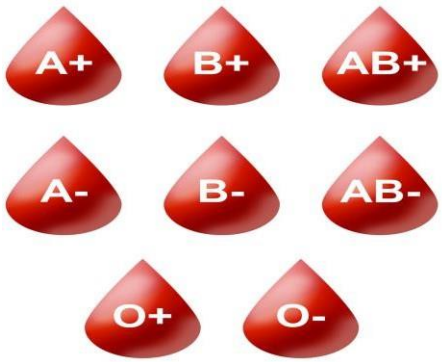
Physiology

Stage 2

Lab 2

Blood Groups



By

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Blood groups

The ABO typing is the most important test performed in transfusion practice. The most common cause of transfusion-related fatal factor due to a patient being transfused with ABO incompatible blood.

Aim: The standard test is to determine ABO and Rh blood type

Principle: Blood typing involves the two types of molecules called antigensand antibodies. agglutination of the test cells indicates the presence of the related antigen, while no agglutination indicates its absence.

Types of blood group

There are four major blood groups determined by the presence or absence of two antigens – A and B – on the surface of red blood cells:

- **Group A –** has only the A antigen on red cells (and B antibody in the plasma)
- **Group B** – has only the B antigen on red cells (and A antibody in the plasma)
- **Group AB** – has both A and B antigens on red cells (but neither A nor B antibody in the plasma). It can take blood from all blood group types. So it called universal recipient. Put only give blood to AB blood group.
- **Group O** – has neither A nor B antigens on red cells (but both A and B antibody are in the plasma). It can give blood to all blood group types. So it called universal donor. Put only take blood from O blood group .

Rh blood group

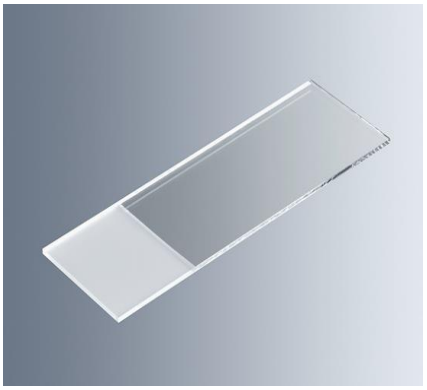
The Rh blood groups are has Rh antigens (antigen D), Most people are Rh+ (Rh positive), meaning that their RBCs carry the Rh antigen. if an Rh- personreceives mismatched blood (that is, Rh+) hemolysis (rapture of RBCs) will occur.

Note: The ABO blood type is indicated by using letters, and the Rh blood typeis indicated by using the symbols (+) and (–).

Material required

1. Glass slides
2. Antisera A, Antisera B and Anti D
3. Wooden stick rod for mixing
4. Marker pen
5. lancet
6. Whole finger blood
7. Cotton & alcohol 70%





Procedure

1. Obtain a microscope slide. The slide must be very clean so it does not interfere with the reaction.

2. With a marker pen, draw two lines on one surface of the slide to divide the surface into thirds.

3. Obtain three wooden stick rods. one wooden stick rod for each drop will be used.

4. Place one drop of the appropriate antiserum (anti A, anti B, anti D) on the glass slide.

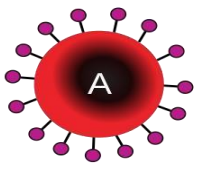
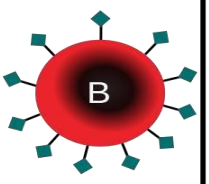
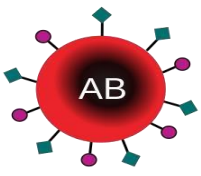
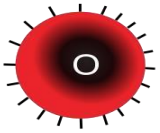
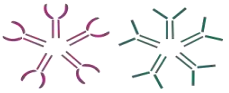
5. Clean the finger with alcohol let it air dry lance the finger by lancet.

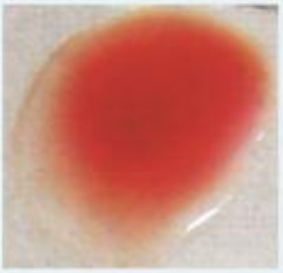
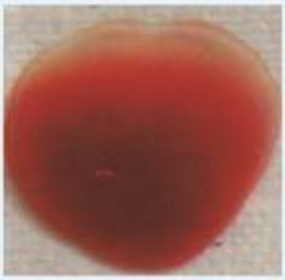
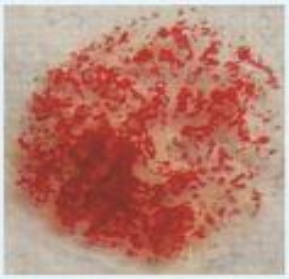
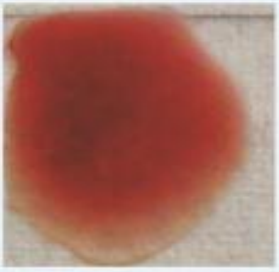
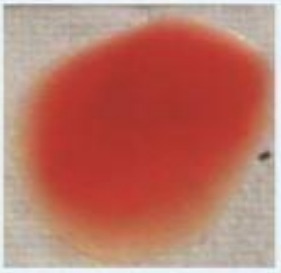
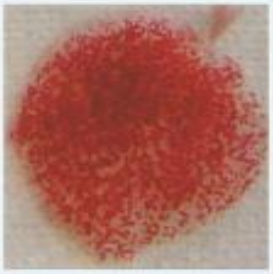
6. put one drop of blood on each drop of antiserum.

7. Mix the blood and antiserum by wooden stick rod. And rock the slide gently for about 1-2 minutes.

8. Examine for agglutination with naked eye. If it present indicates a positive result.

The reaction patterns of the most common ABO phenotypes are shown in thefollowing table:

	Group A	Group B	Group AB	Group O
Red blood cell type				
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

Anti-A	Anti-B	Blood group
		*Agglutination in anti-A* **Blood group: A**
		*Agglutination in anti-B* **Blood group: B**
		*No agglutination in both anti-A and anti-B* **Blood group: O**
		*Agglutination in both anti-A and anti-B* **Blood group: AB**