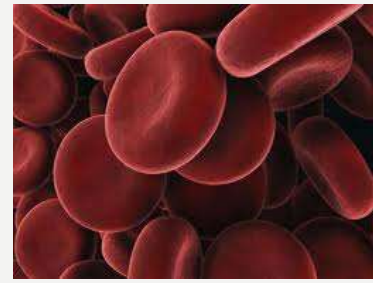


BLOOD COMPOSITION

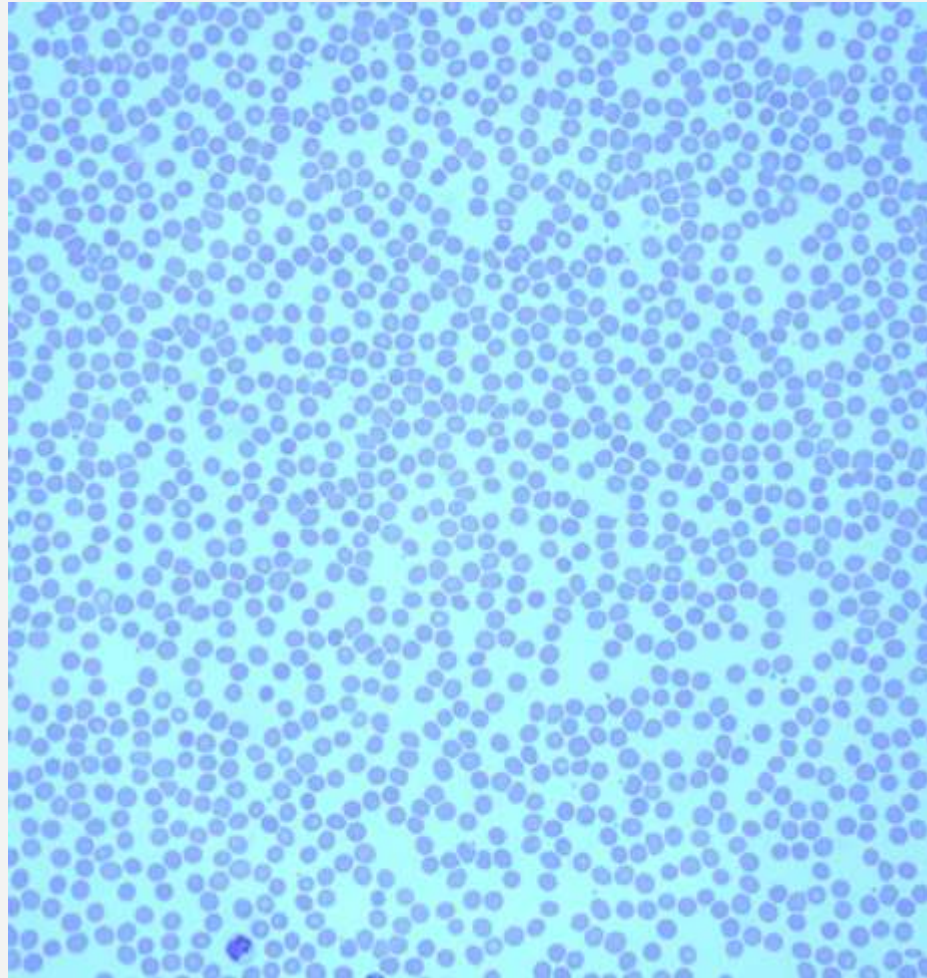
**EQ: WHY DO SOME BLOOD
DONATION CENTERS ALLOW YOU
TO JUST MAKE A PLASMA
DONATION?**

Blood



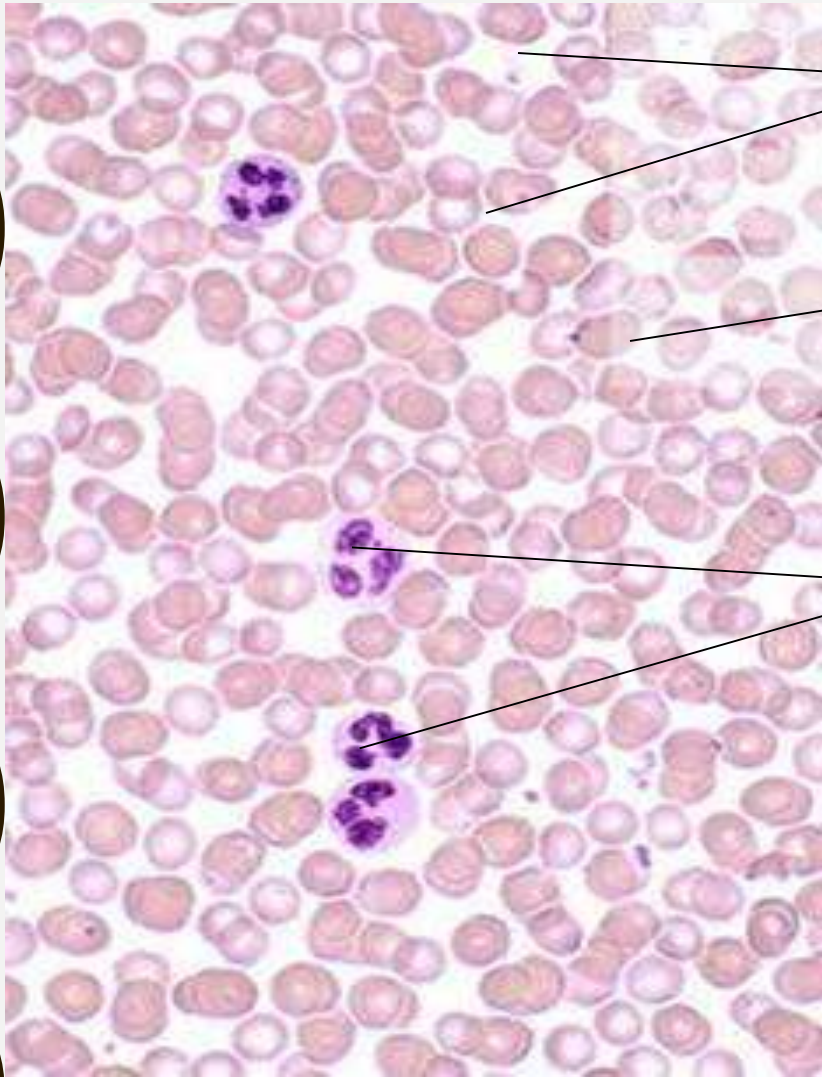
- the average human has 4-6 liters of blood
- it is a transporting fluid - only fluid tissue in the body
- it carries vital substances to all parts of the body (nutrients, hormones, wastes, etc.)

HUMAN BLOOD SMEAR



X 500

Components of Blood

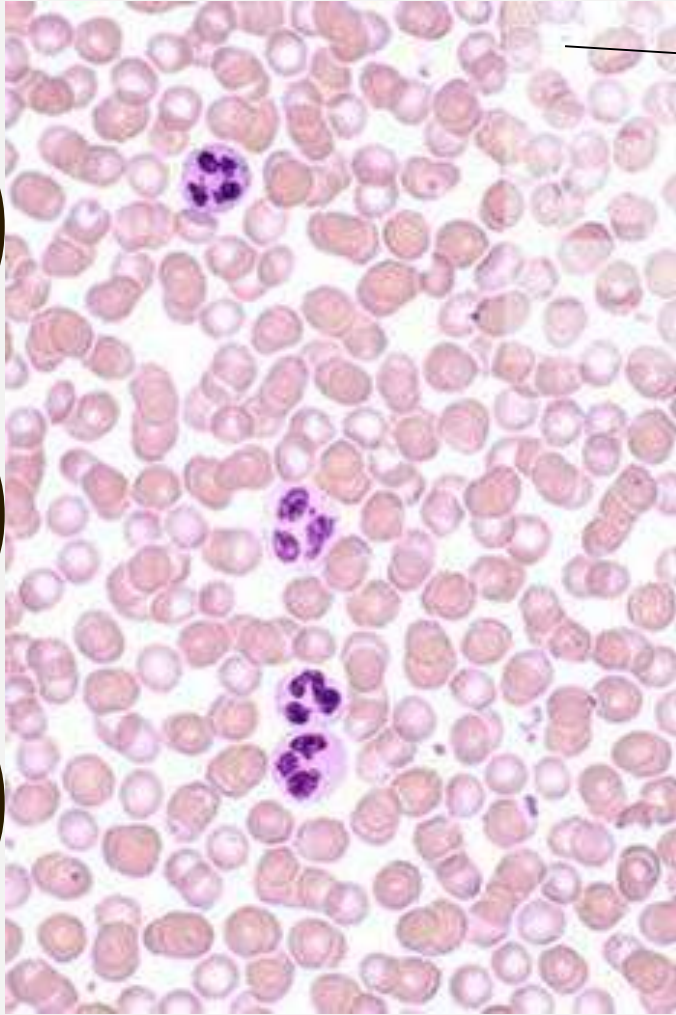


plasma (55%)

red blood cells (4-6 million /ml)

white blood cells (4800-10,800/ml)

Platelets (blood clotting)

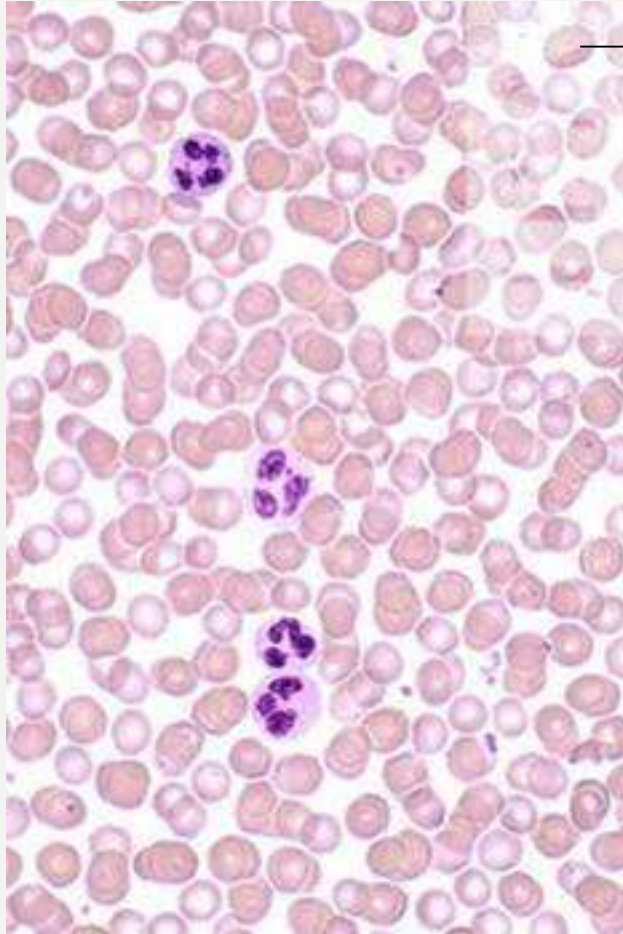


Plasma

liquid part of blood
(90% Water)

plasma transports:

- soluble food molecules
- waste products
- hormones
- Antibodies
- Dissolved gases and chemicals

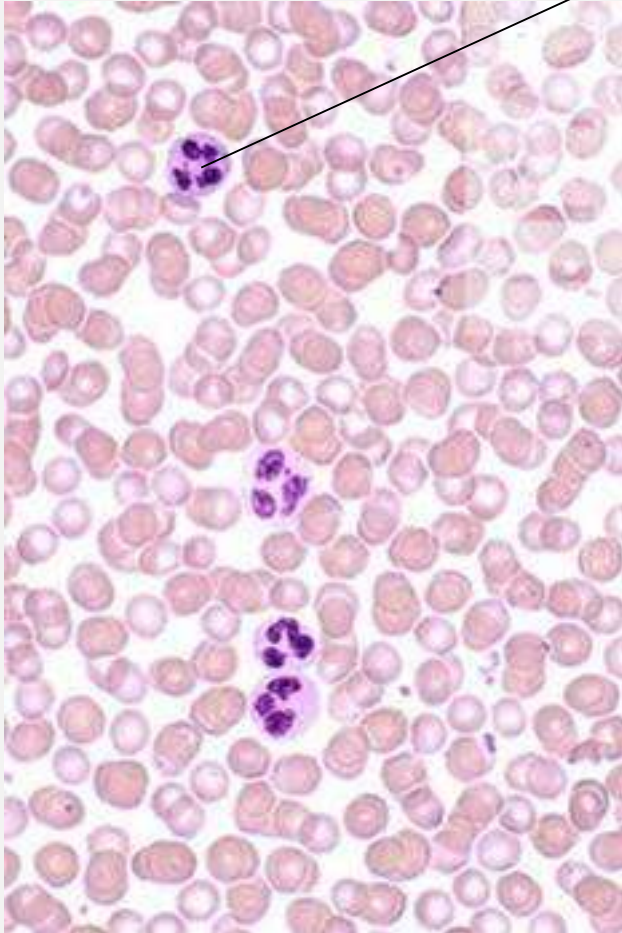


Red blood cells (RBCs)

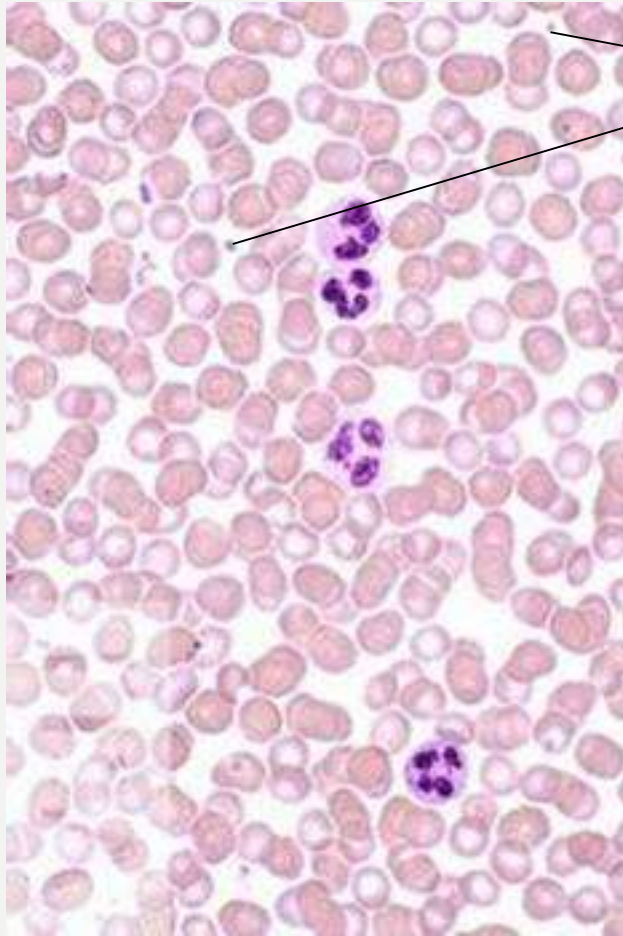
- transport oxygen
- specialized to do this by using the protein hemoglobin

Also carry some CO_2

White blood cells



- part of the immune system
- have a nucleus
- 4800-10800 per mm^3
- 2 types
 - phagocytes
 - lymphocytes



Platelets

- platelets produce tiny fibrin threads
- these form a web-like mesh that traps blood cells.
- these harden forming a clot, or "scab."
- 150,000 to 400,000 per mm^3

RED BLOOD CELLS SPECIALIZATIONS

1) biconcave shape



increases the surface area so more oxygen can be carried

2) no nucleus

→ extra space inside

3) contain hemoglobin
(Hb)

→ the oxygen carrying molecule

→ 250million molecules / cell

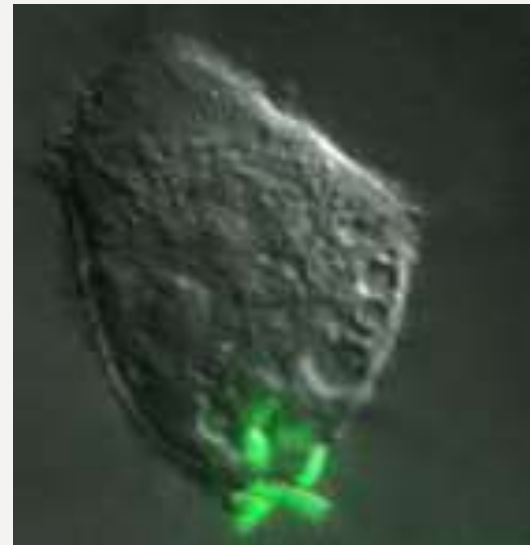
HEMOGLOBIN



- gives red blood cells their color
- can carry up to 4 molecules of O_2
- associates and dissociates with O_2
- contains iron

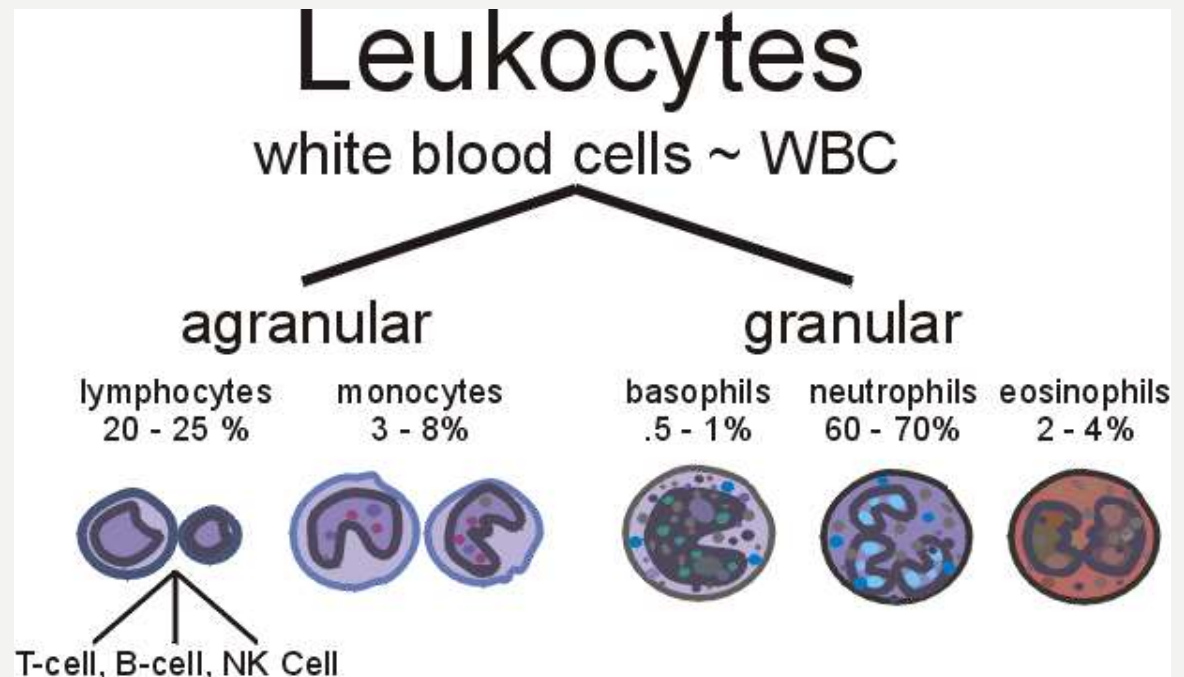
PHAGOCYTES

- Monocytes and macrophages
- Provide a **non-specific** response to infection



2 MAJOR GROUPS OF WBCS

- Granulocytes
 - Neutrophils
 - Eosinophils
 - Basophils
- Agranulocytes
 - Lymphocytes
 - Monocytes

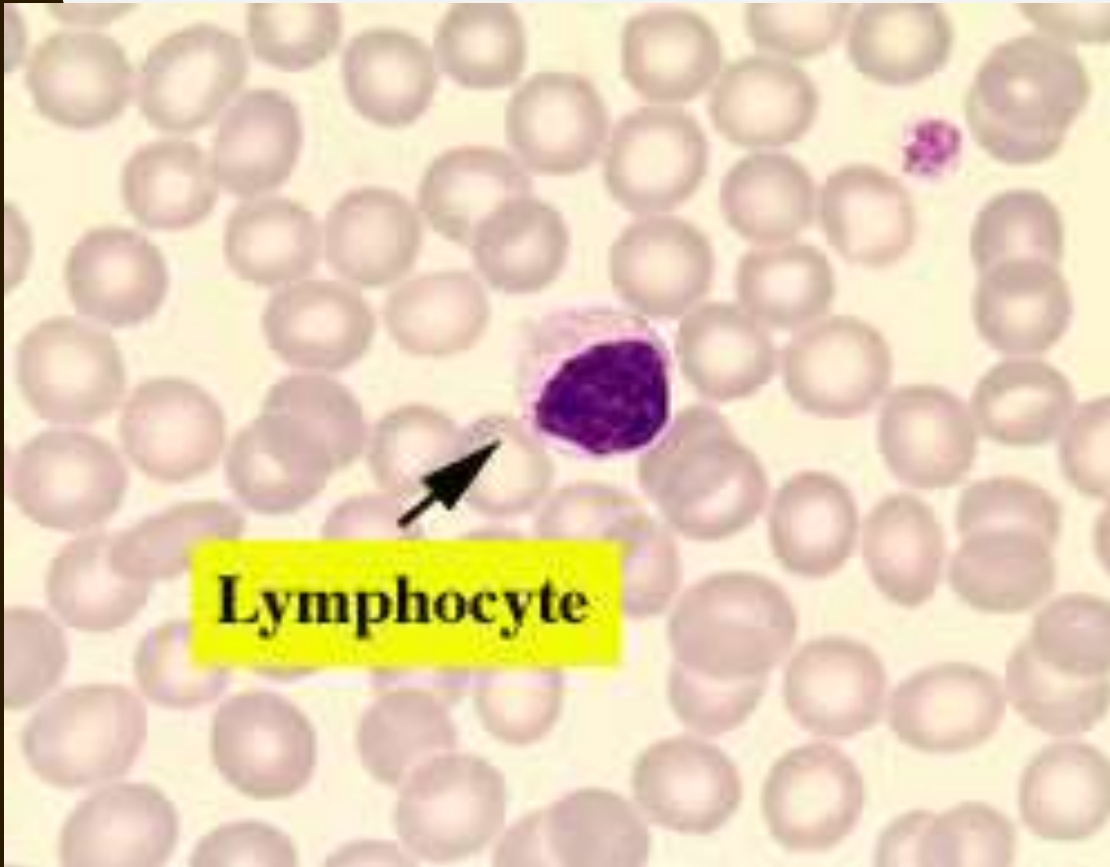


MONOCYTES



- Active phagocytes
- Become macrophages
- Increase in numbers when body is infected w/ pathogens

LYMPHOCYTE



- Used in specific defense of the body
- Two types - B and T cells
- They produce **antibodies**

White Blood Cells - Leukocytes



Neutrophils



Eosinophils



Basophils



Lymphocytes



Monocytes



Platelets



Erythrocytes