

Day 6 Immunology

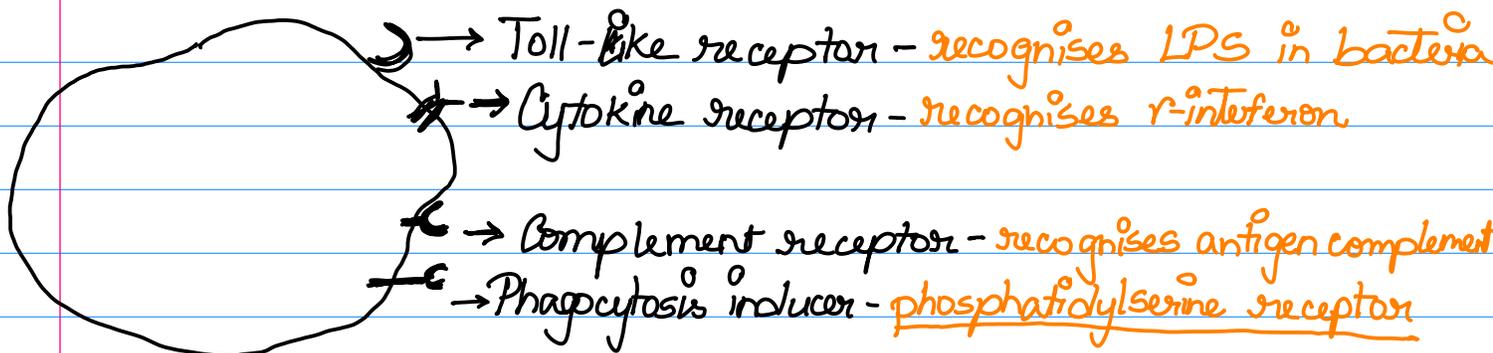
Monocytes / Macrophage

- ~5% of WBC
- migrates into tissues & become macrophages
- short lifespan of 1-7 days

Tissue-resident macrophages

- can be derived from (yolk sac or fetal liver precursors) or (monocytes) - cannot be differentiated from each other
- have self-renewal capacity → can maintain stable nos
- assume specialised phenotypes, depending on the organ, e.g., Kupffer cells, alveolar macrophages, microglial cells
- $\left\{ \begin{array}{l} \rightarrow M1 - \text{effector cells that eliminate pathogens} \\ \rightarrow M2 - \text{inhibitory cells that help in tissue remodeling, repair, and tumor growth} \end{array} \right.$

Functions of macrophages



Mast Cells

- derived from bone-marrow - mature only after leaving blood
- most abundant in skin and mucosal epithelia
- Content of granules:
 - ① Histamine
 - ② Acidic proteoglycans
 - ③ can synthesize and release cytokines & inflammatory lipid mediators

- mast cells express high-affinity plasma membrane receptors for **IgE**

↳ coats mast cells → cross-linking with antigen/allergen → Mast cell activation

Q: Why would the body not treat allergens like a regular antigen? Why IgE?

The allergen does not differ from regular antigens - except that it triggers IgE response instead of IgG and IgM.

Basophils

- least abundant granulocyte (< 1%)
- immediate hypersensitivity disorders + autoimmune disorders
- differentiate from Myeloid Stem Cells under IL-3
- granule contains histamine
 - ↳ ↑ smooth muscle activity
 - ↳ ↑ blood vessel permeability

Eosinophils

- granular leukocytes (polymorphonuclear)
- defense against multicellular parasitic organisms
 - ↳ how do they recognise?
 - ↳ bind to antibody-coated parasite through surface- F_c receptors → degranulate on parasite's surface

Contents of granule:

- ① peroxidases
- ② major basic protein
- ③ histaminase