

Structure and function of blood

The function of blood includes three major activities - Transport, regulation and protection.

Gas, nutrients and waste are transported by the blood. PH, temperature and fluid balance is regulated by the blood. Antibody production and clotting helps us to remain protected.

Structure of blood

55% of the blood is made up of plasma. 91% of plasma is water. The remaining 9% is made up of ions water waste gas and nutrients. 45 per cent of the blood is made up of cellular components. 99% are red blood cells and the remaining one per cent of white blood cells. There are two types of white blood cells, granulocytes and agranulocytes. There are three types of granulocytes- Eosinophil, basophils and neutrophils. These usually protect us from allergy, and take part in phagocytosis. Agranulocytes are lymphocytes and monocytes. There are two types of lymphocytes – B and T. Monocytes differentiate into macrophages, which take part in phagocytosis.

Plasma is made up of water and clotting factors such as fibrin. It is yellow in colour.

Serum is the part after a clotting process.

Platelets form Platelet plugs. They prevent bleeding. They also take part in homeostasis.

Red blood cells have a tetramer structure. They are made up of two to the two alpha components and two beta components. Oxygen binds reversibly to the fe^{2+} area of the RBC, by coordinate bonding.

Blood clotting process

Thromboplastin with the help of Vit K and Ca^{2+} , activate prothrombin into thrombin.

This conversion of prothrombin into thrombin causes soluble fibrinogen into insoluble fibrin.

Heamatocrit –

Volume of RBC present divided by Volume of Blood

Blood volume = 5l

Plasma vol = 2.5l

Ht = 0.4 – 0.5