



## UNIT FOUR TEACHER GLOSSARY

**Activate:** encounter and respond to corresponding antigen or substance

**Antibodies:** proteins with light and heavy chains that are released by mature B cells; specifically recognize antigen which the B cell initially recognized

**Allogeneic:** taken from different individuals of the same species. Two or more individuals are said to be allogeneic to one another when the genes at one or more loci are not identical.

**Autologous:** an autologous graft is providing a graft, for example of gum tissue, to yourself

**Apoptosis:** programmed cell death, usually considered a "neat" cell death that is not inflammatory

**Autoimmunity:** when the immune system attacks the body's own, healthy tissues

**Antigens:** substances that prompt the generation of antibodies and can cause an immune response

**Antigen Presenting Cells:** a cell that displays foreign antigen complex with MHC on its surface

**B-cells:** white blood cells that enforce nonspecific and specific immunity (adaptive immunity); responsible for the generation of antibodies

**Blood islands:** structures in the developing embryo from which the first blood cells originate

**B Lymphocyte:** another name for a B cell, detects an antigen from a foreign (environmental) source

**Chemotaxis and diapedesis:** a biochemical gradient that causes migration of cells toward higher concentration

**Clones:** identical copies of a type of cell

**Cytotoxic T cells:** T cells that can poke holes in the membranes of foreign cells then secrete toxins that dissolve them upon recognition of the corresponding antigen

**Dendritic cells:** process antigen material and present it on the surface to other cells of the immune system

**Erythrocytes:** mature red blood cells

**Erythroid:** of or relating to a red blood cell or one of its developmental precursors

**Granulocytes:** a category of white blood cells characterised by the presence of granules in their cytoplasm; includes eosinophils, neutrophils, and basophils



**Helper T cell:** activated by binding to an antigen/MHC protein complex on the surface of a macrophage or other antigen-presenting cell. A type of T cell that provides help to other cells in the immune response by recognizing foreign antigens and secreting substances called cytokines that activate T and B cells. T-helper cells fall into two main classes: those that activate other T cells to achieve cellular inflammatory responses; and those that drive B cells to produce antibodies in the acquired immune response. These two classes of response are generally incompatible with one another and require coordination by substances called cytokines to promote one response while dampening the other. The HIV virus attacks T-helper cells, knocking out the body's ability to defend itself against infections.

**Hemangioblasts:** a multipotent cell, common precursor to hematopoietic and endothelial cells (<http://en.wikipedia.org/wiki/Endothelial>)

**Hematopoiesis:** formation of blood cellular components

**Histocompatible:** tissue compatible. If a donor and recipient are histocompatible, a transplant is expected to be easily accepted

**Humoral:** involving the production of antibodies

**Immune tolerance:** when the immune system ignores, or fails to react to a protein, cell or tissue in our body

**Inflammatory molecules:** molecules that cause immune response from cells

**Leukocyte:** white blood cell, either lymphatic or myelogenous (nonlymphatic)

**Lymphatic:** derived from the lymphoid stem cell

**Lymphocyte activation:** the binding of antigen to receptor must occur for proliferation and differentiation to occur

**Lymphoid:** of or relating to a white blood cell or one of its developmental precursors; Of or relating to lymph, a lymph vessel, or a lymph node.

**Lymphokines:** molecules released by lymphocytes or white blood cells that act as signals

**Macrophages:** white blood cells that engulf and destroy foreign particles or cells by phagocytosis

**Major Histocompatibility Complex (MHC) proteins:** produced by and carried on the plasma membranes of all the host's cells and indicates "self" MHC I is expressed by all host cells, can be engaged by T cell receptor on cytotoxic T cells MHC II is selectively expressed by Antigen Presenting Cells, can be engaged by T cell receptor on T helper cells

**Mast cells** cells that release histamine and other chemicals involved in inflammation as well as heparin, an anticoagulant

**Megakaryocytes/platelets:** a bone marrow cell responsible for the production of blood thrombocytes (platelets)

**Monocytes:** macrophage precursor, differs from the macrophage in that it is not in the tissue, mostly in blood



**Multipotency:** inherently controlled yet extrinsically regulated ability of a cell to differentiate into multiple cell types

**Myeloid:** Of, relating to, or derived from the bone marrow

**Naïve T cells:** T cells that have not encountered their respective antigen

**Negative selection:** The process by which T or B cells undergo apoptosis as they mature, if they engage self-antigens

**Non-lymphatic or myelogenous leukocytes:**

white blood cells of the myeloid branch, not derived from lymphoid cells

**Phagocytes:** Neutrophils, monocytes, macrophages, and macrophage-like cells that secrete inflammatory mediators and eat other cells and debris

**Phagocytose:** ability of a cell to engulf or eat what is in its surroundings, can include infected or dying cells

**Plasma cells:** mature B cell that recognizes antigen and releases massive amounts of clonal antibodies which are specific to the activating antigen

**Positive selection:** screening process ensures that mature lymphocytes will attack *only* when antigen from foreign organisms is presented by MHC proteins; will not attack MHC proteins without foreign antigens

**Proliferation:** when a cell undergo multiple cycles of cell divisions, usually in response to stimuli

**Receptor:** protein that receives and responds to a substance; in the immune system, it commonly refers to a protein embedded in the surface or in another cell membrane that causes an immune related response

**Reticulocytes:** immature red blood cells

**T-cells:** white blood cells that enforce nonspecific and specific immunity (adaptive immunity), responsible for generation of Helper T cells and cytotoxic T cells

**T Lymphocytes:** a group of cells including cytotoxic T and helper T that recognize antigen/MHC on the surface of an antigen producing cell, then signal via lymphokines to B cells, NK cells, and cytotoxic T cells to destroy captured pathogens

**Tolerogenic:** capable of producing immunological tolerance