

The Immune System Chapter 43

1. Outline the immune system's three lines of defense.
2. Although the innate immune system is nonspecific, macrophages can recognize foreign cells. How?
3. Describe the action of the complement system.
4. Pus is both a sign of infection and an indicator of immune defenses in action. Explain.
5. What is the job of the natural killer cell?
6. Distinguish between active and passive immunity.
7. What is the difference between an antigen and an epitope?
8. What role do MHC molecules play in activating B and T lymphocytes?
9. Describe the genetic basis for our ability to produce B cells with such a wide range of specificities.
10. Explain how the clonal selection of B cells occurs.
11. a) Look at Fig. 43.13. How does this graph demonstrate both the specificity and memory of acquired immunity?
b) Describe the advantages of memory cells when a pathogen is encountered for a second time.
12. If a child were born without a thymus gland, describe the expected effects on the child's immune system.
13. How is a cytotoxic T cell activated and what is the result?
14. Outline the steps by which the presence of an ag can result in the production of antibodies.
15. A researcher uses a protease to cut the connection between the two heavy chains of antibodies, releasing the two arms of the Y-shaped molecule. He discovers that the antibodies still function. Explain.
16. How can administering antibodies serve as an effective treatment for someone who was bitten by a poisonous snake?
17. In the muscular disease myasthenia gravis, antibodies bind to and block certain receptors on muscle cells, preventing muscle contraction. Is this disease best classified as an immunodeficiency disease, an autoimmune disease, or an allergic reaction? Explain.
18. What are monoclonal antibodies and how can they be used?