ABID CASE #30
(Case study by Jim Perkins, © 2009)

Indian Immunohematology Initiative

History: This patient was a 29 year old, G4P1111 woman at her first prenatal visit at approximately 10 weeks gestation. Her first pregnancy was uneventful. Her second infant had non-immune hydrops probably due to posterior urethral valves resulting in bladder rupture; he was delivered by Caesarian section and died at 7 days. A third pregnancy loss occurred in the first trimester due to trisomy 16. She denied transfusion.

ABO and Rh Typing

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

Antibody Screen

	Gel
SCI	0
SCII	w+

Direct Antiglobulin Test tube method

	Poly	IgG	<C3
AHG	0		
CCC	2+		

Antibody screening cells phenotype

Lot #VS205		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings	
Cell	Rh	D	C	E	c	e	f	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		Gel
SCI	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	0	0	+	+	+	0	+	+	+	+	+	0	+		0
SCII	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	0	+	0	+	0	+	+	+	+	0	+	Co(b+)	w+

Initial Panel

Lot# VRA118		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings		
Cell	Rh	D	C	E	c	e	f	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		Cell	Gel
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	+	0	+	0	0	+	Co(b+)	1	0
2	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	+	0	0	0	+	0	+	0	+	0	+		2	0
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	+	0	0	+	+	+	+	+	0	+		3	0
4	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	0	+	+	0	0	+	0	+	+	0	+		4	1+
5	r'r	0	+	0	+	+	+	0	+	0	+	0	+	+	0	0	+	+	0	+	0	+	+	+	+	0	+	Co(b-)	5	1+
6	r"r	0	0	+	+	+	+	0	+	0	+	0	+	+	0	0	+	+	0	+	+	+	+	+	+	0	+	Co(b-)	6	1+
7	rr	0	0	0	+	+	+	+	+	0	+	0	+	0	+	+	+	+	0	+	0	+	+	+	0	+	+	Co(b-)	7	2+
8	rr	0	0	0	+	+	+	0	+	0	+	0	+	+	0	+	0	+	+	0	+	+	+	+	+	0	+	Bg+, Co(b+)	8	2+
9	rr	0	0	0	+	+	+	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+	0	+	+s	0	+	Bg+	9	3+
10	rr	0	0	0	+	+	+	0	+	0	+	0	+	0	+	+	+	+	0	+	+	0	+	0	+	0	+	Bg+	10	3+
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	+	0	0	+	0	+	0	+	+	0	+		11	0
Patient																													AC	

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Selected cells

		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings		
Cell	Rh	D	C	E	c	e	f	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		Cell	Gel
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	0	0	+	+	+	+	0	+	+	+		1	0
2	rr	0	0	0	+	+	+	0	+	0	+	0	+	0	+	+	+	+	0	+	0	+	0	+	0	+	+		2	3+
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	0	+	0	+	0	+	0	+	+	0	+		3	0
4	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	0	+	+	0	+	0	+	+	+	+	0	+		4	0
5	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	+	0	+	+	+	0	+	0	0	+		5	0
6	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	0	+	0	0	0	+		6	0
7	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	0	+	0	+	0	+	+	+	+	+	+s	0	+	Screening cells; alternate lot	7	0
8	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	+	0	+	0	0	+	+	0	+	0	+		8	0

LISS panel

Lot #27822		Rh system						Kell						Duffy		Kidd		Lewis		P	MNSs				Lutheran		Xg	Other Typings		LISS			
Cell	Rh	D	C	c	E	e	f	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	Xg^a		Cell	IS	37ºC	AHG	CC
1	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	+	0	+	0	+	+	+	+	0	+	+		1	0	0	0	2+
2	R1wR1	+	+	0	0	+	0	+	+	0	+	0	+	+	+	+	+	+	0	+	+	+	0	+	0	+	0		2	0	0	0	2+
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	0	0	+	+	+	0	0	+	0	+	+	Co^b+	3	0	0	0	2+
4	Ror	+	0	+	0	+	+	0	+	0	+	+	+	+	0	+	+	0	+	+	+	+	0	0	0	+	0	Yt^b+	4				
5	r'r	0	+	+	0	+	+	0	+	0	+	0	+	+	+	0	+	+	0	0	+	+	+	+	0	+	+	Co^b+	5				
6	r"r	0	0	+	+	+	+	+	+	0	+	0	+	+	0	0	+	0	+	+	+	+	0	+	0	+	+		6				
7	rr	0	0	+	0	+	+	+	+	0	+	0	+	0	+	+	+	+	0	0	+	+	0	+	0	+	+	Co^b+	7	0	0	0	2+
8	rr	0	0	+	0	+	+	0	+	0	+	0	+	+	0	+	0	0	+	+	+	0	+	0	0	+	0		8	0	0	0	2+
9	rr	0	0	+	0	+	+	0	+	0	+	+	+	0	0	0	+	0	+	+	0	+	0	+	0	+	+		9	0	0	0	2+
10	R1R1	+	+	0	0	+	0	+	+	+	+	0	+	0	+	+	0	0	0	+	+	+	0	+	0	+	+		10				
11	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	+	0	+	0	+	+	+	0	+	+	Go^a+	11				
Patient																													AC				

Patient antigen phenotype

	Rh system				Kell							Duffy		Kidd		Lewis		MNSs				p			
	C	E	c	e	K	k	Kp^a	Kp^b	Kp^b	Kp^b	Js^a	Fy^a	Fy^b	Jk^a	Jk^b	Le^a	Le^b	M	N	S	s	P1	I	H	A_1
Patient	4+	0	0	4+																					
Pos control	3+	4+	4+	4+																					
Neg Control	0	0	0	0																					

ABID CASE #30:

Questions:

1. What is the identity of this antibody? Is it proven? Which reaction is anomalous? How might you explain this reaction?

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

3. What is the titer in this case? (Hint: what would the titer be if we used the LISS IAT as our tittering system?) How would you follow this pregnancy?

4. What is the biochemistry of this antigen? Show the reactions you would expect for the antibodies anti-Ce and anti-cE in the following panel.

Lot#		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other Typings		>cE	>Ce
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		Cell	AHG	AHG
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	+	+	0	+	0	0	+		1		
2	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	+	0	0	0	+	0	+	0	+	0	+		2		
Bg	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	+	0	0	+	+	+	+	+	0	+		3		
Bg	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	0	+	+	0	0	+	0	+	+	0	+		4		
5	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	0	+	+	+	+	0	+		5		
6	r"r	0	0	+	+	+	0	0	+	0	+	0	+	+	0	0	+	+	0	+	+	+	+	+	+	0	+		6		
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	+	+	0	+	0	+	+	+	0	+	+		7		
8	rr	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	+	0	+	+s	0	+		9		
10	rr	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		