What Is the Human Immune System?

Worksheet

The immune system has two main lines of defense: innate immunity (immediate, non-specific response) and adaptive immunity (specific, learned response with B cells and T cells).

Questions

1. Which type of white blood cell produces antibodies?

A) T cell
B) B cell
C) Phagocyte
D) Neutrophil

2. Which immune response is immediate but non-specific?

A) Adaptive
B) Innate
C) Allergic
D) Autoimmune

3. What do cytotoxic T cells destroy?

A) Antigens
B) Antibodies
C) Virus-infected cells
D) Bacteria in blood

4. How long does adaptive immunity take to develop?

A) Seconds
B) Minutes
C) 4-7 days
D) Months

5. Explain the role of antibodies in fighting infection.

6. What is the difference between innate and adaptive immunity?

7. How does a vaccine provide immunity without causing disease?

8. Define: What are the two main types of white blood cells in adaptive immunity?

9. Define: What is an antibody?

10. Define: What are phagocytes?

Answer Key

1. B) B cell - B cells differentiate into plasma cells, which produce antibodies.
2. B) Innate - Innate immunity is the first line of defense and responds to any pathogen.
3. C) Virus-infected cells - Cytotoxic T cells recognize and kill cells infected with virus or cancer cells.
4. C) 4-7 days - Adaptive immunity takes days because B and T cells must proliferate and differentiate.
5. B cells produce antibodies (Y-shaped proteins) specific to a pathogen's antigen. Antibodies bind to pathogens, 'tagging' them for destruction by phagocytes. Multiple antibodies can neutralize toxins and prevent viral entry.
6. Innate = immediate, non-specific defense (skin, stomach acid, macrophages). Adaptive = slow (4-7 days), specific (T cells, B cells, antibodies) but stronger and remembered for years.
7. Vaccine contains weakened/dead pathogen or antigen. Immune system recognizes it, produces antibodies and memory cells. If real pathogen invades, memory cells quickly activate, preventing or reducing infection severity.
8. T cells (attack infected cells) and B cells (produce antibodies).
9. A protein produced by B cells that binds to specific antigens to mark pathogens for destruction.
10. Immune cells (macrophages, neutrophils) that engulf and destroy pathogens.