

IMMUNEOLOGY

(LEC 1)

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MCQS:

MCQs:

- 1. In which primary lymphoid organ do T cells differentiate to mature?**
 - a. Thymus
 - b. Spleen
 - c. Lymph nodes
 - d. Bone marrow
 - e. Liver
- 2. Which immune cells are primarily responsible for killing antibody-coated microbes?**
 - a. Neutrophils
 - b. Eosinophils
 - c. Macrophages
 - d. B cells
 - e. Dendritic cells
- 3. What is the primary function of dendritic cells?**
 - a. Histamine release
 - b. Antibody production
 - c. Presenting antigens to lymphocytes
 - d. Erythropoiesis
 - e. None of above
- 4. Which lymphoid organ collects antigens from the bloodstream?**
 - a. Lymph nodes
 - b. Spleen
 - c. Thymus
 - d. Bone marrow
 - e. Tonsils

- 5. What is the main function of the germinal center in secondary lymphoid organs?**
- Production of antibodies**
 - Activation of macrophages**
 - Maturation of B cells**
 - Phagocytosis of pathogens**
 - Erythropoiesis**
- 6. Which immune cells have a nucleus segmented into 3-5 connected lobes?**
- T cells**
 - B cells**
 - Neutrophils**
 - Eosinophils**
 - Basophils**
- 7. Where does extramedullary hematopoiesis occur when the bone marrow cannot meet the demand for blood cell production?**
- Liver**
 - Spleen**
 - Thymus**
 - Lymph nodes**
 - Both of a and b**
- 8. Which of the following is NOT a component of a lymph node?**
- Cortex**
 - Paracortex**
 - Medulla**
 - Spleen**
 - Marginal zone**
- 9. What is the function of the marginal zone in the spleen?**
- Phagocytosis of pathogens**
 - T cell activation**
 - Red blood cell production**
 - Antibody production**
 - Storage of platelets**
- 10. In individuals lacking a spleen, what type of infections are they extremely susceptible to?**
- Viral infections**
 - Fungal infections**
 - Bacterial infections**
 - Parasitic infections**
 - Autoimmune diseases**

Answers with explaining:

1. ****Answer: a. Thymus****

- Explanation: T cells differentiate to mature in the thymus, making it a primary lymphoid organ responsible for T cell development.

2. ****Answer: c. Macrophages****

- Explanation: Macrophages are primarily responsible for killing antibody-coated microbes through phagocytosis and other mechanisms.

3. ****Answer: c. Presenting antigens to lymphocytes****

- Explanation: Dendritic cells play a crucial role in presenting antigens to lymphocytes, initiating immune responses.

4. ****Answer: b. Spleen****

- Explanation: The spleen collects antigens from the bloodstream and plays a role in immune responses against blood-borne pathogens.

5. ****Answer: is A**

6. ****Answer: c. Neutrophils****

- Explanation: Neutrophils have a nucleus segmented into 3-5 connected lobes, which is a characteristic feature of these granulocytes.

7. ****Answer: b. Spleen****

- Explanation: In cases where the bone marrow cannot meet the demand for blood cell production, extramedullary hematopoiesis can occur in the spleen.

8. ****Answer: d. Spleen****

- Explanation: The spleen is not a component of a lymph node. It is a separate lymphoid organ responsible for filtering blood and immune responses.

9. ****Answer: a. Phagocytosis of pathogens****

- Explanation: The marginal zone in the spleen is involved in the phagocytosis of pathogens and immune surveillance.

10. ****Answer: c. Bacterial infections****

- Explanation: Individuals lacking a spleen are extremely susceptible to bacterial infections, particularly those caused by encapsulated bacteria like pneumococci and meningococci.

These explanations provide context for each answer based on the information in the text you provided earlier.

More MCQs:

1. Regarding lymphocytes, which sentence is ****incorrect****?
 - a. Lymphocytes are primarily found in the medulla of lymph nodes.
 - b. T cells can enter lymph nodes from the blood via HEVs.
 - c. Activated T cells form lymphoblasts that divide to respond to specific antigens.
 - d. Germinal centers form from stimulated B cells and follicular dendritic cells.
 - e. None of the above
2. Which statement about the thymus gland is ****not true****?
 - a. The thymus gland is found in the anterior mediastinum.
 - b. Thymocytes or T cells mature in the cortex of the thymus.
 - c. Epithelial cells play a role in the thymus.
 - d. The thymus is derived from invaginations of the ectoderm.
 - e. None of The above
3. In the spleen, which of the following is ****incorrect****?
 - a. The white pulp is the major site for killing antibody-coated microbes.
 - b. The peri-arteriolar lymphoid sheath (PALS) is part of the red pulp.
 - c. The marginal zone is situated between the red and white pulp.
 - d. The splenic artery enters the red pulp.
 - e. Individuals lacking a spleen are more susceptible to infections.
4. Which sentence about leukocyte count is ****false****?
 - a. Leukocyte count varies between 4,500 and 11,000 cells per cubic millimeter in health.
 - b. In leukocytosis, the white cell count drops below the normal values.
 - c. Leukocytosis can be caused by bacterial infections.
 - d. Leukopenia may be due to viruses or chemicals.
 - e. Methods for white cell counts include microscopic and automatic methods.
5. Concerning lymphatic sinuses, which statement is ****inaccurate****?
 - a. Lymph flows from afferent vessels into cortical sinuses.
 - b. Lymph eventually enters efferent lymphatic vessels.
 - c. The medullary sinuses are part of the lymphatic sinuses.
 - d. Lymph nodes have no connection to blood vessels.
 - e. Lymph nodes concentrate antigens from tissues.
6. Which sentence regarding dendritic cells is ****not true****?
 - a. Dendritic cells are present in small quantities in various tissues.
 - b. Dendritic cells function as antigen-presenting cells.
 - c. Dendritic cells can be found in an immature state in the blood.
 - d. Plasmacytoid dendritic cells are early responders to viral infections.
 - e. Dendritic cells are not involved in the immune response.

7. Concerning the bone marrow, which statement is ****incorrect****?
- Red marrow mainly consists of hematopoietic tissue.
 - Yellow marrow is mainly composed of fat cells.
 - Red marrow is found in long bones' epiphyseal ends.
 - Extramedullary hematopoiesis occurs in the spleen only.
 - Bone marrow produces platelets.
8. Regarding mononuclear phagocytes, which sentence is ****false****?
- Monocytes can differentiate into macrophages.
 - Some mononuclear cells may become dendritic cells.
 - Microglial cells are found in the liver.
 - Macrophages originate in the bone marrow.
 - Histiocytes are found in connective tissues.
9. Which sentence about the primary lymphoid organs is ****inaccurate****?
- The thymus gland is part of the primary lymphoid organs.
 - Bone marrow is where immune cells originate.
 - The thymus is derived from invaginations of the ectoderm.
 - T cells differentiate to mature in the thymus.
 - The thymus functions throughout life.
10. In terms of the lymphatic system, which statement is ****not true****?
- Lymph nodes maintain mature naive lymphocytes.
 - Mucosa-associated lymphoid tissues (MALT) collect antigens from the respiratory tract.
 - The spleen collects antigens from the bloodstream.
 - The thymus has afferent lymphatic vessels.
 - The secondary lymphoid tissues include the spleen and lymph nodes.

Answers with explaining:

1. ****Answer: a. Lymphocytes are primarily found in the medulla of lymph nodes.****
Explanation: This statement is incorrect because lymphocytes, especially B and T cells, are primarily found in the cortex and paracortex regions of lymph nodes, not the medulla.
2. ****Answer:b. Thymocytes or T cells mature in the cortex of the thymus.**
3. ****Answer: b. The peri-arteriolar lymphoid sheath (PALS) is part of the red pulp.****
Explanation: This statement is incorrect. The peri-arteriolar lymphoid sheath (PALS) is part of the white pulp in the spleen, not the red pulp.
4. ****Answer: b. In leukocytosis, the white cell count drops below the normal values.****
Explanation: This statement is incorrect. Leukocytosis refers to an elevated white cell count, not a decrease. It can be caused by various factors, including infections.
5. ****Answer: d. Lymph nodes have no connection to blood vessels.****
Explanation: This statement is incorrect. Lymph nodes have connections to blood vessels, such as the afferent and efferent lymphatic vessels, which play a crucial role in the transport of lymph and immune cells.
6. ****Answer: e. Dendritic cells are not involved in the immune response.****
Explanation: This statement is incorrect. Dendritic cells are essential components of the immune response. They function as antigen-presenting cells, initiating and shaping adaptive immune responses by presenting antigens to T cells and B cells.
7. ****Answer: d. Extramedullary hematopoiesis occurs in the spleen.****
Explanation: This statement is incorrect. Extramedullary hematopoiesis can occur in other organs such as the liver and spleen, but it does not take place in the spleen. The primary site for hematopoiesis is the bone marrow .
8. ****Answer: c. Microglial cells are found in the liver.****
Explanation: This statement is incorrect. Microglial cells are a type of immune cell found in the brain, not the liver.
9. ****Answer: E**
10. ****Answer: d. The thymus has efferent lymphatic vessels.****
Explanation: This statement is incorrect. The thymus does not have efferent lymphatic vessels. Instead, mature T cells exit the thymus by entering the bloodstream directly.