

ABID CASE #13 Case Study by Jim Perkins MD (©, 2009)

History: This patient was a 65 year old man with hypertension, atrial fibrillation, and osteoarthritis who donated autologous blood prior to a total knee arthroplasty. He had been transfused RBCs at the time of resection of a retroperitoneal sarcoma.

ABO and Rh Typing

| | | | | | | | | |
|-----|-----|----------|---------|--------|-----|---------|-----|--------|
| < A | < B | A1 cells | B cells | 6% alb | < D | < D/AHG | CCC | Interp |
| 4+ | 0 | 0 | 4+ | | 0 | 0 | 3+ | |

Antibody Screen

| | |
|-----|-----|
| | Gel |
| OI | 2+ |
| OII | 2+ |

Direct Antiglobulin Test

| | | | |
|-----|------|-----|------|
| | Poly | IgG | < C3 |
| AHG | 0 | | |
| CCC | 2+ | | |

Initial Panel

| Lot# 8RA178 | Rh system | Kell | | | | | | | | | | | Duffy | | Kidd | | Xg | Lewis | | MNSs | | | | P | Lutheran | | Other | | | | | | |
|-------------|-----------|------|---|---|---|---|---|---|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---|---|---|---|----------|-----------------|-----------------|---------|----------------|-----|----|--|--|
| Cell | Rh | 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 | Typings | Cell | Gel | | | |
| 1 | R1wR1 | + | + | 0 | 0 | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | + | + | + | 0 | + | + | + | + | + | 0 | + | 0 | + | C ^w | 1 | 2+ | | |
| 2 | R1R1 | + | + | 0 | 0 | + | 0 | + | + | 0 | + | 0 | + | + | + | + | + | + | 0 | 0 | 0 | + | + | + | + | 0 | + | + | | 2 | 1+ | | |
| 3 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | + | | 3 | 0 | | |
| 4 | Ror | + | 0 | 0 | + | + | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | + | + | 0 | 0 | + | + | + | + | + | + | 0 | + | | 4 | 2+ | | |
| 5 | r'r | 0 | + | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | + | + | + | + | + | + | 0 | + | | 5 | 2+ | | | |
| 6 | r''r | 0 | 0 | + | + | + | 0 | 0 | + | 0 | + | 0 | + | + | + | + | + | + | 0 | + | + | 0 | + | + | 0 | 0 | + | | 6 | 2+ | | | |
| 7 | rr | 0 | 0 | 0 | + | + | 0 | + | + | 0 | + | 0 | + | 0 | + | + | + | + | 0 | + | + | + | + | + | + | 0 | + | | 7 | 2+ | | | |
| 8 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | + | 0 | + | 0 | + | | 8 | 0 | | | |
| 9 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | + | 0 | + | 0 | + | 0 | + | | 9 | 2+ | | | |
| 10 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | + | 0 | + | + | + | 0 | + | 0 | 0 | + | | 10 | 2+ | | | |
| 11 | R1R1 | + | + | 0 | 0 | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | 0 | + | 0 | + | + | 0 | + | | 11 | 0 | | | |
| Patient | | | | | | | | | | | | | | | | | | | | | | | | | | | | | AC | | | | |

Screening cell phenotypes (lot # 8S649)

| Cell | Rh | 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 |
|------|------|---|---|---|---|---|---|---|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---|---|---|---|----|-----------------|-----------------|
| OI | R1R1 | + | + | 0 | 0 | + | 0 | + | + | 0 | + | 0 | + | + | + | + | 0 | + | + | 0 | + | + | + | + | + | 0 | + |
| OII | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | + | 0 | + | + | + | 0 | + | 0 | + | + | + | + | 0 | + |

ABID CASE #13

- Develop a hypothesis or hypotheses regarding the identity of this antibody or antibodies.
- Is any further workup needed to prove it? If so, select cells from the following tables to resolve the problem.

Additional cells

| Lot #8RA179 | | Rh system | | | | | | Kell | | | | | | Duffy | | Kidd | | Xg | Lewis | | MNSs | | | | P | Lutheran | | Other | | | | | |
|-------------|-------|-----------|---|---|---|---|---|------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|---|---|---|----|-----------------|-----------------|----------------|------|------|--|--|--|
| Cell | Rh | 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 | Typings | Cell | Gell | | | |
| 1 | R1wR1 | + | + | 0 | 0 | + | 0 | 0 | + | 0 | + | 0 | + | + | + | 0 | + | + | 0 | + | + | 0 | + | + | + | 0 | + | C ^v | 1 | | | | |
| 2 | R1R1 | + | + | 0 | 0 | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | 0 | + | + | 0 | + | 0 | + | + | 0 | 0 | 0 | 0 | + | | 2 | | | |
| 3 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | 0 | + | 0 | + | + | 0 | +s | 0 | + | | 3 | | | | |
| 4 | Ror | + | 0 | 0 | + | + | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | + | + | 0 | 0 | 0 | + | 0 | + | +s | 0 | + | | 4 | | | | |
| 5 | r'r | 0 | + | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | + | + | | 5 | | | | |
| 6 | r''r | 0 | 0 | + | + | + | 0 | 0 | + | 0 | + | 0 | + | + | + | + | + | + | 0 | + | + | 0 | + | + | + | + | + | | 6 | | | | |
| 7 | rr | 0 | 0 | 0 | + | + | 0 | + | + | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | 0 | 0 | + | + | + | + | 0 | + | | 7 | | | | |
| 8 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | + | 0 | + | | 8 | | | | |
| 9 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | + | + | + | 0 | + | + | 0 | + | 0 | 0 | + | + | | 9 | | | | |
| 10 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | | 10 | | | |
| 11 | R1R1 | + | + | 0 | 0 | + | 0 | + | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | 0 | + | + | + | + | 0 | + | 0 | + | | 11 | | | | |
| Patient | | | | | | | | | | | | | | | | | | | | | | | | | | | | | AC | | | | |

Additional cells

| Lot #8RB178 | | Rh system | | | | | | Kell | | | | | | Duffy | | Kidd | | Xg | Lewis | | MNSs | | | | P | Lutheran | | Other | | | | | |
|-------------|-------|-----------|---|---|---|---|---|------|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|---|---|---|----|-----------------|-----------------|---------|------|-----|--|--|--|
| Cell | Rh | 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 | Typings | Cell | Gel | | | |
| 12 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | + | 0 | + | + | 0 | + | 0 | 0 | + | | 12 | | | | |
| 13 | rr | 0 | 0 | 0 | + | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | 0 | + | 0 | 0 | + | + | + | + | + | +s | + | + | | 13 | | | | |
| 14 | rr | 0 | 0 | 0 | + | + | 0 | + | + | 0 | + | 0 | + | + | 0 | + | + | + | + | 0 | 0 | + | 0 | + | 0 | 0 | + | | 14 | | | | |
| 15 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | + | 0 | + | + | + | 0 | 0 | 0 | + | + | + | 0 | 0 | + | | 15 | | | | |
| 16 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | + | + | 0 | + | 0 | + | + | + | + | 0 | + | | 16 | | | | |
| 17 | R2R2 | + | 0 | + | + | 0 | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | + | 0 | + | + | + | + | 0 | + | | 17 | | | | |
| 18 | R1wR1 | + | + | 0 | 0 | + | 0 | 0 | + | 0 | + | 0 | + | 0 | + | + | 0 | + | 0 | + | + | + | + | + | +s | 0 | + | | 18 | | | | |
| 19 | R1R1 | + | + | 0 | 0 | + | 0 | 0 | + | 0 | + | + | + | 0 | 0 | + | 0 | 0 | 0 | 0 | 0 | + | + | 0 | +s | 0 | + | | 19 | | | | |
| 20 | RzR1 | + | + | + | 0 | + | 0 | 0 | + | 0 | + | 0 | + | + | 0 | 0 | + | + | 0 | + | + | + | + | + | + | 0 | + | | 20 | | | | |
| 21 | r''r | 0 | 0 | + | + | + | 0 | 0 | + | + | + | 0 | + | 0 | + | + | + | + | + | 0 | + | 0 | + | + | +s | 0 | + | | 21 | | | | |
| 22 | R1R1 | + | + | 0 | 0 | + | 0 | + | 0 | 0 | + | 0 | + | + | + | 0 | + | + | + | + | + | + | + | 0 | + | 0 | + | | 22 | | | | |
| Patient | | | | | | | | | | | | | | | | | | | | | | | | | | | | | AC | | | | |

- Does this antibody(ies) cause hemolytic transfusion reactions? Hemolytic disease of the newborn?
- How would we select blood for the patient in this case? What percentage of Caucasian donors would be compatible? African-American donors?