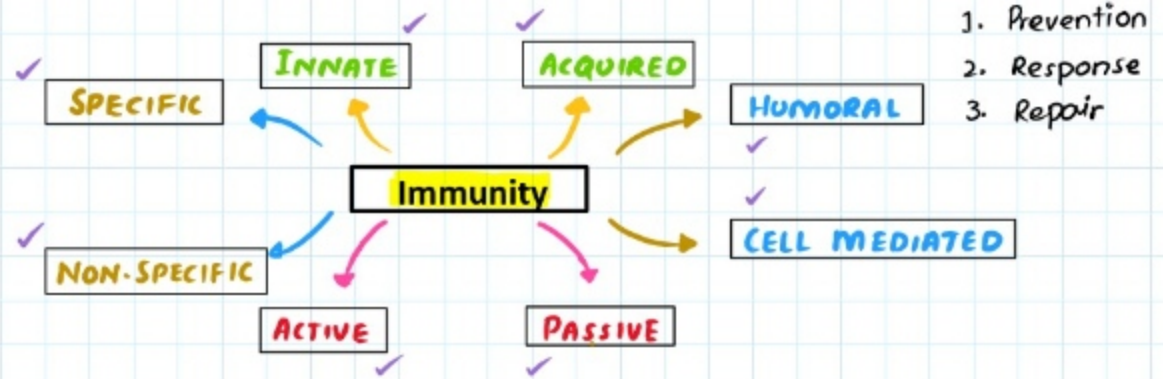
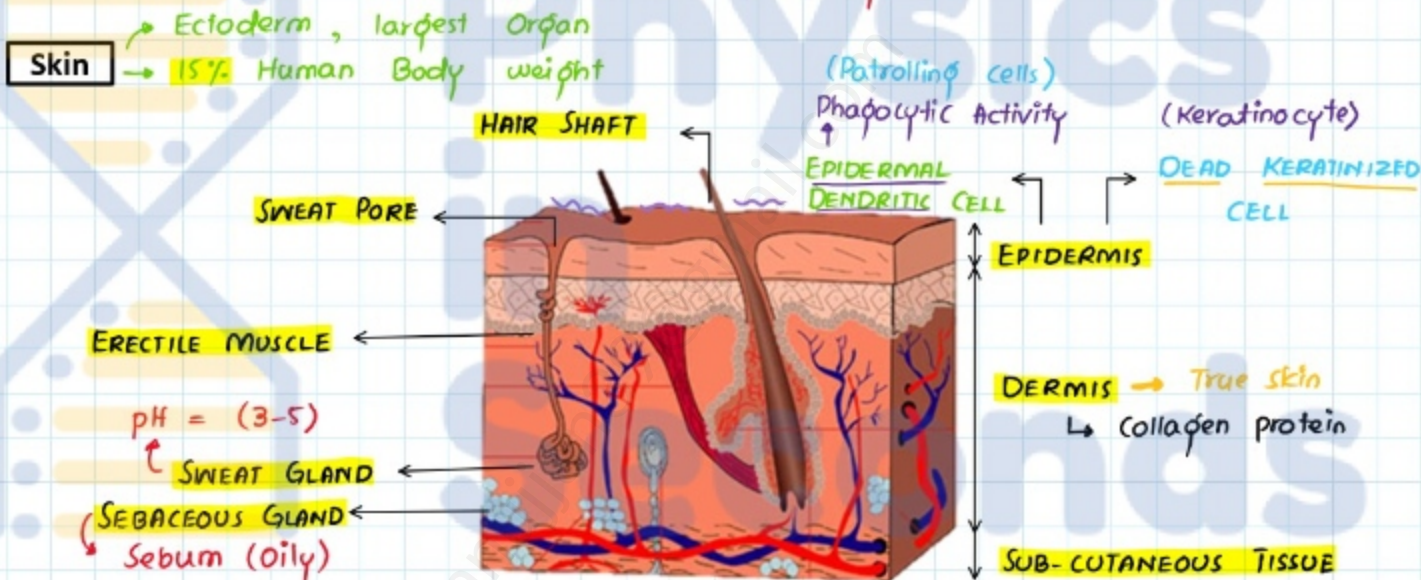


9.8 Immunity (Functions and Importance of main Components)



First Line of Defense

→ Layered Defence (Mechanical + Chemical)
Non-Specific / Innate Immunity



The course videos and lecture notes provided by Physics In Seconds are for educational and informational purposes only and protected by local copyright laws.

Perspiration

→ Sweating

→ Sweat gland Activity

→ Sweat

• Salts → Salination

• Enzyme → Lysozyme

Lactic Acid (Natural Antibiotic)

Mucous Membranes

- Digestive System
- Respiratory System
- Reproductive System

Sebum

→ Sebaceous / Oil glands

→ Oil prevent against pathogens

→ Provision of insulation.

Second Line of Defense

→ Non-Specific

- Phagocytic Activity
- Inflammation
- Temperature ↑↑ (Fever)

MONOCYTE (10-20 H in Blood)

Phagocytic Cells

Neutrophils

MONOCYTE (10-20 H in Blood)

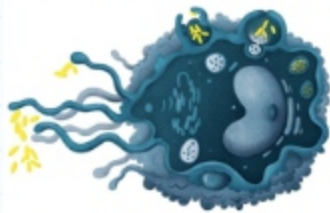
Phagocytic Cells

✓ PATROL CELLS

Macrophages

→ 2-3%

- In tissue → Agranulocyte



Life ↑↑

→ Irregular Shaped

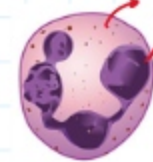
- Dust cells (Alveolar Macrophages) → Lungs
- Kupffer Cells → Liver
- Dendritic Cells → Skin + Kidney
- Microglial cells → CNS
- Osteoclast → Bone

Neutrophils

Microphages

62-70%

- Granulocyte → Blood

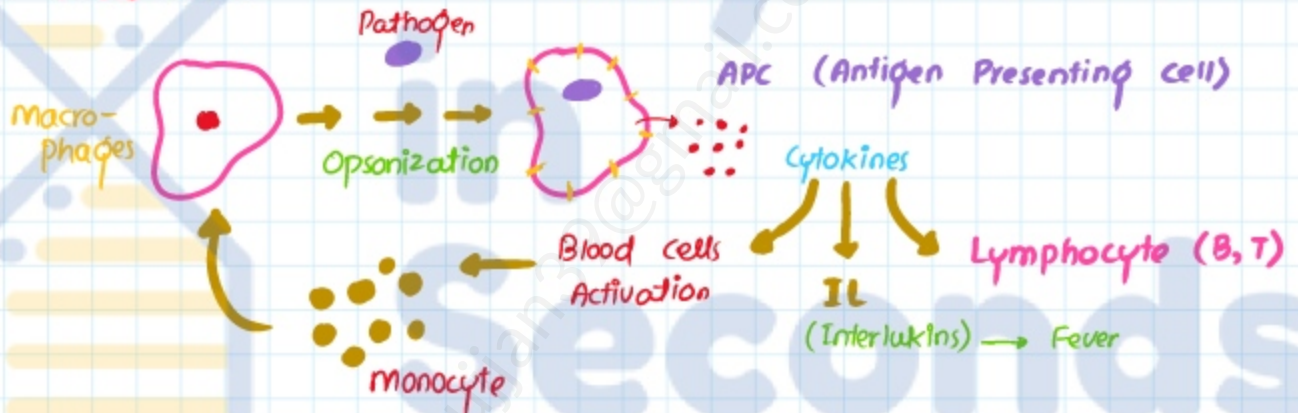


Life ↓↓

Granules

lobular nucleus

- Lysozyme production
- Suppination (Pus formation)



The course videos and lecture notes provided by Physics for Scientists and Engineers are for educational and informational purposes only and are protected by local copyright laws.

Unauthorised reproduction or distribution is strictly prohibited. By accessing and using these materials, you agree to use them solely for personal, non-commercial use and will not hold the copyright holder liable for any damages.

By accessing and using the materials, you also agree to abide by all local copyright laws.

NK-cells are induced by interferons or macrophage derived cytokines

Natural Killer Cells

Part of Innate Immunity

→ Cytotoxic T-cells

→ Short termed attack

NK-cell



- Induces apoptosis (Programmed cell death)
- Induces lysis

Protein → formed by Liver

Complement System

→ Series of Protein

20-30

30 ↑↑ (FTE)

Perforins

→ Make pores on Host cell. / Permeability Enhancement

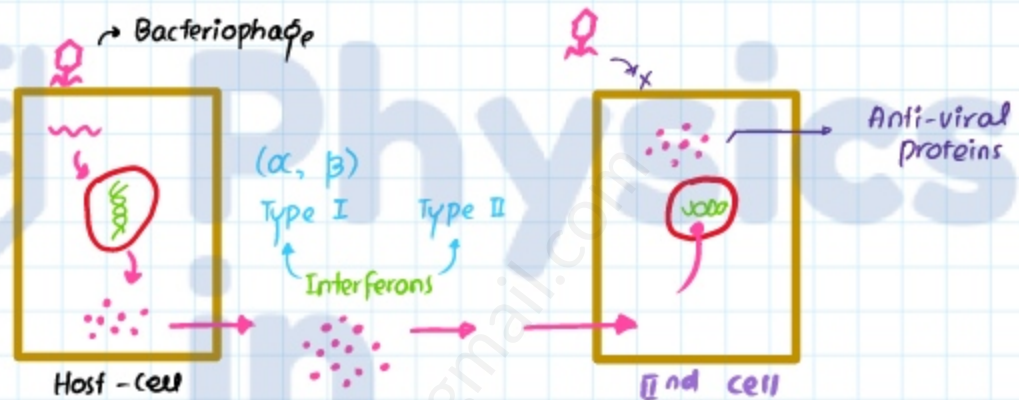
Perforins → Make pores on Host cell. / Permeability Enhancement



Intercellular

Interferons

Produced by viral infection



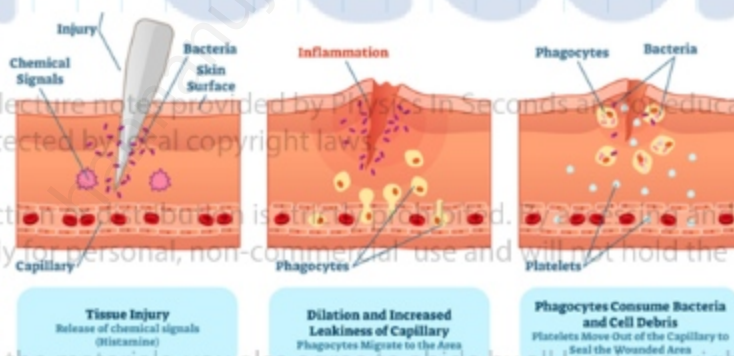
Localized Response → **Inflammatory Response** → Non-specific

Tissue Injury

- Histamines
- Serotonin
- Bradykinin
- Prostaglandin

Unauthorised reproduction and lecture notes provided by Physics In Seconds are strictly prohibited. For personal and educational purposes only and protected by legal copyright laws. By accessing and using the materials, you also agree to abide by all local copyright laws.

By accessing and using the materials, you also agree to abide by all local copyright laws.



CLASSICAL SIGNS

- HEAT
- RED
- PAIN
- SWELLING
- LOSS OF FUNCTION

Edema

Marker for malfunctioning

Fever → **Pyrexia**, Raised body temperature (Normal temp → 37°C)

↓ Non-specific Response

marker that there is something wrong in body

Pathogens →

Endogenous (WBC)

Pyrogens → Hypothalamus thermostat (Higher Set Point)

Endogenous
(WBC)

- HIGH TEMP :**
- Phagocytic activity $\uparrow\uparrow$
 - Iron concentration in Blood $\downarrow\downarrow$
 - Growth of Bacteria $\downarrow\downarrow$



Physics in Seconds

The course videos and lecture notes provided by Physics In Seconds are for educational and informational purposes only and protected by local copyright laws.

Unauthorised reproduction or distribution is strictly prohibited. By accessing and using these materials, you agree to use them solely for personal, non-commercial use and will not hold the copyright holder liable for any damages.

By accessing and using the materials, you also agree to abide by all local copyright laws.