

Questions/discussion

What do you think might be going on here? Based on your hypothesis(es) how might we proceed?

The type-and-screen reveals the patient to be B-pos with a positive antibody screen. Similar to the October problem, the initial panel showed reactivity with all RBCs, and the autocontrol and DAT are negative. An Rh phenotype, done per routine, showed the patient's most likely genotype to be R1r.

As discussed in the last two cases, when a patient's plasma reacts with all panel donor RBCs we might initially consider four scenarios, namely an autoantibody, an alloantibody directed against a high frequency antigen, multiple alloantibodies with or without concomitant autoantibodies, and possibly method-dependent reactivity as can be seen when initial testing is by column agglutination ("gel") or solid phase technique. In this case the reaction strength in the automated gel panel is uniform, consistent with an antibody directed against a high-frequency antigen. Gel-dependent reactivity can be constant or can vary somewhat.

Again, the technologist's first hypothesis was that she might be dealing with method-dependent reactivity.

Selected 3% panel cells resuspended to 0.8% in "MTS diluent 2™ tested by gel technique

| Cell | Rh | Rh system | | | | | | Kell | | | | | | Duffy | | Kidd | | Xg | Lewis | | | MNSs | | | | P | Lutheran | | Other Typings | Gel |
|------|------|-----------|---|---|---|---|---|------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---|------|---|---|----|-----------------|-----------------|---|---------------|-----|
| | | D | C | E | c | e | V | K | k | Kp ^a | Kp ^b | Js ^a | Js ^b | Fy ^a | Fy ^b | Jk ^a | Jk ^b | Xg ^a | Le ^a | Le ^b | S | s | M | N | P1 | Lu ^a | Lu ^b | | | |
| 1 | R1R1 | + | + | 0 | 0 | + | 0 | + | + | 0 | + | / | + | + | + | + | 0 | + | 0 | + | + | + | + | 0 | +s | 0 | + | | 0 | |
| 2 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | + | + | + | + | + | 0 | 0 | + | | 0 | | |
| 3 | rr | 0 | 0 | 0 | + | + | 0 | + | + | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | + | 0 | + | 0 | + | +s | 0 | + | | 0 | |
| 4 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | 0 | + | 0 | 0 | 0 | + | 0 | + | + | + | 0 | + | | 0 | |

Antibody screen using PEG/tube technique

| Cell | Rh | Rh system | | | | | | Kell | | | | | | Duffy | | Kidd | Xg | Lewis | | | MNSs | | | | P | Lutheran | | Other Typings | AHG | |
|------|------|-----------|---|---|---|---|---|------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|---|---|---|----|-----------------|-----------------|---------------|-----|---|
| | | D | C | E | c | e | V | K | k | Kp ^a | Kp ^b | Js ^a | Js ^b | Fy ^a | Fy ^b | Jk ^a | Jk ^b | Xg ^a | Le ^a | Le ^b | S | s | M | N | P1 | Lu ^a | Lu ^b | | | |
| 1 | R1R1 | + | + | 0 | 0 | + | 0 | + | + | 0 | + | / | + | 0 | + | + | + | 0 | + | 0 | 0 | + | + | 0 | + | 0 | + | | 0 | |
| 2 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | / | + | + | 0 | + | 0 | + | 0 | + | + | + | + | + | + | + | 0 | + | | 0 |

Questions/discussion

What is your impression from these findings? Is any further workup needed?

These are typical findings for a gel dependent antibody, namely reactivity in the gel system with 0.8% cells suspended in their original medium as supplied but not with cells in the MTS diluent which omits certain preservatives ("a purine and a nucleoside" according to the manufacturer's product insert). Both the original diluent and MTS diluent contain trimethoprim and sulfamethoxazole. The resuspended selected cell panel rules out common, clinically significant antibodies as required by the FDA as does a PEG/tube antibody screen, a method of similar high sensitivity to the gel test. Therefore no further investigation is needed.

Take home points

The need to consider method-dependent reactivity in the differential diagnosis of patient plasma reacting with all cells on the initial panel(s).
Two approaches to method-dependent antibodies.