

## MHC questions and answers

1) T cells recognise antigen

- a) In a 3 dimensional form
- b) In solution in the plasma
- ✓  c) When presented on the surface of antigen presenting cells
- d) Following presentation by pattern recognition receptors

2) CD4 T cells are generally restricted by

- a) CD-1
- b) MHC class -I
- ✓  c) MHC class-II
- d)  $\beta$ 2 microglobulin

3) MHC class I molecules are primarily involved in

- a) Recognition of glycolipid antigens
- b) Resistance to fungi
- ✓  c) Resistance to viruses
- d) Activation of neutrophils

4) costimulatory molecules help T cell responses by

- a) Increasing T cell activation in an antigen specific manner
- ✓  b) Increasing T cell activation regardless of the specificity of the T cell
- c) Degrading antigen so it can bind in the MHC groove
- d) Binding to MHC molecules containing immunogenic peptides

5) Activation of naïve T lymphocytes is best achieved by which antigen presenting cells?

- a) Macrophages
- b) Neutrophils

- c) Mast cells
  - ✓  d) Dendritic cells
- 6) Major Histocompatibility Complex is a tight cluster of linked \_\_\_\_\_
- a) Carbohydrates
  - b) Proteins
  - c) Genes
  - d) Lipid molecules
- 7) What is the name of MHC in humans?
- a) HLA
  - b) H2
  - c) Adjuvants
  - d) Haplotype
- 8) All the individual of the same species has the same allele of MHC genes.
- a) True
  - b) False
- 9) Which of the following polypeptide is important for the expression of MHC I on the cell membrane?
- a) Interferons
  - b)  $\beta_2$ -microglobin
  - c) Lymphokines
  - d) Interleukins

Answer: b

Explanation:  $\beta_2$ -microglobin is encoded by chromosome 15, it is always attached to  $\alpha_3$  subunit of MHC I molecules through non-covalent interactions. It does not have a tail.

- 10) Which of these are non-professional antigen presenting cells?
- a) Macrophages
  - b) Dendritic cells
  - c) Fibroblast
  - d) B lymphocytes

Answer: c

Explanation: Antigen presenting cells (APC) is of two types i.e. professional and non-professional antigen presenting cells. Professional antigen presenting cells are B-lymphocytes, dendritic cells, and macrophages while non-professional APCs are fibroblast, epithelial cells, glial cells etc.

11) Name the cell which receives antigen presented by MHC molecule.

- a) Nk cells
- b) B-cells
- c) T-cells
- d) Macrophages

12) Name the part of processed antigen that binds to the MHC molecule and recognized by T-cells?

- a) Immunoglobulin
- b) Agrelope
- c) Epitope
- d) Chaperone

Answer:

b

Explanation: Agrelope is the part of processed antigen that is attached to MHC molecule and exposed to T-cell.

13) Which of the following statement is INCORRECT about superantigens?

- a) Viral or bacterial proteins
- b) Endogenous by nature
- c) Unique binding ability
- d) Activate a large number of T-cells

Answer: b

Explanation: Superantigens are viral or bacterial proteins which have the unique binding ability of T-cell receptor and MHC II molecules, i.e. it binds simultaneously to both and activate large numbers of T-cells. It can be both either endogenous or exogenous in nature.