

IMMUNOLOGY

1. The elderly can suffer from several immune system malfunctions that can result in secondary immunodeficiency those commonly include all the following except:

- a. A decrease in naive B and T cells.
- b. A decrease in lymphoid tissue like the thymus and bone marrow.
- c. A decrease in cytokine levels
- d. A decrease in phagocytosis and chemotaxis.

2. When a human pathogen is repeatedly grown and passaged in cells of a different species and then used for vaccination purposes, the resulting vaccine is referred to as a/an:

- a. Nucleic acid based vaccine
- b. Live attenuated vaccine.
- c. Subunit vaccine
- d. Toxoid vaccine
- e. Non-live vaccine

3. Which of the following vaccines should not be administered to severely immunocompromised patients?

- a. Hepatitis B Vaccine
- b. Influenza Vaccine.
- c. Measles-Mumps-Rubella (MMR) Vaccine.
- d. Meningococcal Vaccine.
- e. Pneumococcal Vaccine.

4. A farmer was working on his farm, he presented with black crusty ulcers on his forearms which of the following is FALSE regarding the pathogenesis of this organism?

- a. The ulcer is painless and edematous
- b. The cutaneous sign seen is due to exotoxins that cause swelling and inhibition of cell growth
- c. Antibodies against the B subunit of the virulence factor do not provide protection.
- d. This disease is transmitted by spores in the soil that germinated trauma on the patient's forearm.
- e. Spores are not retrieved from the site of infection.

5. Anti-interleukin 13 is targeting which of the following cells

- a. Neutrophils.
- b. Eosinophil.
- c. Basophils.
- d. Macrophage.
- e. PMN

6. Which of the following receptors undergoes the most significant gene rearrangement during maturation of the cell that expresses it?

- a. T cell receptors
- b. Toll like receptors
- c. Nod like receptors
- d. B cell receptors
- e. C-type lectin receptors

7. Regarding antibody production which is true?

- a. A B cell can produce IgM to antigens X, Y, and Z and then will commit to producing IgG or IgE to one of these antigens
- b. A B cell can produce IgM to antigen (x), and then produce IgG or IgE to the same antigen result in production of IgM, IgG and IgE produced at different rates
- c. AB cell can produce IgM to one antigen (X) only, IgE and IgG switch in the serum overtime spontaneously
- d. A B cell can only produce IgM to one antigen (X), and a different B cell will commit to producing IgG or IgE to the same antigen but not other antigens
- e. AB cell can produce IgM to one antigen (X) and the same B cell will produce IgG or IgE to the same antigen, however it will lose its ability to form IgM to antigen X

8.Regarding immunologic tolerance, which one of the following is the most accurate?

- a. The presence of B7 on the surface of the antigen-presenting cell is one of the essential steps required to establish tolerance.
- b. Class I MHC protein and synthesis of gamma-interferon by macrophages is a must requirement.
- c. Tolerance is easier to establish in adults than in newborns because more self reactive T cells have undergone apoptosis in adults than in newborns.
- d. Clonal deletion occurs with T cells but not with B cells. Tolerance to certain self-antigens occurs by negative selection of immature T cells in the thymus.
- e. Once tolerance is established to an antigen, it is permanent (i.e., that individual cannot react against that Antigen (though the antigen is no longer present)).

9. Positive selection in the thymus occurs when thymocytes express functional versions of which critical molecule?

- a. MHC class I
- b. CD28
- c. MHC class II
- d. T-cell receptor (TCR)
- e. Fc receptor

10. Which one of the following is not a feature of autoimmune diseases?

- a. It involves an element of environmental triggers.
- b. It involves an element of genetic susceptibility.
- c. It tends to be self-limited.
- d. It can be organ specific.
- e. It can be systemic

11. Somatic hypermutation in the Immunoglobulin (Ig) variable region occurs:

- a. During the mitosis and differentiation of hematopoietic stem cells only
- b. In the gametes (eggs and sperms) before fertilization
- c. During the mitosis and differentiation of all the bone marrow cells
- d. During the meiosis and differentiation of all the bone marrow cells
- e. During the meiosis and differentiation of hematopoietic stem cells

12. Which of the following is true regarding the immunoglobulin (Ig) expression by B cells?

- a. All the B cells will always express the constant region gene for the Ig paternally inherited allele only
- b. Each B cell will express the constant region gene for both maternal and paternal Ig alleles
- c. A fraction of B cells will express the maternal allele of Ig constant gene and another fraction will express the paternal
- d. All the B cells will always express the constant region gene for the Ig maternally inherited allele only
- e. The expression of the constant region on B cells Ig varies between individuals, some people B cells will express the paternal only, and others will express the maternal only

1	2	3	4	5	6	7	8	9	10
b	b	C Live- attenuated	c	b	d	E	a	d	c

11	12
c	c

2. Which of the following vaccine consider safe vaccine for immunocompromised patients?

ANSWER: Diphtheria vaccine.

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8. Which type of T helper cell cause neutrophils and monocyte activation?

ANSWER: TH17

12-Somatic hypermutation in lymphatic cells one of the following is true:

ANSWER: happens in light and heavy chains

