CELLS OF THE IMMUNE RESPONSE:

Immune responsive cells can be divided into five groups based on:

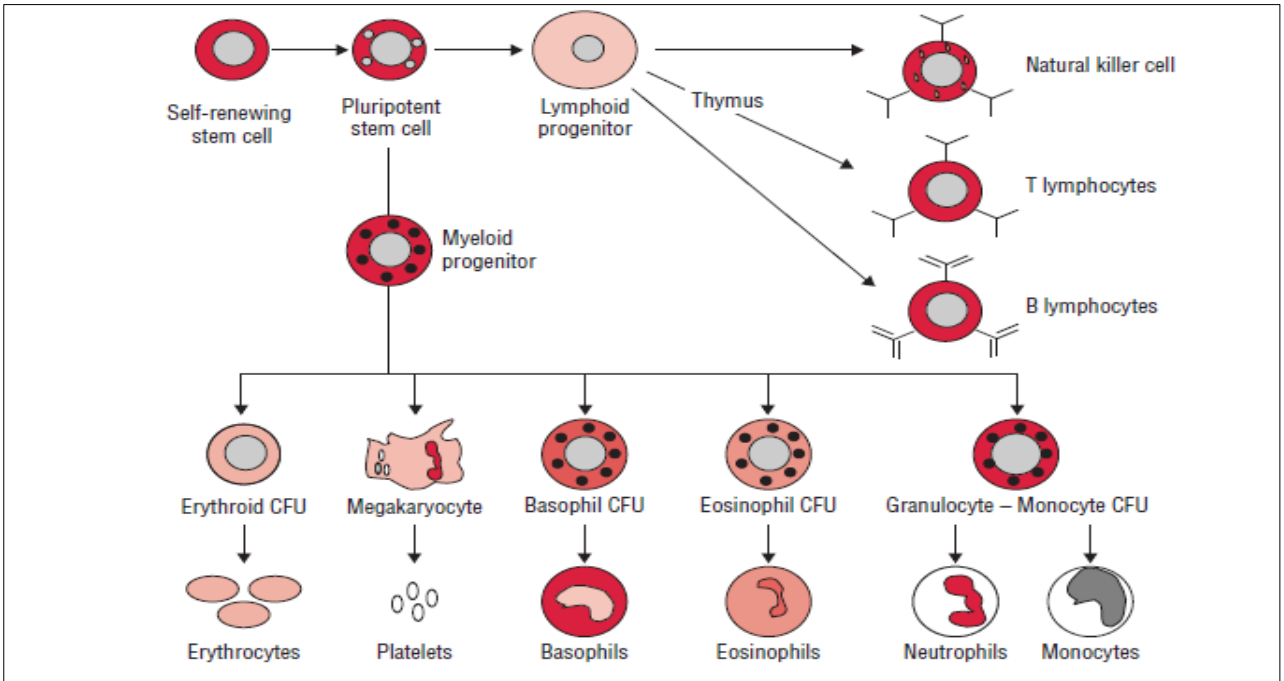
1) The presence of specific surface components .

2) Function .

B-cells (B lymphocytes), T-cells (T lymphocytes), Accessory cells (Macrophages and other antigen-presenting cells), Killer cells (NK and K cells), and Mast cells. Some of the properties of each group are listed below.

Cell group	Surface components	Function
1- B-lymphocytes	**a)** Surface immunoglobulin (Ag recognition) **b)** Immunoglobulin Fc receptor **c)** Class II Major Histocompatibility Complex (MHC) molecule (Ag presentation)	**a)** Direct antigen recognition **b)** Differentiation into antibody-producing plasma cells **c)** Antigen presentation within Class II MHC
2- T-lymphocytes	**a)** CD3 molecule **b)** T-cell receptor (TCR, Ag recognition)	Involved in both humoral and cell-mediated responses
a) Helper T-cells (T_H)	CD4 molecule	**a)** Recognizes antigen presented within Class II MHC **b)** Promotes differentiation of B-cells and cytotoxic T-cells **c)** Activates macrophages
b) Suppressor T-cells (TS)	CD8 molecule	Downregulates the activities of other cells
c) Cytotoxic T-cells (CTL)	CD8 molecule	**a)** Recognizes antigen presented within Class I MHC **b)** Kills cells expressing appropriate antigen
3-Accessory cells	Variable	Phagocytosis and cell killing
a) Macrophages	**a)** Immunoglobulin Fc receptor **b)** Complement component C3b receptor **c)** Class II MHC molecule	**a)** Bind Fc portion of immunoglobulin (enhances phagocytosis) **b)** Bind complement component C3b (enhances phagocytosis)

		c) Antigen presentation within Class II MHC **d)** Secrete IL-1 (macrokine) promoting T-cell differentiation and proliferation **e)** Can be "activated" by T-cell lymphokines
b) Dendritic cells	Class II MHC molecule	Antigen presentation within Class II MHC
c)Polymorphonuclear cell (PMNs)	**a)** Immunoglobulin Fc receptor **b)** Complement component C3b receptor	**a)** Bind Fc portion of immunoglobulin (enhances phagocytosis) **b)** Bind complement component C3b (enhances phagocytosis)
4-Killer cells	Variable	Direct cell killing
a) NK cells	Unknown	Kills variety of target cells (e.g. tumor cells, virus-infected cells, transplanted cells)
b) K cells	Immunoglobulin Fc receptor	**a)** Bind Fc portion of immunoglobulin. **b)** Kills antibody-coated target cells (antibody-dependent cell-mediated cytotoxicity, ADCC).
5-Mast cells	High affinity IgE Fc receptors	Bind IgE and initiate allergic responses by release of histamine



Proliferation and development of cells of lymphoreticular system.