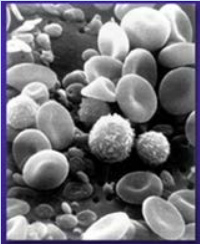


## Cells of the Immune System—Student Worksheet



### About This Worksheet

This worksheet complements the Click and Learn “Cells of the Immune System” developed in conjunction with the 2007 Holiday Lectures on Science, “AIDS: Evolution of an Epidemic.”

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Answer the following questions as you proceed through the activity slides.

1. Name one type of cell involved in each of the following processes:
  - a. Innate immunity: \_\_\_\_\_
  - b. Adaptive immunity: \_\_\_\_\_
  - c. Both adaptive and innate immunity: \_\_\_\_\_
2. Define *innate immune system*.

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3. Where are the cells of the adaptive immune system found in humans? \_\_\_\_\_

4. Watch the video on slide 3 and answer the following.
  - a. How do B cells react to antigens?

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b. Which cells conduct the immune system? \_\_\_\_\_

c. Which immune cells kill infected cells? \_\_\_\_\_

5. What is the purpose of humoral immunity?

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6. How does antibody specificity arise?
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7. Outline the specific steps involved in antibody production in response to infection with human immunodeficiency virus (HIV).

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8. Define *antigen*.

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9. A macrophage is also referred to as an antigen-presenting cell. Explain why that is an appropriate term.

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10. Why is antigen-presentation important in fighting infection?

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11. A T cell is a type of white blood cell that has surface receptors that recognize antigens. Does an individual T cell have the ability to recognize more than one type of antigen? Explain your answer.

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12. Explain the relationship between the antigen-presenting cells and helper T cells.

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13. Watch the video on slide 8 and answer the following questions.

a. What specifically results from the release of cytokines by helper T cells?

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b. What is the problem with helper T cells carrying out this function in HIV infection?

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14. What role do cytotoxic T cells play in fighting infection?

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15. What two molecules on the surface of a cytotoxic T cell help the cell recognize infected cells?

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16. What is the role of ubiquitin in host cells? Be specific.

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17. What is the role of an MHC class 1 protein? Be specific.

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18. What is the relationship between an MHC class 1 protein and a cytotoxic T cell?

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19. What is a potential problem with respect to the timing for when a cytotoxic T cell recognizes a virally infected cell?

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20. Summarize the main difference between the action of MHC class 1 and MHC class 2.

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