GLOSSARY

Acquired immune deficiency syndrome (AIDS) - a secondary immunodeficiency caused by the HIV virus

Acute - a descriptive term used to describe an illness which is usually short in duration and of recent onset

Adenosine Deaminase (ADA) - an enzyme essential for the development of the immune system

Agammaglobulinemia - an almost total lack of immunoglobulins or antibodies

Amniocentesis - the withdraw of amniotic fluid surrounding a fetus in order to perform prenatal genetic testing

Antibodies - protein molecules that are produced and secreted by certain types of white cells (B-lymphocytes) in response to stimulation by an antigen; their primary function is to fight bacteria, viruses, toxins, and other substances foreign to the body

Antigen - any foreign substance that provokes an immune response when introduced into the body; the immune response usually involves both T-lymphocytes and B-lymphocytes

Ataxia - an unsteady gait caused by neurological abnormalities

Autoimmune disease - a disease that results when the body's immune system reacts against a person's own tissue

Autosomal recessive inheritance - a form of inheritance where the characteristic, or disease, is inherited from both parents.

Autosomes - any chromosome other than the sex chromosome

Bacteria - single cell organisms (microorganisms) that can be seen only under a microscope. While bacteria can be useful, many bacteria can cause disease in humans.

B-lymphocytes (B-cells) - white blood cells of the immune system derived from bone marrow and involved in the production of antibodies

Bone marrow - soft tissue located in the hollow centers of most bones that contain developing red blood cells, white cells, platelets and cells of the immune system

Bronchiectasis - a dilation of the tubes (bronchi) leading to the air sacs of the lung; usually the consequence of recurrent infection

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Carrier detection - the detection of a genetic characteristic in a person who carries the characteristic (or disease) in their genes but shows no clinical evidence

CD 40 ligand - a protein found on the surface of T-lymphocytes; individuals with X-linked Hyper IgM Syndrome have a deficiency in this protein

Cellular immunity - immune protection provided by the direct action of the immune cells

Chromosomes - physical structures in the cell's nucleus that carry genes; each human cells has 23 pairs of chromosomes

Chronic - descriptive term used to describe an illness or infection that may be recurrent or last a long time

Chorionic villus sampling - involves the retrieval of a sample of the developing placenta from the womb in order to perform prenatal genetic testing

Combined immunodeficiency - immunodeficiency when both T- and B-lymphocytes cells are inadequate or lacking

Complement - a complex series of blood proteins that act in a definite sequence to affect the destruction of bacteria, viruses and fungi

Congenital - present at birth

Cord blood - blood obtained from the placenta at birth

Cryptosporidium - an organism that can cause gastrointestinal symptoms and liver disease; may be present in drinking water

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DNA (deoxyribonucleic acid) - the carrier of genetic information found in the cell nucleus

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Eczema - skin inflammation with redness, itching, encrustations, and scaling

Endocrine system - a series of glands in the body that produce hormones

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Fungus - member of a class of relatively primitive microorganisms including mushrooms, yeast, and molds

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Gamma globulins - the protein fraction of blood that contains immunoglobulins or antibodies

Gamma interferon - a cytokine primarily produced by T-lymphocytes that improves bacterial killing by phagocytes; used as treatment for Chronic Granulomatous Disease

Gene - a unit of genetic material (DNA)

Gene (or genetic) testing - testing performed to determine if an individual possesses a specific gene or genetic trait

Gene therapy - treatment of genetic diseases by providing the correct or normal form of the abnormal gene causing the disease

Graft-versus-host disease - a reaction in which transplanted immunocompetent cells attack the tissue of the recipient

Graft rejection - the immunologic response of the recipient to the transplanted organ or tissue resulting in rejection of the transplanted organ or tissue

Granulocyte - a white cell of the immune system characterized by the ability to ingest (phagocytize) foreign material; neutrophils, eosinophils, and basophils are examples of granulocytes

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Haplotype - a series of gene clusters on the sixth human chromosome that determines histocompatibility antigens

Helper lymphocytes (Helper T-cells) - a subset of T-lymphocytes that help B-lymphocytes and T-lymphocytes to function more optimally

Histocompatibility antigens - chemicals on the surface of many cells of the body, including the cells of the immune system, which are relatively unique to each individual and are responsible for our tissue type

Humoral immunity - immune protection provided by soluble factors, such as antibodies, which circulate in the body's fluids

Hypogammaglobulinemia - lower than normal levels of gamma globulins or immunoglobulins (or antibodies) in the blood

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IgA - an immunoglobulin found in blood and secreted into tears, saliva, and on the mucous membranes of respiratory and intestinal tracks

IgD - an immunoglobulin whose function is poorly understood at this time

IgE - an immunoglobulin found in trace amounts in the blood and responsible for allergic reactions

IgG - the most abundant and common of the immunoglobulins. IgG functions mainly against bacteria and some viruses. It is the only antibody that can cross the placenta from the mother to the developing fetus

IgM - an immunoglobulin found in the blood. IgM functions in much the same way as IgG but is formed earlier in the immune response. It is also very efficient in activating complement

Immune response - the response of the immune system against foreign substances

Immunocompetent - capable of developing an immune response

Immunodeficiency - a state of either a congenital (present at birth) or an acquired abnormality of the immune system that prevents adequate immune responsiveness

Immunoglobulins (Ig) - another name for antibody; there are five classes: IgA, IgD, IgG, IgM, and IgE

In vitro - outside of a living environment; refers to a process or study taking place in test tubes, etc.

In vivo - inside a living environment; refers to a process or study taking place in the body

Intravenous immunoglobulin - gamma globulin therapy injected directly into the vein

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Killer lymphocytes - T-lymphocytes that directly kill microorganisms or cells that are infected with microorganisms

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Leukemia - type of cancer affecting the cells of the immune system

Leukocyte (white blood cell) - a group of small colorless blood cells that play a major role in the body's immune system. There are five basic leukocytes: monocytes, lymphocytes, neutrophils, eosinophils, and basophils

Live vaccines - live viruses are used in the vaccine; live vaccines (particularly oral polio) can transmit the disease they were designed to prevent in immunocompromised individuals

Lymph - fluid made up of various components of the immune system that flows throughout tissues of the body via the lymph nodes and lymphatic vessels

Lymph nodes - small bean-sized organs of the immune system, distributed widely throughout the body. Each lymph node contains a variety of specialized compartments that house B-lymphocytes, T-lymphocytes, and macrophages. Lymph nodes unite in one location the several factors needed to produce an immune response.

Lymphocytes - small white cells, normally present in the blood and in lymphoid tissue, that bear the major responsibility for carrying out the functions of the immune system. There are two major forms of lymphocytes, B-lymphocytes, and T-lymphocytes, which have distinct but related functions in generating an immune response.

Lymphoma - type of cancer of the lymphocytes of the immune system

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Macrophages - phagocytic cells found in tissues, able to destroy invading bacteria or foreign material

Major histocompatibility complex - a series of genes on chromosome 6 that direct the synthesis of the chemicals on the surface of many cells of the body, including the cells of the immune system, which are relatively unique to each individual and provide our tissue type

Malignancy - cancer

Metabolism - a general term which summarizes the chemical changes within a single cell, and the body as a whole, which results in either the building up or breaking down of living material

Microorganisms - minute living organisms, usually one-cell organisms, which include bacteria, protozoa, and fungi

Molecules - the smallest unit of matter of an element or compound

Monocyte - phagocytic cell found in the blood that acts as a scavenger, capable of destroying invading bacteria or other foreign material; these cells develop into macrophages in tissues.

Monokines - chemical messengers produced and secreted by monocytes and macrophages

Mucosal surfaces - surfaces that come in close contact with the environment, such as the mucus membranes of the mouth, nose, gastrointestinal tract, eyes, etc; IgA antibodies protect these surfaces, or mucus membranes, from infection

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Neutropenia - a lower than normal amount of neutrophils in the blood

Neutrophils - a type of granulocyte, found in the blood and tissues that can ingest microorganisms

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Opportunistic infection - an infection that occurs only under certain conditions, such as in immunodeficient individuals

Organism - an individual living thing

Osteomyelitis - infection of the bone

Parasite - a plant or animal that lives, grows, and feeds on or within another living organism

Parathyroid gland - small glands found in the neck near the thyroid that control the normal metabolism and blood levels of calcium

Petechiae - pinhead-sized red spots resulting from bleeding into the skin

Phagocyte - a general class of white blood cells that ingest microbes and other cells and foreign particles; monocytes, macrophages, and neutrophils are types of phagocytes

Plasma cells - antibody-producing cells descended from B-lymphocytes

Platelets - smallest and most fragile of the blood cells; primary function is associated with the process of blood clotting

Polysaccharides - complex sugars

Primary immunodeficiency - immunodeficiency that is intrinsic to the cells and tissues of the immune system, not due to another illness, medication or outside agent damaging the immune system

Prophylactic - medical therapy initiated to prevent or guard against disease or infection

Protein - a class of chemicals found in the body made up of chains of amino acids (building blocks); immunoglobulins (antibodies) are proteins

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Secondary immunodeficiency - immunodeficiency due to another illness or agent, such as human immunodeficiency virus (HIV), cancer, or chemotherapy

Sepsis - an infection of the blood

Spleen - an organ in the abdominal cavity; it is directly connected to the blood stream and like lymph nodes contains B-lymphocytes, T-lymphocytes, and macrophages

Stem cells - cells from which all blood cells and immune cells are derived, bone marrow is rich in stem cells

Subcutaneous infusion - administration of gamma globulin in which it is infused slowly directly under the skin with a small pump

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Telangiectasia - dilation of the blood vessels

Thrombocytopenia - low platelet count

Thrush - a fungal disease on mucous membranes of the mouth caused by Candida infections

Thymus gland - a lymphoid organ located behind the upper portion of the sternum (breastbone). The thymus is the chief educator of T-lymphocytes. This organ increases in size from infancy to adolescence and then begins to shrink

T-lymphocytes (or T-cells) - lymphocytes that are processed in the thymus; they are responsible in part for carrying out the immune response

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Vaccine - a substance that contains components from an infectious organism which stimulates an immune response in order to protect against subsequent infection by that organism

Vectors - modified viruses containing normal genes; used in gene therapy to insert normal genes in cells

Virus - a submicroscopic microbe causing infectious disease; can reproduce only in living cells

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White blood cells - see leukocyte

X-linked recessive inheritance - a form of inheritance where the characteristic, or disease, is inherited on the X-chromosome