

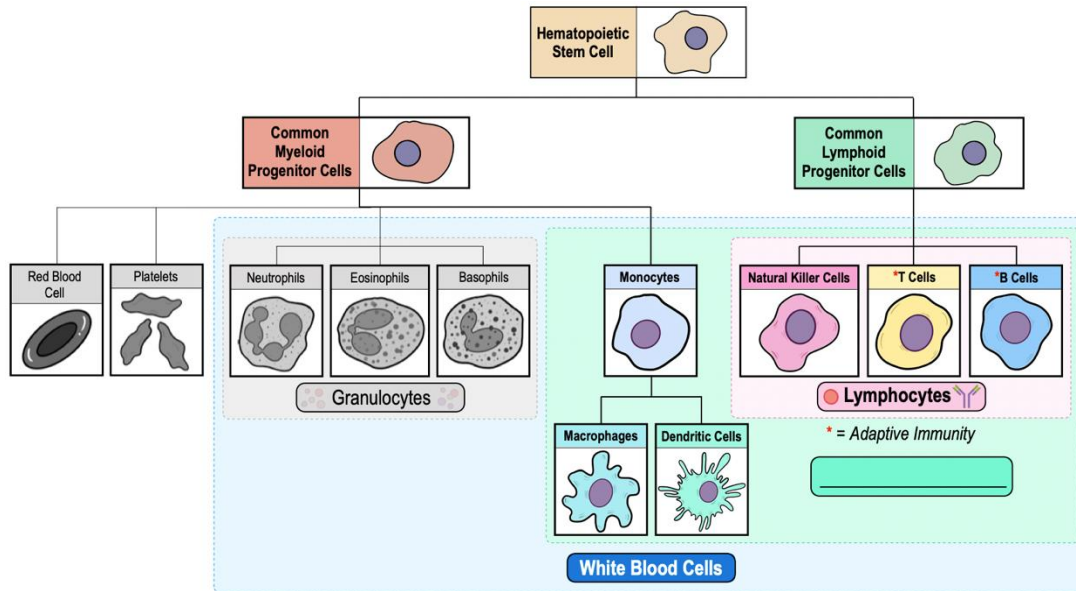
CONCEPT: CELLS OF THE INNATE IMMUNE SYSTEM: AGRANULOCYTES

• **Agranulocytes:** white blood cells with cytoplasmic granules that are _____ visible under a light microscope.

• There are _____ types of agranulocytes:

1) _____: leukocytes that circulate the blood & can develop into *macrophages* or *dendritic cells*.

2) **Lymphocytes:** includes leukocytes involved in _____ immunity (covered in separate video).



Monocytes

• Monocytes develop into one of _____ types of *phagocytic cells*:

1) **Macrophages:** phagocytic, sentinel cells that respond *directly* to an infection & can alert other host defenses.

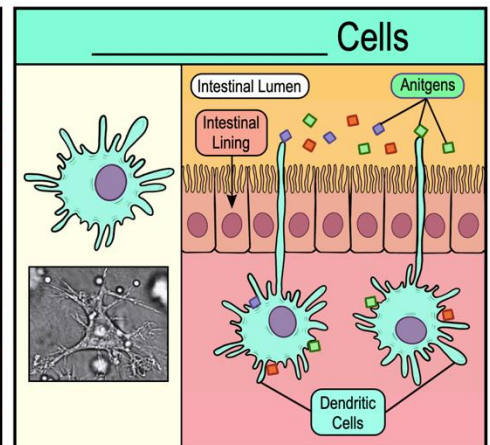
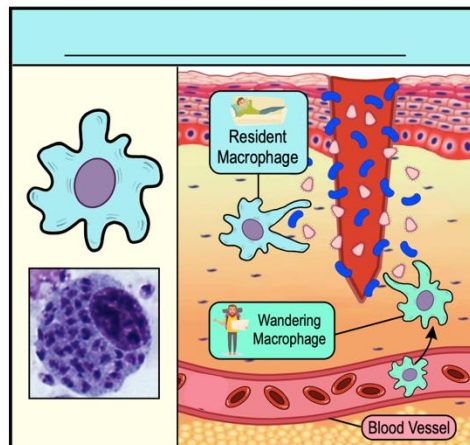
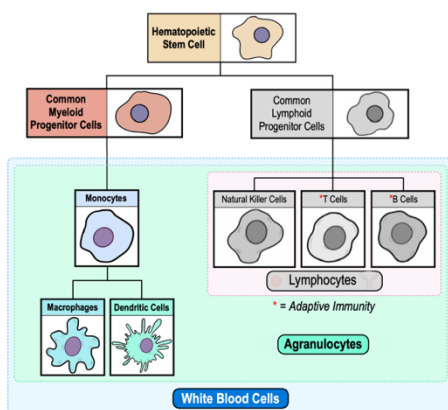
□ _____ **Macrophages:** *reside* permanently in specific tissues (remain *stationary* in tissues).

□ **Wandering Macrophages:** _____ through the blood to *other* sites of infection.

□ **Giant Cells:** macrophages fused together to increase their destructive ability.

2) **Dendritic Cells:** sentinel cells with long appendages that reside in tissues & alert/initiate *adaptive immunity*.

□ _____ pathogens in tissues, then present them to cells of the *adaptive immune system*.



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PRACTICE: All of the following are major differences between macrophages & neutrophils except which of these answers?

- a) Macrophages can perform phagocytosis while neutrophils cannot.
- b) Macrophages kill microbes by “eating” them. Neutrophils kill microbes with hydrolytic enzymes and/or phagocytosis.
- c) Neutrophils circulate the bloodstream while resident macrophages reside in tissues.
- d) Neutrophils are granulocytes while macrophages are agranulocytes.

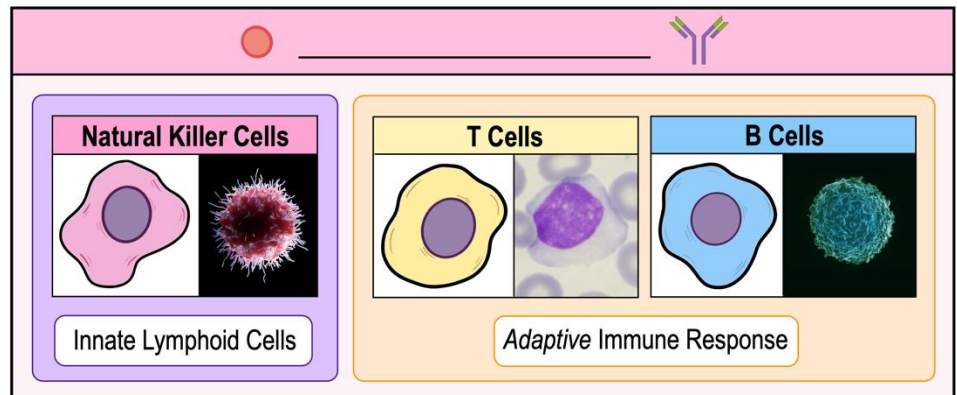
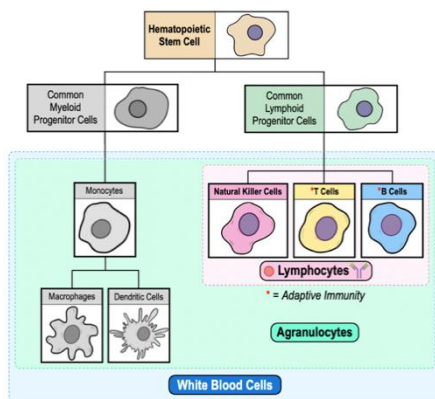
PRACTICE: Monocytes can differentiate into which types of immune cells?

- a) Basophils & macrophages.
- b) Neutrophils & dendritic cells.
- c) Macrophages & dendritic cells.
- d) Mast cells & macrophages.

Introduction to Lymphocytes

● **Recall: Lymphocytes:** includes leukocytes involved in _____ immunity (covered in other videos).

- 2 major groups of lymphocytes: 1) _____ cells & 2) _____ cells
- Both respond to _____ antigens of invading microbes.



● **HOWEVER**, a group of lymphocytes (*innate lymphoid cells*) differ from B & T cells since they are part of *innate* immunity.

- **Innate Lymphoid Cells (ILCs):** differ from B & T cells due to a _____ of specificity in antigen recognition.
- An example of ILCs are **Natural Killer Cells** (_____s) that kill a variety cell types.

PRACTICE: Why is a bone marrow transplant used to replace defective lymphocytes in a patient?

- a) Bone marrow creates common myeloid progenitor cells which differentiate into lymphocytes.
- b) Bone marrow creates monocytes which differentiate into lymphocytes.
- c) Bone marrow creates hematopoietic stem cells which differentiate into all immune cells including lymphocytes.

CONCEPT: CELLS OF THE INNATE IMMUNE SYSTEM: AGRANULOCYTES

PRACTICE: Which of the following immune cells is NOT a professional phagocyte?

- a) NK cell.
- b) Neutrophil.
- c) Macrophage.
- d) Dendritic cell.

PRACTICE: Which of the following are referred to as mononuclear phagocytes?

- a) Lymphocytes and basophils.
- b) Mast cells and eosinophils.
- c) Basophils and eosinophils.
- d) Monocytes and macrophages.