

Case Study 2:

A sample for a 47-year-old male is submitted to the IRL for antibody identification. The physician has ordered two units of blood STAT. The initial panel results are as follows:

	Rh							Kell						Duffy		Kidd		Lewis		Lutheran		MNS				P	Xg	Results	
	D	C	E	c	e	f	C ^w	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Le ^a	Le ^b	Lu ^a	Lu ^b	M	N	S	s	P1	Xg ^a	5' RT	PEG IAT
1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	+	+	0	0	+	+	+	+	+	+	+	+	0	3+	
2	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	0	+	0	+	+	+	0	+	+	+	+	+	0	1+
3	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	0	0	+	0	+	0	4+	
4	+	0	0	+	+	+	0	0	+	+	+	0	+	0	+	0	0	0	+	0	+	0	+	+	+	+	0	2+	
5	0	+	0	+	+	+	0	+	+	0	+	0	+	+	+	0	+	0	0	+	0	+	0	+	0	0	0	3+	
6	0	0	+	+	+	+	0	0	+	0	+	0	+	+	+	0	+	0	+	+	+	0	+	+	+	0	0	3+	
7	0	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	+	+	0	(+)	
8	0	0	0	+	+	+	0	+	+	0	+	0	+	+	0	+	0	+	0	+	0	+	+	+	0	0	0	4+	
9	0	0	0	+	+	+	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	0	+	+	0	0	0	4+	
10	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	+	0	0	0	+	+	+	0	+	+	+	0	1+	
11	+	+	+	+	+	0	0	0	+	0	+	0	+	+	+	0	0	+	0	+	0	+	+	0	0	+	0	3+	
Auto																											0	(0)✓	

Name two possible reasons for the observed variable reactivity:

- 1.
- 2.

What would you recommend as the next step in this workup?

The tech decides to test a second panel of ficin-treated cells because of the urgency of the workup. Here are the results:

	Rh							Kell						Duffy		Kidd		Lewis		Lutheran		MNS				P	Xg	Results	
	D	C	E	c	e	f	C ^w	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Le ^a	Le ^b	Lu ^a	Lu ^b	M	N	S	s	P1	Xg ^a	Ficin IAT	
1	+	+	0	0	+	0	0	0	+	0	+	0	+	+	0	+	+	0	+	0	+	+	0	+	0	+	0	2+	
2	+	+	0	0	+	0	+	0	+	0	+	0	+	+	0	0	+	0	+	0	+	+	0	+	+	+	+	0	(0)✓
3	+	0	+	+	0	0	0	0	+	0	+	0	+	+	0	+	+	0	0	0	+	0	+	+	0	0	+	0	(0)✓
4	+	0	0	+	+	+	0	0	+	0	+	0	+	0	0	+	0	0	+	0	+	0	+	0	+	+	+	3+	
5	0	+	0	+	+	+	0	+	+	0	+	0	+	0	+	0	+	0	+	0	+	+	+	0	+	0	+	(0)✓	
6	0	0	+	+	+	+	0	0	+	0	+	0	+	+	+	0	0	+	0	+	0	+	0	+	+	+	+	3+	
7	0	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	0	+	0	0	+	+	0	0	+	+	0	3+	
8	0	0	0	+	+	+	0	+	+	0	+	0	+	+	0	+	+	0	+	0	+	+	+	0	+	0	+	2+	
9	0	0	0	+	+	+	0	0	+	0	+	0	+	0	+	+	0	0	+	+	+	+	0	+	+	0	+	3+	
10	0	0	0	+	+	+	0	+	0	0	+	0	+	+	0	0	+	0	+	0	+	0	+	0	+	+	+	(0)✓	
11	+	+	+	+	+	+	0	0	+	0	+	0	+	+	+	0	+	0	+	0	+	+	+	0	+	0	+	(0)✓	

Testing ficin-treated cells eliminated some of the reactivity. Name 7 antigens that are destroyed by ficin.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

At this point, what antibody(ies) are you suspecting in the patient's plasma?

What will your next step be?

	Rh							Kell						Duffy		Kidd		Lewis		Lutheran		MNS				P	Xg	Results		
	D	C	E	c	e	f	C ^w	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	JK ^a	JK ^b	Le ^a	Le ^b	Lu ^a	Lu ^b	M	N	S	s	P1	Xg ^a	5' RT	PEG IAT	
1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	0	0	0	+	+	0	+	0	+	+	+	0	(0)✓	
2	+	0	0	+	+	+	0	+	+	0	+	0	+	+	0	+	0	+	0	+	+	0	0	+	+	+	+	0	3+	
3	+	+	0	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	0	+	0	+	0	+	0	+	+	0	4+	
4	+	0	+	+	0	0	0	0	+	0	+	0	+	0	0	0	+	+	0	0	+	0	+	0	+	+	+	0	(0)✓	
5	0	0	0	+	+	+	0	0	+	0	+	0	+	+	0	+	+	0	0	0	+	+	0	0	+	0	0	0	3+	
6	0	0	0	+	+	+	0	0	+	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	0	(0)✓	
7	+	0	+	+	0	+	0	+	+	0	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	+	0	(0)✓	
8	0	0	0	+	+	+	0	0	+	0	+	0	+	+	0	+	0	+	0	+	+	+	+	0	0	0	0	0	4+	

What antibody(ies) do you now think the patient has?

How can you explain the variation in reactivity in the final panel?

Our rules in the IRL stat that you have to rule in antibodies twice. Have we done that? (Rule in means cells are reactive with at least 2 antigen positive cells and nonreactive with at least two antigen negative cells)

Have we ruled out all other clinically significant antibodies to common red cell antigens at least two times? (Rule out means at least 2 antigen positive cells are nonreactive with the patient's plasma – we use homozygous cells for rule outs. Our one exception is the Kell system)

Can we explain every reaction? (Look carefully!)

If you had to choose another cell to test, what kind of cell would you choose? Give appropriate antigen typings.

Assuming you identified three antibodies, what kind of units would you give the patient? How long does this requirement last?