

1. What is the probable identity of this antibody?

*Alloanti-S*

2. Is any further workup needed to prove it? If additional cells need to be tested, select them from the following panel to complete the workup.

*There are 3 S-positive cells that react and 3 S-negative cells that fail to react, and the patient is S-negative. However, standard criteria require that anti-E and anti-M be ruled out. Testing of any of cells #6, #7, or #8 from the 20-cell panel (all 3 phenotypes S-, E+e-, M+N-) could rule out anti-E and -M in the presence of anti-S. As long as one of these cells is non-reactive with the patient's plasma both anti-E and anti-M are ruled out.*

3. What is the probable source of the immunizing stimulus in this case?

*Transfusion 2 years earlier*

4. Does this antibody cause hemolytic transfusion reactions? *Yes* Hemolytic disease of the fetus and newborn? *Yes*

5. How would you select compatible blood for this patient? What percentage of donors are expected to be compatible with this recipient?

*We would select group O, Rh positive, S negative RBCs that were compatible by an IAT crossmatch. Forty eight percent (48%) of European-American and 69% of African-American donors are expected to be S-negative.*

6. What is the biochemical nature of the antigen? (Review the relevant blood group system, including disease associations and population differences in antigen prevalence.)

*The S/s polymorphism is carried by the single-pass membrane protein glycophorin B, which carries about 15% of the RBC's negative charge. The S and s antigens differ by a single amino acid, and have extensive homology with the terminal sequence of the N antigen. Unlike the M and N antigens on glycophorin A, S and s are usually resistant to proteases.*

7. Do you think the transfusion she received was necessary?

*No; a 29 year old woman should easily be able to tolerate a hematocrit of 25.4 (hemoglobin presumably about 8.5 G/dL). Although a hemoglobin (hgb) level of 7 G/dL is often used as a "transfusion trigger" today, if she is asymptomatic or has symptoms which are tolerable, she could probably go below a hgb of 7.*

What negative outcome did the transfusion have, besides the minor fever?

*She made the antibody, so now she requires antibody identification, it's harder and more expensive to have RBCs available for her, and future pregnancies are at risk for HDFN. In one study the rate of HDFN was 9 times higher for transfused woman than it is for those who haven't been transfused.*