (i) enzymes that regulate metabolic and respiratory functions, (ii) cell cycle regulators/inhibitors, (iii) growth/neurotropic factors, (iv) growth factor receptors and (v) associated transcriptional and signaling molecules. Therefore, we propose that once infected, M. leprae effectively use Schwann cell machinery on one hand to maintain the bacterial viability and the other hand to secure the intracellular niche for long-term bacterial survival by regulating Schwann cell growth. To study these, we will study the following: (1) M. leprae regulation of Schwann cell metabolic/catabolic functions, (2) Regulation of human Schwann cell cycle by M. leprae, and (3) M. leprae-induced growth/neurotropic factors and their effects on Schwann cell signaling, growth and functions. These studies should provide novel insight into the persistent M. leprae infection in the PNS, nerve damage in **leprosy** patients, and the basic biology of glial cells.

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

- **Project Title: TROPICAL DISEASES SYMPOSIUM**

  Principal Investigator & Institution: Hill, George C.; Levi Watkins, Jr. Professor and Associat; Microbiology; Meharry Medical College 1005-D B Todd Blvd Nashville, Tn 37208

  Timing: Fiscal Year 2001; Project Start 01-APR-2001; Project End 31-MAR-2006

  Summary: (provided by applicant): This proposal requests five-year support for a symposium entitled "Recent Advances in the Immunology, Biochemistry and Molecular Biology of Tropical Diseases". The first symposium of this series will be held at Meharry Medical College, Nashville, Tennessee, on Monday and Tuesday, April 2-3, 2001, and will be entitled "Molecular Biology of Tropical Diseases International Health". The goals of these symposia are threefold: 1. To increase the opportunity for interaction among scientists investigating various organisms which cause tropical diseases. Immunologists, biochemists, molecular biologists and cell biologist come together to discuss recent advances in their area and consider future directions of research. 2. To continue to attract minority students from historically black colleges and universities to Meharry Medical College in order to simulate their interest in research in the biomedical sciences

as well as in various areas of tropical diseases. 3. To provide a forum for discussion of Tropical Diseases and International Health and the role minority scientists can play in this effort. The symposia will be sponsored by the Division of Sponsored Research, School of Graduate Studies and Research and the Department of Microbiology at Meharry Medical College. As part of this conference, undergraduate and graduate students from historically black colleges and universities will be encouraged to attend and present posters on research that they are undertaking in various laboratories and discuss ongoing research at our institution. The symposium will include six invited lecturers in various areas in tropical diseases covering areas such as African trypanosomiasis, schistosomiasis, malaria, leishmaniasis, **leprosy,** and Chagas disease. Ample time will be available for discussions.

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 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 "leprosy" (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for leprosy in the PubMed Central database:

- **Another View of the Therapy of Leprosy.** by Gelber RH.; 1998 Dec; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=106053
- **Changes in Expression of Signal Transduction Proteins in T Lymphocytes of Patients with Leprosy.** by Zea AH, Ochoa MT, Ghosh P, Longo DL, Alvord WG, Valderrama L, Falabella R, Harvey LK, Saravia N, Moreno LH, Ochoa AC.; 1998 Feb; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=107934
- **Corneal Ulcer Caused by Nocardia asteroides in a Patient with Leprosy.** by Tendolkar UM, Varaiya A, Ahuja AS, Motwane SA, Gogate AS.; 1998 Apr; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=104712
- **Detection of Phenolic Glycolipid I of Mycobacterium leprae in Sera from Leprosy Patients before and after Start of Multidrug Therapy.** by Cho SN, Cellona RV, Villahermosa LG, Fajardo TT Jr, Balagon MV, Abalos RM, Tan EV, Walsh GP, Kim JD, Brennan PJ.; 2001 Jan; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=96023
- **Determination of the etiology of presumptive feline leprosy by 16S rRNA gene analysis.** by Hughes MS, Ball NW, Beck LA, de Lisle GW, Skuce RA, Neill SD.; 1997 Oct; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=229993

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

[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.

- **Effects of essential fatty acid deficiency on prostaglandin E2 production and cell-mediated immunity in a mouse model of leprosy.** by Adams LB, Gillis TP, Hwang DH, Krahenbuhl JL.; 1997 Apr;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=175111
- **Experimental evaluation of possible new short-term drug regimens for treatment of multibacillary leprosy.** by Banerjee DK, McDermott-Lancaster RD, McKenzie S.; 1997 Feb;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=163709
- **Expression of Toll-Like Receptor 2 on Human Schwann Cells: a Mechanism of Nerve Damage in Leprosy.** by Oliveira RB, Ochoa MT, Sieling PA, Rea TH, Rambukkana A, Sarno EN, Modlin RL.; 2003 Mar;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=148832
- **Fibronectin-binding antigen 85 and the 10-kilodalton GroES-related heat shock protein are the predominant TH-1 response inducers in leprosy contacts.** by Launois P, N'Diaye MN, Cartel JL, Mane I, Drowart A, Van Vooren JP, Sarthou JL, Huygen K.; 1995 Jan;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=172961
- **High Oral Prevalence of Candida krusei in Leprosy Patients in Northern Thailand.** by Reichart PA, Samaranayake LP, Samaranayake YH, Grote M, Pow E, Cheung B.; 2002 Dec;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=154582
- **High relapse rate among lepromatous leprosy patients treated with rifampin plus ofloxacin daily for 4 weeks.** by Ji B, Jamet P, Sow S, Perani EG, Traore I, Grosset JH.; 1997 Sep;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=164043
- **Immunoglobulin G1 (IgG1) and IgG3 antibodies are markers of progressive disease in leprosy.** by Hussain R, Kifayet A, Chiang TJ.; 1995 Feb;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=173010
- **Immunohistochemical Analysis of Cellular Infiltrate and Gamma Interferon, Interleukin-12, and Inducible Nitric Oxide Synthase Expression in Leprosy Type 1 (Reversal) Reactions before and during Prednisolone Treatment.** by Little D, Khanolkar-Young S, Coulthart A, Suneetha S, Lockwood DN.; 2001 May;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=98301
- **Induction of Th1 cytokine responses by mycobacterial antigens in leprosy.** by Dockrell HM, Young SK, Britton K, Brennan PJ, Rivoire B, Waters MF, Lucas SB, Shahid F, Dojki M, Chiang TJ, Ehsan Q, McAdam KP, Hussain R.; 1996 Oct;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=174386
- **Multidrug Resistant Mycobacterium leprae from Patients with Leprosy.** by Maeda S, Matsuoka M, Nakata N, Kai M, Maeda Y, Hashimoto K, Kimura H, Kobayashi K, Kashiwabara Y.; 2001 Dec;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=90887

- **Recombinant Fusion Protein Identified by Lepromatous Sera Mimics Native Mycobacterium Leprae in T-Cell Responses Across the Leprosy Spectrum.** by Laal S, Sharma YD, Prasad HK, Murtaza A, Singh S, Tangri S, Misra RS, Nath I.; 1991 Feb 1; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=50953
- **Regimens to treat lepromatous leprosy.** by Gelber RH.; 1997 Jul; http://www.pubmedcentral.gov/picrender.fcgi?tool=pmcentrez&action=stream&blobtype=pdf&artid=163974
- **Reply to "Another View of the Therapy of Leprosy".** by Ji B, Grosset JH.; 1998 Dec; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=116684
- **Simple and Fast Lateral Flow Test for Classification of Leprosy Patients and Identification of Contacts with High Risk of Developing Leprosy.** by Buhrer-Sekula S, Smits HL, Gussenhoven GC, van Leeuwen J, Amador S, Fujiwara T, Klatser PR, Oskam L.; 2003 May; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=154748
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- **Specific Serological Diagnosis of Leprosy with a Recombinant Mycobacterium leprae Protein Purified from a Rapidly Growing Mycobacterial Host.** by Triccas JA, Roche PW, Britton WJ.; 1998 Aug; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=105051
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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 leprosy, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "leprosy" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for leprosy (hyperlinks lead to article summaries):

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  Author(s): Bhat RM, Radhakrishnan K.
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[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.

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- **Uniform MDT (U-MDT) regimen for all leprosy patients--another example of wishful thinking.**
  Author(s): Ji B, Saunderson P.
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  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12669926&dopt=Abstract

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  Author(s): Thappa DM, Karthikeyan K, Sahoo B, Jayanthi S.
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  Author(s): Prakash V, Husain S, Malaviya GN.
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  Author(s): Pfaltzgraff RE.
  Source: Lepr Rev. 2003 June; 74(2): 180-1. No Abstract Available.
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- **What would make your life better? A needs analysis of leprosy settlements in the middle belt region of Nigeria.**
  Author(s): Ogbeiwi O, Nash J.
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- **Which physical signs help most in the diagnosis of leprosy? A proposal based on experience in the AMFES project, ALERT, Ethiopia.**
  Author(s): Saunderson P, Groenen G.
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- **WHO leprosy elimination campaign--beyond 2005.**
  Author(s): Braber KL.
  Source: Lepr Rev. 2000 September; 71(3): 389-91. No Abstract Available.
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- **Why multidrug therapy for multibacillary leprosy can be shortened to 12 months.**
  Author(s): Ji B.
  Source: Lepr Rev. 1998 June; 69(2): 106-9. No Abstract Available.
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- **Why relapse occurs in PB leprosy patients after adequate MDT despite they are Mitsuda reactive: lessons form Convit's experiment on bacteria-clearing capacity of lepromin-induced granuloma.**
  Author(s): Chaudhuri S, Hajra SK, Mukherjee A, Saha B, Mazumder B, Chattapadhya D, Saha K.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1998 June; 66(2): 182-9.
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CHAPTER 2. NUTRITION AND LEPROSY

Overview

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

Finding Nutrition Studies on Leprosy

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 "leprosy" (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 "leprosy" (or a synonym):

- **A new therapeutic approach to type II leprosy reaction.**
  Author(s): Department of Dermatology, University Hospital UANL, Monterrey, Mexico.
  Source: Welsh, O Gomez, M Mancias, C Ibarra Leal, S Millikan, L E Int-J-Dermatol. 1999 December; 38(12): 931-3 0011-9059

- **A study of nutrition, growth and development of a high-risk group of children of urban leprosy patients.**
  Source: Saha, K. Rao, K.N. Chattopadhya, D. Lakshmi, V. Gadi, S. Dutta Banik, N.D. Eur-J-Clin-Nutr. Basingstoke : The Macmillan Press Ltd. June 1990. volume 44 (6) page 471-479. 0954-3007

- **Addiction of anti-CD28 antibodies restores PBMC proliferation and IFN-gamma production in lepromatous leprosy patients.**
  Author(s): Centro de Investigacion en Immunologia y Dermatologia. C.U.C.S. Universidad de Guadalajara/Instituto Dermatologico de Jalisco, Mexico. ciinde@cencar.udg.mx
  Source: Fafutis Morris, M Guillen Vargas, C M Navarro Fierros, S Alfaro Bustamante, F Zaitzeva Petrovna, G Daneri Navarro, A Santoscoy Tovar, L Armendariz Borunda, J J-Interferon-Cytokine-Res. 1999 November; 19(11): 1237-43 1079-9907

- **Alterations in early biochemical events following T cell activation in leprosy patients.**
  Author(s): Department of Dermatology, Venerology, and Leprology, Postgraduate Institute of Medical Education and Research, Chandigarh, 160012, India.
  Source: Sharma, N Sharma, V K Gupta, A Kaur, I Kaur, S Ganguly, N K Clin-Immunol-Immunopathol. 1998 August; 88(2): 142-9 0090-1229

- **Antibody response to phenolic glycolipid I and Mycobacterium w antigens and its relation to bacterial load in M. leprae-infected mice and leprosy patients.**
  Author(s): Department of Biochemistry, All India Institute of Medical Sciences, New Delhi.
  Source: Moudgil, K D Gupta, S K Naraynan, P R Srivastava, L M Mishra, R S Talwar, G P Clin-Exp-Immunol. 1989 November; 78(2): 214-8 0009-9104

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  Author(s): Department of Immunology, Central JALMA Institute for Leprosy, Uttar Pradesh, India.
  Source: Patil, S A Tyagi, P Katoch, K Sreevatsa Sengupta, U Clin-Exp-Immunol. 1991 June; 84(3): 515-21 0009-9104

- **Anti-phenolic glycolipid-I (PGL-I) determination using blood collection on filter paper in leprosy patients.**
  Author(s): Departamento de Dermatologia, Universidade Federal de Sao Paulo. Escola Paulista de Medicina, Sao Paulo, Brazil. jane.derm@originet.com.br
  Source: Tomimori Yamashita, J Nguyen, T H Maeda, S M Flageul, B Rotta, O Cruaud, P Rev-Inst-Med-Trop-Sao-Paulo. 1999 Jul-August; 41(4): 239-42 0036-4665

- **Association of vitamin D receptor genotype with leprosy type.**
  Author(s): Wellcome Trust Centre for Human Genetics, University of Oxford, United Kingdon. mita.roy@ndm.ox.ac.uk
  Source: Roy, S Frodsham, A Saha, B Hazra, S K Mascie Taylor, C G Hill, A V J-Infect-Dis. 1999 January; 179(1): 187-91 0022-1899

- **Blastogenic response with autologous plasma and Mitsuda's reaction in leprosy patients and their unaffected sibs.**
  Author(s): Department of Internal Medicine-Dermatology, Faculty of Medicine of Ribeirao Preto, University of Sao Paulo, Brazil.
  Source: Foss, N T Pagnano, P M Bechelli, L M Lima Filho, E C Acta-Leprol. 1991; 7(4): 335-45 0001-5938

- **Citric acid treatment of non-healing ulcers in leprosy patients.**
  Author(s): Department of Microbiology, MIMSR Medical College, Latur, 413 531, M. S. India. mimsr@bom6.vsnl.net.in
  Source: Nagoba, B S Wadher, B J Chandorkar, A G Br-J-Dermatol. 2002 June; 146(6): 1101 0007-0963

- **Cold abscesses and scrofuloderma in a patient of lepromatous leprosy.**
  Author(s): Skin and STD Clinic, General Hospital, Bhiwani.
  Source: Dixit, V B Pahwa, U S Sen, J Jain, V K Sen, R Indian-J-Lepr. 1991 Jan-March; 63(1): 101-2 0254-9395

- **Cytokines in leprosy, II. Effect of treatment on serum cytokines in leprosy.**
  Author(s): Department of Dermatology, Faculty of Medicine, Assiut University, Egypt.
  Source: Moubasher, A D Kamel, N A Zedan, H Raheem, D D Int-J-Dermatol. 1998 October; 37(10): 741-6 0011-9059

- **Delay in presentation and start of treatment in leprosy patients: a case-control study of disabled and non-disabled patients in three different settings in Ethiopia.**
  Author(s): ALERT, Addis Ababa, Ethiopia.
  Source: Bekri, W Gebre, S Mengiste, A Saunderson, P R Zewge, S Int-J-Lepr-Other-Mycobact-Dis. 1998 March; 66(1): 1-9 0148-916X

- **Detection of antibodies to phenolic glycolipid by ELISA in leprosy patients.**
  Author(s): 15/8FM Medical College, Rohtak.
  Source: Lal, H Jain, V K Mittal, R A Chaudhary, S D Saini, V Indian-J-Lepr. 1993 Jan-March; 65(1): 95-9 0254-9395

- **Dietary habits, food intake and functional outcomes in those with a history of Hansen's disease in Korea.**
  Author(s): Department of Food and Nutrition, Seoul National University, Korea. seyoung@nms.kyunghee.ac.kr
  Source: Oh, S Y Paik, H Y Ju, D Int-J-Lepr-Other-Mycobact-Dis. 1998 March; 66(1): 34-42 0148-916X

- **Effect of glucocorticoids and interferon-gamma on the oxidative responses of monocytes from leprosy patients and normal donors.**
  Author(s): Department of Medicine, University of Illinois, Chicago.
  Source: Vachula, M Holzer, T J Nelson, K E Andersen, B R Int-J-Lepr-Other-Mycobact-Dis. 1991 March; 59(1): 41-8 0148-916X

- **Essential fatty acids in plasma of patients with leprosy.**
  Author(s): Department of Dermatology, Royal Free Hospital and School of Medicine, London, England.
  Source: Wright, S Morse, N Manku, M S Int-J-Lepr-Other-Mycobact-Dis. 1991 June; 59(2): 271-7 0148-916X

- **Evaluation of a novel 2,3-diacyl-trehalose-2'-sulphate (SL-IV) antigen for case finding and diagnosis of leprosy and tuberculosis.**
  Author(s): Unite de la Tuberculose et des Mycobacteries, Institut Pasteur, Paris.

Source: Cruaud, P Yamashita, J T Casabona, N M Papa, F David, H L Res-Microbiol. 1990 Jul-August; 141(6): 679-94 0923-2508

- **Exploitation of gene knockout mice models to study the pathogenesis of leprosy.**
  Author(s): National Hansen's Disease Programs Laboratory, Louisiana State University School of Veterinary Medicine, Baton Rouge, Louisiana, USA.
  Source: Krahenbuhl, J Adams, L B Lepr-Revolume 2000 December; 71 SupplS170-5 0305-7518

- **High incidence of IgG antibodies to phenolic glycolipid in non-leprosy patients in India.**
  Author(s): Department of Dermatology, Postgraduate Institute of Medical Education and Research, Chandigarh, India.
  Source: KuMarch, B Sinha, R Sehgal, S J-Dermatol. 1998 April; 25(4): 238-41 0385-2407

- **Hypercalcemia and abnormal 1,25-dihydroxyvitamin D concentrations in leprosy.**
  Author(s): Department of Internal Medicine, Los Angeles County/University of Southern California Medical Center.
  Source: Ryzen, E Rea, T H Singer, F R Am-J-Med. 1988 February; 84(2): 325-9 0002-9343

- **IgG and IgM antibodies immunoreacting with a 2,3-diacyl trehalose-2'-sulphate in sera from leprosy patients.**
  Author(s): Unite de la Tuberculose et des Mycobacteries, Institut Pasteur, Paris, France.
  Source: Cruaud, P Potar, M C David, H L Papa, F Torgal Garcia, J Maroja, F Orsi Souza, A T Zentralbl-Bakteriol. 1990 June; 273(2): 209-15 0934-8840

- **Immunohistological analysis of in situ expression of mycobacterial antigens in skin lesions of leprosy patients across the histopathological spectrum. Association of Mycobacterial lipoarabinomannan (LAM) and Mycobacterium leprae phenolic glycolipid-I (PGL-I) with leprosy reactions.**
  Author(s): Departments of Dermatology, Academic Medical Center, University of Amsterdam, The Netherlands.
  Source: Verhagen, C Faber, W Klatser, P Buffing, A Naafs, B Das, P Am-J-Pathol. 1999 June; 154(6): 1793-804 0002-9440

- **Inhibition of apoptosis by ionomycin and zinc in peripheral blood mononuclear cells (PBMC) of leprosy patients.**
  Author(s): Department of Experimental Medicine and Biotechnology, Postgraduate Institute of Medical Education and Research, Chandigarh, India.
  Source: Gupta, A Sharma, V K Vohra, H Ganguly, N K Clin-Exp-Immunol. 1999 July; 117(1): 56-62 0009-9104

- **Lepromin-induced suppressor cells in lepromatous leprosy.**
  Source: Nelson, E E Wong, L Uyemura, K Rea, T H Modlin, R L Cell-Immunol. 1987 January; 104(1): 99-104 0008-8749

- **Malignant transformation in trophic ulcers in leprosy: a study of 12 cases.**
  Author(s): Dr. Bandorawalla Leprosy, Hospital, Kondhawa, Pune.
  Source: Sane, S B Mehta, J M Indian-J-Lepr. 1988 January; 60(1): 93-9 0254-9395

- **New multidrug regimen with indigenous drugs and dapsone in the treatment of lepromatous leprosy (preliminary report).**
  Source: Chaudhury, S Hazra, S Podder, G C Poddar, S Sarkar, S Das, P K Chaudhury, S N Majumder, V Indian-J-Dermatol. 1987 July; 32(3): 63-7 0019-5154

- **Nutrition in leprosy: a review.**
  Author(s): International Health Program, Loma Linda University, School of Health, California 92350.

Source: Foster, R L Sanchez, A L Stuyvesant, W Foster, F N Small, C Lau, B H Int-J-Lepr-Other-Mycobact-Dis. 1988 March; 56(1): 66-81 0148-916X

- **Osteoporosis, bone turnover and hypogonadism in elderly men with treated leprosy.**
  Author(s): Department of Anesthesiology, National Leprosarium Nagashima Aisei-en, Japan.
  Source: Ishikawa, A Ishikawa, S Hirakawa, M Lepr-Revolume 2001 September; 72(3): 322-9 0305-7518
- **Palatal palsy in a case of lepromatous leprosy.**
  Author(s): Department of Dermatology and Venereology, Medical College Hospital, Kottayam, India.
  Source: Pavithran, K Lepr-Revolume 1994 September; 65(3): 248-52 0305-7518
- **Paucibacillary leprosy and W.H.O. regimen.**
  Source: Hazra, S Chaudhury, S Chaudhury, S K Das, P K Dey, S K Indian-J-Dermatol. 1987 October; 32(4): 99-101 0019-5154
- **Pentoxifylline decreases in vivo and in vitro tumour necrosis factor-alpha (TNF-alpha) production in lepromatous leprosy patients with erythema nodosum leprosum (ENL).**
  Author(s): Leprosy Laboratory, Oswaldo Cruz Institute, Rio de Janeiro, Brazil.
  Source: Sampaio, E P Moraes, M O Nery, J A Santos, A R Matos, H C Sarno, E N Clin-Exp-Immunol. 1998 February; 111(2): 300-8 0009-9104
- **Phenolic glycolipid-I of Mycobacterium leprae induces general suppression of in vitro concanavalin A responses unrelated to leprosy type.**
  Source: Prasad, H K Mishra, R S Nath, I J-Exp-Med. 1987 January 1; 165(1): 239-44 0022-1007
- **Post-kala-azar dermal leishmaniasis mimicking leprosy: experience with 4 patients, with some unusual features in 1.**
  Author(s): Department of Dermatology, PGIMER, Chandigarh, India.
  Source: Dhar, S Kaur, I Dawn, G Sehgal, S KuMarch, B Lepr-Revolume 1995 September; 66(3): 250-6 0305-7518
- **Primary dapsone-resistant Hansen's disease in California. Experience with over 100 Mycobacterium leprae isolates.**
  Author(s): Kuzell Institute for Arthritis and Infectious Diseases, Medical Research Institute of San Francisco, Calif 94115-1896.
  Source: Gelber, R H Rea, T H Murray, L P Siu, P Tsang, M Byrd, S R Arch-Dermatol. 1990 December; 126(12): 1584-6 0003-987X
- **Proliferative responses of T cells from the skin and nerve lesions of leprosy patients.**
  Author(s): Armauer Hansen Research Institute, Addis Ababa, Ethiopia.
  Source: Mesret, Y Reed, A H Howe, R C Clin-Immunol-Immunopathol. 1995 December; 77(3): 243-52 0090-1229
- **Prostaglandins and leprosy. A role for aspirin?**
  Source: Klenerman, P Lepr-Revolume 1989 March; 60(1): 51-8 0305-7518
- **Recognition of phenolic glycolipid-I (Mycobacterium leprae) and sulfolipid-I (M. tuberculosis) by serum from Mexican patients with leprosy or tuberculosis.**
  Author(s): Departamento de Inmunologia, Escuela Nacional de Ciencias Biologicas, Instituto Politecnico Nacional, Mexico, DF. oscar_rojas@mail.internet.com.mx
  Source: Rojas Espinosa, O Luna Herrera, J Arce Paredes, P Int-J-Tuberc-Lung-Dis. 1999 December; 3(12): 1106-12 1027-3719

- **Repeated isolation of nocardia like organisms from multibacillary cases of leprosy.**
  Author(s): Deptt. of Medical Microbiology & Parasitology, University College of Medicine, Calcutta University.
  Source: Chakrabarty, A N Dastidar, S G Das, S Chaudhury, S K Indian-J-Lepr. 1987 Jul-September; 59(3): 247-62 0254-9395

- **Seroprevalence rates of antibodies to phenolic glycolipid-I among school children as an indicator of leprosy endemicity.**
  Author(s): Department of Biomedical Research, Royal Tropical Institute, Amsterdam, The Netherlands.
  Source: van Beers, S Hatta, M Klatser, P R Int-J-Lepr-Other-Mycobact-Dis. 1999 September; 67(3): 243-9 0148-916X

- **Serum lactoferrin in lepromatous leprosy patients.**
  Author(s): Central JALMA Institute for Leprosy, Tajganj, Agra, India.
  Source: Parkash, O M Girdhar, B K Sengupta, U Lepr-Revolume 1993 December; 64(4): 295-301 0305-7518

- **Serum zinc, sodium, calcium, magnesium and potassium levels and standard diet in leprosy patients.**
  Author(s): Department of Hand and Microsurgery, Medical University of South Africa, Pretoria.
  Source: Mennen, U Howells, C Wiese, A J Indian-J-Lepr. 1993 Oct-December; 65(4): 415-21 0254-9395

- **Socio-cultural aspects of leprosy among the Masalit and Hawsa tribes in the Sudan.**
  Author(s): School of Medicine, Ahfad University for Women, Omdurman, Sudan.
  Source: el Hassan, L A Khalil, E A G el Hassan, A M Lepr-Revolume 2002 March; 73(1): 20-8 0305-7518

- **Specificity of lymphoid cells within peripheral nerve lesions of paucibacillary leprosy patients.**
  Author(s): Foundation for Medical Research, Worli, Bombay, India.
  Source: D'Souza, S Mistry, N F Antia, N H Trop-Med-Parasitol. 1990 September; 41(3): 321-3 0177-2392

- **Spontaneous apoptosis in peripheral blood mononuclear cells of leprosy patients: role of cytokines.**
  Author(s): Department of Experimental Medicine and Biotechnology, Postgraduate Institute of Medical Education and Research, Chandigarh, India.
  Source: Gupta, A Sharma, V K Vohra, H Ganguly, N K FEMS-Immunol-Med-Microbiol. 1999 May; 24(1): 49-55 0928-8244

- **Steroid therapy and leprosy.**
  Source: Ramu, G Indian-J-Lepr. 1996 Apr-June; 68(2): 182-3 0254-9395

- **Suppressor response in lepromatous leprosy patients: role of Leu 2a cells.**
  Source: del Carmen Sasiain, M de la Barrera, S Ruibal Ares, B Cardama, J E Gatti, J C de Bracco, M M Immunology. 1987 January; 60(1): 13-8 0019-2805

- **T lymphocyte subpopulations in leprosy patients and their relation with circulating immune complexes.**
  Author(s): Division Inmunologia, Facultad de Ciencias Medicas, Universidad Nacional de Rosario, Argentina.
  Source: Bottasso, O A Morini, J C Ramos, G Segal Eiras, A Allergol-Immunopathol-(Madr). 1990 Mar-April; 18(2): 91-4 0301-0546

- **The hand-foot impairment score as a tool for evaluating prevention of disability activities in leprosy: an exploration in patients treated with corticosteroids.**
  Author(s): Department of Public Health, Erasmus University Rotterdam, The Netherlands.
  Source: Broekhuis, S M Meima, A Koelewijn, L F Richardus, J H Benbow, C Saunderson, P R Lepr-Revolume 2000 September; 71(3): 344-54 0305-7518
- **The management of leprosy reversal reactions.**
  Author(s): Department of Medicine, University of Sydney (DO6), Australia.
  Source: Britton, W J Lepr-Revolume 1998 September; 69(3): 225-34 0305-7518
- **The protective effects of methyl cellulose and conoid shields for lagophthalmos and corneal hypaesthesia in leprosy.**
  Author(s): Department of Ophthalmology, Cerrah pasa School of Medicine, University of Istanbul, Turkey.
  Source: Karacorlu, M A Cakiner, T Surel, Z Ersoy, N Saylan, T Sutlas, M Lepr-Revolume 1991 June; 62(2): 201-5 0305-7518
- **The use of pentoxifylline in the treatment of type 2 reactional episodes in leprosy.**
  Author(s): Leprosy Laboratory, Oswaldo Cruz Insitute, FIOCRUZ, Avenida Brasil 4365, Manguinhos, Cep 21045-900, Rio de Janeiro, RJ, Brasil.
  Source: Nery, J A Perisse, A R Sales, A M Vieira, L M Souza, R V Sampaio, E P Sarno, E N Indian-J-Lepr. 2000 Oct-December; 72(4): 457-67 0254-9395
- **Thyroxine may cure leprosy, fungal diseases and metabolic cataract.**
  Source: Annal, N Med-Hypotheses. 1991 August; 35(4): 315 0306-9877
- **Undernutrition and lepromatous leprosy. Serum vitamin A and E levels in leprosy spectrum.**
  Author(s): Vallabhbhai Patel Chest Institute, University of Delhi.
  Source: Rao, K N Saha, K Indian-J-Lepr. 1988 January; 60(1): 66-70 0254-9395
- **Undernutrition in lepromatous leprosy. V. Severe nutritional deficit in lepromatous patients co-infected with pulmonary tuberculosis.**
  Author(s): Department of Immunology, Vallabhbhai Patel Chest Institute, University of Delhi, India.
  Source: Saha, K Rao, K N Eur-J-Clin-Nutr. 1989 February; 43(2): 117-28 0954-3007

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**

The following is a specific Web list relating to leprosy; 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:

- **Food and Diet**

  Eggplants
  Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
  Hyperlink:
  http://www.wholehealthmd.com/refshelf/foods_view/0,1523,19,00.html

CHAPTER 3. ALTERNATIVE MEDICINE AND LEPROSY

Overview

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

- **"Mandukaparni" in the treatment of leprosy. A preliminary report.**
  Author(s): Chowdhury S, Ghosh S.
  Source: Lepr India. 1979 January; 51(1): 103-5. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=156286&dopt=Abstract

- **A medieval sculpture of leprosy in the Cistercian Abbaye de Cadouin.**
  Author(s): Manchester K, Knusel C.
  Source: Medical History. 1994 April; 38(2): 204-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8007754&dopt=Abstract

- **Amyloidosis in leprosy.**
  Author(s): Gupta JC, Panda PK.

Source: Lepr India. 1980 April; 52(2): 260-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7453141&dopt=Abstract

- **An indigenous drug (Sovanj) in the treatment of plantar trophic ulcers in leprosy.**
  Author(s): Kundu S, Ghosh S.
  Source: Bull Calcutta Sch Trop Med. 1966 July; 14(3): 96-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5981469&dopt=Abstract

- **Archbishop Andreas Sunesson and his illness. Leprosy or arthritis?**
  Author(s): Gejrot T.
  Source: Sydsven Medicinhist Sallsk Arsskr Suppl. 1992; 18: 23-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11623319&dopt=Abstract

- **Archbishop Andreas Sunesson and his illness. Leprosy or arthritis?**
  Author(s): Gejrot T.
  Source: Sydsven Medicinhist Sallsk Arsskr. 1992; 18: 23-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11639227&dopt=Abstract

- **Can the leper change his spots? The iconography of leprosy. Part I.**
  Author(s): Ober WB.
  Source: The American Journal of Dermatopathology. 1983 February; 5(1): 43-58.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6344684&dopt=Abstract

- **Can the leper change his spots? The iconography of leprosy. Part II.**
  Author(s): Ober WB.
  Source: The American Journal of Dermatopathology. 1983 April; 5(2): 173-86.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6349409&dopt=Abstract

- **Centelia asciatica linn (Thankuni) in the treatment of leprosy.**
  Author(s): Ali SM, Khan AK, Khaleque A, Hussain A, Shahidullah M.
  Source: Bangladesh Med Res Counc Bull. 1986 December; 12(2): 74-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3566685&dopt=Abstract

- **Charles Bonnet syndrome in leprosy; prevalence and clinical characteristics.**
  Author(s): Adachi N.
  Source: Acta Psychiatrica Scandinavica. 1996 April; 93(4): 279-81.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8712028&dopt=Abstract

- **Clinical evaluation of Acacia catechu, Willd. (Khadira) in the treatment of lepromatous leprosy.**
  Author(s): Ojha D, Singh G, Upadhyaya YN.

Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1969 July-September; 37(3): 302-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5393205&dopt=Abstract

- **Culture and 'compliance' among leprosy patients in Pakistan.**
  Author(s): Mull JD, Wood CS, Gans LP, Mull DS.
  Source: Social Science & Medicine (1982). 1989; 29(7): 799-811.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2799423&dopt=Abstract

- **Delay in presentation and start of treatment in leprosy patients: a case-control study of disabled and non-disabled patients in three different settings in Ethiopia.**
  Author(s): Bekri W, Gebre S, Mengiste A, Saunderson PR, Zewge S.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1998 March; 66(1): 1-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9614833&dopt=Abstract

- **Effect of oral zinc supplementation on the cell mediated immunity in lepromatous leprosy.**
  Author(s): el-Shafei MM, Kamal AA, Soliman H, el Shayeb F, Abdel Baqui MS, Faragalla S, Sabry MK.
  Source: J Egypt Public Health Assoc. 1988; 63(5-6): 311-36. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2979949&dopt=Abstract

- **Essential fatty acids in plasma of patients with leprosy.**
  Author(s): Wright S, Morse N, Manku MS.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1991 June; 59(2): 271-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1906518&dopt=Abstract

- **Evaluation of a sustained 7-year health education campaign on leprosy in Rufiji District, Tanzania.**
  Author(s): van den Broek J, O'Donoghue J, Ishengoma A, Masao H, Mbega M.
  Source: Lepr Rev. 1998 March; 69(1): 57-74.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9628096&dopt=Abstract

- **Evaluation of health education in a Tanzanian leprosy scheme.**
  Author(s): van Etten GM, Anten JG.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1972 October-December; 40(4): 402-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4677495&dopt=Abstract

- **Explanatory models and help-seeking behaviour of leprosy patients in Adamawa State, Nigeria.**
  Author(s): van de Weg N, Post EB, Lucassen R, De Jong JT, Van Den Broek J.
  Source: Lepr Rev. 1998 December; 69(4): 382-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9927811&dopt=Abstract

- **Facts about leprosy.**
  Author(s): BURROWS NB.
  Source: Can J Occup Ther. 1963; 30: 107-14. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14050748&dopt=Abstract

- **Hepato-protective role of indigenous drug Liv-52 in lepromatous leprosy.**
  Author(s): Nigam P, Dayal SG, Mukhija RD, Goyal BM, Joshi LD.
  Source: Hansenol Int. 1982 June; 7(1): 36-44.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6764921&dopt=Abstract

- **How leprosy is depicted in Ben-Hur.**
  Author(s): Thomsen RJ.
  Source: International Journal of Dermatology. 1991 November; 30(11): 818-24.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1757187&dopt=Abstract

- **Hyperbaric oxygenation (HBO) as a complementary treatment of patients with multibacillary lepromatous leprosy.**
  Author(s): Wilkinson FF, Rosasco Palau SA, Besuschio S, Calori BA, Bertholds M.
  Source: Nippon Rai Gakkai Zasshi. 1987 October-December; 56(4): 159-65. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3507902&dopt=Abstract

- **Identification of a Mycobacterium leprae specific protein antigen(s) and its possible application for the serodiagnosis of leprosy.**
  Author(s): Caldwell HD, Kirchheimer WF, Buchanan TM.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1979 September; 47(3): 477-83.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=90666&dopt=Abstract

- **Illness and service utilization behaviours of leprosy patients.**
  Author(s): Kumar A, Anbalagan M.
  Source: Lepr India. 1982 April; 54(2): 338-47.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6982374&dopt=Abstract

- **Influence of social perceptions of leprosy and leprosy patients on public health programs.**
  Author(s): Fassin D.

Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1990 March; 58(1): 111-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2319179&dopt=Abstract

- **Inhibition of apoptosis by ionomycin and zinc in peripheral blood mononuclear cells (PBMC) of leprosy patients.**
  Author(s): Gupta A, Sharma VK, Vohra H, Ganguly NK.
  Source: Clinical and Experimental Immunology. 1999 July; 117(1): 56-62.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10403916&dopt=Abstract

- **Interaction of anti-leprosy drugs with the rat serum complement system.**
  Author(s): Sahu A, Saha K, Kashyap A, Chakrabarty AK.
  Source: Immunopharmacology. 1988 May-June; 15(3): 143-50.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3134310&dopt=Abstract

- **Jala Neti' a yoga technique for nasal comfort and hygiene in leprosy patients.**
  Author(s): Rao AV, Krishna DR, Ramanakar TV, Prabhakar MC.
  Source: Lepr India. 1982 October; 54(4): 691-4. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7183836&dopt=Abstract

- **Juzam (leprosy) and its treatment in Unani medicine.**
  Author(s): Zafarullah M, Bano H, Vohora SB.
  Source: The American Journal of Chinese Medicine. 1980 Winter; 8(4): 370-84.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7246478&dopt=Abstract

- **Knowledge and practice of eye-care among leprosy patients.**
  Author(s): Yowan P, Danneman K, Koshy S, Richard J, Daniel E.
  Source: Indian J Lepr. 2002 April-June; 74(2): 129-35.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12708731&dopt=Abstract

- **Leeches and leprosy: medieval medicine in modern novels for young readers.**
  Author(s): Barnhouse R.
  Source: Literature and Medicine. 2002 Spring; 21(1): 26-44.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12053748&dopt=Abstract

- **Leprosy affects facial nerves at the main trunk: neurolysis can possibly avoid transfer procedures.**
  Author(s): Turkof E, Tambwekar S, Kamal S, El-Dahrawi M, Mansukhani K, Soliman H, Ciovica R, Mayr N.

Source: Plastic and Reconstructive Surgery. 1998 October; 102(5): 1565-73; Discussion 1574-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9774012&dopt=Abstract

- **Leprosy among the Limba: illness and healing in the context of world view.**
Author(s): Opala J, Boillot F.
Source: Social Science & Medicine (1982). 1996 January; 42(1): 3-19.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8745104&dopt=Abstract

- **Leprosy care through traditional healers.**
Author(s): Kaur P, Sharma UC, Pandey SS, Gurmohan S.
Source: Lepr Rev. 1984 March; 55(1): 57-61. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6708708&dopt=Abstract

- **Leprosy control in the Northern Territory.**
Author(s): Lush D, Hargrave JC, Merianos A.
Source: Aust N Z J Public Health. 1998 October; 22(6): 709-13.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9848969&dopt=Abstract

- **Leprosy in Ethiopian society.**
Author(s): Giel R, van Luijk JN.
Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1970 April-June; 38(2): 187-98.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5529249&dopt=Abstract

- **Leprosy in medieval Arabic medicine.**
Author(s): Dols MW.
Source: Journal of the History of Medicine and Allied Sciences. 1979 July; 34(3): 314-33.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=383782&dopt=Abstract

- **Leprosy in society. i. "leprosy has appeared on the face".**
Author(s): SKINSNES OK.
Source: Lepr Rev. 1964 January; 35: 21-35. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14114048&dopt=Abstract

- **Leprosy in society. ii. the pattern of concept and reaction to leprosy in oriental antiquity.**
Author(s): SKINSNES OK.
Source: Lepr Rev. 1964 April; 35: 106-22. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14143115&dopt=Abstract

- **Leprosy in society. IV. The genesis of lepra-angst.**
  Author(s): Skinsnes OK.
  Source: Lepr Rev. 1968 October; 39(4): 223-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5722500&dopt=Abstract

- **Leprosy in the Byzantine monasteries of the Judean Desert.**
  Author(s): Zias J.
  Source: Korot. 1985 Fall; 9(1-2): 242-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11613741&dopt=Abstract

- **Leprosy in the lands of the Bible, and the demons Bes and Pazuzu. Part I: Ancient Egypt and the Bes-image.**
  Author(s): Lieber E.
  Source: Korot. 1993-94; 10: 25-43. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11639672&dopt=Abstract

- **Leprosy in tibetan art and religion.**
  Author(s): Skinsnes OK.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1971 January-March; 39(1): 60-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4937454&dopt=Abstract

- **Leprosy sketches from a chinese brush.**
  Author(s): Skinsnes OK.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1972 July-September; 40(3): 309-13.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4574274&dopt=Abstract

- **Leprosy today.**
  Author(s): EDWARDS RH.
  Source: Lepr Rev. 1964 January; 35: 3-13. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14114050&dopt=Abstract

- **Leprosy--the Moslem attitude.**
  Author(s): Ahmed Mohamed HA.
  Source: Lepr Rev. 1985 March; 56(1): 17-21. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3990503&dopt=Abstract

- **New indigenous drug in the treatment of lepra reaction & lepromatous leprosy. (Preliminary report).**
  Author(s): Behl PN, Bedi BM.

Source: Indian J Dermatol. 1966 July; 11(4): 153-7. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5966947&dopt=Abstract

- **Pattern of concept and reaction to leprosy in oriental antiquity and modern time.**
Author(s): Sahu KC.
Source: Indian J Dermatol. 1966 July; 11(4): 140-1. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5338398&dopt=Abstract

- **Personal hygiene and environmental sanitation in leprosy infection.**
Author(s): Sri Hari N.
Source: Lepr India. 1978 July; 50(3): 396-9. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=703268&dopt=Abstract

- **Physiologic principles in the treatment of leprosy.**
Author(s): CHATTERJEE SN.
Source: Int J Lepr. 1964 October-December; 32: 384-409. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14261290&dopt=Abstract

- **Problem of leprosy control in Harrar Province, Ethiopia.**
Author(s): Stiller J.
Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1971 April-June; 39(2): 578-80.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5169817&dopt=Abstract

- **Psychiatric sequelae of leprosy in new south wales.**
Author(s): HENDERSON AS.
Source: The Medical Journal of Australia. 1964 October 17; 566: 632-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14219889&dopt=Abstract

- **Psychosocial aspects of deformed leprosy patients undergoing surgical correction.**
Author(s): Ramanathan U, Malaviya GN, Jain N, Husain S.
Source: Lepr Rev. 1991 December; 62(4): 402-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1784156&dopt=Abstract

- **Reconstruction of anti-leprosy drug depleted complement haemolytic activity by addition of zymosan-treated sera (a source of C142) and CratEDTA (a source of C3-C9).**
Author(s): Kashyap A, Saha K, Sehgal VN.
Source: International Journal of Immunopharmacology. 1992 November; 14(8): 1409-14.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1464472&dopt=Abstract

- **Reply: honey and propolis as possible promoters of the healing of ulcers in leprosy.**
  Author(s): Grange JM.
  Source: Lepr Rev. 1990 June; 61(2): 195. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2377028&dopt=Abstract

- **Role of an indigenous drug (Achyranthes aspera) in the management of reactions in leprosy: preliminary observations.**
  Author(s): Ojha D, Tripathi SN, Singh G.
  Source: Lepr Rev. 1966 April; 37(2): 115-20. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5930239&dopt=Abstract

- **Saints protectors from leprosy: historical hints of suggestive therapy?**
  Author(s): Muzur A, Skrobonja A, Rotschild V, Skrobonja A Jr.
  Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 2002 December; 70(4): 269-73.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12768928&dopt=Abstract

- **Social aspects and rehabilitation. International Leprosy Congress, Beijing, 7-12 September 1998. Workshop report.**
  Author(s): Walter CS.
  Source: Lepr Rev. 1999 March; 70(1): 85-94.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10405552&dopt=Abstract

- **Socio-cultural aspects of leprosy among the Masalit and Hawsa tribes in the Sudan.**
  Author(s): el Hassan LA, Khalil EA, el-Hassan AM.
  Source: Lepr Rev. 2002 March; 73(1): 20-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11969123&dopt=Abstract

- **Socio-cultural dimensions of leprosy in north-western Botswana.**
  Author(s): Kumaresan JA, Maganu ET.
  Source: Social Science & Medicine (1982). 1994 August; 39(4): 537-41.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7973853&dopt=Abstract

- **Some plants used in the treatment of leprosy in Africa.**
  Author(s): Nwude N, Ebong OO.
  Source: Lepr Rev. 1980 March; 51(1): 11-8. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7464417&dopt=Abstract

- **Splinting of the hand in leprosy.**
  Author(s): Kulkarni VN, Mehta JM.

Source: Lepr India. 1983 July; 55(3): 483-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6656205&dopt=Abstract

- **The experience of self-care groups with people affected by leprosy: ALERT, Ethiopia.**
Author(s): Benbow C, Tamiru T.
Source: Lepr Rev. 2001 September; 72(3): 311-21.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11715277&dopt=Abstract

- **The Explanatory Model Interview Catalogue (EMIC). Contribution to cross-cultural research methods from a study of leprosy and mental health.**
Author(s): Weiss MG, Doongaji DR, Siddhartha S, Wypij D, Pathare S, Bhatawdekar M, Bhave A, Sheth A, Fernandes R.
Source: The British Journal of Psychiatry; the Journal of Mental Science. 1992 June; 160: 819-30.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1617366&dopt=Abstract

- **The impact of experimental human leprosy in the mouse on leprosy research.**
Author(s): Rees RJ.
Source: International Journal of Leprosy and Other Mycobacterial Diseases : Official Organ of the International Leprosy Association. 1971 April-June; 39(2): 201-15. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4948076&dopt=Abstract

- **The role of Ayurvedic "samshodhan-karm" in the treatment of leprosy.**
Author(s): Ojha D, Singh G.
Source: Lepr Rev. 1967 January; 38(1): 57-61. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6043269&dopt=Abstract

- **The usefulness of acupuncture in leprosy.**
Author(s): Jagirdar PC.
Source: Indian J Lepr. 1986 October-December; 58(4): 618-22.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3572105&dopt=Abstract

- **Therapeutic usefulness of garlic in leprosy. A preliminary report.**
Author(s): CHAUDHURY DS, SREENIVASAMURTHY V, JAYARAJ P, SREEKANTIAH KR, JOHAR DS.
Source: J Indian Med Assoc. 1962 November 16; 39: 517-20. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14020401&dopt=Abstract

- **Tzaraat--"biblical leprosy".**
Author(s): Freilich AR.

Source: Journal of the American Academy of Dermatology. 1982 January; 6(1): 131-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7045170&dopt=Abstract

- **Use of a common Indian herb "Mandukaparni" in the treatment of leprosy (preliminary report).**
  Author(s): Chaudhuri S, Ghosh S, Chakraborty T, Kundu S, Hazra SK.
  Source: J Indian Med Assoc. 1978 April 16; 70(8): 177-80. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=690465&dopt=Abstract

- **Use of a common Indian herb "Mandukaparni" in the treatment of leprosy. A preliminary report.**
  Author(s): Chaudhuri S, Ghosh S, Chakraborty T, Kundu S, Hazra SK.
  Source: Lepr India. 1979 January; 51(1): 106-11. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=376942&dopt=Abstract

- **Use of hepatoprotective drugs in leprosy treatment.**
  Author(s): Bergel M.
  Source: Nippon Rai Gakkai Zasshi. 1983 January-March; 52(1): 62-3. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6678924&dopt=Abstract

- **Was leprosy common in Palestine in New Testament times?**
  Author(s): Browne SG.
  Source: Zambia Nurse J. 1970 December-1971 January; 4(3): 10-1. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5294140&dopt=Abstract

- **Wax baths in leprosy.**
  Author(s): Gardiner J.
  Source: Lepr Rev. 1973 December; 44(4): 215. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4793799&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 leprosy; 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**

  Amyloidosis
  Source: Integrative Medicine Communications; www.drkoop.com

  Varicose Veins
  Source: Prima Communications, Inc.www.personalhealthzone.com

- **Chinese Medicine**

  Kushen
  Alternative names: Lightyellow Sophora Root; Radix Sophorae Flavescentis
  Source: Chinese Materia Medica

  Qishe
  Alternative names: Long-noded Pit Viper; Qishe (Qi She); Agkistrodon
  Source: Chinese Materia Medica

  Wushaoshe
  Alternative names: Black-tail Snake; Zaocys
  Source: Chinese Materia Medica

  Zaojiaoci
  Alternative names: Chinese Honeylocust Spine; Spina Gleditsiae
  Source: Chinese Materia Medica

- **Herbs and Supplements**

  Brahmi
  Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)
  Source: Integrative Medicine Communications; www.drkoop.com

  Calophyllum
  Alternative names: Punna, Kamani; Calophyllum sp.
  Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

  Centella
  Alternative names: Gotu Kola; Centella asiatica (Linn.)
  Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

  Centella
  Source: Integrative Medicine Communications; www.drkoop.com

  Centella Asiatica
  Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)
  Source: Integrative Medicine Communications; www.drkoop.com

  Dapsone
  Source: Healthnotes, Inc.; www.healthnotes.com

  Gotu Kola
  Alternative names: Centella asiatica
  Source: Healthnotes, Inc.; www.healthnotes.com

  Gotu Kola
  Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)
  Source: Integrative Medicine Communications; www.drkoop.com

  Gotu Kola
  Source: Prima Communications, Inc.www.personalhealthzone.com

  Hops
  Source: Prima Communications, Inc.www.personalhealthzone.com

  Hydrocotyle
  Source: Integrative Medicine Communications; www.drkoop.com

  Indian Pennywort
  Source: Integrative Medicine Communications; www.drkoop.com

  Isoniazid
  Source: Healthnotes, Inc.; www.healthnotes.com

Isoniazid
Alternative names: Laniazid, Nydrazid
Source: Prima Communications, Inc.www.personalhealthzone.com

Marsh Pennywort
Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)
Source: Integrative Medicine Communications; www.drkoop.com

Myrrh
Alternative names: Commiphora molmol
Source: Healthnotes, Inc.; www.healthnotes.com

Sarsaparilla
Alternative names: Smilax spp.
Source: Healthnotes, Inc.; www.healthnotes.com

Yohimbe
Alternative names: Pausinystalia yohimbe
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 LEPROSY

Overview

In this chapter, we will give you a bibliography on recent dissertations relating to leprosy. 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 "leprosy" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on leprosy, we have not necessarily excluded non-medical dissertations in this bibliography.

Dissertations on Leprosy

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 leprosy. 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:

- **A Monument to Lazarus: the Evolution of the Leprosy Hospital of Rio De Janeiro (Brazil)** by Smith, Thomas Hunter, Iii; PhD from Texas Christian University, 1999, 395 pages
  http://wwwlib.umi.com/dissertations/fullcit/9952369
- **Bioarchaeological Analysis of St. Jorgensgard, a Medieval Leprosy Hospital in Odense, Denmark** by Segal, Kirsten Linnea; PhD from The University of Chicago, 2001, 241 pages
  http://wwwlib.umi.com/dissertations/fullcit/3006553
- **Colonizing Leprosy: Imperialism, Patients, and the Politics of Public Health in Hawai'i and Louisiana** by Moran, Michelle Therese; PhD from University of Illinois at Urbana-champaign, 2002, 347 pages
  http://wwwlib.umi.com/dissertations/fullcit/3070390
- **Communication and Destigmatization: an Experimental Study to Evaluate the Effectiveness of Diffusion and Participatory Strategies and Effect of Caste on**

Knowledge, Perception, and Behavior toward Leprosy Patients in Gwalior, India by Krishnatray, Pradeep K., PhD from Bowling Green State University, 1996, 172 pages
http://wwwlib.umi.com/dissertations/fullcit/9726231

- **Comparative Study of Treatment Models in Leprosy with Special Reference to Trinidad (West Indies)** by Kulkarni, Dattatreya Vithalrao, PhD from Brandeis University, 1969, 403 pages
http://wwwlib.umi.com/dissertations/fullcit/7019973
- **Comparison of Knowledge, Attitudes, and Sources of Information Related to Hansen's Disease (Leprosy) among Selected International Students and United States Students at the University of Tennessee** by Aghaie, Edna Lee, PhD from The University of Tennessee, 1988, 160 pages
http://wwwlib.umi.com/dissertations/fullcit/8904029
- **Competencies Required of Vocational Rehabilitation Center Administrators for Hansen's Disease Patients in Developing Countries** by Klein, Frank O., Ii, PhD from Southern Illinois University at Carbondale, 1986
http://wwwlib.umi.com/dissertations/fullcit/f951797
- **Cultural Aspects of Leprosy Treatment in Rio De Janeiro, Brazil** by White, Cassandra; PhD from Tulane University, 2001, 514 pages
http://wwwlib.umi.com/dissertations/fullcit/3011009
- **Defamation by Disease: Leprosy, Myth and Ideology in Nineteenth Century Hawai'i (father Damien)** by Moblo, Pennie Lee, PhD from University of Hawaii, 1996, 392 pages
http://wwwlib.umi.com/dissertations/fullcit/9629841
- **Improving Health Care for Leprosy Patients in North East State, Nigeria: a Case Study in Program Evaluation.** by Miller, Donald David, PhD from Michigan State University, 1977, 159 pages
http://wwwlib.umi.com/dissertations/fullcit/7718523
- **Interaction of Medical Systems and the Cultural Construction of Leprosy in Sri Lanka** by Kasturiaratchi, Nimal Devadasa, PhD from Princeton University, 1989, 537 pages
http://wwwlib.umi.com/dissertations/fullcit/8920350
- **Khi Thut, 'the Disease of Social Loathing': an Anthropology of the Stigma of Leprosy in Rural Northeast Thailand (Rural Health)** by Predaswat, Pimpawun Boonmongkol, PhD from University of California, San Francisco, 1992, 312 pages
http://wwwlib.umi.com/dissertations/fullcit/9319009
- **Leprosy in New Brunswick, 1844-1910: a Reconsideration (Canada)** by Stanley-blackwell, Laurie Catherine Christina, PhD from Queen's University at Kingston (Canada), 1989
http://wwwlib.umi.com/dissertations/fullcit/f3367220
- **Leprosy in New Brunswick, 1844-1910: a Reconsideration (Nineteenth Century, Public Health)** by Stanley-blackwell, Laurie, PhD from Queen's University at Kingston (Canada), 1988, 1035 pages
http://wwwlib.umi.com/dissertations/fullcit/NN70774
- **Leprosy, a Disease Apart a Historical and Cross-Cultural Analysis of Stigma** by Wheatley, Margaret A; PhD from Carleton University (Canada), 1985
http://wwwlib.umi.com/dissertations/fullcit/NL22250
- **Leprosy: a Disease Apart. a Historical and Cross-cultural Analysis of Stigma** by Wheatley, Margaret Anne, PhD from Carleton University (Canada), 1985
http://wwwlib.umi.com/dissertations/fullcit/f1887781

- **'People Are Not the Same': Leprosy, Identity, and Community in Colonial and Post-colonial Mali** by Silla, Eric, PhD from Northwestern University, 1995, 490 pages
  http://wwwlib.umi.com/dissertations/fullcit/9537512
- **The Disease of the Soul: a Study in the Moral Associations of Leprosy in Medieval Literature** by Brody, Saul Nathaniel, PhD from Columbia University, 1968, 218 pages
  http://wwwlib.umi.com/dissertations/fullcit/7117571
- **'The Doctour Maketh This Descriptioun': the Moral and Social Meanings of Leprosy and Bubonic Plague in Literary, Theological, and Medical Texts of the English Middle Ages and Renaissance** by Grigsby, Bryon Lee; PhD from Loyola University of Chicago, 2000, 325 pages
  http://wwwlib.umi.com/dissertations/fullcit/9955385
- **The Graceful Dead: Overcoming the Medieval Paradigm of Leprosy. a Study of the Order of St. Lazarus, Baldwin Iv of Jerusalem and Alice of Schaerbeek** by Leach, Jessica Lynn; Ma from Queen's University at Kingston (Canada), 2002, 134 pages
  http://wwwlib.umi.com/dissertations/fullcit/MQ73050
- **The Paleoepidemiological Examination of Treponemal Infection and Leprosy in Medieval Populations from Northern Europe (England, Denmark)** by Crane-kramer, Gillian Margaret Mountford; PhD from University of Calgary (Canada), 2000, 487 pages
  http://wwwlib.umi.com/dissertations/fullcit/NQ54773
- **Treatment Choice, Disease Outcome and Stigma: an Investigation of Leprosy Patients and Illness Behavior in Thailand** by Upayokin, Preecha, PhD from Case Western Reserve University, 1991, 290 pages
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CHAPTER 5. PATENTS ON LEPROSY

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.[8] 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 "leprosy" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on leprosy, we have not necessarily excluded non-medical patents in this bibliography.

Patents on Leprosy

By performing a patent search focusing on leprosy, 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

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

will tell you how to obtain this information later in the chapter. The following is an example of the type of information that you can expect to obtain from a patent search on leprosy:

- **2-Acetyl quinoline thiosemicarbazones useful in treatment of gonorrhea, malaria or bacterial infections**

  Inventor(s): Dobek; Arthur S. (Silver Spring, MD), Gonzalez; Armando (Orlando, FL), Grant; Steven D. (Lander, WY), Klayman; Daniel L. (Chevy Chase, MD), Massie; Samuel P. (Laurel, MD), Morrison; Norman E. (Baltimore, MD), Scovill; John P. (Silver Spring, MD)

  Assignee(s): The United States of America as represented by the Secretary of the Army (Washington, DC)

  Patent Number: 4,440,771

  Date filed: February 12, 1982

  Abstract: This invention relates to the preparation and use of various 2-acetyl quiine thiosemicarbazones which are substituted on the 4-nitrogen atom. These compounds are useful in the treatment of gonorrhea and, in addition, many are useful either in the treatment of malaria or bacterial infections, such as **leprosy** and meningitis.

  Excerpt(s): (5) morpholino, dialkyl (preferably one to four carbon atoms in each alkyl group) morpholino. In this disclosure, it is understood that COO alkyl represents the alkyl carboxylic acid ester; for example, COO Et represents the ethyl carboxylic acid ester. While evidence indicates that all of the above-described compounds and their pharmaceutically-acceptable acid addition salts are useful in the treatment of gonorrhea (gonorrhoeae), in addition many of the compounds and salts are useful either in the treatment of malaria or bacterial infections, such as **leprosy** and meningitis. Such use of the above-described compounds and salts is included in the present invention. Moreover, the above-described compounds per se, and their pharmaceutically-acceptable acid addition salts, are included in the invention provided that: when R.sub.2 is hydrogen, then R.sub.1 cannot be ethyl, isopropyl, or monochlorophenyl.

  Web site: http://www.delphion.com/details?pn=US04440771__

- **Anti-mycobacterial compositions and their use for the treatment of tuberculosis and related diseases**

  Inventor(s): Barry, III; Clifton E. (Hamilton, MT), Yuan; Ying (Missoula, MT)

  Assignee(s): The United States of America as represented by the Department of Health (Washington, DC)

  Patent Number: 5,610,198

  Date filed: March 18, 1994

  Abstract: Compounds, pharmaceutical compositions, and methods for the treatment of mycobacterial diseases, such as tuberculosis and **leprosy,** are provided. Use of the compounds for promoting an antiseptic condition of a surface are also included. Some of the preferred compounds include thiatetracosanoic acids, esters, and fluorinated analogs.

  Excerpt(s): Mycobacterium is a genus of bacteria which are aerobic, mostly slow growing, slightly curved or straight rods, sometimes branching and filamentous, and

distinguished by acid-fast staining. They are sometimes referred to as acid-fast bacilli (AFB) as application of alcohol (e.g., acid-alcohol or 95% ethanol with 3% hydrochloric acid) will not decolorize bacilli stained with basic dye. Typically, the mycobacteria are obligate aerobes, and they can be characterized as gram-positive. However, some have stated that gram-staining is unhelpful or unclassifiable. The genus mycobacterium includes the highly pathogenic organisms that cause tuberculosis (M. tuberculosis and sometimes M. bovis) and **leprosy** (M. leprae). There are many other species of mycobacterium, some of which are important in veterinary medicine. The following species of the genus mycobacterium are known pathogens for humans, and some are pathogenic for certain animals as well: M. tuberculosis, M. leprae, M. avium-intracellulare, M. bovis, M. chelonei (also known as borstelense and abscessus), M. africanum, M. marinium (also known as balnei and platypoecilus, the causative agent of "swimming pool granuloma"), M. buruli (also known as ulcerans), M. fortuitum (also known as giae, minetti, and ranae), M. haemophilum, M. intracellulare, M. kansasii (also known as luciflavum), M. littorale (also known as xenopi), M. malmoense, M. marianum (also known as scrofulaceum and paraffinicum), M. simiae, M. szulgai, and M. ulcerans (which is the agent responsible for Buruli ulcer). Mycobacterium which are pathogenic for animals but not believed to be pathogenic for humans include the following: M. avium (also known as brunense), M. flavascens, M. lepraemurium, M. microti, and M. paratuberculosis (which is the causative agent for Johne's Disease). The following species of the genus mycobacterium are believed to be non-pathogenic: M. gordonae (also known as aquae), M. gastri, M. phlei (also known as moelleri and as timothy bacillus), M. nonchromogenicum, M. smegmatis, M. terrae, M. triviale, and M. vaccae.

Web site: http://www.delphion.com/details?pn=US05610198__

- **Crustacean and fish derived multifunctional enzyme**

  Inventor(s): de Faire; Johan R. (Vattholma, SE), Franklin; Richard L. (London, GB), Kay; John (Cardiff, GB), Lindblom; Ragnvald (Muang Rayong, TH)

  Assignee(s): Phairson Medical Inc. (London, GB)

  Patent Number: 5,945,102

  Date filed: February 8, 1995

  Abstract: The invention relates to a multifunctional enzyme that can be derived from crustaceans or fish. The enzyme has at least one of a chymotrypsin, trypsin, elastase, collagenase and exo peptidase activity, and a molecular weight between about 20 kd and about 40 kd. Preferably, the multifunctional enzyme has substantial anti cell-cell adhesion activity. Preferably, the multifunctional enzyme has substantial homology with the krill multifunctional enzyme. These enzymes are useful for treating viral infections such as herpes outbreaks, fungal, bacterial or parasitic infections, including the primary and secondary infections of **leprosy,** colitis, ulcers, hemorrhoids, corneal scarring, dental plaque, acne, cystic fibrosis, blood clots, wounds, immune disorders including autoimmune disease and cancer. Additionally, the invention relates to a method of purifying the multifunctional enzyme, and to a preparation of essentially purified multifunctional enzyme.

  Excerpt(s): The present invention relates to the discovery that there exists a family of crustacean and fish derived enzymes having substantial structural similarity to an enzyme derived from antarctic krill. The krill enzyme is the subject of U.S. patent application Ser. No. 08/338,501, filed Nov. 22, 1994, which is the national-stage application for PCT/SE93/00455, filed May 21, 1993, which claims the priority Swedish

Application No. 9201628-6, filed May 22, 1992. The entire disclosure of U.S. patent application Ser. No. 08/338,501, is incorporated herein by reference. These related enzymes are believed to have the same utility as the krill enzyme. In particular, these enzymes are useful for treating viral infections such as herpes outbreaks, fungal, bacterial or parasitic infections, including the primary and secondary infections of **leprosy,** colitis, ulcers, hemorrhoids, corneal scarring, dental plaque, acne, cystic fibrosis, blood clots, wounds, immune disorders including autoimmune disease and cancer. Additionally, the invention relates to a method of purifying the multifunctional enzyme, and to a preparation of essentially purified multifunctional enzyme. U.S. Pat. Nos. 4,801,451 and 4,963,491 disclose a mixture of exo- and endopeptidases isolated from antarctic krill (Euphasia superba) and the use of the mixture as cleaning solutions. U.S. Pat. No. 4,801,451 discloses the use of such enzymes to remove foreign matter and dead tissue from wounds. Patent Application WO 85/04809 discloses the use of krill enzymes as a digestion promotor. European Application EP-A1-0170115 discloses the use of krill enzymes to dissolve blood clots.

Web site: http://www.delphion.com/details?pn=US05945102__

- **Cultivation medium for mycobacteria and use thereof**

  Inventor(s): Veeraraghavan; Natteri (Besant Nagar, Madras 600090, IN)

  Assignee(s): none reported

  Patent Number: 4,582,807

  Date filed: July 30, 1982

  Abstract: A medium for the rapid cultivation of mycobacteria, in particular **leprosy** and tubercle bacilli, comprises amino acids, sugars, phospholipids, muscle metabolism compounds, vitamins, inorganic salts and trace minerals.

  Excerpt(s): The present invention relates to the cultivation of mycobacteria and in particular **leprosy** bacilli and tubercle bacilli. Leprosy is an ancient disease. There are over 12 million cases of **leprosy** in the world out of which about a fourth are present in India. No part of India is free from **leprosy.** The prevalence of the disease is high in southern and eastern States. The worst affected state is Tamil Nadu with approximately 800,000 patients. The other states where there are many sufferers are Andhra Pradesh, Binar and Orissa. In some districts 40 to 60 people out of every thousand suffer from **leprosy.** About 25% of those having **leprosy** suffer from the infectious form of the disease.

  Web site: http://www.delphion.com/details?pn=US04582807__

- **Double sulfate salt of desoxyfructosyl serotonin and creatinine and compositions containing it**

  Inventor(s): Bertholet; Raymond (Blonay, CH), Hirsbrunner; Pierre (Les Monts-de-Corsier, CH)

  Assignee(s): Nestec S.A. (Vevey, CH)

  Patent Number: 4,722,923

  Date filed: July 17, 1985

Abstract: A double sulfate salt of 1-desoxy-(5-hydroxytryptamino)-D-fructose (DSF) and 1-methylhydantoin-2-imide (creatinine) represents a new solid crystalline phase of unit composition, pharmaceutical quality and remarkable stability.It is prepared by glycosylation of serotonin with D-glucose, formation of the double salt by addition of sulfuric acid and creatinine and crystallization of the double salt in the presence of ethanol.The DFS is preferably isolated from the reaction medium by way of the addition complex DFS.Ca(OH).sub.2 which is precipitated by the addition of calcium hydroxide. The calcium hydroxide is then eliminated by addition of sulfuric acid and the double salt is crystallized as described above.DFS is the active principle of a medicament effective, in particular, in the treatment of **leprosy.**

Excerpt(s): This invention relates to a double sulfate salt of desoxyfructosyl serotonin and creatinine, to a process for the production thereof and to a medicament containing this compound. French Pat. No. 2,317,937 relates to new derivatives of serotonin (5-hydroxytryptamine), more especially the oxalate of 1-desoxy-(5-hydroxytryptamino)-D-fructose or desoxyfructosyl serotonin, hereinafter referred to as "DFS", obtained by Amadori rearrangement. In this French Patent, DFS is described as a medicament effective against platelet agglutination and in affording protection against radiation. More recently, DFS has proved to be extremely active in the treatment of **leprosy** (Jayaraman P., Mahadevan P. R., Mester L., Mester M., Biochemical Pharmacology, Vol. 29, 2526-8, 1980). It is known that, if the active substance in question is to be used as a medicament, it must be presented in a crystalline and stable unit form. However, DFS is unstable: it is in the form of a white, amorphous and non-crystallizable product which turns brown after about 1 day at ambient temperature, forming polymers. The oxalate of DFS is also amorphous, yellow in color, contains impurities and turns brown in storage which rules out its use as a medicament. Because of its high solubility in water, the oxalate has proved impossible to obtain in solid form by standard crystallization techniques using solvents, for example alcohol, the application of low temperatures, the addition of seed crystals, etc.

Web site: http://www.delphion.com/details?pn=US04722923__

- **Encoding antigens of M. Leprae**

  Inventor(s): Bloom; Barry R. (Hastings on Hudson, NY), Davis; Ronald W. (Palo Alto, CA), Young; Richard A. (Winchester, MA)

  Assignee(s): Albert Einstein College of Medicine of Yeshiva University, a division of (Bronx, NY), The Board of Trustees of the Leland Stanford, Jr. University (Stanford, CA), Whitehead Institute for Biomedical Research (Cambridge, MA)

  Patent Number: 4,906,742

  Date filed: July 31, 1986

  Abstract: Genes encoding five immunodeterminant protein antigens of the **leprosy** parasite Mycobacterium leprae have been isolated. The gene encoding the M. leprae 65kD antigen was sequenced and a lambda gt11 gene sublibrary was constructed with fragments of the gene. Recombinant DNA clones producing specific antigenic determinants were isolated using monoclonal antibodies and the sequences of their insert DNAs were determined with a rapid primer extension method. Amino acid sequences for six different epitopes of the M. leprae protein were elucidated. A peptide containing sequences for one of these epitopes, which is unique to M. leprae, was synthesized and shown to bind the appropriate monoclonal antibody; The approach described here can be used to elucidate rapidly protein epitopes that are recognized by

antibodies or T cells. In addition, the well-characterized M. leprae antigens can be used in prevention, diagnosis and treatment of **leprosy.**

Excerpt(s): Leprosy is a chronic infectious disease afflicting millions of people worldwide. The overwhelming majority of **leprosy** cases occur in Third World countries. Approximately 3000 **leprosy** cases now exist in the United States and an average of 225 new cases are reported annually, almost all in recent immigrants from areas where **leprosy** is endemic. The disease is caused by the obligate intracellular parasite Mycobacterium leprae (M. leprae), which is found in monocytes, macrophages, epithelial cells and, occasionally, peripheral nerve Schwann cells. The mechanism by which M. leprae is transmitted is as yet unknown and the time elapsing between infection with the organism and appearance of clinical symptoms can be as long as 10 years, during which time many others can unknowingly become infected. Leprosy is a disease which presents a spectrum of diverse clinical and immunological manifestations. At one end of the spectrum are tuberculoid **leprosy** patients, who develop high levels of specific cell-mediated immunity, which ultimately kills and clears the bacilli in the tissues. Immunohistochemical studies have identified the predominant infiltrating lymphocytes as T4 helper cells. Peripheral nerve damage occurs concomitant with clearing of the bacilli in tuberculoid **leprosy,** and is thought to be immunologically mediated.

Web site: http://www.delphion.com/details?pn=US04906742__

- **Glycolipids for serodiagnosis of tuberculosis and leprosy**

  Inventor(s): Handzel; Vera (Nepean, CA), Laszlo; Adalbert (Nepean, CA), Vera-Cabrera; Lucio (Ottawa, CA)

  Assignee(s): Her Majesty the Queen in right of Canada, as represented by the Minister (Ottawa, CA)

  Patent Number: 5,597,735

  Date filed: September 2, 1994

  Abstract: A Dot-Blot assay ("spot test") with Bis-N,N,dioctadecylamide (BDA.TDA) as antigen was developed to detect anti-BDA.TDA antibodies in tuberculosis patients. To develop the antigen-antibody reaction, as a first step and in order to enhance the reaction, an anti-human rabbit serum was used followed by incubation with a protein A-colloidal gold conjugate. This assay showed almost equal sensitivity and specificity as the.beta.-galactosidase ELISA test which was conducted in parallel. This simple and fast assay could be used in places where ELISA equipment is not easily available.

  Excerpt(s): This invention relates to glycolipids useful for serodiagnosis of tuberculosis and **leprosy** and to serodiagnosis techniques using such glycolipids. More particularly, the invention relates to synthetic pseudo cord factor-like glycolipids useful for these purposes. Enzyme-linked immunosorbant assays (usually referred to as ELISA) and similar techniques (e.g. so-called "spot tests" which are a simplified form of ELISA test) for diagnosing diseases in human and animal patients have become very useful and popular in recent years because of their simplicity and their acceptable sensitivity and specificity. These techniques are based on the binding effects of antibodies and antigens. In one form of the ELISA assay, for example, an antigen produced by a specific organism is used to test for the presence of antibodies for the antigen in the sera of patients, thus providing an indication that the patients have been exposed to these organisms. The antigen is immobilized on a solid support and incubated with the serum

to be tested. If a target antibody is present in the serum, indicating exposure of the patient to the disease-causing organism, it binds to the layer of antigen. The number of antigen/antibody bound molecular pairs produced in this way depends on the concentration of the antibody in the serum until saturation of the antigens in the layer takes place. After washing the layer attached to the support, a solution of an enzyme-linked antibody (e.g. goat-antihuman IgG) for the bound protein is contacted with the supported layer. After a second washing step, the layer is contacted with a solution of a substrate for the enzyme and the bound enzyme, if present, converts the substrate to a detectable product. In the so-called "spot tests", the microtiter plate usually used as a solid support for the antigen in the ELISA test is replaced by a strip of paper (cellulose nitrate, etc.). The strip is spotted with the antigen and for instance Protein A is used instead of the conjugate and a colloidal gold solution in place of the substrate.

Web site: http://www.delphion.com/details?pn=US05597735__

- **Immunostimulating preparations based on ribosomal RNA's and a process for the preparation of the RNA's**

  Inventor(s): Durand; Jacques (Castres, FR), Dussourd D'Hinterland; Lucien (Castres, FR), Normier; Gerard (Castres, FR), Pinel; Anne-Marie (Castres, FR)

  Assignee(s): Pierre Fabre, S.A. (Paris, FR)

  Patent Number: 4,389,396

  Date filed: August 18, 1981

  Abstract: This invention relates to a non-specific immunostimulating preparation for the treatment of immunodeficits, such as those encountered in **leprosy** and cancer, characterized in that it contains as sole active principle one or more bacterial ribosomal RNA's extracted from the following strains:Klebsiella pneumoniaeSerratia marcescens

  Excerpt(s): This invention which was developed at the Centre d'Immunologie et de Biologie PIERRE FABRE relates to non-specific immunostimulating preparations containing ribosomal RNA's and to processes for the preparation of these RNA's. The vaccinating power of ribosomes and RNA's is known but is only developed in the presence of adjuvants, such as membranal proteoglycans or membranal polysaccharides, in addition to which the activity developed is essentially preventative. Now, the Applicants have found that certain RNA's may be used on their own for the treatment of diseases attributable to immunodeficits, such as **leprosy** and cancer.

  Web site: http://www.delphion.com/details?pn=US04389396__

- **Immuno-therapeutic composition of killed cells from mycobacterium vaccae**

  Inventor(s): Rook; Graham A. W. (London, GB2), Stanford; John L. (Marden, GB2)

  Assignee(s): University College London (London, GB2)

  Patent Number: 4,724,144

  Date filed: October 16, 1985

  Abstract: "Immuno-therapeutic agents of killed cells prepared from Mycobacterium Vaccae that are useful in the treatment of mycobacterial disease, especially tuberculosis or **leprosy,** in particular as an adjuvant to chemotherapy".

Excerpt(s): This invention relates to immunotherapeutic agents useful in the immunotherapy of mycobacterial disease, especially tuberculosis and **leprosy.** The eradication of mycobacterial diseases such as tuberculosis and **leprosy** by effective treatment is still a primary objective particularly in disease endemic areas such as third world countries of Asia, Africa and South East Asia. Modern drug treatment of these diseases consists of chemotherapy with, for example, rifampicin and isoniazid in the case of tuberculosis and clofazimine and sulphones in the case of **leprosy.** Chemotherapy, though effective in killing rapidly metabolising bacilli, is very slow to eliminate "persisters", and this necessitates continuation of treatment for 9 months to a year in the case of tuberculosis, and 5 years or more in the case of **leprosy.** `Persisters` are metabolically inactive microorganisms which can survive long exposure to a drug, only becoming susceptible when they start to multiply.

Web site: http://www.delphion.com/details?pn=US04724144__

- **In vivo treatment of mycobacterial infections with 6-cyclo octylamino-5,8-quinoline quinone**

  Inventor(s): Gangadharam; Pattisapu R. J. (Denver, CO)

  Assignee(s): National Jewish Center for Immunology and Respiratory Medicine (Denver, CO)

  Patent Number: 4,963,565

  Date filed: July 30, 1986

  Abstract: 6-cyclo-octylamino-5,8-quinoline quinone, a Vitamin K analogue, shows surprising efficacy as an in vivo therapeutic agent for treatment of tuberculosis and **leprosy.** Mycobacteria species, intracellulare, tuberculosis, and leprae are inhibited following administration of the compound in any form.

  Excerpt(s): This invention relates to the field of treatment of bacterial infections, and diseases caused thereby. Specifically, mycobacterial infections caused by Mycobacterium tuberculosis and related organisms are treated. Various diseases are caused by infections by foreign bacteria. An exhaustive list of such diseases and their causative agents is not possible, but one such example is tuberculosis, caused by Mycobacterium tuberculosis. Mycobacterium intracellulare is another pathogen causing disease in humans, more so in immune compromised individuals and those with Acquired Immune Deficiency Syndrome (AIDS). Current research in the field has focused on compounds which are bactericidal and non-toxic to treat diseases caused by these organisms. Of special significance is the fact that at present no specific drugs are available to treat disease caused by M. intracellulare group of organisms. The rifamycin family of antibiotics has received particular attention in this regard. For example, U.S. Pat. No. 4,086,344, discloses N,15-Didehydro-15-deoxo-3,15-epi (methano alkyl amino) rifamycins, in quinone or hydroquinone form. These compounds are only used in in vitro tests, however. While results which show biocidal activity in vitro can be applied for the development of, e.g., cleaning solutions, disinfectants, and so forth, in vitro efficacy is no guarantee that the subject compound will work in vivo.

  Web site: http://www.delphion.com/details?pn=US04963565__

- **Multifunctional protein and DNA sequence encoding same**

  Inventor(s): Kay; John (1 Sycamore Tree Close, Radyr, Cardiff CF4 8RT, GB), Kille; Peter (9 Lisvane Street, Cathays, Cardiff CF2 4LH, GB)

  Assignee(s): none reported

  Patent Number: 6,040,155

  Date filed: August 28, 1996

  Abstract: The present invention provides nucleic acid and corresponding amino acid sequences of a multifunctional protein that has been found to be useful in numerous medical and cosmetic contexts. A protein having "multifunctional activity," is defined herein as including at least one of a chymotrypsin, trypsin, collagenase, elastase or exo peptidase activity or asialo GM.sub.1 ceramide binding activity. These proteins are useful for multiple purposes, including treating viral infections such as herpes outbreaks, fungal, bacterial or parasitic infections, including the primary and secondary infections of **leprosy,** colitis, ulcers, hemorrhoids, corneal scarring, dental plaque, acne, cystic fibrosis, blood clots, wounds, immune disorders including autoimmune disease and cancer.

  Excerpt(s): The present invention relates to purified nucleic acids encoding a krill-derived multifunctional protein and to purified polypeptides having multifunctional activity. A protein having "multifunctional activity," is defined herein as including at least one of a chymotrypsin, trypsin, collagenase, elastase or exo peptidase activity, or asialo GM.sub.1 ceramide binding activity. Multifunctional proteins are useful for multiple purposes, including treating viral infections such as herpes outbreaks, fungal, bacterial or parasitic infections, including the primary and secondary infections of **leprosy,** colitis, ulcers, hemorrhoids, corneal scarring, dental plaque, acne, cystic fibrosis, blood clots, wounds, immune disorders including autoimmune disease, such as lupus erythematosus and multiple sclerosis, and cancer. Purified polypeptides having multifunctional activity and purified nucleic acids encoding such polypeptides are desirable to provide pharmaceutically useful products. One preferred embodiment of the present invention is a substantially pure nucleic acid comprising a nucleic acid encoding a polypeptide having at least about 70% homology to a krill-derived multifunctional protein, such as the polypeptide of SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:8 or SEQ ID NO:10, and especially SEQ ID NO:4, SEQ ID NO:6 or SEQ ID NO:10, and more preferably, at least about 80% homology, and most preferably, at least about 90% homology. Even more preferably, the nucleic acid comprises a nucleic acid encoding a polypeptide sharing at least about 70% amino acid identity with a krill-derived multifunctional protein, and yet more preferably, at least about 80% identity, and most preferably, at least about 90% identity.

  Web site: http://www.delphion.com/details?pn=US06040155__

- **Mycobacteria culture medium and method for in vitro cultivation of leprosy mycobacteria employing same**

  Inventor(s): Matsuo; Eiichi (3112 Brokaw St., Honolulu, HI 96815), Skinsnes; Olaf K. (438 Portlock Road, Honolulu, HI 96825)

  Assignee(s): none reported

  Patent Number: 3,983,003

  Date filed: January 20, 1976

Abstract: A hyaluronic acid-enriched mycobacteria culture medium whose base is either Dubos oleic acid-albumin liquid medium or a physiological mixture of fresh yeast extract in a phosphate buffer of pH 5.5 to 7 optionally containing bovine serum albumin, glycerine, a contaminating organism-growth inhibitory antibiotic, and a gelatinizing agent to solidify the culture medium for plate use. The culture medium has particular utility for the in vitro cultivation of **leprosy** mycobacteria, which exhibit prolific growth when inoculated and maintained in such culture medium at temperatures within the range of about 25.degree.C to about 37.5.degree.C.

Excerpt(s): This invention relates to the in vitro cultivation of bacilli and, more particularly, to a novel culture medium capable of being employed for the in vitro cultivation of **leprosy** mycobacteria. The causative organism of **leprosy** is an acid-fast rod, Mycobacterium leprae, which was first described in 1874 by the Norwegian scientist Armauer Hansen. In the more than a century that has elapsed since Hansen's discovery, many investigators have attempted to grow M. leprae in the laboratory for use in **leprosy** research in testing the effectiveness of proposed new drugs and treatments for **leprosy.** Although it has been found that rather limited proliferation of M. leprae, generally requiring well over a year for any significant growth, will take place on the footpads of mice and inside armadilloes, the previous efforts to cultivate M. leprae in vitro have been so unrewarding as to have lead to the designation of this pathogen by many investigators as a mycobacterium which is uncultivable in culture media, probably very fastidious in its growth requirements and quite probably an obligate intracellular parasite. Moreover, the pattern of lesion distribution in **leprosy** patients has also led to a strongly held hypothesis that the growth of M. leprae is low temperature dependent and generally will not occur to any significant degree at physiological temperatures around 37.degree. to 37.5.degree.C. Recent histochemical studies carried out by the present inventors have led to some novel concepts regarding growth of M. leprae, based on findings that concentrations of M. leprae in the human host are associated with the presence of acid mucopolysaccharides of the host. Mouse inoculation of M. leprae demonstrated that hyaluronic acid applied to the inoculum and inoculation site will promote growth of M. leprae in the mouse abdominal wall and peritoneum, neither of which areas have the postulated required low temperature and neither of which support M. leprae growth in immunologically intact mice. Extracellular bacilli were abundant and after 1 year of such treatment nerve invasion by bacilli was noted. It was also found that a 0.1% saline solution of hyaluronic acid will support viable bacilli indefinitely in the refrigerator or 37.degree.C incubator but with only minimal proliferation. Based on these findings that hyaluronic acid is a suitable basic growth promoter for M. leprae in mice, and presumably is an adequate energy source for M. leprae, it was postulated by the present inventors, contrary to the generally held scientific belief established over the last 100 years, that it might be possible to develop a culture medium, enriched with hyaluronic acid, which would be suitable for the in vitro cultivation of M. leprae.

Web site: http://www.delphion.com/details?pn=US03983003__

- **Process for preparation of pharmaceutical composition with enhanced activity for treatment of tuberculosis and leprosy**

  Inventor(s): Bedi; Kasturi L. (Regional Research Laboratory, Jammu 180001, IN), Dhar; Santosh K. (Regional Research Laboratory, Jammu 180001, IN), Johri; Ramesh K. (Regional Research Laboratory, Jammu 180001, IN), Kapil; Randhir S. (Regional Research Laboratory, Jammu 180001, IN), Kapoor; Naveen (Regional Research Laboratory, Jammu 180001, IN), Kaul; Jawahar L. (Regional Research Laboratory, Jammu 180001, IN), Kaul; Uma (Regional Research Laboratory, Jammu 180001, IN), Pahwa; Gurcharan S. (Regional Research Laboratory, Jammu 180001, IN), Sharma; Subhash C. (Regional Research Laboratory, Jammu 180001, IN), Singh; Gurbax (Regional Research Laboratory, Jammu 180001, IN), Singh; Rajinder (Regional Research Laboratory, Jammu 180001, IN), Singh; Surjeet (Regional Research Laboratory, Jammu 180001, IN), Tickoo; Ashok K. (Regional Research Laboratory, Jammu 180001, IN), Tickoo; Manoj K. (Regional Research Laboratory, Jammu 180001, IN), Zutshi; Ram K. (Regional Research Laboratory, Jammu 180001, IN), Zutshi; Usha (Regional Research Laboratory, Jammu 180001, IN)

  Assignee(s): none reported

  Patent Number: 5,439,891

  Date filed: October 29, 1993

  Abstract: A new pharmaceutical composition for the treatment of tuberculosis and **leprosy,** said composition comprising piperine in combination with known antituberculosis or antileprosy drugs or the mixtures thereof.

  Excerpt(s): The present invention relates to an new pharmaceutical composition for the treatment of tuberculosis and **leprosy.** The new composition has increased therapeutic efficacy. The invention particularly relates to a pharmaceutical composition containing piperine anti-tuberculosis/leprotic drugs. The global problems of combating tuberculosis intensified by the country's economic problem and corresponding lack of health education which makes spitting a national pass-time and covering one's mouth, while coughing, a rare phenomenon. Of this, an estimated two million are children below the age of five.

  Web site: http://www.delphion.com/details?pn=US05439891__

- **Synergistic therapeutic composition for the treatment of mycobacterioses**

  Inventor(s): Freerksen; Enno (Borstel, DT)

  Assignee(s): Saarstickstoff-Fatol GmbH (Schiffweiler, DT)

  Patent Number: 4,005,207

  Date filed: August 7, 1974

  Abstract: The specification relates to an oral composition for the treatment of mycobacterioses, such as the treatment of **leprosy** and tuberculosis, containing an effective amount of isonicotinic acid hydrazide (international non-proprietary name isoniazid, designated herein as INH), an effective amount of 2-propyl-thioisonicotinic acid amide (prothionamide designated herein as PTH) and/or 2-ethyl-thioisonicotinic acid amide (ethionamide designated herein as ETH) and an effective amount of a sulfone and/or a sulfonamide with sustained activity. Suitable sulfones and sulfonamides with sustained activity, among others, are 4,4'-diaminodiphenyl-sulfone

designated herein as DDS, sulfamethoxypyridazine and the like, as well as combinations of sulfones with sulfonamides, such as trimethoprimsulfonamides.

Excerpt(s): It is known that INH, ETH and PTH independently inhibit the growth of mycobacterium tuberculosis, which causes tuberculosis and, therefore, are successfully applied in the treatment of tuberculosis. However, each aforementioned compound virtually does not possess activity against mycobacterium leprae, which causes **leprosy.** The results obtained with INH in previous experiments with patients suffering from **leprosy** were disappointing; therefore, these tests were discontinued. Since experiments with ETH and PTH on patients with **leprosy** or favorable results obtained in such experiments have not been known, it has been concluded heretofore that these compounds also are not active against **leprosy.** On the other hand, it is known that DDS possesses activity against the mycobacterium leprae and, therefore, it has been used for the treatment of **leprosy.** However, its use requires a lifelong treatment and has only an inhibitory effect. In addition, a resistance to the bacteria may result and a cure for **leprosy** is still not achieved. Accordingly, it would be advantageous to have an improved composition for the treatment of **leprosy** and the like.

Web site: http://www.delphion.com/details?pn=US04005207__

- **TH2-specific gene**

  Inventor(s): Gu; Wei (Brookline, MA), Lehar; Sophie (Boston, MA), Levinson; Doug (Sherborn, MA)

  Assignee(s): Millennium Pharmaceuticals, Inc. (Cambridge, MA)

  Patent Number: 6,190,909

  Date filed: June 25, 1997

  Abstract: The present invention relates to the discovery, identification and characterization of nucleic acids that encode a novel protein differentially expressed within the TH2 cell subpopulation (hereinafter referred to as STIF). The invention encompasses STIF nucleotides, host cell expression systems, STIF proteins, fusion proteins, polypeptides and peptides, antibodies to the STIF protein, transgenic animals that express a STIF transgene, or recombinant knock-out animals that do not express the STIF protein, and compounds that modulate STIF gene expression or STIF activity that can be used for diagnosis, drug screening, clinical trial monitoring, and/or used to treat STIF based disorders, such as proliferative disorders and T-lymphocyte-related disorders including, but not limited to, chronic inflammatory diseases and disorders, such as Crohn's disease, reactive arthritis, including Lyme disease, insulin-dependent diabetes, organ-specific autoimmunity, including multiple sclerosis, Hashimoto's thyroiditis and Grave's disease, contact dermatitis, psoriasis, graft rejection, graft versus host disease, sarcoidosis, atopic conditions, such as asthma and allergy, including allergic rhinitis, gastrointestinal allergies, including food allergies, eosinophilia, conjunctivitis, glomerular nephritis, certain pathogen susceptibilities such as helminthic (e.g., leishmaniasis) and certain viral infections, including HIV, and bacterial infections, including tuberculosis and lepromatous **leprosy.**

  Excerpt(s): Two distinct types of T lymphocytes are recognized: CD8.sup.+ cytotoxic T lymphocytes (CTLs) and CD4.sup.+ helper T lymphocytes (TH cells). CTLs recognize and kill cells which display foreign antigens on their surfaces. CTL precursors display T cell receptors that recognize processed peptides derived from foreign proteins, in conjunction with class I MHC molecules, on other cell surfaces. This recognition process

triggers the activation, maturation and proliferation of the precursor CTLS, resulting in CTL clones capable of destroying the cells exhibiting the antigens recognized as foreign. The cell-mediated, or cellular, immune response, functions to neutralize microbes which inhabit intracellular locations. Foreign antigens, such as, for example, viral antigens, are synthesized within infected cells and presented on the surfaces of such cells in association with class I MHC molecules. This, then, leads to the stimulation of the CD8.sup.+ class I MHC-restricted CTLs.

Web site: http://www.delphion.com/details?pn=US06190909__

- **Treatment and detection of tuberculosis, leprosy, and related diseases**

  Inventor(s): Richardson; Charles C. (Chestnut Hill, MA), Tabor; Stanley (Cambridge, MA)

  Assignee(s): President and Fellows of Harvard College (Cambridge, MA)

  Patent Number: 5,776,673

  Date filed: April 21, 1995

  Abstract: Method for treatment of an infection in an animal or plant by an organism having a non-discriminating DNA polymerase. The organism is contacted with a therapeutically effective amount of a dideoxynucleoside or dideoxynucleotide in a pharmaceutically acceptable buffer. Such contact reduces the infection or a symptom of the infection in the animal or plant.

  Excerpt(s): This invention relates to treatment and diagnosis of diseases such as tuberculosis and **leprosy.** The following is a brief description of art relevant to treatment of **leprosy** and tuberculosis techniques. This is provided only to give general guidance to those reading the application, and is not an admission that any art cited herein or referred to explicitly or implicitly is prior art to the appended claims. Leprosy and particularly tuberculosis (TB) remain major health problems. There are about 3 million cases of **leprosy** worldwide, most in third world countries. There are an estimated 8 million new cases of tuberculosis each year and 3 million deaths resulting from TB. After years of decline in the rate of TB, there has been an alarming increase in the rate of deaths due to antibiotic-resistant strains. Multi-drug chemotherapy is routinely used now to reduce the chance of outgrowth of resistant strains. TB is an increasing problem worldwide because it is an opportunistic infection often associated with AIDS. In addition, it has recently been indicated to be passed from one human to another within an airplane.

  Web site: http://www.delphion.com/details?pn=US05776673__

Patent Applications on Leprosy

As of December 2000, U.S. patent applications are open to public viewing.[9] 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 leprosy:

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

- **Compositions for prevention and treatment of dementia**

  Inventor(s): Bain, Allen I; (Vancouver, CA), Zolotoy, Alexander; (Richmond, CA)

  Correspondence: Kevin S Lemack; Nields & Lemack; 176 E Main Street; Westboro; MA; 01581; US

  Patent Application Number: 20030144255

  Date filed: December 17, 2002

  Abstract: 4,4'-diaminodiphenylsulphone is a bactericide and anti-inflammatory agent. It is known to have therapeutic activity against **leprosy,** dermatitis herpetiformis, actinomycotic mycetoma, asthma, malaria, rheumatoid arthritis, Kaposiis sarcoma, pneumocystis carinii (pneumonia), subcorneal pustular dermatosis and cystic acne, in patients in need of such therapy. It is also known to have therapeutic activity against memory loss in patients in need of such therapy, including patients suffering from Alzheimer disease and related neurodegenerative disorders. Donepezil hydrochloride (donepezil) is an acetylcholinesterase inhibitor that is currently used for the symptomatic treatment of Alzheimer disease in patients in need of such therapy. It has now been found that combinations of 4,4'-diaminodiphenylsulphone and cholinesterase inhibitors unexpectedly show synergistic effects in the prevention and/or treatment of dementia. The present invention relates to novel compositions and methods of preventing and/or treating dementia using combinations of 4,4'-diaminodiphenylsulphone and a cholinesterase inhibitor (preferably donepezil). The method involves the administration to such individuals a drug composition of 4,4'-diaminodiphenylsulphone and a cholinesterase inhibitor. The invention also relates to a method of preventing and/or treating dementia including senile dementia, that involves the use of this combination of drugs.

  Excerpt(s): The present invention is generally directed toward a pharmaceutical composition and method for the prevention and treatment of dementia which comprises a fixed combination of at least one 4,4'-diaminodiphenylsulphon- e compound with a cholinesterase inhibitor, although separate compositions of 4,4'-diaminodiphenylsulphone and a cholinesterase inhibitor may be administered together or consecutively or separately to the patient. 4,4'-diaminodiphenylsulphone compounds, especially 4,4'-diaminodiphenylsulfone, are widely used in the pharmaceutical industry. The list of diseases responding to 4,4'-diaminodiphenylsulphone includes dermatitis herpertiformis, **leprosy,** asthma, malaria, rheumatoid arthritis, pneumonia and pneumocyctis carinii. Recently, it has been reported that 4,4'-diaminodiphenylsulphone is also effective in the prevention and treatment of Alzheimer disease and senile dementia (Lang P. G. J. Am. Acad. Dermatol. 1979, 1, 6: 479-492; McGeer P. L. et al., M. Dementia 1992, 3: 146-149; Coleman M. D. Br. J Dermatology 1993; 129: 507-513.). In addition to the 4,4'-diaminodiphenylsulphone compounds, a few cholinesterase inhibitors have also been studied for use in the treatment of the symptoms of Alzheimer disease. Two such compounds having cholinesterase inhibitory activity, donepezil and tacrine, are currently prescribed for the symptomatic treatment of patients with mild to moderate symptoms of dementia. These two drugs, however, only offer symptomatic relief of Alzheimer disease and do not stop the progression of the illness; they also have the drawback of hepatotoxicity and/or other cholinergic side effects. The present invention shows that by combining a cholinesterase inhibitor and 4,4'-diaminodiphenylsulphone, an unexpected, synergistic effect is achieved towards the prevention and treatment of dementia.

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

- **Galenical preparations of dapsone and related sulphones, and method of therapeutic and preventative treatment of disease**

  Inventor(s): Aberg, A K Gunnar; (Sarasota, FL), Bain, Allen I; (Vancouver, CA), Zolotoy, Alexander; (Richmond, CA)

  Correspondence: Kevin S Lemack; Neilds & Lemack; 176 E Main Street; Westboro; MA; 01581; US

  Patent Application Number: 20030092635

  Date filed: August 26, 2002

  Abstract: Dapsone and related sulfones are known to have therapeutic activity against **leprosy,** dermatitis herpetiformis, actinomycotic mycetoma, asthma, malaria, rheumatoid arthritis, Kaposis sarcoma, pneumocystis carini (pneumonia), subcorneal pustular dermatosis and cystic acne, in patients in need of such therapy. These sulfones are also known to have therapeutic activity against memory loss in patients in need of such therapy, including patients suffering from Alzheimer's disease and related neurodegenerative disorders. It has now been found that new, modified-release formulations of dapsone and related sulfones may also be used that decrease side effects and increase effectiveness of the drugs. New methods are disclosed utilizing certain formulations of dapsone and related sulfones that improve the therapeutic index of said drugs. Side effects of these drugs are known to those skilled in the art and include, but are not restricted to anorexia, psychosis, agranulocytosis, peripheral neuritis, hemolysis, methemoglobinemia, nausea, vomiting, headache, dizziness, tachycardia, nervousness, insomnia and skin disorders. Modified-release (as defined herein) formulations of dapsone have now been found to avoid some or all of these side effects, and to have more efficacy on potency.

  Excerpt(s): The object of the present invention pertains to a method of treating or preventing certain diseases in a human being while increasing compliance, reducing side effects and improving efficacy of the active therapeutic ingredient(s) within a large therapeutic range. The method comprises the use of modified-release dosage formulations of sulfone compounds including 4,4'-diaminodiphenylsulfone, its didextrose sulfonate derivative(s), their analogs, metabolites, any enantiomers, any diasteriomers, or mixtures thereof and/or therapeutically acceptable salts thereof. Dapsone is an active substance that is known in the treatment of various infectious diseases and inflammatory conditions. There is a wealth of data and experimental studies regarding the activity of dapsone and related sulfones. In particular, there is a large amount of data regarding the bioavailability and pharmacokinetics of the drug. It is also known in the prior art that dapsone has therapeutic activity against **leprosy,** dermatitis herpetiformis, actinomycotic mycetoma, asthma, malaria, rheumatoid arthritis, Kaposis sarcoma, pneumocystis carinii (pneumonia), subcorneal pustular dermatosis and cystic acne, in patients in need of such therapy. However, since the acute or chronic toxicity of dapsone is unacceptable at the doses necessary to treat most diseases, it is not possible to use this compound for these indications in the presently available formulation(s).

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

- **Vaccine against Mycobacterial infections**

  Inventor(s): Lowrie, Douglas Bruce; (London, GB)

  Correspondence: John S. Pratt, Esq; Kilpatrick Stockton, Llp; 1100 Peachtree Street; Suite 2800; Atlanta; GA; 30309; US

  Patent Application Number: 20020198168

  Date filed: August 23, 2002

  Abstract: A naked nucleic acid construct comprising a coding sequence which encodes a mycobacterial stress protein or proline-rich antigen or an antigenically effective fragment thereof operably linked to a promoter capable of expressing the said coding sequence in a mammalian host cell is useful as a vaccine against a mycobacterial infection such as tuberculosis and **leprosy.**

  Excerpt(s): This invention relates to vaccines against mycobacterial infections such as tuberculosis and **leprosy.** Despite its central position in classical immunology, surprisingly little is known of how a protective cell-mediated immune response is either acquired or expressed against tuberculosis or **leprosy.** It is not know why vaccination with live bacille Calmette-Guerin (BCG) is highly protective in only some human populations or why, in contrast to live BCG, injections of dead BCG or antigenic components, even in large amounts and with adjuvants, confer only slight protection in animals. In an attempt to develop an alternative vaccine based on the Mycobacterium leprae 65 kDa heat shock protein (MLhsp65) antigen (Mehra et al (1986): Proc. Natl. Acad. Sci. USA; 83, 7014-7017), we have now stably transfected bone marrow cells with an expression vector encoding this antigen. When the transfected bone marrow cells were injected into mice, the mice were found to be resistant to infection by Mycobacterium tuberculosis, the causative agent of tuberculosis. Further, we have injected mice with naked DNA encoding MLhsp65 or the Mycobacterium leprae 36 kDa proline rich-antigen (Thole et al, Infection and Immunity (1990) 58, 80-87). These mice were also found to be resistant to infection by Mycobacterium tuberculosis.

  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 leprosy, 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 "leprosy" (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 leprosy.

You can also use this procedure to view pending patent applications concerning leprosy. 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 6. BOOKS ON LEPROSY

Overview

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

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "leprosy" (or synonyms) into the "For these words:" box. You should check back periodically with this database which is updated every three months. The following is a typical result when searching for books on leprosy:

- **Oral and Cutaneous Manifestations of Hematogenously Disseminated Systemic Infections: A Monograph**

  Source: Research Triangle Park, NC: Glaxo, Inc. 1993. 79 p.

  Contact: Available from Glaxo-Wellcome Education Resource Center. 5 Moore Drive, Research Triangle Park, NC 27709. (800) 824-2896. PRICE: Single copy free. Stock Number GVL251.

  Summary: This monograph describes oral and dermatologic manifestations resulting from systemic infections. Written as a continuing education tool for physicians, the monograph features 26 sections, each of which includes a description of dermatologic manifestations, other clinical features, laboratory findings, and epidemiologic factors. Diseases covered include AIDS, blastomycosis, candidiasis, coccidioidomycosis, cryptococcoses, erythema infectiousum (Fifth disease), gonococcemia, gram-negative bacterial sepsis, hand-foot-and-mouth disease, infectious mononucleosis, infective

endocarditis, Kawasaki syndrome, **leprosy,** lyme disease, meningococcemia, Rocky Mountain spotted fever, roseola, rubella (German measles), rubeola (measles), scarlet fever, secondary (disseminated) syphilis, staphylococcal scalded skin syndrome, toxic shock syndrome, typhoid fever, varicella (chickenpox), and Vibrio vulnificus infection. Each section is illustrated with full-color photographs depicting patients with manifestations of the disease under consideration. The monograph includes a glossary of illustrations to help with diagnosis and classification. The monograph concludes with a self-test and instructions for receiving continuing medical education credits. A subject index is also included. 12 references.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes&Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). **IMPORTANT NOTE:** Online booksellers typically produce search results for medical and non-medical books. When searching for "leprosy" at online booksellers' Web sites, you may discover non-medical books that use the generic term "leprosy" (or a synonym) in their titles. The following is indicative of the results you might find when searching for "leprosy" (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **A Guide to leprosy control**; ISBN: 9241541474; http://www.amazon.com/exec/obidos/ASIN/9241541474/icongroupinterna
- **A Guide to Leprosy Control** by M. Christian; ISBN: 9241542233; http://www.amazon.com/exec/obidos/ASIN/9241542233/icongroupinterna
- **A twin study on leprosy** by M. R. Chakravartti; ISBN: 3132246018; http://www.amazon.com/exec/obidos/ASIN/3132246018/icongroupinterna
- **An Annotated Bibliography on Leprosy** by Corinne Shear Wood (1997); ISBN: 0773484418; http://www.amazon.com/exec/obidos/ASIN/0773484418/icongroupinterna
- **Battle Against Leprosy: The Story of Stanley Browne (Faith in Action Series)** by Nancy Martin; ISBN: 0900274484; http://www.amazon.com/exec/obidos/ASIN/0900274484/icongroupinterna
- **Chemotherapy of Leprosy: Report of a Who Study Group (Technical Report Series , No 847)** by Who Study Group on Chemotherapy of Leprosy (1994); ISBN: 9241208473; http://www.amazon.com/exec/obidos/ASIN/9241208473/icongroupinterna
- **Client Satisfaction: Guidelines for Assessing the Quality of Leprosy Services from the Clients Perspective** by Marieke Van Dijk (2003); ISBN: 9068327216; http://www.amazon.com/exec/obidos/ASIN/9068327216/icongroupinterna
- **Clinical Leprosy** by V.N. Sehgal (1979); ISBN: 9990581622; http://www.amazon.com/exec/obidos/ASIN/9990581622/icongroupinterna
- **Do Diapers Give You Leprosy? What Every Parent Should Know About Bringing Up Babies** by Ira Alterman; ISBN: 0809253658; http://www.amazon.com/exec/obidos/ASIN/0809253658/icongroupinterna

- **Epidemiology of leprosy in relation to control : report of a WHO study group**; ISBN: 9241207167;
http://www.amazon.com/exec/obidos/ASIN/9241207167/icongroupinterna
- **Father Damien: The Man Who Lived and Died for the Victims of Leprosy** by Pam Brown, Rhoda Sherwood (Editor); ISBN: 1555328156;
http://www.amazon.com/exec/obidos/ASIN/1555328156/icongroupinterna
- **Gambling in the Nineteenth-Century English Novel: A Leprosy Is O'Er the Land** by Michael Flavin (2003); ISBN: 1903900182;
http://www.amazon.com/exec/obidos/ASIN/1903900182/icongroupinterna
- **Gender, Leprosy and Leprosy Control** by Kit Publishers (2004); ISBN: 9068327194;
http://www.amazon.com/exec/obidos/ASIN/9068327194/icongroupinterna
- **Guide to Ocular Leprosy for Health Workers: A Training Manual for Eye Care in Leprosy** by Susan Lewallen, et al (1993); ISBN: 981021328X;
http://www.amazon.com/exec/obidos/ASIN/981021328X/icongroupinterna
- **Handbook of leprosy** by W. H. Jopling; ISBN: 0433175656;
http://www.amazon.com/exec/obidos/ASIN/0433175656/icongroupinterna
- **Handbook of Leprosy**; ISBN: 0685835812;
http://www.amazon.com/exec/obidos/ASIN/0685835812/icongroupinterna
- **Hansen's Disease: The Shared Paradigm** by M. J. De Mallac, M. J. De Mallac (2001); ISBN: 1857765974;
http://www.amazon.com/exec/obidos/ASIN/1857765974/icongroupinterna
- **Havens of refuge : a history of leprosy in Western Australia** by W. S. Davidson; ISBN: 085564141X;
http://www.amazon.com/exec/obidos/ASIN/085564141X/icongroupinterna
- **Human face of leprosy : leprosy elimination : unfinished challenges**; ISBN: 8186172521;
http://www.amazon.com/exec/obidos/ASIN/8186172521/icongroupinterna
- **Immunological Aspects of Leprosy, Tuberculosis and Leishmaniasis** by David Humber; ISBN: 0444902511;
http://www.amazon.com/exec/obidos/ASIN/0444902511/icongroupinterna
- **Implementing Multiple Drug Therapy for Leprosy** by A. Colin Macdougall, A. Colin McDougall (1988); ISBN: 0855980923;
http://www.amazon.com/exec/obidos/ASIN/0855980923/icongroupinterna
- **Island of Leprosy (Chinese version)** by Tse-Fan Chao; ISBN: 1929400330;
http://www.amazon.com/exec/obidos/ASIN/1929400330/icongroupinterna
- **Leonard Wood and Leprosy in the Philippines: The Culion Leper Colony, 1921-1927** by Ronald Fettes Chapman; ISBN: 0819119768;
http://www.amazon.com/exec/obidos/ASIN/0819119768/icongroupinterna
- **Leprosy**; ISBN: 0443015880;
http://www.amazon.com/exec/obidos/ASIN/0443015880/icongroupinterna
- **Leprosy (Hansen's Disease) (Epidemics)** by Karen Donnelly; ISBN: 0823934985;
http://www.amazon.com/exec/obidos/ASIN/0823934985/icongroupinterna
- **Leprosy (Medicine in the Tropics Series)** by Anthony Bryceson, Roy E. Pfaltzgraff; ISBN: 0443033730;
http://www.amazon.com/exec/obidos/ASIN/0443033730/icongroupinterna

- **Leprosy (Medicine in the Tropics)** by R C Hastings; ISBN: 0443028931; http://www.amazon.com/exec/obidos/ASIN/0443028931/icongroupinterna
- **Leprosy (MITT)** by R.C. Hastings (Editor); ISBN: 0443042837; http://www.amazon.com/exec/obidos/ASIN/0443042837/icongroupinterna
- **Leprosy : proceedings of the XI International Leprosy Congress, Mexico City, November 13-18, 1978**; ISBN: 0444900926; http://www.amazon.com/exec/obidos/ASIN/0444900926/icongroupinterna
- **Leprosy and the Sociology of Exclusion in the Hebrew Bible (Bibal Dissertation Series)** by Anne Marie Kitz; ISBN: 0941037495; http://www.amazon.com/exec/obidos/ASIN/0941037495/icongroupinterna
- **Leprosy Changes of the Skull** by Vilh Moller-Christensen (1978); ISBN: 8774922513; http://www.amazon.com/exec/obidos/ASIN/8774922513/icongroupinterna
- **Leprosy for practitioners** by S. J. Yawalkar; ISBN: 0340053593; http://www.amazon.com/exec/obidos/ASIN/0340053593/icongroupinterna
- **Leprosy for students of medicine** by Anthony Bryceson; ISBN: 0443010382; http://www.amazon.com/exec/obidos/ASIN/0443010382/icongroupinterna
- **Leprosy in Children** by F. Noussito; ISBN: 9241540532; http://www.amazon.com/exec/obidos/ASIN/9241540532/icongroupinterna
- **Leprosy in Colonial South India: Medicine and Confinement** by Jane Buckingham (2002); ISBN: 0333926226; http://www.amazon.com/exec/obidos/ASIN/0333926226/icongroupinterna
- **Leprosy in five young men** by George J. Hill; ISBN: 0870810030; http://www.amazon.com/exec/obidos/ASIN/0870810030/icongroupinterna
- **Leprosy in India : a study in medical geography** by Harshit Sinha; ISBN: 8170336244; http://www.amazon.com/exec/obidos/ASIN/8170336244/icongroupinterna
- **Leprosy in Rural India** by K. Venkateswara Rao, K. Venkateswara Rao (1993); ISBN: 8185445435; http://www.amazon.com/exec/obidos/ASIN/8185445435/icongroupinterna
- **Leprosy in the Bible** by Stanley George Browne; ISBN: 0851119301; http://www.amazon.com/exec/obidos/ASIN/0851119301/icongroupinterna
- **Leprosy, Racism, and Public Health: Social Policy in Chronic Disease Control** by Zachary Gussow; ISBN: 0813306744; http://www.amazon.com/exec/obidos/ASIN/0813306744/icongroupinterna
- **Leprosy: Bryceson.Leprosy 3E Pharma (MITT)** by A D M Bryceson, R E Pfaltzgraff; ISBN: 0443044651; http://www.amazon.com/exec/obidos/ASIN/0443044651/icongroupinterna
- **Leprosy: Diagnosis and Management** by Harry Loren Arnold; ISBN: 0398026815; http://www.amazon.com/exec/obidos/ASIN/0398026815/icongroupinterna
- **Leprosy: Medical Subject Analysis and Research Guide** by Judy K. Chaffee (1987); ISBN: 0881645524; http://www.amazon.com/exec/obidos/ASIN/0881645524/icongroupinterna
- **Memorandum on leprosy**; ISBN: 0113201966; http://www.amazon.com/exec/obidos/ASIN/0113201966/icongroupinterna

- **Mister Leprosy** by Phyllis Thompson; ISBN: 0340258373; http://www.amazon.com/exec/obidos/ASIN/0340258373/icongroupinterna
- **Pain - the Gift Nobody Wants: Memoirs of the World's Leading Leprosy Surgeon** by Paul Brand, Philip Yancey; ISBN: 0551028149; http://www.amazon.com/exec/obidos/ASIN/0551028149/icongroupinterna
- **Pathogenesis of Leprosy and Related Diseases** by D. S. Ridley (1988); ISBN: 0723610312; http://www.amazon.com/exec/obidos/ASIN/0723610312/icongroupinterna
- **People Are Not the Same: Leprosy and Identity in Twentieth-Century Mali (Social History of Africa Series)** by Eric Silla (Author); ISBN: 0325000042; http://www.amazon.com/exec/obidos/ASIN/0325000042/icongroupinterna
- **Prevention of Disabilities in Patients With Leprosy: A Practical Guide** by H. Srinivasan, Srinivas (1994); ISBN: 9241544562; http://www.amazon.com/exec/obidos/ASIN/9241544562/icongroupinterna
- **Reconstructive surgery in leprosy** by Ernest P. Fritschi; ISBN: 0723602786; http://www.amazon.com/exec/obidos/ASIN/0723602786/icongroupinterna
- **Selected Themes and Icons from Medieval Spanish Literature: Of Berards, Shoes, Cucumbers and Leprosy (Studia Humanitatis (Ediciones Jose Porrua Turanzas).)** by John R. Burt; ISBN: 0935568387; http://www.amazon.com/exec/obidos/ASIN/0935568387/icongroupinterna
- **Thank You, Jesus: Luke 17:11-19: Jesus Heals 10 Men With Leprosy (Hear Me Read. Level 2)** by Mary Manz Simon, Dennis Jones (Illustrator) (1994); ISBN: 0570047625; http://www.amazon.com/exec/obidos/ASIN/0570047625/icongroupinterna
- **The Disease of the Soul: Leprosy in Medieval Literature.** by Saul Nathaniel. Brody; ISBN: 0801408040; http://www.amazon.com/exec/obidos/ASIN/0801408040/icongroupinterna
- **The imprisoned splendour: a series of devotional studies set in the context of a visit to Indian leprosy centres** by Walter Fancutt; ISBN: 0902731076; http://www.amazon.com/exec/obidos/ASIN/0902731076/icongroupinterna
- **The Luminous Cloud: A Series of Devotional Studies in Verse and Prose Set in Thecontext of a Visit to Indian Leprosy Centres** by Walter Fancutt; ISBN: 0853052212; http://www.amazon.com/exec/obidos/ASIN/0853052212/icongroupinterna
- **The Peripheral Nerve in Leprosy and Other Neuropathies** by N. H. Antia (Editor), et al (1997); ISBN: 0195634292; http://www.amazon.com/exec/obidos/ASIN/0195634292/icongroupinterna
- **The Surgical Management of Deformities in Leprosy and Other Peripheral Neuropathies** by Noshir H. Antia, et al (1993); ISBN: 0195630580; http://www.amazon.com/exec/obidos/ASIN/0195630580/icongroupinterna
- **This spreading tree: the story of the Leprosy Mission from 1918 to 1970**; ISBN: 0902731122; http://www.amazon.com/exec/obidos/ASIN/0902731122/icongroupinterna
- **Training Health Workers to Recognize, Treat, Refer and Educate Patients About Ocular Leprosy** by Susan Lewallen, et al (1993); ISBN: 9810213298; http://www.amazon.com/exec/obidos/ASIN/9810213298/icongroupinterna

- **Tuberculosis and Leprosy (British Medical Bulletin)** by R.J.W. Rees (Editor); ISBN: 0443039771; http://www.amazon.com/exec/obidos/ASIN/0443039771/icongroupinterna
- **Two Hearts One Fire: A Glimpse Behind the Mask of Leprosy** by Howard Crouch, Mary Augustine; ISBN: 0960633014; http://www.amazon.com/exec/obidos/ASIN/0960633014/icongroupinterna
- **Valley of Shadows: Problems of Leprosy in India** by S.D. Gokhale (1979); ISBN: 9995293234; http://www.amazon.com/exec/obidos/ASIN/9995293234/icongroupinterna
- **Vocational Rehabilitation of Leprosy Patients** (2011); ISBN: 9221030474; http://www.amazon.com/exec/obidos/ASIN/9221030474/icongroupinterna
- **WHO Expert Committee on Leprosy: 7th Report (Technical Report Series)** by J.H. Grosset (1998); ISBN: 9241208740; http://www.amazon.com/exec/obidos/ASIN/9241208740/icongroupinterna
- **Working Group on Immunology, Epidemiology, and Social Aspects of Leprosy, May 28-June 1, 1984**; ISBN: 8877610220; http://www.amazon.com/exec/obidos/ASIN/8877610220/icongroupinterna

The National Library of Medicine Book Index

The National Library of Medicine at the National Institutes of Health has a massive database of books published on healthcare and biomedicine. Go to the following Internet site, **http://locatorplus.gov/**, and then select "Search LOCATORplus." Once you are in the search area, simply type "leprosy" (or synonyms) into the search box, and select "books only." From there, results can be sorted by publication date, author, or relevance. The following was recently catalogued by the National Library of Medicine:[10]

- **Danger and safety in leprosy [by Masayoshi Itoh and Paul W. Brand.** Author: Itoh, Masayoshi.; Year: 1962; New York, c1965]
- **Energy metabolism and temperature regulation in leprosy.** Author: Ogata, Korehiro.; Year: 1963; Kumamoto, Research Institute for Diathetic Medicine, Kumamoto Univ., 1957
- **Information about leprosy; leprosy can be prevented, leprosy can be cured.** Author: Ceylon. Dept. of Health.; Year: 1964; Colombo, 1960
- **Insensitive feet; a practical handbook on foot problems in leprosy.** Author: Brand, Paul W.; Year: 1965; London,
- **Leprosy for practitioners.** Author: Yawalkar, S. J.; Year: 1966; London, English Universities Press [1968]

[10] In addition to LOCATORPlus, in collaboration with authors and publishers, the National Center for Biotechnology Information (NCBI) is currently adapting biomedical books for the Web. The books may be accessed in two ways: (1) by searching directly using any search term or phrase (in the same way as the bibliographic database PubMed), or (2) by following the links to PubMed abstracts. Each PubMed abstract has a "Books" button that displays a facsimile of the abstract in which some phrases are hypertext links. These phrases are also found in the books available at NCBI. Click on hyperlinked results in the list of books in which the phrase is found. Currently, the majority of the links are between the books and PubMed. In the future, more links will be created between the books and other types of information, such as gene and protein sequences and macromolecular structures. See **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books**.

- **Leprosy in theory and practice, ed. by R. G. Cochrane and T. Frank Davey.** Author: Cochrane, Robert G. (Robert Greenhill); Year: 1961; Bristol, Wright, 1964
- **Leprosy; new hope and continuing challenge.** Author: Browne, Stanley G. (Stanley George); Year: 1963; London,
- **Notes on leprosy.** Author: Dharmendra,; Year: 1966; New Delhi, 1967]
- **Perspectives in pathology of leprosy.** Author: Khanolkar, V. R.,; Year: 1966; Bombay, 1955
- **Physiotherapy in leprosy; a study at the Christian Medical College Hospital, Vellore and the Schieffelin Leprosy Research Sanatorium, Karigiri, South India.** Author: Mendis, Merrill.; Year: 1963; Bristol, Wright [c1965]
- **Studies in the histology of early lesions in leprosy.** Author: Khanolkar, V. R.,; Year: 1960; New Delhi, Indian Council of Medical Research, 1951
- **Studies in the mediaeval diagnosis of leprosy in Denmark; an osteoarchaeological, historical, and clinical study.** Author: Andersen, Johs. G.; Year: 1963; Copenhagen, Costers Bogtrykkeri, 1969
- **The fight against leprosy.** Author: India. Ministry of Information and Broadcasting.; Year: 1964; [Delhi] Publications Division, Ministry of Information and Broadcasting [1960]
- **The first inter-regional postgraduate leprosy training course, Manilla, Culion, Cebu, Philippines, 20 November - 9 December 1961. Final report.** Author: World Health Organization. Regional Office for the Western Pacific.; Year: 1964; Manila, 1962
- **The flowering wilderness; the story of the Faizabad Leprosy Home and Hospital.** Author: Russell, Wilfrid H.; Year: 1964; London,
- **The Mission to Lepers; 90 years of leprosy service, 1874 despair, 1964, hope.** Author: Fancutt, Walter.; Year: 1982; London, Mission to Lepers [1966]
- **Thesis on tubercular leprosy, or the elephantiasis graecorum: with some general observations on that diseasse as it prevails at the Cape of Good Hope.** Author: Abercrombie, Alexander.; Year: 1960; Edinburgh: Maclachlan and Stewart, 1861
- **Visit to the United States to assess and appraise the leprosy situation in the United States of America.** Author: Cochrane, Robert G. (Robert Greenhill); Year: 1965; [London? 1964?]
- **Watch those eyes; eye complications in leprosy.** Author: Brand, Margaret.; Year: 1964; London, Mission to Lepers [1966]

Chapters on Leprosy

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

- **Mycobacterial Diseases: Tuberculosis and Leprosy**

  Source: in Maddison, P.J.; et al., Eds. Oxford Textbook of Rheumatology. Volume 2. NewYork, NY: Oxford University Press, Inc. 1993. p. 574-581.

  Contact: Available from Oxford University Press, Inc., New York, NY.

  Summary: This chapter for health professionals presents an overview of tuberculosis and leprosy. They are infectious diseases characterized by inflammation. The epidemiology, pathogenesis, immunology, pathology, clinical manifestations, diagnosis, and treatment of these diseases are discussed. Tuberculosis can affect bones or joints. It is diagnosed through microbiological cultures and radiographs, and it is treated with anti tuberculous drugs. Surgical intervention may also be used in selected cases. Leprosy affects the skin and nerves. Progressive degenerative joint changes may occur because of lesions of the peripheral nerve. Leprosy is diagnosed through microbiological, serological, and radiographic tests, and it is treated with multi drug therapy. 58 references, 3 figures, and 1 table.

CHAPTER 7. MULTIMEDIA ON LEPROSY

Overview

In this chapter, we show you how to keep current on multimedia sources of information on leprosy. 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.

Video Recordings

An excellent source of multimedia information on leprosy is the Combined Health Information Database. You will need to limit your search to "Videorecording" and "leprosy" using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find video productions, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Videorecording (videotape, videocassette, etc.)." Type "leprosy" (or synonyms) into the "For these words:" box. The following is a typical result when searching for video recordings on leprosy:

- **Simple Courage: An Historical Portrait for the Age of AIDS**

  Contact: Filmakers Library, Incorporated, 124 East 40th St, New York, NY, 10016, (212) 808-4980. Olena Productions, 350 Ward Ave, Ste #106-59, Honolulu, HI, 96814, (808) 834-4748.

  Summary: This videorecording investigates the historical practice of placing people with **leprosy** in Hawaii under quarantine at Kalaupapa, Molokai, from the late 1800s through the mid-1900s. It then draws a parallel between **leprosy** and Persons with AIDS (PWA's) to make the case against quarantine for PWA's. Through the use of old photographs, film clips, news clips, paintings, sketches, and personal stories by people who were quarantined at Kalaupapa, this videorecording describes the treatment of people with **leprosy** as comparable to that of criminals; the stigma of having **leprosy** and misunderstandings about its transmission; and discusses the isolation felt by people with **leprosy.** The compassionate work of Fr. Damien de Veuster, a missionary from Belgium who ministered to the leper colony, is discussed. Viewers are urged to, like Fr.

Damien, give of themselves to others in need, and to treat PWA's as people, not as pariahs.

Bibliography: Multimedia on Leprosy

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 leprosy (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 leprosy:

- **An Atlas of leprosy [slide]** Source: [produced by ISS International, Inc.]; Year: 1985; Format: Slide; [Tokyo, Japan]: Sasakawa Memorial Health Foundation, 1985
- **Compact disc of leprosy literature, 1913-1991 [electronic resource]** Source: Leprosy Research Foundation; Year: 1992; Format: Electronic resource; Loma Linda, Calif.: The Foundation, c1992
- **Leprosy [electronic resource]** Source: The Wellcome Trust; Year: 1998; Format: Electronic resource; Wallingford, Oxon; New York: CABI Publishing, CAB International, 1998
- **Leprosy [slide]** Source: Center for Disease Control, Bureau Control, Bureau of Training, Instructional Systems Division; Year: 1970; Format: Slide; [Atlanta: The Center, 1970-]
- **Leprosy [videorecording]** Source: [presented by] the Emory Medical Television Network, Emory University School of Medicine of the Robert W. Woodruff Health Sciences Center; Year: 1995; Format: Videorecording; Atlanta, GA: The University, [1995]
- **Leprosy can be cured [videorecording]** Source: [presented by] WGBH Boston; a Selva Barnes production for Nova; Year: 1986; Format: Videorecording; Boston, MA: WGBH Educational Foundation, c1986
- **Leprosy lesions in skins of different colours [slide]** Source: [Teaching Aids at Low Cost]; Year: 1986; Format: Slide; Chelmsford, Essex, UK: Graves Medical Audiovisual Library, [1986]
- **Pathology of leprosy [videorecording]** Source: Training Branch, National Hansen's Disease Center, Department of Health & Human Services; Year: 1980; Format: Videorecording; Carville, La.: The Center, 1980
- **Secret people [videorecording]: the naked face of leprosy in America.** Year: 1999; Format: Videorecording; Boston, MA: Fanlight Productions, c1999
- **The new face of leprosy [videorecording]: healing bodies, opening minds.** Year: 2003; Format: Videorecording; Princeton, NJ: Films for the Humanities & Sciences, 2003
- **Urinary incontinence [slide]: the social leprosy** Source: prepared by Pat Morden, Jennifer Skelly; McMaster University Health Sciences; Year: 1983; Format: Slide; [Hamilton, Ont.]: The University, c1983

CHAPTER 8. PERIODICALS AND NEWS ON LEPROSY

Overview

In this chapter, we suggest a number of news sources and present various periodicals that cover leprosy.

News Services and Press Releases

One of the simplest ways of tracking press releases on leprosy is to search the news wires. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

To access the PR Newswire archive, simply go to **http://www.prnewswire.com/**. Select your country. Type "leprosy" (or synonyms) into the search box. You will automatically receive information on relevant news releases posted within the last 30 days. The search results are shown by order of relevance.

Reuters Health

The Reuters' Medical News and Health eLine databases can be very useful in exploring news archives relating to leprosy. While some of the listed articles are free to view, others are available for purchase for a nominal fee. To access this archive, go to **http://www.reutershealth.com/en/index.html** and search by "leprosy" (or synonyms). The following was recently listed in this archive for leprosy:

- **Genetic profiling can distinguish clinical forms of leprosy**
  Source: Reuters Medical News
  Date: September 11, 2003
- **New clues to leprosy nerve damage: study**
  Source: Reuters Health eLine
  Date: May 03, 2002

- **World could be rid of leprosy by 2005: UN**
  Source: Reuters Health eLine
  Date: January 30, 2002
- **Health experts predict leprosy will be eradicated by 2005**
  Source: Reuters Medical News
  Date: January 30, 2002
- **Japan parliament apologises to leprosy patients**
  Source: Reuters Health eLine
  Date: June 07, 2001
- **Japanese government apologises to leprosy patients**
  Source: Reuters Health eLine
  Date: May 25, 2001
- **WHO: Leprosy cases slashed, TB needs more cash**
  Source: Reuters Health eLine
  Date: May 17, 2001
- **WHO achieves 10-year goal of reducing leprosy worldwide by 90%**
  Source: Reuters Medical News
  Date: May 16, 2001
- **Court tells Japan to compensate leprosy patients**
  Source: Reuters Health eLine
  Date: May 11, 2001
- **Scientists isolate chromosome region linked to leprosy susceptibility**
  Source: Reuters Medical News
  Date: March 30, 2001
- **India renews efforts to eliminate leprosy**
  Source: Reuters Medical News
  Date: March 30, 2001
- **India begins $30M leprosy control project**
  Source: Reuters Health eLine
  Date: March 30, 2001
- **Scientists isolate leprosy-linked chromosome**
  Source: Reuters Health eLine
  Date: March 29, 2001
- **Massive gene loss found in leprosy bacillus**
  Source: Reuters Medical News
  Date: February 21, 2001
- **Clues to leprosy's genetic past revealed**
  Source: Reuters Health eLine
  Date: February 21, 2001
- **Global alliance calls for a final push to eliminate leprosy**
  Source: Reuters Medical News
  Date: February 01, 2001
- **Alliance calls for final push to eliminate leprosy**
  Source: Reuters Health eLine
  Date: February 01, 2001

- **Beggars are a reservoir for leprosy in India**
  Source: Reuters Health eLine
  Date: October 18, 2000
- **Beggars are a reservoir of leprosy in India**
  Source: Reuters Medical News
  Date: October 16, 2000
- **WHO forms alliance to eliminate leprosy by 2005**
  Source: Reuters Medical News
  Date: November 15, 1999
- **UN-led alliance hopes to eradicate leprosy by 2005**
  Source: Reuters Health eLine
  Date: November 15, 1999
- **WHO focuses leprosy elimination program**
  Source: Reuters Health eLine
  Date: April 20, 1999
- **Leprosy nearly eliminated; WHO targets endemic countries**
  Source: Reuters Medical News
  Date: April 20, 1999
- **Causative agents of leprosy, hemorrhagic fevers bind to alpha-dystroglycan**
  Source: Reuters Medical News
  Date: December 23, 1998
- **FDA approves thalidomide for leprosy complication**
  Source: Reuters Medical News
  Date: July 17, 1998
- **FDA approves thalidomide for leprosy**
  Source: Reuters Health eLine
  Date: July 17, 1998
- **Leprosy still increasing in some countries**
  Source: Reuters Medical News
  Date: June 29, 1998
- **Monthly, supervisable leprosy treatment looks feasible**
  Source: Reuters Medical News
  Date: May 14, 1998

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at **http://www.nlm.nih.gov/medlineplus/alphanews_a.html**. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at the following Web page: **http://www.nlm.nih.gov/medlineplus/newsbydate.html**. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to **http://www.businesswire.com/**. You can scan the news by industry category or company name.

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at **http://www.marketwire.com/mw/release_index?channel=MedicalHealth**. Or simply go to Market Wire's home page at **http://www.marketwire.com/mw/home**, type "leprosy" (or synonyms) into the search box, and click on "Search News." As this service is technology oriented, you may wish to use it when searching for press releases covering diagnostic procedures or tests.

Search Engines

Medical news is also available in the news sections of commercial Internet search engines. See the health news page at Yahoo (**http://dir.yahoo.com/Health/News_and_Media/**), or you can use this Web site's general news search page at **http://news.yahoo.com/**. Type in "leprosy" (or synonyms). If you know the name of a company that is relevant to leprosy, you can go to any stock trading Web site (such as **http://www.etrade.com/**) and search for the company name there. News items across various news sources are reported on indicated hyperlinks. Google offers a similar service at **http://news.google.com/**.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at **http://www.bbc.co.uk/**. Search by "leprosy" (or synonyms).

Academic Periodicals covering Leprosy

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to leprosy. In addition to these sources, you can search for articles covering leprosy that have been published by any of the periodicals listed in previous chapters. To find the latest studies published, go to **http://www.ncbi.nlm.nih.gov/pubmed**, type the name of the periodical into the search box, and click "Go."

If you want complete details about the historical contents of a journal, you can also visit the following Web site: **http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi**. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At **http://locatorplus.gov/**, you can retrieve more indexing information on medical

periodicals (e.g. the name of the publisher). Select the button "Search LOCATORplus." Then type in the name of the journal and select the advanced search option "Journal Title Search."

CHAPTER 9. RESEARCHING MEDICATIONS

Overview

While a number of hard copy or CD-ROM resources are available for researching medications, a more flexible method is to use Internet-based databases. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

U.S. Pharmacopeia

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications recommended for leprosy. One such source is the United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the U.S. Pharmacopeia (USP). Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at **http://www.usp.org/**. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database, located at **http://www.fda.gov/cder/da/da.htm**.

While the FDA database is rather large and difficult to navigate, the Phamacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: **http://www.nlm.nih.gov/medlineplus/druginformation.html**. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopeia (USP).

Below, we have compiled a list of medications associated with leprosy. If you would like more information on a particular medication, the provided hyperlinks will direct you to ample documentation (e.g. typical dosage, side effects, drug-interaction risks, etc.). The

following drugs have been mentioned in the Pharmacopeia and other sources as being potentially applicable to leprosy:

Clofazimine

- **Systemic - U.S. Brands:** Lamprene
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202149.html

Corticosteroids

- **Dental - U.S. Brands:** Kenalog in Orabase; Orabase-HCA; Oracort; Oralone
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202010.html
- **Inhalation - U.S. Brands:** AeroBid; AeroBid-M; Azmacort; Beclovent; Decadron Respihaler; Pulmicort Respules; Pulmicort Turbuhaler; Vanceril; Vanceril 84 mcg Double Strength
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202011.html
- **Nasal - U.S. Brands:** Beconase; Beconase AQ; Dexacort Turbinaire; Flonase; Nasacort; Nasacort AQ; Nasalide; Nasarel; Nasonex; Rhinocort; Vancenase; Vancenase AQ 84 mcg; Vancenase pockethaler
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202012.html
- **Ophthalmic - U.S. Brands:** AK-Dex; AK-Pred; AK-Tate; Baldex; Decadron; Dexair; Dexotic; Econopred; Econopred Plus; Eflone; Flarex; Fluor-Op; FML Forte; FML Liquifilm; FML S.O.P.; HMS Liquifilm; Inflamase Forte; Inflamase Mild; I-Pred; Lite Pred; Maxidex; Ocu-Dex; Ocu-Pred; Ocu-Pr
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202013.html
- **Otic - U.S. Brands:** Decadron
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202014.html
- **Rectal - U.S. Brands:** Anucort-HC; Anu-Med HC; Anuprep HC; Anusol-HC; Anutone-HC; Anuzone-HC; Cort-Dome; Cortenema; Cortifoam; Hemorrhoidal HC; Hemril-HC Uniserts; Proctocort; Proctosol-HC; Rectosol-HC
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/203366.html

Dapsone

- **Rectal - U.S. Brands:**
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/203366.html

Niacin (Vitamin B 3)

- **Systemic - U.S. Brands:** Endur-Acin; Nia-Bid; Niac; Niacels; Niacor; Nico-400; Nicobid Tempules; Nicolar; Nicotinex Elixir; Slo-Niacin
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202405.html

Ofloxacin

- **Ophthalmic - U.S. Brands:**
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202687.html
- **Ophthalmic - U.S. Brands:** Ocuflox
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202687.html

Rifampin

- **Systemic - U.S. Brands:** Rifadin; Rimactane
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202511.html

Rifampin and Isoniazid

- **Systemic - U.S. Brands:** Rifamate
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202512.html

Rifampin, Isoniazid, and Pyrazinamide

- **Systemic - U.S. Brands:** Rifater
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202775.html

Tetracyclines

- **Systemic - U.S. Brands:** Achromycin V; Declomycin; Doryx; Dynacin; Minocin; Monodox; Terramycin; Vibramycin; Vibra-Tabs
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202552.html

Thalidomide

- **Systemic - U.S. Brands:** THALOMID
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202692.html

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. Or, you may be able to access these sources from your local medical library.

Mosby's Drug Consult™

Mosby's Drug Consult™ database (also available on CD-ROM and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information. Subscription information is available at the following hyperlink: **http://www.mosbysdrugconsult.com/**.

PDR*health*

The PDR*health* database is a free-to-use, drug information search engine that has been written for the public in layman's terms. It contains FDA-approved drug information adapted from the Physicians' Desk Reference (PDR) database. PDR*health* can be searched by brand name, generic name, or indication. It features multiple drug interactions reports. Search PDR*health* at **http://www.pdrhealth.com/drug_info/index.html**.

Other Web Sites

Drugs.com (**www.drugs.com**) reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. (**http://www.medletter.com/**) which allows users to download articles on various drugs and therapeutics for a nominal fee.

Researching Orphan Drugs

Although the list of orphan drugs is revised on a daily basis, you can quickly research orphan drugs that might be applicable to leprosy by using the database managed by the National Organization for Rare Disorders, Inc. (NORD), at **http://www.rarediseases.org/**. Scroll down the page, and on the left toolbar, click on "Orphan Drug Designation Database." On this page (**http://www.rarediseases.org/search/noddsearch.html**), type "leprosy" (or synonyms) into the search box, and click "Submit Query." When you receive your results, note that not all of the drugs may be relevant, as some may have been withdrawn from orphan status. Write down or print out the name of each drug and the relevant contact information. From there, visit the Pharmacopeia Web site and type the name of each orphan drug into the search box at **http://www.nlm.nih.gov/medlineplus/druginformation.html**. You may need to contact the sponsor or NORD for further information.

NORD conducts "early access programs for investigational new drugs (IND) under the Food and Drug Administration's (FDA's) approval 'Treatment INDs' programs which allow for a limited number of individuals to receive investigational drugs before FDA marketing approval." If the orphan product about which you are seeking information is approved for marketing, information on side effects can be found on the product's label. If the product is not approved, you may need to contact the sponsor.

The following is a list of orphan drugs currently listed in the NORD Orphan Drug Designation Database for leprosy:

- **Thalidomide**
  http://www.rarediseases.org/nord/search/nodd_full?code=19
- **Clofazimine (trade name: Lamprene)**
  http://www.rarediseases.org/nord/search/nodd_full?code=651

If you have any questions about a medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at **www.fda.gov**.

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 "leprosy" (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	17244
Books / Periodicals / Audio Visual	1150
Consumer Health	116
Meeting Abstracts	53
Other Collections	1
Total	18564

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 "leprosy" (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/**.

The Genome Project and Leprosy

In the following section, we will discuss databases and references which relate to the Genome Project and leprosy.

Online Mendelian Inheritance in Man (OMIM)

The Online Mendelian Inheritance in Man (OMIM) database is a catalog of human genes and genetic disorders authored and edited by Dr. Victor A. McKusick and his colleagues at Johns Hopkins and elsewhere. OMIM was developed for the World Wide Web by the National Center for Biotechnology Information (NCBI).[22] The database contains textual information, pictures, and reference information. It also contains copious links to NCBI's Entrez database of MEDLINE articles and sequence information.

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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.

[22] Adapted from **http://www.ncbi.nlm.nih.gov/**. Established in 1988 as a national resource for molecular biology information, NCBI creates public databases, conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information--all for the better understanding of molecular processes affecting human health and disease.

To search the database, go to **http://www.ncbi.nlm.nih.gov/Omim/searchomim.html**. Type "leprosy" (or synonyms) into the search box, and click "Submit Search." If too many results appear, you can narrow the search by adding the word "clinical." Each report will have additional links to related research and databases. In particular, the option "Database Links" will search across technical databases that offer an abundance of information. The following is an example of the results you can obtain from the OMIM for leprosy:

- **Leprosy, Susceptibility to**
  Web site: http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispmim?246300
- **Leprosy, Susceptibility To, 2**
  Web site: http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispmim?607572

Genes and Disease (NCBI - Map)

The Genes and Disease database is produced by the National Center for Biotechnology Information of the National Library of Medicine at the National Institutes of Health. This Web site categorizes each disorder by system of the body. Go to **http://www.ncbi.nlm.nih.gov/disease/**, and browse the system pages to have a full view of important conditions linked to human genes. Since this site is regularly updated, you may wish to revisit it from time to time. The following systems and associated disorders are addressed:

- **Cancer:** Uncontrolled cell division.
  Examples: Breast and ovarian cancer, Burkitt lymphoma, chronic myeloid leukemia, colon cancer, lung cancer, malignant melanoma, multiple endocrine neoplasia, neurofibromatosis, p53 tumor suppressor, pancreatic cancer, prostate cancer, Ras oncogene, RB: retinoblastoma, von Hippel-Lindau syndrome.
  Web site: **http://www.ncbi.nlm.nih.gov/disease/Cancer.html**
- **Immune System:** Fights invaders.
  Examples: Asthma, autoimmune polyglandular syndrome, Crohn's disease, DiGeorge syndrome, familial Mediterranean fever, immunodeficiency with Hyper-IgM, severe combined immunodeficiency.
  Web site: **http://www.ncbi.nlm.nih.gov/disease/Immune.html**
- **Metabolism:** Food and energy.
  Examples: Adreno-leukodystrophy, atherosclerosis, Best disease, Gaucher disease, glucose galactose malabsorption, gyrate atrophy, juvenile-onset diabetes, obesity, paroxysmal nocturnal hemoglobinuria, phenylketonuria, Refsum disease, Tangier disease, Tay-Sachs disease.
  Web site: **http://www.ncbi.nlm.nih.gov/disease/Metabolism.html**
- **Muscle and Bone:** Movement and growth.
  Examples: Duchenne muscular dystrophy, Ellis-van Creveld syndrome, Marfan syndrome, myotonic dystrophy, spinal muscular atrophy.
  Web site: **http://www.ncbi.nlm.nih.gov/disease/Muscle.html**
- **Nervous System:** Mind and body.
  Examples: Alzheimer disease, amyotrophic lateral sclerosis, Angelman syndrome, Charcot-Marie-Tooth disease, epilepsy, essential tremor, fragile X syndrome, Friedreich's ataxia, Huntington disease, Niemann-Pick disease, Parkinson disease,

Prader-Willi syndrome, Rett syndrome, spinocerebellar atrophy, Williams syndrome.
Web site: **http://www.ncbi.nlm.nih.gov/disease/Brain.html**

- **Signals:** Cellular messages.
  Examples: Ataxia telangiectasia, Cockayne syndrome, glaucoma, male-patterned baldness, SRY: sex determination, tuberous sclerosis, Waardenburg syndrome, Werner syndrome.
  Web site: **http://www.ncbi.nlm.nih.gov/disease/Signals.html**
- **Transporters:** Pumps and channels.
  Examples: Cystic fibrosis, deafness, diastrophic dysplasia, Hemophilia A, long-QT syndrome, Menkes syndrome, Pendred syndrome, polycystic kidney disease, sickle cell anemia, Wilson's disease, Zellweger syndrome.
  Web site: **http://www.ncbi.nlm.nih.gov/disease/Transporters.html**

Entrez

Entrez is a search and retrieval system that integrates several linked databases at the National Center for Biotechnology Information (NCBI). These databases include nucleotide sequences, protein sequences, macromolecular structures, whole genomes, and MEDLINE through PubMed. Entrez provides access to the following databases:

- **3D Domains:** Domains from Entrez Structure,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=geo**
- **Books:** Online books,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=books**
- **Genome:** Complete genome assemblies,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Genome**
- **NCBI's Protein Sequence Information Survey Results:**
  Web site: **http://www.ncbi.nlm.nih.gov/About/proteinsurvey/**
- **Nucleotide Sequence Database (Genbank):**
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide**
- **OMIM:** Online Mendelian Inheritance in Man,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM**
- **PopSet:** Population study data sets,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Popset**
- **ProbeSet:** Gene Expression Omnibus (GEO),
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=geo**
- **Protein Sequence Database:**
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Protein**
- **PubMed:** Biomedical literature (PubMed),
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=PubMed**
- **Structure:** Three-dimensional macromolecular structures,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Structure**
- **Taxonomy:** Organisms in GenBank,
  Web site: **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Taxonomy**

To access the Entrez system at the National Center for Biotechnology Information, go to **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=genome**, and then select the database that you would like to search. The databases available are listed in the drop box next to "Search." Enter "leprosy" (or synonyms) into the search box and click "Go."

Jablonski's Multiple Congenital Anomaly/Mental Retardation (MCA/MR) Syndromes Database[23]

This online resource has been developed to facilitate the identification and differentiation of syndromic entities. Special attention is given to the type of information that is usually limited or completely omitted in existing reference sources due to space limitations of the printed form.

At **http://www.nlm.nih.gov/mesh/jablonski/syndrome_toc/toc_a.html**, you can search across syndromes using an alphabetical index**.** Search by keywords at **http://www.nlm.nih.gov/mesh/jablonski/syndrome_db.html**.

The Genome Database[24]

Established at Johns Hopkins University in Baltimore, Maryland in 1990, the Genome Database (GDB) is the official central repository for genomic mapping data resulting from the Human Genome Initiative. In the spring of 1999, the Bioinformatics Supercomputing Centre (BiSC) at the Hospital for Sick Children in Toronto, Ontario assumed the management of GDB. The Human Genome Initiative is a worldwide research effort focusing on structural analysis of human DNA to determine the location and sequence of the estimated 100,000 human genes. In support of this project, GDB stores and curates data generated by researchers worldwide who are engaged in the mapping effort of the Human Genome Project (HGP). GDB's mission is to provide scientists with an encyclopedia of the human genome which is continually revised and updated to reflect the current state of scientific knowledge. Although GDB has historically focused on gene mapping, its focus will broaden as the Genome Project moves from mapping to sequence, and finally, to functional analysis.

To access the GDB, simply go to the following hyperlink: **http://www.gdb.org/**. Search "All Biological Data" by "Keyword." Type "leprosy" (or synonyms) into the search box, and review the results. If more than one word is used in the search box, then separate each one with the word "and" or "or" (using "or" might be useful when using synonyms).

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[23] Adapted from the National Library of Medicine: **http://www.nlm.nih.gov/mesh/jablonski/about_syndrome.html**.

[24] Adapted from the Genome Database: **http://gdbwww.gdb.org/gdb/aboutGDB.html - mission**.

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 leprosy 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 leprosy. 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 leprosy. 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 "leprosy":

- Other guides

Alzheimer's Disease
http://www.nlm.nih.gov/medlineplus/alzheimersdisease.html

Bacterial Infections
http://www.nlm.nih.gov/medlineplus/bacterialinfections.html

Behcet's Syndrome
http://www.nlm.nih.gov/medlineplus/behcetssyndrome.html

Birth Defects
http://www.nlm.nih.gov/medlineplus/birthdefects.html

Cartilage Disorders
http://www.nlm.nih.gov/medlineplus/cartilagedisorders.html

Crohn's Disease
http://www.nlm.nih.gov/medlineplus/crohnsdisease.html

Crohn's Disease
http://www.nlm.nih.gov/medlineplus/tutorials/crohnsdiseasloader.html

Hodgkin's Disease
http://www.nlm.nih.gov/medlineplus/hodgkinsdisease.html

Parkinson's Disease
http://www.nlm.nih.gov/medlineplus/parkinsonsdisease.html

Parkinson's Disease
http://www.nlm.nih.gov/medlineplus/tutorials/parkinsonsdiseaseloader.html

Rare Diseases
http://www.nlm.nih.gov/medlineplus/rarediseases.html

Tuberculosis
http://www.nlm.nih.gov/medlineplus/tuberculosis.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.

Healthfinder™

Healthfinder™ is sponsored by the U.S. Department of Health and Human Services and offers links to hundreds of other sites that contain healthcare information. This Web site is located at **http://www.healthfinder.gov**. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **Lower Extremity Amputation Prevention Program (LEAP)**

  Summary: A comprehensive prevention program developed at the Bureau of Primary Health Care that can dramatically reduce lower extremity amputations in individuals with diabetes mellitus, Hansen's disease, or

  Source: Bureau of Primary Health Care, Health Resources and Services Administration

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=3549

- **National Hansen's Disease Program**

  Summary: There are ten federally funded regional Hansen's disease centers distributed over the U.S. that provide specialized outpatient services for HD patients.

  Source: Bureau of Primary Health Care, Health Resources and Services Administration

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=2235

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 leprosy. 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**.

NORD (The National Organization of Rare Disorders, Inc.)

NORD provides an invaluable service to the public by publishing short yet comprehensive guidelines on over 1,000 diseases. NORD primarily focuses on rare diseases that might not be covered by the previously listed sources. NORD's Web address is **http://www.rarediseases.org/**. A complete guide on leprosy can be purchased from NORD for a nominal fee.

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 Leprosy

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

- **American Leprosy Missions**

  Telephone: (864) 271-7040 Toll-free: (800) 543-3135

  Fax: (864) 271-7062

  Email: amlep@leprosy.org

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

  Background: Established in 1906, the American **Leprosy** Missions is a not-for-profit service organization devoted to the care of people with **Leprosy** and to the eventual cure of this disorder. **Leprosy,** also known as **Hansen's Disease,** is a progressive, chronic infectious disease caused by the bacteria, Mycobacterium leprae. The disorder affects nerves outside the central nervous system (peripheral nerves), particularly in the facial area and the limbs. In severe cases, loss of sensation, disfigurement, and/or blindness may occur. ALM, a fund-raising organization, helps people with **Leprosy** through programs of 'partner projects' in about 20 countries. The project dispenses multi-drug therapies to cure **Leprosy;** engages in rehabilitation; and offers vocational and other support programs. In addition, the organization mails monthly appeals and newsletters to its donors; provides educational materials to train health care workers; and manages subscriptions for the 'International Journal of **Leprosy.**' ALM also trains health care workers, surgeons, and paramedics on the appropriate treatment of affected individuals.

  Relevant area(s) of interest: Hansen's Disease, Leprosy

- **Leonard Wood Memorial American Leprosy Foundation**

  Telephone: (301) 984-1336

  Fax: (301) 770-0580

  Email: lwm-alf@erols.com

  Background: The Leonard Wood Memorial American **Leprosy** Foundation is a not-for-profit research organization dedicated to providing information on and conducting research into the treatment and eventual cure of **leprosy. Leprosy** is a progressive, chronic infectious disease caused by the bacteria, Mycobacterium leprae. This disease affects the nerves that are located outside the central nervous system and the skin, mucous membranes, and eyes. The organization seeks to conduct, maintain, and support laboratory investigations, clinical studies, and related research with the goal of eradicating the disease. The Foundation is also committed to the dissemination of information concerning the source, diagnosis, treatment, and prevention of **leprosy.** In addition, it seeks to voluntarily aid, establish, maintain, and support clinics, hospitals, and laboratories for the diagnosis and treatment of this disease. The Foundation, to the extent of its financial ability, hopes to leave no scientific step untaken that holds any promise of finding the ultimate solution of **Hansen's Disease** (leprosy). Information and reports are provided and research is being conducted on **Leprosy** at the Foundation's clinical facility in the Philippines.

Relevant area(s) of interest: Hansen's Disease, Leprosy

Finding Associations

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

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 leprosy. 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 "leprosy" (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 "leprosy". 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 "leprosy" (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 "leprosy" (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.[25]

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

[25] 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)[26]:

- **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/**

[26] 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**). The NIH suggests the following Web sites in the ADAM Medical Encyclopedia when searching for information on leprosy:

- **Basic Guidelines for Leprosy**

  Leprosy
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/001347.htm

- **Signs & Symptoms for Leprosy**

  Anhidrosis
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003219.htm

  Axillary lymphadenopathy
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003099.htm

  Blindness
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003040.htm

  Claw hand
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003169.htm

Claw toes
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003168.htm

Decreased sensation
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003206.htm

Epistaxis
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003106.htm

Gynecomastia
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003165.htm

Macule
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003229.htm

Muscle atrophy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003188.htm

Muscle wasting
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003188.htm

Muscle weakness
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003174.htm

Nodules
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003230.htm

Numbness
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003206.htm

Papule
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003233.htm

Patches
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003231.htm

Saddle nose
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003056.htm

Sensory loss
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003206.htm

Skin lesion
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003220.htm

Skin lesions
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003220.htm

Ulcers
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003228.htm

Wasting
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003188.htm

Weakness
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003174.htm

- **Diagnostics and Tests for Leprosy**

Biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003416.htm

ESR
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003638.htm

Lepromin skin test
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003383.htm

Nerve biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003928.htm

Skin biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003840.htm

Skin scraping
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003840.htm

- **Background Topics for Leprosy**

Endemic
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002362.htm

Macrophage
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002374.htm

Peripheral
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002273.htm

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

LEPROSY 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]

Acetylcholine: A neurotransmitter. Acetylcholine in vertebrates is the major transmitter at neuromuscular junctions, autonomic ganglia, parasympathetic effector junctions, a subset of sympathetic effector junctions, and at many sites in the central nervous system. It is generally not used as an administered drug because it is broken down very rapidly by cholinesterases, but it is useful in some ophthalmological applications. [NIH]

Acetylcholinesterase: An enzyme that catalyzes the hydrolysis of acetylcholine to choline and acetate. In the CNS, this enzyme plays a role in the function of peripheral neuromuscular junctions. EC 3.1.1.7. [NIH]

Acne: A disorder of the skin marked by inflammation of oil glands and hair glands. [NIH]

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

Acute Disease: Disease having a short and relatively severe course. [NIH]

Adjuvant: A substance which aids another, such as an auxiliary remedy; in immunology, nonspecific stimulator (e.g., BCG vaccine) of the immune response. [EU]

Adrenal Glands: Paired glands situated in the retroperitoneal tissues at the superior pole of each kidney. [NIH]

Adrenergic: Activated by, characteristic of, or secreting epinephrine or substances with similar activity; the term is applied to those nerve fibres that liberate norepinephrine at a synapse when a nerve impulse passes, i.e., the sympathetic fibres. [EU]

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

Aerobic: In biochemistry, reactions that need oxygen to happen or happen when oxygen is present. [NIH]

Aerosol: A solution of a drug which can be atomized into a fine mist for inhalation therapy. [EU]

Afferent: Concerned with the transmission of neural impulse toward the central part of the nervous system. [NIH]

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

Agar: A complex sulfated polymer of galactose units, extracted from Gelidium cartilagineum, Gracilaria confervoides, and related red algae. It is used as a gel in the preparation of solid culture media for microorganisms, as a bulk laxative, in making emulsions, and as a supporting medium for immunodiffusion and immunoelectrophoresis. [NIH]

Agranulocytosis: A decrease in the number of granulocytes (basophils, eosinophils, and neutrophils). [NIH]

Albumin: 1. Any protein that is soluble in water and moderately concentrated salt solutions and is coagulable by heat. 2. Serum albumin; the major plasma protein (approximately 60 per cent of the total), which is responsible for much of the plasma colloidal osmotic pressure and serves as a transport protein carrying large organic anions, such as fatty acids, bilirubin, and many drugs, and also carrying certain hormones, such as cortisol and thyroxine, when their specific binding globulins are saturated. Albumin is synthesized in the liver. Low serum levels occur in protein malnutrition, active inflammation and serious hepatic and renal disease. [EU]

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

Alkaline: Having the reactions of an alkali. [EU]

Alleles: Mutually exclusive forms of the same gene, occupying the same locus on homologous chromosomes, and governing the same biochemical and developmental process. [NIH]

Allergic Rhinitis: Inflammation of the nasal mucous membrane associated with hay fever; fits may be provoked by substances in the working environment. [NIH]

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

Alopecia: Absence of hair from areas where it is normally present. [NIH]

Alpha Particles: Positively charged particles composed of two protons and two neutrons, i.e., helium nuclei, emitted during disintegration of very heavy isotopes; a beam of alpha particles or an alpha ray has very strong ionizing power, but weak penetrability. [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 Motifs: Commonly observed structural components of proteins formed by simple combinations of adjacent secondary structures. A commonly observed structure may be composed of a conserved sequence which can be represented by a consensus sequence. [NIH]

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

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

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

Ammonia: A colorless alkaline gas. It is formed in the body during decomposition of

organic materials during a large number of metabolically important reactions. [NIH]

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

Amyloid: A general term for a variety of different proteins that accumulate as extracellular fibrils of 7-10 nm and have common structural features, including a beta-pleated sheet conformation and the ability to bind such dyes as Congo red and thioflavine (Kandel, Schwartz, and Jessel, Principles of Neural Science, 3rd ed). [NIH]

Amyloidosis: A group of diseases in which protein is deposited in specific organs (localized amyloidosis) or throughout the body (systemic amyloidosis). Amyloidosis may be either primary (with no known cause) or secondary (caused by another disease, including some types of cancer). Generally, primary amyloidosis affects the nerves, skin, tongue, joints, heart, and liver; secondary amyloidosis often affects the spleen, kidneys, liver, and adrenal glands. [NIH]

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

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

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]

Anergy: Absence of immune response to particular substances. [NIH]

Angiogenesis: Blood vessel formation. Tumor angiogenesis is the growth of blood vessels from surrounding tissue to a solid tumor. This is caused by the release of chemicals by the tumor. [NIH]

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

Anions: Negatively charged atoms, radicals or groups of atoms which travel to the anode or positive pole during electrolysis. [NIH]

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

Anorexia: Lack or loss of appetite for food. Appetite is psychologic, dependent on memory and associations. Anorexia can be brought about by unattractive food, surroundings, or company. [NIH]

Antibacterial: A substance that destroys bacteria or suppresses their growth or reproduction. [EU]

Antibiotic: A drug used to treat infections caused by bacteria and other microorganisms. [NIH]

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

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]

Antigen-Antibody Complex: The complex formed by the binding of antigen and antibody molecules. The deposition of large antigen-antibody complexes leading to tissue damage causes immune complex diseases. [NIH]

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

Anti-Inflammatory Agents: Substances that reduce or suppress inflammation. [NIH]

Antimicrobial: Killing microorganisms, or suppressing their multiplication or growth. [EU]

Antimony: A metallic element that has the atomic symbol Sb, atomic number 51, and atomic weight 121.75. It is used as a metal alloy and as medicinal and poisonous salts. It is toxic and an irritant to the skin and the mucous membranes. [NIH]

Antimycotic: Suppressing the growth of fungi. [EU]

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]

Antiseptic: A substance that inhibits the growth and development of microorganisms without necessarily killing them. [EU]

Antituberculosis: Refers to a drug used to treat tuberculosis. [NIH]

Anxiety: Persistent feeling of dread, apprehension, and impending disaster. [NIH]

Apolipoproteins: The protein components of lipoproteins which remain after the lipids to which the proteins are bound have been removed. They play an important role in lipid transport and metabolism. [NIH]

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

Aqueous: Having to do with water. [NIH]

Arachidonic Acid: An unsaturated, essential fatty acid. It is found in animal and human fat as well as in the liver, brain, and glandular organs, and is a constituent of animal phosphatides. It is formed by the synthesis from dietary linoleic acid and is a precursor in the biosynthesis of prostaglandins, thromboxanes, and leukotrienes. [NIH]

Arginine: An essential amino acid that is physiologically active in the L-form. [NIH]

Aromatic: Having a spicy odour. [EU]

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

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

Arterioles: The smallest divisions of the arteries located between the muscular arteries and the capillaries. [NIH]

Aspartic: The naturally occurring substance is L-aspartic acid. One of the acidic-amino-acids is obtained by the hydrolysis of proteins. [NIH]

Aspartic Endopeptidases: A sub-subclass of endopeptidases that depend on an aspartic acid residue for their activity. EC 3.4.23. [NIH]

Aspiration: The act of inhaling. [NIH]

Aspirin: A drug that reduces pain, fever, inflammation, and blood clotting. Aspirin belongs to the family of drugs called nonsteroidal anti-inflammatory agents. It is also being studied in cancer prevention. [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]

Ataxia: Impairment of the ability to perform smoothly coordinated voluntary movements. This condition may affect the limbs, trunk, eyes, pharnyx, larnyx, and other structures. Ataxia may result from impaired sensory or motor function. Sensory ataxia may result from posterior column injury or peripheral nerve diseases. Motor ataxia may be associated with cerebellar diseases; cerebral cortex diseases; thalamic diseases; basal ganglia diseases; injury to the red nucleus; and other conditions. [NIH]

Atopic: Pertaining to an atopen or to atopy; allergic. [EU]

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]

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

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

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

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

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]

Avidin: A specific protein in egg albumin that interacts with biotin to render it unavailable to mammals, thereby producing biotin deficiency. [NIH]

Axons: Nerve fibers that are capable of rapidly conducting impulses away from the neuron cell body. [NIH]

Bacillus: A genus of Bacillaceae that are spore-forming, rod-shaped cells. Most species are saprophytic soil forms with only a few species being pathogenic. [NIH]

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

Bacterial Infections: Infections by bacteria, general or unspecified. [NIH]

Bactericidal: Substance lethal to bacteria; substance capable of killing bacteria. [NIH]

Bactericide: An agent that destroys bacteria. [EU]

Bacteriophage: A virus whose host is a bacterial cell; A virus that exclusively infects bacteria. It generally has a protein coat surrounding the genome (DNA or RNA). One of the coliphages most extensively studied is the lambda phage, which is also one of the most important. [NIH]

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

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]

Basal Ganglia Diseases: Diseases of the basal ganglia including the putamen; globus pallidus; claustrum; amygdala; and caudate nucleus. Dyskinesias (most notably involuntary movements and alterations of the rate of movement) represent the primary clinical manifestations of these disorders. Common etiologies include cerebrovascular disease; neurodegenerative diseases; and craniocerebral trauma. [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]

Basement Membrane: Ubiquitous supportive tissue adjacent to epithelium and around smooth and striated muscle cells. This tissue contains intrinsic macromolecular components such as collagen, laminin, and sulfated proteoglycans. As seen by light microscopy one of its

subdivisions is the basal (basement) lamina. [NIH]

Basophils: Granular leukocytes characterized by a relatively pale-staining, lobate nucleus and cytoplasm containing coarse dark-staining granules of variable size and stainable by basic dyes. [NIH]

Baths: The immersion or washing of the body or any of its parts in water or other medium for cleansing or medical treatment. It includes bathing for personal hygiene as well as for medical purposes with the addition of therapeutic agents, such as alkalines, antiseptics, oil, etc. [NIH]

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

Beta-pleated: Particular three-dimensional pattern of amyloidoses. [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]

Bilirubin: A bile pigment that is a degradation product of heme. [NIH]

Bioavailability: The degree to which a drug or other substance becomes available to the target tissue after administration. [EU]

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

Biological response modifier: BRM. A substance that stimulates the body's response to infection and disease. [NIH]

Biological Transport: The movement of materials (including biochemical substances and drugs) across cell membranes and epithelial layers, usually by passive diffusion. [NIH]

Biopsy: Removal and pathologic examination of specimens in the form of small pieces of tissue from the living body. [NIH]

Biosynthesis: The building up of a chemical compound in the physiologic processes of a living organism. [EU]

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

Biotin: Hexahydro-2-oxo-1H-thieno(3,4-d)imidazole-4-pentanoic acid. Growth factor present in minute amounts in every living cell. It occurs mainly bound to proteins or polypeptides and is abundant in liver, kidney, pancreas, yeast, and milk.The biotin content of cancerous tissue is higher than that of normal tissue. [NIH]

Biotransformation: The chemical alteration of an exogenous substance by or in a biological system. The alteration may inactivate the compound or it may result in the production of an active metabolite of an inactive parent compound. The alteration may be either non-synthetic (oxidation-reduction, hydrolysis) or synthetic (glucuronide formation, sulfate conjugation, acetylation, methylation). This also includes metabolic detoxication and clearance. [NIH]

Bladder: The organ that stores urine. [NIH]

Blastomycosis: A fungal infection that may appear in two forms: 1) a primary lesion

characterized by the formation of a small cutaneous nodule and small nodules along the lymphatics that may heal within several months; and 2) chronic granulomatous lesions characterized by thick crusts, warty growths, and unusual vascularity and infection in the middle or upper lobes of the lung. [NIH]

Blood Coagulation: The process of the interaction of blood coagulation factors that results in an insoluble fibrin clot. [NIH]

Blood Coagulation Factors: Endogenous substances, usually proteins, that are involved in the blood coagulation process. [NIH]

Blood Glucose: Glucose in blood. [NIH]

Blood Platelets: Non-nucleated disk-shaped cells formed in the megakaryocyte and found in the blood of all mammals. They are mainly involved in blood coagulation. [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]

Blood-Brain Barrier: Specialized non-fenestrated tightly-joined endothelial cells (tight junctions) that form a transport barrier for certain substances between the cerebral capillaries and the brain tissue. [NIH]

Blot: To transfer DNA, RNA, or proteins to an immobilizing matrix such as nitrocellulose. [NIH]

Blotting, Western: Identification of proteins or peptides that have been electrophoretically separated by blotting and transferred to strips of nitrocellulose paper. The blots are then detected by radiolabeled antibody probes. [NIH]

Body Fluids: Liquid components of living organisms. [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 Cells: Cells contained in the bone marrow including fat cells, stromal cells, megakaryocytes, and the immediate precursors of most blood cells. [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]

Bradykinin: A nonapeptide messenger that is enzymatically produced from kallidin in the blood where it is a potent but short-lived agent of arteriolar dilation and increased capillary permeability. Bradykinin is also released from mast cells during asthma attacks, from gut walls as a gastrointestinal vasodilator, from damaged tissues as a pain signal, and may be a neurotransmitter. [NIH]

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

Breakdown: A physical, metal, or nervous collapse. [NIH]

Breeding: The science or art of changing the constitution of a population of plants or animals through sexual reproduction. [NIH]

Broad-spectrum: Effective against a wide range of microorganisms; said of an antibiotic. [EU]

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

Bullous: Pertaining to or characterized by bullae. [EU]

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

Calcium Hydroxide: Ca(OH)2. A white powder that has many therapeutic uses. Because of its ability to stimulate mineralization, it is found in many dental formulations. [NIH]

Calcium Oxalate: The calcium salt of oxalic acid, occurring in the urine as crystals and in certain calculi. [NIH]

Cancer vaccine: A vaccine designed to prevent or treat cancer. [NIH]

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

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

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH2O)n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Carcinogenic: Producing carcinoma. [EU]

Carcinogens: Substances that increase the risk of neoplasms in humans or animals. Both genotoxic chemicals, which affect DNA directly, and nongenotoxic chemicals, which induce neoplasms by other mechanism, are included. [NIH]

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

Cardiovascular: Having to do with the heart and blood vessels. [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]

Catabolism: Any destructive metabolic process by which organisms convert substances into excreted compounds. [EU]

Cataract: An opacity, partial or complete, of one or both eyes, on or in the lens or capsule,

especially an opacity impairing vision or causing blindness. The many kinds of cataract are classified by their morphology (size, shape, location) or etiology (cause and time of occurrence). [EU]

Causal: Pertaining to a cause; directed against a cause. [EU]

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 Adhesion: Adherence of cells to surfaces or to other cells. [NIH]

Cell Count: A count of the number of cells of a specific kind, usually measured per unit volume of sample. [NIH]

Cell Cycle: The complex series of phenomena, occurring between the end of one cell division and the end of the next, by which cellular material is divided between daughter cells. [NIH]

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

Cell Differentiation: Progressive restriction of the developmental potential and increasing specialization of function which takes place during the development of the embryo and leads to the formation of specialized cells, tissues, and organs. [NIH]

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

Cell membrane: Cell membrane = plasma membrane. The structure enveloping a cell, enclosing the cytoplasm, and forming a selective permeability barrier; it consists of lipids, proteins, and some carbohydrates, the lipids thought to form a bilayer in which integral proteins are embedded to varying degrees. [EU]

Cell proliferation: An increase in the number of cells as a result of cell growth and cell division. [NIH]

Cellobiose: A disaccharide consisting of two glucose units in beta (1-4) glycosidic linkage. Obtained from the partial hydrolysis of cellulose. [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]

Central Nervous System Infections: Pathogenic infections of the brain, spinal cord, and meninges. DNA virus infections; RNA virus infections; bacterial infections; mycoplasma infections; Spirochaetales infections; fungal infections; protozoan infections; helminthiasis; and prion diseases may involve the central nervous system as a primary or secondary process. [NIH]

Ceramide: A type of fat produced in the body. It may cause some types of cells to die, and is being studied in cancer treatment. [NIH]

Cerebellar: Pertaining to the cerebellum. [EU]

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]

Cerebrum: The largest part of the brain. It is divided into two hemispheres, or halves, called

the cerebral hemispheres. The cerebrum controls muscle functions of the body and also controls speech, emotions, reading, writing, and learning. [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]

Character: In current usage, approximately equivalent to personality. The sum of the relatively fixed personality traits and habitual modes of response of an individual. [NIH]

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

Chemotherapy: Treatment with anticancer drugs. [NIH]

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

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Cholesterol Esters: Fatty acid esters of cholesterol which constitute about two-thirds of the cholesterol in the plasma. The accumulation of cholesterol esters in the arterial intima is a characteristic feature of atherosclerosis. [NIH]

Choline: A basic constituent of lecithin that is found in many plants and animal organs. It is important as a precursor of acetylcholine, as a methyl donor in various metabolic processes, and in lipid metabolism. [NIH]

Cholinergic: Resembling acetylcholine in pharmacological action; stimulated by or releasing acetylcholine or a related compound. [EU]

Cholinesterase Inhibitors: Drugs that inhibit cholinesterases. The neurotransmitter acetylcholine is rapidly hydrolyzed, and thereby inactivated, by cholinesterases. When cholinesterases are inhibited, the action of endogenously released acetylcholine at cholinergic synapses is potentiated. Cholinesterase inhibitors are widely used clinically for their potentiation of cholinergic inputs to the gastrointestinal tract and urinary bladder, the eye, and skeletal muscles; they are also used for their effects on the heart and the central nervous system. [NIH]

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

Chromosomal: Pertaining to chromosomes. [EU]

Chromosome: Part of a cell that contains genetic information. Except for sperm and eggs, all human cells contain 46 chromosomes. [NIH]

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

Chronic renal: Slow and progressive loss of kidney function over several years, often resulting in end-stage renal disease. People with end-stage renal disease need dialysis or transplantation to replace the work of the kidneys. [NIH]

Chylomicrons: A class of lipoproteins that carry dietary cholesterol and triglycerides from the small intestines to the tissues. [NIH]

Chymotrypsin: A serine endopeptidase secreted by the pancreas as its zymogen, chymotrypsinogen and carried in the pancreatic juice to the duodenum where it is activated by trypsin. It selectively cleaves aromatic amino acids on the carboxyl side. [NIH]

Clear cell carcinoma: A rare type of tumor of the female genital tract in which the inside of

the cells looks clear when viewed under a microscope. [NIH]

Clinical Medicine: The study and practice of medicine by direct examination of the patient. [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]

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

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]

Coccidioidomycosis: An infectious disease caused by a fungus, Coccidioides immitis, that is prevalent in the western United States and is acquired by inhalation of dust containing the spores. [NIH]

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

Colitis: Inflammation of the colon. [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]

Colloidal: Of the nature of a colloid. [EU]

Communicable disease: A disease that can be transmitted by contact between persons. [NIH]

Compassionate: A process for providing experimental drugs to very sick patients who have no treatment options. [NIH]

Compassionate use: Refers to providing a drug to a patient on humanitarian grounds before the drug has received official approval. [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]

Concomitant: Accompanying; accessory; joined with another. [EU]

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

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

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

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

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

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]

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

Consensus Sequence: A theoretical representative nucleotide or amino acid sequence in which each nucleotide or amino acid is the one which occurs most frequently at that site in the different sequences which occur in nature. The phrase also refers to an actual sequence which approximates the theoretical consensus. A known conserved sequence set is

represented by a consensus sequence. Commonly observed supersecondary protein structures (amino acid motifs) are often formed by conserved sequences. [NIH]

Conserved Sequence: A sequence of amino acids in a polypeptide or of nucleotides in DNA or RNA that is similar across multiple species. A known set of conserved sequences is represented by a consensus sequence. Amino acid motifs are often composed of conserved sequences. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

Contact dermatitis: Inflammation of the skin with varying degrees of erythema, edema and vesinculation resulting from cutaneous contact with a foreign substance or other exposure. [NIH]

Contraception: Use of agents, devices, methods, or procedures which diminish the likelihood of or prevent conception. [NIH]

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

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

Cor: The muscular organ that maintains the circulation of the blood. c. adiposum a heart that has undergone fatty degeneration or that has an accumulation of fat around it; called also fat or fatty, heart. c. arteriosum the left side of the heart, so called because it contains oxygenated (arterial) blood. c. biloculare a congenital anomaly characterized by failure of formation of the atrial and ventricular septums, the heart having only two chambers, a single atrium and a single ventricle, and a common atrioventricular valve. c. bovinum (L. 'ox heart') a greatly enlarged heart due to a hypertrophied left ventricle; called also c. taurinum and bucardia. c. dextrum (L. 'right heart') the right atrium and ventricle. c. hirsutum, c. villosum. c. mobile (obs.) an abnormally movable heart. c. pendulum a heart so movable that it seems to be hanging by the great blood vessels. c. pseudotriloculare biatriatum a congenital cardiac anomaly in which the heart functions as a three-chambered heart because of tricuspid atresia, the right ventricle being extremely small or rudimentary and the right atrium greatly dilated. Blood passes from the right to the left atrium and thence disease due to pulmonary hypertension secondary to disease of the lung, or its blood vessels, with hypertrophy of the right ventricle. [EU]

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]

Cortex: The outer layer of an organ or other body structure, as distinguished from the internal substance. [EU]

Corticosteroid: Any of the steroids elaborated by the adrenal cortex (excluding the sex hormones of adrenal origin) in response to the release of corticotrophin (adrenocorticotropic hormone) by the pituitary gland, to any of the synthetic equivalents of these steroids, or to angiotensin II. They are divided, according to their predominant biological activity, into three major groups: glucocorticoids, chiefly influencing carbohydrate, fat, and protein metabolism; mineralocorticoids, affecting the regulation of electrolyte and water balance; and C19 androgens. Some corticosteroids exhibit both types of activity in varying degrees,

and others exert only one type of effect. The corticosteroids are used clinically for hormonal replacement therapy, for suppression of ACTH secretion by the anterior pituitary, as antineoplastic, antiallergic, and anti-inflammatory agents, and to suppress the immune response. Called also adrenocortical hormone and corticoid. [EU]

Cortisol: A steroid hormone secreted by the adrenal cortex as part of the body's response to stress. [NIH]

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

Craniocerebral Trauma: Traumatic injuries involving the cranium and intracranial structures (i.e., brain; cranial nerves; meninges; and other structures). Injuries may be classified by whether or not the skull is penetrated (i.e., penetrating vs. nonpenetrating) or whether there is an associated hemorrhage. [NIH]

Creatinine: A compound that is excreted from the body in urine. Creatinine levels are measured to monitor kidney function. [NIH]

Crystallization: The formation of crystals; conversion to a crystalline form. [EU]

Culture Media: Any liquid or solid preparation made specifically for the growth, storage, or transport of microorganisms or other types of cells. The variety of media that exist allow for the culturing of specific microorganisms and cell types, such as differential media, selective media, test media, and defined media. Solid media consist of liquid media that have been solidified with an agent such as agar or gelatin. [NIH]

Curative: Tending to overcome disease and promote recovery. [EU]

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

Cyclic: Pertaining to or occurring in a cycle or cycles; the term is applied to chemical compounds that contain a ring of atoms in the nucleus. [EU]

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

Cysteine Endopeptidases: Endopeptidases which have a cysteine involved in the catalytic process. This group of enzymes is inactivated by sulfhydryl reagents. EC 3.4.22. [NIH]

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

Cytotoxicity: Quality of being capable of producing a specific toxic action upon cells of special organs. [NIH]

Databases, Bibliographic: Extensive collections, reputedly complete, of references and citations to books, articles, publications, etc., generally on a single subject or specialized subject area. Databases can operate through automated files, libraries, or computer disks. The concept should be differentiated from factual databases which is used for collections of data and facts apart from bibliographic references to them. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

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

Delusions: A false belief regarding the self or persons or objects outside the self that persists despite the facts, and is not considered tenable by one's associates. [NIH]

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

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

Dendritic: 1. Branched like a tree. 2. Pertaining to or possessing dendrites. [EU]

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

Dental Caries: Localized destruction of the tooth surface initiated by decalcification of the enamel followed by enzymatic lysis of organic structures and leading to cavity formation. If left unchecked, the cavity may penetrate the enamel and dentin and reach the pulp. The three most prominent theories used to explain the etiology of the disase are that acids produced by bacteria lead to decalcification; that micro-organisms destroy the enamel protein; or that keratolytic micro-organisms produce chelates that lead to decalcification. [NIH]

Dental Plaque: A film that attaches to teeth, often causing dental caries and gingivitis. It is composed of mucins, secreted from salivary glands, and microorganisms. [NIH]

Depigmentation: Removal or loss of pigment, especially melanin. [EU]

Depolarization: The process or act of neutralizing polarity. In neurophysiology, the reversal of the resting potential in excitable cell membranes when stimulated, i.e., the tendency of the cell membrane potential to become positive with respect to the potential outside the cell. [EU]

Dermal: Pertaining to or coming from the skin. [NIH]

Dermatitis: Any inflammation of the skin. [NIH]

Dermatitis Herpetiformis: Rare, chronic, papulo-vesicular disease characterized by an intensely pruritic eruption consisting of various combinations of symmetrical, erythematous, papular, vesicular, or bullous lesions. The disease is strongly associated with the presence of HLA-B8 and HLA-DR3 antigens. A variety of different autoantibodies has been detected in small numbers in patients with dermatitis herpetiformis. [NIH]

Dermatosis: Any skin disease, especially one not characterized by inflammation. [EU]

DES: Diethylstilbestrol. A synthetic hormone that was prescribed from the early 1940s until 1971 to help women with complications of pregnancy. DES has been linked to an increased risk of clear cell carcinoma of the vagina in daughters of women who used DES. DES may also increase the risk of breast cancer in women who used DES. [NIH]

Deuterium: Deuterium. The stable isotope of hydrogen. It has one neutron and one proton in the nucleus. [NIH]

Developing Countries: Countries in the process of change directed toward economic growth, that is, an increase in production, per capita consumption, and income. The process of economic growth involves better utilization of natural and human resources, which results in a change in the social, political, and economic structures. [NIH]

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

Diabetic Foot: Ulcers of the foot as a complication of diabetes. Diabetic foot, often with infection, is a common serious complication of diabetes and may require hospitalization and disfiguring surgery. The foot ulcers are probably secondary to neuropathies and vascular problems. [NIH]

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

Diaphragm: The musculofibrous partition that separates the thoracic cavity from the abdominal cavity. Contraction of the diaphragm increases the volume of the thoracic cavity aiding inspiration. [NIH]

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

Diffusion: The tendency of a gas or solute to pass from a point of higher pressure or concentration to a point of lower pressure or concentration and to distribute itself throughout the available space; a major mechanism of biological transport. [NIH]

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

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]

Disinfectant: An agent that disinfects; applied particularly to agents used on inanimate objects. [EU]

Dissection: Cutting up of an organism for study. [NIH]

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

Distal: Remote; farther from any point of reference; opposed to proximal. In dentistry, used to designate a position on the dental arch farther from the median line of the jaw. [EU]

Dizziness: An imprecise term which may refer to a sense of spatial disorientation, motion of the environment, or lightheadedness. [NIH]

Domesticated: Species in which the evolutionary process has been influenced by humans to meet their needs. [NIH]

Donepezil: A drug used in the treatment of Alzheimer's disease. It belongs to the family of drugs called cholinesterase inhibitors. It is being studied as a treatment for side effects caused by radiation therapy to the brain. [NIH]

Dross: Residue remaining in an opium pipe which has been smoked; contains 50 % of the morphine present in the original drug. [NIH]

Drug Interactions: The action of a drug that may affect the activity, metabolism, or toxicity of another drug. [NIH]

Drug Resistance: Diminished or failed response of an organism, disease or tissue to the intended effectiveness of a chemical or drug. It should be differentiated from drug tolerance which is the progressive diminution of the susceptibility of a human or animal to the effects of a drug, as a result of continued administration. [NIH]

Drug Tolerance: Progressive diminution of the susceptibility of a human or animal to the effects of a drug, resulting from its continued administration. It should be differentiated

from drug resistance wherein an organism, disease, or tissue fails to respond to the intended effectiveness of a chemical or drug. It should also be differentiated from maximum tolerated dose and no-observed-adverse-effect level. [NIH]

Duodenum: The first part of the small intestine. [NIH]

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

Dyes: Chemical substances that are used to stain and color other materials. The coloring may or may not be permanent. Dyes can also be used as therapeutic agents and test reagents in medicine and scientific research. [NIH]

Dysplasia: Cells that look abnormal under a microscope but are not cancer. [NIH]

Dystrophic: Pertaining to toxic habitats low in nutrients. [NIH]

Dystrophy: Any disorder arising from defective or faulty nutrition, especially the muscular dystrophies. [EU]

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

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

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

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

Electroplating: Coating with a metal or alloy by electrolysis. [NIH]

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

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

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]

Endemic: Present or usually prevalent in a population or geographical area at all times; said of a disease or agent. Called also endemial. [EU]

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

Endocardium: The innermost layer of the heart, comprised of endothelial cells. [NIH]

Endopeptidases: A subclass of peptide hydrolases. They are classified primarily by their

catalytic mechanism. Specificity is used only for identification of individual enzymes. They comprise the serine endopeptidases, EC 3.4.21; cysteine endopeptidases, EC 3.4.22; aspartic endopeptidases, EC 3.4.23, metalloendopeptidases, EC 3.4.24; and a group of enzymes yet to be assigned to any of the above sub-classes, EC 3.4.99. EC 3.4.-. [NIH]

Endothelial cell: The main type of cell found in the inside lining of blood vessels, lymph vessels, and the heart. [NIH]

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

Endothelium-derived: Small molecule that diffuses to the adjacent muscle layer and relaxes it. [NIH]

Endotoxin: Toxin from cell walls of bacteria. [NIH]

End-stage renal: Total chronic kidney failure. When the kidneys fail, the body retains fluid and harmful wastes build up. A person with ESRD needs treatment to replace the work of the failed kidneys. [NIH]

Enteropeptidase: A specialized proteolytic enzyme secreted by intestinal cells. It converts trypsinogen into its active form trypsin by removing the N-terminal peptide. EC 3.4.21.9. [NIH]

Environmental Exposure: The exposure to potentially harmful chemical, physical, or biological agents in the environment or to environmental factors that may include ionizing radiation, pathogenic organisms, or toxic chemicals. [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]

Eosinophilia: Abnormal increase in eosinophils in the blood, tissues or organs. [NIH]

Eosinophils: Granular leukocytes with a nucleus that usually has two lobes connected by a slender thread of chromatin, and cytoplasm containing coarse, round granules that are uniform in size and stainable by eosin. [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]

Epidemiologic Factors: Events, characteristics, or other definable entities that have the potential to bring about a change in a health condition or other defined outcome. [NIH]

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

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

Epidermolysis Bullosa: Group of genetically determined disorders characterized by the blistering of skin and mucosae. There are four major forms: acquired, simple, junctional, and dystrophic. Each of the latter three has several varieties. [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]

Epitopes: Sites on an antigen that interact with specific antibodies. [NIH]

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

Erythema Nodosum: An erythematous eruption commonly associated with drug reactions or infection and characterized by inflammatory nodules that are usually tender, multiple, and bilateral. These nodules are located predominantly on the shins with less common occurrence on the thighs and forearms. They undergo characteristic color changes ending in temporary bruise-like areas. This condition usually subsides in 3-6 weeks without scarring or atrophy. [NIH]

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

Essential Tremor: A rhythmic, involuntary, purposeless, oscillating movement resulting from the alternate contraction and relaxation of opposing groups of muscles. [NIH]

Ethanol: A clear, colorless liquid rapidly absorbed from the gastrointestinal tract and distributed throughout the body. It has bactericidal activity and is used often as a topical disinfectant. It is widely used as a solvent and preservative in pharmaceutical preparations as well as serving as the primary ingredient in alcoholic beverages. [NIH]

Excitability: Property of a cardiac cell whereby, when the cell is depolarized to a critical level (called threshold), the membrane becomes permeable and a regenerative inward current causes an action potential. [NIH]

Exhaustion: The feeling of weariness of mind and body. [NIH]

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

Exotoxin: Toxic substance excreted by living bacterial cells. [NIH]

Extensor: A muscle whose contraction tends to straighten a limb; the antagonist of a flexor. [NIH]

Extracellular: Outside a cell or cells. [EU]

Extracellular Matrix: A meshwork-like substance found within the extracellular space and in association with the basement membrane of the cell surface. It promotes cellular proliferation and provides a supporting structure to which cells or cell lysates in culture dishes adhere. [NIH]

Extracellular Space: Interstitial space between cells, occupied by fluid as well as amorphous and fibrous substances. [NIH]

Extremity: A limb; an arm or leg (membrum); sometimes applied specifically to a hand or foot. [EU]

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

Facial Nerve: The 7th cranial nerve. The facial nerve has two parts, the larger motor root which may be called the facial nerve proper, and the smaller intermediate or sensory root. Together they provide efferent innervation to the muscles of facial expression and to the lacrimal and salivary glands, and convey afferent information for taste from the anterior two-thirds of the tongue and for touch from the external ear. [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]

Fatal Outcome: Death resulting from the presence of a disease in an individual, as shown by a single case report or a limited number of patients. This should be differentiated from death, the physiological cessation of life and from mortality, an epidemiological or statistical concept. [NIH]

Fatty acids: A major component of fats that are used by the body for energy and tissue development. [NIH]

Fermentation: An enzyme-induced chemical change in organic compounds that takes place in the absence of oxygen. The change usually results in the production of ethanol or lactic acid, and the production of energy. [NIH]

Fertilizers: Substances or mixtures that are added to the soil to supply nutrients or to make available nutrients already present in the soil, in order to increase plant growth and productivity. [NIH]

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

Fibril: Most bacterial viruses have a hollow tail with specialized fibrils at its tip. The tail fibers attach to the cell wall of the host. [NIH]

Fibrin: A protein derived from fibrinogen in the presence of thrombin, which forms part of the blood clot. [NIH]

Fibroblasts: Connective tissue cells which secrete an extracellular matrix rich in collagen and other macromolecules. [NIH]

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

Filariasis: Infections with nematodes of the superfamily Filarioidea. The presence of living worms in the body is mainly asymptomatic but the death of adult worms leads to granulomatous inflammation and permanent fibrosis. Organisms of the genus Elaeophora infect wild elk and domestic sheep causing ischaemic necrosis of the brain, blindness, and dermatosis of the face. [NIH]

Fine-needle aspiration: The removal of tissue or fluid with a needle for examination under a microscope. Also called needle biopsy. [NIH]

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

Foot Ulcer: Lesion on the surface of the skin of the foot, usually accompanied by inflammation. The lesion may become infected or necrotic and is frequently associated with diabetes or leprosy. [NIH]

Fructose: A type of sugar found in many fruits and vegetables and in honey. Fructose is used to sweeten some diet foods. It is considered a nutritive sweetener because it has calories. [NIH]

Fungi: A kingdom of eukaryotic, heterotrophic organisms that live as saprobes or parasites, including mushrooms, yeasts, smuts, molds, etc. They reproduce either sexually or asexually, and have life cycles that range from simple to complex. Filamentous fungi refer to those that grow as multicelluar colonies (mushrooms and molds). [NIH]

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

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

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

Gap Junctions: Connections between cells which allow passage of small molecules and electric current. Gap junctions were first described anatomically as regions of close apposition between cells with a narrow (1-2 nm) gap between cell membranes. The variety in the properties of gap junctions is reflected in the number of connexins, the family of proteins which form the junctions. [NIH]

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

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

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal tract: The stomach and intestines. [NIH]

Gelatin: A product formed from skin, white connective tissue, or bone collagen. It is used as a protein food adjuvant, plasma substitute, hemostatic, suspending agent in pharmaceutical preparations, and in the manufacturing of capsules and suppositories. [NIH]

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

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

General practitioner: A medical practitioner who does not specialize in a particular branch of medicine or limit his practice to a specific class of diseases. [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 Engineering: Directed modification of the gene complement of a living organism by such techniques as altering the DNA, substituting genetic material by means of a virus, transplanting whole nuclei, transplanting cell hybrids, etc. [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]

Genetic transcription: The process by which the genetic information encoded in the gene, represented as a linear sequence of deoxyribonucleotides, is copied into an exactly complementary sequence of ribonucleotides known as messenger RNA. [NIH]

Genetics: The biological science that deals with the phenomena and mechanisms of heredity. [NIH]

Genital: Pertaining to the genitalia. [EU]

Genomics: The systematic study of the complete DNA sequences (genome) of organisms. [NIH]

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

Giant Cells: Multinucleated masses produced by the fusion of many cells; often associated with viral infections. In AIDS, they are induced when the envelope glycoprotein of the HIV virus binds to the CD4 antigen of uninfected neighboring T4 cells. The resulting syncytium leads to cell death and thus may account for the cytopathic effect of the virus. [NIH]

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

Glomerular: Pertaining to or of the nature of a glomerulus, especially a renal glomerulus. [EU]

Glomerulus: A tiny set of looping blood vessels in the nephron where blood is filtered in the kidney. [NIH]

Glucocorticoid: A compound that belongs to the family of compounds called corticosteroids (steroids). Glucocorticoids affect metabolism and have anti-inflammatory and immunosuppressive effects. They may be naturally produced (hormones) or synthetic (drugs). [NIH]

Gluconeogenesis: The process by which glucose is formed from a non-carbohydrate source. [NIH]

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

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

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

Glycerol: A trihydroxy sugar alcohol that is an intermediate in carbohydrate and lipid metabolism. It is used as a solvent, emollient, pharmaceutical agent, and sweetening agent. [NIH]

Glycerophospholipids: Derivatives of phosphatidic acid in which the hydrophobic regions are composed of two fatty acids and a polar alcohol is joined to the C-3 position of glycerol through a phosphodiester bond. They are named according to their polar head groups, such as phosphatidylcholine and phosphatidylethanolamine. [NIH]

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

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

Glycosylation: The chemical or biochemical addition of carbohydrate or glycosyl groups to other chemicals, especially peptides or proteins. Glycosyl transferases are used in this biochemical reaction. [NIH]

Gonadal: Pertaining to a gonad. [EU]

Gonads: The gamete-producing glands, ovary or testis. [NIH]

Gonorrhea: Acute infectious disease characterized by primary invasion of the urogenital tract. The etiologic agent, Neisseria gonorrhoeae, was isolated by Neisser in 1879. [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]

Graft Rejection: An immune response with both cellular and humoral components, directed against an allogeneic transplant, whose tissue antigens are not compatible with those of the recipient. [NIH]

Grafting: The operation of transfer of tissue from one site to another. [NIH]

Gram-negative: Losing the stain or decolorized by alcohol in Gram's method of staining, a primary characteristic of bacteria having a cell wall composed of a thin layer of peptidoglycan covered by an outer membrane of lipoprotein and lipopolysaccharide. [EU]

Gram-Negative Bacteria: Bacteria which lose crystal violet stain but are stained pink when treated by Gram's method. [NIH]

Gram-positive: Retaining the stain or resisting decolorization by alcohol in Gram's method of staining, a primary characteristic of bacteria whose cell wall is composed of a thick layer of peptidologlycan with attached teichoic acids. [EU]

Granulocytes: Leukocytes with abundant granules in the cytoplasm. They are divided into three groups: neutrophils, eosinophils, and basophils. [NIH]

Granuloma: A relatively small nodular inflammatory lesion containing grouped mononuclear phagocytes, caused by infectious and noninfectious agents. [NIH]

Granulomatous Enteritis: Another name for Crohn's disease of the small intestine. [NIH]

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

Guanylate Cyclase: An enzyme that catalyzes the conversion of GTP to 3',5'-cyclic GMP and pyrophosphate. It also acts on ITP and dGTP. (From Enzyme Nomenclature, 1992) EC 4.6.1.2. [NIH]

Guinea Pigs: A common name used for the family Caviidae. The most common species is Cavia porcellus which is the domesticated guinea pig used for pets and biomedical research. [NIH]

Habitat: An area considered in terms of its environment, particularly as this determines the type and quality of the vegetation the area can carry. [NIH]

Haematological: Relating to haematology, that is that branch of medical science which treats of the morphology of the blood and blood-forming tissues. [EU]

Haematology: The science of the blood, its nature, functions, and diseases. [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]

Headache Disorders: Common conditions characterized by persistent or recurrent headaches. Headache syndrome classification systems may be based on etiology (e.g., vascular headache, post-traumatic headaches, etc.), temporal pattern (e.g., cluster headache, paroxysmal hemicrania, etc.), and precipitating factors (e.g., cough headache). [NIH]

Health Education: Education that increases the awareness and favorably influences the attitudes and knowledge relating to the improvement of health on a personal or community basis. [NIH]

Health Policy: Decisions, usually developed by government policymakers, for determining present and future objectives pertaining to the health care system. [NIH]

Health Services: Services for the diagnosis and treatment of disease and the maintenance of health. [NIH]

Helminthiasis: Infestation with parasitic worms of the helminth class. [NIH]

Hemoglobin: One of the fractions of glycosylated hemoglobin A1c. Glycosylated hemoglobin is formed when linkages of glucose and related monosaccharides bind to hemoglobin A and its concentration represents the average blood glucose level over the previous several weeks. HbA1c levels are used as a measure of long-term control of plasma glucose (normal, 4 to 6 percent). In controlled diabetes mellitus, the concentration of glycosylated hemoglobin A is within the normal range, but in uncontrolled cases the level may be 3 to 4 times the normal conentration. Generally, complications are substantially lower among patients with Hb levels of 7 percent or less than in patients with HbA1c levels of 9 percent or more. [NIH]

Hemoglobin A: Normal adult human hemoglobin. The globin moiety consists of two alpha and two beta chains. [NIH]

Hemoglobinuria: The presence of free hemoglobin in the urine. [NIH]

Hemolysis: The destruction of erythrocytes by many different causal agents such as antibodies, bacteria, chemicals, temperature, and changes in tonicity. [NIH]

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

Hemorrhoids: Varicosities of the hemorrhoidal venous plexuses. [NIH]

Hemostasis: The process which spontaneously arrests the flow of blood from vessels carrying blood under pressure. It is accomplished by contraction of the vessels, adhesion and aggregation of formed blood elements, and the process of blood or plasma coagulation. [NIH]

Hepatic: Refers to the liver. [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]

Hepatomegaly: Enlargement of the liver. [NIH]

Hepatotoxicity: How much damage a medicine or other substance does to the liver. [NIH]

Hereditary: Of, relating to, or denoting factors that can be transmitted genetically from one generation to another. [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 Zoster: Acute vesicular inflammation. [NIH]

Histology: The study of tissues and cells under a microscope. [NIH]

Homeostasis: The processes whereby the internal environment of an organism tends to remain balanced and stable. [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]

Homosexuality: Sexual attraction or relationship between members of the same sex. [NIH]

Hormonal: Pertaining to or of the nature of a hormone. [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]

Humoral: Of, relating to, proceeding from, or involving a bodily humour - now often used of endocrine factors as opposed to neural or somatic. [EU]

Hydrochloric Acid: A strong corrosive acid that is commonly used as a laboratory reagent. It is formed by dissolving hydrogen chloride in water. Gastric acid is the hydrochloric acid component of gastric juice. [NIH]

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

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [NIH]

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

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

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

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hypesthesia: Absent or reduced sensitivity to cutaneous stimulation. [NIH]

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

Hypogonadism: Condition resulting from or characterized by abnormally decreased functional activity of the gonads, with retardation of growth and sexual development. [NIH]

Hypothalamus: Ventral part of the diencephalon extending from the region of the optic chiasm to the caudal border of the mammillary bodies and forming the inferior and lateral walls of the third ventricle. [NIH]

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

Idiopathic: Describes a disease of unknown cause. [NIH]

Imidazole: C3H4N2. The ring is present in polybenzimidazoles. [NIH]

Immersion: The placing of a body or a part thereof into a liquid. [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]

Immunoblotting: Immunologic methods for isolating and quantitatively measuring immunoreactive substances. When used with immune reagents such as monoclonal antibodies, the process is known generically as western blot analysis (blotting, western). [NIH]

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

Immunogenetics: A branch of genetics which deals with the genetic basis of the immune response. [NIH]

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]

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

Immunoradiometric Assay: Form of radioimmunoassay in which excess specific labeled antibody is added directly to the test antigen being measured. [NIH]

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

Immunosuppressive therapy: Therapy used to decrease the body's immune response, such as drugs given to prevent transplant rejection. [NIH]

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

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

Implantation: The insertion or grafting into the body of biological, living, inert, or radioactive material. [EU]

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

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]

Incubated: Grown in the laboratory under controlled conditions. (For instance, white blood cells can be grown in special conditions so that they attack specific cancer cells when returned to the body.) [NIH]

Incubation: The development of an infectious disease from the entrance of the pathogen to the appearance of clinical symptoms. [EU]

Incubation period: The period of time likely to elapse between exposure to the agent of the disease and the onset of clinical symptoms. [NIH]

Incubator: Consists of a transparent plastic cubicle, electrical heating equipment, safety and warning devices, and oxygen and air filtering and regulating apparatus; an enclosed transparent boxlike apparatus for housing prematurely born babies under optimum conditions. [NIH]

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

Induction: The act or process of inducing or causing to occur, especially the production of a

specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

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

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

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

Infertility: The diminished or absent ability to conceive or produce an offspring while sterility is the complete inability to conceive or produce an offspring. [NIH]

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]

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

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

Initiator: A chemically reactive substance which may cause cell changes if ingested, inhaled or absorbed into the body; the substance may thus initiate a carcinogenic process. [NIH]

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

Innervation: 1. The distribution or supply of nerves to a part. 2. The supply of nervous energy or of nerve stimulus sent to a part. [EU]

Inoculum: The spores or tissues of a pathogen that serve to initiate disease in a plant. [NIH]

Inorganic: Pertaining to substances not of organic origin. [EU]

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

Insomnia: Difficulty in going to sleep or getting enough sleep. [NIH]

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

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

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

Interferon: A biological response modifier (a substance that can improve the body's natural response to disease). Interferons interfere with the division of cancer cells and can slow tumor growth. There are several types of interferons, including interferon-alpha, -beta, and -gamma. These substances are normally produced by the body. They are also made in the laboratory for use in treating cancer and other diseases. [NIH]

Interferon-alpha: One of the type I interferons produced by peripheral blood leukocytes or lymphoblastoid cells when exposed to live or inactivated virus, double-stranded RNA, or bacterial products. It is the major interferon produced by virus-induced leukocyte cultures and, in addition to its pronounced antiviral activity, it causes activation of NK cells. [NIH]

Interleukin-1: A soluble factor produced by monocytes, macrophages, and other cells which activates T-lymphocytes and potentiates their response to mitogens or antigens. IL-1 consists of two distinct forms, IL-1 alpha and IL-1 beta which perform the same functions but are distinct proteins. The biological effects of IL-1 include the ability to replace macrophage requirements for T-cell activation. The factor is distinct from interleukin-2. [NIH]

Interleukin-10: Factor that is a coregulator of mast cell growth. It is produced by T-cells and B-cells and shows extensive homology with the Epstein-Barr virus BCRFI gene. [NIH]

Interleukin-12: A heterodimeric cytokine that stimulates the production of interferon gamma from T-cells and natural killer cells, and also induces differentiation of Th1 helper cells. It is an initiator of cell-mediated immunity. [NIH]

Interleukin-2: Chemical mediator produced by activated T lymphocytes and which regulates the proliferation of T cells, as well as playing a role in the regulation of NK cell activity. [NIH]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

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

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

Intracellular: Inside a cell. [NIH]

Intramuscular: IM. Within or into muscle. [NIH]

Intravenous: IV. Into a vein. [NIH]

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

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

Invertebrates: Animals that have no spinal column. [NIH]

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

Involution: 1. A rolling or turning inward. 2. One of the movements involved in the gastrulation of many animals. 3. A retrograde change of the entire body or in a particular organ, as the retrograde changes in the female genital organs that result in normal size after delivery. 4. The progressive degeneration occurring naturally with advancing age, resulting in shrivelling of organs or tissues. [EU]

Ionization: 1. Any process by which a neutral atom gains or loses electrons, thus acquiring a net charge, as the dissociation of a substance in solution into ions or ion production by the passage of radioactive particles. 2. Iontophoresis. [EU]

Ionomycin: A divalent calcium ionophore that is widely used as a tool to investigate the role of intracellular calcium in cellular processes. [NIH]

Ions: An atom or group of atoms that have a positive or negative electric charge due to a

gain (negative charge) or loss (positive charge) of one or more electrons. Atoms with a positive charge are known as cations; those with a negative charge are anions. [NIH]

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

Isoniazid: Antibacterial agent used primarily as a tuberculostatic. It remains the treatment of choice for tuberculosis. [NIH]

Isonicotinic: A drug used in the treatment of tuberculosis. [NIH]

Isopropyl: A gene mutation inducer. [NIH]

Joint: The point of contact between elements of an animal skeleton with the parts that surround and support it. [NIH]

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]

Keratin: A class of fibrous proteins or scleroproteins important both as structural proteins and as keys to the study of protein conformation. The family represents the principal constituent of epidermis, hair, nails, horny tissues, and the organic matrix of tooth enamel. Two major conformational groups have been characterized, alpha-keratin, whose peptide backbone forms an alpha-helix, and beta-keratin, whose backbone forms a zigzag or pleated sheet structure. [NIH]

Keratinocytes: Epidermal cells which synthesize keratin and undergo characteristic changes as they move upward from the basal layers of the epidermis to the cornified (horny) layer of the skin. Successive stages of differentiation of the keratinocytes forming the epidermal layers are basal cell, spinous or prickle cell, and the granular cell. [NIH]

Ketanserin: A selective serotonin receptor antagonist with weak adrenergic receptor blocking properties. The drug is effective in lowering blood pressure in essential hypertension. It also inhibits platelet aggregation. It is well tolerated and is particularly effective in older patients. [NIH]

Kidney Disease: Any one of several chronic conditions that are caused by damage to the cells of the kidney. People who have had diabetes for a long time may have kidney damage. Also called nephropathy. [NIH]

Kidney stone: A stone that develops from crystals that form in urine and build up on the inner surfaces of the kidney, in the renal pelvis, or in the ureters. [NIH]

Kinetic: Pertaining to or producing motion. [EU]

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

Lacrimal: Pertaining to the tears. [EU]

Laminin: Large, noncollagenous glycoprotein with antigenic properties. It is localized in the basement membrane lamina lucida and functions to bind epithelial cells to the basement membrane. Evidence suggests that the protein plays a role in tumor invasion. [NIH]

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

Leg Ulcer: Ulceration of the skin and underlying structures of the lower extremity. About 90% of the cases are due to venous insufficiency (varicose ulcer), 5% to arterial disease, and the remaining 5% to other causes. [NIH]

Leishmania: A genus of flagellate protozoa comprising several species that are pathogenic for humans. Organisms of this genus have an amastigote and a promastigote stage in their life cycles. As a result of enzymatic studies this single genus has been divided into two

subgenera: Leishmania leishmania and Leishmania viannia. Species within the Leishmania leishmania subgenus include: L. aethiopica, L. arabica, L. donovani, L. enrietti, L. gerbilli, L. hertigi, L. infantum, L. major, L. mexicana, and L. tropica. The following species are those that compose the Leishmania viannia subgenus: L. braziliensis, L. guyanensis, L. lainsoni, L. naiffi, and L. shawi. [NIH]

Leishmaniasis: A disease caused by any of a number of species of protozoa in the genus Leishmania. There are four major clinical types of this infection: cutaneous (Old and New World), diffuse cutaneous, mucocutaneous, and visceral leishmaniasis. [NIH]

Lens: The transparent, double convex (outward curve on both sides) structure suspended between the aqueous and vitreous; helps to focus light on the retina. [NIH]

Leprosy: A chronic granulomatous infection caused by Mycobacterium leprae. The granulomatous lesions are manifested in the skin, the mucous membranes, and the peripheral nerves. Two polar or principal types are lepromatous and tuberculoid. [NIH]

Lesion: An area of abnormal tissue change. [NIH]

Lethal: Deadly, fatal. [EU]

Leucine: An essential branched-chain amino acid important for hemoglobin formation. [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]

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

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

Linkage: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of independent assortment. [NIH]

Lipid: Fat. [NIH]

Lipopolysaccharide: Substance consisting of polysaccaride and lipid. [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]

Localization: The process of determining or marking the location or site of a lesion or disease. May also refer to the process of keeping a lesion or disease in a specific location or site. [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]

Low vision: Visual loss that cannot be corrected with eyeglasses or contact lenses and interferes with daily living activities. [NIH]

Low-density lipoprotein: Lipoprotein that contains most of the cholesterol in the blood. LDL carries cholesterol to the tissues of the body, including the arteries. A high level of LDL increases the risk of heart disease. LDL typically contains 60 to 70 percent of the total serum cholesterol and both are directly correlated with CHD risk. [NIH]

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

Lyme Disease: An infectious disease caused by a spirochete, Borrelia burgdorferi, which is transmitted chiefly by Ixodes dammini and pacificus ticks in the United States and Ixodes ricinis in Europe. It is a disease with early and late cutaneous manifestations plus involvement of the nervous system, heart, eye, and joints in variable combinations. The disease was formerly known as Lyme arthritis and first discovered at Old Lyme, Connecticut. [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]

Lymphadenitis: Inflammation of the lymph nodes. [NIH]

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

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

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

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]

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]

Lymphoproliferative: Disorders characterized by proliferation of lymphoid tissue, general or unspecified. [NIH]

Lysine: An essential amino acid. It is often added to animal feed. [NIH]

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

Macrophage: A type of white blood cell that surrounds and kills microorganisms, removes dead cells, and stimulates the action of other immune system cells. [NIH]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Malaria: A protozoan disease caused in humans by four species of the genus Plasmodium (P. falciparum (malaria, falciparum), P. vivax (malaria, vivax), P. ovale, and P. malariae) and transmitted by the bite of an infected female mosquito of the genus Anopheles. Malaria is endemic in parts of Asia, Africa, Central and South America, Oceania, and certain Caribbean islands. It is characterized by extreme exhaustion associated with paroxysms of high fever, sweating, shaking chills, and anemia. Malaria in animals is caused by other species of plasmodia. [NIH]

Malaria, Falciparum: Malaria caused by Plasmodium falciparum. This is the severest form of malaria and is associated with the highest levels of parasites in the blood. This disease is characterized by irregularly recurring febrile paroxysms that in extreme cases occur with acute cerebral, renal, or gastrointestinal manifestations. [NIH]

Malaria, Vivax: Malaria caused by Plasmodium vivax. This form of malaria is less severe than malaria, falciparum, but there is a higher probability for relapses to occur. Febrile paroxysms often occur every other day. [NIH]

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

Malnutrition: A condition caused by not eating enough food or not eating a balanced diet. [NIH]

Mammary: Pertaining to the mamma, or breast. [EU]

Manic: Affected with mania. [EU]

Manic-depressive psychosis: One of a group of psychotic reactions, fundamentally marked by severe mood swings and a tendency to remission and recurrence. [NIH]

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

Mediator: An object or substance by which something is mediated, such as (1) a structure of the nervous system that transmits impulses eliciting a specific response; (2) a chemical substance (transmitter substance) that induces activity in an excitable tissue, such as nerve or muscle; or (3) a substance released from cells as the result of the interaction of antigen with antibody or by the action of antigen with a sensitized lymphocyte. [EU]

Medical Records: Recording of pertinent information concerning patient's illness or illnesses. [NIH]

Medicament: A medicinal substance or agent. [EU]

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

Megakaryocytes: Very large bone marrow cells which release mature blood platelets. [NIH]

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]

Melanosomes: Melanin-containing organelles found in melanocytes and melanophores. [NIH]

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

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

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

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

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

conditions. [NIH]

Mental 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]

Mental Health: The state wherein the person is well adjusted. [NIH]

Mesenchymal: Refers to cells that develop into connective tissue, blood vessels, and lymphatic tissue. [NIH]

Mesentery: A layer of the peritoneum which attaches the abdominal viscera to the abdominal wall and conveys their blood vessels and nerves. [NIH]

Metalloendopeptidases: Endopeptidases which use a metal, normally zinc, in the catalytic mechanism. This group of enzymes is inactivated by metal chelators. EC 3.4.24. [NIH]

Metastasis: The spread of cancer from one part of the body to another. Tumors formed from cells that have spread are called "secondary tumors" and contain cells that are like those in the original (primary) tumor. The plural is metastases. [NIH]

Metastatic: Having to do with metastasis, which is the spread of cancer from one part of the body to another. [NIH]

Metastatic cancer: Cancer that has spread from the place in which it started to other parts of the body. [NIH]

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]

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

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

Microbiological Techniques: Techniques used in microbiology. [NIH]

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

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

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

Migration: The systematic movement of genes between populations of the same species, geographic race, or variety. [NIH]

Mineralization: The action of mineralizing; the state of being mineralized. [EU]

Minocycline: A semisynthetic antibiotic effective against tetracycline-resistant staphylococcus infections. [NIH]

Mitochondrial Swelling: Increase in volume of mitochondria due to an influx of fluid; it occurs in hypotonic solutions due to osmotic pressure and in isotonic solutions as a result of altered permeability of the membranes of respiring mitochondria. [NIH]

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

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

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

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

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

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

Monocyte: A type of white blood cell. [NIH]

Mononuclear: A cell with one nucleus. [NIH]

Morphological: Relating to the configuration or the structure of live organs. [NIH]

Morphology: The science of the form and structure of organisms (plants, animals, and other forms of life). [NIH]

Motility: The ability to move spontaneously. [EU]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

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

Mucocutaneous: Pertaining to or affecting the mucous membrane and the skin. [EU]

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

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]

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

Muscular Atrophy: Derangement in size and number of muscle fibers occurring with aging, reduction in blood supply, or following immobilization, prolonged weightlessness, malnutrition, and particularly in denervation. [NIH]

Muscular Dystrophies: A general term for a group of inherited disorders which are characterized by progressive degeneration of skeletal muscles. [NIH]

Musculoskeletal System: Themuscles, bones, and cartilage of the body. [NIH]

Mycobacterial disease: Any disease caused by Mycobacterium other than M. tuberculosis, M. bovis, and M. avium. [NIH]

Mycobacterium: A genus of gram-positive, aerobic bacteria. Most species are free-living in soil and water, but the major habitat for some is the diseased tissue of warm-blooded hosts. [NIH]

Mycobacterium leprae: A species of gram-positive, aerobic bacteria that causes leprosy in man. Its organisms are generally arranged in clumps, rounded masses, or in groups of bacilli side by side. [NIH]

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

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

Myotonic Dystrophy: A condition presenting muscle weakness and wasting which may be progressive. [NIH]

Nasal Cavity: The proximal portion of the respiratory passages on either side of the nasal septum, lined with ciliated mucosa, extending from the nares to the pharynx. [NIH]

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

Natural killer cells: NK cells. A type of white blood cell that contains granules with enzymes that can kill tumor cells or microbial cells. Also called large granular lymphocytes (LGL). [NIH]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit. Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

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

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]

Needle biopsy: The removal of tissue or fluid with a needle for examination under a microscope. Also called fine-needle aspiration. [NIH]

Neoplasia: Abnormal and uncontrolled cell growth. [NIH]

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

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

Nephritis: Inflammation of the kidney; a focal or diffuse proliferative or destructive process which may involve the glomerulus, tubule, or interstitial renal tissue. [EU]

Nephropathy: Disease of the kidneys. [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]

Nerve Regeneration: Renewal or physiological repair of damaged nerve tissue. [NIH]

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

Nervousness: Excessive excitability and irritability, with mental and physical unrest. [EU]

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

Neuritis: A general term indicating inflammation of a peripheral or cranial nerve. Clinical manifestation may include pain; paresthesias; paresis; or hypesthesia. [NIH]

Neuromuscular: Pertaining to muscles and nerves. [EU]

Neuromuscular Junction: The synapse between a neuron and a muscle. [NIH]

Neuronal: Pertaining to a neuron or neurons (= conducting cells of the nervous system). [EU]

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]

Neuropeptides: Peptides released by neurons as intercellular messengers. Many neuropeptides are also hormones released by non-neuronal cells. [NIH]

Neurotoxicity: The tendency of some treatments to cause damage to the nervous system. [NIH]

Neutrons: Electrically neutral elementary particles found in all atomic nuclei except light hydrogen; the mass is equal to that of the proton and electron combined and they are unstable when isolated from the nucleus, undergoing beta decay. Slow, thermal, epithermal, and fast neutrons refer to the energy levels with which the neutrons are ejected from heavier nuclei during their decay. [NIH]

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

Nevus: A benign growth on the skin, such as a mole. A mole is a cluster of melanocytes and surrounding supportive tissue that usually appears as a tan, brown, or flesh-colored spot on the skin. The plural of nevus is nevi (NEE-vye). [NIH]

Niche: The ultimate unit of the habitat, i. e. the specific spot occupied by an individual organism; by extension, the more or less specialized relationships existing between an organism, individual or synusia(e), and its environment. [NIH]

Nitric Oxide: A free radical gas produced endogenously by a variety of mammalian cells. It is synthesized from arginine by a complex reaction, catalyzed by nitric oxide synthase. Nitric oxide is endothelium-derived relaxing factor. It is released by the vascular endothelium and mediates the relaxation induced by some vasodilators such as acetylcholine and bradykinin. It also inhibits platelet aggregation, induces disaggregation of aggregated platelets, and inhibits platelet adhesion to the vascular endothelium. Nitric oxide activates cytosolic guanylate cyclase and thus elevates intracellular levels of cyclic GMP. [NIH]

Nitrogen: An element with the atomic symbol N, atomic number 7, and atomic weight 14. Nitrogen exists as a diatomic gas and makes up about 78% of the earth's atmosphere by volume. It is a constituent of proteins and nucleic acids and found in all living cells. [NIH]

Nocardia: A genus of gram-positive, aerobic bacteria whose species are widely distributed and are abundant in soil. Some strains are pathogenic opportunists for man and animals. [NIH]

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

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]

Nutritional Status: State of the body in relation to the consumption and utilization of nutrients. [NIH]

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

Ofloxacin: An orally administered broad-spectrum quinolone antibacterial drug active against most gram-negative and gram-positive bacteria. [NIH]

Oncogene: A gene that normally directs cell growth. If altered, an oncogene can promote or allow the uncontrolled growth of cancer. Alterations can be inherited or caused by an environmental exposure to carcinogens. [NIH]

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

Operon: The genetic unit consisting of a feedback system under the control of an operator gene, in which a structural gene transcribes its message in the form of mRNA upon blockade of a repressor produced by a regulator gene. Included here is the attenuator site of bacterial operons where transcription termination is regulated. [NIH]

Orbit: One of the two cavities in the skull which contains an eyeball. Each eye is located in a bony socket or orbit. [NIH]

Orbital: Pertaining to the orbit (= the bony cavity that contains the eyeball). [EU]

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

Osmotic: Pertaining to or of the nature of osmosis (= the passage of pure solvent from a solution of lesser to one of greater solute concentration when the two solutions are separated by a membrane which selectively prevents the passage of solute molecules, but is permeable to the solvent). [EU]

Osteomyelitis: Inflammation of bone caused by a pyogenic organism. It may remain localized or may spread through the bone to involve the marrow, cortex, cancellous tissue, and periosteum. [EU]

Outpatient: A patient who is not an inmate of a hospital but receives diagnosis or treatment in a clinic or dispensary connected with the hospital. [NIH]

Oxalate: A chemical that combines with calcium in urine to form the most common type of kidney stone (calcium oxalate stone). [NIH]

Oxygenation: The process of supplying, treating, or mixing with oxygen. No:1245 - oxygenation the process of supplying, treating, or mixing with oxygen. [EU]

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

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

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]

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

Pancreatic cancer: Cancer of the pancreas, a salivary gland of the abdomen. [NIH]

Pancreatic Juice: The fluid containing digestive enzymes secreted by the pancreas in response to food in the duodenum. [NIH]

Panic: A state of extreme acute, intense anxiety and unreasoning fear accompanied by disorganization of personality function. [NIH]

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

Paramedic: An emergency medical technician (EMT) who received further training for the delivery of some aspects of advanced life support (ALS) care. [NIH]

Parasite: An animal or a plant that lives on or in an organism of another species and gets at least some of its nutrition from that other organism. [NIH]

Parasitic: Having to do with or being a parasite. A parasite is an animal or a plant that lives on or in an organism of another species and gets at least some of its nutrients from it. [NIH]

Paratuberculosis: An infectious disease caused by Mycobacterium paratuberculosis. Characteristics include chronic debilitation and weight loss. [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]

Paresthesias: Abnormal touch sensations, such as burning or prickling, that occur without an outside stimulus. [NIH]

Parietal: 1. Of or pertaining to the walls of a cavity. 2. Pertaining to or located near the parietal bone, as the parietal lobe. [EU]

Parotid: The space that contains the parotid gland, the facial nerve, the external carotid artery, and the retromandibular vein. [NIH]

Paroxysmal: Recurring in paroxysms (= spasms or seizures). [EU]

Particle: A tiny mass of material. [EU]

Paternity: Establishing the father relationship of a man and a child. [NIH]

Pathogen: Any disease-producing microorganism. [EU]

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]

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

Pathophysiology: Altered functions in an individual or an organ due to disease. [NIH]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Pelvic: Pertaining to the pelvis. [EU]

Penis: The external reproductive organ of males. It is composed of a mass of erectile tissue enclosed in three cylindrical fibrous compartments. Two of the three compartments, the corpus cavernosa, are placed side-by-side along the upper part of the organ. The third compartment below, the corpus spongiosum, houses the urethra. [NIH]

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

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

Peptide Hydrolases: A subclass of enzymes from the hydrolase class that catalyze the hydrolysis of peptide bonds. Exopeptidases and endopeptidases make up the sub-subclasses for this group. EC 3.4. [NIH]

Perception: The ability quickly and accurately to recognize similarities and differences among presented objects, whether these be pairs of words, pairs of number series, or multiple sets of these or other symbols such as geometric figures. [NIH]

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

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

Peripheral Nerves: The nerves outside of the brain and spinal cord, including the autonomic, cranial, and spinal nerves. Peripheral nerves contain non-neuronal cells and connective tissue as well as axons. The connective tissue layers include, from the outside to the inside, the epineurium, the perineurium, and the endoneurium. [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]

Peritoneum: Endothelial lining of the abdominal cavity, the parietal peritoneum covering the inside of the abdominal wall and the visceral peritoneum covering the bowel, the mesentery, and certain of the organs. The portion that covers the bowel becomes the serosal layer of the bowel wall. [NIH]

Pharmaceutical Preparations: Drugs intended for human or veterinary use, presented in their finished dosage form. Included here are materials used in the preparation and/or formulation of the finished dosage form. [NIH]

Pharmacokinetic: The mathematical analysis of the time courses of absorption, distribution, and elimination of drugs. [NIH]

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

Pharyngitis: Inflammation of the throat. [NIH]

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

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

Phospholipases: A class of enzymes that catalyze the hydrolysis of phosphoglycerides or glycerophosphatidates. EC 3.1.-. [NIH]

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]

Phosphorus: A non-metallic element that is found in the blood, muscles, nevers, bones, and teeth, and is a component of adenosine triphosphate (ATP; the primary energy source for the body's cells.) [NIH]

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

Pigment: A substance that gives color to tissue. Pigments are responsible for the color of skin, eyes, and hair. [NIH]

Pigmentation: Coloration or discoloration of a part by a pigment. [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]

Plasma protein: One of the hundreds of different proteins present in blood plasma, including carrier proteins (such albumin, transferrin, and haptoglobin), fibrinogen and other coagulation factors, complement components, immunoglobulins, enzyme inhibitors, precursors of substances such as angiotension and bradykinin, and many other types of proteins. [EU]

Plasmid: An autonomously replicating, extra-chromosomal DNA molecule found in many bacteria. Plasmids are widely used as carriers of cloned genes. [NIH]

Platelet Activation: A series of progressive, overlapping events triggered by exposure of the platelets to subendothelial tissue. These events include shape change, adhesiveness, aggregation, and release reactions. When carried through to completion, these events lead to the formation of a stable hemostatic plug. [NIH]

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

Platelet-Derived Growth Factor: Mitogenic peptide growth hormone carried in the alpha-granules of platelets. It is released when platelets adhere to traumatized tissues. Connective tissue cells near the traumatized region respond by initiating the process of replication. [NIH]

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Pleura: The thin serous membrane enveloping the lungs and lining the thoracic cavity. [NIH]

Pleural: A circumscribed area of hyaline whorled fibrous tissue which appears on the surface of the parietal pleura, on the fibrous part of the diaphragm or on the pleura in the interlobar fissures. [NIH]

Pleural cavity: A space enclosed by the pleura (thin tissue covering the lungs and lining the interior wall of the chest cavity). It is bound by thin membranes. [NIH]

Pleural Effusion: Presence of fluid in the pleural cavity resulting from excessive transudation or exudation from the pleural surfaces. It is a sign of disease and not a diagnosis in itself. [NIH]

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

Polycystic: An inherited disorder characterized by many grape-like clusters of fluid-filled cysts that make both kidneys larger over time. These cysts take over and destroy working

kidney tissue. PKD may cause chronic renal failure and end-stage renal disease. [NIH]

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

Polymerase Chain Reaction: In vitro method for producing large amounts of specific DNA or RNA fragments of defined length and sequence from small amounts of short oligonucleotide flanking sequences (primers). The essential steps include thermal denaturation of the double-stranded target molecules, annealing of the primers to their complementary sequences, and extension of the annealed primers by enzymatic synthesis with DNA polymerase. The reaction is efficient, specific, and extremely sensitive. Uses for the reaction include disease diagnosis, detection of difficult-to-isolate pathogens, mutation analysis, genetic testing, DNA sequencing, and analyzing evolutionary relationships. [NIH]

Polymers: Compounds formed by the joining of smaller, usually repeating, units linked by covalent bonds. These compounds often form large macromolecules (e.g., polypeptides, proteins, plastics). [NIH]

Polymorphic: Occurring in several or many forms; appearing in different forms at different stages of development. [EU]

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

Polypeptide: A peptide which on hydrolysis yields more than two amino acids; called tripeptides, tetrapeptides, etc. according to the number of amino acids contained. [EU]

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

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

Postsynaptic: Nerve potential generated by an inhibitory hyperpolarizing stimulation. [NIH]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Potentiates: A degree of synergism which causes the exposure of the organism to a harmful substance to worsen a disease already contracted. [NIH]

Potentiation: An overall effect of two drugs taken together which is greater than the sum of the effects of each drug taken alone. [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]

Prednisolone: A glucocorticoid with the general properties of the corticosteroids. It is the drug of choice for all conditions in which routine systemic corticosteroid therapy is indicated, except adrenal deficiency states. [NIH]

Prenatal: Existing or occurring before birth, with reference to the fetus. [EU]

Prepuce: A covering fold of skin; often used alone to designate the preputium penis. [EU]

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

Presynaptic: Situated proximal to a synapse, or occurring before the synapse is crossed. [EU]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Prickle: Several layers of the epidermis where the individual cells are connected by cell bridges. [NIH]

Progesterone: Pregn-4-ene-3,20-dione. The principal progestational hormone of the body, secreted by the corpus luteum, adrenal cortex, and placenta. Its chief function is to prepare the uterus for the reception and development of the fertilized ovum. It acts as an antiovulatory agent when administered on days 5-25 of the menstrual cycle. [NIH]

Program Evaluation: Studies designed to assess the efficacy of programs. They may include the evaluation of cost-effectiveness, the extent to which objectives are met, or impact. [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]

Progressive disease: Cancer that is increasing in scope or severity. [NIH]

Proline: A non-essential amino acid that is synthesized from glutamic acid. It is an essential component of collagen and is important for proper functioning of joints and tendons. [NIH]

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

Promotor: In an operon, a nucleotide sequence located at the operator end which contains all the signals for the correct initiation of genetic transcription by the RNA polymerase holoenzyme and determines the maximal rate of RNA synthesis. [NIH]

Prophylaxis: An attempt to prevent disease. [NIH]

Propolis: Resinous substance obtained from beehives; contains many different substances which may have antimicrobial or antimycotic activity topically; its extracts are called propolis resin or balsam. Synonyms: bee bread; hive dross; bee glue. [NIH]

Prostaglandin: Any of a group of components derived from unsaturated 20-carbon fatty acids, primarily arachidonic acid, via the cyclooxygenase pathway that are extremely potent mediators of a diverse group of physiologic processes. The abbreviation for prostaglandin is PG; specific compounds are designated by adding one of the letters A through I to indicate the type of substituents found on the hydrocarbon skeleton and a subscript (1, 2 or 3) to indicate the number of double bonds in the hydrocarbon skeleton e.g., PGE2. The predominant naturally occurring prostaglandins all have two double bonds and are synthesized from arachidonic acid (5,8,11,14-eicosatetraenoic acid) by the pathway shown in the illustration. The 1 series and 3 series are produced by the same pathway with fatty acids having one fewer double bond (8,11,14-eicosatrienoic acid or one more double bond (5,8,11,14,17-eicosapentaenoic acid) than arachidonic acid. The subscript a or ß indicates the configuration at C-9 (a denotes a substituent below the plane of the ring, ß, above the plane). The naturally occurring PGF's have the a configuration, e.g., PGF2a. All of the prostaglandins act by binding to specific cell-surface receptors causing an increase in the level of the intracellular second messenger cyclic AMP (and in some cases cyclic GMP also). The effect produced by the cyclic AMP increase depends on the specific cell type. In some

cases there is also a positive feedback effect. Increased cyclic AMP increases prostaglandin synthesis leading to further increases in cyclic AMP. [EU]

Prostaglandins A: (13E,15S)-15-Hydroxy-9-oxoprosta-10,13-dien-1-oic acid (PGA(1)); (5Z,13E,15S)-15-hydroxy-9-oxoprosta-5,10,13-trien-1-oic acid (PGA(2)); (5Z,13E,15S,17Z)-15-hydroxy-9-oxoprosta-5,10,13,17-tetraen-1-oic acid (PGA(3)). A group of naturally occurring secondary prostaglandins derived from PGE. PGA(1) and PGA(2) as well as their 19-hydroxy derivatives are found in many organs and tissues. [NIH]

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

Protein 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]

Proteoglycans: Glycoproteins which have a very high polysaccharide content. [NIH]

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

Prothionamide: Antitubercular agent similar in action and side effects to ethionamide. It is used mostly in combination with other agents. [NIH]

Protocol: The detailed plan for a clinical trial that states the trial's rationale, purpose, drug or vaccine dosages, length of study, routes of administration, who may participate, and other aspects of trial design. [NIH]

Protons: Stable elementary particles having the smallest known positive charge, found in the nuclei of all elements. The proton mass is less than that of a neutron. A proton is the nucleus of the light hydrogen atom, i.e., the hydrogen ion. [NIH]

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

Proximal: Nearest; closer to any point of reference; opposed to distal. [EU]

Pruritic: Pertaining to or characterized by pruritus. [EU]

Psoriasis: A common genetically determined, chronic, inflammatory skin disease characterized by rounded erythematous, dry, scaling patches. The lesions have a predilection for nails, scalp, genitalia, extensor surfaces, and the lumbosacral region. Accelerated epidermopoiesis is considered to be the fundamental pathologic feature in psoriasis. [NIH]

Psychosis: A mental disorder characterized by gross impairment in reality testing as evidenced by delusions, hallucinations, markedly incoherent speech, or disorganized and agitated behaviour without apparent awareness on the part of the patient of the incomprehensibility of his behaviour; the term is also used in a more general sense to refer to mental disorders in which mental functioning is sufficiently impaired as to interfere grossly with the patient's capacity to meet the ordinary demands of life. Historically, the term has been applied to many conditions, e.g. manic-depressive psychosis, that were first described in psychotic patients, although many patients with the disorder are not judged psychotic. [EU]

Public Health: Branch of medicine concerned with the prevention and control of disease and disability, and the promotion of physical and mental health of the population on the international, national, state, or municipal level. [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]

Publishing: "The business or profession of the commercial production and issuance of literature" (Webster's 3d). It includes the publisher, publication processes, editing and editors. Production may be by conventional printing methods or by electronic publishing. [NIH]

Pulmonary: Relating to the lungs. [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]

Punishment: The application of an unpleasant stimulus or penalty for the purpose of eliminating or correcting undesirable behavior. [NIH]

Purifying: Respiratory equipment whose function is to remove contaminants from otherwise wholesome air. [NIH]

Purulent: Consisting of or containing pus; associated with the formation of or caused by pus. [EU]

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

Pyoderma: Any purulent skin disease (Dorland, 27th ed). [NIH]

Pyoderma Gangrenosum: An idiopathic, rapidly evolving, and severely debilitating disease occurring most commonly in association with chronic ulcerative colitis. It is characterized by the presence of boggy, purplish ulcers with undermined borders, appearing mostly on the legs. The majority of cases are in people between 40 and 60 years old. Its etiology is unknown. [NIH]

Pyogenic: Producing pus; pyopoietic (= liquid inflammation product made up of cells and a thin fluid called liquor puris). [EU]

Quiescent: Marked by a state of inactivity or repose. [EU]

Race: A population within a species which exhibits general similarities within itself, but is both discontinuous and distinct from other populations of that species, though not sufficiently so as to achieve the status of a taxon. [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]

Radiation therapy: The use of high-energy radiation from x-rays, gamma rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a

machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body in the area near cancer cells (internal radiation therapy, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy. [NIH]

Radioactive: Giving off radiation. [NIH]

Radioimmunoassay: Classic quantitative assay for detection of antigen-antibody reactions using a radioactively labeled substance (radioligand) either directly or indirectly to measure the binding of the unlabeled substance to a specific antibody or other receptor system. Non-immunogenic substances (e.g., haptens) can be measured if coupled to larger carrier proteins (e.g., bovine gamma-globulin or human serum albumin) capable of inducing antibody formation. [NIH]

Radiological: Pertaining to radiodiagnostic and radiotherapeutic procedures, and interventional radiology or other planning and guiding medical radiology. [NIH]

Radiology: A specialty concerned with the use of x-ray and other forms of radiant energy in the diagnosis and treatment of disease. [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]

Reagent: A substance employed to produce a chemical reaction so as to detect, measure, produce, etc., other substances. [EU]

Reality Testing: The individual's objective evaluation of the external world and the ability to differentiate adequately between it and the internal world; considered to be a primary ego function. [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]

Receptors, Serotonin: Cell-surface proteins that bind serotonin and trigger intracellular changes which influence the behavior of cells. Several types of serotonin receptors have been recognized which differ in their pharmacology, molecular biology, and mode of action. [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]

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]

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

Red Nucleus: A pinkish-yellow portion of the midbrain situated in the rostral mesencephalic tegmentum. It receives a large projection from the contralateral half of the cerebellum via the superior cerebellar peduncle and a projection from the ipsilateral motor cortex. [NIH]

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

Refraction: A test to determine the best eyeglasses or contact lenses to correct a refractive error (myopia, hyperopia, or astigmatism). [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]

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Remission: A decrease in or disappearance of signs and symptoms of cancer. In partial remission, some, but not all, signs and symptoms of cancer have disappeared. In complete remission, all signs and symptoms of cancer have disappeared, although there still may be cancer in the body. [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]

Retinoblastoma: An eye cancer that most often occurs in children younger than 5 years. It occurs in hereditary and nonhereditary (sporadic) forms. [NIH]

Retrograde: 1. Moving backward or against the usual direction of flow. 2. Degenerating, deteriorating, or catabolic. [EU]

Retrospective: Looking back at events that have already taken place. [NIH]

Retrospective study: A study that looks backward in time, usually using medical records and interviews with patients who already have or had a disease. [NIH]

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

Rheumatism: A group of disorders marked by inflammation or pain in the connective tissue structures of the body. These structures include bone, cartilage, and fat. [NIH]

Rheumatoid: Resembling rheumatism. [EU]

Rheumatoid arthritis: A form of arthritis, the cause of which is unknown, although infection, hypersensitivity, hormone imbalance and psychologic stress have been suggested as possible causes. [NIH]

Rifamycins: A group of antibiotics characterized by a chromophoric naphthohydroquinone group spanned by an aliphatic bridge not previously found in other known antibiotics. They have been isolated from fermentation broths of Streptomyces mediterranei. [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]

Rod: A reception for vision, located in the retina. [NIH]

Saline: A solution of salt and water. [NIH]

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

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

Sanitation: The development and establishment of environmental conditions favorable to the health of the public. [NIH]

Saponins: Sapogenin glycosides. A type of glycoside widely distributed in plants. Each consists of a sapogenin as the aglycon moiety, and a sugar. The sapogenin may be a steroid or a triterpene and the sugar may be glucose, galactose, a pentose, or a methylpentose. Sapogenins are poisonous towards the lower forms of life and are powerful hemolytics when injected into the blood stream able to dissolve red blood cells at even extreme dilutions. [NIH]

Sarcoid: A cutaneus lesion occurring as a manifestation of sarcoidosis. [NIH]

Sarcoidosis: An idiopathic systemic inflammatory granulomatous disorder comprised of epithelioid and multinucleated giant cells with little necrosis. It usually invades the lungs with fibrosis and may also involve lymph nodes, skin, liver, spleen, eyes, phalangeal bones, and parotid glands. [NIH]

Sarcoma: A connective tissue neoplasm formed by proliferation of mesodermal cells; it is usually highly malignant. [NIH]

Scarlet Fever: Infection with group A streptococci that is characterized by tonsillitis and pharyngitis. An erythematous rash is commonly present. [NIH]

Schistosoma: A genus of trematode flukes belonging to the family Schistosomatidae. There are over a dozen species. These parasites are found in man and other mammals. Snails are the intermediate hosts. [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]

Secondary tumor: Cancer that has spread from the organ in which it first appeared to another organ. For example, breast cancer cells may spread (metastasize) to the lungs and cause the growth of a new tumor. When this happens, the disease is called metastatic breast cancer, and the tumor in the lungs is called a secondary tumor. Also called secondary cancer. [NIH]

Secretion: 1. The process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. Any substance produced by secretion. [EU]

Secretory: Secreting; relating to or influencing secretion or the secretions. [NIH]

Segregation: The separation in meiotic cell division of homologous chromosome pairs and their contained allelomorphic gene pairs. [NIH]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

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

Semisynthetic: Produced by chemical manipulation of naturally occurring substances. [EU]

Senile: Relating or belonging to old age; characteristic of old age; resulting from infirmity of old age. [NIH]

Sepsis: The presence of bacteria in the bloodstream. [NIH]

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

Serine: A non-essential amino acid occurring in natural form as the L-isomer. It is synthesized from glycine or threonine. It is involved in the biosynthesis of purines, pyrimidines, and other amino acids. [NIH]

Serine Endopeptidases: Any member of the group of endopeptidases containing at the active site a serine residue involved in catalysis. EC 3.4.21. [NIH]

Serotonin: A biochemical messenger and regulator, synthesized from the essential amino acid L-tryptophan. In humans it is found primarily in the central nervous system, gastrointestinal tract, and blood platelets. Serotonin mediates several important physiological functions including neurotransmission, gastrointestinal motility, hemostasis, and cardiovascular integrity. Multiple receptor families (receptors, serotonin) explain the broad physiological actions and distribution of this biochemical mediator. [NIH]

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

Serum Albumin: A major plasma protein that serves in maintaining the plasma colloidal osmotic pressure and transporting large organic anions. [NIH]

Sex Determination: The biological characteristics which distinguish human beings as female or male. [NIH]

Sex Ratio: The number of males per 100 females. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [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]

Signal Transduction: The intercellular or intracellular transfer of information (biological activation/inhibition) through a signal pathway. In each signal transduction system, an activation/inhibition signal from a biologically active molecule (hormone, neurotransmitter) is mediated via the coupling of a receptor/enzyme to a second messenger system or to an ion channel. Signal transduction plays an important role in activating cellular functions, cell differentiation, and cell proliferation. Examples of signal transduction systems are the GABA-postsynaptic receptor-calcium ion channel system, the receptor-mediated T-cell activation pathway, and the receptor-mediated activation of phospholipases. Those coupled to membrane depolarization or intracellular release of calcium include the receptor-mediated activation of cytotoxic functions in granulocytes and the synaptic potentiation of protein kinase activation. Some signal transduction pathways may be part of larger signal transduction pathways; for example, protein kinase activation is part of the platelet activation signal pathway. [NIH]

Signs and Symptoms: Clinical manifestations that can be either objective when observed by a physician, or subjective when perceived by the patient. [NIH]

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

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

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

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

Smooth muscle: Muscle that performs automatic tasks, such as constricting blood vessels. [NIH]

Social Perception: The perceiving of attributes, characteristics, and behaviors of one's associates or social groups. [NIH]

Sodium: An element that is a member of the alkali group of metals. It has the atomic symbol

Na, atomic number 11, and atomic weight 23. With a valence of 1, it has a strong affinity for oxygen and other nonmetallic elements. Sodium provides the chief cation of the extracellular body fluids. Its salts are the most widely used in medicine. (From Dorland, 27th ed) Physiologically the sodium ion plays a major role in blood pressure regulation, maintenance of fluid volume, and electrolyte balance. [NIH]

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

Solid tumor: Cancer of body tissues other than blood, bone marrow, or the lymphatic system. [NIH]

Solitary Nucleus: Gray matter located in the dorsomedial part of the medulla oblongata associated with the solitary tract. The solitary nucleus receives inputs from most organ systems including the terminations of the facial, glossopharyngeal, and vagus nerves. It is a major coordinator of autonomic nervous system regulation of cardiovascular, respiratory, gustatory, gastrointestinal, and chemoreceptive aspects of homeostasis. The solitary nucleus is also notable for the large number of neurotransmitters which are found therein. [NIH]

Solvent: 1. Dissolving; effecting a solution. 2. A liquid that dissolves or that is capable of dissolving; the component of a solution that is present in greater amount. [EU]

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

Spasticity: A state of hypertonicity, or increase over the normal tone of a muscle, with heightened deep tendon reflexes. [EU]

Spatial disorientation: Loss of orientation in space where person does not know which way is up. [NIH]

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

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

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

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Sperm: The fecundating fluid of the male. [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 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]

Spirochete: Lyme disease. [NIH]

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

of the abdomen near the stomach. [NIH]

Splenomegaly: Enlargement of the spleen. [NIH]

Sporadic: Neither endemic nor epidemic; occurring occasionally in a random or isolated manner. [EU]

Spores: The reproductive elements of lower organisms, such as protozoa, fungi, and cryptogamic plants. [NIH]

Staphylococcal Scalded Skin Syndrome: A disease of infants due to group 2 phage type 17 staphylococci that produce an epidermolytic exotoxin. Superficial fine vesicles and bullae form and rupture easily, resulting in loss of large sheets of epidermis. [NIH]

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

Stasis: A word termination indicating the maintenance of (or maintaining) a constant level; preventing increase or multiplication. [EU]

Sterility: 1. The inability to produce offspring, i.e., the inability to conceive (female s.) or to induce conception (male s.). 2. The state of being aseptic, or free from microorganisms. [EU]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Stimulant: 1. Producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. An agent or remedy that produces stimulation. [EU]

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

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

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

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

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

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

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

Stromal Cells: Connective tissue cells of an organ found in the loose connective tissue. These are most often associated with the uterine mucosa and the ovary as well as the hematopoietic system and elsewhere. [NIH]

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

Subarachnoid: Situated or occurring between the arachnoid and the pia mater. [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]

Subspecies: A category intermediate in rank between species and variety, based on a smaller number of correlated characters than are used to differentiate species and generally conditioned by geographical and/or ecological occurrence. [NIH]

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]

Substrate: A substance upon which an enzyme acts. [EU]

Sulfamethoxypyridazine: A sulfanilamide antibacterial agent. [NIH]

Sulfuric acid: A strong acid that, when concentrated is extemely corrosive to the skin and mucous membranes. It is used in making fertilizers, dyes, electroplating, and industrial explosives. [NIH]

Supplementation: Adding nutrients to the diet. [NIH]

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

Sweat: The fluid excreted by the sweat glands. It consists of water containing sodium chloride, phosphate, urea, ammonia, and other waste products. [NIH]

Sweat Glands: Sweat-producing structures that are embedded in the dermis. Each gland consists of a single tube, a coiled body, and a superficial duct. [NIH]

Sympathetic Nervous System: The thoracolumbar division of the autonomic nervous system. Sympathetic preganglionic fibers originate in neurons of the intermediolateral column of the spinal cord and project to the paravertebral and prevertebral ganglia, which in turn project to target organs. The sympathetic nervous system mediates the body's response to stressful situations, i.e., the fight or flight reactions. It often acts reciprocally to the parasympathetic system. [NIH]

Symphysis: A secondary cartilaginous joint. [NIH]

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

Symptomatic treatment: Therapy that eases symptoms without addressing the cause of disease. [NIH]

Synapses: Specialized junctions at which a neuron communicates with a target cell. At classical synapses, a neuron's presynaptic terminal releases a chemical transmitter stored in synaptic vesicles which diffuses across a narrow synaptic cleft and activates receptors on the postsynaptic membrane of the target cell. The target may be a dendrite, cell body, or axon of another neuron, or a specialized region of a muscle or secretory cell. Neurons may also communicate through direct electrical connections which are sometimes called electrical synapses; these are not included here but rather in gap junctions. [NIH]

Synaptic: Pertaining to or affecting a synapse (= site of functional apposition between neurons, at which an impulse is transmitted from one neuron to another by electrical or chemical means); pertaining to synapsis (= pairing off in point-for-point association of homologous chromosomes from the male and female pronuclei during the early prophase of meiosis). [EU]

Synaptic Vesicles: Membrane-bound compartments which contain transmitter molecules. Synaptic vesicles are concentrated at presynaptic terminals. They actively sequester transmitter molecules from the cytoplasm. In at least some synapses, transmitter release

occurs by fusion of these vesicles with the presynaptic membrane, followed by exocytosis of their contents. [NIH]

Synergistic: Acting together; enhancing the effect of another force or agent. [EU]

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

Tachycardia: Excessive rapidity in the action of the heart, usually with a heart rate above 100 beats per minute. [NIH]

Tacrine: A cholinesterase inhibitor that crosses the blood-brain barrier. Tacrine has been used to counter the effects of muscle relaxants, as a respiratory stimulant, and in the treatment of Alzheimer's disease and other central nervous system disorders. [NIH]

Teichoic Acids: Bacterial polysaccharides that are rich in phosphodiester linkages. They are the major components of the cell walls and membranes of many bacteria. [NIH]

Telangiectasia: The permanent enlargement of blood vessels, causing redness in the skin or mucous membranes. [NIH]

Testicular: Pertaining to a testis. [EU]

Testis: Either of the paired male reproductive glands that produce the male germ cells and the male hormones. [NIH]

Tetracycline: An antibiotic originally produced by Streptomyces viridifaciens, but used mostly in synthetic form. It is an inhibitor of aminoacyl-tRNA binding during protein synthesis. [NIH]

Thalamic: Cell that reaches the lateral nucleus of amygdala. [NIH]

Thalamic Diseases: Disorders of the centrally located thalamus, which integrates a wide range of cortical and subcortical information. Manifestations include sensory loss, movement disorders; ataxia, pain syndromes, visual disorders, a variety of neuropsychological conditions, and coma. Relatively common etiologies include cerebrovascular disorders; craniocerebral trauma; brain neoplasms; brain hypoxia; intracranial hemorrhages; and infectious processes. [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]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

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

Threshold: For a specified sensory modality (e. g. light, sound, vibration), the lowest level (absolute threshold) or smallest difference (difference threshold, difference limen) or intensity of the stimulus discernible in prescribed conditions of stimulation. [NIH]

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

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

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

Thyroid Gland: A highly vascular endocrine gland consisting of two lobes, one on either side of the trachea, joined by a narrow isthmus; it produces the thyroid hormones which are concerned in regulating the metabolic rate of the body. [NIH]

Thyroiditis: Inflammation of the thyroid gland. [NIH]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Ticks: Blood-sucking arachnids of the order Acarina. [NIH]

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

Tonicity: The normal state of muscular tension. [NIH]

Tonsillitis: Inflammation of the tonsils, especially the palatine tonsils. It is often caused by a bacterium. Tonsillitis may be acute, chronic, or recurrent. [NIH]

Topical: On the surface of the body. [NIH]

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

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

Toxicokinetics: Study of the absorption, distribution, metabolism, and excretion of test substances. [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]

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

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

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

Transferases: Transferases are enzymes transferring a group, for example, the methyl group or a glycosyl group, from one compound (generally regarded as donor) to another compound (generally regarded as acceptor). The classification is based on the scheme "donor:acceptor group transferase". (Enzyme Nomenclature, 1992) EC 2. [NIH]

Transmitter: A chemical substance which effects the passage of nerve impulses from one cell to the other at the synapse. [NIH]

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

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

Trophic: Of or pertaining to nutrition. [EU]

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

Trypanosomiasis: Infection with protozoa of the genus Trypanosoma. [NIH]

Trypsin: A serine endopeptidase that is formed from trypsinogen in the pancreas. It is converted into its active form by enteropeptidase in the small intestine. It catalyzes hydrolysis of the carboxyl group of either arginine or lysine. EC 3.4.21.4. [NIH]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

Tubercle: A rounded elevation on a bone or other structure. [NIH]

Tubercular: Of, pertaining to, or resembling tubercles or nodules. [EU]

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

Tuberculostatic: Inhibiting the growth of Mycobacterium tuberculosis. [EU]

Tuberous Sclerosis: A rare congenital disease in which the essential pathology is the appearance of multiple tumors in the cerebrum and in other organs, such as the heart or kidneys. [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]

Typhoid fever: The most important member of the enteric group of fevers which also includes the paratyphoids. [NIH]

Typhoid fever: The most important member of the enteric group of fevers which also includes the paratyphoids. [NIH]

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

Ulcerative colitis: Chronic inflammation of the colon that produces ulcers in its lining. This condition is marked by abdominal pain, cramps, and loose discharges of pus, blood, and mucus from the bowel. [NIH]

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

Urban Population: The inhabitants of a city or town, including metropolitan areas and suburban areas. [NIH]

Urea: A compound (CO(NH2)2), formed in the liver from ammonia produced by the deamination of amino acids. It is the principal end product of protein catabolism and constitutes about one half of the total urinary solids. [NIH]

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

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

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

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

Uterus: The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a fetus develops. Also called the womb. [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]

Vaccine adjuvant: A substance added to a vaccine to improve the immune response so that less vaccine is needed. [NIH]

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

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

Varicella: Chicken pox. [EU]

Varicose: The common ulcer in the lower third of the leg or near the ankle. [NIH]

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

Vascular endothelial growth factor: VEGF. A substance made by cells that stimulates new blood vessel formation. [NIH]

Vasodilators: Any nerve or agent which induces dilatation of the blood vessels. [NIH]

Vasomotor: 1. Affecting the calibre of a vessel, especially of a blood vessel. 2. Any element or agent that effects the calibre of a blood vessel. [EU]

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

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

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

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

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

Venules: The minute vessels that collect blood from the capillary plexuses and join together to form veins. [NIH]

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

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

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

Viral 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]

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

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

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

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

Visceral Afferents: The sensory fibers innervating the viscera. [NIH]

Vitiligo: A disorder consisting of areas of macular depigmentation, commonly on extensor aspects of extremities, on the face or neck, and in skin folds. Age of onset is often in young adulthood and the condition tends to progress gradually with lesions enlarging and extending until a quiescent state is reached. [NIH]

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

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

War: Hostile conflict between organized groups of people. [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]

Womb: A hollow, thick-walled, muscular organ in which the impregnated ovum is developed into a child. [NIH]

Wound Healing: Restoration of integrity to traumatized tissue. [NIH]

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

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

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

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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