

## Practical exercise 1: Determining blood groups

Notion to know:

1- The blood group is a characteristic shared by all individuals of our species, but there is variability since each individual belongs to one of the four groups of the ABO system: A, B, AB or O.

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Added to this is the Rhesus system, which determines whether an individual is Rhesus positive (Rh +) or Rhesus negative (Rh-).

Belonging to a blood group depends on the markers present on the surface of the red blood cells.

Blood type	Presence of an A marker on the red blood cell	Presence of a B marker on the red blood cell	Presence of an Rh marker on the red blood cell
<b>A</b>	yes	No	
<b>B</b>	No	yes	
<b>AB</b>	Yes	yes	
<b>O</b>	no	no	
<b>Rh+</b>			yes
<b>Rh-</b>			no

2- To determine the blood group of a blood sample, a drop of this sample is tested successively with a spot of 3 different serums containing anti-marker A or B or Rh antibody.

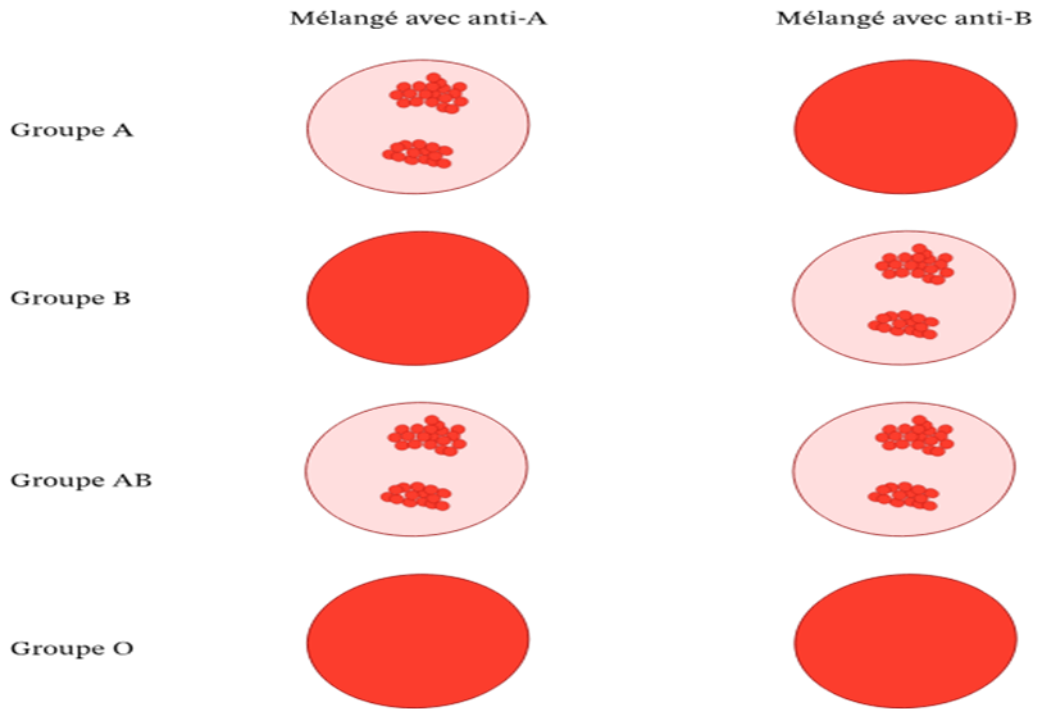
3- If the blood tested coagulates (agglutinates) with one of the 3 serums, this means that the marker has been detected.

Results table:

Agglutination = yes

No agglutination = no

Blood types	A+	A-	B+	B-	AB+	AB-	O+	O-
<b>Anti-A serum</b>	Yes	Yes	No	No	Yes	Yes	No	No
<b>Anti-B serum</b>	No	No	Yes	Yes	Yes	Yes	No	No
<b>Anti-Rh serum</b>	Yes	No	Yes	No	Yes	No	Yes	No



**Figure 1:** Results of agglutination of each blood group with anti-A and anti-B antibody

	agglutination
	pas d'agglutination goutte de teinte homogène

**Figure 2:** Results of agglutination with anti-D (Rh) serum

## PROTOCOL FOR DETERMINING THE BLOOD GROUP OF A SAMPLE

### 1 Equipment :

Each pair will have the following equipment:

- 1 slide
- A blood sample
- anti-A serum
- anti-B serum
- anti-D (Rh) serum
- Cur teeth

**2.method :**

1- Put three drops of the blood sample on the slide.

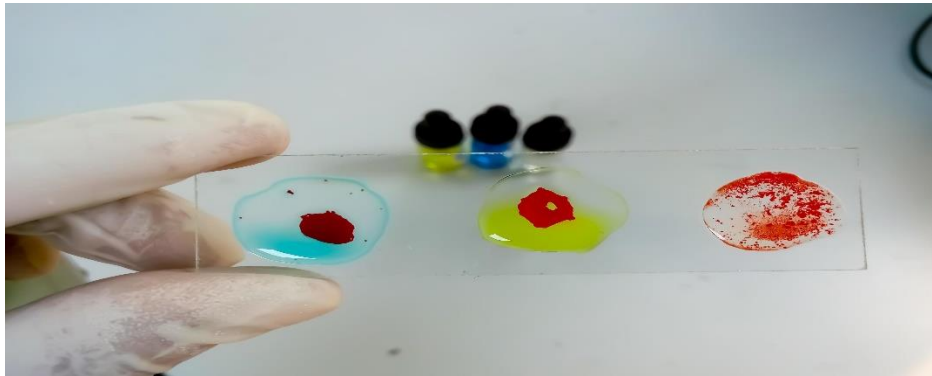
2- Place one drop of a different serum on each drop of blood:

- anti-A serum
- anti-B serum
- anti-D (Rh) serum

3- Mix gently with a pick.

Caution: Do not invert!

4- Read the results: coagulation or not?



5- Interpret the results by deducing the blood group to which the blood tested belongs.

<b>Test</b>	<b>Anti-A serum</b>	<b>Anti-B serum</b>	<b>Anti-Rh serum</b>
<b>Blood tested coagulation (yes - no)</b>			
<b>Blood group of blood tested</b>			

which of these samples is considered to be a universal recipient and which is considered to be a universal donor?

Justify your answer