Antibody Identification in RCI

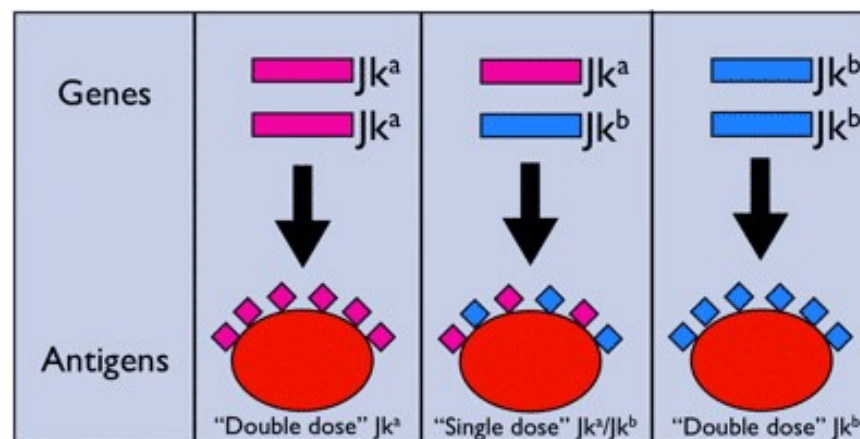Zahera Miah
HSST
RCI Filton, Bristol

Zahera.Miah@nhsbt.nhs.uk

Caring Expert Quality

The Dosage effect

Dosage - is a phenomenon in which red cells from homozygous people possess more antigens per red cell than cells from heterozygous people.

The effect - antibodies react more strongly with cells from homozygous people

E.g., anti-Jka would likely react stronger with Jka+ Jkb- cells (homozygous Jka expression) than Jka+ Jkb+ cells (heterozygous Jka expression)
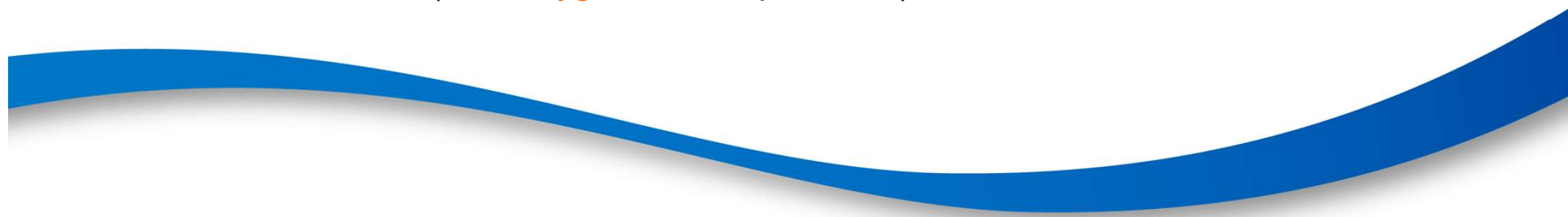
The Dosage effect

Dosage is mainly associated with antibodies to the Duffy, Kidd, Rh, and MNS blood group systems.

	Rh	M	N	S	s	Other	IAT
1	$R_1^WR_1$	0	+	0	+		0
2	R_1R_1	+	0	+	0		2
3	R_2R_2	0	+	0	+		0
4	r'r	+	0	+	0		2
5	r''r	+	0	+	0		2
6	rr	+	+	0	+		0
7	rr	0	+	0	+		0
8	rr	+	0	0	+		2
9	rr	+	0	0	+		2
10	rr	0	+	+	0		0

Anti-M reacting stronger with homozygous cells for the M antigen (M+N-)

Anti-M showing dosage with a heterozygous cell for the M antigen (M+N+)

Antibody Exclusion

BSH guidelines state:

> ➢ The presence of anti-Jk^a, anti-Jk^b, anti-S, anti-s, anti-Fy^a and anti-Fy^b should be excluded using red cells having homozygous expression of the relevant antigen.

> ➢ A single example of each phenotype is sufficient for exclusion

Antibody Inclusion

BSH guidelines state:

ANTIBODY SPECIFICITY SHOULD ONLY BE ASSIGNED WHEN

➢ The plasma is reactive with at least 2 examples of reagent red cells expressing the antigen

AND

➢ Non-reactive with at least 2 examples of reagent red cells lacking the antigen

NHSBT REAGENTS   **Panel 1**

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case B*	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ			
1	$R_1^wR_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	0			
2	R_1R_1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		2	3			
3	R_2R_2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0			
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	0			
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	0			
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		4	4			
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	2	3			
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		0	0			
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		0	0			
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	0			
																					AUTO			0				

IVD

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	Case B	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by Date	

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

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	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R1^W R1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	0
2	R1R1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		2	3
3	R2R2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	0
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	0
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		4	4
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	2	3
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	0	+	0	0	+	0	+		0	0
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		0	0
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	0
																						AUTO		0	

Multiple antibodies??

NHSBT REAGENTS   Panel 2

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R141 3529	ID Panel Papainised in Alsevers	R15 n/a	ID Panel in LISP	R14 n/a
ID Panel in CellStab	R142 3529	ID Panel Papainised in CellStab	R152 3529	Expiry Date : 2023.04.13	
ID Panel in CellMedia	R16 n/a	ID Panel Papainised in CellMedia	R17 n/a		

Patient's Name	Case B	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Instructions for use can be found at http://www.blood.co.uk/reagents

	Rh	C	D	E	c	e	Cʷ	M	N	S	s	P1	Luᵃ	K	k	Kpᵃ	Leᵃ	Leᵇ	Fyᵃ	Fyᵇ	Jkᵃ	Jkᵇ	Other	IAT	ENZ
1	R₁ᵂR₁	+	+	0	0	+	+	+	0	+	0	2	0	0	+	0	0	0	+	0	0	+	Doa+b+	3	
2	R₁R₁	+	+	0	0	+	0	0	+	0	+	0	0	+	+	0	+	0	0	+	+	0	Doa+b+	3	
3	R₂R₂	0	+	+	+	0	0	+	0	+	0	0	0	0	+	0	0	+	0	+	0	+	HLA+	0	
4	r'r	+	0	0	+	+	0	0	+	0	+	1	0	0	+	0	0	+	0	0	+	0		0	
5	r''r	0	0	+	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Doa+b+	3	
6	rr	0	0	0	+	+	0	+	+	+	0	2	0	+	0	0	0	+	0	+	0	+		3	
7	rr	0	0	0	+	+	0	+	0	+	0	2	0	+	+	0	0	+	+	0	+	0		3	
8	rr	0	0	0	+	+	0	0	+	0	+	0	0	0	+	+	0	+	0	+	+	0	HLA+	0	
9	rr	0	0	0	+	+	0	0	+	+	0	2	0	0	+	0	+	0	+	0	0	+	Cob+	3	
10	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	+	0	+	0	0	+	Doa-b+	3	
																							AUTO		

NHSBT REAGENTS   Panel 2

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R141 3529	ID Panel Papainised in Alsevers	R15 n/a	ID Panel in LISP	R14 n/a
ID Panel in CellStab	R142 3529	ID Panel Papainised in CellStab	R152 3529	Expiry Date : 2023.04.13	
ID Panel in CellMedia	R16 n/a	ID Panel Papainised in CellMedia	R17 n/a		

Patient's Name	Case B	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Instructions for use can be found at http://www.blood.co.uk/reagents   EC REP Quality First International OÜ Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ			
1	R$_1$^{w} R$_1$	+	+	0	0	+	+	+	0	+	0	2	0	0	+	0	0	0	+	0	0	+	Doa+b+	3				
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	0	0	+	+	0	+	0	0	+	+	0	Doa+b+	3				
3	R$_2$R$_2$	0	+	+	+	0	0	+	0	+	0	0	0	0	+	0	0	+	0	+	0	+	HLA+	0				
4	r'r	+	0	0	+	+	0	0	+	0	+	1	0	0	+	0	0	+	0	0	+	0		0				
5	r''r	0	0	+	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Doa+b+	3				
6	rr	0	0	0	+	+	0	+	+	+	0	2	0	+	0	0	0	+	0	+	0	+		3				
7	rr	0	0	0	+	+	0	+	0	+	0	2	0	+	+	0	0	+	+	0	+	0		3				
8	rr	0	0	0	+	+	0	0	+	0	+	0	0	0	+	+	0	+	0	+	+	0	HLA+	0				
9	rr	0	0	0	+	+	0	0	+	+	0	2	0	0	+	0	+	0	+	0	0	+	Cob+	3				
10	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	+	0	+	0	0	+	Doa-b+	3				
																							AUTO					

Anti-Fya & anti-K

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	Case C	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

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	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ		
1	$R_1^w R_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0	0		
2	R_1R_1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		2	0		
3	R_2R_2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		2	0		
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	1	0		
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		0	0		
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		1	0		
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	0	0		
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		2	0		
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		2	0		
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		0	0		
																						AUTO		0			

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case C*	Ref. No.	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kpᵇ and Luᵇ and negative for Wrᵃ and Coᵇ.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

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	Rh	C	D	E	c	e	Cʷ	M	N	S	s	P1	Luᵃ	K	k	Kpᵃ	Leᵃ	Leᵇ	Fyᵃ	Fyᵇ	Jkᵃ	Jkᵇ	Other	IAT	ENZ
1	R₁ʷR₁	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0	0
2	R₁R₁	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		2	0
3	R₂R₂	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		2	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	1	0
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		0	0
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		1	0
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	0	0
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		2	0
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		2	0
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		0	0
																							AUTO	0	

Anti-s

Blood and Transplant

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	**Expiry Date : 2023.04.20**	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case D*	Ref. No.	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ Laki 30,12915 Tallinn, Esto

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ	
1	$R_1^wR_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	0	
2	R_1R_1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0	
3	R_2R_2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0	
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	0	0	
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	0	
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		0	0	
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	0	
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	0	
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		0	0	
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	0	
																						AUTO		0		

IVD

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case D*	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ,Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R$_1$^{w}R$_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	0
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R$_2$R$_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	0	0
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	0
6	rr	0	0	0	+	+	0	(+)	+	0	+	3	0	+	+	0	0	+	+	0	+	0		0	0
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	0
8	rr	0	0	0	+	+	0	(+)	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	0
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		0	0
10	rr	0	0	0	+	+	0	0	+	(+)	0	3	0	0	+	0	0	+	+	0	0	+		3	0
																							AUTO	0	

Can you include anti-M and anti-S?

NHSBT REAGENTS   Panel 2

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R141 3529	ID Panel Papainised in Alsevers	R15 n/a	ID Panel in LISP	R14 n/a
ID Panel in CellStab	R142 3529	ID Panel Papainised in CellStab	R152 3529	Expiry Date : 2023.04.13	
ID Panel in CellMedia	R16 n/a	ID Panel Papainised in CellMedia	R17 n/a		

Patient's Name	*Case D*	Ref. No.		Sample No.		Conclusion	
D.O.B.						Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ Laki 30,12915 Tallinn, E

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ		
1	R$_1$^{w}R$_1$	+	+	0	0	+	+	+	0	+	0	2	0	0	+	0	0	0	+	0	0	+	Doa+b+	3			
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	0	0	+	+	0	+	0	0	+	+	0	Doa+b+	0			
3	R$_2$R$_2$	0	+	+	+	0	0	+	0	+	0	0	0	0	+	0	0	+	0	+	0	+	HLA+	3			
4	r'r	+	0	0	+	+	0	0	+	0	+	1	0	0	+	0	0	+	0	0	+	0		0			
5	r''r	0	0	+	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Doa+b+	0			
6	rr	0	0	0	+	+	0	+	+	+	0	2	0	+	0	0	0	+	0	+	0	+		1			
7	rr	0	0	0	+	+	0	+	0	+	0	2	0	+	+	0	0	+	+	0	+	0		3			
8	rr	0	0	0	+	+	0	0	+	0	+	0	0	0	+	+	0	+	0	+	+	0	HLA+	0			
9	rr	0	0	0	+	+	0	0	+	+	0	2	0	0	+	0	+	0	+	0	0	+	Cob+	3			
10	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	+	0	+	0	0	+	Doa-b+	3			
																							AUTO				

NHS Blood and Transplant

Blood and Transplant

IVD

NHSBT REAGENTS Panel 2

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R141 3529	ID Panel Papainised in Alsevers	R15 n/a	ID Panel in LISP	R14 n/a
ID Panel in CellStab	R142 3529	ID Panel Papainised in CellStab	R152 3529	Expiry Date : 2023.04.13	
ID Panel in CellMedia	R16 n/a	ID Panel Papainised in CellMedia	R17 n/a		

Patient's Name	Case D	Ref. No.	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Instructions for use can be found at http://www.blood.co.uk/reagents

EC REP Quality First International OÜ,Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT	ENZ				
1	$R_1^wR_1$	+	+	0	0	+	+	+	0	+	0	2	0	0	+	0	0	0	+	0	0	+	Doa+b+	3					
2	R_1R_1	+	+	0	0	+	0	0	+	0	+	0	0	+	+	0	+	0	0	+	+	0	Doa+b+	0					
3	R_2R_2	0	+	+	+	0	0	+	0	+	0	0	0	0	+	0	0	+	0	+	0	+	HLA+	3					
4	r'r	+	0	0	+	+	0	0	+	0	+	1	0	0	+	0	0	+	0	0	+	0		0					
5	r''r	0	0	+	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Doa+b+	0					
6	rr	0	0	0	+	+	0	+	+	+	0	2	0	+	0	0	0	+	0	+	0	+		1					
7	rr	0	0	0	+	+	0	+	0	+	0	2	0	+	+	0	0	+	+	0	+	0		3					
8	rr	0	0	0	+	+	0	0	+	0	+	0	0	0	+	+	0	+	0	+	+	0	HLA+	0					
9	rr	0	0	0	+	+	0	0	+	+	0	2	0	0	+	0	+	0	+	0	0	+	Cob+	3					
10	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	+	0	+	0	0	+	Doa-b+	3					
																							AUTO						

Anti-M & anti-S

NHS Blood and Transplant

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case E*	Ref. No.	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ Laki 30,12915 Tallin

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R$_1$^{w}R$_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0	0
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R$_2$R$_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	2	3
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		2	3
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4
																							AUTO	0	

IVD

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case E*	Ref. No.	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R1^{w}R1	+	+	0	0	+	+	+	0	+	0	0	0	+	0	0	+	+	0	+	0			0	0
2	R1R1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R2R2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	2	3
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		2	3
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4
																							AUTO	0	

Most clinically significant antibodies have been
Excluded… ?antibody specificity

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	Case E	Patients Rh/K: R1R2, K-	Sample No.	Conclusion	
D.O.B.				Tested by Date	

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC REP Quality First International OÜ,Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R$_1$^{w}R$_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0	0
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R$_2$R$_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		0	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	2	3
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		2	3
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	+	0	0	0	+	+	0	+	0		3	4
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4
																						AUTO		0	

Anti-f (ce)

Patients RhK:
R1R2 – CD<u>e</u> / <u>c</u>DE

NHS Blood and Transplant

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name		*Case F*	Patient's Rh/K: R1R1, K-	Sample No.	Conclusion
D.O.B.					Tested by Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC REP Quality First International OÜ,Laki 30,12915 Ta

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R1^{w}R1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0	0
2	R1R1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R2R2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	4
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4
																						AUTO		0	

IVD

NHSBT REAGENTS **Panel 1**

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name	*Case F*	Patient's Rh/K: R1R1, K-	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT	ENZ
1	R1^{W}R1	+	+	0	0	+	+	+	0	+	0	0	0	+	0	0	+	+	+	0	+	0		0	0
2	R1R1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R2R2	0	+	+	(+)	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4
4	r'r	+	0	0	(+)	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4
5	r''r	0	0	+	(+)	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	4
6	rr	0	0	0	(+)	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4
7	rr	0	0	0	(+)	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4
8	rr	0	0	0	(+)	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4
9	rr	0	0	0	(+)	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4
10	rr	0	0	0	(+)	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4
																						AUTO		0	

R1R1 = CDe/CDe

Cannot exclude anti-E

Reference Panel 1 Profile

NHS
Blood and Transplant

Blood and Transplant

| NHSBT REAGENTS | *Case F* | Product : | Panel 1 in Alsevers | Lot No : R201 3286 | Expiry date : 2023.04. |
| | | | Panel 1 in Cellstab | Lot No : R202 3286 | |

| Patient's Name | | Requestor | | Hematos Ref No. | | Tested by | |
| Date of Birth | | Hosp No. | | Sample No. | | Date Tested | |

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT
1	R1wR1	+	+	0	0	+	+	0	+	0	+	3	0	0	+	0	0	+	0	+	0	+	HLA+	0
2	R1wR1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0
3	R1RZ	+	+	+	0	+	0	+	+	0	+	0	0	0	+	0	0	+	+	0	0	+		2
4	RZr'	+	+	+	0	+	0	+	+	0	+	0	0	0	+	0	+	0	0	+	+	0		2
5	Ror	0	+	0	+	+	0	0	+	0	+	3	0	0	+	0	0	+	0	0	+	0		4
6	R1R1	+	+	0	0	+	0	+	+	0	+	0	0	+	0	0	0	+	+	0	0	+		0
7	R1R1	+	+	0	0	+	0	+	0	+	0	0	0	+	+	0	0	0	0	w	+	0		0
8	R1r'	+	+	0	0	+	0	0	+	0	+	2	0	0	+	+	+	0	0	+	0	+	HLA+	0
9	R1R1	+	+	0	0	+	0	+	0	+	+	3	+	0	+	0	0	+	w	0	0	+	Bga+	0
10	R1R1	+	+	0	0	+	0	0	+	+	0	0	0	0	+	0	0	+	+	0	0	+		0

NHS Blood and Transplant

| IVD |

NHSBT REAGENTS	Case F	Product :	Panel 1 in Alsevers	Lot No : R201 3286	Expiry date : 2023.04.06
			Panel 1 in Cellstab	Lot No : R202 3286	

Patient's Name		Requestor		Hematos Ref No.		Tested by	
Date of Birth		Hosp No.		Sample No.		Date Tested	

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT
1	R1wR1	+	+	0	0	+	+	0	+	0	+	3	0	0	+	0	0	+	0	+	0	+	HLA+	0
2	R1wR1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		0
3	R1RZ	+	+	+	0	+	0	+	+	0	+	0	0	0	+	0	0	+	+	0	0	+		2
4	RZr'	+	+	+	0	+	0	+	+	0	+	0	0	0	+	0	+	0	0	+	+	0		2
5	Ror	0	+	0	+	+	0	0	+	0	+	3	0	0	+	0	0	+	0	0	+	0		4
6	R1R1	+	+	0	0	+	0	+	+	0	+	0	0	+	0	0	0	+	+	0	0	+		0
7	R1R1	+	+	0	0	+	0	+	0	+	0	0	0	+	+	0	0	0	0	w	+	0		0
8	R1r'	+	+	0	0	+	0	0	+	0	+	2	0	0	+	+	+	0	0	+	0	+	HLA+	0
9	R1R1	+	+	0	0	+	0	+	0	+	+	3	+	0	0	+	0	+	w	0	0	+	Bga+	0
10	R1R1	+	+	0	0	+	0	0	+	+	0	0	0	0	+	0	0	+	+	0	0	+		0

Anti-c & anti-E

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name		*Case G*	Patient Rh/K = R1R1, K-	Sample No.	Conclusion	
D.O.B.					Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

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	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Luª	K	k	Kpª	Leª	Leᵇ	Fyª	Fyᵇ	Jkª	Jkᵇ	Other	IAT	ENZ			
1	R1ʷR1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	4			
2	R1R1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0			
3	R2R2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4			
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4			
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		1	4			
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4			
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4			
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4			
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4			
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4			
																					AUTO		0				

Story… this looked like a multiple antibody case to an inexperienced BMS

Blood and Transplant

|IVD|
NHSBT REAGENTS   **Panel 2**

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R141 3529	ID Panel Papainised in Alsevers	R15 n/a	ID Panel in LISP	R14 n/a
ID Panel in CellStab	R142 3529	ID Panel Papainised in CellStab	R152 3529	Expiry Date : 2023.04.13	
ID Panel in CellMedia	R16 n/a	ID Panel Papainised in CellMedia	R17 n/a		

Patient's Name	*Case G*	Patient Rh/K = R1R1, K-	Sample No.	Conclusion	
D.O.B.				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

⊞Instructions for use can be found at http://www.blood.co.uk/reagents

|EC|REP| Quality First International OÜ Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R₁^{w}R₁	+	+	0	0	+	+	+	0	+	0	2	0	0	+	0	0	0	+	0	0	+	Doa+b+	0	
2	R₁R₁	+	+	0	0	+	0	0	+	0	+	0	0	+	+	0	+	0	0	+	+	0	Doa+b+	3	
3	R₂R₂	0	+	+	+	0	0	+	0	+	0	0	0	0	+	0	0	+	0	+	0	+	HLA+	3	
4	r'r	+	0	0	+	+	0	0	+	0	+	1	0	0	+	0	0	+	0	0	+	0		3	
5	r''r	0	0	+	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Doa+b+	2	
6	rr	0	0	0	+	+	0	+	+	+	0	2	0	+	0	0	0	+	0	+	0	+		3	
7	rr	0	0	0	+	+	0	+	0	+	0	2	0	+	+	0	0	+	0	+	0	+	0		3	
8	rr	0	0	0	+	+	0	0	+	0	+	0	0	0	+	+	0	+	0	+	0	+	+	0	HLA+	3	
9	rr	0	0	0	+	+	0	0	+	+	0	2	0	0	+	0	+	0	+	0	0	+	Cob+	3	
10	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	+	0	+	0	0	+	Doa-b+	3	
																							AUTO		

Change in storyline… the hospital now require urgent blood for transfusion

Patient is group Opos – what blood would you provide?

Panel 1

NHSBT REAGENTS — Blood and Transplant

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name: *Case G* Patient Rh/K = R1R1, K-   Sample No.   Conclusion Tested by Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530
Instructions for use can be found at http://www.blood.co.uk/reagents
EC REP Quality First International OÜ,Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R1^{w}R1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	4
2	R1R1	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		0	0
3	R2R2	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	+	+	0	0	+	+	0	0	+		1	4
6	rr	0	0	0	+	+	0	+	0	+	3	0	+	0	0	+	0	+	+	0	+	0		3	4
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	0	+	0	0	+	+	0	0	HLA+	3	4
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	+	+	0	+	0	+	0	+	0		3	4
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	0	+	0	0	+	0		3	4
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	+	0		3	4
																					AUTO			0	

Panel 2

NHSBT REAGENTS — Blood and Transplant

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R141 3529	ID Panel Papainised in Alsevers	R15 n/a	ID Panel in LISP	R14 n/a
ID Panel in CellStab	R142 3529	ID Panel Papainised in CellStab	R152 3529	Expiry Date : 2023.04.13	
ID Panel in CellMedia	R16 n/a	ID Panel Papainised in CellMedia	R17 n/a		

Patient's Name: *Case G* Patient Rh/K = R1R1, K-   Sample No.   Conclusion Tested by Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Instructions for use can be found at http://www.blood.co.uk/reagents
EC REP Quality First International OÜ,Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	IAT	ENZ
1	R1^{w}R1	+	+	0	0	+	/	0	+	0	2	0	0	+	0	0	0	/	0	0	+	Do+b+	0	
2	R1R1	+	+	0	0	+	0	0	+	0	0	+	0	+	0	0	0	+	0	+	0	Do+b+	3	
3	R2R2	0	+	+	0	0	+	0	+	0	0	0	0	+	0	0	+	0	+	0	+	HLA+	3	
4	r'r	+	0	0	+	0	0	+	0	+	1	0	0	+	0	0	+	0	0	+	0		3	
5	r''r	0	0	+	+	0	0	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Do+b+	2	
6	rr	0	0	0	+	+	0	+	+	+	0	2	0	+	0	0	0	+	0	+	0		3	
7	rr	0	0	0	+	+	0	+	0	+	0	2	0	+	0	0	+	0	+	0	+	0		3	
8	rr	0	0	0	+	+	0	+	+	0	+	0	0	+	0	+	0	+	0	+	0	HLA+	3	
9	rr	0	0	0	+	+	0	0	+	+	0	2	0	0	+	0	0	+	0	+	0	Cob+	3	
10	rr	0	0	0	+	+	0	0	+	0	+	1	+	0	+	0	0	+	0	+	0	+	Doa-b+	3	
																						AUTO			

BMS issued: OPos R1R1, K-, Jka- blood

Was this the right decision?

Anti-E, anti-c and anti-Jka have not been excluded

According to BSH guidelines, we can designate an anti-Jka specificity.

The BMS proceeded to perform an R1R1 panel…

IVD

Reference Panel 1 Profile

Blood and Transplant

NHSBT REAGENTS	*Case G*	Product :	Panel 1 in Alsevers	Lot No : R201 3286	Expiry date : 2023.04.06
			Panel 1 in Cellstab	Lot No : R202 3286	

Patient's Name		Requestor		Hematos Ref No.		Tested by	
Date of Birth		Hosp No.		Sample No.		Date Tested	

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT
1	R1wR1	+	+	0	0	+	+	0	+	0	+	3	0	0	+	0	0	+	0	+	0	+	HLA+	0
2	R1wR1	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0	Jka	4
3	R1RZ	+	+	+	0	+	0	+	+	0	+	0	0	0	+	0	0	+	+	0	0	+		0
4	RZr'	+	+	+	0	+	0	+	+	0	+	0	0	0	+	0	+	0	0	+	+	0	Jka	4
5	Ror	0	+	0	+	+	0	0	+	0	+	3	0	0	+	0	0	+	0	0	+	0	Jka, c	5
6	R1R1	+	+	0	0	+	0	+	+	0	+	0	0	+	0	0	0	+	+	0	0	+		0
7	R1R1	+	+	0	0	+	0	+	0	+	0	0	0	+	+	0	0	0	0	w	+	0	Jka	4
8	R1r'	+	+	0	0	+	0	0	+	0	+	2	0	0	+	+	+	0	0	+	0	+	HLA+	0
9	R1R1	+	+	0	0	+	0	+	0	+	+	3	+	0	+	0	0	0	+	w	0	0	+	Bga+	0
10	R1R1	+	+	0	0	+	0	0	+	+	0	0	0	0	+	0	0	+	+	0	0	+		0

Anti-c & anti-Jka

IVD
NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name		Ref. No.	Sample No.	Conclusion	
D.O.B.	Patient with AIHA			Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC REP Quality First International OÜ Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	GEL IAT	Gel ENZ	Tube IAT			
1	$R_1^w R_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	4	2			
2	$R_1 R_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		3	4	2			
3	$R_2 R_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4	2			
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4	2			
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	4	2			
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4	2			
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4	2			
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4	2			
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	0	+	0	0	+	0	+		3	4	2		
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4	2			
																						AUTO	3					

Reagent					DAT Profile	Anti-IgG	IgA	IgM	C3c	C3d	Ctrl
Lot No.					Result	4	0	0	0	0	0

Can you identify the antibody(ies)?

Send to RCI??

Remember: <u>Exclusions</u> are performed on Negative reactions

PROBLEM

- **Panreactive by IAT and Enzyme IAT**
- **Auto = Positive**

Unable to exclude the presence of alloantibodies

NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name		Ref. No.		Sample No.	Conclusion	
D.O.B.	Patient with AIHA				Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC | REP Quality First International OÜ, Laki 30, 12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	GEL IAT	Gel ENZ	Tube IAT
1	R$_1^w$R$_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	4	2
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		3	4	2
3	R$_2$R$_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4	2
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4	2
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	4	2
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4	2
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0							HLA+	3	4	2
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+								3	4	2
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0								3	4	2
10	rr	0	0	0	+	+							0	+	0	0	+	+	0	0	+			3	4	2
																						AUTO		3		

Reagent						DAT Profile	Anti-IgG	IgA	IgM	C3c	C3d	Ctrl
Lot No.						Result	4	0	0	0	0	0

DAT = Positive by IgG
Likely presence of warm autoantibody

Plasma Panreactive
Autocontrol = Positive

Patient has AIHA
How do we remove the autoantibody to be able to exclude alloantibodies?

Adsorptions

1. AUTOadsorption

- Patient's <u>OWN</u> red cells mixed with patient plasma
- <u>auto</u>antibody attaches to patient's <u>own</u> red cell
- any <u>allo</u>antibody remains in the plasma

Problem

- Patient must not be recently transfused
- Patient must have sufficient red cells, a good Hb

Mostly our patient's do not fulfil these criteria, so we must alloadsorb

2. ALLOadsorption

- Donor (or commercial) red cells mixed with patient plasma
- donor red cells adsorb autoantibody
- alloantibody remains in adsorbed plasma

Properties of adsorption cells being used:
- Phenotype matched to patient
- Papain treated

What if we don't know the patient's phenotype? How do we select adsorption cells to use?

Commercial cells (OR₁R₁, OR₂R₂ and Orr) - designed for adsorptions
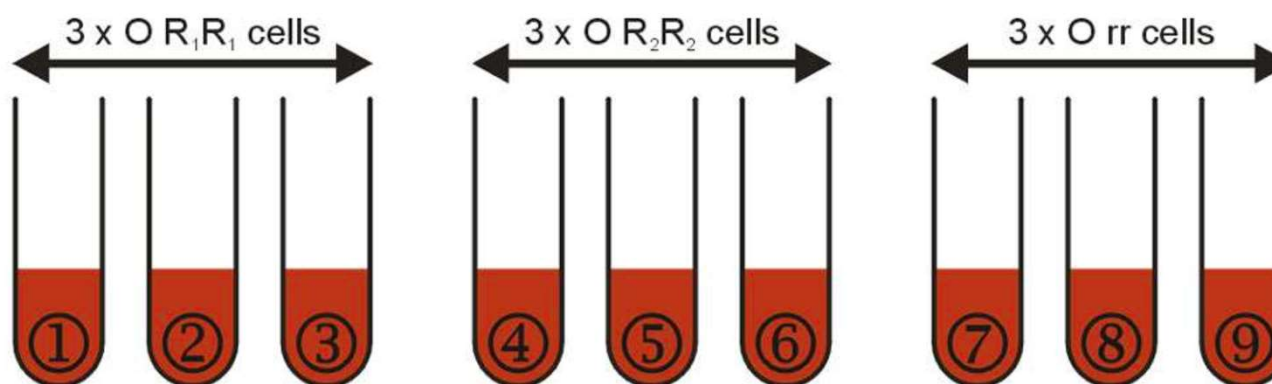
Lot Number	Rh	C	D	E	c	e	Cᵂ	K	Jkᵃ	Jkᵇ
R405 3597	R₁R₁	+	+	0	0	+	0	0	+	0
	rr	0	0	0	+	+	0	+	0	+
R404 all lots	R₂R₂	0	+	+	+	0	0	0	+	+

RCI can perform adsorptions with 3 different papain treated adsorption cells:

1. R1R1
2. rr
3. R2R2

At least 1 of these cells must be:

- Jka-
- Jkb-
- K-

1st 2nd 3rd Adsorbed plasma
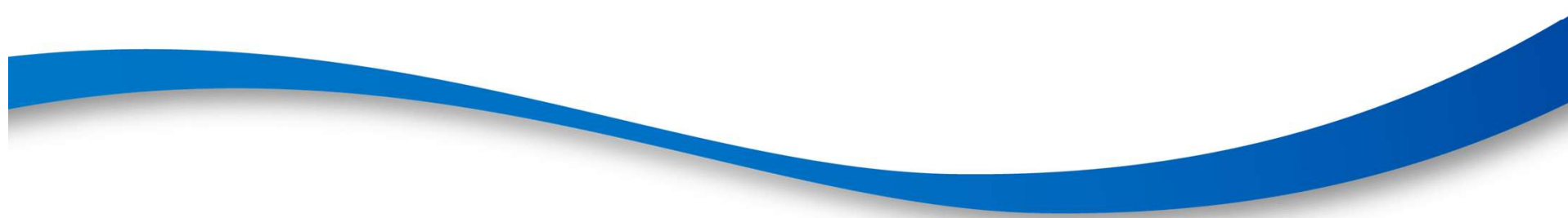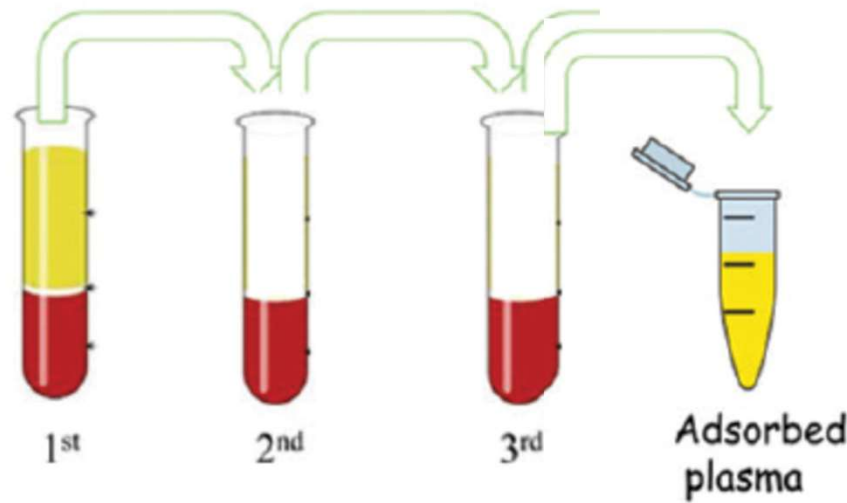
RCI require good sample volumes to perform these investigations!

add reagent cells

incubate → centrifuge

keep the "adsorbed" serum

A

discard the red cells

(c) Andy Miller, 2007
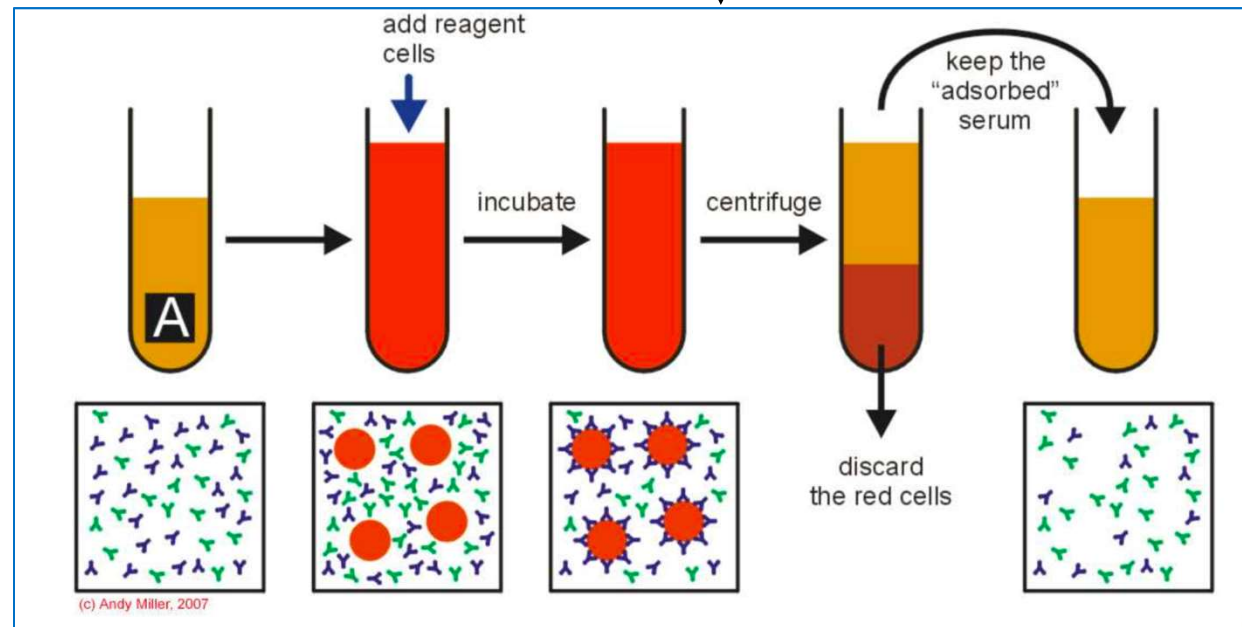
Finally…

test the remaining adsorbed plasma against an antibody ID panel by IAT

Hopefully, any clinically significant antibody to a common red cell antigen should remain in (at least) one of the 3 adsorbed plasma!

What's the biggest risk of alloadsorption??

The adsorption cells may adsorb out a clinically significant alloantibody - Especially a high frequency antibody

3 Papain treated adsorption cells

Lot Number	Rh	C	D	E	c	e	C^w	K	Jk^a	Jk^b
R405 3597	R$_1$R$_1$	+	+	0	0	+	0	0	+	0
	rr	0	0	0	+	+	0	+	0	+
R404 all lots	R$_2$R$_2$	0	+	+	+	0	0	0	+	+

Any alloantibody in the adsorbed plasma?

Blood and Transplant

[IVD]
NHSBT REAGENTS   Panel 1

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name		Ref. No.		Sample No.		Conclusion	
D.O.B.	Patient with AIHA					Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

[EC] [REP] Quality First International OÜ,Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	C^w	M	N	S	s	P1	Lu^a	K	k	Kp^a	Le^a	Le^b	Fy^a	Fy^b	Jk^a	Jk^b	Other	GEL IAT	Gel ENZ	Tube IAT	R1R1 IAT	rr IAT	R2R2 IAT
1	R$_1$^{w}R$_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	0	+	0		3	4	2	0	2	0
2	R$_1$R$_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+		3	4	2	0	0	0
3	R$_2$R$_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	+	0		3	4	2	0	2	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	+	0	Do(a+b-)	3	4	2	0	2	0
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+		3	4	2	0	0	0
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		3	4	2	0	2	0
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	+	0	HLA+	3	4	2	0	2	0
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+		3	4	2	0	0	0
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+		3	4	2	0	0	0
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+		3	4	2	0	0	0
																				AUTO			3				
																							Adsorbed plasma						

Reagent						DAT Profile	Anti-IgG		IgA		IgM		C3c		C3d		Ctrl	
Lot No.						Result	4		0		0		0		0		0	

Why is anti-Jka only detected with rr adsorbed plasma?

IVD

NHSBT REAGENTS   Panel 1

Blood and Transplant

Product	Lot No.	Product	Lot No.	Product	Lot No.
ID Panel in Alsevers	R144 3530	ID Panel Papainised in Alsevers	R154 3530	ID Panel in LISP	R146 3530
ID Panel in CellStab	R143 3530	ID Panel Papainised in CellStab	R153 3530	Expiry Date : 2023.04.20	
ID Panel in CellMedia	R163 3530	ID Panel Papainised in CellMedia	R173 3530		

Patient's Name		Ref. No.	Sample No.	Conclusion	
D.O.B.	Patient with AIHA			Tested by	Date

Unless otherwise indicated, all cells are positive for Kp^b and Lu^b and negative for Wr^a and Co^b.
Please note cell 2 in Alsevers is labelled as R144 4530

Instructions for use can be found at http://www.blood.co.uk/reagents

EC REP Quality First International OÜ Laki 30,12915 Tallinn, Estonia

	Rh	C	D	E	c	e	Cʷ	M	N	S	s	P1	Luᵃ	K	k	Kpᵃ	Leᵃ	Leᵇ	Fyᵃ	Fyᵇ	Jkᵃ	Jkᵇ	Other		R1R1 IAT	rr IAT	R2R2 IAT
1	$R_1^w R_1$	+	+	0	0	+	+	+	0	+	0	0	0	0	+	0	0	+	+	+	0	(+)	0		0	2	0
2	$R_1 R_1$	+	+	0	0	+	0	0	+	0	+	3	0	+	+	0	0	+	0	+	0	+			0	0	0
3	$R_2 R_2$	0	+	+	+	0	0	0	+	0	+	2	0	0	+	0	+	0	0	+	(+)	0			0	2	0
4	r'r	+	0	0	+	+	0	0	+	0	+	3	0	0	+	0	+	0	+	0	(+)	0	Do(a+b−)		0	2	0
5	r''r	0	0	+	+	+	0	+	0	+	0	0	0	0	+	0	0	+	+	0	0	+			0	0	0
6	rr	0	0	0	+	+	0	+	0	+	0	3	0	+	0	0	0	+	+	0	(+)	0			0	2	0
7	rr	0	0	0	+	+	0	+	0	+	0	4	0	+	+	0	+	0	0	+	(+)	0	HLA+		0	2	0
8	rr	0	0	0	+	+	0	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+			0	0	0
9	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	+	0	+			0	0	0
10	rr	0	0	0	+	+	0	0	+	+	0	3	0	0	+	0	0	+	+	0	0	+			0	0	0
																					AUTO						
																										Adsorbed plasma	

Reagent			DAT Profile	Anti-IgG	IgA	IgM	C3c	C3d	Ctrl
Lot No.			Result	4	0	0	0	0	0

Lot Number	Rh	C	D	E	c	e	Cʷ	K	Jkᵃ	Jkᵇ
R405 3597	$R_1 R_1$	+	+	0	0	+	0	0	+	0
	rr	0	0	0	+	+	0	+	0	+
R404 all lots	$R_2 R_2$	0	+	+	+	0	0	0	+	+

Clue!

Patient X

Male, 62 year old

Diagnosed with Multiple Myeloma

Group OPos, R1R1 K-

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT	ENZ		
1	R1WR1	+	+	0	0	+	+	0	+	0	+	4	0	0	+	0	+	0	+	0	+	0		2	2		
2	R1R1	+	+	0	0	+	0	+	0	+	0	3	0	+	+	0	+	0	0	+	0	+		2	2		
3	R2R2	0	+	+	+	0	0	0	+	0	+	0	0	0	+	0	0	+	+	0	0	+		2	2		
4	r'r	+	0	0	+	+	0	+	0	+	0	4	0	0	+	0	+	0	+	0	+	0		2	2		
5	r"r	0	0	+	+	+	0	+	0	+	0	3	0	0	+	0	+	0	0	+	+	0		2	2		
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		2	2		
7	rr	0	0	0	+	+	0	0	+	0	+	0	0	+	+	0	0	+	0	+	0	+		2	2		
8	rr	0	0	0	+	+	0	+	0	0	+	3	0	0	+	+	+	0	0	+	0	+		2	2		
9	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	0	+	0	+	0	+		2	2		
10	rr	0	0	0	+	+	0	0	+	+	0	4	0	0	+	0	0	0	0	+	+	0		2	2		
																							Auto	0			

What are your thoughts?

Patient is on DARATUMUMAB!
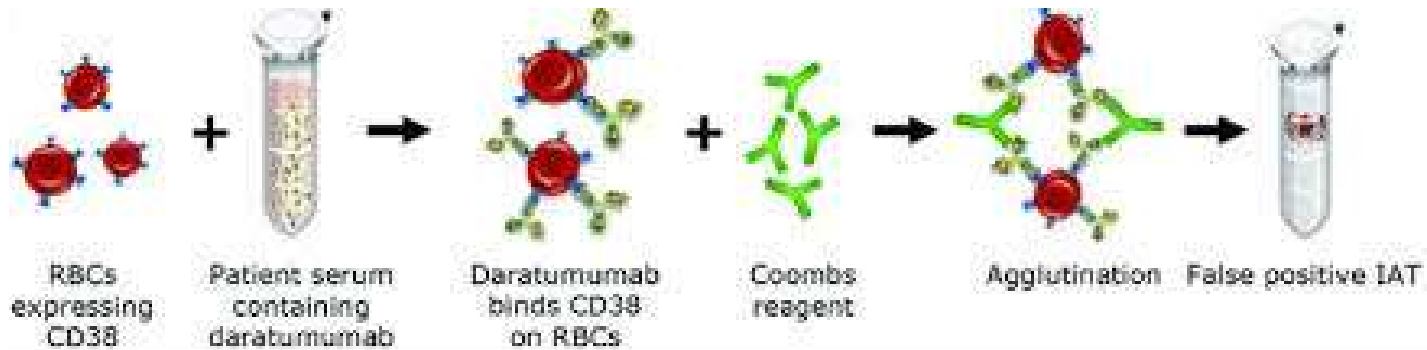
Diagram showing how daratumumab interferes with the antibody screen (Chari et al., 2018)
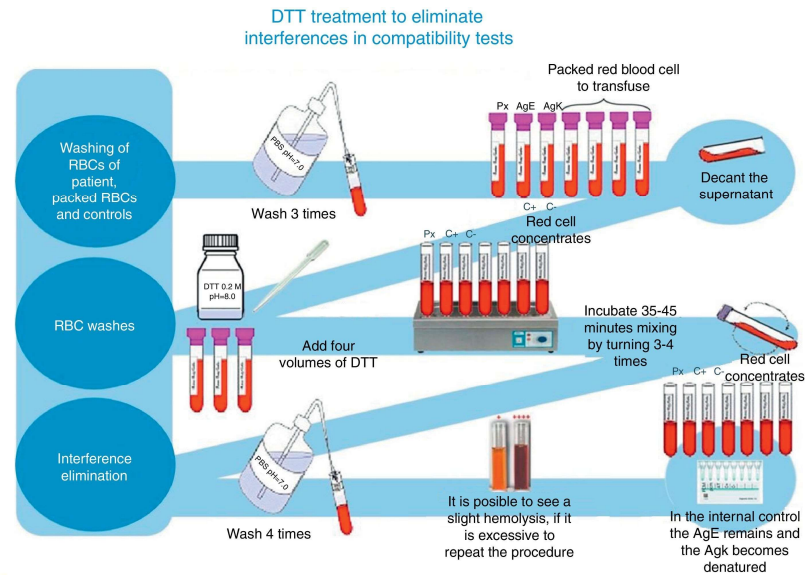
(Barrientos-Soto et al., 2017)

No antibody detected using DTT treated panel cells

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT	ENZ	DTT Gel IAT
1	R1wR1	+	+	0	0	+	+	0	+	0	+	4	0	0	+	0	+	0	+	0	+	0		2	2	0
2	R1R1	+	+	0	0	+	0	+	0	+	0	3	0	+	+	0	+	0	0	+	0	+		2	2	0
3	R2R2	0	+	+	+	0	0	0	+	0	+	0	0	0	+	0	0	+	+	0	0	+		2	2	0
4	r'r	+	0	0	+	+	0	+	0	+	0	4	0	0	+	0	+	0	+	0	+	0		2	2	0
5	r"r	0	0	+	+	+	0	+	0	+	0	3	0	0	+	0	+	0	0	+	+	0		2	2	0
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		2	2	0
7	rr	0	0	0	+	+	0	0	+	0	+	0	0	+	+	0	0	+	0	+	0	+		2	2	0
8	rr	0	0	0	+	+	0	+	0	0	+	3	0	0	+	+	+	0	0	+	0	+		2	2	0
9	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	0	+	0	+	0	+		2	2	0
10	rr	0	0	0	+	+	0	0	+	+	0	4	0	0	+	0	0	0	0	+	+	0		2	2	0
																							Auto	0		

0.2 M Dithiothreitol (DTT) treated red blood cells will <u>not</u> react with antibodies in the Kell blood group system nor with some examples of anti -Ge, - Yta and some HTLA antibodies.

Could this information be helpful in completing complex antibody investigations?

Patient Y

- A pre-op sample is referred from a Hospital Blood Bank on a 33 year old male.

- He underwent major surgery last year, during which he received six units of electronically issued blood.

- Group A RhD Negative, rr (C-c+E-e+) K-

							Panel 1										Gel	Enz	
		Rh	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb			
1	$R_1^W R_1$	0	+	0	+	0	0	0	+	+	0	+	+	0	0	+	**2**	**4**	
2	$R_1 R_1$	+	0	+	0	4	0	+	+	0	0	+	0	+	+	0	**4**	**4**	
3	$R_2 R_2$	+	0	0	+	4	0	0	+	0	+	0	+	0	+	0	**4**	**4**	
4	r'r	0	+	+	+	2	0	0	+	0	+	0	0	+	0	+	**4**	**4**	
5	r''r	0	+	+	0	4	0	0	+	0	0	+	0	+	0	+	**4**	**4**	
6	rr	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0	**4**	**4**	
7	rr	0	+	0	+	3	0	+	+	0	+	0	+	0	0	+	**4**	**4**	
8	rr	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+	**2**	**4**	
9	rr	+	0	+	0	3	+	0	+	0	0	+	0	+	+	0	**4**	**4**	
10	rr	0	+	+	0	0	0	0	+	0	0	+	+	0	+	0	**4**	**4**	
																AUTO		**0**		

DAT	IgG	IgM	IgA	C3c	C3d	Ctl
	0	**0**	**0**	**0**	**0**	**0**

What are your thoughts on this?

Results obtained vs Rare cell panel

	Rh	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	Gel
Rare Cell	rr	+	0	+	+	+	0	0	+	0	+	0	0	+	0	+	Kpb-	**0**
Rare Cell	R1R1	+	0	0	+	+	0	0	+	0	0	+	+	+	0	+	Kpb-	**0**
																	AUTO	-----

Any idea what antibody it is?

																	DTT Gel IAT		
					DTT Treated Panel 1														
	Rh	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb			
1	R₁ʷR₁	0	+	0	+	0	0	0	+	+	0	+	+	0	0	+	**0**		
2	R₁R₁	+	0	+	0	4	0	+	+	0	0	+	0	+	+	0	**0**		
3	R₂R₂	+	0	0	+	4	0	0	+	0	+	0	+	0	+	0	**0**		
4	r'r	0	+	+	+	2	0	0	+	0	+	0	0	+	0	+	**0**		
5	r''r	0	+	+	0	4	0	0	+	0	0	+	0	+	0	+	**0**		
6	rr	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0	**0**		
7	rr	0	+	0	+	3	0	+	+	0	+	0	+	0	0	+	**0**		
8	rr	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+	**0**		
9	rr	+	0	+	0	3	+	0	+	0	0	+	0	+	+	0	**0**		
10	rr	0	+	+	0	0	0	0	+	0	0	+	+	0	+	0	**0**		
															AUTO		**0**		

An antibody to which blood group system? Anti-Kpb

Case Z

Female neonate born pale and floppy with underlying jaundice
<u>Cord blood</u> hb = 42g/L
Blood group: Apos,
Antibody screen = Negative
DAT = 3+ by IgG

Mother
Blood group: Apos
Antibody screen: Negative
No previous history of blood transfusions

What are your thoughts?

Consultant suspects HDFN – What further analysis could help your investigation based on serological results?

Neonate panel results

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT	ENZ	Eluate IAT
1	R1wR1	+	+	0	0	+	+	0	+	0	+	4	0	0	+	0	+	0	+	0	+	0		0	0	0
2	R1R1	+	+	0	0	+	0	+	0	+	0	3	0	+	+	0	+	0	0	+	0	+		0	0	0
3	R2R2	0	+	+	+	0	0	0	+	0	+	0	0	0	+	0	0	+	+	0	0	+		0	0	0
4	r'r	+	0	0	+	+	0	+	0	+	0	4	0	0	+	0	+	0	+	0	+	0		0	0	0
5	r''r	0	0	+	+	+	0	+	0	+	0	3	0	0	+	0	+	0	0	+	+	0		0	0	0
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		0	0	0
7	rr	0	0	0	+	+	0	0	+	0	+	0	0	+	+	0	0	+	0	+	0	+		0	0	0
8	rr	0	0	0	+	+	0	+	0	0	+	3	0	0	+	+	+	0	0	+	0	+		0	0	0
9	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	0	+	0	+	0	+		0	0	0
10	rr	0	0	0	+	+	0	0	+	+	0	4	0	0	+	0	0	0	0	+	+	0		0	0	0

Mothers panel results

	Rh	C	D	E	c	e	Cw	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	IAT	ENZ	Eluate IAT
1	R1wR1	+	+	0	0	+	+	0	+	0	+	4	0	0	+	0	+	0	+	0	+	0		0	0	0
2	R1R1	+	+	0	0	+	0	+	0	+	0	3	0	+	+	0	+	0	0	+	0	+		0	0	0
3	R2R2	0	+	+	+	0	0	0	+	0	+	0	0	0	+	0	0	+	+	0	0	+		0	0	0
4	r'r	+	0	0	+	+	0	+	0	+	0	4	0	0	+	0	+	0	+	0	+	0		0	0	0
5	r''r	0	0	+	+	+	0	+	0	+	0	3	0	0	+	0	+	0	0	+	+	0		0	0	0
6	rr	0	0	0	+	+	0	+	+	0	+	3	0	+	0	0	0	+	+	0	+	0		0	0	0
7	rr	0	0	0	+	+	0	0	+	0	+	0	0	+	+	0	0	+	0	+	0	+		0	0	0
8	rr	0	0	0	+	+	0	+	0	0	+	3	0	0	+	+	+	0	0	+	0	+		0	0	0
9	rr	0	0	0	+	+	0	+	0	0	+	1	+	0	+	0	0	+	0	+	0	+		0	0	0
10	rr	0	0	0	+	+	0	0	+	+	0	4	0	0	+	0	0	0	0	+	+	0		0	0	0

Eluate performed on neonate sample = Negative

Who could you consider testing next?

Father!

Antibody panel = Negative

Now what?

IAT testing performed:

Maternal plasma vs neonate rbc's = 3+ reaction
Paternal plasma vs neonate rbc's = No reaction
Maternal plasma vs paternal rbc's = 3+ reaction

Tested Maternal plasma vs rare cell panel

	Rh	M	N	S	s	P1	Lua	K	k	Kpa	Lea	Leb	Fya	Fyb	Jka	Jkb	Other	Gel
Rare Cell	rr	+	0	+	+	+	0	0	+	0	+	0	0	+	0	+	Kpb-	0
Rare Cell	R1R1	+	0	0	+	+	0	0	+	0	0	+	+	+	0	+	Kpb-	0
																	U-	0
																	Ch-	0
																	Wra+	3+
																	Rg-	0
																	Cord	0
																	Cord	0
																	AUTO	-----

Phenotype performed:
Father = Wra+,
Mother = Wra-,
Cord = Wra+

Case Z

Neonate with severe HDFN caused by anti-Wra

The Wra antigen is a clinically significant antigen in the Diego blood group system and is a rare cause of haemolytic disease of the newborn (HDFN).

During pregnancy, sensitization may occur in a Wra negative mother with a Wra positive neonate
 - inherited the Wra antigen from the father.

HDFN can occur in the first pregnancy

Neonate successfully managed with transfusion, phototherapy, and high-dose intravenous immunoglobulin.

Any questions??

Contact me!

Zahera.miah@nhsbt.nhs.uk

Thank you for listening