



Dr.G.R.Damodaran College of Science

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II BSC [2016-2019]
SEMESTER III
CORE: IMMUNOLOGY - 309B
Multiple Choice Questions.

1. Anthrax vaccine was developed by

- A. Edward Jenner
- B. Louis Pasteur
- C. Emil Von Behring
- D. Elie Metchnikoff

ANSWER: B

2. A ----- is a small molecule that can elicit an immune response only when attached to a large carrier such as a protein; the carrier may be one that also does not elicit an immune response by itself.

- A. superantigen.
- B. hapten
- C. adjuvants
- D. immunogen

ANSWER: B

3. The circulating neutrophils to reach the site of inflammation, it must bind to blood vessel endothelial cell and then pass between the endothelial cells in a process called _____.

- A. opsonization.
- B. chemotaxis.
- C. extravasation.
- D. marginalization.

ANSWER: C

4. Which of the following is NOT a granulocytic cell?

- A. Neutrophils.
- B. Basophils.
- C. Eosinophils.
- D. Monocytes.

ANSWER: D

5. An antigenic determinant is specifically recognized by _____.

- A. an aggretope
- B. a epitope.
- C. a paratope.
- D. T4 protein.

ANSWER: C

6. Epidermal layer of skin contain

- A. Sweat glands
- B. Sebaceous glands
- C. Keratinocytes
- D. dendritic cells.

ANSWER: C

7. All of the following are true about neutrophils EXCEPT that _____.
- A. are the main cells involve in acute inflammation.
 - B. their granules involved in microbial killing.
 - C. are the cells of the adaptive immune system.
 - D. they have receptors for complement components and chemo attractive factors.

ANSWER: D

8. Who demonstrated cell mediated immunity?
- A. Elie Metchnikoff.
 - B. Elvin Kabat.
 - C. Von Behring.
 - D. Louis Pasteur.

ANSWER: A

9. Which one of the following statements is NOT correct?
- A. B cells have antibodies as their cell surface receptor.
 - B. There are five types of antibody
 - C. IgE is an important antibody in allergies.
 - D. All B cells differentiate into plasma cells.

ANSWER: D

10. During phagocytosis, the metabolic process called respiratory burst involves the activation of _____.
- A. oxidase.
 - B. hydrolase.
 - C. peroxidase.
 - D. dehydrogenase.

ANSWER: A

11. Macrophage in the liver is called as _____.
- A. kupffer cells.
 - B. alveolar macrophages.
 - C. microglial cells.
 - D. histiocytes.

ANSWER: A

12. Adherence of microbes to the mucous membrane involves
- A. Interaction between Cilia of mucous membrane and pili of bacteria
 - B. Glycolipids and glycoproteins
 - C. Both A and B
 - D. None of the above

ANSWER: C

13. Which one of the following is NOT related to the hematopoiesis?
- A. Liver.
 - B. Bone marrow.
 - C. Spleen.
 - D. Kidney.

ANSWER: D

14. In rabbit, the B-cell maturation happens in _____.
- A. spleen.
 - B. appendix.
 - C. bone marrow.
 - D. peyer's patches.

ANSWER: B

15. The lymphoid progenitor cell gives rise to _____.
- A. natural killer cells.

- B. T-cell progenitor.
- C. B-cell progenitor.
- D. all the above.

ANSWER: D

16. Which of the following is an example of stromal cell

- A. Fat cell
- B. Endothelial cell
- C. fibroblast
- D. All the above

ANSWER: D

17. Exogenous antigen includes all of the following EXCEPT _____.

- A. bacterial toxins.
- B. extracellular protozoan parasites.
- C. most bacteria.
- D. viruses.

ANSWER: D

18. Macrophage-like cells serve different functions in different tissues and are named according to their tissue location: _____ in the kidney.

- A. Alveolar macrophages
- B. Mesangial cells
- C. Histiocytes
- D. Kupffer cells

ANSWER: B

19. Cells which have MHC Class II are _____, which present _____ antigen to Th cells.

- A. antigen presenting cells, endogenous.
- B. antigen presenting cells, exogenous.
- C. infected cells, inflammatory.
- D. target cells, endogenous.

ANSWER: B

20. Which type of immunity involves the macromolecules to be internalized by invagination

- A. Endocytosis
- B. Phagocytosis
- C. Inflammatory response
- D. Vaso dialation

ANSWER: A

21. Cells capable of phagocytosis are

- A. monocytes
- B. macrophages
- C. both A and B
- D. Antigen presenting cells

ANSWER: C

22. Which one of the following is NOT true of antigens?

- A. They contain epitopes.
- B. They will react with antibodies.
- C. They contain antigenic determinants.
- D. They contain paratopes.

ANSWER: D

23. A molecule that can be covalently linked to a non-immunogenic antigen to make it an immunogen is called a/an _____.

- A. adjuvant.

- B. carrier.
 - C. hapten.
 - D. mitogen.
- ANSWER: C

24. Alum is an effective adjuvant because it _____.

- A. disaggregates the antigen.
- B. is immunogenic for stem cells.
- C. is immunogenic for T cells.
- D. slows the release of antigen.

ANSWER: D

25. Antibody cross-reactivity is demonstrated by antibody binding to _____.

- A. a cell surface marker.
- B. a hapten.
- C. a hapten-carrier complex.
- D. an antigen that is structurally similar to the immunogen.

ANSWER: D

26. The endogenous pathway of antigen presentation involves the presentation of antigen _____.

- A. associated with MHC class II molecules.
- B. to cytolytic T cells.
- C. to Th2 cells.
- D. to B cells.

ANSWER: A

27. The cross reactions may be due to the _____.

- A. non-specific antibodies.
- B. dissimilar epitopes on antigens.
- C. similar epitopes on antigens.
- D. chemical reactions with antigens.

ANSWER: C

28. Western blot is used to detect the specific _____.

- A. RNA.
- B. double stranded DNA.
- C. protein.
- D. single stranded DNA.

ANSWER: C

29. The first immunoglobulin class produced in a primary response to an antigen is _____.

- A. IgA.
- B. IgG .
- C. IgM .
- D. IgE.

ANSWER: C

30. The most abundant immunoglobulin class in serum is _____.

- A. IgM.
- B. IgE.
- C. IgA .
- D. IgG.

ANSWER: D

31. The Ig which serves an important effector functions at mucous membrane surface is _____.

- A. IgM.
- B. IgE .
- C. IgA.

D. IgG.

ANSWER: C

32. The major histocompatibility complex proteins functions to _____.

- A. degrade T4 and T8 polypeptides.
- B. bind antibody for lymphokine production.
- C. bind complement for cell lysis.
- D. bind antigen fragments for presentation to T-cells.

ANSWER: D

33. The NK cells binds to tumor cells and destroy the tumor cells. The process is called

- A. Inflammatory response
- B. Antibody dependant cell mediated cytotoxicity
- C. Killer mechanism
- D. None of the above

ANSWER: B

34. The ligand for TCR is _____.

- A. BCR.
- B. MHC.
- C. MHC + peptide.
- D. peptide.

ANSWER: C

35. Antigen binding to B cells is most effective at sending an activation signal to the B cell if it causes _____.

- A. antigen processing and presentation on Class II MHC.
- B. BCR clustering.
- C. BCR internalization.
- D. inflammation.

ANSWER: B

36. An enzyme which puts a phosphate group on a protein molecule is called a _____.

- A. co-receptor.
- B. ITAM.
- C. kinase.
- D. phosphatase.

ANSWER: C

37. The signal transduction molecules associated with TCR is _____.

- A. CD1.
- B. CD3.
- C. CD4.
- D. CD8.

ANSWER: B

38. The signal transduction molecules associated with BCR are _____.

- A. CD21 and CD81.
- B. Ig alpha and Ig beta
- C. IgD and IgM.
- D. ITAMs and ITIMs.

ANSWER: B

39. The second messenger IP3 increases the cytoplasmic concentration of _____.

- A. antigen.
- B. calcium.
- C. class I MH3.
- D. phosphate.

ANSWER: B

40. Macrophages in brain are called as

- A. Histiocytes
- B. Microglial cells
- C. Kupffer cells
- D. Mesangial cells

ANSWER: B

41. MBL activates the complement system via its ability to _____.

- A. directly cleave C4.
- B. directly cleave C2.
- C. directly cleave C3.
- D. bind to C1q .

ANSWER: A

42. Cytotoxic T cells (CTL) are capable of recognizing _____.

- A. a. peptide antigens associated with major histocompatibility complex (MHC) molecules.
- B. membrane-bound antigens.
- C. cytoplasmic antigens.
- D. all of the above.

ANSWER: D

43. Which of the following cells are cytotoxic?

- A. CD4 T cells.
- B. CD8 T cells.
- C. B cells.
- D. T helper 1 or Th1 cells.

ANSWER: B

44. In the classical pathway of complement activation, the activation sequence is _____.

- A. C123456789.
- B. C124536789.
- C. C142356789.
- D. C124356789.

ANSWER: C

45. Tc cells do not _____.

- A. express CD8.
- B. mediate killing of virus infected cells.
- C. release lytic granules.
- D. recognize antigens with MHC class II molecules

ANSWER: D

46. Cytokines may exhibit _____ action, signaling the cells that produce them.

- A. paracrine.
- B. autocrine.
- C. endocrine.
- D. all the above.

ANSWER: D

47. . The immune response to a booster vaccine is called a (n) _____ response.

- A. secondary.
- B. humoral.
- C. innate.
- D. primary.

ANSWER: A

48. Several cytokines may have the same effect on the cells they bind. This is an example of a/an _____.

- A. cascade.
- B. antagonism.
- C. pleiotropism.
- D. redundancy.

ANSWER: D

49. Activated T_c can regulate immune responses by signaling activated lymphocytes to undergo _____.

- A. apoptosis.
- B. clonal deletion.
- C. clonal proliferation.
- D. cytotoxicity.

ANSWER: C

50. Interferons are _____.

- A. activating B cells to make virus specific antibodies.
- B. Th2 cytokines.
- C. virus proteins that interfere with activation of cytotoxic T cells.
- D. blocking virus infection of host cells.

ANSWER: D

51. Cytokines are _____.

- A. able to increase B-cell proliferation.
- B. able to stimulate an increase in antibody production.
- C. able to activate T-cells.
- D. all the above

ANSWER: D

52. The three major cytokines secreted by macrophages are _____.

- A. IL-1, IL-2 and IL-3.
- B. IL-1, IL-12 and TNF-alpha.
- C. IL-2, IL-12, and TNF- alpha
- D. IL-1, TNF- alpha and IFN-gamma.

ANSWER: B

53. All the following are lymphokines EXCEPT _____.

- A. interferon.
- B. histamine.
- C. tumor necrosis factor.
- D. transforming growth factor.

ANSWER: B

54. The major role of IL-4 is to promote _____.

- A. macrophage activation.
- B. IgG responses.
- C. IgE responses.
- D. IgM responses.

ANSWER: C

55. Transforming growth factor-beta _____.

- A. activates macrophages.
- B. activated fibroblasts.
- C. enhances T-cell functions.
- D. enhances B-cell function.

ANSWER: B

56. When the red blood cells are agglutinated, the reaction is called

- A. Haemagglutination

- B. Bacterial agglutination
- C. Fungal agglutination
- D. All of the above

ANSWER: A

57. The major role of T-cells in the immune response includes _____.

- A. complement fixation.
- B. phagocytosis.
- C. production of antibodies.
- D. recognition of epitopes presented with major histocompatibility complex molecules on the surfaces.

ANSWER: D

58. Complement fixation _____.

- A. can be modified by the Cholera toxin.
- B. has no intrinsic guanylate cyclase activity.
- C. can be desensitized by phosphorylation.
- D. is an effector function of IgG and IgM following antigen binding.

ANSWER: D

59. Innate immunity can be envisioned as comprising _____ types of defensive barriers.

- A. two.
- B. five.
- C. three.
- D. four.

ANSWER: D

60. Complement is involved in all of the following EXCEPT _____.

- A. attraction of neutrophils to an infection site.
- B. increased presence of serum proteins in the infected tissues.
- C. lysis of bacteria in the absence of specific antibodies.
- D. opsonization of microorganisms for phagocytosis.

ANSWER: C

61. Complement is _____.

- A. activated by binding to specific complement receptors.
- B. antigen-specific.
- C. present in the circulation in an inactive form.
- D. a series of intracellular proteins which work with antibody to eliminate endogenous antigen.

ANSWER: C

62. The alternative pathway of complement activation _____.

- A. causes tissue damage in the absence of C1INH.
- B. occurs after the classic pathway is activated.
- C. occurs only if the classical pathway is ineffective in pathogen clearance.
- D. requires C3.

ANSWER: D

63. In the membrane attack phase of the classical complement pathway, the role of C5b is to _____.

- A. activate the C5 convertase activity.
- B. attract neutrophils to lyse the pathogen.
- C. initiate formation of the MAC.
- D. polymerize into a membrane-spanning channel.

ANSWER: C

64. As complement is activated by complexes of antibody-coated bacteria, bystander lysis of nearby host cells is prevented by _____.

- A. long-lived thioester bond on active complement proteins.
- B. covalent attachment of all active complement proteins to the pathogen surface.

- C. plasma proteins that inactivate the anaphylatoxins.
- D. proteins on host cell membranes that inhibit MAC formation.

ANSWER: D

65. Which of the following is a T cell Mitogen

- A. Adjuvant
- B. Epitope
- C. Paratope
- D. Super antigen

ANSWER: D

66. The mechanism of NK cell killing includes _____.

- A. cytotoxic granules are released onto the surface of the bound target cell.
- B. the effector proteins they contain penetrate the cell membrane.
- C. induce programmed cell death.
- D. all the above.

ANSWER: D

67. The functional activity of the T-cell _____.

- A. is dictated by the T4 or T8 associated polypeptides.
- B. occurs after recognition of an epitope by a paratope.
- C. can be mediated through cytokines.
- D. requires only the alpha and beta chains of the T- cell receptor.

ANSWER: D

68. A substance the is added to enhance the immunogenecity is

- A. Adjuvant
- B. Hapten
- C. super antigen
- D. paratope

ANSWER: A

69. Which of the following is NOT true of the ability of the T-cell receptor (TCR) to specifically recognize antigen?

- A. Only the alpha chain of the TCR is necessary for antigen.
- B. The recognition of the antigen by the TCR can mediate helper, suppressor or cytotoxic function.
- C. The recognition of antigen by the TCR can result in cytokine secretion and/or an increase in cell proliferation within the immune system.
- D. The antigen is recognized by the T3-TCR complex only when it is associated with a protein of the major histocompatibility complex.

ANSWER: A

70. The cytoplasm of NK cells contains _____.

- A. granules.
- B. perforin.
- C. granzyme.
- D. all the above.

ANSWER: D

71. Mast cell granules contain _____.

- A. complement.
- B. epinephrine.
- C. histamine.
- D. acetylcholine.

ANSWER: C

72. The IgE mediated degranulation of mast cells does NOT involve _____.

- A. complement activation.

- B. rise in intracellular calcium.
- C. synthesis of leukotriene.
- D. release of vasoactive agents from granules.

ANSWER: A

73. Who demonstrated the mechanism of immunity for which the Nobel Prize was given?

- A. Edward Jenner
- B. Emil Von Behring.
- C. Robert Koch
- D. Alexander Flemming.

ANSWER: B

74. Which one of the following is NOT a part of the innate immune system?

- A. Mast cells.
- B. Complement.
- C. Phagocytes.
- D. T cells.

ANSWER: D

75. Immune complexes cause hypersensitivity by stimulating _____.

- A. T-cells.
- B. neutrophil invasion.
- C. eosinophil invasion.
- D. basophil immigration.

ANSWER: B

76. Which of the following immunity is present from birth?

- A. Adaptive
- B. Specific.
- C. Innate.
- D. Acquired.

ANSWER: C

77. Allergic contact dermatitis can be diagnosed by _____

- A. patch test.
- B. complement fixation test.
- C. provocation test
- D. intradermal skin test.

ANSWER: D

78. Transplanted cells are mainly destroyed by _____.

- A. neutrophils.
- B. macrophages
- C. B-cells.
- D. T-cells.

ANSWER: D

79. The fetus can be considered as _____.

- A. an isograft.
- B. an allograft.
- C. a heterograft.
- D. a xenograft

ANSWER: B

80. Corneal grafts are not rejected because they _____.

- A. do not possess histocompatibility antigens
- B. are resistant to lymphocytotoxic activity.
- C. have no lymphatic drainage

D. are not exposed to antibodies.

ANSWER: C

81. One of the ways by which allograft rejection is prevented is through the administration of

A. antibodies to CD3.

B. IgE

C. anti-interferon antibodies.

D. anti-rhesus antibodies

ANSWER: A

82. Corticosteroids mainly suppress allograft rejection by suppressing _____.

A. macrophage function.

B. T-cell function.

C. antibodies synthesis.

D. neutrophil function

ANSWER: B

83. The major targets of cytotoxic T-cells within a kidney allograft are _____.

A. neutrophils.

B. proximal tubule cells.

C. vascular endothelial cells.

D. macrophages.

ANSWER: C

84. The major clinical problem associated with bone marrow allografts in human is _____.

A. aplastic anemia.

B. allograft rejection.

C. contact dermatitis

D. graft vs host disease

ANSWER: D

85. One mechanism by which tumors evade immunological destruction is _____

A. release of lymphotoxins

B. production of immunosuppressive molecules.

C. altered pathway cytotoxicity.

D. secretion of anticomplementary factors.

ANSWER: B

86. Hypersensitivity is the allergy caused by

A. Penicillin injection

B. Hormone injection

C. Subcutaneous injection

D. All the above

ANSWER: A

87. Macrophage anti-tumor activity is mainly mediated by _____.

A. TNF and IL-1.

B. nitric oxide and IL-6.

C. nitric oxide and TNF.

D. IL-1 and IL-6.

ANSWER: C

88. Tumor enhancement is the _____.

A. promotion of tumor growth by Ab.

B. promotion of tumor growth by drugs .

C. promotion of tumor growth by NK-cells.

D. inhibition of tumor growth by Ab.

ANSWER: A

89. The inherited failure to develop a functioning immune system is called _____.

- A. primary immunodeficiency.
- B. secondary immunodeficiency.
- C. acquired immunodeficiency.
- D. X-linked immunodeficiency.

ANSWER: A

90. Which technique is useful for identification of complex mixture of antigens and antibodies

- A. Immuno electrophoresis
- B. RID
- C. ODD
- D. All the above

ANSWER: A

91. Which is considered the "gold standard" of existing vaccines?

- A. Purified proteins
- B. Whole-organism.
- C. DNA-based.
- D. Inactivated exotoxin.

ANSWER: B

92. Autoimmune diseases result when the immune system _____.

- A. fails to distinguish self from non-self.
- B. over reacts to certain antigens.
- C. is weakened by vaccines.
- D. both a and b.

ANSWER: A

93. Which of the following is correct with xenograft?

- A. Transplant from one region of a person to another region
- B. Transplant from one person to another person.
- C. Transplant from one species to another species.
- D. Transplant from one species to same species.

ANSWER: C

94. Which of the following involves allograft rejection?

- A. Helper T cells
- B. Veto cells.
- C. Cytotoxicity.
- D. Cytokines.

ANSWER: B

95. AIDS is a disease that _____.

- A. reduces the number of T-cells.
- B. is self infectious disease.
- C. reduces the number of Helper T-cells.
- D. is the result of incapability of forming interferon.

ANSWER: C

96. Triple antigen (D.P.T) is for _____.

- A. Diphtheria, Pertusis (whooping cough) and tetanus.
- B. polio, rabies and hepatitis.
- C. malaria, typhoid and cancer
- D. mixture of virus of tetanus, diphtheria and whooping cough.

ANSWER: A

97. All of the following are involved in immediate hypersensitivity EXCEPT _____.

- A. mast cells.
 - B. histamine.
 - C. IgE
 - D. platelets.
- ANSWER: D

98. RIA combines the principles of
- A. Immunological reactions of antibody and antigen
 - B. Radioactivity of isotopes
 - C. Both A and B
 - D. None of the above
- ANSWER: C

99. Which tumor is commonly observed in AIDS patients?
- A. Melanoma
 - B. Carcinoma.
 - C. Kaposi's syndrome
 - D. Burkitt's lymphoma.
- ANSWER: C

100. The drug that is used to treat AIDS patients is _____.
- A. azidothymidine.
 - B. tetracycline.
 - C. cortisone.
 - D. cyclosporine.
- ANSWER: A

101. It is difficult to produce a vaccine against AIDS because the HIV virus _____.
- A. is drug resistance
 - B. has a reverse transcriptase.
 - C. shows antigenic variation.
 - D. hides within the cell.
- ANSWER: C

102. The most commonly used pregnancy test for the production of _____ in urine based on ELISA
- A. HCG
 - B. GH
 - C. Thyroxine
 - D. progesterone
- ANSWER: A

103. The organism suitable for use in recombinant vaccines is _____.
- A. influenza virus.
 - B. poliovirus.
 - C. smallpox
 - D. vaccinia virus.
- ANSWER: D

104. ELISA is a
- A. Non isotopic immuno assay
 - B. Isotopic immuno assay
 - C. RIA
 - D. Immunoassay
- ANSWER: B

105. All of the following are true with regard to IgE EXCEPT _____.
- A. an allergy associated immunoglobulin.
 - B. the least abundant immunoglobulin in the plasma.

- C. binds to mast cells.
- D. can cross the placental barrier.

ANSWER: D

106. The immunoglobulin Joining chain (J-chain) is _____.

- A. only produced by T-Cells.
- B. only produced by neutrophils.
- C. associated with only multimeric forms of IgM and IgA.
- D. associated with IgE for histamine release.

ANSWER: C

107. Class switching of immunoglobulins occurs _____.

- A. usually with booster immunizations, going from IgM to IgG.
- B. binds complement
- C. causes the histamine release.
- D. mediates immunoglobulin class switching.

ANSWER: A

108. Radio labeled monoclonal antibodies are used in the diagnostic imaging of diseases and this is technique is referred as

- A. Immunoscintigraphy
- B. SPECT
- C. SCID
- D. Bioreactors

ANSWER: A

109. The classical pathway of complement activation _____.

- A. starts with the activation of the C3 component.
- B. is activated by lipopolysaccharide cell wall constituents.
- C. is activated by IgA immune complexes.
- D. is activated by IgM immune complexes.

ANSWER: D

110. Which of the following cells are cytotoxic?

- A. CD4 T cells
- B. CD8 T cells.
- C. B-cells.
- D. T helper 1 or Th1 cells.

ANSWER: B

111. An individual with blood group A will have _____.

- A. anti- A antibody.
- B. anti- B antibody.
- C. anti- A and anti- B antibody.
- D. no antibody.

ANSWER: A

112. The interaction between antibody and a particulate antigen results in _____.

- A. agglutination
- B. precipitation.
- C. cross reaction.
- D. diffusion.

ANSWER: D

113. Immunoprecipitation is particularly useful if there is a _____ in tissue sample.

- A. low concentration of Ag.
- B. high concentration of Ag.
- C. c. low concentration of Ab.

D. high concentration of Ab.

ANSWER: A

114. Albert Coons developed the technique _____.

- A. immunofluorescence.
- B. immunoprecipitation.
- C. radioimmuno assay.
- D. ELISA.

ANSWER: A

115. An antibody Fab contains _____.

- A. complementarity determining regions.
- B. H and L chain variable regions.
- C. one antigen binding region.
- D. all of the above.

ANSWER: D

116. The prozone effect is due to the presence of excess _____.

- A. antibody.
- B. antigen.
- C. ag-ab complex.
- D. non specific Ab .

ANSWER: A

117. The immunoglobulin isotype is determined by the _____.

- A. antigen specificity.
- B. H chain constant region.
- C. L chain variable region.
- D. number of antigen-binding sites.

ANSWER: B

118. An example of an antigen epitope from an infectious organism would be _____.

- A. a. a bacterial endotoxin (LPS) molecule.
- B. a fungal cell wall protein.
- C. a peptide on the surface of a virus capsid protein
- D. all of the above

ANSWER: D

119. Antibody affinity for antigen depends on the _____.

- A. antibody isotype.
- B. complementary shape and charge of each antibody V region for its antigen epitope.
- C. number of Fab regions in each antibody molecule.
- D. d. number of antigen present in the sample.

ANSWER: B

120. When BCG vaccine is given for child ?

- A. two weeks after birth
- B. six weeks after birth
- C. ten weeks after birth
- D. six days after birth

ANSWER: A

121. IgA can be secreted from the body because it _____.

- A. binds poly-Ig receptor on mucosal epithelial cells.
- B. has a specialized H chain called secretory chain.
- C. has a special secretory idiotype.
- D. is small enough to pass between mucosal epithelial cells and leave the body

ANSWER: A

122. Which of the following are NOT true about antibodies?

- A. They fix complement.
- B. They occur on the surface of B-lymphocyte.
- C. They predominates the primary immune response to antigen.
- D. They are molecule with a single, defined amino acid sequence.

ANSWER: D

123. . Individuals unable to make the J protein found in certain immunoglobulins would be expected to have frequent infections of the _____.

- A. brain.
- B. liver.
- C. intestinal tract.
- D. pancreas.

ANSWER: C

124. The corticosteroids suppress _____.

- A. inflammation.
- B. erythema.
- C. edema.
- D. pain.

ANSWER: A

125. The plasma cells produce _____.

- A. B-cell.
- B. T-cell.
- C. antibodies.
- D. cytokines.

ANSWER: C

126. The tumor suppressor gene encode protein that _____.

- A. activate cell proliferation.
- B. inhibit cell proliferation.
- C. induces mutation.
- D. inhibits mutation.

ANSWER: B

127. AIDS is caused by _____.

- A. Salmonella.
- B. HIV.
- C. SIV.
- D. T-cell lymphotropic virus.

ANSWER: B

128. The cell adhesion molecule includes _____.

- A. selectin.
- B. integrin.
- C. mucin.
- D. all the above.

ANSWER: D

129. _____ venules are the sites of lymphocyte extravasation.

- A. High endothelial.
- B. High exothelial.
- C. Low endothelial.
- D. Low exothelial.

ANSWER: A

130. The monoclonal antibodies are used in _____.

- A. western blotting.
- B. immuno fluorescence.
- C. tumor targeting.
- D. all the above.

ANSWER: D

131. The cytokines that are involved in adaptive immunity includes _____.

- A. IL-2.
- B. IL-4.
- C. IL-5.
- D. all the above.

ANSWER: D

132. The cytokines that are involved in innate immunity includes _____.

- A. IL-12.
- B. IL-1.
- C. IL-6.
- D. all the above.

ANSWER: D

133. Bacterial toxic shock is caused by _____

- A. bacteria.
- B. virus.
- C. super antigen.
- D. parasites.

ANSWER: C

134. The inactive form of enzyme is called _____.

- A. chromogen.
- B. zymogen.
- C. prozyme.
- D. prezyme.

ANSWER: B

135. The plasma cell produces _____.

- A. B-cell.
- B. antibodies.
- C. T-cell.
- D. cytokines.

ANSWER: B

136. Tumor suppressor cell encode proteins that _____.

- A. inhibit excessive cell proliferation.
- B. activate cell proliferation.
- C. induce mutation.
- D. inhibit the mutation.

ANSWER: A

137. Corticosteroids are suppressing _____.

- A. inflammation
- B. erythema.
- C. edema.
- D. pain.

ANSWER: A

138. The first synthetic vaccine was developed in the year

- A. 1990

- B. 1991
- C. 1995
- D. 1999

ANSWER: A

139. The transgene are introduced into an animal using _____.

- A. retroviral vector.
- B. microinjection method.
- C. embryonic stem cell method.
- D. all the above.

ANSWER: D

140. Vaccination induces

- A. Naturally acquired active immunity
- B. Artificially acquired active immunity
- C. Naturally acquired passive immunity
- D. Artificially acquired passive immunity

ANSWER: D

141. Embryonic stem cells are collected from _____.

- A. inner cell mass.
- B. trophoblast.
- C. blastocoel.
- D. gastrocoel.

ANSWER: A

142. The transgene containing cells can be selected using thymidine _____.

- A. kinase
- B. transferase.
- C. phosphorylase.
- D. hydroxylase.

ANSWER: A

143. An antigenic determinant is specifically recognized by _____.

- A. an aggretope
- B. a epitope.
- C. a paratope.
- D. the T4 protein.

ANSWER: C

144. Who demonstrated the cell mediated immunity?

- A. Elie Metchnikoff.
- B. Elvin Kabat.
- C. Von Behring.
- D. Louis Pasteur.

ANSWER: A

145. Which one of the following is NOT a part of the innate immune system?

- A. Mast cells.
- B. Complement.
- C. Phagocytes.
- D. T cells.

ANSWER: D

146. The hybridoma cells are selected on _____ medium.

- A. PEG.
- B. HAT.
- C. LAT.

D. selective.

ANSWER: B

147. The transgene are introduced into an animal using _____.

A. retroviral vector.

B. microinjection method.

C. embryonic stem cell method.

D. all the above.

ANSWER: D

148. The retroviral vector can effectively carry the genes up to _____ kb.

A. 12.

B. 8

C. 20.

D. 35.

ANSWER: B

149. Embryonic stem cells are collected from _____.

A. inner cell mass

B. trophoblast.

C. blastocoel.

D. gastrocoel.

ANSWER: A

150. Two proteins that play important role in attachment of HIV are

A. gp 120 and p 24

B. p 17 and p 24

C. gp 41 and gp 120

D. gp 41 and p 24

ANSWER: D

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