



HERBAL MEDICINE

A 3-IN-1 MEDICAL REFERENCE

Medical Dictionary

Bibliography &

Annotated Research Guide

TO INTERNET REFERENCES

HERBAL MEDICINE

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



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

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FORWARD

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

The Editors

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

CHAPTER 1. STUDIES ON HERBAL MEDICINE

Overview

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

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and herbal medicine, 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 “herbal medicine” (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:

- **Treatment of Irritable Bowel Syndrome with Chinese Herbal Medicine: A Randomized Controlled Trial**

Source: JAMA. Journal of the American Medical Association. 280(18): 1585-1589. November 11, 1998.

Summary: Irritable bowel syndrome (IBS) is a common functional bowel disorder for which there is no reliable medical treatment. This article reports on a study undertaken to determine whether Chinese herbal medicine (CHM) is of any benefit in treating IBS. The 116 patients were recruited through 2 teaching hospitals and 5 private practices of gastroenterologists and received CHM in 3 Chinese herbal clinics. Patients were randomly allocated to 1 of 3 treatment groups: individualized Chinese herbal formulations (n = 38), a standard Chinese herbal formulation (n = 43), or placebo (n = 35). Patients received 5 capsules 3 times a day for 16 weeks and were evaluated

regularly by a traditional Chinese herbalist and a gastroenterologist. Patients, gastroenterologists, and herbalists were all blinded to treatment group. The outcome measures were change in total bowel symptom scale scores and global improvement assessed by patients and gastroenterologists and change in the degree of interference with life caused by IBS symptoms assessed by patients. Compared with patients in the placebo group, patients in the active treatment groups had significant improvement in bowel symptom scores (as rated by patients and by gastroenterologists) and significant global improvement as rated by both patients and gastroenterologists. Patients reported that treatment significantly reduced the degree of interference with life caused by IBS symptoms. Chinese herbal formulations individually tailored to the patient proved no more effective than standard CHM treatment. On followup 14 weeks after completion of treatment, only the individualized CHM treatment group maintained improvement. The authors conclude that Chinese herbal formulations appear to improve symptoms for some patients with IBS. 4 tables. 22 references. (AA-M).

- **A Look at Chinese Herbal Medicine From A Western Perspective**

Source: Searchlight; Spring 1994.

Contact: AIDS Research Alliance, 621-A N San Vicente Blvd, West Hollywood, CA, 90069, (310) 358-2423.

Summary: This article examines the use of herbal medicine and its growing acceptance as a method of health care in the United States. Herbal medicine continues to be an accepted form of treatment in the Orient, and plant drugs based on traditional practice represent a huge portion of the pharmaceutical production in modern Germany. In the U.S., three forces have revived the interest in herbal medicine. First, concerns have been raised that modern pharmaceutical practice too often involves costly drugs that produce unacceptable side effects; second, the experience in Europe shows that natural substances can apparently address several modern health concerns with fewer side-effects; and third, the experience in Japan and China shows that modern medicine and traditional herbal medicine can be combined. The author reviews the characteristics of herbal medicine, which actually refer to any natural material of plant, animal, or mineral origin, or any traditional or modern preparation of the natural materials short of preparing an isolated chemical. The author describes the medical use of herbs and their active components. In combination with recent advances in preventive care and treatment of opportunistic infections, herbal medications may prove to be useful tools in reducing symptoms and improving the quality of life for those with HIV-related illness.

- **Herbal Medicine: Some Do's and Don't's for Dialysis Patients**

Source: For Patients Only. 11(2): 22-23. March-April 1998.

Contact: Available from For Patients Only. 18 East 41st Street, New York, NY 10017. (818) 704-5555. Fax (818) 704-6500.

Summary: This article provides some general guidelines regarding herbal medicine. Designed for readers with kidney disease, the article encourages patients to educate themselves adequately before trying any alternative or complementary medicine while they are on dialysis. The author emphasizes the importance of informing health care providers of any supplements or products that one is using in an adjunctive fashion while on dialysis. The author lists a few herbal medicines that can cause a significant decrease in potassium levels and pose a risk to dialysis patients: castor bean oil, aloe ferox resin, cascara sagrada bark, senna leaves or pods, and licorice root. The article includes brief guidelines to follow to ensure the safe use of herbal supplements or other

over-the-counter products. The article concludes with information about the U.S. Government's Office of Alternative Medicine (OAM) and how to reach this office (800-531-1794 or <http://altmed.od.nih.gov>).

- **Herbal Medicine Boom: Understanding What Patients Are Taking**

Source: Cleveland Clinic Journal of Medicine. 65(3): 129-134. March 1998.

Summary: This journal article is designed to help physicians guide their patients in the use of herbal medicines. The first section outlines the reasons why people take herbal medicines, including a fear or distrust of physicians, the belief that natural is better, disappointment with allopathic care, and cultural influences. The second section lists some of the most commonly used herbal medications, their reputed effects, and what is known about possible side effects and drug interactions. The herbal medicines are ginseng, garlic, ginkgo, echinacea, ma huang, saw palmetto, St. John's wort, valerian, and yohimbe. The final section explains why herbal medicine should be regulated; and proposes that manufacturers should be required to ensure the standardization, purity, and consistency of their products. The article includes a list of practical suggestions to offer patients about the use of herbal medicines, and 30 references.

- **Herbal Medicines: Poison or Potions?**

Source: Journal of Laboratory and Clinical Medicine. 139(6): 343-8. June 2002.

Summary: This journal article provides a wide variety of information on herbal medicines, including the reasons for their use, safety issues, beneficial effects, adverse effects, and the role that physicians can play in helping patients make informed treatment decisions. The article gives examples of adverse effects from specific herbs, including: Herbal Ecstasy and Parkinson's syndrome; Chinese medications with undeclared prescription drugs; Indian herbal medications with lead contamination; valerian withdrawal syndrome; adverse reactions of St. John's wort; mu tong and nephropathy; saw palmetto and liver disease; dong quai and hypertension; and kombucha mushroom and coagulation disorders. 1 table. 38 references. 6 pages.

- **What You and Your Patients Should Know About Herbal Medicines**

Source: JAAPA. 14(11): 27-34. November 2001.

Summary: This journal article provides information about what patients should know about herbal medicines. It lists online and print resources where patients can get more information on herbal medicines, dangerous herbs that should not be used, and common uses of popular botanical-based products. It also discusses that the Food and Drug Administration does not regulate herbal products and how the burden of ensuring safe use falls on providers and patients. 2 tables. 3 figures. 24 references. 6 pages.

Federally Funded Research on Herbal Medicine

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

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

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 herbal medicine.

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

- **Project Title: ADVANCES IN ALLERGY, ASTHMA AND IMMUNOLOGY**

Principal Investigator & Institution: Bielory, Leonard; Medicine; Univ of Med/Dent Nj Newark Newark, Nj 07103

Timing: Fiscal Year 2002; Project Start 01-JUL-2002; Project End 30-JUN-2003

Summary: (provided by applicant): Allergy is one of the most common reasons that individuals use alternative and complementary medicine (CAM). There is a plethora of reports regarding CAM in the treatment of allergy, asthma and immunology, but there is a dearth of scientific studies, plenary sessions, workshops presented in the nationally recognized forums. Objective: This application plans to explore "state of the art" CAM practices and "integrate" them into the annual meetings of the 2 major Allergy and Immunology organizations (American College of Allergy, Asthma and Immunology (ACAAI) and the American Academy of Allergy, Asthma and Immunology (AAAAI) by: 1) providing the initial infrastructure for the submission of rigorous original scientific information related to allergic, asthmatic and immunologic disorders; 2) developing an ongoing scientific forum within the framework of the national organizations; 3) generating new research ideas and facilitating collaboration; and 4) publishing the proceedings and providing an ongoing internet resource site related to this application. This will be coordinated by the CAM Oversight Committee (CAMOC) consisting of respected allergy and immunology researchers in conjunction with the UMDNJ - Asthma & Allergy Research Center and the Center for the Study of Alternative and Complementary Medicine. The CAM Advisory Board (CAMAB) will be constituted with leaders from professional national organizations to provide multidisciplinary panel discussions and to generate CAM research priorities for these disciplines as they relate to allergy, asthma and immunology. Preliminary Work: Single workshops have been instituted at each of the upcoming annual meetings (ACAAI 11/01 and AAAAI 03/02). Commitments for a whole day CAM symposium at the ACAAI (11/14/02) and the publication of the proceedings have been obtained. The tentative schedule provides for the Overview of CAM; Overview of **Herbal Medicine** in Asthma; Overview of Homeopathy in Allergies; Overview of Probiotics in Atopic Dermatitis; Medico-Legal Aspects and Adverse Reactions. Summary: This application will provide the catalyst for establishing an ongoing forum for the review and promotion of scientifically based research assessing the impact of CAM in allergy, asthma and immunology.

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

- **Project Title: BETA GLUCAN ENHANCES ANTIBODY THERAPY FOR NEUROBLASTOMA**

Principal Investigator & Institution: Cheung, Nai-Kong V.; Sloan-Kettering Institute for Cancer Res New York, Ny 10021

Timing: Fiscal Year 2002; Project Start 01-MAR-2002; Project End 29-FEB-2004

Summary: This proposal is a phase I trial of orally administered beta-glucan that can enhance the anti-tumor effects of anti-GD2 monoclonal antibody. (MoAb) in the therapy of neuroblastoma (NB). Beta-glucans are polysaccharides of low toxicity found in many common foods. Herbal medicines containing beta-glucans are used clinically as anti-tumor treatments by alternative medicine practitioners. In the laboratory, pure beta-glucans are used clinically as anti-tumor treatments by alternative medicine practitioners. In the laboratory, pure beta-glucans have been demonstrated to prime CR3 (C3-receptor type 3, an iC3b-receptor) of circulating leukocytes (neutrophils, monocyte/macrophages, NK cells). These primed leukocytes can kill tumor cells targeted with iC3b through the activation of complement by anti-cancer antibodies. Previous reports have shown that barley beta-glucans could prime leukocyte CR3 (CD11b/CD18; Mac-1; alphaMbeta2-integrin) for cytotoxicity of tumor cells in vitro, but only if the target cells were coated with iC3b, one of the ligands for CR3. In murine models, highly successful therapy with intravenous yeast beta-glucan required anti-tumor antibodies that could deposit IC3b, plus white cells that express CR3 receptors. The translation of these findings to the clinic has been hindered by the difficulty of isolating pharmaceutical grade soluble beta-glucans of the appropriate molecular weight for patient trials. Moreover, there are concerns about the practicality of a clinical drug that needs to be administered i.v. on a daily basis over prolonged periods of time. We have identified a beta-glucan, extracted from barley (*Hordeum vulgare*), that strongly enhances the effects of anti-cancer MoAbs. This effect is independent of tumor type. Human NB, melanoma, lymphoma, breast cancer and epidermoid carcinoma xenografts respond in the presence of anti-GD2, anti-GD3, anti-CD2-, anti-HER2 and anti-EGFR MoAbs, respectively. While complement activation is essential, the effect is independent of antibody dependent cell-mediated cytotoxicity (ADCC). Barley beta-glucan is highly soluble in water, extremely stable against heat and protease, inexpensive, easy to produce and purify, relatively non-allergenic, and has an excellent safety record when ingested. 3F8 is a murine IgG3 MoAb previously shown to activate human complement and ADCC. It targets efficiently to NB in patients and is clinically safe and efficacious. We plan to define the clinical toxicity of beta-glucan plus 3F8 and test if barley beta-glucan can enhance 3F8, in killing a tumor (i.e. NB) deficient in membrane complement resistance factors and thus allowing complement activation. These findings will have general implications for antibody and vaccine strategies in human cancer models, and the role of polysaccharides as complementary/herbal medicine in immune-based therapies.

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

- **Project Title: BOTANICAS IN ETHNIC HEALTHCARE**

Principal Investigator & Institution: Jones, Michael O.; Professor; Inst for Social Sci Research; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

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

Summary: (APPLICANT'S ABSTRACT): The families of nearly half of Los Angeles County's 8.8 million residents came from Latin America, the Caribbean and the

American South. Because 38% of Latinos and 22% of African Americans lack health insurance, they have limited access to preventive medicine and often delay professional treatment. Botanicas have burgeoned as an alternative health resource. However, little is known about the spiritual, counseling and herbal practices they offer--whom they treat, how or why, and the nature, number, sources, efficacy or safety of the herbal therapies they dispense or employ. This project will document the ethnomedical and spiritual systems of botanicas, providing detailed case studies, interviews and observational data regarding diagnostic and treatment approaches as well as provider beliefs with particular attention to herbal therapies including sources, collection, processing and therapeutic uses of medicinal plants. Results of the study can contribute to increasing the quality of clinical research that evaluates the efficacy of traditional indigenous systems of medicine by discovering the most frequently used plants for the most commonly treated ailments as well as revealing the cultural context of health beliefs and therapeutic practices. While attention has been paid to testing Chinese herbs and selected plants in mainstream Euro-American culture, other traditions remain largely unexplored. Much of the botanical and pharmacological research that has been conducted lacks information on the harvesting of plants (season, time of day, state of plant development), storage, preparation, dosage and route of administration--crucial data for clinical trials evaluating the safety and efficacy of **herbal medicine** as it is actually practiced. Previous research also often misses ethnographical details of the social, symbolic and ritual aspects of plant collection, preparation and usage that may influence the outcome of therapy. This study seeks to uncover such ethnobotanical and ethnographic information, which can serve in future to help educate health personnel about aspects of the ethnomedical and spiritual approaches relied upon by many immigrants and advance the design of methods for testing possible effectiveness of these treatment approaches.

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

- **Project Title: CELL-BASED HIGH THROUGHPUT SCREENING FOR ANTI-ANDROGENS**

Principal Investigator & Institution: Shih, Charles; Androscience Corporation 11175 Flintkote Ave, Ste F San Diego, Ca 92121

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

Summary: (provided by the applicant): Prostate cancer is the most frequently diagnosed cancer in American men and the second leading cause of male cancer death. Antiandrogens have been used with castration to prevent the progression of prostate cancer. However, cancer relapse often occurs within 2-3 years in patients who received this therapy. This has prompted interest in developing better antiandrogens for prostate cancer treatment. Traditional Chinese Herbal Medicines (TCHM) have been shown to block recurrent prostate cancer growth. In our preliminary study, using a newly-developed androgen receptor (AR) and androgen receptor co-activator (ARA)-mediated transactivation assay, it was found that some extracts from TCHM inhibited AR-induced gene activation, suggesting TCHM is an excellent source to search for new antiandrogen drugs. A cell-based androgen/AR activation assay developed from this study is advantageous in discovering antiandrogens that exert their inhibitory function at different stages of an androgen-induced gene activation. Performing this assay could lead to the discovery of potentially new and different antiandrogen drugs. Conventional antiandrogens only interfere with androgen and AR binding, such as HF (hydroxyflutamide) or casodex (bicalutamide). In this application we propose to develop a high throughput 96-well format AR/ARA transactivation assay using three

prostate cancer cell lines: DU145, PC3 and LNCaP. In collaboration with our corporate partner, Plantaceutica Inc. (Chapel Hill, NC), a large number of extracts and compounds from TCHM that are known to possess ingredients with potential antiandrogen and androgenic activities will be screened. Compounds from TCHM extracts with effects to block wild type AR and mutant AR transactivation in all three human prostate cancer cell models will be further tested in a proliferation assay using androgen-sensitive prostate cancer, LNCaP cells to assess their biological efficacy in suppressing prostate cancer cell growth. Compounds discovered by our study with antiandrogenic or androgenic activities will have great potential to be developed into new drugs that will improve the treatment of prostate cancer patients and other androgen related disorders. PROPOSED COMMERCIAL APPLICATION: NOT AVAILABLE

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

- **Project Title: CLINICAL**

Principal Investigator & Institution: Cao, Yunzhen; Natl Ctr for Aids Prevention and Control Prevention and Control (Ncaids) Beijing,

Timing: Fiscal Year 2002; Project Start 01-DEC-2001; Project End 30-NOV-2006

Summary: The first AIDS case was reported in 1985 in China. Since early 1994, the rate of HIV infection has rapidly increased in many provinces in China. AIDS is also becoming a significantly health care concern in China, and it is expected that more and more infected persons will begin to show clinical symptoms. As a result, three clinical HAART trials are being carried out in China since 1999. The data provide first-hand experience of treating HIV-infected patients in China, However, the problems with these drugs are their adverse side effects. Moreover, the drugs are too expensive to treated HIV infected persons and AIDS patients in Chian. The rise in HIV infection is a serious situation that calls for new innovations by the Chinese medical and health professionals in order to control the pandemic of HIV infection in China. The rise in HIV infection is a serious situation that calls for new innovations by the Chinese medical and health professionals in order to control the pandemic of HIV infection in China. To demonstrated the clinical and economic benefits of anti-retroviral treatment over routine care, which usually consists of Chinese traditional **herbal medicine**, and palliative care. The specific aims for this project are: 1. To document the clinical presentations of patients with HIV through a retrospective clinical chart review. Presenting symptoms, OI presentations, stage of disease, diagnostic and monitoring tests used, treatment modalities, preventive treatments used, and mortality and morbidity parameters will be examined. 2. To characterize the clinical presentations of HIV through a prospective collection of clinical data. Preventive care, screening, presenting symptoms, OI presentations, diagnostic procedures, stage of disease by CD4/viral load. Data collected from Aims 1 and 2 will be used to accomplish Aim 2. 3. To provide systematic training in HIV clinical management to clinicians who will offer long-term HIV care to prevalent and incident cases determined through CIPRA activities. 4. To establish National Guidelines for the comprehensive clinical management of patients infected with HIV. 5. To conduct a randomized clinical trail to compare the efficacy of HAART with that of traditional Chinese medicine (TCM). 6. To evaluate the virologic responses (emphasize on rebound) and immunologic responses in HIV/HCV co-infected patients before, during and after HAART and treatment with TCM.

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

- **Project Title: COMPLEMENTARY ALTERNATIVE MEDICINE**

Principal Investigator & Institution: Loera, Jose A.; Internal Medicine; University of Texas Medical Br Galveston 301 University Blvd Galveston, Tx 77555

Timing: Fiscal Year 2001; Project Start 10-SEP-2001; Project End 31-AUG-2006

Summary: I became interested in underserved populations at an early stage of my professional career and was attracted by the fact that in a country where pharmacies dispensed most medications without a physician's prescription the use of herbal medicines was quite prevalent. I have had the opportunity of participating in establishing community-based health programs that incorporated alternative therapies in some underserved indigenous reservation populations in Canada. Since joining the University of Texas Medical Branch in 1993, as assistant professor in the Department of Internal Medicine, Geriatric Medicine Division, I have joined the UTMB Hispanic Established Populations for the Epidemiologic Study of the Elderly team. This year I prepared a manuscript reporting the findings on the frequency and patterns of use of **herbal medicine** by elderly Mexican Americans in five Southwestern States based on the first wave collected in 1993-94 and has been submitted to The Journal of Gerontology, Medical Sciences. During the period of preparation of the manuscript I was able to determine that my limited knowledge in epidemiology and statistical analysis were major barriers for me in completing this manuscript. The mentored clinical scientist development award will give me the opportunity to improve my knowledge and understanding of science that will help me communicate, participate, assist in the design of studies and analysis of data. I will be able to work more closely with the researchers of the Sealy Center on Aging and the Hispanic EPESE team. This study is the largest population-based survey of Mexican American elderly to providing information on use of **herbal medicine**. Little is known at the population-level as to the patterns of alternative medicine use by the fastest growing population of minority elderly in the US. This study's aims are: to determine the prevalence and patterns of complementary and alternative medicine among Mexican American elderly, compare varying patterns of alternative medicine use in terms of their associations with chronic health conditions, and assess the influence of alternative medicine use on the physical, functional, and mental, health of older Mexican Americans.

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- **Project Title: COMPLEMENTARY THERAPIES FOR CANCER PAIN**

Principal Investigator & Institution: Raja, Srinivasa N.; Professor; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

Timing: Fiscal Year 2001

Summary: More than two-thirds of patients with advanced cancer suffer from pain. Persistent pain in cancer is a combination of nociceptive pain from tissue infiltration and inflammation, and neuropathic pain from patients seek complementary and alternative therapies such as nutritional supplements and herbal medicines to alleviate their unmitigated pain. Scientific data on the efficacy and mechanisms of action of these therapies for pain are lacking. Preliminary studies in our laboratories indicate that a soy diet prevents the development of neuropathic pain in an animal model of partial nerve injury and that tart cherries have antioxidant and anti-inflammatory effects. This proposal will examine the analgesic effects of soy and tart cherry as dietary supplements in four different well-established animal models of chronic pain which represent different aspects of pain associated with cancer: a model of chronic inflammation, two models of partial nerve injury, a model of cytotoxic neuropathy, and a model of bone

cancer pain (Sp.Aim 1). The mechanisms underlying the analgesic effects of the soy and tart cherry dietary supplements will be investigated with regard to their interaction with opiate receptors and their effects on the inflammatory process (Sp. Aim 2). These animal models of chronic pain will also be used to investigate the role and mechanism of analgesia of selected, promising traditional Indian, Chinese, and Japanese herbal medicines (Sp. Aim 3). Behavioral studies in rats and mice will be complemented by biochemical assays of cytokines in tissue and serum, and serum levels of isoflavonoids and anthocyanins. The results of these studies should provide new insights into the potential role of complementary therapies for cancer pain and will further our understanding of the mechanisms of interaction of natural dietary and herbal ingredients with the pain signaling process. Data from these studies will be used to select promising candidate herbs for future clinical trials.

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- **Project Title: EDUCATIONAL INITIATIVE IN CAM**

Principal Investigator & Institution: Haramati, Aviad; Professor; Physiology and Biophysics; Georgetown University Washington, Dc 20057

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

Summary: (Provided by applicant): The objective of this project is to develop and implement an educational program at Georgetown University that incorporates and integrates Complementary and Alternative Medicine (CAM) information into the curriculum for students in the School of Medicine. In the School of Medicine at present, the only exposure students receive to CAM information is through an occasional lecture in the preclinical curriculum, or if a student opts for one of a few elective experiences available. To address this serious deficiency, a collaborative and comprehensive program is proposed involving medical educators, CAM practitioners and CAM researchers. The first step of our approach is to develop and implement an experiential and didactic Mind- Body Medicinecourse for first year students (initially for 40 self-selected students but by year 3 for all 180 students). In addition, several first year courses (both basic science and clinical bridge courses) have committed to including lectures on relevant aspects of CAM to all students. A second step will involve development and implementation of two elective courses: one in the Spring of the second year of medical school on CAM information (treatment modalities, **herbal medicine**, etc.) and one in the fourth medical year on CAM practices. These courses will also be offered to self-selected students during the first two years of the project. After careful evaluation of these courses, the third step will be to determine the core CAM content that will be progressively integrated into both the preclinical and clinical curricula in years 2-5 of the project. The fourth step involves the addition of a research component on CAM to be offered to interested students. In addition to educating future medical doctors in CAM, a major aim of the proposed program to train faculty in CAM and to introduce CAM into the philosophy of medical education at Georgetown University. It is the goal of this project that, by the end of the 5 year grant period, all graduates of Georgetown's medical school will have an improved level of awareness about CAM information and practices, so that they will be able to understand and follow the advances in CAM, as well as advise and communicate more effectively with their patients

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- **Project Title: EFFECTS OF CHINESE HERBAL MEDICINES ON ALLERGIC ASTHMA**

Principal Investigator & Institution: Li, Xiu-Min; Pediatrics; Mount Sinai School of Medicine of Nyu of New York University New York, Ny 10029

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

Summary: (provided by applicant): Allergic asthma is a major public health problem, and the morbidity and motility of asthma have increased in the last two decades, particularly in children. The need for safe and effective asthma treatment is greater than ever. Although millions of asthma patients in the US are currently using "herbal therapies," there is little information regarding the efficacy, safety or mechanism[s] of action of herbal anti-asthma formulas. It has been shown that allergic asthma is associated with elevation of serum IgE, airway inflammation and airway hyperresponsiveness (AHR) in both asthmatic patients and animal models. Th 2-type cytokines such as IL-4, IL-5 and IL-13 play a central role in the pathogenesis of allergic asthma. To investigate the effect of herbal interventions for asthma therapy, we evaluated effects of a Chinese herbal formula, MSSM-002, on allergic airway responses using a well-characterized murine model of asthma. MSSM-002, developed in our laboratory, is based on Ja Wai San Zi Tang, used in the China-Japan Friendship Hospital in Beijing, to treat asthma and bronchitis in children. We found that MSSM-002 treatment reduced late-phase AHR, eosinophilic inflammation, mucus production, and IgE and Th2 cytokine production. Suppression of late-phase AHR by MSSM-002 was comparable to that of the potent corticosteroid, dexamethasone, and significantly greater than three commercially available Ma-Huang-containing herbal products. These preliminary results suggest that MSSM-002 has potential as an effective and safe treatment for human asthma. The objective of this project is to further investigate the therapeutic and immunoregulatory mechanisms underlying these effects. We will evaluate whether MSSM-002 can reverse maximally severe AHR, and exert a long-term as well as an acute effect on AHR. We will rigorously control the quality of herbs and consistency of the herbal formula using reproducible analytic methods such as HPLC and TLC, and further assess any possible toxicity utilizing histological and biochemical analyses. Based on our preliminary results, we hypothesize that, in contrast to the generalized immunosuppression produced by corticosteroids, MSSM-002 has specific immunomodulatory effects down-regulating the Th2 response and/or up-regulating the Th1 response, which may underlie the observed reduction of AHR and inflammation by MSSM-002. We will further investigate the effects of MSSM-002 on in vivo and in vitro T cell cytokine production. We further hypothesize that MSSM-002 may exert beneficial regulatory effect on co-stimulatory molecules such as B7-1/B7-2 by antigen-presenting cells, which may be the upstream mechanisms of MSSM-002 regulating T cell responses. To move our study one step closer to human studies, we also plan to test the in vitro effects of MSSM-002 on human T cell responses. Accomplishing these goals should provide an experimental basis for applying Chinese herbal medicines to the treatment of allergic asthma, and for understanding immunoregulatory mechanisms underlying their effects.

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- **Project Title: EFFECTS OF GINSENG AND GINKGO ON DRUG DISPOSITION IN MAN**

Principal Investigator & Institution: Hurwitz, Aryeh A.; Professor; Internal Medicine; University of Kansas Medical Center Msn 1039 Kansas City, Ks 66160

Timing: Fiscal Year 2001; Project Start 27-SEP-2001; Project End 30-JUN-2004

Summary: Over 60 million Americans use herbal medicines, of whom one fourth also take prescription drugs. Physicians often are unaware of herbal use and of possible drug/herb interactions. Ginseng and ginkgo, enhancers of physical and mental performance, are two of the most widely taken herbals. We propose a double-blind, randomized, prospective study of effects of ginseng and ginkgo on 1) disposition of probe drugs, 2) cognitive function, and 3) glutathione-S-transferase (GST) and quinone reductase (NQO1), enzymes implicated in chemoprevention of cancer. Probe drugs will be administered to study effects of herbs on their disposition, not for therapeutic effect. Ideal probes must be safe, well tolerated, have minimal pharmacological effect, and share known metabolic pathways with other clinically used drugs. Medically stable drug-free non-smokers will be enrolled. During a 4-week single-blind run-in subjects will be given a 4-drug probe cocktail: caffeine to study cytochrome P4501A2 (CYP1A2), dextromethorphan for CYP2D6, buspirone (and endogenous cortisol) for CYP3A and fexofenadine for P-glycoprotein. Losartan will be given separately for CYP2C9. These enzymes metabolize over 95 percent of clinically used drugs. Enzyme activities will be determined by assaying appropriate blood and urine specimens for probe drugs and metabolites. Cognitive function will be tested and blood lymphocytes collected for measuring GST and NQO1 activities. Sixty subjects will then be randomly assigned to one of 4 double-blind treatment groups of 15 each: 1) ginseng extract (Ginsana), 2) ginkgo extract (EGb761), 3) both herbs, or 4) matching placebos. Tolerability of herbs will be determined. After 6 to 8 weeks of twice daily treatment with study agents, all effect parameters will be reevaluated: probe drug pharmacokinetics, cognitive function, and GST and NQO1 in blood lymphocytes. Interactions of chronic ginseng and ginkgo with drug-metabolizing pathways and with cognitive function will thus be determined.

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- **Project Title: HERB DRUG INTERACTIONS**

Principal Investigator & Institution: Henderson, Gary L.; Med Pharmacology & Toxicology; University of California Davis Sponsored Programs, 118 Everson Hall Davis, Ca 95616

Timing: Fiscal Year 2001; Project Start 18-SEP-2000; Project End 31-JUL-2005

Summary: The objective of this proposal is to develop a fund of knowledge describing the pharmacologic interactions between herbal products and standard asthma medications. We hypothesize that herbal medicines may alter the pharmacokinetics (i.e., the absorption, distribution, and metabolism) of some asthma medications and therefore the patient's clinical response to these drugs. However, because herbal products are exempt from FDA regulations, the information necessary to predict such interactions is generally unavailable. Studies will be conducted to systematically investigate potential herb-drug interactions in highly standardized experiments using reagents typically used by pharmaceutical companies in development of new drugs. Herbal products will be evaluated *in vitro* for their ability to inhibit drug metabolizing enzymes using recombinant cytochrome P-450 enzymes. In addition, herbal products will be evaluated for their ability to induce drug metabolizing enzymes *in vitro* using cultured human hepatocytes. When potential herb-drug interactions are identified by *in vitro* studies, their clinical significance will be evaluated in pharmacokinetic studies with human volunteers in a future proposal. The results from our studies will be published in the scientific literature and also on the website of the UC Davis Center for Complementary and Alternative Medicine Research in Asthma and Allergy. This information can be used by patients and physicians who wish to use both herbs and standard medications more safely by the FDA to formulate policy, and by pharmaceutical companies to

predict potential interactions with their products already on the market or with drugs under development.

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- **Project Title: IDENTITY/USE OF HERBAL MEDICINES BY ETHNIC COMMUNITIES**

Principal Investigator & Institution: Bennett, Bradley C.; Associate Professor; Florida International University Division of Sponsored Research and Training Miami, FL 33199

Timing: Fiscal Year 2001

Summary: Plants provide most of the world's medicines and, for some populations, they are the only available therapeutic agents. Acceptance of herbal medicines in the U.S., however, only now is becoming widespread. This changing view toward botanical remedies has fostered a dramatic increase in their use. One third of the U.S. population spends at least \$3.5 billion on herbal medicines each year (Canedy 1998, Dodson 1887, Tyler 1996). Use of plant medicines by English speakers in the U.S. increased 380% from 1990 to 1997 (Eisenberg et al. 1998). Herbal remedies always have enjoyed wide acceptance within ethnic communities. Southern Florida has an especially rich cultural mix and corresponding diversity of herbal healing traditions. Yet little data is available on plant medicines used in this region. Physicians increasingly are aware of the importance of traditional remedies, partly because of demands for information from their patients. The mainstream medical community also has expressed concern for interactions between herbal remedies and pharmaceuticals (Eisenberg et al. 1998, Jonas 1998). While there is a growing body on many herbal medicines, little is applicable to southern Florida's electric and tropical pharmacopoeia. This proposed study would survey the use of herbal remedies in southern Florida. The objectives are to: 1. Identify the widely prescribed herbal remedies used by ethnic communities in southern Florida, and 2. To compile scientific data on their toxicity. The goal is not to promote the use of phytochemicals, rather it is to document the use and identify of plant remedies and to provide this information data to the public and medical community. The study will use ethnobotanical methods to identify herbal remedies and their botanical sources and literature and database reviews to provide toxicological pharmacological, and chemical data. Bioassays will provide additional data on pharmacological activity and toxicity. The study is modeled that TRAMIL (Traditional Medicines in the Islands), which documented and use of herbal remedies in the Caribbean (Robineau and Soejarto 1996).

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- **Project Title: ISCAR FOR SUPPLEMENTAL CARE IN STAGE IV LUNG CANCER**

Principal Investigator & Institution: Rosenzweig, Steven; Surgery; Thomas Jefferson University Office of Research Administration Philadelphia, Pa 191075587

Timing: Fiscal Year 2001; Project Start 27-SEP-2001; Project End 28-FEB-2004

Summary: (provided by applicant): Broad, long-term objective: to improve quality of life (QOL) of patients with end-stage cancer. Specifically, we propose to investigate the use of the **herbal medicine**, *Viscum album L.* (mistletoe), as a supplemental therapy to conventional treatment of Stage IV non-small cell lung carcinoma (NSCLC). CAM systems may bring additional benefits to patients already receiving standard medical care. Mistletoe is a promising candidate because extracts and isolates of this plant are already in wide use by cancer patients and because those small studies that have been reported suggest that it is both safe and efficacious in improving QOL. Hypothesis: supplemental treatment with Iscar Mali, an **herbal medicine** made from the total plant

extract of mistletoe, improves immune function and quality of life among Stage IV NSCLC patients receiving conventional chemotherapy. Aims: 1) To determine whether supplemental treatment with Iscador Mali in patients with Stage I\7 NSCLC (I.a.) will increase markers of immune function (as determined by total lymphocyte count, eosinophil count, and lymphocyte subset analysis), AND (I.b.) is well-tolerated by these patients at doses that effectively enhance the immune system; 2) To gather preliminary data for future hypothesis testing on the correlation between immune parameters and six, independent quality of life (QOL) measurements in Stage IV NSCLC patients treated as described in Aim 1. Significance: This Phase 11 clinical trial may i) aid clinicians j and patients by establishing immune parameters as markers of biological response to Iscar therapy; ii) help refine dosing guidelines; iii) suggest QOL improvement, justifying a larger, randomized clinical trial; iv) show that improvements in immune parameters correlate with increases in QOL and justify further evaluation of the immunological mechanisms of Iscar Therapy; or v) serve to caution clinicians and patients away from Iscar therapy and towards safer therapies, should negative therapeutic effects be demonstrated.

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- **Project Title: NEUROPROTECTIVE AGENTS FROM ORIENTAL MEDICINES**

Principal Investigator & Institution: Oh, Tae H.; Professor; Anatomy and Neurobiology; University of Maryland Balt Prof School Baltimore, Md 21201

Timing: Fiscal Year 2001; Project Start 30-SEP-1999; Project End 31-JUL-2004

Summary: (Verbatim from the Applicant's Abstract) Ginsenoside Rg3, Cynandione A, and p-methoxy-trans-cinnamic acid (MCA), all isolated from Oriental herbal medicines, attenuate neurotoxicity induced by glutamate in vitro. Neoline, isolated from Aconiti tubers, protects short-term memory, possibly by influencing central cholinergic transmission. The present proposal is designed to elucidate the mechanisms of their neuroprotective activities in vitro as well as in vivo. The latter mandates transport of these agents across the blood-brain barrier (BBB). Thus, prodrug approaches are adopted for brain delivery. Specific Aim 1 tests a hypothesis that Rg3 and MCA exert neuroprotective activities by inhibiting Ca⁺⁺ influx by determining their effects on Ca⁺⁺ influx in vitro. Aim 2 tests the hypothesis that Rg3, cynandione A and MCA exert neuroprotective activity by inhibiting neuronal apoptosis by assessing their effects on apoptosis and its markers in vitro and in vivo. Aim 3 tests a hypothesis that neoline ameliorates deficits in short-term memory by influencing central cholinergic transmission in the brain. As such, we will determine its effects on muscarinic receptors in vitro and in vivo as, and Ach levels in vivo. Aim 4 addresses issues involved in drug delivery across the BBB. To this end, we propose to synthesize a series of ester prodrugs of Rg3, and Rg3 analog (protopanaxadiol), and MCA. Aim 5 concerns with development of injectable formulations for these test compounds. Note that they are all water-insoluble. The overall goal of this proposal is to identify novel strategies of blocking oxidative stress, which is the primary cause of neuronal death or memory impairment linked to neurodegeneration. Results of this three-way collaborative research are significant in that: I) these curative s have been used in Asian societies for centuries; ii) no effective treatments are currently available for such adult neurodegenerative disorders as Alzheimer's disease or for injuries to the CNS/stroke; and iii) the progressive memory loss observed in various dementia is extremely debilitating, making any palliative measure a major clinical development.

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- **Project Title: PHARMACOLOGICAL AND BEHAVIORAL INDICES OF DRUG ABUSE**

Principal Investigator & Institution: Lukas, Scott E.; Professor of Psychiatry; Mc Lean Hospital (Belmont, Ma) Belmont, Ma 02478

Timing: Fiscal Year 2001; Project Start 01-AUG-1997; Project End 31-JUL-2002

Summary: This is an request for a K05 Senior Scientist Award to permit the candidate to continue his career development in drug abuse research. During the past ten years as a K02 awardee the candidate has spent 80-85 percent of his time engaged in drug abuse research. His overall research goal is to use multiple tools to study reinforcing efficacy, polydrug abuse and potential pharmacotherapies for drug and alcohol abuse. The research plan is based on three currently funded R01 grants on which the candidate is the Principal Investigator and three additional grants on which he serves as co-investigator. The candidate's research directives have recently changed by focusing all of his energy on clinical research and has eliminated his involvement in non human primate research. This decision was made partly because of recommendations made during the last competitive review of his K02 application and partly because the candidate has now become a senior scientist in the field of human psychopharmacology. This change in his status in the field has prompted a shift to developing an independent research program that also will support the training of predominantly women and minority students/postdoctoral fellows. The candidate continues to use electroencephalographic activity, physiological activity, plasma drug levels and instrumental measures of subjective mood states as dependent variables to quantify the effects of cocaine, marihuana and ethanol in adult volunteers. The candidate's funded grants focus on the effects of drugs of abuse in women, and is currently studying the pharmacokinetic and pharmacodynamic effects of cocaine in individuals of different ethnic backgrounds. The candidate has made a strong commitment to research and over the next five years of his professional growth he will study the similarities between cocaine- and tobacco-related cues and their effects on brain electrical activity, quantify sex-related differences in the pharmacokinetic and pharmacodynamic response to i.v. and i.n. cocaine, evaluate the usefulness of nicotine and estrogen transdermal patches as potential pharmacotherapies for cocaine abuse, co-register EEG data with three dimensional MRI and study the effects of a Chinese **herbal medicine**, kudzu, as a possible treatment for alcohol abuse. The present application is being sought to provide the candidate with continued stability of support essential for his sustained commitment to research in the field of drug abuse and to ensure his continued high level of productivity not only as a senior scientist, but as a mentor for the next generation of drug abuse scientists.

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- **Project Title: PILOT--SURVEY OF PHYSICIANS SERVING ASIAN-AMERICANS**

Principal Investigator & Institution: Hui, Ka-Kit; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

Timing: Fiscal Year 2003; Project Start 30-SEP-2003; Project End 29-SEP-2007

Summary: The long-term objective is to assist physicians working in Asian-American communities to more clearly communicate with their patients about Traditional Oriental Medicine (TOM). This pilot study is a first-step; we aim to explore the knowledge, attitudes, beliefs, and actions of physicians serving Asian-American communities towards TOM. To do so, we will carry out qualitative interviews with 50 physicians affiliated with the major hospital of Monterey Park, the major suburban Chinese-

American enclave in Los Angeles County. The physicians will be asked about their attitudes, beliefs and behaviors towards not just acupuncture and **herbal medicine**, but also other TOM treatment modalities. Grounded theory will be used to uncover patterns in the data concerning the knowledge, attitudes, and beliefs that physicians hold and how these are associated with their actions. This pilot study will lead to a daylong workshop that will immediately equip physicians with practical tools which they can use to improve their communication with patients who use and/or are interested in TOM.

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- **Project Title: PREVENTION OF SKIN CANCER BY SCUTELLARIA BAICALENSIS**

Principal Investigator & Institution: Wei, Huachen; Associate Professor/Director; Dermatology; Mount Sinai School of Medicine of Nyu of New York University New York, Ny 10029

Timing: Fiscal Year 2001; Project Start 18-SEP-2000; Project End 30-JUN-2005

Summary: Chinese **herbal medicine** Huang Qin (*Scutellaria baicalensis*) has a variety of anti-inflammatory and anti-cancer activities. The central hypothesis of this proposal is that *Scutellaria baicalensis* extracts (SBE) inhibit ultraviolet (UV) B-induced pyrimidine dimers and oxidative DNA damage, and modulate UVB-activated signal transduction cascades and inflammatory responses, thereby suppressing the initiation and promotion of photocarcinogenesis. The initial aim of the project is to determine if pre- or post-application of SBE prevents UVB-induced skin carcinogenesis. The initial aim of the project is to determine if pre- or post-application of SBE prevents UVB-induced skin carcinogenesis. SBE will be topically applied to hairless mice during exposure to UVB. The protective effect will be evaluated by analyzing the latency period, tumor incidence and multiplicity. The second aim is to evaluate the effects of SBE on the initiation, promotion, and progression of photocarcinogenesis. A combined UVB-carcinogen model will be used to dissect the anti-initiation or anti-promotional effects of SBE on UVB-induced skin carcinogenesis. SBE will be topically applied to mouse skin before an initiating dose of UVB, followed by TPA promotion, or applied before UCB radiation in DMBA-initiated mice. The therapeutic effect of SBE will be tested on the existing cutaneous tumors by recording the tumor regression rate and malignant conversion rate. The third aim is to determine if SBE modifies UVB-induced intermediate endpoints relevant to initiation and promotion, e.g. DNA photoproducts, oxidative DNA damage, inflammatory responses, protooncogene expression and activation of AP-1 factor in vivo and in vitro. Lastly, we will further evaluate the efficacy of SBE in protection of UVB-induced erythema and discomfort in human skin. The molecular markers of DNA damage (pyrimidine dimers and 8-OHdG), apoptosis (p53 protein expression), and cell proliferation (PCNA) will be determined in the human skin biopsies as well as in 3-dimensional reconstituted human skin chronically exposed to UVB. Successful completion of the proposed studies will not only contribute to innovative use of herbal extracts as preventive and/or therapeutic agents against human skin cancer, but also promote the research on the anti-cancer action of BE in other human malignancies.

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- **Project Title: SAR OF NOVEL TOPO I INHIBITOR AGAINST PROSTATE CANCER**

Principal Investigator & Institution: Lee, Yue-Wei D.; Associate Professor of Psychiatry/Harva; Mc Lean Hospital (Belmont, Ma) Belmont, Ma 02478

Timing: Fiscal Year 2001; Project Start 01-APR-1999; Project End 31-DEC-2003

Summary: Prostate cancer is the most common cancer and the second leading cause of cancer mortality in men. An estimated 317,000 cases of prostate cancer were diagnosed, and 41,000 were expected to be fatal in the U.S. in 1996. Many cytotoxic chemotherapeutic agents have proven ineffective against metastatic prostate cancer, with only estramustine, suramin, and mitoxantrone showing low levels of efficacy. During the course of searching for anti-cancer agents from traditional **herbal medicine**, we isolated alpha-Boswellic acid acetate from *Olibanum* (*Boswellia carterii* Birdw), a folk medicine used in the treatment of inflammatory diseases in China and the Middle East without overt toxicity. Alpha-Boswellic acid acetate shows excellent inhibitory activity against the DNA topoisomerase I enzyme: It is 3 times more potent than the standard, camptothecin, in the topoisomerase I relaxation assay. Because the levels of topoisomerase I are significantly higher in human cancerous prostate tissues than in normal tissues, and appear to remain constantly high throughout cell growth, compounds targeted at this enzyme could have the advantages of selectivity and specificity. The effectiveness of alpha-Boswellic acid acetate (as NSC624807) against cancer were evaluated several times by NCI using an in vitro assay system consisting of 57 human tumor cell lines. The compound was effective against several prostate cancer cell lines (androgen-independent PC-3: $GI_{50}=3.77 \times 10^{-7} M$; DU-145: $GI_{50}=3.97 \times 10^{-7} M$) and cell strains derived from fresh surgical specimens of prostate tumor ($GI_{50}=3.9 \times 10^{-7} M$). In view of its favorable toxicity profile (LD_{50} greater than 2.0 g/kg) and encouraging preliminary clinical efficacy in brain tumor, we propose to study the structural requirements of this unique natural product, which has a pentacyclic ring system, for topoisomerase I inhibition, and to evaluate its synthetic analogs for improved physical and biological activity. The specific aims are (1) to isolate a quantity of alpha-Boswell acid and its acetate from *Boswellia carterii* Birdw by high speed countercurrent chromatography, (2) to establish structure-activity relationship by chemical modifications of the alpha-Boswellic acid molecule, and (3) to evaluate the synthetic analogs in vitro in the topoisomerase I assay and against three prostate tumor cell lines: androgen-independent PC-3 and DU-145, and androgen-dependent LNCaP. These biochemical studies are critical for assessing (1) what structural features are essential for activity, (2) whether these alpha-Boswellic acid acetate analogs act as topoisomerase I inhibitors, and (3) whether we have any new alpha-Boswellic acid acetate analogs with enhanced activity against prostate cancer cells. We believe that these studies are important in providing a better understanding of alpha-Boswellic acid acetate and in identifying the most promising topo-I inhibitors for in vivo experiments and for further development as non-hormonal chemotherapy for prostate cancer.

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- **Project Title: SCREENING HERBS FOR DRUG INTERACTIONS**

Principal Investigator & Institution: Markowitz, John S.; Associate Professor; Pharmaceutical Sciences; Medical University of South Carolina 171 Ashley Ave Charleston, Sc 29425

Timing: Fiscal Year 2001; Project Start 05-JUN-2001; Project End 31-MAY-2003

Summary: The use of herbal agents by the lay public and medical professionals has accelerated in the last decade. Additionally, there has been increasing interest by the NIH National Center for Complementary & Alternative Medicine (NCCAM) and others in the safety and efficacy of herbal medicines in the treatment of a variety of medical and psychiatric conditions. It has also become evident that herbal medications are being used concomitantly with conventional prescription and over-the-counter medications. However, the systematic evaluation of the potential of these agents to interact with

conventional medications has been generally neglected. Compounding this problem is the fact that even single entity herbal products can contain a multitude of naturally occurring chemicals which serve as candidates for potential herb-drug interactions by inhibiting or inducing specific hepatic isozymes. Numerous reports document the importance of pharmacokinetic interactions involving inhibition or induction of the cytochrome P450 (CYP) enzyme system. Importantly, recent publications have documented that clinically significant herb-drug interactions can occur. Prominent examples include herb-induced reductions in plasma concentrations of the anti-HIV medication indinavir and the immunosuppressant cyclosporine by St. John's wort (*Hypericum perforatum*). In vitro screening studies are of limited value due to difficulties in approximating physiologic concentrations, assessing the influence of non-hepatic metabolism, and accounting for the contribution of active metabolites. However, based upon findings of the effects of concurrently administered herbs on the metabolism of enzyme specific probe drug substrates alprazolam (CYP 3A4) and dextromethorphan (CYP 2D6), the potential specificity and magnitude of CYP enzyme inhibition and/or induction can be determined in normal volunteers. In a preliminary study in human subjects using this validated probe drug technique assessing inhibitory effects only, the investigators found no effects of St. John's wort on CYP 3A4 or CYP 2D6. In the present proposal, the 10 most commonly used herbal products in the US will be systematically evaluated for inhibition of CYP 3A4 and 2D6, and induction of CYP 3A4. Collectively, these enzyme systems are involved in the metabolism of approximately 80% of all marketed medications. A combination of probe drugs will be given to normal volunteers both in the absence and presence of herbal medications. The plasma and urine concentration of these agents and their respective metabolites will be determined in order to evaluate individual herbal products degree and specificity of enzyme inhibitory or inductive effects. This data will fill a void regarding the relative safety of combining specific herbal agents with conventional medications and will serve as the basis for further investigations of other isozymes and herb interactions. Further, the proposed studies will complement existing and future NCCAM studies of agents such as St. John's wort and *Gingko biloba*.

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- **Project Title: ST. JOHN'S WORT AND CYP3A METABOLISM IN MEN & WOMEN**

Principal Investigator & Institution: Frye, Reginald F.; Assistant Professor; Pharmaceutical Sciences; University of Pittsburgh at Pittsburgh 350 Thackeray Hall Pittsburgh, Pa 15260

Timing: Fiscal Year 2001; Project Start 01-MAY-2001; Project End 30-APR-2004

Summary: (Verbatim from the application): The **herbal medicine** St. John's Wort, sold over the counter in the United States, has attracted tremendous lay and scientific attention for its potential use in the treatment of depression. Indeed, NIMH is sponsoring the first multi-center trial in this country evaluating the efficacy of St. John's wort for the treatment of depression. While much work has investigated the mechanism of action and therapeutic potential of St. John's wort, the potential for drug interactions between this **herbal medicine** and other medicines, including anti-depressants, has been largely ignored. There is evidence to suggest that St. John's wort induces the cytochrome P450 (CYP) enzyme system including CYP3A enzymes, which are the most abundant CYP enzymes in both the intestine and liver. A major determinant of the circulating concentrations of CYP-metabolized drugs is the activity of CYP enzymes. That St. John's wort may induce the metabolism of co-administered drugs would be of particular importance in depressed patients who may receive multiple drugs including anti-

depressants, which are primarily metabolized by CYP enzymes. Induction of CYP enzymes would lead to decreased concentrations of co-administered drugs and increased concentrations of metabolites, each of which may affect efficacy and/or toxicity. The first specific aim is to assess effects of St John's wort on CYP3A metabolism by administering midazolam to subjects in randomized parallel groups before and after receiving either placebo- or St. John's Wort at two doses (300 and 600 tid for two weeks). Pharmacokinetics and pharmacodynamic measures (saccadic eye movements) of midazolam will be performed. The second specific aim is to study the effects of St. John's Wort on other CYP pathways, specifically CYP1A2 using caffeine as a probe, CYP2C9 using flurbiprofen as a probe, and CYP2C19 using mephenytoin as a "cocktail" probe approach on the day following the midazolam studies. In specific aim 3, the investigator proposes to validate a new method for characterizing both hepatic and intestinal in vivo CYP3A activity using semisimultaneous i.v. and oral midazolam administration (oral midazolam followed by i.v. at 6 hr after oral dosing) and comparing this to separate day administration of i.v. and oral midazolam (Specific Aim 3).

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

- **Project Title: US-CHINA-JAPAN RESEARCH CONSORTIUM ON HERBAL MEDICINES**

Principal Investigator & Institution: Eisenberg, David M.; Instructor in Medicine; Osher Institute; Harvard University (Medical School) Medical School Campus Boston, Ma 02115

Timing: Fiscal Year 2003; Project Start 25-SEP-2003; Project End 31-MAR-2005

Summary: (provided by applicant): This planning grant has the long-term goal of developing an International Center for CAM Research focused on the systematic evaluation of East Asian herbal medicines. This project provides the technical, administrative and scientific bases of a future (Phase II) NIH application for an International Center for Research on CAM. Our objective is to develop a formal collaborative partnership involving investigators from the Harvard Medical School, the China Academy of Traditional Chinese Medicine, the Chinese University of Hong Kong, and Keio University (Japan) to jointly identify and prioritize promising herbal medicines, which can be systematically procured, extracted, characterized and tested in preclinical (and clinical) settings. Leading experts from the 4 participating institutions will meet regularly via Internet teleconferencing software (and 2 face-to-face meetings) to review and prioritize **herbal medicine** candidates worthy of further investigation. Plant materials selected for evaluation will be extracted according to predetermined protocols. Crude extracts, selected fractions as well as pure compounds will be subjected to High Throughput Screening in a wide variety of bioassays at an existing NIH-sponsored facility at Harvard Medical School and in laboratories at the Chinese University of Hong Kong. Those fractions and compounds with biological activity of interest will undergo secondary bioassays and, wherever possible, their molecular structure will be determined. Fractions and compounds with biological activity will be further investigated for the presence of synergy involving multiple compounds/fractions from single plants or from complex mixtures of plants. Only those herbal medicines shown to have significant biological activity will remain candidates for further investigation in human trials. The identification of reproducible, biologically active fractions and compounds and a reprioritized list of candidate herbal medicines will be the principal deliverable of this planning grant. In addition, co-investigators will discuss strategies for the implementation of subsequent multi-site clinical trials which adhere to NIH standards for clinical research. They will negotiate a formal collaboration

agreement which satisfactorily addresses issues of intellectual property, royalty sharing, publication procedures and shared access to NIH resources. Legal expertise and recommendations from participating institutions and a consultant in International Law will be obtained. Co-investigators will develop formal plans for training programs and scholarly exchange between participating research sites. Lastly, we will determine, as part of this planning grant, the ideal number of partnering institutions (2, 3 or 4) in anticipation of an application for Phase II of this NIH International Center for Research on CAM.

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

E-Journals: PubMed Central³

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

- **Clinical Immunology and Traditional Herbal Medicines.** by Plaeger SF.; 2003 May; <http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=154949>
- **Systematic reviews of complementary therapies -- an annotated bibliography. Part 2: Herbal medicine.** by Linde K, ter Riet G, Hondras M, Vickers A, Saller R, Melchart D.; 2001; <http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=37540>
- **The in vivo neuromodulatory effects of the herbal medicine ginkgo biloba.** by Watanabe CM, Wolfram S, Ader P, Rimbach G, Packer L, Maguire JJ, Schultz PG, Gohil K.; 2001 Jun 5; <http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=34395>
- **The Psychopharmacology of Herbal Medicine: Plant Drugs That Alter Mind, Brain and Behavior.** by Coutts RT.; 2003 Jul; <http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=165795>

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

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.

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

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

- **A case of mistaken identity: herbal medicine as a cause of lead toxicity.**
Author(s): Smitherman J, Harber P.
Source: American Journal of Industrial Medicine. 1991; 20(6): 795-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1805616&dopt=Abstract
- **A clinical and experimental study of herbal medicine in aplastic anemia.**
Author(s): Xie R, Liao J, Ma R.
Source: J Tradit Chin Med. 1993 September; 13(3): 211-6. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8246600&dopt=Abstract
- **A controlled trial of traditional Chinese herbal medicine in Chinese patients with recalcitrant atopic dermatitis.**
Author(s): Fung AY, Look PC, Chong LY, But PP, Wong E.
Source: International Journal of Dermatology. 1999 May; 38(5): 387-92.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10369553&dopt=Abstract
- **A preliminary immunopharmacological study of an antiendometriotic herbal medicine, Keishi-bukuryo-gan.**
Author(s): Tanaka T, Mizuno K, Umesaki N, Ogita S.
Source: Osaka City Med J. 1998 June; 44(1): 117-24.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9834624&dopt=Abstract
- **A traditional Chinese herbal medicine, ren-shen-yang-rong-tang (Japanese name: ninjin-yoei-to) augments the production of granulocyte-macrophage colony-stimulating factor from human peripheral blood mononuclear cells in vitro.**
Author(s): Okamura S, Shimoda K, Yu LX, Omori F, Niho Y.
Source: International Journal of Immunopharmacology. 1991; 13(5): 595-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1723718&dopt=Abstract

- **ABC of complementary medicine: herbal medicine.**
 Author(s): Vickers A, Zollman C.
 Source: Bmj (Clinical Research Ed.). 1999 October 16; 319(7216): 1050-3. Review. Erratum
 In: Bmj 1999 November 27; 319(7222): 1422.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10521203&dopt=Abstract
- **Acalculous eosinophilic cholecystitis from herbal medicine: a review of adverse effects of herbal medicine in surgical patients.**
 Author(s): Adusumilli PS, Lee B, Parekh K, Farrelly PA.
 Source: Surgery. 2002 March; 131(3): 352-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11894043&dopt=Abstract
- **Adverse effects associated with herbal medicine.**
 Author(s): Pinn G.
 Source: Aust Fam Physician. 2001 November; 30(11): 1070-5. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11759460&dopt=Abstract
- **Adverse interaction of herbal medicine with breast cancer treatment.**
 Author(s): Boyle FM.
 Source: The Medical Journal of Australia. 1997 September 1; 167(5): 286.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9315022&dopt=Abstract
- **Allergic contact dermatitis from myrrh, a topical herbal medicine used to promote healing.**
 Author(s): Al-Suwaidan SN, Gad el Rab MO, Al-Fakhiry S, Al Hoqail IA, Al-Maziad A, Sherif AB.
 Source: Contact Dermatitis. 1998 September; 39(3): 137.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9771992&dopt=Abstract
- **Alterations of lymphocyte subsets in patients with recurrent fetal wastage positive for antiphospholipid antibodies treated with Chinese herbal medicine.**
 Author(s): Takakuwa K, Arakawa M, Honda K, Imai T, Tamura M, Yasuda M, Tanaka K.
 Source: Journal of Perinatal Medicine. 1997; 25(4): 385-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9350611&dopt=Abstract
- **Alternative licensing for herbal medicine-like products in the European Union. European Herbal Practitioners Association.**
 Author(s): McIntyre M.
 Source: Journal of Alternative and Complementary Medicine (New York, N.Y.). 1999 April; 5(2): 110-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10328630&dopt=Abstract

- **An approach to advanced computer-based information retrieval in the field of traditional Chinese medicine. I. Making a data base in the field of Chinese herbal medicine.**
Author(s): Tani S, Akahori Y.
Source: J Tradit Chin Med. 1985 June; 5(2): 107-14. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3903355&dopt=Abstract
- **An association between herbal medicine ingestion and renal failure in Zambian infants.**
Author(s): Maguire MJ, Chawla V.
Source: Journal of Tropical Pediatrics. 1983 August; 29(4): 213-4.
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- **Analgesic effect of a herbal medicine for treatment of primary dysmenorrhea--a double-blind study.**
Author(s): Kotani N, Oyama T, Sakai I, Hashimoto H, Muraoka M, Ogawa Y, Matsuki A.
Source: The American Journal of Chinese Medicine. 1997; 25(2): 205-12.
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- **Analysis of fluorescence spectra from Chinese herbal medicine for male infertility.**
Author(s): Amano T, Kunimi K, Ohkawa M.
Source: The American Journal of Chinese Medicine. 1995; 23(3-4): 213-21.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8571917&dopt=Abstract
- **Antitussive effect of herbal medicine bakumondo-to: a case report.**
Author(s): Mizushima Y, Hirata A, Hori T, Sawazaki S, Sugiyama E, Kobayashi M.
Source: The American Journal of Chinese Medicine. 1996; 24(3-4): 321-5.
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- **Assessing the risks and benefits of herbal medicine: an overview of scientific evidence.**
Author(s): Barrett B, Kiefer D, Rabago D.
Source: Alternative Therapies in Health and Medicine. 1999 July; 5(4): 40-9. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10394673&dopt=Abstract
- **Autoimmune hepatitis triggered by administration of an herbal medicine.**
Author(s): Kamiyama T, Nouchi T, Kojima S, Murata N, Ikeda T, Sato C.
Source: The American Journal of Gastroenterology. 1997 April; 92(4): 703-4. Review.
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- **Beneficial effect of a traditional herbal medicine (inchin-ko-to) in postoperative biliary atresia patients.**
 Author(s): Kobayashi H, Horikoshi K, Yamataka A, Lane GJ, Yamamoto M, Miyano T.
 Source: Pediatric Surgery International. 2001 July; 17(5-6): 386-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11527172&dopt=Abstract
- **Bioassay of phytoestrogen in herbal medicine used for postmenopausal disorder using transformed MCF-7 cells.**
 Author(s): Shiizaki K, Goto K, Ishige A, Komatsu Y.
 Source: Phytotherapy Research : Ptr. 1999 September; 13(6): 498-503.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10479761&dopt=Abstract
- **Carrier herbal medicine: an evaluation of the antimicrobial and anticancer activity in some frequently used remedies.**
 Author(s): Ritch-Krc EM, Turner NJ, Towers GH.
 Source: Journal of Ethnopharmacology. 1996 July 5; 52(3): 151-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8771456&dopt=Abstract
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 Author(s): Ritch-Krc EM, Thomas S, Turner NJ, Towers GH.
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- **Case report: the effect of a Chinese herbal medicine, BG-104 in two HIV positive hemophiliacs.**
 Author(s): Arimori S, Nozaki H, Morita K, Arimori K.
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 Author(s): Li C, Homma M, Oka K.
 Source: Biological & Pharmaceutical Bulletin. 1998 December; 21(12): 1251-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9881633&dopt=Abstract
- **Chinese herbal medicine and acupuncture. How do patients who consult family physicians use these therapies?**
 Author(s): Wong LK, Jue P, Lam A, Yeung W, Cham-Wah Y, Birtwhistle R.
 Source: Can Fam Physician. 1998 May; 44: 1009-15.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9612586&dopt=Abstract

- **Chinese herbal medicine for irritable bowel syndrome.**
Author(s): Wong HC, Wong JK, Wong NY.
Source: *Jama : the Journal of the American Medical Association*. 1999 September 15; 282(11): 1036-7.
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Author(s): Kaptchuk TJ.
Source: *Jama : the Journal of the American Medical Association*. 1999 September 15; 282(11): 1035-6; Author Reply 1036-7.
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- **Chinese Herbal Medicine in the treatment of acute respiratory tract infections: review of randomized and controlled clinical trials.**
Author(s): Liu C, Douglas RM.
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Source: *Clinical Reviews in Allergy & Immunology*. 1996 Fall; 14(3): 253-69. Review.
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- **Chinese herbal medicine induced acute renal failure.**
Author(s): Abt AB, Oh JY, Huntington RA, Burkhart KK.
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- **Chinese herbal medicine, fulminant hepatitis, and liver transplantation.**
Author(s): Yoshida EM, McLean CA, Cheng ES, Blanc PD, Somberg KA, Ferrell LD, Lake JR.
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 Source: Nurs Times. 1993 October 27-November 2; 89(43): 36-8. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8233947&dopt=Abstract
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 Author(s): Borchers AT, Hackman RM, Keen CL, Stern JS, Gershwin ME.
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Author(s): Tay CH.
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Author(s): Mills SY, Jacoby RK, Chacksfield M, Willoughby M.
Source: British Journal of Rheumatology. 1996 September; 35(9): 874-8.
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Author(s): Takahashi K, Yoshino K, Shirai T, Nishigaki A, Araki Y, Kitao M.
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- **Effect of 'bakumondo-to', a Chinese-Japanese herbal medicine, on cultured and dispersed salivary gland cells.**
Author(s): Kagami H, Horie K, Nishiguchi H, Shigetomi T, Ueda M.
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Author(s): Yamada K, Kanba S, Yagi G, Asai M.
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Author(s): Wildfeuer A, Neu IS, Safayhi H, Metzger G, Wehrmann M, Vogel U, Ammon HP.
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 Author(s): Zhan L, Yue ST, Xue YX, Attele AS, Yuan CS.
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 Author(s): Yamashiki M, Nishimura A, Watanabe J, Nakano T, Kosaka Y.
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 Author(s): Kenny E, Muskin PR, Brown R, Gerbarg PL.
 Source: Current Psychiatry Reports. 2001 June; 3(3): 226-34. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11353587&dopt=Abstract

- **Who should be providing information to patients about herbal medicine?**

Author(s): Jurgens T.

Source: Can J Clin Pharmacol. 2001 Winter; 8(4): 186-7. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11743590&dopt=Abstract

- **Women and herbal medicine in Africa.**

Author(s): Bodeker G.

Source: Journal of Alternative and Complementary Medicine (New York, N.Y.). 1997 Winter; 3(4): 323-5.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9546875&dopt=Abstract

CHAPTER 2. NUTRITION AND HERBAL MEDICINE

Overview

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

Finding Nutrition Studies on Herbal Medicine

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 "herbal medicine" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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 is a typical result when searching for recently indexed consumer information on herbal medicine:

- **EN's herbal medicine cabinet: top 10 herbs you can trust.**
Source: Klauser, A. Environmental-nutrition (USA). (May 1998). volume 21(5) page 1, 4.

Additional consumer oriented references include:

- **“Scientifying” herbal medicine.**
Source: Oberbaum, M Schlesinger, M Isr-Med-Assoc-J. 2002 November; 4(11 Suppl): 944-6 1565-1088
- **Effects of Kampo herbal medicine on plasma melatonin concentration in patients.**
Author(s): Department of Bioregulatory Function, University of Tokyo Graduate School of Medicine, Japan.
Source: Watanabe, H Kobayashi, T Tomii, M Sekiguchi, Y Uchida, K Aoki, T Cyong, J C Am-J-Chin-Med. 2002; 30(1): 65-71 0192-415X
- **Herbal medicine and the transplant patient.**
Author(s): University Medical Center, Tucson, AZ, USA.
Source: Allen, D Bell, J Nephrol-Nurs-J. 2002 June; 29(3): 269-74 1526-744X
- **Herbal medicine in pregnancy.**
Author(s): Dubai London Clinic, UAE.
Source: Pinn, G Pallett, L Complement-Ther-Nurs-Midwifery. 2002 May; 8(2): 77-80 1353-6117
- **Herbal medicine on the rise: the case of 'awa.**
Author(s): Papa Ola Lokahi, Honolulu, Hawai'i 96813, USA.
Source: O'Sullivan, H M Lum, K Pac-Health-Dialog. 2001 September; 8(2): 380-7 1015-7867
- **Herbal medicines--what's in the bottle?**
Author(s): National Center for Complementary and Alternative Medicine, Bethesda, MD 20892, USA.
Source: Straus, S E N-Engl-J-Med. 2002 December 19; 347(25): 1997-8 1533-4406
- **Naturlaegemidler--evidens og laegemiddelinteraktioner i klinisk praksis. [Herbal medicines--evidence and drug interactions in clinical practice]**
Author(s): Amtssygehuset i Gentofte, anaesthesiologisk afdeling, H:S Frederiksberg Hospital, anaestesiklinikken. tkk@dadlnet.dk
Source: Kistorp, T K Laursen, S B Ugeskr-Laeger. 2002 September 2; 164(36): 4161-5 0041-5782
- **Phytotherapy and quality of herbal medicines.**
Author(s): Department of Pharmaceutical Sciences, Via Ponte Don Melillo, 84084, Fisciano Salerno, Italy.
Source: Capasso, R Izzo, A A Pinto, L Bifulco, T Vitobello, C Mascolo, N Fitoterapia. 2000 August; 71 Suppl 1: S58-65 0367-326X
- **Progress of intervention of renal interstitial fibrosis with Chinese traditional herbal medicine.**
Author(s): Department of Traditional Chinese Medicine, Nanfang Hospital, First Military Medical University, Guangzhou 510515, China.
Source: Wei, L B Ma, Z G Ye, R G Chen, B T Zhan, S C Huang, H Di-Yi-Jun-Yi-Da-Xue-Xue-Bao. 2002 October; 22(10): 946-8 1000-2588

- **Regulating effect of Chinese herbal medicine on the peritoneal lymphatic stomata in enhancing ascites absorption of experimental hepatofibrotic mice.**
Author(s): Department of Lymphology, Department of Histology and Embryology, Medical College of Zhejiang University, Hangzhou 310031, Zhejiang Province, China. lijc@mail.hz.zj.cn
Source: Li, J C Ding, S P Xu, J World-J-Gastroenterol. 2002 April; 8(2): 333-7 1007-9327
- **Reversible ovarian failure induced by a Chinese herbal medicine: lei gong teng.**
Author(s): Department of Obstetrics and Gynaecology, Royal Sussex County Hospital, East Sussex, Brighton, UK.
Source: Edmonds, S E Montgomery, J C BJOG. 2003 January; 110(1): 77-8 1470-0328
- **The efficacy of a herbal medicine (Mao-to) in combination with intravenous natural interferon-beta for patients with chronic hepatitis C, genotype 1b and high viral load: a pilot study.**
Author(s): Department of Japanese Oriental Medicine, Toyama Medical and Pharmaceutical University, Sugitani. Kainuma@ms.toyama-mpu.ac.jp
Source: Kainuma, M Ogata, N Kogure, T Kohta, K Hattori, N Mitsuma, T Terasawa, K Phytomedicine. 2002 July; 9(5): 365-72 0944-7113
- **The regulation of herbal medicines in Australia.**
Author(s): Office of Complementary Medicines, Therapeutic Goods Administration, P.O. Box 100, 2609 Woden, ACT, Australia. david.briggs@health.gov.au
Source: Briggs, D R Toxicology. 2002 December 27; 181-182: 565-70 0300-483X
- **Twenty-eight cases of diabetic foot ulcer and gangrene treated with the Chinese herbal medicine combined with injection of ahylsantinfractase.**
Author(s): Nankai District Hospital of Traditional Chinese Medicine, Tianjin 300101.
Source: Wang, F J-Tradit-Chin-Med. 2002 March; 22(1): 3-4 0254-6272

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

- **"Scientifying" herbal medicine.**
Source: Oberbaum, M Schlesinger, M Isr-Med-Assoc-J. 2002 November; 4(11 Suppl): 944-6 1565-1088
- **Effects of Kampo herbal medicine on plasma melatonin concentration in patients.**
Author(s): Department of Bioregulatory Function, University of Tokyo Graduate School of Medicine, Japan.
Source: Watanabe, H Kobayashi, T Tomii, M Sekiguchi, Y Uchida, K Aoki, T Cyong, J C Am-J-Chin-Med. 2002; 30(1): 65-71 0192-415X
- **Herbal medicine and the transplant patient.**
Author(s): University Medical Center, Tucson, AZ, USA.
Source: Allen, D Bell, J Nephrol-Nurs-J. 2002 June; 29(3): 269-74 1526-744X
- **Herbal medicine in pregnancy.**
Author(s): Dubai London Clinic, UAE.
Source: Pinn, G Pallett, L Complement-Ther-Nurs-Midwifery. 2002 May; 8(2): 77-80 1353-6117
- **Herbal medicine on the rise: the case of 'awa.**
Author(s): Papa Ola Lokahi, Honolulu, Hawai'i 96813, USA.
Source: O'Sullivan, H M Lum, K Pac-Health-Dialog. 2001 September; 8(2): 380-7 1015-7867

- **Herbal medicines--what's in the bottle?**
Author(s): National Center for Complementary and Alternative Medicine, Bethesda, MD 20892, USA.
Source: Straus, S E N-Engl-J-Med. 2002 December 19; 347(25): 1997-8 1533-4406
- **Naturlaegemidler--evidens og laegemiddelinteraktioner i klinisk praksis. [Herbal medicines--evidence and drug interactions in clinical practice]**
Author(s): Amtssygehuset i Gentofte, anaesthesiologisk afdeling, H:S Frederiksberg Hospital, anaestesiklinikken. tkk@dadlnet.dk
Source: Kistorp, T K Laursen, S B Ugeskr-Laeger. 2002 September 2; 164(36): 4161-5 0041-5782
- **Phytotherapy and quality of herbal medicines.**
Author(s): Department of Pharmaceutical Sciences, Via Ponte Don Melillo, 84084, Fisciano Salerno, Italy.
Source: Capasso, R Izzo, A A Pinto, L Bifulco, T Vitobello, C Mascolo, N Fitoterapia. 2000 August; 71 Suppl 1: S58-65 0367-326X
- **Progress of intervention of renal interstitial fibrosis with Chinese traditional herbal medicine.**
Author(s): Department of Traditional Chinese Medicine, Nanfang Hospital, First Military Medical University, Guangzhou 510515, China.
Source: Wei, L B Ma, Z G Ye, R G Chen, B T Zhan, S C Huang, H Di-Yi-Jun-Yi-Da-Xue-Xue-Bao. 2002 October; 22(10): 946-8 1000-2588
- **Regulating effect of Chinese herbal medicine on the peritoneal lymphatic stomata in enhancing ascites absorption of experimental hepatofibrotic mice.**
Author(s): Department of Lymphology, Department of Histology and Embryology, Medical College of Zhejiang University, Hangzhou 310031, Zhejiang Province, China. lijc@mail.hz.zj.cn
Source: Li, J C Ding, S P Xu, J World-J-Gastroenterol. 2002 April; 8(2): 333-7 1007-9327
- **Reversible ovarian failure induced by a Chinese herbal medicine: lei gong teng.**
Author(s): Department of Obstetrics and Gynaecology, Royal Sussex County Hospital, East Sussex, Brighton, UK.
Source: Edmonds, S E Montgomery, J C BJOG. 2003 January; 110(1): 77-8 1470-0328
- **The efficacy of a herbal medicine (Mao-to) in combination with intravenous natural interferon-beta for patients with chronic hepatitis C, genotype 1b and high viral load: a pilot study.**
Author(s): Department of Japanese Oriental Medicine, Toyama Medical and Pharmaceutical University, Sugitani. Kainuma@ms.toyama-mpu.ac.jp
Source: Kainuma, M Ogata, N Kogure, T Kohta, K Hattori, N Mitsuma, T Terasawa, K Phytomedicine. 2002 July; 9(5): 365-72 0944-7113
- **The regulation of herbal medicines in Australia.**
Author(s): Office of Complementary Medicines, Therapeutic Goods Administration, P.O. Box 100, 2609 Woden, ACT, Australia. david.briggs@health.gov.au
Source: Briggs, D R Toxicology. 2002 December 27; 181-182: 565-70 0300-483X
- **Twenty-eight cases of diabetic foot ulcer and gangrene treated with the Chinese herbal medicine combined with injection of ahylsantinfartcase.**
Author(s): Nankai District Hospital of Traditional Chinese Medicine, Tianjin 300101.
Source: Wang, F J-Tradit-Chin-Med. 2002 March; 22(1): 3-4 0254-6272

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 herbal medicine; 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:

- **Minerals**

- **Calcium-Channel Blockers**

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

- **Stinging Nettle**

- Alternative names: *Urtica dioica*, *Urtica urens*, Nettle

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

- **Food and Diet**

- **Artichoke**

- Alternative names: *Cynara scolymus*

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

- **Burdock**

- Alternative names: *Arctium lappa*

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

- **Burdock**

- Alternative names: *Arctium lappa*, *Arctium minus*, *Arctium tomentosum*

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

- **Cinnamon**

- Alternative names: *Cinnamomum zeylanicum*

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

- **Garlic**

- Alternative names: *Allium sativum*

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

- **Garlic**

- Alternative names: *Allium sativum*

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

- **Mushrooms**

- Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

- Hyperlink:

- http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10046,00.html

- **Oats**

- Alternative names: *Avena sativa*

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

- **Sprains and Strains**

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

Wound Healing

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

CHAPTER 3. ALTERNATIVE MEDICINE AND HERBAL MEDICINE

Overview

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

The Combined Health Information Database

The Combined Health Information Database (CHID) is a bibliographic database produced by health-related agencies of the U.S. federal government (mostly from the National Institutes of Health) that can offer concise information for a targeted search. The CHID database is updated four times a year at the end of January, April, July, and October. Check the titles, summaries, and availability of CAM-related information by using the "Simple Search" option at the following Web site: <http://chid.nih.gov/simple/simple.html>. In the drop box at the top, select "Complementary and Alternative Medicine." Then type "herbal medicine" (or synonyms) in the second search box. We recommend that you select 100 "documents per page" and to check the "whole records" options. The following was extracted using this technique:

- **General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine**

Source: Geneva, Switzerland: World Health Organization. 2000. 74 p.

Contact: Available from World Health Organization Headquarters. Avenue Appia 20, 1211 Geneva 27, Switzerland. Telephone: (+00 41 22) 791 21 11; Fax: (+00 41 22) 791 3111; E-mail: publications@who.int. PRICE: Free.

Summary: These guidelines focus on the current major debates on safety and efficacy of traditional medicine, and are intended to raise and answer some challenging questions concerning the evidence base. They also clarify certain commonly used but unclear definitions. The guidelines present some national regulations for the evaluation of **herbal medicine**, and recommend new approaches for carrying out clinical research. The guidelines are broken into four parts. Part 1 discusses methodologies for research

and evaluation of herbal medicines. Part 2 provides information on methodologies for research and evaluation of traditional procedure-based therapies. Part 3 covers clinical research. Part 4 reviews other issues and considerations. 10 annexes. Definition of terms. 5 references.

- **Herbal Therapy: What a Clinician Needs to Know to Counsel Patients Effectively**

Source: Mayo Clinic Proceedings. 75(8): 835-841. August 2000.

Summary: This article reviews the use of **herbal medicine** in the United States and the increasing exposure of herbal supplements through national media, in lay journals, and in the scientific press. It discusses how multiple factors have facilitated the interest in **herbal medicine**, including the perception that pharmaceutical medications are expensive, over-prescribed, and often dangerous. It also explains how knowledge of herbal supplements, including their potential benefits and risks as well as their ability to interact with pharmaceutical medications, enable physicians to provide a balanced and objective view to patients seeking information on herbal therapy.

- **Ginkgo: A Practical Guide**

Source: Garden City Park, NY: Avery Publishing Group. 1998. 172 p.

Contact: Avery Publishing Group. 120 Old Broadway, Garden City Park, NY 11040. (800) 548-5757; INTERNATIONAL: (516) 741-2155; FAX: (516) 742-1892. PRICE: \$9.95. ISBN: 0895298120.

Summary: This book is designed to help consumers use 'Ginkgo biloba' safely and effectively to promote health, prevent illness, and treat disease. Chapter 1 reviews the history of Ginkgo in **herbal medicine**; and Chapter 2 examines the attitudes toward herbal medicines in Chinese, Indian, and Western cultures. Chapter 3 discusses the science of Ginkgo, including its key active components and its actions in the body. Chapters 4 through 7 focus on specific applications of Ginkgo and its effects in disorders of the brain, the heart and circulatory system, the senses, and sexuality. Chapter 8 discusses the use of Ginkgo in other conditions such as radiation exposure, sun damage, allergies, asthma, and hepatitis; and offers advice to consumers about the reasons for taking Ginkgo, methods of taking it, and how much to take. Chapter 9 summarizes the health benefits of using Ginkgo. The book includes a glossary and an index.

- **Alternative Medicine: Expanding Medical Horizons. A Report to the National Institutes of Health on Alternative Medical Systems and Practices in the United States**

Source: Washington, DC: Government Printing Office. 1994. 372 p.

Contact: Available from U.S. Government Printing Office. Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954. (202) 512-1800; FAX: (202) 512-2250. PRICE: \$25.00. ISBN: 0160454794.

Summary: This document was developed from a 1992 National Institutes of Health workshop and includes input from more than 200 practitioners and researchers of alternative medicine from throughout the United States. Part I of the report examines seven fields of alternative medicine: mind-body interventions, bioelectromagnetics applications in medicine, alternative systems of medical practice, manual healing methods, pharmacological and biological treatments, **herbal medicine**, and diet and nutrition in the prevention and treatment of chronic disease. Part II addresses a number of cross-cutting issues relevant to all seven fields, including research infrastructure,

research databases, research methodologies, the peer review process, and public information activities. Each chapter in this report includes major recommendations and references. A glossary and index are found at the back of the report. Numerous references.

- **Assessment of Patients' Perceptions and Beliefs Regarding Herbal Therapies**

Source: *Pharmacotherapy*. 20(1): 83-87. January 2000.

Summary: This journal article describes a survey of beliefs regarding the safety and efficacy of herbal medicines among individuals living in Iowa, and their willingness to disclose the use of such products to health care providers. Questionnaires were distributed to 800 patients attending eight family care clinics across Iowa, and to a random mailing to 500 Iowa residents; they were completed by 623 patients from the clinics (78.5 percent) and 171 (21.5 percent) from the mailing. A total of 330 respondents (41.6 percent) reported that they had used an herbal product. Users were significantly more likely to be white women, have education past high school, and use more prescription drugs than nonusers. Users also had more positive beliefs than nonusers about the safety and efficacy of herbal products. However, both groups believed that physicians and pharmacists should be aware of herbal use and indicated they would disclose such information if asked. The article has 2 tables and 8 references.

- **Alternative Medicines Gain in Popularity, Merit Closer Scrutiny**

Source: *Journal of the National Cancer Institute*. 91(13): 1104-1105. July 7, 1999.

Summary: This journal article discusses current research into complementary and alternative medicine (CAM) therapies for cancer. The National Center for Complementary and Alternative Medicine (NCCAM), established as the Office of Alternative Medicine in 1991, gained its status as a center in the fall of 1998. NCCAM supports 13 clinical research centers to examine the efficacy, safety, and validity of CAM therapies, and to support basic, preclinical, clinical, and epidemiological studies of these therapies. The National Cancer Institute (NCI) recently formed the Office of Cancer Complementary and Alternative Medicine, which works directly with NCCAM. The NCI office will help support studies of interest to cancer research. The University of Texas Center for Alternative Medicine Research (UT-CAM) is the NCCAM-supported center specializing in alternative therapies and prevention for cancer. UT-CAM is studying such therapies as melatonin, mistletoe, the herbal extract Flor-Essence, and 714-X. Other natural therapies being studied include green tea, ginseng, oleander, Chinese herbal medicines, and dietary approaches.

- **Complementary and Alternative Medicine: A Primer**

Source: *Family Practice Management*. 8(3): 37-42. March 2001.

Summary: This journal article is designed to provide family physicians with basic knowledge about complementary and alternative medicine (CAM) so they can offer appropriate guidance to their patients. First, it summarizes background information about acupuncture, chiropractic, **herbal medicine**, homeopathy, and naturopathy. Then, it suggests the following strategies to get patients to talk openly about their CAM use: (1) ask the question; (2) avoid using the words 'alternative therapy,' at least initially; (3) don't dismiss any therapy as placebo; (4) discuss providers as well as therapies; and (5) discuss CAM therapies with patients at every visit. The article includes sample answers to patient questions about CAM, a list of resources for additional information, and 9 references.

- **Oriental Medicine: An Introduction**

Source: *Alternative Therapies in Health and Medicine*. 7(4): 71-82. July-August 2001.

Summary: This journal article provides an overview of the basic concepts of Oriental medicine, its historical context, yin and yang principles, and Five-Phase theory. It discusses the concept of organ disease in Oriental medicine, the patient examination, and the diagnosis of disease and patterns of disharmony. It also looks at the meridian network system and describes treatment modalities such as acupuncture and Chinese **herbal medicine**. It includes a summary of the most common acupuncture and Oriental medicine styles practiced in the United States. The article has 16 figures, 3 tables, and 28 references. (AA-M).

- **Legal Status of Traditional Medicine and Complementary/Alternative Medicine: A Worldwide Review**

Source: Geneva, Switzerland: World Health Organization. 2001. 189 p.

Contact: World Health Organization Headquarters. Avenue Appia 20, 1211 Geneva 27, Switzerland. Telephone: (+00 41 22) 791 21 11; Fax: (+00 41 22) 791 3111; E-mail: publications@who.int. PRICE: Free.

Summary: This World Health Organization (WHO) document provides information on the legal status of traditional and complementary/alternative medicine in 123 countries, including those from the Americas, Europe, Southeast Asia, Western Pacific, Eastern Mediterranean, and Africa. The purpose of the document is to facilitate the development of legal frameworks and the sharing of experiences between countries by introducing what some countries have done in terms of regulating traditional and complementary/alternative medicine. It provides summaries of the policies enacted in the different countries and the variety of models of integration adopted by national policymakers. This document serves as an update and an expansion of the 1998 WHO document, "Regulatory Situation of Herbal Medicines: A Worldwide Review." 283 references.

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 herbal medicine 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 "herbal medicine" (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 herbal medicine:

- **"Scientifying" herbal medicine.**

Author(s): Oberbaum M, Schlesinger M.

Source: *Isr Med Assoc J*. 2002 November; 4(11 Suppl): 944-6. Review. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12455186&dopt=Abstract

- **50 cases of pointed condyloma treated by surgery combined with external washing with Chinese herbal medicine.**
 Author(s): Yang X, Zeng J, Long Y.
 Source: J Tradit Chin Med. 2001 December; 21(4): 263-4. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12014125&dopt=Abstract
- **6-month evaluation of JinHuang Chinese herbal medicine study in asymptomatic HIV infected Thais.**
 Author(s): Maek-a-nantawat W, Pitisuttithum P, Bussaratid V, Chamnachanan S, Naksrisook S, Peonim W, Thantamnu N, Muanaum R, Ngamdee V.
 Source: Southeast Asian J Trop Med Public Health. 2003 June; 34(2): 379-84.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12971567&dopt=Abstract
- **A Chinese herbal medicine, fu-ling, regulates interleukin-10 production by murine spleen cells.**
 Author(s): Liou CJ, Tseng J.
 Source: The American Journal of Chinese Medicine. 2002; 30(4): 551-60.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12568282&dopt=Abstract
- **A herbal medicine used in the treatment of addiction mimics the action of amphetamine on in vitro rat striatal dopamine release.**
 Author(s): Thongsaard W, Marsden CA.
 Source: Neuroscience Letters. 2002 August 30; 329(2): 129-32.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12165394&dopt=Abstract
- **A traditional Chinese herbal medicine, banxia houpo tang, improves cough reflex of patients with aspiration pneumonia.**
 Author(s): Iwasaki K, Cyong JC, Kitada S, Kitamura H, Ozeki J, Satoh Y, Suzuki T, Sasaki H.
 Source: Journal of the American Geriatrics Society. 2002 October; 50(10): 1751-2.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12366640&dopt=Abstract
- **Addressing use of herbal medicine in the primary care setting.**
 Author(s): Egan CD.
 Source: Journal of the American Academy of Nurse Practitioners. 2002 April; 14(4): 166-71. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12001747&dopt=Abstract
- **Adult lead poisoning from a herbal medicine.**
 Author(s): Ibrahim AS, Latif AH.

Source: Saudi Med J. 2002 May; 23(5): 591-3. Erratum In: Saudi Med J 2002 July; 23(7): 879.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12070589&dopt=Abstract

- **Antifertility effect of Jamu (traditional herbal medicine).**
Author(s): Azimahtol Hawariah Lope Pihie, Embun Naim.
Source: Malays J Reprod Health. 1983 December; 1(2): 176-80.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12313336&dopt=Abstract
- **Anti-inflammatory effects of an herbal medicine (Xuan-Ju agent) on carrageenan- and adjuvant-induced paw edema in rats.**
Author(s): Jia W, Gao WY, Cui NQ, Xiao PG.
Source: Journal of Ethnopharmacology. 2003 November; 89(1): 139-41.
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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 herbal medicine; 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**

- Age-Related Cognitive Decline**

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

- AIDS and HIV**

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

- Alcoholism**

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

- Alzheimer's Disease**

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

- Alzheimer's Disease**

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

- Amenorrhea**

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

- Amenorrhea**

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

- Anaphylaxis**

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

- Angioedema**

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

- Anorexia Nervosa**

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

Anxiety

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

Arteriosclerosis

Source: Integrative Medicine Communications; www.drkoop.com

Ascariasis

Source: Integrative Medicine Communications; www.drkoop.com

Asthma

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

Asthma

Source: Integrative Medicine Communications; www.drkoop.com

Atherosclerosis

Source: Integrative Medicine Communications; www.drkoop.com

Attention Deficit Hyperactivity Disorder

Source: Integrative Medicine Communications; www.drkoop.com

Benign Prostatic Hyperplasia

Source: Integrative Medicine Communications; www.drkoop.com

Bone Cancer

Source: Integrative Medicine Communications; www.drkoop.com

Bone Loss

Source: Integrative Medicine Communications; www.drkoop.com

BPH

Source: Integrative Medicine Communications; www.drkoop.com

Brain Cancer

Source: Integrative Medicine Communications; www.drkoop.com

Bronchitis

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

Bronchitis

Source: Integrative Medicine Communications; www.drkoop.com

Bruising

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

Bulimia Nervosa

Source: Integrative Medicine Communications; www.drkoop.com

Candidiasis

Source: Integrative Medicine Communications; www.drkoop.com

Cardiomyopathy

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

Carpal Tunnel Syndrome

Source: Integrative Medicine Communications; www.drkoop.com

Cellulitis

Source: Integrative Medicine Communications; www.drkoop.com

Cervical Dysplasia

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

Cirrhosis

Source: Integrative Medicine Communications; www.drkoop.com

Cold Sores

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

Cold Sores

Source: Integrative Medicine Communications; www.drkoop.com

Common Cold

Source: Integrative Medicine Communications; www.drkoop.com

Common Cold/sore Throat

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

Congestive Heart Failure

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

Congestive Heart Failure

Source: Integrative Medicine Communications; www.drkoop.com

Coronary Artery Disease

Source: Integrative Medicine Communications; www.drkoop.com

Cough

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

Cough

Source: Integrative Medicine Communications; www.drkoop.com

Cystic Fibrosis

Source: Integrative Medicine Communications; www.drkoop.com

Dementia

Source: Integrative Medicine Communications; www.drkoop.com

Dermatitis

Source: Integrative Medicine Communications; www.drkoop.com

Diarrhea

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

Diarrhea

Source: Integrative Medicine Communications; www.drkoop.com

Diverticular Disease

Source: Integrative Medicine Communications; www.drkoop.com

Dysmenorrhea

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

Dysphagia

Source: Integrative Medicine Communications; www.drkoop.com

Eczema

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

Edema

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

Endocarditis

Source: Integrative Medicine Communications; www.drkoop.com

Epilepsy

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

Erythema

Source: Integrative Medicine Communications; www.drkoop.com

Fainting

Source: Integrative Medicine Communications; www.drkoop.com

Fever of Unknown Origin

Source: Integrative Medicine Communications; www.drkoop.com

Flu

Source: Integrative Medicine Communications; www.drkoop.com

Food Poisoning

Source: Integrative Medicine Communications; www.drkoop.com

Frostbite

Source: Integrative Medicine Communications; www.drkoop.com

Gallbladder Disease

Source: Integrative Medicine Communications; www.drkoop.com

Gastritis

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

Gastroesophageal Reflux Disease

Source: Integrative Medicine Communications; www.drkoop.com

Glaucoma

Source: Integrative Medicine Communications; www.drkoop.com

Guinea Worm Disease

Source: Integrative Medicine Communications; www.drkoop.com

Hay Fever

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

Heartburn

Source: Integrative Medicine Communications; www.drkoop.com

Heat Exhaustion

Source: Integrative Medicine Communications; www.drkoop.com

Hemophilia

Source: Integrative Medicine Communications; www.drkoop.com

Hemorrhoids

Source: Integrative Medicine Communications; www.drkoop.com

Herpes Simplex Virus

Source: Integrative Medicine Communications; www.drkoop.com

High Blood Pressure

Source: Integrative Medicine Communications; www.drkoop.com

Hirsutism

Source: Integrative Medicine Communications; www.drkoop.com

Histoplasmosis

Source: Integrative Medicine Communications; www.drkoop.com

Hookworm

Source: Integrative Medicine Communications; www.drkoop.com

Hyperkalemia

Source: Integrative Medicine Communications; www.drkoop.com

Hyperparathyroidism

Source: Integrative Medicine Communications; www.drkoop.com

Hypertension

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

Hypertension

Source: Integrative Medicine Communications; www.drkoop.com

Hyperthyroidism

Source: Integrative Medicine Communications; www.drkoop.com

Hypochondriasis

Source: Integrative Medicine Communications; www.drkoop.com

Hypoglycemia

Source: Integrative Medicine Communications; www.drkoop.com

Hypothermia

Source: Integrative Medicine Communications; www.drkoop.com

Hypothyroidism

Source: Integrative Medicine Communications; www.drkoop.com

Immune Function

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

Inflammatory Bowel Disease

Source: Integrative Medicine Communications; www.drkoop.com

Influenza

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

Influenza

Source: Integrative Medicine Communications; www.drkoop.com

Insomnia

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

Insomnia

Source: Integrative Medicine Communications; www.drkoop.com

Irritable Bowel Syndrome

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

Liver Disease

Source: Integrative Medicine Communications; www.drkoop.com

Loiasis

Source: Integrative Medicine Communications; www.drkoop.com

Low Back Pain

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

Low Back Pain

Source: Integrative Medicine Communications; www.drkoop.com

Low Blood Sugar

Source: Integrative Medicine Communications; www.drkoop.com

Lung Cancer

Source: Integrative Medicine Communications; www.drkoop.com

Lupus

Source: Integrative Medicine Communications; www.drkoop.com

Lymphatic Filariasis

Source: Integrative Medicine Communications; www.drkoop.com

Macular Degeneration

Source: Integrative Medicine Communications; www.drkoop.com

Measles

Source: Integrative Medicine Communications; www.drkoop.com

Menopausal Symptoms (Other Than Osteoporosis)

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

Menopause

Source: Integrative Medicine Communications; www.drkoop.com

Migraine Headache

Source: Integrative Medicine Communications; www.drkoop.com

Migraine Headaches

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

Migraine Headaches

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

Miscarriage

Source: Integrative Medicine Communications; www.drkoop.com

Motion Sickness

Source: Integrative Medicine Communications; www.drkoop.com

Multiple Sclerosis

Source: Integrative Medicine Communications; www.drkoop.com

Mumps

Source: Integrative Medicine Communications; www.drkoop.com

Muscular Dystrophy

Source: Integrative Medicine Communications; www.drkoop.com

Osteoarthritis

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

Osteoarthritis

Source: Integrative Medicine Communications; www.drkoop.com

Osteoporosis

Source: Integrative Medicine Communications; www.drkoop.com

Pancreatitis

Source: Integrative Medicine Communications; www.drkoop.com

Parasites

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

Parkinson's Disease

Source: Integrative Medicine Communications; www.drkoop.com

Peptic Ulcer

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

Pertussis

Source: Integrative Medicine Communications; www.drkoop.com

Photodermatitis

Source: Integrative Medicine Communications; www.drkoop.com

Pinworm

Source: Integrative Medicine Communications; www.drkoop.com

PMS

Source: Integrative Medicine Communications; www.drkoop.com

PMS

Alternative names: Premenstrual Stress Syndrome

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

Post Traumatic Stress Disorder

Source: Integrative Medicine Communications; www.drkoop.com

Pregnancy and Postpartum Support

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

Premenstrual Syndrome

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

Premenstrual Syndrome

Source: Integrative Medicine Communications; www.drkoop.com

Proctitis

Source: Integrative Medicine Communications; www.drkoop.com

Prostate Enlargement

Source: Integrative Medicine Communications; www.drkoop.com

Prostate Infection

Source: Integrative Medicine Communications; www.drkoop.com

Prostatitis

Source: Integrative Medicine Communications; www.drkoop.com

PTSD

Source: Integrative Medicine Communications; www.drkoop.com

Pulmonary Edema

Source: Integrative Medicine Communications; www.drkoop.com

Pulmonary Hypertension

Source: Integrative Medicine Communications; www.drkoop.com

Pyloric Stenosis

Source: Integrative Medicine Communications; www.drkoop.com

Radiation Damage

Source: Integrative Medicine Communications; www.drkoop.com

Rectal Inflammation

Source: Integrative Medicine Communications; www.drkoop.com

Recurrent Ear Infections

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

Reiter's Syndrome

Source: Integrative Medicine Communications; www.drkoop.com

Rheumatoid Arthritis

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

Rheumatoid Arthritis

Source: Integrative Medicine Communications; www.drkoop.com

Rheumatoid Arthritis

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

River Blindness

Source: Integrative Medicine Communications; www.drkoop.com

Roundworms

Source: Integrative Medicine Communications; www.drkoop.com

Rubella

Source: Integrative Medicine Communications; www.drkoop.com

Scleroderma

Source: Integrative Medicine Communications; www.drkoop.com

Senile Dementia

Source: Integrative Medicine Communications; www.drkoop.com

Serum Sickness

Source: Integrative Medicine Communications; www.drkoop.com

Shingles and Postherpetic Neuralgia

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

Sinus Infection

Source: Integrative Medicine Communications; www.drkoop.com

Sinusitis

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

Sinusitis

Source: Integrative Medicine Communications; www.drkoop.com

Skin Cancer

Source: Integrative Medicine Communications; www.drkoop.com

Skin Infection

Source: Integrative Medicine Communications; www.drkoop.com

Sleeplessness

Source: Integrative Medicine Communications; www.drkoop.com

Spontaneous Abortion

Source: Integrative Medicine Communications; www.drkoop.com

Stroke

Source: Integrative Medicine Communications; www.drkoop.com

Sunburn

Source: Integrative Medicine Communications; www.drkoop.com

Syncope

Source: Integrative Medicine Communications; www.drkoop.com

Systemic Lupus Erythematosus

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

Systemic Lupus Erythematosus

Source: Integrative Medicine Communications; www.drkoop.com

Threadworm

Source: Integrative Medicine Communications; www.drkoop.com

Thyroid Inflammation

Source: Integrative Medicine Communications; www.drkoop.com

Thyroiditis

Source: Integrative Medicine Communications; www.drkoop.com

TIA

Source: Integrative Medicine Communications; www.drkoop.com

Tinnitus

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

Transient Ischemic Attacks

Source: Integrative Medicine Communications; www.drkoop.com

Trichinosis

Source: Integrative Medicine Communications; www.drkoop.com

Ulcerative Colitis

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

Ulcerative Colitis

Source: Integrative Medicine Communications; www.drkoop.com

Urethral Inflammation

Source: Integrative Medicine Communications; www.drkoop.com

Urethritis

Source: Integrative Medicine Communications; www.drkoop.com

Urinary Incontinence

Source: Integrative Medicine Communications; www.drkoop.com

Urinary Tract Infection

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

Urinary Tract Infection in Women

Source: Integrative Medicine Communications; www.drkoop.com

UTI

Source: Integrative Medicine Communications; www.drkoop.com

Uveitis

Source: Integrative Medicine Communications; www.drkoop.com

Varicose Veins

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

Varicose Veins

Source: Integrative Medicine Communications; www.drkoop.com

Viral Hepatitis

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

Visceral Larva Migrans

Source: Integrative Medicine Communications; www.drkoop.com

Warts

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

Whipworm

Source: Integrative Medicine Communications; www.drkoop.com

Whooping Cough

Source: Integrative Medicine Communications; www.drkoop.com

Yeast Infection

Source: Integrative Medicine Communications; www.drkoop.com

- **Alternative Therapy**

Acupuncture

Source: Integrative Medicine Communications; www.drkoop.com

Alternative Nutrition

Alternative names: alternative nutritional treatments alternative nutrition strategies alternative nutrition therapies

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/a.html>

Aromatherapy

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

Aromatherapy

Alternative names: aromatic medicine conventional aromatherapy holistic aromatherapy

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/a.html>

Ayurveda

Source: Integrative Medicine Communications; www.drkoop.com

Chinese Herbal Medicine

Alternative names: Zhang Yao

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/c.html>

Herbal Medicine

Source: Integrative Medicine Communications; www.drkoop.com

Natural and Macrobiotic Medicine

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/n.html>

Naturopathic Medicine

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

Naturopathy

Source: Integrative Medicine Communications; www.drkoop.com

Naturopathy

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,722,00.html

Nwvoti

Alternative names: Cherokee herbal medicine

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/n.html>

Tibetan Herbal Medicine

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/t.html>

Traditional Chinese Medicine

Source: Integrative Medicine Communications; www.drkoop.com

Traditional Chinese Medicine

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10085,00.html

Traditional Chinese Medicine Herbs

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

- **Herbs and Supplements**

Acanthopanax Senticosus

Source: Integrative Medicine Communications; www.drkoop.com

Acebutolol

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

Achillea Millefolium

Source: Integrative Medicine Communications; www.drkoop.com

Acyclovir Oral

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

Alfalfa

Alternative names: Medicago sativa

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

Allium Sativum

Source: Integrative Medicine Communications; www.drkoop.com

Aloe

Alternative names: Aloe vera, Aloe barbadensis
Source: Healthnotes, Inc.; www.healthnotes.com

Aloe

Alternative names: Aloe vera, Aloe barbadensis, Aloe ferox , Aloe Vera
Source: Integrative Medicine Communications; www.drkoop.com

Aloe Vera

Source: Integrative Medicine Communications; www.drkoop.com

Althaea Officinalis

Source: Integrative Medicine Communications; www.drkoop.com

American Ginseng

Alternative names: Panax quinquefolius
Source: Healthnotes, Inc.; www.healthnotes.com

American Ginseng

Alternative names: Panax quinquefolium
Source: Integrative Medicine Communications; www.drkoop.com

American Scullcap

Alternative names: Scutellaria lateriflora
Source: Healthnotes, Inc.; www.healthnotes.com

Amlodipine

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

Andrographis

Alternative names: Andrographis paniculata
Source: Healthnotes, Inc.; www.healthnotes.com

Angelica Sinensis

Source: Integrative Medicine Communications; www.drkoop.com

Apium Graveolens

Source: Integrative Medicine Communications; www.drkoop.com

Arctium Lappa

Source: Integrative Medicine Communications; www.drkoop.com

Arctium Minus

Source: Integrative Medicine Communications; www.drkoop.com

Arctostaphylos Uva Ursi

Source: Integrative Medicine Communications; www.drkoop.com

Arnica

Alternative names: Arnica montana

Source: Integrative Medicine Communications; www.drkoop.com

Arnica Montana

Source: Integrative Medicine Communications; www.drkoop.com

Asian Ginseng

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

Asian Ginseng

Alternative names: Panax ginseng

Source: Integrative Medicine Communications; www.drkoop.com

Astragalus

Alternative names: Astragalus membranaceus

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

Astragalus

Alternative names: Astragalus membranaceus, Astragalus membranaceus var. mongholicus, Huang-qi, Milk-Vetch Root

Source: Integrative Medicine Communications; www.drkoop.com

Astragalus

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

Astragalus Membranaceus

Source: Integrative Medicine Communications; www.drkoop.com

Astragalus Mongholicus

Alternative names: Astragalus membranaceus, Astragalus membranaceus var. mongholicus, Huang-qi, Milk-Vetch Root

Source: Integrative Medicine Communications; www.drkoop.com

Atenolol

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

Australian Fevertree

Source: Integrative Medicine Communications; www.drkoop.com

Ava

Source: Integrative Medicine Communications; www.drkoop.com

Barberry

Alternative names: Berberis vulgaris

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

Bearberry

Source: Integrative Medicine Communications; www.drkoop.com

Beargrape

Source: Integrative Medicine Communications; www.drkoop.com

Beta-adrenergic Blockers

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

Betaxolol

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

Bilberry

Alternative names: *Vaccinium myrtillus*, European Blueberry, Huckleberry

Source: Integrative Medicine Communications; www.drkoop.com

Bismuth Subsalicylate

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

Bisoprolol

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

Bitter Melon

Alternative names: *Momordica charantia*

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

Black Cohosh

Alternative names: *Cimicifuga racemosa*

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

Black Cohosh

Alternative names: *Cimicifuga racemosa* (actea), Black Snakeroot

Source: Integrative Medicine Communications; www.drkoop.com

Black Cohosh

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

Black Snakeroot

Source: Integrative Medicine Communications; www.drkoop.com

Blackberry

Alternative names: *Rubus fruticosus*

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

Blessed Thistle

Alternative names: *Cnicus benedictus*

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

Bloodroot

Alternative names: *Sanguinaria canadensis*

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

Bloodroot

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

Boldo

Alternative names: Peumus boldus

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

Boneset

Alternative names: Eupatorium perfoliatum

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

Boswellia

Alternative names: Frankincense; Boswellia serrata Roxb.

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Boswellia

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

Brahmi

Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)

Source: Integrative Medicine Communications; www.drkoop.com

Brompheniramine

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

Buchu

Alternative names: Barosma betulina, Agathosma betulina, Agathosma crenulata

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

Bugleweed

Alternative names: Lycopus virginicus

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

Bupleurum

Alternative names: Bupleurum chinense, Bupleurum falcatum

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

Butcher's Broom

Alternative names: Ruscus aculeatus

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

Calendula

Alternative names: Calendula officinalis

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

Calendula (Pot Marigold)

Alternative names: Calendula officinalis

Source: Integrative Medicine Communications; www.drkoop.com

Calendula Officinalis

Source: Integrative Medicine Communications; www.drkoop.com

Camellia Sinensis

Source: Integrative Medicine Communications; www.drkoop.com

Capsaicin

Source: Integrative Medicine Communications; www.drkoop.com

Capsicum Frutescens

Source: Integrative Medicine Communications; www.drkoop.com

Caraway

Alternative names: Carum carvi

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

Cascara

Alternative names: Cascara sagrada, Rhamnus purshiani cortex

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

Catnip

Alternative names: Nepeta cataria

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

Cayenne

Alternative names: Capsicum annuum, Capsicum frutescens

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

Cayenne

Alternative names: Capsicum frutescens, Capsicum spp., Capsaicin, Chili Pepper, Red Pepper

Source: Integrative Medicine Communications; www.drkoop.com

Celery Seed

Alternative names: Apium graveolens

Source: Integrative Medicine Communications; www.drkoop.com

Centella

Source: Integrative Medicine Communications; www.drkoop.com

Centella Asiatica

Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)

Source: Integrative Medicine Communications; www.drkoop.com

Chamaemelum Nobile

Source: Integrative Medicine Communications; www.drkoop.com

Chamomile

Alternative names: Matricaria recutita

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

Chasteberry

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

Chickweed

Alternative names: *Stellaria media*

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

Chili Pepper

Source: Integrative Medicine Communications; www.drkoop.com

Chinese Angelica

Source: Integrative Medicine Communications; www.drkoop.com

Chinese Scullcap

Alternative names: *Scutellaria baicalensis*

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

Chrysanthemum Parthenium

Source: Integrative Medicine Communications; www.drkoop.com

Cimicifuga Racemosa (Actea)

Source: Integrative Medicine Communications; www.drkoop.com

Cleavers

Alternative names: *Galium aparine*

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

Coleus

Alternative names: *Coleus forskohlii*

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

Coltsfoot

Alternative names: *Tussilago farfara*

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

Comfrey

Alternative names: *Symphytum officinale*

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

Comfrey

Alternative names: *Symphytum officinale*, Knitbone

Source: Integrative Medicine Communications; www.drkoop.com

Corydalis

Alternative names: *Corydalis turtschaninovii*, *Corydalis yanhusuo*

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

Crataegus Laevigata

Source: Integrative Medicine Communications; www.drkoop.com

Crataegus Monogyna

Source: Integrative Medicine Communications; www.drkoop.com

Curcuma Longa

Source: Integrative Medicine Communications; www.drkoop.com

Damiana

Alternative names: Turnera diffusa

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

Damiana

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

Dandelion

Alternative names: Taraxacum officinale

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

Dandelion

Alternative names: Taraxacum officinale

Source: Integrative Medicine Communications; www.drkoop.com

Dandelion

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

Danggui

Alternative names: Angelica sinensis, Chinese Angelica, Dang Gui, Danngui, Dong Qua, Tang Kuei, Tan Kue Bai zhi (Note: Dong quai should not be confused with Angelica root or Angelica seed.)

Source: Integrative Medicine Communications; www.drkoop.com

Devil's Claw

Alternative names: Harpagophytum procumbens

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

Devil's Claw

Alternative names: Harpagophytum procumbens, Harpagophytum zeyheri

Source: Integrative Medicine Communications; www.drkoop.com

Digoxin

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

Diltiazem

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

Dioscorea Villosa

Source: Integrative Medicine Communications; www.drkoop.com

Dong Quai

Alternative names: Angelica sinensis

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

Dong Quai

Alternative names: Angelica sinensis, Chinese Angelica, Dang Gui, Danngui, Dong Qua, Tang Kuei, Tan Kue Bai zhi (Note: Dong quai should not be confused with Angelica root or Angelica seed.)

Source: Integrative Medicine Communications; www.drkoop.com

Dong Quai

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

Echinacea

Alternative names: Echinacea purpurea, Echinacea angustifolia, Echinacea pallida

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

Echinacea

Alternative names: Echinacea angustifolia, Echinacea pallida, Echinacea purpurea, Purple Coneflower

Source: Integrative Medicine Communications; www.drkoop.com

Echinacea Angustifolia

Source: Integrative Medicine Communications; www.drkoop.com

Echinacea Pallida

Source: Integrative Medicine Communications; www.drkoop.com

Echinacea Purpurea

Source: Integrative Medicine Communications; www.drkoop.com

Elderberry

Alternative names: Sambucus nigra

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

Elecampane

Alternative names: Inula helenium

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

Elecampane

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

Eleuthero

Source: Integrative Medicine Communications; www.drkoop.com

Eleutherococcus Senticosus

Source: Integrative Medicine Communications; www.drkoop.com

English Lavendar

Source: Integrative Medicine Communications; www.drkoop.com

Ephedra

Alternative names: Ephedra sinica, Ephedra intermedia, Ephedra equisetina

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

Ephedra

Alternative names: Ephedra sinensis, Ma huang

Source: Integrative Medicine Communications; www.drkoop.com

Ephedra

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

Ephedra Sinensis

Source: Integrative Medicine Communications; www.drkoop.com

Equisetum Arvense

Source: Integrative Medicine Communications; www.drkoop.com

Eucalyptus

Alternative names: Eucalyptus globulus

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

Eucalyptus

Alternative names: Eucalyptus globulus, Eucalyptus fruticetorum, polybractea, smithii, Australian Fevertree

Source: Integrative Medicine Communications; www.drkoop.com

Eucalyptus Globulus

Source: Integrative Medicine Communications; www.drkoop.com

European Blueberry

Source: Integrative Medicine Communications; www.drkoop.com

Evening Primrose

Alternative names: Oenothera biennis, Sun Drop

Source: Integrative Medicine Communications; www.drkoop.com

Eyebright

Alternative names: Euphrasia officinalis

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

False Unicorn

Alternative names: Chamaelirium luteum

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

Felodipine

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

Fennel

Alternative names: Foeniculum vulgare

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

Fenugreek

Alternative names: Trigonella foenum-graecum

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

Fenugreek

Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Feverfew

Alternative names: *Tanacetum parthenium*
Source: Healthnotes, Inc.; www.healthnotes.com

Feverfew

Alternative names: *Tanacetum parthenium*, *Chrysanthemum parthenium*
Source: Integrative Medicine Communications; www.drkoop.com

Feverfew

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

Flaxseed

Alternative names: *Linum usitatissimum*, Linseed
Source: Integrative Medicine Communications; www.drkoop.com

French Lavendar

Source: Integrative Medicine Communications; www.drkoop.com

Gentian

Alternative names: *Gentiana lutea*
Source: Healthnotes, Inc.; www.healthnotes.com

German Chamomile

Alternative names: *Matricaria recutita*
Source: Integrative Medicine Communications; www.drkoop.com

Ginger

Alternative names: *Zingiber officinale*
Source: Healthnotes, Inc.; www.healthnotes.com

Ginger

Alternative names: *Zingiber officinale*
Source: Integrative Medicine Communications; www.drkoop.com

Ginkgo Biloba

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

Ginkgo Biloba

Source: Integrative Medicine Communications; www.drkoop.com

Ginkgo Biloba

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,788,00.html

Glycyrrhiza Glabra

Source: Integrative Medicine Communications; www.drkoop.com

Glycyrrhiza1

Alternative names: Licorice; Glycyrrhiza glabra L.

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Goldenrod

Alternative names: Solidago virgaurea

Source: Integrative Medicine Communications; www.drkoop.com

Goldenseal

Alternative names: Hydrastis canadensis

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

Goldenseal

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

Gotu Kola

Alternative names: Centella asiatica

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

Gotu Kola

Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)

Source: Integrative Medicine Communications; www.drkoop.com

Grape Seed

Alternative names: Vitis vinifera

Source: Integrative Medicine Communications; www.drkoop.com

Greater Celandine

Alternative names: Chelidonium majus

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

Green Tea

Alternative names: Camellia sinensis

Source: Integrative Medicine Communications; www.drkoop.com

Guggul

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

Harpagophytum Procumbens

Source: Integrative Medicine Communications; www.drkoop.com

Harpagophytum Zeyheri

Source: Integrative Medicine Communications; www.drkoop.com

Hawthorn

Alternative names: Crataegus laevigata, Crataegus oxyacantha, Crataegus monogyna

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

Hawthorn

Alternative names: *Crataegus monogyna*, *Crataegus laevigata*

Source: Integrative Medicine Communications; www.drkoop.com

Heparin

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

Herbal Medicine

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

Hops

Alternative names: *Humulus lupulus*

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

Hops

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

Horehound

Alternative names: *Marrubium vulgare*

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

Horse Chestnut

Alternative names: *Aesculus hippocastanum*

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

Horse Chestnut

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

Horseradish

Alternative names: *Cochlearia armoracia*

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

Horsetail

Alternative names: *Equisetum arvense*

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

Horsetail

Alternative names: *Equisetum arvense*, Scouring Rush, Shave Grass

Source: Integrative Medicine Communications; www.drkoop.com

Horsetail

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

Huang-qi

Source: Integrative Medicine Communications; www.drkoop.com

Huckleberry

Source: Integrative Medicine Communications; www.drkoop.com

Huperzia

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

Hydrocotyle

Source: Integrative Medicine Communications; www.drkoop.com

Hypericum Perforatum

Source: Integrative Medicine Communications; www.drkoop.com

Hyssop

Alternative names: *Hyssopus officinalis*

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

Indian Pennywort

Source: Integrative Medicine Communications; www.drkoop.com

Indian Tobacco

Source: Integrative Medicine Communications; www.drkoop.com

Interferon

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

Ipecac

Alternative names: *Cephaelis ipecacuanha*

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

Ivy Leaf

Alternative names: *Hedera helix*

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

Jamaica Dogwood

Alternative names: *Piscidia erythrina*, *Piscidia piscipula*

Source: Integrative Medicine Communications; www.drkoop.com

Juniper

Alternative names: *Juniperus communis*

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

Juniper Berry

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

Kava

Alternative names: *Piper methysticum*

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

Kava Kava

Alternative names: *Piper methysticum*, *Ava*

Source: Integrative Medicine Communications; www.drkoop.com

Klamathweed

Source: Integrative Medicine Communications; www.drkoop.com

Knitbone

Source: Integrative Medicine Communications; www.drkoop.com

Labetalol

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

Lapacho

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

Lavandula Angustifolia

Source: Integrative Medicine Communications; www.drkoop.com

Lavender

Alternative names: *Lavandula officinalis*

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

Lavender

Alternative names: *Lavandula angustifolia*, English Lavendar, French Lavendar

Source: Integrative Medicine Communications; www.drkoop.com

Lemon Balm

Alternative names: *Melissa officinalis*

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

Lemon Balm

Alternative names: *Melissa officinalis*, Melissa

Source: Integrative Medicine Communications; www.drkoop.com

Licorice

Alternative names: *Glycyrrhiza glabra*, *Glycyrrhiza uralensis*

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

Licorice

Alternative names: *Glycyrrhiza glabra*, Spanish Licorice

Source: Integrative Medicine Communications; www.drkoop.com

Licorice

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

Ligustrum

Alternative names: *Ligustrum lucidum*

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

Limetree

Source: Integrative Medicine Communications; www.drkoop.com

Linden

Alternative names: *Tilia* spp.

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

Linden

Alternative names: *Tilia cordata*, *Tilia platyphyllos*, Limetree

Source: Integrative Medicine Communications; www.drkoop.com

Linseed

Source: Integrative Medicine Communications; www.drkoop.com

Linum Usitatissimum

Source: Integrative Medicine Communications; www.drkoop.com

Lobelia

Alternative names: Lobelia inflata, Indian Tobacco

Source: Integrative Medicine Communications; www.drkoop.com

Lobelia Inflata

Source: Integrative Medicine Communications; www.drkoop.com

Ma Huang

Source: Integrative Medicine Communications; www.drkoop.com

Mad-dog Skullcap

Source: Integrative Medicine Communications; www.drkoop.com

Maidenhair Tree

Source: Integrative Medicine Communications; www.drkoop.com

Marsh Pennywort

Alternative names: Centella asiatica , Centella, March Pennywort, Indian Pennywort, Hydrocotyle, Brahmi (Sanskrit), Luei Gong Gen (Chinese)(Note: Gotu kola should not be confused with kola nut.)

Source: Integrative Medicine Communications; www.drkoop.com

Marshmallow

Alternative names: Althea officinalis

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

Marshmallow

Alternative names: Althaea officinalis

Source: Integrative Medicine Communications; www.drkoop.com

Marshmallow

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

Matricaria Recutita

Source: Integrative Medicine Communications; www.drkoop.com

Meadowsweet

Alternative names: Filipendula ulmaria

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

Melissa

Source: Integrative Medicine Communications; www.drkoop.com

Melissa Officinalis

Source: Integrative Medicine Communications; www.drkoop.com

Mentha X Piperita

Source: Integrative Medicine Communications; www.drkoop.com

Metoprolol

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

Milk Thistle

Alternative names: Silybum marianum, St. Mary's Thistle

Source: Integrative Medicine Communications; www.drkoop.com

Milk-vetch Root

Source: Integrative Medicine Communications; www.drkoop.com

Mistletoe

Alternative names: Viscum album

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

Motherwort

Alternative names: Leonurus cardiaca

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

Mullein

Alternative names: Verbascum thapsus

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

Myrrh

Alternative names: Commiphora molmol

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

Nadolol

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

Nettle

Alternative names: Urtica dioica

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

Nettle

Source: Integrative Medicine Communications; www.drkoop.com

Nifedipine

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

Oak

Alternative names: Quercus spp.

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

Oenothera Biennis

Source: Integrative Medicine Communications; www.drkoop.com

Olive Leaf

Alternative names: Olea europa

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

Oregano/Wild Marjoram

Alternative names: *Origanum vulgare*

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

Osha

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

Panax Ginseng

Source: Integrative Medicine Communications; www.drkoop.com

Panax Quinquefolium

Source: Integrative Medicine Communications; www.drkoop.com

Passiflora Incarnata

Source: Integrative Medicine Communications; www.drkoop.com

Passion Flower

Alternative names: *Passiflora incarnata*

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

Passionflower

Alternative names: *Passiflora incarnata*

Source: Integrative Medicine Communications; www.drkoop.com

Passionflower

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

Pau D'arco

Alternative names: *Tabebuia avellanedae*, *Tabebuia impestiginosa*

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

Peppermint

Alternative names: *Mentha piperita*

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

Peppermint

Alternative names: *Mentha x piperita*

Source: Integrative Medicine Communications; www.drkoop.com

Piper Methysticum

Source: Integrative Medicine Communications; www.drkoop.com

Piscidia Erythrina

Source: Integrative Medicine Communications; www.drkoop.com

Piscidia Piscipula

Source: Integrative Medicine Communications; www.drkoop.com

Plantain

Alternative names: *Plantago lanceolata*, *Plantago major*

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

Pot Marigold

Alternative names: *Calendula officinalis*

Source: Integrative Medicine Communications; www.drkoop.com

Prickly Ash

Alternative names: *Zanthoxylum clava-herculis*, *Zanthoxylum americanum*

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

Propranolol

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

Psyllium

Alternative names: *Plantago ovata*, *Plantago ispaghula*

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

Purple Coneflower

Source: Integrative Medicine Communications; www.drkoop.com

Pygeum

Alternative names: *Prunus africanum*, *Pygeum africanum*

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

Red Clover

Alternative names: *Trifolium pratense*, beebread, cow clover, cow grass, meadow clover, purple clover

Source: Integrative Medicine Communications; www.drkoop.com

Red Elm

Source: Integrative Medicine Communications; www.drkoop.com

Red Pepper

Source: Integrative Medicine Communications; www.drkoop.com

Red Raspberry

Alternative names: *Rubus idaeus*

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

Risperidone

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

Roman Chamomile

Alternative names: *Chamaemelum nobile*

Source: Integrative Medicine Communications; www.drkoop.com

Rosemary

Alternative names: *Rosmarinus officinalis*

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

Rosemary

Alternative names: *Rosmarinus officinalis*

Source: Integrative Medicine Communications; www.drkoop.com

Rosmarinus Officinalis

Source: Integrative Medicine Communications; www.drkoop.com

Sabal Serrulata

Source: Integrative Medicine Communications; www.drkoop.com

Sage

Alternative names: *Salvia officinalis*

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

Sandalwood

Alternative names: *Santalum album*

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

Sarsaparilla

Alternative names: *Smilax* spp.

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

Saw Palmetto

Alternative names: *Serenoa serrulata*, *Serenoa repens*, *Sabal serrulata*

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

Saw Palmetto

Alternative names: *Serenoa repens*, *Sabal serrulata*

Source: Integrative Medicine Communications; www.drkoop.com

Schisandra

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

Scouring Rush

Source: Integrative Medicine Communications; www.drkoop.com

Scutellaria Lateriflora

Source: Integrative Medicine Communications; www.drkoop.com

Senna

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

Serenoa Repens

Source: Integrative Medicine Communications; www.drkoop.com

Shave Grass

Source: Integrative Medicine Communications; www.drkoop.com

Siberian Ginseng

Alternative names: *Eleutherococcus senticosus*, *Acanthopanax senticosus*, *Eleuthero*

Source: Integrative Medicine Communications; www.drkoop.com

Silybum Marianum

Source: Integrative Medicine Communications; www.drkoop.com

Skullcap

Alternative names: Scutellaria lateriflora, Mad-dog Skullcap

Source: Integrative Medicine Communications; www.drkoop.com

Skullcap

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

Slippery Elm

Alternative names: Ulmus fulva, Red Elm, Sweet Elm

Source: Integrative Medicine Communications; www.drkoop.com

Solidago Virgaurea

Source: Integrative Medicine Communications; www.drkoop.com

Sotalol

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

Spanish Licorice

Source: Integrative Medicine Communications; www.drkoop.com

St. John's Wort

Alternative names: Hypericum perforatum, Klamathweed

Source: Integrative Medicine Communications; www.drkoop.com

St. Mary's Thistle

Source: Integrative Medicine Communications; www.drkoop.com

Sun Drop

Source: Integrative Medicine Communications; www.drkoop.com

Sundew

Alternative names: Drosera rotundifolia, Drosera ramentacea, Drosera intermedia, Drosera anglica

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

Sweet Elm

Source: Integrative Medicine Communications; www.drkoop.com

Symphytum Officinale

Source: Integrative Medicine Communications; www.drkoop.com

Syzygium Clove

Alternative names: Clove, Jamun; Syzygium sp.

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Tanacetum Parthenium

Source: Integrative Medicine Communications; www.drkoop.com

Tang Kuei

Source: Integrative Medicine Communications; www.drkoop.com

Taraxacum Officinale

Source: Integrative Medicine Communications; www.drkoop.com

Thyme

Alternative names: *Thymus vulgaris*

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

Ticlopidine

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

Tilia Cordata

Source: Integrative Medicine Communications; www.drkoop.com

Tilia Platyphyllos

Source: Integrative Medicine Communications; www.drkoop.com

Timolol

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

Trigonella

Alternative names: Fenugreek; *Trigonella foenum graecum* L.

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Turmeric

Alternative names: *Curcuma longa*

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

Turmeric

Alternative names: *Curcuma longa*

Source: Integrative Medicine Communications; www.drkoop.com

Turmeric

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

Ulmus Fulva

Source: Integrative Medicine Communications; www.drkoop.com

Uncaria Asian

Alternative names: Asian species; *Uncaria* sp.

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Urtica Dioica

Source: Integrative Medicine Communications; www.drkoop.com

Urtica Urens

Source: Integrative Medicine Communications; www.drkoop.com

Usnea

Alternative names: *Usnea barbata*

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

Uva Ursi

Alternative names: *Arctostaphylos uva-ursi*
Source: Healthnotes, Inc.; www.healthnotes.com

Uva Ursi

Alternative names: *Arctostaphylos uva ursi*, Bearberry, Beargrape
Source: Integrative Medicine Communications; www.drkoop.com

Vaccinium Myrtillus

Source: Integrative Medicine Communications; www.drkoop.com

Valerian

Alternative names: *Valeriana officinalis*
Source: Integrative Medicine Communications; www.drkoop.com

Valerian

Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Valeriana Officinalis

Source: Integrative Medicine Communications; www.drkoop.com

Verapamil

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

Vervain

Alternative names: *Verbena officinalis*
Source: Healthnotes, Inc.; www.healthnotes.com

Vitex

Alternative names: *Vitex agnus-castus*
Source: Healthnotes, Inc.; www.healthnotes.com

Vitis Vinifera

Source: Integrative Medicine Communications; www.drkoop.com

Warfarin

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

White Willow

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

Wild Cherry

Alternative names: *Prunus serotina*
Source: Healthnotes, Inc.; www.healthnotes.com

Wild Indigo

Alternative names: *Baptisia tinctoria*
Source: Healthnotes, Inc.; www.healthnotes.com

Wild Yam

Alternative names: Dioscorea villosa
Source: Healthnotes, Inc.; www.healthnotes.com

Wild Yam

Alternative names: Dioscorea villosa
Source: Integrative Medicine Communications; www.drkoop.com

Wild Yam

Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Willow

Alternative names: Salix alba
Source: Healthnotes, Inc.; www.healthnotes.com

Willow Bark

Alternative names: There are several species of willow including Salix alba, Salix nigra, Salix fragilis, Salix purpurea, Salix babylonica, White Willow, European Willow, Black Willow, Pussy Willow, Crack Willow, Purple Willow, Weeping Willow, Liu-zhi
Source: Integrative Medicine Communications; www.drkoop.com

Witch Hazel

Alternative names: Hamamelis virginiana
Source: Healthnotes, Inc.; www.healthnotes.com

Wormwood

Alternative names: Artemisia absinthium
Source: Healthnotes, Inc.; www.healthnotes.com

Yarrow

Alternative names: Achillea millefolium
Source: Healthnotes, Inc.; www.healthnotes.com

Yarrow

Alternative names: Achillea millefolium, Milfoil
Source: Integrative Medicine Communications; www.drkoop.com

Yarrow

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

Yellow Dock

Alternative names: Rumex crispus
Source: Healthnotes, Inc.; www.healthnotes.com

Yohimbe

Alternative names: Pausinystalia yohimbe
Source: Healthnotes, Inc.; www.healthnotes.com

Zingiber Officinale

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. DISSERTATIONS ON HERBAL MEDICINE

Overview

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

Dissertations on Herbal Medicine

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

- **Mexican American Folk Medicine: a Descriptive Study of the Different Curanderismo Techniques Practiced by Curanderos or Curanderas and Used by Patients in the Laredo, Texas Area (herbal Medicine, Healers, Hispanics)** by Carrasco, Sara Margarita Campos, PhD from Texas Woman's University, 1984, 130 pages
<http://wwwlib.umi.com/dissertations/fullcit/8417478>
- **Studies on the Anti-herpes Simplex Virus (hsv) Constituents from a Chinese Herbal Medicine, Prunella Vulgaris** by Zhang, Yongwen; PhD from Chinese University of Hong Kong (people's Republic of China), 2003, 190 pages
<http://wwwlib.umi.com/dissertations/fullcit/3095430>
- **Warao Herbal Medicine: a Pneumatic Theory of Illness and Healing (women, Traditional, Plants, Venezuela)** by Wilbert, Werner, PhD from University of California, Los Angeles, 1986, 843 pages
<http://wwwlib.umi.com/dissertations/fullcit/8614126>

Keeping Current

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

CHAPTER 5. BOOKS ON HERBAL MEDICINE

Overview

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

- **PDR for Herbal Medicines. 1st ed**

Source: Montvale, NJ: Medical Economics Company. 1998. 1244 p.

Contact: Available from Medical Economics Publishing Inc. P.O. Box 10689, Des Moines, IA 50336. (800) 922-0937. Fax (515) 284-6714. Website: www.medecbookstore.com.
PRICE: \$59.99. ISBN: 1563632926.

Summary: Most of today's herbal remedies exhibit varying degrees of therapeutic value. Some, such as ginkgo, valerian, and saw palmetto, seem genuinely useful, while others, such as ephedra, tansy, and nightshade, can actually be dangerous. As the use of unfamiliar botanicals spreads, the need to steer patients toward the few truly useful preparations and warn them away from ineffective, dangerous alternatives is becoming an increasingly significant priority. This volume, from the publishers of Physicians Desk Reference, brings together the findings of the German Regulatory Authority's herbal

watchdog agency (commonly caused Commission E). This agency conducted an intensive assessment of the peer-reviewed literature on some 300 common botanicals, weighing the quality of the clinical evidence and identifying the uses for which the herb can reasonably be considered effective. This reference book contains profiles of over 600 medicinal herbs. Each entry contains up to 9 standard sections: name(s), description, actions and pharmacology, indications and usage, contraindications, precautions and adverse reactions, overdose, dosage, and literature. The entries have also been indexed by scientific and common name, indications, therapeutic category, and side effects. To assist in identification, the reference book includes a section of full-color plates of the plants included. The book concludes with a glossary of the specialized botanical nomenclature and other unfamiliar terminology, a list of poison control centers, and a list of drug information centers. Some of the herbs are listed for use for abdominal cramps or distress, acid indigestion, appetite stimulation, rectal bleeding, various bowel disorders, stomach cancer, cholelithiasis (gallstones), colic, colitis, constipation, dehydration, diarrhea, digestive disorders, dysentery, enteritis, anal fissure, flatulence (intestinal gas), gastritis, gastroenteritis, gastrointestinal disorders, gout, helminthiasis, hemorrhage, hemorrhoids, hepatitis, hypercholesterolemia, jaundice, liver and gall bladder complaints, liver disorders, malaria, nausea, abdominal pain, and vomiting.

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

- **"Traditional Chinese Herbal Medicine - Formulas" (Hebrew edition)** by Effi Kfir; ISBN: 9659016409; <http://www.amazon.com/exec/obidos/ASIN/9659016409/icongroupinterna>
- **630 Questions & Answers About Chinese Herbal Medicine: A Workbook & Study Guide** by Bob Flaws; ISBN: 1891845047; <http://www.amazon.com/exec/obidos/ASIN/1891845047/icongroupinterna>
- **A Comprehensive Guide to Chinese Herbal Medicine** by Zw-Lin Chen, et al; ISBN: 0785810765; <http://www.amazon.com/exec/obidos/ASIN/0785810765/icongroupinterna>
- **Ancient Herbs, Modern Medicine: Improving Your Health by Combining Chinese Herbal Medicine and Western Medicine** by Henry Han, et al (2003); ISBN: 0553381180; <http://www.amazon.com/exec/obidos/ASIN/0553381180/icongroupinterna>
- **Arthritis and Herbal Medicine**; ISBN: 095006159X; <http://www.amazon.com/exec/obidos/ASIN/095006159X/icongroupinterna>

- **Asian Health Secrets: The Complete Guide to Asian Herbal Medicine** by Letha Hadady (1998); ISBN: 0609801058;
<http://www.amazon.com/exec/obidos/ASIN/0609801058/icongroupinterna>
- **Asthma & Bronchitis: Symptoms, Causes, Orthodox Treatment - and How Herbal Medicine Will Help (Herbal Health)** by Jill Wright; ISBN: 185703760X;
<http://www.amazon.com/exec/obidos/ASIN/185703760X/icongroupinterna>
- **Back to Eden: The Classic Guide to Herbal Medicine, Natural Foods & Home Remedies Since 1939** by Jethro Kloss; ISBN: 0787305022;
<http://www.amazon.com/exec/obidos/ASIN/0787305022/icongroupinterna>
- **Bartrams' Encyclopedia of Herbal Medicine** by Thomas Bartram (2002); ISBN: 1569245509;
<http://www.amazon.com/exec/obidos/ASIN/1569245509/icongroupinterna>
- **Bush Food: Aboriginal Food and Herbal Medicine** by Jennifer Isaacs; ISBN: 094970833X;
<http://www.amazon.com/exec/obidos/ASIN/094970833X/icongroupinterna>
- **Chinese Herbal Medicine** by C. P. Li, Milo D., Jr. Leavitt (Preface) (2000); ISBN: 0898750695;
<http://www.amazon.com/exec/obidos/ASIN/0898750695/icongroupinterna>
- **Chinese Herbal Medicine** by Daniel P. Reid; ISBN: 087773397X;
<http://www.amazon.com/exec/obidos/ASIN/087773397X/icongroupinterna>
- **Chinese Herbal Medicine and the Problems of Aging** by Bokuso Terashi, Hong-Yen Hsu (Translator); ISBN: 0941942171;
<http://www.amazon.com/exec/obidos/ASIN/0941942171/icongroupinterna>
- **Chinese Herbal Medicine Made Easy** by David Pond; ISBN: 8178221020;
<http://www.amazon.com/exec/obidos/ASIN/8178221020/icongroupinterna>
- **Chinese Herbal Medicine Made Easy: Effective and Natural Remedies for Common Illnesses** by Thomas Richard Joiner; ISBN: 0897932757;
<http://www.amazon.com/exec/obidos/ASIN/0897932757/icongroupinterna>
- **Chinese Herbal Medicine: Formulas and Strategies** by Dan Bensky, Randall Barolet (1990); ISBN: 0939616106;
<http://www.amazon.com/exec/obidos/ASIN/0939616106/icongroupinterna>
- **Chinese Herbal Medicine: How Chinese Herbs Are Used for Whole-Body Health** by Stephen Tang, Richard Craze (Contributor); ISBN: 0425149870;
<http://www.amazon.com/exec/obidos/ASIN/0425149870/icongroupinterna>
- **Chinese Herbal Medicine: Materia Medica** by Dan Bensky, Andrew Gamble (Compiler) (1993); ISBN: 0939616157;
<http://www.amazon.com/exec/obidos/ASIN/0939616157/icongroupinterna>
- **Chinese Herbal Medicine: Streetwise Guide** by Wong Kang Ying, Martha Dahlen (1995); ISBN: 9627316024;
<http://www.amazon.com/exec/obidos/ASIN/9627316024/icongroupinterna>
- **Chinese Herbal Medicines: Comparisons and Characteristics** by Yifan Yang; ISBN: 0443071667;
<http://www.amazon.com/exec/obidos/ASIN/0443071667/icongroupinterna>

- **Chinese Traditional Herbal Medicine TWO-VOLUME SET** by Michael Tierra, Lesley Tierra (1999); ISBN: 091495539X;
<http://www.amazon.com/exec/obidos/ASIN/091495539X/icongroupinterna>
- **Encyclopedia of Chinese and U.S. Patent Herbal Medicines** by Chongyun Liu, et al; ISBN: 0879838914;
<http://www.amazon.com/exec/obidos/ASIN/0879838914/icongroupinterna>
- **Encyclopedia of Herbal Medicine: The Definitive Home Reference Guide to 550 Key Herbs with all their Uses as Remedies for Common Ailments** by Andrew Chevallier; ISBN: 0789467836;
<http://www.amazon.com/exec/obidos/ASIN/0789467836/icongroupinterna>
- **Evidence-Based Herbal Medicine** by Michael Rotblatt, Irwin Ziment (2001); ISBN: 1560534478;
<http://www.amazon.com/exec/obidos/ASIN/1560534478/icongroupinterna>
- **Green Pharmacy: A History of Herbal Medicine**; ISBN: 0670354341;
<http://www.amazon.com/exec/obidos/ASIN/0670354341/icongroupinterna>
- **Green Pharmacy: The History and Evolution of Western Herbal Medicine** by Barbara Van Der Zee, et al (1997); ISBN: 0892817275;
<http://www.amazon.com/exec/obidos/ASIN/0892817275/icongroupinterna>
- **Herbal Medicine** by McIntyre; ISBN: 0356124290;
<http://www.amazon.com/exec/obidos/ASIN/0356124290/icongroupinterna>
- **Herbal Medicine** by Rudolf F. Weiss, A.R. Meuss (Translator); ISBN: 0906584191;
<http://www.amazon.com/exec/obidos/ASIN/0906584191/icongroupinterna>
- **Herbal Medicine and Botanical Medical Fads** by Frank, Ph.D. Hoffman, et al (2003); ISBN: 0789011484;
<http://www.amazon.com/exec/obidos/ASIN/0789011484/icongroupinterna>
- **Herbal Medicine for Everyone** by Michael McIntyre, Michael McIntyre; ISBN: 014009900X;
<http://www.amazon.com/exec/obidos/ASIN/014009900X/icongroupinterna>
- **Herbal Medicine for Health & Well-Being** by Laura Washington (Author) (2004); ISBN: 0806915455;
<http://www.amazon.com/exec/obidos/ASIN/0806915455/icongroupinterna>
- **Herbal Medicine for Sleep & Relaxation** by Desmond Corrigan (1996); ISBN: 1899308075;
<http://www.amazon.com/exec/obidos/ASIN/1899308075/icongroupinterna>
- **Herbal Medicine for the Menopause** by Andrew Chevallier (2001); ISBN: 1899308261;
<http://www.amazon.com/exec/obidos/ASIN/1899308261/icongroupinterna>
- **Herbal Medicine from the Heart of the Earth: From the Heart of the Earth** by Sharol, N.D. Tilgner (1999); ISBN: 1881517020;
<http://www.amazon.com/exec/obidos/ASIN/1881517020/icongroupinterna>
- **Herbal Medicine in Primary Care** by Sue Eldin, et al; ISBN: 0750640537;
<http://www.amazon.com/exec/obidos/ASIN/0750640537/icongroupinterna>
- **Herbal Medicine Products Manufacturing in Indonesia [DOWNLOAD: PDF]** by IBISWorld (Author); ISBN: B000096C53;
<http://www.amazon.com/exec/obidos/ASIN/B000096C53/icongroupinterna>

- **Herbal Medicine Safety** by Simon Mills (2004); ISBN: 0443071713;
<http://www.amazon.com/exec/obidos/ASIN/0443071713/icongroupinterna>
- **Herbal Medicine, Healing & Cancer** by Donald R. Yance, Arlene Valentine (Contributor); ISBN: 0879839686;
<http://www.amazon.com/exec/obidos/ASIN/0879839686/icongroupinterna>
- **Herbal Medicine: A Concise Overview for Professionals** by Edzard Ernst (Editor); ISBN: 0750645407;
<http://www.amazon.com/exec/obidos/ASIN/0750645407/icongroupinterna>
- **Herbal Medicine: A Guide for Health Care Professionals** by Joanne Barnes, et al; ISBN: 0853694745;
<http://www.amazon.com/exec/obidos/ASIN/0853694745/icongroupinterna>
- **Herbal Medicine: Chaos in the Marketplace** by Rowena K. Richter (Editor) (2002); ISBN: 0789016192;
<http://www.amazon.com/exec/obidos/ASIN/0789016192/icongroupinterna>
- **Herbal Medicine: Expanded Commission E Monographs (CD-ROM for Windows)** by Mark Blumenthal, et al; ISBN: 1930256035;
<http://www.amazon.com/exec/obidos/ASIN/1930256035/icongroupinterna>
- **Herbal Medicine: Revised & Updated** by Dian Dincin Buchman (Author) (1996); ISBN: 051714767X;
<http://www.amazon.com/exec/obidos/ASIN/051714767X/icongroupinterna>
- **Herbal Medicine: The Use of the Herbs for Health and Healing (Health Essentials Series)** by Vicki Pitman (1995); ISBN: 1852305916;
<http://www.amazon.com/exec/obidos/ASIN/1852305916/icongroupinterna>
- **Herbal Medicines for Neuropsychiatric Diseases: Current Developments and Research** by Shigenobu, M.D., Ph.D. Kanba (Editor), et al; ISBN: 0876308043;
<http://www.amazon.com/exec/obidos/ASIN/0876308043/icongroupinterna>
- **Herbal Medicines on the Santa Fe Trail** by Jim Long; ISBN: 1889791083;
<http://www.amazon.com/exec/obidos/ASIN/1889791083/icongroupinterna>
- **Herbal Medicines: A Guide for Healthcare Professionals (Book with CD-ROM, Individual Version)** by Barnes, et al (2002); ISBN: 0853695288;
<http://www.amazon.com/exec/obidos/ASIN/0853695288/icongroupinterna>
- **Herbal Medicines: Can Plants Cure What Ails You? [DOWNLOAD: PDF]**; ISBN: B00005QCTR;
<http://www.amazon.com/exec/obidos/ASIN/B00005QCTR/icongroupinterna>
- **Herbal Preparations and Natural Therapies: Creating and Using a Home Herbal Medicine Chest** by Debra Nuzzi, Debra N. St Claire (1989); ISBN: 0962381209;
<http://www.amazon.com/exec/obidos/ASIN/0962381209/icongroupinterna>
- **Herbal Well-Being: Simple Recipes for Making Your Own Herbal Medicines, Aromatherapy Blends, and Herbal Body-Care Formulas** by Joyce A. Wardwell, et al (2002); ISBN: 1571458131;
<http://www.amazon.com/exec/obidos/ASIN/1571458131/icongroupinterna>
- **Incorporating Herbal Medicine into Clinical Practice** by Angella Bascom; ISBN: 0803609361;
<http://www.amazon.com/exec/obidos/ASIN/0803609361/icongroupinterna>

- **Introduction To Acupuncture and Herbal Medicine** by Verena Johanna Smith; ISBN: 1893565009;
<http://www.amazon.com/exec/obidos/ASIN/1893565009/icongroupinterna>
- **Japanese Herbal Medicine: The Healing Art of Kampo** by Robert Rister; ISBN: 0895298368;
<http://www.amazon.com/exec/obidos/ASIN/0895298368/icongroupinterna>
- **Kahuna La'au Lapa'au: The Practice of Hawaiian Herbal Medicine** by June Gutmanis, et al (1995); ISBN: 0896100782;
<http://www.amazon.com/exec/obidos/ASIN/0896100782/icongroupinterna>
- **Kampo: How the Japanese Updated Traditional Herbal Medicine** by Akira Tsumura; ISBN: 0870407929;
<http://www.amazon.com/exec/obidos/ASIN/0870407929/icongroupinterna>
- **Market Research Report on Herbal Medicine in China [DOWNLOAD: PDF]** by Asian Information Resources Ltd. (Author); ISBN: B00005TXEZ;
<http://www.amazon.com/exec/obidos/ASIN/B00005TXEZ/icongroupinterna>
- **Medicine of the Five Rings: How You Can Use New Japanese Herbal Medicines for Fitness, Vitality, and Health** by Robert Rister (2002); ISBN: 0871319772;
<http://www.amazon.com/exec/obidos/ASIN/0871319772/icongroupinterna>
- **Men's Health: Using Herbal Medicine** by Roy Upton, Liz Koch (Contributor); ISBN: 0965794431;
<http://www.amazon.com/exec/obidos/ASIN/0965794431/icongroupinterna>
- **Nursing 2004 Herbal Medicine Handbook** by Springhouse (2003); ISBN: 1582552312;
<http://www.amazon.com/exec/obidos/ASIN/1582552312/icongroupinterna>
- **Outline Guide to Chinese Herbal Patent Medicines in Pill Form - With Sample Pictures of the Boxes (An Introduction to Chinese Herbal Medicines)** by Margaret A. Naeser (1990); ISBN: 0962565113;
<http://www.amazon.com/exec/obidos/ASIN/0962565113/icongroupinterna>
- **PDR for Herbal Medicines (Physician's Desk Reference for Herbal Medicines, 2nd Ed)** by Medical Economics Staff (Editor), et al (2000); ISBN: 1563633612;
<http://www.amazon.com/exec/obidos/ASIN/1563633612/icongroupinterna>
- **PDR for Herbal Medicines MBS Card (Electronic Book Card)** by Medical Economics, Franklin; ISBN: 1567125417;
<http://www.amazon.com/exec/obidos/ASIN/1567125417/icongroupinterna>
- **Pharmacological Research on Traditional Herbal Medicines** by Hiroshi Watanabe; ISBN: 9057020548;
<http://www.amazon.com/exec/obidos/ASIN/9057020548/icongroupinterna>
- **Phytotherapy: A Quick Reference to Herbal Medicine** by Francesco Capasso, et al (2003); ISBN: 3540000526;
<http://www.amazon.com/exec/obidos/ASIN/3540000526/icongroupinterna>
- **Pocket Handbook of Chinese Herbal Medicine** by Zong Lan Xu; ISBN: 0967993504;
<http://www.amazon.com/exec/obidos/ASIN/0967993504/icongroupinterna>
- **Polynesian Herbal Medicine** by W. Arthur Whistler, et al (1994); ISBN: 0915809168;
<http://www.amazon.com/exec/obidos/ASIN/0915809168/icongroupinterna>

- **Principles and Practice of Phytotherapy: Modern Herbal Medicine** by Simon Mills, Kerry Bone (1999); ISBN: 0443060169;
<http://www.amazon.com/exec/obidos/ASIN/0443060169/icongroupinterna>
- **Rasayana: Ayurvedic Herbs for Longevity and Rejuvenation (Traditional Herbal Medicines for Modern Times)** by Harbans Singh Puri, et al (2002); ISBN: 0415284899;
<http://www.amazon.com/exec/obidos/ASIN/0415284899/icongroupinterna>
- **Rational Phytotherapy: A Physicians' Guide to Herbal Medicine** by Volker Schulz, et al; ISBN: 3540670963;
<http://www.amazon.com/exec/obidos/ASIN/3540670963/icongroupinterna>
- **Reference Guide to Medicinal Plants: Herbal Medicine Past and Present** by John K. Creilin, et al (1997); ISBN: 0822310198;
<http://www.amazon.com/exec/obidos/ASIN/0822310198/icongroupinterna>
- **Return to Herbal Medicine** by Ladean Griffin; ISBN: 0890360731;
<http://www.amazon.com/exec/obidos/ASIN/0890360731/icongroupinterna>
- **Samoan Herbal Medicine: 'O La'Au Ma Vai Fofu O Samoa** by W. Arthur Whistler (1996); ISBN: 0964542625;
<http://www.amazon.com/exec/obidos/ASIN/0964542625/icongroupinterna>
- **Science of Herbal Medicine** by Heinerman; ISBN: 0686297431;
<http://www.amazon.com/exec/obidos/ASIN/0686297431/icongroupinterna>
- **Shengmai San (Traditional Herbal Medicines for Modern Times)** by Kam-Ming Ko (Editor), Robert Ko (Editor) (2002); ISBN: 0415284902;
<http://www.amazon.com/exec/obidos/ASIN/0415284902/icongroupinterna>
- **Simple Guide to Using Herbal Medicine** by Philip Evans (2002); ISBN: 1860340520;
<http://www.amazon.com/exec/obidos/ASIN/1860340520/icongroupinterna>
- **Stories About Chinese Herbal Medicine** by Hong I-nang; ISBN: 9579188297;
<http://www.amazon.com/exec/obidos/ASIN/9579188297/icongroupinterna>
- **Stress & Natural Healing: Herbal Medicines and Natural Therapies** by Christopher Hobbs (1997); ISBN: 1883010381;
<http://www.amazon.com/exec/obidos/ASIN/1883010381/icongroupinterna>
- **The American Association of Oriental Medicine's Complete Guide to Chinese Herbal Medicine: How to Treat Illness and Maintain Wellness With Chinese Herbs** by David Molony, et al (1998); ISBN: 0425157059;
<http://www.amazon.com/exec/obidos/ASIN/0425157059/icongroupinterna>
- **The Apothecary's Garden: How to Grow and Use Your Own Herbal Medicines** by Anne McIntyre; ISBN: 074991694X;
<http://www.amazon.com/exec/obidos/ASIN/074991694X/icongroupinterna>
- **The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines** by Mark Blumenthal (Editor), et al; ISBN: 096555550X;
<http://www.amazon.com/exec/obidos/ASIN/096555550X/icongroupinterna>
- **The Complete Guide To Herbal Medicines** by Juan R. Avila (Author), Charles W. Fetrow (Author); ISBN: 0743400704;
<http://www.amazon.com/exec/obidos/ASIN/0743400704/icongroupinterna>
- **The Constituents of Medicinal Plants: An Introduction to the Chemistry and Therapeutics of Herbal Medicine** by Andrew Pengelly (2004); ISBN: 0851998070;
<http://www.amazon.com/exec/obidos/ASIN/0851998070/icongroupinterna>

- **The Consumer's Guide to Herbal Medicine** by Steven B., Md. Karch (1999); ISBN: 1889462063;
<http://www.amazon.com/exec/obidos/ASIN/1889462063/icongroupinterna>
- **The energetics of western herbs : integrating western and oriental herbal medicine traditions** by Peter Holmes; ISBN: 0962347760;
<http://www.amazon.com/exec/obidos/ASIN/0962347760/icongroupinterna>
- **The Energetics of Western Herbs: Treatment Strategies Integrating Western & Oriental Herbal Medicine** by Peter Holmes, et al (1997); ISBN: 1890029068;
<http://www.amazon.com/exec/obidos/ASIN/1890029068/icongroupinterna>
- **The Essential Book of Herbal Medicine** by Simon Y. Mills (1994); ISBN: 014019309X;
<http://www.amazon.com/exec/obidos/ASIN/014019309X/icongroupinterna>
- **The Herbal Medicine Cabinet: Preparing Natural Remedies at Home** by Debra St. Claire, et al; ISBN: 0890878269;
<http://www.amazon.com/exec/obidos/ASIN/0890878269/icongroupinterna>
- **The Herbal Medicine Chest** by Nancy Evelyn; ISBN: 089594216X;
<http://www.amazon.com/exec/obidos/ASIN/089594216X/icongroupinterna>
- **The Herbal Medicine Maker's Handbook: A Home Manual** by James Green, et al; ISBN: 0895949903;
<http://www.amazon.com/exec/obidos/ASIN/0895949903/icongroupinterna>
- **The Information Sourcebook of Herbal Medicine** (1994); ISBN: 089594670X;
<http://www.amazon.com/exec/obidos/ASIN/089594670X/icongroupinterna>
- **The Information Sourcebook of Herbal Medicine** by David Hoffmann, David Hoffman (Editor); ISBN: 0895946718;
<http://www.amazon.com/exec/obidos/ASIN/0895946718/icongroupinterna>
- **The Psychopharmacology of Herbal Medicine: Plant Drugs That Alter Mind, Brain, and Behavior** by Marcello Spinella (Author); ISBN: 0262692651;
<http://www.amazon.com/exec/obidos/ASIN/0262692651/icongroupinterna>
- **The Scientific Validation of Herbal Medicine** by Daniel B. Mowrey (1990); ISBN: 0879835346;
<http://www.amazon.com/exec/obidos/ASIN/0879835346/icongroupinterna>
- **The Traditional Healer: A Comprehensive Guide to the Principles and Practice of Unani Herbal Medicine** by Hakim G.M. Chishti (1988); ISBN: 0892812257;
<http://www.amazon.com/exec/obidos/ASIN/0892812257/icongroupinterna>
- **The Vital Vitamin Fact File: Plus Minerals Food Supplements and Herbal Medicine** by Henry Winter Griffith; ISBN: 0722516932;
<http://www.amazon.com/exec/obidos/ASIN/0722516932/icongroupinterna>
- **Thorsons Principles of Chinese Herbal Medicine (Thorsons Principles)** by John Hicks; ISBN: 0722533411;
<http://www.amazon.com/exec/obidos/ASIN/0722533411/icongroupinterna>
- **Tongan Herbal Medicine** by W. Arthur Whistler (1993); ISBN: 0824815270;
<http://www.amazon.com/exec/obidos/ASIN/0824815270/icongroupinterna>
- **Traditional Herbal Medicine in Northern Thailand (Comparative Studies of Health Systems and Medical Care)** by Viggo Schumacher Brun; ISBN: 0520052714;
<http://www.amazon.com/exec/obidos/ASIN/0520052714/icongroupinterna>

- **Trying to Give Ease: Tommie Bass and the Story of Herbal Medicine** by Jane Philpott (Contributor), et al (1997); ISBN: 0822320177;
<http://www.amazon.com/exec/obidos/ASIN/0822320177/icongroupinterna>
- **Women's Guide to Herbal Medicine** by Carol Rogers; ISBN: 0241133475;
<http://www.amazon.com/exec/obidos/ASIN/0241133475/icongroupinterna>

Chapters on Herbal Medicine

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

- **Plants Can Do It: Herbal Medicines for Males**

Source: in Newman, A.J. *Beyond Viagra: Plain Talk About Treating Male and Female Sexual Dysfunction*. Montgomery, AL: Starrhill Press. 1999. p. 113-117.

Contact: Available from Black Belt Press. P.O. Box 551, Montgomery, AL 36101. (800) 959-3245 or (334) 265-6753. Fax (334) 265-8880. PRICE: \$13.95 plus shipping and handling. ISBN: 1573590142.

Summary: This chapter on herbal medicines for males is from a book that discusses the drug sildenafil (Viagra) in the context of a larger discussion about sexuality and sexual dysfunction. The author describes six widely used natural medicines: yohimbine, potency wood (Muir Puama), ginkgo biloba extract, Damiana (*turnera diffusa*), Panax ginseng, and chaste berry. For the most part, the herbal medicines may either increase male libido or, in some cases, play a role in improving arterial circulation. The natural approach to erectile dysfunction treatment involves overall improvements in diet, increased regular exercise with avoidance of bad health practices such as smoking or excess alcohol and drug consumption, nutritional supplements with vitamins, one tablespoon daily of flaxseed oil, and herbs. The chapter is written in nontechnical language but includes enough medical information to be of use to medical professionals wishing to learn more about sexuality and sexual dysfunction.

Directories

In addition to the references and resources discussed earlier in this chapter, a number of directories relating to herbal medicine 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:⁸

⁸ You will need to limit your search to "Directory" and "herbal medicine" 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 "herbal medicine" (or synonyms) into the "For these words:" box. You should check back periodically with this database as it is updated every three months.

- **Directory of Schools for Alternative and Complementary Health Care**

Source: Phoenix, AZ: Oryx Press. 1998. 250 p.

Contact: Oryx Press. PO Box 33889, Phoenix, AZ 85067-3889. 800-279-6799, 602-265-2651, FAX: 602-265-2650, 800-279-4663. PRICE: \$49.50. ISBN: 157356110X.

Summary: This book provides information on schools and programs in the United States and Canada that offer professional training in alternative and complementary modalities, including acupressure, acupuncture, Alexander technique, aromatherapy, Ayurvedic medicine, biofeedback, chiropractic, Feldenkrais, **herbal medicine**, homeopathy, hypnotherapy, massage therapy and bodywork, midwifery, naturopathic medicine, Oriental medicine, polarity therapy, reflexology, reiki, Shiatsu, and yoga. The book contains a list of abbreviations, a glossary, a subject index, and nine essays on selected alternative medicine health fields describing each modality and the training and education required to practice in that field. The alphabetical listing of schools by state provides contact information, including the school's name, address, telephone number, fax number, e-mail address, and Web page address, if available. The school listing is followed by a list of organizations and accrediting bodies and resources for further reading. This book also provides an index of schools by name and by specialization, and a general index.

CHAPTER 6. MULTIMEDIA ON HERBAL MEDICINE

Overview

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

Bibliography: Multimedia on Herbal Medicine

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 herbal medicine (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 herbal medicine:

- **Herbal medicine [videorecording]** Source: a co-production of Multimedia Communications and Physician Education and Development; Year: 1999; Format: Videorecording; Oakland, CA: Kaiser Foundation Health Plan, c1999-
- **Herbal medicine into the new millennium [electronic resource]: 16-18 June 1999, Southern Cross University, Lismore, Australia: an international forum on the science, regulation, production, and clinical application of medicinal plants.** Year: 1999; Format: Electronic resource; Lismore, Australia: Southern Cross University, [1999]
- **Herbal preparations and natural therapies [videorecording]: creating and using a home herbal medicine chest** Source: presented by special arrangement through the School of Natural Healing; [presented by] SunFire Productions; Year: 1989; Format: Videorecording; Boulder, Colo.: Debra Nuzzi, c1989
- **Microsurgery and herbal medicine [sound recording]: American Association for the Advancement of Science 1981 annual convention, January 3-8, Toronto.** Year: 1981; Format: Sound recording; Glendale, CA: Mobiltape, [1981]

CHAPTER 7. PERIODICALS AND NEWS ON HERBAL MEDICINE

Overview

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

News Services and Press Releases

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

- **Britain to ban kava herbal medicines**
Source: Reuters Health eLine
Date: December 23, 2002

- **Chinese herbal medicines may contain modern drugs**
Source: Reuters Health eLine
Date: November 05, 2002
- **Chinese herbal medicines may contain drugs**
Source: Reuters Medical News
Date: November 05, 2002
- **Chinese herbal medicine plus interferon seems effective in HBV treatment**
Source: Reuters Industry Breifing
Date: October 09, 2002
- **Herbal medicines linked to liver inflammation**
Source: Reuters Health eLine
Date: July 05, 2002
- **EU aims to regulate herbal medicines**
Source: Reuters Industry Breifing
Date: January 17, 2002
- **Herbal medicines pose risk during surgery: report**
Source: Reuters Health eLine
Date: July 10, 2001
- **Japanese herbal medicine may treat infertility**
Source: Reuters Health eLine
Date: June 25, 2001
- **Strychnine poisoning linked to herbal medicine**
Source: Reuters Health eLine
Date: April 19, 2001
- **Physicians advised to make the effort to understand herbal medicines**
Source: Reuters Medical News
Date: April 02, 2001
- **Herbal medicine proven effective in allergic rhinitis**
Source: Reuters Health eLine
Date: January 30, 2001
- **Chinese herbal medicine cuts airway response in mice**
Source: Reuters Industry Breifing
Date: December 14, 2000
- **Herbal medicines of uncertain value in asthma therapy**
Source: Reuters Medical News
Date: November 29, 2000
- **Chinese herbal medicine effective against murine asthma**
Source: Reuters Medical News
Date: November 09, 2000
- **Doctors unsure if herbal medicines work for asthma**
Source: Reuters Health eLine
Date: October 24, 2000
- **Physicians called upon to change attitudes toward herbal medicines**
Source: Reuters Industry Breifing
Date: August 14, 2000

- **Compound derived from herbal medicine prevents liver cell death in mice**
Source: Reuters Medical News
Date: February 22, 2000
- **Chinese herbal medicines gaining acceptance in West**
Source: Reuters Health eLine
Date: October 26, 1999
- **Stop herbal medicines before surgery**
Source: Reuters Health eLine
Date: May 07, 1999
- **UK's Xenova receives award to study Mayan herbal medicines**
Source: Reuters Medical News
Date: December 23, 1998
- **Publishers of the PDR introduces guide to herbal medicines**
Source: Reuters Medical News
Date: October 20, 1998
- **Herbal Medicine: Physicians Should Know What Patients Are Taking**
Source: Reuters Medical News
Date: March 30, 1998
- **Australian Physicians Call For Standardization Of Herbal Medicines**
Source: Reuters Medical News
Date: December 29, 1997
- **Herbal Medicine Derivative Exhibits Anti-HIV-1 Activity**
Source: Reuters Medical News
Date: June 10, 1997
- **Herbal Medicines Staging A Comeback**
Source: Reuters Medical News
Date: August 27, 1996
- **Chinese Herbal Medicine As Effective As Conventional Therapy for Treating Cirrhosis In Rats**
Source: Reuters Medical News
Date: April 08, 1996
- **Chinese Herbal Medicine Reduces Incidence of HCC in Cirrhosis Patients**
Source: Reuters Medical News
Date: September 04, 1995

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/alphaneews_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 "herbal medicine" (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 "herbal medicine" (or synonyms). If you know the name of a company that is relevant to herbal medicine, 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 "herbal medicine" (or synonyms).

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 "herbal medicine" (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 herbal medicine:

- **Herbal Medicine and Lupus**

Source: *Lupus News*. 21(4): 1,4-5. Winter 2001.

Contact: Available from Lupus Foundation of America. 1300 Piccard Drive, Suite 200, Rockville, MD 20850-4303. (800) 558-0121 or (301) 670-9292. Fax (301) 670-9486. Website: www.lupus.org/lupus.

Summary: This newsletter article discusses the use of herbal medicines by patients with lupus to treat their condition. No herbal medicines have been proven effective in treating lupus. Echinacea, thought to be effective in treating upper respiratory tract ailments, has caused kidney problems and lupus flares in patients with lupus. Thundergod vine, sometimes helpful in improving joint tenderness in patients with rheumatoid arthritis, has caused rashes, gastrointestinal problems, and menstrual irregularities in patients with lupus. Wild yams, containing DHEA, a weak male hormone, is thought to modify immune response. A study in which lupus patients took DHEA in a purified form did result in modest improvement in lupus symptoms. Patients with lupus should discuss using alternative therapies and herbal supplements with their rheumatologist. 14 references.

Academic Periodicals covering Herbal Medicine

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

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 Institute⁹:

- 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/>

⁹ 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.¹⁰ 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:¹¹

- **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

¹⁰ Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINEplus (<http://medlineplus.gov/> or <http://www.nlm.nih.gov/medlineplus/databases.html>).

¹¹ 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 Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to one of the following: Brochure/Pamphlet, Fact Sheet, or Information Package, and "herbal medicine" using the "Detailed Search" option. Go directly to the following hyperlink: <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 the publication date, select "All Years." Select your preferred language and the format option "Fact Sheet." Type "herbal medicine" (or synonyms) into the "For these words:" box. The following is a sample result:

- **Alternative Medicine: Expanding Medical Horizons. A Report to the National Institutes of Health on Alternative Medical Systems and Practices in the United States**

Source: Washington, DC: Government Printing Office. 1994. 372 p.

Contact: Available from U.S. Government Printing Office. Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954. (202) 512-1800; FAX: (202) 512-2250. PRICE: \$25.00. ISBN: 0160454794.

Summary: This document was developed from a 1992 National Institutes of Health workshop and includes input from more than 200 practitioners and researchers of alternative medicine from throughout the United States. Part I of the report examines seven fields of alternative medicine: mind-body interventions, bioelectromagnetics applications in medicine, alternative systems of medical practice, manual healing methods, pharmacological and biological treatments, **herbal medicine**, and diet and nutrition in the prevention and treatment of chronic disease. Part II addresses a number of cross-cutting issues relevant to all seven fields, including research infrastructure, research databases, research methodologies, the peer review process, and public information activities. Each chapter in this report includes major recommendations and references. A glossary and index are found at the back of the report. Numerous references.

- **Resist!**

Contact: AIDS Project Los Angeles, 3550 Wilshire Blvd Ste 300, Los Angeles, CA, 90010-2404, (213) 201-1600, <http://www.apla.org>.

Summary: This is a packet of material on Resist!, an herbal product being marketed as an immune-enhancing formula. The chief ingredient in Resist! is astragalus, used in the practice of traditional Chinese **herbal medicine**. The packet includes a letter from a San Francisco physician who is using the herb in a series of studies to determine whether a standardized regimen of natural therapies will have a measurable effect on the progression of HIV infection. His program includes the use of Resist! plus a natural

foods diet, mineral and vitamin supplements, and the elimination of all negative health habits. The data collected in this study are included in the packet.

- **A Primer on Alternative Therapies, Holistic Medicine, and HIV Disease**

Contact: Abt Associates, 55 Wheeler St, Cambridge, MA, 02138, (617) 349-2734,
<http://www.abtassoc.com>.

Summary: This report describes a number of alternative therapies and holistic treatment programs, many of which are based in Eastern traditions, that are being used to treat Acquired immunodeficiency syndrome (AIDS), caused by Human immunodeficiency virus (HIV). Holistic healing programs have been found to be emotionally and physically beneficial for Persons with AIDS (PWA's), while combined modality holistic healing programs are seen as a way to foster improved immune system function in asymptomatic patients. The report discusses homeopathy, acupuncture, **herbal medicine**, nutrition, crystal/gemstone healing, chiropractic, body work, mind work, and the mind/body connection.

The NLM Gateway¹²

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.¹³ To use the NLM Gateway, simply go to the search site at <http://gateway.nlm.nih.gov/gw/Cmd>. Type "herbal medicine" (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	1553
Books / Periodicals / Audio Visual	1712
Consumer Health	931
Meeting Abstracts	43
Other Collections	0
Total	4239

HSTAT¹⁴

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.¹⁵ 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

¹² Adapted from NLM: <http://gateway.nlm.nih.gov/gw/Cmd?Overview.x>.

¹³ 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).

¹⁴ Adapted from HSTAT: <http://www.nlm.nih.gov/pubs/factsheets/hstat.html>.

¹⁵ The HSTAT URL is <http://hstat.nlm.nih.gov/>.

AHRQ's Put Prevention Into Practice. Simply search by "herbal medicine" (or synonyms) at the following Web site: <http://text.nlm.nih.gov>.

Coffee Break: Tutorials for Biologists¹⁶

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.¹⁷ 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.¹⁸ 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/clinweb/>.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see <http://www.mwsearch.com/>.

¹⁶ Adapted from <http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html>.

¹⁷ 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.

¹⁸ After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called “Fact Sheets” or “Guidelines.” They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on herbal medicine 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 herbal medicine. 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 herbal medicine. 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 “herbal medicine”:

- Guides on herbal medicine

Herbal Medicine

<http://www.nlm.nih.gov/medlineplus/herbalmedicine.html>

- Other guides

About Your Medicines

<http://www.nlm.nih.gov/medlineplus/aboutyourmedicines.html>

Cancer Alternative Therapy

<http://www.nlm.nih.gov/medlineplus/canceralternativetherapy.html>

Children's Health

<http://www.nlm.nih.gov/medlineplus/childrenshealth.html>

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

- General/Overviews

About Herbs, Botanicals & Other Products

Source: Memorial Sloan-Kettering Cancer Center

<http://www.mskcc.org/mskcc/html/11570.cfm>

Are Herbs for You?

Source: Mayo Foundation for Medical Education and Research

<http://www.mayoclinic.com/invoke.cfm?id=SA00043>

Herbal Health Products: What You Should Know

Source: American Academy of Family Physicians

<http://familydoctor.org/handouts/364.html>

HerbMed

Source: Alternative Medicine Foundation

<http://www.herbmed.org/>

Using Herbal Supplements Wisely

Source: Mayo Foundation for Medical Education and Research

<http://www.mayoclinic.com/invoke.cfm?id=NU00205>

- Specific Conditions/Aspects

Consumer Beware: Herbal Remedies and the Skin

Source: American Academy of Dermatology

<http://www.aad.org/PressReleases/herbal.html>

Echinacea: What Should I Know about It?

Source: American Academy of Family Physicians

<http://familydoctor.org/handouts/744.html>

Herb and Drug Interactions: 'Natural' Products Not Always Safe

Source: Mayo Foundation for Medical Education and Research

<http://www.mayoclinic.com/invoke.cfm?id=SA00039>

Herbal Diet Pills

Source: Mayo Foundation for Medical Education and Research

<http://www.mayoclinic.com/invoke.cfm?id=SA00041>

Herb-Buying Tips

Source: Mayo Foundation for Medical Education and Research
<http://www.mayoclinic.com/invoke.cfm?id=SA00044>

Kava-Containing Dietary Supplements May Be Associated with Severe Liver Injury

Source: Center for Food Safety and Applied Nutrition
<http://www.cfsan.fda.gov/%7Edms/addskava.html>

Listing of Botanical Ingredients of Concern

Source: Food and Drug Administration
<http://vm.cfsan.fda.gov/%7Edms/ds-bot2.html>

Questions and Answers about Valerian for Insomnia and Other Sleep Disorders

Source: National Institutes of Health, Office of Dietary Supplements
<http://ods.od.nih.gov/factsheets/valerian.html>

Recall of PC SPES and SPES Dietary Supplements

Source: National Center for Complementary and Alternative Medicine
<http://nccam.nih.gov/health/alerts/spes/index.htm>

St. John's Wort and the Treatment of Depression

Source: National Center for Complementary and Alternative Medicine
<http://nccam.nih.gov/health/stjohnswort/index.htm>

Treatment of Colds with a Capsule Form of the Herb Echinacea

Source: American College of Physicians
<http://www.annals.org/cgi/content/full/137/12/I-18>

What You Should Know about Herbal and Dietary Supplement Use and Anesthesia

Source: American Society of Anesthesiologists
<http://www.asahq.org/patientEducation/herbPatient.pdf>

- From the National Institutes of Health

Botanical Dietary Supplements: Background Information

Source: National Institutes of Health, Office of Dietary Supplements
<http://ods.od.nih.gov/factsheets/botanicalbackground.html>

Herbal Medicine

Source: National Toxicology Program
<http://ntp-server.niehs.nih.gov/htdocs/liason/factsheets/HerbMedFacts.pdf>

Herbal Supplements: Consider Safety, Too

Source: National Center for Complementary and Alternative Medicine
<http://www.nccam.nih.gov/health/supplement-safety/>

What Are Dietary Supplements?

Source: National Institutes of Health, Office of Dietary Supplements
<http://ods.od.nih.gov/showpage.aspx?pageid=46>

What Is Complementary and Alternative Medicine (CAM)?

Source: National Center for Complementary and Alternative Medicine
<http://nccam.nih.gov/health/whatiscam/>

- Latest News

- **Green Tea Helps Against HIV**

- Source: 11/10/2003, United Press International

- http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/news/fullstory_14586.html

- **Herbal Mix Shows Small Benefit for Mood, Vitality**

- Source: 11/10/2003, Reuters Health

- http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/news/fullstory_14603.html

- **More News on Herbal Medicine**

- http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/alphanews_h.html#HerbalMedicine

- **Weight Loss Supplement May Raise Heart Risk**

- Source: 11/10/2003, Reuters Health

- http://www.nlm.nih.gov//www.nlm.nih.gov/medlineplus/news/fullstory_14596.html

- Law and Policy

- **Statement from FDA Deputy Commissioner Crawford Regarding Metabolife**

- Source: Food and Drug Administration

- <http://www.fda.gov/bbs/topics/NEWS/2002/NEW00828.html>

- Men

- **Herbal Supplements: Their Safety, a Concern for Health Care Providers**

- Source: March of Dimes Birth Defects Foundation

- http://www.marchofdimes.com/professionals/681_1815.asp

- **Phytoestrogens and Bone Health**

- Source: Osteoporosis and Related Bone Diseases-National Resource Center

- <http://www.osteoporosis.org/newfile.asp?doc=r618i&doctitle=Phytoestrogens%2Band%2BBone%2BHealth&doctype=HTML%2BFact%2BSheet>

- Organizations

- **Alternative Medicine Foundation**

- <http://www.amfoundation.org/>

- **National Center for Complementary and Alternative Medicine**

- <http://nccam.nih.gov/>

- Pictures/Diagrams

- **Medicinal Herb Garden - Images**

- Source: National Network of Libraries of Medicine, Pacific Northwest Region

- <http://nnlm.gov/pnr/uwmhg/>

- Research

- **Echinacea Not Effective in Treating Children's Colds: New Study Results**

- Source: National Center for Complementary and Alternative Medicine
<http://nccam.nih.gov/health/alerts/echinacea/index.htm>

- **Ephedra Is Associated with More Adverse Effects Than Other Herbs**

- Source: American College of Physicians
<http://www.annals.org/cgi/content/full/138/6/I-56>

- **Liver Injury in 12 Patients Taking the Herbal Weight Loss Aids Chaso or Onshido**

- Source: American College of Physicians
<http://www.annals.org/cgi/content/full/139/6/I-47>

- **NCCAM Consumer Advisory on Ephedra**

- Source: National Center for Complementary and Alternative Medicine
<http://nccam.nih.gov/health/alerts/ephedra/consumeradvisory.htm>

- Women

- **Herbal Supplements: Their Safety, a Concern for Health Care Providers**

- Source: March of Dimes Birth Defects Foundation
http://www.marchofdimes.com/professionals/681_1815.asp

- **Phytoestrogens and Bone Health**

- Source: Osteoporosis and Related Bone Diseases-National Resource Center
<http://www.osteo.org/newfile.asp?doc=r618i&doctitle=Phytoestrogens%2Band%2BBone%2BHealth&doctype=HTML%2BFact%2BSheet>

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 herbal medicine. 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:

- **Herbal Medicines**

- Source: Research Triangle Park, NC: National Toxicology Program, National Institute of Environmental Health. 2001. 3 p.

- Contact: Available from National Toxicology Program, National Institute of Environmental Health, P.O. Box 12233, MD B3-10, Research Triangle Park, NC 27709.
PRICE: Free.

Summary: This fact sheet from the National Toxicology Program (NTP) at the National Institute of Environmental Health Sciences reviews the herbs currently under study by the NTP. The fact sheet discusses the 1998 workshop on herbal medicines, in which recommendations were made for more research. The fact sheet includes a table that provides information about the herbs and active or toxic ingredients under study by the NTP, including aloe vera gel, black walnut extract, comfrey, echinacea purpurea extract, ginkgo biloba extract, ginseng and ginsenosides, goldenseal, grape seed extract, kava kava, milk thistle extract, pulegone, and thujone.

Healthfinder™

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

- **Herbal Medicine Resource Guide**

Summary: These resources relate mainly to western traditions of herbal medicine (also referred to as phytomedicine or botanical medicine) that rely primarily on the use of single herbs.

Source: Alternative Medicine Foundation, Inc.

<http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=7613>

- **Medical Herbalism (Journal)**

Summary: The focus of this quarterly journal is to preserve and develop the science and art of herbal medicine, and to promote communication and sharing of clinical methods and experiences.

Source: Commercial Entity--Follow the Resource URL for More Information

<http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=3717>

- **NIEHS Research Initiatives: Herbal Medicines**

Summary: In response to the increased use of medicinal herbs by the U.S.

Source: National Institute of Environmental Health Sciences, National Institutes of Health

<http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=6484>

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 herbal medicine. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively

rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: <http://search.nih.gov/index.html>.

Additional Web Sources

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

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

Finding Associations

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

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 herbal medicine. 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 "herbal medicine" (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 "herbal medicine". 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 "herbal medicine" (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 "herbal medicine" (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.¹⁹

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

¹⁹ 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)²⁰:

- **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/>

²⁰ 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.lsuhscc.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, Worcester), <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 Resource 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://nmlm.gov/>
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), <http://nmlm.gov/members/>

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), http://www.lvcld.org/special_collections/medical/index.htm
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), http://www.dartmouth.edu/~biomed/resources.html#conshealth.html#
- **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.shscars.org/services/lrc/index.asp>
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), <http://www.upmc.edu/passavant/library.htm>
- **Quebec, Canada:** Medical Library (Montreal General Hospital), <http://www.mghlib.mcgill.ca/>

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

ONLINE GLOSSARIES

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

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

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

Online Dictionary Directories

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

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

HERBAL MEDICINE DICTIONARY

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

3-dimensional: 3-D. A graphic display of depth, width, and height. Three-dimensional radiation therapy uses computers to create a 3-dimensional picture of the tumor. This allows doctors to give the highest possible dose of radiation to the tumor, while sparing the normal tissue as much as possible. [NIH]

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 Cramps: Abdominal pain due to spasmodic contractions of the bowel. [NIH]

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

Acidosis: A pathologic condition resulting from accumulation of acid or depletion of the alkaline reserve (bicarbonate content) in the blood and body tissues, and characterized by an increase in hydrogen ion concentration. [EU]

Aconitine: A alkaloid from the root of *Aconitum napellus* L. and other aconites. Activates voltage-gated Na⁺ channels. Has been used to induce arrhythmia in experimental animals. Shows antiinflammatory and antineuralgic properties. [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]

Adaptability: Ability to develop some form of tolerance to conditions extremely different from those under which a living organism evolved. [NIH]

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

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]

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

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

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]

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]

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

Alertness: A state of readiness to detect and respond to certain specified small changes occurring at random intervals in the environment. [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]

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

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

Allergy and Immunology: A medical specialty concerned with the hypersensitivity of the individual to foreign substances and protection from the resultant infection or disorder. [NIH]

Aloe: A genus of the family Liliaceae containing anthraquinone glycosides such as aloin-emodin or aloe-emodin (emodin). [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]

Alternative nutrition: One of two or more host species that may form the food base for a parasite but is not essential for the completion of the latter's life history. [NIH]

Aluminum: A metallic element that has the atomic number 13, atomic symbol Al, and atomic weight 26.98. [NIH]

Amenorrhea: Absence of menstruation. [NIH]

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

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

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

Amnestic: Nominal aphasia; a difficulty in finding the right name for an object. [NIH]

Amphetamine: A powerful central nervous system stimulant and sympathomimetic. Amphetamine has multiple mechanisms of action including blocking uptake of adrenergics and dopamine, stimulation of release of monoamines, and inhibiting monoamine oxidase. Amphetamine is also a drug of abuse and a psychotomimetic. The l- and the d,l-forms are included here. The l-form has less central nervous system activity but stronger cardiovascular effects. The d-form is dextroamphetamine. [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]

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]

Anal Fissure: A small tear in the anus that may cause itching, pain, or bleeding. [NIH]

Analeptic: A drug which acts as a restorative, such as caffeine, amphetamine, pentylenetetrazol, etc. [EU]

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

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

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

Androgenic: Producing masculine characteristics. [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]

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]

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]

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]

Anovulation: Suspension or cessation of ovulation in animals and humans. [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]

Anthocyanins: Glycosidic pigments in blue, red, and purple flowers and also found as metabolic byproducts in blood and urine. [NIH]

Antiallergic: Counteracting allergy or allergic conditions. [EU]

Antiandrogens: Drugs used to block the production or interfere with the action of male sex hormones. [NIH]

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

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

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

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]

Anticonvulsant: An agent that prevents or relieves convulsions. [EU]

Antifungal: Destructive to fungi, or suppressing their reproduction or growth; effective against fungal infections. [EU]

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]

Antihypertensive: An agent that reduces high blood pressure. [EU]

Antihypertensive Agents: Drugs used in the treatment of acute or chronic hypertension

regardless of pharmacological mechanism. Among the antihypertensive agents are diuretics (especially diuretics, thiazide), adrenergic beta-antagonists, adrenergic alpha-antagonists, angiotensin-converting enzyme inhibitors, calcium channel blockers, ganglionic blockers, and vasodilator agents. [NIH]

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

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

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

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

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

Antiproliferative: Counteracting a process of proliferation. [EU]

Antipsychotic: Effective in the treatment of psychosis. Antipsychotic drugs (called also neuroleptic drugs and major tranquilizers) are a chemically diverse (including phenothiazines, thioxanthenes, butyrophenones, dibenzoxazepines, dibenzodiazepines, and diphenylbutylpiperidines) but pharmacologically similar class of drugs used to treat schizophrenic, paranoid, schizoaffective, and other psychotic disorders; acute delirium and dementia, and manic episodes (during induction of lithium therapy); to control the movement disorders associated with Huntington's chorea, Gilles de la Tourette's syndrome, and ballismus; and to treat intractable hiccups and severe nausea and vomiting. Antipsychotic agents bind to dopamine, histamine, muscarinic cholinergic, α -adrenergic, and serotonin receptors. Blockade of dopaminergic transmission in various areas is thought to be responsible for their major effects : antipsychotic action by blockade in the mesolimbic and mesocortical areas; extrapyramidal side effects (dystonia, akathisia, parkinsonism, and tardive dyskinesia) by blockade in the basal ganglia; and antiemetic effects by blockade in the chemoreceptor trigger zone of the medulla. Sedation and autonomic side effects (orthostatic hypotension, blurred vision, dry mouth, nasal congestion and constipation) are caused by blockade of histamine, cholinergic, and adrenergic receptors. [EU]

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

Antithrombotic: Preventing or interfering with the formation of thrombi; an agent that so acts. [EU]

Antitussive: An agent that relieves or prevents cough. [EU]

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

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

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

Anxiolytic: An anxiolytic or antianxiety agent. [EU]

Apathy: Lack of feeling or emotion; indifference. [EU]

Aplastic anemia: A condition in which the bone marrow is unable to produce blood cells. [NIH]

Apoptosis: One of the two mechanisms by which cell death occurs (the other being the pathological process of necrosis). Apoptosis is the mechanism responsible for the physiological deletion of cells and appears to be intrinsically programmed. It is characterized by distinctive morphologic changes in the nucleus and cytoplasm, chromatin cleavage at regularly spaced sites, and the endonucleolytic cleavage of genomic DNA (DNA

fragmentation) at internucleosomal sites. This mode of cell death serves as a balance to mitosis in regulating the size of animal tissues and in mediating pathologic processes associated with tumor growth. [NIH]

Aqueous: Having to do with water. [NIH]

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

Aromatic: Having a spicy odour. [EU]

Arrhythmia: Any variation from the normal rhythm or rate of the heart beat. [NIH]

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

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

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

Arteriosclerosis: Thickening and loss of elasticity of arterial walls. Atherosclerosis is the most common form of arteriosclerosis and involves lipid deposition and thickening of the intimal cell layers within arteries. Additional forms of arteriosclerosis involve calcification of the media of muscular arteries (Monckeberg medial calcific sclerosis) and thickening of the walls of small arteries or arterioles due to cell proliferation or hyaline deposition (arteriolosclerosis). [NIH]

Arteriovenous: Both arterial and venous; pertaining to or affecting an artery and a vein. [EU]

Arteriovenous Fistula: An abnormal communication between an artery and a vein. [NIH]

Ascariasis: Infection by nematodes of the genus *Ascaris*. Ingestion of infective eggs causes diarrhea and pneumonitis. Its distribution is more prevalent in areas of poor sanitation and where human feces are used for fertilizer. [NIH]

Ascites: Accumulation or retention of free fluid within the peritoneal cavity. [NIH]

Aspartate: A synthetic amino acid. [NIH]

Aspergillosis: Infections with fungi of the genus *Aspergillus*. [NIH]

Aspiration: The act of inhaling. [NIH]

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

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

Astrocytes: The largest and most numerous neuroglial cells in the brain and spinal cord. Astrocytes (from "star" cells) are irregularly shaped with many long processes, including those with "end feet" which form the glial (limiting) membrane and directly and indirectly contribute to the blood brain barrier. They regulate the extracellular ionic and chemical environment, and "reactive astrocytes" (along with microglia) respond to injury. Astrocytes have high-affinity transmitter uptake systems, voltage-dependent and transmitter-gated ion channels, and can release transmitter, but their role in signaling (as in many other functions) is not well understood. [NIH]

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

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

Atopic Eczema: Generic term for acute or chronic inflammatory conditions of the skin, typically erythematous, edematous, papular, vesicular, and crusting; often accompanied by

sensations of itching and burning. [NIH]

Atrial: Pertaining to an atrium. [EU]

Atrial Fibrillation: Disorder of cardiac rhythm characterized by rapid, irregular atrial impulses and ineffective atrial contractions. [NIH]

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

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

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

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

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

Benzodiazepines: A two-ring heterocyclic compound consisting of a benzene ring fused to a diazepam ring. Permitted is any degree of hydrogenation, any substituents and any H-isomer. [NIH]

Beta-glucans: Polysaccharides made by several types of mushrooms. Beta-glucans have been used to treat patients with gastric cancer and colorectal cancer. They may be able to stimulate the immune system. [NIH]

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

Bicalutamide: An anticancer drug that belongs to the family of drugs called antiandrogens. [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 Ducts: Tubes that carry bile from the liver to the gallbladder for storage and to the small intestine for use in digestion. [NIH]

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

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

Biliary Atresia: Atresia of the biliary tract, most commonly of the extrahepatic bile ducts. [NIH]

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

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

Bioassays: Determination of the relative effective strength of a substance (as a vitamin, hormone, or drug) by comparing its effect on a test organism with that of a standard preparation. [NIH]

Bioavailability: The degree to which a drug or other substance becomes available to the

target tissue after administration. [EU]

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

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

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

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

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

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

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

Body Burden: The total amount of a chemical, metal or radioactive substance present at any time after absorption in the body of man or animal. [NIH]

Body Regions: Anatomical areas of the body. [NIH]

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

Bone Marrow Cells: Cells contained in the bone marrow including fat cells, stromal cells, megakaryocytes, and the immediate precursors of most blood cells. [NIH]

Boron: A trace element with the atomic symbol B, atomic number 5, and atomic weight 10.81. Boron-10, an isotope of boron, is used as a neutron absorber in boron neutron capture therapy. [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]

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

Breakdown: A physical, mental, 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]

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

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

Buspirone: An anxiolytic agent and a serotonin receptor agonist belonging to the azaspirodecanedione class of compounds. Its structure is unrelated to those of the benzodiazepines, but it has an efficacy comparable to diazepam. [NIH]

Bypass: A surgical procedure in which the doctor creates a new pathway for the flow of body fluids. [NIH]

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

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

Caffeine: A methylxanthine naturally occurring in some beverages and also used as a pharmacological agent. Caffeine's most notable pharmacological effect is as a central nervous system stimulant, increasing alertness and producing agitation. It also relaxes smooth muscle, stimulates cardiac muscle, stimulates diuresis, and appears to be useful in the treatment of some types of headache. Several cellular actions of caffeine have been observed, but it is not entirely clear how each contributes to its pharmacological profile. Among the most important are inhibition of cyclic nucleotide phosphodiesterases, antagonism of adenosine receptors, and modulation of intracellular calcium handling. [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]

Calcitonin Gene-Related Peptide: Calcitonin gene-related peptide. A 37-amino acid peptide derived from the calcitonin gene. It occurs as a result of alternative processing of mRNA from the calcitonin gene. The neuropeptide is widely distributed in neural tissue of the brain, gut, perivascular nerves, and other tissue. The peptide produces multiple biological effects and has both circulatory and neurotransmitter modes of action. In particular, it is a potent endogenous vasodilator. [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]

Calculi: An abnormal concretion occurring mostly in the urinary and biliary tracts, usually composed of mineral salts. Also called stones. [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 adenylyl cyclase with subsequent activation.

Thereby this protein modulates cyclic AMP and cyclic GMP levels. [NIH]

Camptothecin: An alkaloid isolated from the stem wood of the Chinese tree, *Camptotheca acuminata*. This compound selectively inhibits the nuclear enzyme DNA topoisomerase. Several semisynthetic analogs of camptothecin have demonstrated antitumor activity. [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]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, $(\text{CH}_2\text{O})_n$. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Carcinogen: Any substance that causes cancer. [NIH]

Carcinogenesis: The process by which normal cells are transformed into cancer cells. [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]

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

Cardiorespiratory: Relating to the heart and lungs and their function. [EU]

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]

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

Cascara: Component of the dried bark of a buckthorn (*Rhamnus purshiana*) that contains the anthraquinone emodin. It is used as a laxative. [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]

Castor Bean: Common name for *Ricinus communis*, a species in the family Euphorbiaceae. It is the source of castor oil. [NIH]

Castor Oil: Oil obtained from seeds of *Ricinus communis* that is used as a cathartic and as a plasticizer. [NIH]

Castration: Surgical removal or artificial destruction of gonads. [NIH]

Catecholamine: A group of chemical substances manufactured by the adrenal medulla and secreted during physiological stress. [NIH]

Cell: The individual unit that makes up all of the tissues of the body. All living things are

made up of one or more cells. [NIH]

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

Cell 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]

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

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

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

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]

Chemoprevention: The use of drugs, vitamins, or other agents to try to reduce the risk of, or delay the development or recurrence of, cancer. [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]

Chiropractic: A system of treating bodily disorders by manipulation of the spine and other parts, based on the belief that the cause is the abnormal functioning of a nerve. [NIH]

Cholecystectomy: Surgical removal of the gallbladder. [NIH]

Cholecystitis: Inflammation of the gallbladder. [NIH]

Cholelithiasis: Presence or formation of gallstones. [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]

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

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

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

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

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]

Ciliary: Inflammation or infection of the glands of the margins of the eyelids. [NIH]

Ciliary Body: A ring of tissue extending from the scleral spur to the ora serrata of the retina. It consists of the uveal portion and the epithelial portion. The ciliary muscle is in the uveal portion and the ciliary processes are in the epithelial portion. [NIH]

Circulatory system: The system that contains the heart and the blood vessels and moves blood throughout the body. This system helps tissues get enough oxygen and nutrients, and it helps them get rid of waste products. The lymph system, which connects with the blood system, is often considered part of the circulatory system. [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]

Clonic: Pertaining to or of the nature of clonus. [EU]

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

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

Coca: Any of several South American shrubs of the *Erythroxylon* genus (and family) that yield cocaine; the leaves are chewed with alum for CNS stimulation. [NIH]

Cocaine: An alkaloid ester extracted from the leaves of plants including coca. It is a local anesthetic and vasoconstrictor and is clinically used for that purpose, particularly in the eye, ear, nose, and throat. It also has powerful central nervous system effects similar to the amphetamines and is a drug of abuse. Cocaine, like amphetamines, acts by multiple mechanisms on brain catecholaminergic neurons; the mechanism of its reinforcing effects is thought to involve inhibition of dopamine uptake. [NIH]

Codeine: An opioid analgesic related to morphine but with less potent analgesic properties and mild sedative effects. It also acts centrally to suppress cough. [NIH]

Cognition: Intellectual or mental process whereby an organism becomes aware of or obtains knowledge. [NIH]

Colic: Paroxysms of pain. This condition usually occurs in the abdominal region but may occur in other body regions as well. [NIH]

Colitis: Inflammation of the colon. [NIH]

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

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

Colony-Stimulating Factors: Glycoproteins found in a subfraction of normal mammalian plasma and urine. They stimulate the proliferation of bone marrow cells in agar cultures and the formation of colonies of granulocytes and/or macrophages. The factors include interleukin-3 (IL-3), granulocyte colony-stimulating factor (G-CSF), macrophage colony-stimulating factor (M-CSF), and granulocyte-macrophage colony-stimulating factor (GM-CSF). [NIH]

Colorectal: Having to do with the colon or the rectum. [NIH]

Colorectal Cancer: Cancer that occurs in the colon (large intestine) or the rectum (the end of the large intestine). A number of digestive diseases may increase a person's risk of colorectal cancer, including polyposis and Zollinger-Ellison Syndrome. [NIH]

Comfrey: Perennial herb *Symphytum officinale*, in the family Boraginaceae, used topically for wound healing. It contains allantoin, carotene, essential oils (oils, volatile), glycosides, mucilage, resin, saponins, tannins, triterpenoids, vitamin B12, and zinc. Comfrey also contains pyrrolizidine alkaloids and is hepatotoxic if ingested. [NIH]

Communis: Common tendon of the rectus group of muscles that surrounds the optic foramen and a portion of the superior orbital fissure, to the anterior margin of which it is attached at the spina recti lateralis. [NIH]

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

that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complement Activation: The sequential activation of serum components C1 through C9, initiated by an erythrocyte-antibody complex or by microbial polysaccharides and properdin, and producing an inflammatory response. [NIH]

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

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

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

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

Confusion: A mental state characterized by bewilderment, emotional disturbance, lack of clear thinking, and perceptual disorientation. [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]

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]

Consumption: Pulmonary tuberculosis. [NIH]

Contact dermatitis: Inflammation of the skin with varying degrees of erythema, edema and vesiculation 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]

Control group: In a clinical trial, the group that does not receive the new treatment being studied. This group is compared to the group that receives the new treatment, to see if the new treatment works. [NIH]

Controlled clinical trial: A clinical study that includes a comparison (control) group. The

comparison group receives a placebo, another treatment, or no treatment at all. [NIH]

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

Conventional therapy: A currently accepted and widely used treatment for a certain type of disease, based on the results of past research. Also called conventional treatment. [NIH]

Conventional treatment: A currently accepted and widely used treatment for a certain type of disease, based on the results of past research. Also called conventional therapy. [NIH]

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

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

Coronary 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 (adrenocorticotrophic 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]

Cues: Signals for an action; that specific portion of a perceptual field or pattern of stimuli to which a subject has learned to respond. [NIH]

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

Curcumin: A dye obtained from tumeric, the powdered root of *Curcuma longa* Linn. It is used in the preparation of curcuma paper and the detection of boron. Curcumin appears to possess a spectrum of pharmacological properties, due primarily to its inhibitory effects on metabolic enzymes. [NIH]

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]

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]

Cytochrome: Any electron transfer hemoprotein having a mode of action in which the transfer of a single electron is effected by a reversible valence change of the central iron atom of the heme prosthetic group between the +2 and +3 oxidation states; classified as cytochromes a in which the heme contains a formyl side chain, cytochromes b, which contain protoheme or a closely similar heme that is not covalently bound to the protein, cytochromes c in which protoheme or other heme is covalently bound to the protein, and cytochromes d in which the iron-tetrapyrrole has fewer conjugated double bonds than the hemes have. Well-known cytochromes have been numbered consecutively within groups and are designated by subscripts (beginning with no subscript), e.g. cytochromes c, c1, C2, . New cytochromes are named according to the wavelength in nanometres of the absorption maximum of the a-band of the iron (II) form in pyridine, e.g., c-555. [EU]

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

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

Cytotoxic: Cell-killing. [NIH]

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

Danazol: A synthetic steroid with antigonadotropic and anti-estrogenic activities that acts as an anterior pituitary suppressant by inhibiting the pituitary output of gonadotropins. It possesses some androgenic properties. Danazol has been used in the treatment of endometriosis and some benign breast disorders. [NIH]

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

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

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]

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]

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]

Dermatitis: Any inflammation of the skin. [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]

Dextroamphetamine: The d-form of amphetamine. It is a central nervous system stimulant and a sympathomimetic. It has also been used in the treatment of narcolepsy and of attention deficit disorders and hyperactivity in children. Dextroamphetamine has multiple mechanisms of action including blocking uptake of adrenergics and dopamine, stimulating release of monoamines, and inhibiting monoamine oxidase. It is also a drug of abuse and a psychotomimetic. [NIH]

Dextromethorphan: The d-isomer of the codeine analog of levorphanol. Dextromethorphan shows high affinity binding to several regions of the brain, including the medullary cough center. This compound is a NMDA receptor antagonist (receptors, N-methyl-D-aspartate) and acts as a non-competitive channel blocker. It is used widely as an antitussive agent, and is also used to study the involvement of glutamate receptors in neurotoxicity. [NIH]

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

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

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

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]

Diarrhoea: Abnormal frequency and liquidity of faecal discharges. [EU]

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]

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]

Dihydrotestosterone: Anabolic agent. [NIH]

Dilatation: The act of dilating. [NIH]

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

Diploid: Having two sets of chromosomes. [NIH]

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

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

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

Disposition: A tendency either physical or mental toward certain diseases. [EU]

Diuresis: Increased excretion of urine. [EU]

Dopamine: An endogenous catecholamine and prominent neurotransmitter in several systems of the brain. In the synthesis of catecholamines from tyrosine, it is the immediate precursor to norepinephrine and epinephrine. Dopamine is a major transmitter in the extrapyramidal system of the brain, and important in regulating movement. A family of dopaminergic receptor subtypes mediate its action. Dopamine is used pharmacologically for its direct (beta adrenergic agonist) and indirect (adrenergic releasing) sympathomimetic effects including its actions as an inotropic agent and as a renal vasodilator. [NIH]

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

Drive: A state of internal activity of an organism that is a necessary condition before a given stimulus will elicit a class of responses; e.g., a certain level of hunger (drive) must be present before food will elicit an eating response. [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]

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

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]

Dysentery: Any of various disorders marked by inflammation of the intestines, especially of the colon, and attended by pain in the abdomen, tenesmus, and frequent stools containing blood and mucus. Causes include chemical irritants, bacteria, protozoa, or parasitic worms. [EU]

Dysmenorrhea: Painful menstruation. [NIH]

Dyspepsia: Impaired digestion, especially after eating. [NIH]

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

Echinacea: A genus of perennial herbs used topically and internally. It contains echinacoside, glycosides, inulin, isobutyl amides, resin, and sesquiterpenes. [NIH]

Eczema: A pruritic papulovesicular dermatitis occurring as a reaction to many endogenous and exogenous agents (Dorland, 27th ed). [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]

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

Elastin: The protein that gives flexibility to tissues. [NIH]

Elective: Subject to the choice or decision of the patient or physician; applied to procedures that are advantageous to the patient but not urgent. [EU]

Electrocoagulation: Electrosurgical procedures used to treat hemorrhage (e.g., bleeding

ulcers) and to ablate tumors, mucosal lesions, and refractory arrhythmias. [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]

Electrophoresis: An electrochemical process in which macromolecules or colloidal particles with a net electric charge migrate in a solution under the influence of an electric current. [NIH]

Electrophysiological: Pertaining to electrophysiology, that is a branch of physiology that is concerned with the electric phenomena associated with living bodies and involved in their functional activity. [EU]

Emboli: Bit of foreign matter which enters the blood stream at one point and is carried until it is lodged or impacted in an artery and obstructs it. It may be a blood clot, an air bubble, fat or other tissue, or clumps of bacteria. [NIH]

Embolism: Blocking of a blood vessel by a blood clot or foreign matter that has been transported from a distant site by the blood stream. [NIH]

Embolization: The blocking of an artery by a clot or foreign material. Embolization can be done as treatment to block the flow of blood to a tumor. [NIH]

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

Emodin: Purgative anthraquinone found in several plants, especially *Rhamnus frangula*. It was formerly used as a laxative, but is now used mainly as tool in toxicity studies. [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]

Encephalopathy: A disorder of the brain that can be caused by disease, injury, drugs, or chemicals. [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]

Endometriosis: A condition in which tissue more or less perfectly resembling the uterine mucous membrane (the endometrium) and containing typical endometrial granular and stromal elements occurs aberrantly in various locations in the pelvic cavity. [NIH]

Endometrium: The layer of tissue that lines the uterus. [NIH]

Endoscopic: A technique where a lateral-view endoscope is passed orally to the duodenum for visualization of the ampulla of Vater. [NIH]

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

Endotoxins: Toxins closely associated with the living cytoplasm or cell wall of certain microorganisms, which do not readily diffuse into the culture medium, but are released

upon lysis of the cells. [NIH]

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]

Enhancers: 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 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]

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]

Ephedrine: An alpha- and beta-adrenergic agonist that may also enhance release of norepinephrine. It has been used in the treatment of several disorders including asthma, heart failure, rhinitis, and urinary incontinence, and for its central nervous system stimulatory effects in the treatment of narcolepsy and depression. It has become less extensively used with the advent of more selective agonists. [NIH]

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

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

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

Epithelial Cells: Cells that line the inner and outer surfaces of the body. [NIH]

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

Erectile: The inability to get or maintain an erection for satisfactory sexual intercourse. Also called impotence. [NIH]

Erection: The condition of being made rigid and elevated; as erectile tissue when filled with blood. [EU]

Ergot: Cataract due to ergot poisoning caused by eating of rye cereals contaminated by a fungus. [NIH]

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

Erythrina: A genus of leguminous shrubs or trees, mainly tropical, yielding certain alkaloids, lectins, and other useful compounds. [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]

Estradiol: The most potent mammalian estrogenic hormone. It is produced in the ovary, placenta, testis, and possibly the adrenal cortex. [NIH]

Estramustine: A nitrogen mustard linked to estradiol, usually as phosphate; used to treat prostatic neoplasms; also has radiation protective properties. [NIH]

Estrogen: One of the two female sex hormones. [NIH]

Ethanol: A clear, colorless liquid rapidly absorbed from the gastrointestinal tract and distributed throughout the body. It has bactericidal activity and is used often as a topical disinfectant. It is widely used as a solvent and preservative in pharmaceutical preparations as well as serving as the primary ingredient in alcoholic beverages. [NIH]

Evacuation: An emptying, as of the bowels. [EU]

Exhaustion: The feeling of weariness of mind and body. [NIH]

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

Extracellular: Outside a cell or cells. [EU]

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

Extrapyramidal: Outside of the pyramidal tracts. [EU]

Extremity: A limb; an arm or leg (membrum); sometimes applied specifically to a hand or foot. [EU]

Eye Movements: Voluntary or reflex-controlled movements of the eye. [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]

Fatty acids: A major component of fats that are used by the body for energy and tissue development. [NIH]

Feces: The excrement discharged from the intestines, consisting of bacteria, cells exfoliated from the intestines, secretions, chiefly of the liver, and a small amount of food residue. [EU]

Fetal Blood: Blood of the fetus. Exchange of nutrients and waste between the fetal and maternal blood occurs via the placenta. The cord blood is blood contained in the umbilical vessels at the time of delivery. [NIH]

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

Fibrin: A protein derived from fibrinogen in the presence of thrombin, which forms part of the blood clot. [NIH]

Fibroblasts: Connective tissue cells which secrete an extracellular matrix rich in collagen and other macromolecules. [NIH]

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

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Flatulence: Production or presence of gas in the gastrointestinal tract which may be expelled

through the anus. [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]

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]

Fluvoxamine: A selective serotonin reuptake inhibitor. It is effective in the treatment of depression, obsessive-compulsive disorders, anxiety, panic disorders, and alcohol amnestic disorders. [NIH]

Foot Ulcer: Lesion on the surface of the skin of the foot, usually accompanied by inflammation. The lesion may become infected or necrotic and is frequently associated with diabetes or leprosy. [NIH]

Foramen: A natural hole of perforation, especially one in a bone. [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 multicellular colonies (mushrooms and molds). [NIH]

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

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

Gallstones: The solid masses or stones made of cholesterol or bilirubin that form in the gallbladder or bile ducts. [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 an 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]

Gangrene: Death and putrefaction of tissue usually due to a loss of blood supply. [NIH]

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

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

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

Gastritis: Inflammation of the stomach. [EU]

Gastroenteritis: An acute inflammation of the lining of the stomach and intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as

Escherichia coli, *Staphylococcus aureus*, and *Salmonella* species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gastroenterologist: A doctor who specializes in diagnosing and treating disorders of the digestive system. [NIH]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal tract: The stomach and intestines. [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]

Generator: Any system incorporating a fixed parent radionuclide from which is produced a daughter radionuclide which is to be removed by elution or by any other method and used in a radiopharmaceutical. [NIH]

Genital: Pertaining to the genitalia. [EU]

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

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

Ginger: Deciduous plant rich in volatile oil (oils, volatile). It is used as a flavoring agent and has many other uses both internally and topically. [NIH]

Ginkgo biloba: Exclusive species of the genus *Ginkgo*, family Ginkgoaceae. It produces extracts of medicinal interest. *Ginkgo* may refer to the genus or species. [NIH]

Ginseng: An araliaceous genus of plants that contains a number of pharmacologically active agents used as stimulants, sedatives, and tonics, especially in traditional medicine. [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]

Glucans: Polysaccharides composed of repeating glucose units. They can consist of branched or unbranched chains in any linkages. [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]

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

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

Glutamate: Excitatory neurotransmitter of the brain. [NIH]

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

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

Glycoside: Any compound that contains a carbohydrate molecule (sugar), particularly any

such natural product in plants, convertible, by hydrolytic cleavage, into sugar and a nonsugar component (aglycone), and named specifically for the sugar contained, as glucoside (glucose), pentoside (pentose), fructoside (fructose) etc. [EU]

Glycosidic: Formed by elimination of water between the anomeric hydroxyl of one sugar and a hydroxyl of another sugar molecule. [NIH]

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]

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]

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]

Granulocyte Colony-Stimulating Factor: A glycoprotein of MW 25 kDa containing internal disulfide bonds. It induces the survival, proliferation, and differentiation of neutrophilic granulocyte precursor cells and functionally activates mature blood neutrophils. Among the family of colony-stimulating factors, G-CSF is the most potent inducer of terminal differentiation to granulocytes and macrophages of leukemic myeloid cell lines. [NIH]

Granulocyte-Macrophage Colony-Stimulating Factor: An acidic glycoprotein of MW 23 kDa with internal disulfide bonds. The protein is produced in response to a number of inflammatory mediators by mesenchymal cells present in the hemopoietic environment and at peripheral sites of inflammation. GM-CSF is able to stimulate the production of neutrophilic granulocytes, macrophages, and mixed granulocyte-macrophage colonies from bone marrow cells and can stimulate the formation of eosinophil colonies from fetal liver progenitor cells. GM-CSF can also stimulate some functional activities in mature granulocytes and macrophages. [NIH]

Granulocytes: Leukocytes with abundant granules in the cytoplasm. They are divided into three groups: neutrophils, eosinophils, and basophils. [NIH]

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

Gynaecological: Pertaining to gynaecology. [EU]

Haemolysis: Disruption of the integrity of the red cell membrane causing release of haemoglobin. Haemolysis may be caused by bacterial haemolysins, by antibodies that cause complement-dependent lysis, by placing red cells in a hypotonic solution, or by defects in the red cell membrane. [EU]

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

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

Headache: Pain in the cranial region that may occur as an isolated and benign symptom or as a manifestation of a wide variety of conditions including subarachnoid hemorrhage;

craniocerebral trauma; central nervous system infections; intracranial hypertension; and other disorders. In general, recurrent headaches that are not associated with a primary disease process are referred to as headache disorders (e.g., migraine). [NIH]

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]

Heartburn: Substernal pain or burning sensation, usually associated with regurgitation of gastric juice into the esophagus. [NIH]

Helminthiasis: Infestation with parasitic worms of the helminth class. [NIH]

Heme: The color-furnishing portion of hemoglobin. It is found free in tissues and as the prosthetic group in many hemoproteins. [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]

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

Hemorrhoids: Varicosities of the hemorrhoidal venous plexuses. [NIH]

Hepatic: Refers to the liver. [NIH]

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

Hepatitis C: A form of hepatitis, similar to type B post-transfusion hepatitis, but caused by a virus which is serologically distinct from the agents of hepatitis A, B, and E, and which may persist in the blood of chronic asymptomatic carriers. Hepatitis C is parenterally transmitted and associated with transfusions and drug abuse. [NIH]

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

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

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

Hepatotoxic: Toxic to liver cells. [EU]

Hepatotoxicity: How much damage a medicine or other substance does to the liver. [NIH]

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

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

Herpes Zoster: Acute vesicular inflammation. [NIH]

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]

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]

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]

Hyperbilirubinemia: Pathologic process consisting of an abnormal increase in the amount of bilirubin in the circulating blood, which may result in jaundice. [NIH]

Hypercholesterolemia: Abnormally high levels of cholesterol in the blood. [NIH]

Hypericum: Genus of perennial plants in the family Clusiaceae (Hypericaceae). Herbal and homeopathic preparations are used for depression, neuralgias, and a variety of other conditions. Contains flavonoids, glycosides, mucilage, tannins, and volatile oils (oils, essential). [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]

Hyperuricemia: A buildup of uric acid (a byproduct of metabolism) in the blood; a side effect of some anticancer drugs. [NIH]

Hypnotherapy: Sleeping-cure. [NIH]

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

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

Ileus: Obstruction of the intestines. [EU]

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

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

Immune 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]

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

Immunodeficiency syndrome: The inability of the body to produce an immune response. [NIH]

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

Immunologic: The ability of the antibody-forming system to recall a previous experience with an antigen and to respond to a second exposure with the prompt production of large amounts of antibody. [NIH]

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

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]

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

Impotence: The inability to perform sexual intercourse. [NIH]

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

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

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

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

Indigestion: Poor digestion. Symptoms include heartburn, nausea, bloating, and gas. Also called dyspepsia. [NIH]

Indinavir: A potent and specific HIV protease inhibitor that appears to have good oral bioavailability. [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]

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]

Infertility: The diminished or absent ability to conceive or produce an offspring while sterility is the complete inability to conceive or produce an offspring. [NIH]

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

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

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

Information Centers: Facilities for collecting and organizing information. They may be specialized by subject field, type of source material, persons served, location, or type of services. [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]

Inorganic: Pertaining to substances not of organic origin. [EU]

Inotropic: Affecting the force or energy of muscular contractions. [EU]

Instillation: . [EU]

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

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

Interferon: A biological response modifier (a substance that can improve the body's natural response to disease). Interferons interfere with the division of cancer cells and can slow tumor growth. There are several types of interferons, including interferon-alpha, -beta, and -gamma. These substances are normally produced by the body. They are also made in the laboratory for use in treating cancer and other diseases. [NIH]

Interferon-alpha: One of the type I interferons produced by peripheral blood leukocytes or lymphoblastoid cells when exposed to live or inactivated virus, double-stranded RNA, or bacterial products. It is the major interferon produced by virus-induced leukocyte cultures and, in addition to its pronounced antiviral activity, it causes activation of NK cells. [NIH]

Interferon-beta: One of the type I interferons produced by fibroblasts in response to stimulation by live or inactivated virus or by double-stranded RNA. It is a cytokine with antiviral, antiproliferative, and immunomodulating activity. [NIH]

Interleukin-1: A soluble factor produced by monocytes, macrophages, and other cells which activates T-lymphocytes and potentiates their response to mitogens or antigens. IL-1 consists of two distinct forms, IL-1 alpha and IL-1 beta which perform the same functions but are distinct proteins. The biological effects of IL-1 include the ability to replace macrophage requirements for T-cell activation. The factor is distinct from interleukin-2. [NIH]

Interleukin-10: Factor that is a coregulator of mast cell growth. It is produced by T-cells and B-cells and shows extensive homology with the Epstein-Barr virus BCRFI gene. [NIH]

Interleukin-12: A heterodimeric cytokine that stimulates the production of interferon gamma from T-cells and natural killer cells, and also induces differentiation of Th1 helper cells. It is an initiator of cell-mediated immunity. [NIH]

Interleukin-2: Chemical mediator produced by activated T lymphocytes and which regulates the proliferation of T cells, as well as playing a role in the regulation of NK cell activity. [NIH]

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]

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]

Intoxication: Poisoning, the state of being poisoned. [EU]

Intracellular: Inside a cell. [NIH]

Intravenous: IV. Into a vein. [NIH]

Inulin: A starch found in the tubers and roots of many plants. Since it is hydrolyzable to fructose, it is classified as a fructosan. It has been used in physiologic investigation for determination of the rate of glomerular function. [NIH]

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

Involuntary: Reaction occurring without intention or volition. [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]

Irradiation: The use of high-energy radiation from x-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 from materials called radioisotopes. Radioisotopes produce radiation and can be placed in or near the tumor or in the area near cancer cells. This type of radiation treatment is called internal radiation therapy, implant radiation, interstitial radiation, or brachytherapy. Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Irradiation is also called radiation therapy, radiotherapy, and x-ray therapy. [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]

Irritants: Drugs that act locally on cutaneous or mucosal surfaces to produce inflammation; those that cause redness due to hyperemia are rubefacients; those that raise blisters are vesicants and those that penetrate sebaceous glands and cause abscesses are pustulants; tear gases and mustard gases are also irritants. [NIH]

Isozymes: The multiple forms of a single enzyme. [NIH]

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]

Kava: Dried rhizome and roots of *Piper methysticum*, a shrub native to Oceania and known for its anti-anxiety and sedative properties. Heavy usage results in some adverse effects. It contains alkaloids, lactones, kawain, methysticin, mucilage, starch, and yangonin. Kava is also the name of the pungent beverage prepared from the plant's roots. [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]

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]

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

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]

Larynx: An irregularly shaped, musclocartilaginous 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]

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

Laxative: An agent that acts to promote evacuation of the bowel; a cathartic or purgative. [EU]

Lead Poisoning: Disease caused by the gradual accumulation of a significant body burden of lead. [NIH]

Lectins: Protein or glycoprotein substances, usually of plant origin, that bind to sugar moieties in cell walls or membranes and thereby change the physiology of the membrane to cause agglutination, mitosis, or other biochemical changes in the cell. [NIH]

Lesion: An area of abnormal tissue change. [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]

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

Leukotrienes: A family of biologically active compounds derived from arachidonic acid by oxidative metabolism through the 5-lipoxygenase pathway. They participate in host defense reactions and pathophysiological conditions such as immediate hypersensitivity and inflammation. They have potent actions on many essential organs and systems, including the cardiovascular, pulmonary, and central nervous system as well as the gastrointestinal tract and the immune system. [NIH]

Levorphanol: A narcotic analgesic that may be habit-forming. It is nearly as effective orally as by injection. [NIH]

Libido: The psychic drive or energy associated with sexual instinct in the broad sense (pleasure and love-object seeking). It may also connote the psychic energy associated with instincts in general that motivate behavior. [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]

Linkages: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of independent assortment. [NIH]

Lipid: Fat. [NIH]

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

Lipid Peroxides: Peroxides produced in the presence of a free radical by the oxidation of unsaturated fatty acids in the cell in the presence of molecular oxygen. The formation of

lipid peroxides results in the destruction of the original lipid leading to the loss of integrity of the membranes. They therefore cause a variety of toxic effects in vivo and their formation is considered a pathological process in biological systems. Their formation can be inhibited by antioxidants, such as vitamin E, structural separation or low oxygen tension. [NIH]

Lipoxygenase: An enzyme of the oxidoreductase class that catalyzes reactions between linoleate and other fatty acids and oxygen to form hydroperoxy-fatty acid derivatives. Related enzymes in this class include the arachidonate lipoxygenases, arachidonate 5-lipoxygenase, arachidonate 12-lipoxygenase, and arachidonate 15-lipoxygenase. EC 1.13.11.12. [NIH]

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

Liver Cirrhosis: Liver disease in which the normal microcirculation, the gross vascular anatomy, and the hepatic architecture have been variably destroyed and altered with fibrous septa surrounding regenerated or regenerating parenchymal nodules. [NIH]

Liver Transplantation: The transference of a part of or an entire liver from one human or animal to another. [NIH]

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

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

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

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

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

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

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

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

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

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]

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]

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]

Malaria: A protozoan disease caused in humans by four species of the genus *Plasmodium* (*P. falciparum* (malaria, falciparum), *P. vivax* (malaria, vivax), *P. ovale*, and *P. malariae*) and transmitted by the bite of an infected female mosquito of the genus *Anopheles*. Malaria is endemic in parts of Asia, Africa, Central and South America, Oceania, and certain Caribbean islands. It is characterized by extreme exhaustion associated with paroxysms of high fever, sweating, shaking chills, and anemia. Malaria in animals is caused by other species of plasmodia. [NIH]

Malaria, Falciparum: Malaria caused by *Plasmodium falciparum*. This is the severest form of malaria and is associated with the highest levels of parasites in the blood. This disease is characterized by irregularly recurring febrile paroxysms that in extreme cases occur with acute cerebral, renal, or gastrointestinal manifestations. [NIH]

Malaria, Vivax: Malaria caused by *Plasmodium vivax*. This form of malaria is less severe than malaria, falciparum, but there is a higher probability for relapses to occur. Febrile paroxysms often occur every other day. [NIH]

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

Mammary: Pertaining to the mamma, or breast. [EU]

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

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

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

Medullary: Pertaining to the marrow or to any medulla; resembling marrow. [EU]

Megakaryocytes: Very large bone marrow cells which release mature blood platelets. [NIH]

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

Melanoma: A form of skin cancer that arises in melanocytes, the cells that produce pigment. Melanoma usually begins in a mole. [NIH]

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

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

Menopause: Permanent cessation of menstruation. [NIH]

Menstruation: The normal physiologic discharge through the vagina of blood and mucosal tissues from the nonpregnant uterus. [NIH]

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

Mental Health: The state wherein the person is well adjusted. [NIH]

Mephenytoin: An anticonvulsant effective in tonic-clonic epilepsy. It may cause blood dyscrasias. [NIH]

Mercury: A silver metallic element that exists as a liquid at room temperature. It has the atomic symbol Hg (from hydrargyrum, liquid silver), atomic number 80, and atomic weight 200.59. Mercury is used in many industrial applications and its salts have been employed therapeutically as purgatives, antisyphilitics, disinfectants, and astringents. It can be absorbed through the skin and mucous membranes which leads to mercury poisoning. Because of its toxicity, the clinical use of mercury and mercurials is diminishing. [NIH]

Mesenchymal: Refers to cells that develop into connective tissue, blood vessels, and lymphatic tissue. [NIH]

Meta-Analysis: A quantitative method of combining the results of independent studies (usually drawn from the published literature) and synthesizing summaries and conclusions which may be used to evaluate therapeutic effectiveness, plan new studies, etc., with application chiefly in the areas of research and medicine. [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]

Microcirculation: The vascular network lying between the arterioles and venules; includes capillaries, metarterioles and arteriovenous anastomoses. Also, the flow of blood through this network. [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]

Midazolam: A short-acting compound, water-soluble at pH less than 4 and lipid-soluble at physiological pH. It is a hypnotic-sedative drug with anxiolytic and amnesic properties. It is used for sedation in dentistry, cardiac surgery, endoscopic procedures, as preanesthetic medication, and as an adjunct to local anesthesia. Because of its short duration and cardiorespiratory stability, it is particularly useful in poor-risk, elderly, and cardiac patients. [NIH]

Midwifery: The practice of assisting women in childbirth. [NIH]

Milk Thistle: The plant *Silybum marianum* in the family Asteraceae containing the bioflavonoid complex silymarin. For centuries this has been used traditionally to treat liver disease. [NIH]

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]

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]

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

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

Molecular Structure: The location of the atoms, groups or ions relative to one another in a molecule, as well as the number, type and location of covalent bonds. [NIH]

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

Monoamine: Enzyme that breaks down dopamine in the astrocytes and microglia. [NIH]

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

Monocyte: A type of white blood cell. [NIH]

Mononuclear: A cell with one nucleus. [NIH]

Motility: The ability to move spontaneously. [EU]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

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]

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

Mycosis: Any disease caused by a fungus. [EU]

Mycosis Fungoides: A chronic malignant T-cell lymphoma of the skin. In the late stages the lymph nodes and viscera are affected. [NIH]

Mycotoxins: Toxins derived from bacteria or fungi. [NIH]

Mydriatic: 1. Dilating the pupil. 2. Any drug that dilates the pupil. [EU]

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]

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

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]

Narcolepsy: A condition of unknown cause characterized by a periodic uncontrollable tendency to fall asleep. [NIH]

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

Natural killer cells: NK cells. A type of white blood cell that contains granules with enzymes that can kill tumor cells or microbial cells. Also called large granular lymphocytes (LGL). [NIH]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit. Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

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

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

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]

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 neural arch. [EU]

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

Neurogenic: Loss of bladder control caused by damage to the nerves controlling the bladder. [NIH]

Neurogenic Inflammation: Inflammation caused by an injurious stimulus of peripheral neurons and resulting in release of neuropeptides which affect vascular permeability and help initiate proinflammatory and immune reactions at the site of injury. [NIH]

Neuroleptic: A term coined to refer to the effects on cognition and behaviour of antipsychotic drugs, which produce a state of apathy, lack of initiative, and limited range of emotion and in psychotic patients cause a reduction in confusion and agitation and normalization of psychomotor activity. [EU]

Neuronal: Pertaining to a neuron or neurons (= conducting cells of the nervous system). [EU]

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

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

Neuropeptide: A member of a class of protein-like molecules made in the brain. Neuropeptides consist of short chains of amino acids, with some functioning as neurotransmitters and some functioning as hormones. [NIH]

Neurotic: 1. Pertaining to or characterized by neurosis. 2. A person affected with a neurosis. [EU]

Neurotoxicity: The tendency of some treatments to cause damage to the nervous system. [NIH]

Neutrons: Electrically neutral elementary particles found in all atomic nuclei except light hydrogen; the mass is equal to that of the proton and electron combined and they are unstable when isolated from the nucleus, undergoing beta decay. Slow, thermal, epithermal, and fast neutrons refer to the energy levels with which the neutrons are ejected from heavier

nuclei during their decay. [NIH]

Neutrophil: A type of white blood cell. [NIH]

Nicotine: Nicotine is highly toxic alkaloid. It is the prototypical agonist at nicotinic cholinergic receptors where it dramatically stimulates neurons and ultimately blocks synaptic transmission. Nicotine is also important medically because of its presence in tobacco smoke. [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]

Norepinephrine: Precursor of epinephrine that is secreted by the adrenal medulla and is a widespread central and autonomic neurotransmitter. Norepinephrine is the principal transmitter of most postganglionic sympathetic fibers and of the diffuse projection system in the brain arising from the locus ceruleus. It is also found in plants and is used pharmacologically as a sympathomimetic. [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]

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

Odour: A volatile emanation that is perceived by the sense of smell. [EU]

Oligomenorrhea: Abnormally infrequent menstruation. [NIH]

Oligosaccharides: Carbohydrates consisting of between two and ten monosaccharides connected by either an alpha- or beta-glycosidic link. They are found throughout nature in both the free and bound form. [NIH]

Oncology: The study of cancer. [NIH]

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

Orbital: Pertaining to the orbit (= the bony cavity that contains the eyeball). [EU]

Ovaries: The pair of female reproductive glands in which the ova, or eggs, are formed. The ovaries are located in the pelvis, one on each side of the uterus. [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]

Overdosage: 1. The administration of an excessive dose. 2. The condition resulting from an excessive dose. [EU]

Ovulation: The discharge of a secondary oocyte from a ruptured graafian follicle. [NIH]

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

Oxidative metabolism: A chemical process in which oxygen is used to make energy from carbohydrates (sugars). Also known as aerobic respiration, cell respiration, or aerobic metabolism. [NIH]

Oxidative Stress: A disturbance in the prooxidant-antioxidant balance in favor of the former, leading to potential damage. Indicators of oxidative stress include damaged DNA

bases, protein oxidation products, and lipid peroxidation products (Sies, *Oxidative Stress*, 1991, p xv-xvi). [NIH]

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

Panacea: A cure-all. [NIH]

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

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

Panic: A state of extreme acute, intense anxiety and unreasoning fear accompanied by disorganization of personality function. [NIH]

Panic Disorder: A type of anxiety disorder characterized by unexpected panic attacks that last minutes or, rarely, hours. Panic attacks begin with intense apprehension, fear or terror and, often, a feeling of impending doom. Symptoms experienced during a panic attack include dyspnea or sensations of being smothered; dizziness, loss of balance or faintness; choking sensations; palpitations or accelerated heart rate; shakiness; sweating; nausea or other form of abdominal distress; depersonalization or derealization; paresthesias; hot flashes or chills; chest discomfort or pain; fear of dying and fear of not being in control of oneself or going crazy. Agoraphobia may also develop. Similar to other anxiety disorders, it may be inherited as an autosomal dominant trait. [NIH]

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

Partnership Practice: A voluntary contract between two or more doctors who may or may not share responsibility for the care of patients, with proportional sharing of profits and losses. [NIH]

Patch: A piece of material used to cover or protect a wound, an injured part, etc.: a patch over the eye. [NIH]

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

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

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

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Peer Review: An organized procedure carried out by a select committee of professionals in evaluating the performance of other professionals in meeting the standards of their specialty. Review by peers is used by editors in the evaluation of articles and other papers submitted for publication. Peer review is used also in the evaluation of grant applications. It is applied also in evaluating the quality of health care provided to patients. [NIH]

Pelvic: Pertaining to the pelvis. [EU]

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

Perception: The ability quickly and accurately to recognize similarities and differences among presented objects, whether these be pairs of words, pairs of number series, or multiple sets of these or other symbols such as geometric figures. [NIH]

Perennial: Lasting through the year or for several years. [EU]

Perianal: Located around the anus. [EU]

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]

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]

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]

Perivascular: Situated around a vessel. [EU]

Pernicious: Tending to a fatal issue. [EU]

Pharmacist: A person trained to prepare and distribute medicines and to give information about them. [NIH]

Pharmacodynamic: Is concerned with the response of living tissues to chemical stimuli, that is, the action of drugs on the living organism in the absence of disease. [NIH]

Pharmacokinetic: The mathematical analysis of the time courses of absorption, distribution, and elimination of drugs. [NIH]

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

Pharyngitis: Inflammation of the throat. [NIH]

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]

Phospholipases: A class of enzymes that catalyze the hydrolysis of phosphoglycerides or glycerophosphatidates. EC 3.1.-. [NIH]

Phosphorus: A non-metallic element that is found in the blood, muscles, nerves, bones, and teeth, and is a component of adenosine triphosphate (ATP; the primary energy source for the body's cells.) [NIH]

Photocoagulation: Using a special strong beam of light (laser) to seal off bleeding blood vessels such as in the eye. The laser can also burn away blood vessels that should not have grown in the eye. This is the main treatment for diabetic retinopathy. [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]

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]

Pilot study: The initial study examining a new method or treatment. [NIH]

Pituitary Gland: A small, unpaired gland situated in the sella turcica tissue. It is connected to the hypothalamus by a short stalk. [NIH]

Placebos: Any dummy medication or treatment. Although placebos originally were medicinal preparations having no specific pharmacological activity against a targeted condition, the concept has been extended to include treatments or procedures, especially those administered to control groups in clinical trials in order to provide baseline measurements for the experimental protocol. [NIH]

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

Plana: The radiographic term applied to a vertebral body crushed to a thin plate. [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; absence of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

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

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

Platelet 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]

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Pneumonitis: A disease caused by inhaling a wide variety of substances such as dusts and molds. Also called "farmer's disease". [NIH]

Poison Control Centers: Facilities which provide information concerning poisons and treatment of poisoning in emergencies. [NIH]

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

Polycystic: An inherited disorder characterized by many grape-like clusters of fluid-filled cysts that make both kidneys larger over time. These cysts take over and destroy working kidney tissue. PKD may cause chronic renal failure and end-stage renal disease. [NIH]

Polycystic Ovary Syndrome: Clinical symptom complex characterized by oligomenorrhea or amenorrhea, anovulation, and regularly associated with bilateral polycystic ovaries. [NIH]

Polymers: Compounds formed by the joining of smaller, usually repeating, units linked by covalent bonds. These compounds often form large macromolecules (e.g., polypeptides, proteins, plastics). [NIH]

Polypeptide: A peptide which on hydrolysis yields more than two amino acids; called tripeptides, tetrapeptides, etc. according to the number of amino acids contained. [EU]

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

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

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]

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]

Potentiate: A degree of synergism which causes the exposure of the organism to a harmful substance to worsen a disease already contracted. [NIH]

Potential: 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]

Preclinical: Before a disease becomes clinically recognizable. [EU]

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]

Premenstrual: Occurring before menstruation. [EU]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Preventive Medicine: A medical specialty primarily concerned with prevention of disease and the promotion and preservation of health in the individual. [NIH]

Private Practice: Practice of a health profession by an individual, offering services on a person-to-person basis, as opposed to group or partnership practice. [NIH]

Probe: An instrument used in exploring cavities, or in the detection and dilatation of strictures, or in demonstrating the potency of channels; an elongated instrument for exploring or sounding body cavities. [NIH]

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

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

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

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]

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 α or β indicates the configuration at C-9 (α denotes a substituent below the plane of the ring, β , above the plane). The naturally occurring PGF's have the α configuration, e.g., PGF₂ α . 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-oxoprostano-10,13-dien-1-oic acid (PGA(1)); (5Z,13E,15S)-15-hydroxy-9-oxoprostano-5,10,13-trien-1-oic acid (PGA(2)); (5Z,13E,15S,17Z)-15-hydroxy-9-oxoprostano-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]

Prostatic Neoplasms: Tumors or cancer of the prostate. [NIH]

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

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]

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, Asctospora, Myxozoa, and Ciliophora. [NIH]

Pruritic: Pertaining to or characterized by pruritus. [EU]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis, prevention, and treatment of mental disorders. [NIH]

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

Psychomotor: Pertaining to motor effects of cerebral or psychic activity. [EU]

Psychotomimetic: Psychosis miming. [NIH]

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 Embolism: Embolism in the pulmonary artery or one of its branches. [NIH]

Putrefaction: The process of decomposition of animal and vegetable matter by living organisms. [NIH]

Pyrimidine Dimers: Dimers found in DNA chains damaged by ultraviolet irradiation. They consist of two adjacent pyrimidine nucleotides, usually thymine nucleotides, in which the pyrimidine residues are covalently joined by a cyclobutane ring. These dimers stop DNA replication. [NIH]

Pyrrrolizidine Alkaloids: Alkaloids found in various species of Senecio and other plants. There are at least ten different chemicals, many of them hepatotoxic, teratogenic, and carcinogenic. The plants may cause damage in grazing herds, but no longer have medical use. [NIH]

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]

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]

Radiopharmaceutical: Any medicinal product which, when ready for use, contains one or more radionuclides (radioactive isotopes) included for a medicinal purpose. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects are assigned by chance to separate groups that compare different treatments. [NIH]

Randomized clinical trial: A study in which the participants are assigned by chance to separate groups that compare different treatments; neither the researchers nor the participants can choose which group. Using chance to assign people to groups means that the groups will be similar and that the treatments they receive can be compared objectively. At the time of the trial, it is not known which treatment is best. It is the patient's choice to be in a randomized trial. [NIH]

Rauwolfia: A genus of the Apocynaceae or dogbane family of tropical trees and shrubs containing alkaloids. These alkaloids have been used as tranquilizers and antihypertensive agents. Reserpine is derived from *R. serpentina*. [NIH]

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

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

Rectal: By or having to do with the rectum. The rectum is the last 8 to 10 inches of the large intestine and ends at the anus. [NIH]

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

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

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

Reductase: Enzyme converting testosterone to dihydrotestosterone. [NIH]

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

Reflex: An involuntary movement or exercise of function in a part, excited in response to a stimulus applied to the periphery and transmitted to the brain or spinal cord. [NIH]

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

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Renal failure: Progressive renal insufficiency and uremia, due to irreversible and progressive renal glomerular tubular or interstitial disease. [NIH]

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]

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]

Retrospective: Looking back at events that have already taken place. [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]

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

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

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

Risperidone: A selective blocker of dopamine D2 and serotonin-5-HT-2 receptors that acts as an atypical antipsychotic agent. It has been shown to improve both positive and negative symptoms in the treatment of schizophrenia. [NIH]

Rye: A hardy grain crop, *Secale cereale*, grown in northern climates. It is the most frequent host to ergot (*claviceps*), the toxic fungus. Its hybrid with wheat is triticale, another grain. [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]

Sanitation: The development and establishment of environmental conditions favorable to the health of the public. [NIH]

Saponins: Sapogenin glycosides. A type of glycoside widely distributed in plants. Each consists of a sapogenin as the aglycon moiety, and a sugar. The sapogenin may be a steroid or a triterpene and the sugar may be glucose, galactose, a pentose, or a methylpentose. Sapogenins are poisonous towards the lower forms of life and are powerful hemolytics when injected into the blood stream able to dissolve red blood cells at even extreme dilutions. [NIH]

Schizoid: Having qualities resembling those found in greater degree in schizophrenics; a person of schizoid personality. [NIH]

Schizophrenia: A mental disorder characterized by a special type of disintegration of the personality. [NIH]

Schizotypal Personality Disorder: A personality disorder in which there are oddities of thought (magical thinking, paranoid ideation, suspiciousness), perception (illusions, depersonalization), speech (digressive, vague, overelaborate), and behavior (inappropriate affect in social interactions, frequently social isolation) that are not severe enough to characterize schizophrenia. [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]

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

Sebaceous: 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]

Sedative: 1. Allaying activity and excitement. 2. An agent that allays excitement. [EU]

Selective estrogen receptor modulator: SERM. A drug that acts like estrogen on some tissues, but blocks the effect of estrogen on other tissues. Tamoxifen and raloxifene are SERMs. [NIH]

Semen: The thick, yellowish-white, viscid fluid secretion of male reproductive organs discharged upon ejaculation. In addition to reproductive organ secretions, it contains

spermatozoa and their nutrient plasma. [NIH]

Semisynthetic: Produced by chemical manipulation of naturally occurring substances. [EU]

Senna: Preparations of *Cassia senna* L. and *C. angustifolia* of the Leguminosae. They contain sennosides, which are anthraquinone type cathartics and are used in many different preparations as laxatives. [NIH]

Sensibility: The ability to receive, feel and appreciate sensations and impressions; the quality of being sensitive; the extent to which a method gives results that are free from false negatives. [NIH]

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

Serotonin: A biochemical messenger and regulator, synthesized from the essential amino acid L-tryptophan. In humans it is found primarily in the central nervous system, gastrointestinal tract, and blood platelets. Serotonin mediates several important physiological functions including neurotransmission, gastrointestinal motility, hemostasis, and cardiovascular integrity. Multiple receptor families (receptors, serotonin) explain the broad physiological actions and distribution of this biochemical mediator. [NIH]

Serrata: The serrated anterior border of the retina located approximately 8.5 mm from the limbus and adjacent to the pars plana of the ciliary body. [NIH]

Serrated: Having notches or teeth on the edge as a saw has. [NIH]

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

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

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]

Silymarin: A mixture of flavonoids extracted from seeds of the milk thistle, *Silybum marianum*. It consists primarily of three isomers: silicristin, silidianin, and silybin, its major component. Silymarin displays antioxidant and membrane stabilizing activity. It protects various tissues and organs against chemical injury, and shows potential as an antihepatotoxic agent. [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]

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]

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

Solvent: 1. Dissolving; effecting a solution. 2. A liquid that dissolves or that is capable of dissolving; the component of a solution that is present in greater amount. [EU]

Spasmodic: Of the nature of a spasm. [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]

Sperm Motility: Ability of the spermatozoon to move by flagellate swimming. [NIH]

Spermatozoon: The mature male germ cell. [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]

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]

Squamous: Scaly, or platelike. [EU]

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

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Sterility: 1. The inability to produce offspring, i.e., the inability to conceive (female s.) or to induce conception (male s.). 2. The state of being aseptic, or free from microorganisms. [EU]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Stimulant: 1. Producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. An agent or remedy that produces stimulation. [EU]

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

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

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

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]

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

Stromal Cells: Connective tissue cells of an organ found in the loose connective tissue. These are most often associated with the uterine mucosa and the ovary as well as the hematopoietic system and elsewhere. [NIH]

Structure-Activity Relationship: The relationship between the chemical structure of a compound and its biological or pharmacological activity. Compounds are often classed together because they have structural characteristics in common including shape, size, stereochemical arrangement, and distribution of functional groups. Other factors contributing to structure-activity relationship include chemical reactivity, electronic effects, resonance, and inductive effects. [NIH]

Strychnine: An alkaloid found in the seeds of nux vomica. It is a competitive antagonist at glycine receptors and thus a convulsant. It has been used as an analeptic, in the treatment of nonketotic hyperglycinemia and sleep apnea, and as a rat poison. [NIH]

Styrene: A colorless, toxic liquid with a strong aromatic odor. It is used to make rubbers, polymers and copolymers, and polystyrene plastics. [NIH]

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

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other

disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality. [EU]

Subcutaneous: Beneath the skin. [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]

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]

Superoxide: Derivative of molecular oxygen that can damage cells. [NIH]

Superoxide Dismutase: An oxidoreductase that catalyzes the reaction between superoxide anions and hydrogen to yield molecular oxygen and hydrogen peroxide. The enzyme protects the cell against dangerous levels of superoxide. EC 1.15.1.1. [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]

Sympathomimetic: 1. Mimicking the effects of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. 2. An agent that produces effects similar to those of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. Called also adrenergic. [EU]

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]

Synaptic Transmission: The communication from a neuron to a target (neuron, muscle, or secretory cell) across a synapse. In chemical synaptic transmission, the presynaptic neuron releases a neurotransmitter that diffuses across the synaptic cleft and binds to specific synaptic receptors. These activated receptors modulate ion channels and/or second-messenger systems to influence the postsynaptic cell. Electrical transmission is less common in the nervous system, and, as in other tissues, is mediated by gap junctions. [NIH]

Synergistic: Acting together; enhancing the effect of another force or agent. [EU]

Systemic: Affecting the entire body. [NIH]

Systolic: Indicating the maximum arterial pressure during contraction of the left ventricle of the heart. [EU]

Tamoxifen: A first generation selective estrogen receptor modulator (SERM). It acts as an

agonist for bone tissue and cholesterol metabolism but is an estrogen antagonist in mammary and uterine. [NIH]

Tenesmus: Straining, especially ineffectual and painful straining at stool or in urination. [EU]

Testis: Either of the paired male reproductive glands that produce the male germ cells and the male hormones. [NIH]

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

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [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]

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

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

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

Ticlopidine: Ticlopidine is an effective inhibitor of platelet aggregation. The drug has been found to significantly reduce infarction size in acute myocardial infarcts and is an effective antithrombotic agent in arteriovenous fistulas, aorto-coronary bypass grafts, ischemic heart disease, venous thrombosis, and arteriosclerosis. [NIH]

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

Tonic: 1. Producing and restoring the normal tone. 2. Characterized by continuous tension. 3. A term formerly used for a class of medicinal preparations believed to have the power of restoring normal tone to tissue. [EU]

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]

Toxic Hepatitis: Hepatitis with inflammatory changes around small bile ducts causing obstructive jaundice; the disease may be due to intoxication by certain chemical substances, e. g. manganese. [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]

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

Transdermal: Entering through the dermis, or skin, as in administration of a drug applied to the skin in ointment or patch form. [EU]

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]

Transfusion: The infusion of components of blood or whole blood into the bloodstream. The blood may be donated from another person, or it may have been taken from the person earlier and stored until needed. [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]

Transmitter: A chemical substance which effects the passage of nerve impulses from one cell to the other at the synapse. [NIH]

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

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

Trees: Woody, usually tall, perennial higher plants (Angiosperms, Gymnosperms, and some Pterophyta) having usually a main stem and numerous branches. [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]

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

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

Typhoid fever: The most important member of the enteric group of fevers which also includes the paratyphoids. [NIH]

Typhoid fever: The most important member of the enteric group of fevers which also includes the paratyphoids. [NIH]

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]

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

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

Uric: A kidney stone that may result from a diet high in animal protein. When the body breaks down this protein, uric acid levels rise and can form stones. [NIH]

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

Urinate: To release urine from the bladder to the outside. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

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

Uterus: The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a fetus develops. Also called the womb. [NIH]

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]

Vagal: Pertaining to the vagus nerve. [EU]

Vagus Nerve: The 10th cranial nerve. The vagus is a mixed nerve which contains somatic afferents (from skin in back of the ear and the external auditory meatus), visceral afferents (from the pharynx, larynx, thorax, and abdomen), parasympathetic efferents (to the thorax and abdomen), and efferents to striated muscle (of the larynx and pharynx). [NIH]

Valerian: *Valeriana officinale*, an ancient, sedative herb of the large family Valerianaceae. The roots were formerly used to treat hysterias and other neurotic states and are presently used to treat sleep disorders. [NIH]

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

Vasodilator: An agent that widens blood vessels. [NIH]

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

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

Venous Thrombosis: The formation or presence of a thrombus within a vein. [NIH]

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

Ventricular: Pertaining to a ventricle. [EU]

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

Venules: The minute vessels that collect blood from the capillary plexuses and join together to form veins. [NIH]

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

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

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

Viral Hepatitis: Hepatitis caused by a virus. Five different viruses (A, B, C, D, and E) most commonly cause this form of hepatitis. Other rare viruses may also cause hepatitis. [NIH]

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

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

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]

Viscera: Any of the large interior organs in any one of the three great cavities of the body, especially in the abdomen. [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]

Void: To urinate, empty the bladder. [NIH]

Voltage-gated: It is opened by the altered charge distribution across the cell membrane. [NIH]

Vomica: The profuse and sudden expectoration of pus and putrescent matter. An abnormal cavity in an organ especially in the lung, caused by suppuration and the breaking down of tissue. [NIH]

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

Warfarin: An anticoagulant that acts by inhibiting the synthesis of vitamin K-dependent coagulation factors. Warfarin is indicated for the prophylaxis and/or treatment of venous thrombosis and its extension, pulmonary embolism, and atrial fibrillation with embolization. It is also used as an adjunct in the prophylaxis of systemic embolism after myocardial infarction. Warfarin is also used as a rodenticide. [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]

Withdrawal: 1. A pathological retreat from interpersonal contact and social involvement, as may occur in schizophrenia, depression, or schizoid avoidant and schizotypal personality disorders. 2. (DSM III-R) A substance-specific organic brain syndrome that follows the cessation of use or reduction in intake of a psychoactive substance that had been regularly used to induce a state of intoxication. [EU]

Wound Healing: Restoration of integrity to traumatized tissue. [NIH]

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

Yohimbine: A plant alkaloid with alpha-2-adrenergic blocking activity. Yohimbine has been used as a mydriatic and in the treatment of impotence. It is also alleged to be an aphrodisiac. [NIH]

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

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