3 Essential functions

1) Initial response to microbes

2) Eliminate damaged cells and initiate the process of tissue repair

3) Stimulate adaptive immune response

2 types of responses

1) Inflammation

2) Antiviral defence

Components of innate immunity

1.Anatomical barrier:

- Physical barriers - Chemical barriers

2.Cell:

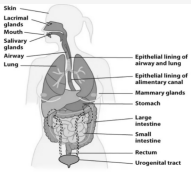
- Phagocytic cells - Dendritic cell - NK cells, ILC

3.Soluble protein:

- Complement - Cytokines, chemokines - Antimicrobial substances

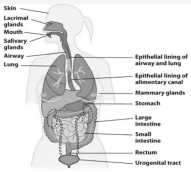
Anatomical barriers - Physical

Organ or tissue	Innate mechanisms protecting skin/epithelium
Skin	Antimicrobial peptides, fatty acids in sebum
Mouth and upper alimentary canal	Enzymes, antimicrobial peptides, and sweeping of surface by directional flow of fluid toward stomach
Stomach	Low pH, digestive enzymes, antimicrobial peptides, fluid flow toward intestine
Small intestine	Digestive enzymes, antimicrobial peptides, fluid flow to large intestine
Large intestine	Normal intestinal flora compete with invading microbes, fluid/feces expelled from rectum
Airway and lungs	Cilia sweep mucus outward, coughing, sneezing expel mucus, macrophages in alveoli of lungs
Urogenital tract	Flushing by urine, aggregation by urinary mucins; low pH, anti-microbial peptides, proteins in vaginal secretions
Salivary, lacrimal, and mammary glands	Flushing by secretions; anti-microbial peptides and proteins in vaginal secretions



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Cellular response

Phagocytic cells: - Macrophage, neutrophil

"Phagocytosis" 1) Dendritic cell -> activate adaptive immune response

The immune system 1) Detects/senses the presence of a pathogen 2) Mounts a response

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