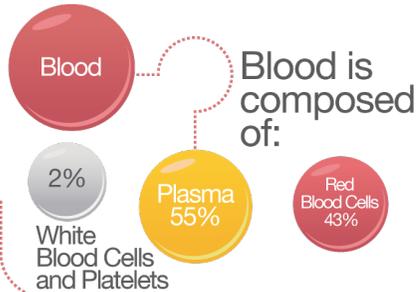


# UNIT 1

## PLASMA, THE SOURCE OF LIFE



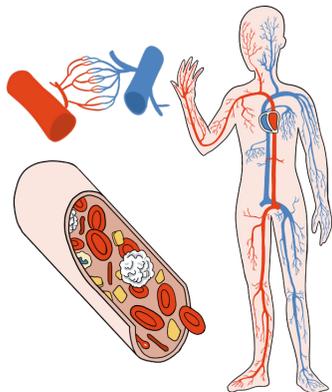
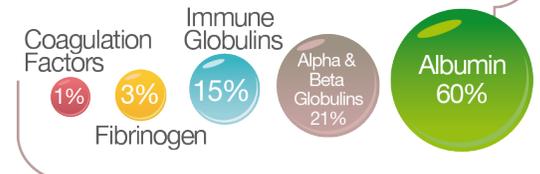
Let's observe the blood closely...  
Where is plasma?



Plasma, in turn, contains:

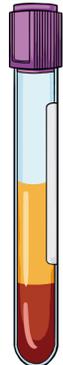


What proteins can be found in plasma?



### Circulatory System

Blood flows only through the ducts that form the circulatory system. Every component that leaves or enters it does so through the thin walls of the capillaries.



Plasma: 55% of blood

**Water (90% of plasma):** dissolves and transports substances. Absorbs and transfers heat.

**Mineral salts:** regulate the entry and exit of water to and from the body cells, as well as plasma acidity, among many other functions.

**Proteins:** involved in the coagulation process and as a carrier for other molecules.

Red blood cells: approximately 43%.

White blood cells and platelets: approximately 2%.



What if the body does not produce certain proteins?

Lack or scarcity of some plasma proteins can cause illness. That's why the proteins from healthy donors are essential for these patients.



The body, a great pharmacy

Donated plasma is used to make medicines to help patients who may have certain protein deficiencies or proteins that may not work properly. Many of these patients are born with these diseases. The plasma is processed to take out the specific protein and purify it into a medication.

## PLASMAPHERESIS AND ITS HISTORY

Plasmapheresis is a method of separating plasma from other blood components, such as red blood cells, platelets, and other cells. Once separated, the cells are transfused back to the donor as the plasma collection process is taking place. Because the donor is only providing plasma and not whole blood, the recovery process is faster and better tolerated, and as a result, the donor is able to make more frequent donations.



1818	1900	1940	1950
British obstetrician, James Blundell, performs the first successful transfusion of human blood to a patient for the treatment of postpartum hemorrhage.	1901 Karl Landsteiner, an Austrian physician, discovers the first three human blood groups.	1940 Edwin Cohn develops cold ethanol fractionation, the process of breaking down plasma into components and proteins such as gamma globulin or albumin.	1951 José Antonio Grifols develops the technique of plasmapheresis, separating plasma from blood cells and transfusing the cells back to the donor.