

The Immune System

= the body's defense against **infection** and **disease**

Immunity

= the capacity of the body to **resist & defend** against foreign invaders (**pathogens**)

- There are two types of immunity:

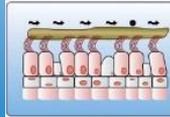
1) Non-Specific Immunity

- immunity that guards against all types of foreign invaders
- ie) **splinter, bacteria, fungus, foreign cells, etc.**
- provided by your innate immune system

- includes:

a) External Protection

- **skin** = physical barrier
- **mucus** = sticky substance lining body openings to trap pathogens
- **cilia** = tiny hairs that sweep that sweep pathogens away
- other **body fluids** (sweat, saliva, tears, stomach juices) = contain chemicals that destroy pathogens



b) Internal Protection

i) fever

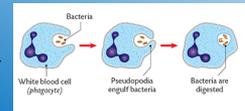
= creates an **unhospitable environment**

ii) leukocytes including:

- **Basophils (mast cells)**
- = cause **inflammatory response** by releasing histamines (swelling) & heparin (water)
- are the cause of **allergic reactions** (response to something not actually dangerous)

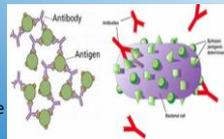


- **Phagocytes (including Natural Killer Cells)**
- **engulf and eat** pathogens



2) Specific Immunity

- acts against one specific type of invader
- each specific invader produces **antigens**
- **Antigens**
- : proteins that the body would not **recognize** present on substances that are foreign to your body (pathogens, etc)
- = stimulate the body to produce **antibodies**.



- **Antibodies**

: a protein molecule produced by the immune system used to **tag & destroy** pathogens

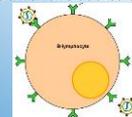
- **Lymphocytes**

: are specific white blood cells used in the production of antibodies & destruction of pathogens

: 3 main types of lymphocytes:

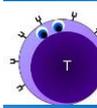
a) B cells = Munitions Officer

- type of lymphocytes that **secrete antibodies**



b) T cells = Guards

- type of lymphocytes that **identify & disable** infected body cells
- stored in the Thymus



c) Macrophage = Infantry

- **engulf and destroy** pathogens



