

Eldoncard Home Kit

Know your Blood Type



ELDON HOME KIT 2511-1
 Manufactured by:
 Eldon Biologicals A/S - www.eldoncard.com

ABO Blood Type System • Rhesus (D) Blood Type System

About Blood and Blood Groups

The blood circulates through the heart, arteries, capillaries and veins carrying nutriment and oxygen to the body cells and removing carbon dioxide and intracellular digestion products.

It consists of a pale yellow liquid, the plasma, containing the microscopically visible formed elements of the blood, the erythrocytes or red blood cells, the leukocytes or white blood cells, and the thrombocytes or blood platelets.

The blood platelets take part in the coagulation, i.e. the formation of clots of fibrin, the substance stopping the bleeding from wounds and leakages.

The white blood cells are of great importance in the organism's combating of infectious diseases, the so-called immune response. Comparing two individuals, you will never find the very same composition of proteins, except for identical twins. In blood transfusion problems might arise due to the red cells from different persons carrying different types of proteins, or not carrying such proteins at all. Therefore blood with such specific proteins must be transfused only to a recipient also having such proteins on the surface of his red blood cells.

In 1900 Karl Landsteiner demonstrated the presence of different groups or types of blood, and his description of the ABO blood group system enabled

the use of blood transfusions.

The ABO System

The ABO System classifies blood into four possible blood types, A, B, AB and O. A person with blood group A has upon the surface of his erythrocytes a protein named Antigen-A, a person with blood group B has a protein named Antigen-B, a person with blood group AB has Antigen-A and Antigen-B, and a person with blood group O has neither Antigen-A, nor Antigen-B, as shown in figure 1.

The blood plasma might contain one, both or none of the antibodies of the antibodies Anti-A and

Blood Type System - Figure 1		
Antigen Blood Group	Antibody Anti - A	Antibody Anti - B
A		+
B	+	
AB		
O	+	+

Anti-B. Corresponding antibodies and antigens are never found in the blood of the same individual. As an example, group A blood will never contain Anti-A.

The combination of the antigens and the antibodies is genetically determined. The antigens are present at birth, whereas the antibodies develop during the first year of your life. Landsteiner's discovery caused extensive investigations, and a large number of other blood type systems were disclosed, among which the Rhesus System described in 1940 is the most important.

The Rhesus System

The Rhesus blood group system is much more complicated than the ABO System. The most important part is the Antigen-D and the corresponding antibody, Anti-D. Antigen-D is also attached to the surface of the erythrocytes, and a person with this antigen present is called D-positive or Rhesus-positive. You will never find Anti-D in the plasma of a Rhesus-positive person.

Blood without Antigen-D upon the red cells is called D-negative or Rhesus-negative.

Normally you will not find any Anti-D in the plasma of Rhesus-negative persons, but in case D-positive erythrocytes are introduced into the blood of a D-negative person, Anti-D will develop. This may happen in two situations:

1. During pregnancy of a D-negative mother with a D-positive foetus. Normally there is no direct connection between the blood circulation of the mother and the foetus, but they are only separated from each other by a very thin membrane. During the birth or an abortion small ruptures often appear in the delicate membrane and erythrocytes from the foetus will enter the maternal circulation. The D-antigen of the child will cause the D-negative mother to produce Anti-D (the mother is immunised), and the Anti-D will remain in the mother's plasma during the rest of her life.

In case of a later pregnancy with a D-positive foetus, the antibody will pass the membrane, enter into the foetal circulation, and attack the D-positive erythrocytes of the child. The erythrocytes will disappear, and the hemoglobin released from the erythrocytes is degraded into highly toxic bilirubin, causing a condition of anaemia and jaundice in the child.

This situation can be prevented by giving an injection of Anti-D to every D-negative female, who has given birth or who has had an abortion. The injection must be given in the course of the first 48 hours after the birth or abortion. The Anti-D will attack and destroy the few D-positive fetal erythrocytes present in the maternal blood, before the process of immunisation takes place.

2. If a D-negative patient receives a blood transfusion of D-positive erythrocytes, a similar immunisation will take place (Please see below).

Blood transfusions

The blood type of a donor must match the blood type of the patient. Otherwise the antigens from the donor and the corresponding antibodies from the patient will agglutinate. First each molecule of antibody will attach to two molecules of the antigen, binding two red cells together. The antibodies will glue the red cells together, and agglutination has occurred. The agglutinated erythrocytes will burst, a condition fatal to the patient.

For the same reason a D-positive donor must never give blood to a D-negative patient. Certainly Anti-D is in most cases not present in the plasma of the patient and agglutination will not occur, but the immunisation with the D-antigen will trigger a production of Anti-D, which from now on will remain in the plasma of the patient. In case the patient receives another transfusion with D-positive erythrocytes, these erythrocytes will be attacked by the Anti-D, and now agglutination will occur, just as it might happen in the ABO System.

Type-O, D-negative blood does not contain any of the above described antigens and can be transfused to all kinds of patients. In emergency situations with no time for blood grouping, Type-O, D-negative blood is therefore the obvious choice.

Blood Groups and Nutrition

Peter D'Adamo ND, has in his books (Eat Right for your Type and others) advocated that the type of your food must be in accordance with your ABO blood group. Further information on the blood group diets recommended by Dr. D'Adamo can be found on www.4yourtype.com.

How does the Eldoncard function?

In the first three circular fields of the card you will find Anti-A, Anti-B, and Anti-D. These antibodies will agglutinate with the corresponding antigens, if the antigens are present in your blood. Thus Group-A blood - containing Antigen-A - will agglutinate in the Anti-A field, whereas Group-B blood will agglutinate in the Anti-B field, Group-AB blood in the Anti-A and the Anti-B field, Rhesus-positive blood in the Anti-D field. Group-O blood does not agglutinate in any of the fields. In this way the presence or absence of agglutinations indicates the type of blood applied onto the card.

The antibodies placed upon the Eldoncard are so-called monoclonal antibodies derived from cell cultures free of infections and approved by the health authorities. The cell cultures produce antibodies of an equal and high quality.

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Directions for Determining Your Blood Type

EldonCard® 2511 for blood typing inside the ABO- and Rhesus-D Systems

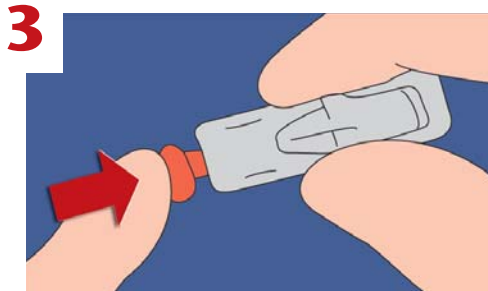
This is a single-use test kit. Perform test at room temperature. Avoid any infection. Wash your hands before and after the blood testing. Do not use any of the accessories coming into contact with the blood for more than one person. For more information, watch an online demonstration of the procedure at www.eldoncard.com or follow this simple ten-step procedure. Read the instruction, collect all materials listed and cut open the bag/envelope.



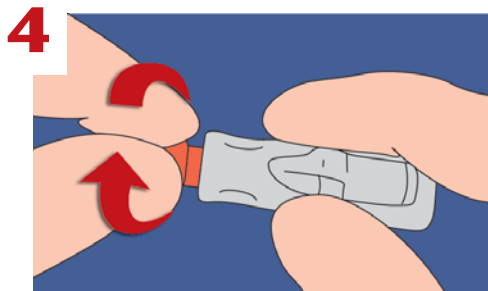
1 Collect a small amount of ordinary water into the micro-dropper and release one drop into each of the circular fields on the Eldoncard.



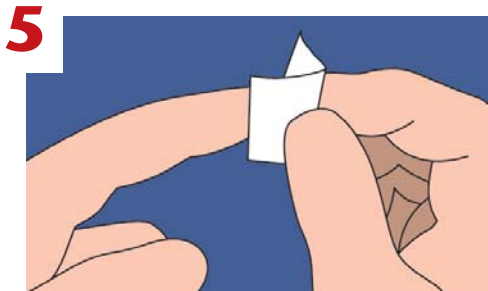
2 Fill in the data of the person being tested.



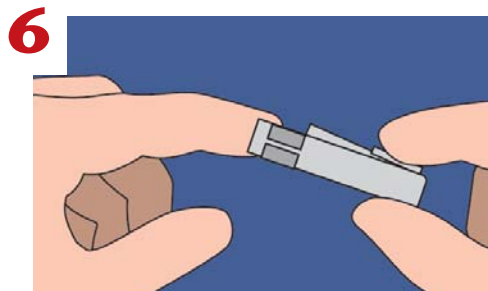
3 Load the Unistik lancet. Press in to activate. You will hear a click.



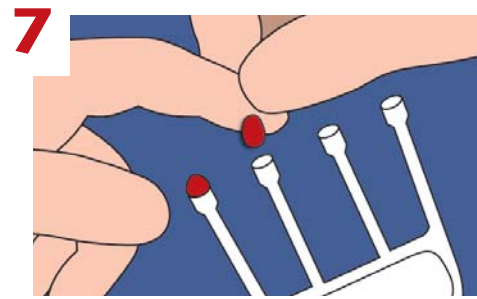
4 Twist and remove the orange protective cap. Place the lancet upon a table.



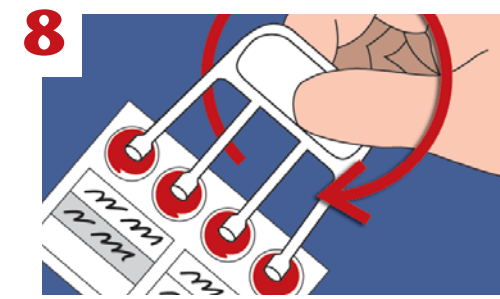
5 To soften the skin put the hand in warm water for 2 minutes. Dry the hand, disinfect a finger with the cleansing swab and let the finger dry.



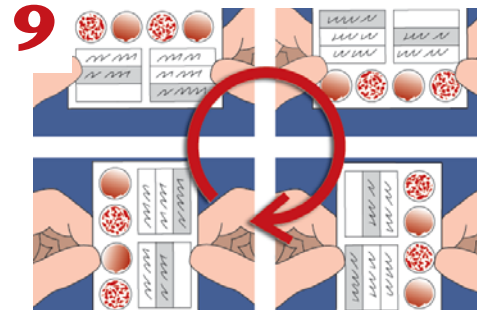
6 Puncture the skin by pressing the lancet firmly on finger tip and fire. You may now dispose the lancet. It is harmless after use.



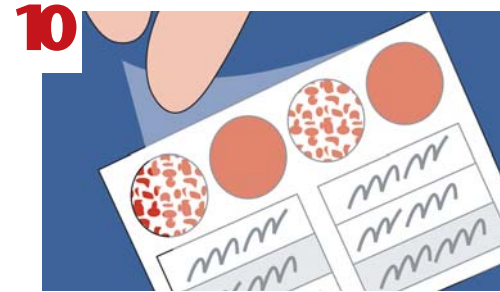
7 Apply drops of blood onto each of the four teeth of the EldonComb. A massage of the finger will promote the flow of blood. Each drop shall cover the area of the tooth.



8 Dip the four drops of blood into the four drops of water. Let the comb re-main in touch with the card. Stir the blood with the comb until the reagents have dissolved (approx. 10 sec.). Spread the blood to the borders of the circular fields. Note: The stirring must be initiated within two minutes after the blood has been applied onto the comb in order to avoid coagulation.



9 Tilt the card to an almost vertical position and wait 10 sec. A wave of blood will move the red cells slowly to the bottom of the fields. Tilt to the opposite vertical position and wait another 10 sec. while the blood flows down the fields. Tilt twice more on the remaining edges for 10+10 seconds. The result can now be read and recorded. Let the card dry at room temperature.



10 Cover the card with the EldonFoil. You may now place the card in your wallet or hand-bag.

How to read your results

The presence or absence of agglutinations will determine the blood type found. The possible combinations of agglutinations and the corresponding blood types are shown above.

If an agglutination is seen in the control field, the examination has to be repeated using washed blood cells. This requires lab equipment and the help of a technician.

EldonCards are delivered in moisture proof bags or envelopes. EldonCards exposed to the air must be used within a working day.

BLOOD TYPE	ANTI-A	ANTI-B	ANTI-D	CONTROL
O-POSITIVE				
O-NEGATIVE				
A-POSITIVE				
A-NEGATIVE				
B-POSITIVE				
B-NEGATIVE				
AB-POSITIVE				
AB-NEGATIVE				
INVALID				