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College Of Health and Medical Techniques

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Lab 3

BLOOD TYPING

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BLOOD TYPING

Blood Types and Their Classification

Blood types are categorized based on the presence or absence of specific antigens on the surface of red blood cells. The two most commonly used systems are the ABO system and the Rh factor system.

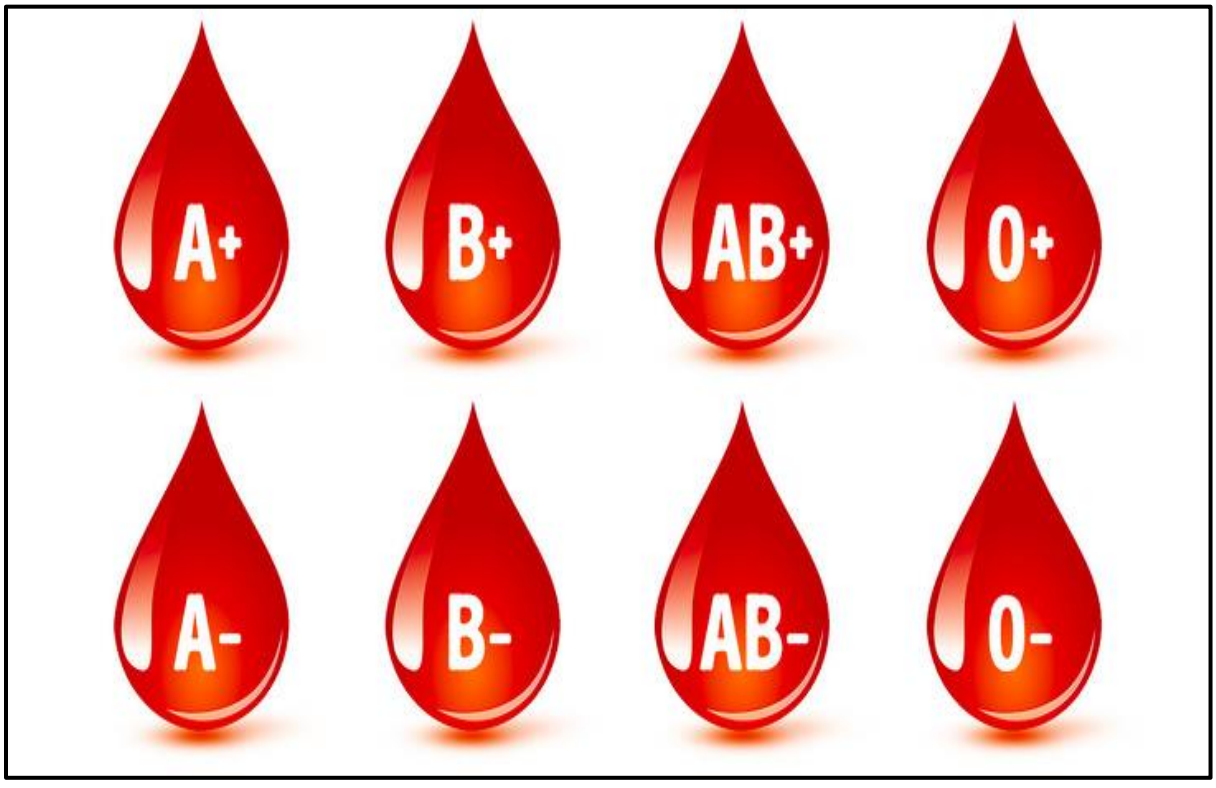
The ABO blood typing system groups the blood into one of four categories:

Type A has the A antigen.

Type B has the B antigen.

Type AB has both A and B antigens.

Type O has neither A nor B antigens.



O: Type O individuals can donate blood to anyone, because their blood has no antigens. However, they can only receive blood from other type O individuals (because blood with any antigens is seen as foreign).

A: Type A individuals can donate to other type A individuals and type AB individuals. Type A individuals can receive blood only from other type A individuals and type O individuals.

B: Type B individuals can donate blood to other B individuals and AB individuals. Type B individuals can receive blood only from type B individuals and type O individuals.

AB: Type AB individuals can give blood only to other AB individuals, but can receive blood of any type.

People who have matching blood groups are said to be 'compatible'

This means they could give or receive each other's blood if necessary.

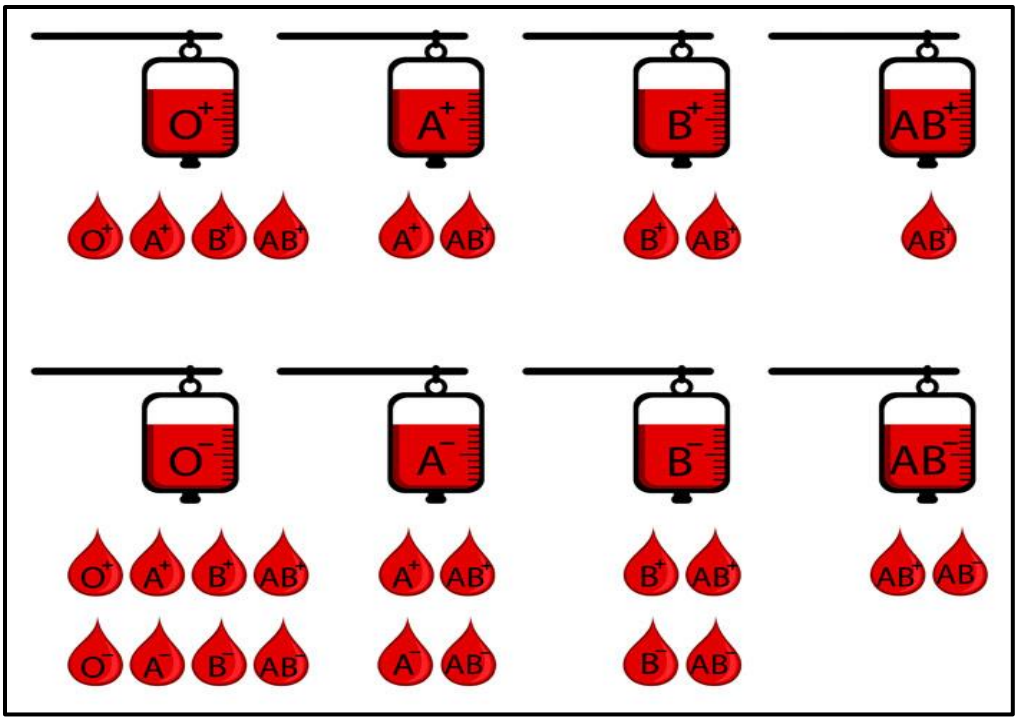
The rhesus (Rh) system

The other blood typing system commonly used is the Rhesus system, also called Rh system, named after the Rhesus monkey in which it was first discovered. In this system, if you have an antigen called the RhD antigen on the surface of your red blood cells, you are said to be Rhesus positive (Rh+). If you don't, you are said to be Rhesus negative (Rh-).

Complete Blood Type Classification:

By combining the ABO and Rh systems, there are 8 main blood types:

1) A+
2) A-
3) B+
4) B-
5) AB+
6) AB-
7) O+
8) O-



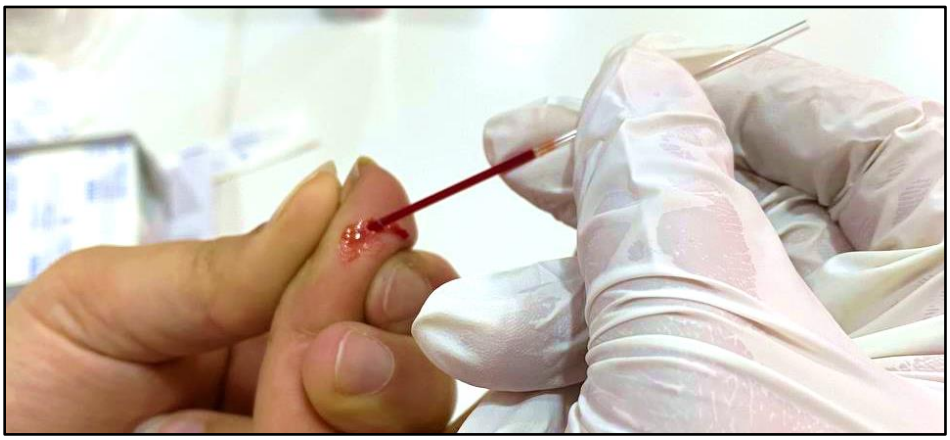
Blood Typing Method

1. **Required Tools:**

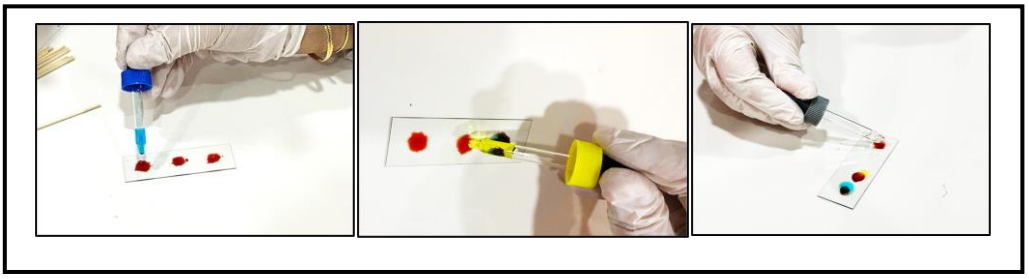
- A glass slide.
- Anti-A and Anti-B solutions (antiserum).
- Anti-D solution (for Rh factor testing).
- A blood sample.

2. **Scientific Steps:**

a) Preparing the Sample:
Place a drop of blood on a clean glass slide.



b) Adding the Antisera:
Add one drop of each solution (Anti-A, Anti-B, Anti-D) near each blood sample.



c) Mixing the Samples:
Mix the blood with each solution using clean sticks.Observing the Results:

If agglutination (clumping) occurs, it indicates the presence of the antigen specific to the solution used:

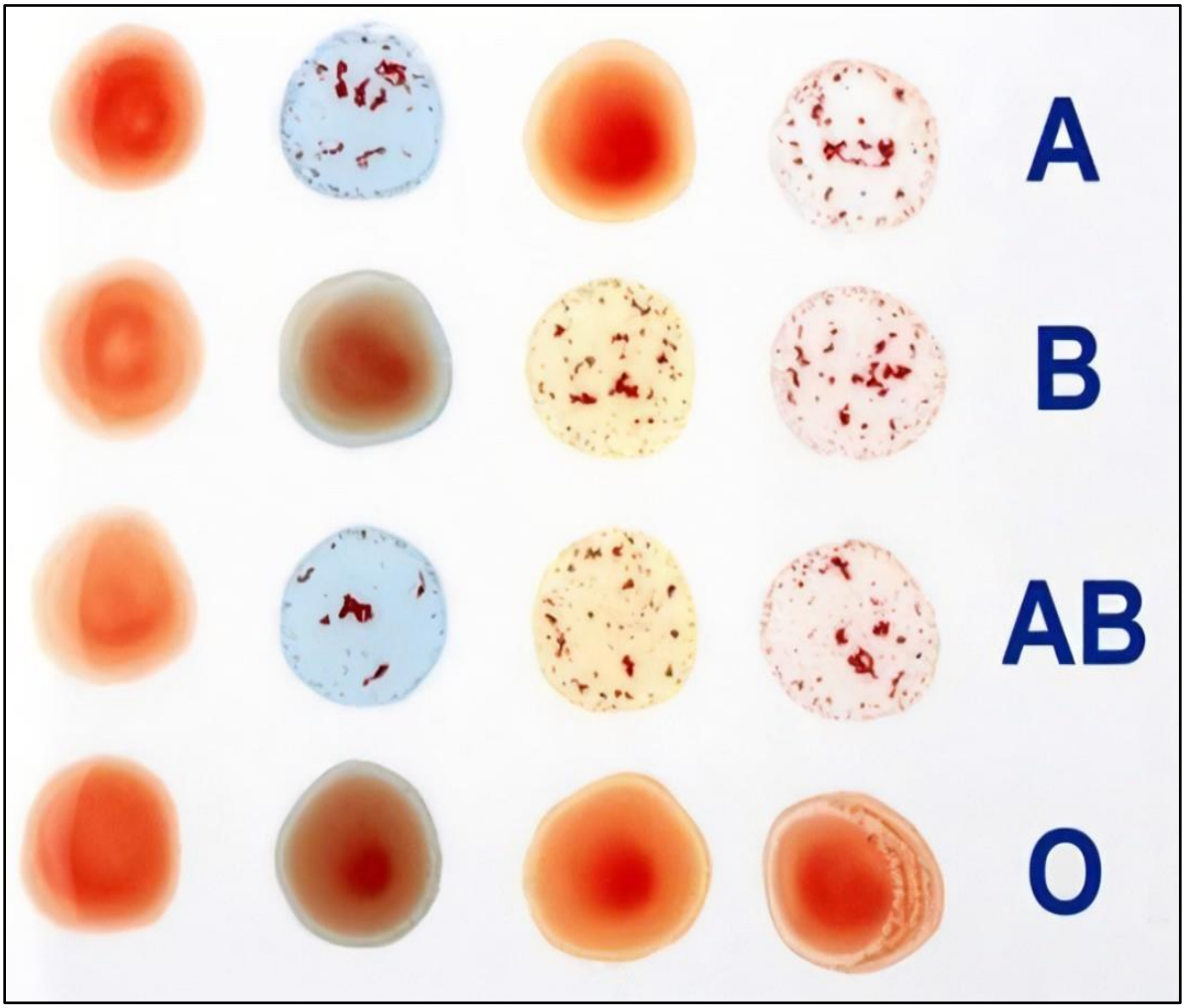
Agglutination with Anti-A only: Blood type A.

Agglutination with Anti-B only: Blood type B.

Agglutination with both Anti-A and Anti-B: Blood type AB.

No agglutination: Blood type O.

Agglutination with Anti-D indicates Rh-positive (+), while its absence indicates Rh-negative (-).



Significance of Knowing Your Blood Type:

1. In Blood Transfusions:

Ensures compatibility between donor and recipient, preventing severe immune reactions.

2. During Pregnancy:

To avoid hemolytic disease of the newborn if the mother is Rh- and the baby is Rh+.

3. In Emergencies:

O- blood is used as an emergency option when the recipient's blood type is unknown.