



IMMUNE SYSTEM

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AIMS

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- What is immunity?
- What is immune system?
- Common terminology
- Immune system arms
- Different types of defense
- Innate and adaptive immunity definition

immunity

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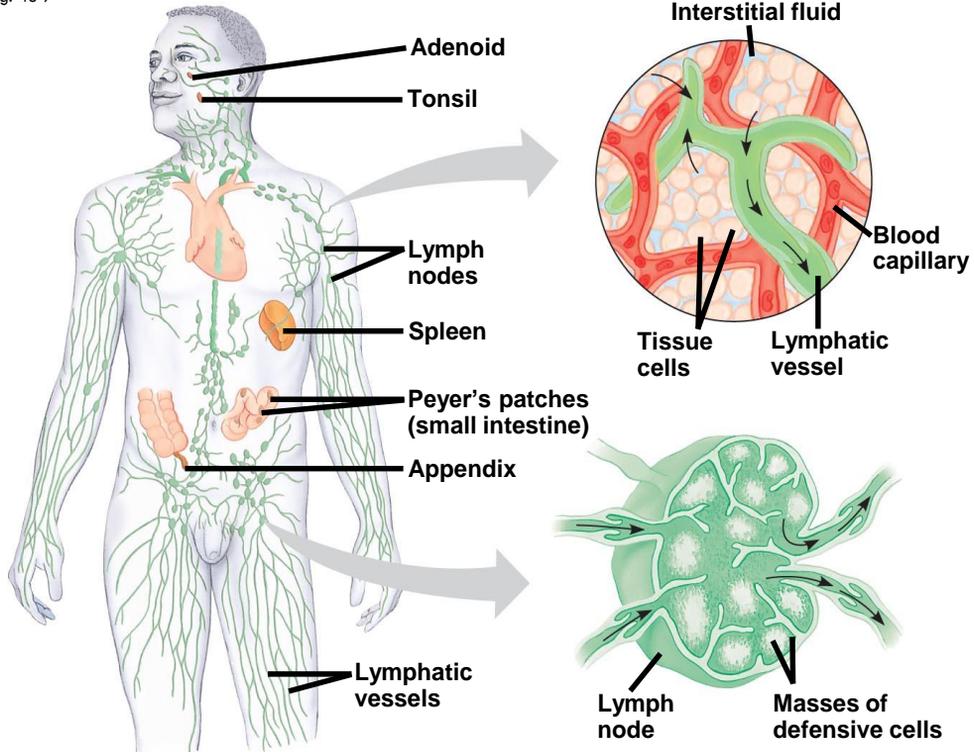
- Is the state of having sufficient biological defenses to avoid infection, disease, or other unwanted biological invasion.
- Immunity involves both specific and non-specific components

Immune system

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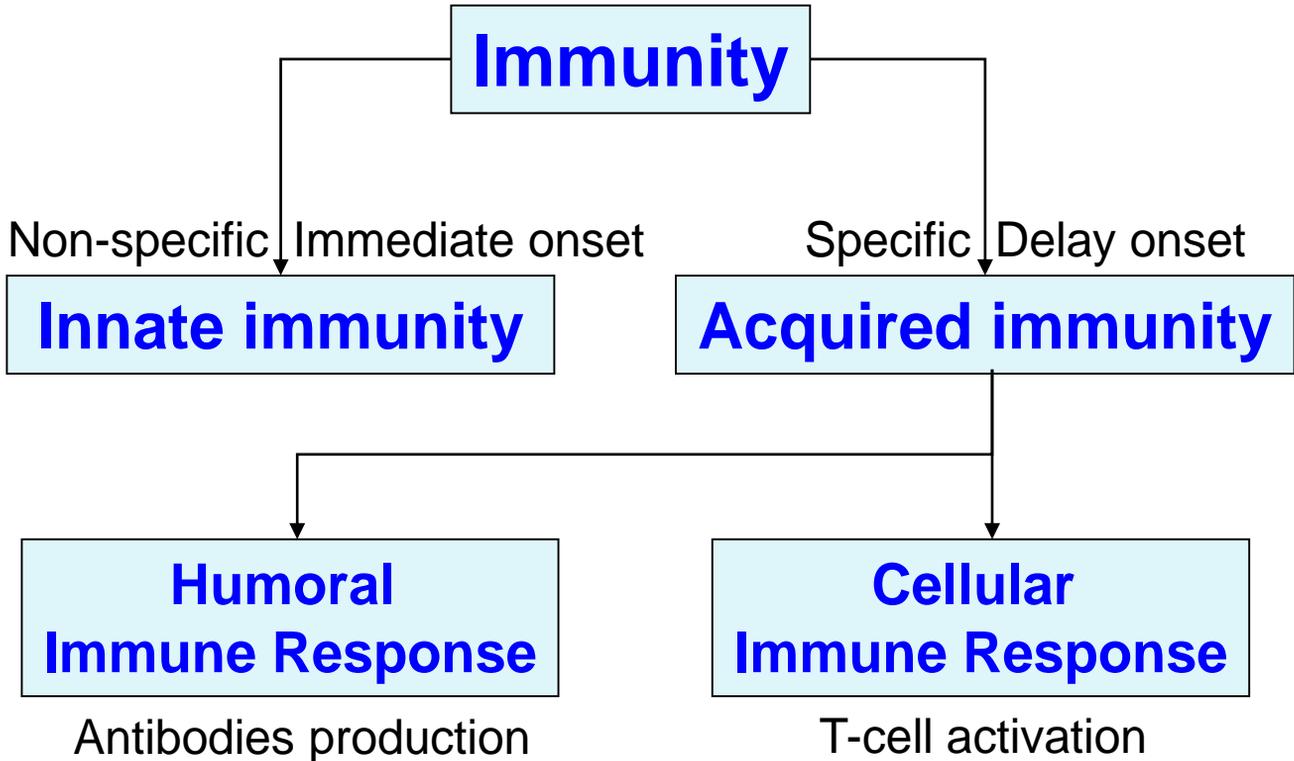
- Is a system of biological structures and processes within an organism that protects against disease.
- An immune system must detect a wide variety of foreign agents from the organism's own healthy tissue.
- The immune system recognizes foreign bodies and responds with the production of immune cells and proteins.

Fig. 43-7



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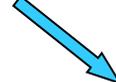
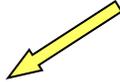
THE EVOLUTION OF IMMUNITY



The immune system

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Immune system



Innate (non-specific) immunity

- Anatomic barriers (Skin, mucous membranes)
- Physiological barriers (temperature, pH)
- Phagocytic Barriers (cells that eat invaders)
- Inflammatory barriers (redness, swelling, heat and pain)

Adaptive (specific) immunity

- Antigen specificity
- Diversity
- Immunological memory
- Self/nonself recognition

INNATE IMMUNITY

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- A white blood cell engulfs a microbe, then fuses with a lysosome to destroy the microbe

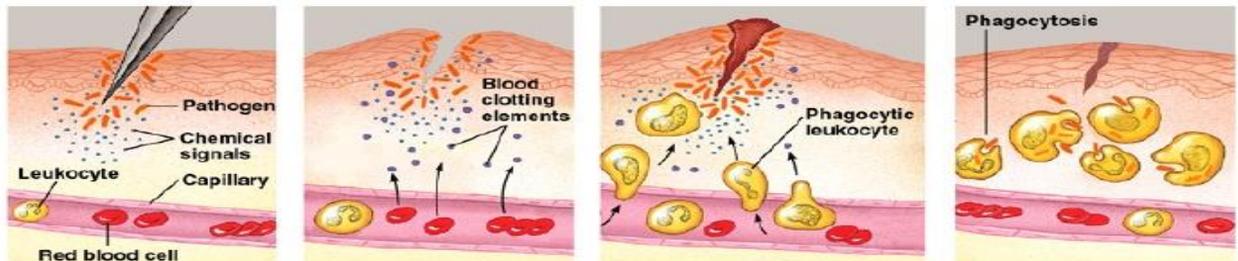
- There are different types of phagocytic cells:
 1. Neutrophils
 2. Macrophages
 3. Eosinophils
 4. Dendritic cells



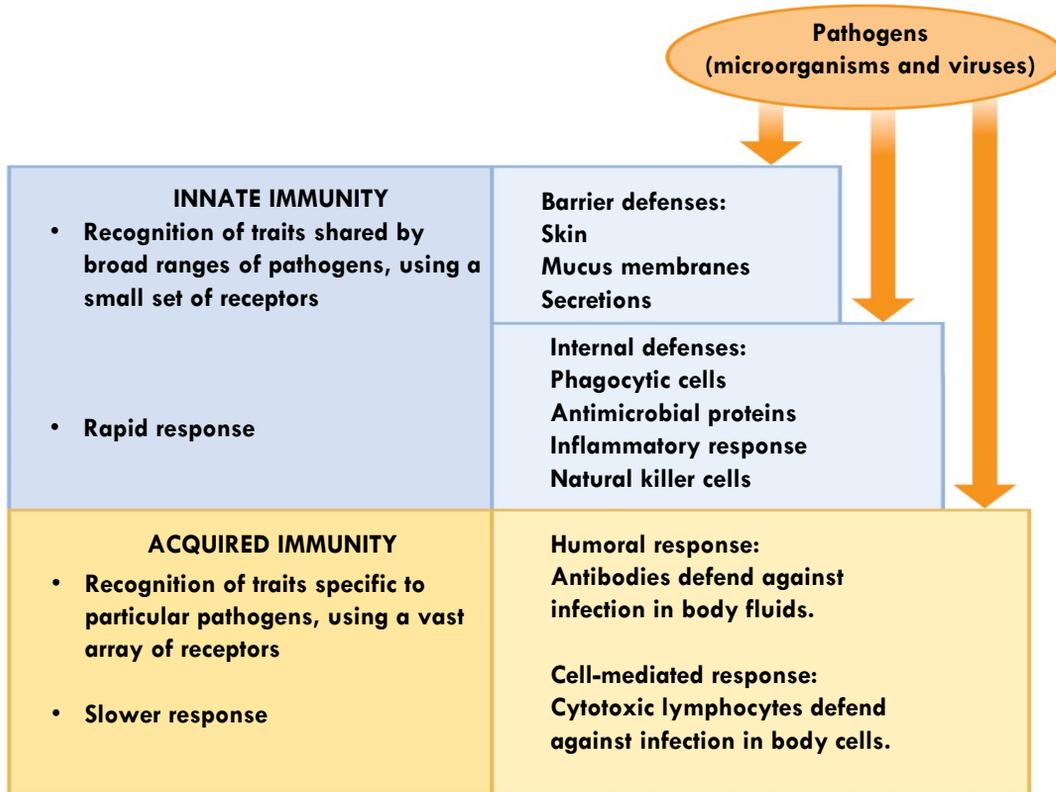
Inflammation

Localized Inflammatory Response

Fig. 43.5



1. Damaged cells release chem signals (histamine, prostaglandins)
2. Nearby capillaries dilate & become more permeable; fluid and clotting agents move from the blood to the site
3. Chemokines & other chemotactic factors attract phagocytes from the blood
4. Phagocytes consume pathogens & cell debris, producing pus



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**Ambition
is the first
step to
success.
The second
step is
action.**

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