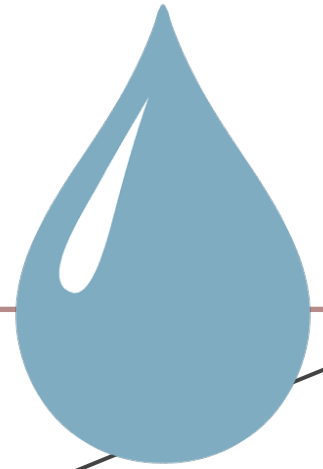
Blood Biochemistry BCH 220 [Practical]

Lab (0) Introduction



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Final exam, week 12, may 30th

Course Outline

	Title of the Experiments
1	Separation of Plasma and Serum and Their Proteins From Whole Blood
2	Determination of Plasma Enzymes
3	ABO Blood Grouping and Rh Groups
4	Hemolyzing Agents and Detection of Blood
5	Hemoglobin and Anemia
6	Glucose-6-phosphate Dehydrogenase Deficiency, Sickle Cell Test
7	Determination of Iron Serum
8	Estimation of Serum Bilirubin (Total and Direct)
9	Coagulation Time and Prothrombin Time, HCT and ESR
10	Complete Blood Cell Count

Marks Distribution

Tasks	Marks
Reports	6 Marks
Quiz	5 Marks
Conducting of experiment	2 Marks
Homework	3 Marks
Final	Practical 10 Marks
	Theoretical 4 marks
Total	**30 Marks**

Note: reports are delivered through e-mail as a pdf.

Writing a scientific report

The scientific reports should contain the following:

1. **Cover page:** Title, course number and students' name, university logo.
2. **Brief introduction:** [In this part you will write a background that will help to understand your topic] NEVER copy introduction from slide.
3. **Objectives:** [you will write it by your own words]
4. **Materials and method (Experimental):** [As in the lab sheet].
5. **Results:** This section states what you found, tables, graphs or calculations should be included.
6. **Discussion:**
   - In this section you are required to describe of **what happened** in the experiment [Principle].
   - Explain your results (reasons for **why** you get your results).
   - Make conclusions by comparing your results to **expected values**.
   - In case of unexpected results, justify or **explain** the reasons why you have obtained such results.
7. **References**

Aa a link or Cite This For Me: Web Citer (*extension in Google Chrome*).

Writing a scientific report

When writing a report consider the following:

- Write **references**.
- Write table/figure **ligand** and **title**.
- **Justify** the text.
- **Font**: Times New Roman.
- **Size**: title: 16 pt., subtitle: 14 pt. and body: 12 pt.
- **Color:** black

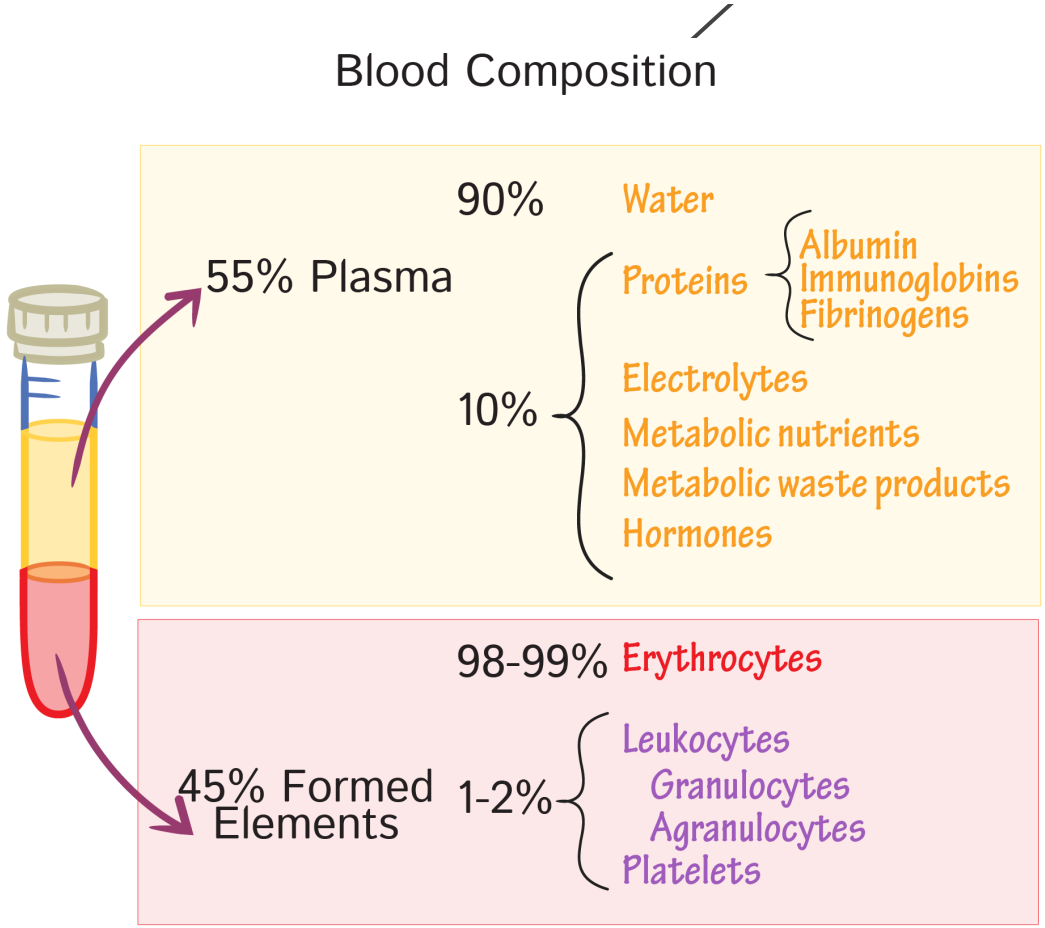
Lab Safety

- **Biological samples** should be collected in an appropriate **biohazardous waste container**.
- You must wear a **lab coat** and hand **gloves.**
- **Disinfect your bench** before and after the experiment.
- **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 chewing 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.
- You must **wash your hands** with soap before and after finishing the experiment.
- After finishing the experiment **clean all glassware, and work bench.**
- **Do not touch** any electrical sources.

Blood Components

Blood Compositions

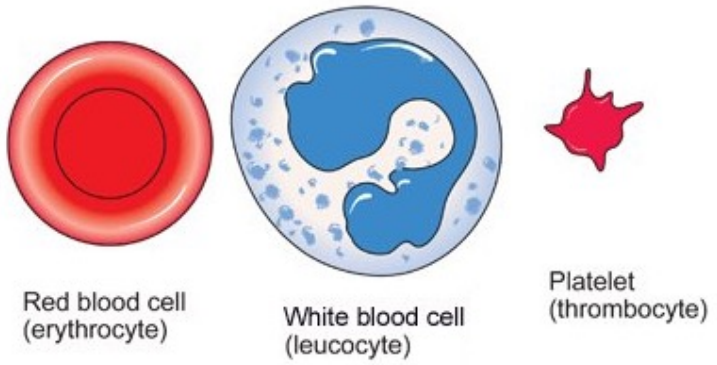
- **Blood**, fluid that transports oxygen and nutrients to the cells and carries away carbon dioxide and other waste products.



Formed Elements (BLOOD CELLS):

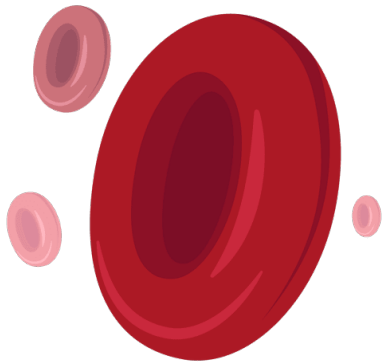
- Red blood cells (erythrocytes)
- White blood cells (leukocytes)
- Platelets (thrombocytes)

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.
- They live for **approximately 120 days** in the circulatory system and are eventually removed **by the spleen.**

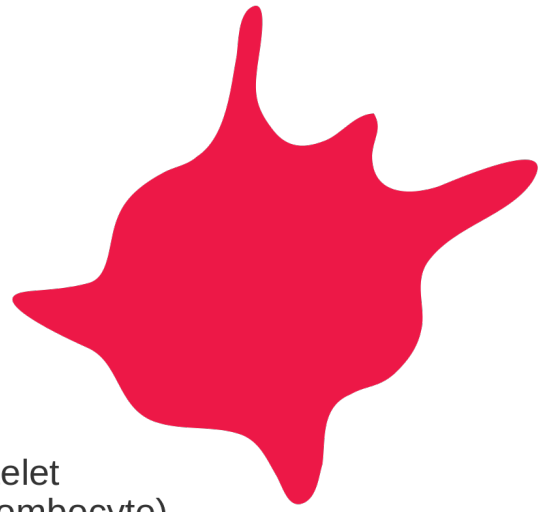


White Blood Cells (WBC)

- 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.**



Platelet
(thrombocyte)

Blood Functions

Transportation

1. Gases (O_2 , CO_2)
2. Nutrients
3. Waste materials
4. Hormones

Regulation

1. pH
2. Temperature
3. Water balance

(water content of cells)

Protection

1. Protect against infections
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**?