

Microbiology for Nursing
Mix and match

1. Aerobic respiration - When oxygen is used as the final electron acceptor.
2. Amamnestic response - secondary response of specific immune system. On the first response the T-Cells and B-Cells need to be activated which takes time, the secondary and future responses are much faster because memory cells (already activated T-Cells and B-Cells) can start right away.
3. Anarobic respiration - Respiration where oxidation with something other then oxygen as the electron acceptor.
4. Antigen - Molecules recognized as non-self (foreign).
5. Antigen presenting cells - Special cells that can have MHC-II (Major histocompatibility complex - II) proteins found on them. These include: macrophages/monocytes, B-Cells, Kupffer cells in the liver, microglia cells of the CNS, Langerhans cells of the skin, and dendritic cells of the lymph nodes and spleen.
6. CD4 - Cluster designation marker 4 cells. T-4 helper cells.
7. CD8 - Cluster designation marker 8 cells. The CD8 cells are membrane proteins that are used to identify cells. Found next to T-Cell receptor sites. Involved in bonding the T-Cell to the MDH-I proteins.
8. Cell mediated immunity - (T-Cells) lymphocytes that attack antigens directly. Part of the specific immune system.
9. Coenzyme - Molecules that act as electron carriers between redox reactions.
10. Complement - 20 serum proteins that help macrophages and other immune cells to recognize foreign cells and destroy them.
11. Complement fixation - Test allows for the identification of either pathogens (antigens) or antibodies to a disease in the serum.
12. Costimulation - Needed for T-Cell and B-Cell activation. Protects the body from having the immune system attack the body by requiring another component of the immune system to assist in the activation of the T-Cell/B-Cell.

13. Cytotoxic T-cell - Activated T-Cells
14. Direct fluorescent antibody test - Tests for unidentified microorganisms by flooding with antibodies that have a fluorescent molecule bonded to them.
15. Edema - Build up of fluid in the tissue. Systemic edema is the buildup of fluid in the body tissues often due to heart failure of the right side, Pulmonary edema is the buildup of fluid in the lungs often due to heart failure of the left side.
16. Enzyme-linked immunosorbent assay (ELISA) - Enzyme-linked immunosorbent assay test. Widely used test because very sensitive. Test for antibodies to pathogen in blood.
17. Epitope - (antigen determinants): The specific parts of antigen molecules that trigger an immune response or the part of an antigen that cells present bonded to MHC proteins on their membranes.
18. Fermentation - Type of respiration reaction. Oxidation without an outside electron acceptor, only yields two ATP per glucose molecule.
19. General adaptation syndrome - GAS, the response an animal has to a stressor.
20. Haptens - molecules from antigens which move across mucus or cutaneous membranes and bond with proteins. Common: Poison oak, poison ivy, cosmetics, deodorants, and heavy metals.
21. Histamine - Released from cells (mast cells in the tissue and basophiles in the blood) when they are damaged, causes more fluid to move into the tissue swelling the tissue so that immune system cells can move into the area.
22. Humoral immunity - (B-Cells) lymphocytes that produce antibodies (proteins) which attack a specific foreign cell. Part of the specific immune system.
23. IgA - (15%) In sweat, tears, saliva, mother's milk, and gastrointestinal secretions. Cross mucus membranes. Involved in allergic reactions.
24. IgD - (1%) In blood, lymph and on the surface of B-Cells. Acts as antigen receptor.
25. IgE - (<0.1%) Mast cells and basophiles. Is the trigger for

histamine release. Involved in allergic reactions.

26. IgG - (75%) Protects against bacteria and viruses. Only class that crosses the placenta.

27. IgM - (5-10%) blood and lymph. First antibody secreted after initial contact. Causes agglutination and lysis of microbes and antigen receptor on B-Cells. Involved in food allergies.

28. Immune system - A system that identifies foreign materials in the body as non-self and produces cells or molecules that bond with them and destroy them.

29. Immunization - The process of artificially stimulating the immune system to be ready to attack a specific antigen.

30. Immunologic surveillance - T-Cells are constantly moving over the surface of cells monitoring them for viral or cancer antigens.

31. Immunologic tolerance - The immune system being tolerant of its own cells.

32. Interleukin-1 - IL-1 is a costimulator (hormone like mediator) for T-4 helper cell activation.

33. Interleukin-2 - IL-2 is a costimulator (hormone like mediator) for stimulating the proliferation of activated T-Cells.

34. Lymph - The fluid that is collected and carried throughout the lymphatic system. Mostly water, originates from the blood plasma that has been forced out of the capillaries.

35. Lymphatic system - A system of vessels in the body that collects excess fluid from the tissue and returns it to the cardiovascular system. Also involved in the immune system response and moving lipids from the small intestine to the blood.

36 Lymph nodes - Small nodes, about 2.5cm and kidney bean shaped. Contains nodules that have masses of T-lymphocytes, B-lymphocytes, natural killer cells and macrophages.

37. Lymphotoxin - Lysozyme released by T-Cells when they are attacking a cell. Fragments the DNA in the cell.

38. Major histocompatibility complex (MHC) - The antigens found on the surface of cells that control whether cells are recognized as part of your body or not. Two classes of MHC: MHC-

I & MHC-II.

39. Membrane attack complex - Caused by complement proteins which attack foreign cells creating holes in their membranes which cause the cells to lyse due to osmosis.

40. Memory cells - T-Cells and B-Cells which have been activated for fighting an antigen in the past and will not need to be reactivated if that antigen appears again. Why immunization works.

41. MHC-I proteins - proteins found in the membranes of all cells except red blood cells. Can only present endogenous antigens (antigens from pathogens that are living in the cell).

42. MHC-II proteins - proteins found on special cells (antigen presenting cells) that include: macrophages/monocytes, B-Cells, Kupffer cells in the liver, microglia cells of the CNS, Langerhans cells of the skin, and dendritic cells of the lymph nodes and spleen. Can present antigens from either endogenous or exogenous pathogens. Exogenous occurs because the cell is in the process of phagocytosis of pathogens outside the cell.

43. Natural killer cells - Part of the non-specific immune system. Lymphocytes found in the spleen, liver, lymph nodes, and bone marrow that bond to foreign cells causing them to lyse. They can also lyse some tumor cells.

44. Negative selection - T-cells that have T-cell receptor sites that bond to body (self) proteins are eliminated or inactivated by deletion or anergy.

45. Neutrophils - Part of the non-specific immune system. Circulating white blood cells that phagocytize foreign cells.

46. Non-specific immune system - One of two components of the immune system. Does not need to be activated, attacks all cells identified as foreign, not particularly effective. Composed of natural killer cells, neutrophils and Reticuloendothelial system.

47. Opsonization - When complement proteins bond to antigens and act as receptor sites for phagocytic cells helping them to recognize and destroy the foreign cell.

48. Oxidation - Removal of (e^-) electrons, more negative charge, OIL/RIG Oxidation involved removal.

49. Perforin - Lysozyme that T-Cells inject into cells they are

attacking. It causes holes to form in cell membranes allowing water to move into cells until they burst.

50. Plasma cell - Activated B-Cell (secretes antibodies).

51. Positive selection - Immature T-Cells in the thymus that are capable of recognizing the bodies proteins as self survive, while those that do not undergo apoptosis.

52. Reduction - Addition of (e^-) electrons, more positive charge, OIL/RIG Reduction involves gain.

53. Reticuloendothelial system - (R.E. System) Has two parts: Fixed macrophages found in the spleen, liver, lymph nodes, and bone marrow and circulating macrophages (monocytes). Both phagocytize foreign cells.

54. Serology - The study of blood serum.

55. Specific immune system - Immune system that attacks a specific intruder. Must be activated for the specific foreign cell. Composed of T-Cells and B-Cells.

56. Spleen - An organ just below the diaphragm and behind the stomach. Has chambers that resemble a lymph node. Much better blood supply than a lymph node has.

57. T-Cell receptors (TRC) - Bonding sites on the T-cells that bond with the MHC proteins.

58. Thymus - A small gland located along the trachea, connected to lymphatic vessels. Has chambers which contain a large number of lymphocytes, is involved in the formation of T-lymphocytes from precursor lymphocytes formed in the red bone marrow. Also produces the hormone Thymosin that stimulates the lymphocytes to move to other lymphatic tissue.

59. T-suppressor cells - Cells that release lymphokines which cause the B-cell division to slow down and the activated B-Cell population to reduce dramatically.

60. Tumor necrosis factor - Released by macrophages, causes tissue inflammation and can inhibit growth of certain tumors.

61. Type I hypersensitivity - (allergic reactions). Anaphylaxis. Immediate hypersensitivity, reaction occurs in minutes.

62. Type II hypersensitivity - Cytotoxic reactions. Reactions

take 1-3 hours. Reaction to foreign blood in the body.

63. Type III hypersensitivity - Immune complex disorders. 1-3 hours, antibody/antigen complexes become trapped in basement membranes. Cause lupus, glomerulonephritis and rheumatoid arthritis.

64. Type IV hypersensitivity - Delayed hypersensitivity. 12-72 hours. Mainly involve activated T-Cells, T-4 helper cells and macrophages. Important for protecting the body against parasite, viral and fungal infections. Also involved in organ transplant rejection.

65. Viral hemagglutination - Used to test for exposure to viruses, can test for exposure to any virus that agglutinates red blood cells.

66. Western blot - Test for specific proteins or antigens. Similar to southern blot, but uses ELISA or RIA test to complete.