Department of Dentistry

Second Class

General Histology

Lec: 3

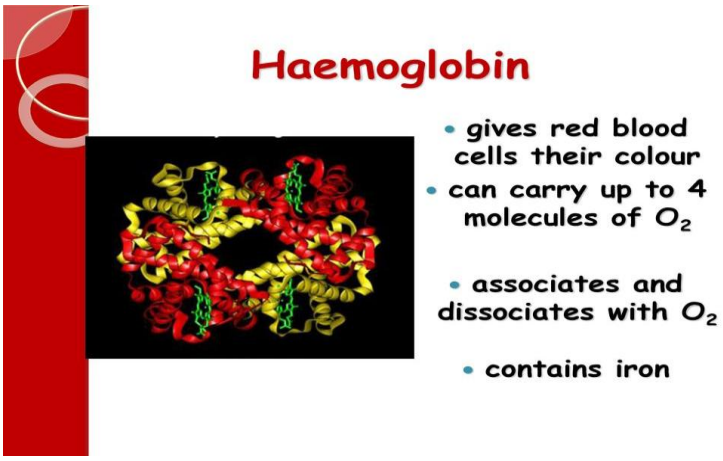
Dr.Lec. Fatima

Blood

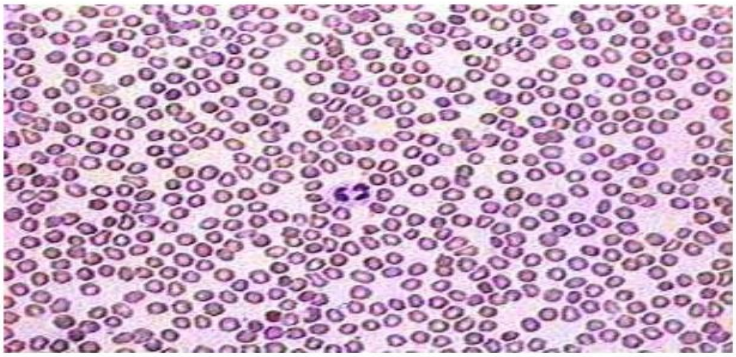
- The blood consist of suspension of special cells in liquid called plasma
- Blood is considered a connective tissue because it has a matrix, fluid matrix, called plasma.

Function of blood

- Hemoglobin found in the erythrocytes carries oxygen to the tissue.
  Function of hemoglobin
  When there is a high concentration of oxygen, haemoglobin combines with oxygen to form oxyhaemoglobin. When the blood reaches the tissues which have a low concentration of oxygen the haemoglobin dissociates with the oxygen and the oxygen is released into body tissue.
- Collect carbon dioxide
- It conveys nutritive substance (amino acids, sugars, mineral, salts)
- Gathers the excreted material, which will be eliminated through the renal filter
- It carries hormones, enzyme and vitamins
- It performs the defense of the organism by phagocytic activity of the leukocyte, the bacterial power of the serum and immune response of lymphocyte which is phagocytic.

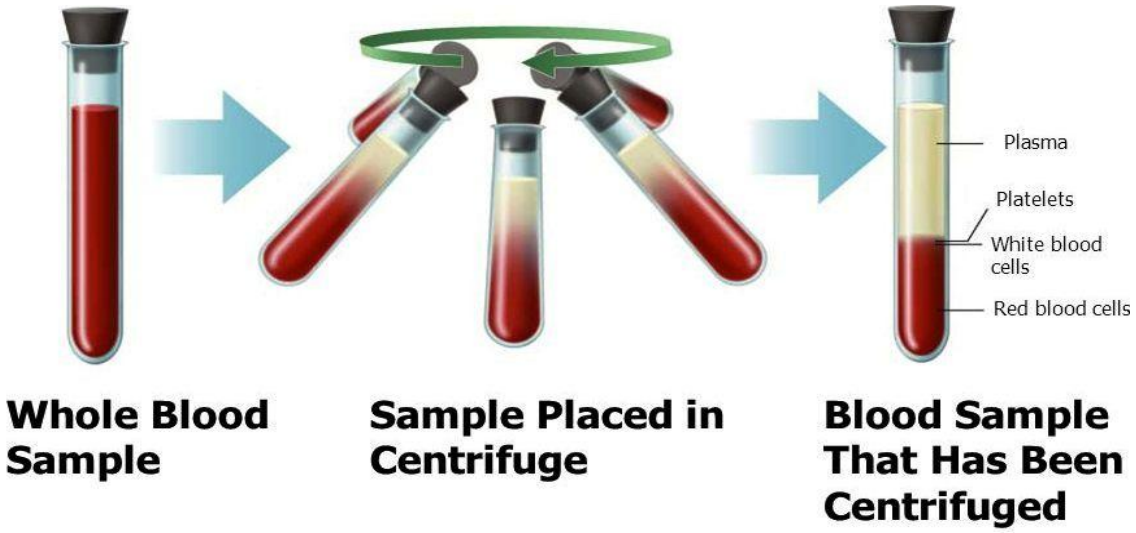


Blood smear, human

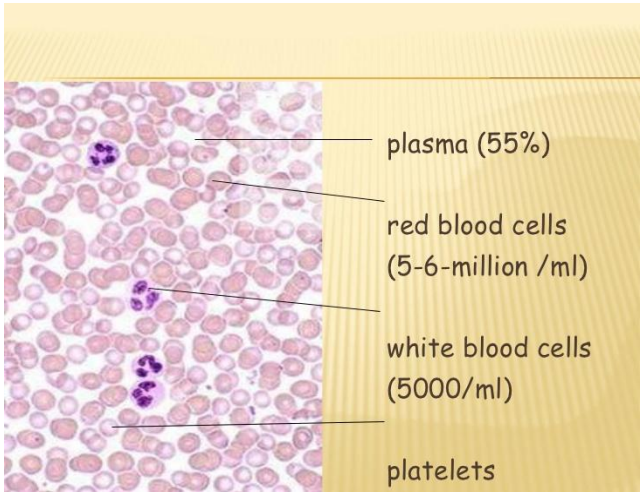


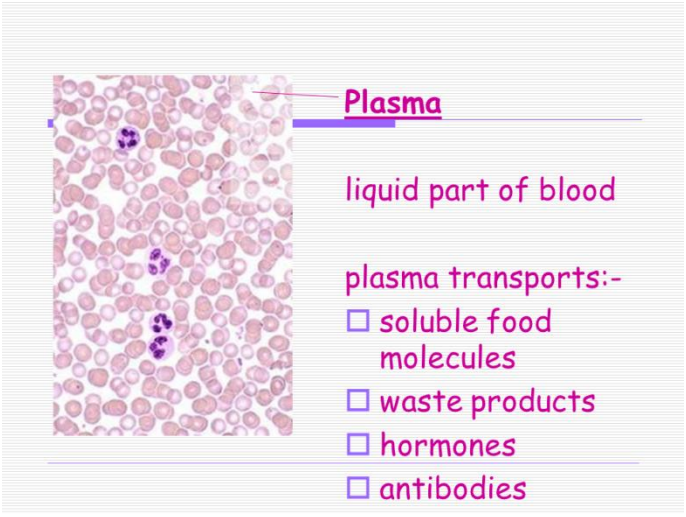
The plasma feature:

- Cell free serum or plasma can be obtained by centrifugation



- The plasma is slightly alkaline fluid
- Typical yellowish color
- It consist 90% water and 10%dry matter
- Nine part of plasma are made up by organic substances
- One part is made up by minerals
- The organic substances are composed of glucose, lipids (cholesterol), triglycerides, phospholipid, protein (globulins, albumins), hormone, glycoprotein, amino acid and vitamin.
- The mineral substances are dissolving in ionic form that is divided in to positive and negative ions.





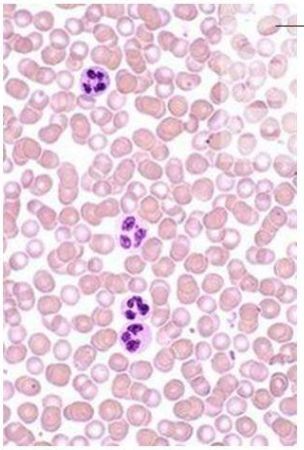
The hematic cells:

Special cells-classified into:

- Erythrocyte and leukocytes
- Platelets-considered not real cell.

Erythrocyte (red cells)

- Most numerous blood cells
- Are without of nucleus.
- Biconcave lenses in shape
- Red cells are rich in hemoglobin, a protein able to bind in a faint manner to oxygen
- Red cells are responsible for providing oxygen to tissue and partly recovering carbon dioxide (as waste)
- However most CO2 is carried by plasma, in form of soluble carbonates.
- Lack of nucleus allows more ability for hemoglobin and the biconcave shape of the red cell raise the surface and cytoplasmic volume ratio.
- The mean life of erythrocyte is about 120 day.
- When they come to the end of their life they are retained by the spleen, where they are phagocytic by macrophage.



Red blood cells
(RBCs)

- transport **oxygen**
- specialised to do this

Also carry some CO_2