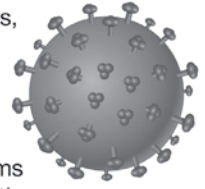




Name _____ Class _____ Date _____

An **infectious disease** is a disease that can be spread from one organism to another. Many infectious diseases, such as **HIV**, are caused by organisms that are too small to see without a microscope. Organisms that are the cause of diseases are called **pathogens**.



Body Defenses against Pathogens

There are two main parts to the immune system – the **innate** and **adaptive systems**. These two immune systems complement each other in reactions to a pathogen or harmful substance, and are closely connected to each other.

Innate Immune System

The **innate immune system** provides a general defense against pathogens, so it is also called the **nonspecific** immune system. It works mostly at the level of immune cells like **scavenger cells** or **killer cells**. These cells mostly fight bacterial infections.

Adaptive Immune System

In the **adaptive immune system**, particular agents like **antibodies** target very specific pathogens that the body has already been exposed to. That is why it is called a **learned defense** or a **specific immune response**. By constantly adapting and learning, the body can also fight against bacteria or viruses that change over time.

Innate Defense –

- **Barriers** to infection (skin, mucus, cilia, etc.)
- **Phagocytosis** by neutrophils, macrophages and dendritic cells may lead to initiation of an Immune Response

Adaptive Immune Response –

1. **APC** (Antigen Presenting Cell) activates CD4 Helper T-cells
2. **CD4 cells** stimulate B-cells to make antibodies
3. **Antibodies** coat viruses so they can't infect other cells, or mark them for destruction by phagocytes (like neutrophils)
4. **Helper T-cells** activate Killer T-cells to destroy pathogens & infected cells



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

dendritic cell

viral proteins

Dendritic cell engulfs virus = presents viral proteins on cell surface
Releases chemicals to initiate adaptive immune response

Killer T-cell injects toxins to destroy infected cell

How does HIV affect the immune system?

HIV specifically attacks **Helper T cells (CD4)** and uses them to make copies of new viruses. Many T-cells are destroyed in the process. If the body cannot replace T-cells fast enough, the immune system becomes weakened and can no longer launch a specific immune response. The body becomes susceptible to many opportunistic infections. This immunodeficiency is described in the name **acquired immunodeficiency syndrome**, or **AIDS**.





Name _____ Class _____ Date _____

Pathogens & Disease

Body Defenses against Pathogens

Innate Immune System

Adaptive Immune System

Draw an example of
Innate Defense

Draw an example of
Adaptive Immune Response



PREVIEW

Please [Sign In](#) or [Sign Up](#) to download
the printable version of this worksheet

How does HIV affect the immune system?