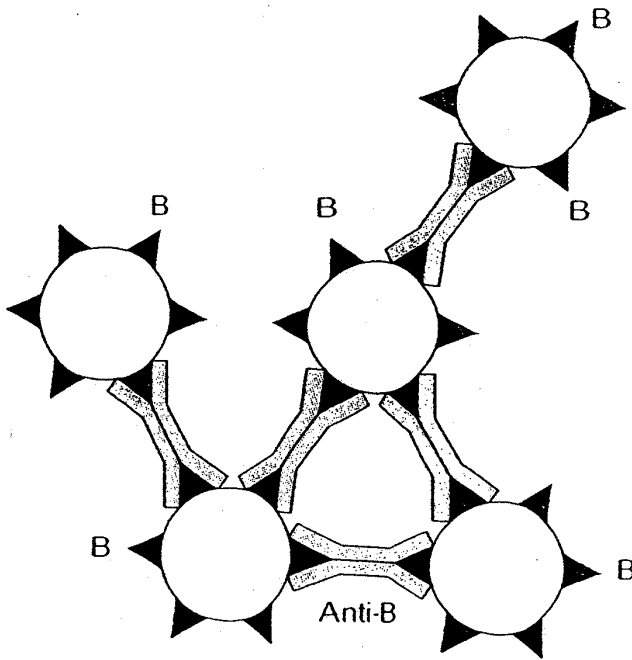


Red blood cells containing A antigens will not combine with B antibodies



Red blood cells containing B antigens are agglutinated or clumped together in the presence of B antibodies

FIGURE 12-1 Red blood cells containing B antigens are agglutinated or clumped together in the presence of B antibodies.

Criminalistics Case Report Form

Brief Background: In 1901, Karl Landsteiner made one of the most significant discoveries of the century-the typing of blood. It was Landsteiner who first recognized that all human blood was not the same; instead he found blood to be distinguishable by its group or type. Out of Landsteiner's work came the classification system that we presently call the A-B-O system. By 1937, the Rh factor in blood was demonstrated.

The problem of identifying most blood factors in itself is a difficult task. As blood dries, some of its characteristic blood factors are destroyed; and as the stain continues to age, the destruction slowly extends to the basic A-B-O system. It is up to the serologist - a person who tests specific antigen and serum antibodies - to pursue the detection and identification of various blood characteristics.

In humans, the population distribution of blood types varies with location and race throughout the world. In the United States, a typical distribution is as follows:

O	A	B	AB
43%	42%	12%	3%

In order to be a specific blood type, you must receive half of your genetic characteristics from your mother and the other half from your father. Because of this basic understanding of human genetics, it is possible to determine (with some accuracy) if a child was conceived by the "natural" parents. Each blood type has the following genetic combination(s).

O	A	B	AB
OO	AA or AO	BB or BO	AB

Purpose: You are a legal assistant who has been given the following paternity cases to review. It is your job to screen each case to see if there is any validity to the claim of an "illegitimate" child and then make your recommendations to the lawyers for whom you work for.

Procedure: Proceed with your recommendations, indicating a "yes" or "no" for each potential case. Also, write out the genetics make-up (letter combinations) for each case indicating why you choose "yes" or "no".

Name _____

Date _____

Case 1:

Mother: A Grandmother: O Grandfather: AB
Father: B Grandmother: O Grandfather: B
Children: None
Child in Question: O

Case 2:

Mother: AB Grandmother: A Grandfather: B
Father: A Grandmother: A Grandfather: A
Children: A six-year-old girl with "AB" and a two-year-old boy with "A"
Child in Question: O

Case 3:

Mother: B Grandmother: B Grandfather: O
Father: B Grandmother: AB Grandfather: AB
Children: A three-year-old boy and a two-year-old boy both with "B"
Child in Question: O

Group 4:

Mother: O Grandmother: A Grandfather: B
Father: O Grandmother: A Grandfather: O
Children: None
Child in Question: O

Group 5:

Mother: B Grandmother: B Grandfather: A
Father: A Grandmother: A Grandfather: A
Children: A six-year-old girl with "B"
Child in Question: A

Group 6:

Mother: O Grandmother: B Grandfather: B
Father: O Grandmother: A Grandfather: O
Children: None
Child in Question: A

Group 7:

Mother: AB Grandmother: A Grandfather: AB
Father: AB Grandmother: AB Grandfather: B
Children: A thirteen-year-old girl with "AB", a nine-year-old girl with "AB", a seven-year-old boy with "B", and a three year old with "AB"
Child in Question: A