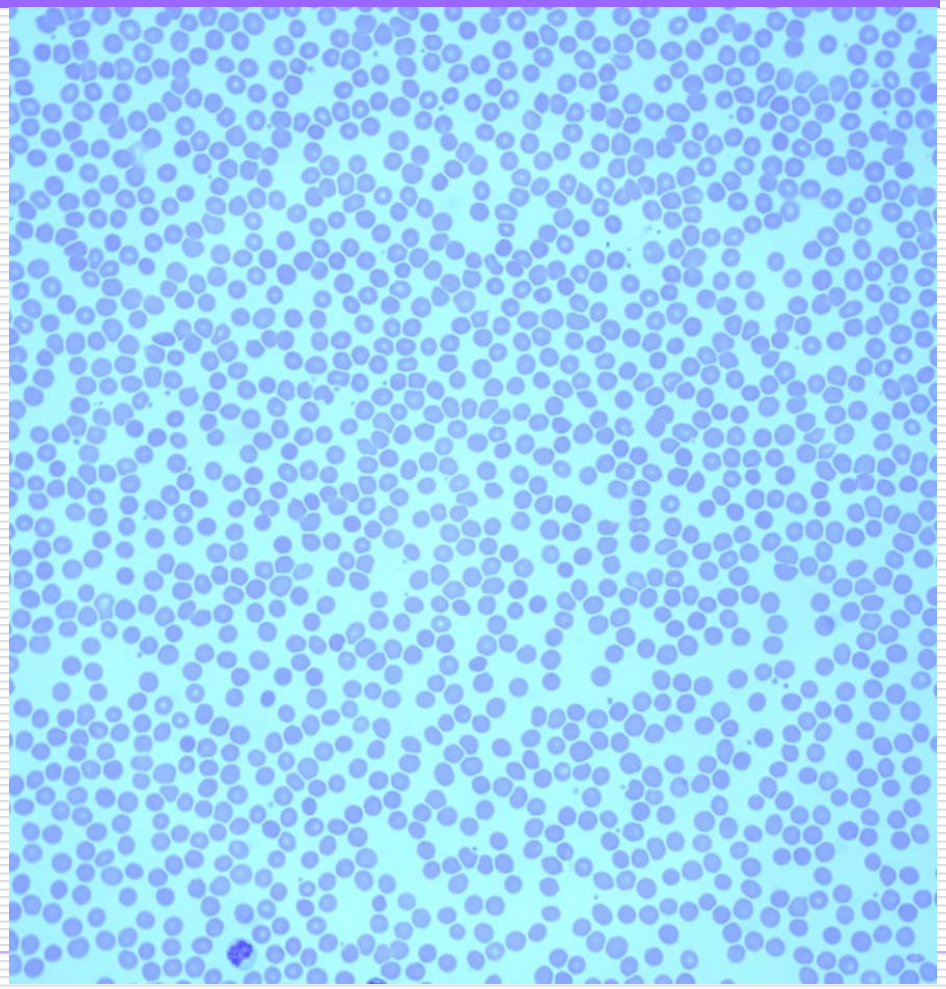
Blood

- *By the end of the lesson you should be able to:*
- *State the composition of Blood*
- *State the function of red blood cells and plasma*
- *Explain the function of haemoglobin in the transport of oxygen*
- *State the function of macrophages and lymphocytes*

Blood

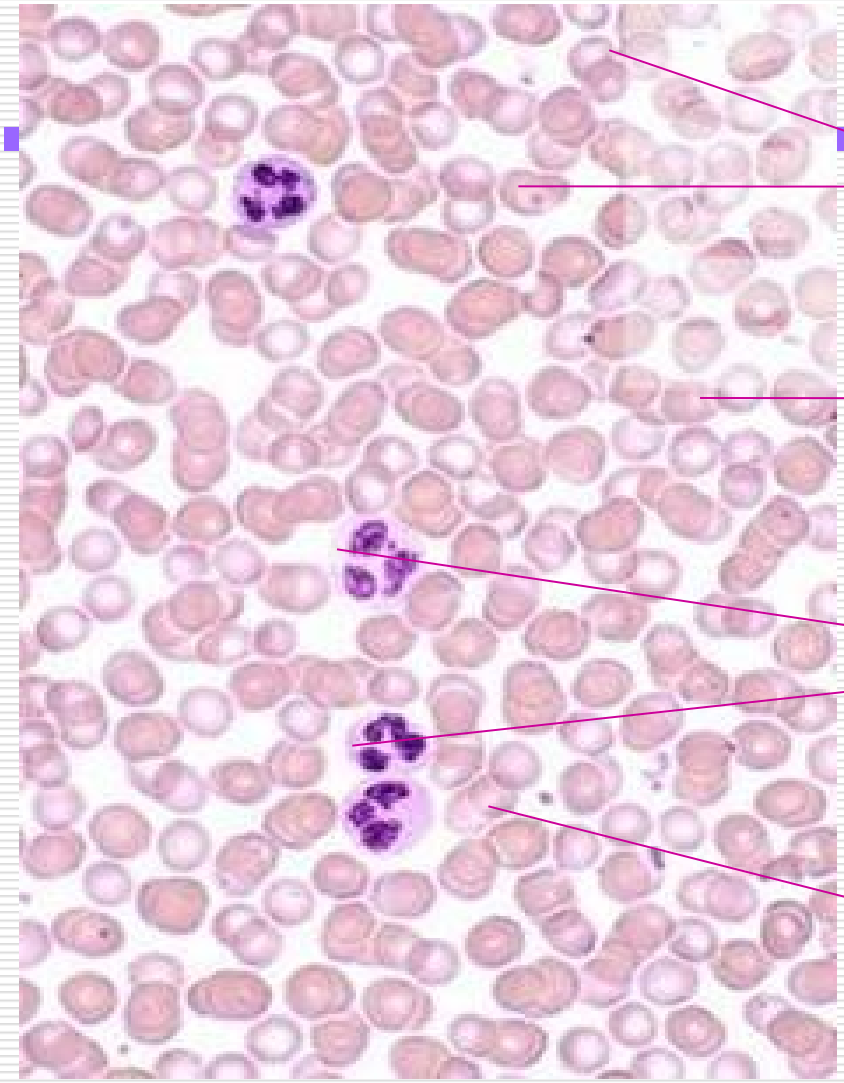
- *the average human has 5 litres of blood*
- *it is a transporting fluid*
- *it carries vital substances to all parts of the body*

Human blood smear



X 500

skool blood plasma



plasma (55%)

red blood cells

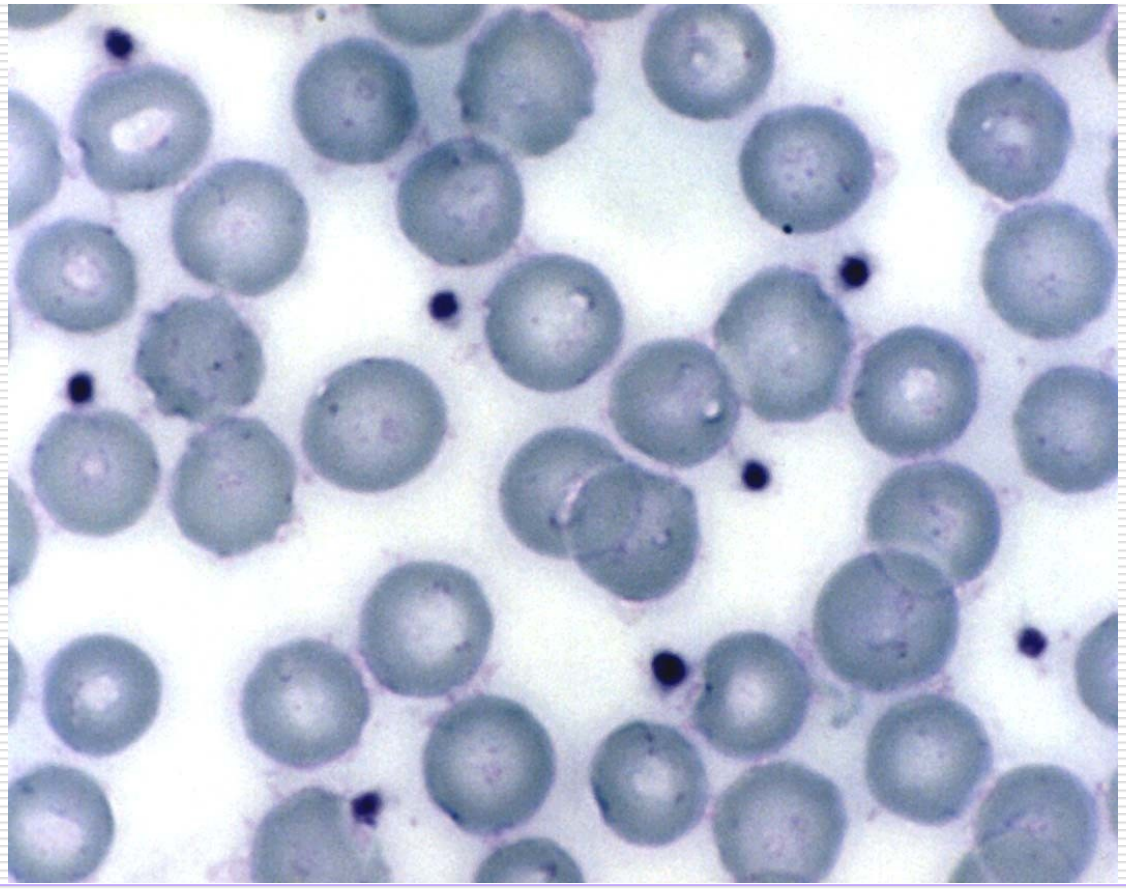
(5-6-million /ml)

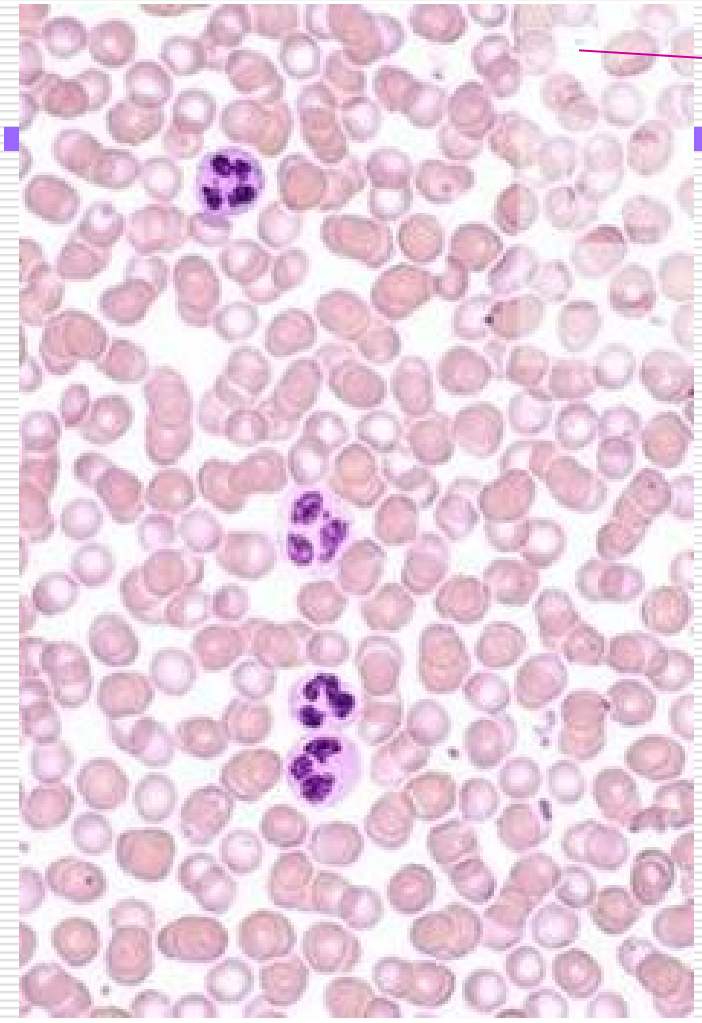
white blood cells

(5000/ml)

platelets

x 1000



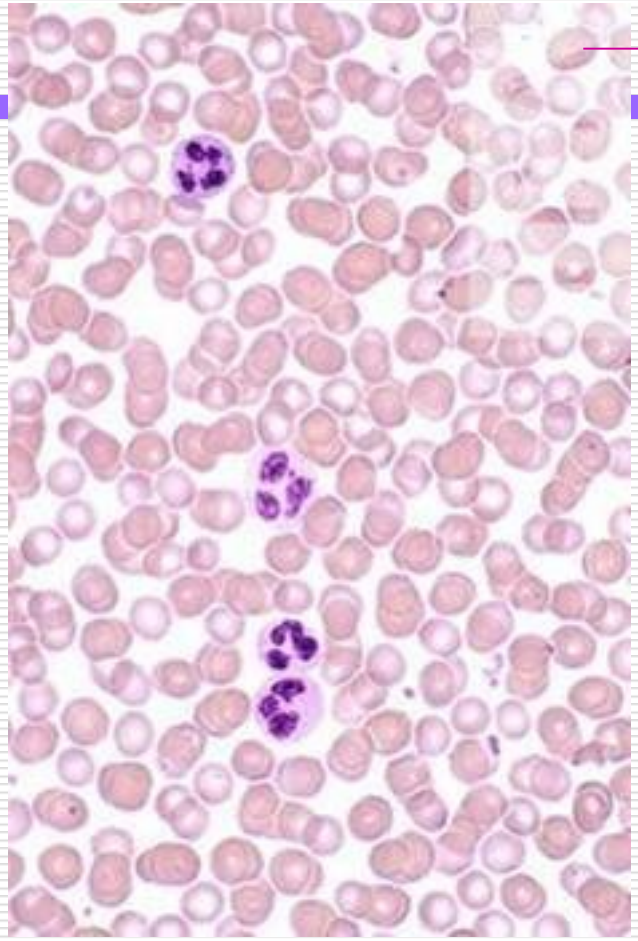


Plasma

liquid part of blood

plasma transports:-

- *soluble food molecules*
- *waste products*
- *hormones*
- *antibodies*

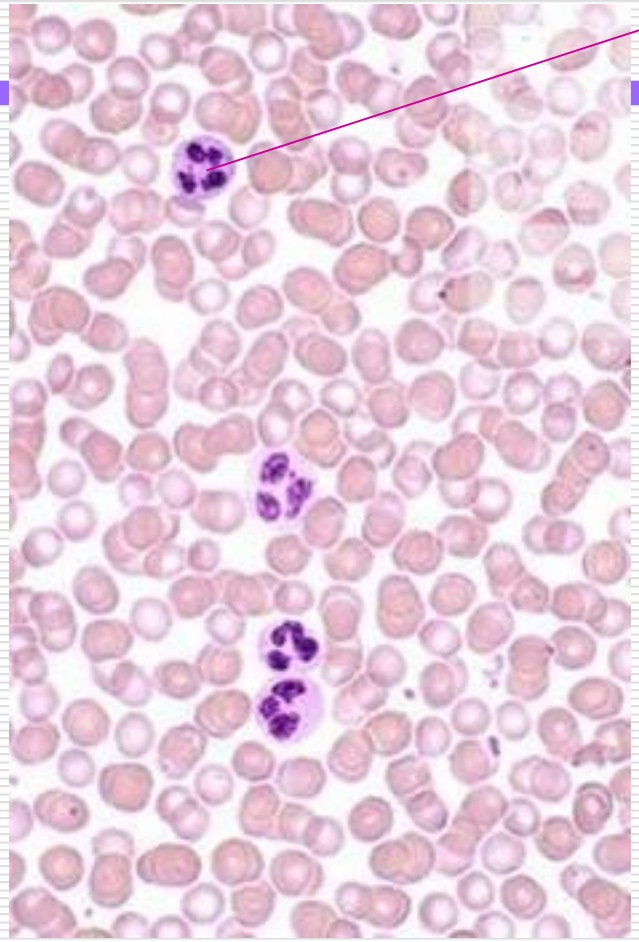


Red blood cells *(RBCs)*

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

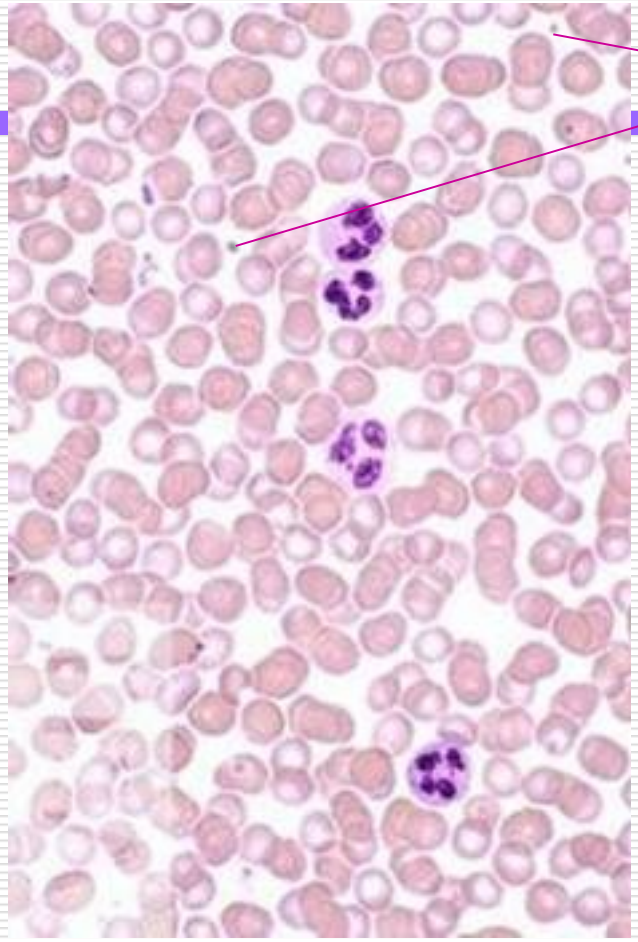
Also carry some CO_2

White blood cells



- the bodies "**defence**"
- part of the immune system
- much **larger** than RBCs
- far **fewer**
- have a nucleus
- 4000-13000 per mm^3
- 2 types

phagocytes and lymphocytes



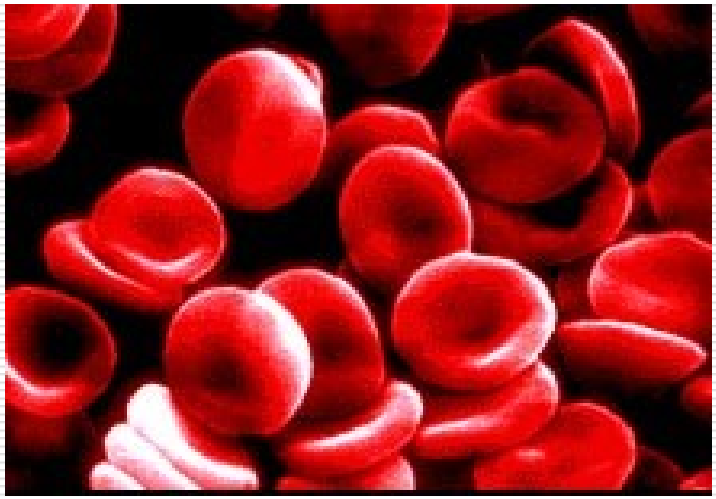
Platelets

if you get cut:-

- *platelets produce tiny fibrin threads*
- *these form a web-like mesh that traps blood cells.*
- *these harden forming a clot, or "scab."*
- *150,000 to 400,000 per mm^3*

Red blood cells specialisations

1) ***biconcave shape***



increases the surface area so more oxygen can be carried

2) ***no nucleus***

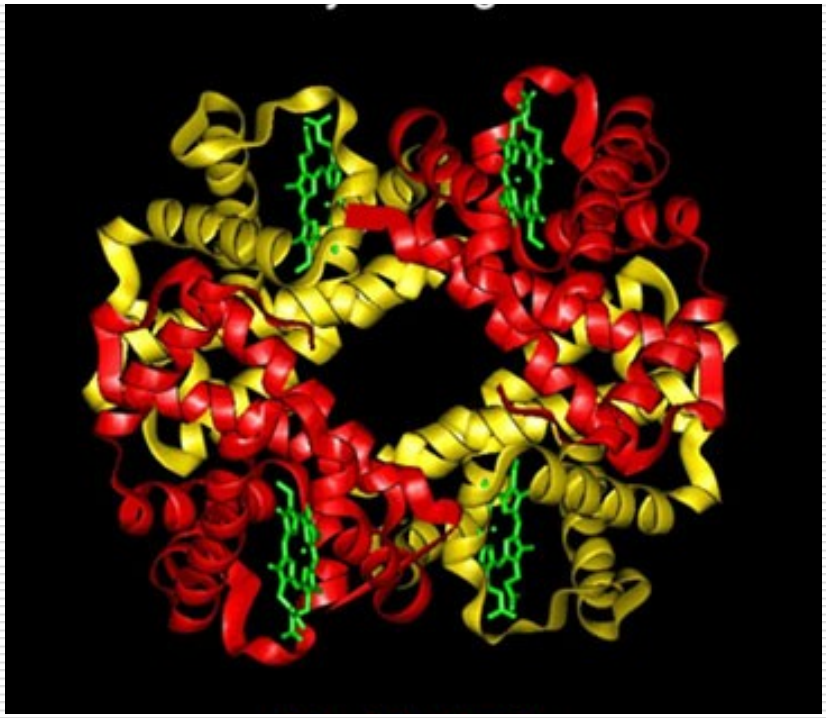
→ *extra space inside*

3) *contain* ***haemoglobin***

→ *the oxygen carrying molecule*

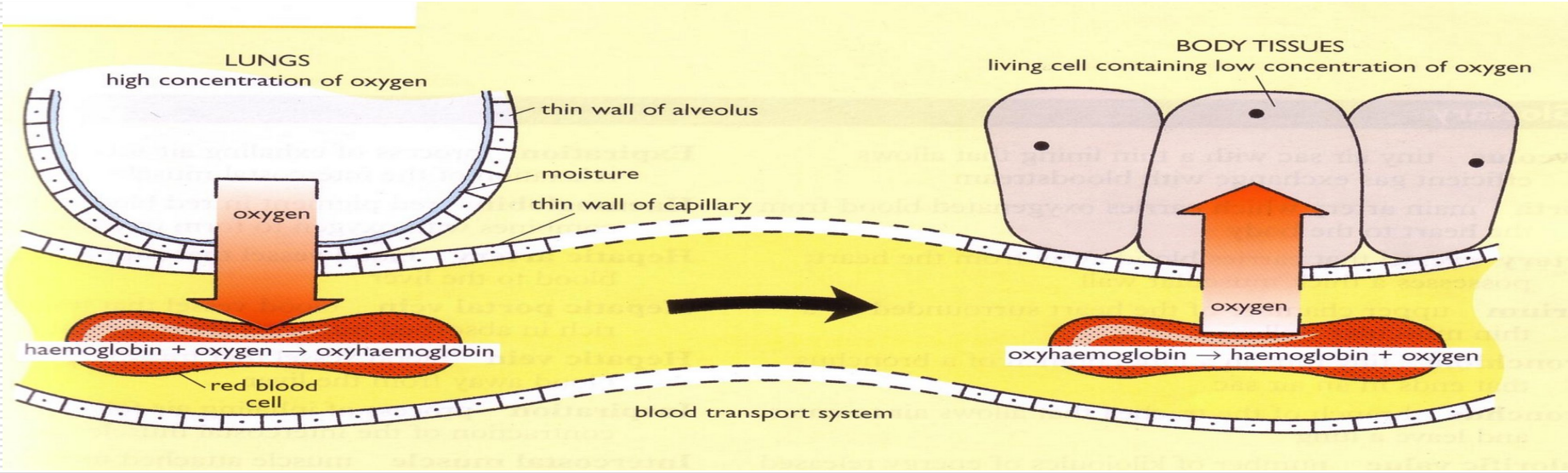
→ *250million molecules / cell*

Haemoglobin



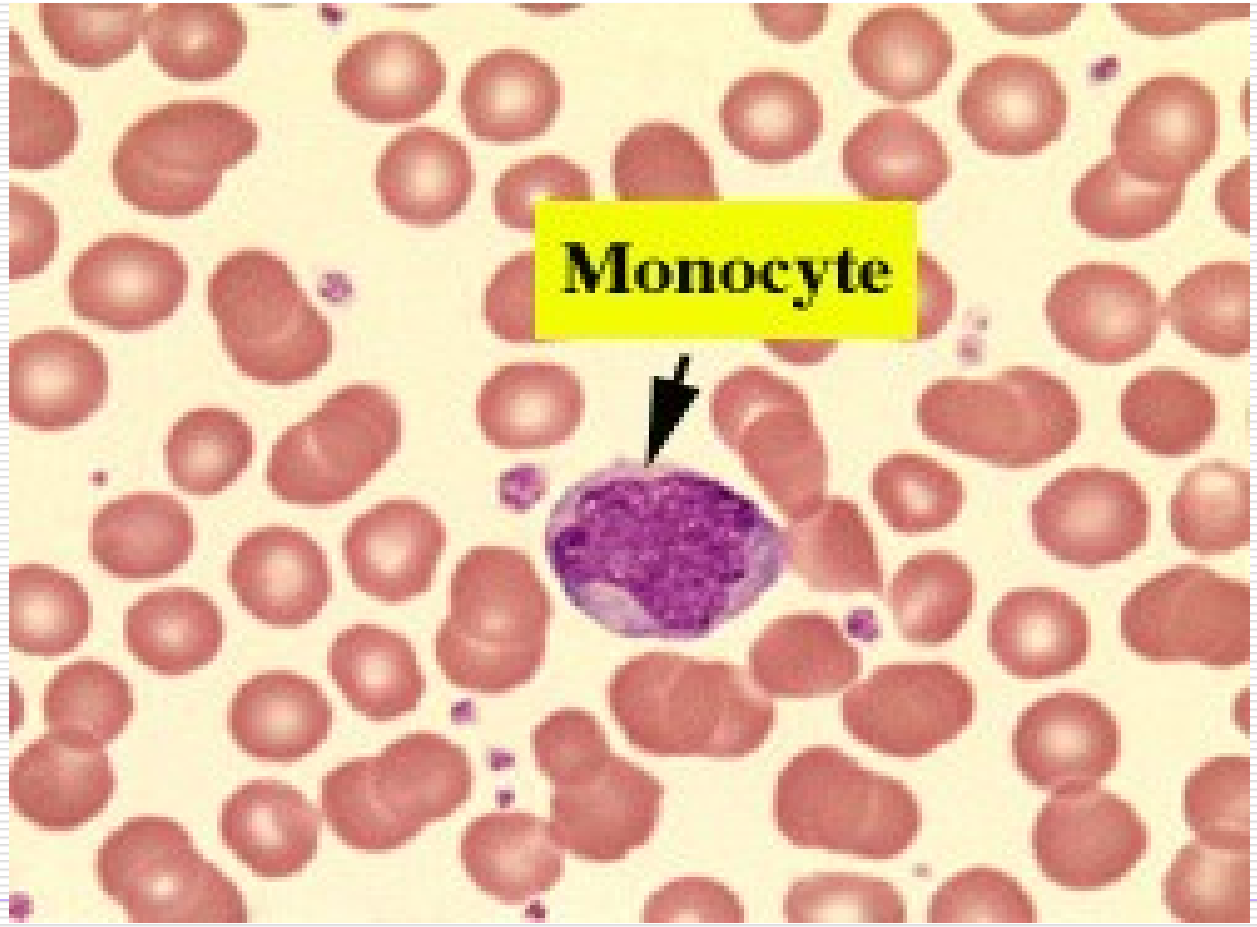
- gives red blood cells their colour
- can carry up to 4 molecules of O_2
- associates and dissociates with O_2
- contains iron

Function of Haemoglobin



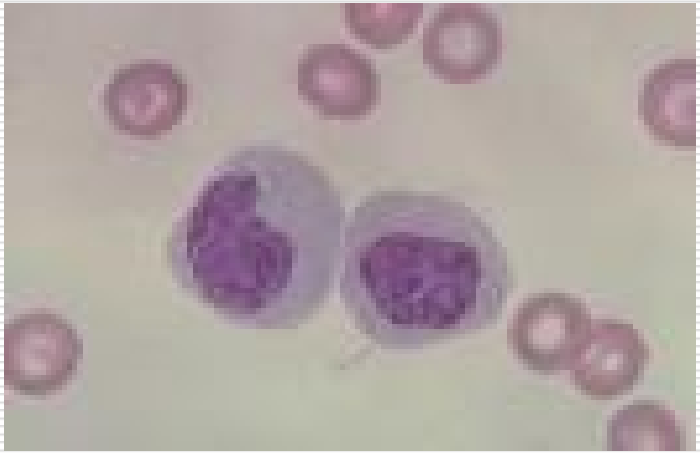
When there is a high concentration of oxygen e.g in the alveoli haemoglobin combines with oxygen to form oxyhaemoglobin. When the blood reaches the tissue which have a low concentration of oxygen the haemoglobin dissociates with the oxygen and the oxygen is released into body tissues

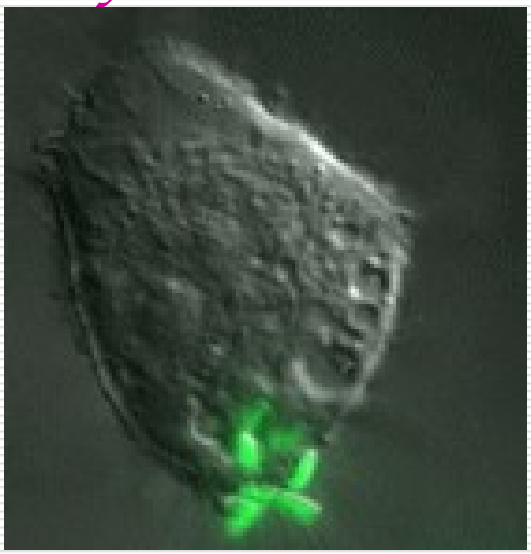
Monocytes



Phagocytes

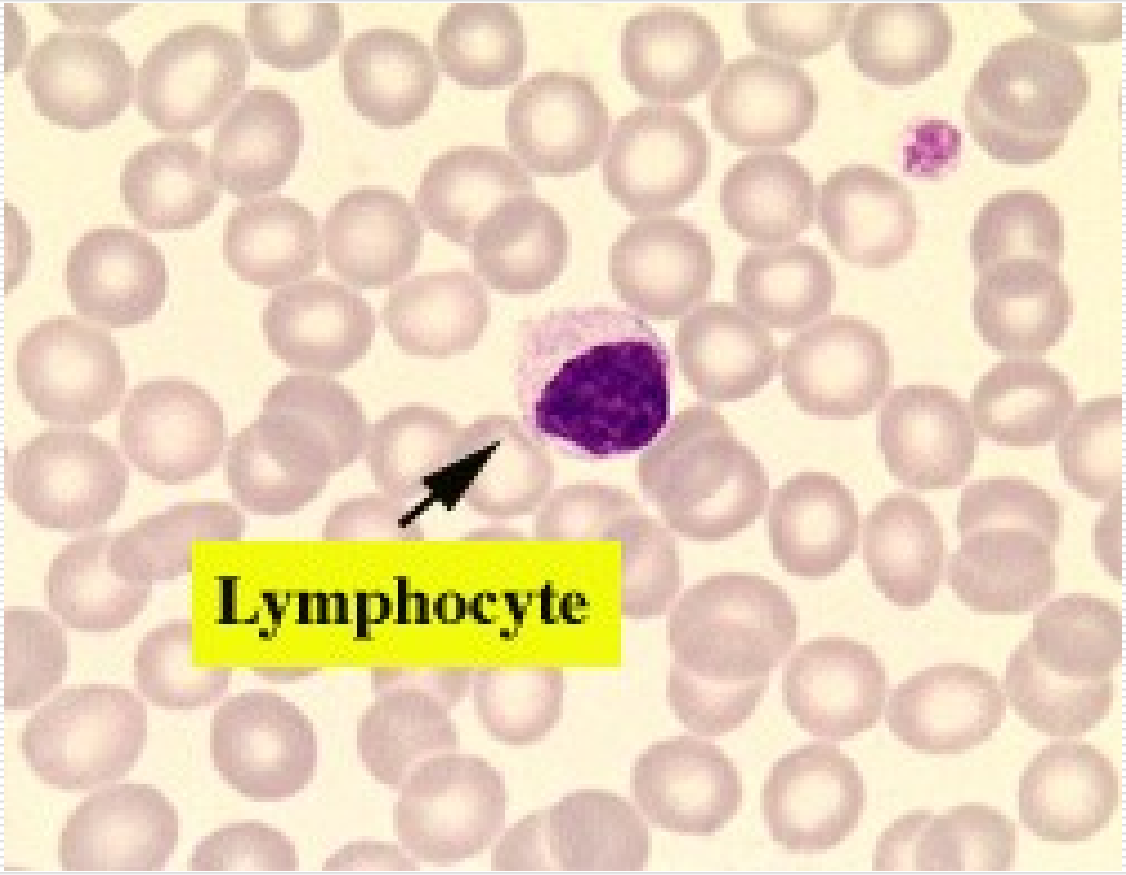
- *Monocytes and macrophages*
- *Provide a **non-specific** response to infection*





- *http://www.microbelibrary.org/images/tterry/anim/phago053.html*

Lymphocyte



Lymphocytes

*Provide a **specific immune response** to infectious diseases.*



There are 2 types: -

- T-cells

- B-cells

*They produce **antibodies**.*

Blood

Can you?

- *State the composition of Blood*
- *State the function of red blood cells and plasma*
- *Explain the function of haemoglobin in the transport of oxygen*
- *State the function of macrophages and lymphocytes*

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