

Erythrocytes

Erythrocytes are originated from liver and spleen in embryonic stage. After birth they go to the liver and replace their nucleus by haemoglobin.

Transportation of oxygen

In Pulmonary capillary, the haemoglobin of erythrocytes reacts with oxygen and produces Oxyhaemoglobin

Haemoglobin+Oxygen \rightarrow Oxyhaemoglobin

These Oxyhaemoglobin are transported through the blood to the cell after that.

Pulmonary capillary \rightarrow Pulmonary vein \rightarrow left atrium \rightarrow bicuspid valve \rightarrow left ventricle \rightarrow semi lunar valve \rightarrow aorta \rightarrow artery \rightarrow arteriole \rightarrow capillary

In terminal capillary of the body, Oxyhaemoglobin make oxygen free. These free oxygen diffuse to the lymph. At last, these enter into the cell

Terminal capillary \rightarrow lymph \rightarrow cell

Transportation of carbon dioxide

Carbon dioxide is produced in the cell due to respiration. These carbon dioxide diffuse to the lymph from the cell and enters into the terminal capillary of the body.

Cell \rightarrow lymph \rightarrow terminal capillary

In plasma, there are huge number of water. Carbon dioxide reacts with the water and produce carbonic acid.

$\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$

Carbonic acid is an unstable compound. So it breaks down into bicarbonate.

$\text{H}_2\text{CO}_3 \rightarrow \text{H}^+ + \text{HCO}_3^-$

These bicarbonate reacts with the potassium ion of the erythrocytes and produce sodium bicarbonate and potassium carbonate.

$\text{HCO}_3^- + \text{K}^+ \rightarrow \text{KHCO}_3$

$\text{HCO}_3^- + \text{Na}^+ \rightarrow \text{NaHCO}_3$

These potassium bicarbonate and sodium bicarbonate transport to the Pulmonary capillary

Terminal capillary \rightarrow veniolous \rightarrow branches of vein \rightarrow vein \rightarrow inferior and superior vena cave \rightarrow right atrium \rightarrow tricuspid valve \rightarrow right ventricle \rightarrow semi lunar valve \rightarrow Pulmonary aorta \rightarrow Pulmonary capillary

In Pulmonary capillary, potassium bicarbonate and sodium bicarbonate break down and release carbon dioxide. These carbon dioxide diffuse to the alveolous of the lungs.

