

Get Ready to Crack CSIR-NET 2021 (Most Important Questions on Immunology)



IMMUNOLOGY

1. The main Phagocytic cell in the immune response is-
 - A. Neutrophils
 - B. Basophils
 - C. Monocytes
 - D. Lymphocytes
2. The phagocytes are attracted toward microorganisms by-
 - A. Chemotaxis
 - B. Rheotaxis
 - C. Diapedesis
 - D. Thogmotaxis
3. The cell wall of microorganisms is coated with certain plasma protein promoting the attachment of microbe to phagocytes, only then they can be phagocytosed. The coat protein is called as-
 - A. Globins
 - B. Opsonins
 - C. Ovulbumins
 - D. Phagosonins
4. After the damage of body tissues, the blood vessel is dilated where damage has occurred, due to which permeability of blood vessel also increases. Vasodilation is caused by-
 - A. Histamine
 - B. Kinin
 - C. Prostaglandin
 - D. All of above
5. The process of squeezing of phagocytes between the endothelial cells of blood vessels and reaching to the damaged area is known as-
 - A. Margination
 - B. Metastasis
 - C. Diapedesis
 - D. Angiobiosis (angiogenesis)

6. In humans interferon is produced by leukocytes, fibroblasts in connective tissue and lymphocytes and are termed as a-IFN, b-IFN and g-IFN resp. The interferons are-

- A. Antibacterial proteins
- B. Antiviral Protein
- C. Anti cancerous protein
- D. Anticancer protein

7. During the embryonic stage of human B-lymphocytes are produced in-

- A. Bone marrow
- B. Spleen
- C. Liver
- D. Bursa

8. Haptens are –

- A. Immunogenic antigen
- B. Non-Immunogenic Antigen
- C. High molecular weight non-immunogenic antigen
- D. Low molecular weight immunogenic antigen

9. Number of antigen functional binding site in human Immunoglobulin-M are-

- A. 2
- B. 5
- C. 10
- D. 20

10. Number of amino acids in light and heavy chain of typical immunoglobulin are respectively-

- A. 110, 220
- B. 220, 440
- C. 440, 880
- D. 880, 1760

Answer Keys

1. A

2. A

3. B

4. D

5. C

6. B

7. C

8. B

9. C

10. B

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Solutions

Solution 1. Phagocytosis is a type of endocytosis in which cell uptake, material like microorganism from the environment. In phagocytosis, the cell expands its plasma membrane around the foreign material and engulf it to form a phagosome. Such type of phagocytosis is mainly mediated by blood monocytes, neutrophils and tissue macrophages.

Neutrophils increase almost 10 times during infection. Neutrophils are the first or primary cell to appear at the site of infection followed by macrophages and monocytes. The secretions from neutrophils trigger monocytes and macrophages to attract to the site of infection. Hence the correct answer is option a)

Solution 2. During the first step in phagocytosis, macrophages are attracted towards and move toward a variety of substances generated in the immune response, this process is called chemotaxis. Chemotaxis means the movement of a cell or organism in response to a chemical stimulus. Hence the correct answer is option a)

Rheotaxis is the movement of an aquatic organism like fish in response to an oncoming current or air inflowing stream.

Diapedesis is the Influx of phagocytes from the capillaries into the tissues is facilitated by the increased permeability of the capillaries.

Thigmotaxis is an organism stimulus to touch or contact which can either positive (towards stimulus) or negative (away from stimulus).

Solution 3. Oponins are coat proteins that help in opsonisation. Oponins can be antibody or substance that bind to the foreign microorganism to make them susceptible to phagocytosis. When the large-sized microorganisms or foreign material is trapped in blood clots, blood vessels or fibres of connective tissues. If the cell wall of microorganisms is coated with certain plasma protein promoting the attachment of microbe to phagocytes, only then they can be phagocytized. The correct answer is option B

Solution 4. Histamine is a chemical released in response to tissue injury. Histamine is also a potent mediator of inflammation, causing vasodilation and smooth-muscle contraction. The prostaglandins can also contribute to vasodilation and increased vascular permeability associated with the acute inflammatory response. Another

important group of inflammatory mediators, small peptides called kinins are also produced during the immune response. hence is the correct answer is d) All of the above.

Solution 5. Diapedesis is a process of sneezing phagocytes between the endothelial cells of blood vessels and reaching the damaged area.

The process of the emigration of phagocytes is a multistep process that includes adherence of the cells to the endothelial wall of the blood vessels this called margination.

Metastasis is a process, in which small clusters of cancerous cells dislodge from a tumor, invade the blood or lymphatic vessels, and are carried to other tissues, where they continue to proliferate.

Solution 6. Interferons are a group of protein that is produced by virus-infected cells. They have the capacity to induce cell differentiation and inhibit angiogenesis. Hence the correct answer is option b

Solution 7. Lymphocytes of the B series develop in the liver by 9 weeks gestation and are present in the blood and spleen by 12 weeks. The B lymphocyte-derived its letter designation from its site of maturation, in the bursa of Fabricius in birds; the name turned out to be apt, as bone marrow is its major site of maturation in a number of mammalian species, including humans and mice. Hence the correct answer is option c

Solution 8. Haptens are small molecules that can bind to antibodies but cannot by themselves induce an immune response. However, the conjugate formed by coupling a hapten to a large carrier protein is immunogenic and elicits the production of anti-hapten antibodies when injected into an animal.

Solution 9. The five monomer subunits of IgG are arranged with their Fc regions in the centre of the pentamer and the ten antigen-binding sites on the periphery of the molecule. The correct answer is option c.

Solution 10. There is a hinge in the centre between heavy chains to allow flexibility to the protein. The first 110 or so amino acids of the amino-terminal region of a light or heavy chain varies greatly among antibodies of different specificity. There are Two light chains – Containing around 220 amino acids. Two heavy chains – Containing around 440 amino acids. the correct answer is option b.

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