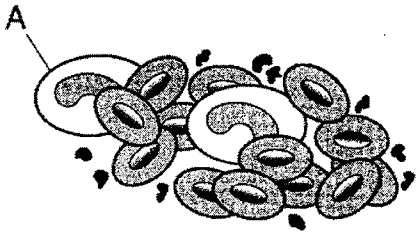
Immune System
Practice

1. The diagram below represents a microscopic view of blood.



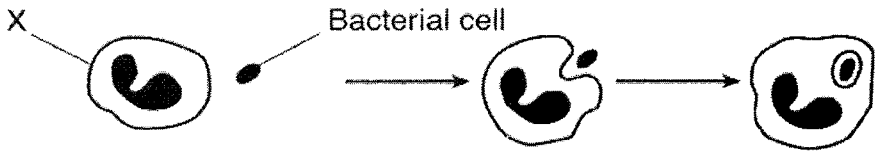
Cell *A* protects the body by producing specific chemicals in response to pathogens. Cell *A* is

1) a red blood cell
2) a bacteria cell
3) an insulin-producing cell
4) a white blood cell

2. In some people, substances such as peanuts, eggs, and milk cause an immune response. This response to usually harmless substances is most similar to the

1) action of the heart as the intensity of exercise increases
2) mechanism that regulates the activity of guard cells
3) action of white blood cells when certain bacteria enter the body
4) mechanism that maintains the proper level of antibiotics in the blood

3. The diagram below shows a cell in the human body engulfing a bacterial cell.



The cell labeled *X* is most likely a

1) red blood cell 2) white blood cell 3) liver cell 4) nerve cell

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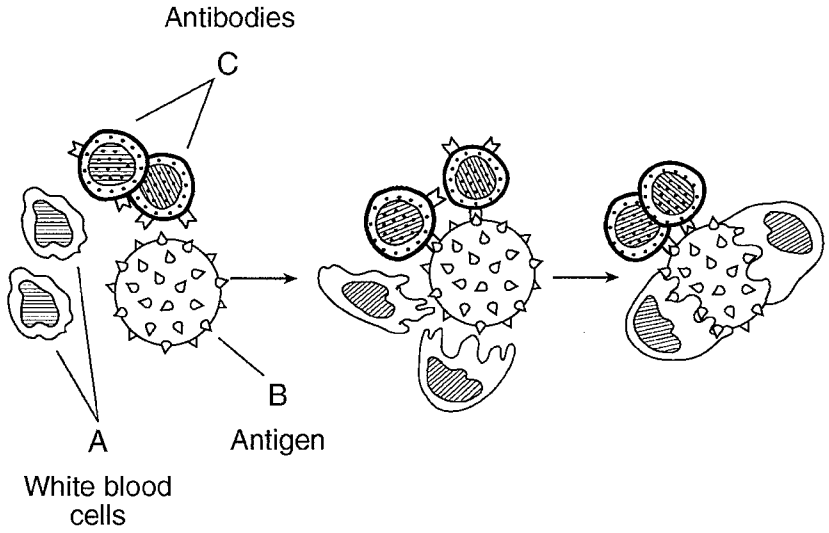
4. Which activity is *not* a function of white blood cells in response to an invasion of the body by bacteria?
   1) engulfing these bacteria
   2) producing antibodies to act against this type of bacteria
   3) preparing for future invasions of this type of bacteria
   4) speeding transmissions of nerve impulses to detect these bacteria

5. The diagram below represents one possible immune response that can occur in the human body.



The structures that are part of the immune system are represented by
1) *A*, only 2) *A* and *C*, only 3) *B* and *C*, only 4) *A*, *B*, and *C*

6. Which function is associated with phagocytes in the blood?
   1) initiating blood clots
   2) transporting dissolved nutrients
   3) producing hormones
   4) engulfing bacteria

7. Which phrase does not describe a way the human body responds to fight disease?
   1) destruction of infectious agents by white blood cells
   2) production of antibodies by white blood cells
   3) increased production of white blood cells
   4) production of pathogens by white blood cells

8. People who have AIDS are more likely than others to become ill with multiple infections because the pathogen that causes AIDS
   1) targets many body systems
   2) mutates, releasing toxins directly into the bloodstream
   3) increases the rate of enzyme activity in different types of body cells
   4) damages the immune system

9. It is recommended that people at risk for serious flu complications be vaccinated so that their bodies will produce
   1) antigens to fight the flu virus
   2) antibodies against the flu virus
   3) toxins to fight the infection caused by the flu virus
   4) antibiotics to reduce symptoms caused by the flu virus

10. Drugs to reduce the risk of rejection are given to organ transplant patients because the donated organ contains
   1) foreign antigens
   2) foreign antibodies
   3) DNA molecules
   4) pathogenic microbe

11. When a new viral infection appears in a population, scientists usually try to develop a vaccine against the virus. Which substances would most likely be contained in the new vaccine?
   1) live bacteria that ingest viruses
   2) white blood cells from an infected individual
   3) weakened viruses associated with the infection
   4) a variety of microbes that will attack the virus

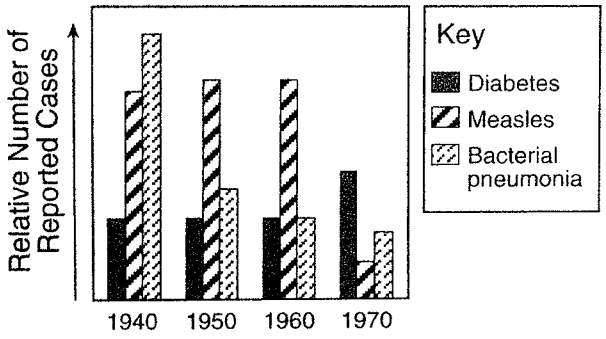
12. To replace burned skin, doctors can successfully transplant replacement skin taken from another part of the body of the burn victim. Which statement best explains why the transplanted skin is *not* rejected?
   1) The transplanted skin is damaged, making the immune system nonfunctional.
   2) The antigens of the replacement skin are the same as those of the damaged skin.
   3) Burn victims lose so much blood that white blood cells cannot cause an immune response.
   4) There is no blood supply to the skin, so mixing of antigens does not occur.

13. In 1995, during an Ebola virus outbreak, approximately 80% of the infected individuals died. Which statement is an inference that could be made based on this information?
   1) The individuals who survived were able to produce antibodies against the Ebola virus
   2) The individuals who survived were not exposed to the Ebola antigens
   3) Eighty percent of the population had a natural immunity to the Ebola virus.
   4) Eighty percent of the population was infected with a viral antigen.

14. Vaccinations help prepare the body to fight invasions of a specific pathogen by
   1) inhibiting antigen production
   2) stimulating antibody production
   3) inhibiting white blood cell production
   4) stimulating red blood cell production

15. Base your answer to the following question on the graph below and on your knowledge of biology.

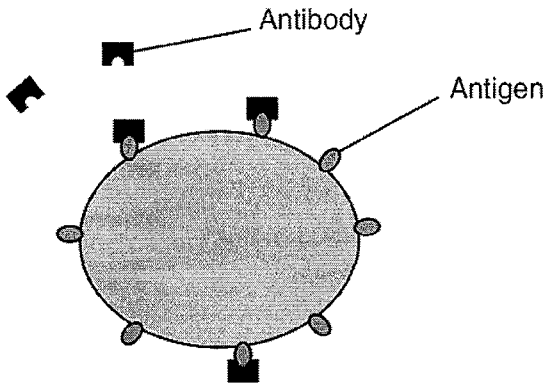
Incidence of Three Human Diseases in Four Different Years



Which statement provides the best possible reason for the decrease in number of cases of bacterial pneumonia from 1940 to 1970?
   1) As a result of genetic engineering, humans became immune to the bacteria.
   2) Antibiotics were made available for the treatment of bacterial infections.
   3) The bacteria did not respond to medical treatments.
   4) As a result of sexual reproduction, the bacteria evolved into a harmless form.

Immune System

16. An activity that occurs in the human body is shown below.



This activity helps to

1) provide protection against pathogens
2) produce antibiotics to control disease
3) eliminate harmful gene alterations
4) regulate production of ATP by the cell

17. Certain microbes, foreign tissues, and some cancerous cells can cause immune responses in the human body because all three contain

1) antigens
2) enzymes
3) fats
4) cytoplasm

18. In some individuals, the immune system attacks substances such as grass pollen that are usually harmless, resulting in

1) an allergic reaction
2) a form of cancer
3) an insulin imbalance
4) a mutation

19. State *one* way white blood cells protect the body from foreign microbes.

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Base your answers to questions **20** through **22** on the information below.

A student was visiting a friend at her home. Her friend owned two cats. After playing with the cats for a while, the student began to sneeze. Her nose began to run and her eyes became red, watery. and itchy. It also became hard for her to breathe. A few minutes after leaving her friend's home, the symptoms disappeared.

Provide a biological explanation for the symptoms the girl developed at her friend's house. In your response, be sure to:

20. State *one* reason why her symptoms are *not* likely due to an infections agent.

21. Identify the type of reaction the student was most likely experiencing.

22. Identify the body system that was responsible for triggering the reaction she experienced.

Base your answers to questions **23** through **25** on the question below and on your knowledge of biology.

Describe how a flu vaccine protects the human body.

23. State *one* reason the flu vaccine does *not* protect a person from other viral diseases, such as measles.

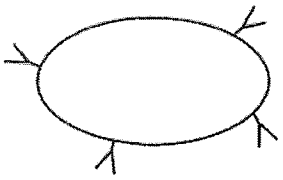
24. State how the human immune system reacts to the vaccine.

25. Identify what substance is in a flu vaccine that stimulates immunity.

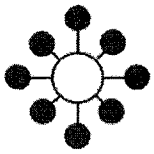
Immune System

26. Base your answer to the following question on the information below and on your knowledge of biology.

Proteins on the surface of a human cell and on a bird influenza virus are represented in the diagram below.



Human Cell



Bird Influenza Virus

In the space below, draw a change in the bird influenza virus that would allow it to infect this human cell.