

FEATURED CASE #19-04

Rh Phenotype

	Rh system				Kell				Kidd		Duffy		Lewis		MNSs				PI	I	H	A ₁				
	C	E	c	e	K	k	Kp ^a	Js ^a	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Le ^a	Le ^b	S	s	M	N								
Patient	0	0	+																							

Question

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

Second panel

Cell	Rh	Rh system						Kell						Duffy		Xg	Lewis		MNSs				P		Lutheran		Other Typings	Plasma				
		D	C	E	c	e	V	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b		Jk ^a	Jk ^b	Le ^a	Le ^b	S	s	M	N	PI	Lu ^a		Lu ^b	Cell	Gel		
12	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	+	0	+	+	0	+	+	0	+	+	0	+	+	0	+		12	2+
13	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	+	0	0	+	0	+	+	+	+	+	0	+	HLA+	13	3+	
14	rr	0	0	0	+	+	0	0	+	0	+	/	+	+	+	+	0	+	0	+	+	0	+	0	+	0	+		14	3+		
15	R2R2	+	0	+	+	0	0	0	+	0	+	/	+	+	0	+	0	+	0	0	0	+	+	0	+	0	+		15	3+		
16	R2R2	+	0	+	+	0	0	0	+	0	+	/	+	+	0	+	0	0	0	+	+	+	+	0	0	0	+		16	1+		
17	R2R2	+	0	+	+	0	0	0	+	0	+	/	+	+	+	0	+	+	0	0	+	0	+	+	+	+	+		17	2+		
18	R1R1	+	+	0	0	+	0	0	+	0	+	/	+	+	0	0	+	+	0	+	+	+	+	+	+	0	+		18	1+		
19	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	+	0	0	+	0	+	+	+	+	+	0	+	HLA+	19	1+	
20	RZR1	+	+	+	0	+	0	0	+	0	+	0	+	+	+	+	0	+	0	+	+	0	+	+	+	0	+	HLA+	20	2+		
21	r'r	0	+	0	+	+	0	0	+	0	+	/	+	+	0	0	+	+	0	+	+	+	+	+	+	+	0	+	HLA+	21	2+	
22	rr	0	0	0	+	+	0	+	0	0	+	/	+	+	+	+	+	0	0	+	+	+	+	+	+	0	+		22	2+		

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3% cell panel tested by LISS/tube technique with raw patient plasma

Cell	Rh	Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs				Lutheran		Xg	Other Typings	LISS		
		D	C	E	c	e	V	K	k	Xg ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Le ^a	Le ^b	P1	M	N	S	s	Lu ^a	Lu ^b	Xg ^a		IS	37°, 30'	AHG
1	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+	0	+	+		0	0	1+
2	R1wR1	+	+	0	0	+	0	0	+	0		0	+	0	+	0	0	+	0	+	+	0	+	0	+	+		0	0	1+	
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	0	+	+	+	+	+	+	0	+	+		0	0	w+	
4	Ror	+	0	0	+	+	+	0	+	0		0	+	0	0	+	0	0	+	+	0	0	0	0	+	+		0	0	3+	
5	r'r	0	+	0	+	+	0	0	+	0		0	+	0	+	0	0	+	+	+	+	0	+	0	+	+	Co(b+)	0	0	1+	
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	0	0	+	0	+	+	+	+	0	+	0	+	+		0	0	2+	
7	rr	0	0	0	+	+	0	+	+	0	0	+	0	+	+	0	0	+	0	0	+	+	+	0	+	+		0	0	0 ^v	
8	rr	0	0	0	+	+	0	0	+	0		0	+	0	0	+	0	+	+	+	0	+	+	0	+	+		0	0	1+	
9	rr	0	0	0	+	+	0	0	+	0		0	+	0	+	0	+	0	+	+	0	0	+	0	+	+	Co(b+)	0	0	w+	
10	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	+	+	0	0	+	0	+	0	0	+	+		0	0	2+	
TC	R1r	+	+	0	+	+	0	0	+	0		0	+	0	0	+	0	0	+	+	+	+	0	+	0	+	Go(a+)				
Patient																															

Question

2. What is your impression now? What might you try next?

The technologist determined the antibody titer. Also, two to three hours had passed and the clinical service was anxious to transfuse, so she elected to concurrently attempt to find crossmatch compatible RBCs using the saline/tube technique with an increased serum:cell ratio, the crossmatch procedure then in use in the laboratory. In addition she elected to run additional RBCs with the crossmatches. The results were as follows:

Plasma dilutions tested by saline/tube test at AHG phase only

Dilution	1:1 (Neet)	1:2	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512	1:1024
SCI	2+	2+	2+	1 ^s	1+	vw+*	vw+*	0 ^v	0 ^v		

*Microscopic reactions only

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3% selected cell panel tested by saline/tube technique, 4:1 serum/cell ratio, raw patient plasma read at AHG phase only after 37°, 30" incubation

Cell	Rh	Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs					Lutheran		Xg ^a	Other Typings	4:1
		D	C	E	c	e	V	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Le ^a	Le ^b		P1	M	N	S	s	Lu ^a	Lu ^b			IgG
SCI	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	0	0	+	0	+	+	0	+	0	+	+		2+		
SCII	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	+	0	+	+	0	+	0	0	+	+		1+		
B7205	R1wR1	+	+	0	0	+	0	0	+	0		0	+	0	+	0	+	+	0	0	+	+	+	+	0	+	+	0 ^v		
C1664	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	0	0	+	+	0	+	0	0	+	+	Co(b+), Yt(b+)	0 ^v		
E170	r'r	0	+	0	+	+	0	+	+	0		0	+	0	+	+	0	0	+	+	0	+	0	0	+	+		0 ^v		
V185	Rr	0	0	0	+	+	0	0	+	0	0	+	+	+	0	+	+	+	0	0	+	+	0	+	0	+	0	0 ^v		
Donor #1																												3+		
Donor #2																												1+		
Donor #3																												w+		
Donor #4																												3+		

Question:

3. Now what do you think, and what would you do next?

At this point a new technologist took over the problem and tested the raw plasma with cells treated with ficin and AET.

3% cell panel treated with ficin and AET as shown. Ficin-treated cells were tested with a 2:1 saline/tube technique. AET-treated cells were tested by LISS/tube technique.

Cell	Rh	Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs					Lutheran		Xg ^a	Other Typings	Ficin tx'd cells			AET
		D	C	E	c	e	V	K	k	Kp ^a	Xg ^a	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Le ^a	Le ^b		P1	M	N	S	s	Lu ^a	Lu ^b			IS	37°	IgG	IgG
1	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	+	+	+	0	+	+	0	0	0 ^v	2+	
2	R1wR1	+	+	0	0	+	0	0	+	0		0	+	+	0	+	0	0	+	0	+	+	0	+	0	+	+	0	0	0 ^v	w+		
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	+	+	+	0	+	+	0	0	0 ^v	1+		
4	Ror	+	0	0	+	+	+	0	+	0		0	+	0	0	+	0	0	+	+	0	+	0	0	0	+	+	0	0	0 ^v	1+		
10	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	+	+	+	0	0	+	0	+	0	0	+	+	0	0	0 ^v	2+*		
Patient																																	

*AET-treated cell non-reactive with anti-k; reaction not shown

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Question:

4. What is your interpretation? How would you proceed?

Based on the findings with ficin and AET treated cells the technologist diluted the patient plasma 1:1 with plasma pooled from 3 group AB donors. They also tested a dilution control of the patient plasma diluted 1:1 with saline with the following results:

Plasma inhibition test

	Neutralized	Saline control
	Gel	Gel
SCI	0	1+
SCII	0	1+

Question:

5. What is the interpretation? Are any clinical problems in recipients associated with this antibody? Do you see any problems with the workup as presented above?