Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Blood Typing Lab**

**Introduction**

In the ABO blood typing system, blood type is determined by the presence or absence of

A and B antigens on red blood cells. Individuals whose red blood cells contain Antigen A and lack Antigen B, have Type A blood. Individuals who contain Antigen B and lack Antigen A, have Type B blood. Those with both Antigen A and Antigen B have Type AB blood. Those without either Antigen A or Antigen B have Type O blood.

You will be performing a blood test in which your blood sample is mixed with antibodies against Type A and Type B blood. The sample will be observed to determine if agglutination occurs. If agglutination/clumping/blood cells stick together after being mixed with the antibody sera, it means the antigens in the blood reacted with the antibodies in the sera. Anti-A sera will react to Antigen A and cause Type A blood to clump. Anti-B sera will react to Antigen B and cause Type B blood to clump. This is also true for Rh. If Rh antigens are present, the Anti-Rh sera will cause the blood to clump, meaning that blood sample is Rh+.

**Pre-Lab Questions**

1. Fill in the chart below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Blood**  **Type** | **Antigens**  **Present** | **Antibodies**  **Present** | **Anti-A Sera**  **Clumping?** | **Anti-B Sera**  **Clumping?** |
| A |  |  |  |  |
| B |  |  |  |  |
| AB |  |  |  |  |
| O |  |  |  |  |

1. What causes agglutination to occur?
2. If agglutination occurs when Type A blood is mixed with Anti-A sera, what would you predict is in the Anti-A sera?

**Procedure**

1. Obtain your personal blood typing materials:
   * Blood typing slide
   * Sterile lancet
   * Individual alcohol pad
   * 3 toothpicks
   * Band-Aid  
       
     ***Caution: It is extremely important that materials are not shared or interchanged during any of the steps in the blood typing procedures.***
2. Use your non-writing hand for the source of the blood. Swing the hand vigorously several times trying to “shake” blood into the fingertips.
3. Wipe the middle finger of the non-writing hand with a new, sterile, individualized alcohol pad. Allow the finer to air dry and do not contaminate the finger. Hold the hand still – do not wave the hand through the air or blow on the finger to dry it – this will result in a greater number of bacteria landing on the skin.
4. Using a new, individualized, sterile lancet, puncture the tip of the finger once with a firm, quick, downward stroke.  
     
   ***Caution: Discard the lancet after the finger has been lanced in the container provided by your instructor. A LANCET SHOULD NEVER BE REUSED. YOU SHOULD NEVER USE ANOTHER PERSON’S LANCET.***
5. Using a little bit of pressure, force a single drop of blood from the finger. Using the alcohol pad, wipe away this first drop.
6. Continue using pressure to force out another drop of blood. Place this drop of blood on the ***A*** area on your blood typing slide.
7. Repeat Step 6, placing a drop of blood on the ***B*** area and ***Rh*** area on your blood typing slide.
8. Wipe excess blood from the finger with the alcohol pad. Cover the area with a Band-Aid and immediately discard the alcohol pad in the appropriate container, as instructed by your teacher.
9. Add one drop of Anti-sera A to the blood in the ***A*** area on the slide. Using a toothpick, mix the Anti-sera A into the blood. Immediately discard the toothpick in the appropriate container, as instructed by your teacher.
10. Add one drop of Anti-sera B to the blood in the ***B*** area on the slide. Using a toothpick, mix the Anti-sera B into the blood. Immediately discard the toothpick in the appropriate container, as instructed by your teacher.
11. Add one drop of Anti-sera Rh to the blood in the ***Rh*** area on the slide. Using a toothpick, mix the Anti-sera Rh into the blood. Immediately discard the toothpick in the appropriate container, as instructed by your teacher.
12. Allow the blood/sera mixtures to sit for about 1 minute. After 1 minute, observe the mixtures and look for clumping. In the data table below, record your observations. If agglutination occurred, write “Clumping.” If no agglutination occurred, write “No Clumping.”
13. Based on your data, determine your blood type and record it in the data table.

|  |  |  |  |
| --- | --- | --- | --- |
| **Anti-A Sera** | **Anti-B Sera** | **Rh Sera** | **Blood Type** |
|  |  |  |  |

**Post-Lab Questions**

1. Based on your blood type, what blood types could you safely receive a transfusion from? Why?
2. Based on your blood type, what blood types could you safely donate a transfusion to? Why?
3. Look at your answers for #1 and #2. Is there a difference? Why or why not?