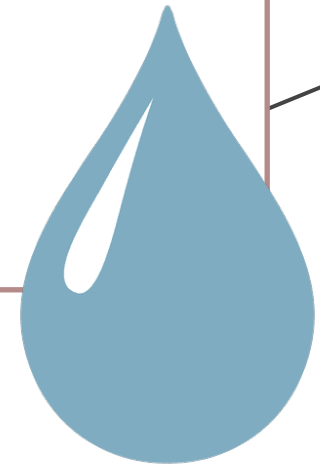


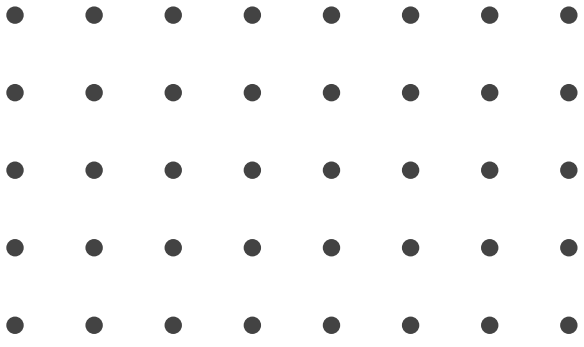
Blood Biochemistry BCH 471[Practical]

Lab (0) Introduction



Lab Safety

- You must wear a **lab coat** and hand **gloves** and a **mask**.
- **Open toed shoes** must not be worn because they cannot protect you against chemical spills.
- **Long hair** should be tied back to avoid any interference with the experiment.
- In case of **acid or base contact with your skin**, wash it with large amount of clean, cold water and inform the instructor immediately.
- Do not **eat, drink, or chew gum** in the laboratory.
- **Do not depart from the lab** leaving an experiment unattended. **If you need to leave the lab you must inform your instructor before leaving the lab.**
- Specimen containers should be discarded into special disinfectant-filled containers (such as buckets), plastic disposal boxes, or hazardous waste bags.
- You must **wash your hands** with soap before and after finishing the experiment.
- After finishing the experiment **clean all glassware, and work bench.**

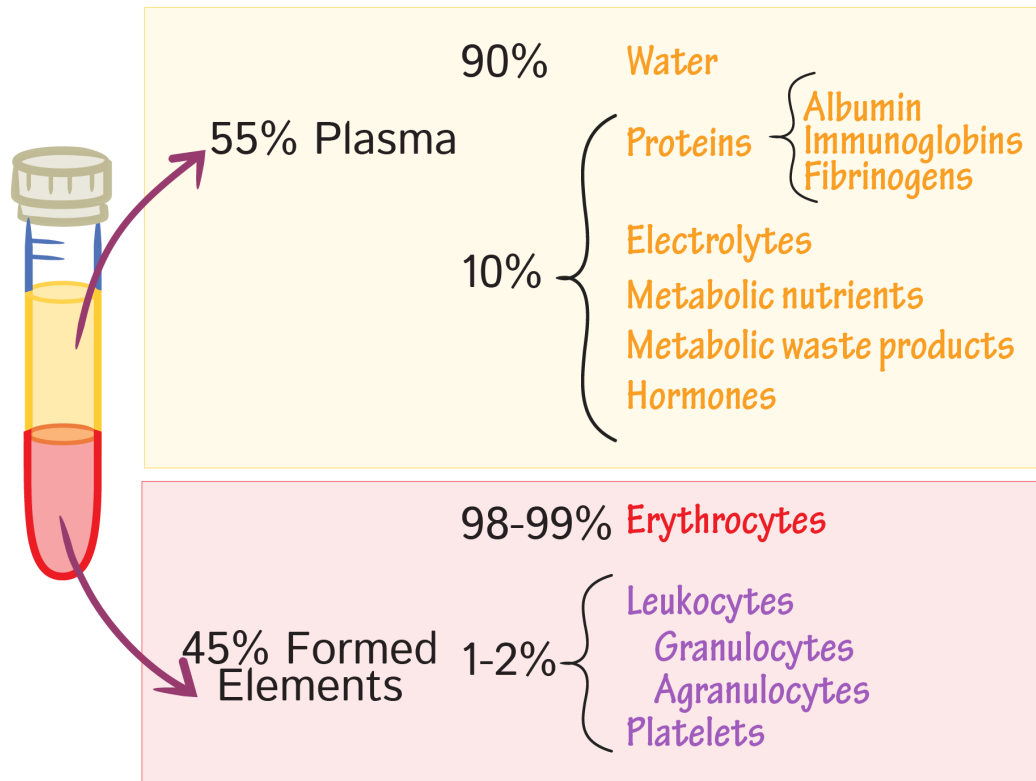


Blood Components

Blood Compositions

- **Blood**, fluid that transports oxygen and nutrients to the cells and carries away carbon dioxide and other waste products.

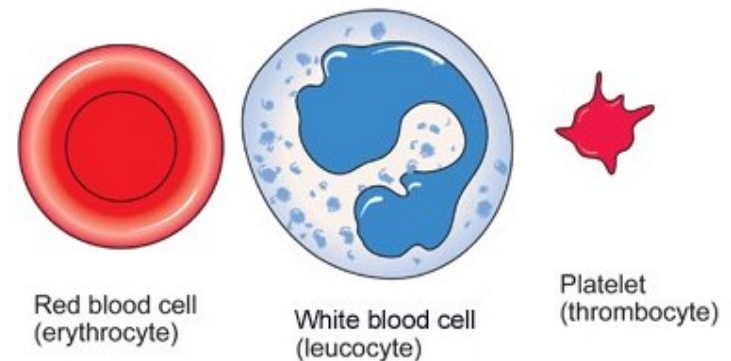
Blood Composition



Formed Elements (BLOOD CELLS):

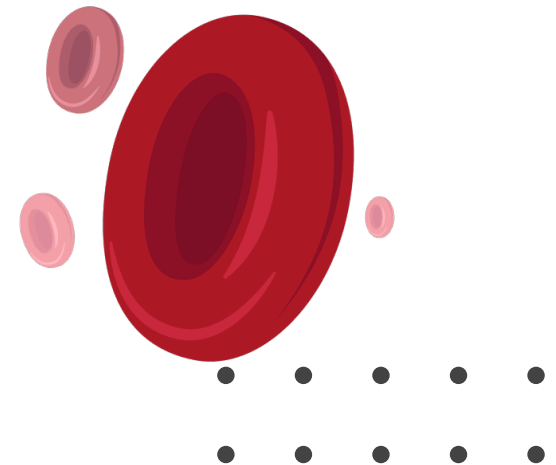
- Red blood cells (erythrocytes)
- White blood cells (leukocytes)
- Platelets (thrombocytes)

The cells are produced primarily by **bone marrow** and account for blood “solids”.



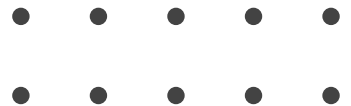
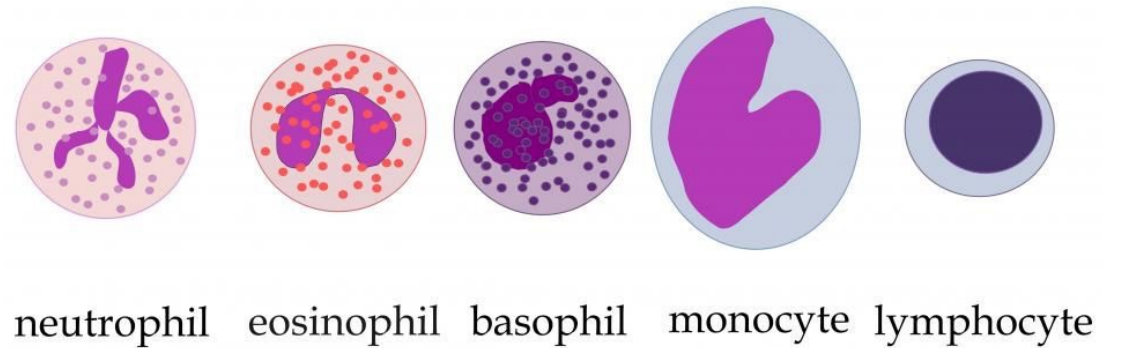
Red Blood Cells (RBC)

- Red blood cells contain **hemoglobin**, a complex iron-containing protein that carries oxygen throughout the body and gives **blood its red color**.
- The percentage of blood volume composed of red blood cells is called “**hematocrit**”. The average hematocrit in an adult male is 47%
- They live for **approximately 120 days** in the circulatory system and are eventually removed **by the spleen**.



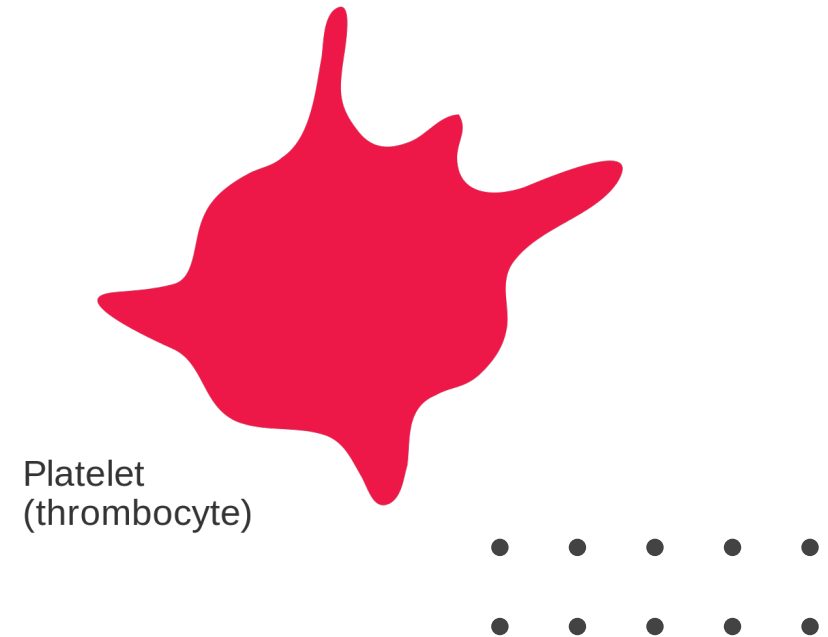
White Blood Cells (WBC)

- They are responsible for **protecting the body** from invasion by foreign substances such as bacteria, fungi, and viruses.
- **WBC** have short life span of **5 – 21 days**.



Platelets

- They are very small cellular components of blood that **help the clotting process** by sticking to the lining of blood vessels.
- They survive in the circulatory system for **an average of 9-10 days** before being removed from the body **by the spleen.**



Blood Functions

Transportation

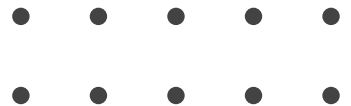
1. Gases (O₂ , CO₂)
2. Nutrients
3. Waste materials
4. Hormones
5. Metabolites

Regulation

1. pH
2. Body Temperature
3. Osmotic pressure
(water content of cells)

Protection

1. Protect against infections (via WBC)
2. Clot formation



Questions to be answered in this course

1. How to **separate** blood components?
2. How to use blood in the aid of **diagnosis**?
3. What test is used for the detection of a **blood type**?
4. How to **detect blood** in a biological sample?
5. How to diagnose **sickle cell anemia**?
6. How to detect **iron deficiency**?
7. How to treat **neonate jaundice**?

