

RCI Case Studies.

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Before we start let's practice.....



What sound does a bee make?

- Moo
- Quack
- Woof
- Buzz



Case Study 1

- Female, DOB 01/10/1983
- Sickle cell anaemia
- Investigations required antibody ID and XM



IAT v's NHSBT panel 1

	Rh	M	N	S	s	P1	Lu ^a	K	k	Kpª	Lea	Le ^b	Fyª	Fy ^b	Jkª	Jkb	Other	IAT	ENZ IAT
1	R1 ^w R1	0	+	0	+	2	+	0	+	0	+	0	0	+	+	0		3	4
2	R1R1	+	0	+	0	0	0	+	+	0	0	+	+	0	0	+		3	4
3	R2R2	0	+	0	+	2	0	0	+	0	+	0	+	0	+	0		0	0
4	r'r	+	0	+	0	2	0	0	+	0	+	0	+	0	+	0		3	4
5	r"r	+	0	+	0	1	0	0	+	0	0	+	0	+	0	+		3	4
6	rr	0	+	0	+	2	0	+	0	0	0	+	0	+	+	0		3	4
7	rr	0	+	0	+	0	0	0	+	+	0	+	+	0	+	0		3	4
8	rr	0	+	+	0	0	0	0	+	0	0	+	0	+	0	+		3	4
9	rr	+	0	0	+	3	0	0	+	0	+	0	+	0	0	+		3	4
10	rr	+	0	+	0	3	+	0	+	0	0	+	0	+	+	0		3	4
Auto																		0	1
Cánl																		4	,
Ctrl																		4	1



Patient tested against R2R2 panel

	Rh	М	N	S	s	P1	Lua	К	k	Kpª	Lea	Leb	Fya	Fy ^b	Jka	Jk ^b	IAT	
1	R2Rz	+	+	+	0	2	0	0	+	0	0	+	+	0	+	0	0	
2	R2Rz	0	+	0	+	3	0	0	+	0	0	+	+	+	0	+	0	
3	R2R2	+	+	0	+	2	0	+	0	0	+	0	+	0	+	0	0	
4	R2R2	0	+	0	+	4	+	+	+	0	0	+	0	+	0	+	0	
5	R2R2	+	0	+	0	0	0	+	+	0	0	0	0	+	+	0	0	
6	R2R2	+	0	0	+	0	+	0	+	+	0	+	0	+	+	+	0	
7	R2r"	+	0	+	+	0	+	0	+	0	0	+	0	+	0	+	0	
8	R2r''	0	+	+	0	0	0	0	+	0	0	0	w	0	+	0	0	
9	R2R2	+	0	+	0	2	0	0	+	0	+	0	+	0	0	+	0	
10	R2R2	0	+	0	+	0	0	0	+	0	+	0	+	0	+	+	0	
Ctrl																	4	



What is the antibody?

- Anti-Fya
- Anti-E
- Anti-D
- Anti-c
- Anti-e



Further results

- O, D negative
- Phenotype C- c+ E- e+ K- Fy(a-b-) Jk(a+b-) MMss
- DAT negative



What is the antibody?

- Allo anti-e
- Allo Anti-E
- Auto Anti-e
- Allo Anti-e



HGP

- National haemoglobinopathy project
- Sickle cell patients are still being immunised to produce antibodies to the Rh system despite the recommendation to give RHK matched blood
- Sickle cell patients have a higher incidence of immunisation compared to other patient types
- Aim to produce a database of genotypes

Patient's genotype

D	C	U	Ш	e
-	-	+	1	Var

M	N	S	S	P1	K	k	Kp ^a	Kpb	Fy ^a	Fy ^b	Jk ^a	Jkb
+	-	-	+	+	-	+	+	-	-	-	+	-



What is the antibody?

- Allo anti-e
- Allo Anti-E
- Auto Anti-e
- Allo Anti-e



What blood would you select?

(O, D- C- c+ E- e var, K-)

- O rr K- HbS-
- O R2R2 K- HbS-
- O r"r" K- HbS-
- O R1R1 K- HbS-
- O Rh^{null} K- HbS-



Transfusion

- O rr K- HbS- blood given
- Patient closely monitored
- Ivlg cover recommended if any problems encountered



Rh variants

- Several patients with variants genes to the RH system have been identified since the advent of the HGP project
- Little data available on the clinical significant of variants to antigens other then D
- RHC and RHE variants have a additional complication due to the need to match to the antithetical antigen



Rh variants

Variants	Blood selection
D variant	D negative
C variant	C negative
e variant (in presence of RHE)	e negative if antibody present
e variant (in absence of RHE)	e positive
c variant	??
E variant	??



Case Study 2

- Female, DOB 20/09/1984
- Pregnant
- EDD ??
- Investigations required antibody ID



IAT v's NHSBT panel 1

	Rh	M	N	S	s	P1	Lu ^a	К	k	Кра	Lea	Le ^b	Fyª	Fy ^b	Jkª	Jkb	Other	IAT	ENZ IAT
1	R1 ^w R1	0	+	0	+	2	+	0	+	0	+	0	0	+	+	0		0	0
2	R1R1	+	0	+	0	0	0	+	+	0	0	+	+	0	0	+		0	1
3	R2R2	0	+	0	+	2	0	0	+	0	+	0	+	0	+	0		0	0
4	r'r	+	0	+	0	2	0	0	+	0	+	0	+	0	+	0		0	1
5	r"r	+	0	+	0	1	0	0	+	0	0	+	0	+	0	+		0	1
6	rr	0	+	0	+	2	0	+	0	0	0	+	0	+	+	0		0	0
7	rr	0	+	0	+	0	0	0	+	+	0	+	+	0	+	0		0	0
8	rr	0	+	+	0	0	0	0	+	0	0	+	0	+	0	+		0	1
9	rr	+	0	0	+	3	0	0	+	0	+	0	+	0	0	+		0	0
10	rr	+	0	+	0	3	+	0	+	0	0	+	0	+	+	0		0	1
Auto																		0	1
Ctrl																		4	1



IAT v's NHSBT panel 2

	Rh	М	N	S	s	P1	Lu ^a	К	k	Кра	Leª	Le ^b	Fyª	Fy ^b	Jkª	Jkb	Other	IAT	ENZ IAT
1	R1 ^w R1	+	+	+	0	2	0	0	+	0	0	+	+	0	+	0		0	1
2	R1R1	0	+	0	+	3	0	0	+	0	0	+	+	+	0	+		0	0
3	R2R2	+	+	0	+	2	0	+	0	0	+	0	+	0	+	0		0	0
4	r'r	0	+	0	+	4	+	+	+	0	0	+	0	+	0	+		0	0
5	r"r	+	0	+	0	0	0	+	+	0	0	0	0	+	+	0		0	1
6	rr	+	0	0	+	0	+	0	+	+	0	+	0	+	+	+		0	0
7	rr	+	0	+	+	0	+	0	+	0	0	+	0	+	0	+		0	1
8	rr	0	+	+	0	0	0	0	+	0	0	0	w	0	+	0		0	1
9	rr	+	0	+	0	2	0	0	+	0	+	0	+	0	0	+		0	1
10	rr	0	+	0	+	0	0	0	+	0	+	0	+	0	+	+		0	0
Ctrl																		4	1



What's the antibody?

- Enzyme pan
- Non-specific enzyme
- Anti-c
- Anti-S
- Anti-Lea



Are you sure?

- Anti-S
 - IgG
 - Active at 37°C
 - Destroyed by enzyme



Anti-S

- The S antigen is not as easily abolished by papain and ficin as the other MNS antigens
- Most commercially available enzyme panels are papain treated
- Some of the S antigen may therefore occasionally survive enzyme treatment
- Phenomenon described in Human Blood Groups by Geoff Daniels and The Blood Group Antigen Facts Book by Marion Reid