

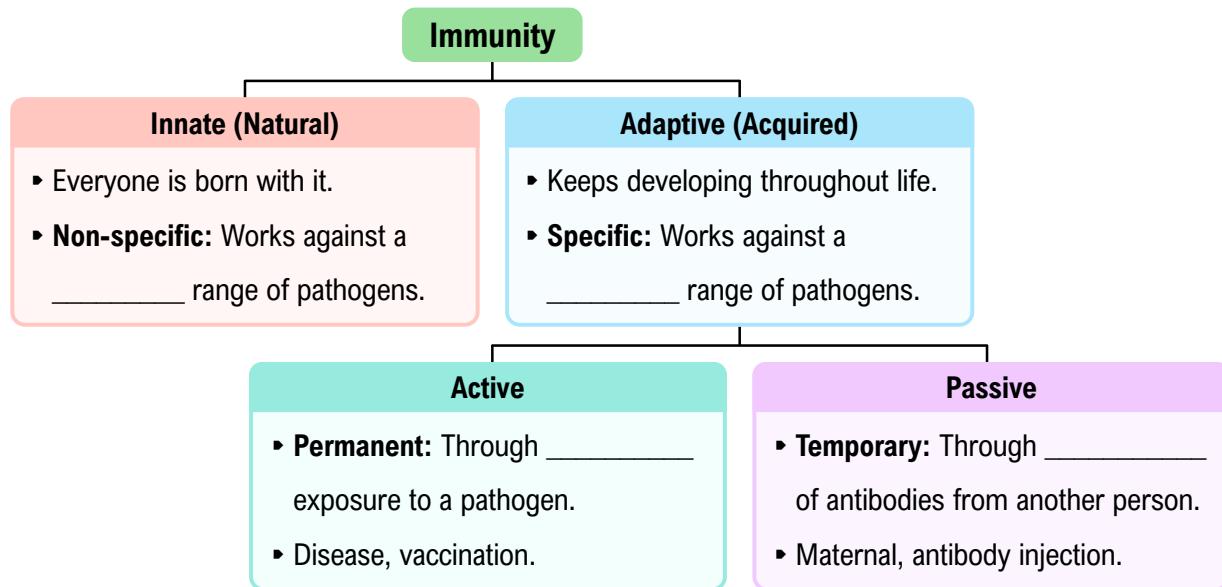
## **CONCEPT: OVERVIEW OF THE IMMUNE SYSTEM**

### **Introduction to Immune System**

- ◆ **Immune System:** Tissues, organs, & processes that constitute body's \_\_\_\_\_ against diseases.
- ◆ **Immunity:** Body's ability to defend itself against pathogens.
  - Uses \_\_\_\_\_ to identify pathogens & abnormal cells.
  - **Antigen:** Substances on cell \_\_\_\_\_ that serve as identity markers.

### **Types of the Immunity**

- ◆ Based on the function and specificity, immunity can be classified as:



**Y** **Antibody:** Y-shaped \_\_\_\_\_ produced by the immune system to fight pathogens.

## **EXAMPLE**

Which of the following statements about the immune system is incorrect?

- Antigens are substances on cell surfaces and help the immune system identify its own cells.
- Active immunity is permanent adaptive immunity and develops through exposure to a pathogen.
- Adaptive immunity is also known as acquired immunity and identifies and destroys specific pathogens.
- Vaccines provide passive immunity therefore yearly vaccination is required to maintain good health.

## **CONCEPT: OVERVIEW OF THE IMMUNE SYSTEM**

### **Immune Response Processes**

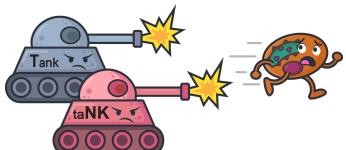
- ◆ Body's immune system has \_\_\_\_ distinct processes.
  - Each process uses \_\_\_\_\_ leukocytes.

#### **Humoral (Antibody-Mediated) Immunity**



- Involves production of \_\_\_\_-lymphocytes which produce antibodies.
- Antibodies \_\_\_\_\_ to pathogens to neutralize or mark them for destruction.

#### **Cellular (Cell-Mediated) Immunity**



- Involves production of \_\_\_\_-lymphocytes and natural killer (NK) cells.
- T-lymphocytes and NK cells are \_\_\_\_\_ and directly kill infected cells.

## **EXAMPLE**

Most people do not get chickenpox twice in their lives. Which of the following is a reasonable explanation for this?

- a) Chickenpox virus stimulates cellular immunity only, which gives lifelong protection from reinfection.
- b) Humoral immune system quickly identifies the chickenpox virus and destroys it using NK cells.
- c) The immune system stores antibodies from its cell-mediated response against the virus.
- d) Recovery from infection helps develop active immunity that provides long-lasting protection.

## **PRACTICE**

Which of the following is a correct statement about the immune system?

- a) Antigens are parts of pathogens that the immune system is unable to identify.
- b) T-lymphocytes are large cells that can ingest pathogens and other infected cells.
- c) Humoral immunity includes the production of B-lymphocytes which produce antibodies.
- d) Innate immune system is the body's first line of defense and relies on T-lymphocytes.