Day 4 (Immunology)

Components of Blood

Blood

- **Plasma (55%)**
  - Proteins
  - Water
  - Other Solutes (ions, nutrients, waste products, gases, resp. substances)
- **Formed Elements (45%)**
  - Platelets
  - Leukocytes
  - Erythrocytes

Leukocytes are of different kinds. How do we differentiate between them?

Cluster of Differentiation (CD) molecules

- important for differentiating between functional capacities of cells. – indicators
- 3 molecules associated with T cells
- CD3
  - → coreceptor of TCR
  - → composed of 6 polypeptides
  - → involved in transmembrane signaling and T cell

activation

Pro-Thymocytes (T cell precursor)

→ all T cells are $CD3^+$ - initially expressed in 1
→ associated with TCR

Note

1. B cells, granulocytes, macrophages, are all negative for CD3
2. NK cells are also CD3 ve, but express ε chain of CD3.

CD4

- glycoprotein capable of recognising non-peptide binding portion of MHC class II molecules.
- expressed on two-thirds of mature T cells
- CD4+ T cells are called T_H or helper T cells
- helper cells are supposed to send signals to T_C cells to destroy infectious pathogen.
- member of the immunoglobulin superfamily

Note:
also presented in monocytes, macrophages & dendritic cells.

CD8

- Transmembrane glycoprotein
- two-chain cell surface molecule
- expressed as a homodimer or a heterodimer
- recognises non-peptide binding portions of MHC Class-I molecules.
- affinity keeps the T_c cell and the target pathogen close together during antigen-specific activation.

Note

Can be found on NK cells & dendritic cells