

Immune System Study Sheet

Key Terms

★ pathogen	★ inflammation	★ antibody	★ vaccine	★ allergy
★ infection	★ natural killer cell	★ humoral immune response	★ plasma cell	★ HIV
★ antigen	★ lymphocytes	★ cellular immune response	★ cytotoxic T lymphocyte	★ mast cells
★ phagocytes	★ B cells	★ immune memory	★ helper T cell	★ histamine
★ macrophage	★ T cells	★ memory cell	★ fever	★ cytokine

Study Questions

1. Identify the systems that are involved in the immune response. Describe the role of each system.
2. Compare the different levels of the body's defense system.
3. Describe in detail how antibodies are used in response to infections.
4. Describe in detail how your body fights viruses.
5. How do vaccinations work?
6. Why does AIDS make you vulnerable to infections that normally are benign?
7. How does a fever prevent the spread of an infection?
8. What makes specific immunity more powerful than non-specific immunity?
9. What causes an allergic response?
10. How is an allergic response deadly?
11. What is the difference between a plant allergy and a food/pollen allergy?
12. What are 2 reasons why antibodies bind to antigens?
13. How are pathogen destroyed after they are neutralized?
14. Explain why you can get the flu or cold many times. Be specific.
15. Explain how the humoral immune response interacts with antigens. Describe the specific immune cells involved and what happens as a result.
16. Explain how the cellular immune response interacts with antigens. Describe the specific immune cells involved and what happens as a result.
17. Why aren't viruses considered organisms?
18. How are new viruses made and spread?

Holt Textbook & Workbook: Chapter 31

Biology.com Activities: 31.2, 31.3, 31.4, 31.5

Biology.com Tutorial: how to log in and navigate through the site.

1. www.biology.com
2. Click on Biology book (left w/ iguana eye)
3. Click on Web Site
4. Login: bioyang, Password: tigers09
5. Click on Biology book again
6. Click on assigned unit, then assigned chapter

State Standards Addressed:

- 10a. Students know the role of the skin in providing nonspecific defenses against infection.
- 10b. Students know the role of antibodies in the body's response to infection
- 10c. Students know how vaccination protects an individual from infectious diseases.
- 10d. Students know there are important differences between bacteria and viruses with respect to their requirements for growth & replication, the body's primary defenses against bacterial & viral infections, & effective treatments of these infections.
- 10e. Students know why an individual with a compromised immune system (Ex: AIDS) may be unable to fight off & survive infections by microorganisms that are usually benign.
- 10f. *Students know the roles of phagocytes, B-lumphocytes, and T-lymphocytes in the immune system.

Immune Study Questions (Make flash cards!)

Nonspecific vs. Specific Defenses

1. Which defense fights a variety of different organisms?
2. Which defense will only fight one type of organism?
3. Which defense uses B cells?
4. Which defense uses macrophages?
5. Which defense uses inflammation?
6. Which defense uses skin?
7. Which defense uses T cells?
8. Which defense uses fever?
9. Which defense uses mucus and enzymes?
10. Which defense uses cytotoxic T lymphocytes?
11. Which defense uses memory cells?
12. Which defense uses plasma cells?
13. Which defense uses helper T cells?
14. Which defense recognizes antigen pieces on cells?
15. Which defense uses lymphocytes?

First vs. Second vs. Third Line of Defense

16. Which line of defense consists of physical and chemical barriers?
17. Which line of defense is specific?
18. Which line of defense is the inflammatory response part of?
19. Name the barriers involved in the first line of defense.
20. Name the cells/reactions involved in the second line of defense.
21. Name the cells/reactions involved in the third line of defense.

Types of Nonspecific Defenses

22. What does “nonspecific defense” mean?
23. What are the signs of an inflammatory response?
24. What causes an inflammatory response?
25. Which cells use endocytosis?
26. How does the heat in a fever kill pathogens?
27. Which defense traps pathogens?
28. Which defense breaks up pathogens, rendering them useless?
29. Why is the inflammatory response good?

Types of Specific Defenses

30. Which defense targets antigens found in cells?
31. Which defense targets antigens found in blood?
32. What signals helper T cells?
33. What is the role of plasma cells?
34. What is the role of antibodies?
35. Why are antigens marked with antibodies easily eaten by macrophages?
36. Which cell kills during cellular immunity?
37. Which cell kills during humoral immunity?
38. Name the two types of B cells.
39. Name the three types of T cells.
40. What is the function of memory B cells?
41. What is the function of memory T cells?

42. What do helper T cells signal B cells to do?

Vaccines and Disorders (allergies, HIV, autoimmune disease)

43. Which cells are involved in the allergic response?

44. Which cells does HIV attack?

45. How do vaccines work?

46. What are the effects of histamine?

47. Why are viruses such as HIV, cold, and flu so difficult to cure?

48. What causes the release of histamine?

Answers to Immune System Study Questions

1. nonspecific
2. specific
3. specific
4. nonspecific
5. nonspecific
6. nonspecific
7. specific
8. nonspecific
9. nonspecific
10. specific
11. specific
12. specific
13. specific
14. specific
15. specific
16. first
17. third
18. second
19. skin, mucus, enzymes, hair
20. phagocytes/macrophages, inflammation, fever
21. B cells (memory, plasma), T cells (helper, CTL, memory), humoral immunity, cellular immunity
22. It can fight a variety of pathogens
23. swelling, redness, pain
24. tissue damage caused by phagocytes, macrophages
25. phagocytes, macrophages
26. Denatures pathogens enzymes
27. mucus
28. enzymes
29. It signals for more blood flow so cells can be repaired quickly
30. cellular
31. humoral
32. antigen piece on surface of infected cells (cellular), antigen-antibody binding (humoral)
33. make antibodies
34. mark antigens; immobilize antigens
35. they cannot move
36. cytotoxic T lymphocytes (CTL)/ memory
37. phagocyte/macrophage
38. plasma, memory
39. helper, CTL, memory
40. make antibodies after the second antigen encounter
41. kill infected cells after the first antigen encounter
42. maintain the production of plasma cells and antibodies to fight antigens in blood
43. mast cells
44. helper T cells
45. inject patient with weakened dose of pathogen, allowing your body to develop antibodies and memory cells without getting sick
46. sneezing, itching, inflammation
47. they are always changing shape so they can't be recognized by memory cells
48. binding of an allergen to the antibodies on mast cells