

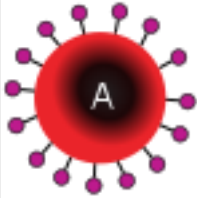
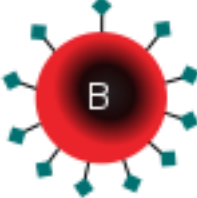
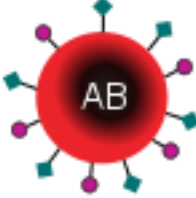
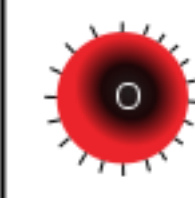


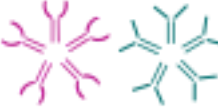



Blood Type Activity

Background

This lab explores the concepts of Mendelian inheritance using the ABO Blood Group System as an example. In this lab, you will be performing a blood type test (agglutination assay) on the simulated blood of three individuals.

As a reminder:

- Blood types in the ABO Blood Group System are A, B, O, and AB.
- A and B alleles are dominant over the O allele, and are codominant with each other. This is because possessing the A or B allele always leads to the production of the corresponding antigen.

	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

Blood Types Table

- **Type A blood** with A antigens will coagulate when they come in contact with anti-A serum (antibodies), but produce anti-B antibodies in a living person, so will not coagulate with anti-B serum.
- **Type B blood** with B antigens will coagulate when they come in contact with anti-B serum (antibodies), but produce anti-A antibodies in a living person, so will not coagulate with anti-A serum.
- **Type AB blood** has both A and B antigens, and will coagulate when they come in contact with either anti-A or anti-B serum (antibodies). These individuals do not produce anti-A or anti-B antibodies.
- **Type O blood** produces both anti-A and anti-B antibodies, so it will not coagulate with Anti-A or Anti-B Serum.

Lab Kit Materials

- Labeled test tubes or small containers:
 - Individual #1 Blood Sample
 - Individual #2 Blood Sample
 - Individual #3 Blood Sample
 - Anti-A Serum
 - Anti-B Serum
- Five eyedroppers or pipettes
- Permanent marker
- Six toothpicks or stirrers
- Blood Typing Test Plate laminated or placed in a plastic sheet protector

Instructions

1. Using the pipette for Individual #1, pipette several drops of Individual #1's blood sample into the circles comprising the first column of the blood typing test plate. Individual #2's sample should be pipetted into to the second column, and Individual #3's sample pipetted into the third column.
2. Using the pipette for Anti-A Serum, pipette several drops of Anti-A serum into each blood sample in the first row of the test plate. Using the pipette for Anti-B Serum, pipette several drops of Anti-B serum into each blood sample in the second row of the test plate.
3. Using a different toothpick for each of the six samples, stir each sample.
4. Observe each sample to see if it has coagulated or not.

Reflection Questions

1. Observe each sample for coagulation. Based on what you see...
 - a. What blood type does Individual #1 have? What is/are the possible genotype(s) for Individual #1?

 - b. What blood type does Individual #2 have? What is/are the possible genotype(s) for Individual #2?

 - c. What blood type does Individual #3 have? What is/are the possible genotype(s) for Individual #3?

Blood Typing Test Plate

