

Introduction to Biology (BIO101)

Lab Report: ABO Blood Grouping and Rh System

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Principle

The ABO blood grouping system is based on the presence or absence of specific antigens A and B on the surface of red blood cells. The significance of the ABO system lies in its crucial role in blood transfusions and organ transplants, preventing adverse reactions by matching donor and recipient blood types. The Rh system determines the presence or absence of the Rh factor, adding another layer of compatibility consideration.

Materials

1. Blood sample
2. Anti-A, Anti-B, and Anti-Rh antibodies
3. Glass slides
4. Droppers
5. Saline solution
6. Blood typing reagents
7. Microscope

Methods

- The glass slide was labelled with the individual's name and a unique identifier.
- Two small circles were drawn on the slide, labelled 'A' and 'B'.
- A drop of the individual's blood was placed on each circle.
- Anti-A serum was added to the 'A' circle, and Anti-B serum to the 'B' circle.
- The slide was gently mixed to observe agglutination reactions.
- The presence of clumping in the 'A' circle indicated blood type A, 'B' circle for blood type B, both for blood type AB, and neither for blood type O.
- Rh typing was performed using Anti-Rh serum in a similar manner.

Observation & Results

Anti-A Reaction	Anti-B Reaction	Rh Factor	Blood Group
Agglutination	Agglutination	Present	AB+

Table 1: Blood Grouping Results

Blood grouping revealed agglutination in both the 'A' and 'B' circles, indicating AB blood type. Rh typing showed agglutination, indicating a positive Rh factor.

Discussion

The results confirm the individual's blood type as AB-positive. The presence of both A and B antigens on red blood cells and the positive Rh factor make this person a universal plasma donor but can receive blood only from AB-positive donors. This information is crucial for medical interventions, ensuring safe blood transfusions and organ transplants.

Conclusion

The ABO blood grouping system remains fundamental in transfusion medicine, emphasising the importance of accurate blood typing for patient safety. The Rh system further refines compatibility considerations. This individual's AB-positive blood type highlights the necessity for precise blood matching in clinical settings.