

本試題是否可以使用計算機： 可使用， 不可使用 (請命題老師勾選)

Multiple choice (單選), 5 % for each question

1. Which of the following statements is correct for monoclonal antibodies?

- A) Humanized monoclonal antibodies are used to treat diseases in patients.
- B) They are often derived from goat B cells.
- C) A monoclonal antibody often recognizes different epitopes on a target molecule and hence has high binding affinity
- D) When subject to SDS-PAGE analysis, 2 light chains and 2 heavy chains can be visualized.
- E) Monoclonal antibodies always block the function of their target molecules

2. Regarding autoimmunity, which of the following statements is incorrect?

- A) Deposition of immune complex in the kidney tissue is an essential mechanism to clear waste from the body.
- B) T cell tolerance is conferred both in the thymus and in the peripheral tissues.
- C) Autoantibodies can fix complements on red blood cell surface and cause destruction of cells.
- D) Both increase and decrease of cytokine production can lead to autoimmunity
- E) Some microorganisms can produce antigens which stimulate host immune cells and lead to immune responses that destroy host tissues.

3. A boy has a DNA mutation which prevents the development of phagocytes (granulocytes and monocytes) in his body but other types of cells appear to be normal in numbers. Which of the following regarding his immune system is most likely to be true?

- A) He will have malnutrition due to the lack of phagocytosis.
- B) He will be easily infected by intracellular bacteria but not by extracellular bacteria.
- C) Cytokine production will be normal in this body.
- D) Defects in antigen presentation may lead to functional defects in T cells
- E) Antibody cannot bind to antigens in the absence of phagocytes

4. Which of the following methods can be used to measure cellular functions at a single cell level?

- A) Enzyme linked immunosorbant assay
- B) Immunoelectrophoresis
- C) Flow cytometry
- D) Chromium release cytotoxic assay

(背面仍有題目,請繼續作答)

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5. When a specific antibody bind to the surface of a microorganism, the microorganism can be more easily ingested by leukocytes. The correct name of this phenomom is?

- A) Immune tolerization
- B) Immune enhancement
- C) Antigen matching
- D) In situ hybridization
- E) Opsonization

6. Which of the following mechanisms belongs to acquired immune responses?

- A) NK cell-mediated cell lysis
- B) T cell-mediated cytotoxicity
- C) granulocyte-mediated bacterial killing
- D) Type 1 interferon conferred resistance to viral infection
- E) Complement dependent enhancement of phagocytosis

7. Which of the following cytokines is most important for the survival of T lymphocytes?

- A) GM-CSF
- B) G-CSF
- C) IL-1
- D) IL-6
- E) IL-2

8. Which of the following cells belong to the same lineage of dendritic cells?

- A) motor neurons
- B) NK cells
- C) sensory neurons
- D) macrophages
- E) B cells

9. A cell is genetic engineered to express MHC class II loaded with antigen peptide on its surface. What kind of leukocyte can this cell present antigen to?

- A) CD8+ T cells
- B) CD4+ T cells
- C) CD1+ T cells
- D) B cells
- E) NK cells

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10. Exposure of asthmatic patients to specific allergens (e.g. mites, pollens) leads to the release of inflammatory parameters by mast cells. Which of the following molecules is most important for determining the specificity of the allergens?

- A) IgA
- B) IgM
- C) IgD
- D) IgE
- E) IgG

Essay questions (問答題) 25% for each question

1. You have a mixture of blood cells in culture medium. You are only interested studying the biochemical characteristics of B cells in this cell mixture. Please design a doable experimental procedure to obtain purified B cells.
2. Different inflammatory tissues recruit different population of leukocytes into the tissues. The molecular signals for recruiting are hence designated as “addressins” to liken them to street addresses. Please describe the “addressins” for activated lymphocytes to be recruited to inflammatory intestinal tissues.