



ABO Blood group system (Human Blood Groups)

قسم تقنيات الأشعة
المرحلة الأولى
المحاضرة التاسعة
فسلجه عملي
2021\5\26

MSc. Doaa Adil

Blood group test

Blood typing test is a test that determines a person's blood type. The test is essential if you need a **blood transfusion** or are planning to donate blood. •

- Not all blood types are compatible, so it's important to know your blood group. •

Receiving blood that's incompatible with your blood type could trigger a dangerous immune response

Your blood type is determined by what kind of antigens your red blood cells have on the surface. •

Antigens \ are substances that help your body differentiate between its own cells and foreign, potentially dangerous ones. If your body thinks a cell is foreign, it will set out to destroy it. •

Antibody (Ab),

also known as an **immunoglobulin (Ig)**,\ •

is a large, Y-shaped protein used by •
the immune system to identify and neutralize
foreign objects such as pathogenic
bacteria and viruses

-Red cell membranes have **antigens**
(**protein / glycoprotein**) on their

ABO blood group consist of •

- **Two antigens** (A & B) on the surface of the RBCs
- **Two antibodies** in the plasma (anti-A & anti-B).

- The serum of a **group O** person normally contains neither anti **A nor anti B**
- that of a **group A** person contain **anti B**
- that of a **group B** person contain **anti A**
- that of a **group AB** person **anti A and anti B**

A antigen



Blood type A

B antigen



Blood type B

AB antigen



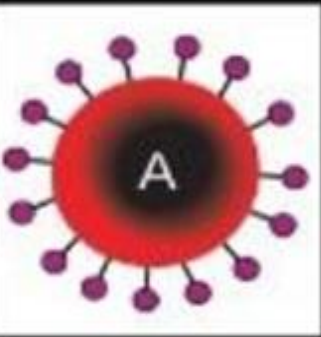
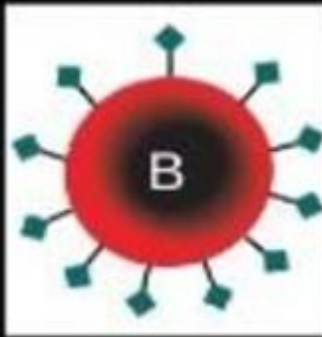
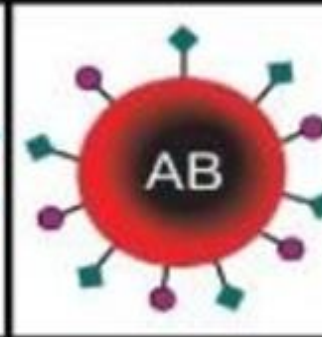
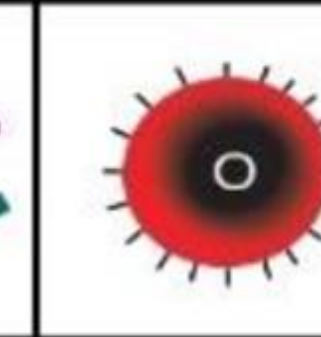

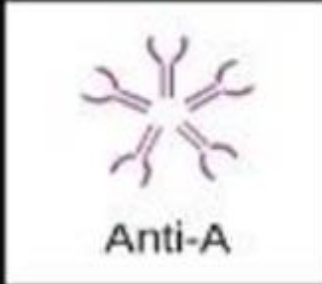
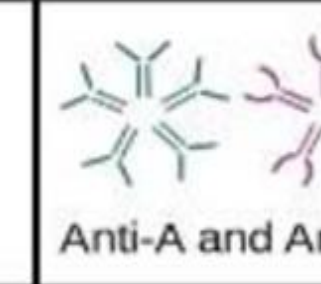



Blood type AB

No antigens



Blood type O

ABO blood group antigens present on red blood cells

	Group A	Group B	Group AB	Group O
Red blood cell type	 A	 B	 AB	 O
Antibodies in Plasma	 Anti-B	 Anti-A	None	 Anti-A and Anti-B
Antigens in Red Blood Cell	 A antigen	 B antigen	 A and B antigens	None

The Rhesus Blood Group system (Rh)

Rh factor, also called Rhesus factor, is a type •
of protein found on the outside of red blood
cells. The protein is genetically inherited
(passed down from your parents). If you have
the protein, you are **Rh-positive**. If you did not
inherit the protein, you are **Rh-negative**.

- The Rh agglutinogen was first discovered in **the red cells of the rhesus monkey**, hence the name
- **85%** of people whom are called Rh + (positive) the remaining **15% Rh** (negative)

ABO Typing Technique

Method

Slide method •

Reagents Required: •

Monoclonal Anti-A and Anti-B

Procedure

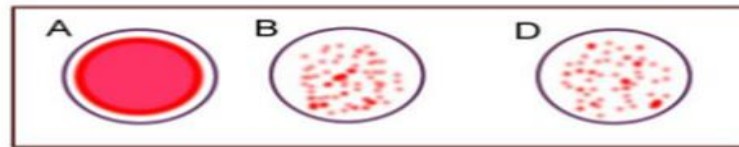
- Divide a microscope slide into three areas A, B and D.
- Place one drop of anti-A serum, anti-B serum and anti-D serum in areas A,B and D divisions respectively
- Prick a finger with a sterile lancet and removed the first drop of blood.
- Add one drop of blood into each division (A,B and D) next to the drop of test serum and mix them well with a glass rod or a clean match stick.
- After 2 minutes observe the area for the evidence of agglutination of the red cells (read microscopically)

Find out the blood groups using the following table:-

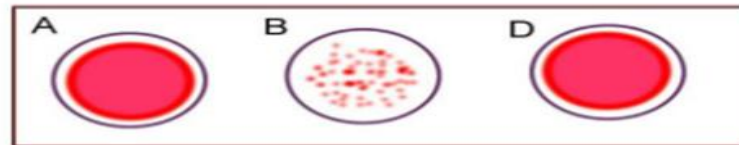
Blood group	Reaction with Anti-A	Reaction with Anti-B
A	+	-
B	-	+
AB	+	+
O	-	-



Blood Groups



B +



B -

Thank

you

