King Saud University

Collage of science

Department of Botany & Microbiology

Final Exam (MBio 451 Immunology)

2nd semester of 1436 / 1437

Time: 3 hours

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Un. No:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**جامعة اللملك سعود**

**كلية العلوم**

**قسم النبات والأحياء الدقيقة**

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**Important note: Transfer all your answers carefully to this sheath**

**Q3: (5 marks):**

**32. (3 marks)………………………………………………………………………………………………...**

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| **Q2: (13 marks)** | | | | | |
| **23** |  | | **28** |  |  |
| **24** |  | | **29** |  |  |
| **25** |  |  | **30** |  |  |
| **26** |  | | **31** |  | |
| **27** |  | |  | | |

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| **Q1:**  **(22 marks)** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** |  | |
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**33. (2 marks) ………………………………………………………………………………………………..**

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**Q1: Choose the correct answer in the following statement: (22 marks)**

1. Antigen presenting cells (APCs) expresses …………, which have the ability to recognise pathogen.

A) Pathogen Associated Molecular Patterns (PAMPs) B) Toll-like receptors (TLR)

C) A and B D) Non of the above

2. What is the normal immunological role of the CD8+ T-cell?

A) Helps B-lymphocytes to develop into plasma cells. B) Kills virus infected cells.

C) Secretes antibodies. D) Rejects transplanted tissue.

3. Which of the following cell types or systems is not part of an innate immune response to a pathogen?

A) Phagocytes. B) Natural killer cells. C) The inflammatory response. D) Cytotoxic T-lymphocytes.

4. All the features of adaptive immune response is true EXCEPT which one?

A) Antigenic Specificity B) Immunologic memory

C) Self/ Non-Self Recognition D) First line of defence against infection

5. Dendritic cells are characterized by …………………….

A). The presence of TCR. B) Expression of CD3. C) Expression of IgM molecules

D) Their ability to release histamine E) Their interface between the innate and adaptive immune systems

6. B cell are distinguished from T cells by the presence of …………….

A. CD4 B. Surface Ig C. CD8 D. CD3

7. Viral replication within cells is inhibited directly by ……………..

A. IFN-α B.TNF-α C. β- Defensin D. IL-4 E. IFN-γ

8. ………………. express CD3 and CD4 molecules

A. Treg and Tc cells B. Th1 and Th2 cells C. NK and B cells

D. TH1 and Tc cells E. All T cells

9. IgG:

A. Appears early in the immune response. B. Kills bacteria directly.

C. Is important in mucosal immunity. D. Usually exists as a pentamer.

E .Opsonizes bacteria.

10. Rhesus hemolytic disease of the newborn involves …………….

A. IgE. B. Antibody to cell surfaces. C. Soluble immune complexes.

D. Cytokine release from T-cells. E. Stimulatory antibodies

11. All of the following are true with respect to MHC class I molecules, EXCEPT which one?

A) Expressed by most nucleated cells.

B) Bind peptides from exogenous antigens.

C) Peptides are 8-11 amino acids in length.

D) Restriction element for CD8+ T cells

12. One principal function of complement is to …………..

A. mediate the release of histamine

B. Bind antibodies attached to cell surfaces and to lyse these cells

C. phagocytize antigens

D. cross link allergens

13. All of the following are true with respect to IgE molecules, EXCEPT which one?

A. They are the principal immunoglobulin class involved in allergic reactions.

B. They are involved in mediating anti-parasitic immune responses.

C. They will cross the placenta and fix complement.

D. They can effect the release of histamine and other chemical mediators.

E. They are the least abundant immunoglobulin in the serum.

14. Which of the following immunoglobulins is present normally in plasma at the highest concentration?

A. IgG B. IgM C. IgA D. IgD E. IgE

15. The class of an immunoglobulin is determined by……….

A. the variable region B. the J-chain C. the heavy chain D. the carbohydrate

16. B cells mature in the……….. while T cells mature in the…………..

A. Thymus/bone marrow B. bone marrow/ Germinal Centre

C. Bone marrow /Thymus D. Lymph nod /Spleen

17. Which of the following immune cells/molecules are most effective at destroying extracellular pathogens?

A) T helper cells B) B cells C) Antibodies D) Complement E) T cytolytic cells

18. A living microbe with reduced virulence that is used for vaccination is considered……….

A) A toxoid B) Inactive C) Virulent D) Attenuated E) Denatured

19. Cell mediated immunity is carried out by………….. while humoral immunity is mainly carried out by………………..

A) B cells/T cells B) Epitopes/Antigens C) T cells/B cells

D) Antigens/ Antibodies E) Antibodies/Phagocytes

20. A child stung by a bee, experiences respiratory distress within minutes and lapses into unconsciousness. This reaction is probably mediated by………….

A) IgE antibody. B) IgG antibody. C) sensitized T cells.

D) complement. E) IgM antibody.

21. Idiotypic determinants are located within……………

A) hypervariable regions of heavy and light chains. B) constant regions of light chains.

C) constant regions of heavy chains. D) the hinge region.

22. The main advantage of passive immunization over active immunization is that ……………

A) it can be administered orally. B) it provides antibody more rapidly.

C) antibody persists for a longer period. D) it contains primarily IgM

**Q2: Fill in the gap? (13 marks)**

23. The process of …………. is one in which phagocytic cells are able to better engulf antigens due to antibody binding.

24. One type of granulocytic cell is a …………….

25. The CD protein that is able to recognize and bind to self- MHC class II proteins is CD ……….. While CD protein that is able to recognize and bind to self-MHC class I proteins is CD ………………….

26. A molecule that is not immunogenic by itself unless it binds to carrier protein is known as ………..

27. ………….. is an antibody-producing B lymphocyte.

28. The two primary lymphoid organs are the ……………… and the ………………….

29. Two types of APC's are : ………………….. and ………………………

30. Anaphylaxis is caused by …………..-mediated histamine release from ………………

31. Active regions of pathogen that binds to antigen-specific receptors on lymphocytes or to secreted antibodies are known as ………………

**Q3: Answer the questions (5 marks)**

32. Why pneumococcal conjugate vaccine (PCV) is better than polysaccharide vaccine? Do you think that PCV is T-independent antigen or T-dependent antigen, explain why? (3 marks)

33. There are 2 signals required for T cells activation, what are they? (2 marks)

God bless you

Dr. Ayman S Mubarak