



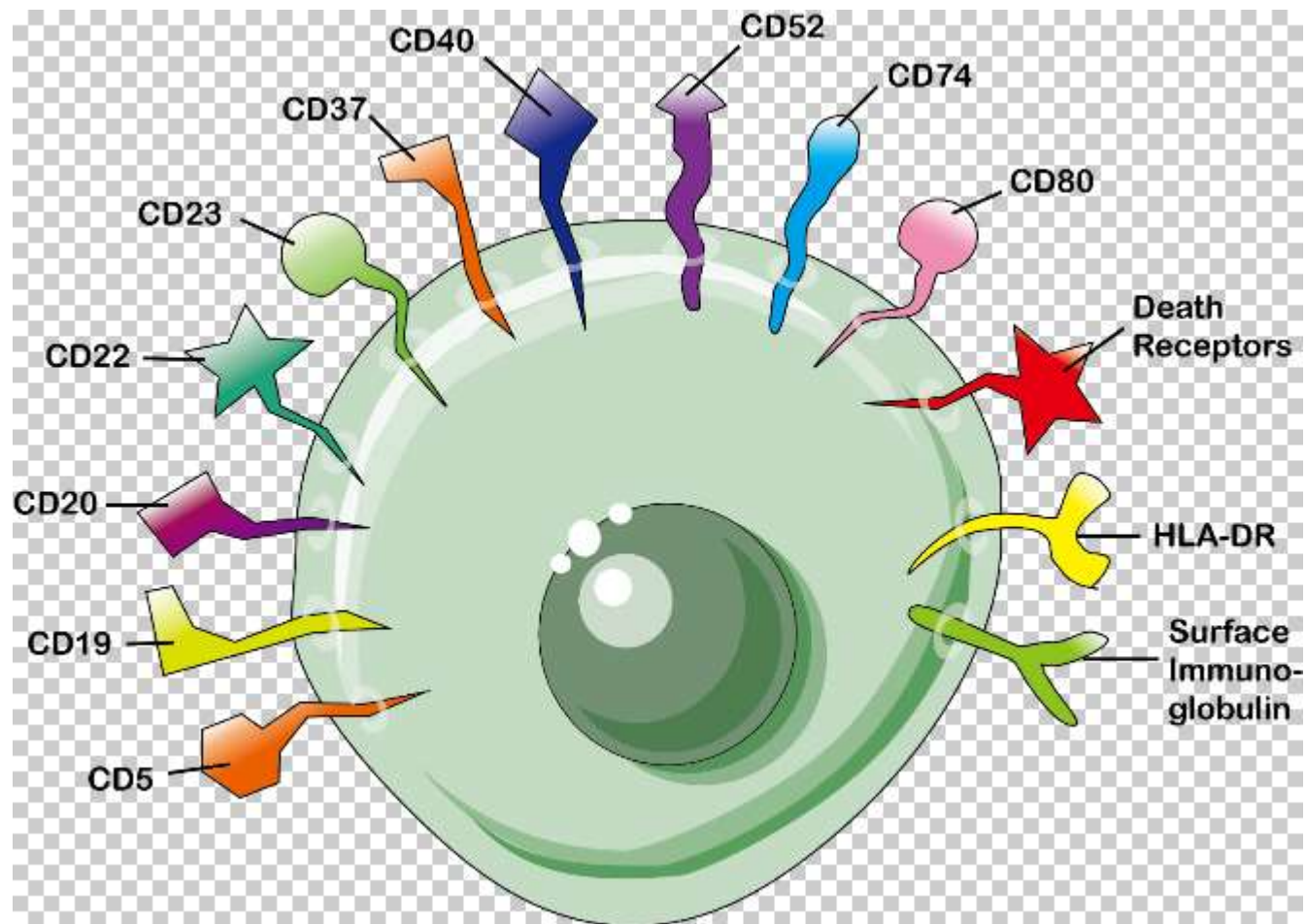
CD ANTIGENS

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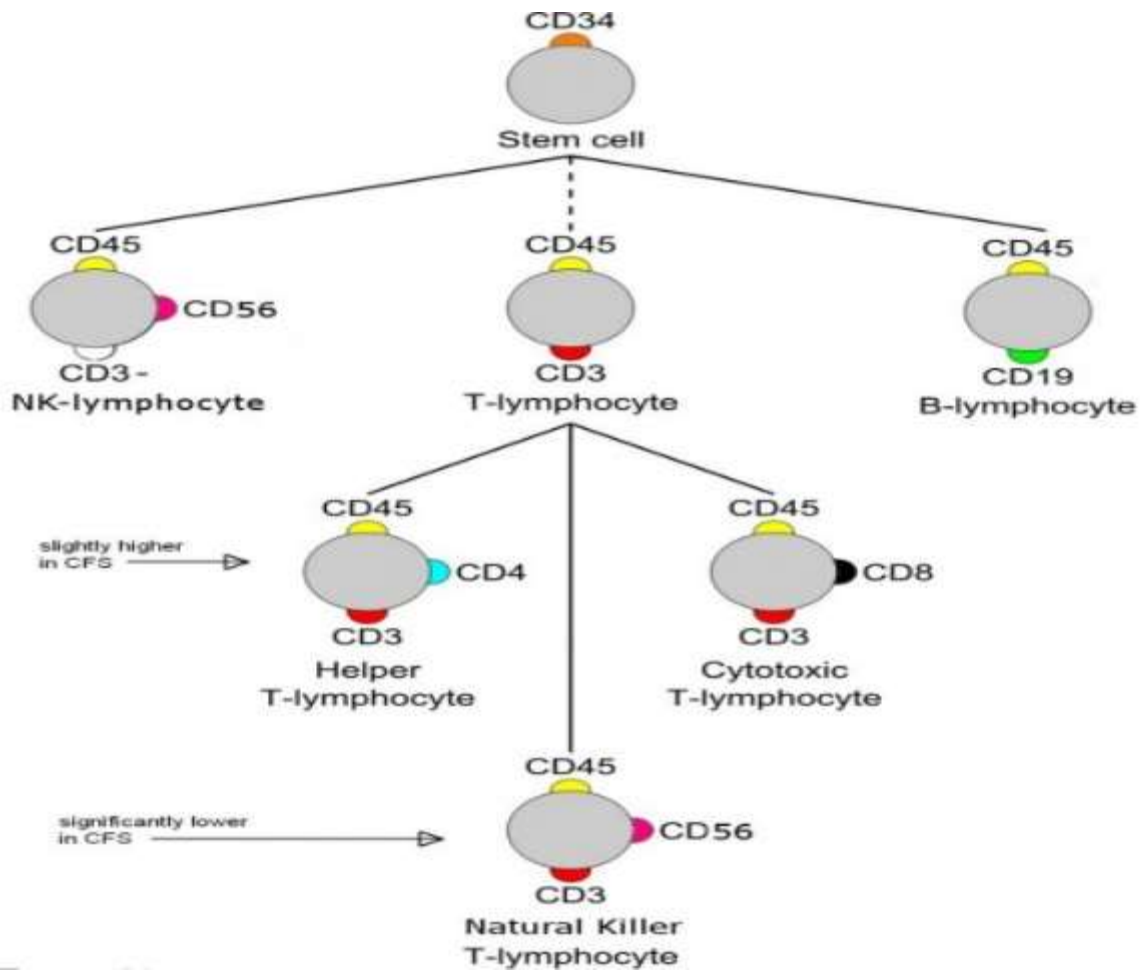
CLUSTER OF DIFFERENTIATION (CD)

- These are cell surface antigens of all cells which are recognized by two or more (cluster) monoclonal antibodies (mAbs).
- The **CD nomenclature** was proposed and established in the 1st International Workshop and Conference on Human Leukocyte Differentiation Antigens (HLDA) held in Paris in 1982.
- The system was intended for the classification of the many mAbs generated by different laboratories around the world against identical molecules on the surface of leukocytes.
- Later its use was expanded to many other cell types, and more than 320 CD unique clusters and subclusters have been identified till today.
- The proposed surface molecule is assigned a CD number once two specific monoclonal antibodies (mAb) are shown to bind to the molecule. **This no. is called as CD No.**
- If the molecule has not been well-characterized, or has only one mAb, it is usually given the provisional indicator "w" (as in "CDw186").
- Numbers are assigned arbitrarily; more than 400 molecules identified so far















CLUSTER OF DIFFERENTIATION contd.

- CD antigens are proteins or antigen markers that serve as **receptors** and **ligands** and **regulate cell signalling** (a molecule that activates a receptor) by generating a signal cascade that alter the behaviour of the cell
- Some CD proteins do not play a role in cell signaling, but have other functions, such as cell adhesion.
- The cluster of differentiation (CD) antigens allow for the identification of each molecule's biochemical properties and cellular distribution
- Some CD molecules are expressed at all developmental stages of a cell lineage, whereas some may be expressed only at a particular stage or on mature cells, eg. CD34 is expressed only on stem cells of lymphoid lineage whereas CD3 on mature T-cells
- Some CD molecules are unique to a particular cell lineage, eg. CD3 is a pan T-cell marker



CD antigens by differentiation cell

		Key Antigens-Human		Key Antigens-Human
T Cell		CD3 CD4 CD8	Monocyte	 CD33
B Cell		CD19 CD20	Granulocyte	 CD66b
Dendritic Cell		CD11c CD123	Platelet	 CD41 CD61 CD62
NK Cell		CD56	Erythrocyte	 CD235a
Stem Cell		CD34	Endothelial	 CD146
Macrophage		CD14	Epithelial	 CD326

IMMUNOPHENOTYPING

Immunophenotyping

A process that uses antibodies to identify cells based on the types of antigens or markers on the surface of the cells. This process is used to diagnose specific types of leukemia lymphoma and other cells of the immune system.

Clusters of Differentiation (CD) markers are widely used for immunophenotyping, using various methods including flow cytometry.

