



RCI Specialist testing

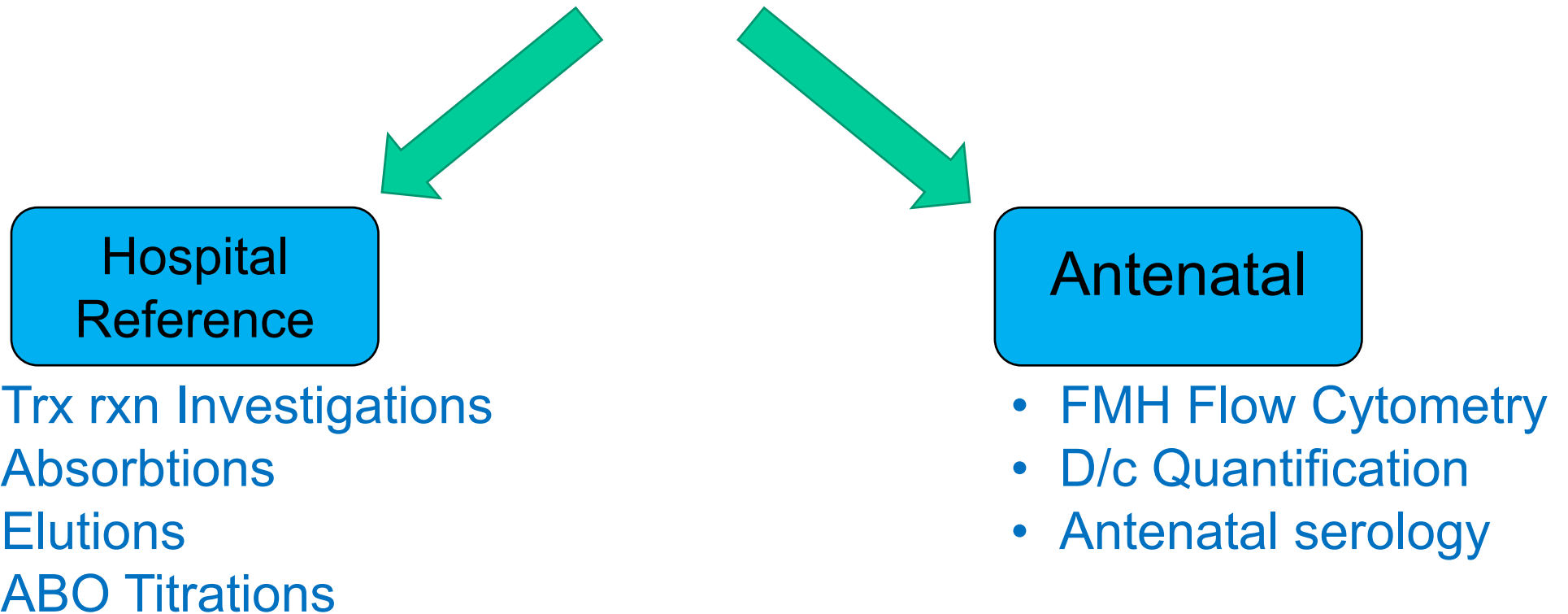
The rare and interesting bits!

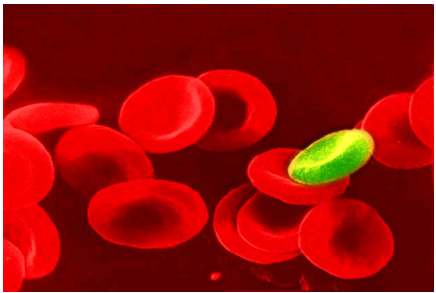


British Blood
Transfusion Society

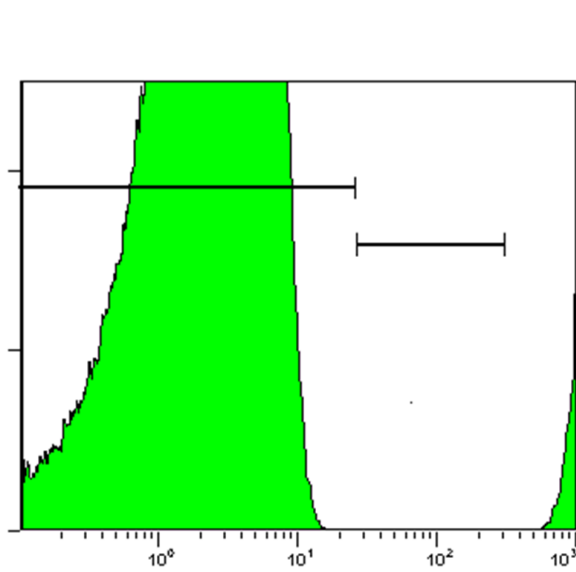
#BBTS2019

Red Cell Immunohaematology

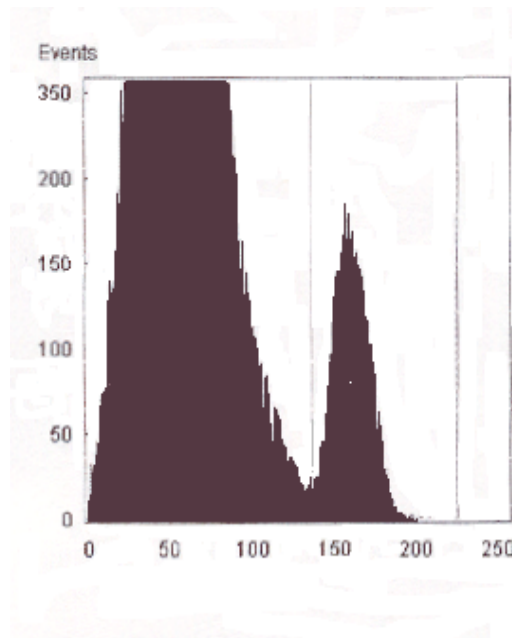




Flow cytometry

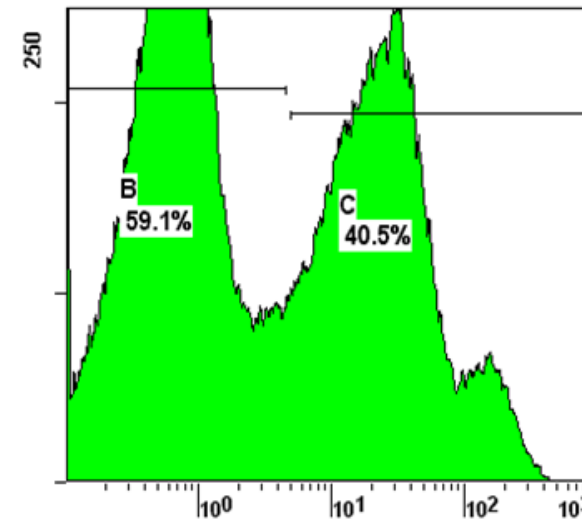


Anti-D



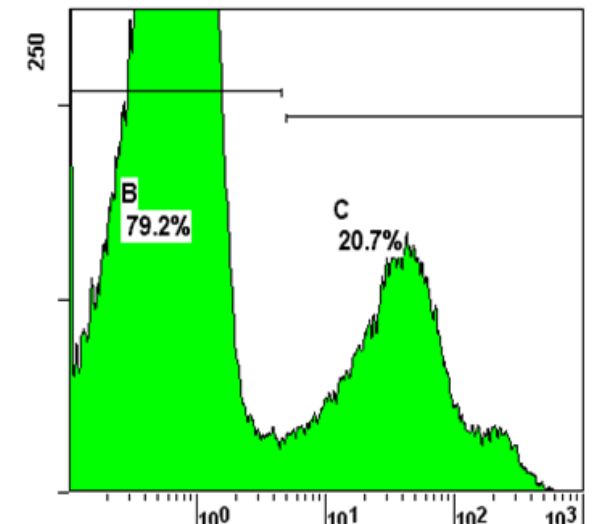
Anti-HbF

(F1)[A] PATIENT - kennedy 00088522 1082.LMD : FL1 LOG



FL1 LOG

(F1)[A] kennedy anti-A 091.LMD : FL1 LOG



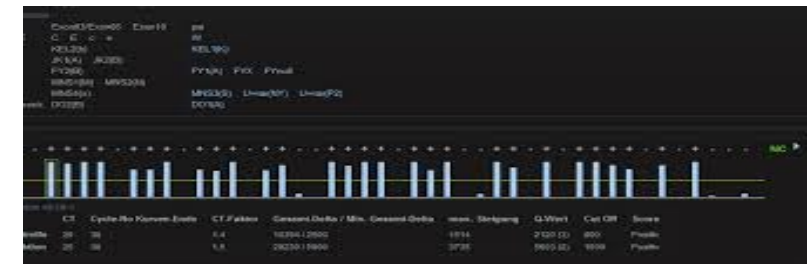
FL1 LOG

Anti-A



Genotyping

- Rapid
- Used for failed absorbtions
- Rare / High Frequency antibodies
- Dara
- DAT Pos
- Multi-transfused
- NOT Post BMT



G investigations

ABSORPTION RESULTS

	Rh	C ^w	C	c	D	E	e	M	N	S	s	K	k	Kp ^a	Le ^a	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Other	IA T	Enz IAT
1	R ₁ ^w R ₁	+	+	0	+	0	+	+	+	0	+	0	+	0	+	+	0	+	0		3	4
2	R ₁ R ₁	0	+	0	+	0	+	+	0	+	0	+	+	0	0	0	+	0	+		3	4
3	R ₂ R ₂	0	0	+	+	+	0	+	+	0	+	0	+	0	0	0	+	0	+		2	3
4	r [`] r	0	+	+	0	0	+	+	+	0	+	0	+	0	0	0	+	0	+		4	4
5	r ^{``} r	0	0	+	0	+	+	+	+	+	0	0	+	0	0	0	+	+	0		0	0
6	r r	0	0	+	0	0	+	0	+	+	0	0	+	0	0	+	+	0	+		0	0
7	r r	0	0	+	0	0	+	+	+	+	+	+	+	0	+	+	0	+	0		0	0
8	r r	0	0	+	0	0	+	0	+	0	+	0	+	0	0	+	0	0	+		0	0
9	r r	0	0	+	0	0	+	0	+	0	+	0	+	+	0	0	+	+	0		0	0
10	r r	0	0	+	0	0	+	+	0	0	+	+	0	0	0	0	+	0	+		0	0
Auto																					0	

- Antibody that mimics C+D
- Clinically significant for Use Absorption techniques to separate the D from the C/G
- Report the neat quant result.

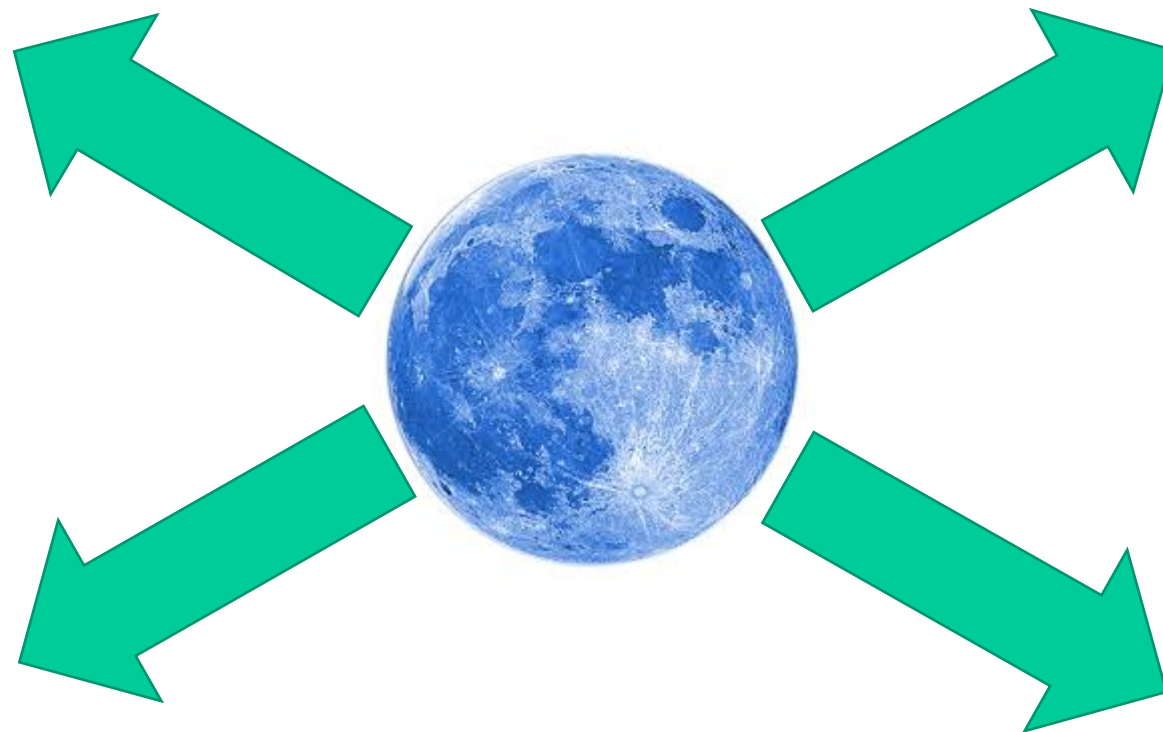
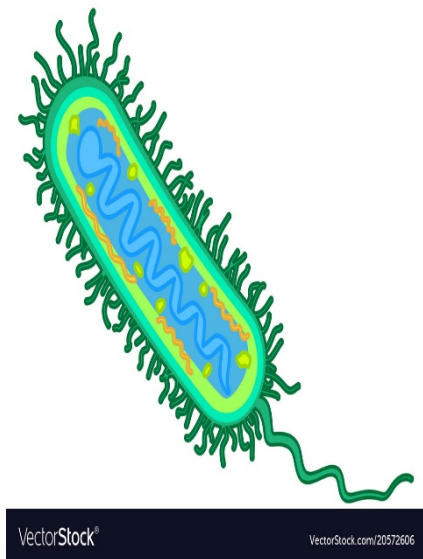
Absorbed with	Test Cells		Conclusion
	r'	R2R2 / R ₀	
r'	0	0	Anti-G only
R2R2 / R ₀	0	0	
r'	0	+	Anti-D + G
R2R2 / R ₀	0	0	
r'	0	0	Anti-C + G
R2R2 / R ₀	+	0	
r'	0	+	Anti-D + C +/- G
R2R2 / R ₀	+	0	

Dara and DTT

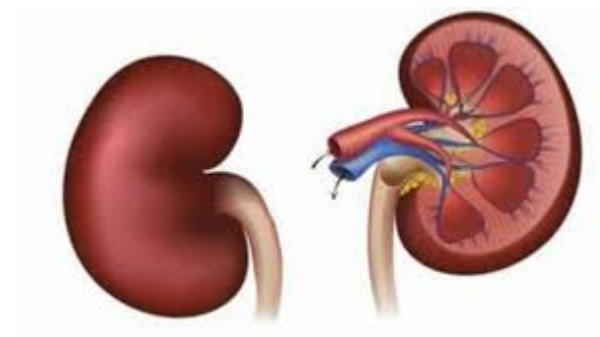
	Rh	C ^W	C	c	D	E	e	M	N	S	s	P ₁	Lu ^a	K	k	Kp ^a	Le ^a	Le ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Other	IAT	Enz IAT	DTT		
1	R ₁ ^W R ₁	+	+	0	+	0	+	+	+	0	+	0	0	0	+	0	+	0	+	0	+	0		2	4	0		
2	R ₁ R ₁	0	+	0	+	0	+	+	0	+	0	2+	+	+	+	0	0	0	0	+	0	+		2	4	0		
3	R ₂ R ₂	0	0	+	+	+	0	+	+	0	+	0	0	0	+	0	0	+	0	+	0	+		2	4	0		
4	r [`] r	0	+	+	0	0	+	+	+	0	+	4+	0	0	+	0	0	0	0	+	0	+	Yk (a-)	2	4	0		
5	r [`] r	0	0	+	0	+	+	+	+	+	0	5+	0	0	+	0	0	+	0	+	+	0		2	4	0		
6	r r	0	0	+	0	0	+	0	+	+	0	0	0	0	+	0	0	+	+	+	0	+		2	4	0		
7	r r	0	0	+	0	0	+	+	+	+	+	4+	0	+	+	0	+	0	+	0	+	0		2	4	0		
8	r r	0	0	+	0	0	+	0	+	0	+	2+	+	0	+	0	0	+	+	0	0	+		2	4	0		
9	r r	0	0	+	0	0	+	0	+	0	+	5+	+	0	+	+	0	+	0	+	+	0		2	4	0		
10	r r	0	0	+	0	0	+	+	0	0	+	4+	0	+	0	0	0	+	0	+	0	+		2	4	0		
Auto																								2/0				

- Anti-CD38 myeloma treatment
- Binds to red cells and masks underlying all antibodies
- Does not absorb
- DTT denatures CD38 (and also some other RBC antigens)
- Preparing cells takes 1-2 hours





NHS
Blood and Transplant



STRANGER THINGS..

2/10 ain't bad..

- Patient referred to RCI due to Non specific reactions
- Pre-op for Necrotising Fasciitis
- Hb 116
- Previously tested in 2016 “ Unable to ID antibody ,please send further samples”

So 3 years later.....

Patient due for surgery same day, need 2 units of blood “when ready today”

Initial results

	Rh	C ^w	C	c	D	E	e	M	N	S	s	P ₁	Lu ^a	K	k	Kp ^a	Le ^a	Le ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Other	IAT	Enz IAT	
1	R ₁ ^w R ₁	+	+	0	+	0	+	+	+	0	+	0	0	0	+	0	+	0	+	0	+	0		0	0	
2	R ₁ R ₁	0	+	0	+	0	+	+	0	+	0	2+	+	+	+	0	0	0	0	+	0	+		2	0	
3	R ₂ R ₂	0	0	+	+	+	0	+	+	0	+	0	0	0	+	0	0	+	0	+	0	+		2	0	
4	r ⁻ r	0	+	+	0	0	+	+	+	0	+	4+	0	0	+	0	0	0	0	+	0	+		0	0	
5	r ⁺ r	0	0	+	0	+	+	+	+	+	0	5+	0	0	+	0	0	+	0	+	+	0		2	0	
6	r r	0	0	+	0	0	+	0	+	+	0	0	0	0	+	0	0	+	+	+	0	+		3	0	
7	r r	0	0	+	0	0	+	+	+	+	+	4+	0	+	+	0	+	0	+	0	+	0		2	0	
8	r r	0	0	+	0	0	+	0	+	0	+	2+	+	0	+	0	0	+	+	0	0	+		2	0	
9	r r	0	0	+	0	0	+	0	+	0	+	5+	+	0	+	+	0	+	0	+	+	0		2	0	
10	r r	0	0	+	0	0	+	+	0	0	+	4+	0	+	0	0	0	+	0	+	0	+	Cob+	2	0	
Auto																								Wk		

- DAT Positive IgG 1+ / Weak auto pos
- Enzyme negative
- Nothing unusual in standard RBC phenotype

Rare panel cells

	Rh	C ^w	C	c	D	E	e	M	N	S	s	P ₁	Lu ^a	K	k	Kp ^a	Le ^a	Le ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Other	IAT
1	R ₁ ^w R ₁	+	+	0	+	0	+	+	+	0	+	0	0	0	+	0	+	0	+	0	+	0	Ch- Xga-	0
2	R ₁ R ₁	0	+	0	+	0	+	+	0	+	0	2+	+	+	+	0	0	0	0	+	0	+	Ch-	2
3	R ₂ R ₂	0	0	+	+	+	0	+	+	0	+	0	0	0	+	0	0	+	0	+	0	+	Rg-	0
4	r [`] r	0	+	+	0	0	+	+	+	0	+	4+	0	0	+	0	0	0	0	+	0	+	Rg-	2
5	r [`] r	0	0	+	0	+	+	+	+	+	0	5+	0	0	+	0	0	+	0	+	+	0	Yta-	2
6	r r	0	0	+	0	0	+	0	+	+	0	0	0	0	+	0	0	+	+	+	0	+	Kna- Xga- Yka-	0
7	r r	0	0	+	0	0	+	+	+	+	+	4+	0	+	+	0	+	0	+	0	+	0	Kpb-	2
8	r r	0	0	+	0	0	+	0	+	0	+	2+	+	0	+	0	0	+	+	0	0	+	Csa-	2

Xga

Serological sexism?

- XG gene resides on chromosome X not the Y
- Antibody discovered in 1962 and called XgA
- 90% Females Xga+ only 66% males
- Xga not recorded as causing HDFN or HTR but crossmatch compatible is required

Blood and Transplant
International Blood Group Reference Laboratory
500 North Bristol Park
Northway
Filton
Bristol
BS34 7QH

Red Cell Reference
Tel: +44 (0)117 921 7586
Lab: +44 (0)117 921 7587
Fax: +44 (0)117 921 7329
http://ibgri.blood.co.uk
Email: IBGRLRed.CellReference@nhsbt.nhs.uk

09 June 2019

Val Tunnard
NHS Blood & Transplant
Longley Lane
Sheffield
S5 7JN

Patient ID: [REDACTED]
DoB: [REDACTED]
Hosp No: G261729
NHS No: 416 622 9362
Hematos No: 5531 127020
Sample No: 099 63 19 001857 V

Received: 22-Mar-2019
Sample Type: EDTA blood
Date sample taken: 20-Mar-2019
IBGRL No: 174-219R

Preliminary report was given by e-mail on 03-Apr-2019

We found the patient's cells to be Xg(a-) and anti-Xg^a is present in his plasma, reacting weakly by LISS IAT with untreated cells but not reacting with papain treated cells.

Several examples of Xg(a-) cells were found to be compatible with the patient's plasma and no additional antibodies were detected (the presence of anti-C, -K, -Jk^b, -S were excluded).

Authorised by
Nicole Thornton
Head of Red Cell Reference

cc Dr Mark Williams, Head of RCI

Our laboratory is accredited to ISO 15189: 2012 by United Kingdom Accreditation Service. Our accreditation is described in our UKAS accreditation schedule, found via the following URL: <https://ibgri.blood.co.uk/services/licensing-and-accreditation/>

Hematos v5.2.2.05

Page 1 of 1

UKAS
9765

Just an auto...?

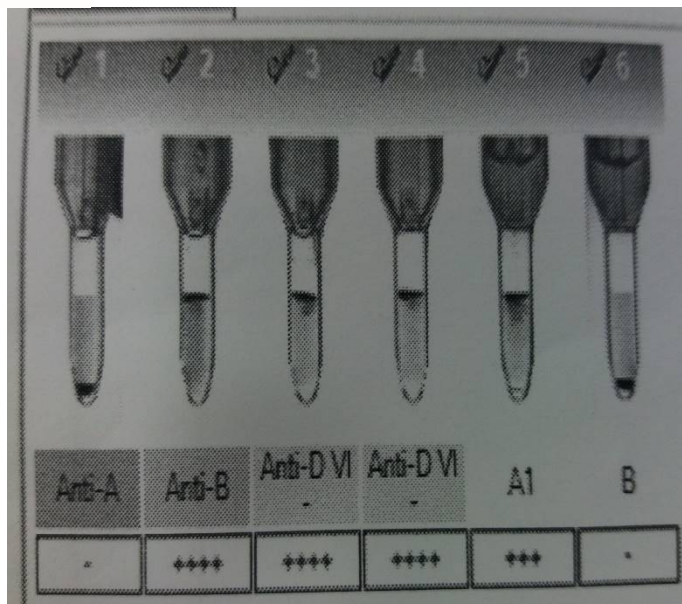
	Rh	C ^W	C	c	D	E	e	M	N	S	s	P ₁	Lu ^a	K	k	Kp ^a	Le ^a	Le ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Other	IAT	Enz IAT	R1R1 Abs	rr Abs	DTT
1	R ₁ ^W R ₁	+	+	0	+	0	+	+	+	0	+	0	0	0	+	0	+	0	+	0	+	0		3	5	3	3	2
2	R ₁ R ₁	0	+	0	+	0	+	+	0	+	0	2+	+	+	+	0	0	0	0	+	0	+		3	5	3	3	2
3	R ₂ R ₂	0	0	+	+	+	0	+	+	0	+	0	0	0	+	0	0	+	0	+	0	+		3	5	3	3	2
4	r`r	0	+	+	0	0	+	+	+	0	+	4+	0	0	+	0	0	0	0	+	0	+	Yk (a-)	3	5	3	3	2
5	r``r	0	0	+	0	+	+	+	+	+	0	5+	0	0	+	0	0	+	0	+	+	0		3	5	3	3	2
6	r r	0	0	+	0	0	+	0	+	+	0	0	0	0	+	0	0	+	+	+	0	+		3	5	2	3	2
7	r r	0	0	+	0	0	+	+	+	+	+	4+	0	+	+	0	+	0	+	0	+	0		3	5	3	3	Nt
8	r r	0	0	+	0	0	+	0	+	0	+	2+	+	0	+	0	0	+	+	0	0	+		3	5	3	3	Nt
9	r r	0	0	+	0	0	+	0	+	0	+	5+	+	0	+	+	0	+	0	+	+	0		3	5	3	3	Nt
10	r r	0	0	+	0	0	+	+	0	0	+	4+	0	+	0	0	0	+	0	+	0	+		3	5	3	3	Nt
Auto																								2				

IgG	IgA	IgM	C3c	C3d	Ctl
2	0	0	0	0	0

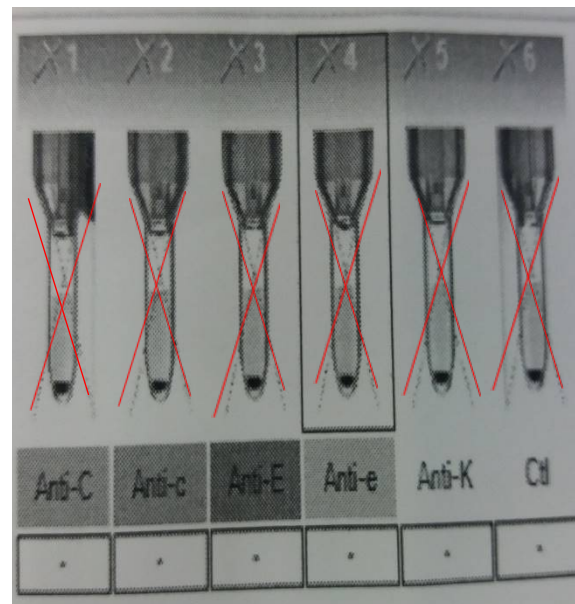


Oh !... (or Hro to be accurate)

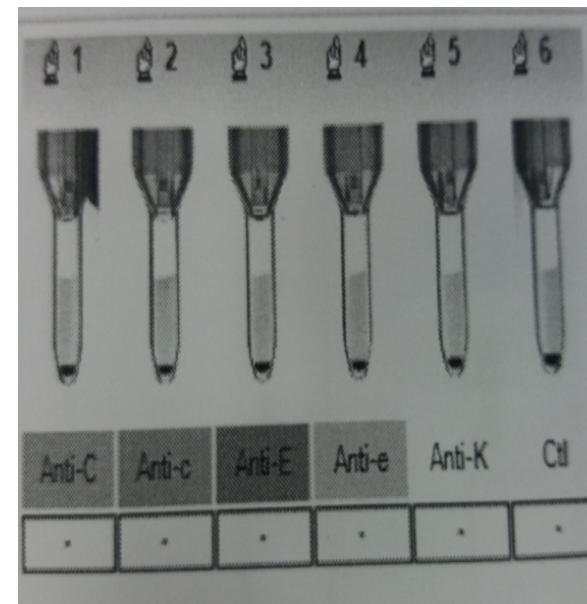
ABO



Rh Pheno (1)



Rh Pheno (2)



Donation / Rare cell	Patient JS Plasma
Donor 072289J Rh Null	0
Donor 116084 Rh Null	0

U are kidding!

	Rh	C ^w	C	c	D	E	e	M	N	S	s	P ₁	Lu ^a	K	k	Kp ^a	Le ^a	Le ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Other	IAT	Enz IAT	
1	R ₁ ^w R ₁	+	+	0	+	0	+	+	+	0	+	0	0	0	+	0	+	0	+	0	+	0		3	4	
2	R ₁ R ₁	0	+	0	+	0	+	+	0	+	0	2+	+	+	+	0	0	0	0	+	0	+		3	4	
3	R ₂ R ₂	0	0	+	+	+	0	+	+	0	+	0	0	0	+	0	0	+	0	+	0	+		3	4	
4	r [`] r	0	+	+	0	0	+	+	+	0	+	4+	0	0	+	0	0	0	0	+	0	+		3	4	
5	r ^{``} r	0	0	+	0	+	+	+	+	+	0	5+	0	0	+	0	0	+	0	+	+	0		3	4	
6	r r	0	0	+	0	0	+	0	+	+	0	0	0	0	+	0	0	+	+	+	0	+		3	4	
7	r r	0	0	+	0	0	+	+	+	+	+	4+	0	+	+	0	+	0	+	0	+	0		3	4	
8	r r	0	0	+	0	0	+	0	+	0	+	2+	+	0	+	0	0	+	+	0	0	+		3	4	
9	r r	0	0	+	0	0	+	0	+	0	+	5+	+	0	+	+	0	+	0	+	+	0		3	4	
10	r r	0	0	+	0	0	+	+	0	0	+	4+	0	+	0	0	0	+	0	+	0	+	Cob+	3	4	
Auto																								0		

- Phenotype carried out , S-s-
- 2 U negative cells found compatible
- However... Patient is Fya-b- also..
- Referred to IBGRL

And the answer is...

- Anti-U
- Fy3 excluded
- But
- Detected IAT Lea + Leb
- Did we mention Patient is D+ C- E-
- And a sickle patient..

Other suspects

- Anti-Lu8
- Lub
- Loads of Knopps / Knopps related
- Jra
- Yta
- JMH

Thank you