



**American
Red Cross**

Antibody Adventures: A Donor Case Series

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Objectives

The Adventure Begins: What We'll Unpack

- Describe the donor testing requirements for antibody detection and identification.
- Explain the testing performed by Creative Testing Solutions (CTS) and its role in donor antibody detection.
- Describe the Immunohematology Reference Laboratory (IRL) process used to verify CTS positive donor screens and identify antibodies.
- Discuss product utilization considerations when donor antibodies are identified.
- Review case studies that illustrate the application of donor antibody testing principles.

Standards for Testing Donors

5.8.3 Detection of Unexpected Antibodies to Red Blood Cell Antigens for Allogeneic Donors

-  5.8.3.1 Serum or plasma from donors shall be tested for unexpected antibodies to red cell antigens.
- 5.8.3.2 Methods for testing shall be those that demonstrate clinically significant red cell antibodies.*

*21 CFR 606.151(d) A provision that, if the unit of donor's blood has not been screened by a method that will demonstrate agglutinating, coating and hemolytic antibodies, the recipient's cells shall be tested with the donor's serum (minor crossmatch) by a method that will so demonstrate.

Labeling Regulations for Red Cells

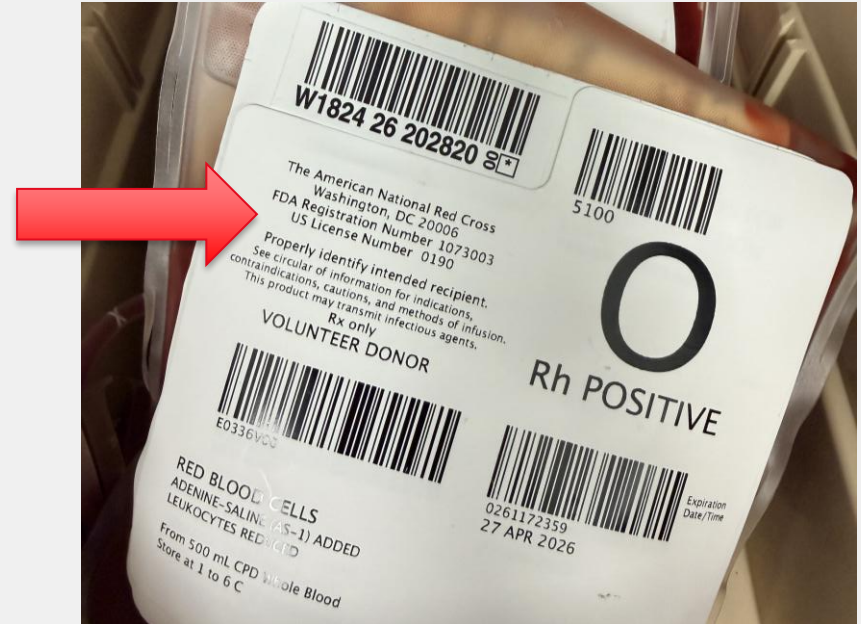
CFR Title 21 606.121 Container label

- (e) (2) Except for frozen, deglycerolized, or washed Red Blood Cell products, Red Blood Cell labels must include:
 - (ii) If tests for unexpected antibodies are positive and the product is intended for transfusion, the statement: “Contains (name of antibody).”

Product Licensure

Donor antibody testing is a required test

- If any testing used during antibody identification requires unlicensed reagents or techniques, the product itself must be labeled as unlicensed.
- Examples of testing which will remove the products license:
 - Testing outside of manufacturer's instructions
 - Testing with expired or frozen/thawed reagent cells
 - Ruling out using adsorbed plasma
 - Ruling out using red cell treatments



Blood Collection

The Starting Point of the Antibody Adventure = Donation

- 5 tubes are collected:

Clot tube-red top
EDTA-purple
EDTA-pink
EDTA-purple (Region)
EDTA-PPT (Plasma Sample
Manufacturing Facility)



Blood Collection – Sample Tubes

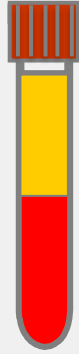
What are all those tubes used for?

- 3 tubes are routed to CTS



1	NAT HBV
2	NAT HCV
3	NAT HIV
4	WNV

Babesia

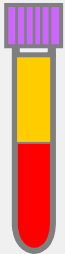


5	HIV Antibody
6	HTLV Antibody
7	HBsAg
8	HBc Antibody
9	HCV Antibody
10	<i>T. cruzi</i> Antibody



11	ABO/Rh
12	Syphilis
13	CMV (Optional)
14	Antibody Screen

- 1 tube (4mL) routed to the Red Cross collecting region for IRL testing based on CTS results



ABO/Rh testing
Antibody Screen
Antibody Identification
Antigen typing

Blood Collection – Sample Tubes

Statistics for the Charlotte CTS Donor Testing Laboratory

- Average Test Volume:
 - 4,800 Donor samples distributed over 2-3 shifts each day
 - Sun / Mon : 1900 – 2700
 - Tues – Sat : 6200 – 6800
 - Total Volume: 1.7 Million Annually

Testing begins with the receipt of approximately
13,000 - 14,000 tubes of blood

CTS testing

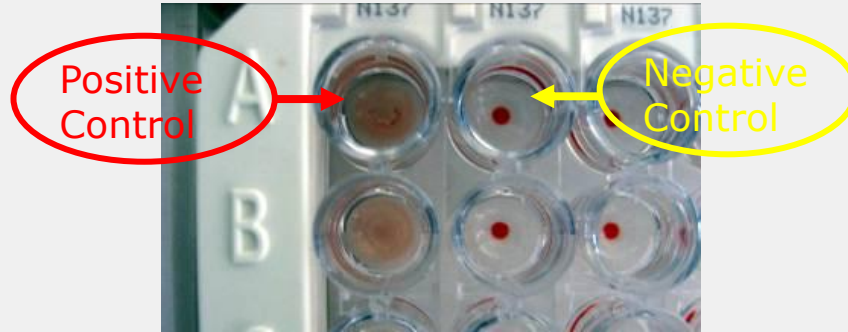
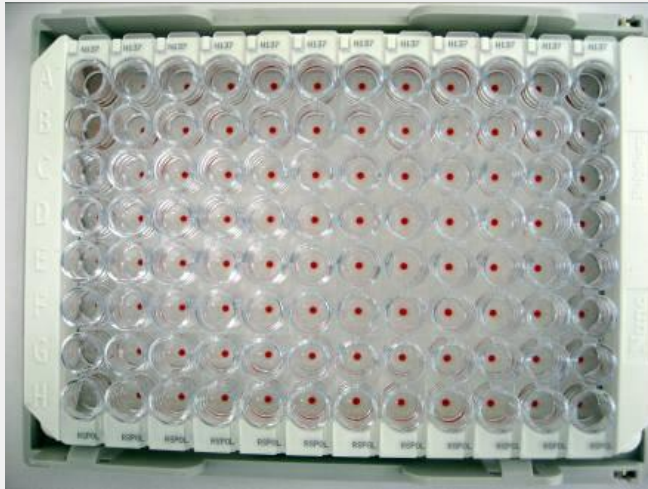
Initial Antibody Screening (IAT) is performed on the NEO IRIS



CTS screens by a sensitive automated method which may detect antibodies not detectable by tube method.

CTS testing

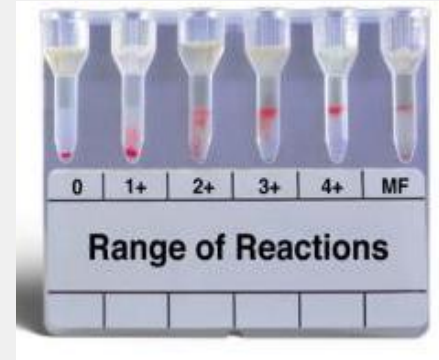
The NEO has a CCD (charge coupled device) camera that reads each well to determine if it is positive or negative.



The donor's plasma is tested against a pool of two group O cells using **Capture-R® Solid-Phase Technology**. The microplate wells are pre-coated with the red blood cells for antibody screening. If antibodies are present in the donor sample, they bind to the antigens on the well surface.

CTS testing

A positive NEO IRIS screen is followed by supplemental antibody screening using a three cell screen performed on the Ortho Vision Swift with Column Agglutination Technology.



- CTS results are electronically transmitted to the Red Cross' Blood Establishment Computer System (BECS).
- The CTS result is either Positive or Negative. Antibody identification is not performed by CTS.

ABY INT	Positive
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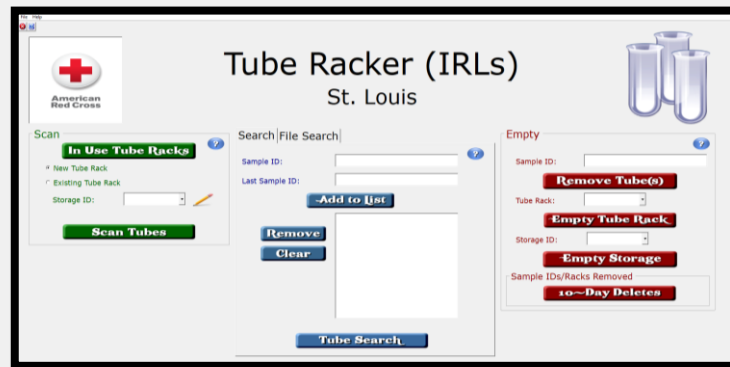
IRL Testing

Tube Management

- The IRL is responsible for managing the region retention tube (the 4mL EDTA tube).



- We rack about 400-800 tubes each morning using Tube Racker software and large specially designed racks.
- Each rack holds 200 tubes
- Each tower holds 16 racks



IRL Testing

Tube Screen

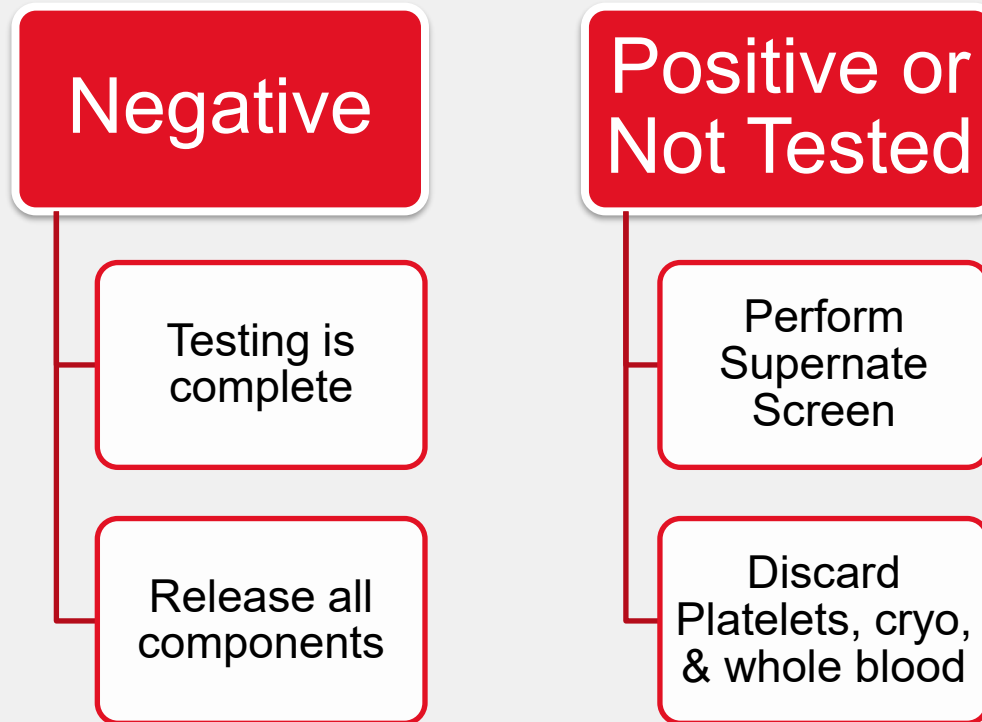
- Reports are queried daily M-F to identify donors with a positive Antibody Initial (result from CTS)

ABY INIT	Positive
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- We locate the donor's tube using the Tube Racker program to perform an antibody screen using tube methodology
- Standard Test Method is:
 - Two drops of donor plasma and one drop of a pool of two group O cells
 - No enhancement = saline technique
 - Macroscopic reading at immediate spin (IS), 30' 37°C, and indirect antiglobulin test (IAT) using Anti-IgG.

IRL Testing

If Tube Screen is



What is a Supernate Screen?

An antibody screen performed on the supernatant from the packed cell segments

- In 1999, the American Red Cross submitted a request to the FDA to vary from the requirements of 21 CFR 606.121(e)(2)(ii). The variance was approved.
- A screen is performed on the contents from segments.
- When segments are prepared after additive solution is added to the red cell, segments will reflect the unit contents.
- Segment screens are not performed on autologous collections.

FDA Variance for Supernate Testing

The variance reads as follows:

- Under the variance approval, Red Blood Cells that are manufactured from a red blood cell antibody positive donation using an additive solution do not require special labeling to indicate the red blood cell antibody if the supernate of the additive solution unit has been directly tested using approved testing methods and found negative.
- The antibody labeling requirements of 21 CFR 606.121(e)(2)(ii) remain applicable to blood components other than red blood cells prepared from the red blood cell antibody positive donation, and to additive solution red blood cell units that test positive for a red blood cell antibody.

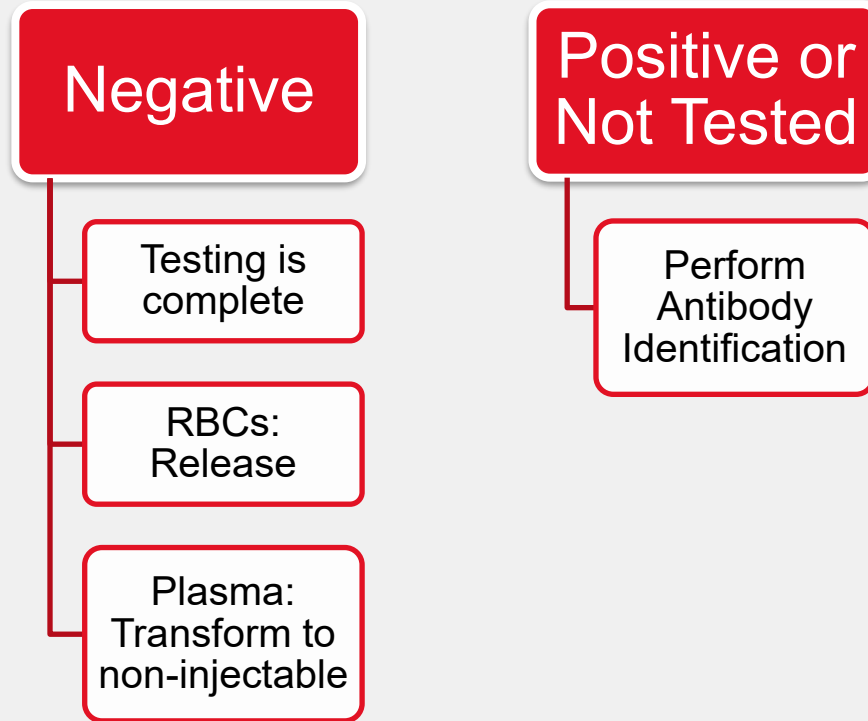
IRL Testing

Supernate Testing = Segment Screen

- We locate the red cells in the pending test location:
 - Two segments removed
 - Entire segment contents are placed in a test tube
 - Contents are hard spun and the supernatant is removed
- Standard Test Method is again used:
 - Two drops of red cell supernatant and one drop of pooled group O cells
 - No enhancement
 - Macroscopic reading at IS, 30' 37°C, and IAT using Anti-IgG.

IRL Testing

If the Segment Screen is



Antibody Identification

Determination step

- Each donor is evaluated to determine whether antibody identification is appropriate.
- Identification is typically performed when:
 - New donors – to support consistent notification practices and to identify new rare donors
 - Specificities may be desired for reagent use:
 - Red Cross' Diagnostic Manufacturing Division (DMD) develops licensed and unlicensed reagents
 - The DMD has criteria based on their desired antibody/reactivity requirements (specificity, test phase, and DMD acceptance thresholds)
 - Plasma containing antibodies that meet DMD requirements are sent for further manufacturing
 - When antibody reactivity does not meet DMD acceptance criteria, antibodies are evaluated for local reagent needs as it may still be useful for in-house testing

Antibody Identification

Initial Testing for identification using plasma from the 4mL EDTA region retention tube

- Test a full 11 cell panel and auto control at GEL/IAT
 - Uses approximately 6 drops or 300uL of plasma
 - Leaves plenty of volume for additional testing, if needed
 - Only 0.8% pre-diluted cells provided by the manufacturer can be used
 - Can't dilute 3% cells as that would be unlicensed testing

Antibody Identification

Ruling out antibodies

- Exclude the commonly encountered red cell alloantibodies:
D, C, E, c, e, K, k, Fy^a, Fy^b, Jk^a, Jk^b, S, s, M, N, P1, Le^a, and Le^b
- Single-dose cells may be used for exclusion

Antibody Identification

Specificity identification requires

- Reactive with at least two antigen positive
- Non-reactive with at least two antigen negative reagent cells
- Required for each specificity
- Antibodies must be reidentified on each donation to enter results in the BECS

Antibody Identification

Additional Testing

- Selected cells in Gel/IAT if a 0.8% cell matching the needed phenotype exists.
- If no 0.8% in date cell is available, then we will test a 3% cell in tube technique using LISS enhancement.
 - All tube testing includes reading at IS, LISS/37°C, and LISS/IAT
- We use a blend of both methods to identify and/or eliminate the required alloantibodies.

Antibody Identification

Testing the donor red cells

- The donor red cells are typed for the antigens corresponding to the identified specificities
 - For newly identified antibodies only
 - This is not required on historic antibodies

IRL Testing

If Antibody Identification is

Not Identified
or Not Tested

RBCs: Discard

Plasma:
Non-injectable

Antibody
Specificity

RBCs: Label with
antibody specificity

Plasma:
Non-injectable

Reagent use assessment

- Prior to discarding, we determine suitability for reagent use
 - Local or ARC regions (Transferase)
 - Red cells, if rare and not needing to be frozen for patient use
 - Plasma for screening
 - Reagent use for DMD
 - Only the plasma – might have to test at other phases not used in antibody identification
 - Results are compared against the DMD-provided table of required specificities and acceptance criteria.
 - Examples:

Specificity	Test Phase	Typical DMD Acceptance Criteria
Fy ^a	15 min 37 C IAT	≥ 1+ @ 1:8
M	15 min RT	≥ 1+ @ 1:4
C	15 min 37 C IAT	≥ 2+ Undiluted

Donor Notification and Deferral

Determined by the IRL; Letters mailed by the Donor Client and Support Center (DCSC)

- **No notification**
 - History of antibodies with no new findings
 - Unable to test or identify the reactivity = result is Not tested or Antibody Unidentified
- **Notify and continue donation**
 - New antibody that meets DMD criteria or useful as local reagent
 - Donor receives a letter listing the antibody specificities
 - Donor is encouraged to continue donating
- **Notify and defer**
 - Antibody specificity not on the DMD desired list nor useful for local reagent use
 - Donor receives a letter explaining the antibody and the deferral

Notify and Continue Donation Letter Template

During the routine donor testing of your blood, we detected the presence of antibodies to red blood cells. **This testing is not related to infections, and these antibodies have nothing to do with human immunodeficiency virus (HIV), hepatitis, or any other infectious disease for which donated blood is screened.**

The following red blood cell antibodies were detected: *<insert ABID1, ABID2, ABID3, ABID4>*

These antibodies are protein substances that may form naturally in response to exposure to foreign substances such as pollen or bacteria. Antibodies can also form following exposure to foreign red cells, which can occur during a pregnancy, transfusion or organ transplant at some time in the past.

It is important for you to share these results with your physician at your next visit as your physician may use these results in managing any future transfusions or pregnancies, if applicable.

This finding does not affect your eligibility to donate blood. You may continue donating whole blood or red blood cells by apheresis, and we hope you will do so on a regular basis. However, please do not donate plasma or platelets by apheresis since these donations contain the red cell antibody, and may not be able to be used for every patient. You may donate blood for your own use if needed.

Notify and Defer Letter Template

During the routine donor testing of your blood, we detected the presence of antibodies to red blood cells. **This testing is not related to infections, and these antibodies have nothing to do with human immunodeficiency virus (HIV), hepatitis, or any other infectious disease for which donated blood is screened.**

The following red blood cell antibodies were detected: *<insert ABID1, ABID2, ABID3, ABID4>*

These antibodies are protein substances that may form naturally in response to exposure to foreign substances such as pollen or bacteria. Antibodies can also form following exposure to foreign red cells, which can occur during a pregnancy, transfusion or organ transplant at some time in the past.

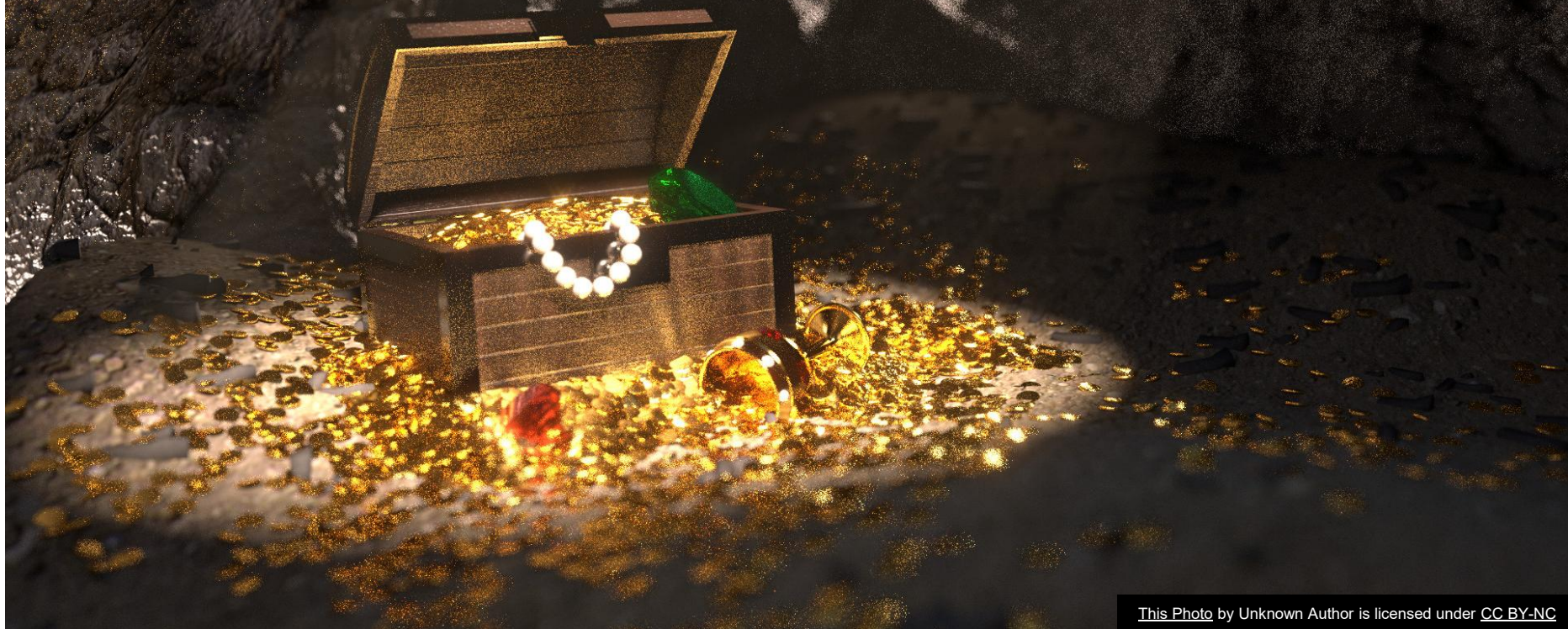
The red cell antibodies in your blood interfere with our ability to type and label your blood. Thus, hospitals will be unable to transfuse your blood to their patients. We are requesting that you refrain from donating blood for others in the future and have placed your name on our confidential list of deferred donors. We will not release this information without your permission, except when required by law. You may still be able to donate for yourself, if medically necessary.



The Antibody Adventures...

(CASES)

The Hidden Treasure Expedition



Donor Case #1

First Donation 04/16/2025

ABY INIT

Positive

American Red Cross Washington, DC 20006		Tube Antibody Screen Form			 American Red Cross	
WID: 5		Tester Initials/Date: JJ 04/18/2025				
Pos	DIN	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W180725134264007	0	2+	3+		☐

American Red Cross Washington, DC 20006		Segment Antibody Screen Form					 American Red Cross	
WID: 5		Tester Initials/Date: JJ 04/18/2025						
Pos	DIN	ABO/ Rh	Historic Antibody Results	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W180725134264007	O +		0	0	0 ✓		X

Donor Case #1

First Donation Product Disposition



Donor Case #1

Second Donation 06/23/2025

ABY INTT

Positive

American Red Cross Washington, DC 20006	Tube Antibody Screen Form	 American Red Cross
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WID:	10	Tester Initials/Date:	JJ 06/26/2025
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Pos	DIN	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W18072509677600L	0	2+	3+		☐

American Red Cross Washington, DC 20006	Segment Antibody Screen Form	 American Red Cross
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WID:	10	Tester Initials/Date:	JJ 06/26/2025
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Pos	DIN	ABO/ Rh	Historic Antibody Results	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W18072509677600L	O +		0	0	1+		☐

Second Donation 06/23/2025

If the auto control is positive, we do not attempt to identify the autoantibody.

We enter the
result Antibody
not Identified.

No donor
notification.

Donor Case #1

Second Donation Product Disposition



Donor Case #1

Third Donation 01/05/2026

ABY INIT

Positive

American Red Cross Washington, DC 20006		Tube Antibody Screen Form			 American Red Cross	
WID: 12		Tester Initials/Date: JJ 01/07/2026				
Pos	DIN	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W18072516338000U	0	2+	3+		☐

American Red Cross Washington, DC 20006		Segment Antibody Screen Form					 American Red Cross	
WID: 12		Tester Initials/Date: JJ 01/08/2026						
Pos	DIN	ABO/Rh	Historic Antibody Results	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W18072516338000U	O+		0	0	2+		☐

Donor Case #1

Third Donation 01/05/2026

Ortho Clinical Diagnostics

DIN W1807 25 163280 8 Lot No. VRA500 Exp. Date 2026-01-20

Position Number 1 WID 4,8 Panel **A**

Tester initials EE Testing Date EE 01/09/2026

Antibody Interpretation _____

Reagent Red Blood Cells
0.8% Resolve® Panel A
ANTIGRAM® Antigen Profile

635201221

Cell#	Rh-ir	Donor Number	D	C	E	c	e	f	C ^w	V	K	k	Kp ^a	Kp ^b	Jk ^a	Jk ^b	Xg ^a	Le ^a	Le ^b	S	s	M	N	P ₁	Lu ^a	Lu ^b	Special Antigen Typing	Test Results		
1	R1wR1	326140	+	+	0	0	+	+	0	0	0	+	0	+	+	0	+	0	+	+	+	+	+	+	+	0	+		1 3+	
2	R1R1	333006	+	+	0	0	+	+	0	0	0	+	0	+	+	0	+	0	+	+	0	+	0	0	0	0	+		2 2+	
3	R2R2	335594	+	0	+	+	+	0	0	0	0	+	0	+	+	0	0	0	+	0	+	+	0	0	0	0	+		3 2+	
4	Ror	335618	+	0	0	+	+	+	0	0	0	+	0	+	+	0	0	0	0	0	+	+	+	+	+	0	+		4 3+	
5	r'r	334533	0	+	0	+	+	+	0	0	0	+	0	+	+	0	+	0	+	0	+	0	+	+	+	0	+	⊗	5 2+	
6	r'r	335568	0	0	+	+	+	+	0	0	0	+	0	+	+	+	0	+	0	+	+	+	+	+	+	0	+	⊗	6 2+	
7	rr	334337	0	0	0	+	+	+	0	0	+	+	0	+	+	0	0	0	+	+	+	+	0	+	0	+	⊗		7 3+	
8	rr	335586	0	0	0	+	+	+	0	0	0	+	0	+	+	+	0	+	0	+	+	+	+	+	0	+	⊗		8 3+	
9	rr	334729	0	0	0	+	+	+	0	0	0	+	0	+	+	0	0	0	+	+	0	+	0	0	0	+			9 3+	
10	rr	334219	0	0	0	+	+	+	0	+	0	+	0	+	+	0	0	0	0	+	+	+	+	+	0	+	HLA+		10 3+	
11	R1R1	323502	+	+	0	0	+	0	0	0	+	+	0	+	+	+	0	+	+	+	0	+	+	+	+	0	+	HLA+		11 3+
	Patient Cells																												0	
	Mode of Reactivity		37°C/Antiglobulin									Antiglobulin						Variable				Cold	Var.							

Shaded columns indicate those antigens which are destroyed or depressed by enzyme treatment. "r" represents "Not Tested" for new donors.

Now the auto control is negative, suggesting an antibody to a high prevalence antigen.

More testing is needed.

Donor Case #1

Third Donation Results

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^w	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		IS	LISS 37°C	LISS IgG	Gel IgG
1	ALBA-16 V287750	11068269 R1R1 #12	+	+	0	0	+	0		0	0	+	0	+	0	+	0	0	+	+	0	0	+	+	+	+	+	0	+	+		0	0	0✓	
2	Imm-20 50315	B9045 R1R1 #2	+	+	0	0	+			0	+	+	+	+	+	0	+	0	+	+	+	0	+	0	+	0	+	0	+	0	Co(a-)	0	1+	3+	
3	Imm-10 44266	C1378 Ror #TC	+	0	0	+	+			0	0	+	0	0	0	0	+	0	+	0	+	0	+	0	0	+	+	0	+	+	U-	0	w+	3+	
4	Ortho 0.8% VRB345	320208 R1R1 #22	+	+	0	0	+	0	0	0	+	+	+	0	0	+	s	+	0	0	+		+	+	0	+	+	0	+	+					2+
	Auto Control																															0	0	0✓	

Donor Case #1

Third Donation Results

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		IS	LISS 37°C	LISS IgG	Gel IgG
1	ALBA-16 V287750	11068269 R1R1 #12	+	+	0	0	+	0		0	0	+	0	+	0	0	+	+	0	0	+	+	+	+	+	+	0	+	+		0	0	0✓		
2	Imm-20 50315	B9045 R1R1 #2	+	+	0	0	+			0	+	+	+	+	+	0	+	0	+	+	0	+	0	+	0	+	0	+	0	Co(a-)	0	1+	3+		
3	Imm-10 44266	C1378 Ror #TC	+	0	0	+	+			0	0	+	0	0	0	0	+	0	+	0	+	0	0	+	+	0	+	+	U-	0	w+	3+			
4	Ortho 0.8% VRB345	320208 R1R1 #22	+	+	0	0	+	0	0		+	+	+	0	0	+	s	+	0	0	+		+	+	0	+	+	0	+					2+	
	Auto Control																													0	0	0✓			
	A W089677E	303C	+	+	0	0	+			0	0	+	+	+	0	+	+	0	+	+	0		+	+	+	0	+	0	+		0	0	0✓		

Donor Case #1

Third Donation Results

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis	P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	F1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b		Xg ^a	IS	LISS 37°C	LISS IgG
1	ALBA-16 V287750	11068269 R1R1 #12	+	+	0	0	+	0		0	+	0	+	0	+	0	0	+	+	0	0	+	+	+	+	+	0	+	+		0	0	0✓	
2	Imm-20 50315	B9045 R1R1 #2	+	+	0	0	+		0	+	+	+	+	+	0	+	0	+	+	+	0	+	0	+	0	+	0	+	0	Co(a-)	0	1+	3+	
3	Imm-10 44266	C1378 Ror #TC	+	0	0	+	+		0	0	+	0	0	0	0	+	0	+	0	+	0	+	0	0	+	+	0	+	+	U-	0	w+	3+	
4	Ortho 0.8% VRB345	320208 R1R1 #22	+	+	0	0	+	0	0	+	+	+	0	0	+	s	+	0	0	+		+	+	0	+	+	0	+					2+	
	Auto Control																													0	0	0✓		
	A W089677E	303C	+	+	0	0	+		0	0	+	+	+	0	+	+	0	+	+	0		+	+	+	0	+	0	+			0	0	0✓	

Donor Case #1

Third Donation Results

- Performed 1x adsorption at 37°C using untreated cells

	Rh-Hr								MNS				Lewis		P	Kell				Duffy		Kidd		Luth		Additional antigens	Test Results				
	D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Js ^a	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b		IS	LISS 37°C	LISS IgG		
R ₁ R ₁ W18112545220700*	+	+	0	0	+				+	0	+	0	+	0	+	0				+	+	0	+			Kp(b+)					
R ₂ R ₂ W18112544918200G	+	0	+	+	0				+	+	0	+	0	+	+	0				+	0	+	0			Kp(b+)					
rr W18112544950200G	0	0	0	+	+				0	+	+	+	0	+	0	0				0	+	0	+			Kp(b+)					
R ₁ R ₁ adsorption																															
W-20 47294	C6867 #9		+	0	+	+	0		0	+	+	0	+	0	+	+	0	+	0	0	+	+	+	0	0	+		0	0	0✓	
W-10 489286	N3882 #10		0	0	0	+	+		0	0	+	0	+	+	0	+	0	+	0	0	0	+	+	+	+	0	+		0	0	0✓
R ₂ R ₂ adsorption																															
W-20 51918	C11351 #3		+	+	0	0	+		0	+	+	0	+	0	+	0	0	+	0	0	0	+	0	+	0	+		0	0	0✓	
W-10F 46281	H941 #8		0	0	0	+	+		0	+	0	+	0	+	+	0	+	0	0	+	0	0	+	0	+		0	0	0✓		
rr adsorption																															
W-20 47294	B11111 #2		+	+	0	0	+		0	+	+	0	+	0	+	+	0	+	0	0	+	0	+	0	0	+		0	0	0✓	
W-20 47294	R1783 #10		+	+	0	+	+		0	+	0	+	0	+	+	+	0	0	0	+	+	+	+	0	+		0	0	0✓		

Donor Case #1

Third Donation Results

- Performed 1x adsorption at 37°C using untreated cells

	Rh-Hr								MNS				Lewis		P	Kell				Duffy		Kidd		Luth		Additional antigens	Test Results		
	D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Js ^a	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b		IS	LISS 37°C	LISS IgG
R ₁ R ₁ W18112545220700*	+	+	0	0	+				+	0	+	0	+	0	+	0				+	+	0	+			Kp(b+)			
R ₂ R ₂ W18112544918200G	+	0	+	+	0				+	+	0	+	0	+	+	0				+	0	+	0			Kp(b+)			
rr W18112544950200G	0	0	0	+	+				0	+	+	+	0	+	0	0				0	+	0	+			Kp(b+)			
R ₁ R ₁ adsorption																													
W-20 C6867 47294 #9	+	0	+	+	0			0	+	+	0	+	0	+	+	0	+	0	0	+	+	+	0	0	+		0	0	0✓
W-10 N3882 489286 #10	0	0	0	+	+			0	0	+	0	+	+	0	+	0	+	0	0	0	+	+	+	0	+		0	0	0✓
R ₂ R ₂ adsorption																													
W-20 C11351 51918 #3	+	+	0	0	+			0	+	+	0	+	0	+	0	0	+	0	0	0	+	0	+	0	+		0	0	0✓
W-10F H941 46281 #8	0	0	0	+	+			0	+	0	+	0	0	+	+	0	+	0	0	+	0	+	0	0	+		0	0	0✓
rr adsorption																													
W-20 B11111 47294 #2	+	+	0	0	+			0	+	+	0	+	0	+	+	0	+	0	0	+	0	+	0	0	+		0	0	0✓
W-20 R1783 47294 #10	+	+	0	+	+			0	+	0	+	0	+	0	+	+	0	0	0	+	+	+	+	0	+		0	0	0✓

Donor Case #1

Third Donation Results

- Performed testing with DTT treated cells

	Supplier/ Lot	Donor / RhHr – Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		DTT			
																																LISS 37°C	LISS IgG		
1	Red Cross DIF-25-7	45220700* #1	+	+	0	0	+				+	0	+	0	+	0	+	0						+	+	0	+					0	0✓		
2	Red Cross DIF-25-7	44918200G #2	+	0	+	+	0				+	+	0	+	0	+	+	0							+	0	+	0					0	0✓	
3	Red Cross DIF-25-7	44950200G #3	0	0	0	+	+				0	+	+	+	0	+	0	0							0	+	0	+					0	0✓	

- DTT treatment destroys antigens in the KEL blood group system.

Donor Case #1

Third Donation Results

	Supplier/ Lot	Donor / RhHr – Vial	Rh-Hr							MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results		
			D	C	E	c	e	V	C ^w	M	N	S	s	Le ^a	Le ^b	Pl	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		DTT		
																															LISS 37°C	LISS IgG	
1	Red Cross DIF-25-7	45220700* #1	+	+	0	0	+			+	0	+	0	+	0	+	0						+	+	0	+					0	0✓	
2	Red Cross DIF-25-7	44918200G #2	+	0	+	+	0			+	+	0	+	0	+	+	0						+	0	+	0					0	0✓	
3	Red Cross DIF-25-7	44950200G #3	0	0	0	+	+			0	+	+	+	0	+	0	0						0	+	0	+					0	0✓	

Donor Case #1

Third Donation Results

- Perform antigen typing on the donor's red cells to complete last step of antibody identification.

Position #	DIN/WBN Preliminary Type	Anti- Kp ^b
1	 W18072516338000U	0✓ FE SE

Donor Case #1

Third Donation Results

- We send a sample to the National Molecular Laboratory (NML) to obtain the full predicted phenotype

Sample Name	Check	ISBT 128 Barcode	C	c	E	e	CX	CW	V	VS	hrB	Crawford	hrS	Big K	Little k	Kp(a)	Kp(b)	Js(a)	Js(b)	Jk(a)	Jk(b)	Fy(a)	Fy(b)	M	N	S	s	U	Lu(a)
W18072516338000	U		+	+	0	+	0	0	0	0	+	0	+	0	+	+	0	0	+	+	+	+	+	+	+	0	+	+	0

Sample Name	Check	ISBT 128 Barcode	Lu(b)	Di(a)	Di(b)	Co(a)	Co(b)	Do(a)	Do(b)	Hy	Jo(a)	Lw(a)	Lw(b)	Sc1	Sc2	Yt(a)	Yt(b)
W18072516338000	U		+	0	+	+	0	+	+	+	+	+	0	+	0	+	0

- We confirm the common antigens by serology and submit the donor to the American Rare Donor Program

Donor Case #1

Third Donation Results

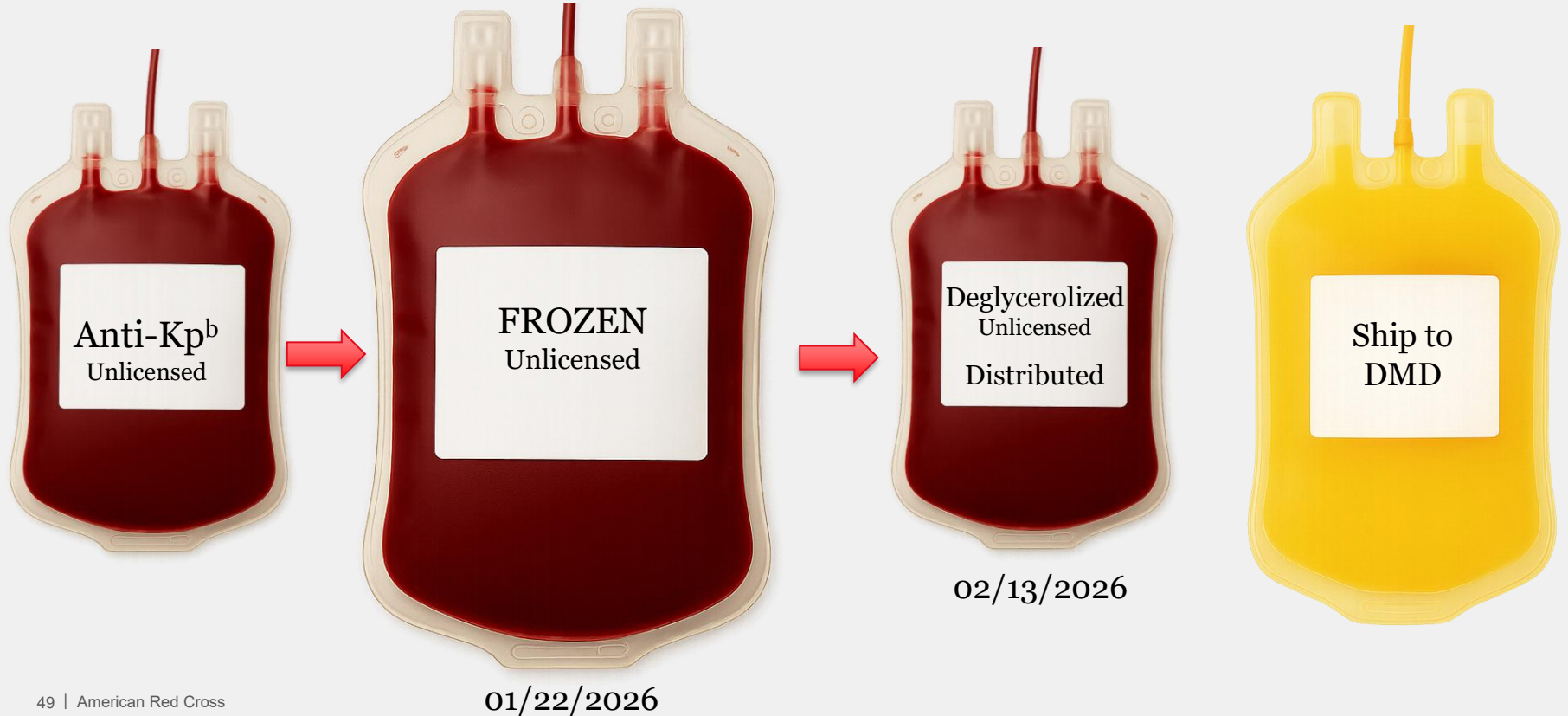
- To assess donor plasma for submission to DMD, we test a Kp(b+) cell at IAT following a 15 minute incubation at 37°C with no enhancement.

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results					
			D	C	E	c	e	f	V	C ^w	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		15' 37°C IgG					
1	Imm-20 47294	C6867 R2R2 #9	+	0	+	+	0			0	+	+	0	+	0	+	+	0	+	0	+	0	+	+	+	+	0	0	+	+			3+				
2	Imm-20 47294	R1783 R1r #10	+	+	0	+	+			0	+	0	+	0	+	0	+	+	0	0	+	0	+	+	+	+	+	0	+	+			3+				

- Anti-Kp^b acceptance criteria is $\geq$ 2-3+ Undiluted
- Our sample meets acceptance criteria

Donor Case #1

Third Donation Product Disposition



Donor Case #1

Fourth Donation 03/16/2026

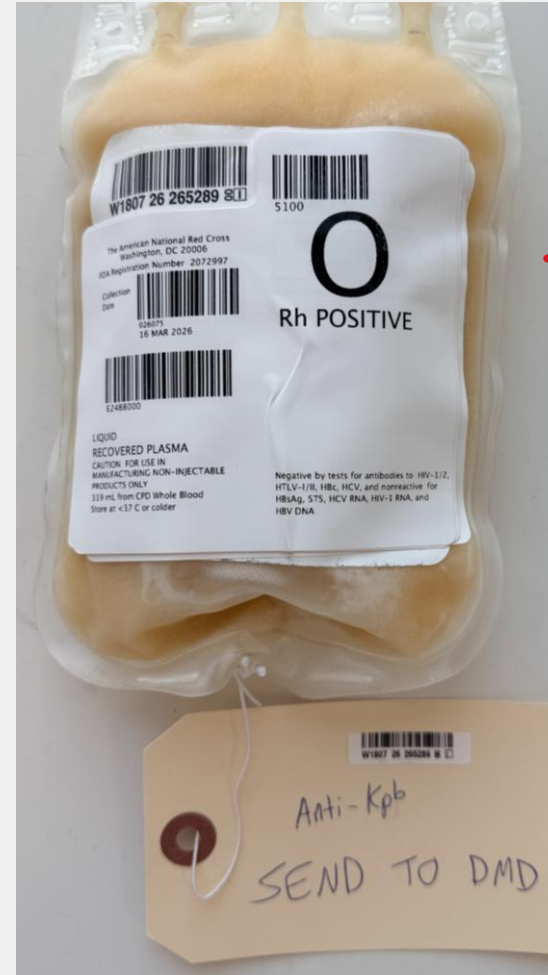
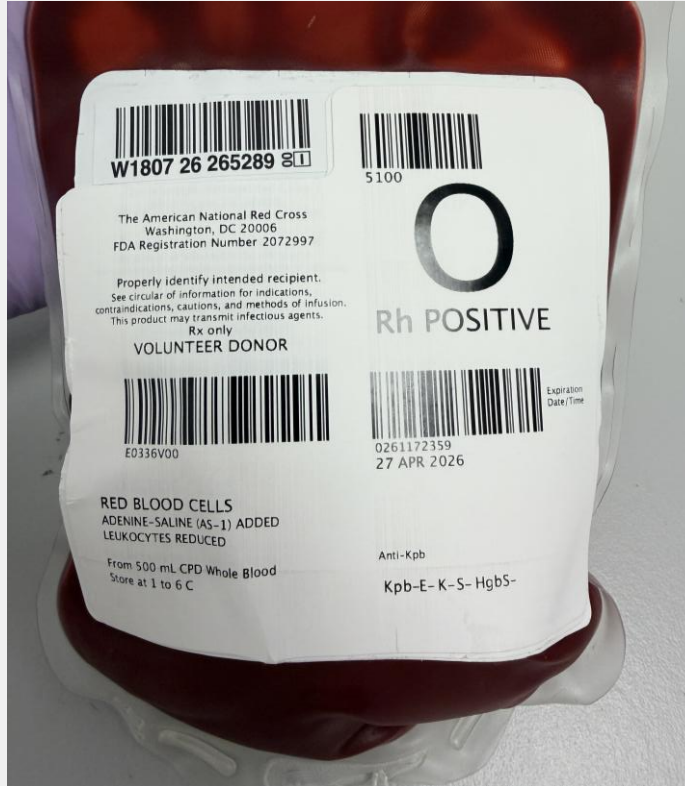
ABY INIT	Positive
TUBESCREEN	Positive
SEGSCREEN	Positive
ABID1	Anti-Kpb

- Same testing to complete the investigation.

Donor Case #1

Fourth Donation Product Disposition

- Red Cells were in the IRL's inventory waiting to be frozen before expiration.

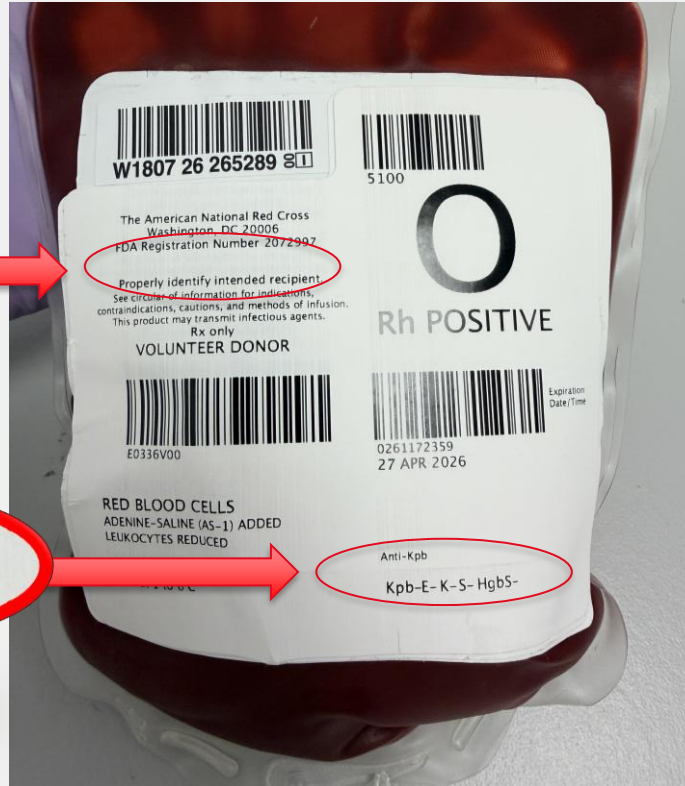


- Plasma was in the distribution freezer waiting to be shipped to DMD.

Donor Case #1

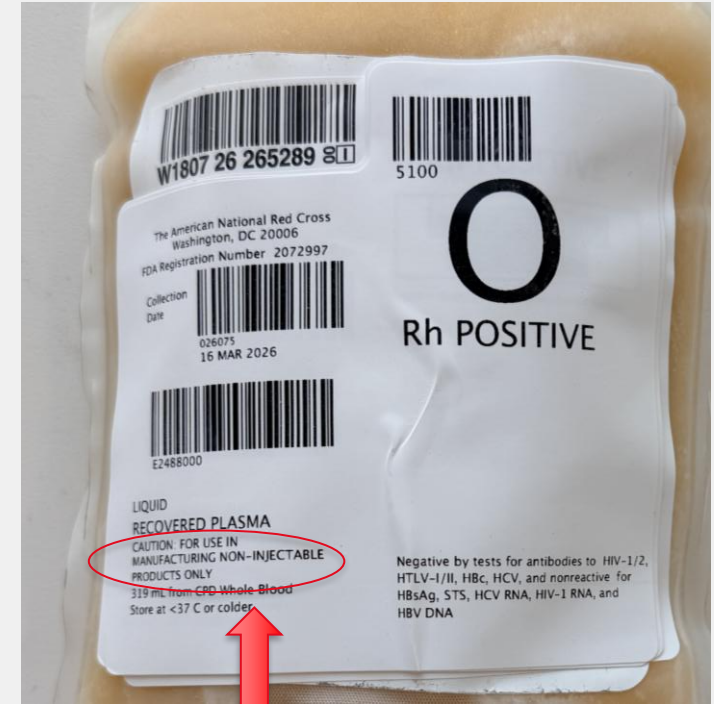
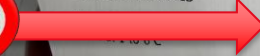
Fourth Donation Product Disposition

- Licensed has been removed
= Unlicensed



Anti-Kpb

- Label contains the antibody specificity



- Plasma is labeled as non-injectable for shipment to DMD

Donor Case #1 – Update since last presentation

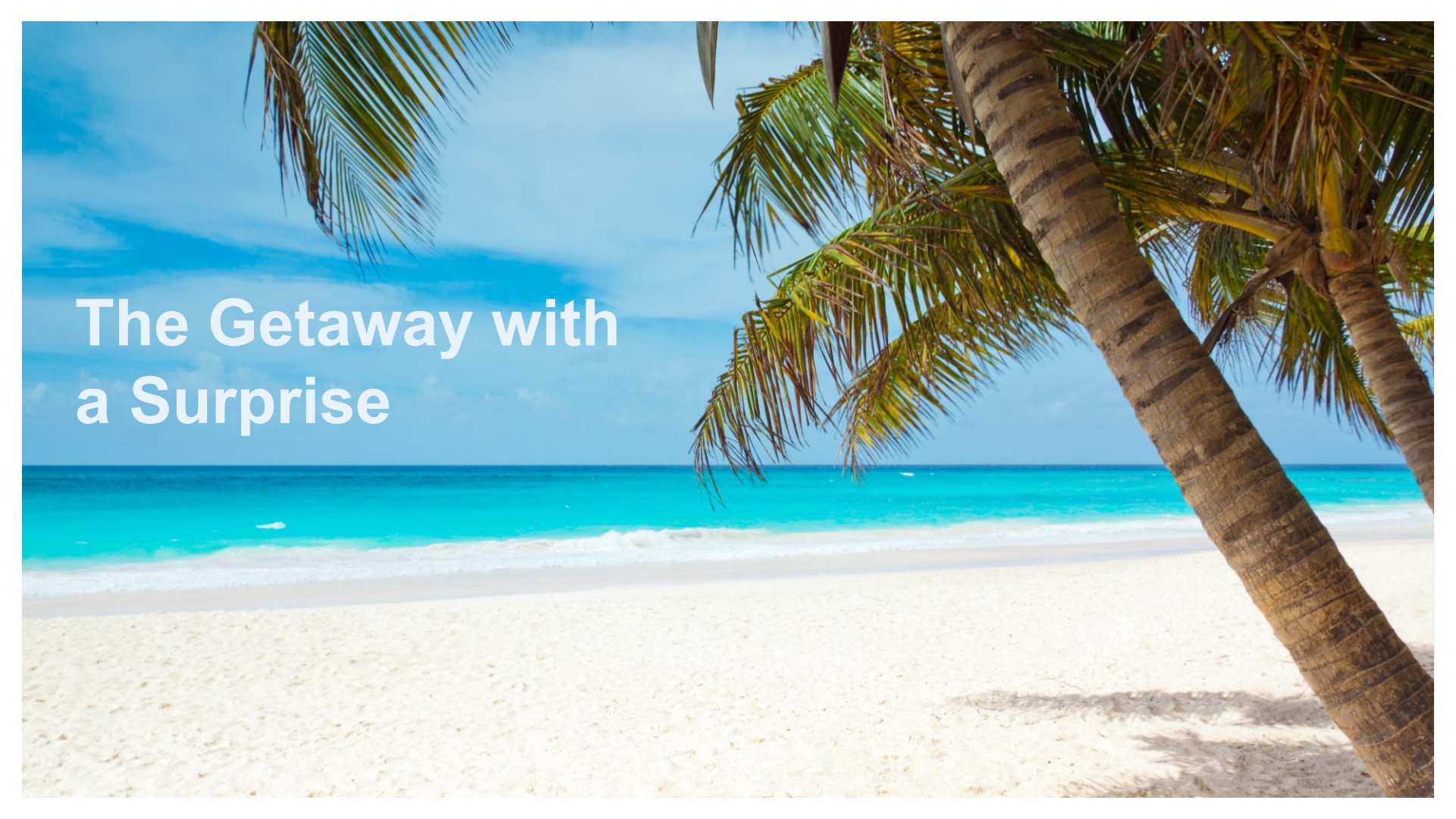
Fourth Donation was frozen and waiting for a request

- Since the ABID testing made the unit unlicensed, we hold the liquid product close to expiration before freezing.

Fifth Donation 06/05/2026 – collected double red cell, no plasma unit

ABY INIT	Positive
TUBESCREEN	Positive
SEGSCREEN	Positive
ABID1	Anti-Kpb

- Same results and testing to complete the investigation.
- Both Red Cells were frozen and are waiting for a request

A tropical beach scene with a palm tree in the foreground, white sand, turquoise water, and a blue sky.

The Getaway with a Surprise

Donor Case #2

First donation = autologous 02/22/2017

- Since we saw this donor in 2015 as a patient, we knew where to start with testing.

- Patient Report



Serum/Plasma (S/P) and Eluate Studies:			
Antibody:	Phase(s) of Reactivity:	S/P	Eluate
Anti-Jk3	PEG/AT	☒	☐
Anti-E	Not Evaluated-Historical	☒	☐

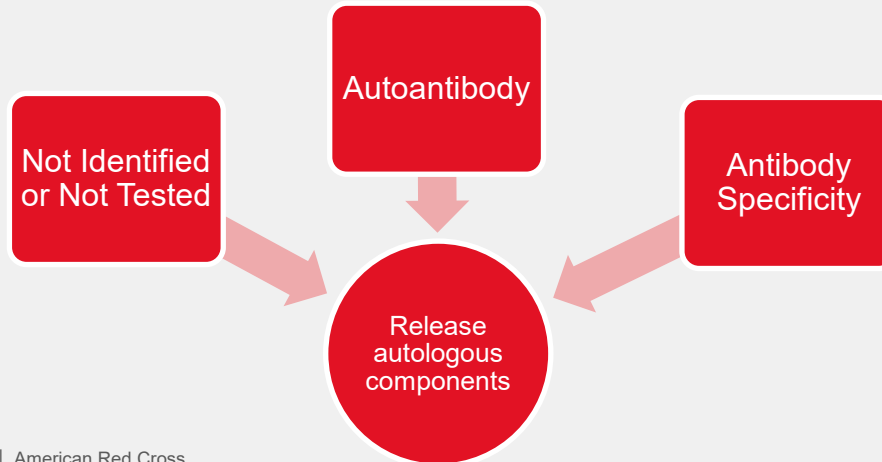
Transfusion Recommendations and Remarks:	
Select ABO/Rh Compatible units negative for:	Jk3, E
Percentage of Antigen Negative Donors:	<0.1%
Remarks: The patient's serum was adsorbed x2 with PEG using selected phenotyped red blood cells. No underlying alloantibodies were detected in the adsorbed serum. This method does not allow for the exclusion of antibodies to most high incidence antigens. Anti-Jk3 and anti-E are clinically significant antibodies. Red blood cell components negative for the Jk3 and E antigens should be selected for transfusion. Less than 0.1% of donors will be negative for the Jk3 high frequency antigen. Frozen, deglycerolized red blood cells are available from American Red Cross Blood Services. Approximately two hours is required to deglycerolize and process each unit for shipping. Red blood cells can also be obtained through the American Rare Donor Program. Additional time (24-48 hours) is required to identify and transport the components. Autologous donation and/or donation by siblings negative for the antigen may be an additional source of units. This patient and any siblings negative for the Jk3 antigen would be an asset to the American Rare Donor Program.	

Donor Case #2

First donation = autologous 02/22/2017

ABY INIT	Positive
TUBESCREEN	Positive

- Segment screen is not performed for autologous donations.
- Positive tube screen reflexes to antibody identification.
- All autologous products always released regardless of antibody identification result.



- Donor's antibody Identification

ABID1	Anti-E
ABID2	Anti-JK3

Donor Case #2

Second donation = autologous 11/29/2022

ABY INIT	Positive
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American Red Cross Washington, DC 20006		Tube Antibody Screen Form			 American Red Cross	
WID: 10		Tester Initials/Date: MA 12/01/2022				
Pos	DIN	IS Result	37°C Result	IAT Result	Comments	Move for Labeling
1	 W20112209576600Z	0	0	2+		☐

Donor Case #2

Second donation = autologous 11/29/2022

Ortho Clinical Diagnostics

DIN



Lot No. VRA420

Exp. Date 2022-12-27

CCYY-MM-DD

Position Number

WID 6,8

Tester initials FSM

Testing Date 12/01/2022

Antibody Interpretation Anti-E, Anti-Jk3

Panel

A

Reagent Red Blood Cells
0.8% Resolve® Panel A
ANTIGRAM® Antigen Profile

© Ortho Clinical Diagnostics 2010

Cell B of this lot is designated with an A. Cell 9 of this lot is designated with an A.

635201221

			Rh-hr										KELL				DUFFY		KIDD	See Unit 10	LEWIS		MNS		P	LUTHERAN		Special Antigen Typing		Test Results							
Cell	Rh-hr	Donor Number	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	Xg ^a	Le ^a	Le ^b	S	s	M	N	P ₁	Lu ^a	Lu ^b		Cell	Cell	Cell	Cell		
1	R1wR1	326140	+	+	0	0	+	0	+	0	0	+	0	+	/	+	0	+	+	0	+	0	+	+	+	+	+	+	+	+	0	+	HLA+	1	Cell	1	Cell
2	R1R1	322995	+	+	0	0	+	0	0	0	+	+	0	+	/	+	+	+	0	+	+	+	0	0	+	+	+	+	+	+	0	+	HLA+	2	Cell	2	Cell
3	R2R2	320995	+	0	+	+	0	0	0	0	0	+	0	+	/	+	0	+	0	+	0	0	+	+	+	+	+	+	0	0	+		3	Cell	3	Cell	
4	Ror	326359	+	0	0	+	+	+	+	0	0	0	+	0	+	/	+	0	0	+	+	+	0	0	0	+	+	+	+	+	+	+		4	Cell	4	Cell
5	r'r	328634	0	+	0	+	+	+	+	0	0	0	+	0	+	/	+	+	0	+	+	+	0	+	0	+	0	+	+	+	+	+	@	5	Cell	5	Cell
6	r'r	329956	0	0	+	+	+	+	+	0	0	0	+	0	+	/	+	0	+	+	+	0	0	+	+	+	0	+	0	0	+	@	6	Cell	6	Cell	
7	rr	307998	0	0	0	+	+	+	+	0	0	+	+	0	+	0	+	0	+	0	+	+	0	0	0	+	+	+	+	0	+	@	7	Cell	7	Cell	
8	rr	330010	0	0	0	+	+	+	+	0	0	0	+	0	+	/	+	0	+	0	+	+	0	+	0	+	+	+	+	0	+	@, HLA+	8	Cell	8	Cell	
9	rr	329989	0	0	0	+	+	+	+	0	0	0	+	0	+	/	+	+	0	+	0	+	0	+	0	+	0	+	+	+	+	+		9	Cell	9	Cell
10	rr	329976	0	0	0	+	+	+	+	0	0	0	+	0	+	/	+	+	+	0	+	0	0	+	+	0	+	0	+	+	+		10	Cell	10	Cell	
11	R1R1	326823	+	+	0	0	+	0	0	0	0	+	+	+	/	+	0	+	+	+	0	+	0	0	+	0	+	0	+	+	+	+		11	Cell	11	Cell
	Patient Cells																																				
Mode of Reactivity			37°C/Antiglobulin										Antiglobulin										Variable		Cold		Var.										

Donor Case #2

Second donation = autologous 11/29/2022

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^w	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		IS	LISS 37°C	LISS IgG	
1	Imm-10F 43328	B8295 #1	+	+	0	0	+		0	+	0	+	0	0	+	0	0	+	0	+	0	+	0	+	+	0	0	+	+		0	0	2+		
2	Imm-10 43327	C5256 R2R2 #10	+	0	+	+	0		0	+	0	0	+	0	+	0	0	+	0	+	0	+	+	0	0	+	0	+	0		0	0	2+		
3	Quotient V255017	1068-388-6 R1r #13	+	+	0	+	+	+	0	+	+	+	+	0	+	+	+	0	0	+	0	+	+	+	+	0	0	+	+		0	0	2+		
4	Ortha A RA202	319678 Rr #8	0	0	0	+	+	+	0	0	0	+	0	+	0	0	0	+	0	+		+	+	+	+	0	+	+	+		0	0	2+		
	Auto Control																														0	0	0✓		
	A 1S2TBOX	672C	+	+	0	0	+			+	+	0	+		+	+	0						+	0	0	0					0	0	0✓		
	A 5288898	601C	+	+	0	0	+			+	+	0	+	+	0	0	0	+					+	0	0	0					0	0	0✓		

Donor Case #2

Second donation = autologous 11/29/2022

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^w	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		IS	LISS 37°C	LISS IgG	
1	Imm-10F 43328	B8295 #1	+	+	0	0	+		0	+	0	+	0	0	+	0	0	+	0	+	0	+	0	+	+	0	0	+	+		0	0	2+		
2	Imm-10 43327	C5256 R2R2 #10	+	0	+	+	0		0	+	0	0	+	0	+	0	0	+	0	+	0	+	+	0	0	+	0	+	0		0	0	2+		
3	Quotient V255017	1068-388-6 R1r #13	+	+	0	+	+	+	0	+	+	+	+	0	+	+	+	0	0	+	0	+	+	+	+	0	0	+	+		0	0	2+		
4	Ortha A RA202	319678 Rr #8	0	0	0	+	+	+	0	0	0	+	0	+	0	0	0	+	0	+		+	+	+	+	0	+	+	+		0	0	2+		
	Auto Control																														0	0	0✓		
	A 1S2TBOX	672C	/	/	0	0	/			/	/	0	/	/	/	/	0						/	0	0	0					0	0	0✓		
	A 5288898	601C	+	+	0	0	+			+	+	0	+	/	0	0	0	/					+	0	0	0					0	0	0✓		
														/			/																		

Donor Case #2

Second donation = autologous 11/29/2022

- Performed 3x adsorption at 37°C using papain treated cells

	Rh-Hr								MNS				Lewis		P	Kell				Duffy		Kidd		Luth		Additional antigens	Test Results		
	D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Js ^a	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b		LISS IgG		
R ₁ R ₁ W201122078786006	+	+	0	0	+				+	0	+	0	0	0	+	0				+	0	+	0						
R ₂ R ₂ W20112206204200T	+	0	+	+	0				+	+	0	+	0	+	+	0				0	+	0	+						
rr W20112207882300S	0	0	0	+	+				0	+	0	+	0	+	+	+				+	+	0	+						
R ₁ R ₁ adsorption																													
I-10 43327 C2815 #3	+	0	+	+	0			0	+	0	0	+	+	0	+	0	+	0	0	0	0	+	0	0	+			w+	
I-10F 43328 H1998 #8	0	0	0	+	+	+		0	0	+	0	+	0	+	+	0	+	0	0	+	0	0	+	0	+			0✓	
O RA202 324737 #11	+	+	0	0	+	0	0	0	+	0	0	+	+	0	s	0	+	0		0	+	0	+	0	+			0✓	
R ₂ R ₂ adsorption																													
Q V255017 6039854 #2	+	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+	+	0	0	0	+	+	0	0	+			0✓	
Q V255017 52171241 #7	0	0	0	+	+	+		0	+	+	+	0	0	+	+	+	+	0	0	+	0	+	+	0	+			0✓	
Q V255017 10683886 #13	+	+	0	+	+	+		0	+	+	+	+	0	+	+	+	+	0	0	+	+	+	0	0	+			0✓	
rr adsorption																													
I-10F 43378 B8275 #1	+	+	0	0	+			0	+	0	+	0	0	+	0	0	+	0	0	0	+	+	0	0	+			0✓	
Q V255017 276802891620 #2	+	0	+	+	0	0		0	+	+	0	+	+	0	+	0	+	0	0	+	+	+	+	0	+			w+	

Donor Case #2

Second donation = autologous 11/29/2022

- Performed 3x adsorption at 37°C using papain treated cells

	Rh-Hr								MNS				Lewis		P	Kell				Duffy		Kidd		Luth		Additional antigens	Test Results			
	D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Js ^a	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b		LISS IgG			
R ₁ R ₁ W201122078786006	+	+	0	0	+				+	0	+	0	0	0	+	0				+	0	+	0							
R ₂ R ₂ W20112206204200T	+	0	+	+	0				+	+	0	+	0	+	+	0				0	+	0	+							
rr W20112207882300S	0	0	0	+	+				0	+	0	+	0	+	+	+				+	+	0	+							
R ₁ R ₁ adsorption																														
I-10 43327 C2815 #3	+	0	+	+	0			0	+	0	0	+	+	0	+	0	+	0	0	0	0	+	0	0	+	0	+			w+
I-10F 43328 H1998 #8	0	0	0	+	+	+		0	0	+	0	+	0	+	+	0	+	0	0	+	0	0	+	0	+	0	+			0✓
O RA202 324737 #11	+	+	0	0	+	0	0	0	+	0	0	+	+	0	s	0	+	0		0	+	0	+	0	+					0✓
R ₂ R ₂ adsorption																														
Q V255017 6039854 #2	+	+	0	0	+	0	0	0	+	+	0	+	0	+	0	+	+	0	0	0	+	+	0	0	+	0	+			0✓
Q V255017 52171241 #7	0	0	0	+	+	+		0	+	+	+	0	0	+	+	+	+	0	0	+	0	+	+	0	+					0✓
Q V255017 10683886 #13	+	+	0	+	+	+		0	+	+	+	+	0	+	+	+	+	0	0	+	+	+	0	0	+					0✓
rr adsorption																														
I-10F 43378 B8275 #1	+	+	0	0	+			0	+	0	+	0	0	+	0	0	+	0	0	0	+	+	0	0	+					0✓
Q V255017 276802891620 #2	+	0	+	+	0	0		0	+	+	0	+	+	0	+	0	+	0	0	+	+	+	+	0	+					w+

Donor Case #2

Second donation = autologous 11/29/2022

- Perform antigen typing on the donor's red cells to complete last step of antibody identification.

Position #	DIN/WBN Preliminary Type	Anti- E	Anti- Jk ^a	Anti- Jk ^b	Anti- Jk ³
1	 W20112209576600Z	O	O	O	O✓
		FE	FE	FE	FE
		SE	SE	SE	SE

Donor Case #2

Second donation = autologous 11/29/2022

- We send a sample to the NML to obtain the full predicted phenotype



Sample Name	Check	ISBT 128 Barcode	C	c	E	e	CX	CW	V	VS	hrB	Crawford	hrS	Big K	Little k	Kp(a)	Kp(b)	Js(a)	Js(b)	Jk(a)	Jk(b)	Fy(a)	Fy(b)	M	N	S	s	U	Lu(a)	
W20112209576600	Z		+	0	0	+	0	0	0	0	+	0	+	+	+	0	+	0	+	+	+	0	+	0	+	+	+	0	+	0

Sample Name	Check	ISBT 128 Barcode	Lu(b)	Di(a)	Di(b)	Co(a)	Co(b)	Do(a)	Do(b)	Hy	Jo(a)	Lw(a)	Lw(b)	Sc1	Sc2	Yt(a)	Yt(b)
W20112209576600	Z		+	0	+	+	+	0	+	+	+	+	0	+	0	+	0

- Well, this is something unexpected!
- HEA testing predicts the donor's phenotype to be Jk(a+b-)
- So now we have a discordant type between serology and molecular that needs investigation

Donor Case #2

Second donation = autologous 11/29/2022

- Investigation includes sending a new request to the NML for Genotyping for Kidd (*JK*) variants.
- The NML performed amplification and sequencing of all *SLC14A1* (*JK*) coding exons (4 through 11) and their respective splice sites.
- NML report

RESULTS:

Gene or Region	Method	Analyte	Result	Interpretation
			Nucleotides detected*	Predicted Amino Acid
<i>SLC14A1</i> (<i>JK</i>)	gDNA seq*	Exon 3	No changes	N/A
		Exon 4	No changes	N/A
		Exon 5	No changes	N/A
		Exon 6	582G	194X
		Exon 7	No changes	N/A
		Exon 8	838G	D280(<i>JK</i> *A)
		Exon 10	No changes	N/A

*Only nucleotides which differ from consensus sequence are listed.

Probable Genotype: *JK**01N.03 / *JK**01N.03



Predicted Phenotype: Jk(a-b-)

COMMENTS: High-resolution testing of all coding exons of *JK* revealed the sample to be homozygous for the c.582C>G single nucleotide variant (SNV). This SNV results in substitution of tyrosine for a stop codon at residue p.194, resulting in early termination and is associated with a null phenotype. The predicted phenotype of this high-resolution testing is concordant with serology.

Donor Case #2

Third donation and fourth donations = autologous

- Recent donations with previous identifications so we don't identify again since autologous collections are released without identification

- 01/17/2023

ABY INIT	Positive
TUBESCREEN	Positive
ABID1	Antibody_Not_Tested

- 03/14/2023

ABY INIT	Positive
TUBESCREEN	Positive
ABID1	Antibody_Not_Tested

Donor Case #2

Autologous donation product dispositions

- All plasmas were discarded with reason code “Autologous unit not used”
- Four frozen autologous red cells are in MH IRL inventory



Donor Case #2

Allogeneic product dispositions

- After four frozen autologous donations, the donor began annual allogeneic donations
- Has since donated four additional times
 - 11/13/2023 – ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-E, anti-Jk3
 - **Red cells frozen, sent to Richmond, VA and deglycerolized for patient 07/24/2025**
 - 01/08/2024 – ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-E, anti-Jk3, and anti-Jk^a (NEW)
 - **Red cells frozen, sent to Richmond, VA and deglycerolized for patient 09/24/2025**
 - 07/24/2025 – ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-Jk3, anti-Jk^a
 - **Red cells sent to Baltimore, MD and sent to patient at hospital in Virginia on 08/05/2025**
 - 03/16/2026 – ABY INIT & Tube screen are POSITIVE; Seg screen is NEGATIVE – no Antibody Identification required
 - **Red cells frozen within six days, licensed and in MH IRL frozen inventory**

Donor Case #2

Allogeneic product dispositions

- Plasma components from the allogeneic collections were
 - Transformed to non-injectable
 - “Shipped” to the IRL for local reagent use.



E- Fyb-Jka-Jkb-S-HgbS-

Donor Case #2 - Update since last presentation

Allogeneic product dispositions

- After four frozen autologous donations, the donor began annual allogeneic donations
- Has since donated five additional times
 - 11/13/2023 – ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-E, anti-Jk3
 - **Red cells frozen, sent to Richmond, VA and deglycerolized for patient 07/24/2025**
 - 01/08/2024 – ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-E, anti-Jk3, and anti-Jk^a (NEW)
 - **Red cells frozen, sent to Richmond, VA and deglycerolized for patient 09/24/2025**
 - 07/24/2025 – ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-Jk3, anti-Jk^a
 - **Red cells sent to Baltimore, MD and sent to patient at hospital in Virginia on 08/05/2025**
 - 03/16/2026 – ABY INIT & Tube screen are POSITIVE; Seg screen is NEGATIVE – no Antibody Identification required
 - **Red cells frozen within six days, licensed and in MH IRL frozen inventory**
 - 09/14/2026 – ABY INIT, Tube & Seg screen are POSITIVE
 - waiting for IRL antibody identification to be completed and will be frozen before expiration.

The Trail That Turned into a Climb



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Donor Case #3

A Donor Advocating for Appropriate Use of Their Rare Units

- Long time Vel- donor previously giving at another blood center
- Knew their units were routinely discarded due to antibody presence and inability to resolve
- New local Red Cross collection sites made donating feasible
- Contacted Red Cross medical director to ask if their blood could be used
 - Medical director checked with the IRL
 - MH IRL should be able to complete the testing
- Donor transitioned with the goal of ensuring their rare units benefit patients

Donor Case #3

First donation = 11/12/2024

ABY INIT	Negative
----------	----------

- YAY – the anti-Vel isn't detected by CTS
- We will be able to manage this donor's collections simply
- UNTIL...

Donor Case #3

First donation = 11/12/2024

- UNTIL... we see the ABO/RH result from CTS

ABO/RH	NTD (no type determined)
--------	--------------------------

- Remember CTS is performing antibody detection on automated platforms only at IAT
 - The anti-Vel is not detected by IAT
 - The anti-Vel is potentially interfering with the ABO testing which is performed at IS

Donor Case #3

First donation = 11/12/2024

- So even though the antibody screen is negative, the ABO testing requires antibody identification for resolution of the ABO type
- The donor appears to forward type as Group A, Rh(D) Positive
- The reverse grouping detects extra reactions in the back type at IS, if the donor is an A

Donation Identification Number (DIN) Add Product Code, if necessary	Antisera							Cells		
	A	B	A, B	D (IS)	D Control (IS)	Weak D (IgG)	D Control (IgG)	A ₁	A ₂	B
 W18072407985100R	4+	0	4+	3+	0			1+	w+	2+

Donor Case #3

First donation = 11/12/2024

- In order to resolve the donor's back type, we need to perform antibody identification at IS
- We start with a three cell screen and the auto control in tube.

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr										MNS				Lewis		P	Kell								Duffy		Kidd		Luth		X	Additional antigens	Test Results			
			D	C	E	c	e	f	V	C ^w	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a	IS	LISS 37°C	LISS IgG						
1	Biotest Screen 9442011-00	904564 R1R1 #1	+	+	0	0	+		+	0	+	0	+	0	+	+	0	+	0	+			0	+	0	+	0	+	0			1+	0	0✓					
2	Biotest Screen 9442011-00	904565 R2R2 #2	+	0	+	+	0		0	+	+	+	+	+	0	+	0	+	0	+			+	+	+	0	0	+	+			1+	0	0✓					
3	Biotest Screen 9442011-00	904566 rr #3	0	0	0	+	+		0	+	0	+	0	0	+	+	+	+	0	+			+	0	+	+	0	+	0			1+	0	0✓					
	Auto Control																														0	0	0✓						

Donor Case #3

First donation = 11/12/2024

- Next we test a few Vel- cells

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr							MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results					
			D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b		Xg ^a	IS	LISS 37°C	LISS IgG		
1	Biotest Screen 9442011-00	904564 R1R1 #1	+	+	0	0	+		+	0	+	0	+	0	+	+	0	+	0	+			0	+	0	+	0	+	0			1+	0	0✓		
2	Biotest Screen 9442011-00	904565 R2R2 #2	+	0	+	+	0		0	+	+	+	+	+	0	+	0	+	0	+			+	+	+	0	0	+	+			1+	0	0✓		
3	Biotest Screen 9442011-00	904566 rr #3	0	0	0	+	+		0	+	0	+	0	0	+	+	+	+	0	+			+	0	+	+	0	+	0			1+	0	0✓		
	Auto Control																																0	0	0✓	
	A T1667000C	586C	+	0	+	+	+		0	+	+	+	0	0	+	+	+	+	0				0	+	+	+				Vel-		0	0	0✓		
	A DID2432	460C	+	+	0	+	+		0	+	+	+	+	+	0	0	0		0				0	+	+	0				Vel-		0	0	0✓		
	A P01758867	433C	+	+	0	+	+		0	+	0	+	0	0	+	+	0	+	0				+	+	+	0				Vel-		0	0	0✓		

Donor Case #3

First donation = 11/12/2024

- All common specificities are ruled out by donor testing requirements

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr							MNS				Lewis	P	Kell						Duffy	Kidd	Luth	X	Additional antigens	Test Results							
			D u	C u	E u	e u	f u	V u	C ^w	M u	N u	S u	s u	Le ^a u	Le ^b u	F ¹ u	K u	K u	Kp ^a	Kp ^b	Js ^a	Js ^b	F ^a u	F ^b u	Jk ^a u		Jk ^b u	Lu ^a	Lu ^b	Xg ^a	IS	LISS 37°C	LISS IgG	
1	Biotest Screen 9442011-00	904564 R1R1 #1	+	+	0	0	+		+	0	+	0	+	0	+	+	0	+	0	+			0	+	0	+	0	+	0		1+	0	0✓	
2	Biotest Screen 9442011-00	904565 R2R2 #2	+	0	+	+	0		0	+	+	+	+	+	0	+	0	+	0	+			+	+	+	0	0	+	+		1+	0	0✓	
3	Biotest Screen 9442011-00	904566 rr #3	0	0	0	+	+		0	+	0	+	0	0	+	+	+	+	0	+			+	0	+	+	0	+	0		1+	0	0✓	
	Auto Control																														0	0	0✓	
	A T1667000C	586C	+	0	+	+	+		0	+	+	+	0	0	+	+	+	+	0			0	+	+	+	+				Vel-	0	0	0✓	
	A DID2432	460C	+	+	0	+	+		0	+	+	+	+	+	0	0	0		0			0	+	+	0				Vel-	0	0	0✓		
	A P01758867	433C	+	+	0	+	+		0	+	0	+	0	0	+	+	0	+	0			+	+	+	0				Vel-	0	0	0✓		

Donor Case #3

First donation = 11/12/2024

- Performed 1x adsorption at 4°C using papain treated Vel+ allogeneic treated cells

	Supplier/ Lot	Donor / RhHr - Vial	Rh-Hr								MNS				Lewis		P	Kell						Duffy		Kidd		Luth		X	Additional antigens	Test Results
			D	C	E	c	e	f	V	C ^W	M	N	S	s	Le ^a	Le ^b	P1	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Lu ^a	Lu ^b	Xg ^a		Adsorbed Plasma
																																IS
1	Biotest Screen 9442011-00	904564 R1R1 #1	+	+	0	0	+		+	0	+	0	+	0	+	+	0	+	0	+			0	+	0	+	0	+	0		0	
2	Biotest Screen 9442011-00	904565 R2R2 #2	+	0	+	+	0		0	+	+	+	+	+	0	+	0	+	0	+			+	+	+	0	0	+	+		0	
3	Biotest Screen 9442011-00	904566 rr #3	0	0	0	+	+		0	+	0	+	0	0	+	+	+	+	0	+			+	0	+	+	0	+	0		0	

- Test previously tested screen cells to show anti-Vel reactivity is adsorbed to exclusion.

Donor Case #3

First donation = 11/12/2024

- Repeat reverse grouping with adsorbed plasma

Donation Identification Number (DIN) Add Product Code, if necessary	Antisera							Cells		
	A	B	A, B	D (IS)	D Control (IS)	Weak D (IgG)	D Control (IgG)	A ₁	A ₂	B
 W18072407985100R	4+	0	4+	3+	0			0	0	0

- No reactivity caused by the anti-Vel, but now there is no reactivity at all.
- Now we are encountering another ABO discrepancy – missing reactions in the reverse typing.

Donor Case #3

First donation = 11/12/2024

- Reverse grouping with adsorbed plasma at 15 minutes room temperature

	Reverse grouping using adsorbed plasma x4°C				
15' RT	A ₁	A ₂	B	O	AC
	0	0	3+	0	0

Donor Case #3

First donation = 11/12/2024

- ABO testing is now resolved. The donor is A Positive and results can be entered in the BECS. Since unlicensed testing was used to resolve the ABO, the product must be labeled without the license.

Donation Identification Number (DIN) Add Product Code, if necessary	Antisera						Cells Adsorbed plasma 1x4°C		
	A	B	A, B	D (IS)	D Control (IS)	Weak D (IgG)	A ₁	A ₂	B
 W18072407985100R	4+	0	4+	3+	0		0	0	0

	Reverse grouping using adsorbed plasma x4°C				
15' RT	A ₁	A ₂	B	O	AC
	0	0	3+	0	0

ABO/Rh Interpretation:

A POS

Donor Case #3

First donation = 11/12/2024

- This is how the donor's results appear in our BECS once our testing is complete.

ABO/RH	A +
ABO/RH RES	Complete
ABY INIT	Negative
TUBESCREEN	Not Tested
SEGSCREEN	Not Tested
ABID1	Anti-Vel

Donor Case #3

First donation = Product disposition



Donor Case #3

Continued donation

- This donor continues to donate about 4x a year.
- Two of the collections were recently sent out for rare request.
- These two DINs remain in our freezers.



Donor Case #3

Most recent collection – 04/02/2026

- Just when we think we have everything figured out...

...another adventure is on the horizon.

ABO/RH	A +
ABY INIT	Positive

- The donor's initial presentation has changed
 - CTS obtains blood type = A Positive
 - ABY INIT is Positive

Donor Case #3

Most recent collection – 04/02/2026

- IRL Testing – segment screen results

WID:		10	Tester Initials/Date:		CPM 04/06/2026		
Pos	DIN	ABO/ Rh	Historic Antibody Results	IS Result	37°C Result	IAT Result	Comments
1	 W18072626927000D	A +	Anti-Vel	0	1+	1+	

- Antibody identification testing was in progress...

Donor Case #3 – Update since last presentation

Seventh collection – 04/02/2026

- IRL Testing was completed and unit frozen
 - The anti-Vel was not reacting at IS so ABO resolution was NOT required by IRL
 - Antibody identification was required due to the positive SEGSCREEN

ABO/RH	A +
ABY INIT	Positive
TUBESCREEN	Positive
SEGSCREEN	Positive
ABID1	Anti-Vel

Donor Case #3 - Update since last presentation

Allogeneic product dispositions

- Donated two additional times

06/04/2026

- ABO/RH CTS result is NTD, IRL resolved;
- ABY INIT, Tube & Seg screen are POSITIVE; Antibody Identification = anti-Vel
 - **Red cells frozen, plasma for IRL reagent use**

08/06/2026

- ABO/RH CTS is NTD, IRL resolved; Antibody Identification = anti-Vel
- ABY INIT is NEGATIVE
 - **Red cells frozen, plasmas for IRL reagent use**

Donor Case #3 - Update since last presentation

Allogeneic product dispositions

- Donor has given 9 donations since 11/2024.
 - One was unable to be resolved, sample was QNS for our resolution
 - 4mL EDTA tube for IRL
 - Learning moment - we know now to request tubes from CTS as soon as the donor appears on our report
 - One was not productive, product loss during shipment to St Louis from Colorado and bad weather
 - Two were sent for a patient in 2025
 - Five red cells currently in our freezer

IRL Frozen inventory

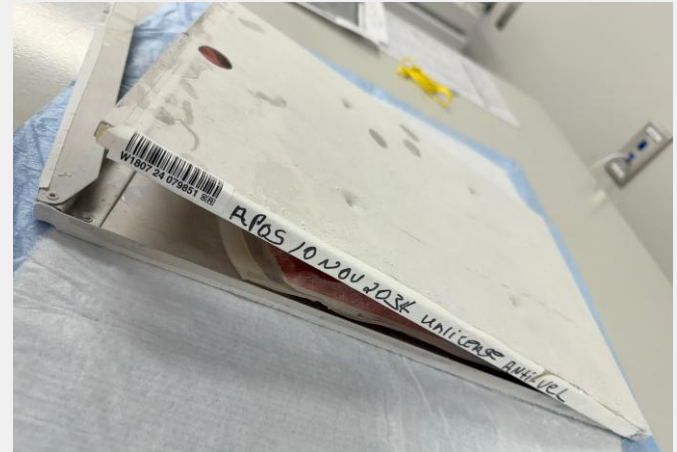
- MH had 3 chest freezers and one upright freezer



- Inside the chest freezer are two rows of five bins containing frozen units.

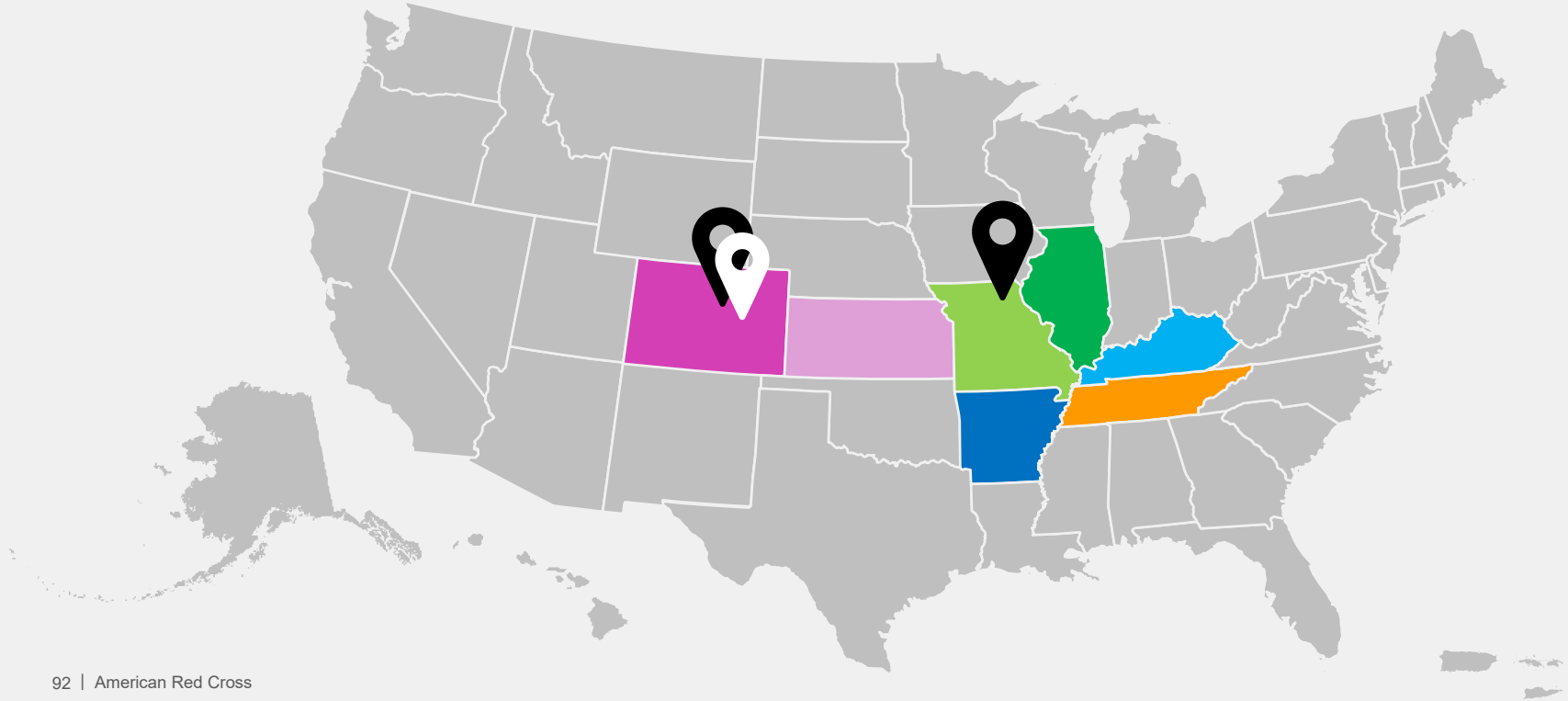


- Each bag of glycerolized cells is placed inside the metal canister and kept flat until frozen.



Where our adventures came from

Collections from the states colored below are tested by MOAR, MH IRL.



Thank you for joining this adventure — no passport required, just a few good antibody panels and the donors who set the adventures in motion.



Thank you



**American
Red Cross**