



Immunology

Title : Quiz

Lec no : 3

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وَقُلْ رَبِّ زِدْنِي عِلْمًا

1- Regarding haptens, which one of the following is the most accurate?

- (A) A hapten is the antigen-binding site of an immunoglobulin.
- (B) A hapten cannot induce antibody by itself but can do so when covalently bound to a carrier protein.
- (C) A hapten can bind to the antigen receptors of CD4-positive T cells without being processed by antigen-presenting cells.
- (D) A hapten is defined by its ability to bind to the smaller of the two polypeptides that comprise the class I MHC proteins

2- Which one of the following sets of cells is primarily responsible for presenting antigen to helper T cells?

- (A) B cells and dendritic cells
- (B) B cells and cytotoxic T cells
- (C) Macrophages and eosinophils
- (D) Neutrophils and cytotoxic T cells
- (E) Neutrophils and plasma cells

3- Your patient is a 20-year-old woman who experienced the sudden onset of fever, vomiting, myalgias, and diarrhea. This was followed by hypotension and a sunburn-like rash over most of her body. You make a presumptive diagnosis of toxic shock syndrome. Which one of the following is the most accurate description of the pathogenesis of this disease?

- (A) It is caused by the release of large amounts of histamine from basophils.
- (B) It is caused by an insufficient amount of inhibitor of the C1 component of complement.
- (C) It is caused by a superantigen that induces an overproduction of cytokines from T cells.
- (D) It is caused by a delayed hypersensitivity response to procainamide, which she was taking for her atrial fibrillation.
- (E) It is caused by a gene mutation causing excessive signal transduction through the T-cell receptor

4- A patient skin-tested with purified protein derivative (PPD) to determine previous exposure to Mycobacterium tuberculosis develops induration at the skin test site 48 hours later. Histologically, the reaction site would MOST probably show:

- (A) Eosinophils
- (B) Neutrophils
- (C) Helper T cells and macrophages
- (D) B cells

5- The role of dendritic cells during an antibody response is to:

- (A) Make antibody
- (B) Lyse virus-infected target cells
- (C) Activate cytotoxic T cells
- (D) Process antigen and present it

6- 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

7- Each of the following statements concerning class I MHC proteins is correct EXCEPT:

- (A) They are cell surface proteins on virtually all cells.
- (B) They are recognition elements for cytotoxic T cells.
- (C) They are codominantly expressed.
- (D) They are important in the skin test response to *Mycobacterium tuberculosis*

8- Each of the following statements concerning class II MHC proteins is correct EXCEPT:

- (A) They are found on the surface of both B and T cells.
- (B) They have a high degree of polymorphism.
- (C) They are involved in the presentation of antigen by macrophages.
- (D) They have a binding site for CD4 proteins

9- Each of the following statements concerning haptens is correct EXCEPT:

- (A) A hapten can combine with (bind to) an antibody.
- (B) A hapten cannot induce an antibody by itself; rather, it must be bound to a carrier protein to be able to induce antibody.
- (C) In both penicillin-induced anaphylaxis and poison ivy, the allergens are haptens.
- (D) Haptens must be processed by CD8+ cells to become immunogenic

10- Macrophage phagocytosis of bacteria is enhanced by which of the following:

- (a) opsonin
- (b) antigen
- (c) hapten
- (d) secretory piece

11- Immunologic memory refers to :

- A. activation of phagocytic cells to ingest microbial invaders.
- B. changes in adaptive immune responses with subsequent encounters with antigen.
- C. constancy of the response of the innate immune response to a particular microbe.
- D. recognition of pathogen-associated molecular patterns by pattern recognition receptors.
- E. stimulating a defective host cell with reduced MHC I molecules to commit suicide

12- Dansyl (5-dimethylaminonaphthalene-1 -sulfonyl) is a synthetic molecule that binds to receptors on certain B cells but does not stimulate them to produce dansyl specific antibodies unless it is first conjugated to a larger, immunogenic molecule such as bovine serum albumin. These findings indicate that dansyl is a(n)

- A. adjuvant.
- B. carrier.
- C. hapten.
- D. immunogen.
- E. tolerogen

13- A 7-year-old girl has a history of peanut allergy with symptoms that include generalized itching and hives after eating peanuts. Her symptoms became more severe with subsequent accidental exposures to peanuts. For this child, a peanut is most likely a(n)

- A. adjuvant.
- B. hapten.
- C. immunogen.
- D. innate immune system antigen.
- E. tolerogen.

14- 6.S. In humans, MHC class II molecules are expressed by

- A. all nucleated cells.
- B. B cells, dendritic cells, and macrophages.
- C. erythrocytes.
- D. mast cells.
- E. naive T cells

15- Which of the following molecules is expressed by a mature T cell that functions as a helper T cell?

- A. CD4
- B. CDS
- C. GlyCAM-1
- D. IgA
- E. IgG

16- T-cell receptors, when coexpressed with CDS molecules, are restricted to recognizing and binding peptide fragments associated with

- A. CD3 molecules.
- B. CD4 molecules.
- C. MHC class I molecules.
- D. MHC class II molecules.
- E. MHC class III molecules.

17- B lymphocytes synthesize and express immunoglobulin

- A. containing multiple epitope specificities.
- B. in cytoplasmic phagosomes.
- C. in membrane complexes also containing CD3.
- D. on their cell membrane surface.
- E. only after leaving the bone marrow

18- Lymph nodes have two main regions: the

- A. cortex and medulla.
- B. lymph and cortex.
- C. reticulum and cortex.
- D. lymph and medulla.
- E. reticulum and medulla

19-Which of the following na'ive cells load peptide fragments into MHC classII molecules?

- A. CD4+ T cells
- B. CDS+ T cells
- C. dendritic cells
- D. yo T cells
- E. neutrophils

20- CD4+ T cells that respond to intracellular pathogens by recruiting and activating phagocytic cells are termed

- A. antigen-presenting cells.
- B. cytotoxic T lymphocytes.
- C. Th0 cells.
- D. Th1 cells.
- E. Th2 cells.

21- Fragments of a cytoplasmic pathogen are presented to T cells by

- A. direct engagement of cell surface pattern recognition receptors.
- B. macropinocytosis into T cells.
- C. MHC class I molecules to CD8+ T cells.
- D. phagocytosis and presentation to CD4 + T cells.
- E. placement into endocytic vesicles and complexing with MHC class II molecules

22- Upon encountering an appropriate pMHC I on an infected cell,

- A. B-cell receptors become cross-linked and signaling ensues.
- B. CD4+ cells release IL-4.
- C. CD8+ cytotoxic T cells destroy the infected cell.
- D. naive Th1 cells secrete cytokines.
- E. Th0 cells differentiate into Th2 cells

23- Which of the following cells require interaction with both pMHC and a set of costimulatory second signals from an antigen-presenting cell (usually a dendritic cell) to become activated?

- A. Anergized T cells
- B. B cells
- C. Mast cells
- D. Naive T cells
- E. Natural killer cells

24- A 31-year-old woman developed nausea and urticaria (hives) after eating oysters at a partygoers who ate the oysters became ill. A month later, she again consumed oysters and developed abdominal pain, vomiting, and angioedema (swelling of lips and tongue) in addition to her previous symptoms. In this patient, oysters functioned as a(n)

- A. adjuvant.
- B. hapten.
- C. immunogen.
- D. pathogen-associated molecular pattern.
- E. tolerogen.

25- Upon encountering an appropriate pMHC I on a virally infected host cell,

- A. B cells rearrange cell surface receptors.
- B. CD8+ T cells undergo apoptosis.
- C. cytotoxic T cells release granzymes.
- D. Th1 cells express IL-2 receptors.
- E. Th0 cells differentiate into Th2 cells

answers:-

1. B

2. A

3. C

4. C

5. D

6. B

7. D

8. A

9. D

10. A

11. B

12. C

13. C

14. B

15. A

16. C

17. D

18. A

19. C

20. D

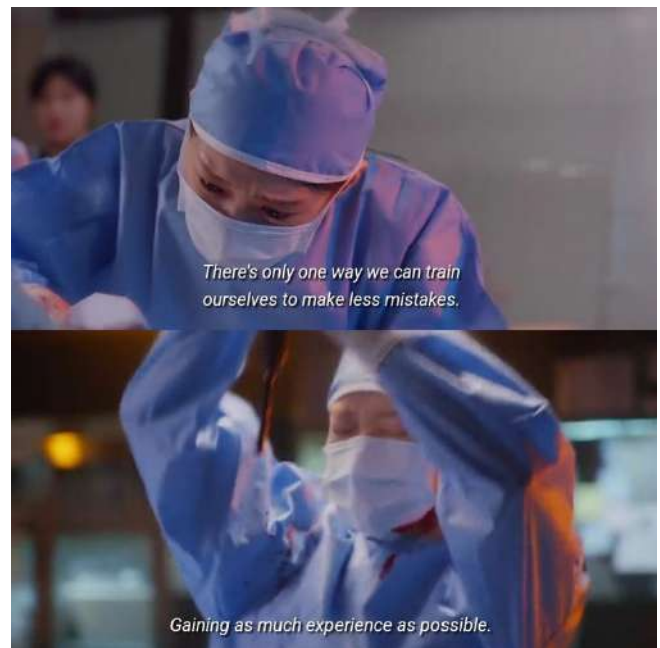
21. C

22. C

23. D

24. C

25. C



Good Luck Wareded ♡