



Blood Disorders

But first.... Let's review!



What are the 4 main components of blood?

Plasma

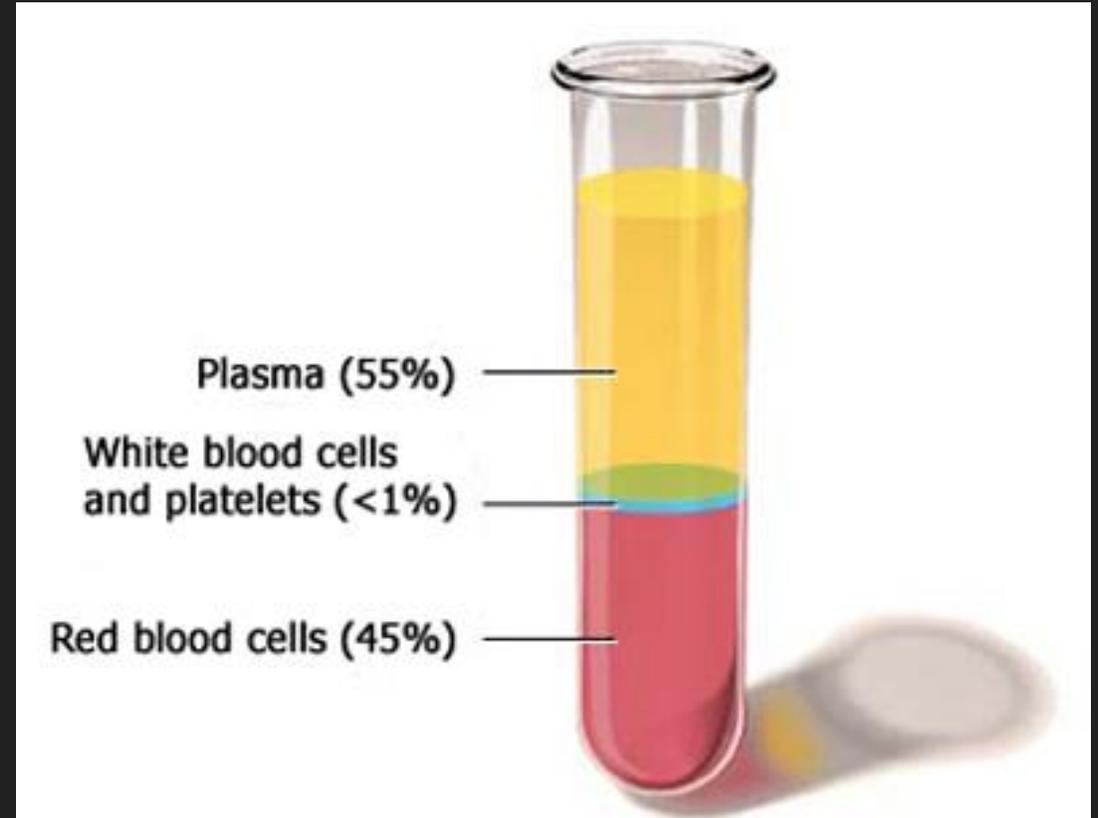
Red Blood Cells

White Blood Cells

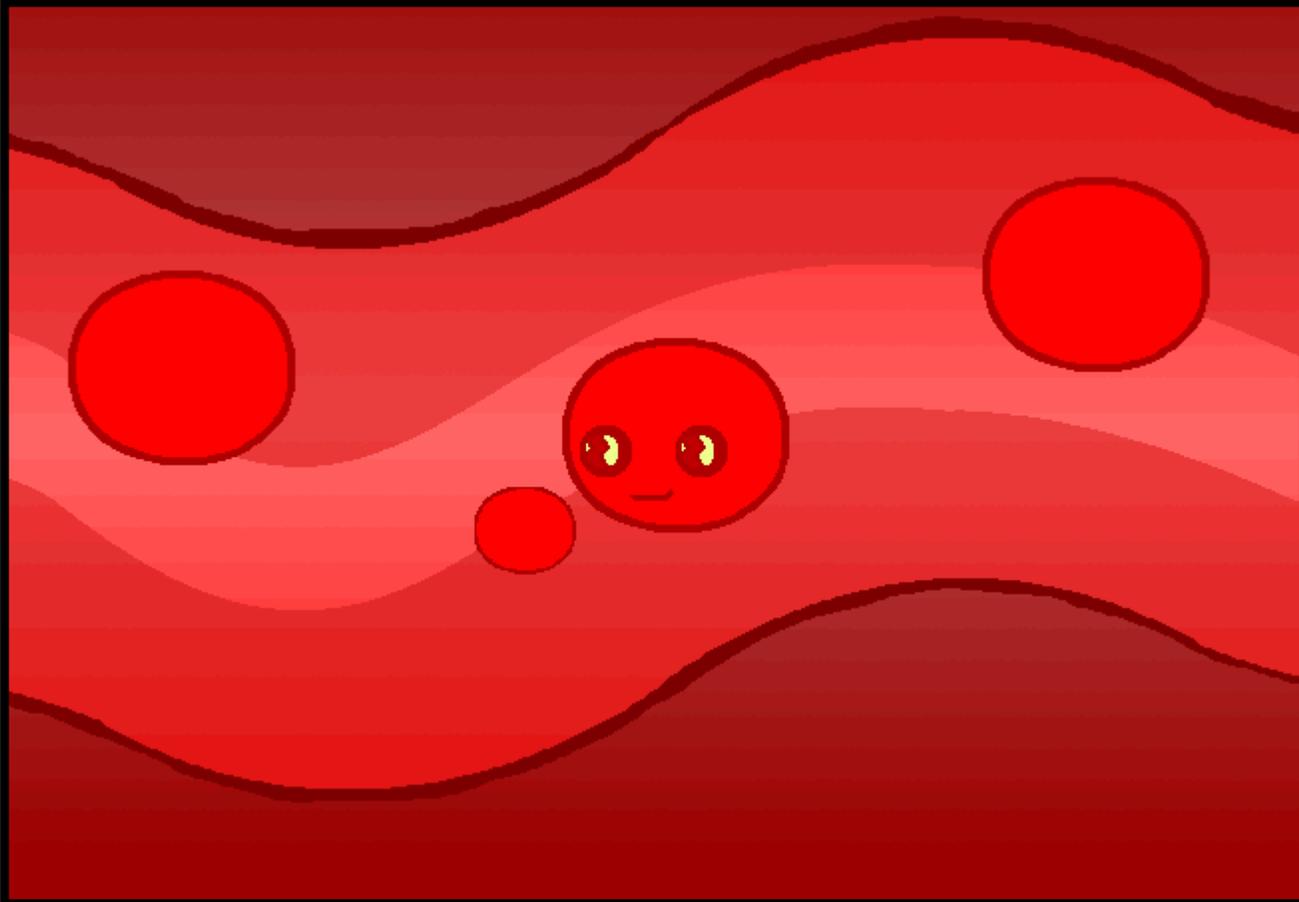
Platelets

What percentage of the blood is made up of plasma?

~55%



Of the 3 formed elements, which one is the most numerous?



Red Blood Cells

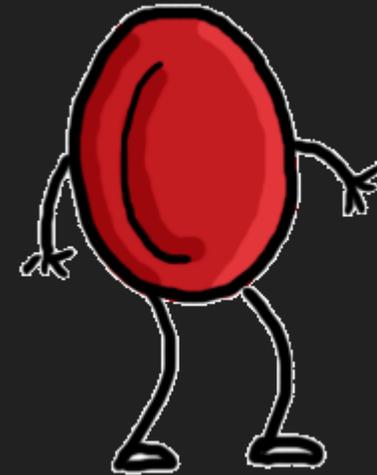
Of the 3 formed elements, which one is the least common?



White Blood Cells

What is the scientific name for a red blood cell?

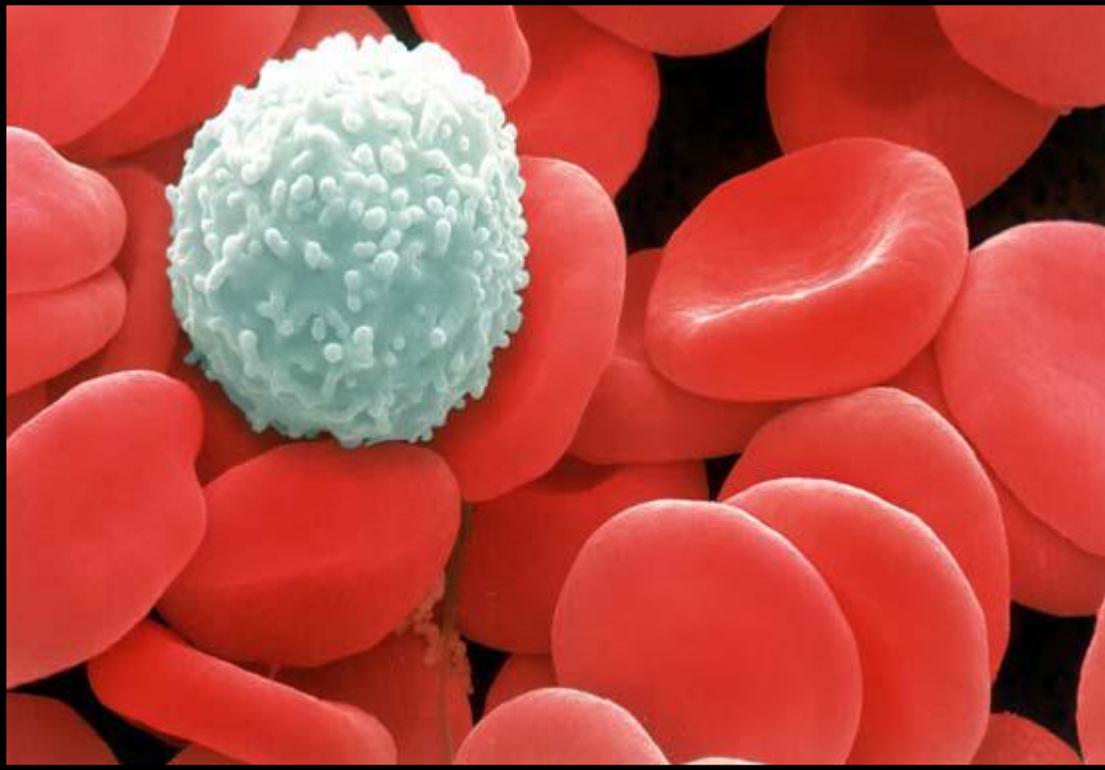
Erythrocyte



What is the main function of the red blood cells?

To carry oxygen and carbon dioxide

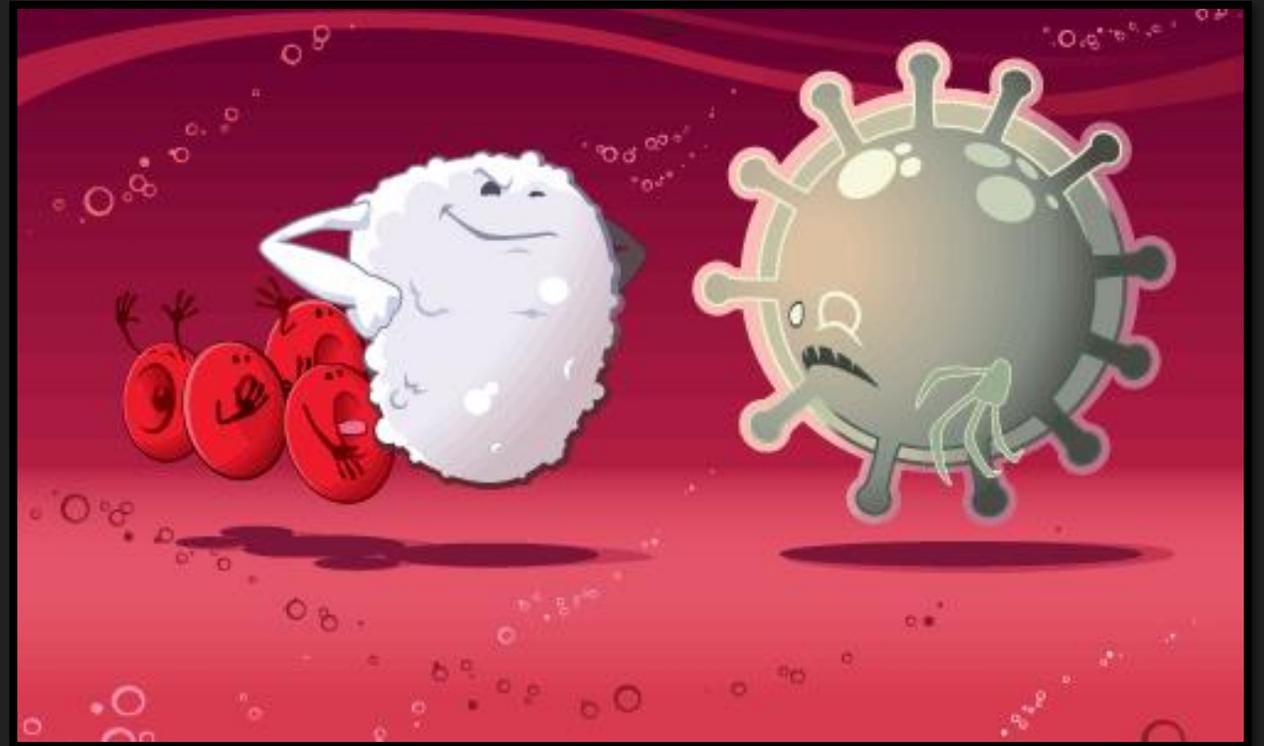
What is the scientific name for a white blood cell?



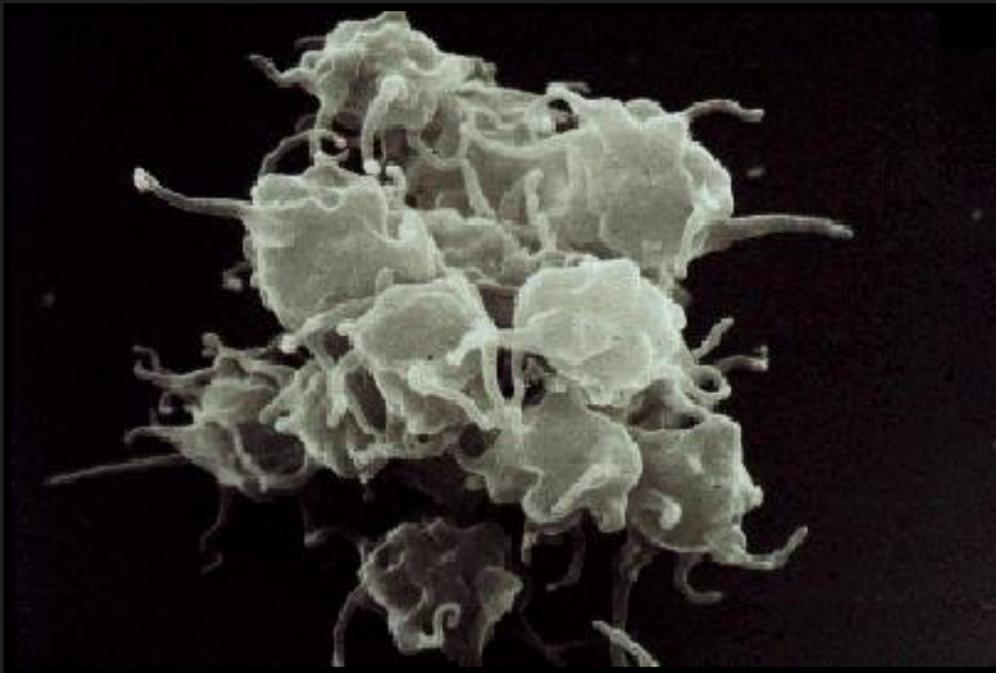
Leukocyte

What is the main function of the white blood cells?

To remove harmful foreign bodies (immunity)



What is the scientific name for a platelet?



Thrombocyte

What is the main function of the platelets?

Clotting of
the blood

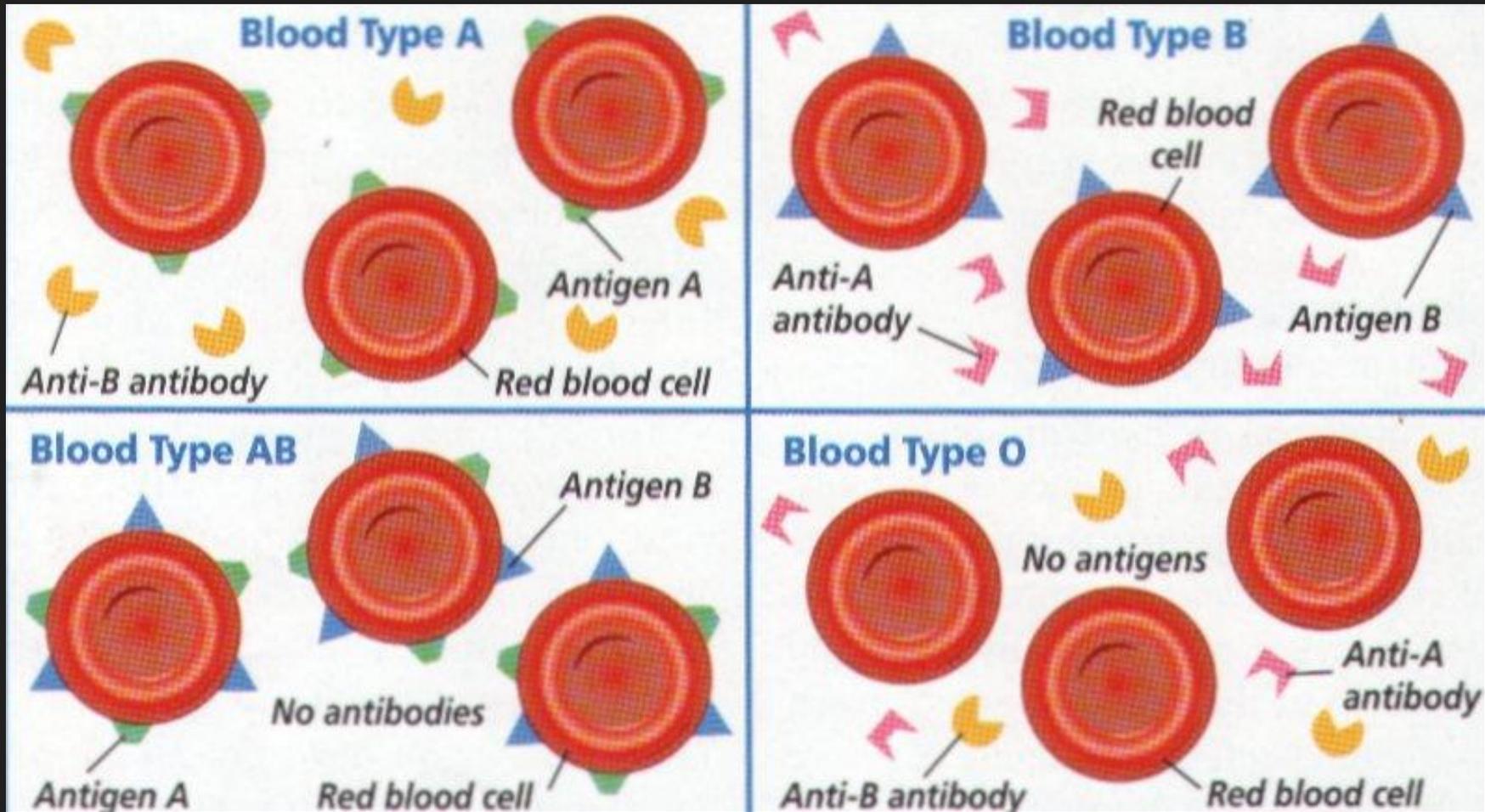


What is an antigen?

Protein marker on the outside of a red blood cell – tells you what blood type a person has

What is an antibody?

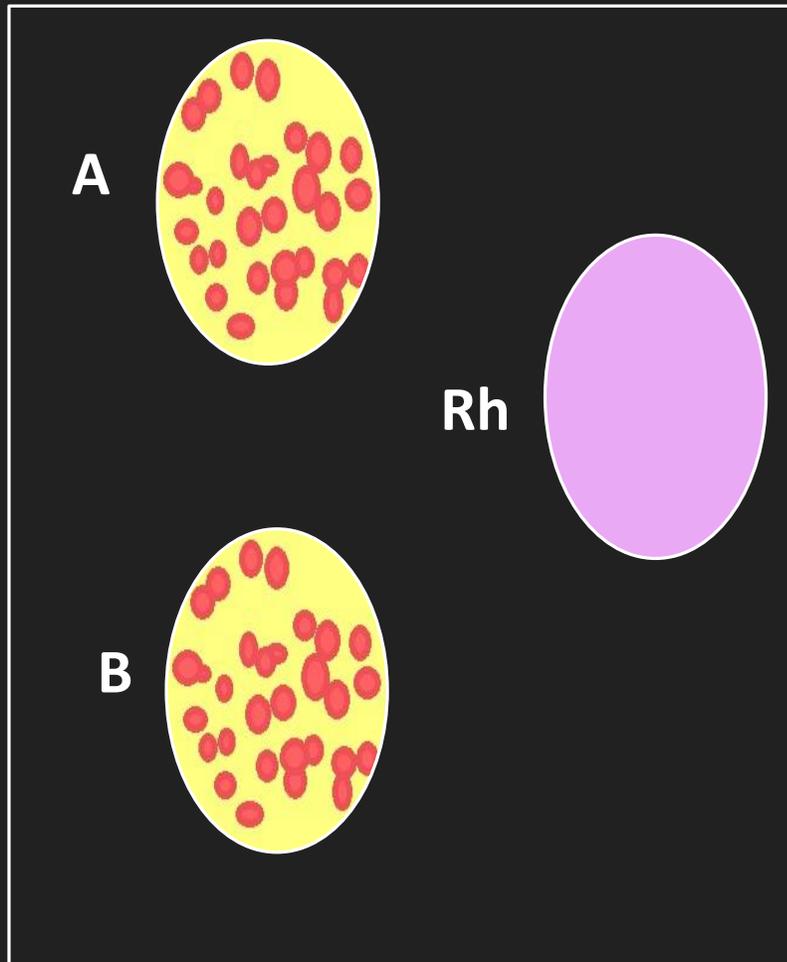
Proteins in the blood stream that are used to identify and neutralize unwanted things in the blood



What blood type does this person have?

Clots with
anti-A = A

Clots with
anti-B = B



Does not clot
with anti-Rh =

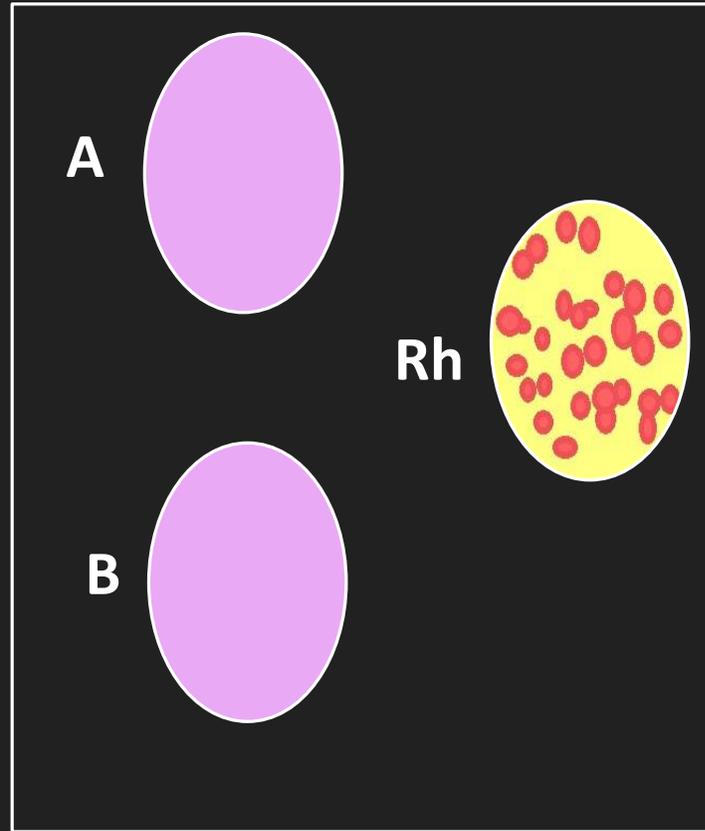
-

Blood type =
AB-

What blood type does this person have?

Does not clot
with anti-A =
no A

Does not clot
with anti-B =
no B



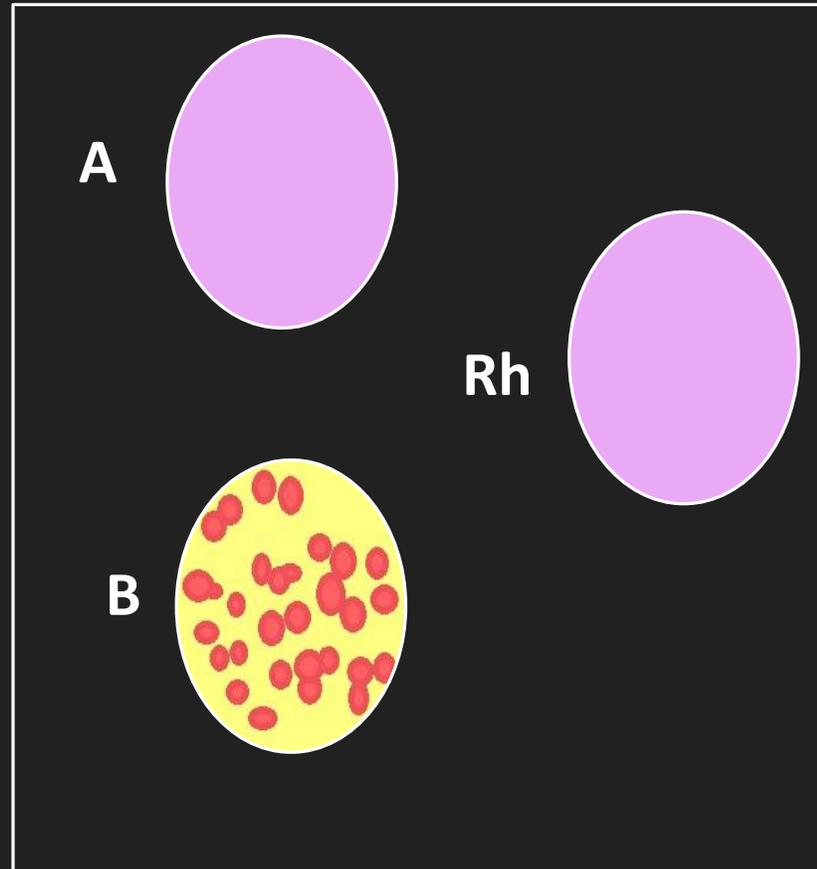
Clot with anti-
Rh = +

Blood type =
O+

What blood type does this person have?

Does not clot
with anti-A =
no A

Clots with
anti-B = B



Does not clot
with anti-Rh =
-

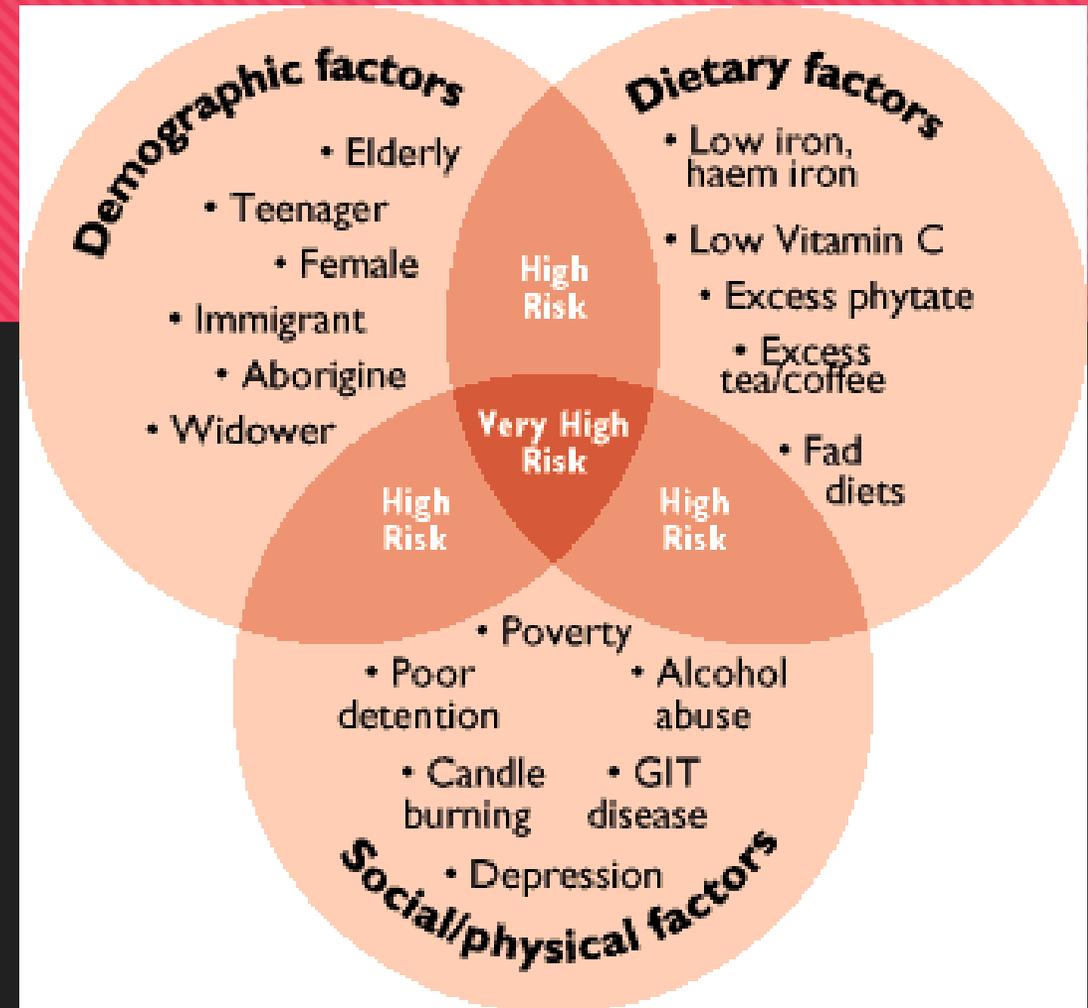
Blood type =
B-

Blood Disorders

Blood disorders

Anaemia (or anemia)

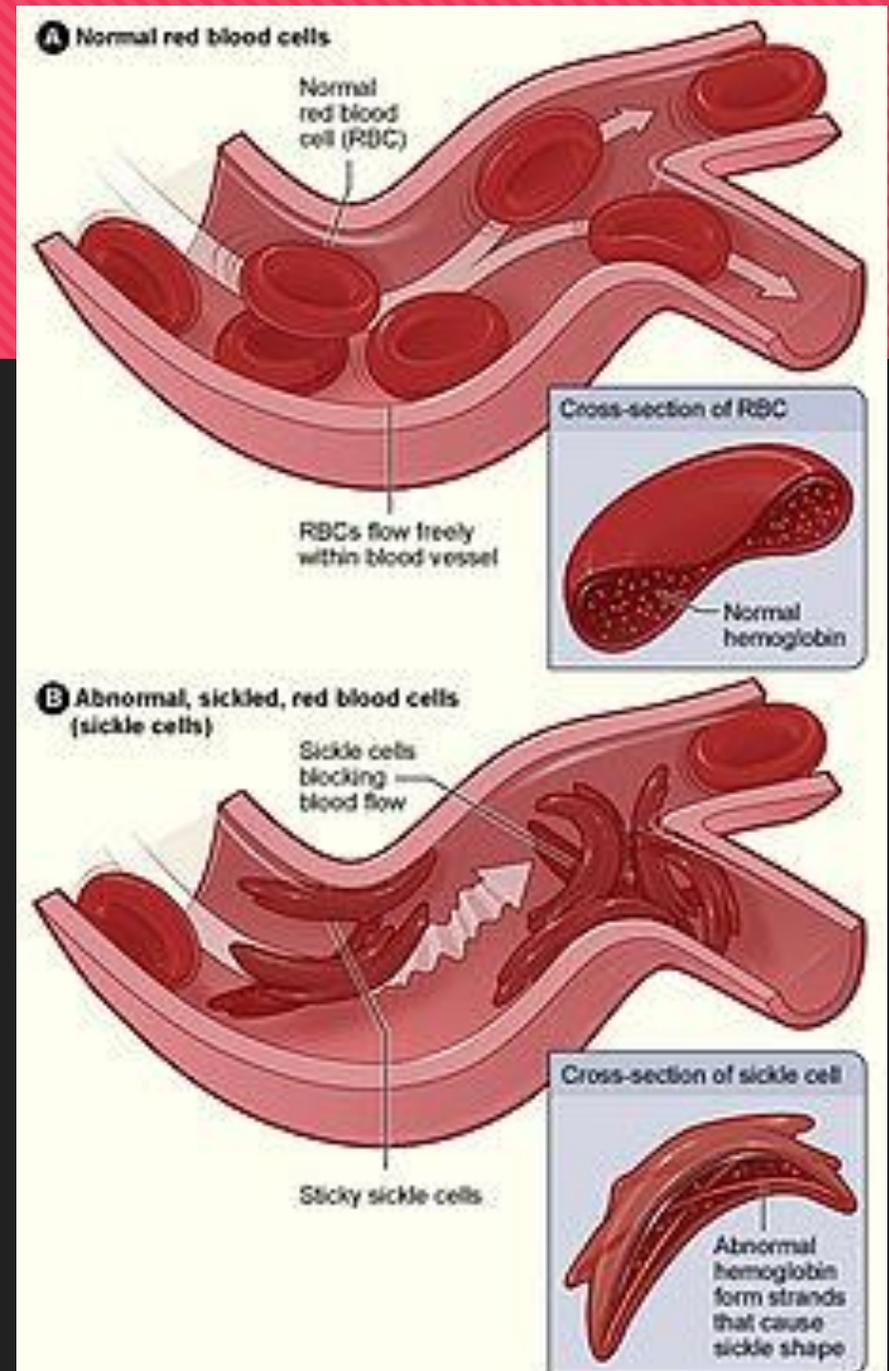
- Not enough healthy red blood cells
- Often due to low levels of iron which is a key component of hemoglobin
- This leads to low oxygen levels
- No hemoglobin = can't bind the oxygen



Blood disorders

Sickle Cell Anaemia

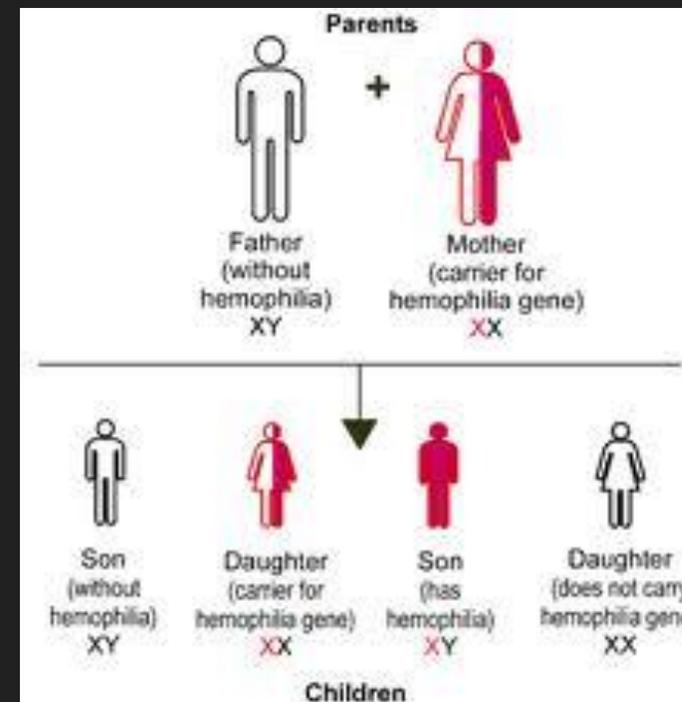
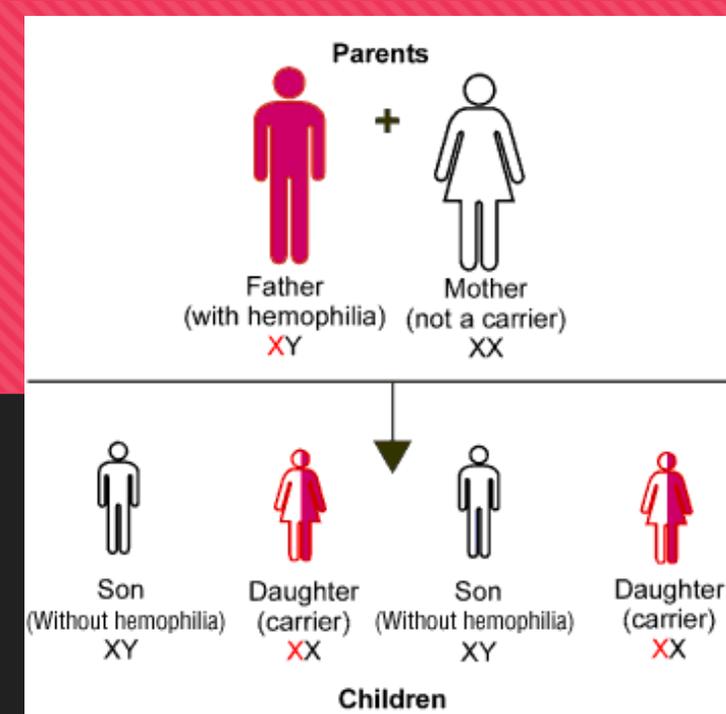
- Genetic disorder of RBC
- Cells form a rigid sickle (crescent) instead of a flexible biconcave disk
- Leads to low oxygen transport
- Forms clots and blocks capillaries



Blood disorders

Haemophilia (Hemophilia)

- Blood does not clot properly
- Inherited disease – linked to X chromosome so much more common in men



Blood disorders

Leukaemia (Leukemia)

Cancer of blood-forming tissues

- Usually starts in the marrow and causes the production of abnormal blood cells (most often white blood cells)
- These abnormal cells often don't function properly and can crowd out normal ("good") cells preventing them from doing their jobs