Exp #2

Hemoglobin

Quantitative determination of Hemoglobin in whole blood,Cyanmethemoglobin Method

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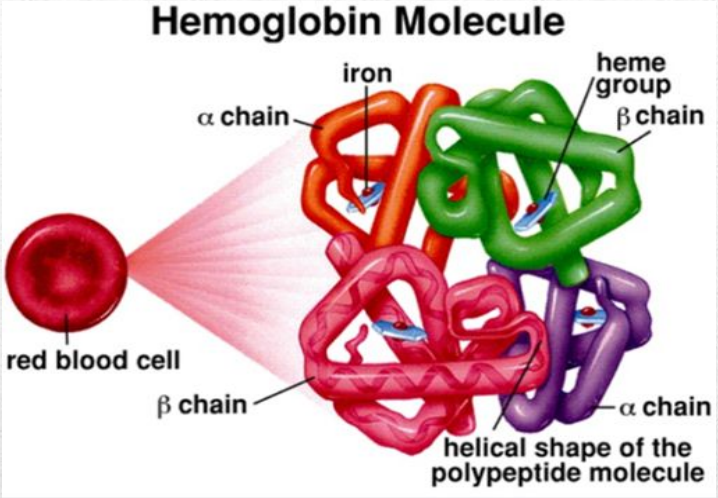
- Haemoglobin (Hb) is a protein inside the RBCs.
- It contains :

1. Haem =iron
2. Globin chain =protein



- Its main function is to transport oxygen from respiratory organs to the tissues, and carbon dioxide from the tissues to the lung, to remove it and regulate blood PH.

Clinical significance

- **Low** haemoglobin level may be due to anaemia, cancer, kidney disease, bleeding, haemolysis or bone marrow damage.

- A haemoglobin level **above** the normal may be due to dehydration, renal and lung chronic disease, tumours or cardiopathies.

Estimation of Hb. level in blood

- **By hemoglobin cyanide method (Hi CN; cyanmethaemoglobin).**

- Blood is diluted by a solution called Drabkins Solution which contains potassium cyanide and potassium ferricyanide (pH 7-7.4).

1-Blood + Drabkins solution → **Hb**.

2-Fe II present in Hb.→ Oxidized by Ferricyanide to result → Fe III, this Fe III lead to rise the mount of methemoglobin.

3-Methemoglobin Combines with potassium cyanide to produce→ **Cyanmethemoglobin**

4-Measuring Cyanmethemoglobin absorption at 546 nm by spectrophotometer.

*Absorption α concentration

Method*

	Test Tube
WR -ml	2.5
Blood Sample EDTA-µl	10
.Mix and allow to stand 10 min. at RT then read A	

Calculation*

Hb = A x 37= …… g Hb./dl

Normal Ranges:

- Men 13 – 18 g/dl
- Women 11 – 16 g/dl