Clinical History

A 36-year-old woman with rheumatoid arthritis is found to have a hematocrit (Hct) of 22% on a routine clinic visit. She has a history of blood transfusion 3 years ago with a negative antibody screen at that time. The patient is referred to the outpatient transfusion service for transfusion of two units of red blood cells (RBCs); a type and screen sample along with an order for the RBCs (ethylenediaminetetraacetic acid [EDTA] anticoagulant) is submitted to the blood bank.

ABO/Rh/Antibody Screen

ABO/Rh (tube method)				
Patient RBCs (forward typing)			Patient plasma (reverse typing)	
Anti-A	Anti-B	Anti-D	A_1 cells	B cells
0	0	3+	4+	4+

Antibody screen (tube LISS method)		
	37 °C	AHG
SC1	2+	3+
SC2	2+	3+

Reaction scale = 0 (no reaction) to 4+ (strong reaction)

Tube Panel

		Rh-hr								Kell						Duffy		Kidd		Lewis		MNS				P	Lutheran		Test results: IAT/tube LISS		
Cell #	Rh-hr	D	C	E	c	e	f	C^w	V	K	k	Kp^a	Kp^b	Js^a	Js^b	Fy^a	Fy^b	Jk^a	Jk^b	Le^a	Le^b	M	N	S	s	P_1	Lu^a	Lu^b	37 °C	AHG	CC
1	$R_{o/r}R_1$	+	+	0	0	+	0	+	0	0	+	0	+	0	+	0	+	+	+	0	+	0	+	+	+	+	0	+	2+	3+	NT
2	R_1R_1	+	+	0	0	+	0	0	0	+	+	0	+	0	+	+	+	+	0	0	+	+	+	+	+	0	0	+	2+	3+	NT
3	R_2R_2	+	0	+	+	0	0	0	0	0	+	0	+	0	+	0	+	+	0	0	0	+	0	+	+	$,^3$	0	+	0	W+	NT
4	R_0r	+	0	0	+	+	+	0	+	0	+	0	+	0	+	0	0	+	0	0	0	+	+	+	+	+	0	+	2+	3+	NT
5	r'r	0	+	0	+	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	0	+	0	+	+	0	+	2+	3+	NT
6	r''r	0	0	+	+	+	+	0	0	0	+	0	+	0	+	+	0	0	+	0	+	+	+	+	+	$,^w$	0	+	2+	3+	NT
7	rr	0	0	0	+	+	+	0	0	+	+	0	+	0	+	0	+	+	+	0	0	+	0	+	+	$,^3$	0	+	2+	3+	NT
8	rr	0	0	0	+	+	+	0	0	0	+	0	+	0	+	+	+	0	+	+	0	+	+	+	0	$,^3$	0	+	2+	3+	NT
9	rr	0	0	0	+	+	+	0	0	0	+	+	+	0	+	0	+	+	0	0	+	0	+	0	+	0	0	+	2+	3+	NT
10	rr	0	0	0	+	+	+	0	0	0	+	0	+	0	+	+	0	+	0	0	+	+	+	+	+	$,^w$	0	+	2+	3+	NT
11	R_1R_1	+	+	0	0	+	0	0	0	0	+	0	+	0	+	0	+	+	0	0	+	+	0	+	0	+	0	+	2+	3+	NT
Patient cell			2+	0	0	2+																						2+	3+	NT

Reaction scale = 0 (no reaction) to 4+ (strong reaction); *S* strong, *W* weak

DAT profile		
Polyspecific: 3+	Anti-IgG: 3+	Anti-C_3d: 3+

Reaction scale = 0 (no reaction) to 4+ (strong reaction)

Autoadsorption Panel

		Rh-hr								Kell						Duffy		Kidd		Lewis		MNS				P	Lutheran		Test results: IAT/tube LISS	
Cell #	Rh-hr	D	C	E	c	e	f	C^w	V	K	k	Kp^a	Kp^b	Js^a	Js^b	Fy^a	Fy^b	Jk^a	Jk^b	Le^a	Le^b	M	N	S	s	P_1	Lu^a	Lu^b	AHG	CC
1	$R_{1w}R_1$	+	+	0	0	+	0	+	0	0	+	0	+	0	+	0	+	+	+	0	+	0	+	+	+	+	0	+	W+	NT
2	R_1R_1	+	+	0	0	+	0	0	0	+	+	0	+	0	+	+	+	+	0	0	+	+	+	+	+	0	0	+	2+	NT
3	R_2R_2	+	0	+	+	0	0	0	0	0	+	0	+	0	+	0	+	+	0	0	0	+	0	+	+	$_w^s$	0	+	0	2+
4	R_or	+	0	0	+	+	+	0	+	0	+	0	+	0	+	0	0	+	0	0	0	+	+	+	+	+	0	+	W+	NT
5	r'r	0	+	0	+	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	0	+	0	+	+	0	+	W+	NT
6	r''r	0	0	+	+	+	+	0	0	0	+	0	+	0	+	+	0	0	+	0	+	+	+	+	+	$_w^w$	0	+	3+	NT
7	rr	0	0	0	+	+	+	0	0	+	+	0	+	0	+	0	+	+	+	0	0	+	0	+	+	$_w^s$	0	+	W+	NT
8	rr	0	0	0	+	+	+	0	0	0	+	0	+	0	+	+	+	0	+	+	0	+	+	+	0	$_w^s$	0	+	2+	NT
9	rr	0	0	0	+	+	+	0	0	0	+	+	+	0	+	0	+	+	0	0	+	0	+	0	+	0	0	+	W+	NT
10	rr	0	0	0	+	+	+	0	0	0	+	0	+	0	+	+	0	+	0	0	+	+	+	+	+	$_w^w$	0	+	3+	NT
11	R_1R_1	+	+	0	0	+	0	0	0	0	+	0	+	0	+	0	+	+	0	0	+	+	0	+	0	+	0	+	W+	NT
Patient cell																													W+	NT

Reaction scale = 0 (no reaction) to 4+ (strong reaction); *S* strong, *W* weak

- Antibodies identified are a warm autoantibody with an e-like specificity and a alloanti-Fya.
- Adsorbed panel helps uncover underlying alloantibody by removing the autoantibody.
- The weak reactions on the adsorbed panel are consistent with baseline remaining unadsorbed autoantibody since the auto control is w+ (ie., not all of the autoantibody could be removed)
- The R2R2 cell (cell#3) lacking Rh(e) antigen reacts weaker than other cells,consistent with anti-e like specificity of the warm autoantibody.
- The difference between the 2+ and 3+ reactions is due to the dosage effect of the anti-Fya.
- Fya Neg units are necessary for donor selection and crossmatching
- The patient is R1R1 Kell Neg and considering this in your donor selection is more important than an e Neg donor even though it may lead to a poor transfusion response . At least the patient will not be exposed to forming additional alloantibodies.
- The use of adsorbed plasma can be used for crossmatching to reduce incompatibility with the warm autoantibody or as most compatible < auto using unadsorbed plasma.
- Patient should be sent for genotyping to obtain an accurate phenotype to facilitate detection of clinically significant alloantibodies the patient may develop with future transfusions.