

## **Rh Positive or Rh Negative: That is the Question**

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Rh positive and Rh negative refer to the presence or absence of the D antigen on red blood cells. In a small percent of the population the expression of the D antigen is altered. There are two forms of this “altered” D. In one form, there is a *qualitative alteration* of the D gene. This results in RBCs lacking parts of the D antigen complex. These forms are called “partial D” and can produce Anti-D if challenged with Rh positive red cells (through transfusion or pregnancy). The second form is a *quantitative alteration* which results in RBC’s with the entire D antigen complex but with a reduced number of D antigen sites. These are called “Weak D”. These patients usually do not produce Anti-D. It is impossible to distinguish Weak D from partial D by serologic methods. This can only be done by complex genetic studies.

Current Rh (D) typing reagents have greatly improved and have become more sensitive. Variability in test methodology and reagent reactivity can result in D typing discrepancies. “Weak D” pregnant women or potential transfusion recipients should be considered Rh negative for RhIG administration and blood transfusions, therefore weak D testing for these populations has no practical value. This is in direct contrast to blood collection centers that use the most sensitive reagents at the most sensitive testing phases to ensure weak and partial D expression will be labeled as Rh positive donors because these donors can immunize a D negative recipient to produce anti-D.

Some individuals may see a change in how their Rh type is interpreted and reported. This does not mean that their Rh type has changed or that the laboratory performing the testing has made an error. It relates to the complexity of the D antigen, the typing seras and methods employed to test for the D antigen. For any questions/clarifications, please feel free to contact the Blood Bank at 203-739-7470.

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