

Determining blood type laboratory

The blood in this activity is harmless simulated blood so no safety precautions are required.

Recall that there are eight possible human blood types: A+, A-, B+, B-, AB+, AB-O+, and O-. The goal of this activity is to determine which one of those eight is the blood type of your blood sample.

Procedure for determining the blood type of a blood sample

(1) Obtain the following materials: Three toothpicks, an absorbent pad to cover your workspace, and a blood typing kit. The kit contains a white blood typing card, three colored test tubes (blue, yellow, and green) containing three solutions, and four color-coded droppers.

(2) Using the matching color-coded dropper for each solution, place one drop of the blue solution in the left section of the blood typing card, place one drop of the yellow solution in the center section of the blood typing card, and place one drop the green solution in the right section of the blood typing card.

The blue drop contains anti-A antiserum (antibodies that can bind to the A antigen). The yellow drop contains anti-B antiserum (antibodies that can bind to the B antigen). The green drop contains anti-Rh antiserum (antibodies that can bind to the Rh antigen).

3) Obtain a red test tube containing simulated blood. Using the red dropper, place one drop of blood next to each of the three colored antiserum drops on the card.

4) Using individual toothpicks for each drop, mix each blood drop with the antiserum by stirring with a toothpick.

5) After all three blood drops have been stirred, inspect each stirred drop.

- If the stirred blue drop appears agglutinated (grainy) the RBCs in the blood sample contain the A antigen. If the blue drop does not

appear agglutinated, the RBCs do not contain the A antigen.

- If the stirred yellow drop appears agglutinated (grainy) the RBCs in the blood sample contain the B antigen. If the yellow drop does not appear agglutinated, the RBCs do not contain the B antigen.

- If the stirred green drop appears agglutinated (grainy) the RBCs in the blood sample contain the Rh antigen. If the green drop does not appear agglutinated, the RBCs do not contain the Rh antigen.

6) Using the reactions on the card, record the blood type of your blood sample here:

(If you are not certain how to read your blood type from the card ask your instructor to inspect your card)

7) Clean up: Dispose of the toothpicks in the sharps biohazard waste. Wash off the blood typing card with water, dry it, then return it to the kit. Dispose of the absorbent pad in the regular trash.

The blood typing game

In this section you and your lab group will play an online game that involves finding blood type and giving transfusions to virtual patients.

Procedure for the blood typing game

a) Obtain a laptop computer to do a blood transfusion simulation. Ask your instructor if you need help in getting the computer running. When logging on, the user name and password are student.

b) Open the internet browser. Play the blood typing/transfusion simulation game by navigating to the following website:

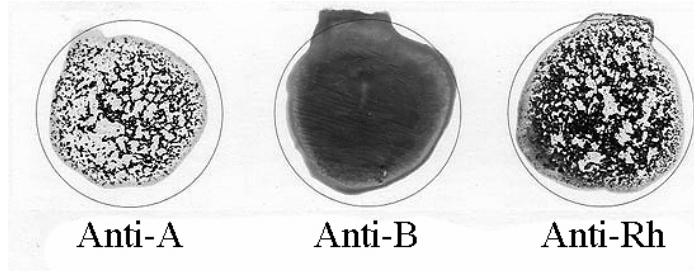
<https://educationalgames.nobelprize.org/educational/medicine/bloodtypinggame/>

Review questions

1) Which antigen(s) are on the surface of RBCs of blood type...

A+ _____	AB- _____
B- _____	AB+ _____
A- _____	O+ _____
B+ _____	O- _____

2) Name the blood type indicated by the following reactions on a blood typing card:



3) Which of the eight blood types is the most common? _____

4) There are eight possible blood types. List them all:

5) If a patient has blood type A+, which of the eight blood types could they always safely receive? _____

6) If a patient has blood type AB+, which of the eight blood types could they always safely receive? _____

7) If a patient has blood type B-, which of the eight blood types could they always safely receive? _____

8) If a patient has blood type O+, which of the eight blood types could they always safely receive? _____

9) If a patient has blood type O-, which of the eight blood types could they always safely receive? _____

10) Which blood types is the “universal donor”? _____

11) Which blood type is the “universal recipient”? _____

