Determination of Blood Groups
ABO and Rh Systems

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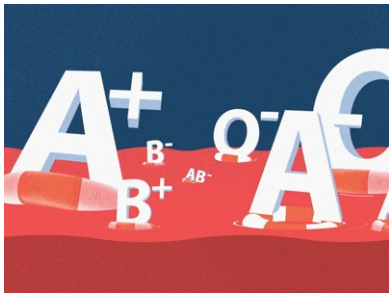

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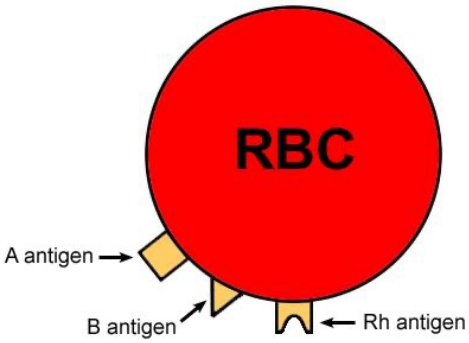
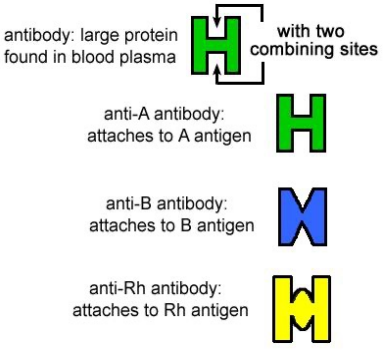
Introduction: ABO antigens and antibodies:





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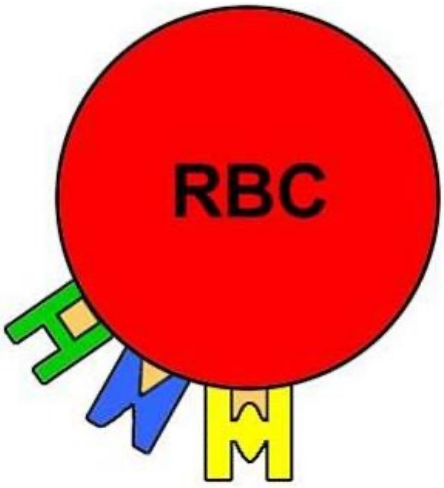
Antibodies attach to Antigens on surface of RBC membrane:



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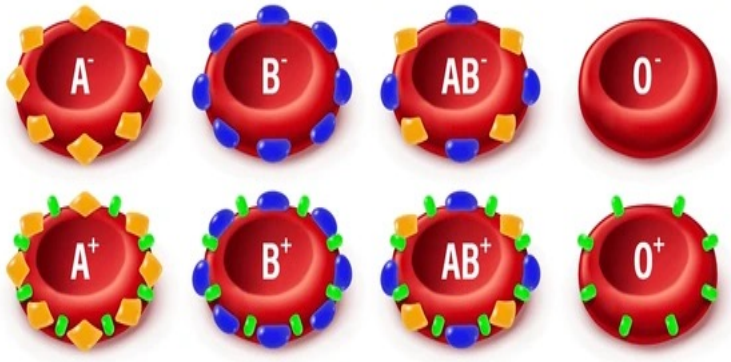
ABO and Rh antigens



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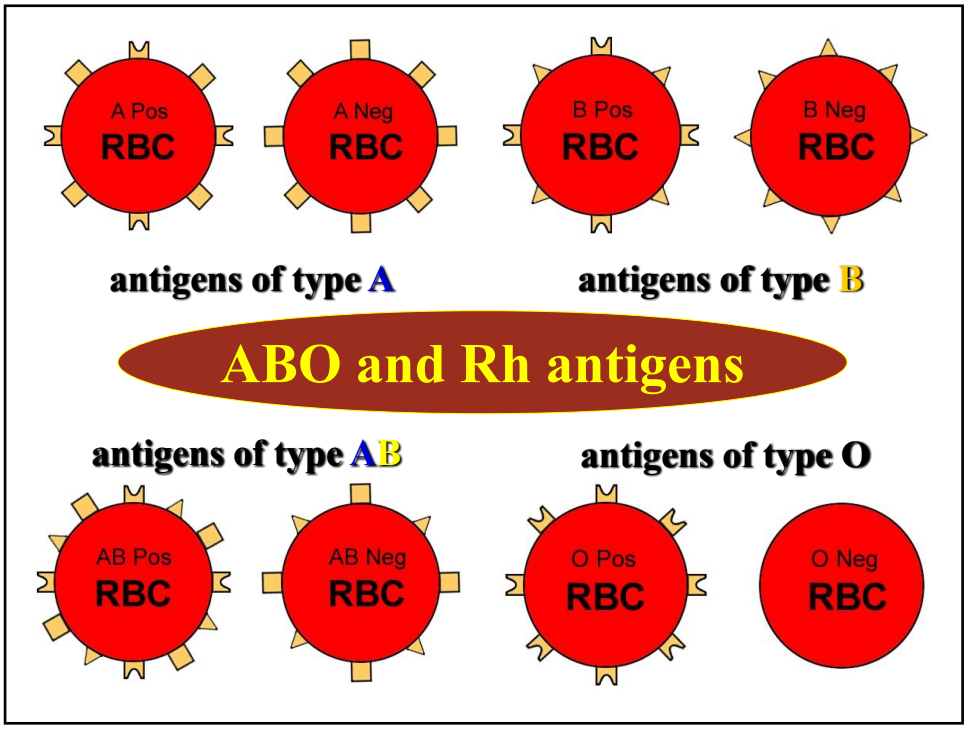

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Apparatus and Materials:

- **Antisera**:
  - Anti-A (blue)
  - Anti-B (yellow)
  - Anti-D/Rh (colorless)

- **Sampling supplies:**
  - Glove
  - Sterile lancets
  - Alcohol swabs, and cotton

- **Test surface:**
  - Clean glass slide or porcelain tile

- **Mixing tools:**
  - Clean wooden toothpicks

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Principle of the Test:

- A **blood drop** is **mixed with standard antisera** (Anti-A, Anti-B, and Anti-D) to detect the **presence** or **absence** of specific **antigens** on the red blood cells, **identifying the ABO & Rh blood types**.

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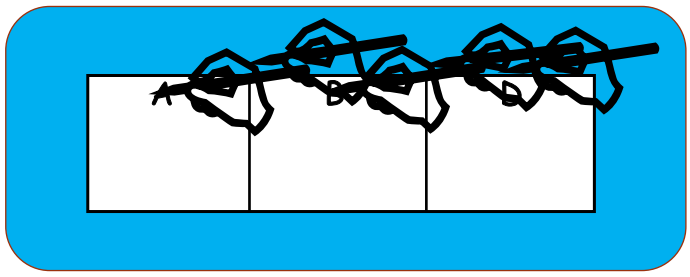
Determination of Blood groups (Glass slide method) :

Procedure:

❶Divide a clean glass slide into 3 equal divisions (using a glass marking pencil), then label these divisions with **anti-A**, **anti-B** and **anti-D** respectively.



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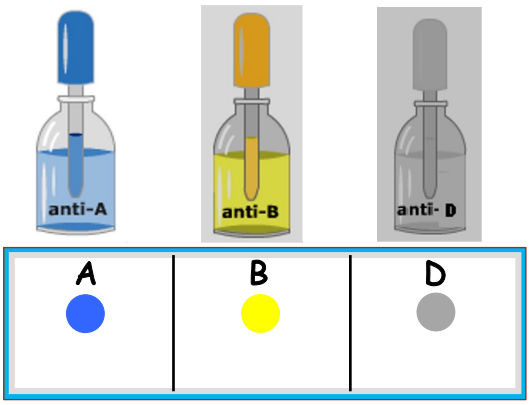
❷**Place a drop of anti-A serum, anti-B serum, and anti-D serum in the respective divisions:**



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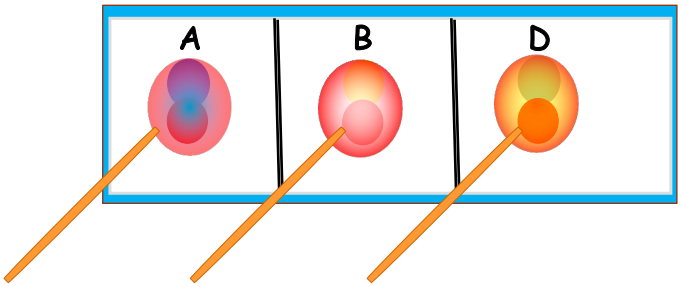
❸ Prick a finger with a sterile lancet, and add one drop of blood to each anti-serum.

- With the help of a clean wood stick, mix the blood and anti-sera thoroughly.

*** Use separate wood sticks for separate sera.**



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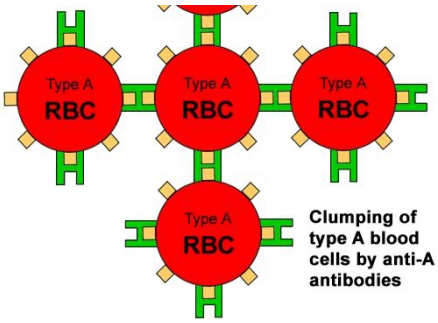
❹ After (5–10 min.) observe the sera for the evidence of clumping of the red blood cells.

❺ **Clumped** red cells give a coarse reddish granular appearance.

Clumping
=
Agglutination



❻ Microscopic examination may be carried out for the confirmation of **agglutination**.

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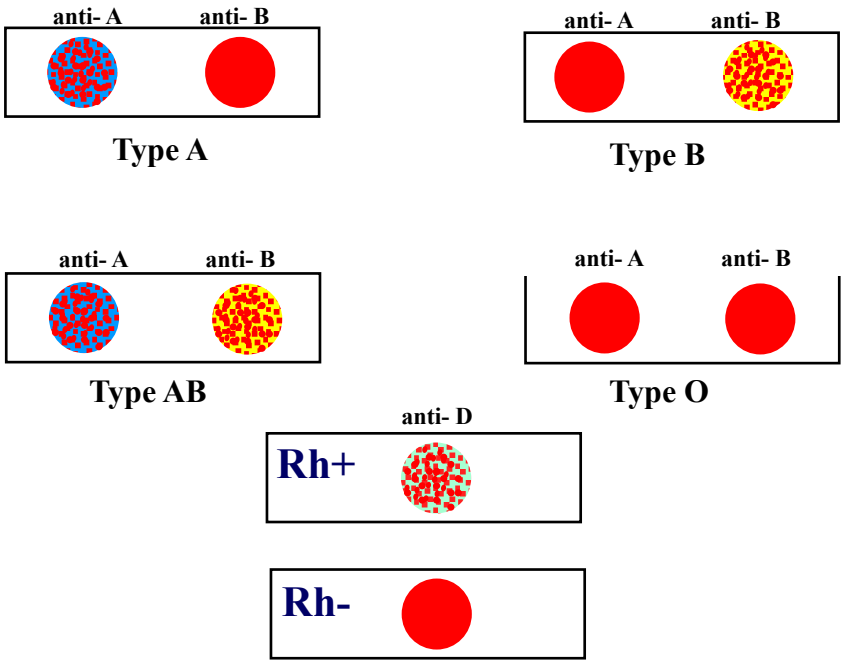

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Cross matching:

This is done by performing the following 2 tests:

Test	Donor		Recipient
1	RBCs	✕	RBCs
2	Plasma		Plasma

No agglutination means the blood samples are compatible and blood transfusion can be made safely.

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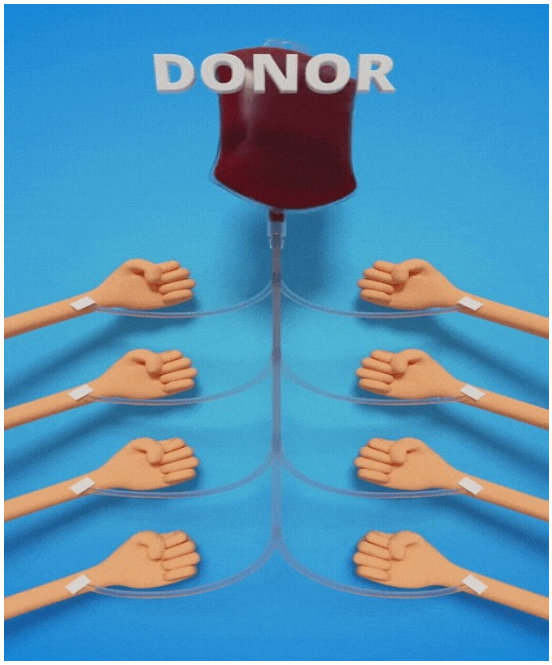

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DISTRIBUTION OF BLOOD TYPES

		Rh+ 84%	Rh- 16%
O	43%	36%	7%
A	42%	35%	7%
B	11%	9,5%	1,5%
AB	4%	3,5%	0,5%

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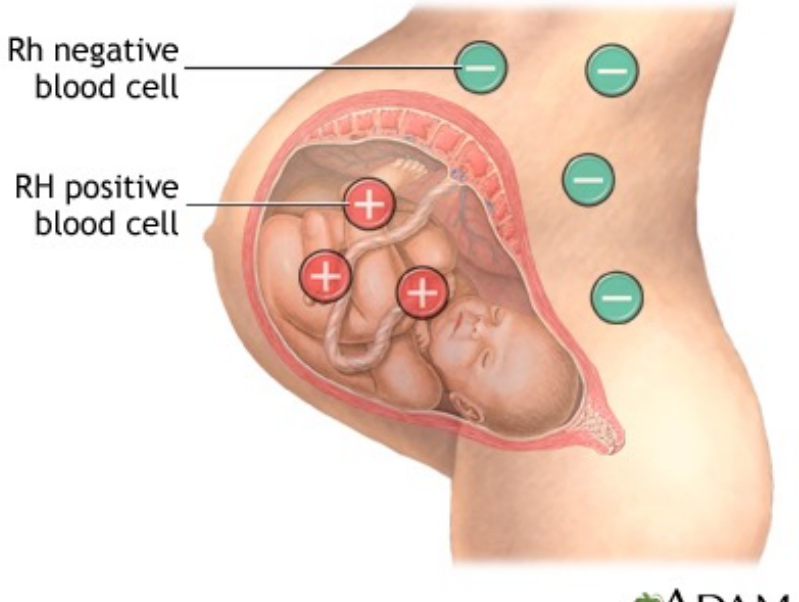

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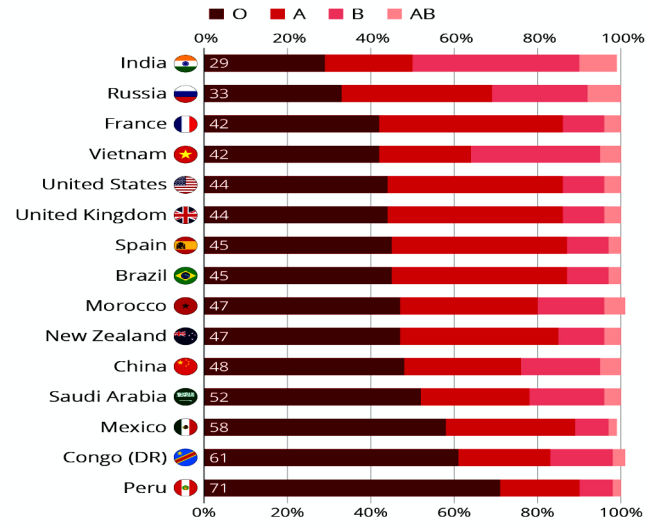
The Rarest and Most Common Blood Types Around The World

Blood type distribution in selected countries (in %)*



* latest available data. Rounded figures.
Source: rhesusnegative.net

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Questions/Comments

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