Chapter 6
Immunology

1. Which of these tracings are the role of T-cell receptor complex?
(A) α and β chain **(B)** CD19
(C) CD3 **(D)** CD40L

2. Which of the following steps are involved in the activation of T-cell?
(A) Double positive cell converts to single positive T-cell
(B) Foreign peptide bound to MHC provide signals
(C) CD28 of TCR interacts with B7 of APC
(D) CD23 has ITAM, which transducer signals

3. Allogenic transplant relates to
(A) stem transplant to related donors.
(B) bone marrow transplantation to unrelated donors.
(C) stem transplant for cancer patient.
(D) paired donation.

4. Agammaglobulinemia relates to the
(A) blockage of the growth of B-lymphocytes.
(B) high concentration of antibodies.
(C) X-linked.
(D) autosomal recessive.

5. Which of the following are autoimmune diseases?
(A) Rheumatoid arthritis **(B)** Agammaglobulinemia
(C) Juvenile diabetes **(D)** Addison disease

6. Example of a type II immune complex disease is
(A) Myasthenia gravis. **(B)** Graves' disease.
(C) Serum sickness. **(D)** Graft rejection.

7. Major histocompatibility complex (MHC) gene polymorphism and alleles are associated with increased susceptibility of certain diseases. One of the alleles, B47 which is associated with
(A) Ankylosis spondylitis. **(B)** Reactive arthritis.
(C) Reiter's syndrome. **(D)** Myasthenia gravis.

8. The following is the characteristic feature of peptide binding cleft for MHC class I proteins:
(A) It consists of alpha 1 and alpha 2 subunits
(B) The pocket can bind to 8– 10 amino acid peptide
(C) It is a close-ended pocket
(D) It presents exogenous antigens

9. Transporter associated with antigen processing (TAP) is involved in the transport of the antigenic peptide from the cytosol to endoplasmic reticulum. Which of the following the correct answer?

(A) TAP 1 and TAP 2 are class of ABC binding cassette proteins required for transport of processed peptide and they are highly polymorphic

(B) The TAP 2 protein has one hydrophilic region and one ATP-binding region

(C) TAP has the highest affinity for a peptide containing 8– 10 amino acids and favors hydrophobic amino acids

(D) Define mutation of TAP proteins lead to immunodeficiency and autoimmunity

10. The properties of CD1, a non-classical pathway for antigen presentation is

(A) similar to MHC class I, CD1 interacts with β_2 microglobulin.

(B) the genes are located in chromosome 1.

(C) the antigen-binding site for CD1 is deeper and voluminous.

(D) the presentation of lipid antigens to B cells.

11. Which of the following statements about antigen-antibody (Ag-Ab) complexes is (are) TRUE?

(A) Hydrogen bonds and van der Waals forces participate in Ag-Ab interactions

(B) Ionic bonds and hydrophobic bonds participate in Ag-Ab interactions

(C) The combined strengths of all interactions between a single antigen binding site on an antibody
and a single epitope is called avidity

(D) Antibody elicited by one antigen can cross react with an unrelated antigen

12. Identify the autoimmune diseases among the following.

(A) Type II Diabetes Mellitus **(B)** Type I Diabetes Mellitus
(C) Gestational Diabetes **(D)** Pernicious Anemia

13. The cells involved in allergic reactions and containing surface receptors of IgE antibodies and histamine are

(A) basophils. **(B)** mast cells.
(C) monocytes. **(D)** neutrophils.

14. Antibody binds to antigen in solution through

(A) ionic interactions. **(B)** hydrogen bonds.
(C) van der Waals interactions. **(D)** hydrophobic interactions.

15. Which of the following cell types can develop from myeloid lineage?

(A) Macrophages **(B)** T-lymphocytes
(C) B-lymphocytes **(D)** Erythrocytes

16. Which of the following is(are) involved in the activation of cytotoxic T-cells?

(A) MHC I **(B)** FcR
(C) T-cell receptor **(D)** CTLA 4

17. Gene rearrangements in which of the following cell types lead to antigen receptor diversity in immune cells?

(A) Macrophages **(B)** B-cells

(C) NK cells **(D)** T-cells

18. Bacterial superantigens
(A) bind to VβCDR2 loop in T cells without being processed into peptides
(B) bind to VβCDR2 loop in T cells after being processed into peptides
(C) are recognized by B cells after being processed into peptides
(D) binds to VβCDR1 and HV4 loops in T cells without being processed into peptides

Answer Key
1. (A), (C), (D)
2. (B), (C), (D)
3. (A), (B), (C)
4. (A), (C), (D)
5. (A), (C), (D)
6. (A), (B)
7. (A), (B), (C)
8. (A), (B), (C)
9. (A), (C), (D)
10. (A), (B), (C)
11. (A), (B), (D)
12. (B), (D)
13. (A), (B)
14. (A), (B), (C), (D)
15. (A), (D)
16. (A), (C)
17. (B), (D)
18. (A), (D)