SARCOIDOSIS

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

JAMES N. PARKER, M.D.
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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 sarcoidosis 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 sarcoidosis, 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 sarcoidosis, 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 sarcoidosis. 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 sarcoidosis, 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 sarcoidosis.

The Editors

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

CHAPTER 1. STUDIES ON SARCOIDOSIS

Overview

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

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and sarcoidosis, 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 "sarcoidosis" (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:

- **Sarcoidosis of the Liver**

  Source: Liver Update. 5(1): 6. Spring 1991.

  Contact: Available from American Liver Foundation. 1425 Pompton Avenue, Cedar Grove, NJ 07009. (201) 256-2550 or (800) 223-0179.

  Summary: Sarcoidosis is a multisystem disease of unknown etiology, characterized b y noncaseating granulomas that involve two or more organs. This brief article discusses sarcoidosis of the liver and reports on a study of 100 liver biopsies from 100 patients diagnosed with sarcoidosis. The author stresses that sarcoidosis may represent an important cause of cholestatic liver disease that is underreported.

- **Oral Manifestations of Sarcoidosis**

  Source: Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontics. 83(4): 458-461. April 1997.

  Summary: The authors report two new cases of sarcoidosis of the buccal mucosa and analyze the literature on the oral manifestations of sarcoidosis. The analysis of 45 cases of oral sarcoidosis (43 from the literature and the 2 new presented cases) revealed 12 lesions in the jaws, 10 in the buccal mucosa, 6 in the gingiva, 5 in the lips, 5 in the floor of the mouth, 4 in the tongue, and 3 in the palate. Sarcoidosis in the jaw was located in the alveolar bone and presented as an ill-defined radiolucency. Submucosal nodules were observed in sarcoidosis affecting the buccal mucosa, palate, and lip. Swelling was the main manifestation in the gingiva. In the floor of the mouth, sarcoidosis presented as ranula and that of the tongue as induration. In most of the cases, the lesions in the buccal mucosa, gingiva, and tongue were the first clinical manifestation of the disease. The authors conclude that oral sarcoidosis lesions should be considered in the differential diagnosis of oral soft tissue swellings and jaw lesions. 3 figures. 53 references. (AA-M).

- **Protean Face of Renal Sarcoidosis**

  Source: JASN. Journal of the American Society of Nephrology. 12(3): 616-623. March 2001.

  Contact: Available from Lippincott Williams and Wilkins. 12107 Insurance Way, Hagerstown, MD 21740. (800) 638-6423.

  Summary: This article reviews renal (kidney) sarcoidosis, one manifestation of this multisystem granulomatous disorder of unknown cause. The disease is characterized by the presence of noncaseating epithelioid granulomas in involved organs. The cause of sarcoidosis remains to be determined; an infectious cause has been postulated since the disease was first described but has not been secured convincingly. Clinically important renal involvement is only an occasional problem in sarcoidosis. However, sarcoidosis can be a factor in renal stone disease (abnormal calcium homeostasis, or balance). The chronic hypercalcemia (too much calcium in the blood) and hypercalciuria (too much calcium in the urine) that can accompany sarcoidosis can lead to kidney insufficiency. Also, approximately 20 percent of patients with sarcoidosis show granulomatous inflammation in the kidney. Glomerular (the bundles of filtering nephrons in the kidney) involvement in sarcoidosis is not common, although various problems including membranous glomerulonephritis, IgA nephropathy, and focal segmental sclerosis have all been described. For each of these manifestations, the authors present a brief case report that illustrates the patient presentation and management issues. A final section notes that transplantation is not precluded in patients with sarcoidosis, although the condition may recur. Because lymph nodes throughout the body may enlarge, ureteral obstruction and retroperitoneal fibrosis have been described. The authors conclude that sarcoidosis offers a challenge to the nephrologist. 6 figures. 61 references.

- **Cutaneous Sarcoidosis: A Dermatologic Masquerader**

  Source: American Family Physician. 65(8): 1581-1584. April 15, 2002.

  Contact: Available from American Academy of Family Physicians. 11400 Tomahawk Creek Parkway, Leawood, KS 66211-2672. (800) 274-2237 or (913) 906-6000. E-mail: fp@aafp.org. Website: www.aafp.org.

Summary: This journal article provides health professionals with information on the diagnosis and treatment of cutaneous sarcoidosis. This multisystem disease can involve almost any organ system; therefore, it results in various clinical manifestations. Cutaneous sarcoidosis occurs in up to one third of patients with systemic sarcoidosis. Recognition of cutaneous lesions is important because they provide a visible clue to the diagnosis and are an easily accessible source of tissue for histologic examination. Punch or incisional wedge biopsy is typically used to obtain a sample of skin that includes the dermis. Lesions can exhibit many different morphologies, so cutaneous sarcoidosis is known as one of the great imitators in dermatology. Specific manifestations include papules, plaques, lupus pernio, scar sarcoidosis, and rare morphologies such as alopecia, ulcers, hypopigmented patches, and ichthyosis. A baseline workup for systemic sarcoidosis should include a complete history and physical examination, baseline laboratory testing, chest radiography, and ophthalmologic evaluation. Treatment of cutaneous lesions can be frustrating. For patients with severe lesions or widespread involvement, the most effective treatment is systemic glucocorticoids. 7 figures, 1 table, and 13 references. (AA-M).

Federally Funded Research on Sarcoidosis

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

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

- **Project Title: A CASE CONTROL STUDY OF SARCOIDOSIS (ACCESS)**

  Principal Investigator & Institution: Mclennan, Geoffrey; Associate Professor of Medicine; University of Iowa Iowa City, Ia 52242

  Timing: Fiscal Year 2001; Project Start 01-DEC-2000; Project End 30-NOV-2001

  Summary: This clinical study is designed to define **sarcoidosis** cases that do or do not clinically resolve over a two year period and to develop a clinical/ radiographical/physiologic **sarcoidosis** assessment system for reporting the severity of the disease.

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

[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).

- **Project Title: AN AIDS-RELATED CRYPTOCOCCUS NEOFORMANS GENOME CENTER**

  Principal Investigator & Institution: Davis, Ronald W.; Professor; Biochemistry; Stanford University Stanford, Ca 94305

  Timing: Fiscal Year 2001; Project Start 01-MAR-2000; Project End 28-FEB-2003

  Summary: Cryptococcus neoformans is the etiologic agent of cryptococcosis, one of the most serious fungal diseases worldwide. Although C. neoformans primarily affects patients with impaired immune systems (AIDS, cytotoxic chemotherapy, corticosteroid therapy, sarcoidosis), people with no known underlying immunodeficiencies are also affected. Meningoencephalitis, the most common clinical manifestation of cryptococcosis, is 100% fatal if not treated. Very little C. neoformans genome sequence is available. Before a detailed analysis of C. neoformans' molecular pathogenesis can be undertaken, C. neoformans' genes must be identified, and the genes sequenced. At present, the cheapest and fastest method to identify an organism's genes, and concomitantly to sequence the genes, is whole genome shotgun sequencing. We propose to shotgun sequence the whole C. neoformans genome to a coverage of a 4-to-5-fold in three years and to assemble the data. To that end, random small insert genomic libraries will be constructed in an M13- based vector and sequenced. The random sequence reads will be assembled. What will be produced is a "working draft" (in the newly revised Human Genome Project sense) of the C. neoformans genome. The working draft will be a robust platform upon which many experiments can be designed, and data interpreted: e.g., molecular pathogenesis, drug discovery, and vaccine development. An important and integral part of this proposed C. neoformans Genome Project is the immediate release of all sequence data. As we have done for other large scale genome/chromosome sequencing projects, we will post raw sequence data overnight. Contigs in progress will be posted immediately. Larger, more secure contigs will be posted and submitted to GenBank (HTGS phase 1) as soon as possible. Thus, all scientists worldwide will have immediate and equal access to the sequence data.

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

- **Project Title: ANALYSIS OF SARCOIDOSIS, T-CELL DEPENDENT ANTIGENS**

  Principal Investigator & Institution: Villa, Otto F.; New England Medical Center Hospitals 750 Washington St Boston, Ma 021111533

  Timing: Fiscal Year 2002; Project Start 01-AUG-2002; Project End 31-JUL-2007

  Summary: (Applicant's abstract) **Sarcoidosis** is a granulomatous disease that affects millions of people worldwide. Although its cause remains unknown, there is ample evidence implicating CD4+ T-cells in its pathogenesis. To gain insight into the antigen (Ag) that activates T-cells in the human lung, the candidate biochemically purified an array of T-cell dependent (Td) antigens from bronchoalveolar lavage (BAL) of **sarcoidosis** patients and further purified a fraction of these Ags containing universal **sarcoidosis** T-cell epitopes (termed profile#68, P68). These purified Ags induced blastogenesis, cytokine production, DNA replication, and cell division in T-cell lines derived from BAL of **sarcoidosis** patients, but not in T-cell lines derived from BAL of control patients. Two logical and mechanistic specific aims are proposed that follow directly from the preliminary data: 1) To produce T-cell lines specific for universal **sarcoidosis** epitopes contained in P68-Ags and, 2) To identify the molecular species that induce recall in P68 specific T-cell lines. The applicant is a Hispanic, US-citizen, M.D., Ph.D., board certified in Internal Medicine, Pulmonary Diseases, and Critical Care Medicine, recipient of a MIRS award and a fellowship from the American Thoracic

Society. The applicant is pursuing training in molecular immunology proteomics and molecular genetics, focusing of pulmonary immunopathogenesis through the specific research project proposed in this grant. The sponsor is Barry Fanburg, M.D., who has been actively engaged in pulmonary research and **sarcoidosis** for over 25 years. Brigitte T. Huber, Ph.D., Professor of Pathology and renowned world expert in molecular immunology and proteomics, is a mentor. Mathews Waldor M.D., Ph.D., expert in molecular genetics, is a collaborator. The applicant will have structured training activities, including didactic work, seminars and periodic meeting with the advisory committee. The applicant will use facilities and laboratory equipment in the sponsor and collaborators laboratories located at the Tupper Research Institute, and Tufts University School of Medicine attached to the New England Medical Center. Award of this grant and completing the research plan will aid in the identification of the cause of **sarcoidosis** and prepare the applicant for a career as an independent investigator in pulmonary immunopathogenesis.

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

- **Project Title: ANTIGEN IDENTIFICATION IN INFLAMMATORY CNS DISEASE**

  Principal Investigator & Institution: Burgoun, Mark P.; Neurology; University of Colorado Hlth Sciences Ctr P.O. Box 6508, Grants and Contracts Aurora, Co 800450508

  Timing: Fiscal Year 2002; Project Start 15-DEC-2001; Project End 30-NOV-2006

  Summary: (provided by applicant): Increased IgG and oligoclonal bands (OGBs) in the CSF and brains of patients with chronic inflammatory or demyelinating CNS disease provide clues to the nature of disease. OGBs appear almost exclusively in chronic infectious diseases of the CNS, and are antibody directed against the disease-causing organism, thus providing a rationale for our hypothesis that in chronic CNS inflammatory or demyelinating diseases of unknown cause, the OGBs target the antigens that trigger disease. We have analyzed the sequences of intrathecally synthesized IgG in subacute sclerosing panencephalitis (SSPE), a fatal chronic measles virus infection of the brain, and demonstrated features of antigen-driven selection. We produced recombinant IgG from these sequences, selected disease-relevant recombinant IgG from phage-displayed Fab libraries, and demonstrated their reactivities to the causative measles virus. We will use SSPE as an experimental paradigm to develop strategies and techniques to identify disease-relevant IgG and their corresponding antigens in inflammatory or demyelinating CNS disease of unknown cause. We will synthesize recombinant IgG from candidate SSPE brain-derived sequences and identify disease-relevant antibody by direct analysis in immunostaining or ELISA with SSPE brain, or display them on phage surfaces to select the appropriate IgG by biopanning on SSPE brain. We will also identify the IgG sequences expressed by individual resident B cells in SSPE brain by single-cell PCR. Finally, we will develop strategies to detect very rare antigens in situ by immunoblotting, immunoprecipitation, or by selection from phage-displayed antigen and peptide libraries. We are uniquely prepared to carry out these studies because we have pathologically-verified SSPE brains, and have already demonstrated an expertise to use disease-relevant recombinant IgG to identify their targets. This paradigm will provide a careful and methodological approach to elucidate the humoral immune response in the human CNS. It will also allow the creation of exquisitely sensitive immunologic techniques to identify disease-relevant IgG and their disease-triggering antigens in other inflammatory or demyelinating CNS diseases of unknown cause, including multiple sclerosis, acute disseminated encephalomyelitis, **sarcoidosis,** and the CNS vasculitides. Determining the cause of these devastating

neurologic diseases will have profound implications not only for early diagnosis but also for prevention of disease.

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

- **Project Title: APOPTOSIS-RELATED GENETIC POLYMORPHISMS IN SARCOIDOSIS**

  Principal Investigator & Institution: Wasfi, Yasmine S.; National Jewish Medical & Res Ctr and Research Center Denver, Co 80206

  Timing: Fiscal Year 2001; Project Start 01-SEP-2001

  Summary: The overarching goals of this research proposal are to better understand the genetic predisposition to **sarcoidosis** and to further elucidate the contribution of abnormal apoptosis to human diseases. The guiding hypothesis is that dysregulation of apoptosis caused by specific genetic polymorphisms contributes to the development of **sarcoidosis.** The hypothesis further states that this contribution occurs via elimination of the T cells and macrophages required to confine antigen. There are three specific aims for this project. First, correlations will be established between levels of expression of two key apoptosis-related proteins (Fas and TNF-a), the presence and amount of apoptosis, and the presence of specific Fas and TNF-a promoter polymorphisms. These measurements will be made in peripheral T cells and monocytes. The second specific aim involves the use of a case-control study to determine the association of the Fas and TNF-a promoter polymorphisms and **sarcoidosis.** Finally, the third specific aim will use a case-comparison study to establish the association between the presence of the same polymorphisms and the severity of disease.

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

- **Project Title: CASE CONTROL ETIOLOGIC STUDY OF SARCOIDOSIS**

  Principal Investigator & Institution: Newman, Lee; University of Colorado Hlth Sciences Ctr P.O. Box 6508, Grants and Contracts Aurora, Co 800450508

  Timing: Fiscal Year 2001

  Summary: This abstract is not available.

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

- **Project Title: CASE CONTROL ETIOLOGIC STUDY OF SARCOIDOSIS (ACCESS)**

  Principal Investigator & Institution: Weinberger, Steven; Beth Israel Deaconess Medical Center St 1005 Boston, Ma 02215

  Timing: Fiscal Year 2001

  Summary: This abstract is not available.

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

- **Project Title: CHLAMYDIA PNEUMONIAE ANTIGENS OF BIOLOGICAL SIGNIFICANCE**

  Principal Investigator & Institution: Campbell, Lee A.; Professor; Pathobiology; University of Washington Seattle, Wa 98195

  Timing: Fiscal Year 2002; Project Start 01-APR-1998; Project End 31-MAR-2007

  Summary: (provided by the applicant): Chlamydia pneumoniae is a human respiratory pathogen that causes 5 percent to 10 percent of pneumonia, bronchitis, and sinusitis. Virtually everyone is infected in his or her lifetime and reinfection is common. Infection

is difficult to treat even with sensitive antibiotics. Chronic infection is common and has been associated with asthma, reactive airway disease, Reiter's syndrome, erythema nodosum, and **sarcoidosis.** The potential public health impact of infection with this pathogen is underscored by the association of C. pneumoniae with atherosclerosis and related clinical manifestations such as coronary heart disease, carotid artery stenosis, aortic aneurysm, claudication, and stroke. If C. pneumoniae infection plays a role in atherogenesis, there will be an urgent need to facilitate diagnosis and develop strategies for intervention and prevention. The overall goal of this proposal is two fold. First, C. pneumoniae specific antigens that are recognized during human infection will be exploited to facilitate serodiagnosis and identify putative vaccine candidates. The second goal is to define chlamydial/host cell interactions that lead to entry and survival of C. pneumoniae in host cells relevant to atherosclerosis. The specific focus will be on the interaction of the chlamydial glycan moiety with carbohydrate binding receptors on the host cell. Importantly, infection of epithelial cells can be inhibited with N-linked high mannose type oligosaccharide, the major component of the glycan. The novel hypothesis to be tested is that C. pneumoniae enters through the mannose-6 phosphate receptor by binding to the site involved in transport of phosphomannosylated residues to the lysosome and this differs from C. trachomatis, which utilizes the mannose receptor. The ultimate goals of these studies are to identify C. pneumoniae specific antigens to facilitate laboratory diagnosis and virulence factors playing a role in pathogenesis to guide vaccine development or develop anti-adhesive strategies for prevention of infection.

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

- **Project Title: CLINICAL CENTER FOR ETIOLOGY OF SARCOIDOSIS--A CASE CONTROL STUDY**

  Principal Investigator & Institution: Judson, Marc A.; Medical University of South Carolina 171 Ashley Ave Charleston, Sc 29425

  Timing: Fiscal Year 2001

  Summary: This study is to determine the cause of **sarcoidosis. Sarcoidosis** is a disease which can affect the whole body, espcially the lungs. The cause of **sarcoidosis** is unknown. It is hoped that by studing differences in the lifestyle, habits, and families of **sarcoidosis** patients compared to people without **sarcoidosis,** doctors can learn about the cause of **sarcoidosis** and why it is so severe in some patients.

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

- **Project Title: CORE--CLINICAL**

  Principal Investigator & Institution: Martinez, Fernando J.; University of Michigan at Ann Arbor 3003 South State, Room 1040 Ann Arbor, Mi 481091274

  Timing: Fiscal Year 2001

  Summary: The mission of the Clinical Core is to provide the personnel, facilities, and organizational structure necessary to generate the clinical database and patient specimens for projects 1, 2 and 3. These resources will support individual protocols within the Center, facilitate interactions between investigators, and provide a cohesive framework for the formulation, execution, and data analysis of clinical research projects. The clinical protocol is designed to approximate the best available strategies for diagnostic assessment and therapy of idiopathic pulmonary fibrosis and **sarcoidosis.** The specific aims are: 1. To manage the clinical studies involving patients with idiopathic pulmonary fibrosis and **sarcoidosis** * Identity eligible patients * Coordinate

patient flow from the Fibrotic Lung Disease Network physicians to UMMC for initial evaluation * Obtain informed consent and enroll patients * Collect clinical data * Perform physiologic testing * Score chest roentgenograms and high resolution computerized tomography (HRCT) * Select the biopsy site based on HRCT findings * Communicate biopsy sites to thoracic surgeons at UMMC and at Fibrotic Lung Disease Network sites * Manage outpatients on prednisone and prednisone/azathioprine and methotrexate * Coordinate outpatient management of patients on prednisone, prednisone/azathioprine and methotrexate therapy being followed in the Fibrotic Lung Disease Network 2. To procure tissues and cells for individual investigators * Perform bronchoalveolar lavage (BAL) and transbronchial biopsies (TBBx) in IPF and **sarcoidosis** patients and BAL in normal volunteers * Collect open lung biopsy specimens from UMMC * Coordinate the procurement of open lung biopsy specimens from patients identified by physicians in the Fibrotic Lung Disease Network * Coordinate the delivery of open lung biopsy specimens from Fibrotic Lung Disease Network to Tissue Core * Procure pulmonary tissues from patients undergoing autopsy or thoracotomy for reasons other than IPF 3. To provide data management services to individual investigators * Organize and manage the clinical data base * Advise on study design, sample size calculations and selection of appropriate outcome variables * Assist with statistical applications and data analysis

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

- **Project Title: CORE--DATA COORDINATION**

  Principal Investigator & Institution: Fowler, Sarah E.; Case Western Reserve Univ-Henry Ford Hsc Research Administraion Cfp-046 Detroit, Mi 48202

  Timing: Fiscal Year 2001

  Summary: Sarcoidosis is a systemic granulomatous disease of unknown etiology that likely involves exposure to some environmental agent in a genetically susceptible host. We propose to identify **sarcoidosis** susceptibility genes and determine how these genes and environmental risk factors interact to cause **sarcoidosis.** This will be accomplished by organizing a multicenter consortium to recruit an adequate sample of **sarcoidosis** families for analysis. We plan to use affecting sibling pair linkage analysis to scan the genome for linked chromosomal regions, transmission disequilibrium testing to evaluate candidate genes in those regions with evidence for linkage and an environmental questionnaire to collect data to test for possible interactions of susceptibility genes with exogenous risk factors. This application offers the Department of Biostatistics and Research Epidemiology, Henry Ford Health System as the Data Coordinating Center (DCC) for the project. The DCC will provide administrative coordination, develop study documents, develop recruitment strategies, provide study tracking, establish a central data base, conduct data quality assurance, and collaborate with other members of the consortium in analysis of the results of the study. The Data Coordinating Center (DCC) will be an independent unit within the consortium, and will take guidance from the Steering Committee. The DCC team is headed by Principal Investigator Sarah Fowler, PhD, a senior biostatistical who specializes in coordinating centers for multi-center studies, and coordinating center biostatistician and Co-PI Mei Lu, PhD, who will sere as project manger for the DCC. DCC Co-Investigator Marvella Ford, PhD, will advise the collaborative group on the recruitment and retention of African American subjects and their families. The Coordinating Center team also includes a support staff consisting of individuals (programmer, data coordinator and secretary) experienced in and dedicated to methodologies for multi-center studies.

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

- **Project Title: CORE--TISSUE**

  Principal Investigator & Institution: Strieter, Robert M.; Professor and Chief; University of Michigan at Ann Arbor 3003 South State, Room 1040 Ann Arbor, Mi 481091274

  Timing: Fiscal Year 2001

  Summary: The Tissue/Pathology Core is a central facility providing support for the Investigators of The University of Michigan SCOR proposal. This Core will process both human or rodent lung tissue for the purpose of tissue protein and mRNA analysis, light microscopy, image analysis (qualitative and quantitative measurements) of microscopic images, and isolation, passage, and characterization of human pulmonary or dermal fibroblasts. Human bronchoalveolar lavage (BAL) fluid and cells will be processed for protein and mRNA analysis, levels of N-terminal type III procollagen peptide by immunoassay, and total cell count and differential. In addition, this core will generate a Pulmonary Pathology Tissue Score for each human lung specimen obtained from both patients with interstitial lung disease and control (patients undergoing thoracic surgery for reasons other than interstitial lung disease). These services will be used by all the projects of the SCOR proposal. Projects I, II, and III will extensively use isolated pulmonary (Projects I, II, and III) and dermal (Project II) fibroblasts from normal, IPF, and **sarcoidosis** patients. Projects I, IV, and V will require processing of bleomycin-induced rodent pulmonary fibrosis or normal lung tissue for further analysis. The levels of total protein, albumin, and N-terminal type III procollagen peptide in the BAL fluid will be used by both the Clinical Core and basic science projects I, II, and III to correlate these levels with levels of angiogenic or angiostatic CXC chemokines, metabolites of arachidonate, and profiles of Th1 and Th2 cytokines, respectively. We believe that we have assembled the appropriate personnel with the needed expertise to design and conduct the appropriate studies which will provide the Investigators of this SCOR project with reliable and reproducible specimens.

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- **Project Title: ETIOLOGIC ANTIGENS IN SARCOIDOSIS**

  Principal Investigator & Institution: Moller, David R.; Associate Professor of Medicine; Medicine; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2002; Project Start 01-JUN-2002; Project End 31-MAY-2007

  Summary: Sarcoidosis is a multisystem granulomatous disorder of unknown etiology that involves the lungs in over 90 percent of affected individuals and may cause end-stage fibrosis, cor pulmonale, and death. The pathologic hallmark of **sarcoidosis** is non-caseating granulomatous inflammation. Since extracts of diseased tissue injected intradermally elicit a nidus of granulomatous inflammation in patients with **sarcoidosis** that is indistinguishable from spontaneously arising granulomas (the Kveim reaction), we postulate that sarcoid tissue extracts contain disease-relevant antigens. Biophysical properties of the active component in Kveim extracts include relative heat stability, resistance to neutral detergents and proteases, and a dependence on tertiary structure. The overall goal of this application is to identify these pathogenic tissue antigens in **sarcoidosis.** Our central hypothesis is that **sarcoidosis** is caused by linked T and B cell immune responses to aggregates of altered proteins of microbial origin. Consistent with this hypothesis, our preliminary studies demonstrate the presence of a small number of protease-resistant, neutral-detergent insoluble proteins that by immunoblot analysis are targets of T cell dependent IgG from patients with **sarcoidosis** but not healthy controls. MALDI-TOF mass spectrometry and immunoblot analysis has identified the mycobacterial catalase-peroxidase protein from Mycobacterium tuberculosis (mKatG) or

M. smegmatis in these protein fractions from **sarcoidosis** but not control tissues. Preliminary studies demonstrate both T and B cell responses to mKatG proteins in **sarcoidosis,** suggesting the mKatG proteins are relevant, pathogenic antigens in **sarcoidosis.** To test the hypothesis that mycobacterial KatG proteins are pathogenic antigens in **sarcoidosis,** we propose studies to determine the presence of mycobacterial KatG proteins in **sarcoidosis** and control tissues using MALDI-TOF mass spectrometry and protein immunoblot analyses. To determine whether these microbial proteins induce disease-specific immune responses, we will determine the molecular basis of the B and T cell immune responses to both M. tuberculosis and M. smegmatis KatG proteins and selected peptides, and determine whether mKatG proteins preferentially expand specific Valpha/Vbeta expressing T cells in patients with **sarcoidosis** and control subjects. Together, these studies offer the potential of identifying a specific group of microbial antigens involved in the pathogenesis of granulomatous inflammation in **sarcoidosis,** thus providing a novel target for therapy of this disease.

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- **Project Title: GAMMA INTERFERON REGULATION OF VITAMIN D ACTION**

  Principal Investigator & Institution: Dusso, Adriana S.; Medicine; Washington University Lindell and Skinker Blvd St. Louis, Mo 63130

  Timing: Fiscal Year 2001; Project Start 30-JUL-1999; Project End 30-JUN-2003

  Summary: 1,25-dihydroxyvitamin D [1,25D], the hormonal form of vitamin D is a potent regulator of calcium homeostasis. To maintain normal serum calcium, 1,25D tightly controls its own serum levels by suppressing renal and extrarenal 1alpha-hydroxylases and by inducing 24-hydroxylase. In **sarcoidosis** and tuberculosis, the capacity of 1,25D to regulate its synthesis and degradation is lost. This phenomenon can be reproduced in vitro by exposing normal human macrophages to gamma-interferon (gamma-IFN). Gamma- IFN markedly enhances 1,25(OH)2D3 production but antagonizes 1,25D regulation of 1alpha- and 24-hydroxylases. Clearly, gamma- IFN impairs 1,25D control of its own synthesis and catabolism. To clarify the mechanisms mediating gamma-IFN inhibition of 1,25D action, we utilized the human monocytic cell line THP-1. THP-1 cells mimic human macrophages in 1,25D synthesis and in the regulation of 1alpha- and 24-hydroxylases in response to 1,25D and gamma-IFN. We focused on 1,25D induction of 24-hydroxylase. In THP-1 cells and normal monocytes, gamma-IFN impairs 1,25D induction of 24-hydroxylase mRNA. Gamma-IFN does not affect either the binding of 1,25D to the vitamin D receptor (VDR) or the stability of the 24-hydroxylase mRNA suggesting that gamma- IFN may directly impair 1,25D-induction of 24-hydroxylase gene transcription. Most responses to gamma-IFN require Stat1 activation. Gamma-IFN binding to its receptor activates Janus kinases to tyrosine phosphorylate Stat1. Stat1 then homodimerizes and translocates to the nucleus where it interacts directly with a gamma-IFN activation sequence and with the nuclear co-activators CBP/p300 to regulate transcription. Recent studies, however, demonstrate gamma-IFN transcriptional activation through Stat1 independent pathways. To induce 24-hydroxylase expression, 1,25 binds to cytosolic VDR, which translocates to the nucleus and heterodimerizes with the retinoid X receptor (RXR). VDR/RXR interactions with both vitamin D responsive elements (VDREs) in the human 24-hydroxylase promoter and nuclear receptor co-activators enhance gene transcription. In THP-1 cells, gamma-IFN impairs VDR/RXR binding to both VDREs through interactions of active Stat1 with the VDR/RXR, and reduces 1,25D-transcriptional activity at the VDRE. We hypothesize, therefore, that gamma-IFN activation of Stat1 (or a Stat1 like protein) antagonizes 1,25D induction of 24-hydroxylase through both interactions with the VDR/RXR that impair

VDRE binding and competition with the VDR/RXR for essential nuclear coactivators. Also, gamma-IFN antagonism on 1,25D transcriptional activity causes abnormal 1,25D homeostasis in inflammatory processes. To test these hypotheses, we propose to examine: (1) The contribution of JAK-Stat1 and/or Stat1- independent pathways to the inhibitory effects of gamma-IFN on 1,25D induction of 24-hydroxylase gene transcription; (2) gamma- IFN antagonism on protein-protein and protein-DNA interactions of VDR/RXR critical in 1,25D transcriptional activity; (3) gamma-IFN/1,25D antagonism on 1alpha-hydroxylase expression.

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- **Project Title: GENETICS OF ACTINIC PRURIGO**

  Principal Investigator & Institution: Elston, Robert C.; Professor; Case Western Reserve University 10900 Euclid Ave Cleveland, Oh 44106

  Timing: Fiscal Year 2001

  Summary: Sarcoidosis is a multisystem granulomatous inflammatory disease of unknown etiology. Hereditary susceptibility to **sarcoidosis** is suggested by reports of familial clustering and a higher prevalence in certain ethnic groups, particularly African-Americans. Candidate genes for the granulomatous inflammatory disorders, Blau syndrome and Crohn's disease have been localized to the centrometric region of chromosome 16. We therefore investigated whether this region is also involved in **sarcoidosis.** Using a sample of 35 African-American affected sibling pairs, we found no evidence of linkage in this general region, and could exclude from it a dominant gene with relative risk < 5, or a recessive gene with relative risk < 3,causing **sarcoidosis.** In particular, we concluded that the Blau syndrome gene does not have a major effect on **sarcoidosis** susceptibility. We plan to test for association of **sarcoidosis** with markers for other candidate genes and to perform a segregation analysis in order to test simultaneously for possible environmental risk factors and genetic mechanisms of disease transmission. This study is ongoing.

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- **Project Title: IL-16 IN PULMONARY CRYPTOCOCCOSIS**

  Principal Investigator & Institution: Kornfeld, Hardy; Professor; Medicine; Univ of Massachusetts Med Sch Worcester Office of Research Funding Worcester, Ma 01655

  Timing: Fiscal Year 2002; Project Start 30-SEP-2002; Project End 31-JUL-2007

  Summary: (provided by applicant): Interleukin-16 (IL- 16) is a structurally unique cytokine that uses CD4 as a receptor to signal diverse biological activities in target cells including but not limited to T cells, monocytes, dendritic cells and eosinophils. Initially described as a chemoattractant factor for CD4+ T cells, IL-16 was later found to upregulate IL-2Rcz and HLADR expression, and to cause reversible anergy of CD4+ T cells in vitro. A role for IL-16 in pathological immune responses is suggested by its presence in a variety of diseases characterized by CD4+ T cell accumulation including asthma, **sarcoidosis,** inflammatory bowel disease, and rheumatoid arthritis. In some disease states, epithelial cells or fibroblasts express IL-16. A role for IL-16 in host defense is suggested by elevated blood levels in HIV-infected hosts, and by its expression in tuberculous granulomas. The biological activities described for IL-16 in vitro suggest that it could function either as a pro-inflammatory or anti-inflammatory cytokine in vivo. We cloned the murine IL-16 gene and used it to create an IL- 16 knockout mouse. In this application, we propose to challenge the IL-16 knockout mouse by experimental infection with Cryptococcus neoformans to learn how IL-16 functions within the

integrated immune response in vivo. Preliminary data suggest that IL-16-/- mice fail to control pulmonary C. neoformans infection despite mounting an exuberant inflammatory response. We will investigate the specific deficits displayed by IL-16-/- mice in both the T cell and macrophage components of cell-mediated immunity, and we will examine the role of IL-16 expression by bronchial epithelial cells in host defense. Our research plan capitalizes on a well-characterized mouse model of cryptococcal infection that provides an excellent basis to study normal and abnormal cell mediated immune responses in the lung. The project will contribute new basic knowledge about the role of IL-16 in immunity, and it will provide additional understanding of protective immunity against the important AIDS co-pathogen C. neoformans.

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- **Project Title: IMMUNOBIOLOGY OF INTERLUKIN-12**

  Principal Investigator & Institution: Montaner, Luis J.; Associate Professor of Immunology; Wistar Institute Philadelphia, Pa 191044268

  Timing: Fiscal Year 2001; Project Start 01-MAY-1994; Project End 31-MAR-2004

  Summary: IL-12 is a central player in the regulation of inflammation and immunity, serving as a bridge between innate resistance and adaptive immunity. IL-12 production is important or essential in determining the protective Th1 response against infectious pathogens and tumors, whereas overproduction of IL-12 can result in a series of pathological manifestations, including systemic inflammatory response syndrome, organ-specific autoimmunity, **sarcoidosis,** vascular lesions, whereas defective production can result in immunodeficiency and allergic situations, including asthma. The study of the molecular mechanisms involved in IL-12 production and function is thus important for the understanding of the physiological role of IL-12 and for the planning of the clinical use of the protein and its genes (in infectious diseases, tumors, severe allergy, or as adjuvants in vaccination) or of antagonists of its production and activity (in autoimmunity, **sarcoidosis,** etc.). To this end, we propose to: I. Analyze the molecular mechanisms of IL-12 p40 and p35 gene expression; II. Analyze the induction of IL-12 by CD44 signaling in phagocytic cells and the effect of IL-4 and IL-13 on differentiation and production of proinflammatory cytokines by human myelomonocytic and dendritic cells; III. Analyze the mechanisms of acute induction and priming for cytokine production induced by IL-12 and costimulation.

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- **Project Title: INTERFERON-G REGULATION OF BLEOMYCIN PULMONARY TOXICITY**

  Principal Investigator & Institution: Chen, Edward S.; Medicine; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2003; Project Start 04-AUG-2003; Project End 31-JUL-2008

  Summary: (provided by applicant): The genetic and immunologic basis of pulmonary fibrosis is poorly understood. In rodents, intratracheal bleomycin induces rapidly progressive inflammation similar to human organizing diffuse alveolar damage (DAD), with sub-acute lung injury characterized by exudative events involving cellular infiltration, increased lung permeability, and fibrin deposition. In bleomycin-susceptible mouse strains, pro-inflammatory cytokines play a key role in initiating inflammation and lung injury, and likely mediate subsequent granulation tissue formation and associated acute collagen synthesis. By addressing mechanisms that mediate exudative events that follow inflammation and lung injury, we may develop a critical

understanding of factors that promote the transition from granulation tissue to chronic fibrosis that may bear relevance to the progression of human interstitial lung disease, such as idiopathic pulmonary fibrosis (IPF). Our published data demonstrate that interferon-gamma (IFN-gamma) plays an important role in the inflammatory and fibrotic processes in the murine bleomycin model. We found that IFN-gamma protein in bronchoalveolar lavage (BAL) fluid was significantly higher 12 to 24 h following bleomycin administration in bleomycin-sensitive but not in resistant mouse strains, and that the inflammatory and fibrotic response to bleomycin in IFN-gamma knockout mice was significantly reduced compared to sensitive wild-type controls, strongly supporting a role for IFN-gamma in mediating Neomycin-induced pulmonary toxicity. Since these studies stand in contrast to well-known direct anti-fibrotic effects of IFN-gamma, we suggest that differential effects of IFN-gamma on inflammation and fibrosis in response to bleomycin may be dependent on the timing and regulation of endogenous IFN-gamma expression, or on the dosing schedule and route of administration of exogenous IFN-gamma. Furthermore, we hypothesize that IFN-gamma-mediated bleomycin pulmonary toxicity is enhanced by up-regulation of IL-12 and IL-18, inducers of IFN-gamma, and is effected, in part, through the induction of iNOS with enhanced lung injury. The specific aims of this proposal are: (1) to determine the role of post-exposure IFN-gamma administration on the inflammatory and fibrotic response to Neomycin, (2) to determine if IFN-gamma regulatory cytokines IL-12 and IL-18 mediate bleomycin-induced pulmonary toxicity through enhanced IFN-gamma production, and (3) to determine if IFN-gamma potentiates bleomycin-induced pulmonary toxicity through direct up-regulation of iNOS expression. Understanding the mechanisms involved in IFN-gamma mediated pulmonary inflammation and fibrosis in the murine model of bleomycin pulmonary toxicity may provide insight into mechanisms involved in pulmonary fibrosis associated with human DAD, Th1 mediated interstitial lung diseases such as **sarcoidosis,** hypersensitivity pneumonitis, silicosis, and possibly, IPF.

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- **Project Title: LOCAL ANGIOTENSIN SYSTEM IN LUNG FIBROGENESIS**

  Principal Investigator & Institution: Maier, Lisa A.; National Jewish Medical & Res Ctr and Research Center Denver, Co 80206

  Timing: Fiscal Year 2001; Project Start 04-SEP-1998; Project End 31-AUG-2003

  Summary: (Adapted from applicant's abstract) Chronic beryllium disease (CBD) is a granulomatous lung disease that occurs after exposure to beryllium in the workplace. Beryllium stimulates an exuberant cellular immune response resulting in granuloma formation which eventually may progress to pulmonary fibrosis. The mechanism of fibrosis in the setting of T-cell mediated hypersensitivity is not well understood. Preliminary studies in CBD have found mast cells as the source of basic fibroblast growth factor (bFGF) in the formation of the fibrosis that surrounds granulomas. It is a potent activator of fibroblast and smooth muscle cell proliferation, contributing to fibrogenesis. Basic FGF is one of the key growth factors stimulated by angiotensin II. Angiotensin-converting enzyme (ACE) and its enzymatic product angiotensin II (ATII) promote fibrosis in cardiovascular disease, by an unknown mechanism. ACE activity is high in CBD. Thus, the investigators hypothesize that the local angiotensin system responds to beryllium-induced lung injury by promoting fibrosis through the production of bFGF. Furthermore, they hypothesize that this fibrotic response is counterbalanced by a cell mediated immune response to beryllium in which there is marked interferon gamma (IFN-y) production. They will conduct experiments to determine whether beryllium can increase ACE activity and ATII production in CBD

bronchoalveolar lavage (BAL) cells. By examining biopsy tissues after beryllium skin patch testing, they will assess the role of beryllium in stimulating ACE, ATII, and mRNA expression for ACE and ATII receptors during granuloma formation. The investigators will link the ATII production from beryllium stimulated macrophages to fibrosis by measuring ATII stimulation of the fibrotic growth factor, bFGF, from mast cells using a human mast cell line. They will define the mechanism of bFGF upregulation by ATII. Finally, to demonstrate that the beryllium-mediated immune response inhibits this fibrotic response, they will assess the role of IFN-y in downregulating the ATII stimulated bFGF production. These studies will help establish a role for the angiotensin system in granulomatous lung disease and the path to fibrogenesis.

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- **Project Title: MACROPHAGE PHENOTYPE AND FUNCTION IN ADIPOSE TISSUE**

  Principal Investigator & Institution: Ferrante, Anthony W.; Medicine; Columbia University Health Sciences New York, Ny 10032

  Timing: Fiscal Year 2003; Project Start 15-SEP-2003; Project End 31-AUG-2006

  Summary: (provided by applicant): Adipocytes are the primary and most distinctive cell population within adipose tissue and are thought to be the cells most significantly altered by obesity. However, adipose tissue depots contain non-adipocyte populations, including endothelial cells, fibroblasts, adipocyte progenitors and resident macrophages. The function of these non-adipocytes in normal physiology and their alteration by obesity and aging remain largely unexplored. Recent work in our laboratory has revealed that adipose tissue macrophages (ATM's) are dramatically altered by obesity and may play an essential role in adipocyte tissue physiology. In mice, expression profiles of visceral adipose tissue reveal a strong positive correlation of macrophage transcripts with body mass and adipocyte size. Histological examination confirms increasing numbers of ATM's in perigonadal, omental and perirenal depots with increasing obesity. Remarkably, in severely obese (B6.V Lepop/op) mice, nearly 50 percent of cells within visceral adipose depots are macrophages. Obesity also alters the morphology of ATM's, leading to the appearance of multinucleated giant cells, reminiscent of those seen in chronic inflammatory conditions such as **sarcoidosis** and Wegner's granulomatosis. These alterations in ATM number and morphology correlate with previously reported production of pro-inflammatory cytokines and factors by obese visceral adipose tissue. Significant but less dramatic changes in ATM number and morphology are noted in subcutaneous depots. Macrophage deficient (B6C3Fe Csflop/op) mice show preferential accumulation of adipose mass in subcutaneous depots. We therefore hypothesize that obesity alters the number and activation state of ATM's that in turn modulate adipocyte development and metabolic function and may be responsible for the pro-inflammatory phenotype noted in patients with the metabolic syndrome. The aims of this proposal are to: (1) Phenotypically characterize adipose tissue macrophages from visceral and subcutaneous adipose tissue in lean and obese mice; (2) Develop in vitro systems to assay the metabolic and developmental effects of adipose tissue macrophages on adipocytes and (3) Characterize the in vivo effects of altered adipose tissue macrophage number and function on the hypertrophy and hyperplasia of adipocytes, and on systemic insulin sensitivity.

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- **Project Title: MYCOBACTERIUM AVIUM SUBSPECIES IN CROHN'S DISEASE**

  Principal Investigator & Institution: Naser, Saleh A.; Molecular Biol & Microbiology; University of Central Florida 12443 Research Pky, Ste 207 Orlando, Fl 32828

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

  Summary: Crohn's disease (CD) is a debilitating chronic inflammatory bowel disease characterized by patches of inflamed tissue. The underlining cause of inflammation and provocation of the immune response in CD patients has yet to be determined. In theory, the immune system usually reacts against an invading organism such as an insect bite or bacterial infection, or is over-sensitive, as in allergic reactions to grass pollen etc. These reactions cause irritation and pain in the affected area, which subside when the immune system has dealt with the potential threat. Defects in the immune system of CD patients have been reported, both in the ability of the cell to phagocytose and in immune killing after phagocytosis, The cytokine pattern in CD is Th1-like and defect in the ratio of proinflammatory to anti- inflammatory cytokines has been proposed. A specific antigenic stimuli has not been identified, but pathogenic bacteria such as Mycobacterium avium subsp paratuberculosis (MAP) and specific invasive E. coli strains have been proposed. In addition, autoantibodies derived from molecular mimicry from bacterial antigens, or from host origin may also be causative agents of the inflammatory lesions in CD. Defects in the ability of macrophages to present antigen to T-cells and B-cells may also have a role. The mycobacterial theory is based on the significant similarity between CD and Johne's disease, a chronic enteritis in cattle that is caused by MAP. The two diseases share histological and pathological characteristics similar to those in tuberculosis and **sarcoidosis.** It is believed that MAP may be causing an immune reaction in the gut, resulting in a continuous immune response, which gets better and worse as the number of bacteria increase and decrease. Another possibility is that some parts of MAP like the heat shock proteins similar to parts of the gut lining resulting in triggering an immune response: a process known as autoimmunity. Finally, there may be defects in the immune reaction to MAP or proteins in the gut. In this case, the immune cells fail to deal with the invading organism, which is able to persist in the tissues, causing further inflammation. Many studies have been performed in an attempt to investigate a mycobacterial role in the etiology of CD and its pathogenesis. The outcome has been inconsistent which has added to the controversy. The role of MAP, if any, in the etiology of CD has become increasingly debated in recent years causing a need for clear elucidation. While positive results would change the course of therapy and investigation in CD, a negative result will go a long way toward clearing up the MAP debate. In this study, our team will investigate the overall role of MAP, if any, in CD etiology by addressing the following questions: Is MAP present in CD lesions? Is it culturable? Can MAP be identified using PCR, RT-PCR or fluorescence in situ hybridization (FISH) techniques? Is there any immune reaction activity against MAP in CD patients? Is it cellular, humoral or both? What types of immune cells are present in CD lesions compared to non-inflammatory tissue or tissue from non-IBD and healthy controls? Are there any abnormalities in bacterial phagocytosis by peripheral blood monocytes and neutrophils from CD patients compared to normal cells? Are there factors inhibitory to phagocytosis in CD serum? Are there any abnormalities in antigen presentation and lymphocyte transformation to recall antigens from MAP? Are there any inhibitory or augmenting factors present in the serum from CD patients (cellular and serum crossover)? Our approach in this project is to determine if MAP or reactions against MAP are present in full thickness surgical tissue, heparinized blood and sera specimens from patients with CD using well-developed methodology in the fields of microbiology, immunology and molecular microbiology. We will investigate the presence of MAP in tissue specimens directly by using nested PCR, RT-PCR and FISH

and indirectly by culture using a newly developed culture media appropriate for isolation of cell wall deficient form of MAP. We will also investigate the humoral immune reaction in CD sera using p20 antigen, a MAP specific protein. Additionally, the type and state of immune cells will be determined in inflamed versus non-inflamed tissue specimens from CD patients. We will also examine how these cells from CD patient blood are able to ingest and kill MAP, and whether this ingestion results in a normal immune response. This is the first study designed to comprehensively examine the overall presence/absence of MAP in CD tissue and the immune response in CD patients. The results will give us a better idea as to whether MAP causes CD, or whether there is an inherent defect in the immune system, which allows bacterial persistence or autoimmunity to occur in the gut. Ultimately, the outcome of this study will go a long way toward clearing up the MAP debate.

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- **Project Title: NEWLY IDENTIFIED ANTIGENS FOR GAMMA/DELTA T CELLS**

  Principal Investigator & Institution: Bukowski, Jack F.; Brigham and Women's Hospital 75 Francis Street Boston, Ma 02115

  Timing: Fiscal Year 2001; Project Start 01-AUG-1998; Project End 31-JUL-2002

  Summary: (Adapted from Investigator's abstract): It is becoming evident that gamma/delta (gd) T cells play an important role in defense against bacterial and viral infections as well as in autoimmunity. gd T cells are expanded in humans with infectious diseases such as tuberculosis, salmonellosis, brucellosis, ehlichiosis, tularemia, malaria, leishmaniasis, mononucleosis, and in HIV (early stages). They are expanded in the synovium of patients with **sarcoidosis.** In contrast to alpha/beta (ab) T cells, which recognize peptide antigens in the context of MHC molecules, the predominant subset of gd T cells in human peripheral blood, termed Vg2Vd2 T cells, having no homologue in rodents, recognize unprocessed nonpeptide phosphate antigens in the absence of professional APC or known antigen presenting molecules. Abundant data describing in detail the interactions of the ab TCR with MHC-bound peptide have deepened our understanding of their role in infectious disease and in autoimmunity. In contrast, there is little information regarding the nature of interaction between the gd TCRs and their ligands. In fact, the identities of most microbial and autoimmune antigens reactive with gd T cells is unknown. Preliminary evidence in the investigator's laboratory shows that the TCR g junctional region is of crucial importance for the recognition of phosphate antigens by Vg2Vd2 T cells, arguing against a superantigen-like recognition of such antigens. The laboratory recently has found that alkylamines, which are major products of certain bacteria that cause gingivitis and many other diseases and are also found in plant foods and human body fluids, cause proliferation of Vg2Vd2 T cells in a TCR-specific manner. Alkylamine antigens are the first phosphate-free antigens described for Vg2Vd2 T cells and thus represent a distinct chemical class of ligand for Vg2Vd2 T cells. The investigator proposes to 1) Define the structural characteristics necessary for bioactivity of alkylamine antigens by testing a panel of naturally occurring alkylamine antigens for reactivity to gd T cells; 2) Identify specific domains and residues in the gd TCR important for recognition of alkylamine and phosphate antigens; 3) Determine the requirements of alkylamine antigens for antigen presentation and processing; 4) Define the phenotypes and alkylamine antigen reactivities of gingival gd T cells from patients with chronic gingivitis.

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- **Project Title: NOVEL MHC CLASS II CONSTRUCTS FOR TREATMENTS OF CBD**

  Principal Investigator & Institution: Burrows, Gregory G.; Associate Professor of Neurology; Neurology; Oregon Health & Science University Portland, or 972393098

  Timing: Fiscal Year 2001; Project Start 18-AUG-2000; Project End 31-JUL-2004

  Summary: Chronic Beryllium Disease (CBD) is a lung disease similar clinically to other granulomatous diseases such as **sarcoidosis,** schizomyosis and tuberculosis. Approximately 800,000 individuals are at risk for developing the disease, which is caused by metal and relatively insoluble compounds of beryllium. The disease begins as a sensitizing cell mediated immune response to beryllium antigen, which develops into a non-caseating granuloma. Evidence strongly suggests that CD4 plus T-cells and MHC class 2 allele HALDPB1*0201 are important in the immunopathogenesis of CBD. How the T-cell receptor (TCR) on the T-cells interacts with beryllium and the MHC and the mechanism that gives rises to the pathogenesis of CBD is unknown. To test critically the hypothesis that a specific MHC class 2 allele interacts with beryllium and induces T-cell responses that contribute directly to the pathogenesis of CBD, it is proposed to develop a family of novel recombinant HLA-DP constructs that will selectively eliminate inflammatory T-cell responses to beryllium. This will enable the testing of the role of such T-cell responses in CBD. Development and characterization of these novel constructs will provide the opportunity to identify unique points of intervention for controlling T-cells and in turn, the T-cell immune response and repertoire. These molecules may provide a template for engineering a novel treatment of CBD. The PI proposes to: 1) Characterize the recombinant HLA-DP constructs biochemically, 2) Characterize the binding interaction of beryllium with the recombinant HLA-DP constructs, 3) Identify high potency BE/antigen combinations responsible for proliferation of pathogenic T-cells and 4) To determine optimal conditions for tolerizing beryllium specific human T-cells.

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- **Project Title: PILOT INVESTIGATION OF SAFETY AND EFFICACY OF THALIDOMIDE IN SARCOIDOSIS**

  Principal Investigator & Institution: Oliver, Stephen J.; Rockefeller University New York, Ny 100216399

  Timing: Fiscal Year 2001

  Summary: Sarcoidosis is a multisystem disease of unknown etiology characterized by the formation of noncaseating granulomas. Disease involvement can be self limited or chronic, ranging from asymptomatic to end organ failure. The disease may affect lungs, thoracic lymph nodes, skin, eyes, and other organs. Corticosteroids remain the primary **sarcoidosis** therapy. However, steroid treatment has multiple side effects and may fail to alter the disease course. The proinflammatory cytokine TNF-alpha may play an important role in mediating sarcoid disease activity. TNF-alpha production by activated macrophages is an important element in the cell mediated immune response leading to granuloma formation. Serum levels of TNF-alpha and soluble TNF-alpha receptors are elevated in **sarcoidosis** patients and correlate with disease activity. Thalidomide, an inhibitor of TNF-alpha production, has been shown to have both anti-inflammatory and immune modulating effects in a number of autoimmune diseases, including discoid lupus, aphthous ulcer formation, erythema nodosum leprosum, and others. The addition of thalidomide to antibiotic regimens has also improved morbidity and mortality in animal models of M. tuberculosis infection of the pulmonary and central nervous systems. This study will evaluate the effect of daily thalidomide administration

in **sarcoidosis** patients over a 4 month period, using clinical and laboratory based disease activity measures. Serially recorded clinical disease activity measures include spirometry, skin photographs, erythrocyte sedimentation rates, Health Assessment Questionnaires, and joint counts. Chest x-rays and several skin biopsies will be performed at several defined time points. Laboratory based disease activity measures include plasma TNF-alpha and soluble TNF-alpha receptor, soluble interleukin 2 receptor, and intercellular cell adhesion molecule-1. Interferon gamma plasma levels will also be determined. T-lymphocytes subsets and antigen-stimulated lymphocyte proliferation will be measured. Drug safety in this patient group will be monitored by blood chemistries and cell counts, history and physical exams, and renal function assessments performed during monthly patient visits.

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- **Project Title: PILOT STUDY OF THALIDOMIDE IN PYODERMA GANGRENOSUM**

  Principal Investigator & Institution: Haslett, Patrick; Rockefeller University New York, Ny 100216399

  Timing: Fiscal Year 2001

  Summary: Pyoderma gangrenosum (PG) is a rare, ulcerative skin disorder of unknown etiology which has been reported to respond to treatment with thalidomide. The pathogenesis of PG is not known. The mechanism of action of thalidomide in this situation is also unknown. We have recently demonstrated that in vitro, thalidomide acts as a costimulator of T cells, increasing the secretion of Th-1 type cytokines. Our studies in patients with HIV infection and **sarcoidosis** have shown that soluble markers of T-cell activation, as well as plasma levels of interleukin-12, are consistently increased following thalidomide therapy. We hypothesize that thalidomide causes the healing of PG skin ulcers primarily by stimulating Th-1 T cells and promoting regulatory interactions between various cellular components of the immune system. Here we propose an open-label pilot study of thalidomide therapy for moderate-to-severe PG, in which we shall correlate clinical responses to therapy with peripheral blood markers of immune activation and function, as well as immunohistochemical analyses of perilesional cellular infiltrates. The identification of consistent immune correlates of clinical response will provide insights into the mechanism of action of thalidomide in this clinical setting, and more fundamentally, may shed light on the nature of the immune dysregulation which underlies the pathogenesis of PG.

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

- **Project Title: ROLE OF IFN GAMMA AND KGF IN HUMAN PULMONARY FIBROSIS**

  Principal Investigator & Institution: King, Talmadge E.; National Jewish Medical & Res Ctr and Research Center Denver, Co 80206

  Timing: Fiscal Year 2001

  Summary: The diffuse interstitial lung diseases (ILD) remain important clinical problems largely of unknown pathogenesis and often associated with a poor prognosis. Recent reports suggest the prevalence of ILD to be 25 to 30 individuals per 100,000 population, and there is evidence to suggest that the incidence is increasing. This proposal is the major clinical project in this SCOR program. It is a collaborative effort that complements the work planned in other projects in the SCOR. This project will study patients with ILD with two histopathological patterns: granulomatous

inflammation (berylliosis or sarcoidosis) and usual interstitial pneumonitis [(UIP), idiopathic pulmonary fibrosis (IPF) or progressive systemic sclerosis, (PSS-PF)]. The major objectives are: (1) to improve our understanding of the immunopathogenesis of pulmonary fibrosis, with special emphasis on those factors that appear to prevent the development of fibrosis and (2) to investigate the role of the antifibrogenic cytokine, interferon gamma (IFNgamma), in modulating the inflammatory and fibrotic process in ILD. Patients with granulomatous inflammation tend to have a more benign clinical course usually without progression to irreversible pulmonary fibrosis; conversely, those with conditions characterized by UIP tend to progress to fibrosis and eventually succumb to their illness. Consequently, preventing the fibrotic response appears to offer the best hope for reducing the impact of this problem on the health of individuals afflicted with ILD. We hypothesize that the prevention of pulmonary fibrosis is the result of two processes: first, antifibrotic factors produced by (or acting upon) the cells central to the process (lymphocytes, macrophages, mast cells, and fibroblasts); and second, rapid re-epithelialization of the injured lung. Both are required to successfully modulate the inflammatory response and inhibit the fibroblastic response thereby limiting the degree of fibrosis. The study design involves: (l) cross sectional studies to identify (in lung tissue and bronchoalveolar lavage) the presence or absence of anti- or pro- fibrogenic factors in the alveolar micro environment responsible for modulating the mesenchymal cell response; and (2) longitudinal studies to determine the ability of inhaled recombinant IFNgamma to modulate the fibroproliferative response. We expect these studies to yield valuable information about the cellular mechanisms involved in the transition from inflammation to wound healing, repair and fibrosis in the human lung. In addition, the study will allow us to further identify and characterize biomarkers that may be useful in the assessment of disease stage and in predicting disease progression and prognosis. Finally, these studies will improve our understanding of how to prevent or inhibit pulmonary fibrosis and thereby determine how to intervene in the disease process to treat or reduce the morbidity and mortality of this devastating illness.

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

- **Project Title: SARCOIDOSIS GENES**

  Principal Investigator & Institution: Reynolds, Herbert Y.; J. Lloyd Huck Professor of Medicine; Pennsylvania State Univ Hershey Med Ctr 500 University Dr Hershey, Pa 17033

  Timing: Fiscal Year 2001

  Summary: There is no text on file for this abstract.

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

- **Project Title: SARCOIDOSIS GENETIC LINKAGE CONSORTIUM**

  Principal Investigator & Institution: Iannuzzi, Michael C.; Associate Professor; Medicine; Case Western Reserve Univ-Henry Ford Hsc Research Administraion Cfp-046 Detroit, Mi 48202

  Timing: Fiscal Year 2001; Project Start 15-MAY-1999; Project End 30-APR-2004

  Summary: Sarcoidosis is a systemic granulomatous disease of unknown etiology that likely involves exposure to some environmental agent in a genetically susceptible host. We propose to identify **sarcoidosis** susceptibility genes and determine how these genes and environmental risk factors interact to cause **sarcoidosis.** This will be accomplished by organizing a ten center multicenter consortium to recruit an adequate sample of

sarcoidosis families for analysis. We plan to use affected sibling pair linkage analysis to scan the genome for linked chromosomal regions, transmission disequilibrium testing to evaluate candidate genes in those regions with evidence for linkage and an environmental questionnaire to collect data to test for possible interactions of susceptibility genes with exogenous risk factors.

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

- **Project Title: SCOR IN THE PATHOBIOLOGY OF FIBROTIC LUNG DISEASE**

  Principal Investigator & Institution: Toews, Galen B.; Chief and Associate Professor; Internal Medicine; University of Michigan at Ann Arbor 3003 South State, Room 1040 Ann Arbor, Mi 481091274

  Timing: Fiscal Year 2001; Project Start 01-DEC-1996; Project End 30-NOV-2001

  Summary: The long-term objective of this SCOR is to further our understanding of the pathogenesis of idiopathic pulmonary fibrosis (IPF) and **sarcoidosis.** A clearer understanding of the pathogenesis of these diseases is required to develop new treatment strategies. The central hypothesis for this SCOR proposal is: acquired alterations in parenchymal/stromal cell phenotype create tissue micro environments which steer the progression of tissue remodeling towards progressive fibrosis rather than the restoration of normal alveolar architecture. This change in phenotype results in and is perpetuated by changes in the elaboration of effector molecules which influence the fibrotic process via autocrine and paracrine loops. These altered secretory phenotypes represent potential targets for therapeutic interventions. The specific hypotheses in this SCOR are: 1. Angiogenesis during the pathogenesis of fibroproliferation in interstitial lung disease is dependent on members of the CXC chemokine family acting as either angiogenic or angiostatic factors. The biological balance in expression of these CXC chemokines dictates that neovascularization, in association with fibroproliferation, either regresses or progresses to end-stage pulmonary fibrosis. 2. Diminished prostaglandin E2 (PGE2) synthesis is an important determinant of fibrogenesis and of the phenotypic alterations which characterize fibroblasts obtained from patients with IPF. 3. Fibroblast activation in tissue fibrosis is dependent upon the expression of a specific disease phenotype characterized by the predominance of Th2 type cytokines. 4. Enhancement of fibrolytic activity within the alveolar space using gene transfer technology will reduce the pulmonary fibrosis that accompanies inflammatory lung injury. 5. Alveolar epithelial cells and macrophages participate in a bi- directional paracrine interaction in which AEC-derived GM-CSF leads to the expression of macrophage mediators, such as HGF and uPA that preserve normal alveolar architecture. Furthermore, HGF is required for normal, non-fibrotic healing of the alveolar lining following injury and for the induction of uPA activity in epithelial cells. This SCOR will take a multi-disciplinary approach to testing these hypotheses. The expertise of investigators trained in Internal Medicine, Pathology, Cell and Molecular Biology, Biochemistry, and Biostatistics will be utilized. The strength of this proposal are the investigators long-standing interests in fibrotic lung disease, a proven commitment to collaborative research by both clinicians and basic scientists, access to a large population of IPF and sarcoid patients, and extra-ordinary institutional resources for biomedical research.

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

- **Project Title: SUBCONJUNCTIVAL ROUTE TO PROLONG CORTICOSTEROID DELIVERY**

  Principal Investigator & Institution: Kompella, Uday B.; Associate Professor; Pharmaceutical Sciences; University of Nebraska Medical Center Omaha, Ne 681987835

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2006

  Summary: (provided by applicant): This study proposes subconjunctivally injectable biodegradable nano- and micro-particles to sustain the delivery of budesonide, a corticosteroid, to the posterior segment of the eye for a few months. The concept of continuous delivery of ultra-low amounts of budesonide to the posterior segment of the eye will significantly advance the therapy of disorders associated with difficult to reach tissues such as choroid, retina, and vitreous. Budesonide, a very potent corticosteroid with high local activity, low systemic activity, and vascular endothelial growth factor (VEGF)-inhibitory activity, is likely to find application in treating multiple inflammatory, proliferative, and neovascular disorders of the eye. The proposed study will enable the PI to begin establishing his research with this promising new therapeutic agent for ocular therapies. In this study, budesonide particles will be prepared using poly(lactic-co-glycolic acid) (PLGA), a biodegradable polymer that has been used in surgical sutures for over 30 years. The proposed research on subconjunctival budesonide-PLGA particles for prolonged budesonide delivery is likely to advance the delivery of other therapeutic agents targeted to the posterior segment. The objective of this study is to test the hypothesis that subconjunctival injection of budesonide-PLGA particles will sustain budesonide delivery to the posterior segment for up to 4 months. The specific aims of this study are: (1) To prepare and characterize biodegradable particles capable of releasing budesonide for about four months. (2) To determine whether the tissue budesonide levels increase with increasing subconjunctival dose of budesonide-PLGA(poly(lactic-co-glycolic acid) particles, without inducing lens opacities or ocular hypertension. This study entails fabrication of budesonide-PLGA particles and in vivo drug delivery studies. The proposed budesonide-delivery system is likely to benefit several disorders of the eye including proliferative vitreoretinopathy, cystoid macular edema, macular degeneration, uveitis, **sarcoidosis,** and scleritis. Based on this study, the PI will submit an RO-l proposal to assess subconjunctival budesonide-PLGA particles for the therapy of posterior segment disorders associated with inflammation and/or VEGF elevation.

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

- **Project Title: T LYMPHOCYTE BASED FUNCTIONAL GENOMICS OF INFLAMMATION**

  Principal Investigator & Institution: Van Kaer, Luc; Assistant Professor; Vanderbilt University 3319 West End Ave. Nashville, Tn 372036917

  Timing: Fiscal Year 2002; Project Start 10-DEC-2001; Project End 30-NOV-2006

  Summary: Many inflammatory diseases of the heart, lung and vasculature are driven by T lymphocyte effector functions. Examples include atopic asthma, hypersensitivity pneumonitides, idiopathic granuloma formation (sarcoidosis), interstitial fibrosis and autoimmune cardiomyopathies. Among T lineage cells, essential functional characteristics depend on differential into subsets of effector cells, including T helper (Th) 1 and Th2 subsets for CD4+T cells, cytotoxic T lymphocytes (CTL), and natural killer T (NKT) cells. Each of these subsets play distinct functional roles in inflammatory diseases. Prior gene targeting studies of cell surface proteins, intracellular signal transducers, and inducible transcription factors have revealed important insights into T

cell- mediated inflammation, underscoring the value of genetically manipulated mouse strains in understanding this process. Despite these advances, much remains to be learned about the function of newly sequenced genes in T cell-mediated inflammation. The long term goal of the T cell Project of this Program is to identify and functionally characterize a set of genes that are important contributors to T lymphocyte functions and the regulation of T cell-dependent inflammation. To this end, we will utilize a large library of embryonic stem (ES) cell clones harboring retroviral insertions. The trapped genes in this library will be displayed on DNA microarrays to determine their expression patterns and potential roles in T cell-mediated inflammation. ES cell clones with relevant primary sequences and/or expression patterns will be selected for transmission into the murine germline. Novel mutant mouse strains will be analyzed phenotypically to investigate the role of mutant genes in T lymphocyte development, activation, and differentiation, as well as T lymphocyte-based inflammation. At the completion of this project we expect to have generated and characterized a novel set of mutant mouse strains with either heightened or attenuated T cell-mediated inflammatory responses. Studies of these genetically altered mice will provide insights regarding the molecular mechanisms that control T lymphocyte-mediated inflammation. We anticipate that the pathological abnormalities in a subset of these animals will have similarities with important disease processes in humans, thus providing unprecedented in vivo experimental models to study human inflammatory diseases. The novel genes identified in these studies will also provide novel molecular targets for therapeutic intervention in inflammatory diseases.

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

- **Project Title: T LYMPHOCYTE TRANSENDOTHELIAL MIGRATION IN SARCOIDOSIS**

  Principal Investigator & Institution: Berman, Jeffrey S.; Professor; Boston University Medical Campus 715 Albany St, 560 Boston, Ma 02118

  Timing: Fiscal Year 2001

  Summary: Lung **sarcoidosis** is characterized by a CD4+ (helper) T-lymphocyte lymphocytic alveolitis. The effector T-cells present in the lung in **sarcoidosis** produce cytokines, including interleukin (IL)-2 and interferon-gamma, which promote inflammation and maintain granuloma formation. The relative contributions to this CD4+ T-cell alveolitis of recruitment from the blood versus in situ proliferation in the lung are not clear. T-cell recruitment to tissue occurs by adherence of migration- prone to locally activated endothelial cells, interaction with matrix proteins and migration in response to locally produced chemoattractants. We have recently documented the presence of a specialized population of memory CD4+ and CD8+ T cells in normal human blood which are highly likely to migrate through normal or activated endothelial cells in an in vitro assay. These cells resemble cells which home to normal lung in terms of T- cell memory and activation markers. We have documented a marked increase in these migrating cells in the blood of a subset of patients with **sarcoidosis** and CD4- lymphocytic alveolitis. We hypothesize that these migrating cells are T-helper effector cells which modify granulomatous inflammation in **sarcoidosis.** We have also documented the presence of a novel CD4+ cell chemoattractant (lymphocyte chemoattractant factor, LCF/IL-16) in the bronchoalveolar lavage (BAL) of 4 patients with **sarcoidosis.** This chemoattractant was identified and cloned in our laboratory and is not found n the BAL of normal non-smokers. We hypothesize that CD4+ T cell recruitment from the blood plays a important role in pulmonary **sarcoidosis,** and that two interrelated processes contribute to increased CD4+ effector T cell recruitment to

sites of granuloma formation: 1. Increased numbers of migration-prone effector T- cells into the blood where they are available to home to lung or other inflammatory sites, and once in tissue contribute to inflammation, resolution and fibrosis, and 2. Production of CD4+ T cell specify chemoattractants, including LCF. We are presently testing this hypothesis by: 1. Documenting the presence, phenotype and function (cytokine production) of migrating T cells from peripheral blood of normals versa patients with **sarcoidosis;** and 2. Surveying tissues, lung cells and lavage samples from patients with **sarcoidosis** or the presence of LCF/IL-16. We will also examine the effect of several known or proposed therapies for **sarcoidosis** on the adhesion and transendothelial migration of CD4+ T cells from the blood of normals and patients with **sarcoidosis.** These studies may provide insight into the mechanisms by which granulomas are maintained in **sarcoidosis,** and may suggest new forms of specific therapy targeted at effector cell recruitment.

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

- **Project Title: T-CELLS IN LUNG INFLAMMATION**

  Principal Investigator & Institution: Kao, Peter N.; Associate Professor; Medicine; Stanford University Stanford, Ca 94305

  Timing: Fiscal Year 2001; Project Start 01-APR-1996; Project End 31-MAR-2006

  Summary: (Applicant's Abstract): Lung inflammation involving activated T-cells is a characteristic feature of asthma, **sarcoidosis,** hypersensitivity pneumonitis and chronic allograft rejection after lung transplantation. T-cell activation triggers intracellular phosphorylations that lead to nuclear translocation of transcription factors in the NF-kB/rel-homology family. In the nucleus of activated T-cells, global changes in chromatin structure allow access of transcription factors to their cognate binding sites. The IL-2 enhancer contains binding sites for NF-kB, AP-1, Oct-I and the purine-box regulator that binds to the antigen receptor response element/NF-AT target site. Purine-box regulator proteins of 45 kDa and 90 kDa were affinity-purified from the nucleus of activated Jurkat T-cells and partial amino acid sequence data were used to clone NP45 and NF9O cDNAs. NF45 and NF90 interact with the DNA-dependent protein kinase, Ku70 and Ku80. NF90 also interacts with dsRNA-activated protein kinase, PKR, and suppresses translation of specific mRNAs. Interleukin enhancer binding factor 3 (ILF3) is a longer form of NF90 that interacts with Protein Arginine Methyltransferase 1. NF45 and NF90 are autoantigens in murine lupus and human autoimmune diseases. Posttranslational modifications of NF45 and NF90/ILF3 during T-cell activation will be characterized and correlated with IL-2 expression. Triptolide is a diterpenoid triepoxide that inhibits NF-kB and IL-2 transcription and T-cell activation through mechanisms that do not involve calcineurin. Triptolide reacts covalently with several nuclear proteins. Immunosuppressive and antiproliferative mechanisms of triptolide will be investigated by characterizing targets of triptolide and triptolide inhibition of transcription in vitro. The developmental phenotypes and immune system functions of mice with targeted disruptions of NF45 and NF90/ILF3 will be determined. The murine NF45 and NF90/ILF3 genes have been sequenced in entirety, targeting vectors generated, and embryonic stem cells screened for homologous recombination. Appropriate ES clones will be injected into blastocysts at the Stanford Transgenic Core facility. Increased understanding of T-cell activation and its modulation by immunosuppressant drugs will guide future therapies for lung inflammation, autoimmune diseases, cancer and AIDS.

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

- **Assessment of Mycobacterial, Propionibacterial, and Human Herpesvirus 8 DNA in Tissues of Greek Patients with Sarcoidosis.** by Gazouli M, Ikonomopoulos J, Trigidou R, Foteinou M, Kittas C, Gorgoulis V.; 2002 Aug; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=120671
- **Cardiac Involvement in Sarcoidosis.** by Fasseas P, Galatro KM, Leybishkis B, Fyfe B.; 2001; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=101160
- **Genotyping in the MHC locus: potential for defining predictive markers in sarcoidosis.** by Seitzer U, Gerdes J, Muller-Quernheim J.; 2002; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=64817
- **Identification of Mycobacterium avium complex in sarcoidosis.** by el-Zaatari FA, Naser SA, Markesich DC, Kalter DC, Engstand L, Graham DY.; 1996 Sep; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=229225
- **Quantitative Analysis of Mycobacterial and Propionibacterial DNA in Lymph Nodes of Japanese and European Patients with Sarcoidosis.** by Eishi Y, Suga M, Ishige I, Kobayashi D, Yamada T, Takemura T, Takizawa T, Koike M, Kudoh S, Costabel U, Guzman J, Rizzato G, Gambacorta M, du Bois R, Nicholson AG, Sharma OP, Ando M.; 2002 Jan; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=120089
- **Successful treatment of recalcitrant cutaneous sarcoidosis with fumaric acid esters.** by Nowack U, Gambichler T, Hanefeld C, Kastner U, Altmeyer P.; 2002; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=140030
- **T-Cell Receptor Variable Region Gene Usage by CD4+ and CD8+ T Cells in Bronchoalveolar Lavage Fluid and Peripheral Blood of Sarcoidosis Patients.** by Grunewald J, Olerup O, Persson U, Ohrn MB, Wigzell H, Eklund A.; 1994 May 24; http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&rendertype=abstract&artid=43910

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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.

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

- **A case of cardiac sarcoidosis with advanced atrioventricular block. Failure of endomyocardial biopsy diagnosis and success in detecting.**
  Author(s): Kasai H, Suzuki J, Imamura H, Yazaki Y, Isobe M, Sekiguchi M.
  Source: Heart and Vessels. 2003 March; 18(1): 50-2.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12644883&dopt=Abstract

- **A case of childhood sarcoidosis.**
  Author(s): Hunt SJ, O'toole E, Philips W, Hardman C, Wakelin SH, Walters S.
  Source: Clinical and Experimental Dermatology. 2002 September; 27(6): 448-50.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12372081&dopt=Abstract

- **A case of neurosarcoidosis presenting with multiple cranial nerve palsy.**
  Author(s): Bandyopadhyay T, Das D, Das SK, Ghosh A.
  Source: J Assoc Physicians India. 2003 March; 51: 328-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12839373&dopt=Abstract

- **A case of sarcoidosis following exposure to Mycobacterium tuberculosis (MTb).**
  Author(s): Rutherford RM, Gilmartin JJ.
  Source: Ir Med J. 2003 February; 96(2): 58-9. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12674162&dopt=Abstract

- **A case of sarcoidosis mimicking rhinophyma.**
  Author(s): Leonard AL.
  Source: J Drugs Dermatol. 2003 June; 2(3): 333-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12848119&dopt=Abstract

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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.

- **A nodular extraocular muscle lesion in a patient with sarcoidosis.**
  Author(s): Parma ES, Abrams JE, Bhattacharjee MB, Karioglu ZA.
  Source: Journal of Pediatric Ophthalmology and Strabismus. 2002 November-December; 39(6): 367-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12458853&dopt=Abstract

- **A patient with sarcoidosis presenting with acute renal failure: implication for granulomatous interstitial nephritis and hypercalcemia.**
  Author(s): Ohashi N, Yonemura K, Hirano M, Takahashi S, Kato A, Fujigaki Y, Yamamoto T, Hishida A.
  Source: Intern Med. 2002 December; 41(12): 1171-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12521209&dopt=Abstract

- **A prospective study of 32 patients with neurosarcoidosis.**
  Author(s): Allen RK, Sellars RE, Sandstrom PA.
  Source: Sarcoidosis Vasc Diffuse Lung Dis. 2003 June; 20(2): 118-25.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12870721&dopt=Abstract

- **A unique case of sarcoidosis: Coexistence of sarcoidal granuloma and histological changes consistent with dermatomyositis.**
  Author(s): Ito A, Kazama T, Ito M.
  Source: The British Journal of Dermatology. 2003 August; 149(2): 430-2.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12932264&dopt=Abstract

- **A unique presentation of cardiac sarcoidosis.**
  Author(s): Slater GM, Rodriguez ER, Lima JA, Bluemke DA.
  Source: Ajr. American Journal of Roentgenology. 2003 June; 180(6): 1738-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12760956&dopt=Abstract

- **Adenocarcinoma of the colon associated with sarcoidosis.**
  Author(s): Mohamadnejad M, Babai M, Bidari A, Malekzadeh R, Tavangar SM.
  Source: Medgenmed [electronic Resource] : Medscape General Medicine. 2003 March 3; 5(1): 6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12827067&dopt=Abstract

- **Aetiology, pathogenesis and treatment of sarcoidosis.**
  Author(s): Eklund A.
  Source: Journal of Internal Medicine. 2003 January; 253(1): 2-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12588533&dopt=Abstract

- **Alveolar macrophages are the main source for tumour necrosis factor-alpha in patients with sarcoidosis.**
  Author(s): Fehrenbach H, Zissel G, Goldmann T, Tschernig T, Vollmer E, Pabst R, Muller-Quernheim J.
  Source: The European Respiratory Journal : Official Journal of the European Society for Clinical Respiratory Physiology. 2003 March; 21(3): 421-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12661995&dopt=Abstract

- **An isolated fourth ventricle in neurosarcoidosis: MRI findings.**
  Author(s): Hesselmann V, Wedekind C, Terstegge K, Schulte O, Voges J, Krug B, Lackner K.
  Source: European Radiology. 2002 December; 12 Suppl 3: S1-3. Epub 2002 May 08.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12522590&dopt=Abstract

- **An unusual presentation of sarcoidosis.**
  Author(s): Carmichael P, O'Donnell JP.
  Source: Clinical Nephrology. 2003 July; 60(1): 58-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12872860&dopt=Abstract

- **Angiotensin-converting enzyme gene polymorphisms in patients with pulmonary sarcoidosis: impact on disease severity.**
  Author(s): Schurmann M.
  Source: American Journal of Pharmacogenomics : Genomics-Related Research in Drug Development and Clinical Practice. 2003; 3(4): 233-43. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12930157&dopt=Abstract

- **Antiphospholipid syndrome in a patient with sarcoidosis: a case report.**
  Author(s): Singh R, Conway MD, Wilson WA.
  Source: Lupus. 2002; 11(11): 756-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12475007&dopt=Abstract

- **Apoptosis resistant bronchoalveolar lavage (BAL) fluid lymphocytes in sarcoidosis.**
  Author(s): Stridh H, Planck A, Gigliotti D, Eklund A, Grunewald J.
  Source: Thorax. 2002 October; 57(10): 897-901.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12324678&dopt=Abstract

- **Association of single nucleotide polymorphisms in the IL-18 gene with sarcoidosis in a Japanese population.**
  Author(s): Takada T, Suzuki E, Morohashi K, Gejyo F.
  Source: Tissue Antigens. 2002 July; 60(1): 36-42.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12366781&dopt=Abstract

- **Asymptomatic sarcoidosis presenting as massive splenomegaly.**
  Author(s): Xiao GQ, Zinberg JM, Unger PD.
  Source: The American Journal of Medicine. 2002 December 1; 113(8): 698-9.
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  Source: Chest. 2003 May; 123(5): 1520-6.
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  Author(s): Preston IR, Klinger JR, Landzberg MJ, Houtchens J, Nelson D, Hill NS.
  Source: Chest. 2001 September; 120(3): 866-72.
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  Author(s): Smith HR, Black MM.
  Source: Clinical and Experimental Dermatology. 2000 January; 25(1): 98-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10819607&dopt=Abstract

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  Author(s): Mana J, Gomez-Vaquero C, Dorca J, Pujol R.
  Source: Clinical Rheumatology. 1999; 18(6): 492-4.
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  Author(s): Cohen NP, Gosset J, Staron RB, Levine WN.
  Source: Am J Orthop. 2001 December; 30(12): 875-7. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11771799&dopt=Abstract

- **Vertebral sarcoidosis: clinical and imaging findings.**
  Author(s): Rua-Figueroa I, Gantes MA, Erausquin C, Mhaidli H, Montesdeoca A.
  Source: Seminars in Arthritis and Rheumatism. 2002 April; 31(5): 346-52.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11965598&dopt=Abstract

- **Vertebral sarcoidosis: imaging findings.**
  Author(s): Poyanli A, Poyanli O, Sencer S, Akan K, Sayrak H, Acunas B.
  Source: European Radiology. 2000; 10(1): 92-4.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10663722&dopt=Abstract

- **Visualization of cardiac involvement in patients with systemic sarcoidosis applying contrast-enhanced magnetic resonance imaging.**
  Author(s): Schulz-Menger J, Strohm O, Dietz R, Friedrich MG.
  Source: Magma (New York, N.Y.). 2000 November; 11(1-2): 82-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11186999&dopt=Abstract

- **Vitamin D receptor gene polymorphism and calcium metabolism in sarcoidosis patients.**
  Author(s): Niimi T, Tomita H, Sato S, Akita K, Maeda H, Kawaguchi H, Mori T, Sugiura Y, Yoshinouchi T, Ueda R.
  Source: Sarcoidosis Vasc Diffuse Lung Dis. 2000 October; 17(3): 266-9.
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- **Vitamin D receptor gene polymorphism in patients with sarcoidosis.**
  Author(s): Guleva I, Seitzer U.
  Source: American Journal of Respiratory and Critical Care Medicine. 2000 August; 162(2 Pt 1): 760-1.
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- **What causes sarcoidosis?**
  Author(s): Moller DR, Chen ES.
  Source: Current Opinion in Pulmonary Medicine. 2002 September; 8(5): 429-34. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12172448&dopt=Abstract

- **What is sarcoidosis?**
  Author(s): Reich JM.
  Source: Chest. 2003 July; 124(1): 367-71. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12853546&dopt=Abstract

- **What is the future of methotrexate in sarcoidosis? A study and review.**
  Author(s): Vucinic VM.
  Source: Current Opinion in Pulmonary Medicine. 2002 September; 8(5): 470-6. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12172455&dopt=Abstract

- **What is the latest thinking about the environmental causes of sarcoidosis?**
  Author(s): Moller D.
  Source: Health News. 2000 June; 6(6): 10. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10865527&dopt=Abstract

- **Whipple's disease presenting as sarcoidosis and valvular heart disease.**
  Author(s): Wolfert AL, Wright JE.
  Source: Southern Medical Journal. 1999 August; 92(8): 820-5. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10456726&dopt=Abstract

CHAPTER 2. NUTRITION AND SARCOIDOSIS

Overview

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

Finding Nutrition Studies on Sarcoidosis

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 "sarcoidosis" (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 "sarcoidosis" (or a synonym):

- **A case of lymphomatoid granulomatosis mimicking sarcoidosis.**
  Author(s): Department of Respiratory Medicine, Derriford Hospital, Plymouth, U.K.
  Source: Fitch, P S Smith, M E Davies, M G Prentice, A G Respir-Med. 1998 July; 92(7): 966-8 0954-6111

- **A case of sarcoidosis associated with chronic eosinophilic pneumonia.**
  Author(s): Third Department of Internal Medicine, University of Tokushima School of Medicine, Japan.
  Source: Tani, K Kashio, M Sano, N Nakamura, Y Ogushi, F Sone, S J-Med-Invest. 1998 August; 45(1-4): 131-6 1343-1420

- **Abnormalities in calcium metabolism in sarcoidosis.**
  Author(s): Institutes of Respiratory Diseases and Internal Medicine, Univ. of Siena, Italy.
  Source: Rottoli, P Rottoli, L Gommelli, S Zacchei, F Coviello, G Piccolo, L Panzardi, G Solitro, S Gennari, C Vagliasindi, M Sarcoidosis. 1991 September; 8(2): 180-1 0393-1447

- **Antemortem diagnosis of cardiac sarcoidosis by abnormal uptake of 201Tl in bilateral hilar lymph nodes.**
  Author(s): Second Department of Medicine, Kyoto Prefectural University of Medicine, Japan.
  Source: Nakamura, T Sugihara, H Narihara, R Adachi, H Nakagawa, M Ann-Nucl-Med. 1994 November; 8(4): 295-8 0914-7187

- **ATS/ERS/WASOG statement on sarcoidosis. American Thoracic Society/European Respiratory Society/World Association of Sarcoidosis and other Granulomatous Disorders.**
  Author(s): University of Iowa College of Medicine, Iowa City 52242, USA. gary-hunninghake@uiowa.edu
  Source: Hunninghake, G W Costabel, U Ando, M Baughman, R Cordier, J F du Bois, R Eklund, A Kitaichi, M Lynch, J Rizzato, G Rose, C Selroos, O Semenzato, G Sharma, O P Sarcoidosis-Vasc-Diffuse-Lung-Dis. 1999 September; 16(2): 149-73 1124-0490

- **Beryllium workers--sarcoidosis or chronic beryllium disease.**
  Author(s): Histopathology Department, University of Wales College of Medicine, Llandough Hospital, South Glamorgan, Great Britain.
  Source: Williams, W J Sarcoidosis. 1989 October; 6 Suppl 134-5 0393-1447

- **Biochemical changes in sarcoidosis.**
  Author(s): Department of Pneumology and Allergology, Ruhrlandklinik, Essen, Germany.
  Source: Costabel, U Teschler, H Clin-Chest-Med. 1997 December; 18(4): 827-42 0272-5231

- **Bone mineral density and vitamin D in patients with sarcoidosis.**
  Author(s): Department of Respiratory Medicine, Graduate School of Medicine, Kyoto University, Japan. hamachan@kuhp.kyoto-u.ac.jp
  Source: Hamada, K Nagai, S Tsutsumi, T Izumi, T Sarcoidosis-Vasc-Diffuse-Lung-Dis. 1999 September; 16(2): 219-23 1124-0490

- **Bone protection with salmon calcitonin (sCT) in the long-term steroid therapy of chronic sarcoidosis.**
  Author(s): Sarcoidosis Clinic, Niguarda Hospital, Milan, Italy.
  Source: Rizzato, G Tosi, G Schiraldi, G Montemurro, L Zanni, D Sisti, S Sarcoidosis. 1988 September; 5(2): 99-103 0393-1447

- **Bone sarcoidosis.**
  Author(s): LAC+USC Medical Center, Los Angeles, California 90033, USA.
  Source: Wilcox, A Bharadwaj, P Sharma, O P Curr-Opin-Rheumatol. 2000 July; 12(4): 321-30 1040-8711

- **Breast disease in sarcoidosis.**
  Author(s): University of Cincinnati Medical Center, Department of Medicine, Ohio 45267-0562, USA.
  Source: Lower, E E Hawkins, H H Baughman, R P Sarcoidosis-Vasc-Diffuse-Lung-Dis. 2001 October; 18(3): 301-6 1124-0490

- **Calcium metabolism in sarcoidosis and its clinical implications.**
  Author(s): Department of Medicine, The Royal Free Hospital, London, UK.
  Source: Conron, M Young, C Beynon, H L Rheumatology-(Oxford). 2000 July; 39(7): 707-13 1462-0324

- **Calcium oxalate and iron accumulation in sarcoidosis.**
  Author(s): Department of Medicine, Duke University Medical Center, Durham, NC 27710, USA.
  Source: Ghio, A J Roggli, V L Kennedy, T P Piantadosi, C A Sarcoidosis-Vasc-Diffuse-Lung-Dis. 2000 June; 17(2): 140-50 1124-0490

- **Cavernous sinus syndrome as the only manifestation of sarcoidosis.**
  Author(s): Department of Clinical Neurology, Addenbrooke's Hospital, Cambridge University, Hills Road, UK. mzarei@excite.com
  Source: Zarei, M Anderson, J R Higgins, J N Manford, M R J-Postgrad-Med. 2002 Apr-June; 48(2): 119-21 0022-3859

- **Central nervous system sarcoidosis--diagnosis and management.**
  Author(s): Department of Neurology, Derriford Hospital, Plymouth, UK.
  Source: Zajicek, J P Scolding, N J Foster, O Rovaris, M Evanson, J Moseley, I F Scadding, J W Thompson, E J Chamoun, V Miller, D H McDonald, W I Mitchell, D QJM. 1999 February; 92(2): 103-17 1460-2725

- **Chlorambucil treatment of sarcoidosis.**
  Author(s): Department of Medicine, Jefferson Medical College, Philadelphia, PA 19107.
  Source: Israel, H L McComb, B L Sarcoidosis. 1991 March; 8(1): 35-41 0393-1447

- **Choroidal white lesions as an early manifestation of sarcoidosis.**
  Author(s): Scheie Eye Institute, The Hospital of the University of Pennsylvania, University of Pennsylvania School of Medicine, Philadelphia 19104, USA.
  Source: Thorne, J E Brucker, A J Retina. 2000; 20(1): 8-15 0275-004X

- **Coexisting primary early gastric plasmacytoma and sarcoidosis with hypercalcaemia.**
  Author(s): Department of Internal Medicine, Mito Saiseikai General Hospital, Ibaraki, Japan.
  Source: Morii, S Oka, K Naoi, Y Kotsuji, T Nihei, T Nagayama, R Kashimura, K Kameta, S Yatabe, Y Mori, N Virchows-Arch. 1998 May; 432(5): 473-6 0945-6317

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  Author(s): Department of Ophthalmology, Mayo Clinic, Rochester, Minnesota 55905, USA.
  Source: Cook, B E Robertson, D M Retina. 2000; 20(1): 1-7 0275-004X

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  Author(s): Division of Physiological Medicine, St George's Hospital Medical School, Cranmer Terrace, London, UK, SW17 0RE.
  Source: Paramothayan, N S Jones, P W Cochrane-Database-Syst-Revolume 2000; (2): CD001114 1469-493X
- **Diagnosis, pathogenesis, and treatment of sarcoidosis.**
  Author(s): Division of Pulmonary and Critical Care Medicine, University of Southern California School of Medicine, Los Angeles 90033, USA.
  Source: Sharma, O P Alam, S Curr-Opin-Pulm-Med. 1995 September; 1(5): 392-400 1078-1641
- **Differential response to corticosteroid therapy of MRI findings and clinical manifestations in spinal cord sarcoidosis.**
  Author(s): Department of Neurology, Nagoya University School of Medicine, Japan.
  Source: Koike, H Misu, K Yasui, K Kameyama, T Ando, T Yanagi, T Sobue, G J-Neurol. 2000 July; 247(7): 544-9 0340-5354
- **Efficacy of azathioprine as second-line treatment in pulmonary sarcoidosis.**
  Author(s): Department of Medicine, University of Cape Town, South Africa.
  Source: Lewis, S J Ainslie, G M Bateman, E D Sarcoidosis-Vasc-Diffuse-Lung-Dis. 1999 March; 16(1): 87-92 1124-0490
- **Elevated serum levels of soluble interleukin-2 receptors in active pulmonary sarcoidosis: relative specificity and association with hypercalcemia.**
  Author(s): Rockwell-Keough Pulmonary Immunology Laboratory, Methodist Hospital, Houston, Texas 77030.
  Source: Lawrence, E C Berger, M B Brousseau, K P Rodriguez, T M Siegel, S J Kurman, C C Nelson, D L Sarcoidosis. 1987 September; 4(2): 87-93 0393-1447
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  Author(s): Veterans Affairs Medical Center, Charleston, South Carolina.
  Source: Bell, N H Endocrinol-Metab-Clin-North-Am. 1991 September; 20(3): 645-54 0889-8529
- **Fatigue associated with obstructive sleep apnea in a patient with sarcoidosis.**
  Author(s): Department of Pulmonology, University Hospital Maastricht, The Netherlands. mdr@slon.azm.nl
  Source: Drent, M Verbraecken, J van der Grinten, C Wouters, E Respiration. 2000; 67(3): 337-40 0025-7931
- **Head and neck manifestations of sarcoidosis.**
  Author(s): Tulane University Medical Center, Dept of Otolaryngology, Head & Neck Surgery, New Orleans.
  Source: Martinez, M Amedee, R G J-La-State-Med-Soc. 1993 June; 145(6): 253-5 0024-6921
- **HLA and sarcoidosis: new pathogenetic insights.**
  Author(s): Servizio di Immunoematologia e Transfusione e Centro di Immunologia dei Trapianti, IRCCS Policlinico S. Matteo, Pavia, Italy. m.martinetti@smatteo.pv.it
  Source: Martinetti, M Luisetti, M Cuccia, M Sarcoidosis-Vasc-Diffuse-Lung-Dis. 2002 June; 19(2): 83-95 1124-0490
- **Immunopathology, rheumatic features, and therapy of sarcoidosis.**
  Author(s): Albany Medical College, New York.

Source: Mathur, A Kremer, J M Curr-Opin-Rheumatol. 1992 February; 4(1): 76-80 1040-8711

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  Author(s): Institute of General Physiology, University of Siena, Italy.
  Source: Rottoli, P Muscettola, M Grasso, G Perari, M G Vagliasindi, M Sarcoidosis. 1993 September; 10(2): 108-14 0393-1447

- **Improvement of severe heart failure with corticosteroid therapy in a patient with myocardial sarcoidosis.**
  Author(s): Department of Medicine, Hyogo Medical Center for Adults, Akashi, Japan.
  Source: Shiotani, H Miyazaki, T Matsunaga, K Kado, T Jpn-Circ-J. 1991 April; 55(4): 393-6 0047-1828

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  Author(s): Mjolbolsta Hospital, Finland.
  Source: Selroos, O Sarcoidosis. 1988 September; 5(2): 104-5 0393-1447

- **Interferon gamma and sarcoidosis.**
  Author(s): Institute of Respiratory Disease, University of Siena, Italy.
  Source: Rottoli, P Muscettola, M Perari, M G Lucani, B Grasso, G Forteleoni, G M Collodoro, A Vagliasindi, M Sarcoidosis. 1993 September; 10(2): 149 0393-1447

- **Ketoconazole for the treatment of refractory hypercalcemic sarcoidosis.**
  Author(s): Department of Medicine, Royal Free Hospital, London.
  Source: Conron, M Beynon, H L Sarcoidosis-Vasc-Diffuse-Lung-Dis. 2000 October; 17(3): 277-80 1124-0490

- **Ketoconazole reduces elevated serum levels of 1,25-dihydroxyvitamin D in hypercalcemic sarcoidosis.**
  Author(s): Department of Medicine, Walter Reed Army Medical Center, Washington, DC 20307.
  Source: Glass, A R Cerletty, J M Elliott, W Lemann, J Gray, R W Eil, C J-Endocrinol-Invest. 1990 May; 13(5): 407-13 0391-4097

- **Metastatic pulmonary calcification in sarcoidosis.**
  Author(s): Pulmonary Section, Veterans Administration Medical Center, Washington, DC.
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  Author(s): Department of Pneumonology, Medical School, University of Crete, Heraklion, Greece. hatzak@cc.uch.gr
  Source: Hatzakis, K Siafakas, N M Bouros, D Respiration. 2000; 67(2): 219-22 0025-7931

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  Author(s): Department of Radiology, Hospital of the University of Pennsylvania, Philadelphia 19104.
  Source: Lexa, F J Grossman, R I AJNR-Am-J-Neuroradiol. 1994 May; 15(5): 973-82 0195-6108

- **Multiple myeloma in association with sarcoidosis.**
  Author(s): Division of Pathology and Laboratory Medicine, The University of Texas M. D. Anderson Cancer Center, Houston 77030, USA.
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- **Occurrence of sarcoidosis subsequent to chemotherapy for non-Hodgkin's lymphoma: report of two cases.**
  Author(s): Department of Medicine V, University of Heidelberg, Hospitalstr. 3, 69115 Heidelberg, Germany. martin_kornacker@med.uni-heidelberg.de
  Source: Kornacker, M Kraemer, A Leo, E Ho, A D Ann-Hematol. 2002 February; 81(2): 103-5 0939-5555
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  Author(s): Department of Medicine, Vanderbilt University School of Medicine, Nashville, USA.
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  Author(s): Department of Otolaryngology-Head & Neck Surgery, Boston University School of Medicine, MA, USA.
  Source: Shah, U K White, J A Gooey, J E Hybels, R L Laryngoscope. 1997 January; 107(1): 67-75 0023-852X
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  Author(s): Department of Internal Medicine, University of Cincinnati Medical Center, OH.
  Source: O'Brien, G M Baughman, R P Broderick, J P Arnold, L Lower, E E Sarcoidosis. 1994 March; 11(1): 34-6 0393-1447
- **Plasma vitamin D-binding protein (GC) factors, immunoglobulin G heavy chain (GM) allotypes and immunoglobulin kappa light chain (KM1) allotype in patients with sarcoidosis and in healthy control subjects.**
  Author(s): Department of Pulmonary Medicine, Naestved Hospital, Denmark. milman@rh.dk
  Source: Milman, N Thymann, M Graudal, N Morling, N Sarcoidosis-Vasc-Diffuse-Lung-Dis. 2002 June; 19(2): 97-100 1124-0490
- **Positivity of extrapulmonary Ga-67 uptake in sarcoidosis: thyroid uptake due to chronic thyroiditis and bone uptake due to fibrous dysplasia.**
  Author(s): Department of Radiology, Teikyo University School of Medicine, Ichihara Hospital, Chiba, Japan. shinma@d9.dion.ne.jp
  Source: Matsuoka, S Uchiyama, K Shima, H Oishi, S Nojiri, Y Ueno, N Ann-Nucl-Med. 2001 December; 15(6): 537-9 0914-7187
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  Author(s): Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand.
  Source: Wisuthsarewong, W Viravan, S Manonukul, J J-Med-Assoc-Thai. 2000 November; 83(11): 1415-9 0125-2208
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  Author(s): Department of Ophthalmology, Ankara Teaching Hospital, Turkey.
  Source: Akova, Y A Kansu, T Duman, S J-Clin-Neuroophthalmol. 1993 September; 13(3): 188-9 0272-846X
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  Author(s): Division of Pulmonary and Critical Care Medicine, KECK School of Medicine, Los Angeles, CA 90033, USA. osharma@hsc.usc.edu
  Source: Sharma, O P J-Postgrad-Med. 2002 Apr-June; 48(2): 135-41 0022-3859
- **Rheumatic features of sarcoidosis.**
  Author(s): Department of Medicine, Helsinki University Central Hospital, Finland.

Source: Pettersson, T Curr-Opin-Rheumatol. 1998 January; 10(1): 73-8 1040-8711

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  Author(s): Mayo Medical School, Rochester, MN.
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  Author(s): Department of Radiation Oncology, Memorial Sloan-Kettering Cancer Center, New York, New York 10021.
  Source: Merchant, T E Filippa, D A Yahalom, J Leuk-Lymphoma. 1994 April; 13(3-4): 339-47 1042-8194

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  Author(s): Department of Medicine, Mubarak Al-Kabeer Hospital, Kuwait.
  Source: Diab, S M Karnik, A M Ouda, B A Denath, F M Fettich, J Francis, I M Sarcoidosis. 1991 March; 8(1): 56-62 0393-1447

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  Author(s): Department of Pediatrics, Stanford University School of Medicine, Palo Alto, California, USA.
  Source: Shetty, A K Gedalia, A Curr-Probl-Pediatr. 2000 May-June; 30(5): 149-76 0045-9380

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  Author(s): Department of Internal Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India.
  Source: Bambery, P Behera, D Gupta, A K Kaur, U Jindal, S K Deodhar, S D Malik, S K Sarcoidosis. 1987 September; 4(2): 155-8 0393-1447

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  Author(s): University of British Columbia, Vancouver, Canada.
  Source: Perry, T L Road, J D Sisler, W J Br-J-Hosp-Med. 1994 March 16-April 5; 51(6): 293-4 0007-1064

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  Author(s): Department of Internal Medicine, USC School of Medicine, Los Angeles 90033, USA.
  Source: Roy, M Sharma, O P Chan, K Sarcoidosis-Vasc-Diffuse-Lung-Dis. 1999 September; 16(2): 224-7 1124-0490

- **Sarcoidosis within a pituitary adenoma.**
  Author(s): Department of Medicine, College of Physicians and Surgeons, Columbia University, New York, NY 10032, USA.
  Source: Rubin, M R Bruce, J N Khandji, A G Freda, P U Pituitary. 2001 August; 4(3): 195-202 1386-341X

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  Author(s): Division of Pulmonary Medicine, Cook County Hospital, Chicago, IL 60612.
  Source: Muthuswamy, P P Lopez Majano, V Ranginwala, M Trainor, W D Sarcoidosis. 1987 September; 4(2): 142-8 0393-1447

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  Author(s): Department of Respiratory Medicine, Graduate School of Medicine, Kyoto University, Japan. hamachan@kuhp.kyoto-u.ac.jp

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- **The diagnosis of sarcoidosis.**
  Author(s): Department of Ophthalmology, University of Utah School of Medicine, Salt Lake City.
  Source: Jordan, D R Anderson, R L Nerad, J A Scrafford, D B Can-J-Ophthalmol. 1988 August; 23(5): 203-7 0008-4182
- **The evolutional stage changes in sarcoidosis on gallium-67 scintigraphy.**
  Author(s): Department of Nuclear Medicine, The Brooklyn Hospital Center, New York 11201, USA.
  Source: Sy, W M Seo, I S Homs, C J Gulrajani, R Sze, P Smith, K F McBride, J Ann-Nucl-Med. 1998 April; 12(2): 77-82 0914-7187
- **Transient focal neurological deficit in sarcoidosis.**
  Author(s): Department of Neurology, Royal Victoria Infirmary, Newcastle upon Tyne, UK.
  Source: Duffey, P Bates, D Sarcoidosis-Vasc-Diffuse-Lung-Dis. 1997 September; 14(2): 171-2 1124-0490
- **Treatment of sarcoidosis.**
  Author(s): Mjolbolsta Hospital, Finland.
  Source: Selroos, O Sarcoidosis. 1994 March; 11(1): 80-3 0393-1447
- **Tumour necrosis factor production by alveolar macrophages in pulmonary sarcoidosis and tuberculosis.**
  Author(s): Department of Medicine, University College and Middlesex School of Medicine, London.
  Source: Foley, N M Millar, A B Meager, A Johnson, N M Rook, G A Sarcoidosis. 1992 March; 9(1): 29-34 0393-1447
- **Two asymptomatic cases with sarcoidosis demonstrated sequential evolution from radiographic stage I to III within five years.**
  Author(s): Second Department of Internal Medicine, Hiroshima University School of Medicine, Japan.
  Source: Ishioka, S Maeda, A Hiyama, K Jougasaki, Y Yamakido, M Hiroshima-J-Med-Sci. 1999 September; 48(3): 101-3 0018-2052
- **Unusual optic nerve lesion in sarcoidosis.**
  Author(s): Siena University, Institute of Respiratory Diseases.
  Source: Bardelli, A M Rottoli, P Panzardi, G Traversi, C Barberi, L Vagliasindi, M Sarcoidosis. 1991 March; 8(1): 72-4 0393-1447
- **Vitamin D receptor gene polymorphism and calcium metabolism in sarcoidosis patients.**
  Author(s): Second Department of Internal Medicine, Nagoya City Univ. Medical School, Japan.

Source: Niimi, T Tomita, H Sato, S Akita, K Maeda, H Kawaguchi, H Mori, T Sugiura, Y Yoshinouchi, T Ueda, R Sarcoidosis-Vasc-Diffuse-Lung-Dis. 2000 October; 17(3): 266-9 1124-0490

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 sarcoidosis; 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:

- **Vitamins**

  Vitamin D
  Source: Healthnotes, Inc.; www.healthnotes.com

  Vitamin D
  Source: Prima Communications, Inc.www.personalhealthzone.com

- **Minerals**

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

CHAPTER 3. ALTERNATIVE MEDICINE AND SARCOIDOSIS

Overview

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

- **A case of lymphomatoid granulomatosis mimicking sarcoidosis.**
  Author(s): Fitch PS, Smith ME, Davies MG, Prentice AG.
  Source: Respiratory Medicine. 1998 July; 92(7): 966-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10070572&dopt=Abstract

- **A case with cardiac sarcoidosis. Significance of the effect of steroids on the reversion of advanced atrioventricular block and myocardial scintigraphic abnormalities.**
  Author(s): Fujita N, Hiroe M, Suzuki Y, Sato H, Inoue Y, Sekiguchi M, Hosoda S.
  Source: Heart Vessels Suppl. 1990; 5: 16-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1965540&dopt=Abstract

- **Autoimmune thrombocytopenia in sarcoidosis.**
  Author(s): Lawrence HJ, Greenberg BR.

Source: The American Journal of Medicine. 1985 December; 79(6): 761-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4073111&dopt=Abstract

- **Cardiac sarcoidosis demonstrated by Tl-201 and Ga-67 SPECT imaging.**
Author(s): Taki J, Nakajima K, Bunko H, Ohguchi M, Tonami N, Hisada K.
Source: Clinical Nuclear Medicine. 1990 September; 15(9): 636-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2208885&dopt=Abstract

- **Cervical lymph node sarcoidosis as a pitfall in F-18 FDG positron emission tomography.**
Author(s): Joe A, Hoegerle S, Moser E.
Source: Clinical Nuclear Medicine. 2001 June; 26(6): 542-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11353305&dopt=Abstract

- **Detection of denervated but viable myocardium in cardiac sarcoidosis with I-123 MIBG and Tl-201 SPECT imaging.**
Author(s): Matsuo S, Nakamura Y, Matsui T, Matsumoto T, Kinoshita M.
Source: Ann Nucl Med. 2001 August; 15(4): 373-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11577764&dopt=Abstract

- **Elevation of serum angiotensin-converting-enzyme (ACE) level in sarcoidosis.**
Author(s): Lieberman J.
Source: The American Journal of Medicine. 1975 September; 59(3): 365-72.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=169692&dopt=Abstract

- **Fluorine-18 deoxyglucose uptake in sarcoidosis measured with positron emission tomography.**
Author(s): Brudin LH, Valind SO, Rhodes CG, Pantin CF, Sweatman M, Jones T, Hughes JM.
Source: European Journal of Nuclear Medicine. 1994 April; 21(4): 297-305.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8005153&dopt=Abstract

- **Gallium-67 scanning for detection of alveolitis in idiopathic pulmonary fibrosis and sarcoidosis.**
Author(s): Jin S, Wang G, He B, Zhu M.
Source: Chinese Medical Journal. 1996 July; 109(7): 519-21.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9206097&dopt=Abstract

- **Glucocorticoid-induced osteoporosis in patients with sarcoidosis.**
Author(s): Adler RA, Funkhouser HL, Petkov VI, Berger MM.

Source: The American Journal of the Medical Sciences. 2003 January; 325(1): 1-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12544077&dopt=Abstract

- **Histiocytic lymphoma following resolution of sarcoidosis.**
Author(s): Foon KA, Filderman A, Gale RP.
Source: Medical and Pediatric Oncology. 1981; 9(4): 325-31.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7266425&dopt=Abstract

- **Identification of a thermolysin-like metalloendopeptidase in serum: activity in normal subjects and in patients with sarcoidosis.**
Author(s): Almenoff J, Teirstein AS, Thornton JC, Orlowski M.
Source: The Journal of Laboratory and Clinical Medicine. 1984 March; 103(3): 420-31.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6366093&dopt=Abstract

- **Identification of cardiac sarcoidosis with (13)N-NH(3)/(18)F-FDG PET.**
Author(s): Yamagishi H, Shirai N, Takagi M, Yoshiyama M, Akioka K, Takeuchi K, Yoshikawa J.
Source: Journal of Nuclear Medicine : Official Publication, Society of Nuclear Medicine. 2003 July; 44(7): 1030-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12843216&dopt=Abstract

- **Increased angiotensin-converting enzyme in peripheral blood monocytes from patients with sarcoidosis.**
Author(s): Okabe T, Yamagata K, Fujisawa M, Watanabe J, Takaku F, Lanzillo JJ, Fanburg BL.
Source: The Journal of Clinical Investigation. 1985 March; 75(3): 911-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2984255&dopt=Abstract

- **Increased intestinal permeability in active pulmonary sarcoidosis.**
Author(s): Wallaert B, Colombel JF, Adenis A, Marchandise X, Hallgren R, Janin A, Tonnel AB.
Source: Am Rev Respir Dis. 1992 June; 145(6): 1440-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1596016&dopt=Abstract

- **Life threatening thrombocytopenia in sarcoidosis.**
Author(s): Larner AJ, Dollery CT, Cox TM, Bloom SR, Scadding JG, Rees AJ.
Source: Bmj (Clinical Research Ed.). 1990 February 3; 300(6720): 317-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2106965&dopt=Abstract

- **Malignant lymphoma of the bone associated with systemic sarcoidosis.**
Author(s): Kobayashi H, Kato Y, Hakamada M, Hattori Y, Sato A, Shimizu N, Imamura A, Mihara H, Kato H, Oki Y, Morishita M, Miwa H, Nitta M.

Source: Intern Med. 2001 May; 40(5): 435-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11393419&dopt=Abstract

- **Markedly elevated angiotensin converting enzyme in lymph nodes containing non-necrotizing granulomas in sarcoidosis.**
  Author(s): Silverstein E, Friedland J, Lyons HA, Gourin A.
  Source: Proceedings of the National Academy of Sciences of the United States of America. 1976 June; 73(6): 2137-41.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6963&dopt=Abstract

- **Muscular and myocardial involvement in sarcoidosis: the usefulness of Ga-67 imaging.**
  Author(s): Tanabe Y, Ohuchi Y, Ogawa T.
  Source: Clinical Nuclear Medicine. 2002 October; 27(10): 749-52.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12352128&dopt=Abstract

- **Myocardial sarcoidosis. Clinical value of technetium-99m sestamibi tomoscintigraphy.**
  Author(s): Le Guludec D, Menad F, Faraggi M, Weinmann P, Battesti JP, Valeyre D.
  Source: Chest. 1994 December; 106(6): 1675-82.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7988183&dopt=Abstract

- **No effect of high-dose inhaled steroids in pulmonary sarcoidosis: a double-blind, placebo-controlled study.**
  Author(s): Milman N, Graudal N, Grode G, Munch E.
  Source: Journal of Internal Medicine. 1994 September; 236(3): 285-90.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8077885&dopt=Abstract

- **Occurrence of sarcoidosis subsequent to chemotherapy for non-Hodgkin's lymphoma: report of two cases.**
  Author(s): Kornacker M, Kraemer A, Leo E, Ho AD.
  Source: Annals of Hematology. 2002 February; 81(2): 103-5. Epub 2002 January 10.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11907791&dopt=Abstract

- **Positron emission tomography predicted recovery of complete A-V nodal dysfunction in a patient with cardiac sarcoidosis.**
  Author(s): Takeda N, Yokoyama I, Hiroi Y, Sakata M, Harada T, Nakamura F, Murakawa Y, Nagai R.
  Source: Circulation. 2002 March 5; 105(9): 1144-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11877369&dopt=Abstract

- **Primary care paradigm for management of sarcoidosis, Part 1.**
  Author(s): Young RC Jr, Rachal RE, Nelson-Knuckles B, Arthur CN, Nevels HV.

Source: Journal of the National Medical Association. 1997 March; 89(3): 181-90. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9094843&dopt=Abstract

- **Primary care paradigm for management of sarcoidosis, Part 2.**
  Author(s): Young RC Jr, Rachal RE, Nelson-Knuckles B, Arthur CN, Nevels HV.
  Source: Journal of the National Medical Association. 1997 April; 89(4): 243-52.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9145629&dopt=Abstract

- **Pulmonary sarcoidosis following interferon therapy for advanced renal cell carcinoma.**
  Author(s): Abdi EA, Nguyen GK, Ludwig RN, Dickout WJ.
  Source: Cancer. 1987 March 1; 59(5): 896-900.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3815268&dopt=Abstract

- **Sarcoidosis and dermatomyositis in a patient with hemoglobin SC. A case report and literature review.**
  Author(s): Brateanu AC, Caracioni A, Smith HR.
  Source: Sarcoidosis Vasc Diffuse Lung Dis. 2000 June; 17(2): 190-3. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10957767&dopt=Abstract

- **'Sarcoidosis' and sarcoid-like lesions. Their occurrence after cytotoxic and radiation therapy of testis cancer.**
  Author(s): Trump DL, Ettinger DS, Feldman MJ, Dragon LH.
  Source: Archives of Internal Medicine. 1981 January; 141(1): 37-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7447582&dopt=Abstract

- **Sarcoidosis complicated by HTLV III-infection: steroid therapy in combination with thymostimulin.**
  Author(s): Wurm K, Ewert G, Lohr G.
  Source: Sarcoidosis. 1987 March; 4(1): 68-70.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3589195&dopt=Abstract

- **Sarcoidosis following chemotherapy for Hodgkin's disease.**
  Author(s): Merchant TE, Filippa DA, Yahalom J.
  Source: Leukemia & Lymphoma. 1994 April; 13(3-4): 339-47. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7519511&dopt=Abstract

- **Sarcoidosis with hypercalcemia--successful treatment of renal insufficiency and renal calcification with prednisolone.**
  Author(s): Rikitake Y, Kinoshita Y, Kotani Y, Kawanami C, Asahara M, Matsushima Y, Naribayashi Y, Nakata H, Nakamura A, Chiba T.

Source: Intern Med. 1994 April; 33(4): 222-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8069017&dopt=Abstract

- **Sarcoidosis.**
  Author(s): Wright MG.
  Source: The British Journal of Dermatology. 1967 July; 79(7): 421-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6029227&dopt=Abstract

- **Sialidase activity and antibodies to sialidase-treated autologous erythrocytes in bronchoalveolar lavages from patients with idiopathic pulmonary fibrosis or sarcoidosis.**
  Author(s): Lambre CR, Pilatte Y, Le Maho S, Greffard A, De Cremoux H, Bignon J.
  Source: Clinical and Experimental Immunology. 1988 August; 73(2): 230-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3180512&dopt=Abstract

- **Similarity in some properties of serum angiotensin converting enzyme from sarcoidosis patients and normal subjects.**
  Author(s): Friedland J, Silverstein E.
  Source: Biochem Med. 1976 April; 15(2): 178-85. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=183757&dopt=Abstract

- **Somatostatin receptor scintigraphy and gallium scintigraphy in patients with sarcoidosis.**
  Author(s): Lebtahi R, Crestani B, Belmatoug N, Daou D, Genin R, Dombret MC, Palazzo E, Faraggi M, Aubier M, Le Guludec D.
  Source: Journal of Nuclear Medicine : Official Publication, Society of Nuclear Medicine. 2001 January; 42(1): 21-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11197973&dopt=Abstract

- **SPECT imaging with Tl-201 and Ga-67 in myocardial sarcoidosis.**
  Author(s): Kurata C, Sakata K, Taguchi T, Fukumoto Y, Miyata H, Aoshima S, Yamazaki N.
  Source: Clinical Nuclear Medicine. 1990 June; 15(6): 408-11.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2354580&dopt=Abstract

- **Spontaneous remission or response to methotrexate in sarcoidosis.**
  Author(s): Lacher MJ.
  Source: Annals of Internal Medicine. 1968 December; 69(6): 1247-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5725738&dopt=Abstract

- **Tc-99m sestamibi before and during treatment in a patient with sarcoidosis and persistent hyperparathyroidism.**

Author(s): Froberg AC, De Herder WW, Jaap Bonjer H, Krenning EP, Yoe Oei H, Kwekkeboom DJ.
Source: Clinical Nuclear Medicine. 2000 May; 25(5): 351-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10795693&dopt=Abstract

- **The effect of an intravenous chelating agent, edathamil disodium (Na 2-EDTA), in 3 cases of sarcoidosis.**
  Author(s): RUKAVINA JG, ORKIN M, LYNCH FW.
  Source: The Journal of Investigative Dermatology. 1958 November; 31(5): 259-62.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=13598931&dopt=Abstract

- **The evolutional stage changes in sarcoidosis on gallium-67 scintigraphy.**
  Author(s): Sy WM, Seo IS, Homs CJ, Gulrajani R, Sze P, Smith KF, McBride J.
  Source: Ann Nucl Med. 1998 April; 12(2): 77-82.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9637277&dopt=Abstract

- **Uptake of fluorine-18-fluorodeoxyglucose in sarcoidosis.**
  Author(s): Lewis PJ, Salama A.
  Source: Journal of Nuclear Medicine : Official Publication, Society of Nuclear Medicine. 1994 October; 35(10): 1647-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7931664&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 sarcoidosis; 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**

  Hypertension
  Alternative names: High Blood Pressure
  Source: Prima Communications, Inc.www.personalhealthzone.com

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

  PMS
  Alternative names: Premenstrual Stress Syndrome
  Source: Prima Communications, Inc.www.personalhealthzone.com

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

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

- **Herbs and Supplements**

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

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

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

  Melatonin
  Source: Integrative Medicine Communications; www.drkoop.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. CLINICAL TRIALS AND SARCOIDOSIS

Overview

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

Recent Trials on Sarcoidosis

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

- **Infliximab in patients with chronic sarcoidosis with pulmonary involvement**

  Condition(s): Sarcoidosis

  Study Status: This study is currently recruiting patients.

  Sponsor(s): Centocor

  Purpose - Excerpt: Subjects eligible for this study will have a diagnosis of sarcoidosis for a least one year prior to screening and have evidence of disease on chest X-ray. Sarcoidosis must also have been proven by biopsy. Subjects must be taking a minimum of 10 mg prednisone (or equivalent dose of steroid) per day or one or more immunosuppressants (methotrexate, azathioprine, etc.) for at least the three month period immediately prior to screening.

  Phase(s): Phase II

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00073437

- **Role of Genetic Factors in the Development of Lung Disease**

  Condition(s): Alpha 1 Antitrypsin Deficiency; Cystic Fibrosis; Lung Disease; Obstructive Lung Disease; Sarcoidosis; Asthma

  Study Status: This study is currently recruiting patients.

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

Sponsor(s): National Heart, Lung, and Blood Institute (NHLBI)

Purpose - Excerpt: This study is designed to evaluate the genetics involved in the development of lung disease by surveying genes involved in the process of breathing and examining the genes in lung cells of patients with lung disease. The study will focus on defining the distribution of abnormal genes responsible for processes directly involved in different diseases affecting the lungs of patients and healthy volunteers.

Study Type: Observational

Contact(s): see Web site below

Web Site: http://clinicaltrials.gov/ct/show/NCT00001532

- **Sarcoid Genetic Analysis (SAGA)**

  Condition(s): Lung Diseases; Sarcoidosis

  Study Status: This study is currently recruiting patients.

  Sponsor(s): National Heart, Lung, and Blood Institute (NHLBI)

  Purpose - Excerpt: To identify **sarcoidosis** susceptibility genes and to determine how these genes and environmental risk factors interact to cause **sarcoidosis.**

  Study Type: Observational

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00005542

- **Treatment of Pulmonary Sarcoidosis with Pentoxifylline**

  Condition(s): Pulmonary Sarcoidosis

  Study Status: This study is currently recruiting patients.

  Sponsor(s): National Heart, Lung, and Blood Institute (NHLBI)

  Purpose - Excerpt: Sarcoidosis is a disease most commonly affecting the lungs, but it can also involve lymph nodes, skin, liver, spleen, eyes, bones, and glands. The cause of the disease is unknown. When it occurs it can produce an inflammatory reaction leading to irreversible organ damage and disability. In sarcoidosis granulomas can form in various organs (primarily lung) which can lead to its dysfunction. Granuloma is formed by clusters of inflammatory cells. The formation of these granulomas is influenced by the release of a substance called TNF-alpha (tumor necrosis factor alpha) which is found in some white blood cells. A drug known as pentoxifylline (POF) is known to markedly reduce the release of TNF-alpha. The standard medical treatment for sarcoidosis is steroid therapy. However, steroid therapy is associated with significant side effects and often must be stopped. Unfortunately, some of these patients can relapse when the steroid therapy is discontinued. Because of this, researchers are interested in finding alternative therapies for the treatment of sarcoidosis. This study will evaluate the effectiveness of giving POF to patients with sarcoidosis currently taking steroids. Researchers will compare the results between patients taking steroids with pentoxifylline and those patients taking steroids alone.

  Phase(s): Phase II

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00001877

- **Case Control Epidemiologic Study of Sarcoidosis (ACCESS)**

  Condition(s): Lung Diseases; Sarcoidosis

  Study Status: This study is completed.

  Sponsor(s): National Heart, Lung, and Blood Institute (NHLBI)

  Purpose - Excerpt: To test specific hypotheses concerning environmental, occupational, lifestyle, and other risk factors for sarcoidosis. Also, to examine the familial aggregation of sarcoidosis and to test genetic hypotheses concerning its etiology. Finally, to describe the natural history of sarcoidosis, particularly in African-Americans who appear to be disproportionately affected, and to implement a system for storing biological specimens including blood cells, plasma, and serum.

  Study Type: Observational

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00005276

- **Diffuse Fibrotic Lung Disease**

  Condition(s): Lung Diseases; Pulmonary Fibrosis; Sarcoidosis

  Study Status: This study is completed.

  Sponsor(s): National Heart, Lung, and Blood Institute (NHLBI)

  Purpose - Excerpt: To determine the effects of cyclophosphamide compared with prednisone, dapsone, or high-dose intermittent 'pulse' therapy with methylprednisolone in patients with idiopathic pulmonary fibrosis. Also, to evaluate the use of intermittent, short-term, high-dose intravenous corticosteroids in patients with **sarcoidosis.** There were actually four separate clinical trials.

  Phase(s): Phase II

  Study Type: Interventional

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00000596

- **Genetic Epidemiology of Sarcoidosis**

  Condition(s): Lung Diseases; Sarcoidosis

  Study Status: This study is completed.

  Sponsor(s): National Heart, Lung, and Blood Institute (NHLBI)

  Purpose - Excerpt: To determine if hereditary susceptibility predisposes African Americans to sarcoidosis and to identify sarcoidosis susceptibility genes in African Americans.

  Study Type: Observational

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00005531

- **Study of Eye Tissue for Sarcoidosis**

  Study Status: This study is completed.

  Sponsor(s): National Eye Institute (NEI)

Purpose - Excerpt: The purpose of this study is to develop a relatively simple, accurate method of diagnosing sarcoidosis. Sarcoidosis is a disease in which granulomas (nodules of inflamed tissue) develop in various organs, such as the lungs, liver, skin and eyes. Disease symptoms vary depending on the tissues involved. Many patients develop uveitis (eye inflammation). Tissue biopsy-often a costly and difficult invasive procedure-is currently the only definitive diagnostic test for sarcoidosis. Other tests, such as blood and urine tests, do not provide definitive results. Patients with uveitis that is 1) known to be due to sarcoidosis; 2) suspected to be due to sarcoidosis based on specific diagnostic criteria; and 3) known not to be due to sarcoidosis may be enrolled in this study. Participants will undergo an eye examination, blood tests, chest X-ray, and skin test for tuberculosis and other infections. Small tissue samples from the conjunctiva (the thin lining covering the outside of the eye and the inside of the eyelid) and the lacrimal (tear) gland will be taken after the eye is numbed with anesthetic drops and injection. Investigators will examine and compare levels of certain proteins in the biopsied tissues from the three patient groups to see if elevated levels of these substances may indicate granuloma formation. Development of a new, relatively simple diagnostic test for sarcoidosis based on these findings may permit doctors to start appropriate therapy earlier in the course of disease without invasive biopsy. MEDLINEplus consumer health information

Study Type: Observational

Contact(s): see Web site below

Web Site: http://clinicaltrials.gov/ct/show/NCT00001278

Keeping Current on Clinical Trials

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

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

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

- For clinical studies at the Warren Grant Magnuson Clinical Center located in Bethesda, Maryland, visit their Web site: **http://clinicalstudies.info.nih.gov/**
- For clinical studies conducted at the Bayview Campus in Baltimore, Maryland, visit their Web site: **http://www.jhbmc.jhu.edu/studies/index.html**
- For cancer trials, visit the National Cancer Institute: **http://cancertrials.nci.nih.gov/**
- For eye-related trials, visit and search the Web page of the National Eye Institute: **http://www.nei.nih.gov/neitrials/index.htm**

- For heart, lung and blood trials, visit the Web page of the National Heart, Lung and Blood Institute: **http://www.nhlbi.nih.gov/studies/index.htm**
- For trials on aging, visit and search the Web site of the National Institute on Aging: **http://www.grc.nia.nih.gov/studies/index.htm**
- For rare diseases, visit and search the Web site sponsored by the Office of Rare Diseases: **http://ord.aspensys.com/asp/resources/rsch_trials.asp**
- For alcoholism, visit the National Institute on Alcohol Abuse and Alcoholism: **http://www.niaaa.nih.gov/intramural/Web_dicbr_hp/particip.htm**
- For trials on infectious, immune, and allergic diseases, visit the site of the National Institute of Allergy and Infectious Diseases: **http://www.niaid.nih.gov/clintrials/**
- For trials on arthritis, musculoskeletal and skin diseases, visit newly revised site of the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health: **http://www.niams.nih.gov/hi/studies/index.htm**
- For hearing-related trials, visit the National Institute on Deafness and Other Communication Disorders: **http://www.nidcd.nih.gov/health/clinical/index.htm**
- For trials on diseases of the digestive system and kidneys, and diabetes, visit the National Institute of Diabetes and Digestive and Kidney Diseases: **http://www.niddk.nih.gov/patient/patient.htm**
- For drug abuse trials, visit and search the Web site sponsored by the National Institute on Drug Abuse: **http://www.nida.nih.gov/CTN/Index.htm**
- For trials on mental disorders, visit and search the Web site of the National Institute of Mental Health: **http://www.nimh.nih.gov/studies/index.cfm**
- For trials on neurological disorders and stroke, visit and search the Web site sponsored by the National Institute of Neurological Disorders and Stroke of the NIH: **http://www.ninds.nih.gov/funding/funding_opportunities.htm#Clinical_Trials**

CHAPTER 5. PATENTS ON SARCOIDOSIS

Overview

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

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

Patents on Sarcoidosis

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

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

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

- **Compounds and methods**

  Inventor(s): Blaney; Frank E. (Harlow, GB), Bondinell; William E (Wayne, PA), Chan; James A. (West Chester, PA)

  Assignee(s): SmithKline Beecham Corporation (Philadelphia, PA)

  Patent Number: 6,506,790

  Date filed: August 29, 2001

  Abstract: This invention relates to substituted benzo[1,2-b:5,4-b']dipyran-4-amines which are modulators, agonists or antagonists, of the CCR5 receptor. In addition, this invention relates to the treatment and prevention of disease states mediated by CCR5, including, but not limited to, asthma and a topic disorders (for example, a topic dermatitis and allergies), rheumatoid arthritis, **sarcoidosis** and other fibrotic diseases, atherosclerosis, psoriasis, autoimmune diseases such as multiple sclerosis, and inflammatory bowel disease, all in mammals, by the use of substituted benzo[1,2-b:5,4-b']dipyran-4-amines which are CCR5 receptor antagonists. Furthermore, since CD8+T cells have been implicated in COPD, CCR5 may play a role in their recruitment and therefore antagonists to CCR5 could provide potential therpeutic in the treatment of COPD. Also, since CCR5 is a co-receptor for the entry of HIV into cells, selective receptor modulators may be useful in the treatment of HIV infection.

  Excerpt(s): This invention relates to substituted benzo[1,2-b:5,4-b']dipyran4-amines which are modulators, agonists or antagonists, of the CC chemokine receptor CC-CKR5 now designated as CCR5 (Nature Medicine, 2: 1174-8, 1996). In addition, this invention relates to the treatment and prevention of disease states mediated by CCR5. T cells are not only key regulators of the immune response to infectious agents but are believed critical for the initiation and maintenance of the inflammatory reaction in a variety of chronic diseases. Increased numbers or enhanced activation state of T cells, especially CD4+ T cells, have been demonstrated in the synovium of individuals with rheumatoid arthritis (M. J. Elliott and R. N. Maini, Int. Arch. Allergy Immunol. 104: 112-1125, 1994), in the bronchial mucosa of asthmatics (C. J. Corrigan and A. B. Kay, Immunol. Today 13: 501-506, 1992), in the lesions of multiple sclerosis (R. Martin and H. F. McFarland, Crit. Rev. Clin. Lab. Sci. 32: 121-182, 1995), in psoriatic lesions (J. L. Jones, J. Berth-Jone, A. Fletcher and P. E. Hutchinson, J. Pathol. 174: 77-82, 1994) and in the fatty streaks of atherosclerosis (R. Ross, Annu. Rev. Physiol. 57: 791-804, 1995). T cells, as well as other inflammatory cells, will migrate into tissues in response to the production of a variety chemotactic factors. Among these factors are a superfamily of 8-12 kDa proteins known as the chemokines. These proteins share structural features such as the presence of 3-4 conserved cysteine residues. RANTES, which stands for Regulated upon Activation Normal T cell Expressed and Secreted, is a 8 kDa protein member of CC branch of the chemokine family. These proteins recruit and activate immune and inflammatory cells through an interaction with G-protein coupled receptors. The CC branch is defined by the absence of an intervening amino acid residue between the first two cysteine residues and members of this family predominately elicit the migration of mononuclear cells, eosinophils and basophils (M. Baggiolini, B. Dewald, and B. Moser, Adv. Immunol. 55: 97-179, 1994; and J. J. Oppenheim, C. O. C. Zachariae, N. Mukaida, and K. Matsushima, Annu. Rev. Immunol. 9: 617-648, 1991).

  Web site: http://www.delphion.com/details?pn=US06506790__

- **Medicinal composition containing gp34 binding-inhibitor as the active ingredient**

  Inventor(s): Higashimura; Norikazu (Mobara, JP), Murata; Kazuko (Sendai, JP), Sugamura; Kazuo (Sendai, JP)

  Assignee(s): Mitsui Chemicals, Inc. (JP)

  Patent Number: 6,333,035

  Date filed: May 19, 1999

  Abstract: The present invention relates to a pharmaceutical composition for the therapeutic treatment of autoimmune diseases including rheumatoid arthritis, multiple sclerosis, **sarcoidosis,** autoimmune uveitis, and inflammatory bowel disease, or graft-versus-host disease. The pharmaceutical composition contains, as the effective ingredient, a gp34 binding-inhibitory substance.

  Excerpt(s): The present invention relates to a pharmaceutical composition for the therapeutic treatment of immune cell-mediated diseases, specifically a pharmaceutical composition containing as the effective ingredient a substance binding to gp34 antigen and having inhibitory potency of the biological activity between the membrane proteins of antigens gp34 and OX40. More specifically, the invention relates to a novel pharmaceutical composition being responsible for the cellular signal transduction mechanism via gp34 and having a therapeutic action over autoimmune diseases including rheumatoid arthritis, multiple sclerosis, **sarcoidosis,** autoimmune uveitis and inflammatory bowel disease, and graft-versus-host disease. Human gp34 antigen belongs to a ligand family of tumor necrosis factor (referred to as "TNF" hereinbelow) classified as cytokine. Firstly, the gp34 antigen was identified as a human T-cell leukemia virus (referred to as HTLV-1 hereinbelow)-derived transcription activating factor p40Tax induced T-cell membrane glycoprotein of 34 kDa. Currently, the amino acid sequence of the gp34 antigen and DNA nucleotide sequence of the gene thereof are known (Tanaka et al: Int. J. Cancer 36, 549 (1985), Miura et al.: Mol. Cell. Biol. 11, 1313 (1991)). Meanwhile, the OX40 antigen has been identified as an activated T-cell antigen in rats (Paterson et al.: Mol. Immunol. 24, 1281 (1987)). Thereafter, it has been revealed that the gp34 antigen has a ligand-receptor relation with the OX40 antigen in humans and mice. The amino acid sequence of murine gp34 and the DNA nucleotide sequence of the gene thereof have been known (Godfrey et al.: J. Exp. Med. 180, 757 (1994), Baum et al.: EMBO J.13, 3992 (1994)). Furthermore, it has been elucidated at experimental autoimmune encephalomyelitis (referred to as "EAE" hereinafter)in rats that such OX40 antigen is expressed in an activated CD4-positive T-cell being contained in autoimmune diseases including multiple sclerosis, rheumatoid arthritis, **sarcoidosis,** autoimmune ocular diseases and inflammatory bowel disease and in graft-versus-host disease and functioning as autoimmunity, and that the specific elimination of the self-attacking CD4-positive T cells at an activated state by binding a cytotoxin to a substance recognizing such OX40 antigen may be promising as an effective therapeutic method. A patent application has been submitted therefor, while a report has also been issued (CANTAB PHARM, Res., Lim.: WO95/21251, Weinberg et al: Nature Med. 2, 183 (1996)). The report describes that a group of OX40-positive cells is present in activated CD4-positive T cells with self-reactivity among CD4-positive activated cells and an anti-OX40 immunotherapy against them may be effective as the therapeutic treatment of acute or chronic autoimmune diseases mediated via CD4-positive T cells. However, the report tells that the expression of OX40 is just a simple marker of cells responsible for autoimmune diseases and the therapeutic effect is owing to the elimination of target activated T cells. The report additionally tells that it is not yet elucidated whether or not such inflammatory state or autoimmune state can be suppressed by singly blocking the

binding between gp34 and OX40 and that single addition of anti-OX antibody with no cytotoxin bound thereto did not suppress the cell growth of activated CD4-positive T lymphocytes responsible for the exacerbation of the symptomatic conditions. It is also reported that a rabbit anti-mouse OX40 polyclonal antibody bound with a cytotoxin suppressed the elevation of the score grading the symptomatic conditions in EAE, but no such effect is reported in a concurrently examined group dosed with only a rabbit anti-mouse OX40 polyclonal antibody or in a negative control alike. The finding indicates that it is not yet elucidated whether the inhibition of only the binding between gp34 and OX40 can suppress the inflammatory state or autoimmune state. Additionally, a patent application has been submitted, regarding a method for detecting inflammatory symptoms of a patient with a disease believed to be mediated with activated T lymphocytes, comprising examining an biopsy sample from the patient (CANTAB PHARM, Res, lim.: WO95/21251). As has been described above, the functions of gp34 and OX 40 have been elucidated just partially. The relation between gp34 and OX40 and the role thereof in various autoimmune diseases have absolutely never been elucidated so far. Specific inhibition of the function mediated between these two molecules on the side of gp34 by using an anti-human gp34 monoclonal antibody has totally never been anticipated. In other words, it has never been known whether or not such inhibition is effective for the therapeutic treatment of autoimmune diseases including rheumatoid arthritis, multiple sclerosis, **sarcoidosis,** autoimmune uveitis and inflammatory bowel disease, and graft-versus-host disease.

Web site: http://www.delphion.com/details?pn=US06333035__

- **Method employing imiquimod cream for treatment of topical sarcoidosis on equine**

  Inventor(s): Brenman; Steven A. (4960 S. Lafayette La., Cherry Hills, CO 80110)

  Assignee(s): none reported

  Patent Number: 6,147,086

  Date filed: September 1, 1999

  Abstract: A method for the treatment of topical **sarcoidosis** on equine includes providing a therapeutic substance substantially in the form of an imiquimod 5% cream and applying the therapeutic substance a plurality of times spaced at intervals from one another to an outer surface of the body of an equine such that the therapeutic substance substantially covers symptomatic manifestations of topical **sarcoidosis** on the outer surface of the equine body.

  Excerpt(s): The present invention generally relates to topical **sarcoidosis** and, more particularly, is concerned with a method employing an imiquimod cream for the treatment of topical **sarcoidosis** on equine. Sarcoidosis is an ailment of equine, such as horses, donkeys and mules. **Sarcoidosis** is most commonly topical in nature. Sarcoids are the typical symptomatic manifestations of **sarcoidosis.** Sarcoids are tumors which are nonmetastatic. Sarcoids are formed by proliferation of neoplastic fibroblasts which results in the thickening or ulceration of skin. Sarcoids may occur alone or in clusters. Sarcoids commonly arise on the head, limbs and abdomen, but can occur anywhere on the body of a horse. Sarcoids are the most frequently found tumor of horses. Though not life threatening, sarcoids generally reduce the value of a horse because their location on the horse adversely affects the performance of the horse when employed for various activities. **Sarcoidosis** is believed to be caused by infection of the bovine papilloma virus. A variety of treatments for topical **sarcoidosis** have been tried over the years, including surgical excision, cryotherapy, immunotherapy, radiotherapy, laser therapy,

hyperthermia and topical and intratumoral chemotherapy. Surgical excision involves the use of surgical techniques to cut and remove sarcoids from adjacent healthy tissue. Cryotherapy involves freezing sarcoids. A refrigerant, commonly liquid nitrogen, is sprayed on the sarcoids to kill the cells of the tumors. Immunotherapy involves the use of antigens to stimulate lymphocytes and to increase natural killer cells of the host animal to kill the cells of the sarcoids. An attenuated strain of Mycobacterium bovis is commonly used in this procedure. Radiotherapy involves the use of radiation to kill the cells of the sarcoids. Radioactive isotopes are used to deliver a continuous and high dose of radiation locally to each tumor without affecting adjacent healthy tissue. Laser therapy involves cutting and evaporating sarcoids with a laser. Carbon dioxide lasers are commonly used for this procedure. Hyperthermia involves heating the tumor cells to kill them. The hyperthermia is commonly induced by a radio-frequency current. Topical chemotherapy involves topical applications of caustic or antimetabolite drugs to kill sarcoid cells. Podophyllum and 5-fluorouracil are commonly used for this procedure. Intratumoral chemotherapy involves the use of implants of caustic or antimetabolite drugs within the sarcoids to kill the cells of the tumors. Cisplatin and 5-fluorouracil are commonly used in the implants.

Web site: http://www.delphion.com/details?pn=US06147086__

- **Method for treating inflammatory diseases by administering a thrombin inhibitor**

  Inventor(s): Shafer; Jules (Gwynedd Valley, PA), Visco; Denise M. (Fanwood, NJ)

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

  Patent Number: 6,362,190

  Date filed: May 10, 2001

  Abstract: The invention is a method for treating an inflammatory disease in a patient which comprises treating the patient with an oral composition comprising a thrombin inhibitor. Such diseases include but are not limited to nephritis, systemic lupus erythematosus, rheumatoid arthritis, glomerulonephritis and **sarcoidosis.**

  Excerpt(s): This invention relates to methods for treating inflammatory diseases by administration of a thrombin inhibitor. Anti-inflammatory drugs include non steroidal anti-inflammatory drugs (NSAIDs) which exert anti-inflammatory, analgesic and antipyretic activity. These include salicylates such as aspirin, sodium salicylate, choline salicylate, salicylsalicylic acid, diflunisal, and salsalate; indoleacetic acids such as indomethacin and sulindac; pyrazoles such as phenylbutazone, oxyphenbutazone; pyrrolealkanoic acids such as tolmetin; phenylacetic acids such as ibuprofen, feroprofen, flurbiprofen, and ketoprofen; fenamates such as mefanamic acid, and meclofenamate; oxicams such as piroxicam; and naphthaleneacetic acids such as naproxen. Nearly all act by inhibiting cyclo-oxygenase activity. Aspirin, for example, acetylates and irreversibly inactivates cyclo-oxygenase. Others, such as indomethacin, inhibit cyclo-oxygenase activity reversibly by binding in a stereospecific manner to one or another subunit of the enzyme. NSAIDs are active in reducing the prostaglandin-induced pain and swelling associated with the inflammation process but are also active in affecting other prostaglandin-regulated processes not associated with the inflammation process. Thus, use of high doses of most common NSAIDs can produce severe side effects, including life threatening ulcers, that limit their therapeutic potential. Adrenal corticosteroids, which are alternatives to NSAIDs for treating inflammatory diseases, have even more drastic side effects, especially when long term therapy is involved. These steroids, including hydrocortisone, prednisolone, 6 alpha-methylprednisolone, triamcinolone,

dexamethasone and betaroethasone, affect inflammation by a possible mechanism whereby they bind to intracellular glucocorticoid receptors to subsequently initiate a series of cellular events involving synthesis of new phospholipid inhibitory proteins, or lipocortins, that can affect the inflammatory and the teratogenic responses of certain cells exposed to glucocorticoids. The anti-inflammatory effect of glucocorticoids has been well documented.

Web site: http://www.delphion.com/details?pn=US06362190__

- **Method for treating patients with sarcoidosis by administering substituted sulfonyl indenyl acetic acids, esters and alcohols**

  Inventor(s): Pamukcu; Rifat (Spring House, PA), Piazza; Gary (Doylestown, PA), Skopinska-Rozewska; Ewa (Warsaw, PL)

  Assignee(s): Cell Pathways, Inc. (Horsham, PA)

  Patent Number: 5,958,982

  Date filed: April 17, 1998

  Abstract: Substituted indenyl sulfonyl acetic acids, esters and alcohols are useful in the treatment of **sarcoidosis.**

  Excerpt(s): This invention relates to methods for treating **sarcoidosis.** Sarcoidosis is a chronic lung disease of unknown etiology, which is believed to occur when the body's immune system overreacts to an unknown agent. Some authors have noted an association with HLA types B8 and B27 with various manifestations of the disease suggesting that genetic factors may be involved. It is often described as incidentall finding as hilar adenopathy on a routine chest x-ray of an asymptomatic individual. The most common clinical findings of **sarcoidosis** is cough, followed by dyspnea, wheezing and hemoptysis. Auscultation of the lungs is usually unremarkable unless extensive fibrosis is present. Other organs may be involved, with granulomas found in the liver, heart, spleen and bone marrow in nearly half the cases. Eye, skin and salivary glands are involved in about one-third of the cases. Hypercalcemia and hypercalciurea occur in 20-30% of patients and may occasionally result in urolithiasis.

  Web site: http://www.delphion.com/details?pn=US05958982__

- **Methods and compounds for the treatment of immunologically-mediated diseases using mycobacterium vaccae**

  Inventor(s): Prestidge; Ross (Auckland, NZ), Tan; Paul L. J. (Auckland, NZ), Watson; James D. (Auckland, NZ)

  Assignee(s): Genesis Research & Development Corporation Limited (NZ)

  Patent Number: 6,350,457

  Date filed: November 24, 1999

  Abstract: Methods for the prevention and treatment of disorders, including disorders of the respiratory system, such as infection with mycobacteria such as M. tuberculosis or M. avium, **sarcoidosis,** asthma, allergic rhinitis and lung cancers are provided, such methods comprising administering a composition comprising derivatives of delipidated and deglycolipidated M vaccae cells.

Excerpt(s): The present invention relates generally to methods for the treatment of immunologically-mediated disorders. In certain embodiments, the invention is related to the use of compositions comprising components prepared from Micobacterium vaccae, Mycobacterium tuberculosis and Mycobacterium smegmatis for the treatment of immunologically-mediated disorders of the respiratory system, such as **sarcoidosis,** asthma and lung cancers, for treatment of allergic disorders such as atopic dermatitis, for treatment of diseases that benefit from the reduction of eosinophilia, for treatment and prevention of infectious diseases, such as infection with Mycobacterium tuberculosis or Mycobacterium avium, and for the treatment of atherosclerosis, hypercholesterolemia and other disorders that may be improved by modulating IL-10 production. Tuberculosis is a chronic, infectious disease that is caused by infection with Mycobacterium tuberculosis (M. tuberculosis). It is a major disease in developing countries, as well as an increasing problem in developed areas of the world, with about 8 million new cases and 3 million deaths each year. Although the infection may be asymptomatic for a considerable period of time, the disease is most commonly manifested as a chronic inflammation of the lungs, resulting in fever and respiratory symptoms. If left untreated, significant morbidity and death may result. Although tuberculosis can generally be controlled using extended antibiotic therapy, such treatment is not sufficient to prevent the spread of the disease. Infected individuals may be asymptomatic, but contagious, for some time. In addition, although compliance with the treatment regimen is critical, patient behavior is difficult to monitor. Some patients do not complete the course of treatment, which can lead to ineffective treatment and the development of drug resistant mycobacteria.

Web site: http://www.delphion.com/details?pn=US06350457__

- **Sarcoidosis test**

  Inventor(s): Silverstein; Emanuel (Brooklyn, NY)

  Assignee(s): Research Corporation (New York, NY)

  Patent Number: 4,108,726

  Date filed: July 15, 1976

  Abstract: Serum angiotensin converting enzyme is elevated in many patients with **sarcoidosis.** A method involving formation of the fluorescent adduct of o-phthaldialdehyde and the histidyl moiety of the L-histidyl-L-leucine product formed by the action of angiotensin converting enzyme on hippuryl-L-histidyl-L-leucine substrate is applicable to determining angiotensin converting enzyme in untreated serum for the diagnosis of **sarcoidosis.** This method is simple, rapid and highly sensitive, and requires as little as one ul or less of a serum.

  Excerpt(s): This invention relates to serum angiotensin converting enzyme. Serum angiotensin converting enzyme has been observed to be elevated in many patients with **sarcoidosis,** see Lieberman, J. (1974) A new confirmatory test for **sarcoidosis.** Serum angiotensin converting enzyme. Effect of steriods and chronic lung disease. Amer. Rev. Resp. Dis. 109, 743 (1974); Silverstein, E., Friedland, J., Lyons, H. and Kitt, M. Serum angiotensin converting enzyme in **sarcoidosis.** Clin. Res. 23, 352A; Silverstein, E., Friedland, J., Lyons, H. and Gourin, A. Elevated angiotensin converting enzyme activity in non-necrotizing granulomatous lymph nodes in **sarcoidosis.** Clin. Res. 23, 352A. The substrate, angiotensin I, is itself formed by proteolytic cleavage from the serum protein precursor angiotensinogen catalyzed by the enzyme renin which is present in juxtaglomerular cells of the kidney and released in a controlled manner from them.

Angiotensin converting enzyme is an important element in the renin-angiotensin system of blood pressure and aldosterone control, see Davis, J. O. (1973). The control of renin release. Am. J. Med., 55, 333, as in neural action, see Daul, C. B., Heath, R. G. and Garey, R. E. (1975). Angiotensin-forming enzyme in human brain. Neuropharmacology, 14, 75-80. In addition to plasma, angiotensin converting enzyme is present in various organs, particularly in lung, see Cushman, D. W. and Cheung, H. S. (1971). Concentration of angiotensin-converting enzyme in tissues of the rat. Biochem. Biophys. Acta, 250, 261-265, the organ which appears to be responsible for much of the rapid conversion in vivo of angiotensin I to angiotensin II, see NG, K.K.F., Van, V. R. (1968). Fate of angiotensin I in the circulation, Nature (Lond) 218, 144-150. Angiotensin converting enzyme has been assayed with angiotensin I as substrate biologically by contractile, see Helmer, O. M. (1957) Differentiation between two forms of angiotonin by means of spirally cut strips of rabbit aorta. Am. J. Physiol. 188, 571-; Huggins, C. G., Corcoran, R. J., Gordon, J. S., Henry, H. W., John, J. P. (1970). Kinetics of the plasma and lung angiotensin I converting enzymes. Circ. Res. 26-27, Suppl. I. 93-101; Andersen, J. B. (1967). Converting enzyme activity in liver damage. Acta Path. Microbiol. Scand. 71, 1; Barrett, J. D., Sambhi, M. P. (1969). Simultaneous assay of angiotensin I and II and determination of converting enzyme activity. J. Pharmacol. Exp. Ther. 170, 326; Ueda, E., Akutsu, H., Kokubi, T., Yamamura, Y. (1971). (1) Partial purification and properties of angiotensin I converting enzyme from rabbit plasma. Jap. Circ. J. 35, 801; Bakhle, Y. S. (1968) Conversions of angiotensin I to angiotensin II by cell-free extracts of dog lung. Nature (Lond) 220, 919- , or blood pressure, see Loyke, H. F. (1970) Converting enzyme in rat serum. Proc. Soc. Exp. Biol. Med. 134, 248, response, radiometrically by measuring the release in histidyl-leucine of radioactivity in the terminal leucine in angiotensin I, see Huggins, C. G., Thampi, N. S. (1968) A simple method for the determination of angiotensin I converting enzyme. Life Sci. 7, 633, spectrofluorimetrically, see Piquilloud, Y., Reinharz, A., Roth, M. (1970) Studies on angiotensin converting enzyme with different substrates. Biochem. Biophys. Acta. 206, 136-142; Cheung, H. S. and Cushman, D. W. (1973). Inhibition of homogenous angiotensin converting enzyme of rabbit lung by synthetic venom peptides of Bothrops Jararaca. Biochim et Biophy. Acta. 293, 450-463, spectrophotometrically by ninhydrin reaction, see Dorer, F. E., Skeggs, L. T., Kahn, J. R., Lentz, K. E., Levine, M. (1970). Angiotensin converting enzyme. Method of assay and partial purification. Analyt. Biochem. 33, 102, and by separation of product and precursor by countercurrent distribution, see Skeggs, L. T., Kahn, J. R., Shumway, N. P. (1956). Purification of hypertensin II. J. Exp. Med. 103, 301. Simpler substrate analogues have been assayed similarly with the exception of biological activity since no such activity is generated with the analogues, see Piquilloud, Y., Reinharz, A., Roth, M. (1970). Studies on angiotensin converting enzyme with different substrates. Biochem. Biophys. Acta. 206, 136-142; Cushman, D. W., Cheung, H. S. (1971). Spectrophotometric assay and properties of the angiotensin converting enzyme of rabbit lung. Biochem. Pharmacol. 20, 1673; Yang, H. Y. T., Erdos, E. G., Levin, Y. (1971). Characterization of a dipeptide hydrolase (Kininase II: angiotensin I converting enzyme). J. Pharmacol. Exp. Ther. 177, 291, (1971); Elisseeva, Y. E., Orekhovich, V. N. (1964). Isolation of carboxycathepsin and examination of its specificity. Dokl. Akad. Nauk. SSSR, 153, 1434; Igic, R., Erdos, E. G., Yeh, H. S. J., Sorrells, K., Nakajima, T. (1972). The angiotensin I converting enzyme of the lung. Circ. Res. 31, Suppl. II, 51.

Web site: http://www.delphion.com/details?pn=US04108726__

- **Synthesis of 1.alpha.,25-dihydroxy-24R-fluorocholecalciferol and 1.alpha.,25-dihydroxy-24S-fluorocholecalciferol**

  Inventor(s): Partridge; John J. (Upper Montclair, NJ), Shiuey; Shian-Jan (Nutley, NJ), Uskokovic; Milan R. (Upper Montclair, NJ)

  Assignee(s): Hoffmann-La Roche Inc. (Nutley, NJ)

  Patent Number: 4,634,692

  Date filed: April 11, 1984

  Abstract: 1.alpha.,25-Dihydroxy-24R-fluorocholecalciferol and 1.alpha.,25-dihydroxy-24S-fluorocholecalciferol, analogs of 1.alpha.,25-dihydroxy-cholecalciferol which is physiologically the most active metabolite of vitamin D.sub.3, are synthesized in a multistep process from the known substance 1.alpha.,3.beta.-dihydroxyandrost-5-en-17-one. The new analogs are characterized by the ability to increase intestinal calcium transport, increase serum calcium and phosphate concentrations and to increase the deposition of these minerals in bones. These compounds will find a ready application as substitutes for natural 1.alpha.,25-dihydroxycholecalciferol in the treatment of disease states characterized by metabolic calcium and phosphate deficiencies. Exemplary of such disease states are the following: osteomalacia, osteoporosis, rickets, osteitis fibrosa cystica, renal osteodystrophy, osteosclerosis, anti-convulsant treatment, osteopenia, fibrogenesis-imperfecta ossium, secondary hyperparathyrodism, hypoparathyroidism, hyperparathyroidism, cirrhosis, obstructive jaundice, drug induced metabolism, medullary carcinoma, chronic renal disease, hypophosphatemic VDRR, vitamin D-dependent rickets, **sarcoidosis,** glucocorticoid antagonism, malabsorption syndrome, steatorrhea, tropical sprue, idiopathic hypercalcemia and milk fever.

  Excerpt(s): This invention relates to 24R- and 24S-fluoro analogs of 1.alpha.,25-dihydroxycholecalciferol. Vitamin D.sub.3 is a well-known agent for the control of calcium and phosphorous homeostasis. In the normal animal or human this compound is known to stimulate intestinal calcium transport and bone-calcium mobilization and is effective in preventing rickets. It is also now well known that to be effective, vitamin D.sub.3 must be converted in vivo to its hydroxylated forms. For example, the vitamin is first hydroxylated in the liver to form 25-hydroxy-vitamin D.sub.3 and is further hydroxylated in the kidney to produce 1.alpha.,25-dihydroxy vitamin D.sub.3 or 24,25-dihydroxy vitamin D.sub.3. The 1.alpha.-hydroxylated form of the vitamin is generally considered to be the physiologically active or hormonal form of the vitamin and to be responsible for what are termed the vitamin D-like activities, such as increasing intestinal absorption of calcium and phosphate, mobilizing bone mineral, and retaining calcium in the kidneys.

  Web site: http://www.delphion.com/details?pn=US04634692__

- **T-cell antigens, and their use in diagnosis and treatment of T-cell mediated conditions**

  Inventor(s): Vandenbark; Arthur A. (8328 NW. Ridgetop Ct., Portland, OR 97229), Weinberg; Andrew D. (3266 SW. Fairmount Blvd., Portland, OR 97201)

  Assignee(s): none reported

  Patent Number: 6,566,082

  Date filed: June 6, 1995

Abstract: The OX-40 antigen is characterized and claimed together with variants and derivatives thereof. Also described are binding agents for the antigen and the use of these in diagnosis and therapy. Examples of such use include a method for the selective depletion of activated CD4.sup.+ T-cells in vivo by using immunotoxins comprising an OX-40 antibody conjugated to a toxic molecule (such as Ricin-A chain). The administration of these specific immunotoxins is used therapeutically to deplete autoimmune reactive CD4.sup.+ T-cells which have been implicated in diseases including Multiple Sclerosis, Rheumatoid Arthritis, **Sarcoidosis,** and Autoimmune Uveitis as well as inflammatory bowel disease and graft-versus-host disease. This type of therapy is also beneficial for eradicating CD4.sup.+ T-cell lymphomas and alloreactive CD4.sup.+ T-cells involved with a transplantation reaction. The use of the human form of the OX-40 antibody will also help in the early diagnosis of all the diseases mentioned above.

Excerpt(s): This invention relates to methods for the specific depletion of activated T-lymphocytes particularly those belonging to the CD4.sup.+ subclass. Such activated T-lymphocytes e.g. CD4.sup.+ T-lymphocytes, are implicated in a number of conditions in humans including multiple sclerosis and transplant rejection. In particular, this invention provides a treatment in which activated T-lymphocytes e.g. CD4.sup.+ T-cells involved in a particular disease or condition are depleted while the non-activated T-lymphocyte e.g. CD4.sup.+ T-cells repertoire is unaffected. The CD4.sup.+ T-lymphocyte (herein referred to as the CD4.sup.+ T-cell) is the central player in the immune system because of the "help" it provides to other leukocytes in fighting off infection and potential cancerous cells. CD4.sup.+ T-cells play essential roles in both humeral and cell-mediated immunity and additionally they act during parasite infection to promote the differentiation of eosinophils and mast cells. If the CD4.sup.+ T-cell population is depleted (as is the case in AIDS patients) the host is rendered susceptible to a number of pathogens and tumours that do not ordinarily pose a threat to the host. While CD4.sup.+ T-cells thus play an important beneficial role in disease prevention, the aberrant function of these cells can produce serious problems. In some individuals, the aberrant function of CD4.sup.+ T-cells leads to autoimmunity and other disease states (Swanborg, R. H., 1984; Cush, J. J., and Lipsky, P. E., 1988; Caspi et al., 1988). Autoimmune diseases in which CD4.sup.+ T-cells have been implicated include multiple sclerosis, rheumatoid arthritis and autoimmune uveitis (see generally, Steinman, L., 1993). In essence these diseases involve an aberrant immune response in which the immune system is subverted from its normal role of attacking invading pathogens and instead attacks the host body tissues, leading to illness and even death. The targeted host tissues vary between autoimmune diseases, for example, in multiple sclerosis the immune system attacks the white matter of the brain and spinal cord, in rheumatoid arthritis the immune system attacks the synovial lining of the joints. Activated CD4.sup.+ T-cells have also been implicated in other illnesses, including rejection of transplant tissues and organs and in the development of CD4.sup.+ T-cell lymphomas.

Web site: http://www.delphion.com/details?pn=US06566082__

- **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__

- **Therapy of sarcoidosis**

  Inventor(s): Grunewald; Johan (Stockholm, SE), Janson; Carl Harald (Stockholm, SE), Jones; Nancy (Wayland, MA), Wigzell; Hans (Hagersten, SE)

  Assignee(s): Avant Immunotherapeutics, Inc. (Needham, MA)

  Patent Number: 5,958,410

  Date filed: November 6, 1995

Abstract: Sarcoidosis is associated with CD4.sup.+ T lymphocytes which express the T cell receptor V.sub.alpha. 2.3 chain. Thus, a method for diagnosing **sarcoidosis** is provided which comprises contacting cells of a subject with a first monoclonal antibody, or an antigen-binding fragment or derivative, specific for an epitope of the variable region of the T cell receptor V.sub.alpha. 2.3 chain and detecting the binding of the antibody. Also provided is a method for treating **sarcoidosis** in which a monoclonal antibody, or an antigen-binding fragment or derivative thereof, specific for an epitope of the variable region of the T cell receptor V.sub.alpha. 2.3 chain is administered. **Sarcoidosis** is also treated by administering a therapeutically effective amount of a protein or a peptide comprising an amino acid sequence of the variable region of the T cell receptor V.sub.alpha. 2.3 chain, or a functional derivative of the protein or peptide, or an antisense oligonucleotide which is complementary to the T cell receptor V.sub.alpha. 2.3 mRNA.

Excerpt(s): The present invention in the fields of immunology and medicine relates to methods for diagnosing and treating **sarcoidosis** based on the presence in the lungs of **sarcoidosis** patients of T lymphocytes expressing the V.sub.60 2.3 variant of the T cell receptor a chain. Monoclonal antibodies specific for an epitope of the variable region of the T cell receptor V.sub.60 2.3 chain, or epitope-binding fragments or derivatives of the antibody, are useful in diagnostic and therapeutic methods. Sarcoidosis is a chronic inflammatory disorder with unknown etiology, characterized by non-caseating granulomas in affected organs, in particular, the lungs, lymph nodes, skin and eyes. The disorder is typically accompanied by nonspecific depression of cell-mediated as well as humoral immune responsiveness, and by polyclonal hypergamma-globulinemia (Siltzbach, L. E., Amer. Rev. Resp. Dis. 97:1-8 (1968); Roberts, C. R. et al., Ann. Intern. Med. 94:73 (1981)). At least 90% of the patients with this multisystem disease have pulmonary manifestations characterized by chronic inflammation, granuloma formation and some cases of pulmonary fibrosis. These processes affect the alveoli, airways and blood vessels resulting in an impairment of normal gas exchange. The inflammatory process precedes the other symptoms of **sarcoidosis.** T lymphocytes recognize and interact with antigens by means of a cell-surface molecular complex known as the T cell antigen receptor (TCR) complex. The TCR is a clone-specific heterodimeric protein on T cells, which recognizes its "target" antigen in association with a major histocompatibility complex (MHC)-encoded glycoprotein on the surface of antigen presenting cells (APC). CD4.sup.+ T cells recognize predominantly antigen associated with MHC class II molecules whereas CD8.sup.+ T cells recognize antigen associated with MHC class I molecules. The TCR is noncovalently associated with the CD3 complex of molecules. Approximately 90% of peripheral blood T cells express a TCR which is a heterodimer of an.alpha. and a.beta. chain. A small percentage of T cells express a TCR consisting of a heterodimer comprising a.gamma. and a.delta. polypeptide chain. (See, for example, Davis et al., 1988, Nature 334:395-402; Marrack et al., 1986, Sci. Amer. 254:36; Meuer et al., 1984, Ann. Rev. Immunol. 2:23-50; Brenner et al., 1986, Nature 322:145-159; Krangel et al., 1987, Science 237:1051-1055; Hata et al., 1987, Science 238:678-682; Hochstenbach et al., 1988, J. Exp. Med. 168:761-776).

Web site: http://www.delphion.com/details?pn=US05958410__

Patent Applications on Sarcoidosis

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

- **Diagnosis and treatment of hepatic disorders**

  Inventor(s): Fong, Sherman; (Alameda, CA), Hillan, Kenneth J.; (San Francisco, CA)

  Correspondence: Genentech, INC.; 1 Dna Way; South San Francisco; CA; 94080; US

  Patent Application Number: 20030003108

  Date filed: August 6, 2002

  Abstract: The present invention encompasses methods and compositions useful in diagnosing and treating hepatic disorders, especially those characterized by inflammation. The method comprises administration of an agent which prevents the interaction of MAdCAM with a MAdCAM binding partner or ligand. These compositions are useful in treating diseases or disorders involving.alpha.4.beta.7/MAdCAM blockade, as well as inhibiting a primary event in the inflammatory response such as blocking interactions between intercellular adhesion molecules and their ligands. Disorders treatable using the methods disclosed herein include infections, especially viral infections, iatrogenic disorders, cholestatic disorders, hereditary disorders, **sarcoidosis,** organ transplant, and the like. The diagnostic methods of the invention can be employed to detect the presence of a disorder or to monitor the course of therapy used to treat the disorder.

  Excerpt(s): This invention relates to methods and compositions which can be employed in the prophylaxis, treatment and management of liver disorders, especially those characterized by inflammation. Also disclosed are methods and reagents useful in the prognosis and diagnosis of inflammatory liver disorders. The recruitment and recirculation of leukocytes from blood, through tissue, into lymph and back to the blood are key events in the inflammatory process associated with tissue injury, infection or antigen deposition (Springer, T., (1994) Cell, 76:301-314; Berlin et al., (1995) Cell, 80:413-422; Schweighoffer et al., (1993) J. Immunol., 151:717-729). These events are regulated at a molecular level by interactions between various specialized molecules on the surface of circulating leukocytes and vascular endothelial cells (Springer, T., (1994) supra). Recent models indicate that the recruitment or homing of peripheral blood leukocytes, including lymphocyte subsets, to various tissue sites proceeds by a multistep process comprising i) a primary transient contact event, ii) a rapid activating event that involves G protein-linked signaling receptors and iii) activation triggered firm adhesion (Springer et al., (1994) supra). Chemotaxis and extravasation of leukocytes into tissue follows these three primary events. The mucosal addressin cell adhesion molecule-1 (MAdCAM-1) is involved in the selective homing of lymphocytes to normal mucosal tissues (Berlin et al., (1993) Cell, 74:185-195; Briskin et al., (1997) Am. J. Pathol. 151:97-110). It is expressed on a restricted set of vessels including high endothelial venules (HEV's) of the mucosal associated lymphoid tissues and directs lymphocyte traffic to Peyer's patches and the intestinal lamina propria (Berlin et al., (1993) supra). In humans, MAdCAM-1 expression has been associated with tissues of the gastrointestinal tract (colon and small intestine) and associated lymphoid tissues (mesenteric lymph

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

nodes)(Briskin et al., (1997) supra). It has been detected in pancreas, gall bladder and splenic venules and marginal sinus of the splenic white pulp (Kraal et al., (1995) Am. J. Path. 147:763-771). In inflammatory settings increased MAdCAM-1 expression has been observed in HEV like vessels in the pancreas of non-obese diabetic mice (Hanninen A., et al., (1993) J. Clin. Invest 92:2509), on intestinal lamina propria venules from mice with experimentally induced inflammatory bowel disease (Viney J. et al., (1996) J. Immunol. 157:2488-2497; Picarella D., et al., (1997) J. Immunol., 158:2099-2016) and in humans at inflammatory foci associated with ulcerative colitis and Crohn's disease (Briskin et al., (1997) supra). It has not been detected in the majority of normal or inflamed extra-intestinal tissues (Briskin et al., (1997) supra).

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

- **Method for treating or preventing inflammatory diseases**

  Inventor(s): Peterson, Ward M.; (Morrisville, NC), Yerxa, Benjamin R.; (Raleigh, NC)

  Correspondence: Howrey Simon Arnold & White, Llp; Box 34; 301 Ravenswood AVE.; Menlo Park; CA; 94025; US

  Patent Application Number: 20030125299

  Date filed: November 6, 2002

  Abstract: The present invention provides a method of preventing or treating an inflammatory disease, including but not limited to, sinusitis, rhinitis, conjunctivitis, asthma, dermatitis, inflammatory bowel disease, inflammatory collagen vascular diseases, glomerulonephritis, inflammatory skin diseases, and **sarcoidosis.** The method comprises administrating to a subject a pharmaceutical formulation comprising a nucleotide receptor agonist, such as nucleoside diphosphate, nucleoside triphosphate, or dinucleoside polyphosphate, according to general formula Ia, Ib, IIa, IIb, or III. Preferred indications of the present invention are perennial allergic rhinitis, seasonal allergic rhinitis, infectious allergic rhinitis, and allergic conjunctivitis.

  Excerpt(s): This application claims the benefit of U.S. Provisional Application No. 60/337,828, filed Nov. 6, 2001. This invention relates to a method of treating, preventing and/or alleviating the symptoms and manifestations of inflammatory diseases. This invention also relates to a method of treating, preventing, and/or alleviating the symptoms and manifestation of allergic reactions. Nucleotide receptor agonists are used in the present invention. Studies suggest that activation of P2Y receptors and/or P2X receptors by extracellular nucleotides (such as ATP and UTP) elicit responses from inflammatory cells (such as mast cells, eosinophil, leukocytes, neutrophils) consistent with a pro-inflammatory effect. ATP is required to stimulate histamine release from rat peritoneal mast cells and histamine and prostaglandin D2 in rat serosal mast cells (Jaffar and Pearce, Agents Actions 30(1-2): 64-6 (1990); Izushi and Tasaka, Pharmacology 42(6): 297-308 (1991)). In the latter case, the effects of ATP were inhibited by reactive blue 2 and suramin, two putative antagonists for P2Y receptors. Anti-IgE-induced histamine release from human lung mast cells was significantly enhanced by ATP and UTP at low concentrations (10.sup.-6 to 10.sup.-4 M) but inhibited at high concentrations (10.sup.-3 M), indicating a bimodal action (Schulman, et al., Am. J. Respir. Cell. Mol. Biol. 20(3):530-7(1999)). Adenine and uridine nucleotides (ADP, ATP, and UTP) activate chemotaxic signals on cultured rat bone marrow mast cells and may function to recruit mast cells by intestinal mucosa as part of a parasitic response (Saito, et al., Int. Arch. Allergy Appl. Immunol. 94(1-4): 68-70 (1991); McCloskey, et al., J. Immunol. 163(2): 970-7 (1999)).

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

- **Methods and compounds for the treatment of immunologically - mediated diseases of the respiratory system using mycobacterium vaccae**

  Inventor(s): Tan, Paul L.J.; (Auckland, NZ), Watson, James D.; (Auckland, NZ)

  Correspondence: Janet Sleath; Speckman Law Group; Suite 100; 1501 Western Avenue; Seattle; WA; 98101; US

  Patent Application Number: 20020197265

  Date filed: January 18, 2002

  Abstract: Methods for the prevention and treatment by immunotherapy of lung immune disorders, including infection with mycobacteria such as M. tuberculosis or M. avium, **sarcoidosis,** asthma, allergic rhinitis and lung cancers are provided, such methods comprising administering a composition having antigenic and/or adjuvant properties. Compositions which may be usefully employed in the inventive methods include inactivated M. vaccae cells, delipidated and deglycolipidated M. vaccae cells, M. vaccae culture filtrate and compounds present in or derived therefrom, together with combinations of such components.

  Excerpt(s): This application is a continuation of U.S. patent application Ser. No. 09/156,181, filed Sep. 17, 1998, which is a continuation-in-part of U.S. patent application Ser. No. 08/996,624, filed Dec. 23, 1997. The present invention relates generally to methods for treatment of diseases of the respiratory system which result from immune disorders. In particular, the invention is related to the use of compositions comprising inactivated Mycobacterium vaccae (M. vaccae), and/or compounds prepared from M. vaccae for the treatment and prevention of respiratory and/or lung disorders including mycobacterial infections, such as Mycobacterium tuberculosis and Mycobacterium avium, and for the treatment of disorders, such as **sarcoidosis,** asthma and lung cancers. Tuberculosis is a chronic, infectious disease, that is caused by infection with Mycobacterium tuberculosis (M. tuberculosis). It is a major disease in developing countries, as well as an increasing problem in developed areas of the world, with about 8 million new cases and 3 million deaths each year. Although the infection may be asymptomatic for a considerable period of time, the disease is most commonly manifested as a chronic inflammation of the lungs, resulting in fever and respiratory symptoms. If left untreated, significant morbidity and death may result.

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

- **Treatment and diagnosis of macrophage mediated disease**

  Inventor(s): Low, Philip S.; (West Lafavette, IN), Turk, Mary Jo; (New York, NY)

  Correspondence: Barnes & Thornburg; 11 South Meridian Street; Indianapolis; IN; 46204; US

  Patent Application Number: 20020192157

  Date filed: May 2, 2002

  Abstract: The invention relates to a method of treating or monitoring/diagnosing a disease state mediated by activated macrophages. The method comprises the step of administering to a patient suffering from a macrophage mediated disease state an

effective amount of a composition comprising a conjugate or complex of the general formulaA.sub.b-Xwhere the group A.sub.b comprises a ligand capable of binding to activated macrophages, and when the conjugate is being used for treatment of the disease state, the group X comprises an immunogen, a cytotoxin, or a compound capable of altering macrophage function, and when the conjugate is being used for monitoring/diagnosing the disease state, X comprises an imaging agent. The method is useful for treating a patient suffering from a disease selected from the group consisting of rheumatoid arthritis, ulcerative colitis, Crohn's disease, inflammation, infections, osteomyelitis, atherosclerosis, organ transplant rejection, pulmonary fibrosis, **sarcoidosis,** and systemic sclerosis.

Excerpt(s): This application claims priority under 35 U.S.C.sctn.119(e) to U.S. Provisional Application Serial No. 60/288,208, filed on May 2, 2001. This invention relates to methods for treating and monitoring disease states mediated by activated macrophages. More particularly, ligands that bind to activated macrophages are complexed with an imaging agent, or an immunogen, a cytotoxin or an agent for altering macrophage function for administration to a diseased host for diagnosis and/or treatment of macrophage mediated disease. The mammalian immune system provides a means for the recognition and elimination of foreign pathogens. While the immune system normally provides a line of defense against foreign pathogens, there are many instances where the immune response itself is involved in the progression of disease. Exemplary of diseases caused or worsened by the host's own immune response are autoimmune diseases such as multiple sclerosis, lupus erythematosus, psoriasis, pulmonary fibrosis, and rheumatoid arthritis and diseases in which the immune response contributes to pathogenesis such as atherosclerosis, inflammatory diseases, osteomyelitis, ulcerative colitis, Crohn's disease, and graft versus host disease often resulting in organ transplant rejection.

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 sarcoidosis, 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 “sarcoidosis” (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 sarcoidosis.

You can also use this procedure to view pending patent applications concerning sarcoidosis. 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 SARCOIDOSIS

Overview

This chapter provides bibliographic book references relating to sarcoidosis. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on sarcoidosis 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 "sarcoidosis" (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 sarcoidosis:

- **Salivary Disorders**

  Source: in Scully, C. Handbook of Oral Disease: Diagnosis and Management. New York, NY: Thieme New York. 2001. p.245-273.

  Contact: Available from Thieme New York. 333 Seventh Avenue, New York, NY 10001. (212) 760-0888, ext 110. PRICE: $35.00 plus shipping and handling. ISBN: 1841840874.

  Summary: Saliva is essential to oral health: patients who lack salivary flow suffer from lack of oral lubrication, and may develop infections as a consequence of the reduced defenses. There is a range of causes of a reduction of salivary flow, but drugs are the most common cause. Causes of salivary gland swelling include inflammatory lesions (mumps, ascending sialadenitis, recurrent parotitis, HIV parotitis, Sjogren's syndrome, sarcoidosis), neoplasms, and duct obstruction. This chapter on salivary disorders is from a handbook of oral disease that is intended to be used by all members of the dental team who need a ready office reference. The handbook covers the more common and

important soft tissue orofacial disorders and gives clinically relevant aspects of the etiology, diagnosis, treatment, and prevention. This chapter covers adenomatoid hyperplasia, duct obstruction, mucocele (mucous retention cyst), mumps (acute viral sialadenitis parotitis), necrotizing sialometaplasia, recurrent parotitis of childhood, salivary neoplasms, sialadenitis (bacterial infection), sialadenosis (swelling of the salivary glands), sialolithiasis (salivary gland stones), and Sjogren's syndrome. For each condition, the authors note etiology (cause), diagnosis, symptoms, epidemiology, risk factors, treatment, and prevention (where possible). Much of the information is provided in table or outline format for ease of reference. Full color photographs illustrate some conditions. 27 figures. 2 tables. 23 references.

- **Essential Atlas of Nephrology**

  Source: Philadelphia, PA: Lippincott Williams and Wilkins. 2001. 272 p.

  Contact: Available from Lippincott Williams and Wilkins. P.O. Box 1600, Hagerstown, MD 21741. (800) 638-3030 or (301) 223-2300. Fax (301) 223-2365. PRICE: $149.00 plus shipping and handling. ISBN: 0781735300.

  Summary: This atlas of nephrology is a compilation of the most important images and topics from a five volume Atlas of Diseases of the Kidney. Eight sections cover disorders of water, electrolytes, and acid base; acute renal (kidney) failure; glomerulonephritis and vasculitis; tubulointerstitial disease; hypertension and the kidney; transplantation as treatment of end stage renal disease (ESRD); dialysis as treatment of ESRD; and systemic diseases and the kidney. Specific topics covered include disorders of sodium balance, potassium metabolism, disorders of acid base balance, the causes and prognosis of acute renal failure (ARF), ARF in the transplanted kidney, nutrition and metabolism in ARF, primary glomerulopathies, vascular disorders, urinary tract infection, reflux and obstructive nephropathy, cystic diseases of the kidney, toxic nephropathies, renal tubular disorders, the kidney in blood pressure regulation, renal parenchymal disease and hypertension (high blood pressure), renovascular hypertension and ischemic nephropathy, adrenal causes of hypertension, insulin resistance and hypertension, pharmacologic treatment of hypertension, histocompatibility testing and organ sharing, transplant rejection and its treatment, posttransplant infections, immunosuppressive therapy and protocols, medical complications of renal transplantation, kidney pancreas transplantation, transplantation in children, recurrent disease in the transplanted kidney, high efficiency and high flux hemodialysis, dialysate composition in hemodialysis and in peritoneal dialysis, dialysis access and recirculation, the dialysis prescription and urea modeling, complications of dialysis, diabetic nephropathy (kidney disease associated with diabetes mellitus), vasculitis, amyloidosis, sickle cell disease, kidney involvement in malignancy (cancer), kidney involvement in tropical diseases, kidney disease in patients with hepatitis and HIV, kidney involvement in **sarcoidosis,** and kidney disease and hypertension in pregnancy. The information on each topic is provided in table, algorithm, chart, and bulleted format for ease of access. Black and white photographs illustrate many of the chapters; a brief section of color plates concludes the volume.

- **Atlas of Diseases of the Kidney. Volume 4: Systemic Diseases and the Kidney**

  Source: Philadelphia, PA: Current Medicine, Inc. 1999. [234 p.].

  Contact: Available from Blackwell Science, Inc. 350 Main Street, Malden, MA 02148. (800) 215-1000 or (781) 388-8250. Fax (781) 388-8270. E-mail: csbooks@blacksci.com. PRICE: $75.00 plus shipping and handling. ISBN: 0632044373.

Summary: This volume is the fourth in a series of five that make up the Atlas of Diseases of the Kidney, a set that offers educational images including colored photographs, schematics, tables, and algorithms. In Volume 4, the authors describe a number of systemic diseases that may affect the renal parenchyma and other organs. The major emphasis is on the effects on renal function and structure of diseases such as diabetes mellitus, a diverse group of vasculitides (e.g., polyarteritis, Wegener's granulomatosis), amyloidosis, malignancy, viral infections (HIV, hepatitis), collagen vascular diseases, **sarcoidosis,** and cryoglobulinemia. All the chapters offer diagrams, tables, and illustrations to describe the natural history, clinical manifestations, laboratory findings, pathologic changes, and outcome of entities that affect the function and structure of the kidney. Each chapter features a detailed introduction and lengthy captions for each of the illustrations and diagrams offered. A subject index for Volume 4 and a section of full color plates concludes the book.

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 "sarcoidosis" at online booksellers' Web sites, you may discover non-medical books that use the generic term "sarcoidosis" (or a synonym) in their titles. The following is indicative of the results you might find when searching for "sarcoidosis" (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **Eighth International Conference on Sarcoidosis and other Granulomatous Diseases**; ISBN: 0900663103; http://www.amazon.com/exec/obidos/ASIN/0900663103/icongroupinterna
- **Me & Sarcoidosis: A Lifetime Partnership: A Patient's Story About Living With a Chronic Health Condition** by Gilbert L. Barr (2002); ISBN: 0595224571; http://www.amazon.com/exec/obidos/ASIN/0595224571/icongroupinterna
- **Sarcoidosis** by J. G. Scadding, D. N. Mitchell (1985); ISBN: 0412217600; http://www.amazon.com/exec/obidos/ASIN/0412217600/icongroupinterna
- **Sarcoidosis** by Jack Lieberman (Editor); ISBN: 0808917285; http://www.amazon.com/exec/obidos/ASIN/0808917285/icongroupinterna
- **Sarcoidosis** by Riichiro Mikami; ISBN: 0860082954; http://www.amazon.com/exec/obidos/ASIN/0860082954/icongroupinterna
- **Sarcoidosis & Other Granulomatous Disorders: International Conference, 9th, Paris, 31 August - 4 September 1981** by J. Chretien (Editor), et al (1983); ISBN: 0080270883; http://www.amazon.com/exec/obidos/ASIN/0080270883/icongroupinterna
- **Sarcoidosis (SuDoc HE 20.3202:Sa 7)** by U.S. Dept of Health and Human Services; ISBN: B000108H3G; http://www.amazon.com/exec/obidos/ASIN/B000108H3G/icongroupinterna
- **Sarcoidosis and Other Granulomatous Diseases** by D. Geraint James (Editor) (1994); ISBN: 0824791266; http://www.amazon.com/exec/obidos/ASIN/0824791266/icongroupinterna

- **Sarcoidosis and Other Granulomatous Diseases of the Lung (Lung Biology in Health and Disease)** by B.L. Fanburg (1983); ISBN: 0824718666; http://www.amazon.com/exec/obidos/ASIN/0824718666/icongroupinterna
- **Sarcoidosis and Other Granulomatous Disorders: Proceedings of the XI World Congress on Sarcoidosis and Other Granulomatous Disorders, Milan, 6-11 Se** by World Congress on Sarcoidosis and Other Granulomatous Disorders 1987, et al (1988); ISBN: 044480983X; http://www.amazon.com/exec/obidos/ASIN/044480983X/icongroupinterna
- **Sarcoidosis Resource Guide and Directory** by Sandra Conroy (1992); ISBN: 0963122258; http://www.amazon.com/exec/obidos/ASIN/0963122258/icongroupinterna
- **Sarcoidosis: A Clinical Approach,** by Om P. Sharma; ISBN: 039803303X; http://www.amazon.com/exec/obidos/ASIN/039803303X/icongroupinterna
- **Sarcoidosis: Clinical Management** by Om P. Sharma; ISBN: 0407003266; http://www.amazon.com/exec/obidos/ASIN/0407003266/icongroupinterna
- **Seventh International Conference on Sarcoidosis and Other Granulomatous Disorders**; ISBN: 0890720576; http://www.amazon.com/exec/obidos/ASIN/0890720576/icongroupinterna
- **Tenth International Conference on Sarcoidosis and Other Granulomatous Disorders (Annals of the New York Academy of Sciences, Vol 465)** by Johnson Carol Johns (Editor), Carol J. Johns (Editor) (1986); ISBN: 089766325X; http://www.amazon.com/exec/obidos/ASIN/089766325X/icongroupinterna
- **The Official Patient's Sourcebook on Sarcoidosis** by Icon Health Publications, et al; ISBN: 0597831564; http://www.amazon.com/exec/obidos/ASIN/0597831564/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 "sarcoidosis" (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:[11]

- **[Collection of publications listed in the National Library of Medicine Bibliography on sarcoidosis, 1878-1963, comp. by William Mandel].** Author: Mandel, William, Bibliography on sarcoidosis.; Year: 1965
- **Changes in the chest roentgenogram in Boeck's sarcoid of the lungs; a study of the course of the disease in 90 cases.** Author: Nitter, Lorentz.; Year: 1964; Oslo, 1953

[11] 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**.

- **Erythema nodosum with special reference to sarcoidosis; a clinical study of 343 Finnish adult patients.** Author: Hannuksela, Matti.; Year: 1954; [Helsinki, 1971]
- **Evaluative report on completed contracts awarded in response to RFP NHLI 74-7: developments of an in vitro diagnostic test for sarcoidosis, December 1978** Author: National Heart, Lung, and Blood Institute. Division of Lung Diseases.; Year: 1968; [Bethesda, Md.]: U. S. Dept. of Health, Education, and Welfare, Public Health Service, National Institutes of Health, 1979
- **Lymphocyte transformation in sarcoidosis** Author: Horsmanheimo, Maija.; Year: 1957; Helsinki: [s.n.], 1973
- **Ophthalmic changes in sarcoidosis** Author: Karma, Anni.; Year: 1971; Copenhagen: Seriptor, 1979
- **Sarcoidosis: January 1974 through May 1976: 361 citations in English or with English abstract** Author: National Library of Medicine (U.S.); Year: 1971; [Bethesda, Md.]: U. S. Dept. of Health, Education, and Welfare, Public Health Service, National Institutes of Health, [1976]
- **Sarcoidosis: June 1976 through August 1978: 619 citations: updates L. S. 76-31** Author: National Library of Medicine (U.S.); Year: 1971; [Bethesda, Md.]: Dept. of Health, Education, and Welfare, Public Health Service, National Institutes of Health, [1978]
- **Sarcoidosis: proceedings of the International Symposium on Sarcoidosis held November 14-16, 1979** Author: Mikami, Riichir¯o.; Year: 1968; [Tokyo]: University of Tokyo Press, c1981
- **Sarcoidosis [by] Martin M. Cummings [and] Max Michael.** Author: Cummings, Martin Marc,; Year: 1956; Chicago, Year Book Publishers, 1960
- **Sarcoidosis.** Author: Scadding, J. G.; Year: 1967; London, Eyre; Spottiswoode, 1967
- **Sarcoidosis: a serial roentgenographic study.** Author: Holt, Allen H.,; Year: 1965; [Minneapolis] 1955
- **The effect of sarcoidosis sera on the tuberculin response.** Author: Magnusson, Bertil.; Year: 1964; Stockholm, 1956
- **The frequency, clinical picture and prognosis of pulmonary sarcoidosis in Finland.** Author: Selroos, Olof.; Year: 1943; Helsinki 1969
- **The pathogenesis of Boeck's disease (sarcoidosis) [Tr. from the Norwegian].** Author: Refvem, Olav.; Year: 1964; Oslo, Nationaltrykkeriet, 1954

Chapters on Sarcoidosis

In order to find chapters that specifically relate to sarcoidosis, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and sarcoidosis 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 "sarcoidosis" (or synonyms) into the "For these words:" box. The following is a typical result when searching for book chapters on sarcoidosis:

- **Chapter 28: Sarcoidosis**

  Source: in Klippel, J.H., et al., eds. Primer on the Rheumatic Diseases. 12th ed. Atlanta, GA: Arthritis Foundation. 2001. p. 455-458.

Contact: Available from Arthritis Foundation. P.O. Box 1616, Alpharetta, GA 30009-1616. (800) 207-8633. Fax (credit card orders only) (770) 442-9742. Website: www.arthritis.org. PRICE: $69.95 plus shipping and handling. ISBN: 0912423293.

Summary: This chapter provides health professionals with information on the pathogenesis, clinical features, diagnosis, and management of sarcoidosis. This systemic, chronic, granulomatous disease of unknown etiology mainly affects young adults in their 20s and 30s. Although the disease occurs in all ethnic groups, it is most common in African Americans and Caucasians of northern European descent. The disease is slightly more common in women than in men. Although the cause of sarcoidosis is unknown, the immune response has a central role in its pathogenesis. Respiratory symptoms are the most common presenting complaints, and the majority of patients, regardless of initial symptoms, have abnormal findings on chest radiographs. Other common clinical features include asymptomatic hilar adenopathy detected on chest roentgenogram, constitutional symptoms, rheumatic manifestations such as arthritis, and extrathoracic inflammation. There is no single finding or laboratory test that establishes the diagnosis, so it depends on compatible clinical features involving at least two organ systems, histologic evidence of noncaseating granulomas, and exclusion of other possible causes. In a patient who does not have specific skin or conjunctival lesions, transbronchial lung biopsy is the preferred diagnostic test. Skin anergy is a typical feature; however, it is not diagnostic. Treatment is dependent on the specific manifestations. Corticosteroids are used to treat severe lung disease, liver disease, hypercalcemia, cardiac inflammation, posterior uveitis, neurosarcoidosis, and severe sarcoidosis of other organs. Other potentially useful drugs include nonsteroidal antiinflammatory drugs, colchicine, chloroquine, hydroxychloroquine, methotrexate, and cyclosporine. 1 figure, 1 table, and 20 references.

Directories

In addition to the references and resources discussed earlier in this chapter, a number of directories relating to sarcoidosis have been published that consolidate information across various sources. The Combined Health Information Database lists the following, which you may wish to consult in your local medical library:[12]

- **1998-1999 Complete Directory for People with Rare Disorders**

  Source: Lakeville, CT: Grey House Publishing, Inc. 1998. 726 p.

  Contact: Available from Grey House Publishing, Inc. Pocket Knife Square, Lakeville, CT 06039. (860) 435-0868. Fax (860) 435-0867. PRICE: $190.00. ISBN: 0939300982.

  Summary: This directory, from the National Organization for Rare Disorders (NORD) provides a wealth of information on diseases and organizations. The directory offers four sections: disease descriptions, disease specific organizations, umbrella organizations, and government agencies. In the first section, the directory includes descriptions of 1,102 rare diseases in alphabetical order. Each entry defines the disorder, then refers readers to the organizations that might be of interest. Diseases related to

[12] You will need to limit your search to “Directory” and “sarcoidosis” using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find directories, use the drop boxes at the bottom of the search page where “You may refine your search by.” For publication date, select “All Years.” Select your preferred language and the format option “Directory.” Type “sarcoidosis” (or synonyms) into the “For these words:” box. You should check back periodically with this database as it is updated every three months.

digestive diseases include achalasia, Addison's disease, Alagille syndrome, Barrett's esophagus, Budd Chiari syndrome, Caroli disease, celiac sprue, cholangitis, cholecystitis, cirrhosis, colitis, Crohn's disease, Cushing syndrome, cystic fibrosis, diverticulitis, Dubin Johnson syndrome, fructose intolerance, galactosemia, gastritis, gastroesophageal reflux, hepatitis, Hirschprung's disease, Hurler syndrome, imperforate anus, irritable bowel syndrome, jejunal atresia, Korsakoff's syndrome, lipodystrophy, maple syrup urine disease, Morquio syndrome, polyposis, porphyria, proctitis, prune belly syndrome, **sarcoidosis,** Stevens Johnson syndrome, Tropical sprue, tyrosinemia, valinemia, vitamin E deficiency, Whipple's disease, Wilson's disease, and Zollinger Ellison syndrome. Each of the 445 organizations listed in the second section is associated with a specific disease or group of diseases. In addition to contact information, there is a descriptive paragraph about the organization and its primary goals and program activities. Entries include materials published by the organization as well as the diseases the organizations cover, which refer readers to Section I. The third section lists 444 organizations that are more general in nature, serving a wide range of diseases (for example, the American Liver Foundation). The final section describes 74 agencies that are important federal government contacts that serve the diverse needs of individuals with rare disorders. A name and key word index concludes the volume.

CHAPTER 7. MULTIMEDIA ON SARCOIDOSIS

Overview

In this chapter, we show you how to keep current on multimedia sources of information on sarcoidosis. 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 sarcoidosis is the Combined Health Information Database. You will need to limit your search to "Videorecording" and "sarcoidosis" 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 "sarcoidosis" (or synonyms) into the "For these words:" box. The following is a typical result when searching for video recordings on sarcoidosis:

- **Health Care Professionals' Guide to Xerostomia**

  Source: Bethesda, MD: Sjogren's Syndrome Foundation, Inc. 1997. (videocassette).

  Contact: Available from Sjogren's Syndrome Foundation, Inc. 8120 Woodmont Avenue, Suite 530, Bethesda MD 20814-1437. (301) 718-0300 or (800) 475-6473. Fax (301) 718-0322. Website: www.sjogrens.org. PRICE: $29.00.

  Summary: This videotape program reviews xerostomia (dry mouth). The program begins with an overview of the anatomy and physiology of the salivary glands, followed by a discussion of the three functional roles of saliva: digestion (and taste facilitation), lubrication, and protection (including antimicrobial and pH mechanisms). The narrator notes that saliva is also being used more and more as a diagnostic tool to measure systemic health. The program begins with a physician narrating, then includes interviews with two middle age women who have xerostomia; the interviews focus on the impact xerostomia has on quality of life and on the difficulties of obtaining an accurate diagnosis. The program then details the three causes of xerostomia: medical

therapies (including drug side effects, radiation therapy, and surgery or trauma of the salivary glands), systemic disorders (including Sjogren's syndrome, HIV, rheumatoid arthritis, systemic lupus erythematosus, scleroderma, graft versus host disease, **sarcoidosis,** amyloidosis, cystic fibrosis, and neural disease affecting the salivary glands), and dehydration. The program emphasizes that xerostomia is not a natural consequence of the aging process. The program then reviews the clinical signs and oral complications of xerostomia; each is illustrated with a color photograph. Other topics include problems associated with xerostomia, the need for a multidisciplinary team approach to patients with salivary gland dysfunction, diagnostic tests used, treatment options (including chewing activity, oral moisturizing agents, and oral pilocarpine hydrochloride), determining residual salivary gland function, and the behavioral and lifestyle changes that can help patients cope with xerostomia.

Bibliography: Multimedia on Sarcoidosis

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 sarcoidosis (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 sarcoidosis:

- **Continuing controversies in pulmonary disease: the nature of sarcoidosis and its therapeutic implications [videorecording]** Source: Letterman General Hospital, in cooperation with Warner-Chilcott Laboratories; [made by] Television Division, Brooke Army Medical; Year: 1972; Format: Videorecording; Fort Sam Houston, Tex.: Academy of Health Sciences, [1972]
- **Infectious and inflammatory lesions [videorecording]: aids, toxoplasmosis, presumed ocular histoplasmosis syndrome, sarcoidosis.** Year: 1995; Format: Videorecording; Chicago, Il 1995
- **Sarcoidosis [filmstrip]** Source: Trainex Corporation; Year: 1975; Format: Filmstrip; Garden Grove, Calif.: Trainex, p1975
- **Sarcoidosis [slide]** Source: McMaster University, Health Sciences; Year: 1973; Format: Slide; [Hamilton, Ont.]: The University, c1973
- **Sarcoidosis [slide]** Source: produced by Biomedical Communications, Univ. of Arizona Health Sciences Cntr.; presented by the American Thoracic Society, American Lung Association, ALA/ATS Committee on Learning Resources; Year: 1989; Format: Slide; [New York, N.Y.]: American Lung Association for American Thoracic Society, c1989
- **Sarcoidosis [videorecording]** Source: Trainex Corporation; Year: 1975; Format: Videorecording; Garden Grove, Calif.: Trainex, c1975
- **The Many faces of sarcoidosis [videorecording]** Source: presented by Department of Medicine, Emory University, School of Medicine; Year: 1980; Format: Videorecording; Atlanta: Emory Medical Television Network, 1980

CHAPTER 8. PERIODICALS AND NEWS ON SARCOIDOSIS

Overview

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

News Services and Press Releases

One of the simplest ways of tracking press releases on sarcoidosis 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 "sarcoidosis" (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 sarcoidosis. 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 "sarcoidosis" (or synonyms). The following was recently listed in this archive for sarcoidosis:

- **Chronic cutaneous sarcoidosis seems to respond to thalidomide therapy**
  Source: Reuters Industry Breifing
  Date: July 29, 2002
- **Sarcoidosis may be a risk factor for variety of cancers**
  Source: Reuters Medical News
  Date: November 23, 1999

- **Sarcoidosis on Aircraft Carriers**
  Source: Reuters Health eLine
  Date: June 16, 1997
- **Corticosteroids Linked To Increased Risk Of Relapse In Sarcoidosis**
  Source: Reuters Medical News
  Date: March 28, 1997

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 "sarcoidosis" (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 "sarcoidosis" (or synonyms). If you know the name of a company that is relevant to sarcoidosis, 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 "sarcoidosis" (or synonyms).

Newsletters on Sarcoidosis

Find newsletters on sarcoidosis using the Combined Health Information Database (CHID). You will need to use the "Detailed Search" option. To access CHID, go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. Limit your search to "Newsletter" and "sarcoidosis." Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter." Type "sarcoidosis" (or synonyms) into the "For these words:" box. The following list was generated using the options described above:

- **Kidney Failure in Sarcoidosis**

  Source: Sarcoidosis Networking. 8(3): 3. 2000.

  Contact: Available from Sarcoid Network Association. Sarcoidosis Networking, 13925 80th Street East, Puyallup, WA 98372-3614. Email: sarcoidosis_network@prodigy.net.

  Summary: Sarcoidosis is a chronic, progressive systemic granulomatous (causing lesions) disease of unknown cause (etiology), involving almost any organ or tissue, including the skin, lungs, lymph nodes, liver, spleen, eyes, and small bones of the hands or feet. This brief article, from a newsletter for patients with sarcoidosis, reviews the complications of kidney failure in sarcoidosis. Granulomatous infiltration of the kidney may be present in as many as 40 percent of patients with sarcoidosis, but it is rarely extensive enough to cause renal (kidney) dysfunction. The lesions are usually responsive to steroid therapy. Kidney failure has also been diagnosed in patients with sarcoidosis without the presence of lesions, possibly due to hypercalcemia (too much calcium in the blood), involvement of the glomerular filter system, and renal arteritis (inflammation of the arteries of the kidney), which may be associated with severe high blood pressure. It is recommended that all people with active sarcoidosis be screened for hypercalciuria (high levels of calcium in the urine). This may precede development of hypercalcemia, which should be treated. Glucocorticoids are the main choice of therapy and do seem to reduce levels of urinary calcium to normal within a few days. People with sarcoidosis may also have severe pain; the frequent use of pain medication can be another cause of kidney failure. People who take pain medication should ask their physicians to evaluate their kidneys on a regular basis. 9 references.

Newsletter Articles

Use the Combined Health Information Database, and limit your search criteria to "newsletter articles." Again, you will need to use the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter Article." Type "sarcoidosis" (or synonyms) into the "For these words:" box. You should check back periodically with this database as it

is updated every three months. The following is a typical result when searching for newsletter articles on sarcoidosis:

- **Skin Sarcoidosis**

  Source: Sarcoidosis Networking. 7(4): 2. July-August 1999.

  Contact: Available from Sarcoidosis Networking. 13925 80th Street East, Puyallup, WA 98372-3614. (253) 845-3108. E-mail: VBKR29A@prodigy.com.

  Summary: This newsletter article provides people who have sarcoidosis with information on the skin lesions associated with this multisystem granulomatous disease of unknown cause. Skin lesions of sarcoidosis are classified as specific and nonspecific. Biopsy of lesions of the specific type show evidence of granulomas, whereas no granuloma tissue is found in the biopsy for the nonspecific type. Erythema nodosum is an example of this latter form. Papule lesions are the most common and usually have a brownish or reddish brown hue. The sarcoid lesions of lupus pernio, which are reddish, purple leash clusters, are more common among African Americans than Caucasians. Sarcoid granulomas found in scar tissue form bumps or nodules, making the scar appear reddish or purple. These are often called keloid formations. A very invasive form of sarcoidosis is a loss of hair where granulomas infiltrate and destroy the hair follicles. Ulcerative sarcoid lesions are mainly seen on lower extremities. Dairier-Roussy lesions are asymptomatic, subcutaneous lesions that can appear over the trunk and extremities under the surface skin. Psoriasiform changes, which are rare, look like psoriasis on the trunk and extremities. Treatment options include topical or systemic corticosteroids. Good personal hygiene is very important in preventing skin breakdown.

Academic Periodicals covering Sarcoidosis

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to sarcoidosis. In addition to these sources, you can search for articles covering sarcoidosis 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 sarcoidosis. 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 sarcoidosis. 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 sarcoidosis:

Azathioprine

- **Systemic - U.S. Brands:** Imuran
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202077.html

Chlorambucil

- **Systemic - U.S. Brands:** Leukeran
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202124.html

Chloroquine

- **Systemic - U.S. Brands:** Aralen
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202133.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

Cyclophosphamide

- **Systemic - U.S. Brands:** Cytoxan; Neosar
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202174.html

Hydroxychloroquine

- **Systemic - U.S. Brands:** Plaquenil
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202288.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.

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[13]:

- 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/**

[13] 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.[14] 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:[15]

- **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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[14] 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**).

[15] 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[16]

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.[17] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "sarcoidosis" (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	17283
Books / Periodicals / Audio Visual	150
Consumer Health	63
Meeting Abstracts	11
Other Collections	0
Total	17507

HSTAT[18]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[19] 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.[20] Simply search by "sarcoidosis" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

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

[17] 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).

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

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

[20] 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[21]

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.[22] 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.[23] 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 Sarcoidosis

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

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).[24] 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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[21] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[22] 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.

[23] 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.

[24] 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 "sarcoidosis" (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 sarcoidosis:

- **Sarcoidosis**
  Web site: http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispmim?181000

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 "sarcoidosis" (or synonyms) into the search box and click "Go."

Jablonski's Multiple Congenital Anomaly/Mental Retardation (MCA/MR) Syndromes Database[25]

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[26]

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 "sarcoidosis" (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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[25] Adapted from the National Library of Medicine: **http://www.nlm.nih.gov/mesh/jablonski/about_syndrome.html**.

[26] 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 sarcoidosis 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 sarcoidosis. 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 sarcoidosis. 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 "sarcoidosis":

- Guides on sarcoidosis

  Sarcoidosis
  http://www.nlm.nih.gov/medlineplus/sarcoidosis.html

  Sarcoidosis
  http://www.nlm.nih.gov/medlineplus/tutorials/sacroidosisloader.html

- Other guides

  Alpha-1 Antitrypsin Deficiency
  http://www.nlm.nih.gov/medlineplus/alpha1antitrypsindeficiency.html

  COPD
  http://www.nlm.nih.gov/medlineplus/copdchronicobstructivepulmonarydisease.html

  Respiratory Diseases
  http://www.nlm.nih.gov/medlineplus/respiratorydiseases.html

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

  Tuberculosis
  http://www.nlm.nih.gov/medlineplus/tutorials/tuberculosisloader.html

Within the health topic page dedicated to sarcoidosis, the following was listed:

- General/Overviews

  Sarcoidosis
  http://www.nlm.nih.gov/medlineplus/tutorials/sacroidosisloader.html

  Sarcoidosis
  Source: Arthritis Foundation
  http://www.arthritis.org/conditions/DiseaseCenter/sarcoidosis.asp

- Diagnosis/Symptoms

  Bronchoscopy: Pulmonary Branch Protocols
  Source: National Institutes of Health, Clinical Center
  http://www.cc.nih.gov/ccc/patient_education/pepubs/bronchoscopy.pdf

  Calcium Test
  Source: American Association for Clinical Chemistry
  http://www.labtestsonline.org/understanding/analytes/calcium/test.html

  Gallium Scan
  Source: National Institutes of Health, Clinical Center
  http://www.cc.nih.gov/ccc/patient_education/procdiag/gallium.pdf

  Radiography -- Chest (Chest X-ray)
  Source: American College of Radiology, Radiological Society of North America
  http://www.radiologyinfo.org/content/chest_radiography.htm

- Treatment

  Prednisone
  http://www.myasthenia.org/information/prednisone.pdf

- Specific Conditions/Aspects

  Minority Lung Disease Data: Sarcoidosis
  Source: American Lung Association
  http://www.lungusa.org/pub/minority/sarcoidosis_00.html

- From the National Institutes of Health

  Sarcoidosis
  Source: National Heart, Lung, and Blood Institute
  http://www.nhlbi.nih.gov/health/public/lung/other/sarcoidosis/index.htm

- Organizations

  American Lung Association
  http://www.lungusa.org/

  Arthritis Foundation
  http://www.arthritis.org/

  National Heart, Lung, and Blood Institute
  http://www.nhlbi.nih.gov/

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

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on sarcoidosis. CHID offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is **http://chid.nih.gov/**. To search this database, go to **http://chid.nih.gov/detail/detail.html**. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Sarcoidosis**

  Source: American Academy of Family Physicians. November 2002. 3 p.

  Contact: Available online from American Academy of Family Physicians. Website: http://familydoctor.org.

Summary: This fact sheet discusses sarcoidosis, a condition that can affect the lungs, skin, eyes, liver, bones, kidneys, and nervous system. The symptoms of sarcoidosis vary depending on which organ is affected. Often patients have no symptoms. Sarcoidosis is more common in women and African Americans. Doctors can diagnose sarcoidosis by physical exam, x-ray, biopsy, and from blood tests that measure angiotensin-converting enzyme in the blood. Medications are generally not necessary in mild cases but may be given when the kidneys, heart, lungs, or nervous system are affected. Medications (including corticosteroids) can help reduce inflammation, prevent scarring of the lungs, and lessen symptoms.

- **You Have Sarcoidosis: What Does This Mean to You?**

  Source: American Family Physician. 58(9): 2051-2052. December 1998.

  Contact: American Academy of Family Physicians. 11400 Tomahawk Creek Parkway, Leawood, KS 66211-2672. (800) 274-2237 or (913) 906-6000. E-mail: fp@aafp.org. Website: www.aafp.org.

  Summary: This journal article uses a question and answer format to provide people who have sarcoidosis with information on this disease that may affect any organ or system in the body. Its cause is unknown. The disease, which most commonly affects adults aged 20 to 40 years old, is found more often in women than in men. The symptoms vary, depending on the part of the body affected. In most cases, the lungs are affected, but skin lesions occur in about one third to one half of those with sarcoidosis. Other common sites include the eye, kidney, and heart. Less common sites are the liver and bones. Diagnosis is based on a physical examination and various diagnostic tests. Treatment options include using corticosteroids or other medications. In many people, the disease improves without treatment.

- **Facts About Sarcoidosis**

  Source: Sumner, WA: Sarcoid Networking Association. 2000. 6 p.

  Contact: Available from Sarcoid Networking Association. 6424 151st Avenue East, Sumner, WA 98390-2601. (253) 891-6886. E-mail: sarcoidosis_network@prodigy.net. PRICE: Single copy free.

  Summary: This pamphlet uses a question and answer format to provide people who have sarcoidosis with information on the etiology, symptoms, diagnosis, and treatment of this multisystem, granulomatous disease. Although the cause of sarcoidosis in unknown, possible causes include a viral or bacterial infection, an immune system defect, exposure to a toxic substance, an unknown environmental trigger, and an inherited or genetic factor. The disease affects all races and age groups. Symptoms depend on the organ with granulomas. Diagnosis is based on physical examination and diagnostic test findings. If symptoms do not resolve without treatment, therapeutic options include corticosteroids and immune suppressants. 1 figure.

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 sarcoidosis. 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 sarcoidosis 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 Sarcoidosis

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

- **Foundation for Sarcoidosis Research**

  Telephone: (773) 665-2400

  Fax: (773) 665-0805

  Email: fsr@fsrchicago.org

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

  Background: The Foundation for **Sarcoidosis** Research (FSR) is a 501(c)3 organization dedicated to supporting research into the causes of **sarcoidosis** and to finding a cure. **Sarcoidosis** is a debilitating and potentially fatal disease causing massive tissue inflammation and damaging major organs, primarily the lungs. The disease can also attack the heart, eyes, central nervous system, liver, spleen, skin, joints, and bones. A chronic disease of unknown cause, it affects one of every 2,000 Americans, primarily African-Americans.

  Relevant area(s) of interest: Sarcoidosis

- **National Sarcoidosis Resource Center**

  Telephone: (732) 699-0733

  Fax: (732) 699-0882

  Email: nsrc@microfone.net

  Web Site: http://www.nsrc-global.net/

  Background: The National **Sarcoidosis** Resource Center is an international not-for-profit organization dedicated to providing support and information to individuals affected by **sarcoidosis,** their families, and any interested individuals. **Sarcoidosis,** a rare multisystem disorder of unknown cause, is characterized by the abnormal formation of inflammatory masses or nodules (granulomas) consisting of certain granular white blood cells (modified macrophages or epithelioid cells) in certain organs of the body. The granulomas that are formed are thought to affect the normal structure of and, potentially, the normal functions of the affected organ(s), causing symptoms associated with the particular body system(s) in question. In individuals with **sarcoidosis,** such granuloma formation most commonly affects the lungs. However, in many cases, other organs may be affected. The range and severity of symptoms associated with **sarcoidosis** vary greatly, depending upon the specific organ(s) involved and the degree of such involvement. Established in 1992 by an individual with **sarcoidosis,** the National **Sarcoidosis** Resource Center provides information to people throughout the United States, Canada, and Europe. The Center maintains a registry of more than 15,000 affected individuals; provides referrals to physicians; assists in the formation of self-help groups; coordinates a networking program; and holds an annual 'Sarcoidosis Awareness Day Celebration.' In addition, the Center conducts on ongoing study of the symptoms and demographics of individuals with **sarcoidosis.**

  Relevant area(s) of interest: Sarcoidosis, Schaumann's Disease

- **Sarcoidosis Center**

  Telephone: (901) 761-5877 Toll-free: (877) 727-2643

  Fax: (901) 761-2280

  Email: sarcoid@sarcoidcenter.com

  Web Site: http://www.sarcoidcenter.com

  Background: The **Sarcoidosis** Center provides a broad range of services for **sarcoidosis** patients. **Sarcoidosis** is a multisystem disorder that most often affects individuals between 20 and 40 years of age and is characterized by the abnormal formation of inflammatory masses or nodules of white blood cells in certain organs of the body. Organs or systems that may be affected include the lungs, liver, bone marrow, spleen, musculoskeletal system, heart, salivary glands, and/or nervous system. The center exists as a virtual entity on the Internet and as a real establishment in Memphis, Tenn. Areas to be addressed by the center include coordinating the exchange of information internationally. The center provides disability advice, innovative educational materials, and a toll-free number for support and information. It also hosts workshops and Internet discussions. Although the major focus is on providing services for patients and their families, funding for research will be provided depending on the availability of funds.

  Relevant area(s) of interest: Sarcoidosis

- **Sarcoidosis Network Foundation, Inc**

  Telephone: (714) 739-1398 Toll-free: TTY:

  Fax: (714) 739-1398

  Background: The **Sarcoidosis** Network Foundation, Inc. is a nonprofit organization dedicated to supporting research into the cause, cure, and prevention of **sarcoidosis;** promoting education and awareness; and improving the quality of life of those affected by this disorder. **Sarcoidosis,** a rare multisystem disorder of unknown cause, is characterized by the abnormal formation of inflammatory masses or nodules (granulomas) consisting of certain granular white blood cells (modified macrophages or epithelioid cells) in certain organs of the body. The granulomas that are formed are thought to affect the normal structure of and, potentially, the normal functions of the affected organ(s), causing symptoms associated with the particular body system(s) in question. Established in 1992, the **Sarcoidosis** Network Foundation provides educational materials about **sarcoidosis** including a quarterly newsletter entitled 'R.E.A.C.H.'; offers monthly support groups for affected individuals, family members, and caregivers; provides disability, counseling, and physician referrals; and offers patient networking services to enable affected individuals and family members to share their experiences with others.

  Relevant area(s) of interest: Sarcoidosis, Schaumann's Disease

- **Sarcoidosis Research Institute**

  Telephone: (901) 766-6951

  Fax: (901) 774-7294

  Email: paula@sarcoidosisresearch.org

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

  Background: The **Sarcoidosis** Research Institute is a national not-for-profit organization established in 1991. The Institute is dedicated to providing up-to-date information to individuals with **sarcoidosis** and conducting forums for affected individuals and their families. **Sarcoidosis,** a rare multisystem disorder of unknown cause, is characterized by the abnormal formation of inflammatory masses or nodules (granulomas) consisting of certain granular white blood cells (modified macrophages or epithelioid cells) in certain organs of the body. The granulomas that are formed are thought to affect the normal structure of and, potentially, the normal functions of the affected organ(s), causing symptoms associated with the particular body system(s) in question. In individuals with **sarcoidosis,** such granuloma formation most commonly affects the lungs. However, in many cases, other organs may be affected. The range and severity of symptoms associated with **sarcoidosis** vary greatly, depending upon the specific organ(s) involved and the degree of such involvement. The **Sarcoidosis** Research Institute is also dedicated to increasing public awareness of **sarcoidosis** and channeling appropriate information to the medical community. Educational materials produced by the **Sarcoidosis** Research Institute include a brochure entitled 'Answers to Your Questions about Sarcoidosis' and a video called 'Sarcoidosis: An Overview.'.

  Relevant area(s) of interest: Sarcoidosis, Schaumann's Disease

Finding Associations

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

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 sarcoidosis. 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 "sarcoidosis" (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 "sarcoidosis". 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 "sarcoidosis" (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 "sarcoidosis" (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.[27]

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

[27] 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)[28]:

- **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/**

[28] 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 sarcoidosis:

- **Basic Guidelines for Sarcoidosis**

  Sarcoidosis
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000076.htm

- **Signs & Symptoms for Sarcoidosis**

  Armpit lump
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003099.htm

  Arthralgia
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003261.htm

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

  Breath sounds
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003323.htm

Chest discomfort
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003079.htm

Cough
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003072.htm

Difficulty breathing
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003075.htm

Dyspnea
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003075.htm

Enlarged liver
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003275.htm

Enlarged lymph glands
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003097.htm

Enlarged spleen
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003276.htm

Eye burning, itching and discharge
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003034.htm

Fatigue
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003088.htm

Fever
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003090.htm

Hair loss
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003246.htm

Headache
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003024.htm

Hepatomegaly
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003275.htm

Hyperpigmentation
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003242.htm

Itching
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003217.htm

Joint stiffness
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003261.htm

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

Malaise
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003089.htm

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

Nosebleed - symptom
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003106.htm

Palpitations
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003081.htm

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

Rales
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003323.htm

Seizures
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003200.htm

Shortness of breath
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003075.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

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

Splenomegaly
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003276.htm

Tearing, decreased
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003087.htm

Visual changes
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003029.htm

Weight loss
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003107.htm

- **Diagnostics and Tests for Sarcoidosis**

ACE levels
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003567.htm

Alkaline phosphatase
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003470.htm

ALT
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003473.htm

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

Bronchoscopy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003857.htm

Calcium (ionized)
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003486.htm

Calcium; urine
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003603.htm

CBC
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003642.htm

Chem-20
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003468.htm

Chem-7
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003462.htm

Chest X-ray
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003804.htm

CT
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003330.htm

Gallium (Ga.) scan
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003450.htm

Immunoelectrophoresis - serum
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003541.htm

Kidney biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003907.htm

Liver biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003895.htm

Liver function tests
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003436.htm

Lung gallium (Ga.) scan
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003824.htm

Lymph node biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003933.htm

Mediastinoscopy with biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003864.htm

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

Open lung biopsy
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003861.htm

PTH
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003690.htm

Quantitative immunoglobulins (nephelometry)
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003545.htm

Serum calcium
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003477.htm

Serum phosphorus
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003478.htm

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

X-ray
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003337.htm

- **Background Topics for Sarcoidosis**

Cardiovascular
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002310.htm

Incidence
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002387.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**

SARCOIDOSIS DICTIONARY

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

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

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

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

Aberrant: Wandering or deviating from the usual or normal course. [EU]

Acatalasia: A rare autosomal recessive disorder resulting from the absence of catalase activity. Though usually asymptomatic, a syndrome of oral ulcerations and gangrene may be present. [NIH]

Acetic Acids: Acetic acid and its derivatives which may be formed by substitution reactions. Mono- and di-substituted, as well as halogenated compounds have been synthesized. [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]

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

Adduct: Complex formed when a carcinogen combines with DNA or a protein. [NIH]

Adenoma: A benign epithelial tumor with a glandular organization. [NIH]

Adenopathy: Large or swollen lymph glands. [NIH]

Adenosine: A nucleoside that is composed of adenine and d-ribose. Adenosine or adenosine derivatives play many important biological roles in addition to being components of DNA and RNA. Adenosine itself is a neurotransmitter. [NIH]

Adipocytes: Fat-storing cells found mostly in the abdominal cavity and subcutaneous tissue. Fat is usually stored in the form of tryglycerides. [NIH]

Adipose Tissue: Connective tissue composed of fat cells lodged in the meshes of areolar tissue. [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 Cortex: The outer layer of the adrenal gland. It secretes mineralocorticoids, androgens, and glucocorticoids. [NIH]

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

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]

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]

Age Groups: Persons classified by age from birth (infant, newborn) to octogenarians and older (aged, 80 and over). [NIH]

Aged, 80 and Over: A person 80 years of age and older. [NIH]

Agonist: In anatomy, a prime mover. In pharmacology, a drug that has affinity for and stimulates physiologic activity at cell receptors normally stimulated by naturally occurring substances. [EU]

Air Sacs: Thin-walled sacs or spaces which function as a part of the respiratory system in birds, fishes, insects, and mammals. [NIH]

Airway: A device for securing unobstructed passage of air into and out of the lungs during general anesthesia. [NIH]

Airway Obstruction: Any hindrance to the passage of air into and out of the lungs. [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]

Aldosterone: (11 beta)-11,21-Dihydroxy-3,20-dioxopregn-4-en-18-al. A hormone secreted by the adrenal cortex that functions in the regulation of electrolyte and water balance by increasing the renal retention of sodium and the excretion of potassium. [NIH]

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]

Alkaloid: A member of a large group of chemicals that are made by plants and have nitrogen in them. Some alkaloids have been shown to work against cancer. [NIH]

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]

Allium: A genus of liliaceous herbs containing onions (Allium cepa), garlic (Allium sativum), and others; many produce pungent, often bacteriostatic and physiologically active compounds and are used as food, condiment, and medicament, the latter in traditional medicine. [NIH]

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

Allograft: An organ or tissue transplant between two humans. [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]

Alveoli: Tiny air sacs at the end of the bronchioles in the lungs. [NIH]

Alveolitis: Inflammation of an alveolus. Called also odontobothritis. [EU]

Amine: An organic compound containing nitrogen; any member of a group of chemical compounds formed from ammonia by replacement of one or more of the hydrogen atoms by organic (hydrocarbon) radicals. The amines are distinguished as primary, secondary, and tertiary, according to whether one, two, or three hydrogen atoms are replaced. The amines include allylamine, amylamine, ethylamine, methylamine, phenylamine, propylamine, and many other compounds. [EU]

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

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]

Amino-terminal: The end of a protein or polypeptide chain that contains a free amino group (-NH2). [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]

Anal: Having to do with the anus, which is the posterior opening of the large bowel. [NIH]

Analgesic: An agent that alleviates pain without causing loss of consciousness. [EU]

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

Analogous: Resembling or similar in some respects, as in function or appearance, but not in origin or development;. [EU]

Analytes: A component of a test sample the presence of which has to be demonstrated. The term "analyte" includes where appropriate formed from the analyte during the analyses. [NIH]

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]

Anaplasia: Loss of structural differentiation and useful function of neoplastic cells. [NIH]

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

Androgens: A class of sex hormones associated with the development and maintenance of the secondary male sex characteristics, sperm induction, and sexual differentiation. In addition to increasing virility and libido, they also increase nitrogen and water retention and stimulate skeletal growth. [NIH]

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]

Anesthesia: A state characterized by loss of feeling or sensation. This depression of nerve function is usually the result of pharmacologic action and is induced to allow performance of surgery or other painful procedures. [NIH]

Aneurysm: A sac formed by the dilatation of the wall of an artery, a vein, or the heart. [NIH]

Angiodysplasia: Degenerative, acquired lesions consisting of distorted, dilated, thin-walled vessels lined by vascular endothelium. This pathological state is seen especially in the gastrointestinal tract and is frequently a cause of upper and lower gastrointestinal hemorrhage in the elderly. [NIH]

Angiotensinogen: An alpha-globulin of which a fragment of 14 amino acids is converted by renin to angiotensin I, the inactive precursor of angiotensin II. It is a member of the serpin superfamily. [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]

Anomalies: Birth defects; abnormalities. [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]

Antagonism: Interference with, or inhibition of, the growth of a living organism by another living organism, due either to creation of unfavorable conditions (e. g. exhaustion of food supplies) or to production of a specific antibiotic substance (e. g. penicillin). [NIH]

Antiallergic: Counteracting allergy or allergic conditions. [EU]

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]

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]

Antigen-presenting cell: APC. A cell that shows antigen on its surface to other cells of the immune system. This is an important part of an immune response. [NIH]

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

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

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

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

Antineoplastic: Inhibiting or preventing the development of neoplasms, checking the maturation and proliferation of malignant cells. [EU]

Antiproliferative: Counteracting a process of proliferation. [EU]

Antipyretic: An agent that relieves or reduces fever. Called also antifebrile, antithermic and febrifuge. [EU]

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

Anuria: Inability to form or excrete urine. [NIH]

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

Aorta: The main trunk of the systemic arteries. [NIH]

Aortic Aneurysm: Aneurysm of the aorta. [NIH]

Apnea: A transient absence of spontaneous respiration. [NIH]

Apnoea: Cessation of breathing. [EU]

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]

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

Approximate: Approximal [EU]

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]

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

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

Arteriolar: Pertaining to or resembling arterioles. [EU]

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

Arteritis: Inflammation of an artery. [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]

Atresia: Lack of a normal opening from the esophagus, intestines, or anus. [NIH]

Atrial: Pertaining to an atrium. [EU]

Atrioventricular: Pertaining to an atrium of the heart and to a ventricle. [EU]

Atrium: A chamber; used in anatomical nomenclature to designate a chamber affording entrance to another structure or organ. Usually used alone to designate an atrium of the heart. [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]

Attenuated: Strain with weakened or reduced virulence. [NIH]

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

Autacoids: A chemically diverse group of substances produced by various tissues in the body that cause slow contraction of smooth muscle; they have other intense but varied pharmacologic activities. [NIH]

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

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

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]

Autopsy: Postmortem examination of the body. [NIH]

Autosuggestion: Suggestion coming from the subject himself. [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]

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]

Bacteriostatic: 1. Inhibiting the growth or multiplication of bacteria. 2. An agent that inhibits the growth or multiplication of bacteria. [EU]

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]

Basophil: A type of white blood cell. Basophils are granulocytes. [NIH]

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

Berylliosis: A lung disease caused by exposure to metallic beryllium or its soluble salts. [NIH]

Beryllium: An element with the atomic symbol Be, atomic number 4, and atomic weight 9.01218. Short exposure to this element can lead to a type of poisoning known as berylliosis. [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]

Bile Acids: Acids made by the liver that work with bile to break down fats. [NIH]

Bile Pigments: Pigments that give a characteristic color to bile including: bilirubin, biliverdine, and bilicyanin. [NIH]

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

Binding agent: A substance that makes a loose mixture stick together. For example, binding agents can be used to make solid pills from loose powders. [NIH]

Binding Sites: The reactive parts of a macromolecule that directly participate in its specific combination with another molecule. [NIH]

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 therapy: Treatment to stimulate or restore the ability of the immune system to fight infection and disease. Also used to lessen side effects that may be caused by some cancer treatments. Also known as immunotherapy, biotherapy, or biological response modifier (BRM) therapy. [NIH]

Biomarkers: Substances sometimes found in an increased amount in the blood, other body fluids, or tissues and that may suggest the presence of some types of cancer. Biomarkers include CA 125 (ovarian cancer), CA 15-3 (breast cancer), CEA (ovarian, lung, breast, pancreas, and GI tract cancers), and PSA (prostate cancer). Also called tumor markers. [NIH]

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

Biopsy specimen: Tissue removed from the body and examined under a microscope to determine whether disease is present. [NIH]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic

engineering) is a central focus; laboratory methods used include transfection and cloning technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Bladder: The organ that stores urine. [NIH]

Bleomycin: A complex of related glycopeptide antibiotics from Streptomyces verticillus consisting of bleomycin A2 and B2. It inhibits DNA metabolism and is used as an antineoplastic, especially for solid tumors. [NIH]

Bloating: Fullness or swelling in the abdomen that often occurs after meals. [NIH]

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

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 scan: A technique to create images of bones on a computer screen or on film. A small amount of radioactive material is injected into a blood vessel and travels through the bloodstream; it collects in the bones and is detected by a scanner. [NIH]

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

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

Brachial: All the nerves from the arm are ripped from the spinal cord. [NIH]

Brachytherapy: A collective term for interstitial, intracavity, and surface radiotherapy. It uses small sealed or partly-sealed sources that may be placed on or near the body surface or within a natural body cavity or implanted directly into the tissues. [NIH]

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

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

Bronchi: The larger air passages of the lungs arising from the terminal bifurcation of the trachea. [NIH]

Bronchial: Pertaining to one or more bronchi. [EU]

Bronchioles: The tiny branches of air tubes in the lungs. [NIH]

Bronchitis: Inflammation (swelling and reddening) of the bronchi. [NIH]

Bronchoalveolar Lavage: Washing out of the lungs with saline or mucolytic agents for diagnostic or therapeutic purposes. It is very useful in the diagnosis of diffuse pulmonary infiltrates in immunosuppressed patients. [NIH]

Bronchoalveolar Lavage Fluid: Fluid obtained by washout of the alveolar compartment of the lung. It is used to assess biochemical and inflammatory changes in and effects of therapy on the interstitial lung tissue. [NIH]

Bronchoscopy: Endoscopic examination, therapy or surgery of the bronchi. [NIH]

Brucellosis: Infection caused by bacteria of the genus Brucella mainly involving the reticuloendothelial system. This condition is characterized by fever, weakness, malaise, and weight loss. [NIH]

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

Buccal mucosa: The inner lining of the cheeks and lips. [NIH]

Budesonide: A glucocorticoid used in the management of asthma, the treatment of various skin disorders, and allergic rhinitis. [NIH]

Calcifediol: The major circulating metabolite of vitamin D3 produced in the liver and the best indicator of the body's vitamin D stores. It is effective in the treatment of rickets and osteomalacia, both in azotemic and non-azotemic patients. Calcifediol also has mineralizing properties. [NIH]

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

Calcineurin: A calcium- and calmodulin-binding protein present in highest concentrations in the central nervous system. Calcineurin is composed of two subunits. A catalytic subunit, calcineurin A, and a regulatory subunit, calcineurin B, with molecular weights of about 60 kD and 19 kD, respectively. Calcineurin has been shown to dephosphorylate a number of phosphoproteins including histones, myosin light chain, and the regulatory subunit of cAMP-dependent protein kinase. It is involved in the regulation of signal transduction and is the target of an important class of immunophilin-immunosuppressive drug complexes in T-lymphocytes that act by inhibiting T-cell activation. EC 3.1.3.-. [NIH]

Calcinosis: Pathologic deposition of calcium salts in tissues. [NIH]

Calcitriol: The physiologically active form of vitamin D. It is formed primarily in the kidney by enzymatic hydroxylation of 25-hydroxycholecalciferol (calcifediol). Its production is stimulated by low blood calcium levels and parathyroid hormone. Calcitriol increases intestinal absorption of calcium and phosphorus, and in concert with parathyroid hormone increases bone resorption. [NIH]

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

many enzymatic processes. [NIH]

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

Calmodulin: A heat-stable, low-molecular-weight activator protein found mainly in the brain and heart. The binding of calcium ions to this protein allows this protein to bind to cyclic nucleotide phosphodiesterases and to adenyl cyclase with subsequent activation. Thereby this protein modulates cyclic AMP and cyclic GMP levels. [NIH]

Capillary: Any one of the minute vessels that connect the arterioles and venules, forming a network in nearly all parts of the body. Their walls act as semipermeable membranes for the interchange of various substances, including fluids, between the blood and tissue fluid; called also vas capillare. [EU]

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]

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

Carcinogen: Any substance that causes cancer. [NIH]

Carcinogenic: Producing carcinoma. [EU]

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

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

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

Cardiovascular disease: Any abnormal condition characterized by dysfunction of the heart and blood vessels. CVD includes atherosclerosis (especially coronary heart disease, which can lead to heart attacks), cerebrovascular disease (e.g., stroke), and hypertension (high blood pressure). [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]

Catalase: An oxidoreductase that catalyzes the conversion of hydrogen peroxide to water and oxygen. It is present in many animal cells. A deficiency of this enzyme results in acatalasia. EC 1.11.1.6. [NIH]

Cauda Equina: The lower part of the spinal cord consisting of the lumbar, sacral, and coccygeal nerve roots. [NIH]

Caudal: Denoting a position more toward the cauda, or tail, than some specified point of reference; same as inferior, in human anatomy. [EU]

Caustic: An escharotic or corrosive agent. Called also cauterant. [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 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]

Cell Survival: The span of viability of a cell characterized by the capacity to perform certain functions such as metabolism, growth, reproduction, some form of responsiveness, and adaptability. [NIH]

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

Cerebellar: Pertaining to the cerebellum. [EU]

Cerebellum: Part of the metencephalon that lies in the posterior cranial fossa behind the brain stem. It is concerned with the coordination of movement. [NIH]

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

Cerebral Aqueduct: Narrow channel in the mesencephalon that connects the third and fourth ventricles. [NIH]

Cerebrovascular: Pertaining to the blood vessels of the cerebrum, or brain. [EU]

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]

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

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

Chemotherapy: Treatment with anticancer drugs. [NIH]

Chest wall: The ribs and muscles, bones, and joints that make up the area of the body between the neck and the abdomen. [NIH]

Cholangitis: Inflammation of a bile duct. [NIH]

Cholecalciferol: An antirachitic oil-soluble vitamin. [NIH]

Cholecystitis: Inflammation of the gallbladder. [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]

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

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

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 Disease: Disease or ailment of long duration. [NIH]

Chronic myelogenous leukemia: CML. A slowly progressing disease in which too many white blood cells are made in the bone marrow. Also called chronic myeloid leukemia or chronic granulocytic leukemia. [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]

Cicatrix: The formation of new tissue in the process of wound healing. [NIH]

Claudication: Limping or lameness. [EU]

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]

Clone: The term "clone" has acquired a new meaning. It is applied specifically to the bits of inserted foreign DNA in the hybrid molecules of the population. Each inserted segment originally resided in the DNA of a complex genome amid millions of other DNA segment. [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]

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

Colchicine: A major alkaloid from Colchicum autumnale L. and found also in other Colchicum species. Its primary therapeutic use is in the treatment of gout, but it has been used also in the therapy of familial Mediterranean fever (periodic disease). [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]

Collagen disease: A term previously used to describe chronic diseases of the connective tissue (e.g., rheumatoid arthritis, systemic lupus erythematosus, and systemic sclerosis), but now is thought to be more appropriate for diseases associated with defects in collagen, which is a component of the connective tissue. [NIH]

Collapse: 1. A state of extreme prostration and depression, with failure of circulation. 2. Abnormal falling in of the walls of any part of organ. [EU]

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

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]

Complete remission: The disappearance of all signs of cancer. Also called a complete response. [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]

Computed tomography: CT scan. A series of detailed pictures of areas inside the body, taken from different angles; the pictures are created by a computer linked to an x-ray machine. Also called computerized tomography and computerized axial tomography (CAT) scan. [NIH]

Computerized axial tomography: A series of detailed pictures of areas inside the body, taken from different angles; the pictures are created by a computer linked to an x-ray machine. Also called CAT scan, computed tomography (CT scan), or computerized tomography. [NIH]

Computerized tomography: A series of detailed pictures of areas inside the body, taken from different angles; the pictures are created by a computer linked to an x-ray machine. Also called computerized axial tomography (CAT) scan and computed tomography (CT scan). [NIH]

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

Conjugated: Acting or operating as if joined; simultaneous. [EU]

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

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

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

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

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

Constipation: Infrequent or difficult evacuation of feces. [NIH]

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

Constriction: The act of constricting. [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]

Contamination: The soiling or pollution by inferior material, as by the introduction of organisms into a wound, or sewage into a stream. [EU]

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

Controlled study: An experiment or clinical trial that includes a comparison (control) group. [NIH]

Conus: A large, circular, white patch around the optic disk due to the exposing of the sclera as a result of degenerative change or congenital abnormality in the choroid and retina. [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]

Cor pulmonale: Heart disease that results from resistance to the passage of blood through the lungs; it often leads to right heart failure. [NIH]

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

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

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

Coronary heart disease: A type of heart disease caused by narrowing of the coronary arteries that feed the heart, which needs a constant supply of oxygen and nutrients carried by the blood in the coronary arteries. When the coronary arteries become narrowed or clogged by fat and cholesterol deposits and cannot supply enough blood to the heart, CHD results. [NIH]

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]

Cortisone: A natural steroid hormone produced in the adrenal gland. It can also be made in the laboratory. Cortisone reduces swelling and can suppress immune responses. [NIH]

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

Crossing-over: The exchange of corresponding segments between chromatids of homologous chromosomes during meiosia, forming a chiasma. [NIH]

Cryoglobulinemia: A condition characterized by the presence of abnormal or abnormal quantities of cryoglobulins in the blood. They are precipitated into the microvasculature on exposure to cold and cause restricted blood flow in exposed areas. [NIH]

Cryotherapy: Any method that uses cold temperature to treat disease. [NIH]

Cryptococcosis: Infection with a fungus of the species Cryptococcus neoformans. [NIH]

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]

Cyclophosphamide: Precursor of an alkylating nitrogen mustard antineoplastic and immunosuppressive agent that must be activated in the liver to form the active aldophosphamide. It is used in the treatment of lymphomas, leukemias, etc. Its side effect, alopecia, has been made use of in defleecing sheep. Cyclophosphamide may also cause sterility, birth defects, mutations, and cancer. [NIH]

Cyclosporine: A drug used to help reduce the risk of rejection of organ and bone marrow transplants by the body. It is also used in clinical trials to make cancer cells more sensitive to anticancer drugs. [NIH]

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

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

Cystine: A covalently linked dimeric nonessential amino acid formed by the oxidation of cysteine. Two molecules of cysteine are joined together by a disulfide bridge to form cystine. [NIH]

Cystoid: Like a bladder or a cyst. [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]

Cytotoxic chemotherapy: Anticancer drugs that kill cells, especially cancer cells. [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]

Deamination: The removal of an amino group (NH2) from a chemical compound. [NIH]

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

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

Dehydration: The condition that results from excessive loss of body water. [NIH]

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]

Demyelinating Diseases: Diseases characterized by loss or dysfunction of myelin in the central or peripheral nervous system. [NIH]

Dendrites: Extensions of the nerve cell body. They are short and branched and receive stimuli from other neurons. [NIH]

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

Dendritic cell: A special type of antigen-presenting cell (APC) that activates T lymphocytes. [NIH]

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]

Deoxyglucose: 2-Deoxy-D-arabino-hexose. An antimetabolite of glucose with antiviral activity. [NIH]

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]

Dermatology: A medical specialty concerned with the skin, its structure, functions, diseases, and treatment. [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]

Detergents: Purifying or cleansing agents, usually salts of long-chain aliphatic bases or acids, that exert cleansing (oil-dissolving) and antimicrobial effects through a surface action that depends on possessing both hydrophilic and hydrophobic properties. [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]

Dexamethasone: (11 beta,16 alpha)-9-Fluoro-11,17,21-trihydroxy-16-methylpregna-1,4-diene-3,20-dione. An anti-inflammatory glucocorticoid used either in the free alcohol or esterified form in treatment of conditions that respond generally to cortisone. [NIH]

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

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

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

Dialysate: A cleansing liquid used in the two major forms of dialysis--hemodialysis and peritoneal dialysis. [NIH]

Dialyzer: A part of the hemodialysis machine. (See hemodialysis under dialysis.) The dialyzer has two sections separated by a membrane. One section holds dialysate. The other holds the patient's blood. [NIH]

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

Diastolic: Of or pertaining to the diastole. [EU]

Diethylcarbamazine: An anthelmintic used primarily as the citrate in the treatment of filariasis, particularly infestations with Wucheria bancrofti or Loa loa. [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]

Diflunisal: A salicylate derivative and anti-inflammatory analgesic with actions and side effects similar to those of aspirin. [NIH]

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

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

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

Dihydroxy: AMPA/Kainate antagonist. [NIH]

Dilatation: The act of dilating. [NIH]

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

Discoid: Shaped like a disk. [EU]

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]

Disease Transmission: The transmission of infectious disease or pathogens. When transmission is within the same species, the mode can be horizontal (disease transmission, horizontal) or vertical (disease transmission, vertical). [NIH]

Disease Transmission, Horizontal: The transmission of infectious disease or pathogens from one individual to another in the same generation. [NIH]

Disease Transmission, Vertical: The transmission of infectious disease or pathogens from one generation to another. It includes transmission in utero or intrapartum by exposure to blood and secretions, and postpartum exposure via breastfeeding. [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]

Dissociative Disorders: Sudden temporary alterations in the normally integrative functions of consciousness. [NIH]

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]

Diverticula: Plural form of diverticulum. [NIH]

Diverticulitis: Inflammation of a diverticulum or diverticula. [NIH]

Diverticulum: A pathological condition manifested as a pouch or sac opening from a tubular or sacular organ. [NIH]

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

Dorsum: A plate of bone which forms the posterior boundary of the sella turcica. [NIH]

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

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

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

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]

Dysmenorrhea: Painful menstruation. [NIH]

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

Dyspnea: Difficult or labored breathing. [NIH]

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

Echocardiography: Ultrasonic recording of the size, motion, and composition of the heart

and surrounding tissues. The standard approach is transthoracic. [NIH]

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]

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

Effusion: The escape of fluid into a part or tissue, as an exudation or a transudation. [EU]

Elastin: The protein that gives flexibility to tissues. [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]

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]

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]

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]

Enhancer: Transcriptional element in the virus genome. [NIH]

Enteritis: Inflammation of the intestine, applied chiefly to inflammation of the small intestine; see also enterocolitis. [EU]

Enterocolitis: Inflammation of the intestinal mucosa of the small and large bowel. [NIH]

Enterohepatic: Of or involving the intestine and liver. [EU]

Enterohepatic Circulation: Recycling through liver by excretion in bile, reabsorption from intestines into portal circulation, passage back into liver, and re-excretion in bile. [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]

Eosinophil: A polymorphonuclear leucocyte with large eosinophilic granules in its cytoplasm, which plays a role in hypersensitivity reactions. [NIH]

Eosinophilia: Abnormal increase in eosinophils in the blood, tissues or organs. [NIH]

Eosinophilic: A condition found primarily in grinding workers caused by a reaction of the pulmonary tissue, in particular the eosinophilic cells, to dust that has entered the lung. [NIH]

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]

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

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic systems, causes systemic vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

Episcleritis: Inflammation of the episclera and/or the outer layers of the sclera itself. [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]

Epithelioid Cells: Characteristic cells of granulomatous hypersensitivity. They appear as large, flattened cells with increased endoplasmic reticulum. They are believed to be activated macrophages that have differentiated as a result of prolonged antigenic stimulation. Further differentiation or fusion of epithelioid cells is thought to produce multinucleated giant cells. [NIH]

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

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]

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

Essential Tremor: A rhythmic, involuntary, purposeless, oscillating movement resulting from the alternate contraction and relaxation of opposing groups of muscles. [NIH]

Ethnic Groups: A group of people with a common cultural heritage that sets them apart from others in a variety of social relationships. [NIH]

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

Excrete: To get rid of waste from the body. [NIH]

Exhaustion: The feeling of weariness of mind and body. [NIH]

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

Exocytosis: Cellular release of material within membrane-limited vesicles by fusion of the vesicles with the cell membrane. [NIH]

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

Expiration: The act of breathing out, or expelling air from the lungs. [EU]

Expiratory: The volume of air which leaves the breathing organs in each expiration. [NIH]

Extensor: A muscle whose contraction tends to straighten a limb; the antagonist of a flexor. [NIH]

External-beam radiation: Radiation therapy that uses a machine to aim high-energy rays at the cancer. Also called external radiation. [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]

Extraocular: External to or outside of the eye. [NIH]

Extrarenal: Outside of the kidney. [EU]

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

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

Fatty acids: A major component of fats that are used by the body for energy and tissue development. [NIH]

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

Fibrin: A protein derived from fibrinogen in the presence of thrombin, which forms part of the blood clot. [NIH]

Fibrinogen: Plasma glycoprotein clotted by thrombin, composed of a dimer of three non-identical pairs of polypeptide chains (alpha, beta, gamma) held together by disulfide bonds. Fibrinogen clotting is a sol-gel change involving complex molecular arrangements: whereas

fibrinogen is cleaved by thrombin to form polypeptides A and B, the proteolytic action of other enzymes yields different fibrinogen degradation products. [NIH]

Fibroblast Growth Factor: Peptide isolated from the pituitary gland and from the brain. It is a potent mitogen which stimulates growth of a variety of mesodermal cells including chondrocytes, granulosa, and endothelial cells. The peptide may be active in wound healing and animal limb regeneration. [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]

Flatus: Gas passed through the rectum. [NIH]

Fluorescence: The property of emitting radiation while being irradiated. The radiation emitted is usually of longer wavelength than that incident or absorbed, e.g., a substance can be irradiated with invisible radiation and emit visible light. X-ray fluorescence is used in diagnosis. [NIH]

Fluorine: A nonmetallic, diatomic gas that is a trace element and member of the halogen family. It is used in dentistry as flouride to prevent dental caries. [NIH]

Fluorouracil: A pyrimidine analog that acts as an antineoplastic antimetabolite and also has immunosuppressant. It interferes with DNA synthesis by blocking the thymidylate synthetase conversion of deoxyuridylic acid to thymidylic acid. [NIH]

Flurbiprofen: An anti-inflammatory analgesic and antipyretic of the phenylalkynoic acid series. It has been shown to reduce bone resorption in periodontal disease by inhibiting carbonic anhydrase. [NIH]

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

Follicles: Shafts through which hair grows. [NIH]

Forearm: The part between the elbow and the wrist. [NIH]

Fourth Ventricle: An irregularly shaped cavity in the rhombencephalon, between the medulla oblongata, the pons, and the isthmus in front, and the cerebellum behind. It is continuous with the central canal of the cord below and with the cerebral aqueduct above, and through its lateral and median apertures it communicates with the subarachnoid space. [NIH]

Friction: Surface resistance to the relative motion of one body against the rubbing, sliding, rolling, or flowing of another with which it is in contact. [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]

Fructose Intolerance: An autosomal recessive fructose metabolism disorder due to deficient fructose-1-phosphate aldolase (EC 2.1.2.13) activity, resulting in accumulation of fructose-1-phosphate. The accumulated fructose-1-phosphate inhibits glycogenolysis and gluconeogenesis, causing severe hypoglycemia following ingestion of fructose. Prolonged fructose ingestion in infants leads ultimately to hepatic failure and death. Patients develop a strong distaste for sweet food, and avoid a chronic course of the disease by remaining on a fructose- and sucrose-free diet. [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]

Gadolinium: An element of the rare earth family of metals. It has the atomic symbol Gd, atomic number 64, and atomic weight 157.25. Its oxide is used in the control rods of some nuclear reactors. [NIH]

Galactosemia: Buildup of galactose in the blood. Caused by lack of one of the enzymes needed to break down galactose into glucose. [NIH]

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

Gallium: A rare, metallic element designated by the symbol, Ga, atomic number 31, and atomic weight 69.72. [NIH]

Gamma Rays: Very powerful and penetrating, high-energy electromagnetic radiation of shorter wavelength than that of x-rays. They are emitted by a decaying nucleus, usually between 0.01 and 10 MeV. They are also called nuclear x-rays. [NIH]

Gamma-interferon: Interferon produced by T-lymphocytes in response to various mitogens and antigens. Gamma interferon appears to have potent antineoplastic, immunoregulatory and antiviral activity. [NIH]

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

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

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]

Gas exchange: Primary function of the lungs; transfer of oxygen from inhaled air into the blood and of carbon dioxide from the blood into the lungs. [NIH]

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

Gastritis: Inflammation of the stomach. [EU]

Gastroesophageal Reflux: Reflux of gastric juice and/or duodenal contents (bile acids, pancreatic juice) into the distal esophagus, commonly due to incompetence of the lower esophageal sphincter. Gastric regurgitation is an extension of this process with entry of fluid into the pharynx or mouth. [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]

Gene Targeting: The integration of exogenous DNA into the genome of an organism at sites where its expression can be suitably controlled. This integration occurs as a result of homologous recombination. [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]

Genetics: The biological science that deals with the phenomena and mechanisms of heredity. [NIH]

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]

Germ Cells: The reproductive cells in multicellular organisms. [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]

Glomeruli: Plural of glomerulus. [NIH]

Glomerulonephritis: Glomerular disease characterized by an inflammatory reaction, with leukocyte infiltration and cellular proliferation of the glomeruli, or that appears to be the result of immune glomerular injury. [NIH]

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]

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

Goiter: Enlargement of the thyroid gland. [NIH]

Gonadal: Pertaining to a gonad. [EU]

Gonads: The gamete-producing glands, ovary or testis. [NIH]

Gout: Hereditary metabolic disorder characterized by recurrent acute arthritis, hyperuricemia and deposition of sodium urate in and around the joints, sometimes with formation of uric acid calculi. [NIH]

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

Government Agencies: Administrative units of government responsible for policy making and management of governmental activities in the U.S. and abroad. [NIH]

Grade: The grade of a tumor depends on how abnormal the cancer cells look under a microscope and how quickly the tumor is likely to grow and spread. Grading systems are different for each type of cancer. [NIH]

Grading: A system for classifying cancer cells in terms of how abnormal they appear when examined under a microscope. The objective of a grading system is to provide information about the probable growth rate of the tumor and its tendency to spread. The systems used to grade tumors vary with each type of cancer. Grading plays a role in treatment decisions. [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]

Graft-versus-host disease: GVHD. A reaction of donated bone marrow or peripheral stem cells against a person's tissue. [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]

Granulation Tissue: A vascular connective tissue formed on the surface of a healing wound, ulcer, or inflamed tissue. It consists of new capillaries and an infiltrate containing lymphoid cells, macrophages, and plasma cells. [NIH]

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]

Gravis: Eruption of watery blisters on the skin among those handling animals and animal products. [NIH]

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

Growth factors: Substances made by the body that function to regulate cell division and cell survival. Some growth factors are also produced in the laboratory and used in biological therapy. [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]

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

Half-Life: The time it takes for a substance (drug, radioactive nuclide, or other) to lose half of its pharmacologic, physiologic, or radiologic activity. [NIH]

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

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

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

Heart attack: A seizure of weak or abnormal functioning of the heart. [NIH]

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

Heme: The color-furnishing portion of hemoglobin. It is found free in tissues and as the prosthetic group in many hemeproteins. [NIH]

Hemodialysis: The use of a machine to clean wastes from the blood after the kidneys have failed. The blood travels through tubes to a dialyzer, which removes wastes and extra fluid. The cleaned blood then flows through another set of tubes back into the body. [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]

Hemoglobinuria: The presence of free hemoglobin in the urine. [NIH]

Hemoptysis: Bronchial hemorrhage manifested with spitting of blood. [NIH]

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

Hepatic: Refers to the liver. [NIH]

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

Hepatitis A: Hepatitis caused by hepatovirus. It can be transmitted through fecal contamination of food or water. [NIH]

Hepatitis D: Hepatitis caused by the hepatitis delta virus in association with hepatitis B. It is endemic in some European countries and is seen in drug users, hemophiliacs, and polytransfused persons. [NIH]

Hepatitis Delta Virus: A defective virus, containing particles of RNA nucleoprotein in virion-like form, present in patients with acute hepatitis B and chronic hepatitis. Officially this is classified as a subviral satellite RNA. [NIH]

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

Hepatovirus: A genus of Picornaviridae causing infectious hepatitis naturally in humans and experimentally in other primates. It is transmitted through fecal contamination of food or water. [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]

Heterodimer: Zippered pair of nonidentical proteins. [NIH]

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

Histamine: 1H-Imidazole-4-ethanamine. A depressor amine derived by enzymatic decarboxylation of histidine. It is a powerful stimulant of gastric secretion, a constrictor of bronchial smooth muscle, a vasodilator, and also a centrally acting neurotransmitter. [NIH]

Histamine Release: The secretion of histamine from mast cell and basophil granules by exocytosis. This can be initiated by a number of factors, all of which involve binding of IgE, cross-linked by antigen, to the mast cell or basophil's Fc receptors. Once released, histamine binds to a number of different target cell receptors and exerts a wide variety of effects. [NIH]

Histidine: An essential amino acid important in a number of metabolic processes. It is required for the production of histamine. [NIH]

Histocompatibility: The degree of antigenic similarity between the tissues of different individuals, which determines the acceptance or rejection of allografts. [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]

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]

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

Humeral: 1. Of, relating to, or situated in the region of the humerus: brachial. 2. Of or belonging to the shoulder. 3. Of, relating to, or being any of several body parts that are analogous in structure, function, or location to the humerus or shoulder. [EU]

Humoral: Of, relating to, proceeding from, or involving a bodily humour - now often used of endocrine factors as opposed to neural or somatic. [EU]

Humour: 1. A normal functioning fluid or semifluid of the body (as the blood, lymph or bile) especially of vertebrates. 2. A secretion that is itself an excitant of activity (as certain hormones). [EU]

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

Hydrocortisone: The main glucocorticoid secreted by the adrenal cortex. Its synthetic counterpart is used, either as an injection or topically, in the treatment of inflammation, allergy, collagen diseases, asthma, adrenocortical deficiency, shock, and some neoplastic conditions. [NIH]

Hydrogen: The first chemical element in the periodic table. It has the atomic symbol H,

atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas. Hydrogen ions are protons. Besides the common H1 isotope, hydrogen exists as the stable isotope deuterium and the unstable, radioactive isotope tritium. [NIH]

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

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [NIH]

Hydrophilic: Readily absorbing moisture; hygroscopic; having strongly polar groups that readily interact with water. [EU]

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

Hydroxylation: Hydroxylate, to introduce hydroxyl into (a compound or radical) usually by replacement of hydrogen. [EU]

Hydroxylysine: A hydroxylated derivative of the amino acid lysine that is present in certain collagens. [NIH]

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

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

Hyperbilirubinemia: Pathologic process consisting of an abnormal increase in the amount of bilirubin in the circulating blood, which may result in jaundice. [NIH]

Hypercalcemia: Abnormally high level of calcium in the blood. [NIH]

Hypercalciuria: Abnormally large amounts of calcium in the urine. [NIH]

Hypercholesterolemia: Abnormally high levels of cholesterol in the blood. [NIH]

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

Hyperreactive: Describes a situation in which a body tissue is especially likely to have an exaggerated reaction to a particular situation. [NIH]

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]

Hyperthermia: A type of treatment in which body tissue is exposed to high temperatures to damage and kill cancer cells or to make cancer cells more sensitive to the effects of radiation and certain anticancer drugs. [NIH]

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

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

Hypoglycemia: Abnormally low blood sugar [NIH]

Hypogonadism: Condition resulting from or characterized by abnormally decreased functional activity of the gonads, with retardation of growth and sexual development. [NIH]

Hypothalamic: Of or involving the hypothalamus. [EU]

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]

Iatrogenic: Resulting from the activity of physicians. Originally applied to disorders induced in the patient by autosuggestion based on the physician's examination, manner, or discussion, the term is now applied to any adverse condition in a patient occurring as the result of treatment by a physician or surgeon, especially to infections acquired by the patient during the course of treatment. [EU]

Ibuprofen: A nonsteroidal anti-inflammatory agent with analgesic properties used in the therapy of rheumatism and arthritis. [NIH]

Ichthyosis: Any of several generalized skin disorders characterized by dryness, roughness, and scaliness, due to hypertrophy of the stratum corneum epidermis. Most are genetic, but some are acquired, developing in association with other systemic disease or genetic syndrome. [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]

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

Immunoassay: Immunochemical assay or detection of a substance by serologic or immunologic methods. Usually the substance being studied serves as antigen both in antibody production and in measurement of antibody by the test substance. [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]

Immunogen: A substance that is capable of causing antibody formation. [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]

Immunophilin: A drug for the treatment of Parkinson's disease. [NIH]

Immunosuppressant: An agent capable of suppressing immune responses. [EU]

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

Immunosuppressive Agents: Agents that suppress immune function by one of several

mechanisms of action. Classical cytotoxic immunosuppressants act by inhibiting DNA synthesis. Others may act through activation of suppressor T-cell populations or by inhibiting the activation of helper cells. While immunosuppression has been brought about in the past primarily to prevent rejection of transplanted organs, new applications involving mediation of the effects of interleukins and other cytokines are emerging. [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]

Immunotoxins: Semisynthetic conjugates of various toxic molecules, including radioactive isotopes and bacterial or plant toxins, with specific immune substances such as immunoglobulins, monoclonal antibodies, and antigens. The antitumor or antiviral immune substance carries the toxin to the tumor or infected cell where the toxin exerts its poisonous effect. [NIH]

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

Imperforate Anus: A birth defect in which the anal canal fails to develop. The condition is treated with an operation. [NIH]

Implant radiation: A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near the tumor. Also called [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 Situ Hybridization: A technique that localizes specific nucleic acid sequences within intact chromosomes, eukaryotic cells, or bacterial cells through the use of specific nucleic acid-labeled probes. [NIH]

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

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

Incision: A cut made in the body during surgery. [NIH]

Incisional: The removal of a sample of tissue for examination under a microscope. [NIH]

Incompetence: Physical or mental inadequacy or insufficiency. [EU]

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

Indomethacin: A non-steroidal anti-inflammatory agent (NSAID) that inhibits the enzyme cyclooxygenase necessary for the formation of prostaglandins and other autacoids. It also inhibits the motility of polymorphonuclear leukocytes. [NIH]

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

Induration: 1. The quality of being hard; the process of hardening. 2. An abnormally hard spot or place. [EU]

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

Infant, Newborn: An infant during the first month after birth. [NIH]

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

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

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

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

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

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

Inflammatory bowel disease: A general term that refers to the inflammation of the colon and rectum. Inflammatory bowel disease includes ulcerative colitis and Crohn's disease. [NIH]

Informed Consent: Voluntary authorization, given to the physician by the patient, with full comprehension of the risks involved, for diagnostic or investigative procedures and medical and surgical treatment. [NIH]

Ingestion: Taking into the body by mouth [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]

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]

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]

Insulin-like: Muscular growth factor. [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-13: T-lymphocyte-derived cytokine that produces proliferation, immunoglobulin isotype switching, and immunoglobulin production by immature B-lymphocytes. It appears to play a role in regulating inflammatory and immune responses. [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]

Interleukins: Soluble factors which stimulate growth-related activities of leukocytes as well as other cell types. They enhance cell proliferation and differentiation, DNA synthesis, secretion of other biologically active molecules and responses to immune and inflammatory stimuli. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Internal Medicine: A medical specialty concerned with the diagnosis and treatment of diseases of the internal organ systems of adults. [NIH]

Internal radiation: A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near the tumor. Also called brachytherapy, implant radiation, or interstitial radiation therapy. [NIH]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

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

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

Intracellular: Inside a cell. [NIH]

Intracellular Membranes: Membranes of subcellular structures. [NIH]

Intraocular: Within the eye. [EU]

Intraocular pressure: Pressure of the fluid inside the eye; normal IOP varies among individuals. [NIH]

Intravenous: IV. Into a vein. [NIH]

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

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

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

Ionizing: Radiation comprising charged particles, e. g. electrons, protons, alpha-particles, etc., having sufficient kinetic energy to produce ionization by collision. [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]

Irritable Bowel Syndrome: A disorder that comes and goes. Nerves that control the muscles in the GI tract are too active. The GI tract becomes sensitive to food, stool, gas, and stress. Causes abdominal pain, bloating, and constipation or diarrhea. Also called spastic colon or mucous colitis. [NIH]

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

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [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]

Keloid: A sharply elevated, irregularly shaped, progressively enlarging scar resulting from formation of excessive amounts of collagen in the dermis during connective tissue repair. It is differentiated from a hypertrophic scar (cicatrix, hypertrophic) in that the former does not spread to surrounding tissues. [NIH]

Ketoprofen: An ibuprofen-type anti-inflammatory analgesic and antipyretic. It is used in the treatment of rheumatoid arthritis and osteoarthritis. [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 Failure: The inability of a kidney to excrete metabolites at normal plasma levels under conditions of normal loading, or the inability to retain electrolytes under conditions of normal intake. In the acute form (kidney failure, acute), it is marked by uremia and usually by oliguria or anuria, with hyperkalemia and pulmonary edema. The chronic form (kidney failure, chronic) is irreversible and requires hemodialysis. [NIH]

Kidney Failure, Acute: A clinical syndrome characterized by a sudden decrease in glomerular filtration rate, often to values of less than 1 to 2 ml per minute. It is usually associated with oliguria (urine volumes of less than 400 ml per day) and is always associated with biochemical consequences of the reduction in glomerular filtration rate such as a rise in blood urea nitrogen (BUN) and serum creatinine concentrations. [NIH]

Kidney Failure, Chronic: An irreversible and usually progressive reduction in renal function in which both kidneys have been damaged by a variety of diseases to the extent that they are unable to adequately remove the metabolic products from the blood and regulate the body's electrolyte composition and acid-base balance. Chronic kidney failure

requires hemodialysis or surgery, usually kidney transplantation. [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]

Killer Cells: Lymphocyte-like effector cells which mediate antibody-dependent cell cytotoxicity. They kill antibody-coated target cells which they bind with their Fc receptors. [NIH]

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

Lacrimal: Pertaining to the tears. [EU]

Lacrimal gland: The small almond-shaped structure that produces tears; located just above the outer corner of the eye. [NIH]

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

Laryngeal: Having to do with the larynx. [NIH]

Larynx: An irregularly shaped, musculocartilaginous tubular structure, lined with mucous membrane, located at the top of the trachea and below the root of the tongue and the hyoid bone. It is the essential sphincter guarding the entrance into the trachea and functioning secondarily as the organ of voice. [NIH]

Laser therapy: The use of an intensely powerful beam of light to kill cancer cells. [NIH]

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

Lavage: A cleaning of the stomach and colon. Uses a special drink and enemas. [NIH]

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

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]

Leucine: An essential branched-chain amino acid important for hemoglobin formation. [NIH]

Leucocyte: All the white cells of the blood and their precursors (myeloid cell series, lymphoid cell series) but commonly used to indicate granulocytes exclusive of lymphocytes. [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]

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

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

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]

Lip: Either of the two fleshy, full-blooded margins of the mouth. [NIH]

Lipid: Fat. [NIH]

Lipodystrophy: A collection of rare conditions resulting from defective fat metabolism and characterized by atrophy of the subcutaneous fat. They include total, congenital or acquired, partial, abdominal infantile, and localized lipodystrophy. [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]

Liver Transplantation: The transference of a part of or an entire liver from one human or animal to another. [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]

Longitudinal Studies: Studies in which variables relating to an individual or group of individuals are assessed over a period of time. [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]

Lower Esophageal Sphincter: The muscle between the esophagus and stomach. When a person swallows, this muscle relaxes to let food pass from the esophagus to the stomach. It stays closed at other times to keep stomach contents from flowing back into the esophagus. [NIH]

Lubricants: Oily or slippery substances. [NIH]

Lubrication: The application of a substance to diminish friction between two surfaces. It may refer to oils, greases, and similar substances for the lubrication of medical equipment but it can be used for the application of substances to tissue to reduce friction, such as lotions for skin and vaginal lubricants. [NIH]

Lumbar: Pertaining to the loins, the part of the back between the thorax and the pelvis. [EU]

Lung Transplantation: The transference of either one or both of the lungs from one human or animal to another. [NIH]

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

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

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

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]

Lymphocyte Subsets: A classification of lymphocytes based on structurally or functionally different populations of cells. [NIH]

Lymphocyte Transformation: Morphologic alteration of small lymphocytes in culture into large blast-like cells able to synthesize DNA and RNA and to divide mitotically. It is induced by interleukins, mitogens such as phytohemagglutinins, and by specific antigens. It may also occur in vivo, as in graft rejection and chronic myelogenous leukemia. [NIH]

Lymphocytic: Referring to lymphocytes, a type of white blood cell. [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]

Lymphomatoid Granulomatosis: An angiocentric and angiodestructive lymphoreticular proliferative disorder primarily involving the lungs. Histologically it simulates malignant lymphoma and in some cases may progress to lymphoma. [NIH]

Lymphopenia: Reduction in the number of lymphocytes. [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]

Lysosome: A sac-like compartment inside a cell that has enzymes that can break down cellular components that need to be destroyed. [NIH]

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]

Macula: A stain, spot, or thickening. Often used alone to refer to the macula retinae. [EU]

Macula Lutea: An oval area in the retina, 3 to 5 mm in diameter, usually located temporal to the superior pole of the eye and slightly below the level of the optic disk. [NIH]

Macular Degeneration: Degenerative changes in the macula lutea of the retina. [NIH]

Magnetic Resonance Imaging: Non-invasive method of demonstrating internal anatomy based on the principle that atomic nuclei in a strong magnetic field absorb pulses of radiofrequency energy and emit them as radiowaves which can be reconstructed into computerized images. The concept includes proton spin tomographic techniques. [NIH]

Major Histocompatibility Complex: The genetic region which contains the loci of genes which determine the structure of the serologically defined (SD) and lymphocyte-defined

(LD) transplantation antigens, genes which control the structure of the immune response-associated (Ia) antigens, the immune response (Ir) genes which control the ability of an animal to respond immunologically to antigenic stimuli, and genes which determine the structure and/or level of the first four components of complement. [NIH]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Malabsorption syndrome: A group of symptoms such as gas, bloating, abdominal pain, and diarrhea resulting from the body's inability to properly absorb nutrients. [NIH]

Malaise: A vague feeling of bodily discomfort. [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]

Malignancy: A cancerous tumor that can invade and destroy nearby tissue and spread to other parts of the body. [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]

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

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]

Maple Syrup Urine Disease: A genetic disorder involving deficiency of an enzyme necessary in the metabolism of branched-chain amino acids, and named for the characteristic odor of the urine. [NIH]

Measles Virus: The type species of morbillivirus and the cause of the highly infectious human disease measles, which affects mostly children. [NIH]

Medial: Lying near the midsaggital plane of the body; opposed to lateral. [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]

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]

Medullary: Pertaining to the marrow or to any medulla; resembling marrow. [EU]

Melanin: The substance that gives the skin its color. [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]

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

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

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

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

Meningioma: A type of tumor that occurs in the meninges, the membranes that cover and protect the brain and spinal cord. Meningiomas usually grow slowly. [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]

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]

Mental Processes: Conceptual functions or thinking in all its forms. [NIH]

Mesenchymal: Refers to cells that develop into connective tissue, blood vessels, and lymphatic tissue. [NIH]

Mesenteric: Pertaining to the mesentery : a membranous fold attaching various organs to the body wall. [EU]

Mesentery: A layer of the peritoneum which attaches the abdominal viscera to the abdominal wall and conveys their blood vessels and nerves. [NIH]

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

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

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]

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]

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

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

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

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

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]

Mineralocorticoids: A group of corticosteroids primarily associated with the regulation of water and electrolyte balance. This is accomplished through the effect on ion transport in renal tubules, resulting in retention of sodium and loss of potassium. Mineralocorticoid secretion is itself regulated by plasma volume, serum potassium, and angiotensin II. [NIH]

Miotic: 1. Pertaining to, characterized by, or producing miosis : contraction of the pupil. 2. An agent that causes the pupil to contract. 3. Meiotic: characterized by cell division. [EU]

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]

Mobilization: The process of making a fixed part or stored substance mobile, as by separating a part from surrounding structures to make it accessible for an operative procedure or by causing release into the circulation for body use of a substance stored in the body. [EU]

Modeling: A treatment procedure whereby the therapist presents the target behavior which the learner is to imitate and make part of his repertoire. [NIH]

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

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

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

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

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

Monoclonal antibodies: Laboratory-produced substances that can locate and bind to cancer

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

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

Mononuclear: A cell with one nucleus. [NIH]

Mononucleosis: The presence of an abnormally large number of mononuclear leucocytes (monocytes) in the blood. The term is often used alone to refer to infectious mononucleosis. [EU]

Morbillivirus: A genus of the family Paramyxoviridae (subfamily Paramyxovirinae) where all the virions have hemagglutinin but not neuraminidase activity. All members produce both cytoplasmic and intranuclear inclusion bodies. MEASLES VIRUS is the type species. [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]

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

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

Mucociliary: Pertaining to or affecting the mucus membrane and hairs (including eyelashes, nose hair, .): mucociliary clearing: the clearance of mucus by ciliary movement (particularly in the respiratory system). [EU]

Mucocutaneous: Pertaining to or affecting the mucous membrane and the skin. [EU]

Mucolytic: Destroying or dissolving mucin; an agent that so acts : a mucopolysaccharide or glycoprotein, the chief constituent of mucus. [EU]

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

Mucus: The viscous secretion of mucous membranes. It contains mucin, white blood cells, water, inorganic salts, and exfoliated cells. [NIH]

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

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]

Musculature: The muscular apparatus of the body, or of any part of it. [EU]

Musculoskeletal System: Themuscles, bones, and cartilage of the body. [NIH]

Myasthenia: Muscular debility; any constitutional anomaly of muscle. [EU]

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]

Mycophenolate mofetil: A drug that is being studied for its effectiveness in preventing graft-versus-host disease and autoimmune disorders. [NIH]

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

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

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

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

Myopathy: Any disease of a muscle. [EU]

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

Myotonic Dystrophy: A condition presenting muscle weakness and wasting which may be progressive. [NIH]

Naphthaleneacetic Acids: Naphthalene derivatives containing the -CH2CCO2H radical at the 1-position, the 2-position, or both. Compounds are used as plant growth regulators to delay sprouting, exert weed control, thin fruit, etc. [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]

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

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]

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]

Nephrologist: A doctor who treats patients with kidney problems or hypertension. [NIH]

Nephrology: A subspecialty of internal medicine concerned with the anatomy, physiology, and pathology of the kidney. [NIH]

Nephrons: The functional units of the kidney, consisting of the glomerulus and the attached tubule. [NIH]

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]

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

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

Neurologic: Having to do with nerves or 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]

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]

Neutrophil: A type of white blood cell. [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]

Nonmetastatic: Cancer that has not spread from the primary (original) site to other sites in the body. [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]

Nuclear Proteins: Proteins found in the nucleus of a cell. Do not confuse with nucleoproteins which are proteins conjugated with nucleic acids, that are not necessarily present in the nucleus. [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]

Nucleoproteins: Proteins conjugated with nucleic acids. [NIH]

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

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

Ocular Hypertension: A condition in which the intraocular pressure is elevated above normal and which may lead to glaucoma. [NIH]

Odds Ratio: The ratio of two odds. The exposure-odds ratio for case control data is the ratio of the odds in favor of exposure among cases to the odds in favor of exposure among noncases. The disease-odds ratio for a cohort or cross section is the ratio of the odds in favor of disease among the exposed to the odds in favor of disease among the unexposed. The prevalence-odds ratio refers to an odds ratio derived cross-sectionally from studies of prevalent cases. [NIH]

Oliguria: Clinical manifestation of the urinary system consisting of a decrease in the amount of urine secreted. [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]

Ophthalmologic: Pertaining to ophthalmology (= the branch of medicine dealing with the eye). [EU]

Ophthalmology: A surgical specialty concerned with the structure and function of the eye and the medical and surgical treatment of its defects and diseases. [NIH]

Optic Chiasm: The X-shaped structure formed by the meeting of the two optic nerves. At the optic chiasm the fibers from the medial part of each retina cross to project to the other side of the brain while the lateral retinal fibers continue on the same side. As a result each half of the brain receives information about the contralateral visual field from both eyes. [NIH]

Optic Disk: The portion of the optic nerve seen in the fundus with the ophthalmoscope. It is formed by the meeting of all the retinal ganglion cell axons as they enter the optic nerve. [NIH]

Optic Nerve: The 2nd cranial nerve. The optic nerve conveys visual information from the retina to the brain. The nerve carries the axons of the retinal ganglion cells which sort at the optic chiasm and continue via the optic tracts to the brain. The largest projection is to the lateral geniculate nuclei; other important targets include the superior colliculi and the suprachiasmatic nuclei. Though known as the second cranial nerve, it is considered part of the central nervous system. [NIH]

Oral Health: The optimal state of the mouth and normal functioning of the organs of the mouth without evidence of disease. [NIH]

Oral Manifestations: Disorders of the mouth attendant upon non-oral disease or injury. [NIH]

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

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

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]

Ossification: The formation of bone or of a bony substance; the conversion of fibrous tissue or of cartilage into bone or a bony substance. [EU]

Osteitis Fibrosa Cystica: A fibrous degeneration, cyst formation, and the presence of fibrous nodules in bone, usually due to hyperparathyroidism. [NIH]

Osteoarthritis: Degeneration of articular cartilage. Primary osteoarthritis is very common in older persons, especially affecting weight-bearing joints. Articular cartilage becomes soft, frayed and thinned. [NIH]

Osteomalacia: A condition marked by softening of the bones (due to impaired mineralization, with excess accumulation of osteoid), with pain, tenderness, muscular weakness, anorexia, and loss of weight, resulting from deficiency of vitamin D and calcium. [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]

Osteoporosis: Reduction of bone mass without alteration in the composition of bone, leading to fractures. Primary osteoporosis can be of two major types: postmenopausal osteoporosis and age-related (or senile) osteoporosis. [NIH]

Osteosclerosis: An abnormal hardening or increased density of bone tissue. [NIH]

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]

Ovary: Either of the paired glands in the female that produce the female germ cells and secrete some of the female sex hormones. [NIH]

Oxalate: A chemical that combines with calcium in urine to form the most common type of kidney stone (calcium oxalate stone). [NIH]

Oxygenase: Enzyme which breaks down heme, the iron-containing oxygen-carrying constituent of the red blood cells. [NIH]

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

Palate: The structure that forms the roof of the mouth. It consists of the anterior hard palate and the posterior soft palate. [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]

Pancreas Transplant: A surgical procedure that involves replacing the pancreas of a person who has diabetes with a healthy pancreas that can make insulin. The healthy pancreas comes from a donor who has just died or from a living relative. A person can donate half a pancreas and still live normally. [NIH]

Pancreas Transplantation: The transference of a pancreas from one human or animal to another. [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]

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

Paranasal Sinuses: Air-filled extensions of the respiratory part of the nasal cavity into the frontal, ethmoid, sphenoid, and maxillary cranial bones. They vary in size and form in different individuals and are lined by the ciliated mucous membranes of the nasal cavity. [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]

Parathyroid: 1. Situated beside the thyroid gland. 2. One of the parathyroid glands. 3. A

sterile preparation of the water-soluble principle(s) of the parathyroid glands, ad-ministered parenterally as an antihypocalcaemic, especially in the treatment of acute hypoparathyroidism with tetany. [EU]

Parathyroid Glands: Two small paired endocrine glands in the region of the thyroid gland. They secrete parathyroid hormone and are concerned with the metabolism of calcium and phosphorus. [NIH]

Parathyroid hormone: A substance made by the parathyroid gland that helps the body store and use calcium. Also called parathormone, parathyrin, or PTH. [NIH]

Paratuberculosis: An infectious disease caused by Mycobacterium paratuberculosis. Characteristics include chronic debilitation and weight loss. [NIH]

Parenchyma: The essential elements of an organ; used in anatomical nomenclature as a general term to designate the functional elements of an organ, as distinguished from its framework, or stroma. [EU]

Parotid: The space that contains the parotid gland, the facial nerve, the external carotid artery, and the retromandibular vein. [NIH]

Parotitis: Inflammation of the parotid gland. [NIH]

Paroxysmal: Recurring in paroxysms (= spasms or seizures). [EU]

Partial remission: The shrinking, but not complete disappearance, of a tumor in response to therapy. Also called partial response. [NIH]

Patch: A piece of material used to cover or protect a wound, an injured part, etc.: a patch over the eye. [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]

Penicillin: An antibiotic drug used to treat infection. [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]

Perennial: Lasting through the year of for several years. [EU]

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

Periodontal disease: Disease involving the supporting structures of the teeth (as the gums and periodontal membranes). [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]

Peripheral stem cells: Immature cells found circulating in the bloodstream. New blood cells develop from peripheral stem cells. [NIH]

Peritoneal: Having to do with the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen). [NIH]

Peritoneal Cavity: The space enclosed by the peritoneum. It is divided into two portions, the greater sac and the lesser sac or omental bursa, which lies behind the stomach. The two sacs are connected by the foramen of Winslow, or epiploic foramen. [NIH]

Peritoneal Dialysis: Dialysis fluid being introduced into and removed from the peritoneal cavity as either a continuous or an intermittent procedure. [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]

Peroxidase: A hemeprotein from leukocytes. Deficiency of this enzyme leads to a hereditary disorder coupled with disseminated moniliasis. It catalyzes the conversion of a donor and peroxide to an oxidized donor and water. EC 1.11.1.7. [NIH]

Peroxide: Chemical compound which contains an atom group with two oxygen atoms tied to each other. [NIH]

Phagocytosis: The engulfing of microorganisms, other cells, and foreign particles by phagocytic cells. [NIH]

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

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

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

Phenylalanine: An aromatic amino acid that is essential in the animal diet. It is a precursor of melanin, dopamine, noradrenalin, and thyroxine. [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]

Phosphorous: Having to do with or containing the element phosphorus. [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]

Phosphorylate: Attached to a phosphate group. [NIH]

Physical Examination: Systematic and thorough inspection of the patient for physical signs of disease or abnormality. [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]

Physiology: The science that deals with the life processes and functions of organismus, their cells, tissues, and organs. [NIH]

Phytohemagglutinins: Mucoproteins isolated from the kidney bean (Phaseolus vulgaris); some of them are mitogenic to lymphocytes, others agglutinate all or certain types of erythrocytes or lymphocytes. They are used mainly in the study of immune mechanisms and in cell culture. [NIH]

Pigment: A substance that gives color to tissue. Pigments are responsible for the color of skin, eyes, and hair. [NIH]

Pilocarpine: A slowly hydrolyzed muscarinic agonist with no nicotinic effects. Pilocarpine is used as a miotic and in the treatment of glaucoma. [NIH]

Pilot study: The initial study examining a new method or treatment. [NIH]

Piroxicam: 4-Hydroxy-2-methyl-N-2-pyridyl-2H-1,2-benzothiazine-3-carboxamide 1,1-dioxide. A non-steroidal anti-inflammatory agent that is well established in the treatment of rheumatoid arthritis and osteoarthritis. Its usefulness has also been demonstrated in the treatment of musculoskeletal disorders, dysmenorrhea, and postoperative pain. Its long half-life enables it to be administered once daily. The drug has also been shown to be effective if administered rectally. Gastrointestinal complaints are the most frequently reported side effects. [NIH]

Pituitary Gland: A small, unpaired gland situated in the sella turcica tissue. It is connected to the hypothalamus by a short stalk. [NIH]

Plague: An acute infectious disease caused by Yersinia pestis that affects humans, wild rodents, and their ectoparasites. This condition persists due to its firm entrenchment in sylvatic rodent-flea ecosystems throughout the world. Bubonic plague is the most common form. [NIH]

Plant Growth Regulators: Any of the hormones produced naturally in plants and active in controlling growth and other functions. There are three primary classes: auxins, cytokinins, and gibberellins. [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]

Plaque: A clear zone in a bacterial culture grown on an agar plate caused by localized destruction of bacterial cells by a bacteriophage. The concentration of infective virus in a fluid can be estimated by applying the fluid to a culture and counting the number of. [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]

Plasmacytoma: Any discrete, presumably solitary, mass of neoplastic plasma cells either in bone marrow or various extramedullary sites. [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]

Pneumoconiosis: Condition characterized by permanent deposition of substantial amounts of particulate matter in the lungs, usually of occupational or environmental origin, and by the tissue reaction to its presence. [NIH]

Pneumonitis: A disease caused by inhaling a wide variety of substances such as dusts and molds. Also called "farmer's disease". [NIH]

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

Policy Making: The decision process by which individuals, groups or institutions establish policies pertaining to plans, programs or procedures. [NIH]

Pollen: The male fertilizing element of flowering plants analogous to sperm in animals. It is released from the anthers as yellow dust, to be carried by insect or other vectors, including wind, to the ovary (stigma) of other flowers to produce the embryo enclosed by the seed. The pollens of many plants are allergenic. [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]

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]

Polyposis: The development of numerous polyps (growths that protrude from a mucous membrane). [NIH]

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

Pons: The part of the central nervous system lying between the medulla oblongata and the mesencephalon, ventral to the cerebellum, and consisting of a pars dorsalis and a pars ventralis. [NIH]

Porphyria: A group of disorders characterized by the excessive production of porphyrins or their precursors that arises from abnormalities in the regulation of the porphyrin-heme

pathway. The porphyrias are usually divided into three broad groups, erythropoietic, hepatic, and erythrohepatic, according to the major sites of abnormal porphyrin synthesis. [NIH]

Porphyrins: A group of compounds containing the porphin structure, four pyrrole rings connected by methine bridges in a cyclic configuration to which a variety of side chains are attached. The nature of the side chain is indicated by a prefix, as uroporphyrin, hematoporphyrin, etc. The porphyrins, in combination with iron, form the heme component in biologically significant compounds such as hemoglobin and myoglobin. [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]

Postmenopausal: Refers to the time after menopause. Menopause is the time in a woman's life when menstrual periods stop permanently; also called "change of life." [NIH]

Postnatal: Occurring after birth, with reference to the newborn. [EU]

Postoperative: After surgery. [NIH]

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]

Predisposition: A latent susceptibility to disease which may be activated under certain conditions, as by stress. [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]

Prednisone: A synthetic anti-inflammatory glucocorticoid derived from cortisone. It is biologically inert and converted to prednisolone in the liver. [NIH]

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]

Procollagen: A biosynthetic precursor of collagen containing additional amino acid sequences at the amino-terminal ends of the three polypeptide chains. Protocollagen, a precursor of procollagen consists of procollagen peptide chains in which proline and lysine have not yet been hydroxylated. [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]

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]

Projection: A defense mechanism, operating unconsciously, whereby that which is emotionally unacceptable in the self is rejected and attributed (projected) to others. [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]

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

Prophylaxis: An attempt to prevent disease. [NIH]

Prospective study: An epidemiologic study in which a group of individuals (a cohort), all free of a particular disease and varying in their exposure to a possible risk factor, is followed over a specific amount of time to determine the incidence rates of the disease in the exposed and unexposed groups. [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]

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

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

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

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

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

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]

Prothrombin: A plasma protein that is the inactive precursor of thrombin. It is converted to thrombin by a prothrombin activator complex consisting of factor Xa, factor V, phospholipid, and calcium ions. Deficiency of prothrombin leads to hypoprothrombinemia. [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]

Prune Belly Syndrome: A syndrome characterized by abdominal wall musculature deficiency, cryptorchism, and urinary tract abnormalities. The syndrome derives its name from its characteristic distended abdomen with wrinkled skin. [NIH]

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]

Psychology: The science dealing with the study of mental processes and behavior in man and animals. [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]

Pulmonary Artery: The short wide vessel arising from the conus arteriosus of the right ventricle and conveying unaerated blood to the lungs. [NIH]

Pulmonary Edema: An accumulation of an excessive amount of watery fluid in the lungs, may be caused by acute exposure to dangerous concentrations of irritant gasses. [NIH]

Pulmonary Fibrosis: Chronic inflammation and progressive fibrosis of the pulmonary alveolar walls, with steadily progressive dyspnea, resulting finally in death from oxygen lack or right heart failure. [NIH]

Pulmonary hypertension: Abnormally high blood pressure in the arteries of the lungs. [NIH]

Pulmonary Sarcoidosis: A disease of unknown etiology characterized by tuberclelike, granulomatous nodules which may affect the skin, the lungs, the lymph nodes, the bones of the distal extremities, the conjunctiva, the lacrimal gland, the retina and the uveal tract. [NIH]

Pulmonary Ventilation: The total volume of gas per minute inspired or expired measured in liters per minute. [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]

Pyogenic: Producing pus; pyopoietic (= liquid inflammation product made up of cells and a thin fluid called liquor puris). [EU]

Quality of Life: A generic concept reflecting concern with the modification and enhancement of life attributes, e.g., physical, political, moral and social environment. [NIH]

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]

Radioactivity: The quality of emitting or the emission of corpuscular or electromagnetic radiations consequent to nuclear disintegration, a natural property of all chemical elements of atomic number above 83, and possible of induction in all other known elements. [EU]

Radiography: Examination of any part of the body for diagnostic purposes by means of roentgen rays, recording the image on a sensitized surface (such as photographic film). [NIH]

Radioimmunotherapy: Radiotherapy where cytotoxic radionuclides are linked to antibodies in order to deliver toxins directly to tumor targets. Therapy with targeted radiation rather than antibody-targeted toxins (immunotoxins) has the advantage that adjacent tumor cells, which lack the appropriate antigenic determinants, can be destroyed by radiation cross-fire. Radioimmunotherapy is sometimes called targeted radiotherapy, but this latter term can also refer to radionuclides linked to non-immune molecules (radiotherapy). [NIH]

Radioisotope: An unstable element that releases radiation as it breaks down. Radioisotopes can be used in imaging tests or as a treatment for cancer. [NIH]

Radiolabeled: Any compound that has been joined with a radioactive substance. [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]

Radiotherapy: The use of ionizing radiation to treat malignant neoplasms and other benign conditions. The most common forms of ionizing radiation used as therapy are x-rays, gamma rays, and electrons. A special form of radiotherapy, targeted radiotherapy, links a cytotoxic radionuclide to a molecule that targets the tumor. When this molecule is an antibody or other immunologic molecule, the technique is called radioimmunotherapy. [NIH]

Ranula: A form of retention cyst of the floor of the mouth, usually due to obstruction of the ducts of the submaxillary or sublingual glands, presenting a slowly enlarging painless deep burrowing mucocele of one side of the mouth. It is also called sublingual cyst and sublingual ptyalocele. [NIH]

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]

Recessive gene: A gene that is phenotypically expressed only when homozygous. [NIH]

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

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

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

Recur: To occur again. Recurrence is the return of cancer, at the same site as the original (primary) tumor or in another location, after the tumor had disappeared. [NIH]

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

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

Reflux: The term used when liquid backs up into the esophagus from the stomach. [NIH]

Refraction: A test to determine the best eyeglasses or contact lenses to correct a refractive error (myopia, hyperopia, or astigmatism). [NIH]

Refractory: Not readily yielding to treatment. [EU]

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]

Regurgitation: A backward flowing, as the casting up of undigested food, or the backward flowing of blood into the heart, or between the chambers of the heart when a valve is incompetent. [EU]

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Relative risk: The ratio of the incidence rate of a disease among individuals exposed to a specific risk factor to the incidence rate among unexposed individuals; synonymous with risk ratio. Alternatively, the ratio of the cumulative incidence rate in the exposed to the cumulative incidence rate in the unexposed (cumulative incidence ratio). The term relative risk has also been used synonymously with odds ratio. This is because the odds ratio and relative risk approach each other if the disease is rare (5 percent of population) and the number of subjects is large. [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]

Renal failure: Progressive renal insufficiency and uremia, due to irreversible and progressive renal glomerular tubular or interstitial disease. [NIH]

Renal Osteodystrophy: Decalcification of bone due to hyperparathyroidism secondary to chronic kidney disease. [NIH]

Renal tubular: A defect in the kidneys that hinders their normal excretion of acids. Failure to excrete acids can lead to weak bones, kidney stones, and poor growth in children. [NIH]

Renin: An enzyme which is secreted by the kidney and is formed from prorenin in plasma and kidney. The enzyme cleaves the Leu-Leu bond in angiotensinogen to generate angiotensin I. EC 3.4.23.15. (Formerly EC 3.4.99.19). [NIH]

Renin-Angiotensin System: A system consisting of renin, angiotensin-converting enzyme, and angiotensin II. Renin, an enzyme produced in the kidney, acts on angiotensinogen, an alpha-2 globulin produced by the liver, forming angiotensin I. The converting enzyme contained in the lung acts on angiotensin I in the plasma converting it to angiotensin II, the most powerful directly pressor substance known. It causes contraction of the arteriolar smooth muscle and has other indirect actions mediated through the adrenal cortex. [NIH]

Renovascular: Of or pertaining to the blood vessels of the kidneys. [EU]

Resorption: The loss of substance through physiologic or pathologic means, such as loss of dentin and cementum of a tooth, or of the alveolar process of the mandible or maxilla. [EU]

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

Respiratory System: The tubular and cavernous organs and structures, by means of which

pulmonary ventilation and gas exchange between ambient air and the blood are brought about. [NIH]

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

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

Retinal: 1. Pertaining to the retina. 2. The aldehyde of retinol, derived by the oxidative enzymatic splitting of absorbed dietary carotene, and having vitamin A activity. In the retina, retinal combines with opsins to form visual pigments. One isomer, 11-cis retinal combines with opsin in the rods (scotopsin) to form rhodopsin, or visual purple. Another, all-trans retinal (trans-r.); visual yellow; xanthopsin) results from the bleaching of rhodopsin by light, in which the 11-cis form is converted to the all-trans form. Retinal also combines with opsins in the cones (photopsins) to form the three pigments responsible for colour vision. Called also retinal, and retinene1. [EU]

Retinal Ganglion Cells: Cells of the innermost nuclear layer of the retina, the ganglion cell layer, which project axons through the optic nerve to the brain. They are quite variable in size and in the shapes of their dendritic arbors, which are generally confined to the inner plexiform layer. [NIH]

Retinoblastoma: An eye cancer that most often occurs in children younger than 5 years. It occurs in hereditary and nonhereditary (sporadic) forms. [NIH]

Retinoid: Vitamin A or a vitamin A-like compound. [NIH]

Retroperitoneal: Having to do with the area outside or behind the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen). [NIH]

Retroperitoneal Fibrosis: A slowly progressive condition of unknown etiology, characterized by deposition of fibrous tissue in the retroperitoneal space compressing the ureters, great vessels, bile duct, and other structures. When associated with abdominal aortic aneurysm, it may be called chronic periaortitis or inflammatory perianeurysmal fibrosis. [NIH]

Retroperitoneal Space: An area occupying the most posterior aspect of the abdominal cavity. It is bounded laterally by the borders of the quadratus lumborum muscles and extends from the diaphragm to the brim of the true pelvis, where it continues as the pelvic extraperitoneal space. [NIH]

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

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

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]

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

Rhinophyma: A manifestation of severe Acne rosacea resulting in significant enlargement of

the nose and occurring primarily in men. It is caused by hypertrophy of the sebaceous glands and surrounding connective tissue. The nose is reddened and marked with numerous telangiectasias. [NIH]

Rhombencephalon: That part of the brain stem constituting the medulla oblongata (myelencephalon) and pons (metencephalon). [NIH]

Ribavirin: 1-beta-D-Ribofuranosyl-1H-1,2,4-triazole-3-carboxamide. A nucleoside antimetabolite antiviral agent that blocks nucleic acid synthesis and is used against both RNA and DNA viruses. [NIH]

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

Rickets: A condition caused by deficiency of vitamin D, especially in infancy and childhood, with disturbance of normal ossification. The disease is marked by bending and distortion of the bones under muscular action, by the formation of nodular enlargements on the ends and sides of the bones, by delayed closure of the fontanelles, pain in the muscles, and sweating of the head. Vitamin D and sunlight together with an adequate diet are curative, provided that the parathyroid glands are functioning properly. [EU]

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

Rods: One type of specialized light-sensitive cells (photoreceptors) in the retina that provide side vision and the ability to see objects in dim light (night vision). [NIH]

Salicylate: Non-steroidal anti-inflammatory drugs. [NIH]

Saline: A solution of salt and water. [NIH]

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

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

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

Salmonellosis: Infection by salmonellae. [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]

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]

Scleritis: Refers to any inflammation of the sclera including episcleritis, a benign condition affecting only the episclera, which is generally short-lived and easily treated. Classic scleritis, on the other hand, affects deeper tissue and is characterized by higher rates of visual acuity loss and even mortality, particularly in necrotizing form. Its characteristic

symptom is severe and general head pain. Scleritis has also been associated with systemic collagen disease. Etiology is unknown but is thought to involve a local immune response. Treatment is difficult and includes administration of anti-inflammatory and immunosuppressive agents such as corticosteroids. Inflammation of the sclera may also be secondary to inflammation of adjacent tissues, such as the conjunctiva. [NIH]

Scleroderma: A chronic disorder marked by hardening and thickening of the skin. Scleroderma can be localized or it can affect the entire body (systemic). [NIH]

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]

Sebaceous: Gland that secretes sebum. [NIH]

Sebaceous gland: Gland that secretes sebum. [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]

Segmental: Describing or pertaining to a structure which is repeated in similar form in successive segments of an organism, or which is undergoing segmentation. [NIH]

Segmentation: The process by which muscles in the intestines move food and wastes through the body. [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]

Self-Help Groups: Organizations which provide an environment encouraging social interactions through group activities or individual relationships especially for the purpose of rehabilitating or supporting patients, individuals with common health problems, or the elderly. They include therapeutic social clubs. [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]

Senile: Relating or belonging to old age; characteristic of old age; resulting from infirmity of old age. [NIH]

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

Serologic: Analysis of a person's serum, especially specific immune or lytic serums. [NIH]

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

Sex Determination: The biological characteristics which distinguish human beings as female or male. [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]

Silicosis: A type of pneumoconiosis caused by inhalation of particles of silica, quartz, ganister or slate. [NIH]

Sinusitis: An inflammatory process of the mucous membranes of the paranasal sinuses that occurs in three stages: acute, subacute, and chronic. Sinusitis results from any condition causing ostial obstruction or from pathophysiologic changes in the mucociliary transport mechanism. [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]

Skull: The skeleton of the head including the bones of the face and the bones enclosing the brain. [NIH]

Sleep apnea: A serious, potentially life-threatening breathing disorder characterized by repeated cessation of breathing due to either collapse of the upper airway during sleep or absence of respiratory effort. [NIH]

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

Smooth muscle: Muscle that performs automatic tasks, such as constricting blood vessels. [NIH]

Social Environment: The aggregate of social and cultural institutions, forms, patterns, and processes that influence the life of an individual or community. [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]

Sodium salicylate: A drug that belongs to the family of drugs called nonsteroidal anti-inflammatory drugs. Sodium salicylate may be tolerated by people who are sensitive to aspirin. [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]

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

Spastic: 1. Of the nature of or characterized by spasms. 2. Hypertonic, so that the muscles are stiff and the movements awkward. 3. A person exhibiting spasticity, such as occurs in spastic paralysis or in cerebral palsy. [EU]

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

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

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

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]

Sphenoid: An unpaired cranial bone with a body containing the sphenoid sinus and forming the posterior part of the medial walls of the orbits. [NIH]

Sphenoid Sinus: One of the paired paranasal sinuses, located in the body of the sphenoid bone and communicating with the highest meatus of the nasal cavity on the same side. [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]

Spirochete: Lyme disease. [NIH]

Spirometry: Measurement of volume of air inhaled or exhaled by the lung. [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]

Sprue: A non febrile tropical disease of uncertain origin. [NIH]

Sputum: The material expelled from the respiratory passages by coughing or clearing the throat. [NIH]

Steatorrhea: A condition in which the body cannot absorb fat. Causes a buildup of fat in the stool and loose, greasy, and foul bowel movements. [NIH]

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

Sterile: Unable to produce children. [NIH]

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]

Steroid therapy: Treatment with corticosteroid drugs to reduce swelling, pain, and other symptoms of inflammation. [NIH]

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]

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

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

Stroma: The middle, thickest layer of tissue in the cornea. [NIH]

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

Subconjunctival: Situated or occurring beneath the conjunctiva. [EU]

Subcutaneous: Beneath the skin. [NIH]

Sublingual: Located beneath the tongue. [EU]

Submaxillary: Four to six lymph glands, located between the lower jaw and the submandibular salivary gland. [NIH]

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]

Sulindac: A sulfinylindene derivative whose sulfinyl moiety is converted in vivo to an active anti-inflammatory analgesic that undergoes enterohepatic circulation to maintain

constant blood levels without causing gastrointestinal side effects. [NIH]

Support group: A group of people with similar disease who meet to discuss how better to cope with their cancer and treatment. [NIH]

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

Suramin: A polyanionic compound with an unknown mechanism of action. It is used parenterally in the treatment of African trypanosomiasis and it has been used clinically with diethylcarbamazine to kill the adult Onchocerca. (From AMA Drug Evaluations Annual, 1992, p1643) It has also been shown to have potent antineoplastic properties. [NIH]

Surfactant: A fat-containing protein in the respiratory passages which reduces the surface tension of pulmonary fluids and contributes to the elastic properties of pulmonary tissue. [NIH]

Symphysis: A secondary cartilaginous joint. [NIH]

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

Syncytium: A living nucleated tissue without apparent cellular structure; a tissue composed of a mass of nucleated protoplasm without cell boundaries. [NIH]

Synovial: Of pertaining to, or secreting synovia. [EU]

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

Systemic: Affecting the entire body. [NIH]

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

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]

Systolic: Indicating the maximum arterial pressure during contraction of the left ventricle of the heart. [EU]

Tachycardia: Excessive rapidity in the action of the heart, usually with a heart rate above 100 beats per minute. [NIH]

Technetium: The first artificially produced element and a radioactive fission product of uranium. The stablest isotope has a mass number 99 and is used diagnostically as a radioactive imaging agent. Technetium has the atomic symbol Tc, atomic number 43, and atomic weight 98.91. [NIH]

Telangiectasia: The permanent enlargement of blood vessels, causing redness in the skin or mucous membranes. [NIH]

Temporal: One of the two irregular bones forming part of the lateral surfaces and base of the skull, and containing the organs of hearing. [NIH]

Teratogenic: Tending to produce anomalies of formation, or teratism (= anomaly of formation or development : condition of a monster). [EU]

Testis: Either of the paired male reproductive glands that produce the male germ cells and the male hormones. [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]

Thermolysin: A thermostable extracellular metalloendopeptidase containing four calcium ions. (Enzyme Nomenclature, 1992) 3.4.24.27. [NIH]

Thoracic: Having to do with the chest. [NIH]

Thoracic Surgery: A surgical specialty concerned with diagnosis and treatment of disorders of the heart, lungs, and esophagus. Two major types of thoracic surgery are classified as pulmonary and cardiovascular. [NIH]

Thoracotomy: Surgical incision into the chest wall. [NIH]

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

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]

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

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

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

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

Thyroid Nodule: A small circumscribed mass of differentiated tissue associated with the thyroid gland. It can be pathogenic or non-pathogenic. The growth of nodules can lead to a condition of nodular goiter. Most nodules appear between the ages of 30 and 50 years and most are benign. [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]

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

Tissue Extracts: Preparations made from animal tissues or organs; they usually contain many components, any one of which may be pharmacologically or physiologically active; extracts may contain specific, but uncharacterized factors or proteins with specific actions. [NIH]

Tolmetin: An anti-inflammatory antipyretic and analgesic similar in mode of action to indomethacin. It has been proposed as an antirheumatic agent. [NIH]

Tomography: Imaging methods that result in sharp images of objects located on a chosen plane and blurred images located above or below the plane. [NIH]

Tonsils: Small masses of lymphoid tissue on either side of the throat. [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]

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]

Toxoplasmosis: The acquired form of infection by Toxoplasma gondii in animals and man. [NIH]

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

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

Transcription Factors: Endogenous substances, usually proteins, which are effective in the initiation, stimulation, or termination of the genetic transcription process. [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]

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

Translocation: The movement of material in solution inside the body of the plant. [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]

Tricuspid Atresia: Absence of the orifice between the right atrium and ventricle, with the presence of an atrial defect through which all the systemic venous return reaches the left heart. As a result, there is left ventricular hypertrophy because the right ventricle is absent

or not functional. [NIH]

Tropical Sprue: A condition of unknown cause. Abnormalities in the lining of the small intestine prevent the body from absorbing food normally. [NIH]

Trypanosomiasis: Infection with protozoa of the genus Trypanosoma. [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]

Tuberculin: A sterile liquid containing the growth products of, or specific substances extracted from, the tubercle bacillus; used in various forms in the diagnosis of tuberculosis. [NIH]

Tuberculoma: A tumor-like mass resulting from the enlargement of a tuberculous lesion. [NIH]

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

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]

Tularemia: A plague-like disease of rodents, transmissible to man. It is caused by Francisella tularensis and is characterized by fever, chills, headache, backache, and weakness. [NIH]

Tumor marker: A substance sometimes found in an increased amount in the blood, other body fluids, or tissues and which may mean that a certain type of cancer is in the body. Examples of tumor markers include CA 125 (ovarian cancer), CA 15-3 (breast cancer), CEA (ovarian, lung, breast, pancreas, and gastrointestinal tract cancers), and PSA (prostate cancer). Also called biomarker. [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]

Tyrosine: A non-essential amino acid. In animals it is synthesized from phenylalanine. It is also the precursor of epinephrine, thyroid hormones, and melanin. [NIH]

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

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

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]

Uranium: A radioactive element of the actinide series of metals. It has an atomic symbol U, atomic number 92, and atomic weight 238.03. U-235 is used as the fissionable fuel in nuclear weapons and as fuel in nuclear power reactors. [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]

Uremia: The illness associated with the buildup of urea in the blood because the kidneys are not working effectively. Symptoms include nausea, vomiting, loss of appetite, weakness, and mental confusion. [NIH]

Ureters: Tubes that carry urine from the kidneys to the bladder. [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]

Urinary tract: The organs of the body that produce and discharge urine. These include the kidneys, ureters, bladder, and urethra. [NIH]

Urinary tract infection: An illness caused by harmful bacteria growing in the urinary tract. [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]

Urolithiasis: Stones in the urinary system. [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]

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

Vaginal: Of or having to do with the vagina, the birth canal. [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]

Vasculitis: Inflammation of a blood vessel. [NIH]

Vasodilator: An agent that widens blood vessels. [NIH]

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

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

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

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

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

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

Ventricular: Pertaining to a ventricle. [EU]

Venules: The minute vessels that collect blood from the capillary plexuses and join together

to form veins. [NIH]

Vertebrae: A bony unit of the segmented spinal column. [NIH]

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]

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

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

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

Visual Acuity: Acuteness or clearness of vision, especially of form vision, which is dependent mainly on the sharpness of the retinal focus. [NIH]

Vitamin A: A substance used in cancer prevention; it belongs to the family of drugs called retinoids. [NIH]

Vitreous Body: The transparent, semigelatinous substance that fills the cavity behind the crystalline lens of the eye and in front of the retina. It is contained in a thin hyoid membrane and forms about four fifths of the optic globe. [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]

Wheezing: Breathing with a rasp or whistling sound; a sign of airway constriction or obstruction. [NIH]

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

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

Wound Healing: Restoration of integrity to traumatized tissue. [NIH]

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

Xerostomia: Decreased salivary flow. [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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