Allergic Reactions

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

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and Philip M. Parker, Ph.D., Editors

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FORWARD

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

The Editors

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

CHAPTER 1. STUDIES ON ALLERGIC REACTIONS

Overview

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

The Combined Health Information Database

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

- **Heading Off Hair-Care Disasters: Use Caution With Relaxers and Dyes**

  Source: FDA Consumer. 35(1): 21-24. February 2001.

  Summary: This journal article providers the general public with information on the appropriate use of hair dyes and straighteners to avoid scalp irritation and other adverse reactions. Complaints about hair straighteners and hair dyes are among the top consumer complaint areas for the Office of Cosmetics and Colors of the Food and Drug Administration (FDA). Complaints range from hair breakage to symptoms requiring an emergency room visit. Although the FDA does not have the authority to require premarket approval for cosmetics, it can take action when safety issues arise. When consumers notify FDA of a problem with cosmetics, the agency evaluates evidence on a case by case basis and determines whether followup is needed. In 1994, the FDA warned the public against using two popular hair relaxer products, and the FDA found that one

was potentially harmful or injurious when used as intended. Although the use of no lye relaxers results in less scalp irritation than lye relaxers, these relaxers still contain ingredients that work by breaking the hair's chemical bonds and can burn the scalp if used incorrectly. Some consumers have also reported hair loss, burning, redness, and irritation from hair dyes. Coal tar hair dye ingredients are known to cause **allergic reactions** in some people. Coal tar hair dyes are not required to be approved by the FDA, and the law does not allow the FDA to take action against coal tar hair dyes that are shown to be harmful if the product carries the required cautionary label. Sidebars discuss the importance of keeping hair chemicals away from the eyes and the possible relationship between hair dye use and cancer. 1 figure.

- **Acute Skin Disorders of Summer**

  Source: Emergency Medicine. 30(4): 68,70,75-76,79-80,82,88-90,93. April 1998.

  Summary: This journal article provides health professionals with information on acute skin disorders that occur during the summer months. The most commonly encountered cutaneous disorder related to the environment is the dermatitis caused by poison ivy. The severity and extent of the eruption depend on the amount of urushiol deposited, the person's sensitivity, and the anatomic location of the exposure. Eruptions tend to occur on thin-skinned areas within 7 to 10 days, depending on the degree and duration of contact. Eruptions usually occur as a linear arrangement of erythema, vesicles, or bullae, either alone or in any combination. During the summer months, physicians may treat patients for stings from bees, wasps, hornets, or yellow jackets. Reactions to bee stings stem from either allergic mechanisms or the release of various chemicals, toxins, or enzymes in the venom. The typical sting usually causes some localized pain for a few minutes, followed by erythema, edema, and pruritus. A more severe local reaction will be accompanied by increased swelling. A common pyoderma observed during the summertime is the highly contagious superficial infection known as impetigo contagiosa. This condition begins as a small pink macule, evolves into a thin-roofed vesicle or pustule, and then ruptures, leaving a moist, denuded patch. Another form of impetigo is staphylococcal impetigo, which is usually manifested by flaccid blisters filled with cloudy, yellowish fluid. Infection with common ringworm (fungal) disorders, including tinea pedis, tinea corporis, tinea capitis, and tinea cruris, typically occurs in hot, humid weather. The eruptions resulting from these disorders are almost always pruritic. In addition, the skin's reactivity to ultraviolet and visible light may be magnified by many endogenous or exogenous photosensitizing chemicals. Both phototoxic and photoallergic reactions may occur. The article presents methods of treating all of these conditions and provides advice for doctors to give their patients about preventing them. 17 figures and 1 table.

- **Itching in Active Patients: Causes and Cures**

  Source: Physician and Sportsmedicine. 26(1): 47-53. January 1998.

  Summary: This journal article provides health professionals with information on the etiology and treatment of itching in physically active patients. The causes of itching can be as benign as dry skin or as serious as systemic disease. Dry skin is the most common cause of itching, even among young and active people. Heat is another common physical cause of itchy skin. Heat related skin conditions include heat rashes and Grover's disease. Miliaria rubra, or prickly heat, is a disease of the sweat glands. Grover's disease is usually associated with prolonged exposure to heat in nonacclimated people over 50 years old. Heat and perspiration can also cause flareups of atopic dermatitis. Outdoor exercise can involve overexposure to the sun, resulting in painful

sunburns that itch as they resolve. Two less common pruritic conditions are cholinergic urticaria and exercise induced anaphylaxis. People who participate in outdoor activities may come into contact with plants that cause **allergic reactions**. In addition, various systemic diseases may cause itching, including renal disease, liver stasis, thyroid diseases, occult malignancies, polycythemia vera, and iron deficiency anemia. The article describes the features of these causes of itching and offers guidelines for treating these problems. Most can be effectively managed with treatments that range from avoidance of environmental irritants to the use of topical agents, antihistamines, systemic corticosteroids, or antibiotics. 8 figures and 4 references. (AA-M).

- **Easing the Itch of Urticaria**

  Source: Patient Care. 81-84,86-88,91,95; March 15, 1996.

  Summary: This journal article for health professionals offers guidelines for managing patients with urticaria. The causes of urticaria are identified, including physical causes and **allergic reactions** to foods, drugs, insect stings, and transfusions. An approach to diagnosing causes of urticaria is presented. This approach involves ruling out urticaria as a manifestation of an underlying medical condition through a thorough physical examination and a limited laboratory workup. Careful questioning of a patient may also provide useful information in determining the trigger for urticaria. Treatment options for urticaria are discussed, including avoiding the trigger if it has been identified and using antihistamines. Various antihistamines used in the treatment of urticaria are compared. In addition, the use of corticosteroids in relieving the symptoms of urticaria is considered. 3 references, 2 figures, and 3 tables.

- **Current Topics in Plant Dermatitis**

  Source: Seminars in Dermatology. 15(2):113-121; June 1996.

  Summary: This journal article for health professionals discusses the ways in which plants cause dermatitis. Plants may induce skin reactions through irritancy, allergenicity, or toxicity. Irritant plants and the reactions that they can cause are identified. Immunologic urticaria and angioedema are discussed in terms of foodstuffs or plants that can cause them, the use of patch and prick testing to test for a positive reaction, and the treatment of **allergic reactions**. Plants that may cause phototoxic reactions are highlighted, and the characteristics of these reactions are described. In addition, plant extracts used in cosmetics and natural remedies that may cause **allergic reactions** are identified; recent reports on allergenic plants are presented; and dermatitis caused by Primula obconica, alstroemeria, and poison ivy and related species are discussed. 91 references and 16 figures.

- **Concise Guide to Topical Sunscreens: State of the Art**

  Source: International Journal of Dermatology. 31(8):540-543, August 1992.

  Summary: Researchers review topical sunscreens, their efficacy, and their use in skin care treatment and prevention of skin cancer. Topical sunscreens offer protection from ultraviolet (UV) light and can be divided into two broad categories: Chemical agents and physical agents. Chemical agents, which act as filters, absorb UV light based upon the presence of alternating single and double bonds. Chemical agents can be either UVA or UVB absorbers. Physical sunscreens simply reflect and scatter ultraviolet and physical radiation. Physical sunscreens, however, are usually cosmetically unacceptable to patients. The Food and Drug Administration (FDA) provides standardized guidelines for evaluating sunscreens. No standardized test, however, is provided by the FDA

guidelines. Recommended guidelines for the use of sunscreens vary. The use of SPF 30 is suggested for individuals who will be outdoors for the entire day during the summer months in most parts of the United States, with the use of SPF 15 for routinely sun-exposed areas. As for childhood exposure to sunlight, it appears to be a major risk factor for skin cancer development, and the use of sunscreens from an early age is mandated. The Skin Cancer Foundation guidelines for children suggest the use of a sunscreen with an SPF of 15 or higher for children and recommend against using lotions and gels with alcohol in them on children under the age of 12, because they can be irritating to the skin and eyes. Many dermatologists and health care professionals are concerned that patients are receiving increased dosages of UVA radiation because they are able to remain in the sun before experiencing painful erythema. Health care professionals are also concerned that some individuals may incorrectly believe that sunbathing with a highly protective sunscreen will eliminate all danger from UV exposure. Any adverse effects of sunscreens are largely the result of local cutaneous problems and mainly comprise burning, itching, or stinging. These reactions may be due to irritation or true allergic sensitization. All major categories of sunscreen agents have been implicated in **allergic reactions**, including contact and photocontact dermatitis and contact urticaria. 2 tables, 56 references.

- **Sunscreen: One Weapon Against Melanoma**

  Source: Dermatologic Clinics. 9(4):789-793, October 1991.

  Summary: The author provides advice about the use of sunscreens to prevent sunburns and skin cancers. The two major types of sunscreens available are physical sunblocks and chemical absorbers. Clothing may be used as protection, but is effective only if the wave is very close, which often makes the clothing too warm. The four major physical sunblocks are zinc oxide, talc, titanium dioxide, and red veterinary petrolatum. These products scatter, reflect, and physically block ultraviolet light. They are very helpful in patients who are lifeguards or golf and tennis coaches, or on vulnerable areas such as nose tips, cheeks, ears, and shoulders. The major disadvantages of these products are their messiness and lack of cosmetic acceptability. The second major type of sunscreens are the chemical sunscreens. These are much easier to use and thus allow greater patient compliance. The compound para-aminobenzoic acid (PABA) has been used as a sunscreen in the United States for many years. It has the distinct advantage of binding to the epidermal cell layer. For this reason, it does not come off as easily with perspiration or washing, and it offers good protection against UVB radiation. The major disadvantage of PABA is its ability to cause both contact and photocontact dermatitis. PABA can also stain clothing, particularly synthetic products, and fiberglass. Because of the **allergic reactions** of PABA, other sunscreens have become popular, including Cinnamates, Salicylates, Benzophenones, and Dibenzoylmethanes. These products are all less allergenic than PABA, but many have a weaker binding ability or may also cause skin irritation. It is important to encourage patients to use supplemental vitamin D in addition to sunscreens; the growth of teeth and bones in children and of bones in adults may be impaired by lack of this vitamin. 2 tables, 46 references.

- **Allergies and Vocal Fold Edema: A Preliminary Report**

  Source: Journal of Voice. 13(1): 113-122. March 1999.

  Contact: Available from Singular Publishing Group, Inc. 401 West 'A' Street, Suite 325, San Diego, CA 92101-7904. (800) 521-8545 or (619) 238-6777. Fax (800) 774-8398 or (619) 238-6789. E-mail: singpub@singpub.com. Website: www.singpub.com.

Summary: This article describes different tools that can be used to determine the etiology of vocal fold edema. The authors report on the complete voice assessment that is used in their Voice Center. This includes patient history, acoustic analysis, laryngeal videostroboscopy, otolaryngology consultation, allergy testing (from a companion Allergy Clinic), and gastroenterology consultation as appropriate. Inhalant allergy can be a hidden, yet very common cause of chronic laryngitis. Respiratory allergies can also cause decreased pulmonary function; excessive secretions in either the lower airway, trachea, bronchi, or in the upper airway of the pharynx; edema of the vocal folds themselves; and unusual resonance characteristics of the pharynx or nasal cavity due to congestion of the membrane in those areas. Voice patients with a history of seasonal hay fever, a history of **allergic reactions** around cats or dogs, or a strong family history of allergies should be allergy tested. Screening tests for allergies are available. Once specific allergens are identified, recommendations for therapy or other intervention can be made. Straining the voice, in combination with the above conditions, can increase the voice problem. The authors describe the histories, allergy test results, and voice laboratory evaluations of several patients. Identifying these voice patients and treating their allergies are important in keeping these patients healthy and maintaining a clear, good voice quality. The authors conclude that the multidisciplinary approach in voice disorders is indispensable in diagnosis and treatment of these disorders.

- **Food Allergies**

  Source: Nutrition Action Healthletter. 28(3): 10-13. April 2001.

  Contact: Available from CSPI. 1875 Connecticut Avenue, NW, Suite 300, Washington, DC 20009. Fax (202) 265-4954. E-mail: circ@cspinet.org. Website: www.cspinet.org.

  Summary: This article reviews food allergies and food intolerances. Food allergies occur when the immune system overreacts to certain proteins in food. Although more than 200 food ingredients can provoke an allergic reaction, the vast majority are caused by eight ingredients: nuts (like walnuts and almonds), peanuts (which are legumes), milk, eggs, fish, shellfish, soybeans, and wheat. Typical symptoms are nausea, hives, skin rash, nasal congestion, and wheezing. For most people with food allergies, **allergic reactions** to food are a temporary discomfort, but for many the result is anaphylactic shock, a quick reaction in which their throats may swell enough to cut off breathing. The author reviews the typical pattern of a study of 32 fatal reactions; all but two reactions were triggered by peanuts or nuts. Most of the victims were teenagers or young adults who had asthma, and most knew that they suffered from food allergies; 27 ate the food away from home, and only three were carrying emergency self injectable epinephrine. Most reactions to food are caused not by allergies but by intolerances, which are less severe. The author reviews intolerances to lactose (milk sugar), sulfites, monosodium glutamate (MSG), red wine, chocolate, and food colors. The article concludes with a discussion of four reminders regarding food allergies: offending foods may show up where they are not expected; trace amounts can trigger a reaction; foods can be contaminated with allergens; and labels do not have to disclose allergens in flavors. Appended to the article is a list of websites and resource organizations for readers wishing to obtain additional information. 1 figure. 6 references.

- **Children and Food Allergies**

  Source: Digestive Health and Nutrition. p. 7. January-February 2000.

Contact: Available from American Gastroenterological Association. 7910 Woodmont Avenue, 7th Floor, Bethesda, MD 20814. (877) DHN-4YOU or (301) 654-2055, ext. 650. E-mail: DHN@gastro.org.

Summary: This brief article reviews food allergies in infants and children. The author notes that milk and soy allergies are very common, and that eggs, wheat, peanuts, and tree nuts may also create problems for children. The associated **allergic reactions** can be very severe, even deadly. Though it may be possible to prevent **allergic reactions**, there is no known way to keep children from developing food allergies. The article concludes with a list of dietary precautions that may postpone the onset of allergy symptoms, thus preventing severe early deficiencies in growth and development. The suggestions include: avoid highly allergenic foods while breastfeeding a baby; plan to breast feed the baby for as long as possible, preferably for at least 1 year; do not give solid foods to the baby until he or she is at least 6 months old; when age appropriate, introduce solid foods one at a time, beginning with those least likely to trigger allergies (i.e., rice cereal and bananas); do not give the child milk or eggs until he or she is at least 1 year old; and do not give the child peanuts until she or he is at least 3 years old. One sidebar notes that the most common signs and symptoms seen in food allergic children, including flushing, nausea, hives, itching, abdominal pain, sneezing, diarrhea, and vomiting. The article refers readers to the resource link for the Food Allergy Network (www.foodallergy.org).

- **Forbidden Foods**

Source: Digestive Health and Nutrition. p. 16-19. January-February 2000.

Contact: Available from American Gastroenterological Association. 7910 Woodmont Avenue, 7th Floor, Bethesda, MD 20814. (877) DHN-4YOU or (301) 654-2055, ext. 650. E-mail: DHN@gastro.org.

Summary: For the 5.2 million Americans suffering from food allergies, one wrong food choice could trigger a host of reactions ranging from abdominal cramps to hives and swelling and, in extreme cases, even death. This article reviews the problem of food allergies, first defining the differences between food allergy and food intolerance. A true food allergy triggers the immune system; with food intolerances, the problem arises from the metabolism (the body may not be able to adequately digest some components of the foods). For example, people with lactose intolerance have trouble digesting lactose (the sugar in milk) and therefore may have cramping and diarrhea after drinking or eating dairy products. Whereas people with food allergies must totally avoid certain foods, those with intolerances can sometimes eat small quantities of offending foods without any side effects. Food allergies are classically diagnosed with a thorough health history; sometimes a food diary is also used. The next step is to institute a diet that eliminates suspected allergens. Only a few foods account for most **allergic reactions** (soy products, fish, shellfish, nuts, eggs). The author considers the role of food additives (aspartame, MSG, sulfites, food coloring) as possible food allergens. Food labeling requirements make it easier to readily identify offending ingredients. The author also reviews the difficulties inherent in eating at restaurants, the problems of cross reactivity (being sensitive to foods similar to the primary offending food), and exercise induced food allergies (probably triggered by the rise in body temperature that accompanies exercise). A brief concluding section discusses what to do for food allergy reactions. An information resource noted is the Food Allergy Network (800 929 4040, www.foodallergy.org).

- **Manifestations of Food Allergy: Evaluation and Management**

  Source: American Family Physician. 59(2): 415-424. January 15, 1999.

  Contact: Available from American Academy of Family Physicians. 11400 Tomahawk Creek Parkway, Leawood, KS 66211-2672. (800) 274-2237. Website: www.aafp.org.

  Summary: This article focuses on the clinical manifestations of food allergy, defined as adverse immunologic reactions to food. Food allergy is usually mediated by IgE antibody directed to specific food proteins, but other immunologic mechanisms can also play a role. The primary target organs for food **allergic reactions** are the skin, the gastrointestinal tract, and the respiratory system. Both acute reactions (hives and anaphylaxis) and chronic disease (asthma, atopic dermatitis, and gastrointestinal disorders) may be caused or exacerbated by food allergy. The foods most commonly causing these reactions in children are milk, egg, peanuts, soy, wheat, tree nuts, fish, and shellfish; in adults, they are peanuts, tree nuts, shellfish, and fish. The diagnosis of food allergy requires a careful search for possible causes, confirmation of the cause(s) with supporting tests, including specific tests for IgE (i.e., skin prick tests, radioallergosorbent tests) and, in some cases, oral food challenges. Treatment consists of elimination of the causal food(s) along with medical treatment, including the prompt self-administration of epinephrine in the event of a serious reaction. 1 figure. 3 tables. 40 references. (AA-M).

- **Food Allergy: Manifestations, Evaluation, and Management**

  Source: Postgraduate Medicine. 93(2): 191-196, 201. February 1, 1993.

  Summary: For several reasons, food allergy may present a diagnostic challenge. Patients and physicians can blame a wide range of symptoms on certain foods. Food allergy and food intolerance are sometimes indistinguishable, and results of common diagnostic tests may be inconclusive. In this article, the authors describe the typical symptoms of food allergy, discuss evaluation and diagnosis, and examine appropriate preventive and treatment measures. One sidebar discusses the mechanisms of food allergy. The authors note foods most often implicated in **allergic reactions** include eggs, cow's milk, nuts, wheat, soy products, whitefish, and crustacea. Gastrointestinal, respiratory tract, and dermatologic symptoms, as well as systemic anaphylaxis, may develop. 1 table. 19 references. (AA-M).

- **Emergency Room Information for Ostomates**

  Source: Metro Wash By-Pass. p. 2. July 1990.

  Contact: Available from United Ostomy Association, Metropolitan Washington Chapter. Washington Hospital Center, 110 Irving Street, N.W., East Building, Room 3102, Washington, DC 20010. (202) 877-6019.

  Summary: These instructions, addressed to individuals with ostomies, advise preparing in advance information that may be vitally needed by hospital emergency room personnel in case a medical emergency occurs. Some emergency rooms are not informed in depth about ostomates and it is recommended that information, written down and presented to emergency room personnel, may well save a life or valuable time. Information should include: a history and dates of surgery, names and telephone numbers of doctors or surgeons who performed them, and the name and address of the hospital where he or she works. A list of medications being taken and their dosages are important, as well as specific medication or preparations used by patients with ostomies that produce **allergic reactions**; and the stoma size. Other pertinent information

includes names and telephone numbers of next-of-kin; type of medical insurance coverage and, if a group plan, under whose name it is issued. A placard near the door or on the refrigerator can visually inform emergency ambulance personnel of the availability of this information and where it can be obtained. A photocopy of the information should also be placed in the automobile glove compartment.

- **Latex Allergy: A Primer for Diabetes Educators**

  Source: Diabetes Educator. 25(4): 597-598, 600, 602-604. July-August 1999.

  Contact: Available from American Association of Diabetes Educators. 100 West Monroe Street, 4th Floor, Chicago, IL 60603-1901. (312) 424-2426.

  Summary: This article provides an overview of latex allergy. This type of allergy or sensitivity has been identified as a health care epidemic for the 1990s. Diabetes educators need to assess their clients for latex allergy or sensitivity and be prepared to educate them about this allergy. Populations at the highest risk for a latex allergy include children who have spina bifida, health care workers, and persons who have had multiple surgeries. Latex is a complex protein byproduct of the rubber tree, so it is capable of causing immunoglobulin (Ig) E-mediated **allergic reactions**. There are various types of reactions associated with rubber products, including irritant or contact dermatitis, type IV hypersensitivity, and type I hypersensitivity. Irritant or contact dermatitis is not an allergy to latex but may be caused by a chemical or powder irritant. Type IV hypersensitivity is a cell-mediated allergic reaction to the chemicals used during the processing of the latex rather than to the latex itself. This reaction primarily involves T cells. Type I hypersensitivity is an IgE-mediated immediate response to rubber proteins or polypeptides. The primary cause of a latex reaction is powdered latex gloves. The most important step in diagnosing a latex allergy is obtaining a complete medical history and performing a physical examination. A positive skin prick test is an indicator of a latex allergy, and a positive radioallergosorbent test is proof of latex allergy. People who have diabetes are among the 6 percent of the general population at risk for latex allergy or sensitivity because they use health services more frequently than people who do not have diabetes. The article presents a case study involving a female type 2 diabetes patient who exhibited symptoms of a latex allergy. 3 tables. 14 references.

- **Surprising Side Effects**

  Source: Diabetes Forecast. 51(7): 52-56. July 1998.

  Contact: American Diabetes Association. 1701 North Beauregard Street, Alexandria, VA 22311. (800) 232-3472. Website: www.diabetes.org.

  Summary: This article reports on the side effects of various diabetes medications, including sulfonylureas, metformin, acarbose, troglitazone, repaglinide, and insulin. Sulfonylureas are commonly prescribed for the treatment of type 2 diabetes. They stimulate the pancreas to produce and release more insulin. Common side effects of drugs in this class include gastrointestinal disturbances, alcohol intolerance, skin reactions, and weight gain. Metformin is also used to treat type 2 diabetes. Its side effects can include gastrointestinal disturbances and, rarely, lactic acidosis. Acarbose blocks the enzymes in the stomach that break down starches in foods into simple sugars. The most common side effects of this drug are gastrointestinal difficulties, including abdominal bloating, diarrhea, and flatulence. Troglitazone is an insulin sensitizer that improves the action of insulin, particularly in the muscle cells. Although early studies showed that it was very well tolerated and had minimal side effects, it appears to

adversely affect the liver in some people; these problems seem to be reversible when caught early. Repaglinide, the newest approved drug for treating type 2 diabetes, appears to be well tolerated and to have few side effects; because it is new, adverse effects are not completely known. Insulin has several side effects, including **allergic reactions**, lipohypertrophy, and weight gain.

- **Education of Asthmatics: Learning to Live with Asthma**

  Source: Nursing Mirror (Sussex). 155(9):51-52, September 1, 1982.

  Summary: Bronchial asthma is a common disorder of children, but with early identification and treatment hospitalization may be avoided. Nurses are in the best position to identify infants and children with asthma and to educate parents and children. Home visits by nurses can identify infants with **allergic reactions** that may be asthmatic; school nurses may be the first to see children whose asthma is a result of exercise. One program is underway to help children with exercise-induced asthma participate in sports activities. The course has changed children's and parents' subjective views of asthma from a disabling illness to a condition that a healthy child can live with; and it has gradually increased the lung function and exercise tolerance of the children. Nurses must involve parents in prophylactic measures for their children, particularly the use of nebulizers for acute attacks, and provide parameters about when to seek medical aid.

- **L'Automedication et ses Limites. (Self Medication and Its Limits)**

  Source: Sozial- und Praeventivmedizin (Bern). 25(1-2):40-43, March 1980.

  Summary: In western societies, symptoms receive immediate relief, and people who judge their symptoms as minor often forego proper medical consultation before consuming medication. Self medication, though, carries certain risks and can easily become abusive. Individuals sometime become addicted to certain medications, such as tranquilizers, and are often unaware of the possibilities of **allergic reactions**. Also, individuals can misjudge the importance of their symptoms. Loss of breath or moderate sustained fever, for example, very often do not lead to a medical consultation, though they should. Reasonable self medication involves the selective treatment of benign conditions, with full knowledge of the possible undesirable effects of the substance used. Everyone connected with the pharmaceutical aspect of health care can and should work to abate the trend toward abusive self medication. Pharmaceutical companies should use more restraint in advertising. Current advertising makes their products appear absolutely effective and innocuous. Physicians should be more careful in prescribing medication. Finally, individual consumers must be more selective in their medication consumption. 8 references.

- **Unusual Symptom of Lidocaine Allergy**

  Source: New York State Dental Journal. NYSDJ. 68(10): 24-25. December 2002.

  Contact: Available from Dental Society of the State of New York. 7 Elk Street, Albany, NY 12207. (518) 465-0044.

  Summary: The incidence of lidocaine allergy is rare, with only 1 percent of all reported incidents representing true antigen antibody **allergic reactions**. This article presents a confirmed case of antigen antibody reaction to lidocaine. These immunoglobulin E-mediated responses can include anaphylaxis, urticaria, hay fever, and asthma. This case is further distinguished by the unusual presence of blurred vision in the patient. The

author reviews the other reported adverse reactions to lidocaine and their causes. The author stresses that reported symptoms alone do not affirm a case of lidocaine allergy. It is immunological testing and the onset time of symptoms that confirm the true antigen antibody reaction. 7 references.

- **26-Year-Old Male Presented to the Dental Office for a Routine Check-Up. At the Time of the Appointment, a Diffuse Swelling of the Lower Lip Was Noted**

  Source: RDH. Registered Dental Hygienist. 21(3): 19. March 2001.

  Contact: Available from Penwell Corporation. 1421 South Sheridan, Tulsa, OK 74112.

  Summary: This case study reports on a 26 year old male who presented to the dental office for a routine check up. At the time of the appointment, a diffuse swelling of the lower lip was noted. When questioned about the swollen lower lip, the patient stated that it had first appeared several days earlier. The author describes the symptoms and the arrival at a diagnosis of cheilitis granulomatosa. This disorder is currently believed to be an abnormal autoimmune reaction, either primary or secondary. Suggested precipitating factors can include genetic predisposition, infections, or **allergic reactions** to food or other materials. Recurring episodes of cheilitis granulomatosa are common and may last from hours to months at a time; some may result in permanent enlargement. The diagnosis of cheilitis granulomatosa involves the exclusion of potential systemic granulomatous processes that have oral or facial involvement (such as Crohn's disease, hairy cell leukemia, tuberculosis, sarcoidosis). A biopsy is required to rule out a foreign body or infection. Treatment can be problematic: intralesional injections of corticosteroid preparations often are used, but with limited success; systemic corticosteroid medications also may be used; and some patients respond to the elimination of the suspected causative factor or treatment of the underlying systemic disease. 1 figure.

- **Latex Hypersensitivity and Dentistry**

  Source: Journal of the Greater Houston Dental Society. 70(7): 14-16. February 1999.

  Contact: Available from Greater Houston Dental Society. One Greenway Plaza, Suite 110, Houston, TX 77046. (713) 961-4337. Fax (713) 961-3617. E-mail: ghds@flash.net. Website: www.ghds.com.

  Summary: Natural rubber latex (NRL) allergy is an emerging public health issue which impacts a wide range of health care and workplace procedures and practices. This article reviews latex hypersensitivity and dentistry, emphasizing that dental professionals using NRL products need to know how to accommodate individuals with NRL allergy and how to minimize the possibility that they or their patients may become sensitized. Dental professionals also need to know how to recognize symptoms of NRL allergy and how to manage and treat such allergy. The authors of the article review the components of natural latex and how NRL products are made, list the types of reactions to NRL that may occur, describe patients and occupations at high risk, explains the diagnosis of NRL protein allergy, and reviews the dental management of patients with NRL protein allergy. The authors conclude that, since avoidance is the key to prevent individuals from being sensitized as well as to prevent NRL protein sensitized persons from **allergic reactions**, greater effort must be made to achieve this goal. 23 references.

- **Latex Allergies: How They Affect the Dental Profession**

  Source: Journal of Practical Hygiene. 7(6): 51-56. November-December 1998.

Contact: Available from Montage Media Corporation. 1000 Wyckoff Avenue, Mahwah, NJ 07430-3164. (201) 891-3200.

Summary: Although latex gloves have been proven to be a dependable source of protection against bloodborne pathogens for health care workers, they are also the cause of several dermatologic problems. As more health care workers began to wear gloves, the number of **allergic reactions** increased, and dental professionals are no exception. This article discusses different types of reactions due to latex exposure, the process used to confirm a latex allergy, and strategies for the prevention of these complications. The authors describe the recommended protocol for the testing of latex allergies. Individuals are considered to be at high risk for latex allergy if they are health care workers, latex industry workers, children with spina bifida, or if they have a history of specific risk factors, including previous allergic reaction to latex, previous unexplained anaphylaxis, hand eczema, allergic reaction from cross reactive foods, or multiple surgeries in childhood. The article concludes with the telephone number of the FDA Problem Reporting Program (800-638-6725), for health care workers to report incidents of sensitivity to latex or other material used in medical devices.

- **Emergency Medicine: Beyond the Basics**

  Source: JADA. Journal of American Dental Association. 128(7): 843-854. July 1997.

  Summary: This article describes the appropriate management of two common emergency situations that may arise in the dental office: allergy and chest pain. The author stresses that preparedness for medical emergencies depends on the ability to rapidly recognize a problem and to effectively institute prompt and proper management. In all emergency situations, management is based on implementation of basic life support, as needed. The author begins with an overview of general emergency preparedness, including an outline of the roles of the emergency team and emergency drugs and equipment to have available. The author then addresses **allergic reactions**, including delayed reactions (localized and systemic) and emergency reactions that can include anaphylaxis, which is immediately life-threatening. The next section reviews in detail the in-office management of a patient with chest pain. Charts outline common allergens in dentistry, chemical mediators of allergy, the usual progression of anaphylaxis, dosages of injectable emergency drugs, cardiac versus noncardiac chest pain, the etiology of acute anginal episodes, and patient activity at the onset of clinical signs of myocardial infarction. The author concludes that both allergy and chest pain, though usually readily recognized and easily managed without significant sequelae, may prove to be situations that can lead to morbidity or even death. 1 figure. 6 tables. 27 references. (AA-M).

- **Allergy Sometimes Fits Hand-in-Glove**

  Source: CDA Journal. California Dental Association Journal. 25(12): 828-829. December 1997.

  Contact: Available from California Dental Association (CDA). 1201 K Street, Sacramento, CA 95814. (916) 443-0505.

  Summary: This brief article familiarizes dentists and other dental care professionals about the issue of latex allergy. The author reports on federal recommendations to protect health workers from possible **allergic reactions** caused by job-related exposures to natural rubber latex in gloves and other products. Latex allergy can result from repeated exposures to proteins in natural rubber latex through skin contact or inhalation. Once sensitized, workers may experience the effects of latex allergy. Studies

indicate that 8 to 12 percent of health care workers regularly exposed to latex are sensitized. Symptoms of latex allergy include skin rash and inflammation, respiratory irritation, asthma and, in rare cases, shock. If latex gloves are chosen as appropriate protection, they should be reduced-protein, powder-free latex gloves. Powder used as a lubricant in some gloves can increase exposure to the allergy-causing proteins in natural latex through skin contact and inhalation in dental staff as well as in patients. Dental office staff members showing symptoms of latex allergy should consult a doctor experienced in treating the problem. Individuals with a known allergy should avoid latex exposures, wear a medical alert bracelet, and follow their doctor's advice for dealing with **allergic reactions**.

- **Burning Mouth Syndrome: A Review of Etiologies**

  Source: Journal of Prosthetic Dentistry. 78(1): 93-97. July 1997.

  Summary: This article reviews the various etiologies possibly responsible for burning mouth syndrome (BMS). BMS is typically characterized by burning and painful sensations in an oral cavity demonstrating clinically normal mucosa. The authors stress that BMS appears to have a multifactorial, indeterminate cause. The authors briefly discuss the various etiologic factors defined in the literature, noting that they often are contradictory. They include dental treatment, infectious agents, **allergic reactions**, dysfunction and parafunction of the stomatognathic system (mouth and jaw), the quantity and quality of saliva, neural mechanisms, systemic factors (vitamin deficiencies, menopausal factors, immune disease), and psychogenic factors, including depression, anxiety, anger, and stress. In the presence of normal mucosa and oral pain, the clinician must be discerning in developing a diagnosis and defining an etiologic basis for the patient's discomfort. The psychogenic factors of depression and anxiety seem to be the most common attributes of patients with this syndrome. The authors conclude that, although specific local and systemic conditions may be important etiologic agents for certain patients, no general correlations may be made for all patients with BMS. 51 references. (AA-M).

- **Lifesaving Latex: A Cautionary Tale**

  Source: Mission. 23(3): 2-5. Winter 1996.

  Contact: Mission. Office of Public Affairs, University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78284-7768. (210) 567-2570; E-mail: shaw@uthscsa.edu.

  Summary: This article describes latex allergy. The author notes that latex allergy affects about 1 percent of the general public, but certain people run higher risks than others. Health care workers and patients with spina bifida seem to be most vulnerable. Topics include the increase in reported latex allergy cases as universal precautions were instituted, labeling latex products, the chemical composition of latex, the use of latex in medical and dental settings, cost considerations, and ways to reduce latex risks. The article stresses that public education is perhaps the most important way to reduce latex risks. In addition, patients with known latex allergy must alert all their health care providers about their allergy. One sidebar lists the symptoms of **allergic reactions** to latex. 2 figures. (AA-M).

- **Understanding Pharmacology: Adverse Drug Effects**

  Source: Access. 9(10): 28-30. December 1995.

Contact: Available from American Dental Hygienists' Association (ADHA). 444 North Michigan Avenue, Chicago, IL 60611. (800) 243-2342 or (312) 440-8900; Fax (312) 440-8929; E-mail: adha@ix.netcom.com; http://www.adha.org.

Summary: This article is designed to help dental hygienists understand the differences among drug toxicity, drug allergies, and the side effects of drug therapy. Topics covered include the role of the Food and Drug Administration (FDA) in testing and monitoring drugs, the harmful effects of drugs related to drug action, adverse effects unrelated to the principal drug action, **allergic reactions** and side effects, and common oral complications. The article includes lists of common side effects of medications, including common oral side effects of medications. The article also includes a pharmacologic history review that summarizes the deductive reasoning process used when determining pharmaceutic choice for a particular patient. 3 figures. 5 references.

- **Rise in Latex Allergy: Implications for the Dentist**

  Source: JADA. Journal of the American Dental Association. 125(8): 1089-1097. August 1994.

  Summary: This article discusses latex protein allergies and anaphylactic reactions and clarifies the risks of latex allergy through a review of the literature. The author notes that atopic individuals (those with an inherited tendency to develop allergies), those who have undergone many surgical procedures, and health care workers are at higher risk for latex protein allergy. Topics covered include latex allergy and natural rubber products, latex production, allergy development, identifying allergies, anaphylaxis and its symptoms, non-anaphylactic **allergic reactions**, preventing anaphylaxis, and treating anaphylaxis. One chart summarizes recommended substitutes for latex dental products. 1 figure. 4 tables. 55 references.

- **Erythematous Oral Lesions: Which are Benign, Which are More Worrisome?**

  Source: Consultant. 34(10): 1446-1451. October 1994.

  Summary: This article discusses erythematous oral lesions, with a goal of providing guidelines for determining which of these lesions are benign and which may be more serious. The author's discussion deals with true mucosal lesions, rather than focal areas of hemorrhage from trauma, hematologic disorders, or vascular abnormalities. Lesions discussed include erythroplasia and erythroplakia, stomatitis migrans, candidiasis, allergy, denuded bullous lesions, and psoriasis. **Allergic reactions** to several types of drugs (e.g., methyldopa, antibiotics, NSAIDs, and beta-blockers) and various dental products can induce a mucosal reaction resembling erythema multiforme or lichen planus. 4 figures. 1 table. 9 references. (AA-M).

Federally Funded Research on Allergic Reactions

The U.S. Government supports a variety of research studies relating to allergic reactions. 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 (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

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 allergic reactions.

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

- **Project Title: ACTIVATED MUTANTS AS PROBES OF GM-CSF RECEPTOR FUNCTION**

  Principal Investigator & Institution: D'andrea, Richard J.; Institute of Medical and Vet Science Frome Rd Adelaide,

  Timing: Fiscal Year 2001; Project Start 1-AUG-1998; Project End 1-JAN-2002

  Summary: This project aims to investigate the function of the receptors for granulocyte-macrophage colony stimulating factor (GM-CSF), interleukin-3 (IL-3) and interleukin-5 (IL-5). These factors exert strong proliferative and differentiative effects on myeloid haemopoietic cells. Moreover, autocrine GM-CSF production has been implicated in some leukemias and IL-5 is involved in many **allergic reactions**, including asthma. The cell-surface receptors for GM-CSF, IL-3 and IL-5 are members of the cytokine receptor family and are comprised of two different subunits, alpha and beta. The alpha-subunit is unique to each factor while the beta- subunit (hbetac) is shared by the three factors. Specifically, it is proposed to utilise a unique set of constitutively active mutants of hbetac to examine the structure, assembly, composition and activity of the functional receptor complexes. These studies will test a model that predicts that hbetac can form intermediate, functional receptor complexes with distinct properties. This studies will be carried out by: (i) Examination of the composition and structure of activated hbetac complexes, in particular those comprising constitutive mutants of hbetac. (ii) Establishing the role of the alpha-subunit in receptor activation. (iii) Examination of the role, in activation and signalling, of molecules associated with the receptor complexes (iv) Examination of the nature and role of cross-activation of EpoR (v) Examination of lipid modification of hbetac and its effects on membrane localisation. In addition, it is proposed that novel reagents (eg. monoclonal antibodies) can be generated which interact with critical regions of hbetac and can trigger signalling activity in the absence of cytokine.

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

- **Project Title: ALLERGIC RHINITIS AUGMENTS BACTERIAL SINUSITIS**

  Principal Investigator & Institution: Naclerio, Robert M. Professor & Chief; Surgery; University of Chicago 5801 S Ellis Ave Chicago, Il 60637

  Timing: Fiscal Year 2001; Project Start 1-SEP-2001; Project End 1-AUG-2003

  Summary: (provided by applicant): Sinusitis is a major health care problem for Americans of all ages. Despite the significant morbidity it causes and the enormous cost of managing this problem, little progress has been made at improving our basic understanding of its pathophysiology. The main constraints on the study of sinusitis have been the limited access to human sinuses and the lack of a satisfactory animal

model that compares favorably with disease in man. Allergic rhinitis, a disease affecting 20 percent of Americans, is considered a major contributing factor to the development of sinusitis. We have developed a mouse model of acute sinusitis. We present data demonstrating the development of acute sinusitis in C57B1/6 and BALB/c mice after instillation ol Streptococcus pneumoniae (S. pneumoniae) (the most common pathogen responsible for acute sinusitis in man), the development of allergic rhinosinusitis in BALB/c mice, and augmentation of infection and of the inflammatory response to infection in BALB/c mice with simultaneous ongoing allergic reactions. With this model, we propose to investigate the interrelationship of allergic rhinitis and sinusitis. Our hypothesis is that the allergic response in the nose affects both the innate immune response and the host?s inflammatory response to clear the infection. Furthermore, we hypothesize that IL-4 released by Th2 cells recruited during the allergic reaction interferes with the recruitment, development, and activation of Th1 cells that contribute to the suppression of infection and inflammation caused by bacterial infection. To test these hypotheses, we propose the following specific aims. In Aim 1, we will investigate the relative importance of the innate immune system and the acquired immune system (i.e., Th1 cells) in reducing the infection arid sinus mucosal inflammation caused by intranasal inoculation of S. pneumoniae. In Aim 2, we will investigate whether Th2 cells are the component of the allergic response that leads to a more severe sinus infection after inoculation with S. pneumoniae. In Aim 3, we will investigate whether the exaggerated response to infection caused by the mucosal allergic response is due to a cytokine imbalance induced by Th2-type cytokines. By manipulating our animal model of sinusitis and exploiting the advantages of using knockout and transgenic mice, we will further increase our understanding of sinusitis and the host factors that contribute to this common disease. Our unique murine model provides the first opportunity to study this major health care problem at a level that was previously unavailable and that could lead to the identification of new treatments.

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

- **Project Title: ALLERGY ALERTS IN COMPUTERIZED PHYSICIAN ENTRY**

  Principal Investigator & Institution: Bates, David W.; Brigham and Women's Hospital 75 Francis Street Boston, Ma 02115

  Timing: Fiscal Year 2001; Project Start 1-AUG-2001; Project End 1-JUL-2003

  Summary: (provided by applicant): Computerized physician order entry (POE) has helped reduce medication errors, and a substantial amount of error reduction stems from its allergy alerting function. However, our experience has taught us that these systems should be improved for safer medication delivery. We recently performed an analysis of the user responsiveness to allergy alerts, and found that it was lower than expected (50% in 1994); moreover it had been declining for several years (to 20% in 1999). In our analysis, we learned several lessons. One is that the allergy screening software may be too richly cross-referenced, and therefore generates excessive alerts. In addition, some allergy alerts are consistently ignored based on accepted clinical practice, but their importance has not been tested. Also, present systems lack stratification of allergy severity, and fail to distinguish between medication tolerance and true allergies. By over-alerting, the overall integrity of the system is degraded. We seek to improve the computer-based intelligence of the allergy alerting process. Our study is designed to accomplish several goals. We will evaluate the frequency and significance of adverse drug events that resulted from overridden allergy alerts. Next, we will determine if distinguishing true **allergic reactions** from symptoms of medication intolerance will result in improved compliance to allergy alerts. Finally, we aim to design an allergy

classification system that incorporates severity analysis that would otherwise be performed off-line by pharmacist oversight. We believe the results of our work will improve patient safety and the overall quality of pharmacotherapy. We also believe that the results of our study will be applicabe to other healthcare systems

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

- **Project Title: BIOCHEMICAL STUDIES OF 14 KDA PHOSPHOLIPASES A2**

  Principal Investigator & Institution: Gelb, Michael H. Professor; Chemistry; University of Washington Seattle, Wa 98195

  Timing: Fiscal Year 2001; Project Start 1-DEC-1988; Project End 0-NOV-2001

  Summary: Phospholipases A2 (PLA2s) hydrolyze the sn-2 ester of glycero-phospholipids to produce a fatty acid and a lysophospholipid. Secreted, 14 kDa PLA2s are involved in a number of inflammatory processes, including: (1) mast cell activation; (2) liberation of arachidonic acid for the biosynthesis of eicosanoids; and (3) **allergic reactions**. The main goal of this proposal is to better understand the way in which these enzymes bind not only to synthetic vesicles but also to cellular membranes. Site-specific spin labeling of the PLA2 from bee venom and EPR spectroscopy will be used to precisely map the surface of this enzyme that contacts the phospholipid bilayer. Similar studies will be carried out with the phosphatidylinositol-specific phospholipase C from B. cereus. A number of cells involved in the inflammatory response secrete a 14-kDa, non-pancreatic PLA2 that acts on a variety of cellular targets. the enzyme appears to be anchored to the outer surface of cells by binding to heparan sulfate proteoglycan. Attempts will be made to locate the putative heparan sulfate binding site on the surface of the non-pancreatic enzyme by mutation of surface basic residues. the ability of mutants that no longer bind to heparan sulfate to activate cellular targets will then be studied. Bee venom PLA2 is one of the most potent human allergens. Previously, we found that a mutant form of this enzyme that lacks enzymatic activity is much less effective than wild-type enzyme in inducing an IgE and IgG response in mice. It has been proposed that mast cells are a source of interleukin-4, a cytokine that induces the production of IgG and IgE, and we found that enzymatically active bee venom PLA2, but not the inactive mutant, causes mast cells to release interleukin-4 in the absence of stimulation with IgE/antigen. Dr Gelb now wishes to understand these events in more detail as they may shed light on the induction of an immune response and may also lead to the development of more effective strategies for treatment of allergy. The final area is centered around the development of potent inhibitors of 14-kDa secreted phospholipases A2. A combinatorial chemistry approach will be used to prepare a large library of analogs of a lead-compound inhibitor, and novel techniques will be developed for identifying which compounds in the mixture are the most potent inhibitors. We will also study the potent PLA2 inhibitor Thelocin B3 (isolated form a fungus). Attempts will be made to obtain the high resolution crystal structure of the non-pancreatic PLA2 complexed with these inhibitors. This will permit a structure-based approach toward the design of more potent inhibitors.

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

- **Project Title: CORN INDUCED ALLERGIC RESPONSES**

  Principal Investigator & Institution: Lehrer, Samuel B. Professor; Tulane University of Louisiana New Orleans, La 70118

  Timing: Fiscal Year 2001

Summary: Corn is a major agricultural product produced in the United States; numerous food ingredients originate from corn. In spite of the wide-spread use of corn products, and the reported allergenicity to some corn-derived products, neither corn allergy nor corn allergies have been well investigated. The recent development of new food products through transgenic crops expressing corn proteins has added further urgency to the need for better characterized corn allergens. Corn may be an important food allergen, based on allergic subject's skin reactivity, IgE antibody responses, and histories of **allergic reactions** to corn and corn-derived products. Further, there are several reports of occupational **allergic reactions** to corn. The investigation of **allergic reactions** to corn or corn allergens is complicated by the fact that corn products pervade our food supply in the form of corn starch, corn syrup, and other corn-based substances. Interest in **allergic reactions** to corn has been heightened recently because corn as a major cereal grain crop may be an important source of genes for transgenic proteins in corn cereal grains. However, any attempts to identify or assess the allergenicity of these proteins is very difficult due to lack of documentation of corn-induced **allergic reactions** as well as the limited availability of sera from corn-allergic individuals. Therefore, this study is proposed to investigate and document corn allergy.

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

- **Project Title: COW MILK ALLERGENS IN IGE AND NON-IGE MEDIATED COW MILK ALLERGY**

  Principal Investigator & Institution: Sampson, Hugh A. Professor; Mount Sinai School of Medicine of Cuny New York, Ny 10029

  Timing: Fiscal Year 2001

  Summary: Cow milk is the most common cause of food allergy in the first year of life, with approximately 2.5% of newborns experiencing **allergic reactions** to cow milk during this time. While most infants with non-IgE-mediated cow milk allergy [CMA] 'outgrow' their sensitivity by the 3rd year of life, 15% of infants with IgE-mediated cow milk allergy retain their sensitivity into the second decade and 35% develop **allergic reactions** to other foods. IgE- and non-IgE-mediated mechanisms each appear to account for about one-half of milk hypersensitivity disorders in young children. Acute urticaria and atopic dermatitis are two forms of IgE-mediated skin reactions associated with CMA. A number of distinct cow milk-induced, non-IgE-mediated skin reactions associated with CMA. A number of distinct cow milk-induced, non-IgE-mediated [presumably cell-mediated] gastrointestinal hypersensitivities have been described. Milk-induced Enterocolitis Syndrome and Allergic Eosinophilic Gastroenteritis [AEG] are well characterized clinically, but the immunopathological basis of these two disorders is poorly understood. Milk proteins have been well characterized but there is little information regarding their roles inv various milk hypersensitivity disorders. We hypothesize that differences in immune antigen-processing and presenting of specific milk proteins result in the recognition of different B cell and T cell epitopes among milk-allergic patient groups and controls. We further hypothesize that patients "outgrowing" their clinical hypersensitivity will lose their ability to recognize "disease-associated epitopes". These hypotheses will be addressed 3 aims: (1) Patients with each of the well characterized CMA disorders will be recruited and followed prospectively. Both humoral and cellular responses to 4 well-characterized milk proteins will be evaluated. Cells from the peripheral blood, and skin and intestinal biopsies activated by milk proteins in vitro will be characterized as to phenotype, homing receptor positivity, and cytokine expression. (2) IgE- and IgG-binding epitopes of the 4 major milk proteins will be mapped uti9lizing sera from patients and control subjects. T cell epitopes will be

established using PBMC and T-cells lines and clines established using PBMCs and will be mapped utilizing sera from patients and control subjects. T cell epitopes will be established using PBMCs and will be mapping utilizing sera from patients and control subjects. T cell epitopes will be established using PBMCs and T-cell lines and clones established from patients and controls. (3) Since approximately 50% of all milk allergic patients lose their clinical reactivity to milk in 2-3 years, patients will be followed prospectively to correlate changes n specific cells and their immunologic responses to "hypersensitivity-associated" epitopes. Characterization of distinct milk hypersensitivity reactions at a cellular and molecular level will provide new insights into the immunopathogenesis and future therapeutic strategies of food hypersensitivity disorders. This project will serve as a foundation for other projects in this proposal.

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

- **Project Title: ENZYMES IN EICOSANOID METABOLISM**

  Principal Investigator & Institution: Tai, Hsin-Hsiung; Professor; Medicinal Chem & Pharmaceutics; University of Kentucky 109 Kinkead Hall Lexington, Ky 40506

  Timing: Fiscal Year 2001; Project Start 1-AUG-1992; Project End 1-JUL-2005

  Summary: (provided by applicant): Prostaglandins and hydroxy fatty acids are a family of biologically potent eicosanoids derived from arachidonic acid. These substances are rapidly catabolized and either inactivated or activated further. Prostaglandins are catabolized first by NAD+-dependent 15-hydroxyprostaglandin dehydrogenase (15-PGDH) followed by delta13-15-ketoprostaglandin reductase (13-PGR) resulting in inactive metabolites. Cloning, characterization and structure and activity relationship at 15-PGDH have been extensively studied. However, regulation of the 15-PGDH gene expression has not been explored in any detail. We have cloned the genomic DNA of mouse 15-PGDH gene and have sequenced the 5?-flanking region. We plan to identify specific regulatory elements involved in gene expression, induced by PMA and dexamethosone and to elucidate the signal transduction pathway of androgen activated 15-PGDH expression. We have also cloned and expressed the cDNA of porcine lung 13-PGR in an active form. We propose to identify the binding domains of NADPH and 15-ketoprostaglandins of 13-PGR by photoaffinity labeling studies and to elucidate the structure and function of the enzyme by site-directed mutagenesis. Finally, we propose to purify and characterize a novel 5-hydroxyeicosanoid dehydrogenase (5-HEDH) which generates a powerful activator of leukocytes, 5-KETE, from 5-HETE. The results of this research program should provide a molecular basis of how the expression of 15-PGDH is regulated and a molecular basis of catalysis of 13-PGR. Furthermore, the program should uncover novel properties of 5-HEDH and shed some light on the role of this enzyme in the inflammatory and **allergic reactions**.

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

- **Project Title: EOSINOPHILS, EICOSANOID BIOSYNTHESIS AND METABOLISM**

  Principal Investigator & Institution: Murphy, Robert C. Professor; National Jewish Medical & Res Ctr and Research Center Denver, Co 80206

  Timing: Fiscal Year 2001; Project Start 1-JUL-1986; Project End 0-JUN-2006

  Summary: The pathogenesis of airways reactivity in asthma is thought to involve a complex interaction between multiple cells stimulated by a diverse array of mediators from cytokines to lipids derived from arachidonic acid. The infiltration of eosinophils into the asthmatic lung has been through to play a central role in the etiology in the etiology of allergic asthma and eosinophils and eosinophils have a diverse capacity for

eicosanoid biosynthesis as well as being cells which respond to lipid mediators. The metabolism of arachidonic acid by the 5-lipoxygenase (5-LO) pathway leads to the formation of several different biologically active metabolites including leukotrienes C4 and B4 which are thought to play important roles in terms of mediating allergic reactions. In addition, 5-LO also leads to the formation of 5-oxo-eicosatetraenoic acid (5-oxo-ETE) which has not been extensively studied, but recently recognized as a potent chomatactic factor for the human eosinophil. Fundamental questions remain concerning a complete description of the biosynthesis and metabolism of 5-oxo-ETE and related eicosanoids, in particular a complete description of the biosynthesis and metabolism of 5-oxo-ETE and related eicosanoids, in particular in cells which respond to this arachidonate metabolite including the eosinophil and macrophage. Recent investigations have led to the discovery of an additional 5-oxo glutathione adduct at carbon-7 (FOG7) which is also chemotactic for eosinophils and neutrophils. Transcellular biosynthesis also plays a major role in the production of biologically active eicosanoids through cell-cell biochemical cooperation. Little is known about the formation of 5-oxo-ETE eicosanoids in vivo, in particular within cells resident. Since the eosinophil is abundant in the asthmatic airways, a major focus of this proposal will involve detail investigations of the production of 5-oxo- eicosanoids and FOG7 in both animal and human models. The biochemical pathways or synthesis and metabolism of this class or eicosanoid will also be investigated. Highly sensitive mass spectrometric techniques will be employed to carry out these basic biosynthetic and metabolism studies as well as characterization and identification of enzymes involved in the biosynthetic and metabolic events.

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

- **Project Title: GENETIC BASIS OF PEANUT ALLERGY**

  Principal Investigator & Institution: Sicherer, Scott H. Pediatrics; Mount Sinai School of Medicine of Nyu of New York University New York, Ny 10029

  Timing: Fiscal Year 2001; Project Start 1-JUL-2000; Project End 0-JUN-2005

  Summary: This application is designed to provide Scott H. Sicherer, MD with a program of mentored, patient-oriented research that will facilitate his development as an independent physician scientist. Dr. Sicherer completed his residency and chief residency in pediatrics, his fellowship in allergy and immunology and he has been Assistant Professor of Pediatrics at Mount Sinai School of Medicine since July, 1997. During the latter portion of his fellowship training and as faculty, he has concentrated his research efforts on the clinical manifestations of food allergy, particularly peanut allergy. He has amassed clinical data on a large group of peanut-allergic patients including preliminary data to indicate a genetic influence on peanut allergy. This award would allow him the unique opportunity to acquire cross- training in genetics while pursuing a multidisciplinary, patient- oriented research project to dissect the genetic basis of peanut allergy. Allergy to peanut affects 0.6 percent of the general population, is responsible for the majority of severe, life-threatening food **allergic reactions**, and sensitivity is rarely outgrown. Because peanut is ubiquitous in the American diet, sensitization among susceptible individuals is the rule and accidental ingestions among allergic individuals is common. Despite the seriousness of the allergy, little is known about the genetic basis of this or any other food allergy. This proposal will test the hypothesis that peanut allergy is a complex genetic disease. Several approaches will be taken to test the hypothesis: 1) The heritability of peanut allergy will be determined by comparing the concordance rate of the allergy in mono- and dizygotic twin pairs; 2) Since HLA class II molecules are an attractive candidate as one determinant for peanut

allergy, serotyping will be performed and genotype frequencies compared for evidence of association in families with affected probands; and 3) a genome- wide search will be performed on families with two affected siblings using highly polymorphic markers that systematically cover the entire genome and the data analyzed for linkage to major loci contributing to peanut allergy. Dr. Sicherer will be supported in his endeavors with protected research time, access to the General Clinical Research Center and institutional core facilities, and dedicated laboratory space. His development will be fostered by the serious committment of his mentors to guide him in the proposed studies and in the responsible conduct of research, and by the outstanding research and intellectual environment at Mount Sinai.

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

- **Project Title: GENETIC ORIGIN AND STRUCTURE OF INSULIN ANTIBODIES**

  Principal Investigator & Institution: Thomas, James W. Professor of Medicine; Medicine; Vanderbilt University 3319 West End Ave. Nashville, Tn 372036917

  Timing: Fiscal Year 2001; Project Start 1-MAR-1992; Project End 8-FEB-2003

  Summary: (Adapted from Investigator's abstract): The long term goal of this project is to develop effective strategies that will prevent insulin immunity and autoimmunity. To accomplish this goal, the sites and stages of B lymphocyte development that permit anti-insulin B cells to differentiate and produce antibody will be identified. In contrast to models where the normal immune system deletes or silences autoimmune B cells, autoantibodies to insulin routinely follow administration of autologous hormone. These antibodies may lead to **allergic reactions** and hormone resistance as well as covert complications that include large birth weight infants and accelerated vascular disease. Spontaneous insulin antibodies may accompany systemic autoimmune disorders and are recognized as part of the autoimmune prodrome of type I diabetes. These observations led to the assertion that the immune system ignores insulin because B cell receptor (BCR) interactions are too few or too weak to induce tolerance. Data on anti-insulin B cell repertoires, however, are not consistent with the concept of true "clonal ignorance". Anti-insulin BCR found in preimmune repertoires are not part of the expressed regions but lineages of insulin binding B cells do not arise, indicating that anti-insulin B cells are censored in stages of differentiation. These observations suggest the hypothesis that insulin autoimmunity arises as a consequence of competing forces that drive clonal expansion of B cells while eliminating self-reactivity. This hypothesis will be tested by using mice that express anti-insulin BCR transgenes that bind insulin with a range of affinities representative of a physiologic repertoire. Three specific aims will (1) determine how the affinity of the preimmune repertoire for endogenous insulin governs the outcome of B cell activation -- tolerance or differentiation; (2) identify the mechanisms that limit expansion of B cells not silenced in the preimmune repertoire; and (3) identify the cell activation events and nuclear transcription pathways that program the phenotypes of B cell differentiation or tolerance. Based on the outcomes of these aims, future strategies may be directed at deletion of low affinity anti-insulin B cells or at inducing clonal elimination in germinal center reactions. These are alternative approaches that may be rationally applied once the stages of B cell development and differentiation that fail to maintain tolerance are identified in normal immune systems and in autoimmune diabetes.

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

- **Project Title: GP49 FAMILY MEDIATED INTERACTIONS IN THE IMMUNE SYSTEM**

  Principal Investigator & Institution: Katz, Howard R. Associate Professor of Medicine; Brigham and Women's Hospital 75 Francis Street Boston, Ma 02115

  Timing: Fiscal Year 2001; Project Start 1-JAN-1998; Project End 1-DEC-2002

  Summary: (Adapted from Investigator's abstract): Mast cells have high proinflammatory potential because they contain a large number of bioactive mediators of three classes: preformed, secretory granule-derived mediators such as histamine and proteases; newly generated lipid mediators such as leukotriene C4 (LTC4), prostaglandin D2, and the platelet-activating factor; and a panoply of proinflammatory cytokines including IL-1B, IL-6, and TNF-a. Mast cells, which reside in normal tissues at the interface between self and non-self, must be tightly regulated to prevent the deleterious effects of innate or immunologic activation. Indeed, inappropriate activation of mast cells leads to immediate hypersensitivity reactions and bronchial asthma. The investigator has discovered and characterized the mouse mast cell gp49 gene family, which is part of the Immunoglobulin Superfamily. The cytoplasmic domain of one member of the family, gp49B1, contains two Immunoreceptor Tyrosine-based Inhibition Motifs (ITIMs). He showed that the cross-linking of gp49B1 with the high affinity IgE receptor (FceRI) on mast cells inhibits the exocytosis of histamine and B-hexosaminidase, as well as the generation of LTC4. Thus, gp49B1 is a newly recognized counter-regulator of mast cell activation. However, the mechanism(s) by which gp49B1 inhibits mast cell activation is known, as is the natural ligand for gp49B1 ("gp49B1L"). The broad objective of the proposed research is to understand more about the cellular and molecular biology of gp49B1 in mast cells, with the long range goal of harnessing its ligand-driven inhibitory pathway to control deleterious mast cell activation that causes **allergic reactions** and contributes to the pathogenesis of bronchial asthma and other forms of inflammation. The application proposes to achieve the first stage of its broad objective by pursuing the following Specific Aims: 1) to define the molecular mechanism(s) by which gp49B1 inhibits the signal transduction pathways leading to mast cell activation; and 2) to clone, characterize, and express gp49B1L so as to define the biologic significance of its interaction with gp49B1.

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

- **Project Title: IDENTIFICATION OF A NEURONAL IMMUNOSUPPRESSIVE PROTEIN**

  Principal Investigator & Institution: Engelman, Robert W.; Layton Bioscience, Inc. 709 E Evelyn Ave Sunnyvale, Ca 94086

  Timing: Fiscal Year 2001; Project Start 1-JUL-2001; Project End 0-JUN-2002

  Summary: (provided by applicant): Development of Ntera2/D1 neurons as an alternative to embryonic neurons for transplantation therapy to ameliorate neurological deficits, currently in a Phase I trial for stroke symptoms, led to our discovery of a 40-60 kDA anionic protein with an isoelectric point of 4.8 expressed by these neurons that inhibits T-lymphocyte activation, suppresses the expression of interleukin 2 (IL-2), and blocks both naive and ongoing T-lymphocyte proliferation, which cannot be rescued by supplemental IL-2. Preliminary characterizations suggest that this neuron-derived protein represents a novel class of immunomodulators. We propose to purify and partially sequence this protein, perform a BLAST database search for sequence homology to establish that it is indeed a unique neuron-derived immunosuppressive protein (NIP), and test whether it abrogates specific T-lymphocyte mRNA and protein

expressions of early phase and late phase activation cytokines and cell cycle regulatory genes and suppresses the effector functions of T-lymphocytes. Its identification will contribute to the development of therapies for preventing graft rejection in transplantation surgeries, for treating autoimmunities, and for preventing **allergic reactions**, will assist in determining whether Ntera2/D1 neuronal grafts are both therapeutic and self-protective, and will add to our understanding of the neuronal contribution to immune privilege within the central nervous system. PROPOSED COMMERCIAL APPLICATION: NOT AVAILABLE

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

- **Project Title: IMMUNOTHERAPY FOR PATIENTS WITH PEANUT ANAPHYLAXIS**

  Principal Investigator & Institution: Burks, a Wesley. Professor; Arkansas Children's Hosp (Little Rock) 800 Marshall St Little Rock, Ar 72202

  Timing: Fiscal Year 2001; Project Start 5-SEP-1999; Project End 1-AUG-2004

  Summary: The applicant is a Professor in the Department of Pediatrics at the University of Arkansas for Medical Sciences. This grant application addresses the qualifications of the applicant, the mentoring plan, and the patient-oriented research plan as detailed below. This grant will be utilized t provide additional protected time to be used mentoring other individuals who are pursuing patient-oriented research and working with our Departmental Clinician Scientist mentoring program. Food allergy, an IgE-mediated disease, is a significant health problem affecting 6-8% of children and 1% of adults. Peanut hypersensitivity is one of the most common and severe of the food allergies, and the only therapeutic option currently available is food avoidance. Peanuts and peanut products are used in many different processed foods, increasing the possibility of an inadvertent ingestion. Like any other allergic disease, the events that initiate and promote peanut hypersensitivity in a susceptible individual center around the response of T cells to peanut allergens The T-cell response is mediated through the T-cell receptor (TCR) which communicates with the nucleus via a complicated array of signaling pathways. It is believed that when the TCR is occupied by an allergen in susceptible individuals the signaling pathways lead to the activation of cytokine genes that promote the synthesis of IgE. Our hypothesis for this proposal is that the cascade of events that leads to T- cell activation and promotion of IgE production can be disrupted by modifying the allergen-receptor interaction. While conventional immunotherapeutic approaches have been successful for other types of allergic diseases, these approaches have not been safe or efficacious alternatives for the treatment of peanut hypersensitivity. Some problems with standard peptide immunotherapy in the treatment of peanut hypersensitivity include severe problems with standard peptide immunotherapy in the treatment of peanut hypersensitivity include severe anaphylactic reactions, lack of detailed information about the allergens, and insufficient information about the T-cell response to peanut allergens. We propose to utilize our extensive knowledge of the allergens involved in peanut hypersensitivity to design an immunotherapeutic approach that would lower the risk of anaphylactic reactions in patients with life threatening **allergic reactions** to peanuts.

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

- **Project Title: IN VIVO REGULATION OF IGE PRODUCTION**

  Principal Investigator & Institution: Lafaille, Juan J. Assistant Professor; Skirball Institute; New York University School of Medicine 550 1St Ave New York, Ny 10016

  Timing: Fiscal Year 2001; Project Start 1-JAN-2001; Project End 1-DEC-2005

Summary: (Adapted from the Investigator's abstract): Exacerbated immune responses to environmental airborne non-pathogenic antigens (allergens) are one of the main factors for the development of asthma. **Allergic reactions** in the airways are triggered by antigen crosslinking of IgE molecules on mast cells, leading to degranulation and release of active mediators of smooth muscle constriction and inflammation. It has been shown that one of the essential determinant of allergic responses is the stimulation of T helper lymphocytes of the type 2 (Th2), which, through cognate T/B interaction and IL-4 secretion mediate B lymphocyte switch to IgE production, and through the secretion of IL-5, regulate the recruitment, differentiation and activation of eosinophils. This application is focused on the in vivo regulation of IgE production. Using homologous recombination, we have inserted a rearranged VDJ heavy chain gene as well as a rearranged VJ light chain gene from an influenza hemagglutinin-specific B cell hybridoma into the genome of mice. B cells from these mice maintain the physiological elements controlling somatic hypermutation and isotype switching, but, contrary to normal mice, the fate of antigen-specific cells can be easily followed. These mice will enable us to assess the relative importance of the different signals which promote isotype switching to IgE, thus defining ways in which the generation of IgE could be prevented or downregulated. Specifically, we will: 1) determine the conditions which favor the generation of antigen-specific IgE in vivo; 2) assess the importance of the affinity of the B cell receptor for its antigen on immunoglobulin class switch; 3) determine whether non-IgE antibodies expressing the same antigen-specificity of IgE antibodies can modulate the response in the airways, and 4) determine whether T cells are involved in the downregulation of IgE responses. We believe that the proposed experiments will enhance our knowledge on the regulation of IgE production in response to antigen, and will open new avenues for therapy of atopic disease.

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- **Project Title: INDUCIBLE DOMINANT NEGATIVE OF STAT 6 IN MEMORY IGE**

  Principal Investigator & Institution: Miller, Rachel L. Medicine; Columbia University Health Sciences Ogc New York, Ny 10032

  Timing: Fiscal Year 2001; Project Start 1-AUG-1998; Project End 1-JUL-2003

  Summary: (Adapted from applicants' abstract) The cross-linking of immunoglobulin E (IgE) bound to high affinity Fc receptors on the surface of mast cells or basophils triggers much of the inflammatory responses and symptomatology in **allergic reactions** and extrinsic asthma. The cytokine interleukin 4 (IL-4) mediates primary IgE responses by inducing class switching to IgE, via the transcription factor Stat6. The binding of IL-4 to its receptor on B cells initiates the dimerization, activation, and nuclear translocation of Stat6 so that it binds to IL-4 response elements in the promoter of IL-4 inducible genes. Germline E transcription follows and permits deletional recombination upstream of the heavy chains that encode for IgE. Knockout models have confirmed in vivo that primary IgE class switching depends upon the activation of the transcription factor Stat6. However, the mechanism for IL-4-mediated secondary or memory IgE remains obscured. Understanding this mechanism is important to comprehending the pathophysiology of human clinical allergic disease because it is characterized by repeated exposures to allergens, resulting in even greater IgE production. The overall aim is to determine whether or not the role of IL-4 signaling though Stat6 is an established or memory IgE allergic immune response. The applicant proposes to develop an inducible dominant negative system in order to study the importance of Stat6 the memory IgE response. Dominant negative Stat6 molecules will be generated by either a carboxy terminus truncated Stat6 mutant molecule or a chimeric Stat6/KRAB

protein each possessing the hCMV regulatory minimal promoter with upstream tet-operators regulated by the rtTA-encoding gene that becomes activated in the presence of doxycycline. The efficacy of the system will be evaluated in vitro and in vivo in transgenic mice and employed to determine if the expression and induction of dominant negative Stat6 can alter a secondary IgE response. Both the memory allergic response to antigenic stimulation and the polyclonal IgE response will be studied. In addition, the components of the memory response that are affected by Stat6 activity will be analyzed. (End of Abstract)

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- **Project Title: LYN KINASE REGULATION OF FCERI-INDUCED MEDIATOR RELEASE**

  Principal Investigator & Institution: Vonakis, Becky M. Medicine; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2002; Project Start 1-AUG-2002; Project End 1-JUL-2004

  Summary: (provided by applicant): The symptoms of an allergic reaction are generated in part by the allergen-induced release of preformed as well as newly synthesized mediators from basophils and mast cells bearing receptors for IgE. Initiation of signal transduction through the high affinity receptor for IgE (FcERI) requires phosphorylation of distinct tyrosine residues in the receptor's beta and gamma chains. The Src-family tyrosine kinase, Lyn, is responsible for the receptor phosphorylation as well as the phosphorylation and activation of numerous downstream signaling molecules. We have recently shown through immune complex kinase assays and chemical crosslinking that a small fraction of cellular Lyn is associated with unphosphorylated IgE receptors in mast/basophil cell lines. A variety of approaches, including peptide binding studies, yeast two-hybrid interaction and transfection of intact cells indicate that the unique domain of Lyn is associated with the Cterminus of the receptor's beta chain [beta(Fc)]. Disruption of the Lyn-FcERI interaction with transfected Lyn unique domain completely prevented receptor tyrosine phosphorylation upon receptor aggregation. We have tested the ability of transfected Lyn unique domain to prevent histamine release (HR) in a rodent mast/basophil cell line (RBL). Forty percent inhibition of HR was detected in transfectants stably expressing five times more unique domain than endogenous Lyn compared to vector-transfected RBL cells. We propose to extend these studies further by examining leukotriene C4 and TNF-a production in our RBL transfectants. In addition, we propose to further define the Lyn-beta(Fc) interacting region by site-directed mutagenesis of the Lyn unique domain followed by transfection in RBL cells. Direct interaction between intact Lyn unique domain and beta(Fc) will be assessed by surface plasmon resonance. The specificity of the interaction will be evaluated by transfection of the Lyn unique domain into other Src-family kinase containing cells and association with an appropriate receptor subunit (T cell and T cell antigen receptor zeta, B cell and B cell antigen receptor Iga, eosinophil and IL-5 receptor common beta) evaluated by co-immunoprecipitation and Western blotting. Delivery of a peptide derived from the Lyn unique domain will be evaluated in human basophils using either fatty acid modification, a Penetratin peptide or Semliki forest virus. Understanding the molecular details of the interaction of the Lyn unique domain and FcERI beta(Fc) may allow the development of drugs that will inhibit **allergic reactions** rather than mitigating their symptoms.

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

- **Project Title: MACROPHAGE /MONOCYTE SIGNALING IN VASCULAR PATHOPHYSIOLOGY**

  Principal Investigator & Institution: Wu, Dianqing;; University of Connecticut Sch of Med/Dnt Bb20, Mc 2806 Farmington, Ct 060302806

  Timing: Fiscal Year 2002; Project Start 1-JUL-2002; Project End 0-JUN-2007

  Summary: Monocytes and macrophages play important roles in chronic inflammatory reactions that occur in a number of pathophysiological processes, including atherosclerosis, adult angiogenesis, rheumatoid arthritis, inflammatory skin conditions, and **allergic reactions**, etc. These cells are regulated by chemoattractants, including chemokines. Chemoattractants elicit various cellular responses in monocytes and macrophages through their cell surface receptors and intracellular signaling intermediates, which form the signal transduction pathways. In this proposal, we propose to investigate two important chemoattractant- regulated signaling pathways: one mediated by phosphatidylinositol 3- kinase (PI3K) gamma and the other by phospholipase C (PLC) beta 2 and beta 3. We plan to determine the precise roles that these two signaling pathways have in the regulation of various monocyte and macrophage responses to chemoattractants and in two vascular remodeling paradigms atherosclerosis and angiogenesis in which the monocytic cells are critically involved. Specifically, we will 1) Characterize in vitro the roles of PLC beta2/3 and PI3Kgamma-mediated signaling pathways in chemoattractant induced responses, including chemotaxis, superoxide production, adhesion, differentiation from monocyte to macrophage and apoptosis, using macrophages and monocytes isolated from the wildtype and mutant mice. This study will facilitate the understanding and implementation of the in vivo studies. 2) Investigate the role of PI3Kgamma and PLC beta2/3-mediated signaling in angiogenesis using the Matrigel angiogenesis model. 3) Investigate the role of PI3Kgamma and PLC beta2/3-mediated signaling in atherosclerosis by generating and studying mouse models. This work is anticipated to provide insights into the role of monocytic cells and their signaling events in pathogenesis of inflammation-related human diseases and may reveal potential targets agents for treatment of these diseases. These studies have relevance to pathologic vascular remodeling events, in which the normal vascular tree develops into pathologic plaques.

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- **Project Title: MECHANISMS OF BASOPHIL RECRUITMENT IN ALLERGIC DISEASES**

  Principal Investigator & Institution: Schleimer, Robert P. Professor; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2001; Project Start 0-SEP-2001; Project End 1-JUL-2005

  Summary: Description (provided by applicant): The overall goal of these studies is to better define the pathways leading to infiltration of basophils into allergic reaction sites in humans. Recent studies indicate that the number of basophils migrating into sites of allergic inflammation is substantially greater than previously appreciated and that basophils produce large amounts of IL-4 and IL-13. It is thus imperative that we better understand the mechanism of recruitment of these important cells. The proposal consists of four integrated aims; two involve clinical intervention in human subjects and two involve in vitro studies of basophil recruitment and function. Studies in Aim 1 will identify the chemokines and chemokine receptors that mediate basophil chemotaxis and transendothelial migration. Solid preliminary studies indicate that human basophils

express a host of chemokine receptors, including CCR1-3 and CXCR4, and functional data suggest that they may also express additional receptor types. We will complete an ongoing screen of all of the known chemokines and their receptors for the ability to activate basophils. Selectivity of basophil-active chemokines will be determined by assays with eosinophils, neutrophils and mononuclear cells. Studies in Aim 2 will test the hypothesis that basophils contribute to the phenotypic changes observed in epithelial cells during allergic inflammation of the airways. Preliminary results indicate that purified human basophils can activate epithelial production of chemotactic factors. We will study the molecular basis of the interaction of airway epithelial cells and purified human basophils, focusing on the reciprocal activating cytokines produced by each cell type and the requirement for cell contact. Studies in Aim 3 will determine the importance of TNFa in recruitment of basophils by testing the influence of the TNFa antagonist, Enbrel, on the influx of basophils into the skin, the nose and the lung in allergen challenged human subjects. Studies in Aim 4 will determine the spectrum and cellular sources of basophil-activating chemokines produced in experimental **allergic reactions** using laser capture microdissection and Taqman realtime PCR on samples derived from antigen challenge in human subjects. It is hoped that elucidation of the molecular mechanism of selective basophil recruitment will be the first step in the development of strategies to disrupt this process for therapeutic gain.

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- **Project Title: MECHANISMS OF ORAL TOLERANCE**

  Principal Investigator & Institution: Chien, Yueh-Hsiu; Professor; Microbiology and Immunology; Stanford University Stanford, Ca 94305

  Timing: Fiscal Year 2001; Project Start 1-MAY-1998; Project End 0-APR-2003

  Summary: (Adapted from Investigator's abstract): The key to a successful immune system is the ability of the host to maintain tolerance to many "self" antigens while still preserving the ability to react strongly to "foreign invaders". The regulation of tolerance and immunity in the periphery has been a long debated, yet remains poorly understood. One remarkable feature of peripheral tolerance is the fact that some classes of foreign antigens, when ingested or inhaled, can downregulate or prevent systemic immune reactions. Despite intense efforts, the mechanism of establishing non-responsiveness is still controversial, and the critical variables that influence tolerance induction remain poorly defined. The objective of this application is to clarify these issues by making use of the well characterized T helper cell responses to cytochrome c in mice and the recently developed peptide/MHC tetramer method of staining specific T-cells to study the regulation of systemic immune responses brought about by the oral administration of antigens and the characteristics of presentation or orally introduced antigens. The investigators goals are to understand (i) the mechanism of tolerance/immunity induction by orally introduced antigen, and (ii) the characteristics of the antigen presentation (antigen presenting cells, amount of antigen presented, the timing of antigen presentation) and their impact on the T-cell responses. To achieve these goals, the investigators will first analyze the endogenous and induced T-cell response to cytochrome c after antigen feeding, and use the information as a basis to probe the mechanism of oral tolerance/immunity induction. They will also characterize the antigen presentation in this system and determine the potential of intestinal epithelial cells (IEC) as antigen presenting cells in mucosal immunity. A better understanding of the role of immune cells in the mucosal system as well as the impact and the mechanism of orally introduced antigen on systemic immune responses is fundamental for

developing therapeutic protocols for treating autoimmune diseases and allergic reactions. The information may also be important for mucosal vaccine development.

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

- **Project Title: MICROMASS QUATTRO API TSQ FOR LC-MS/MS QUANTITATION**

  Principal Investigator & Institution: Hubbard, Walter C. Associate Professor of Medicine; Medicine; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2002; Project Start 1-MAY-2002; Project End 0-APR-2003

  Summary: (provided by applicant): Eight established investigators require robust state-of-the-art LC-MS instrumentation dedicated to low level quantitation of phospholipids and products of phospholipid metabolism, fatty acid acyl conjugates of hydrocortisone and triamcinolone acetonide (TAA), neuropeptides, endogenous levels of hydrocortisone and cortisone in nasal and bronchoalveolar lavage fluids and plasma, sphingosine-l-phosphate (SIP) and peptidoleukotrienes in samples originating from laboratory and clinical studies. Funding is requested for one Micromass Quattro Ultima LC Benchtop Triple Stage Quadrupole Mass Spectrometer (acquisition cost = $340,420) for installation in the laboratory dedicated as a core analytical facility for the investigators' needs. Quantitative LC-MS techniques will provide critical data for defining the role of phospholipids and sphingolipids in initiation of cell signaling, modulation of cell activation, calcium release, signal transduction and other cellular events resulting cell activation that occur in **allergic reactions**, asthma, inflammation, vascular injury and pulmonary obstruction. The proposed instrumentation will also greatly facilitate better understanding of the neuronal component (s) of asthma and pulmonary disease by providing critical data related to the extent of neuropeptide release in normal, inflamed and asthmatic airways and lung tissue. Studies of the metabolism of hydrocortisone and TAA in lung tissue and the airways may define a modulatory role of hydrocortisone and anti-inflammatory effects of TAA via mechanisms not previously recognized. In addition, the instrumentation will provide a highly selective analytical technique for verification of high throughput assay methods used for measurement of peptidoleukotriene release by basophils in cell suspensions and by basophils and mast cells in the airways. The quantitative data provided by the proposed instrumentation will provide information for more rational approaches for the prevention, management and treatment of asthma, allergic and inflammatory reactions, adult respiratory distress syndrome and obstructive pulmonary disease.

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

- **Project Title: MOLECULAR MECHANISM OF IL 4 SIGNALING**

  Principal Investigator & Institution: Keegan, Achsah D. Scientist Ii; American National Red Cross Rockville, Md 20855

  Timing: Fiscal Year 2001; Project Start 1-MAY-1996; Project End 0-APR-2006

  Summary: (Applicant's Abstract): The IL-4R alpha participates in allergic responses at several levels by functioning as a receptor component for IL-4 and IL-13. IL-4 regulates the differentiation of T-cells to the TH2 type and directs class switching in B-cells to IgE. In addition, IL-4 and IL-13 regulate the adhesive characteristics of endothelial cells thereby promoting tissue infiltration by allergic inflammatory cells, such as eosinophils. These responses are elicited by binding to high affinity receptor complexes and initiating a series of signals dictated by the IL-4Ra. Interestingly, a polymorphism (Q576R in the cytoplasmic region of the huIL-4R alpha has been associated with severity of asthma in patients suggesting that IL-4R alpha signaling strength may play a role in

human disease. However, the precise mechanism by which the IL-4R alpha activates and regulates STAT6 signaling is still unclear. As is the extent to which the IL-4Ra participates in the pathogenesis of **allergic reactions**. Therefore, our broad goal of this renewal application, is to understand the molecular mechanisms of signaling through the IL-4Ra and its contribution to the pathogenesis of asthma. We propose that the kinetics and duration of STAT6 activation may play an important role in the IL-4 and IL-13-induced signaling of allergy-related responses and that signaling by the LL-4Rcz in non-lymphoid cells in the lung substantially contributes to the pathogenesis of allergic asthma. We propose 4 specific aims designed to test these hypotheses as follows. First, we will determine the kinetics and half-life of the IL-4 (and IL-13) -induced activation of STAT6. Second, we plan to determine the mechanism of STAT6 down-regulation. in addition, we plan to define the interaction of the IL-4Ra with signaling molecules potentially involved in the regulation of STAT6. Finally, we will determine the role of STAT6 and the IL-4R alpha in the pathogenesis of asthma.

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

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

  Principal Investigator & Institution: Naser, Saleh A. Molecular Biol & Microbiology; University of Central Florida 4000 Central Florida Blvd Orlando, Fl 32816

  Timing: Fiscal Year 2002; Project Start 1-JUN-2002; Project End 1-MAY-2006

  Summary: Crohn's disease (CD) is a debilitating chronic inflammatory bowel disease characterized by patches of inflamed tissue. The underlining cause of inflammation and provocation of the immune response in CD patients has yet to be determined. In theory, the immune system usually reacts against an invading organism such as an insect bite or bacterial infection, or is over-sensitive, as in **allergic reactions** to grass pollen etc. These reactions cause irritation and pain in the affected area, which subside when the immune system has dealt with the potential threat. Defects in the immune system of CD patients have been reported, both in the ability of the cell to phagocytose and in immune killing after phagocytosis, The cytokine pattern in CD is Th1-like and defect in the ratio of proinflammatory to anti- inflammatory cytokines has been proposed. A specific antigenic stimuli has not been identified, but pathogenic bacteria such as Mycobacterium avium subsp paratuberculosis (MAP) and specific invasive E. coli strains have been proposed. In addition, autoantibodies derived from molecular mimicry from bacterial antigens, or from host origin may also be causative agents of the inflammatory lesions in CD. Defects in the ability of macrophages to present antigen to T-cells and B-cells may also have a role. The mycobacterial theory is based on the significant similarity between CD and Johne's disease, a chronic enteritis in cattle that is caused by MAP. The two diseases share histological and pathological characteristics similar to those in tuberculosis and sarcoidosis. It is believed that MAP may be causing an immune reaction in the gut, resulting in a continuous immune response, which gets better and worse as the number of bacteria increase and decrease. Another possibility is that some parts of MAP like the heat shock proteins similar to parts of the gut lining resulting in triggering an immune response: a process known as autoimmunity. Finally, there may be defects in the immune reaction to MAP or proteins in the gut. In this case, the immune cells fail to deal with the invading organism, which is able to persist in the tissues, causing further inflammation. Many studies have been performed in an attempt to investigate a mycobacterial role in the etiology of CD and its pathogenesis. The outcome has been inconsistent which has added to the controversy. The role of MAP, if any, in the etiology of CD has become increasingly debated in recent years causing a need for clear elucidation. While positive results would change the course of therapy

and investigation in CD, a negative result will go a long way toward clearing up the MAP debate. In this study, our team will investigate the overall role of MAP, if any, in CD etiology by addressing the following questions: Is MAP present in CD lesions? Is it culturable? Can MAP be identified using PCR, RT-PCR or fluorescence in situ hybridization (FISH) techniques? Is there any immune reaction activity against MAP in CD patients? Is it cellular, humoral or both? What types of immune cells are present in CD lesions compared to non-inflammatory tissue or tissue from non-IBD and healthy controls? Are there any abnormalities in bacterial phagocytosis by peripheral blood monocytes and neutrophils from CD patients compared to normal cells? Are there factors inhibitory to phagocytosis in CD serum? Are there any abnormalities in antigen presentation and lymphocyte transformation to recall antigens from MAP? Are there any inhibitory or augmenting factors present in the serum from CD patients (cellular and serum crossover)? Our approach in this project is to determine if MAP or reactions against MAP are present in full thickness surgical tissue, heparinized blood and sera specimens from patients with CD using well-developed methodology in the fields of microbiology, immunology and molecular microbiology. We will investigate the presence of MAP in tissue specimens directly by using nested PCR, RT-PCR and FISH and indirectly by culture using a newly developed culture media appropriate for isolation of cell wall deficient form of MAP. We will also investigate the humoral immune reaction in CD sera using p20 antigen, a MAP specific protein. Additionally, the type and state of immune cells will be determined in inflamed versus non-inflamed tissue specimens from CD patients. We will also examine how these cells from CD patient blood are able to ingest and kill MAP, and whether this ingestion results in a normal immune response. This is the first study designed to comprehensively examine the overall presence/absence of MAP in CD tissue and the immune response in CD patients. The results will give us a better idea as to whether MAP causes CD, or whether there is an inherent defect in the immune system, which allows bacterial persistence or autoimmunity to occur in the gut. Ultimately, the outcome of this study will go a long way toward clearing up the MAP debate.

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

- **Project Title: OCCUPATIONAL ASTHMA ASOCIATED WITH SEAFOOD PROCESSING**

  Principal Investigator & Institution: Robins, Thomas G. Associate Professor; Environmental Health Sciences; University of Michigan at Ann Arbor 3003 South State, Room 1040 Ann Arbor, Mi 481091274

  Timing: Fiscal Year 2001; Project Start 0-SEP-1999; Project End 9-SEP-2003

  Summary: This study proposes to explore the associations between occupational exposure to lobster and saltwater bony fish (pilchard, Cape anchovy, mackerel, light fish, redeye, Cape horse mackerel, lantern fish) and health outcomes expected to be mediated through an immunologic IgE mechanism. The research proposes to investigate occupational asthma and other allergic conditions associated with rock lobster and saltwater bony fish processing in South Africa. Ingestion related seafood allergy is a common problem in the general population. **Allergic reactions** most often related to inhalation of antigens have been increasingly recognized as a serious problem among seafood workers. The predictors of occupational sensitization and health outcomes associated with lobster and bony fish processing are not well understood.Exposure-response relationships for occupational seafood allergy have been best characterized for exposure to a few crustaceans notably crab species. No published studies have examined this problem among workers exposed to crustaceans and bony fish common

in the South Atlantic. A cross-sectional study is proposed to characterize the occupational environmental exposure of workers in a factory on the West Coast of South Africa, involved in the processing of rock lobster and saltwater bony fish (pilchard, Cape anchovy, mackerel, light fish, redeye, Cape horse mackerel, lantern fish) through measurement of total protein and specific allergen collected by air sampling. A second aim is to determine the prevalence of allergic sensitization and health outcomes (rhino-conjunctivitis, urticaria/dermatitis and asthma) due to processing of rock lobster and saltwater bony fish through subject interviews, physical examination (skin), spirometry and methacholine challenge tests, skin prick tests (for common aeroallergens and specific seafood allergens) and skin patch testing. The third major aim is to characterize the relationship between exposure (measured as ambient concentrations of total protein and specific RAST inhibition), allergic responses to lobster and bony-fish allergens, and lung function changes. Statistical modeling will be used to identify the risk factors associated with the development of seafood allergy among seafood processing workers. Another aim is to isolate and characterize the seafood antigens present in aerosols generated during the processing of West Coast rock lobster and saltwater bony fish. The final aim is to investigate the extent to which any exposure response relationships are attenuated by the transfer of symptomatic workers from high to low exposure jobs. The development and application of state of the art techniques to address the specific aims is proposed. Potential public health benefits of this study would be the development of appropriate industrial hygiene monitoring techniques and medical surveillance protocols for monitoring the health of workers exposed to seafood allergens. By characterizing the occupational exposures among these high risk working populations. This study will also contribute towards a better understanding of the antigenic mechanisms causing seafood allergy among symptomatic individuals in the general population of the Western Cape province of South Africa and internationally.

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- **Project Title: PRECLINICAL DEVELOPMENT OF URICASE-PEG 20**

  Principal Investigator & Institution: Bomalaski, John S. Professor; Phoenix Pharmacologics, Inc. Astecc Facility #a-217 Lexington, Ky 40506

  Timing: Fiscal Year 2002; Project Start 1-JUL-2002; Project End 1-DEC-2002

  Summary: Hyperuricemia (elevated serum uric acid) results in gouty arthritis and chronic renal disease. Severe hyperuricemia can occur following cancer chemotherapy (tumor lysis syndrome) and organ transplantation (most common in heart and kidney transplant patients) which may result in acute uric acid nephropathy with resultant metabolic disorders and death. Moreover, in addition to pain, hyperuricemia can result in destructive gouty arthritis, with concomitant permanent damage to joints and connective tissue. Elevated uric acid levels (hyperuricemia) do not develop in most mammals because they have the gene which encodes urate oxidase which metabolizes the less soluble uric acid into a much more soluble metabolite, allantoin. However, in humans, the urate oxidase gene has evolved to contain a nonsense codon which results in a complete loss of enzyme activity. Many different groups of investigators have administered uricase, purified from micro organisms, to patients. Although these treatments lower plasma uric acid levels, all of the enzymes used are highly immunogenic and cause **allergic reactions** and anaphylaxis. Formulation of other therapeutic proteins with polyethylene glycol (PEG) has been shown to reduce their anti-genicity and prolong their circulating half-life. We have initiated Phase I clinical testing of a PEG modified uricase termed Uricase-PEG20. In this proposal we seek funding to perform the additional studies requested by the FDA in order for this drug to

move into Phase 2 human clinical testing. PROPOSED COMMERCIAL APPLICATIONS: This proposal focuses on performing the additional preclinical experiments requested by the FDA in order for this drug to enter Phase 2 human testing. Although non-PEG formulated uricase is used in Europe, it has not been approved in the USA because of the high incidence of **allergic reactions** associated with its use. uricase-PEG 20 is formulated with polyethylene glycol (PEG), a technology known to reduce the antigenicity of heterologous proteins.

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

- **Project Title: RECEPTOR AGGREGATION AND ITS EFFECTS**

  Principal Investigator & Institution: Goldstein, Byron B. Theoretical; University of Calif-Los Alamos Nat Lab Ms G758 Los Alamos, Nm 87545

  Timing: Fiscal Year 2003; Project Start 1-APR-1985; Project End 0-JUN-2008

  Summary: (provided by applicant): Mobile receptors diffusing over the surface of a cell allow it to sense its environment and respond to it. For many types of receptors, including the multisubunit immune recognition receptors (MIRR), aggregation of these receptors is crucial for the capture of external ligands and mandatory for the turning on or off of cellular responses. The project focuses on the high affinity receptor for IgE, FcepsilonRI, an MIRR that plays a key role in allergic reactions. A major goal of this project is to build and test detailed models of the early events of cell signaling mediated by this receptor. The mathematical models will be used to analyze experimental data, determine parameter values, design new experiments and test ideas about the roles of specific signaling molecules and their subunits. Mathematical models of signaling cascades are analogous to stable transfectants. In both the model and the transfectant, a small subset of the molecules that participate in the signal cascade are selected for study. The role of both the model and the transfectant is to understand how the selected molecules interact with each other. Components of the initial model, which has been tested extensively and found to be consistent with available data, are the beta and gamma subunits of FcepsilonRI and the tyrosine kinases Lyn and Syk. This model provides the basis for several proposed extensions. The next molecule in the activation pathway, which an extended model will incorporate, is the transmembrane scaffold protein LAT (linker for activation of T cells). Another extension will consider an inhibitory mechanism. Under many conditions the co-aggregation of an MIRR with an inhibitory receptor, FcepsilonRI IIB, reduces cellular responses. Such co-aggregation may be involved in the damping of allergic reactions. The model developed to study FcepsilonRI mediated signaling will be extended to study the inhibitory events triggered by FcepsilonRI - FcgammaRIIB coaggregation. Additional components of the extended model will be FcgammaRIIB, the inositol phosphatase SHIP1, and the cytosolic adapter protein Grb2. The studies in this project are health related, bearing on **allergic reactions** and their treatment.

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- **Project Title: RECEPTOR AGGREGATION ON THE CELL SURFACE**

  Principal Investigator & Institution: Posner, Richard G. Chemistry; Northern Arizona University Department of Biological Sciences Flagstaff, Az 86011

  Timing: Fiscal Year 2002; Project Start 1-SEP-1993; Project End 8-FEB-2007

  Summary: The binding of a ligand to a cell surface receptor is the first step in a cascade of events that leads to the generation of a transmembrane signal. In many cell systems, simple ligand binding is insufficient to initiate signal transduction, rather, receptor

aggregation is required. On the surface of mast cells, basophils and rat basophilic leukemia (RBL) cells are Fc receptors (FcepsilonRI) which bind IgE with high affinity. The formation of aggregates of IgE, or equivalently of the FcepsilonRI receptors, triggers various cellular responses. However, it is not clear what physical and steric conditions must be met by the IgE-receptor aggregates in order to initiate signal transduction. The goal of this project is to understand receptor aggregation in general and in particular to determine the properties of an aggregate that lead to specific responses. To do this we have developed an approach based on multiparameter flow cytometry to measure the kinetics of ligand binding and crosslinking of cell surface IgE. This method allows us to develop a quantitative picture of the aggregation states induced by multivalent-antigen binding to sIgE. We will develop and test mathematical models that predict the time course of the IgE aggregate distribution that is formed when surface IgE is crosslinked by these ligands and relate this aggregation to cellular responses including early (phosphorylation of tyrosines), middle (calcium fluxes), and late (degranualtion) events in the signal transduction cascade. We expect that the results of these studies can be generalized to other receptor systems in which receptor aggregation is involved in signal transduction. The studies in this project are health related bearing on **allergic reactions** as well as ligand receptor reactions in general.

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- **Project Title: REDEFINING THE MAJOR PEANUT ALLERGENS**

  Principal Investigator & Institution: Dreskin, Stephen C. Medicine; University of Colorado Hlth Sciences Ctr Uchsc at Fitzsimons Aurora, Co 800450508

  Timing: Fiscal Year 2003; Project Start 1-JUL-2003; Project End 1-DEC-2005

  Summary: (provided by applicant): **allergic reactions** to peanuts occur because susceptible individuals respond to exposure to peanuts by producing a plasma protein, IgE that binds to a high affinity receptor, FcepsilonRI on mast cells and basophils. This IgE can be cross-linked by specific allergens leading to activation of mast cells and basophils and subsequent allergic reactions. Three major peanut allergens have been described in detail based on their ability to bind IgE on Western blots and to interact with IgE in RAST-inhibition assays. These are Ara h1, Ara h2, and Ara h3. The degree to which these allergens contribute functionally to the activity in crude peanut extracts has never been documented. We propose to use in vitro functional assays to better define the major peanut allergens and will test our in vitro findings in vivo using a mouse model of peanut allergy. Our preliminary data suggests that most of our patients with hypersensitivity to peanuts react to Ara h2 at a 2 log or better sensitivity than to Ara h1. As part of this proposal, these observations will be correlated with independent analysis of these sera on immunoblot. We have further assessed the reactivity of our patients to Ara hl and Ara h2 by quantitating the reactivity to purified proteins and comparing that reactivity to the reactivity with crude peanut extracts. Based on our preliminary data, neither Ara hl nor Ara h2 appear to be major functional allergens in 6 of 7 patients we have examined, whereas Ara h2 may be of great importance in one of seven patients. In a preliminary study, we have separated peanut proteins by anion exchange chromatography and find that a significant portion of the functional allergic activity chromatographs in fractions that do not contain Ara hl or Ara h2. The contents of these fractions is unknown but will be analyzed by functional assays, 2d gels, mass spectroscopy, and IgE immunoblotting. Therefore, we propose to combine functional assays with standard immunoblotting techniques and the power of proteomics to define in molecular detail the peanut allergens quantitatively responsible for mast cell activation in patients with systemic reactions to peanuts. Employment of this approach

to define novel, functional major allergens has the potential to completely change our thinking as to which peanut allergens are the most important in specific patients for allergic reactions.

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- **Project Title: REGULATION OF MAST CELL CYTOKINE PRODUCTION**

  Principal Investigator & Institution: Gelfand, Erwin W.; National Jewish Medical & Res Ctr and Research Center Denver, Co 80206

  Timing: Fiscal Year 2001; Project Start 1-JUL-1998; Project End 0-JUN-2003

  Summary: (Adapted from Investigator's abstract): Allergic diseases affect about 20% of the population. Mast cells are the primary effectors of immediate type **allergic reactions** and play a role in sustaining allergic inflammation. Targeting of mast cells or mast cell-derived mediators is an important aspect of therapy. Binding of IgE to high affinity receptors on the mast cell surface initiates signal transduction cascades that control degranulation and cytokine gene transcription. These cascades utilize sequential protein kinase reactions. In the mast cell, the activation pathways regulating degranulation and cytokine transcription are independent and largely parallel. The focus of this proposal is to define the sequential protein kinases which control the transcriptional regulation of cytokine production following aggregation of FceRI. We have cloned, characterized and identified a family of (four) serine/threonine protein kinases, the MEK kinases, in the regulation of cytokine production, particularly through the regulation of the activation of c-Jun kinase. The broad aims of this proposal are to define the sequential protein kinase pathways involving MEKK proteins and c-Jun kinase in cytokine gene transcription and production and the integration of FceRI and stem cell factor (SCF) signaling in the regulation of cytokine production. Utilizing both a mast cell line and differentiated cultures of embryonic stem cell derived mast cells (ESMC), we will define and distinguish the role of the different MEKKs in response to FceRI aggregation and ligation of the SCFR. Using cyclosporin A, we will delineate the novel role of calcineurin in the regulation of the JNK pathway and the interplay between the JNK and NFAT pathways, in the cyclosporin-inhibitable regulation of cytokine expression. Using ESMC having targeted deletion of specific protein kinases, we will define their function in differentiation, cytokine production and degranulation. Characterization of these pathways has implications for the understanding of the pathogenesis and control of allergic diseases.

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- **Project Title: REGULATION OF SECRETION FROM HUMAN BASOPHILS**

  Principal Investigator & Institution: Macglashan, Donald W. Professor; Medicine; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2001; Project Start 1-DEC-1984; Project End 0-JUN-2004

  Summary: Basophil and mast cell mediator release is a central feature of both acute and chronic allergic reactions. However, little is known of the biochemical nature of signal transduction in the human cells of this type. This proposal focuses on studies which will elucidate some of the important biochemical events in both IgE mediated and univalent hormone induced secretion. The primary goals of these studies is to elucidate the mechanisms of desensitization although significant effort will also be applied towards understanding activation events. In particular, the role of cytosolic calcium elevations and protein kinase C in activation and desensitization will be further examined. We have demonstrated that IgE-mediated histamine release in both human basophils and

lung mast cells is accompanied by the increased activity of membrane associated protein kinase C and elevations in cytosolic calcium. Detailed studies suggest that desensitization processes are specific for the mediator being examined and that for regulating the extent of degranulation (histamine release), the basophil and mast cell regulate the activation of protein kinase C rather than elevations in cytosolic calcium. Therefore, part of this proposal seeks to understand in greater detail the relationship between PKC activation and histamine release, the multiple roles PKC may play in regulating mediator release and whether the transient activation in PKC activity results from the specific regulation of diacylglycerol levels. A series of exploratory experiments are proposed to determine whether tyrosine kinase activity plays a role in desensitization. Preliminary evidence also suggests that leukotriene release, unlike histamine release, is controlled by the down-regulation of the calcium response. The proposed studies will initially examine the relationship between down-regulation of the calcium response and down- regulation of leukotriene release. A second primary area of study will be on the relationship between calcium oscillations observed in single cells and subsequent mediator release. Several methods are proposed to measure single cell degranulation in an effort to correlate this end point with the early oscillatory changes in cytosolic calcium. In addition, the relationship between calcium oscillations and leukotriene release will be examined. A third aim of this proposal is to study the relationship between desensitization events that affect the early mediators (histamine and leukotrienes) and cytokine secretion which occurs much later in the secretory response. Since cytokine release appears dependent on mRNA accumulation, initial studies will focus on the mechanisms of mRNA accumulation.

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- **Project Title: ROLE OF TH1 SPECIFIC CELL SURFACE MOLECULE TIM-3 IN EAE.**

  Principal Investigator & Institution: Kuchroo, Vijay K. Associate Professor; Brigham and Women's Hospital 75 Francis Street Boston, Ma 02115

  Timing: Fiscal Year 2003; Project Start 5-MAR-2003; Project End 8-FEB-2007

  Summary: (provided by applicant): Activation of naive CD4 T helper cells results in the development of at least two distinct effector populations, Th1 and Th2. Th1 cells produce pro-inflammatory cytokines and are commonly associated with cell mediated immunity and clearance of intracellular pathogens. Th2 cells on the other hand produce anti-inflammatory cytokines that are crucial for control of extracellular pathogens and promote atopic and allergic reactions. Th1 cells have been implicated in the induction of many organ specific autoimmune diseases, including experimental autoimmune encephalomyelitis (EAE), a model for the human disease multiple sclerosis (MS). Although much is known about the functions of these two helper subsets, there are few surface molecules that differentiate between them. We have recently cloned and characterized a cell surface protein, Tim-3 (T cell, Immunoglobulin and Mucin containing molecule), which is expressed only on differentiated Th1 cells. Administration of monoclonal antibodies to Tim-3 in-vivo results in exacerbation of EAE, with extensive demyelination and macrophage activation and expansion. Based on these data, we hypothesize that a cognate interaction between Tim-3 and its ligand regulates T cell and macrophage activation and expansion. A genetic interval (locus) containing the Tim-3 molecule has shown linkage with susceptibility in murine asthma models and also in a number of autoimmune diseases, including EAE. In a preliminary molecular analysis, we have identified an allelic polymorphism in the Tim-3 gene in EAE-susceptible (SJL) and EAE-resistant (B 10.S) mice. In this grant application, we propose to: 1) characterize the phenotype and function of T cells and macrophages

following in-vitro and in-vivo crosslinking of Tim-3 and its ligand. This will be accomplished by further characterizing the alternately spliced, secreted form of Tim-3 and testing the in-vivo effects of the soluble Tim-3 (administered as an Ig-fusion protein) on T cell activation and Th1/Th2 differentiation; 2) determine whether the interaction of Tim-3 and its ligand is an activating or inhibitory signal for T cell and macrophage activation and function by using Fab fragments of the anti-Tim-3 antibody and by using T cells and non-T cells from Tim-3 -/- deficient mice; 3) study the role of Tim-3 in changing disease susceptibility and resistance to EAE by utilizing the variant forms of soluble Tim-3 (as soluble Ig-fusion proteins) derived from susceptible (SJL) and resistant (B 10.S) mice. By characterizing the interaction of Tim-3 with its ligand, we will be able to identify the of role of Th1 specific molecule Tim-3 in macrophage activation and in the induction of autoimmune disease.

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- **Project Title: ROLE OF TNF ALPHA IN ALLERGIC LATE PHASE RESPONSE**

  Principal Investigator & Institution: Bochner, Bruce S. Professor; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2001; Project Start 0-SEP-2001; Project End 1-JUL-2005

  Summary: Description (provided by applicant): IgE-dependent, late phase **allergic reactions** occur in response to specific allergen exposure, and are characterized by localized leukocyte accumulation. Experiments in this Project will capitalize on recent developments in our understanding of how cytokines, especially TNFa, released by tissue-resident cells, influence pathways critical to cell recruitment to facilitate tissue-specific and leukocyte subtype-specific influx during allergic inflammation. Indeed, studies by our laboratories and others suggest that expression of molecules contributing to selective leukocyte recruitment, such as cell adhesion molecules, chemokines, and eosinophil-activating cytokines, can be dramatically potentiated by TNFa. The central hypothesis of this Project is that TNFa is a powerful amplifier of the allergic inflammatory response, and that its neutralization should lead to a reduction in allergen-induced inflammatory reactions. We also hypothesize that the exact molecular mechanisms involved in these responses depend on the organ involved. This Project, in collaboration with Projects 2, 3 and Core B. will examine mechanisms responsible for experimental allergen-induced inflammation of the skin, nose and lungs. By administering the soluble TNF receptor Etanercept (Enbrel) prior to allergen challenge, we will determine the role of TNFa in late phase reactions. By comparing blood samples to those from nasal or bronchial challenge and lavage, or by comparing biopsies from cutaneous and airway challenge sites in the same subject, Aims 1 and 2 will test the hypotheses that the mechanisms involved in allergen-induced cell trafficking to skin differ from those for the nose and lung, that recruitment of cells at each site involves a defined subset (with respect to adhesion molecules, chemokine receptors, etc.), and that recruitment to all three sites is TNFa dependent. Aim 3 will test the hypothesis that the late phase physiology seen after whole lung allergen challenge in allergic asthmatics is TNFa dependent, as are baseline and allergen-induced changes in airway hyperreactivity. Project 1 will also provide key samples to Project 2 for analysis of basophils and basophil recruitment factors, and to Project 3 for analysis of T cells and accessory cells. This project will improve our understanding of the role of TNFa and other mediators in allergen-induced, tissue-specific cell recruitment responses in humans that may be relevant to allergic disease pathogenesis and treatment.

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- **Project Title: THE FUNCTION OF SWAP-70 IN MAST CELLS**

  Principal Investigator & Institution: Jessberger, Rolf; Inst/Gene Therapy & Mol Med; Mount Sinai School of Medicine of Nyu of New York University New York, Ny 10029

  Timing: Fiscal Year 2003; Project Start 5-APR-2003; Project End 1-MAR-2008

  Summary: (provided by applicant): Mast cells play diverse and important roles in the mammalian immune system. Upon aggregation of the Fc-epsilonRI receptor, mast cells can degranulate and release histamine and other biologically active compounds. While beneficial in some instances, e.g. within the innate immune system, such reactions are also causing **allergic reactions**, including asthma and anaphylaxis. Aberrant proliferation of mast cells characterizes many mast cell tumors. Details of the signaling pathways that trigger mast cell degranulation need to be further defined. Protein SWAP-70, identified by us earlier from B cells, has signatures of a novel type of signal transducing protein, and is also expressed in mast cells. Mast cells derived from our recently generated SWAP-70 -/- mice show impaired Fc-epsilonRI-triggered degranulation. This proposal suggests an important contribution of protein SWAP-70 to mast cell biology, i.e. exocytosis. Specifically, we hypothesize that SWAP-70 through its newly determined Rac-specific guanosine nucleotide exchange activity is important for Fc-epsilonRI-triggered exocytosis in mast cells. Therefore, we aim at understanding the role and position of SWAP- 70 in the signaling pathway leading to Fc-epsilonRI-triggered exocytosis, and will explore how SWAP-70 itself is regulated. Towards this goal, we will apply a combination of biochemical and cellular approaches. The proposed experiments should yield key information on pathways regulating mast cell exocytosis, and will help understanding mast cell-associated diseases such as allergic reactions.

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

- **Project Title: THE IMMUNE RESPONSE IN MAST CELL DEFICIENT MICE**

  Principal Investigator & Institution: Silver, Rae; Professor; Psychology; Barnard College 3009 Broadway New York, Ny 10027

  Timing: Fiscal Year 2003; Project Start 1-APR-2003; Project End 1-MAR-2006

  Summary: (provided by applicant): The number of brain mast cells increases under specific social, stressful, and disease states. Also important, is the discovery that brain mast cells can cross the BBB. Although mast cells are best known for their role in mediating **allergic reactions**, it has become increasingly evident that they also play a protective role in defense against bacterial infection. Mast cells are heterogeneous, and their mediator content is dependent on their microenvironment, suggesting that brain mast cells should be studied as a unique population - as distinct from those in the periphery. The present application proposes to develop a mouse model which will be used in understanding the phenomenology and functional consequences of mast cells in the brain. Pilot data indicate that mast cell deficient animals lack a complete Acute Phase Response (APR) to bacterial infection. To examine the involvement of mast cells in mounting an immune response, we explore 2 social/behavioral/endocrine conditions in which the brain mast cell population is augmented: a cohabitation paradigm and a stress paradigm. Next, we test the hypothesis that prior exposure (which increases brain mast cell numbers) results in altered response to challenge of the immune system in mast cell rich brain loci. Specifically, we ask whether the mast cell number, activation state is augmented when their numbers in the brain are elevated. To test the hypothesis that brain mast cells have immunological consequences, we determine if increased mast cell numbers results in altered T cell surveillance in mast cell rich brain regions. We propose to test these hypotheses in mast cell deficient mice, in their wild type littermates

and in mast cell reconstituted animals. This application will determine whether mast cells play a role in mounting an immune response in the brain.

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- **Project Title: TRAINING IN MOLECULAR AND CELL BIOLOGY OF ALLERGY**

  Principal Investigator & Institution: Kawakami, Toshiaki; Member; La Jolla Institute for Allergy/Immunolgy Allergy and Immunology San Diego, Ca 921211118

  Timing: Fiscal Year 2003; Project Start 0-SEP-1994; Project End 0-JUN-2004

  Summary: This tri-institutional training program was organized in late 1992 and the funding by NIAID began in July 1994. It takes advantage of the combined extensive allergy research activities in the La Jolla scientific community. The faculty members are from three neighboring institutes- La Jolla Institute for Allergy and Immunology (LIAI), The Scripps Research Institute (TSRI), and University of California, San Diego (UCSD). The three centers have different research emphases, while sharing a common goal. Together, the research areas encompass nearly all the major issues in allergy research. Therefore, the trainees will have opportunities to be exposed to a wide range of research topics. In addition, the inter-institutional training program serves as a catalyst for promoting interactions and collaborations among researchers from different institutes. All faculty members have well-established research program; their research backgrounds are diverse and when taken together encompass immunology, biochemistry, cell biology, and molecular biology. Therefore, this training program represents an interdisciplinary approach. The trainees can be involved in the following research areas: 1) regulation of IgE production, including Th1/Th2 differentiation; 2) biology of inflammatory cells, including mast cells and eosinophils; 3) biology of T cells; 4) cell receptors critically involved in **allergic reactions**; 5) signal transduction; 6) Inflammatory mediators/cytokines; 7) functions of epithelial cells; and 7) cell adhesion. The goals of the program are 1) to provide trainees with a basic understanding of pathogenesis of allergic diseases; and 2) to foster the development of trainee's investigative skills, in particular, applying molecular and cellular biological approaches to study mechanisms of diseases. The program is open to Ph.D.s and M.D.s interesting in disease-oriented problems and committed to career in basic research in clinical sciences. The trainees are expected to devote full time to research, and training will be supplemented by conferences, seminars, journal clubs and courses. It can be expected that trainees will develop a solid background in pathogenesis of allergic diseases and molecular and cellular mechanisms of allergic inflammation and become qualified and confident in embarking upon their careers as independent investigators in allergy research. The broad expertise and experience the trainees acquire will prepare them for independent research in biomedicine in general.

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- **Project Title: ULTRAHIGH RESOLUTION STRUCT OF PENICILLOPEPSIN & COMPLEXES W/ INHIBITORS**

  Principal Investigator & Institution: James, Michael N.; Cornell University Ithaca Office of Sponsored Programs Ithaca, Ny 14853

  Timing: Fiscal Year 2001

  Summary: This proposal is concerned with the elucidation of the structure of the high affinity lgE Fc receptor from mast cells (FceRl). This receptor binds lgE antibodies and initiates cellular responses associated with **allergic reactions** and anaphylactic shock. We have succeeded in growing crystals of a soluble fragment of the receptor using the

vapor diffusion method of crystalization. This fragment consists of two immunoglobulin domains that carry the full binding affinity for lgE molecules. The largest crystals grow with dimensions of 80x80x300 microns. These crystals diffract X-rays to a resolution of 4.3 A, using an Elliot GX-13 rotating anode X-ray source and an exposure times of many hours. The current data indicate that the crystals belong to a tetragonal space group with approximate cell dimensions of 75x150x150 A. The size of these crystals and the weak diffraction observed using laboratory X-ray sources makes the use of a synchrotron X-ray source imperative.

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

The National Library of Medicine: PubMed

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

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

- **55 cases of allergic reactions to hair dye: a descriptive, consumer complaint-based study.**
  Author(s): Sosted H, Agner T, Andersen KE, Menne T.
  Source: Contact Dermatitis. 2002 November; 47(5): 299-303.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12534535&dopt=Abstract

- **A cream containing the chelator DTPA (diethylenetriaminepenta-acetic acid) can prevent contact allergic reactions to metals.**
  Author(s): Wohrl S, Kriechbaumer N, Hemmer W, Focke M, Brannath W, Gotz M, Jarisch R.
  Source: Contact Dermatitis. 2001 April; 44(4): 224-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11260238&dopt=Abstract

- **A fine structure study of some cellular components in allergic reactions. 1. Degranulation of human mast cells in allergic asthma and perennial rhinitis.**
  Author(s): Trotter CM, Orr TS.

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

Source: Clin Allergy. 1973 December; 3(4): 411-25. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4784490&dopt=Abstract

- **A selective inhibitor of thromboxane biosynthesis enhances immediate and inhibits late cutaneous allergic reactions in man.**
  Author(s): Dorsch W, Ring J, Melzer H.
  Source: The Journal of Allergy and Clinical Immunology. 1983 August; 72(2): 168-74.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6604081&dopt=Abstract

- **A study on late allergic reactions to house dust mite in bronchial asthmatics.**
  Author(s): Kim YY, Moon HB.
  Source: Korean J Intern Med. 1986 July; 1(2): 153-7. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3154609&dopt=Abstract

- **Acquired granulocyte abnormality during drug allergic reactions: possible role of complement activation.**
  Author(s): Bowers TK, Craddock PR, Jacob HS.
  Source: Blood. 1977 January; 49(1): 3-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=830375&dopt=Abstract

- **Activation of plasma Hageman factor and kallikrein in ongoing allergic reactions in the skin.**
  Author(s): Atkins PC, Miragliotta G, Talbot SF, Zweiman B, Kaplan AP.
  Source: Journal of Immunology (Baltimore, Md. : 1950). 1987 October 15; 139(8): 2744-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3655370&dopt=Abstract

- **Acute allergic reactions associated with azathioprine.**
  Author(s): Parnham AP, Dittmer I, Mathieson PW, McIver A, Dudley C.
  Source: Lancet. 1996 August 24; 348(9026): 542-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8757162&dopt=Abstract

- **Acute allergic reactions to Anisakis simplex after ingestion of anchovies.**
  Author(s): Foti C, Nettis E, Cassano N, Di Mundo I, Vena GA.
  Source: Acta Dermato-Venereologica. 2002; 82(2): 121-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12125940&dopt=Abstract

- **Adrenaline and non-life threatening allergic reactions: Cause of reactions should be identified.**
  Author(s): Zauli D, Zucchini S, Grassi A, Ballardini G, Bianchi FB.
  Source: Bmj (Clinical Research Ed.). 2003 July 26; 327(7408): 227; Author Reply 227.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12881294&dopt=Abstract

- **Adrenaline and non-life threatening allergic reactions: Intramuscular adrenaline is safe.**
  Author(s): Douglass JA, O'Hehir RE.
  Source: Bmj (Clinical Research Ed.). 2003 July 26; 327(7408): 226-7; Author Reply 227.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12881289&dopt=Abstract

- **Adrenaline given outside the context of life threatening allergic reactions.**
  Author(s): Johnston SL, Unsworth J, Gompels MM.
  Source: Bmj (Clinical Research Ed.). 2003 March 15; 326(7389): 589-90.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12637407&dopt=Abstract

- **Adrenergic and cholinergic regulation of immediate type allergic reactions.**
  Author(s): Roy AC, Karim SM.
  Source: Singapore Med J. 1983 April; 24(2): 117-23. Review. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6193583&dopt=Abstract

- **Adverse and allergic reactions in complementary and alternative medicine.**
  Author(s): Wong GH.
  Source: The Journal of Allergy and Clinical Immunology. 2001 July; 108(1): 149-50.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11447405&dopt=Abstract

- **Adverse drug reactions in Sjogren's syndrome. Frequent allergic reactions and a specific trimethoprim-associated systemic reaction.**
  Author(s): Antonen JA, Markula KP, Pertovaara MI, Pasternack AI.
  Source: Scandinavian Journal of Rheumatology. 1999; 28(3): 157-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10380837&dopt=Abstract

- **Allergen-induced hyperreactivity is not a feature of dermal immediate allergic reactions--in contrast to reactions of airways mucosa.**
  Author(s): Andersson M, Pipkorn U.
  Source: Clin Allergy. 1988 March; 18(2): 189-96.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3365861&dopt=Abstract

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  Author(s): Yunginger JW, Jones RT, Kita H, Saito K, Hefle SL, Taylor SL.
  Source: The Journal of Allergy and Clinical Immunology. 2001 October; 108(4): 650.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11590396&dopt=Abstract

- **Allergic reactions after systemic administration of glucocorticosteroid therapy.**
  Author(s): Alexiou C, Kau RJ, Luppa P, Arnold W.

Source: Archives of Otolaryngology--Head & Neck Surgery. 1998 November; 124(11): 1260-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9821930&dopt=Abstract

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Author(s): Young E.
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Author(s): Ringden O, Andstrom E, Remberger M, Svahn BM, Tollemar J.
Source: Lancet. 1994 October 22; 344(8930): 1156-7.
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Author(s): Crespo JF, Pascual C, Dominguez C, Ojeda I, Munoz FM, Esteban MM.
Source: Allergy. 1995 March; 50(3): 257-61.
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- **Allergic reactions associated with viral vaccines.**
Author(s): Isacson P, Stone A.
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http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4950605&dopt=Abstract

- **Allergic reactions at repeat femoral angiography with ioxaglate.**
Author(s): Nilsson S, Bergstrand L, Erikson U, Johansson J, Smedby O, Walldius G.
Source: Acta Radiologica (Stockholm, Sweden : 1987). 2001 November; 42(6): 608-11.
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Author(s): Pretorius E.
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Author(s): Nater JP.
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http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4255838&dopt=Abstract

- **Allergic reactions due to glove-lubricant-powder in health-care workers.**
Author(s): Crippa M, Pasolini G.

Source: International Archives of Occupational and Environmental Health. 1997; 70(6): 399-402.
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- **Allergic reactions due to ibuprofen in children.**
Author(s): Diaz Jara M, Perez Montero A, Gracia Bara MT, Cabrerizo S, Zapatero L, Martinez Molero MI.
Source: Pediatric Dermatology. 2001 January-February; 18(1): 66-7.
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Author(s): Reisman RE.
Source: J Allergy. 1970 July; 46(1): 49-55. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5268943&dopt=Abstract

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Author(s): Guttormsen AB.
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Author(s): Levy JH.
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Author(s): Stoelting RK.
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Author(s): Reisman RE, Osur SL.
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- **Allergic reactions following immunization procedures.**
Author(s): Tuft L.
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- **Allergic reactions following skin contact with fish.**
  Author(s): Dominguez C, Ojeda I, Crespo JF, Pascual C, Ojeda A, Martin-Esteban M.
  Source: Allergy and Asthma Proceedings : the Official Journal of Regional and State Allergy Societies. 1996 March-April; 17(2): 83-7.
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- **Allergic reactions from injectable methadone.**
  Author(s): Uehlinger C, Hauser C.
  Source: The American Journal of Psychiatry. 1999 June; 156(6): 973.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10360152&dopt=Abstract

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  Author(s): Barrett D.
  Source: Pediatric Annals. 2000 December; 29(12): 734-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11131939&dopt=Abstract

- **Allergic reactions in deep-sea fishermen caused by contact with cuttlefish.**
  Author(s): Tomaszunas S, Weclawik Z, Lewinski M.
  Source: Bull Inst Marit Trop Med Gdynia. 1989; 40(1-2): 5-11. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2640614&dopt=Abstract

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  Author(s): Leitman SF, Boltansky H, Alter HJ, Pearson FC, Kaliner MA.
  Source: The New England Journal of Medicine. 1986 November 6; 315(19): 1192-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2429183&dopt=Abstract

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  Author(s): Parker CW.
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  Author(s): Markowitz M, Lue HC.
  Source: Pediatrics. 1996 June; 97(6 Pt 2): 981-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8637786&dopt=Abstract

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  Author(s): Mertes PM, Laxenaire MC.

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Author(s): Pepys J, Longbottom JL, Hargreave FE, Faux J.
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http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4181839&dopt=Abstract

- **Allergic reactions to 6-mercaptopurine during treatment of inflammatory bowel disease.**
Author(s): Korelitz BI, Zlatanic J, Goel F, Fuller S.
Source: Journal of Clinical Gastroenterology. 1999 June; 28(4): 341-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10372932&dopt=Abstract

- **Allergic reactions to a hairdressers' series: results from 9 European centres. The European Environmental and Contact Dermatitis Research Group (EECDRG).**
Author(s): Frosch PJ, Burrows D, Camarasa JG, Dooms-Goossens A, Ducombs G, Lahti A, Menne T, Rycroft RJ, Shaw S, White IR, et al.
Source: Contact Dermatitis. 1993 March; 28(3): 180-3.
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- **Allergic reactions to a horse globulin therapy and their prevention by induction of immunological tolerance.**
Author(s): Ring J, Seifert J, Lob G, Hopf U, Land W, Brendel W.
Source: Allergologia Et Immunopathologia. 1974 March-April; 2(2): 93-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4211785&dopt=Abstract

- **Allergic reactions to ammonium persulphate in hair bleach.**
Author(s): Widstrom L.
Source: Contact Dermatitis. 1977 December; 3(6): 343.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=146590&dopt=Abstract

- **Allergic reactions to ampicillin. Studies on the specificity and selectivity in subjects with immediate reactions.**
Author(s): Romano A, Torres MJ, Fernandez J, Vega JM, Mayorga C, Garcia J, Blanca M.
Source: Clinical and Experimental Allergy : Journal of the British Society for Allergy and Clinical Immunology. 1997 December; 27(12): 1425-31.
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Author(s): Dax EM, Lange WR, Jaffe JH.

Source: The American Journal of Medicine. 1989 June; 86(6 Pt 1): 732.
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- **Allergic reactions to anaesthetics: economic aspects of pre-operative screening.**
Author(s): Roberts JA.
Source: Monogr Allergy. 1992; 30: 207-21. Review. No Abstract Available.
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- **Allergic reactions to anisakis simplex parasitizing seafood.**
Author(s): Moreno-Ancillo A, Caballero MT, Cabanas R, Contreras J, Martin-Barroso JA, Barranco P, Lopez-Serrano MC.
Source: Annals of Allergy, Asthma & Immunology : Official Publication of the American College of Allergy, Asthma, & Immunology. 1997 September; 79(3): 246-50.
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Author(s): Girard JP.
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Author(s): Kasik JE, Thompson JS.
Source: The Medical Clinics of North America. 1970 January; 54(1): 59-73. Review.
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- **Allergic reactions to antimicrobial agents: a review of reactions to drugs not in the beta lactam antibiotic class.**
Author(s): Sullivan TJ.
Source: The Journal of Allergy and Clinical Immunology. 1984 October; 74(4 Pt 2): 594-9.
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Author(s): Dahlquist I.
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http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=146592&dopt=Abstract

- **Allergic reactions to benzalkonium chloride.**
Author(s): Afzelius H, Thulin H.
Source: Contact Dermatitis. 1979 January; 5(1): 60.
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  Author(s): Klein GF, Sepp N, Fritsch P.
  Source: Contact Dermatitis. 1991 October; 25(4): 269-70.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1839276&dopt=Abstract

- **Allergic reactions to benzyl alcohol in a sunscreen.**
  Author(s): Edwards EK Jr.
  Source: Cutis; Cutaneous Medicine for the Practitioner. 1981 September; 28(3): 332-3.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7297119&dopt=Abstract

- **Allergic reactions to betalactams: studies in a group of patients allergic to penicillin and evaluation of cross-reactivity with cephalosporin.**
  Author(s): Audicana M, Bernaola G, Urrutia I, Echechipia S, Gastaminza G, Munoz D, Fernandez E, Fernandez de Corres L.
  Source: Allergy. 1994 February; 49(2): 108-13.
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  Author(s): Frazier CA.
  Source: Lancet. 1972 April 22; 1(7756): 911.
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  Author(s): Frazier CA.
  Source: South African Medical Journal. Suid-Afrikaanse Tydskrif Vir Geneeskunde. 1972 April 15; 46(16): 488.
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  Author(s): Clarke PS.
  Source: The Medical Journal of Australia. 1989 February 20; 150(4): 222-3. Erratum In: Med J Aust 1989 April 3; 150(7): 412.
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  Author(s): Blondeau P, Rousseau JA.
  Source: Can J Ophthalmol. 2002 February; 37(1): 21-6.
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  Author(s): Hendrick AM, Simmons D, Cantwell BM.

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- **Allergic reactions to chocolate.**
Author(s): Ghosh JS.
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- **Allergic reactions to cold sterilising solutions.**
Author(s): Leong ML.
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Author(s): Lees AD.
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Author(s): Lennartsson C.
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Author(s): Crome CW.
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Author(s): Fisher AA.
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CHAPTER 2. NUTRITION AND ALLERGIC REACTIONS

Overview

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

Finding Nutrition Studies on Allergic Reactions

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

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

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

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

- **Allergic reactions due to glove-lubricant-powder in health-care workers.**
  Author(s): Institute of Occupational Health, University of Brescia, Italy.
  Source: Crippa, M Pasolini, G Int-Arch-Occup-Environ-Health. 1997; 70(6): 399-402 0340-0131

- **Allergic reactions following skin contact with fish.**
  Author(s): Allergy Service, La Paz Children's Hospital, Madrid, Spain.
  Source: Dominguez, C Ojeda, I Crespo, J F Pascual, C Ojeda, A Martin Esteban, M Allergy-Asthma-Proc. 1996 Mar-April; 17(2): 83-7 1088-5412

- **Allergic reactions to honey and royal jelly and their relationship with sensitization to compositae.**
  Author(s): Dept. of Internal Medicine Sant'Orsola Hospital, Brescia, Italy.
  Source: Lombardi, C Senna, G E Gatti, B Feligioni, M Riva, G Bonadonna, P Dama, A R Canonica, G W Passalacqua, G Allergol-Immunopathol-(Madr). 1998 Nov-December; 26(6): 288-90 0301-0546

- **Allergic reactions to oral, surgical and topical bovine collagen. Anaphylactic risk for surgeons.**
  Author(s): John James Medical Centre, Deakin.
  Source: Mullins, R J Richards, C Walker, T Aust-N-Z-J-Ophthalmol. 1996 August; 24(3): 257-60 0814-9763

- **Anti-allergic action of glucocorticoids (II). Effect of glucocorticoids on cell mediated (type IV) allergic reactions.**
  Source: Nagai, H Takizawa, T Inagaki, N Sakamoto, T Shimazawa, T Koda, A Arerugi. 1989 June; 38(6): 493-500 0021-4884

- **Comparative study of morphological changes in the myocardium after different types of allergic reaction in coronary vessels.**
  Author(s): A. A. Bogomoletz Institute of Physiology, Kiev, USSR.
  Source: Popovich, L F Sagach, V F Moibenko, A A Exp-Pathol. 1988; 33(2): 109-17 0232-1513

- **Development of airway hyperreactivity in the guinea-pig following allergic reactions.**
  Author(s): Preclinical Research, Sandoz Pharma Ltd., Basel, Switzerland.
  Source: Boubekeur, K Kristersson, A Chapman, I D Morley, J Agents-Actions-Suppl. 1991; 34247-55 0379-0363

- **Diagnosis of allergic reactions to food.**
  Author(s): University of Arkansas for Medical Sciences, Arkansas Children's Hospital, Little Rock, Arkansas, USA.
  Source: Burks, W Pediatr-Ann. 2000 December; 29(12): 744-52 0090-4481

- **Different kinetics of mediator release can be detected during allergic reactions after oral provocation (double blind placebo-controlled food challenge).**
  Author(s): Department of Medicine I, University of Erlangen-Nuremberg, Erlangen, Germany. michael.weidenhiller@med1.imed.uni-erlangen.de
  Source: Weidenhiller, M Trankner, A Schwab, D Winterkamp, S Hahn, E G Raithel, M Inflamm-Res. 2002 April; 51 Suppl 1: S29-30 1023-3830

- **Effects of fujibitol, a remedy for nasal symptoms of immediate and delayed type allergic reactions.**
  Author(s): Wakunaga Pharmaceutical Co., Ltd., Hiroshima, Japan.

Source: Kakimoto, M Takasugi, N Fuwa, T Saito, H Sugimoto, Y Kamei, C Methods-Find-Exp-Clin-Pharmacol. 1999 June; 21(5): 353-6 0379-0355

- **Effects of luteolin and other flavonoids on IgE-mediated allergic reactions.**
  Author(s): Department of Pharmacology, Gifu Pharmaceutical University, Japan.
  Source: Kimata, M Inagaki, N Nagai, H Planta-Med. 2000 February; 66(1): 25-9 0032-0943

- **Immune responses against replication-deficient adenovirus inhibit ovalbumin-specific allergic reactions in mice.**
  Author(s): First Department of Internal Medicine, Yokohama City University School of Medicine, Kanazawa, Yokohama, Japan. motosuzuki@email.msn.com
  Source: Suzuki, M Suzuki, S Yamamoto, N Komatsu, S Inoue, S Hashiba, T Nishikawa, M Ishigatsubo, Y Hum-Gene-Ther. 2000 April 10; 11(6): 827-38 1043-0342

- **Inhibitory effect of mast cell-mediated immediate-type allergic reactions by Cichorium intybus.**
  Author(s): College of Pharmacy, Wonkwang University, Iksan, Chonbuk, 570-749, South Korea.
  Source: Kim, H M Kim, H W Lyu, Y S Won, J H Kim, D K Lee, Y M Morii, E Jippo, T Kitamura, Y An, N H Pharmacol-Res. 1999 July; 40(1): 61-5 1043-6618

- **Lethal or life-threatening allergic reactions to food.**
  Author(s): Department of Dermatology, University Hospital, Zurich, Switzerland.
  Source: Wuthrich, B J-Investig-Allergol-Clin-Immunol. 2000 Mar-April; 10(2): 59-65 1018-9068

- **Magnoliae flos inhibits mast cell-dependent immediate-type allergic reactions.**
  Author(s): College of Pharmacy, Wonkwang University, Iksan, Chonbuk, 570-749, South Korea.
  Source: Kim, H M Yi, J M Lim, K S Pharmacol-Res. 1999 February; 39(2): 107-11 1043-6618

- **Pharmacological effects of urinary products obtained after teatment with Saiboku-To, a herbal medicine for bronchial asthma, on type IV allergic reaction.**
  Source: Taniguchi, C. Homma, M. Takano, O. Hirano, T. Oka, K. Aoyagi, Y. Niitsuma, T. Hayashi, T. Planta-med. Stuttgart : Georg Thieme Verlag,. October 2000. volume 66 (7) 607-611. 0032-0943

- **Shini-san inhibits mast cell-dependent immediate-type allergic reactions.**
  Author(s): Department of Oriental Pharmacy, College of Pharmacy, Wonkwang University, Iksan, Chonbuk, South Korea.
  Source: Kim, H M Lee, Y H Chae, H J Kim, H R Baek, S H Lim, K S Hwang, C Y Am-J-Chin-Med. 1999; 27(3-4): 377-86 0192-415X

- **Suppression of allergic reactions by royal jelly in association with the restoration of macrophage function and the improvement of Th1/Th2 cell responses.**
  Author(s): Central Research Laboratories, Zeria Pharmaceutical Co., Ltd., 2512-1 Oshikiri, Kohnan-machi, Ohsato-gun, Saitama 360-0111, Japan.
  Source: Oka, H Emori, Y Kobayashi, N Hayashi, Y Nomoto, K Int-Immunopharmacol. 2001 March; 1(3): 521-32 1567-5769

- **Time pattern of allergic reactions to drugs.**
  Source: Hoigne, R Jaeger, M D Wymann, R Egli, A Muller, U Hess, T Galeazzi, R Maibach, R Kunzi, U P Agents-Actions-Suppl. 1990; 2939-58 0379-0363

- **Use of glucagon in intractable allergic reactions and as an alternative to epinephrine: an interesting case review.**
  Author(s): Emergency Department, Durham Regional Hospital, North Carolina, USA.

Source: Compton, J J-Emerg-Nurs. 1997 February; 23(1): 45-7 0099-1767

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 allergic reactions; 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 (some Web sites are subscription based):

- **Vitamins**

  Pantothenic acid
  Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
  Hyperlink:
  http://www.wholehealthmd.com/refshelf/substances_view/0,1525,882,00.html

  Vitamin B12
  Source: Healthnotes, Inc. www.healthnotes.com

  Vitamin K
  Source: Healthnotes, Inc. www.healthnotes.com

- **Minerals**

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

  Bromelain/quercetin
  Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
  Hyperlink:
  http://www.wholehealthmd.com/refshelf/substances_view/0,1525,941,00.html

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

  Quercetin
  Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
  Hyperlink:
  http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10053,00.html

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

- **Food and Diet**

  Burdock
  Alternative names: Arctium lappa
  Source: Healthnotes, Inc. www.healthnotes.com

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

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

Corn-Free Diet
Source: Healthnotes, Inc. www.healthnotes.com

Dairy-Free Diet
Source: Healthnotes, Inc. www.healthnotes.com

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

Gluten-Free Diet
Source: Healthnotes, Inc. www.healthnotes.com

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

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

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

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

Low-Allergen Diet
Source: Healthnotes, Inc. www.healthnotes.com

Mushrooms
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10046,00.html

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

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

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

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

Soy-Free Diet
Source: Healthnotes, Inc. www.healthnotes.com

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

Ugli Tangelo Fruit
Source: Healthnotes, Inc. www.healthnotes.com

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

Wheat-Free Diet
Source: Healthnotes, Inc. www.healthnotes.com

CHAPTER 3. ALTERNATIVE MEDICINE AND ALLERGIC REACTIONS

Overview

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

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov/**) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to allergic reactions 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 "allergic reactions" (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 allergic reactions:

- **Anti-allergic effects of Sanguisorba officinalis on animal models of allergic reactions.**
  Author(s): Shin TY, Lee KB, Kim SH.
  Source: Immunopharmacology and Immunotoxicology. 2002 August; 24(3): 455-68.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12375740&dopt=Abstract

- **Inhibition of immediate-type allergic reactions by the aqueous extract of Salvia plebeia.**
  Author(s): Shi TY, Kim HM.
  Source: Immunopharmacology and Immunotoxicology. 2002 May; 24(2): 303-14.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12066855&dopt=Abstract

- **Inhibitory effect of mast cell-mediated acute and chronic allergic reactions by Dodutang.**
  Author(s): Shin HY, Yun YB, Kim JY, Moon G, Shin TY, Kim HS, Kim HM.
  Source: Immunopharmacology and Immunotoxicology. 2002 November; 24(4): 583-94.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12510792&dopt=Abstract

- **Suppression of allergic reactions by dehulled adlay in association with the balance of TH1/TH2 cell responses.**
  Author(s): Hsu HY, Lin BF, Lin JY, Kuo CC, Chiang W.
  Source: Journal of Agricultural and Food Chemistry. 2003 June 18; 51(13): 3763-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12797741&dopt=Abstract

Additional Web Resources

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

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

The following is a specific Web list relating to allergic reactions; 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 (some Web sites are subscription based):

- **General Overview**

  Allergic Reaction, Anaphylaxis
  Source: Integrative Medicine Communications; www.drkoop.com

Allergic Reaction, Angioedema
Source: Integrative Medicine Communications; www.drkoop.com

Allergic Rhinitis
Source: Integrative Medicine Communications; www.drkoop.com

Allergies and Sensitivities
Source: Healthnotes, Inc. www.healthnotes.com

Allergy, Food
Source: Integrative Medicine Communications; www.drkoop.com

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

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

Arthritis, Osteo-
Source: Integrative Medicine Communications; www.drkoop.com

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

Benign Prostatic Hyperplasia
Alternative names: Prostate Enlargement
Source: Prima Communications, Inc.www.personalhealthzone.com

Bites and Stings, Insect
Source: Integrative Medicine Communications; www.drkoop.com

Brain Inflammation, Viral Encephalitis
Source: Integrative Medicine Communications; www.drkoop.com

Cancer, Prostate
Source: Integrative Medicine Communications; www.drkoop.com

Candida/Yeast Hypersensitivity Syndrome
Source: Prima Communications, Inc.www.personalhealthzone.com

Cardiac Arrhythmia
Source: Healthnotes, Inc. www.healthnotes.com

Colds and Flus
Source: Prima Communications, Inc.www.personalhealthzone.com

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

Congestive Heart Failure
Source: Prima Communications, Inc.www.personalhealthzone.com

Conjunctivitis and Blepharitis
Source: Healthnotes, Inc. www.healthnotes.com

Crohn's Disease
Source: Healthnotes, Inc. www.healthnotes.com

Depression (Mild to Moderate)
Source: Prima Communications, Inc.www.personalhealthzone.com

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

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

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

Encephalitis, Viral
Source: Integrative Medicine Communications; www.drkoop.com

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

Food Allergy
Source: Integrative Medicine Communications; www.drkoop.com

Food Poisoning
Source: Integrative Medicine Communications; www.drkoop.com

Hay Fever
Source: Integrative Medicine Communications; www.drkoop.com

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

Herpes
Alternative names: Genital Herpes, Cold Sores
Source: Prima Communications, Inc.www.personalhealthzone.com

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

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

Insect Bites and Stings
Source: Integrative Medicine Communications; www.drkoop.com

Ménière's Disease
Source: Healthnotes, Inc. www.healthnotes.com

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

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

Prostate Cancer
Source: Integrative Medicine Communications; www.drkoop.com

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

Rhinitis, Allergic
Source: Integrative Medicine Communications; www.drkoop.com

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

Serum Sickness
Source: Integrative Medicine Communications; www.drkoop.com

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

Skin Disorders, Dermatitis
Source: Integrative Medicine Communications; www.drkoop.com

Skin Disorders, Eczema
Source: Integrative Medicine Communications; www.drkoop.com

Skin Disorders, Photodermatitis
Source: Integrative Medicine Communications; www.drkoop.com

Stings and Bites, Insect
Source: Integrative Medicine Communications; www.drkoop.com

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

Systemic Lupus Erythematosus
Source: Healthnotes, Inc. www.healthnotes.com

- **Alternative Therapy**

Apitherapy
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,669,00.html

Aromatherapy
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,664,00.html

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

- **Herbs and Supplements**

5-HTP (5-Hydroxytryptophan)
Source: Prima Communications, Inc.www.personalhealthzone.com

Achillea millefolium
Source: Integrative Medicine Communications; www.drkoop.com

Agrimony
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,833,00.html

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

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

Aloe Vera
Source: Integrative Medicine Communications; www.drkoop.com

Aloe vera
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10001,00.html

Ananas comosus
Source: Integrative Medicine Communications; www.drkoop.com

Arnica
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,753,00.html

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

Bee products
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,756,00.html

Blue-Green Algae
Source: Healthnotes, Inc. www.healthnotes.com

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

Bromelain
Alternative names: Ananas comosus, Bromelainum
Source: Integrative Medicine Communications; www.drkoop.com

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

Bromelain
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,760,00.html

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

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

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

Carob
Alternative names: Ceratonia siliqua
Source: Healthnotes, Inc. www.healthnotes.com

Cayenne
Alternative names: Capsicum annuum, Capsicum frutescens
Source: Healthnotes, Inc. www.healthnotes.com

Celery extract
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10014,00.html

Chamaemelum nobile
Source: Integrative Medicine Communications; www.drkoop.com

Chamomile
Alternative names: Matricaria recutita
Source: Healthnotes, Inc. www.healthnotes.com

Chamomile
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,766,00.html

Chamomile, Roman
Alternative names: Chamaemelum nobile
Source: Integrative Medicine Communications; www.drkoop.com

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

Coleus
Alternative names: Coleus forskohlii
Source: Healthnotes, Inc. www.healthnotes.com

Corticosteroids
Source: Healthnotes, Inc. www.healthnotes.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

Digestive enzymes
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10051,00.html

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

Elecampane
Alternative names: Inula helenium
Source: Healthnotes, Inc. www.healthnotes.com

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

English Lavendar
Source: Integrative Medicine Communications; www.drkoop.com

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

Eucalyptus
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,778,00.html

Fennel
Alternative names: Foeniculum vulgare
Source: Healthnotes, Inc. www.healthnotes.com

Flavonoids
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,782,00.html

French Lavendar
Source: Integrative Medicine Communications; www.drkoop.com

Fructo-oligosaccharides (FOS) and Other Oligosaccharides
Source: Healthnotes, Inc. www.healthnotes.com

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

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

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

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

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

Grape seed extract
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,793,00.html

Green-Lipped Mussel
Source: Healthnotes, Inc. www.healthnotes.com

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

He Shou Wu
Source: Prima Communications, Inc.www.personalhealthzone.com

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

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

Horse chestnut
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10037,00.html

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

Ivy leaf
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10112,00.html

Lavandula angustifolia
Source: Integrative Medicine Communications; www.drkoop.com

Lavender
Alternative names: Lavandula angustifolia, English Lavendar, French Lavendar
Source: Integrative Medicine Communications; www.drkoop.com

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

Marshmallow
Alternative names: Althea officinalis
Source: Healthnotes, Inc. www.healthnotes.com

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

Mistletoe
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10109,00.html

MSM
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,807,00.html

Nettle
Alternative names: Urtica dioica
Source: Healthnotes, Inc. www.healthnotes.com

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

OPCs (Oligomeric Proanthocyanidins)
Source: Prima Communications, Inc.www.personalhealthzone.com

PABA
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10049,00.html

Peppermint
Alternative names: Mentha piperita
Source: Healthnotes, Inc. www.healthnotes.com

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

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

Psyllium
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,814,00.html

Purple Coneflower
Source: Integrative Medicine Communications; www.drkoop.com

Roman Chamomile
Alternative names: Chamaemelum nobile
Source: Integrative Medicine Communications; www.drkoop.com

Rosemary
Alternative names: Rosmarinus officinalis
Source: Integrative Medicine Communications; www.drkoop.com

Rosmarinus officinalis
Source: Integrative Medicine Communications; www.drkoop.com

Royal Jelly
Source: Healthnotes, Inc. www.healthnotes.com

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

St. John's Wort
Source: Prima Communications, Inc.www.personalhealthzone.com

St. John's wort
Source: WholeHealthMD.com, LLC. www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,824,00.html

Taraxacum officinale
Source: Integrative Medicine Communications; www.drkoop.com

Tea Tree
Alternative names: Melaleuca alternifolia
Source: Healthnotes, Inc. www.healthnotes.com

Topical Corticosteroids
Source: Healthnotes, Inc. www.healthnotes.com

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

Yerba Santa
Source: Prima Communications, Inc.www.personalhealthzone.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 ALLERGIC REACTIONS

Overview

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

Dissertations on Allergic Reactions

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 allergic reactions. 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:

- **Allergic Reactions to Communication Devices Placed in the Human Ear Canal** by Moore, Denis Gerard; Aud from Central Michigan University, 2002, 35 pages http://wwwlib.umi.com/dissertations/fullcit/3041263

Keeping Current

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

CHAPTER 5. CLINICAL TRIALS AND ALLERGIC REACTIONS

Overview

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

Recent Trials on Allergic Reactions

The following is a list of recent trials dedicated to allergic reactions.[5] Further information on a trial is available at the Web site indicated.

- **Factors Involved in Asthma and Airway Inflammation**

  Condition(s): Asthma; Healthy

  Study Status: This study is completed.

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

  Purpose - Excerpt: Asthma is the third leading cause of preventable admissions to the hospital in the United States. Deaths and diseases associated with asthma increase every year. Asthma is a disorder of airway inflammation. There are several factors thought to play a role in the process of inflammation. In this study researchers are particularly interested in studying a factors known as TNF (tumor necrosis factor) and the sites where this factor attaches called receptors. Another factor associated with receptor processing is called aminopeptidase-like protein. It may be involved in the relationship between TNF, it's receptors, and inflammation. In order to understand the relationship between these factors, researchers plan to simulate an **allergic reaction** in the lungs and airways of patients participating in the study. By doing this they can collect and study the factors causing airway inflammation. Samples collected from patients with asthma will be compared to samples from volunteers without asthma. Patients and volunteers participating in this study will not directly benefit from this research. However, the study may help researchers understand the causes and processes involved in asthma. In addition, the study may lead to the development of new treatments for asthma and airway inflammation.

  Study Type: Observational

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

Contact(s): see Web site below

Web Site: http://clinicaltrials.gov/ct/show/NCT00001887

- **Mechanisms of Allergen Immunotherapy**

  Condition(s): Asthma; Hypersensitivity

  Study Status: This study is completed.

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

  Purpose - Excerpt: This study will examine how allergen immunotherapy (allergy shots) works to reduce or prevent reactions to allergens such as pollen, dust or cat dander. Certain T cells (types of white blood cells) called Th2 cells produce substances that generate allergies. Other T cells called Th1 cells produce substances that have opposite effects. This study will determine if allergy shots change the immune response to allergens by reducing the number of Th2 cells or by changing them into Th1 cells. A better understanding of how this treatment works may help scientists develop more effective allergy therapies. People between 18 and 50 years of age who have had allergic asthma for at least 1 year may participate in this study. Candidates' medical, allergy and medication histories will be reviewed, and they will have a physical examination, including routine blood tests, urinalysis, electrocardiogram (EKG), and lung function test. Blood will also be drawn to test T cell response to allergens, and 12 skin tests (similar to a tuberculosis skin test) will be done to test for sensitivity to various allergens. Participants will be admitted to the Clinical Center for 1 to 2 days for rush therapy (see below). They will have a brief history and physical examination. A heparin lock (thin plastic tube similar to an intravenous line) will be placed in an arm vein. They will then undergo the following procedures: - Rush/Cluster Immunotherapy - An allergen is given in increasing doses over 2 to 5 weeks. During rush therapy, the dose is increased rapidly over 1 to 2 days until a moderate level dose is reached. To reduce the chance of an **allergic reaction**, patients take prednisone, cetirizine (Zyrtec(r) (Registered Trademark)), ranitidine (Zantac(r) (Registered Trademark)) and montelukast (Singular(r) (Registered Trademark)) starting 24 hours before treatment begins until rush therapy ends. After discharge on the third day, patients return to the clinic once a week for the next 2 to 5 weeks for cluster therapy, in which the dose is increased more gradually to a maintenance level. - Maintenance Immunotherapy - Participants receive 12 weekly injections at the maintenance dose. Blood is drawn during one visit between weeks 2 and 7 of maintenance therapy. - Follow-up Visits - Patients return to the clinic 2 and 3 weeks after the last maintenance dose for blood draws and evaluations. In addition, a "late-phase" allergen skin test is done at the 3-week follow-up to compare reaction results with those from the test done at the screening visit. - End-of-Study Visit - 12 to 16 weeks after the last allergy shot, patients return for a final blood draw and brief evaluation.

  Study Type: Observational

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00001910

Keeping Current on Clinical Trials

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

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

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

- For clinical studies at the Warren Grant Magnuson Clinical Center located in Bethesda, Maryland, visit their Web site: **http://clinicalstudies.info.nih.gov/**
- For clinical studies conducted at the Bayview Campus in Baltimore, Maryland, visit their Web site: **http://www.jhbmc.jhu.edu/studies/index.html**
- For cancer trials, visit the National Cancer Institute: **http://cancertrials.nci.nih.gov/**
- For eye-related trials, visit and search the Web page of the National Eye Institute: **http://www.nei.nih.gov/neitrials/index.htm**
- For heart, lung and blood trials, visit the Web page of the National Heart, Lung and Blood Institute: **http://www.nhlbi.nih.gov/studies/index.htm**
- For trials on aging, visit and search the Web site of the National Institute on Aging: **http://www.grc.nia.nih.gov/studies/index.htm**
- For rare diseases, visit and search the Web site sponsored by the Office of Rare Diseases: **http://ord.aspensys.com/asp/resources/rsch_trials.asp**
- For alcoholism, visit the National Institute on Alcohol Abuse and Alcoholism: **http://www.niaaa.nih.gov/intramural/Web_dicbr_hp/particip.htm**
- For trials on infectious, immune, and allergic diseases, visit the site of the National Institute of Allergy and Infectious Diseases: **http://www.niaid.nih.gov/clintrials/**
- For trials on arthritis, musculoskeletal and skin diseases, visit newly revised site of the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health: **http://www.niams.nih.gov/hi/studies/index.htm**
- For hearing-related trials, visit the National Institute on Deafness and Other Communication Disorders: **http://www.nidcd.nih.gov/health/clinical/index.htm**
- For trials on diseases of the digestive system and kidneys, and diabetes, visit the National Institute of Diabetes and Digestive and Kidney Diseases: **http://www.niddk.nih.gov/patient/patient.htm**
- For drug abuse trials, visit and search the Web site sponsored by the National Institute on Drug Abuse: **http://www.nida.nih.gov/CTN/Index.htm**

- For trials on mental disorders, visit and search the Web site of the National Institute of Mental Health: **http://www.nimh.nih.gov/studies/index.cfm**
- For trials on neurological disorders and stroke, visit and search the Web site sponsored by the National Institute of Neurological Disorders and Stroke of the NIH: **http://www.ninds.nih.gov/funding/funding_opportunities.htm#Clinical_Trials**

CHAPTER 6. PATENTS ON ALLERGIC REACTIONS

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.[6] Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

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

Patents on Allergic Reactions

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

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

The following is an example of the type of information that you can expect to obtain from a patent search on allergic reactions:

- **(Substituted 2-carboxyanilino)nicotinic acids as inhibitors of allergic reactions**

  Inventor(s): Schwender; Charles F. (Dexter, MI), Sunday; Brooks R. (Hackettstown, NJ)

  Assignee(s): Warner-Lambert Company (Morris Plains, NJ)

  Patent Number: 4,179,509

  Date filed: September 18, 1978

  Abstract: The present invention relates to (substituted 2-carboxyanilino) nicotinic acids which have the capability of inhibiting allergic reactions.

  Excerpt(s): As used in the above definition for R, alkyl is meant to encompass lower alkyls of 1 to 4 carbon atoms, that is methyl, ethyl, propyl, isopropyl, butyl, and isobutyl radicals; alkoxy is meant to encompass lower alkoxy radicals of 1 to 4 carbon atoms; and halogen is meant to encompass fluorine, chlorine, and bromine radicals. ... The pharmaceutically acceptable salts of the compounds of the present invention may be prepared by conventional reactions with equivalent amounts of organic or inorganic solutions. As exemplary, but not limiting, of pharmaceutically acceptable salts are the salts of hydrochloric, sulfuric, acetic, fumeric, malic and citric acids, and appropriate bases such as the hydroxides or bicarbonates of potassium and sodium. The compounds of the present invention which are preferred are those in which R of the generic structure is defined as being hydrogen, methoxy, or methyl. ... The compounds of the present invention are synthesized by reacting the appropriately substituted 11-oxo-11-H-pyrido[2,1-b]quinazoline with at least two molecular equivalents of a strong base such as sodium or potassium hydroxide.

  Web site: http://www.delphion.com/details?pn=US04179509__

- **Combination of PAF antagonists and LTD.sub.4 antagonists for the treatment of allergic reactions**

  Inventor(s): Welton; Ann (North Caldwell, NJ), O'Donnell; Margaret (Clifton, NJ)

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

  Patent Number: 5,227,378

  Date filed: March 9, 1992

  Abstract: The invention relates to compositions comprising combinations of a PAF antagonist and a LTD.sub.4 antagonist which combinations synergistically provide protection against allergic reactions such as antigen-induced death in mammals.In another aspect, the invention relates to the use of the referred to combinations in the treatment of allergic reactions.

  Excerpt(s): The invention relates to compositions comprising combinations of a PAF antagonist and a LTD.sub.4 antagonist which combinations synergistically provide protection against allergic reactions such as antigen-induced death in mammals. ... In another aspect, the invention relates to the use of the referred to combinations in the treatment of allergic reactions. ... The invention relates compositions comprising the synergistic combination of platelet activating factor (PAF) antagonists with leukotriene D.sub.4 (LTD.sub.4) antagonists and the use thereof to treat allergic reactions.

Web site: http://www.delphion.com/details?pn=US05227378__

- **Method for reducing mast cell mediated allergic reactions**

  Inventor(s): Araneo; Barbara A. (Salt Lake City, UT), Norton; Steven D. (Salt Lake City, UT), Dowell; Tad (Salt Lake City, UT)

  Assignee(s): Pharmadigm, Inc. (Salt Lake City, UT), University of Utah Research Foundation (Salt Lake City, UT)

  Patent Number: 5,859,000

  Date filed: November 7, 1997

  Abstract: The present invention is directed to a method for reducing mast cell mediated allergic reactions, including mast cell mediated allergy and asthma. Mast cell mediated allergic reactions, including type I hypersensitivity reasponse to allergens and asthma, are reduced by administering a dehydroepiandrosterone (DHEA) derivative to a patient in a manner which quickly raises blood levels of the active agent.

  Excerpt(s): The present invention is related to a method for reducing the effects of mast cell mediated allergic reactions, including mast cell mediated allergy and asthma. In accordance with the present invention, these allergic reactions are reduced by administering a dehydroepiandrosterone (DHEA) derivative. ... The publications and other materials used herein to illuminate the background of the invention, and in particular cases, to provide additional details respecting the practice, are incorporated by reference, and for convenience are numerically referenced in the following text and respectively grouped in the appended bibliography. ... Dehydroepiandrosterone (DHEA), a weak androgen, serves as the primary precursor in the biosynthesis of both androgens and estrogens (1). DHEA has been reported to play a mitigating role in obesity, diabetes, carcinogenesis, autoimmunity, neurological loss of memory (2-5), and the negative effects of GCS on IL-2 production by murine T cells (6).

  Web site: http://www.delphion.com/details?pn=US05859000__

- **Method for treating allergic reactions and compositions therefore**

  Inventor(s): Sherlock; Margaret H. (Bloomfield, NJ)

  Assignee(s): Schering Corporation (Kenilworth, NJ)

  Patent Number: 4,628,055

  Date filed: October 15, 1984

  Abstract: Certain substituted 1,8-naphthyridines and 1,5,8-azanaphthyridines are useful for treating allergic reactions in mammals. Certain of the compounds may also be utilized to treat chronic obstructive lung diseases in mammals.Methods for preparing the compounds and methods for their use are also described.

  Excerpt(s): Japanese patent public disclosure (Kokai) No. 116495/77, Sept. 29, 1977 discloses various naphthyridine derivatives which allegedly possess analgesic, anti-inflammatory, central nervous system depressant and diuretic effects. There is no indication that the compounds disclosed in the Japanese publication have activity against chronic obstructive lung diseases such as asthma, bronchitis and the like or that these compounds would be useful for treating allergic reactions. ... or an amine; with the proviso that when X is CH, Y and Z are both hydrogen and R.sub.1 is n-butyl; R.sub.2 is

not hydrogen or a cation derived from a pharmaceutically acceptable metal or an amine and with the further proviso that when X is CH, Y and Z are both hydrogen, and R.sub.1 is n-butyl; R.sub.2 is not allyl. ... The preferred value for X is CH.

Web site: http://www.delphion.com/details?pn=US04628055__

- **Method for treating late phase allergic reactions and inflammatory diseases**

  Inventor(s): Ahmed; Tahir (Coral Gables, FL)

  Assignee(s): Baker Norton Pharmaceuticals, Inc. (Miami, FL)

  Patent Number: 5,980,865

  Date filed: August 4, 1997

  Abstract: A method of treating a mammalian patient suffering from or prone to a condition characterized by late phase allergic reactions, airway hyperresponsiveness or inflammatory reactions, e.g., asthma, allergic rhinitis, allergic dermatitis, allergic conjunctivitis, inflammatory bowel disease or rheumatoid arthritis, comprising the administration to the patient of an oral, parenteral, intrabronchial, topical, intranasal or intraocular pharmaceutical composition containing in each dose about 0.005 to about 1.0 mg per kilogram of patient body weight of ultra-low molecular weight heparins (ULMWH) or other sulfated polysaccharides having average molecular weights of about 1,000-3,000 daltons. Suitable inhalant and other pharmaceutical compositions for use in the novel treatment method are also disclosed.

  Excerpt(s): The invention relates to methods and compositions for preventing and reversing the symptoms and manifestations of late phase allergic reactions and inflammatory diseases. ... Chronic asthma can be considered to be predominantly an inflammatory disease with associated bronchospasm. The degree of reactivity and narrowing of the bronchi in response to stimuli is greater in asthmatics than in normal individuals. Persistent inflammation is responsible for the bronchial hyperreactivity or airway hyperresponsiveness (AHR). Mucosal edema, mucus plugging and hypersecretion may be present; pulmonary parenchyma is normal. Airway narrowing may reverse spontaneously or with therapy. Type 1 (immediate) immune responses may play an important role in the development of asthma in children and many adults; however, when onset of disease occurs in adulthood, allergic factors may be difficult to identify. Exposure to cold dry air, exercise and other aggravating factors also may trigger asthma. ... The general goals of drug therapy for asthma are prevention of bronchospasm and long-term control of bronchial hyperreactivity. Because it is usually not possible for either patient or physician to predict when bronchospasm may occur, patients with all but the most episodic and/or entirely seasonal attacks may require continuous therapy.

  Web site: http://www.delphion.com/details?pn=US05980865__

- **Methods and compositions for treating allergic reactions**

  Inventor(s): Mullarkey; Michael F. (1422 Eight Ave. West, Seattle, WA 98119)

  Assignee(s): none reported

  Patent Number: 5,770,401

  Date filed: April 14, 1994

Abstract: Methods and compositions for treating allergic reactions, including cutaneous, ocular, nasal and Bronchial allergic disease, are disclosed. Interleukin-1 and Tumor Necrosis Factor receptors, and analogues thereof, are employed which bind the respective effector competitively and thereby suppress allergic reactions.

Excerpt(s): The present invention relates to methods and compositions for treating allergic reactions, and, more particularly, for treating bronchial asthma, rhinitis, rhinoconjunctivitis, conjunctivitis, and dermatitis. ... An allergic reaction is any abnormal or altered reaction to an antigen (or "allergen"). Typically such a reaction is characterized by hypersensitivity of the body to specific substances, whether protein, lipid or carbohydrate in nature. Allergic reactions may be local, e.g. contact dermatitis, or systemic, e.g. anaphylaxis. ... Among allergic diseases, bronchial asthma is one of the most significant. In most urban hospitals, it is the leading cause of admission of children. Current medical practice accepts asthma in afflicted individuals to be an unavoidable, incurable illness. While suppression of symptoms is achieved to a degree sufficient to avoid death, urgent medical visits, disturbed sleep, and days lost from work are typically unavoidable.

Web site: http://www.delphion.com/details?pn=US05770401__

- **Naphthyridine derivatives and method for treating allergic reactions**

  Inventor(s): Smith; Sidney R. (Ridgewood, NJ), Siegel; Marvin I. (Woodbridge, NJ), Blythin; David J. (North Caldwell, NJ)

  Assignee(s): Schering Corporation (Kenilworth, NJ)

  Patent Number: 4,916,131

  Date filed: July 20, 1988

  Abstract: 1-Substituted naphthyridines and pyrido-pyrazines are disclosed which are useful in treating allergic reactions, inflammation, peptic ulcers and hyperproliferative skin diseases and in suppressing the immune response in mammals. Pharmaceutical compositions and methods of treatment employing such compounds are also disclosed.

  Excerpt(s): This invention relates to certain 1-substituted naphthyridine and pyridopyrazine derivatives which are useful in the treatment of allergies, inflammation, peptic ulcers and hyperproliferative diseases and which suppress the immune response in mammals. ... Carboni et al. in Farmaco, Ed. Sci., 1973, 28(9), 722-732 disclose 1-benzyl-7-benzyloxy-[1,8]naphthyridin-2-one and other compounds, but indicate that such compounds were tested as antibacterials and found to be inactive. ... European published application No. 0 172 058 discloses certain 1-phenyl-3-alkyl-[1,8]naphthyridin-2-ones as having anti-ulcer, anti-inflammatory and analgesic activities.

  Web site: http://www.delphion.com/details?pn=US04916131__

- **Pharmaceutical compositions for treating late phase allergic reactions and inflammatory diseases**

  Inventor(s): Ahmed; Tahir (Coral Gables, FL)

  Assignee(s): Baker Norton Pharmaceuticals, Inc. (Miami, FL)

  Patent Number: 6,193,957

  Date filed: May 4, 1999

  Abstract: A method of treating a mammalian patient suffering from or prone to a condition characterized by late phase allergic reactions, airway hyperresponsiveness or inflammatory reactions, e.g., asthma, allergic rhinitis, allergic dermatitis, allergic conjunctivitis, inflammatory bowel disease or rheumatoid arthritis, comprising the administration to the patient of an oral, parenteral, intrabronchial, topical, intranasal or intraocular pharmaceutical composition containing in each dose about 0.005 to about 1.0 mg per kilogram of patient body weight of ultra-low molecular weight heparins (ULMWH) or other sulfated polysaccharides having average molecular weights of about 1,000-3,000 daltons. Suitable inhalant and other pharmaceutical compositions for use in the novel treatment method are also disclosed.

  Excerpt(s): This application incorporates material included in Disclosure Document No. 401115, filed in the Patent and Trademark Office on Jun. 5, 1996. ... The invention relates to methods and compositions for preventing and reversing the symptoms and manifestations of late phase allergic reactions and inflammatory diseases. ... Chronic asthma can be considered to be predominantly an inflammatory disease with associated bronchospasm. The degree of reactivity and narrowing of the bronchi in response to stimuli is greater in asthmatics than in normal individuals. Persistent inflammation is responsible for the bronchial hyperreactivity or airway hyperresponsiveness (AHR). Mucosal edema, mucus plugging and hypersecretion may be present; pulmonary parenchyma is normal. Airway narrowing may reverse spontaneously or with therapy. Type 1 (immediate) immune responses may play an important role in the development of asthma in children and many adults; however, when onset of disease occurs in adulthood, allergic factors may be difficult to identify. Exposure to cold dry air, exercise and other aggravating factors also may trigger asthma.

  Web site: http://www.delphion.com/details?pn=US06193957__

- **Substituted sulfonamide derivatives which inhibit allergic reactions**

  Inventor(s): Sullivan; Timothy J. (Dallas, TX)

  Assignee(s): Board of Regents, The University of Texas System ()

  Patent Number: 5,064,637

  Date filed: May 30, 1989

  Abstract: The present invention involves intradermal, percutaneous, parenteral, or enteral administration of a newly synthesized compound to detect, reduce, or eliminate the occurrence of allergic reactions to sulfonamides. The new compound is a substituted sulfonamide, the substituent being bound to the paraamino (4-position) group through an azo, amide, or other linkage. Because a purpose of the substituent is to make the new compound water soluble, it can take a variety of forms, but it must contain carbon and hydrogen, plus at least one of oxygen and nitrogen. Examples of usable substituents include imidazole, a carbohydrate, or an amino acid such as histidine, tyrosine,

tryptophan, lysine, or tyrosine methyl ester; it may also be a synthetic polymer, polypeptde, polysaccharide, or an amino acid homopolymer.

Excerpt(s): Research relating to the present invention was partially supported by grant 000545 from the American Foundation for AIDS Research. ... Literature citations in the following descriptions are listed at the end of the specification and are incorporated in pertinent part by reference herein for the reasons cited. ... The immunochemistry of SM allergy in man is not completely understood. Haptenation of human molecules by SM.sup.10 or metabolism followed by haptenation.sup.5,11 has been suspected for many years but never has been unequivocally proven. Reactivity to the para-aminophenyl substituent, to determinants derived from quinone metabolites, and to the SM substituent have been proposed to explain experimental and clinical observations..sup.5,10,11 IgE antibodies to SM were documented nearly 40 years ago by Sherman and Cooke.sup.10 in convincing passive transfer experiments, but the determinants recognized by the IgE were not delineated. Studies of human contact sensitivity to SM, as assessed by patch testing.sup.5,11,12 and lymphocyte transformation assaysl.sup.3,14 have provided insights into the presence and specificity of what appear to be lymphocytemediated reactions. Evidence of immunopathologic reactions to SM abounds, but systematic studies of human immune responses to SM clearly are needed to improve diagnosis and knowledge of the pathophysiology of SM allergy.

Web site: http://www.delphion.com/details?pn=US05064637__

- **Symptomatic relief of allergic reactions**

  Inventor(s): Keller; Robert H (Weston, FL), Wen; Xue-Lan (Miami, FL)

  Assignee(s): Vit Immune, L.L.C. (Hollywood, FL)

  Patent Number: 6,432,455

  Date filed: November 30, 2000

  Abstract: The composition disclosed is a unique formulation of Traditional Chinese-Medicine (TCM) extracts created to reduce the debilitating symptoms of allergies. It combines a number of organically grown, but, non-organically extracted, standardized formulations of natural ingredients which have been used singly for hundreds of years for symptomatic relief of allergies. These include Ginseng and Gan Cao, which provide a natural anti-inflammatory effect; Bai Gao, which prevent the smooth muscle spasms associated with allergic reactions; Suan Zao ren, which provides an antihistamine effect without the usual sedative effect; and Wu Mai, which reduces the local swelling associated with allergies. Combined, it was unexpectedly found that these ingredients provide a natural, non-drying, non-sedating alternative to antihistamines, without inhibiting the natural healing mechanisms.

  Excerpt(s): This invention relates to pharmaceutical compositions and methods for the treatment of mammals suffering symptoms of allergic reactions. ... An allergy is defined as an immune response in a mammal induced by an environmental antigen that has deleterious effects resulting in significant tissue damage and inflammation. Allergies comprise one of the most common medical problems in the twentieth century with some estimates suggesting that as many at 10% of the population may be affected. The antigen (allergen) is a non-parasitic antigen and the immune response is generally a type I hypersensitivity reaction. This reaction, which comprises mast cell or basophil degranulation manifests itself clinically in disorders related to biological effects of

mediators released by the degranulation. These mediators are pharmacologically active agents that act on local tissues to increase vascular permeability and inflammation. Primary mediators such as histamine, serotonin, protease, prostaglandins SRS-A and similar substances released during degranulation may actually be more detrimental than beneficial to the comfort and well-being of the affected individual. the biological effects are the symptoms of the hypersensitivity reactions. ... The classical treatment of type I hypersensitivity reactions has heretofore comprised administration of, for example, antihistamines or a process termed desensitization. Desensitization involves multiple injections and requires frequent visits to a doctor over a long period of time. Antihistamines are, of course, effective to relieve the symptoms associated with the type I hypersensitivity reaction. Antihistamine treatment suffers from problems including drying of the mucous membranes and sedation as well as manifest side effects of depression and drowsiness. In addition, antihistamines can interact with other medicines. warnings are given to refrain from operating machinery when antihistamines are administered. Both methods are expensive.

Web site: http://www.delphion.com/details?pn=US06432455__

- **Vaccine comprising part of constant region of IgE for treatment of IgE-mediated allergic reactions**

  Inventor(s): Hellman; Lars T. (Vaderkvarnsgatan 11A, S-753 29 Uppsala, SE)

  Assignee(s): none reported

  Patent Number: 5,653,980

  Date filed: March 23, 1994

  Abstract: The invention relates to a vaccine, preferably for human use, against IgE-mediated allergic reactions. The vaccine contains a protein having the entire amino acid sequence of the constant CH2-CH3 domains of the epsilon chain of the IgE molecule or a structurally stable unit of said amino acid sequence, the protein optionally being coupled to one or more heterologous carrier proteins, and optionally containing an adjuvant. The vaccine is injected, with or without adjuvant, to raise the concentration of endogenous anti-IgE antibodies in the plasma of allergy subjects. In practice, the vaccine can be used against all types of IgE-mediated allergies since the antibodies are not dependent of the antigen specificity of the IgE molecule but will reduce the total IgE pool of the subject. Therefore, the vaccine is aimed at being used for treatment of subjects having different types of IgE-mediated allergies. The increased concentrations of anti-IgE antibodies reduces the free pool of antigen-specific IgE, which thereby strongly reduces the risk for an allergen-mediated release of the physiologically highly active substances which are stored or produced in connection with granula release from mast cells and basophilic leucocytes.

  Excerpt(s): The present invention relates to a vaccine desired to alleviate the symptoms or prevent the induction of IgE-mediated allergic reactions. Although the invention generally relates to a vaccine for use in a mammal, a preferred embodiment thereof relates to a vaccine for human use and, therefore, the invention will be described below generally with reference to such a vaccine for human use. ... IgE(immunoglobulin E) is, despite its normally very low concentration in human plasma (10-400 ng/ml), a major cause of hypersensitivities found within the human population. This property is due to its interaction with the high-affinity receptor for IgE on mast cells and basophilic leucocytes. ... Cross-linking of two IgE receptors on the surface of these cell types, by allergen binding, initiates the release of a number of physiologically active substances

such as histamine, PAF (platelet activating factor), heparin, chemotactic factors for eosinophilic and neutrophilic granulocytes, leucotrienes, prostaglandins and thromboxanes. It is these mediators which cause the direct symptoms of IgE-mediated allergic reactions (Type I hypersensitivity). Disease conditions belonging to this group include most types of asthma, fur allergies, pollen allergies, many types of food allergies and certain types of eczema.

Web site: http://www.delphion.com/details?pn=US05653980__

Patent Applications on Allergic Reactions

As of December 2000, U.S. patent applications are open to public viewing.[7] Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to allergic reactions:

- **Substituted pyrrole mannich bases to combat pain and allergic reactions**

  Inventor(s): Gerlach, Matthias ; (Brachttal, DE), Maul, Corinna ; (Aachen, DE)

  Correspondence: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC; FOURTH FLOOR; 1755 JEFFERSON DAVIS HIGHWAY; ARLINGTON; VA; 22202; US

  Patent Application Number: 20030023100

  Date filed: June 25, 2002

  Abstract: The invention relates to substituted pyrrole Mannich bases of general formula (I), wherein R.sup.1=H, a C.sub.1-10-alkyl-, aryl, a heteroaryl- or an aryl, heteroaryl-, CN, Br--, Cl or OH radical bound by a C.sub.1-6 alkylene group, R.sup.2=CH(R.sup.4)N(R.sup.5)(R.sup.6), R3, R3', R3" identically or individually represent H, F, Cl, Br, CF.sub.3, CN, NO.sub.2, SO.sub.2NH.sub.2, NHR', SR.sup.8, OR.sup.9, CO(OR.sup.10), CH.sup.2CO(OR.sup.11), COR.sup.15, a C.sub.1-10-alkyl-, aryl-, heteroaryl- aryl radical or a heteroalkyl radical bound by a C.sub.1-6 alkylene group, R.sup.4=an unsubstituted phenyl radical or a phenyl radical substituted at least with C.sub.1-4 alkyl, C.sub.1-3-alkoxy-, halogen-, a method for the production of the above-mentioned compounds, medicaments containing said compounds, and the use of said compounds in the production of medicaments. Said active ingredients are particularly suitable for pain therapy, and for treating inflammatory and allergic reactions, drug or alcohol abuse, diarrhoea, gastritis, ulcers, cardiovascular diseases, urinary incontinence, depressions, states of shock, migranes, narcolepsy, overweight, asthma, glaucoma, hyperkinetic syndrome, lack of drive, bulimia, anorexia, catalepsia, anxiolysis increasing vigilance and/or increasing libido.

  Excerpt(s): The invention relates to substituted pyrrole Mannich bases, processes for their preparation, medicaments comprising these compounds and the use of these compounds for the preparation of medicaments. ... Pain is one of the basic clinical symptoms. There is a worldwide need for effective pain treatments. The urgent need for action for target-orientated treatment of chronic and non-chronic states of pain appropriate for the patient, by which is to be understood successful and satisfactory pain treatment for the patient, is documented in the large number of scientific works which have been published in the field of applied analgesia and basic research in

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

nociception in recent years. ... Conventional opioids, such as e.g. morphine, are effective in the treatment of severe to very severe pain. However, they have as undesirable concomitant symptoms, inter alia, respiratory depression, vomiting, sedation, constipation and development of tolerance.

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

- **Symptomatic relief of allergic reactions**

Inventor(s): Keller, Robert H. ; (Weston, FL), Wen, Xue-Lan ; (Miami, FL)

Correspondence: Ronald R. Santucci; Pitney, Hardin, Kipp & Szuch, LLP; 20th Floor; 711 Third Avenue; New York; NY; 10017; US

Patent Application Number: 20010000144

Date filed: November 30, 2000

Abstract: The composition disclosed is a unique formulation of Traditional Chinese Medicine (TCM) extracts created to reduce the debilitating symptoms of allergies. It combines a number of organically grown, but, non-organically extracted, standardized formulations of natural ingredients which have been used singly for hundreds of years for symptomatic relief of allergies. These include Ginseng and Gan Cao, which provide a natural anti-inflammatory effect; Bai Gao, which prevent the smooth muscle spasms associated with allergic reactions; Suan Zao ren, which provides an antihistamine effect without the usual sedative effect; and Wu Mai, which reduces the local swelling associated with allergies. Combined, it was unexpectedly found that these ingredients provide a natural, non-drying, non-sedating alternative to antihistamines, without inhibiting the natural healing mechanisms.

Excerpt(s): 2. This invention relates to pharmaceutical compositions and methods for the treatment of mammals suffering symptoms of allergic reactions. ... 4. An allergy is defined as an immune response in a mammal induced by an environmental antigen that has deleterious effects resulting in significant tissue damage and inflammation. Allergies comprise one of the most common medical problems in the twentieth century with some estimates suggesting that as many at 10% of the population may be affected. The antigen (allergen) is a non-parasitic antigen and the immune response is generally a type I hypersensitivity reaction. This reaction, which comprises mast cell or basophil degranulation manifests itself clinically in disorders related to biological effects of mediators released by the degranulation. These mediators are pharmacologically active agents that act on local tissues to increase vascular permeability and inflammation. Primary mediators such as histamine, serotonin, protease, prostaglandins SRS-A and similar substances released during degranulation may actually be more detrimental than beneficial to the comfort and well-being of the affected individual. the biological effects are the symptoms of the hypersensitivity reactions. ... 5. The classical treatment of type I hypersensitivity reactions has heretofore comprised administration of, for example, antihistamines or a process termed desensitization. Desensitization involves multiple injections and requires frequent visits to a doctor over a long period of time. Antihistamines are, of course, effective to relieve the symptoms associated with the type I hypersensitivity reaction. Antihistamine treatment suffers from problems including drying of the mucous membranes and sedation as well as manifest side effects of depression and drowsiness. In addition, antihistamines can interact with other medicines. Warnings are given to refrain from operating machinery when antihistamines are administered. Both methods are expensive.

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

Keeping Current

In order to stay informed about patents and patent applications dealing with allergic reactions, you can access the U.S. Patent Office archive via the Internet at the following Web address: **http://www.uspto.gov/main/patents.htm**. Under "Services," click on "Search Patents." You will see two broad options: (1) Patent Grants, and (2) Patent Applications. To see a list of granted patents, perform the following steps: Under "Patent Grants," click "Quick Search." Then, type "allergic reactions" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on allergic reactions. You can also use this procedure to view pending patent applications concerning allergic reactions. Simply go back to the following Web address: **http://www.uspto.gov/main/patents.htm**. Under "Services," click on "Search Patents." Select "Quick Search" under "Patent Applications." Then proceed with the steps listed above.

CHAPTER 7. BOOKS ON ALLERGIC REACTIONS

Overview

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

- **Foods That Harm, Foods That Heal: An A-Z Guide to Safe and Healthy Eating**

  Source: Pleasantville, NY: Reader's Digest. 1997. 400 p.

  Contact: Available from Customer Service, Reader's Digest. Pleasantville, NY 10570. (800) 846-2100. PRICE: $30.00. ISBN: 0895779129.

  Summary: This nutrition reference book features more than 400 photographs and illustrations with more than 400 A to Z entries on a vast range of foods and health concerns, include caffeine, cancer, diabetes, fast food, garlic, heart disease, influenza, osteoporosis, pregnancy, sexually transmitted diseases, and vegetarianism. The book is designed to provide families with information to help understand the close links between foods and wellness. Each food entry provides at-a-glance information on its nutrients (or lack of) and its benefits and drawbacks. Each ailment is accompanied by a list of foods and beverages that are considered safe, and what foods or beverages should

be cut down or avoided altogether. Personalized case studies help to illustrate various topics. There are special features on eating during different life stages, from infancy to old age, as well as such issues as genetically altered foods, irradiation, pesticides, and pollution. Other topics include how to cook foods to achieve maximum nutritional benefits; which dietary supplements really work; tips on exercising, storing food, and reading food labels; an instructive analysis of the most popular diet regimens; and controversial foods and additives such as eggs, nitrites, bran, cheese, milk, fat, wine, and alcohol. A glossary defines unfamiliar or technical terms; there is also a listing of organizations that can provide further information and resources. Topics specifically related to digestive diseases include **allergic reactions** to food, anorexia nervosa, antioxidants, appetite loss, basic food groups, carbohydrates, celiac disease, childhood and adolescent nutrition, cholesterol, constipation, convenience foods, Crohn's disease, diarrhea, dieting and weight control, digestive and malabsorption disorders, diverticulitis, fats, fiber, food poisoning, gastritis, gastroenteritis, gout, hiatal hernia, indigestion and heartburn, intolerance to milk and other foods, irritable bowel syndrome, malnutrition, medicine-food interactions, minerals, obesity, organic and health foods, preparation and storage of food, restaurants and eating out, smoking and diet, sports nutrition, supplements, traveler's health, ulcers, vitamins, and worms and other parasites.

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

- **Allergic Reactions** by David Nitka (1994); ISBN: 0964119609; http://www.amazon.com/exec/obidos/ASIN/0964119609/icongroupinterna
- **Allergic Reactions to Anaesthetics: Clinical and Basic Aspects (Monographs in Allergy, Vol 30)** by E.-S. Assem (Editor) (1992); ISBN: 3805554893; http://www.amazon.com/exec/obidos/ASIN/3805554893/icongroupinterna
- **Allergies / Allergic Reactions Video Series** by Primedia; ISBN: 140188069X; http://www.amazon.com/exec/obidos/ASIN/140188069X/icongroupinterna
- **Allergies Sourcebook: Basic Information About Major Forms and Mechanisms of Common Allergic Reactions, Sensitivities, and Intolerances Including Anaphylaxis, Asthma, Hives (Health Reference Series, Vol 19)** by Allan R. Cook (Editor), Linda M. Ross (Editor); ISBN: 0780800362; http://www.amazon.com/exec/obidos/ASIN/0780800362/icongroupinterna
- **BECKER BIOCHEMISTRY OF THE ACUTE ALLERGIC REACTIONS (4TH INT SYMPOSIUM)** by BECKER; ISBN: 0471562785; http://www.amazon.com/exec/obidos/ASIN/0471562785/icongroupinterna

- **Biochemistry of the Acute Allergic Reactions** by Alfred I. Tauber (Editor), et al; ISBN: 0471515140;
  http://www.amazon.com/exec/obidos/ASIN/0471515140/icongroupinterna
- **Biochemistry of the acute allergic reactions : Fifth International Symposium : proceedings of the biochemistry of the acute allergic reactions--fifth international symposium, held in Boston, Massachusetts, June 20-21, 1988**; ISBN: 0845151479;
  http://www.amazon.com/exec/obidos/ASIN/0845151479/icongroupinterna
- **Biochemistry of the acute allergic reactions : fourth international symposium**; ISBN: 0845103040;
  http://www.amazon.com/exec/obidos/ASIN/0845103040/icongroupinterna
- **Biochemistry of the acute allergic reactions; a symposium**; ISBN: 0632049901;
  http://www.amazon.com/exec/obidos/ASIN/0632049901/icongroupinterna
- **Cell Mediated Reactions, Miscellaneous Topics Vol. 3: Par, Pseudo-Allergic Reactions. Involvement of Drugs and Chemicals** by P. Dukor (Editor), et al (1982); ISBN: 380550960X;
  http://www.amazon.com/exec/obidos/ASIN/380550960X/icongroupinterna
- **EMED: Allergic Reactions - Assisting with Medications** by Primedia; ISBN: 1401898440;
  http://www.amazon.com/exec/obidos/ASIN/1401898440/icongroupinterna
- **Idiopathic, Food-Induced and Drug-Induced Pseudo-Allergic Reactions (Par: Pseudo-Allergic Reactions: Involvement of Drugs and Chemicals, Vol 4)** by P. Dukor (Editor), et al (1985); ISBN: 3805537980;
  http://www.amazon.com/exec/obidos/ASIN/3805537980/icongroupinterna
- **Late Phase Allergic Reactions** by Walter Dorsch (Editor); ISBN: 0849367433;
  http://www.amazon.com/exec/obidos/ASIN/0849367433/icongroupinterna
- **Life-Threatening Allergic Reactions: Understanding and Coping With Anaphylaxis** by Deryk Williams, et al (1998); ISBN: 0749917008;
  http://www.amazon.com/exec/obidos/ASIN/0749917008/icongroupinterna
- **Pathology & Physiology of Allergic Reactions** by P. S. Norman (Editor), Collegium Internationale Allergologicum (1985); ISBN: 3805540566;
  http://www.amazon.com/exec/obidos/ASIN/3805540566/icongroupinterna

The National Library of Medicine Book Index

The National Library of Medicine at the National Institutes of Health has a massive database of books published on healthcare and biomedicine. Go to the following Internet site, **http://locatorplus.gov/**, and then select "Search LOCATORplus." Once you are in the search area, simply type "allergic reactions" (or synonyms) into the search box, and select "books only." From there, results can be sorted by publication date, author, or relevance. The following was recently catalogued by the National Library of Medicine:[8]

[8] In addition to LOCATORPlus, in collaboration with authors and publishers, the National Center for Biotechnology Information (NCBI) is currently adapting biomedical books for the Web. The books may be accessed in two ways: (1) by searching directly using any search term or phrase (in the same way as the bibliographic database PubMed), or (2) by following the links to PubMed abstracts. Each PubMed abstract has a "Books" button that displays a facsimile of the abstract in which some phrases are hypertext links. These phrases are also found in the books available at NCBI. Click on hyperlinked results in the list of books in which the phrase is found. Currently, the majority of the links are between the books and PubMed. In the future, more links will be created

- **Experimental allergic reactions induced by simple chemical compounds.** Author: Ishikawa, Mitsuteru.; Year: 1953; Tokyo, Maruzen [c1953]
- **Infections and inflammatory reactions, allergy and allergic reactions; degenerative diseases** Author: Radermecker, F. J.; Year: 1977; Amsterdam: Elsevier Scientific Pub. Co., c1977; ISBN: 0444414827
- **Inhibition of immediate and late cutaneous allergic reactions by beta-adrenoceptor stimulants and other anti-allergic drugs: an experimental study in man** Author: Grönneberg, Reidar.; Year: 1981; Stockholm: Tryckeri Balder, 1981

Chapters on Allergic Reactions

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

- **Orofacial Allergic Reactions**

  Source: in Lamey, P.J. Lewis, M.A.O. Clinical Guide to Oral Medicine. 2nd ed. Hampshire, United Kingdom: British Dental Journal (BDJ), Stockton Press. 1997. p. 35-39.

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

  Summary: This chapter on orofacial allergic reactions is from a clinical guide to oral medicine. The book is a compilation of pathology photographs designed to improve competence in the recognition of diseases involving the oral and para-oral structures. The book includes summaries of the management of those conditions most frequently seen in practice. The authors note that allergic reactions may produce a variety of clinical signs and symptoms. It is now apparent that the occurrence of lip swelling, oral ulceration, or mucosal white patches may be due to a sensitivity to components of dental materials (particularly amalgam), toothpastes, food, drinks, or drugs. Although allergic reactions do not occur frequently, it is important to identify any factor that may be responsible for orofacial lesions, since elimination of the allergen will usually lead to rapid resolution of symptoms. In particular, suspected cases of recurrent erythema multiforme, orofacial granulomatosis, or lichenoid reactions require early institution of allergy tests. Full color photographs illustrate the chapter. 16 figures.

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between the books and other types of information, such as gene and protein sequences and macromolecular structures. See **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books**.

CHAPTER 8. MULTIMEDIA ON ALLERGIC REACTIONS

Overview

In this chapter, we show you how to keep current on multimedia sources of information on allergic reactions. 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 Allergic Reactions

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 allergic reactions (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 allergic reactions (for more information, follow the hyperlink indicated):

- **Allergic reactions [videorecording]** Source: Educational Communications Ctr., SUNY/Buffalo; Year: 1981; Format: Videorecording; Buffalo, N.Y.: The Center, c1981
- **Allergic reactions [videorecording]** Source: a production of American Safety Video Publishers; Year: 1996; Format: Videorecording; [St. Louis, Mo.?]: Mosby-Year Book, c1996
- **Allergic reactions and asthma [videorecording]** Source: a joint production of... Audio Visual Center and Staff Education; Year: 1992; Format: Videorecording; [Oakland, Calif.]: Kaiser Foundation Health Plan, c1992
- **Allergic reactions during anesthesia [videorecording]** Source: with Robert K. Stoelting; Year: 1989; Format: Videorecording; Secaucus, N.J.: Network for Continuing Medical Education, c1989
- **Allergic reactions to food [sound recording]** Source: Western New York Dietetic Association; Year: 1976; Format: Sound recording; Buffalo: Communications in Learning, 1976

- **The Psychiatric manifestations of allergic reactions [sound recording]** Source: Huxley Institute for Biosocial Research; Year: 1978; Format: Sound recording; New York: The Institute, [1978]
- **Type III antigen-antibody complex mediated allergic reactions [slide]** Source: Hal B. Richerson; Year: 1977; Format: Slide; [New York]: American Lung Assn. for American Thoracic Society, c1977

CHAPTER 9. PERIODICALS AND NEWS ON ALLERGIC REACTIONS

Overview

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

News Services and Press Releases

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

- **Many parents don't treat kids' allergic reactions**
  Source: Reuters Health eLine
  Date: March 11, 2003
  http://www.reutershealth.com/archive/2003/03/11/eline/links/20030311elin018.html

- **Pharmacia Cox-2 inhibitor associated with allergic reactions, FDA warns**
  Source: Reuters Industry Breifing
  Date: November 15, 2002

- **FDA warns of Cox-2 inhibitor-associated allergic reactions**
  Source: Reuters Medical News
  Date: November 15, 2002

- **Allergic reaction tied to latex-handled doughnut**
  Source: Reuters Health eLine
  Date: October 18, 2002

- **Allergic reaction to laser tattoo removal reported**
  Source: Reuters Health eLine
  Date: August 29, 2002

- **Nutty kiss may cause allergic reaction**
  Source: Reuters Health eLine
  Date: June 06, 2002

- **Chimeric protein binds two immunoglobulin receptors, blocks allergic reaction**
  Source: Reuters Industry Breifing
  Date: May 02, 2002

- **Final exams up allergic reactions in asthmatics**
  Source: Reuters Health eLine
  Date: April 25, 2002

- **Rare allergic reaction to latex reported in baby**
  Source: Reuters Health eLine
  Date: March 29, 2002

- **Tablet may help prevent deadly allergic reaction**
  Source: Reuters Health eLine
  Date: March 05, 2002

- **Study suggests booze boosts allergic reactions**
  Source: Reuters Health eLine
  Date: January 16, 2002

The NIH

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

date at the following Web page: **http://www.nlm.nih.gov/medlineplus/newsbydate.html**. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

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

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at **http://www.marketwire.com/mw/release_index?channel=MedicalHealth**. Or simply go to Market Wire's home page at **http://www.marketwire.com/mw/home**, type "allergic reactions" (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 "allergic reactions" (or synonyms). If you know the name of a company that is relevant to allergic reactions, 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 "allergic reactions" (or synonyms).

Newsletters on Allergic Reactions

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

- **Nursing the Lactose Intolerant or Milk Allergic Infant**

  Source: Newsletter for People with Lactose Intolerance and Milk Allergy. Fall 1989. 1 p.

  Contact: Available from Newsletter for People with Lactose Intolerance and Milk Allergy. P.O. Box 3129, Ann Arbor, MI 48106-3129. (313) 572-9134.

  Summary: This brief article, from a newsletter for people who have lactose intolerance or milk allergy, discusses nursing the lactose intolerant or milk allergic infant. Topics include human breast milk versus cow's milk; problems for premature infants; alactasia; the use of soymilk, predigested formula, or lactase-treated breastmilk; **allergic reactions** to soymilk, and the importance of discussing nursing choices with a health care provider.

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 "allergic reactions" (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 allergic reactions:

- **Role of Food Allergy in Eczema, The**

  Source: ISDInformation. 1(1): 2,4. January 2003.

  Contact: Available from ISDInformation. P.O. Box 1074, Newport News, VA 23601.

  Summary: This newsletter article discusses the prevalence of food allergy in children with eczema. Eczema (atopic dermatitis) runs in families and affects almost one in seven children. Children with eczema often develop asthma and hayfever as they grow older. The rash of eczema can be reduced or prevented by diet. Studies show that one out of every three children with moderate to severe eczema has food allergy and the more severe the rash, the greater the likelihood a food allergy exists. An IgE antibody test and skin prick (scratch) tests should be performed. The results of these tests in addition to medical history will help the physician determine a diet. A diet that excludes various foods may be suggested. A specialist should be consulted in managing exclusion diets to help interpret ingredient labels and to aid in the management of possible severe **allergic reactions** when a food is reintroduced into the diet. The majority of children with eczema will outgrow or experience a reduction in their symptoms in the first three to five years of life and most will outgrow their food allergies. However, parents and doctors need to watch for the development of respiratory symptoms.

- **Allergist's View of Atopic Dermatitis**

  Source: The Advocate. 12(4): 1-2,7. 4th Quarter 2000.

  Contact: Available from National Eczema Association for Science and Education (NEASE). 1220 SW Morrison, Suite 433, Portland, OR 97205. (800) 818-7546 or (503) 228-4430. Fax (503) 224-3363. E-mail: nease@teleport.com. Website: www.eczema-assn.com.

Summary: This newsletter article provides health professionals with information on atopic dermatitis (AD). This common chronic skin disease, which causes an extremely itchy, red rash, affects 1 in 7 young children. AD and allergy are closely related. Many children first develop AD and then develop asthma and allergic rhinitis. Children with AD frequently develop allergic respiratory disease. About 1 out of 3 children with moderate to severe AD has food allergy. Although some **allergic reactions** to food, such as hives, wheezing, and vomiting, are obvious, food allergies are usually not easy to detect in most children with AD. Standard allergy tests are only partially helpful. The ultimate confirmation of food allergy is possible only through an oral food challenge. A positive reaction to an oral food challenge usually causes an itchy, raised red rash. More severe reactions, including hives, lip or throat swelling, cough, wheezing, vomiting, or abdominal pain, may also occur. Although eliminating an allergy causing food from a child's diet is preferable, it can be difficult to completely eliminate major foods such as egg, milk, wheat, or soy. The most frequent cause of dietary elimination failures is unknowing exposure to small amounts of the offending ingredient in processed foods. The prognosis for outgrowing food allergies is very good for most children. Environmental allergens such as pollens, animal dander, and dust mites should be suspected in children with asthma or chronic stuffy, itchy, runny nose or eyes. A skin prick test can be used to evaluate allergy to environmental allergens. The identification and removal of specific allergens can improve AD in these patients. Intensive moisturization is also important in the treatment of AD.

- **Inflammatory Diseases of the Larynx: Allergic and Immune Disorders**

  Source: Visible Voice. 4(1): 9-11,18-19. January 1995.

  Contact: Available from Center for Voice Disorders of Wake Forest University. Department of Otolaryngology, Bowman gray School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157-1034. (910) 716-4161.

  Summary: This article was written to familiarize the otolaryngologist with hypersensitivity and autoimmune diseases of the larynx. Topics covered include anaphylaxis; andioedema; Stevens-Johnson syndrome; inhalant **allergic reactions**; rheumatoid arthritis; systemic lupus erythematosus; cicatricial pemphigoid; relapsing polychondritis; and Sjogren's syndrome. For each of the conditions covered, the author discusses the symptoms, typical clinical presentation, diagnostic tests, and treatment options. 8 references.

Academic Periodicals covering Allergic Reactions

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to allergic reactions. In addition to these sources, you can search for articles covering allergic reactions 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 Institute[9]:

- 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**

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[10] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).
[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 "allergic reactions" 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 "allergic reactions" (or synonyms) into the "For these words:" box. The following is a sample result:

- **Tanning Booth Project Report**

  Source: Albany, NY, New York Department of Health, Bureau of Environmental Radiation Protection, 18 p., 1988.

  Contact: New York Department of Health, Bureau of Environmental Radiation Protection, 2 University Place, Albany, NY 12203.

  Summary: The Tanning Booth Project Report of the New York Department of Health Bureau of Environmental Radiation Protection reviews tanning booth facilities and physician reported injuries to assess the type and frequency of problems associated with tanning booth use. Tanning by exposure to artificial sources of ultraviolet radiation (UV) has become popular in the United States. Overexposure to UV is known to cause (1) skin and eye burns, (2) **allergic reactions**, (3) cataracts, (4) premature skin aging, and (5) damage to the immune system and blood vessels, while chronic exposure increases the risk of skin cancer. To obtain information on the nature and extent of public health problems associated with these of suntanning devices, researchers visited sites of a sample of commercial suntanning facilities in the Capital District, Buffalo, and Syracuse metropolitan areas in June 1988. Researchers compared the sample's operation to the U.S. Department of Health and Human Services' standards for sunlamp products and to observe sanitary conditions. Researchers also mailed questionnaires on injuries sustained by suntanners to dermatologists, ophthalmologists, and emergency room physicians. Data analysis indicated very few owners/operators of booth facilities had adequate knowledge of the proper usage of UV devices, and 84 percent did not meet one or more of the existing federal standards or basic sanitary practices. Seventy-six of the 120 physicians who responded to the survey reported treating (1) 116 tanning booth-related eye injuries (of these patients, 51 were wearing protective eye covering), (2) 68 patients for first degree burns, (3) 24 patients or second degree burns, (4) 13 patients for skin reactions due to drug photosensitivity, and (5) 73 skin injuries during the previous 12 months.

The NLM Gateway[12]

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 "allergic reactions" (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	173124
Books / Periodicals / Audio Visual	2170
Consumer Health	442
Meeting Abstracts	91
Other Collections	1
Total	175828

HSTAT[14]

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 AHRQ's Put Prevention Into Practice.[16] Simply search by "allergic reactions" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

Coffee Break: Tutorials for Biologists[17]

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

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

staff.[18] 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.[19] This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for general background information. You can access the Coffee Break Web site at the following hyperlink: **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

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

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

[18] 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.

[19] 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 allergic reactions 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 allergic reactions. 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 allergic reactions. 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 "allergic reactions":

- Other Guides

  Cosmetics
  http://www.nlm.nih.gov/medlineplus/cosmetics.html

  Food Allergy
  http://www.nlm.nih.gov/medlineplus/foodallergy.html

  Insect Bites and Stings
  http://www.nlm.nih.gov/medlineplus/insectbitesandstings.html

  Latex Allergy
  http://www.nlm.nih.gov/medlineplus/latexallergy.html

  Tooth Disorders
  http://www.nlm.nih.gov/medlineplus/toothdisorders.html

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

The 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 allergic reactions. 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:

- **Aspartame is no more likely than placebo to cause allergic reactions**

  Source: Washington, DC: IFIC Food Education Foundation. 1992. 4 pp.

  Contact: Available from IFIC Food Education Foundation, 1100 Connecticut Avenue, N.W., Suite 430, Washington, DC 20036. Telephone: (202) 296- 6540 / fax: (202) 296-6547. Available at no charge.

  Summary: This fact sheet gives an overview of a double blind study which was presented at the American Academy of Allergy and Immunology meeting in March 1992. Results show that aspartame is no more likely than a placebo to cause allergic reactions in persons who believed they were sensitive to the ingredient.

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:

- **Allergic Reactions to Stings from Hornets, Wasps, Bees and YellowJackets: Patient Information**

  Summary: A general overview of allergic reactions to insect stings including a description of types of reactions, treatment (including venom immunotherapy), avoidance and prevention.

  Source: American College of Allergy, Asthma & Immunology

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=6120

- **FANKid Wordfind!**

  Summary: Some foods cause allergic reactions in some children. This food allergy puzzle may be easy for you to solve, if you are a child with food allergies, or know someone with food allergies.

  Source: Food Allergy and Anaphylaxis Network

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=5757

- **Food Allergy and Intolerances**

  Summary: It is extremely important for people who have true food allergies to identify them and prevent allergic reactions to food because these reactions can cause devastating illness and, in some cases, be

  Source: National Institute of Allergy and Infectious Diseases, National Institutes of Health

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=856

- **Preventing Allergic Reactions to Natural Rubber Latex in the Workplace**

  Summary: WARNING! Workers exposed to latex gloves and other products containing natural rubber latex may develop allergic reactions such as skin rashes; hives; nasal, eye, or sinus symptoms; asthma; and

  Source: National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=1043

- **Reactions to Fruit and Fruit Juice**

  Summary: This article discusses allergic reactions to fruit and fruit juices in young children -- includes symptoms and food types.

  Source: Food Allergy and Anaphylaxis Network

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=6069

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 allergic reactions. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

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

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

Associations and Allergic Reactions

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

- **Allergy to Latex Education and Resource Team, Inc. (A.L.E.R.T., Inc.)**

  Address:

  Telephone: (414) 677-9707 Toll-free: (888) 972-5378

  Fax: (414) 677-2808

  Email: alert@execpc.com

  Web Site: http://www.execpc.com/~alert

  Background: Allergy to Latex Education and Resource Team, Inc. (A.L.E.R.T., Inc.) is a voluntary nonprofit organization dedicated to creating awareness of latex allergy and providing support to affected individuals and family members. Latex is a natural rubber used in certain medical devices such as catheters and surgical gloves as well as many products such as adhesives and paints. It has been estimated that approximately one percent of the general population, and about five to 15 percent of health care workers and others regularly exposed to latex in their work environments, are allergic to latex. Upon latex exposure, affected individuals may experience symptoms that range from mild to severe and include one or more of the following: hives or welts; swelling of

affected areas; sneezing; headache; reddened, teary, and/or itchy eyes; hoarseness of the voice and/or soreness of the throat; abdominal cramps; and/or tightness of the chest, wheezing, and/or shortness of breath. Continued exposure to latex may cause a severe, potentially life-threatening allergic reaction (anaphylactic shock). A.L.E.R.T., Inc. was established in 1993 and currently has 10 chapters and approximately 2,000 members. The organization is committed to providing information and emotional support to affected individuals and their families and educating the public about latex allergy including health care workers, legislators, other government officials, industries, and enforcement agencies. A.L.E.R.T., Inc. is also dedicated to promoting the establishment of policies concerning the care of individuals with latex allergy; minimization of latex exposure for employees in all health care facilities and industrial settings; and research into the treatment and prevention of latex allergy.

- **Anaphylaxis Campaign**

  Address:

  Telephone: 01252 542029 Toll-free:

  Fax: 01252 377140

  Email: info@anaphylaxis.org.uk

  Web Site: http://www.anaphylaxis.org.uk/

  Background: The Anaphylaxis Campaign is a health organization in the United Kingdom dedicated to providing information, support, and guidance concerning anaphylaxis. Established in 1994 (current membership as of Jan 2003 is 6000), the Campaign is committed to raising awareness in the food industry as well as promoting professional education and awareness within the health care communities to ensure optimum provision of information to and treatment of affected individuals. Anaphylaxis is a severe allergic reaction upon exposure to certain 'sensitizing factors' (allergens), such as particular foods, drugs, chemicals, or insect stings. The condition occurs due to overreaction of the body's immune system in response to a previously encountered allergen (hypersensitivity reaction). Within seconds to minutes of exposure to such allergens, affected individuals may experience flushing of the skin; hives; swelling of the mouth and throat; difficulty speaking, swallowing, and/or breathing; nausea and vomiting; low blood pressure (hypotension); irregular heart beat (arrhythmia); and/or collapse and unconsciousness. If severe symptoms occur, an affected individual should immediately receive medical attention, and an injection of the naturally occurring hormone epinephrine (adrenaline) may be lifesaving. The Anaphylaxis Campaign promotes research, provides a variety of educational materials including informational brochures, publishes a regular newsletter, and has a web site on the Internet.

Finding Associations

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

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 allergic reactions. 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 "allergic reactions" (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 "allergic reactions". 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 "allergic reactions" (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 "allergic reactions" (or a synonym) into the search box, and click "Submit Query."

APPENDIX C. RESEARCHING MEDICATIONS

Overview

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

U.S. Pharmacopeia

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

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

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

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

Azelastine

- **Ophthalmic - U.S. Brands:** Optivar
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/500223.html

Bronchodilators, Adrenergic

- **Oral/Injection - U.S.** Brands: Adrenalin; Alupent; Ana-Guard; Brethine; Bricanyl; EpiPen Auto-Injector; EpiPen Jr. Auto-Injector; Isuprel; Proventil; Proventil Repetabs; Ventolin; Volmax
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202096.html

Clomiphene

- **Systemic - U.S. Brands:** Clomid; Milophene; Serophene
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202151.html

Corticosteroids Glucocorticoid Effects

- **Systemic - U.S. Brands:** Acetocot; A-hydroCort; Amcort; A-MethaPred; Aristocort; Aristocort Forte; Aristopak; Aristospan; Articulose-50; Articulose-L.A. Celestone; Celestone Phosphate; Celestone Soluspan; Cinalone 40; Cinonide 40; Clinacort; Clinalog; Cordrol; Cortastat; Corta
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202018.html

Cromolyn

- **Nasal - U.S. Brands:** Nasalcrom
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202167.html
- **Ophthalmic - U.S. Brands:** Crolom
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202168.html

Docetaxel

- **Systemic - U.S. Brands:** Taxotere
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202920.html

Ketotifen

- **Ophthalmic - U.S. Brands:** Zaditor
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/500012.html

Levocabastine

- **Ophthalmic - U.S. Brands:** Livostin
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202715.html

Lodoxamide

- **Ophthalmic - U.S. Brands:** Alomide
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202695.html

Olopatadine

- **Ophthalmic - U.S. Brands:** Patanol
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/203483.html

Tacrolimus

- **Topical - U.S. Brands:** Protopic
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/500279.html

Commercial Databases

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

Mosby's Drug Consult™

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

PDR*health*

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

Other Web Sites

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

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

APPENDIX D. 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.[20]

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. 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 libraries recommended by the National

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

Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)[21]:

- **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/**

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

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

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

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

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

ONLINE GLOSSARIES

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

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

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

- **Basic Guidelines for Allergic Reactions**

  Allergic reactions
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000005.htm

- **Signs & Symptoms for Allergic Reactions**

  Anxiety
  Web site: http://www.nlm.nih.gov/medlineplus/ency/article/003211.htm

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

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

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

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

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

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

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

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

- **Background Topics for Allergic Reactions**

Allergen
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/002229.htm

Bee sting
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000033.htm

Bee stings
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000033.htm

Shock
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000039.htm

Unconsciousness
Web site: http://www.nlm.nih.gov/medlineplus/ency/article/000022.htm

Online Dictionary Directories

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

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

ALLERGIC REACTIONS DICTIONARY

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

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

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

Abdominal 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]

Acoustic: Having to do with sound or hearing. [NIH]

Acremonium: A mitosporic fungal genus with many reported ascomycetous teleomorphs. Cephalosporin antibiotics are derived from this genus. [NIH]

Acrylonitrile: A highly poisonous compound used widely in the manufacture of plastics, adhesives and synthetic rubber. [NIH]

Activities of Daily Living: The performance of the basic activities of self care, such as dressing, ambulation, eating, etc., in rehabilitation. [NIH]

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

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

Acyl: Chemical signal used by bacteria to communicate. [NIH]

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

Adenovirus: A group of viruses that cause respiratory tract and eye infections. Adenoviruses used in gene therapy are altered to carry a specific tumor-fighting gene. [NIH]

Adhesives: Substances that cause the adherence of two surfaces. They include glues (properly collagen-derived adhesives), mucilages, sticky pastes, gums, resins, or latex. [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]

Adolescence: The period of life beginning with the appearance of secondary sex

characteristics and terminating with the cessation of somatic growth. The years usually referred to as adolescence lie between 13 and 18 years of age. [NIH]

Adrenal Cortex: The outer layer of the adrenal gland. It secretes mineralocorticoids, androgens, and glucocorticoids. [NIH]

Adrenal Medulla: The inner part of the adrenal gland; it synthesizes, stores and releases catecholamines. [NIH]

Adrenaline: A hormone. Also called epinephrine. [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]

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

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

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

Age of Onset: The age or period of life at which a disease or the initial symptoms or manifestations of a disease appear in an individual. [NIH]

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

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

Alactasia: An inherited condition causing the lack of the enzyme needed to digest milk sugar. [NIH]

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

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

Alimentary: Pertaining to food or nutritive material, or to the organs of digestion. [EU]

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: A 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]

Allo: A female hormone. [NIH]

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

Alloys: A mixture of metallic elements or compounds with other metallic or metalloid elements in varying proportions. [NIH]

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

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

Alpha-helix: One of the secondary element of protein. [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]

Alveolar Process: The thickest and spongiest part of the maxilla and mandible hollowed out into deep cavities for the teeth. [NIH]

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

Amenorrhea: Absence of menstruation. [NIH]

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

Amino acid: Any organic compound containing an amino (-NH2 and a carboxyl (- COOH) group. The 20 a-amino acids listed in the accompanying table are the amino acids from which proteins are synthesized by formation of peptide bonds during ribosomal translation of messenger RNA; all except glycine, which is not optically active, have the L configuration. Other amino acids occurring in proteins, such as hydroxyproline in collagen, are formed by posttranslational enzymatic modification of amino acids residues in polypeptide chains. There are also several important amino acids, such as the neurotransmitter y-aminobutyric acid, that have no relation to proteins. Abbreviated AA. [EU]

Amino Alcohols: Compounds possessing both a hydroxyl (-OH) and an amino group (-NH2). [NIH]

Aminophylline: A drug combination that contains theophylline and ethylenediamine. It is more soluble in water than theophylline but has similar pharmacologic actions. It's most common use is in bronchial asthma, but it has been investigated for several other applications. [NIH]

Ammonia: A colorless alkaline gas. It is formed in the body during decomposition of organic materials during a large number of metabolically important reactions. [NIH]

Amoxicillin: A broad-spectrum semisynthetic antibiotic similar to ampicillin except that its resistance to gastric acid permits higher serum levels with oral administration. [NIH]

Ampicillin: Semi-synthetic derivative of penicillin that functions as an orally active broad-spectrum antibiotic. [NIH]

Ampulla: A sac-like enlargement of a canal or duct. [NIH]

Amyl Nitrite: A vasodilator that is administered by inhalation. It is also used recreationally due to its supposed ability to induce euphoria and act as an aphrodisiac. [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]

Anaesthetic: 1. pertaining to, characterized by, or producing anaesthesia. 2. a drug or agent that is used to abolish the sensation of pain. [EU]

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

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

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

Anaphylactic: Pertaining to anaphylaxis. [EU]

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

Anaphylaxis: An acute hypersensitivity reaction due to exposure to a previously encountered antigen. The reaction may include rapidly progressing urticaria, respiratory distress, vascular collapse, systemic shock, and death. [NIH]

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

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

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

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]

Anesthetics: Agents that are capable of inducing a total or partial loss of sensation, especially tactile sensation and pain. They may act to induce general anesthesia, in which an unconscious state is achieved, or may act locally to induce numbness or lack of sensation at a targeted site. [NIH]

Angina: Chest pain that originates in the heart. [NIH]

Anginal: Pertaining to or characteristic of angina. [EU]

Angioedema: A vascular reaction involving the deep dermis or subcutaneous or submucal tissues, representing localized edema caused by dilatation and increased permeability of the capillaries, and characterized by development of giant wheals. [EU]

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

Angiography: Radiography of blood vessels after injection of a contrast medium. [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]

Anionic: Pertaining to or containing an anion. [EU]

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

Anisakiasis: Infection with roundworms of the genus Anisakis. Human infection results from the consumption of fish harboring roundworm larvae. The worms may cause acute nausea and vomiting or may penetrate into the wall of the digestive tract, where they give rise to eosinophilic granulomas in the stomach, intestine, or the omentum. [NIH]

Anisakis: A genus of nematodes of the superfamily Ascaridoidea. Its organisms are found in the stomachs of marine animals and birds. Human infection occurs by ingestion of raw fish that contain larvae. [NIH]

Anode: Electrode held at a positive potential with respect to a cathode. [NIH]

Anorexia: Clinical manifestation consisting of a physiopathological lack or loss of appetite accompanied by an aversion to food and the inability to eat. [NIH]

Anorexia Nervosa: The chief symptoms are inability to eat, weight loss, and amenorrhea. [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]

Anthelmintic: An agent that is destructive to worms. [EU]

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

Antiallergic: Counteracting allergy or allergic conditions. [EU]

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

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

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]

Anticholinergic: An agent that blocks the parasympathetic nerves. Called also parasympatholytic. [EU]

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]

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]

Antihistamine: A drug that counteracts the action of histamine. The antihistamines are of two types. The conventional ones, as those used in allergies, block the H1 histamine receptors, whereas the others block the H2 receptors. Called also antihistaminic. [EU]

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

Anti-infective: An agent that so acts. [EU]

Anti-Infective Agents: Substances that prevent infectious agents or organisms from spreading or kill infectious agents in order to prevent the spread of infection. [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]

Antineoplastic Agents: Substances that inhibit or prevent the proliferation of neoplasms. [NIH]

Antioxidants: Naturally occurring or synthetic substances that inhibit or retard the oxidation of a substance to which it is added. They counteract the harmful and damaging effects of oxidation in animal tissues. [NIH]

Antipruritic: Relieving or preventing itching. [EU]

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

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

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

Apomorphine: A derivative of morphine that is a dopamine D2 agonist. It is a powerful emetic and has been used for that effect in acute poisoning. It has also been used in the diagnosis and treatment of parkinsonism, but its adverse effects limit its use. [NIH]

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

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

Approximate: Approximal [EU]

Aqueous: Having to do with water. [NIH]

Arachidonate 12-Lipoxygenase: An enzyme that catalyzes the oxidation of arachidonic acid to yield 12-hydroperoxyarachidonate (12-HPETE) which is itself rapidly converted by a peroxidase to 12-hydroxy-5,8,10,14-eicosatetraenoate (12-HETE). The 12-hydroperoxides are preferentially formed in platelets. EC 1.13.11.31. [NIH]

Arachidonate 15-Lipoxygenase: An enzyme that catalyzes the oxidation of arachidonic acid to yield 15-hydroperoxyarachidonate (15-HPETE) which is rapidly converted to 15-hydroxy-5,8,11,13-eicosatetraenoate (15-HETE). The 15-hydroperoxides are preferentially formed in neutrophils and lymphocytes. EC 1.13.11.33. [NIH]

Arachidonate Lipoxygenases: Enzymes catalyzing the oxidation of arachidonic acid to hydroperoxyarachidonates (HPETES). These products are then rapidly converted by a peroxidase to hydroxyeicosatetraenoic acids (HETES). The positional specificity of the enzyme reaction varies from tissue to tissue. The final lipoxygenase pathway leads to the leukotrienes. EC 1.13.11.- . [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]

Archaea: One of the three domains of life (the others being bacteria and Eucarya), formerly called Archaebacteria under the taxon Bacteria, but now considered separate and distinct. They are characterized by: 1) the presence of characteristic tRNAs and ribosomal RNAs; 2) the absence of peptidoglycan cell walls; 3) the presence of ether-linked lipids built from branched-chain subunits; and 4) their occurrence in unusual habitats. While archaea resemble bacteria in morphology and genomic organization, they resemble eukarya in their method of genomic replication. The domain contains at least three kingdoms: crenarchaeota, euryarchaeota, and korarchaeota. [NIH]

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]

Arteriolar: Pertaining to or resembling arterioles. [EU]

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

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

Arthralgia: Pain in the joint. [NIH]

Articular: Of or pertaining to a joint. [EU]

Asparaginase: A hydrolase enzyme that converts L-asparagine and water to L-aspartate and NH3. EC 3.5.1.1. [NIH]

Aspartame: Flavoring agent sweeter than sugar, metabolized as phenylalanine and aspartic acid. [NIH]

Aspartate: A synthetic amino acid. [NIH]

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

Aspartic Acid: One of the non-essential amino acids commonly occurring in the L-form. It is found in animals and plants, especially in sugar cane and sugar beets. It may be a neurotransmitter. [NIH]

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

Astringent: Causing contraction, usually locally after topical application. [EU]

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]

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]

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

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

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

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

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

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

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

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

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

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

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

Bacteriuria: The presence of bacteria in the urine with or without consequent urinary tract infection. Since bacteriuria is a clinical entity, the term does not preclude the use of urine/microbiology for technical discussions on the isolation and segregation of bacteria in the urine. [NIH]

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

epilepsy. [NIH]

Barium: An element of the alkaline earth group of metals. It has an atomic symbol Ba, atomic number 56, and atomic weight 138. All of its acid-soluble salts are poisonous. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

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

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

Benzyl Alcohol: A colorless liquid with a sharp burning taste and slight odor. It is used as a local anesthetic and to reduce pain associated with lidocaine injection. Also, it is used in the manufacture of other benzyl compounds, as a pharmaceutic aid, and in perfumery and flavoring. [NIH]

Bifida: A defect in development of the vertebral column in which there is a central deficiency of the vertebral lamina. [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]

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

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

Biomolecular: A scientific field at the interface between advanced computing and biotechnology. [NIH]

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

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

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

Biotic: Pertaining to living organisms in their ecological rather than their physiological relations. [NIH]

Bismuth: A metallic element that has the atomic symbol Bi, atomic number 83 and atomic weight 208.98. [NIH]

Bladder: The organ that stores urine. [NIH]

Blister: Visible accumulations of fluid within or beneath the epidermis. [NIH]

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

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

Blood Glucose: Glucose in blood. [NIH]

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

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

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

Blood Volume: Volume of circulating blood. It is the sum of the plasma volume and erythrocyte volume. [NIH]

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

Body Fluids: Liquid components of living organisms. [NIH]

Body Mass Index: One of the anthropometric measures of body mass; it has the highest correlation with skinfold thickness or body density. [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]

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

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

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

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

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

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

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

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

Bromelain: An enzyme found in pineapples that breaks down other proteins, such as collagen and muscle fiber, and has anti-inflammatory properties. It is used as a meat tenderizer in the food industry. [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]

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

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

Bronchoscope: A thin, lighted tube used to examine the inside of the trachea and bronchi, the air passages that lead into the lungs. [NIH]

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

Bulimia: Episodic binge eating. The episodes may be associated with the fear of not being able to stop eating, depressed mood, or self-deprecating thoughts (binge-eating disorder) and may frequently be terminated by self-induced vomiting (bulimia nervosa). [NIH]

Bulking Agents: Laxatives that make bowel movements soft and easy to pass. [NIH]

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

Bupivacaine: A widely used local anesthetic agent. [NIH]

Burning Mouth Syndrome: A group of painful oral symptoms associated with a burning or similar sensation. There is usually a significant organic component with a degree of functional overlay; it is not limited to the psychophysiologic group of disorders. [NIH]

Burns: Injuries to tissues caused by contact with heat, steam, chemicals (burns, chemical), electricity (burns, electric), or the like. [NIH]

Burns, Electric: Burns produced by contact with electric current or from a sudden discharge of electricity. [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]

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 adenyl cyclase with subsequent activation. Thereby this protein modulates cyclic AMP and cyclic GMP levels. [NIH]

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

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

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

Capillary Permeability: Property of blood capillary walls that allows for the selective exchange of substances. Small lipid-soluble molecules such as carbon dioxide and oxygen move freely by diffusion. Water and water-soluble molecules cannot pass through the endothelial walls and are dependent on microscopic pores. These pores show narrow areas (tight junctions) which may limit large molecule movement. [NIH]

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, (CH2O)n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Carboplatin: An organoplatinum compound that possesses antineoplastic activity. [NIH]

Carboxy: Cannabinoid. [NIH]

Carcinogen: Any substance that causes cancer. [NIH]

Carcinogenic: Producing carcinoma. [EU]

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

Cardiology: The study of the heart, its physiology, and its functions. [NIH]

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

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

Carrier Proteins: Transport proteins that carry specific substances in the blood or across cell membranes. [NIH]

Case report: A detailed report of the diagnosis, treatment, and follow-up of an individual

patient. Case reports also contain some demographic information about the patient (for example, age, gender, ethnic origin). [NIH]

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

Cataracts: In medicine, an opacity of the crystalline lens of the eye obstructing partially or totally its transmission of light. [NIH]

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

Catheter: A flexible tube used to deliver fluids into or withdraw fluids from the body. [NIH]

Cathode: An electrode, usually an incandescent filament of tungsten, which emits electrons in an X-ray tube. [NIH]

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

Celiac Disease: A disease characterized by intestinal malabsorption and precipitated by gluten-containing foods. The intestinal mucosa shows loss of villous structure. [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 Adhesion Molecules: Surface ligands, usually glycoproteins, that mediate cell-to-cell adhesion. Their functions include the assembly and interconnection of various vertebrate systems, as well as maintenance of tissue integration, wound healing, morphogenic movements, cellular migrations, and metastasis. [NIH]

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

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

Cell Degranulation: The process of losing secretory granules (secretory vesicles). This occurs, for example, in mast cells, basophils, neutrophils, eosinophils, and platelets when secretory products are released from the granules by exocytosis. [NIH]

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

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

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

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

Cell Size: The physical dimensions of a cell. It refers mainly to changes in dimensions correlated with physiological or pathological changes in cells. [NIH]

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

materials, explosives manufacturing, and pharmaceutical preparations. [NIH]

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

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

Cephalosporins: A group of broad-spectrum antibiotics first isolated from the Mediterranean fungus Acremonium (Cephalosporium acremonium). They contain the beta-lactam moiety thia-azabicyclo-octenecarboxylic acid also called 7-aminocephalosporanic acid. [NIH]

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

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

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

Cetirizine: A potent second-generation histamine H1 antagonist that is effective in the treatment of allergic rhinitis, chronic urticaria, and pollen-induced asthma. Unlike many traditional antihistamines, it does not cause drowsiness or anticholinergic side effects. [NIH]

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

Cheilitis: Inflammation of the lips. It is of various etiologies and degrees of pathology. [NIH]

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

Chemoprotective: A quality of some drugs used in cancer treatment. Chemoprotective agents protect healthy tissue from the toxic effects of anticancer drugs. [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]

Chemotaxis: The movement of cells or organisms toward or away from a substance in response to its concentration gradient. [NIH]

Chemotherapeutic agent: A drug used to treat cancer. [NIH]

Chemotherapy: Treatment with anticancer drugs. [NIH]

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

Chin: The anatomical frontal portion of the mandible, also known as the mentum, that contains the line of fusion of the two separate halves of the mandible (symphysis menti). This line of fusion divides inferiorly to enclose a triangular area called the mental protuberance. On each side, inferior to the second premolar tooth, is the mental foramen for the passage of blood vessels and a nerve. [NIH]

Chlorhexidine: Disinfectant and topical anti-infective agent used also as mouthwash to prevent oral plaque. [NIH]

Chlorogenic Acid: A naturally occuring phenolic acid which is a carcinogenic inhibitor. It

has also been shown to prevent paraquat-induced oxidative stress in rats. (From J Chromatogr A 1996;741(2):223-31; Biosci Biotechnol Biochem 1996;60(5):765-68). [NIH]

Chlorophyll: Porphyrin derivatives containing magnesium that act to convert light energy in photosynthetic organisms. [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]

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]

Chromium: A trace element that plays a role in glucose metabolism. It has the atomic symbol Cr, atomic number 24, and atomic weight 52. According to the Fourth Annual Report on Carcinogens (NTP85-002,1985), chromium and some of its compounds have been listed as known carcinogens. [NIH]

Chromium Compounds: Inorganic compounds that contain chromium as an integral part of the molecule. [NIH]

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

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

Chronic leukemia: A slowly progressing cancer of the blood-forming tissues. [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]

Cicatricial: Ectropion due to scar tissue on the margins or the surrounding surfaces of the eyelids. [NIH]

Ciliated cells: Epithelial cells with fine hair-like strands on their free borders. [NIH]

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

Cisplatin: An inorganic and water-soluble platinum complex. After undergoing hydrolysis, it reacts with DNA to produce both intra and interstrand crosslinks. These crosslinks appear to impair replication and transcription of DNA. The cytotoxicity of cisplatin correlates with cellular arrest in the G2 phase of the cell cycle. [NIH]

C-kit receptor: A protein on the surface of some cells that binds to stem cell factor (a substance that causes certain types of cells to grow). Altered forms of this receptor may be associated with some types of cancer. [NIH]

Clavulanic Acid: Clavulanic acid (C8H9O5N) and its salts and esters. The acid is a suicide inhibitor of bacterial beta-lactamase enzymes from Streptomyces clavuligerus. Administered alone, it has only weak antibacterial activity against most organisms, but given in combination with beta-lactam antibiotics prevents antibiotic inactivation by microbial lactamase. [NIH]

Cleave: A double-stranded cut in DNA with a restriction endonuclease. [NIH]

Clindamycin: An antibacterial agent that is a semisynthetic analog of lincomycin. [NIH]

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

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

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

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

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]

Coal: A natural fuel formed by partial decomposition of vegetable matter under certain environmental conditions. [NIH]

Coal Tar: A by-product of the destructive distillation of coal used as a topical antieczematic. It is an antipruritic and keratoplastic agent used also in the treatment of psoriasis and other skin conditions. Occupational exposure to soots, tars, and certain mineral oils is known to be carcinogenic according to the Fourth Annual Report on Carcinogens (NTP 85-002, 1985) (Merck Index, 11th ed). [NIH]

Cobalt: A trace element that is a component of vitamin B12. It has the atomic symbol Co, atomic number 27, and atomic weight 58.93. It is used in nuclear weapons, alloys, and pigments. Deficiency in animals leads to anemia; its excess in humans can lead to erythrocytosis. [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]

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

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

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]

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

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

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

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

Colonoscopy: Endoscopic examination, therapy or surgery of the luminal surface of the colon. [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]

Combinatorial: A cut-and-paste process that churns out thousands of potentially valuable compounds at once. [NIH]

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

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

Compliance: Distensibility measure of a chamber such as the lungs (lung compliance) or bladder. Compliance is expressed as a change in volume per unit change in pressure. [NIH]

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

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

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

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

Condoms: A sheath that is worn over the penis during sexual behavior in order to prevent pregnancy or spread of sexually transmitted disease. [NIH]

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

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

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

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

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

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

Connective Tissue Cells: A group of cells that includes fibroblasts, cartilage cells, adipocytes, smooth muscle cells, and bone cells. [NIH]

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

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

Constriction: The act of constricting. [NIH]

Consultation: A deliberation between two or more physicians concerning the diagnosis and the proper method of treatment in a case. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

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

Contact Lens Solutions: Sterile solutions used to clean and disinfect contact lenses. [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]

Contrast Media: Substances used in radiography that allow visualization of certain tissues. [NIH]

Contrast medium: A substance that is introduced into or around a structure and, because of the difference in absorption of x-rays by the contrast medium and the surrounding tissues, allows radiographic visualization of the structure. [EU]

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

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

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]

Coronary Vessels: The veins and arteries of the heart. [NIH]

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

Corticosteroid: Any of the steroids elaborated by the adrenal cortex (excluding the sex hormones of adrenal origin) in response to the release of corticotrophin (adrenocorticotropic hormone) by the pituitary gland, to any of the synthetic equivalents of these steroids, or to angiotensin II. They are divided, according to their predominant biological activity, into

three major groups: glucocorticoids, chiefly influencing carbohydrate, fat, and protein metabolism; mineralocorticoids, affecting the regulation of electrolyte and water balance; and C19 androgens. Some corticosteroids exhibit both types of activity in varying degrees, and others exert only one type of effect. The corticosteroids are used clinically for hormonal replacement therapy, for suppression of ACTH secretion by the anterior pituitary, as antineoplastic, antiallergic, and anti-inflammatory agents, and to suppress the immune response. Called also adrenocortical hormone and corticoid. [EU]

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

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

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

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

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

Curare: Plant extracts from several species, including Strychnos toxifera, S. castelnaei, S. crevauxii, and Chondodendron tomentosum, that produce paralysis of skeletal muscle and are used adjunctively with general anesthesia. These extracts are toxic and must be used with the administration of artificial respiration. [NIH]

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

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

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

Cyclopentolate: A parasympatholytic anticholinergic used solely to obtain mydriasis or cycloplegia. [NIH]

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

Cycloplegia: Paralysis of the ciliary muscle; paralysis of accommodation. [EU]

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

Cystitis: Inflammation of the urinary bladder. [EU]

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]

Cytostatic: An agent that suppresses cell growth and multiplication. [EU]

Cytotoxic: Cell-killing. [NIH]

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

Dairy Products: Raw and processed or manufactured milk and milk-derived products. These are usually from cows (bovine) but are also from goats, sheep, reindeer, and water buffalo. [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]

Daunorubicin: Very toxic anthracycline aminoglycoside antibiotic isolated from Streptomyces peucetius and others, used in treatment of leukemias and other neoplasms. [NIH]

Day Care: Institutional health care of patients during the day. The patients return home at night. [NIH]

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

Decubitus: An act of lying down; also the position assumed in lying down. [EU]

Decubitus Ulcer: An ulceration caused by prolonged pressure in patients permitted to lie too still for a long period of time. The bony prominences of the body are the most frequently affected sites. The ulcer is caused by ischemia of the underlying structures of the skin, fat, and muscles as a result of the sustained and constant pressure. [NIH]

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

Deglutition: The process or the act of swallowing. [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]

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

Dendritic: 1. branched like a tree. 2. pertaining to or possessing dendrites. [EU]

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

Dental Alloys: A mixture of metallic elements or compounds with other metallic or metalloid elements in varying proportions for use in restorative or prosthetic dentistry. [NIH]

Dental Care: The total of dental diagnostic, preventive, and restorative services provided to meet the needs of a patient (from Illustrated Dictionary of Dentistry, 1982). [NIH]

Dental Materials: Materials used in the production of dental bases, restorations, impressions, prostheses, etc. [NIH]

Dental Staff: Personnel who provide dental service to patients in an organized facility, institution or agency. [NIH]

Dentists: Individuals licensed to practice dentistry. [NIH]

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

Dermatitis: Any inflammation of the skin. [NIH]

Dermis: A layer of vascular connective tissue underneath the epidermis. The surface of the dermis contains sensitive papillae. Embedded in or beneath the dermis are sweat glands, hair follicles, and sebaceous glands. [NIH]

Desensitization: The prevention or reduction of immediate hypersensitivity reactions by administration of graded doses of allergen; called also hyposensitization and immunotherapy. [EU]

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

Developed Countries: Countries that have reached a level of economic achievement through an increase of production, per capita income and consumption, and utilization of natural and human resources. [NIH]

Dexrazoxane: A drug used to protect the heart from the toxic effects of anthracycline drugs such as doxorubicin. It belongs to the family of drugs called chemoprotective agents. [NIH]

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

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

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

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

Diarrhoea: Abnormal frequency and liquidity of faecal discharges. [EU]

Diathesis: A constitution or condition of the body which makes the tissues react in special ways to certain extrinsic stimuli and thus tends to make the person more than usually susceptible to certain diseases. [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]

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

Dihydrotestosterone: Anabolic agent. [NIH]

Dilatation: The act of dilating. [NIH]

Dilation: A process by which the pupil is temporarily enlarged with special eye drops (mydriatic); allows the eye care specialist to better view the inside of the eye. [NIH]

Dimerization: The process by which two molecules of the same chemical composition form a condensation product or polymer. [NIH]

Diploid: Having two sets of chromosomes. [NIH]

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

Disease Susceptibility: A constitution or condition of the body which makes the tissues react in special ways to certain extrinsic stimuli and thus tends to make the individual more than usually susceptible to certain diseases. [NIH]

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

Disinfection: Rendering pathogens harmless through the use of heat, antiseptics, antibacterial agents, etc. [NIH]

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

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

Diuresis: Increased excretion of urine. [EU]

Diuretic: A drug that increases the production of urine. [NIH]

Diverticula: Plural form of diverticulum. [NIH]

Diverticulitis: Inflammation of a diverticulum or diverticula. [NIH]

Diverticulum: A pathological condition manifested as a pouch or sac opening from a tubular or sacular organ. [NIH]

Docetaxel: An anticancer drug that belongs to the family of drugs called mitotic inhibitors. [NIH]

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

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]

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

Dose-dependent: Refers to the effects of treatment with a drug. If the effects change when the dose of the drug is changed, the effects are said to be dose dependent. [NIH]

Dose-limiting: Describes side effects of a drug or other treatment that are serious enough to prevent an increase in dose or level of that treatment. [NIH]

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

Doxorubicin: Antineoplastic antibiotic obtained from Streptomyces peucetics. It is a hydroxy derivative of daunorubicin and is used in treatment of both leukemia and solid tumors. [NIH]

Doxycycline: A synthetic tetracycline derivative with a range of antimicrobial activity and mode of action similar to that of tetracycline, but more effective against many species. Animal studies suggest that it may cause less tooth staining than other tetracyclines. [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]

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

Drug Toxicity: Manifestations of the adverse effects of drugs administered therapeutically or in the course of diagnostic techniques. It does not include accidental or intentional poisoning for which specific headings are available. [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]

Dyspepsia: Impaired digestion, especially after eating. [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]

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

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

Eicosanoids: A class of oxygenated, endogenous, unsaturated fatty acids derived from arachidonic acid. They include prostaglandins, leukotrienes, thromboxanes, and hydroxyeicosatetraenoic acid compounds (HETE). They are hormone-like substances that act near the site of synthesis without altering functions throughout the body. [NIH]

Elasticity: Resistance and recovery from distortion of shape. [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]

Electrocardiogram: Measurement of electrical activity during heartbeats. [NIH]

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

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

Embryogenesis: The process of embryo or embryoid formation, whether by sexual (zygotic) or asexual means. In asexual embryogenesis embryoids arise directly from the explant or on intermediary callus tissue. In some cases they arise from individual cells (somatic cell embryoge). [NIH]

Emetic: An agent that causes vomiting. [EU]

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]

Enamel: A very hard whitish substance which covers the dentine of the anatomical crown of a tooth. [NIH]

Encapsulated: Confined to a specific, localized area and surrounded by a thin layer of tissue. [NIH]

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

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

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]

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

Endoscope: A thin, lighted tube used to look at tissues inside the body. [NIH]

Endoscopic: A technique where a lateral-view endoscope is passed orally to the duodenum

for visualization of the ampulla of Vater. [NIH]

Endoscopy: Endoscopic examination, therapy or surgery performed on interior parts of the body. [NIH]

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

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

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

Enhancer: Transcriptional element in the virus genome. [NIH]

Enteritis: Inflammation of the intestine, applied chiefly to inflammation of the small intestine; see also enterocolitis. [EU]

Enterocolitis: Inflammation of the intestinal mucosa of the small and large bowel. [NIH]

Environmental Exposure: The exposure to potentially harmful chemical, physical, or biological agents in the environment or to environmental factors that may include ionizing radiation, pathogenic organisms, or toxic chemicals. [NIH]

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

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

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

Enzyme Inhibitors: Compounds or agents that combine with an enzyme in such a manner as to prevent the normal substrate-enzyme combination and the catalytic reaction. [NIH]

Eosinophil: A polymorphonuclear leucocyte with large eosinophilic granules in its cytoplasm, which plays a role in hypersensitivity reactions. [NIH]

Eosinophilia: Abnormal increase in eosinophils in the blood, tissues or organs. [NIH]

Eosinophilic: A condition found primarily in grinding workers caused by a reaction of the pulmonary tissue, in particular the eosinophilic cells, to dust that has entered the lung. [NIH]

Eosinophilic Granuloma: The most benign clinical form of Langerhans-cell histiocytosis, which involves localized nodular lesions of the gastric mucosa, small intestine, bones, lungs, or skin, with infiltration by eosinophils. The proliferating cell that appears to be responsible for the clinical manifestations is the Langerhans cell. [NIH]

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

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

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

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

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

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic systems, causes systemic

vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

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

Epitopes: Sites on an antigen that interact with specific antibodies. [NIH]

Epoxy Resins: Organic compounds containing an epoxide group and characterized by strength and thermosetting properties. Epoxy resins are often used as dental materials. [NIH]

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

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

Erythritol: A four-carbon sugar that is found in algae, fungi, and lichens. It is twice as sweet as sucrose and can be used as a coronary vasodilator. [NIH]

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

Erythromycin: A bacteriostatic antibiotic substance produced by Streptomyces erythreus. Erythromycin A is considered its major active component. In sensitive organisms, it inhibits protein synthesis by binding to 50S ribosomal subunits. This binding process inhibits peptidyl transferase activity and interferes with translocation of amino acids during translation and assembly of proteins. [NIH]

Erythroplakia: A reddened patch with a velvety surface found in the mouth. [NIH]

Erythropoietin: Glycoprotein hormone, secreted chiefly by the kidney in the adult and the liver in the fetus, that acts on erythroid stem cells of the bone marrow to stimulate proliferation and differentiation. [NIH]

Escalation: Progressive use of more harmful drugs. [NIH]

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

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

Euphoria: An exaggerated feeling of physical and emotional well-being not consonant with apparent stimuli or events; usually of psychologic origin, but also seen in organic brain disease and toxic states. [NIH]

Evacuation: An emptying, as of the bowels. [EU]

Excipients: Usually inert substances added to a prescription in order to provide suitable consistency to the dosage form; a binder, matrix, base or diluent in pills, tablets, creams, salves, etc. [NIH]

Excitation: An act of irritation or stimulation or of responding to a stimulus; the addition of energy, as the excitation of a molecule by absorption of photons. [EU]

Exercise Test: Controlled physical activity, more strenuous than at rest, which is performed in order to allow assessment of physiological functions, particularly cardiovascular and pulmonary, but also aerobic capacity. Maximal (most intense) exercise is usually required but submaximal exercise is also used. The intensity of exercise is often graded, using criteria such as rate of work done, oxygen consumption, and heart rate. Physiological data obtained from an exercise test may be used for diagnosis, prognosis, and evaluation of disease severity, and to evaluate therapy. Data may also be used in prescribing exercise by

determining a person's exercise capacity. [NIH]

Exercise Tolerance: The exercise capacity of an individual as measured by endurance (maximal exercise duration and/or maximal attained work load) during an exercise test. [NIH]

Exocrine: 1. secreting outwardly, via a duct;. [EU]

Exocytosis: Cellular release of material within membrane-limited vesicles by fusion of the vesicles with the cell membrane. [NIH]

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

External-beam radiation: Radiation therapy that uses a machine to aim high-energy rays at the cancer. Also called external radiation. [NIH]

Extracellular: Outside a cell or cells. [EU]

Extracellular Matrix: A meshwork-like substance found within the extracellular space and in association with the basement membrane of the cell surface. It promotes cellular proliferation and provides a supporting structure to which cells or cell lysates in culture dishes adhere. [NIH]

Extracellular Space: Interstitial space between cells, occupied by fluid as well as amorphous and fibrous substances. [NIH]

Extremity: A limb; an arm or leg (membrum); sometimes applied specifically to a hand or foot. [EU]

Exudate: Material, such as fluid, cells, or cellular debris, which has escaped from blood vessels and has been deposited in tissues or on tissue surfaces, usually as a result of inflammation. An exudate, in contrast to a transudate, is characterized by a high content of protein, cells, or solid materials derived from cells. [EU]

Eye Burns: Injury to any part of the eye by extreme heat, chemical agents, or ultraviolet radiation. [NIH]

Eye Infections: Infection, moderate to severe, caused by bacteria, fungi, or viruses, which occurs either on the external surface of the eye or intraocularly with probable inflammation, visual impairment, or blindness. [NIH]

Eye Injuries: Damage or trauma inflicted to the eye by external means. The concept includes both surface injuries and intraocular injuries. [NIH]

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

Faecal: Pertaining to or of the nature of feces. [EU]

Fallopian tube: The oviduct, a muscular tube about 10 cm long, lying in the upper border of the broad ligament. [NIH]

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

Fat: Total lipids including phospholipids. [NIH]

Fatal Outcome: Death resulting from the presence of a disease in an individual, as shown by a single case report or a limited number of patients. This should be differentiated from death, the physiological cessation of life and from mortality, an epidemiological or statistical concept. [NIH]

Fatigue: The feeling of weariness of mind and body. [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]

Femoral: Pertaining to the femur, or to the thigh. [EU]

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

Fibrinogen: Plasma glycoprotein clotted by thrombin, composed of a dimer of three non-identical pairs of polypeptide chains (alpha, beta, gamma) held together by disulfide bonds. Fibrinogen clotting is a sol-gel change involving complex molecular arrangements: whereas fibrinogen is cleaved by thrombin to form polypeptides A and B, the proteolytic action of other enzymes yields different fibrinogen degradation products. [NIH]

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

Filariasis: Infections with nematodes of the superfamily Filarioidea. The presence of living worms in the body is mainly asymptomatic but the death of adult worms leads to granulomatous inflammation and permanent fibrosis. Organisms of the genus Elaeophora infect wild elk and domestic sheep causing ischaemic necrosis of the brain, blindness, and dermatosis of the face. [NIH]

Filarioidea: A superfamily of nematodes of the suborder Spirurina. Its organisms possess a filiform body and a mouth surrounded by papillae. [NIH]

Fish Products: Food products manufactured from fish (e.g., fish flour, fish meal). [NIH]

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

Flaccid: Weak, lax and soft. [EU]

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]

Flavoring Agents: Substances added to foods and medicine to improve the quality of taste. [NIH]

Flexor: Muscles which flex a joint. [NIH]

Flow Cytometry: Technique using an instrument system for making, processing, and displaying one or more measurements on individual cells obtained from a cell suspension. Cells are usually stained with one or more fluorescent dyes specific to cell components of interest, e.g., DNA, and fluorescence of each cell is measured as it rapidly transverses the excitation beam (laser or mercury arc lamp). Fluorescence provides a quantitative measure of various biochemical and biophysical properties of the cell, as well as a basis for cell sorting. Other measurable optical parameters include light absorption and light scattering,

the latter being applicable to the measurement of cell size, shape, density, granularity, and stain uptake. [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]

Fluorescent Dyes: Dyes that emit light when exposed to light. The wave length of the emitted light is usually longer than that of the incident light. Fluorochromes are substances that cause fluorescence in other substances, i.e., dyes used to mark or label other compounds with fluorescent tags. They are used as markers in biochemistry and immunology. [NIH]

Flush: Transient, episodic redness of the face and neck caused by certain diseases, ingestion of certain drugs or other substances, heat, emotional factors, or physical exertion. [EU]

Flushing: A transient reddening of the face that may be due to fever, certain drugs, exertion, stress, or a disease process. [NIH]

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

Food Additives: Substances which are of little or no nutritive value, but are used in the processing or storage of foods or animal feed, especially in the developed countries; includes antioxidants, food preservatives, food coloring agents, flavoring agents, anti-infective agents (both plain and local), vehicles, excipients and other similarly used substances. Many of the same substances are pharmaceutic aids when added to pharmaceuticals rather than to foods. [NIH]

Food Coloring Agents: Natural or synthetic dyes used as coloring agents in processed foods. [NIH]

Food Hypersensitivity: Gastrointestinal disturbances, skin eruptions, or shock due to allergic reactions to allergens ingested in food. [NIH]

Food Preservatives: Substances capable of inhibiting, retarding or arresting the process of fermentation, acidification or other deterioration of foods. [NIH]

Forearm: The part between the elbow and the wrist. [NIH]

Fungi: A kingdom of eukaryotic, heterotrophic organisms that live as saprobes or parasites, including mushrooms, yeasts, smuts, molds, etc. They reproduce either sexually or asexually, and have life cycles that range from simple to complex. Filamentous fungi refer to those that grow as multicelluar colonies (mushrooms and molds). [NIH]

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

Gadolinium: An element of the rare earth family of metals. It has the atomic symbol Gd, atomic number 64, and atomic weight 157.25. Its oxide is used in the control rods of some nuclear reactors. [NIH]

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

Gas exchange: Primary function of the lungs; transfer of oxygen from inhaled air into the blood and of carbon dioxide from the blood into the lungs. [NIH]

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

Gastric Acid: Hydrochloric acid present in gastric juice. [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]

Gastroenterology: A subspecialty of internal medicine concerned with the study of the physiology and diseases of the digestive system and related structures (esophagus, liver, gallbladder, and pancreas). [NIH]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal tract: The stomach and intestines. [NIH]

Gelatin: A product formed from skin, white connective tissue, or bone collagen. It is used as a protein food adjuvant, plasma substitute, hemostatic, suspending agent in pharmaceutical preparations, and in the manufacturing of capsules and suppositories. [NIH]

Gels: Colloids with a solid continuous phase and liquid as the dispersed phase; gels may be unstable when, due to temperature or other cause, the solid phase liquifies; the resulting colloid is called a sol. [NIH]

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

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

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

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]

Genetic Engineering: Directed modification of the gene complement of a living organism by such techniques as altering the DNA, substituting genetic material by means of a virus, transplanting whole nuclei, transplanting cell hybrids, etc. [NIH]

Genetics: The biological science that deals with the phenomena and mechanisms of heredity. [NIH]

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

Germ cell tumors: Tumors that begin in the cells that give rise to sperm or eggs. They can occur virtually anywhere in the body and can be either benign or malignant. [NIH]

Germicide: An agent that kills pathogenic microorganisms. [EU]

Germinal Center: The activated center of a lymphoid follicle in secondary lymphoid tissue where B-lymphocytes are stimulated by antigens and helper T cells (T-lymphocytes, helper-inducer) are stimulated to generate memory cells. [NIH]

Giant Cells: Multinucleated masses produced by the fusion of many cells; often associated with viral infections. In AIDS, they are induced when the envelope glycoprotein of the HIV virus binds to the CD4 antigen of uninfected neighboring T4 cells. The resulting syncytium leads to cell death and thus may account for the cytopathic effect of the virus. [NIH]

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

Glomerular: Pertaining to or of the nature of a glomerulus, especially a renal glomerulus. [EU]

Glucocorticoid: A compound that belongs to the family of compounds called corticosteroids (steroids). Glucocorticoids affect metabolism and have anti-inflammatory and immunosuppressive effects. They may be naturally produced (hormones) or synthetic (drugs). [NIH]

Gluconeogenesis: The process by which glucose is formed from a non-carbohydrate source. [NIH]

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

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

Glutamate: Excitatory neurotransmitter of the brain. [NIH]

Gluten: The protein of wheat and other grains which gives to the dough its tough elastic character. [EU]

Glycerol: A trihydroxy sugar alcohol that is an intermediate in carbohydrate and lipid metabolism. It is used as a solvent, emollient, pharmaceutical agent, and sweetening agent. [NIH]

Glycerophospholipids: Derivatives of phosphatidic acid in which the hydrophobic regions are composed of two fatty acids and a polar alcohol is joined to the C-3 position of glycerol through a phosphodiester bond. They are named according to their polar head groups, such as phosphatidylcholine and phosphatidylethanolamine. [NIH]

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]

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

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

Glycosidic: Formed by elimination of water between the anomeric hydroxyl of one sugar and a hydroxyl of another sugar molecule. [NIH]

Goats: Any of numerous agile, hollow-horned ruminants of the genus Capra, closely

related to the sheep. [NIH]

Gonadal: Pertaining to a gonad. [EU]

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]

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

Granulocyte: A type of white blood cell that fights bacterial infection. Neutrophils, eosinophils, and basophils are granulocytes. [NIH]

Grasses: A large family, Gramineae, of narrow-leaved herbaceous monocots. Many grasses produce highly allergenic pollens and are hosts to cattle parasites and toxic fungi. [NIH]

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

Guinea Pigs: A common name used for the family Caviidae. The most common species is Cavia porcellus which is the domesticated guinea pig used for pets and biomedical research. [NIH]

Habitat: An area considered in terms of its environment, particularly as this determines the type and quality of the vegetation the area can carry. [NIH]

Haematuria: Blood in the urine. [EU]

Haemophilia: A haemorrhagic diathesis occurring in two main forms : (1) haemophilia A (classic haemophilia, factor VIII deficiency), an X-linked disorder due to deficiency of coagulation factor VIII; (2) haemophilia B (factor IX deficiency, Christmas disease), also X-linked, due to deficiency of coagulation factor IX. Both forms are determined by a mutant gene near the telomere of the long arm of the X chromosome (Xq), but a different loci, and are characterized by subcutaneous and intramuscular haemorrhages; bleeding from the mouth, gums, lips, and tongue; haematuria; and haemarthroses. [EU]

Haemopoietic: Haematopoietic; pertaining to or effecting the formation of blood cells. [EU]

Hair Color: Color of hair or fur. [NIH]

Hair Dyes: Dyes used as cosmetics to change hair color either permanently or temporarily. [NIH]

Hairy cell leukemia: A type of chronic leukemia in which the abnormal white blood cells appear to be covered with tiny hairs when viewed under a microscope. [NIH]

Half-Life: The time it takes for a substance (drug, radioactive nuclide, or other) to lose half of its pharmacologic, physiologic, or radiologic activity. [NIH]

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

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

Hay Fever: A seasonal variety of allergic rhinitis, marked by acute conjunctivitis with lacrimation and itching, regarded as an allergic condition triggered by specific allergens. [NIH]

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

Headache Disorders: Common conditions characterized by persistent or recurrent headaches. Headache syndrome classification systems may be based on etiology (e.g., vascular headache, post-traumatic headaches, etc.), temporal pattern (e.g., cluster headache, paroxysmal hemicrania, etc.), and precipitating factors (e.g., cough headache). [NIH]

Health Status: The level of health of the individual, group, or population as subjectively assessed by the individual or by more objective measures. [NIH]

Heart attack: A seizure of weak or abnormal functioning of the heart. [NIH]

Heartburn: Substernal pain or burning sensation, usually associated with regurgitation of gastric juice into the esophagus. [NIH]

Hematopoiesis: The development and formation of various types of blood cells. [NIH]

Hematuria: Presence of blood in the urine. [NIH]

Heme: The color-furnishing portion of hemoglobin. It is found free in tissues and as the prosthetic group in many hemeproteins. [NIH]

Hemoglobin: One of the fractions of glycosylated hemoglobin A1c. Glycosylated hemoglobin is formed when linkages of glucose and related monosaccharides bind to hemoglobin A and its concentration represents the average blood glucose level over the previous several weeks. HbA1c levels are used as a measure of long-term control of plasma glucose (normal, 4 to 6 percent). In controlled diabetes mellitus, the concentration of glycosylated hemoglobin A is within the normal range, but in uncontrolled cases the level may be 3 to 4 times the normal conentration. Generally, complications are substantially lower among patients with Hb levels of 7 percent or less than in patients with HbA1c levels of 9 percent or more. [NIH]

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

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

Hemostasis: The process which spontaneously arrests the flow of blood from vessels carrying blood under pressure. It is accomplished by contraction of the vessels, adhesion and aggregation of formed blood elements, and the process of blood or plasma coagulation. [NIH]

Heparan Sulfate Proteoglycan: A substance released by astrocytes, which is critical in stopping nervous fibers in their tracks. [NIH]

Heparin: Heparinic acid. A highly acidic mucopolysaccharide formed of equal parts of sulfated D-glucosamine and D-glucuronic acid with sulfaminic bridges. The molecular weight ranges from six to twenty thousand. Heparin occurs in and is obtained from liver,

lung, mast cells, etc., of vertebrates. Its function is unknown, but it is used to prevent blood clotting in vivo and vitro, in the form of many different salts. [NIH]

Hepatic: Refers to the liver. [NIH]

Hereditary: Of, relating to, or denoting factors that can be transmitted genetically from one generation to another. [NIH]

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

Heritability: The proportion of observed variation in a particular trait that can be attributed to inherited genetic factors in contrast to environmental ones. [NIH]

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

Heterotrophic: Pertaining to organisms that are consumers and dependent on other organisms for their source of energy (food). [NIH]

Hiatal Hernia: A small opening in the diaphragm that allows the upper part of the stomach to move up into the chest. Causes heartburn from stomach acid flowing back up through the opening. [NIH]

Histamine: 1H-Imidazole-4-ethanamine. A depressor amine derived by enzymatic decarboxylation of histidine. It is a powerful stimulant of gastric secretion, a constrictor of bronchial smooth muscle, a vasodilator, and also a centrally acting neurotransmitter. [NIH]

Histamine Release: The secretion of histamine from mast cell and basophil granules by exocytosis. This can be initiated by a number of factors, all of which involve binding of IgE, cross-linked by antigen, to the mast cell or basophil's Fc receptors. Once released, histamine binds to a number of different target cell receptors and exerts a wide variety of effects. [NIH]

Histidine: An essential amino acid important in a number of metabolic processes. It is required for the production of histamine. [NIH]

Histology: The study of tissues and cells under a microscope. [NIH]

Histones: Small chromosomal proteins (approx 12-20 kD) possessing an open, unfolded structure and attached to the DNA in cell nuclei by ionic linkages. Classification into the various types (designated histone I, histone II, etc.) is based on the relative amounts of arginine and lysine in each. [NIH]

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

Hormonal: Pertaining to or of the nature of a hormone. [EU]

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

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

Humoral: Of, relating to, proceeding from, or involving a bodily humour - now often used of endocrine factors as opposed to neural or somatic. [EU]

Humour: 1. a normal functioning fluid or semifluid of the body (as the blood, lymph or bile) especially of vertebrates. 2. a secretion that is itself an excitant of activity (as certain hormones). [EU]

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

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

Hydra: A genus of freshwater cnidarians, of interest because of their complex organization and because their adult organization corresponds roughly to the gastrula of higher animals. [NIH]

Hydrocephalus: Excessive accumulation of cerebrospinal fluid within the cranium which may be associated with dilation of cerebral ventricles, intracranial hypertension; headache; lethargy; urinary incontinence; and ataxia (and in infants macrocephaly). This condition may be caused by obstruction of cerebrospinal fluid pathways due to neurologic abnormalities, intracranial hemorrhages; central nervous system infections; brain neoplasms; craniocerebral trauma; and other conditions. Impaired resorption of cerebrospinal fluid from the arachnoid villi results in a communicating form of hydrocephalus. Hydrocephalus ex-vacuo refers to ventricular dilation that occurs as a result of brain substance loss from cerebral infarction and other conditions. [NIH]

Hydrocortisone: The main glucocorticoid secreted by the adrenal cortex. Its synthetic counterpart is used, either as an injection or topically, in the treatment of inflammation, allergy, collagen diseases, asthma, adrenocortical deficiency, shock, and some neoplastic conditions. [NIH]

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

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [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]

Hygienic: Pertaining to hygiene, or conducive to health. [EU]

Hymenoptera: An extensive order of highly specialized insects including bees, wasps, and ants. [NIH]

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

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

Hyperreflexia: Exaggeration of reflexes. [EU]

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

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hyperuricemia: A buildup of uric acid (a byproduct of metabolism) in the blood; a side effect of some anticancer drugs. [NIH]

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

Hypotension: Abnormally low blood pressure. [NIH]

Hypothalamic: Of or involving the hypothalamus. [EU]

Hypothalamus: Ventral part of the diencephalon extending from the region of the optic chiasm to the caudal border of the mammillary bodies and forming the inferior and lateral walls of the third ventricle. [NIH]

Hysterectomy: Excision of the uterus. [NIH]

Ibuprofen: A nonsteroidal anti-inflammatory agent with analgesic properties used in the therapy of rheumatism and arthritis. [NIH]

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

Idiopathic: Describes a disease of unknown cause. [NIH]

Ifosfamide: Positional isomer of cyclophosphamide which is active as an alkylating agent and an immunosuppressive agent. [NIH]

Imidazole: C3H4N2. The ring is present in polybenzimidazoles. [NIH]

Immune Complex Diseases: Group of diseases mediated by the deposition of large soluble complexes of antigen and antibody with resultant damage to tissue. Besides serum sickness and the arthus reaction, evidence supports a pathogenic role for immune complexes in many other systemic immunologic diseases including glomerulonephritis, systemic lupus erythematosus and polyarteritis nodosa. [NIH]

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

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

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

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

Immunoassay: Immunochemical assay or detection of a substance by serologic or immunologic methods. Usually the substance being studied serves as antigen both in antibody production and in measurement of antibody by the test substance. [NIH]

Immunoblotting: Immunologic methods for isolating and quantitatively measuring immunoreactive substances. When used with immune reagents such as monoclonal antibodies, the process is known generically as western blot analysis (blotting, western). [NIH]

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

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

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

Immunologic: The ability of the antibody-forming system to recall a previous experience with an antigen and to respond to a second exposure with the prompt production of large amounts of antibody. [NIH]

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

Immunophilin: A drug for the treatment of Parkinson's disease. [NIH]

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

Immunosuppressive therapy: Therapy used to decrease the body's immune response, such as drugs given to prevent transplant rejection. [NIH]

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

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

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

Implant radiation: A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near the tumor. Also called [NIH]

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

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

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

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

Incision: A cut made in the body during surgery. [NIH]

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]

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

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

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]

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]

Inflammatory bowel disease: A general term that refers to the inflammation of the colon and rectum. Inflammatory bowel disease includes ulcerative colitis and Crohn's disease. [NIH]

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]

Infusion: A method of putting fluids, including drugs, into the bloodstream. Also called intravenous infusion. [NIH]

Ingestion: Taking into the body by mouth [NIH]

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

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

Inorganic: Pertaining to substances not of organic origin. [EU]

Inositol: An isomer of glucose that has traditionally been considered to be a B vitamin although it has an uncertain status as a vitamin and a deficiency syndrome has not been identified in man. (From Martindale, The Extra Pharmacopoeia, 30th ed, p1379) Inositol phospholipids are important in signal transduction. [NIH]

Insect Bites and Stings: Bites and stings inflicted by insects. [NIH]

Insecticides: Pesticides designed to control insects that are harmful to man. The insects may be directly harmful, as those acting as disease vectors, or indirectly harmful, as destroyers of crops, food products, or textile fabrics. [NIH]

Instillation: . [EU]

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

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

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

Interleukin-3: A multilineage cell growth factor secreted by lymphocytes, epithelial cells, and astrocytes which stimulates clonal proliferation and differentiation of various types of blood and tissue cells. Also called multi-CSF, it is considered one of the hematopoietic colony stimulating factors. [NIH]

Interleukin-4: Soluble factor produced by activated T-lymphocytes that causes proliferation and differentiation of B-cells. Interleukin-4 induces the expression of class II major histocompatibility complex and Fc receptors on B-cells. It also acts on T-lymphocytes, mast cell lines, and several other hematopoietic lineage cells including granulocyte, megakaryocyte, and erythroid precursors, as well as macrophages. [NIH]

Interleukin-5: Factor promoting eosinophil differentiation and activation in hematopoiesis. It also triggers activated B-cells for a terminal differentiation into Ig-secreting cells. [NIH]

Interleukins: Soluble factors which stimulate growth-related activities of leukocytes as well as other cell types. They enhance cell proliferation and differentiation, DNA synthesis, secretion of other biologically active molecules and responses to immune and inflammatory

stimuli. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Internal Medicine: A medical specialty concerned with the diagnosis and treatment of diseases of the internal organ systems of adults. [NIH]

Internal radiation: A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near the tumor. Also called brachytherapy, implant radiation, or interstitial radiation therapy. [NIH]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

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

Intestinal Mucosa: The surface lining of the intestines where the cells absorb nutrients. [NIH]

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

Intracellular: Inside a cell. [NIH]

Intraocular: Within the eye. [EU]

Intravenous: IV. Into a vein. [NIH]

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

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

Ionizing: Radiation comprising charged particles, e. g. electrons, protons, alpha-particles, etc., having sufficient kinetic energy to produce ionization by collision. [NIH]

Ions: An atom or group of atoms that have a positive or negative electric charge due to a gain (negative charge) or loss (positive charge) of one or more electrons. Atoms with a positive charge are known as cations; those with a negative charge are anions. [NIH]

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]

Isoelectric: Separation of amphoteric substances, dissolved in water, based on their isoelectric behavior. The amphoteric substances are a mixture of proteins to be separated and of auxiliary "carrier ampholytes". [NIH]

Isoelectric Point: The pH in solutions of proteins and related compounds at which the dipolar ions are at a maximum. [NIH]

Isolated lung perfusion: A surgical procedure during which the circulation of blood to the

lungs is separated from the circulation of blood through the rest of the body, and a drug is delivered directly into the lung circulation. This allows a higher concentration of chemotherapy to reach tumors in the lungs. [NIH]

Isosorbide: 1,4:3,6-Dianhydro D-glucitol. Chemically inert osmotic diuretic used mainly to treat hydrocephalus; also used in glaucoma. [NIH]

Isosorbide Dinitrate: A vasodilator used in the treatment of angina. Its actions are similar to nitroglycerin but with a slower onset of action. [NIH]

Ivermectin: A mixture of ivermectin component B1a (RN 71827-03-7) and B1b (RN 70209-81-3), which is a semisynthetic product from Streptomyces avermitilis. A potent macrocyclic lactone disaccharide antiparasitic agent used to prevent and treat parasite infestations in animals. The compound has activity against internal and external parasites and has been found effective against arthropods, insects, nematodes, filarioidea, platyhelminths, and protozoa. [NIH]

Jellyfish: Free swimming marine cnidarians. Most of the large jellyfish are in the class Scyphozoa; the small jellyfish are in the class Hydrozoa (hydra). [NIH]

Joint: The point of contact between elements of an animal skeleton with the parts that surround and support it. [NIH]

Kallidin: A decapeptide bradykinin homolog produced by the action of tissue and glandular kallikreins on low-molecular-weight kininogen. It is a smooth-muscle stimulant and hypotensive agent that functions through vasodilatation. [NIH]

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

Keratin: A class of fibrous proteins or scleroproteins important both as structural proteins and as keys to the study of protein conformation. The family represents the principal constituent of epidermis, hair, nails, horny tissues, and the organic matrix of tooth enamel. Two major conformational groups have been characterized, alpha-keratin, whose peptide backbone forms an alpha-helix, and beta-keratin, whose backbone forms a zigzag or pleated sheet structure. [NIH]

Kidney Disease: Any one of several chronic conditions that are caused by damage to the cells of the kidney. People who have had diabetes for a long time may have kidney damage. Also called nephropathy. [NIH]

Kidney stone: A stone that develops from crystals that form in urine and build up on the inner surfaces of the kidney, in the renal pelvis, or in the ureters. [NIH]

Kinetics: The study of rate dynamics in chemical or physical systems. [NIH]

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

Laceration: 1. the act of tearing. 2. a torn, ragged, mangled wound. [EU]

Lactose Intolerance: The disease state resulting from the absence of lactase enzyme in the musocal cells of the gastrointestinal tract, and therefore an inability to break down the disaccharide lactose in milk for absorption from the gastrointestinal tract. It is manifested by indigestion of a mild nature to severe diarrhea. It may be due to inborn defect genetically conditioned or may be acquired. [NIH]

Langerhans Cells: Recirculating, dendritic, antigen-presenting cells containing characteristic racket-shaped granules (Birbeck granules). They are found principally in the stratum spinosum of the epidermis and are rich in Class II major histocompatibility complex molecules. [NIH]

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

Larva: Wormlike or grublike stage, following the egg in the life cycle of insects, worms, and other metamorphosing animals. [NIH]

Laryngeal: Having to do with the larynx. [NIH]

Laryngitis: Inflammation of the larynx. This condition presents itself with dryness and soreness of the throat, difficulty in swallowing, cough, and hoarseness. [NIH]

Larynx: An irregularly shaped, musculocartilaginous tubular structure, lined with mucous membrane, located at the top of the trachea and below the root of the tongue and the hyoid bone. It is the essential sphincter guarding the entrance into the trachea and functioning secondarily as the organ of voice. [NIH]

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

Latex Allergy: Hypersensitivity to products containing processed natural rubber latex such as rubber gloves, condoms, catheters, dental dams, balloons, and sporting equipment. Both T-cell mediated (delayed hypersensitivity) and IgE antibody-mediated (immediate hypersensitivity) allergic responses are possible. Delayed hypersensitivity results from exposure to antioxidants present in the rubber; immediate hypersensitivity results from exposure to a latex protein. [NIH]

Lavage: A cleaning of the stomach and colon. Uses a special drink and enemas. [NIH]

Leisure Activities: Voluntary use of free time for activities outside the daily routine. [NIH]

Lens: The transparent, double convex (outward curve on both sides) structure suspended between the aqueous and vitreous; helps to focus light on the retina. [NIH]

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]

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

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

Leukocytosis: A transient increase in the number of leukocytes in a body fluid. [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]

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]

Lichen Planus: An inflammatory, pruritic disease of the skin and mucous membranes, which can be either generalized or localized. It is characterized by distinctive purplish, flat-

topped papules having a predilection for the trunk and flexor surfaces. The lesions may be discrete or coalesce to form plaques. Histologically, there is a "saw-tooth" pattern of epidermal hyperplasia and vacuolar alteration of the basal layer of the epidermis along with an intense upper dermal inflammatory infiltrate composed predominantly of T-cells. Etiology is unknown. [NIH]

Lichens: Any of a group of plants formed by a mutual combination of an alga and a fungus. [NIH]

Lidocaine: A local anesthetic and cardiac depressant used as an antiarrhythmia agent. Its actions are more intense and its effects more prolonged than those of procaine but its duration of action is shorter than that of bupivacaine or prilocaine. [NIH]

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

Life Expectancy: A figure representing the number of years, based on known statistics, to which any person of a given age may reasonably expect to live. [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]

Ligation: Application of a ligature to tie a vessel or strangulate a part. [NIH]

Lincomycin: (2S-trans)-Methyl 6,8-dideoxy-6-(((1-methyl-4-propyl-2-pyrrolidinyl)carbonyl)amino)-1-thio-D-erythro-alpha-D-galacto-octopyranoside. An antibiotic produced by Streptomyces lincolnensis var. lincolnensis. It has been used in the treatment of staphylococcal, streptococcal, and Bacteroides fragilis infections. [NIH]

Linkage: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of independent assortment. [NIH]

Lip: Either of the two fleshy, full-blooded margins of the mouth. [NIH]

Lipid: Fat. [NIH]

Liposomal: A drug preparation that contains the active drug in very tiny fat particles. This fat-encapsulated drug is absorbed better, and its distribution to the tumor site is improved. [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 scan: An image of the liver created on a computer screen or on film. A radioactive substance is injected into a blood vessel and travels through the bloodstream. It collects in the liver, especially in abnormal areas, and can be detected by the scanner. [NIH]

Loa: A genus of parasitic nematodes found throughout the rain-forest areas of the Sudan and the basin of the Congo. L. loa inhabits the subcutaneous tissues, which it traverses freely. [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]

Lye: Generally speaking, it is the alkaline substance obtained from wood ashes by percolation. Preparations of lye can either be solutions of potassium or sodium hydroxide. The term lye, is also used to refer to the household product which is a mixture of sodium hydroxide and sodium carbonate. [NIH]

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

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

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

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

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

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

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

Lymphocyte 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]

Lymphokines: Soluble protein factors generated by activated lymphocytes that affect other cells, primarily those involved in cellular immunity. [NIH]

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

Lymphoproliferative: Disorders characterized by proliferation of lymphoid tissue, general or unspecified. [NIH]

Macrophage Activation: The process of altering the morphology and functional activity of macrophages so that they become avidly phagocytic. It is initiated by lymphokines, such as the macrophage activation factor (MAF) and the macrophage migration-inhibitory factor (MMIF), immune complexes, C3b, and various peptides, polysaccharides, and immunologic adjuvants. [NIH]

Magnetic Resonance Imaging: Non-invasive method of demonstrating internal anatomy based on the principle that atomic nuclei in a strong magnetic field absorb pulses of radiofrequency energy and emit them as radiowaves which can be reconstructed into computerized images. The concept includes proton spin tomographic techniques. [NIH]

Maintenance therapy: Treatment that is given to help a primary (original) treatment keep working. Maintenance therapy is often given to help keep cancer in remission. [NIH]

Major Histocompatibility Complex: The genetic region which contains the loci of genes which determine the structure of the serologically defined (SD) and lymphocyte-defined

(LD) transplantation antigens, genes which control the structure of the immune response-associated (Ia) antigens, the immune response (Ir) genes which control the ability of an animal to respond immunologically to antigenic stimuli, and genes which determine the structure and/or level of the first four components of complement. [NIH]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

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

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

Malnutrition: A condition caused by not eating enough food or not eating a balanced diet. [NIH]

Mandible: The largest and strongest bone of the face constituting the lower jaw. It supports the lower teeth. [NIH]

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

Mannans: Polysaccharides consisting of mannose units. [NIH]

Mannich Bases: Ketonic amines prepared from the condensation of a ketone with formaldehyde and ammonia or a primary or secondary amine. A Mannich base can act as the equivalent of an alpha,beta unsaturated ketone in synthesis or can be reduced to form physiologically active amino alcohols. [NIH]

Mastication: The act and process of chewing and grinding food in the mouth. [NIH]

Mastocytosis: A group of diseases resulting from proliferation of mast cells. [NIH]

Meat: The edible portions of any animal used for food including domestic mammals (the major ones being cattle, swine, and sheep) along with poultry, fish, shellfish, and game. [NIH]

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

Mediator: An object or substance by which something is mediated, such as (1) a structure of the nervous system that transmits impulses eliciting a specific response; (2) a chemical substance (transmitter substance) that induces activity in an excitable tissue, such as nerve or muscle; or (3) a substance released from cells as the result of the interaction of antigen with antibody or by the action of antigen with a sensitized lymphocyte. [EU]

Medical Records: Recording of pertinent information concerning patient's illness or illnesses. [NIH]

Medication Errors: Errors in prescribing, dispensing, or administering medication with the result that the patient fails to receive the correct drug or the indicated proper drug dosage. [NIH]

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

Meiosis: A special method of cell division, occurring in maturation of the germ cells, by means of which each daughter nucleus receives half the number of chromosomes characteristic of the somatic cells of the species. [NIH]

Melanin: The substance that gives the skin its color. [NIH]

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

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

pigment. Melanoma usually begins in a mole. [NIH]

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

Membrane Lipids: Lipids, predominantly phospholipids, cholesterol and small amounts of glycolipids found in membranes including cellular and intracellular membranes. These lipids may be arranged in bilayers in the membranes with integral proteins between the layers and peripheral proteins attached to the outside. Membrane lipids are required for active transport, several enzymatic activities and membrane formation. [NIH]

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

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

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

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

Mental Health: The state wherein the person is well adjusted. [NIH]

Mentors: Senior professionals who provide guidance, direction and support to those persons desirous of improvement in academic positions, administrative positions or other career development situations. [NIH]

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

Mesna: A sulfhydryl compound used to prevent urothelial toxicity by inactivating metabolites from antineoplastic agents, such as ifosfamide or cyclophosphamide. [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]

Metaphase: The second phase of cell division, in which the chromosomes line up across the equatorial plane of the spindle prior to separation. [NIH]

Metastasis: The spread of cancer from one part of the body to another. Tumors formed from cells that have spread are called "secondary tumors" and contain cells that are like those in the original (primary) tumor. The plural is metastases. [NIH]

Methyldopa: An alpha-2 adrenergic agonist that has both central and peripheral nervous system effects. Its primary clinical use is as an antihypertensive agent. Before its alpha-adrenergic actions became clear, methyldopa was thought to act by inhibiting decarboxylation of DOPA leading to depletion of norepinephrine or by conversion to and release as the false transmitter alpha-methylnorepinephrine. [NIH]

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

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular

animals, lower algae, lower fungi, bacteria. [NIH]

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

Microdialysis: A technique for measuring extracellular concentrations of substances in tissues, usually in vivo, by means of a small probe equipped with a semipermeable membrane. Substances may also be introduced into the extracellular space through the membrane. [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]

Microtubules: Slender, cylindrical filaments found in the cytoskeleton of plant and animal cells. They are composed of the protein tubulin. [NIH]

Migrans: Infestation of the dermis by various larvae, characterized by bizarre red irregular lines which are broad at one end and fade at the other, produced by burrowing larvae. [NIH]

Migration: The systematic movement of genes between populations of the same species, geographic race, or variety. [NIH]

Milk Hypersensitivity: Allergic reaction to milk (usually cow's milk) or milk products. In infants the hypersensitivity is manifested by colic, vomiting, diarrhea, rhinitis, wheezing, etc. Milk hypersensitivity should be differentiated from lactose intolerance, an intolerance to milk as a result of congenital deficiency of lactase. [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]

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]

Mitotic: Cell resulting from mitosis. [NIH]

Mitotic inhibitors: Drugs that kill cancer cells by interfering with cell division (mitostis). [NIH]

Mitoxantrone: An anthracenedione-derived antineoplastic agent. [NIH]

Modeling: A treatment procedure whereby the therapist presents the target behavior which the learner is to imitate and make part of his repertoire. [NIH]

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

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

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

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

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

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

Monocyte: A type of white blood cell. [NIH]

Mononuclear: A cell with one nucleus. [NIH]

Morphine: The principal alkaloid in opium and the prototype opiate analgesic and narcotic. Morphine has widespread effects in the central nervous system and on smooth muscle. [NIH]

Morphological: Relating to the configuration or the structure of live organs. [NIH]

Morphology: The science of the form and structure of organisms (plants, animals, and other forms of life). [NIH]

Motility: The ability to move spontaneously. [EU]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

Motor nerve: An efferent nerve conveying an impulse that excites muscular contraction. [NIH]

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

Mucociliary: Pertaining to or affecting the mucus membrane and hairs (including eyelashes, nose hair, ...): mucociliary clearing: the clearance of mucus by ciliary movement (particularly in the respiratory system). [EU]

Mucolytic: Destroying or dissolving mucin; an agent that so acts : a mucopolysaccharide or glycoprotein, the chief constituent of mucus. [EU]

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

Mucus: The viscous secretion of mucous membranes. It contains mucin, white blood cells, water, inorganic salts, and exfoliated cells. [NIH]

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

Muscle relaxant: An agent that specifically aids in reducing muscle tension, as those acting at the polysynaptic neurons of motor nerves (e.g. meprobamate) or at the myoneural junction (curare and related compounds). [EU]

Muscle Spindles: Mechanoreceptors found between skeletal muscle fibers. Muscle spindles are arranged in parallel with muscle fibers and respond to the passive stretch of the muscle, but cease to discharge if the muscle contracts isotonically, thus signaling muscle length. The muscle spindles are the receptors responsible for the stretch or myotactic reflex. [NIH]

Muscle tension: A force in a material tending to produce extension; the state of being stretched. [NIH]

Mustard Gas: Severe irritant and vesicant of skin, eyes, and lungs. It may cause blindness and lethal lung edema and was formerly used as a war gas. The substance has been proposed as a cytostatic and for treatment of psoriasis. It has been listed as a known

carcinogen in the Fourth Annual Report on Carcinogens (NTP-85-002, 1985) (Merck, 11th ed). [NIH]

Mutagenesis: Process of generating genetic mutations. It may occur spontaneously or be induced by mutagens. [NIH]

Mutagenic: Inducing genetic mutation. [EU]

Mutagens: Chemical agents that increase the rate of genetic mutation by interfering with the function of nucleic acids. A clastogen is a specific mutagen that causes breaks in chromosomes. [NIH]

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

Mydriasis: Dilation of pupils to greater than 6 mm combined with failure of the pupils to constrict when stimulated with light. This condition may occur due to injury of the pupillary fibers in the oculomotor nerve, in acute angle-closure glaucoma, and in Adie syndrome. [NIH]

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

Myelodysplasia: Abnormal bone marrow cells that may lead to myelogenous leukemia. [NIH]

Myelofibrosis: A disorder in which the bone marrow is replaced by fibrous tissue. [NIH]

Myelogenous: Produced by, or originating in, the bone marrow. [NIH]

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

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

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]

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

Narcolepsy: A condition of unknown cause characterized by a periodic uncontrollable tendency to fall asleep. [NIH]

Narcotic: 1. pertaining to or producing narcosis. 2. an agent that produces insensibility or stupor, applied especially to the opioids, i.e. to any natural or synthetic drug that has morphine-like actions. [EU]

Nasal Cavity: The proximal portion of the respiratory passages on either side of the nasal septum, lined with ciliated mucosa, extending from the nares to the pharynx. [NIH]

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

Nasal Septum: The partition separating the two nasal cavities in the midplane, composed of cartilaginous, membranous and bony parts. [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]

NCI: National Cancer Institute. NCI, part of the National Institutes of Health of the United States Department of Health and Human Services, is the federal government's principal

agency for cancer research. NCI conducts, coordinates, and funds cancer research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention, and treatment of cancer. Access the NCI Web site at http://cancer.gov. [NIH]

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

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

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]

Nephrosis: Descriptive histopathologic term for renal disease without an inflammatory component. [NIH]

Nephrotic: Pertaining to, resembling, or caused by nephrosis. [EU]

Nephrotic Syndrome: Clinical association of heavy proteinuria, hypoalbuminemia, and generalized edema. [NIH]

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]

Networks: Pertaining to a nerve or to the nerves, a meshlike structure of interlocking fibers or strands. [NIH]

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

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

Neuronal: Pertaining to a neuron or neurons (= conducting cells of the nervous system). [EU]

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

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]

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

Neutralization: An act or process of neutralizing. [EU]

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]

Neutrophil Activation: The process in which the neutrophil is stimulated by diverse substances, resulting in degranulation and/or generation of reactive oxygen products, and culminating in the destruction of invading pathogens. The stimulatory substances, including opsonized particles, immune complexes, and chemotactic factors, bind to specific cell-surface receptors on the neutrophil. [NIH]

Niche: The ultimate unit of the habitat, i. e. the specific spot occupied by an individual organism; by extension, the more or less specialized relationships existing between an organism, individual or synusia(e), and its environment. [NIH]

Nickel: A trace element with the atomic symbol Ni, atomic number 28, and atomic weight 58.69. It is a cofactor of the enzyme urease. [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]

Nitroglycerin: A highly volatile organic nitrate that acts as a dilator of arterial and venous smooth muscle and is used in the treatment of angina. It provides relief through improvement of the balance between myocardial oxygen supply and demand. Although total coronary blood flow is not increased, there is redistribution of blood flow in the heart when partial occlusion of coronary circulation is effected. [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]

Nuclear Medicine: A specialty field of radiology concerned with diagnostic, therapeutic, and investigative use of radioactive compounds in a pharmaceutical form. [NIH]

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

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

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

Occult: Obscure; concealed from observation, difficult to understand. [EU]

Occupational Exposure: The exposure to potentially harmful chemical, physical, or biological agents that occurs as a result of one's occupation. [NIH]

Ocular: 1. of, pertaining to, or affecting the eye. 2. eyepiece. [EU]

Office Management: Planning, organizing, and administering activities in an office. [NIH]

Ointments: Semisolid preparations used topically for protective emollient effects or as a vehicle for local administration of medications. Ointment bases are various mixtures of fats,

waxes, animal and plant oils and solid and liquid hydrocarbons. [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]

Omentum: A fold of the peritoneum (the thin tissue that lines the abdomen) that surrounds the stomach and other organs in the abdomen. [NIH]

Oncogene: A gene that normally directs cell growth. If altered, an oncogene can promote or allow the uncontrolled growth of cancer. Alterations can be inherited or caused by an environmental exposure to carcinogens. [NIH]

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

Opiate: A remedy containing or derived from opium; also any drug that induces sleep. [EU]

Opium: The air-dried exudate from the unripe seed capsule of the opium poppy, Papaver somniferum, or its variant, P. album. It contains a number of alkaloids, but only a few - morphine, codeine, and papaverine - have clinical significance. Opium has been used as an analgesic, antitussive, antidiarrheal, and antispasmodic. [NIH]

Organ Transplantation: Transference of an organ between individuals of the same species or between individuals of different species. [NIH]

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

Osmotic: Pertaining to or of the nature of osmosis (= the passage of pure solvent from a solution of lesser to one of greater solute concentration when the two solutions are separated by a membrane which selectively prevents the passage of solute molecules, but is permeable to the solvent). [EU]

Osteomyelitis: Inflammation of bone caused by a pyogenic organism. It may remain localized or may spread through the bone to involve the marrow, cortex, cancellous tissue, and periosteum. [EU]

Osteoporosis: Reduction of bone mass without alteration in the composition of bone, leading to fractures. Primary osteoporosis can be of two major types: postmenopausal osteoporosis and age-related (or senile) osteoporosis. [NIH]

Otolaryngologist: A doctor who specializes in treating diseases of the ear, nose, and throat. Also called an ENT doctor. [NIH]

Otolaryngology: A surgical specialty concerned with the study and treatment of disorders of the ear, nose, and throat. [NIH]

Ovalbumin: An albumin obtained from the white of eggs. It is a member of the serpin superfamily. [NIH]

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]

Overweight: An excess of body weight but not necessarily body fat; a body mass index of 25 to 29.9 kg/m2. [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, pxv-xvi). [NIH]

Paclitaxel: Antineoplastic agent isolated from the bark of the Pacific yew tree, Taxus brevifolia. Paclitaxel stabilizes microtubules in their polymerized form and thus mimics the action of the proto-oncogene proteins c-mos. [NIH]

Palate: The structure that forms the roof of the mouth. It consists of the anterior hard palate and the posterior soft palate. [NIH]

Palliative: 1. affording relief, but not cure. 2. an alleviating medicine. [EU]

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]

Paraffin: A mixture of solid hydrocarbons obtained from petroleum. It has a wide range of uses including as a stiffening agent in ointments, as a lubricant, and as a topical anti-inflammatory. It is also commonly used as an embedding material in histology. [NIH]

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

Paranasal Sinuses: Air-filled extensions of the respiratory part of the nasal cavity into the frontal, ethmoid, sphenoid, and maxillary cranial bones. They vary in size and form in different individuals and are lined by the ciliated mucous membranes of the nasal cavity. [NIH]

Parasite: An animal or a plant that lives on or in an organism of another species and gets at least some of its nutrition from that other organism. [NIH]

Parasitic: Having to do with or being a parasite. A parasite is an animal or a plant that lives on or in an organism of another species and gets at least some of its nutrients from it. [NIH]

Paratuberculosis: An infectious disease caused by Mycobacterium paratuberculosis. Characteristics include chronic debilitation and weight loss. [NIH]

Parenteral: Not through the alimentary canal but rather by injection through some other route, as subcutaneous, intramuscular, intraorbital, intracapsular, intraspinal, intrasternal, intravenous, etc. [EU]

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

Parotid: The space that contains the parotid gland, the facial nerve, the external carotid artery, and the retromandibular vein. [NIH]

Partial remission: The shrinking, but not complete disappearance, of a tumor in response to therapy. Also called partial response. [NIH]

Particle: A tiny mass of material. [EU]

Patch: A piece of material used to cover or protect a wound, an injured part, etc.: a patch over the eye. [NIH]

Pathogen: Any disease-producing microorganism. [EU]

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

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

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

Pathophysiology: Altered functions in an individual or an organ due to disease. [NIH]

Patient Compliance: Voluntary cooperation of the patient in following a prescribed regimen. [NIH]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Pediatrics: A medical specialty concerned with maintaining health and providing medical care to children from birth to adolescence. [NIH]

Pelvic: Pertaining to the pelvis. [EU]

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

Penicillin: An antibiotic drug used to treat infection. [NIH]

Penis: The external reproductive organ of males. It is composed of a mass of erectile tissue enclosed in three cylindrical fibrous compartments. Two of the three compartments, the corpus cavernosa, are placed side-by-side along the upper part of the organ. The third compartment below, the corpus spongiosum, houses the urethra. [NIH]

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

Peracetic Acid: A liquid that functions as a strong oxidizing agent. It has an acrid odor and is used as a disinfectant. [NIH]

Perennial: Lasting through the year of for several years. [EU]

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

Perfusion: Bathing an organ or tissue with a fluid. In regional perfusion, a specific area of the body (usually an arm or a leg) receives high doses of anticancer drugs through a blood vessel. Such a procedure is performed to treat cancer that has not spread. [NIH]

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

Perioperative: Around the time of surgery; usually lasts from the time of going into the hospital or doctor's office for surgery until the time the patient goes home. [NIH]

Perioperative Care: Interventions to provide care prior to, during, and immediately after surgery. [NIH]

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

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

Peritoneal: Having to do with the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen). [NIH]

Peritoneal Cavity: The space enclosed by the peritoneum. It is divided into two portions, the greater sac and the lesser sac or omental bursa, which lies behind the stomach. The two sacs are connected by the foramen of Winslow, or epiploic foramen. [NIH]

Peritoneal Dialysis: Dialysis fluid being introduced into and removed from the peritoneal cavity as either a continuous or an intermittent procedure. [NIH]

Peritoneum: Endothelial lining of the abdominal cavity, the parietal peritoneum covering the inside of the abdominal wall and the visceral peritoneum covering the bowel, the mesentery, and certain of the organs. The portion that covers the bowel becomes the serosal layer of the bowel wall. [NIH]

Peritonitis: Inflammation of the peritoneum; a condition marked by exudations in the peritoneum of serum, fibrin, cells, and pus. It is attended by abdominal pain and tenderness, constipation, vomiting, and moderate fever. [EU]

Perspiration: Sweating; the functional secretion of sweat. [EU]

Pesticides: Chemicals used to destroy pests of any sort. The concept includes fungicides (industrial fungicides), insecticides, rodenticides, etc. [NIH]

Petrolatum: A colloidal system of semisolid hydrocarbons obtained from petroleum. It is used as an ointment base, topical protectant, and lubricant. [NIH]

Petroleum: Naturally occurring complex liquid hydrocarbons which, after distillation, yield combustible fuels, petrochemicals, and lubricants. [NIH]

Phagocytosis: The engulfing of microorganisms, other cells, and foreign particles by phagocytic cells. [NIH]

Pharmaceutic Aids: Substances which are of little or no therapeutic value, but are necessary in the manufacture, compounding, storage, etc., of pharmaceutical preparations or drug dosage forms. They include solvents, diluting agents, and suspending agents, and emulsifying agents. Also, antioxidants; preservatives, pharmaceutical; dyes (coloring agents); flavoring agents; vehicles; excipients; ointment bases. [NIH]

Pharmaceutical Preparations: Drugs intended for human or veterinary use, presented in their finished dosage form. Included here are materials used in the preparation and/or formulation of the finished dosage form. [NIH]

Pharmacist: A person trained to prepare and distribute medicines and to give information about them. [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]

Pharmacotherapy: A regimen of using appetite suppressant medications to manage obesity by decreasing appetite or increasing the feeling of satiety. These medications decrease appetite by increasing serotonin or catecholamine—two brain chemicals that affect mood and appetite. [NIH]

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

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

Phenyl: Ingredient used in cold and flu remedies. [NIH]

Phenylalanine: An aromatic amino acid that is essential in the animal diet. It is a precursor of melanin, dopamine, noradrenalin, and thyroxine. [NIH]

Phenytoin: An anticonvulsant that is used in a wide variety of seizures. It is also an anti-arrhythmic and a muscle relaxant. The mechanism of therapeutic action is not clear, although several cellular actions have been described including effects on ion channels, active transport, and general membrane stabilization. The mechanism of its muscle relaxant effect appears to involve a reduction in the sensitivity of muscle spindles to stretch. Phenytoin has been proposed for several other therapeutic uses, but its use has been limited by its many adverse effects and interactions with other drugs. [NIH]

Phospholipases: A class of enzymes that catalyze the hydrolysis of phosphoglycerides or glycerophosphatidates. EC 3.1.-. [NIH]

Phospholipids: Lipids containing one or more phosphate groups, particularly those derived from either glycerol (phosphoglycerides; glycerophospholipids) or sphingosine (sphingolipids). They are polar lipids that are of great importance for the structure and function of cell membranes and are the most abundant of membrane lipids, although not stored in large amounts in the system. [NIH]

Phosphorus: A non-metallic element that is found in the blood, muscles, nevers, bones, and teeth, and is a component of adenosine triphosphate (ATP; the primary energy source for the body's cells.) [NIH]

Phosphorylation: The introduction of a phosphoryl group into a compound through the formation of an ester bond between the compound and a phosphorus moiety. [NIH]

Photoallergy: Sensitization of the skin to light usually due to the action of certain substances or drugs, may occur shortly after exposure to a substance or after a latent period of from days to months. [NIH]

Photosensitivity: An abnormal cutaneous response involving the interaction between photosensitizing substances and sunlight or filtered or artificial light at wavelengths of 280-400 mm. There are two main types : photoallergy and photoxicity. [EU]

Physical Examination: Systematic and thorough inspection of the patient for physical signs of disease or abnormality. [NIH]

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

Physiology: The science that deals with the life processes and functions of organismus, their cells, tissues, and organs. [NIH]

Phytohemagglutinins: Mucoproteins isolated from the kidney bean (Phaseolus vulgaris); some of them are mitogenic to lymphocytes, others agglutinate all or certain types of erythrocytes or lymphocytes. They are used mainly in the study of immune mechanisms and in cell culture. [NIH]

Pigment: A substance that gives color to tissue. Pigments are responsible for the color of skin, eyes, and hair. [NIH]

Pitch: The subjective awareness of the frequency or spectral distribution of a sound. [NIH]

Pituitary Gland: A small, unpaired gland situated in the sella turcica tissue. It is connected to the hypothalamus by a short stalk. [NIH]

Plague: An acute infectious disease caused by Yersinia pestis that affects humans, wild rodents, and their ectoparasites. This condition persists due to its firm entrenchment in sylvatic rodent-flea ecosystems throughout the world. Bubonic plague is the most common form. [NIH]

Plague Vaccine: A suspension of killed Yersinia pestis used for immunizing people in enzootic plague areas. [NIH]

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

Plaque: A clear zone in a bacterial culture grown on an agar plate caused by localized destruction of bacterial cells by a bacteriophage. The concentration of infective virus in a fluid can be estimated by applying the fluid to a culture and counting the number of. [NIH]

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

Plasma Exchange: Removal of plasma and replacement with various fluids, e.g., fresh frozen plasma, plasma protein fractions (PPF), albumin preparations, dextran solutions, saline. Used in treatment of autoimmune diseases, immune complex diseases, diseases of excess plasma factors, and other conditions. [NIH]

Plasma protein: One of the hundreds of different proteins present in blood plasma, including carrier proteins (such albumin, transferrin, and haptoglobin), fibrinogen and other coagulation factors, complement components, immunoglobulins, enzyme inhibitors, precursors of substances such as angiotension and bradykinin, and many other types of proteins. [EU]

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

Plasminogen: Precursor of fibrinolysin (plasmin). It is a single-chain beta-globulin of molecular weight 80-90,000 found mostly in association with fibrinogen in plasma; plasminogen activators change it to fibrinolysin. It is used in wound debriding and has been investigated as a thrombolytic agent. [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]

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

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Platinum: Platinum. A heavy, soft, whitish metal, resembling tin, atomic number 78, atomic weight 195.09, symbol Pt. (From Dorland, 28th ed) It is used in manufacturing equipment for laboratory and industrial use. It occurs as a black powder (platinum black) and as a spongy substance (spongy platinum) and may have been known in Pliny's time as "alutiae". [NIH]

Platyhelminths: A phylum of acoelomate, bilaterally symmetrical flatworms, without a definite anus. It includes three classes: Cestoda, Turbellaria, and Trematoda. [NIH]

Pneumonia: Inflammation of the lungs. [NIH]

Podophyllotoxin: The main active constituent of the resin from the roots of may apple or mandrake (Podophyllum peltatum and P. emodi). It is a potent spindle poison, toxic if taken internally, and has been used as a cathartic. It is very irritating to skin and mucous membranes, has keratolytic actions, has been used to treat warts and keratoses, and may have antineoplastic properties, as do some of its congeners and derivatives. [NIH]

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

Pollen: The male fertilizing element of flowering plants analogous to sperm in animals. It is released from the anthers as yellow dust, to be carried by insect or other vectors, including wind, to the ovary (stigma) of other flowers to produce the embryo enclosed by the seed. The pollens of many plants are allergenic. [NIH]

Polycythemia Vera: A myeloproliferative disorder of unknown etiology, characterized by abnormal proliferation of all hematopoietic bone marrow elements and an absolute increase in red cell mass and total blood volume, associated frequently with splenomegaly, leukocytosis, and thrombocythemia. Hematopoiesis is also reactive in extramedullary sites (liver and spleen). In time myelofibrosis occurs. [NIH]

Polyethylene: A vinyl polymer made from ethylene. It can be branched or linear. Branched or low-density polyethylene is tough and pliable but not to the same degree as linear polyethylene. Linear or high-density polyethylene has a greater hardness and tensile strength. Polyethylene is used in a variety of products, including implants and prostheses. [NIH]

Polymorphic: Occurring in several or many forms; appearing in different forms at different stages of development. [EU]

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

Polypeptide: A peptide which on hydrolysis yields more than two amino acids; called tripeptides, tetrapeptides, etc. according to the number of amino acids contained. [EU]

Polyposis: The development of numerous polyps (growths that protrude from a mucous membrane). [NIH]

Polytetrafluoroethylene: Homopolymer of tetrafluoroethylene. Nonflammable, tough, inert plastic tubing or sheeting; used to line vessels, insulate, protect or lubricate apparatus; also as filter, coating for surgical implants or as prosthetic material. Synonyms: Fluoroflex; Fluoroplast; Ftoroplast; Halon; Polyfene; PTFE; Tetron. [NIH]

Polyvalent: Having more than one valence. [EU]

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]

Postsynaptic: Nerve potential generated by an inhibitory hyperpolarizing stimulation. [NIH]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Potentiates: A degree of synergism which causes the exposure of the organism to a harmful substance to worsen a disease already contracted. [NIH]

Potentiation: An overall effect of two drugs taken together which is greater than the sum of the effects of each drug taken alone. [NIH]

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

health care and delivery. [NIH]

Precipitating Factors: Factors associated with the definitive onset of a disease, illness, accident, behavioral response, or course of action. Usually one factor is more important or more obviously recognizable than others, if several are involved, and one may often be regarded as "necessary". Examples include exposure to specific disease; amount or level of an infectious organism, drug, or noxious agent, etc. [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]

Predictive factor: A situation or condition that may increase a person's risk of developing a certain disease or disorder. [NIH]

Predisposition: A latent susceptibility to disease which may be activated under certain conditions, as by stress. [EU]

Prednisolone: A glucocorticoid with the general properties of the corticosteroids. It is the drug of choice for all conditions in which routine systemic corticosteroid therapy is indicated, except adrenal deficiency states. [NIH]

Prednisone: A synthetic anti-inflammatory glucocorticoid derived from cortisone. It is biologically inert and converted to prednisolone in the liver. [NIH]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

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]

Procaine: A local anesthetic of the ester type that has a slow onset and a short duration of action. It is mainly used for infiltration anesthesia, peripheral nerve block, and spinal block. (From Martindale, The Extra Pharmacopoeia, 30th ed, p1016). [NIH]

Progesterone: Pregn-4-ene-3,20-dione. The principal progestational hormone of the body, secreted by the corpus luteum, adrenal cortex, and placenta. Its chief function is to prepare the uterus for the reception and development of the fertilized ovum. It acts as an antiovulatory agent when administered on days 5-25 of the menstrual cycle. [NIH]

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

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

Proline: A non-essential amino acid that is synthesized from glutamic acid. It is an essential component of collagen and is important for proper functioning of joints and tendons. [NIH]

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

Promotor: In an operon, a nucleotide sequence located at the operator end which contains all the signals for the correct initiation of genetic transcription by the RNA polymerase holoenzyme and determines the maximal rate of RNA synthesis. [NIH]

Prophase: The first phase of cell division, in which the chromosomes become visible, the nucleus starts to lose its identity, the spindle appears, and the centrioles migrate toward opposite poles. [NIH]

Prophylaxis: An attempt to prevent disease. [NIH]

Propiolactone: Disinfectant used in vapor form to sterilize vaccines, grafts, etc. The vapor is

very irritating and the liquid form is carcinogenic. [NIH]

Proportional: Being in proportion : corresponding in size, degree, or intensity, having the same or a constant ratio; of, relating to, or used in determining proportions. [EU]

Prostaglandin: Any of a group of components derived from unsaturated 20-carbon fatty acids, primarily arachidonic acid, via the cyclooxygenase pathway that are extremely potent mediators of a diverse group of physiologic processes. The abbreviation for prostaglandin is PG; specific compounds are designated by adding one of the letters A through I to indicate the type of substituents found on the hydrocarbon skeleton and a subscript (1, 2 or 3) to indicate the number of double bonds in the hydrocarbon skeleton e.g., PGE2. The predominant naturally occurring prostaglandins all have two double bonds and are synthesized from arachidonic acid (5,8,11,14-eicosatetraenoic acid) by the pathway shown in the illustration. The 1 series and 3 series are produced by the same pathway with fatty acids having one fewer double bond (8,11,14-eicosatrienoic acid or one more double bond (5,8,11,14,17-eicosapentaenoic acid) than arachidonic acid. The subscript a or ß indicates the configuration at C-9 (a denotes a substituent below the plane of the ring, ß, above the plane). The naturally occurring PGF's have the a configuration, e.g., PGF2a. All of the prostaglandins act by binding to specific cell-surface receptors causing an increase in the level of the intracellular second messenger cyclic AMP (and in some cases cyclic GMP also). The effect produced by the cyclic AMP increase depends on the specific cell type. In some cases there is also a positive feedback effect. Increased cyclic AMP increases prostaglandin synthesis leading to further increases in cyclic AMP. [EU]

Prostaglandins A: (13E,15S)-15-Hydroxy-9-oxoprosta-10,13-dien-1-oic acid (PGA(1)); (5Z,13E,15S)-15-hydroxy-9-oxoprosta-5,10,13-trien-1-oic acid (PGA(2)); (5Z,13E,15S,17Z)-15-hydroxy-9-oxoprosta-5,10,13,17-tetraen-1-oic acid (PGA(3)). A group of naturally occurring secondary prostaglandins derived from PGE. PGA(1) and PGA(2) as well as their 19-hydroxy derivatives are found in many organs and tissues. [NIH]

Prostaglandins F: (9 alpha,11 alpha,13E,15S)-9,11,15-Trihydroxyprost-13-en-1-oic acid (PGF(1 alpha)); (5Z,9 alpha,11,alpha,13E,15S)-9,11,15-trihydroxyprosta-5,13-dien-1-oic acid (PGF(2 alpha)); (5Z,9 alpha,11 alpha,13E,15S,17Z)-9,11,15-trihydroxyprosta-5,13,17-trien-1-oic acid (PGF(3 alpha)). A family of prostaglandins that includes three of the six naturally occurring prostaglandins. All naturally occurring PGF have an alpha configuration at the 9-carbon position. They stimulate uterine and bronchial smooth muscle and are often used as oxytocics. [NIH]

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

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

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

Protein Kinases: A family of enzymes that catalyze the conversion of ATP and a protein to ADP and a phosphoprotein. EC 2.7.1.37. [NIH]

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

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino

acids determines the shape and function of the protein. [NIH]

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

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]

Proto-Oncogene Proteins: Products of proto-oncogenes. Normally they do not have oncogenic or transforming properties, but are involved in the regulation or differentiation of cell growth. They often have protein kinase activity. [NIH]

Proto-Oncogene Proteins c-mos: Cellular proteins encoded by the c-mos genes. They function in the cell cycle to maintain maturation promoting factor in the active state and have protein-serine/threonine kinase activity. Oncogenic transformation can take place when c-mos proteins are expressed at the wrong time. [NIH]

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

Protozoal: Having to do with the simplest organisms in the animal kingdom. Protozoa are single-cell organisms, such as ameba, and are different from bacteria, which are not members of the animal kingdom. Some protozoa can be seen without a microscope. [NIH]

Protozoan: 1. any individual of the protozoa; protozoon. 2. of or pertaining to the protozoa; protozoal. [EU]

Proximal: Nearest; closer to any point of reference; opposed to distal. [EU]

Pruritic: Pertaining to or characterized by pruritus. [EU]

Pruritus: An intense itching sensation that produces the urge to rub or scratch the skin to obtain relief. [NIH]

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]

Psychogenic: Produced or caused by psychic or mental factors rather than organic factors. [EU]

Public Health: Branch of medicine concerned with the prevention and control of disease and disability, and the promotion of physical and mental health of the population on the international, national, state, or municipal level. [NIH]

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

Pulmonary: Relating to the lungs. [NIH]

Pulmonary Artery: The short wide vessel arising from the conus arteriosus of the right ventricle and conveying unaerated blood to the lungs. [NIH]

Pulmonary Ventilation: The total volume of gas per minute inspired or expired measured in liters per minute. [NIH]

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

Purines: A series of heterocyclic compounds that are variously substituted in nature and are known also as purine bases. They include adenine and guanine, constituents of nucleic acids, as well as many alkaloids such as caffeine and theophylline. Uric acid is the metabolic end product of purine metabolism. [NIH]

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

Purulent: Consisting of or containing pus; associated with the formation of or caused by pus. [EU]

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

Pyoderma: Any purulent skin disease (Dorland, 27th ed). [NIH]

Pyogenic: Producing pus; pyopoietic (= liquid inflammation product made up of cells and a thin fluid called liquor puris). [EU]

Pyrimidines: A family of 6-membered heterocyclic compounds occurring in nature in a wide variety of forms. They include several nucleic acid constituents (cytosine, thymine, and uracil) and form the basic structure of the barbiturates. [NIH]

Quercetin: Aglucon of quercetrin, rutin, and other glycosides. It is widely distributed in the plant kingdom, especially in rinds and barks, clover blossoms, and ragweed pollen. [NIH]

Rabies: A highly fatal viral infection of the nervous system which affects all warm-blooded animal species. It is one of the most important of the zoonoses because of the inevitably fatal outcome for the infected human. [NIH]

Rabies Vaccines: Vaccines or candidate vaccines used to prevent and treat rabies. The inactivated virus vaccine is used for preexposure immunization to persons at high risk of exposure, and in conjunction with rabies immunoglobulin, for postexposure prophylaxis. [NIH]

Race: A population within a species which exhibits general similarities within itself, but is both discontinuous and distinct from other populations of that species, though not sufficiently so as to achieve the status of a taxon. [NIH]

Radiation therapy: The use of high-energy radiation from x-rays, gamma rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body in the area near cancer cells (internal radiation therapy, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy. [NIH]

Radioactive: Giving off radiation. [NIH]

Radioactivity: The quality of emitting or the emission of corpuscular or electromagnetic radiations consequent to nuclear disintegration, a natural property of all chemical elements of atomic number above 83, and possible of induction in all other known elements. [EU]

Radioallergosorbent Test: An in vitro allergen radioimmunoassay in which allergens are coupled to an immunosorbent. The coupled allergens bind the IgE in the sera of patients which in turn binds radioisotope-labeled anti-IgE antibodies. [NIH]

Radiography: Examination of any part of the body for diagnostic purposes by means of roentgen rays, recording the image on a sensitized surface (such as photographic film). [NIH]

Radioimmunoassay: Classic quantitative assay for detection of antigen-antibody reactions using a radioactively labeled substance (radioligand) either directly or indirectly to measure the binding of the unlabeled substance to a specific antibody or other receptor system. Non-immunogenic substances (e.g., haptens) can be measured if coupled to larger carrier proteins (e.g., bovine gamma-globulin or human serum albumin) capable of inducing antibody formation. [NIH]

Radioisotope: An unstable element that releases radiation as it breaks down. Radioisotopes can be used in imaging tests or as a treatment for cancer. [NIH]

Radiolabeled: Any compound that has been joined with a radioactive substance. [NIH]

Radiology: A specialty concerned with the use of x-ray and other forms of radiant energy in the diagnosis and treatment of disease. [NIH]

Radiotherapy: The use of ionizing radiation to treat malignant neoplasms and other benign conditions. The most common forms of ionizing radiation used as therapy are x-rays, gamma rays, and electrons. A special form of radiotherapy, targeted radiotherapy, links a cytotoxic radionuclide to a molecule that targets the tumor. When this molecule is an antibody or other immunologic molecule, the technique is called radioimmunotherapy. [NIH]

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]

Ranitidine: A non-imidazole blocker of those histamine receptors that mediate gastric secretion (H2 receptors). It is used to treat gastrointestinal ulcers. [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]

Receptor Aggregation: Chemically stimulated aggregation of cell surface receptors, which potentiates the action of the effector cell. [NIH]

Receptors, Serotonin: Cell-surface proteins that bind serotonin and trigger intracellular changes which influence the behavior of cells. Several types of serotonin receptors have been recognized which differ in their pharmacology, molecular biology, and mode of action. [NIH]

Recombinant: 1. a cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

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

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

Reductase: Enzyme converting testosterone to dihydrotestosterone. [NIH]

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

Refraction: A test to determine the best eyeglasses or contact lenses to correct a refractive error (myopia, hyperopia, or astigmatism). [NIH]

Refractory: Not readily yielding to treatment. [EU]

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

Regurgitation: A backward flowing, as the casting up of undigested food, or the backward flowing of blood into the heart, or between the chambers of the heart when a valve is incompetent. [EU]

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Relaxant: 1. lessening or reducing tension. 2. an agent that lessens tension. [EU]

Remission: A decrease in or disappearance of signs and symptoms of cancer. In partial remission, some, but not all, signs and symptoms of cancer have disappeared. In complete remission, all signs and symptoms of cancer have disappeared, although there still may be cancer in the body. [NIH]

Renal failure: Progressive renal insufficiency and uremia, due to irreversible and progressive renal glomerular tubular or interstitial disease. [NIH]

Resorption: The loss of substance through physiologic or pathologic means, such as loss of dentin and cementum of a tooth, or of the alveolar process of the mandible or maxilla. [EU]

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

Respiratory distress syndrome: A lung disease that occurs primarily in premature infants; the newborn must struggle for each breath and blueing of its skin reflects the baby's inability to get enough oxygen. [NIH]

Respiratory System: The tubular and cavernous organs and structures, by means of which pulmonary ventilation and gas exchange between ambient air and the blood are brought about. [NIH]

Response Elements: Nucleotide sequences, usually upstream, which are recognized by specific regulatory transcription factors, thereby causing gene response to various regulatory agents. These elements may be found in both promotor and enhancer regions. [NIH]

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

Retrospective: Looking back at events that have already taken place. [NIH]

Retrospective study: A study that looks backward in time, usually using medical records and interviews with patients who already have or had a disease. [NIH]

Rhabdomyosarcoma: A malignant tumor of muscle tissue. [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]

Rickets: A condition caused by deficiency of vitamin D, especially in infancy and childhood, with disturbance of normal ossification. The disease is marked by bending and distortion of the bones under muscular action, by the formation of nodular enlargements on the ends and sides of the bones, by delayed closure of the fontanelles, pain in the muscles, and sweating of the head. Vitamin D and sunlight together with an adequate diet are curative, provided that the parathyroid glands are functioning properly. [EU]

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]

Rodenticides: Substances used to destroy or inhibit the action of rats, mice, or other

rodents. [NIH]

Rods: One type of specialized light-sensitive cells (photoreceptors) in the retina that provide side vision and the ability to see objects in dim light (night vision). [NIH]

Rubber: A high-molecular-weight polymeric elastomer derived from the milk juice (latex) of Hevea brasiliensis and other trees. It is a substance that can be stretched at room temperature to atleast twice its original length and after releasing the stress, retractrapidly, and recover its original dimensions fully. Synthetic rubber is made from many different chemicals, including styrene, acrylonitrile, ethylene, propylene, and isoprene. [NIH]

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

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

Rutin: 3-((6-O-(6-Deoxy-alpha-L-mannopyranosyl)-beta-D-glucopyranosyl)oxy)-2-(3,4-dihydroxyphenyl)-5,7-dihydroxy-4H-1-benzopyran-4-one. Found in many plants, including buckwheat, tobacco, forsythia, hydrangea, pansies, etc. It has been used therapeutically to decrease capillary fragility. [NIH]

Saccharin: Flavoring agent and non-nutritive sweetener. [NIH]

Saline: A solution of salt and water. [NIH]

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

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

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

Sanitary: Relating or belonging to health and hygiene; conductive to the restoration or maintenance of health. [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]

Sarcoidosis: An idiopathic systemic inflammatory granulomatous disorder comprised of epithelioid and multinucleated giant cells with little necrosis. It usually invades the lungs with fibrosis and may also involve lymph nodes, skin, liver, spleen, eyes, phalangeal bones, and parotid glands. [NIH]

Sarcoma: A connective tissue neoplasm formed by proliferation of mesodermal cells; it is usually highly malignant. [NIH]

Scans: Pictures of structures inside the body. Scans often used in diagnosing, staging, and monitoring disease include liver scans, bone scans, and computed tomography (CT) or computerized axial tomography (CAT) scans and magnetic resonance imaging (MRI) scans. In liver scanning and bone scanning, radioactive substances that are injected into the bloodstream collect in these organs. A scanner that detects the radiation is used to create pictures. In CT scanning, an x-ray machine linked to a computer is used to produce detailed pictures of organs inside the body. MRI scans use a large magnet connected to a computer to

create pictures of areas inside the body. [NIH]

Scatter: The extent to which relative success and failure are divergently manifested in qualitatively different tests. [NIH]

Scleroproteins: Simple proteins characterized by their insolubility and fibrous structure. Within the body, they perform a supportive or protective function. [NIH]

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

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

Seafood: Marine fish and shellfish used as food or suitable for food. (Webster, 3d ed) shellfish and fish products are more specific types of seafood. [NIH]

Sebaceous: Gland that secretes sebum. [NIH]

Sebaceous gland: Gland that secretes sebum. [NIH]

Secretion: 1. the process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. any substance produced by secretion. [EU]

Secretory: Secreting; relating to or influencing secretion or the secretions. [NIH]

Secretory Vesicles: Vesicles derived from the golgi apparatus containing material to be released at the cell surface. [NIH]

Sedative: 1. allaying activity and excitement. 2. an agent that allays excitement. [EU]

Sediment: A precipitate, especially one that is formed spontaneously. [EU]

Segregation: The separation in meiotic cell division of homologous chromosome pairs and their contained allelomorphic gene pairs. [NIH]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

Self Administration: Administration of a drug or chemical by the individual under the direction of a physician. It includes administration clinically or experimentally, by human or animal. [NIH]

Self Care: Performance of activities or tasks traditionally performed by professional health care providers. The concept includes care of oneself or one's family and friends. [NIH]

Self Medication: The self administration of medication not prescribed by a physician or in a manner not directed by a physician. [NIH]

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

Semisynthetic: Produced by chemical manipulation of naturally occurring substances. [EU]

Senile: Relating or belonging to old age; characteristic of old age; resulting from infirmity of old age. [NIH]

Sensibility: The ability to receive, feel and appreciate sensations and impressions; the quality of being sensitive; the extend to which a method gives results that are free from false negatives. [NIH]

Sensitization: 1. administration of antigen to induce a primary immune response; priming; immunization. 2. exposure to allergen that results in the development of hypersensitivity. 3. the coating of erythrocytes with antibody so that they are subject to lysis by complement in

the presence of homologous antigen, the first stage of a complement fixation test. [EU]

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

Serine: A non-essential amino acid occurring in natural form as the L-isomer. It is synthesized from glycine or threonine. It is involved in the biosynthesis of purines, pyrimidines, and other amino acids. [NIH]

Serologic: Analysis of a person's serum, especially specific immune or lytic serums. [NIH]

Serotonin: A biochemical messenger and regulator, synthesized from the essential amino acid L-tryptophan. In humans it is found primarily in the central nervous system, gastrointestinal tract, and blood platelets. Serotonin mediates several important physiological functions including neurotransmission, gastrointestinal motility, hemostasis, and cardiovascular integrity. Multiple receptor families (receptors, serotonin) explain the broad physiological actions and distribution of this biochemical mediator. [NIH]

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

Serum Albumin: A major plasma protein that serves in maintaining the plasma colloidal osmotic pressure and transporting large organic anions. [NIH]

Serum Sickness: Immune complex disease caused by the administration of foreign serum or serum proteins and characterized by fever, lymphadenopathy, arthralgia, and urticaria. When they are complexed to protein carriers, some drugs can also cause serum sickness when they act as haptens inducing antibody responses. [NIH]

Sexually Transmitted Diseases: Diseases due to or propagated by sexual contact. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [NIH]

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

Signal Transduction: The intercellular or intracellular transfer of information (biological activation/inhibition) through a signal pathway. In each signal transduction system, an activation/inhibition signal from a biologically active molecule (hormone, neurotransmitter) is mediated via the coupling of a receptor/enzyme to a second messenger system or to an ion channel. Signal transduction plays an important role in activating cellular functions, cell differentiation, and cell proliferation. Examples of signal transduction systems are the GABA-postsynaptic receptor-calcium ion channel system, the receptor-mediated T-cell activation pathway, and the receptor-mediated activation of phospholipases. Those coupled to membrane depolarization or intracellular release of calcium include the receptor-mediated activation of cytotoxic functions in granulocytes and the synaptic potentiation of protein kinase activation. Some signal transduction pathways may be part of larger signal transduction pathways; for example, protein kinase activation is part of the platelet activation signal pathway. [NIH]

Signs and Symptoms: Clinical manifestations that can be either objective when observed by a physician, or subjective when perceived by the patient. [NIH]

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 antihepatoxic agent. [NIH]

Sinusitis: An inflammatory process of the mucous membranes of the paranasal sinuses that occurs in three stages: acute, subacute, and chronic. Sinusitis results from any condition causing ostial obstruction or from pathophysiologic changes in the mucociliary transport mechanism. [NIH]

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

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

Skin Aging: The process of aging due to changes in the structure and elasticity of the skin over time. It may be a part of physiological aging or it may be due to the effects of ultraviolet radiation, usually through exposure to sunlight. [NIH]

Skin Care: Maintenance of the hygienic state of the skin under optimal conditions of cleanliness and comfort. Effective in skin care are proper washing, bathing, cleansing, and the use of soaps, detergents, oils, etc. In various disease states, therapeutic and protective solutions and ointments are useful. The care of the skin is particularly important in various occupations, in exposure to sunlight, in neonates, and in decubitus ulcer. [NIH]

Skin test: A test for an immune response to a compound by placing it on or under the skin. [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]

Sneezing: Sudden, forceful, involuntary expulsion of air from the nose and mouth caused by irritation to the mucous membranes of the upper respiratory tract. [NIH]

Soaps: Sodium or potassium salts of long chain fatty acids. These detergent substances are obtained by boiling natural oils or fats with caustic alkali. Sodium soaps are harder and are used as topical anti-infectives and vehicles in pills and liniments; potassium soaps are soft, used as vehicles for ointments and also as topical antimicrobials. [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]

Soft tissue sarcoma: A sarcoma that begins in the muscle, fat, fibrous tissue, blood vessels, or other supporting tissue of the body. [NIH]

Solid tumor: Cancer of body tissues other than blood, bone marrow, or the lymphatic system. [NIH]

Spasm: An involuntary contraction of a muscle or group of muscles. Spasms may involve skeletal muscle or smooth muscle. [NIH]

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]

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]

Sphincter: A ringlike band of muscle fibres that constricts a passage or closes a natural orifice; called also musculus sphincter. [EU]

Spina bifida: A defect in development of the vertebral column in which there is a central deficiency of the vertebral lamina. [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]

Spirometry: Measurement of volume of air inhaled or exhaled by the lung. [NIH]

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

Splenomegaly: Enlargement of the spleen. [NIH]

Spores: The reproductive elements of lower organisms, such as protozoa, fungi, and cryptogamic plants. [NIH]

Stabilization: The creation of a stable state. [EU]

Stabilizer: A device for maintaining constant X-ray tube voltage or current. [NIH]

Staging: Performing exams and tests to learn the extent of the cancer within the body, especially whether the disease has spread from the original site to other parts of the body. [NIH]

Standard therapy: A currently accepted and widely used treatment for a certain type of cancer, based on the results of past research. [NIH]

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

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

Stasis: A word termination indicating the maintenance of (or maintaining) a constant level; preventing increase or multiplication. [EU]

Stem Cell Factor: Hematopoietic growth factor and the ligand of the c-kit receptor CD117 (proto-oncogene protein C-kit). It is expressed during embryogenesis and provides a key signal in multiple aspects of mast-cell differentiation and function. [NIH]

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

Sterile: Unable to produce children. [NIH]

Sterility: 1. the inability to produce offspring, i.e., the inability to conceive (female s.) or to induce conception (male s.). 2. the state of being aseptic, or free from microorganisms. [EU]

Sterilization: The destroying of all forms of life, especially microorganisms, by heat, chemical, or other means. [NIH]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Steroid therapy: Treatment with corticosteroid drugs to reduce swelling, pain, and other symptoms of inflammation. [NIH]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

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

Stoma: A surgically created opening from an area inside the body to the outside. [NIH]

Stoma size: The size of a new opening created surgically between two body structures. [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]

Stomatitis: Inflammation of the oral mucosa, due to local or systemic factors which may involve the buccal and labial mucosa, palate, tongue, floor of the mouth, and the gingivae. [EU]

Stomatognathic System: The mouth, teeth, jaws, pharynx, and related structures as they relate to mastication, deglutition, and speech. [NIH]

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

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

Streptokinase: Streptococcal fibrinolysin . An enzyme produced by hemolytic streptococci. It hydrolyzes amide linkages and serves as an activator of plasminogen. It is used in thrombolytic therapy and is used also in mixtures with streptodornase (streptodornase and streptokinase). EC 3.4.-. [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]

Stress incontinence: An involuntary loss of urine that occurs at the same time that internal abdominal pressure is increased, such as with laughing, sneezing, coughing, or physical activity. [NIH]

Stress urinary: Leakage of urine caused by actions--such as coughing, laughing, sneezing, running, or lifting--that place pressure on the bladder from inside the body. Stress urinary incontinence can result from either a fallen bladder or weak sphincter muscles. [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]

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]

Subarachnoid: Situated or occurring between the arachnoid and the pia mater. [EU]

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

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]

Substrate: A substance upon which an enzyme acts. [EU]

Suction: The removal of secretions, gas or fluid from hollow or tubular organs or cavities by means of a tube and a device that acts on negative pressure. [NIH]

Sunburn: An injury to the skin causing erythema, tenderness, and sometimes blistering and resulting from excessive exposure to the sun. The reaction is produced by the ultraviolet radiation in sunlight. [NIH]

Superoxide: Derivative of molecular oxygen that can damage cells. [NIH]

Suppositories: A small cone-shaped medicament having cocoa butter or gelatin at its basis and usually intended for the treatment of local conditions in the rectum. [NIH]

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

Surface Plasmon Resonance: A biosensing technique in which biomolecules capable of binding to specific analytes or ligands are first immobilized on one side of a metallic film. Light is then focused on the opposite side of the film to excite the surface plasmons, that is, the oscillations of free electrons propagating along the film's surface. The refractive index of light reflecting off this surface is measured. When the immobilized biomolecules are bound by their ligands, an alteration in surface plasmons on the opposite side of the film is created which is directly proportional to the change in bound, or adsorbed, mass. Binding is measured by changes in the refractive index. The technique is used to study biomolecular interactions, such as antigen-antibody binding. [NIH]

Suspensions: Colloids with liquid continuous phase and solid dispersed phase; the term is used loosely also for solid-in-gas (aerosol) and other colloidal systems; water-insoluble drugs may be given as suspensions. [NIH]

Sweat: The fluid excreted by the sweat glands. It consists of water containing sodium chloride, phosphate, urea, ammonia, and other waste products. [NIH]

Sweat Glands: Sweat-producing structures that are embedded in the dermis. Each gland consists of a single tube, a coiled body, and a superficial duct. [NIH]

Sympathetic Nervous System: The thoracolumbar division of the autonomic nervous system. Sympathetic preganglionic fibers originate in neurons of the intermediolateral column of the spinal cord and project to the paravertebral and prevertebral ganglia, which in turn project to target organs. The sympathetic nervous system mediates the body's response to stressful situations, i.e., the fight or flight reactions. It often acts reciprocally to the parasympathetic system. [NIH]

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]

Symptomatology: 1. that branch of medicine with treats of symptoms; the systematic discussion of symptoms. 2. the combined symptoms of a disease. [EU]

Synapse: The region where the processes of two neurons come into close contiguity, and the nervous impulse passes from one to the other; the fibers of the two are intermeshed, but, according to the general view, there is no direct contiguity. [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]

Synchrotron: An accelerator in which the particles are guided by an increasing magnetic field while they are accelerated several times in an approximately circular path by electric fields produced by a high-frequency generator. [NIH]

Synergistic: Acting together; enhancing the effect of another force or agent. [EU]

Systemic: Affecting the entire body. [NIH]

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

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

Talc: A native magnesium silicate. [NIH]

Tapeworm: A flatworm that is an endoparasite and belongs to the class Cestoda. [NIH]

Tear Gases: Gases that irritate the eyes, throat, or skin. Severe lacrimation develops upon irritation of the eyes. [NIH]

Telomere: A terminal section of a chromosome which has a specialized structure and which is involved in chromosomal replication and stability. Its length is believed to be a few hundred base pairs. [NIH]

Teniposide: A semisynthetic derivative of podophyllotoxin that exhibits antitumor activity. Teniposide inhibits DNA synthesis by forming a complex with topoisomerase II and DNA. This complex induces breaks in double stranded DNA and prevents repair by topoisomerase II binding. Accumulated breaks in DNA prevent cells from entering into the mitotic phase of the cell cycle, and lead to cell death. Teniposide acts primarily in the G2 and S phases of the cycle. [NIH]

Terminator: A DNA sequence sited at the end of a transcriptional unit that signals the end

of transcription. [NIH]

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

Tetani: Causal agent of tetanus. [NIH]

Tetanic: Having the characteristics of, or relating to tetanus. [NIH]

Tetanus: A disease caused by tetanospasmin, a powerful protein toxin produced by Clostridium tetani. Tetanus usually occurs after an acute injury, such as a puncture wound or laceration. Generalized tetanus, the most common form, is characterized by tetanic muscular contractions and hyperreflexia. Localized tetanus presents itself as a mild condition with manifestations restricted to muscles near the wound. It may progress to the generalized form. [NIH]

Tetracycline: An antibiotic originally produced by Streptomyces viridifaciens, but used mostly in synthetic form. It is an inhibitor of aminoacyl-tRNA binding during protein synthesis. [NIH]

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

Theophylline: Alkaloid obtained from Thea sinensis (tea) and others. It stimulates the heart and central nervous system, dilates bronchi and blood vessels, and causes diuresis. The drug is used mainly in bronchial asthma and for myocardial stimulation. Among its more prominent cellular effects are inhibition of cyclic nucleotide phosphodiesterases and antagonism of adenosine receptors. [NIH]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

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

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

Threonine: An essential amino acid occurring naturally in the L-form, which is the active form. It is found in eggs, milk, gelatin, and other proteins. [NIH]

Threshold: For a specified sensory modality (e. g. light, sound, vibration), the lowest level (absolute threshold) or smallest difference (difference threshold, difference limen) or intensity of the stimulus discernible in prescribed conditions of stimulation. [NIH]

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

Thrombolytic: 1. dissolving or splitting up a thrombus. 2. a thrombolytic agent. [EU]

Thrombolytic Therapy: Use of infusions of fibrinolytic agents to destroy or dissolve thrombi in blood vessels or bypass grafts. [NIH]

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

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

Thromboxanes: Physiologically active compounds found in many organs of the body. They are formed in vivo from the prostaglandin endoperoxides and cause platelet aggregation, contraction of arteries, and other biological effects. Thromboxanes are important mediators

of the actions of polyunsaturated fatty acids transformed by cyclooxygenase. [NIH]

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

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

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

Tin: A trace element that is required in bone formation. It has the atomic symbol Sn, atomic number 50, and atomic weight 118.71. [NIH]

Tinea Pedis: Dermatological pruritic lesion in the feet, caused by Trichophyton rubrum, T. mentagrophytes, or Epidermophyton floccosum. [NIH]

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

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

Tomography: Imaging methods that result in sharp images of objects located on a chosen plane and blurred images located above or below the plane. [NIH]

Topical: On the surface of the body. [NIH]

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

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

Toxicologic: Pertaining to toxicology. [EU]

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

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

Toxoid: The material resulting from the treatment of toxin in such a way that the toxic properties are inactivated whilst the antigenic potency remains intact. [NIH]

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

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

Transcription Factors: Endogenous substances, usually proteins, which are effective in the initiation, stimulation, or termination of the genetic transcription process. [NIH]

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

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

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

Transgenes: Genes that are introduced into an organism using gene transfer techniques. [NIH]

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

Translocation: The movement of material in solution inside the body of the plant. [NIH]

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]

Triamcinolone Acetonide: An esterified form of triamcinolone. It is an anti-inflammatory glucocorticoid used topically in the treatment of various skin disorders. Intralesional, intramuscular, and intra-articular injections are also administered under certain conditions. [NIH]

Trimethoprim-sulfamethoxazole: An antibiotic drug used to treat infection and prevent pneumocystis carinii pneumonia. [NIH]

Trivalent: Having a valence of three. [EU]

Troglitazone: A drug used in diabetes treatment that is being studied for its effect on reducing the risk of cancer cell growth in fat tissue. [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]

Tubal ligation: An operation to tie the fallopian tubes closed. This procedure prevents pregnancy by blocking the passage of eggs from the ovaries to the uterus. [NIH]

Tubercle: A rounded elevation on a bone or other structure. [NIH]

Tuberculin: A sterile liquid containing the growth products of, or specific substances extracted from, the tubercle bacillus; used in various forms in the diagnosis of tuberculosis. [NIH]

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

Tumor Lysis Syndrome: A syndrome resulting from cytotoxic therapy, occurring generally in aggressive, rapidly proliferating lymphoproliferative disorders. It is characterized by combinations of hyperuricemia, lactic acidosis, hyperkalemia, hyperphosphatemia and hypocalcemia. [NIH]

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

Tunica: A rather vague term to denote the lining coat of hollow organs, tubes, or cavities. [NIH]

Type 2 diabetes: Usually characterized by a gradual onset with minimal or no symptoms of metabolic disturbance and no requirement for exogenous insulin. The peak age of onset is 50 to 60 years. Obesity and possibly a genetic factor are usually present. [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 lesion on the surface of the skin or a mucous surface, produced by the sloughing of inflammatory necrotic tissue. [NIH]

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

Ulcerative colitis: Chronic inflammation of the colon that produces ulcers in its lining. This condition is marked by abdominal pain, cramps, and loose discharges of pus, blood, and mucus from the bowel. [NIH]

Ulcus cruris: Ulcer of the foot [EU]

Ultraviolet radiation: Invisible rays that are part of the energy that comes from the sun. UV radiation can damage the skin and cause melanoma and other types of skin cancer. UV radiation that reaches the earth's surface is made up of two types of rays, called UVA and UVB rays. UVB rays are more likely than UVA rays to cause sunburn, but UVA rays pass deeper into the skin. Scientists have long thought that UVB radiation can cause melanoma and other types of skin cancer. They now think that UVA radiation also may add to skin damage that can lead to skin cancer and cause premature aging. For this reason, skin specialists recommend that people use sunscreens that reflect, absorb, or scatter both kinds of UV radiation. [NIH]

Ultraviolet Rays: That portion of the electromagnetic spectrum immediately below the visible range and extending into the x-ray frequencies. The longer wavelengths (near-UV or biotic or vital rays) are necessary for the endogenous synthesis of vitamin D and are also called antirachitic rays; the shorter, ionizing wavelengths (far-UV or abiotic or extravital rays) are viricidal, bactericidal, mutagenic, and carcinogenic and are used as disinfectants. [NIH]

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

Univalent: Pertaining to an unpaired chromosome during the zygotene stage of prophase to first metaphase in meiosis. [NIH]

Universal Precautions: Prudent standard preventive measures to be taken by professional and other health personnel in contact with persons afflicted with a communicable disease, to avoid contracting the disease by contagion or infection. Precautions are especially applicable in the diagnosis and care of AIDS patients. [NIH]

Urea: A compound (CO(NH2)2), formed in the liver from ammonia produced by the deamination of amino acids. It is the principal end product of protein catabolism and constitutes about one half of the total urinary solids. [NIH]

Urease: An enzyme that catalyzes the conversion of urea and water to carbon dioxide and ammonia. EC 3.5.1.5. [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]

Urinalysis: Examination of urine by chemical, physical, or microscopic means. Routine urinalysis usually includes performing chemical screening tests, determining specific gravity, observing any unusual color or odor, screening for bacteriuria, and examining the sediment microscopically. [NIH]

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

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

Urticaria: A vascular reaction of the skin characterized by erythema and wheal formation due to localized increase of vascular permeability. The causative mechanism may be allergy, infection, or stress. [NIH]

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]

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

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

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

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

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

Vasoconstriction: Narrowing of the blood vessels without anatomic change, for which constriction, pathologic is used. [NIH]

Vasodilator: An agent that widens blood vessels. [NIH]

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

Vegetarianism: Dietary practice of consuming only vegetables, grains, and nuts. [NIH]

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

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

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

Venules: The minute vessels that collect blood from the capillary plexuses and join together to form veins. [NIH]

Vertebral: Of or pertaining to a vertebra. [EU]

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]

Villous: Of a surface, covered with villi. [NIH]

Vinca Alkaloids: A class of alkaloids from the genus of apocyanaceous woody herbs including periwinkles. They are some of the most useful antineoplastic agents. [NIH]

Vinorelbine: An anticancer drug that belongs to the family of plant drugs called vinca alkaloids. [NIH]

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

Virtual colonoscopy: A method under study to examine the colon by taking a series of x-rays (called a CT scan) and then using a high-powered computer to reconstruct 2-D and 3-D pictures of the interior surfaces of the colon from these x-rays. The pictures can be saved, manipulated to better viewing angles, and reviewed after the procedure, even years later. Also called computed tomography colography. [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]

Vitamin A: A substance used in cancer prevention; it belongs to the family of drugs called retinoids. [NIH]

Vitamin D: The vitamin that mediates intestinal calcium absorption, bone calcium metabolism, and probably muscle activity. It usually acts as a hormone precursor, requiring 2 stages of metabolism before reaching actual hormonal form. It is isolated from fish liver oils and used in the treatment and prevention of rickets. [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]

Voice Disorders: Disorders of voice pitch, loudness, or quality. Dysphonia refers to impaired utterance of sounds by the vocal folds. [NIH]

Voice Quality: Voice quality is that component of speech which gives the primary distinction to a given speaker's voice when pitch and loudness are excluded. It involves both phonatory and resonatory characteristics. Some of the descriptions of voice quality are harshness, breathiness and nasality. [NIH]

Volvulus: A twisting of the stomach or large intestine. May be caused by the stomach being in the wrong position, a foreign substance, or abnormal joining of one part of the stomach or intestine to another. Volvulus can lead to blockage, perforation, peritonitis, and poor blood flow. [NIH]

Wasps: Any of numerous winged hymenopterous insects of social as well as solitary habits and having formidable stings. [NIH]

Weight Gain: Increase in body weight over existing weight. [NIH]

Wheezing: Breathing with a rasp or whistling sound; a sign of airway constriction or obstruction. [NIH]

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

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

Wound Healing: Restoration of integrity to traumatized tissue. [NIH]

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

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

X-ray therapy: The use of high-energy radiation from x-rays 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. X-ray therapy is also called radiation therapy, radiotherapy, and irradiation. [NIH]

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

Zinc Oxide: A mild astringent and topical protectant with some antiseptic action. It is also used in bandages, pastes, ointments, dental cements, and as a sunblock. [NIH]

Zoonoses: Diseases of non-human animals that may be transmitted to man or may be transmitted from man to non-human animals. [NIH]

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

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