The Determination Of The ABO And Rh (D) Blood Groups

four blood types involving the A and b antigens have been recognized : A, B, and O : these letters indicate the type of antigen present on membrane of red blood cell. if only the A antigen is present on the red cell. the person has type A blood; if only the B antigen is present , the person has type b blood . type AB red cell have both antigens, and type O have neither. of course no one has antibodies to his own blood type antigens or their plasma would destroy own cell.

Blood type	Antigens (agglutinogens) In RBCs	Antibodies (agglutinins) Present in serum	Can take from	Can donate to	percentage
A	A	Anti-B	A, O	A, AB	42%
B	B	Anti-A	B, O	B, AB	9%
AB	A B	None	AB, A, B, O	AB	3%
O	None	Anti-A, anti-B	O	O, A, B, AB	46%

Anti-A serum and anti-B serum ; when combined with a blood sample in the laboratory , each antiserum causes the corresponding red cell to clump together in a process known as agglutination . the blood s pattern of agglutination ; when mixed separately with these two sera, reveals its blood type. type A reacts with anti-A serum

only; type B reacts with anti-B serum only. type AB agglutinates with both , and type O agglutinates with neither A nor B .

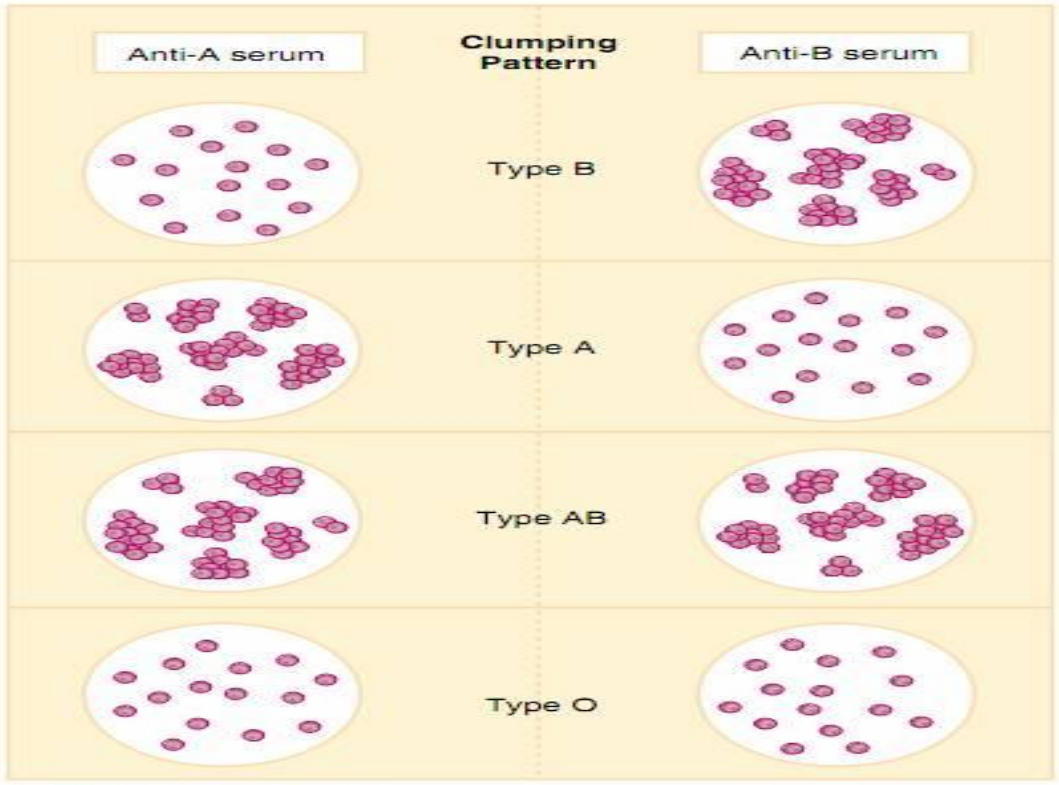

Figure 28-10 Blood Types

The Rh factor

More than 85% of the population has another red cell antigen group called the Rh factor, named for Rhesus monkeys, in Which it was first found. Rh is also known as the D antigen. People with this antigen are said to be Rh positive; those who lock this protein are said to be Rh negative (15%), but their plasma normally does not contain the antibody. in Iraq the Rh factors present on the red cells of about 92% of the people and absent from those of remaining 8%.

Rh incompatibility is potential problem in certain pregnancies. -A mother who is Rh negative may develop antibodies to the Rh factor of an Rh-positive fetus (the fetus having inherited This factor from the father). red cells from the fetus that enter the mothers circulation during pregnancy and childbirth evoke the response: In a subsequent pregnancy with an Rh-positive fetus some of the anti-Rh antibodies may pass from the mother s blood into the blood of her fetus and destroy the fetus red cell this condition is called hemolytic disease of the newborn (erythroblastosis fetalis).

The Principle

- A drop of blood is mixed with anti- A, anti-B, and anti-D sera and examined for agglutination.

Objective:

- to determine the group ABO and Rh factor**.**

Apparatus and Reagents

- **Slide Method**

  1- anti-ABO sera kit (available -commercially).

  2- Glass slides.

  3- Microscope.

  4- Sticks for mixing .

  5- Lancet.

  6- Blood sample

Procedure

1. divide a microscope slide into three areas A, B and D.

2. Prick a finger with a sterile lancet and place one drop of blood in area A, b and D divisions.

3. Add one drop of Anti-A, anti-B and anti-D into each division (A,B and D) respectively

4. Mix them (blood and serum) separately and well with a glass rod or a clean match stick.

5. After two minutes observe the area for evidence of agglutination of the red cells (read microscopically).

Reaction with			**Blood group &RH Type**
Anti-A Serum	Anti-B Serum	Anti-D Serum	
-	-	+	O+
+	-	-	A-
-	-	-	O-
-	+	+	B+
+	+	-	AB-
-	+	+	B+
-	-	+	O+
+	+	-	AB-