BLOOD GROUP

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BLOOD GROUP

1. who discovered the blood group system for the first time

Ans : Karl Landsteiner

Karl Landsteiner decribed ABO blood grouping in 1900 while Rh system was discovered later in 1940 by Landersteiner and weiner

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2.what is Landsteiner Law

If an agglutinogen is present on red cell membrane the corresponding agglutinin must absent in the plasma

If agglutinogen is absent on red cell membrane the corresponding agglutinin must present in the plasma

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3. Name a few blood group systems

Ans : ABO system, Rhesus system, MNS system, Lewis system, Kelly , Duffy, Lutheran, Kidd system, Duffy system, Li and P etc.

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4 . What type of antibodies are found in blood group “A” ?

Ans: Blood group ‘A’ has anti -B antibodies in the serum

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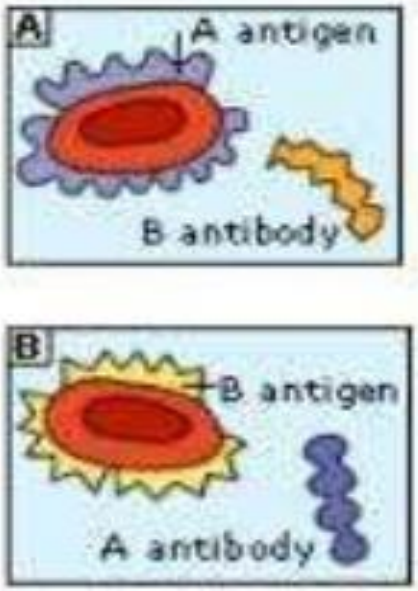
5 . What type of antibodies are found in Blood group ‘B’

Ans : Blood group ‘B’ has anti –A antibodies in the serum

ABO blood grouping system



Blood group A
If you belong to the blood group A, you have A antigens on the surface of your RBCs and B antibodies in your blood plasma.

Blood group B
If you belong to the blood group B, you have B antigens on the surface of your RBCs and A antibodies in your blood plasma.

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6 . What type of antibodies are found in Blood group ‘O’

Ans: Blood group ‘O’ has both Anti –A and Anti –B Anti – bodies in the serum

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7. What type of antibodies are found in Blood group ‘O’

Ans: Blood group ‘O’ has both Anti –A and Anti –B Anti – bodies in the serum

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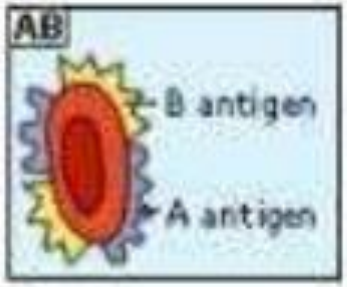
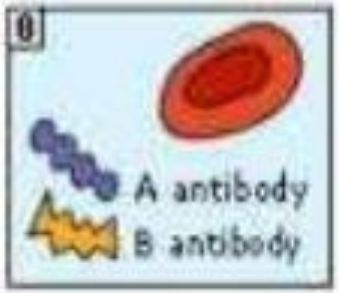
8. What type of antibodies are found in Blood group ‘AB’

Ans: No antibodies



Blood group AB

If you belong to the blood group AB, you have both A and B antigens on the surface of your RBCs and no A or B antibodies at all in your blood plasma.



Blood group O

If you belong to the blood group O, you have neither A or B antigens on the surface of your RBCs but you have both A and B antibodies in your blood plasma.

Major ABO Blood Group

ABO Group	Antigen Present	Antigen Missing	Antibody Present
A	A	B	Anti-B
B	B	A	Anti-A
O	None	A and B	Anti-A&B
AB	A and B	None	None

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9. Which type of blood group individuals are known as universal donors

Ans : Blood group ‘O’ individuals are known as universal donrs

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10 . Who is a universal recipient

Ans: Blood group AB individuals

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11 . What are the methods used for blood grouping

Ans:

slide or tile method

Tube method

Microplate method

Automated method

12.What is the procedure of Tile method for blood grouping?

Procedure:

Place 1 drop of anti A and 1 drop of anti B reagent, and D reagent separately on a labelled slide or tile.

Add 1 drop of blood to each drop of the type typing antiserum.

The cells and reagent using a clean stick spread each mixture evenly on the slide or Tile over area of 10-15mm diameter.

Tilt the slide and leave the test for 2 min at room temperature (22-24) and look for agglutination.

13.What is procedure of tube method for ABO grouping?

Cell grouping:

Prepare a 2-5% cell suspension in saline from unknown blood sample.

Take 3 test tubes1,2,3 and put a drop of anti-A(blue), anti-B(yellow) and anti-AB serum(pink) to them.

Add one drop of red cell suspension in cach test tube.

Centrifuge at 1500rpm for one minute.

Look for agglutination either with naked eye or under the microscope.

Serum grouping:

Allow unknown blood sample stand for some tissue and separate the serum.

Add2 drops of unknown serum in test tube4,5,6.

Add 1 drop of 2-5% cell suspension of known blood of A,B and O group into these test tubes.

Centrifuge at 1500rpm for one minute.

Look for agglutination either with naked eye or under the microscope.

14.What is the procedure of tube method for RH grouping?

Prepare a 2-5% cell suspension in saline from the blood to be tested.

Take a test tube and put a drop of anti-D serum

Add one drop of red cell suspension in the tube

Centrifuge at 1500rpm for 1 minute

Look for agglutination either with naked eye or under the microscope

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15. For blood grouping which method is better tube or slide method

Ans: The tube technique is better because weaker antigens like A2 also detected

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16. What are the two ways for ABO blood grouping

Ans : Cell grouping (forward or direct grouping) and serum grouping (indirect or reverse grouping)

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17. What is cell grouping or forward or direct grouping

Ans: Cell grouping or forward grouping includes the testing of antigens present on the RBC s of the patient with the help of different commercially available antisera.

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18 . What is serum grouping or reverse or indirect grouping

Ans : Serum grouping or reverse grouping is the testing of antibodies present in the serum of the patients with the help of known cells of different blood groups

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19 . what is cross matching

Ans: It is direct matching of blood components(serum&cell) of recipient and donor

20. What is cross matching procedure?

In a small test tube, place a drop of recipient's serum

Add washed donor red cells suspended in 5% saline

Centrifuge it at 3000rpm for one minute.

After disloplging the cell palette gently from centrifuge tube, examine it for presence or absence of agglutination and haemolysis, first grossly and then under the low power of the microscope.

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21 . what is the purpose of cross matching or compatibility test

Ans: The test is to prevent transfusion reactions by detecting Antibodies in recipient serum, to detect ABO incompabilities between donor and recipient

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22. Uses of blood grouping

Ans : For blood transfusion

In paternity disputes

Hemolytic disease of new born

Medicolegal use

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23. Uses of blood grouping

Ans : Immunology, genetics and anthropology

Susceptibility to various diseases.Ex; o group-peptic ulcer

Part of Health checkup and job,driving licensing

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24 . What are the adverse effects of transfusions

Ans:

Immediate

Delayed

Haemolytic(tachycardia,tachypnaea headache, hypotension ,shock)

Febrile reactions(fever, headache ,chills)

Allergic(itching, urticarial reactions, fever and chills)

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25. What are all investigations tha are performed on a donor before drawing the blood

Ans: Hb estimation, Hepatitis-B, Hepatitis c Syphilis,HIV and malarial parasite

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26. what do you mean by Rh incompatability

A: Rh incompatability occurs when Rh-ve mother has Rh + ve foetus.

The foetal blood crosses the placenta in to mothers blood to produce Ig G antibodies.

These antibodies crosses later to foetus and cause immune destruction in fetal RBC

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27. what is bombay phenotype

Ans: The Bombay blood group was first discovered in 1952 by Bhende and others.

The pheno type is characterised by the absence of A,B,H antigens on the red cells. The serum of the these persons contain anti A, anti B, and Anti H antibodies

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28.what is coombs(Anti globulin) test

Ans: It is used to demonstrate presence of Ig G antibodies against red blood cells in the patient

IgG antibodies do not cause agglutination of RBCS, coombs serum is added which combines with IgG on RBCs surface resulting agglutination

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29.what are Direct combs test applications

- A:Hemolytic transfusion reactions
- Auto hemolytic anemia
- Hemolytic disease of new born
- Drug induced hemolysis

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30.what are Indirect coombs test applications

Indirect:

- Compatibility testing
- Detection of unexpected antibodie(IgG)s to Rh factor in serum of pregnant patients
- Detection of red cell antigens not detected by other technique

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31.what are blood components

Ans: A Single unit of whole blood can be separated in to one unit of packed red cells, one unit of platelets and one unit of fresh frozen plasma

32. What is one unit of blood?

- **ANS: 3**50ml of blood in 49ml of anticoagulant citrate phosphate-Dextrose Adenine

33. What is the difference between complete and incomplete antibodies?

- ANS: Naturally occurring anti A, anti B antibodies are IGM types- complete antibodies and cause agglutination in saline suspension.
- Incomplete antibodies IgG type and result because of antigentic stimulation and don't cause agglutination inn saline suspension.

34. What test is employed to detect low level antibodies against red cells?

- ANS: Coomb tests.

35. Which are the immune haemolytic anemias in which coombs test is indicated?

- ANS: Auto immune haemolytic anemia SLE, cold agglutinin disease, paroxy small cold haemoglobinuria, infections mononucleosis.

36. How are blood and its components stored?

- ANS: Blood is stored in a refrigerator at 2-4 c upto 4-6 weeks, and platelet can be stored up to 5 days .

THANK YOU