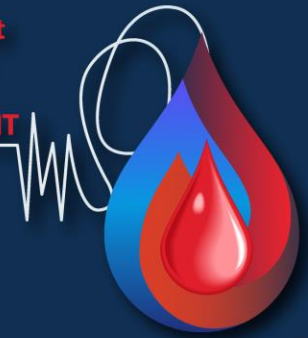


12

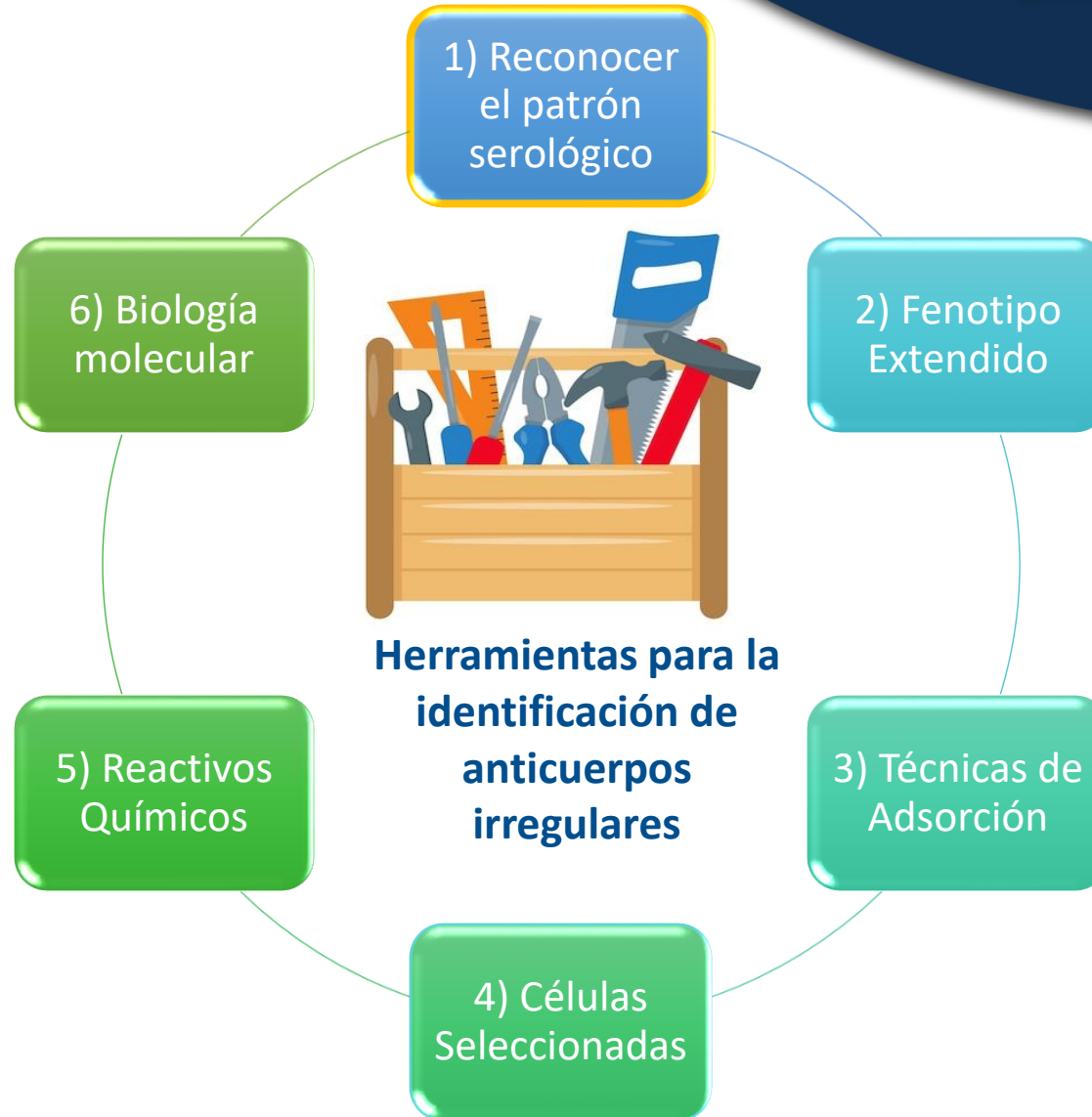
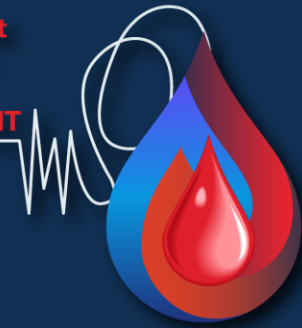
• Congreso Colombiano **Acobasmet**  
de Bancos de Sangre y Medicina  
Transfusional  
Congreso Iberoamericano **GCIAMT**

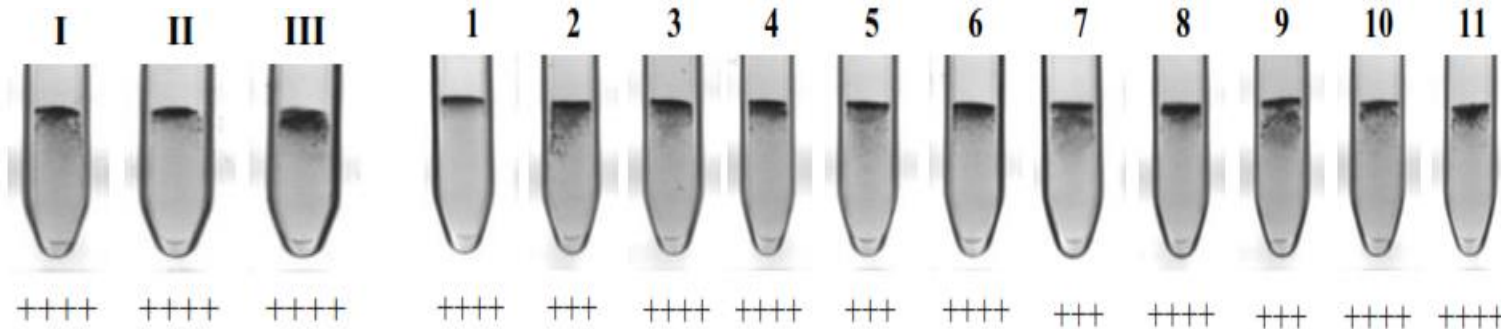
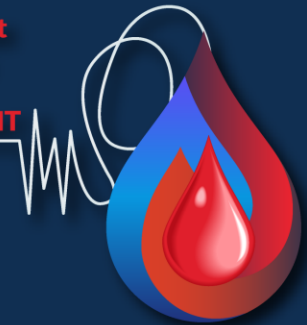
*Nuevamente juntos, innovando  
para fortalecer capacidades*



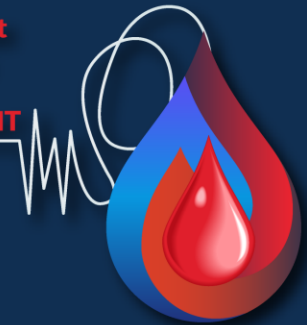
# Caja de Herramientas Serológicas Para la Identificación de Anticuerpos Dirigidos Contra Antígenos de Alta Incidencia

Paula A. Gaviria García  
IDCBIS-Bogotá, Colombia

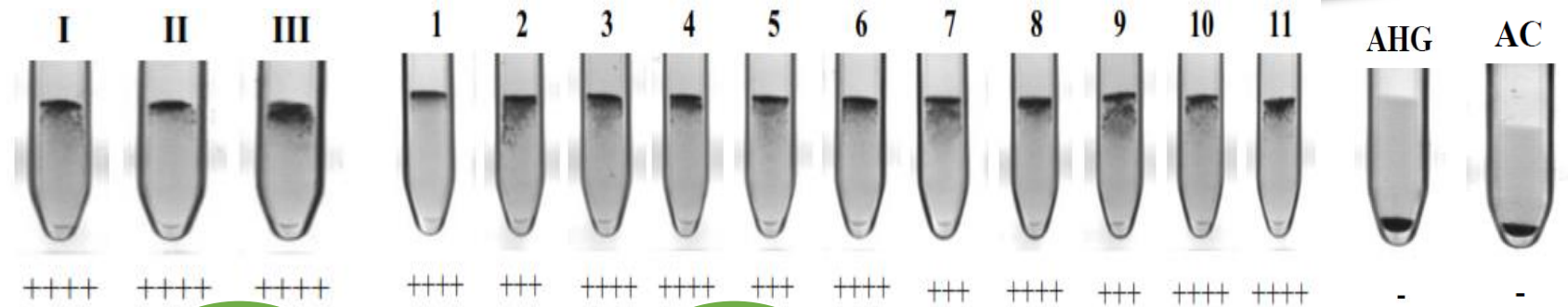
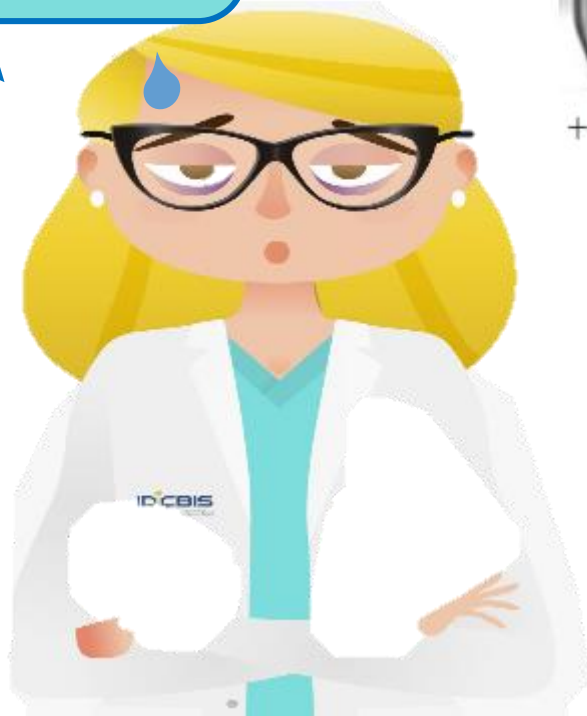




Donante	Genotipo probable	Donante	Rh - hr						Kell				Duffy		Kidd		Lewis		P1	MNS				Luth.			Xg	Otros Antígenos	Resultados				
			D	C	E	c	e	Cw	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>		P <sub>1</sub>	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>			Xg <sup>a</sup>	AGH			
1	CCC <sup>w</sup> D.ee	R <sub>1</sub> <sup>w</sup> R <sub>1</sub>	677783	+	+	0	0	+	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	0	+	0			4+				
2	CCD.ee	R <sub>1</sub> R <sub>1</sub>	468626	+	+	0	0	+	0	+	+	0	+	+	0	+	0	+	0	0	+	0	+	+	+	+			4+				
3	ccD.EE	R <sub>2</sub> R <sub>2</sub>	490202	+	0	+	+	0	0	0	+	0	+	+	0	+	+	0	+	+	+	+	0	+	0			4+					
4	Ccddee	r'r	268592	0	+	0	+	+	0	0	+	0	+	0	+	0	+	+	+	0	+	0	+	+	+			4+					
5	ccddEe	r'r	846207	0	0	+	+	+	0	0	+	0	+	+	0	+	+	+	+	+	0	+	+	0			4+						
6	ccddee	rr	870254	0	0	0	+	+	0	+	+	0	+	+	0	+	0	0	+	0	+	0	0	+	0	Co(b+)	4+						
7	ccddee	rr	564357	0	0	0	+	+	0	0	+	+	+	0	+	0	+	0	+	+	0	0	+	+	0			4+					
8	ccD.ee	R <sub>0</sub> r	403018	+	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	0	+	0			4+					
9	ccddee	rr	280185	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	0	+	0	0	+	0	+			4+					
10	ccddee	rr	333920	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	0			4+					
11	ccddee	rr	129120	0	0	0	+	+	0	0	+	0	+	+	0	+	0	+	+	+	0	0	0	0	0			4+					
Paciente																										Autocontrol							



**Panaglutinación**  
¿Son autoanticuerpos  
o aloanticuerpos?



**Panaglutinación**



PAD -  
Ac -



Mezcla de Alo-Ac  
Anticuerpo  
dirigido contra  
Ag de alta  
incidencia



**Panaglutinación**



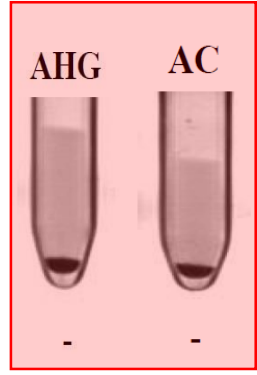
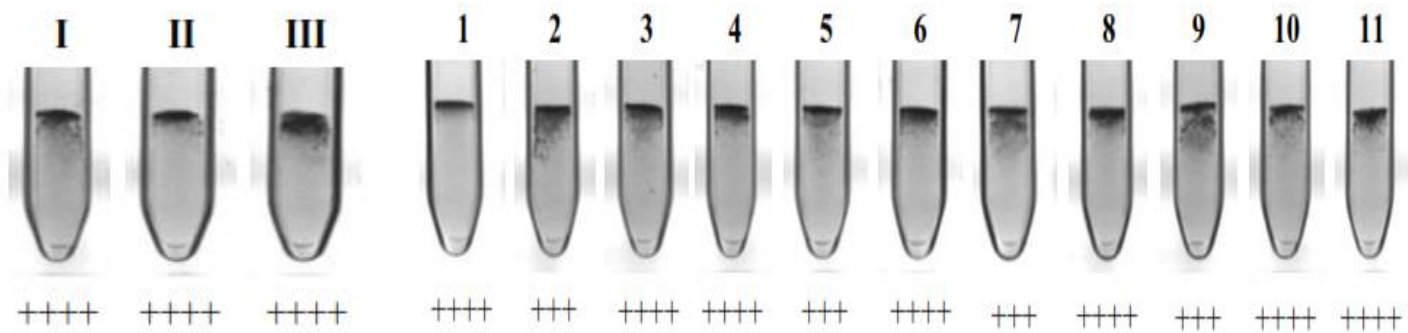
PAD +  
Ac +



Autoanticuerpos  
¿Hay Alo-Ac  
ocultos?

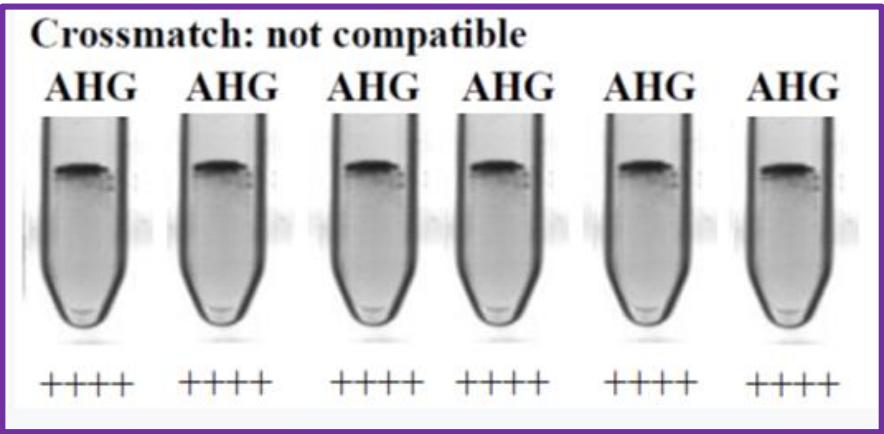


**Panaglutinación**  
¿Hay anticuerpos dirigidos contra el medio de la prueba?



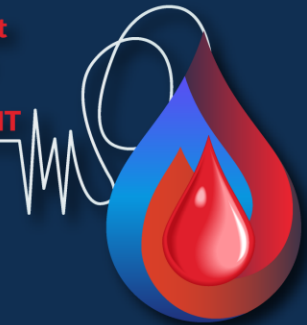
- a) Anticuerpo dirigido contra un componente de la matriz del gel
- b) Anticuerpo dirigido contra las soluciones conservantes de las células reactivo (células IAI y células RAI)

**X Descartado**  
**X Descartado**

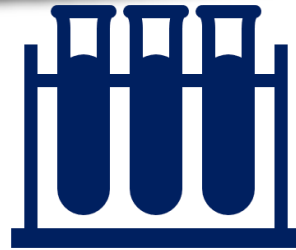


6 donantes de sangre seleccionados al azar





Evaluar diferentes T°

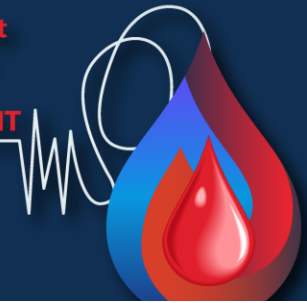


Realizar pruebas  
complementarias

Donante	Genotipo probable	Donante	Rh - hr						Kell				Duffy		Kidd		Lewis		P1	MNS				Luth.		Xg	Otros Antígenos	Resultados		
			D	C	E	c	e	Cw	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sup>a</sup>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P <sub>1</sub>	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	AGH			
1	CCC <sup>w</sup> D.ee	R <sub>1</sub> <sup>w</sup> R <sub>1</sub>	677783	+	+	0	0	+	+	0	+	0	+	0	+	0	+	0	+	+	0	+	0	0	+	0			4+	
2	CCD.ee	R <sub>1</sub> R <sub>1</sub>	468626	+	+	0	0	+	0	+	+	0	+	0	+	0	+	0	0	0	+	0	+	+	+	+			4+	
3	ccD.EE	R <sub>2</sub> R <sub>2</sub>	490202	+	0	+	+	0	0	0	+	0	+	+	0	+	0	+	+	+	+	+	0	+	0				4+	
4	Ccddee	r'r	268592	0	+	0	+	+	0	0	+	0	+	0	+	0	+	+	+	0	+	0	+	+	0				4+	
5	ccdEe	r''r	846207	0	0	+	+	+	0	0	+	0	+	0	+	+	0	+	+	+	+	0	+	+	0				4+	
6	ccddee	rr	870254	0	0	0	+	+	0	+	+	0	+	+	0	+	0	0	0	+	+	0	0	+	0		Co(b+)		4+	
7	ccddee	rr	564357	0	0	0	+	+	0	0	+	+	+	0	0	+	+	0	+	+	0	0	+	+	0				4+	
8	ccD.ee	R <sub>0</sub> r	403018	+	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	+	+	0	0	+	0				4+
9	ccddee	rr	280185	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	0	+	0	+				4+	
10	ccddee	rr	333920	0	0	0	+	+	0	0	+	0	+	0	+	0	+	0	+	0	0	0	+	0	+				4+	
11	ccddee	rr	129120	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	+	+	0	0	0	+	0				4+	
Paciente																											Autocontrol		0+	

**Anticuerpo dirigido contra antígeno de alta incidencia  
(No reacciona a los 4°C)**

**Ojo: No solamente los incluidos en la carta panel  
Actualmente hay más de 189 Ag de alta incidencia**



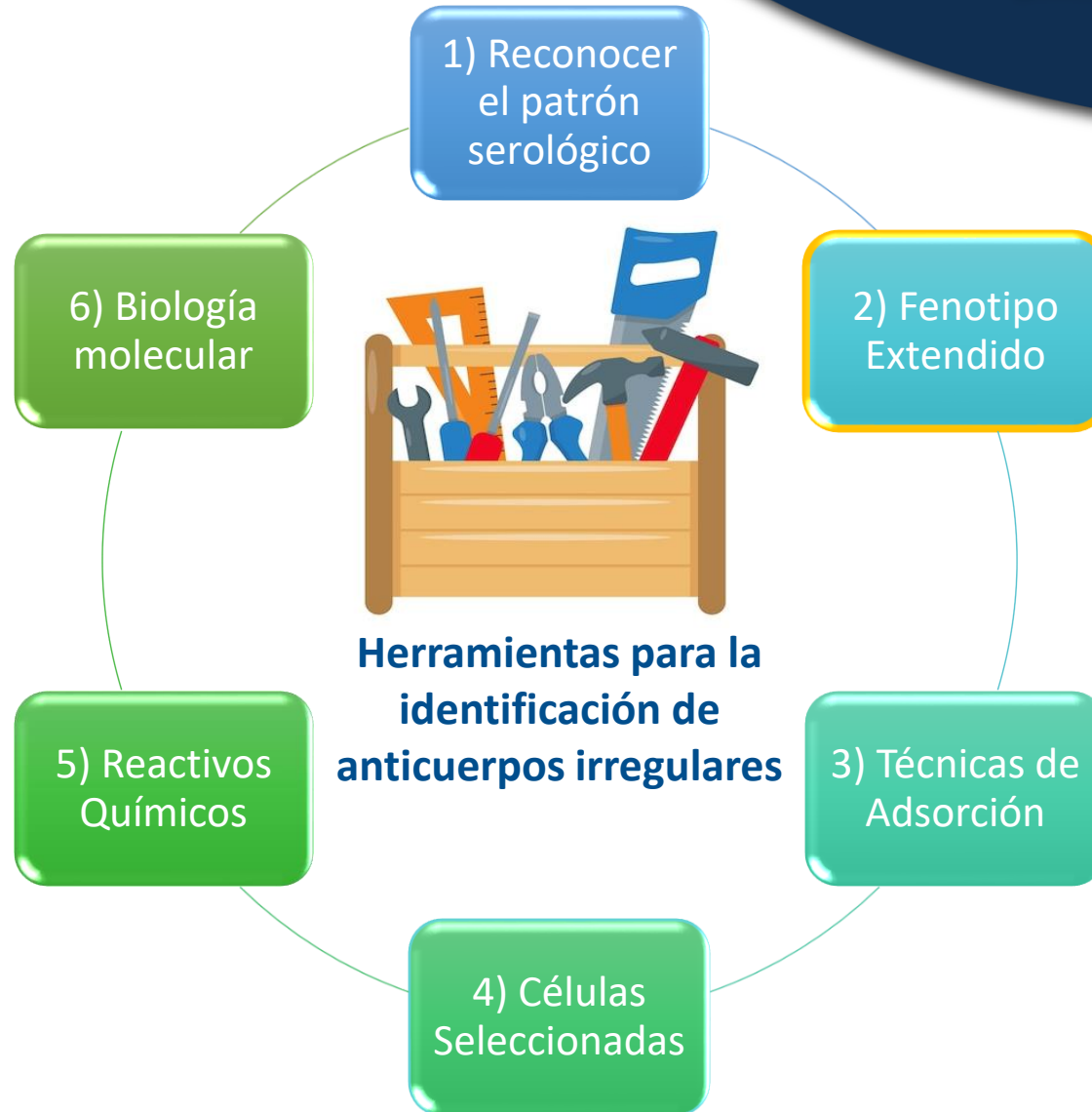
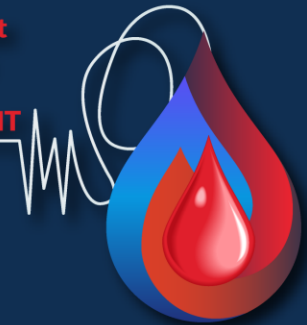
Antibody	ISBT Symbol	Immunoglobulin class		In vitro characteristics					Associated with		Antigen Frequency (%)			Remarks
		IgM	IgG	Saline RT	IAT	Papain 37°C*	May show dosage	Complement binding	HDFN	HTR	Caucasians	Blacks	Others	
<b>ABO (ISBT No 001) &amp; H Blood Group (ISBT No 018) Systems</b>														
Anti-A	ABO1	Yes	Yes	Yes for IgM component	Yes for IgG component	++		Yes some hemolytic	No to moderate	No to severe	43	27	Asians: 28 Mexicans: 28 South American Indians: 0	
Anti-B	ABO2	Yes	Yes	Yes for IgM component	Yes for IgG component	++		Yes some hemolytic	No to moderate	No to severe	9	20	Asians: 27 Mexicans: 13 South American Indians: 0	
Anti-A,B	ABO3	Yes	Yes	Yes for IgM component	Yes for IgG component	++		Rare	No to severe	None to mild/delayed	56	51	Asians: 57 Mexicans: 45	Anti-A,B is only produced by group O individuals, and cannot be separated into anti-A and anti-B.
Anti-A <sub>2</sub>	ABO4	Yes	Rare	Yes	Rare	++		Rare	No	None to mild/delayed	34	19	Asians: 27	Frequency: 1-2% in blood group A <sub>2</sub> , 25% in blood group A <sub>2</sub> B, 99% in blood group A <sub>2</sub> .
Anti-H	H1	Yes	Rare	Yes	Rare	++		Some	Possible in O <sub>h</sub> mothers	No to severe in O <sub>h</sub> and H+*	All populations: 99.9			Alloanti-H is present in the serum of Bombay (O <sub>h</sub> ) and Para-Bombay (H+*) people. O cells show the strongest antigen expression, A <sub>2</sub> B cells the weakest.
<b>MNS (ISBT No 002) Blood Group System</b>														
Anti-M	MNS1	Yes	Yes	IgM and IgG	Rare	++	Yes		No (except in extremely rare cases)	No (except in extremely rare cases)	78	74		Many examples are naturally-occurring. May be pH dependant. More common in children, and in patients with bacterial infections.
Anti-N	MNS2	Yes	Yes	IgM and IgG	Rare	++	Yes		No	No	72	75		Many examples are naturally-occurring. Rare N-S-s-U- individuals make an antibody that reacts with N on GPA and GPB, and is usually clinically significant.
Anti-S	MNS3	Some	Most	Some	Most	V	Yes	Some	No to severe (rare)	No to moderate (rare)	55	31		The S antigen is sensitive to trace amounts of chlorine.
Anti-s	MNS4	Yes	Yes	Some	Most	V	Yes	Rare	No to severe (rare)	No to mild (rare)	89	93		Reacts often by IAT after incubation at RT or lower. A pH of 6.0 enhances the reactivity of some anti-s.
Anti-U	MNS5		Yes	No	Yes	↔			Mild to severe	Mild to severe	99.9	99		Autoantibody has been identified to cause WAHA in rare cases.
<b>P1PK (ISBT No 003) &amp; GLOB (ISBT No 028) Blood Group Systems</b>														
Anti-P1	P1PK1	Yes	Rare	Yes	Very rare	++		Rare	No	No to moderate/delayed (rare)	79	94	Cambodian, Vietnamese: 20	There is considerable variation in the strength of P1 expression on RBC's. This variation is inherited, and at least partially dependent on the zygosity of P <sup>1</sup> alleles.
Anti-P	GLOB1	Yes	Yes	Some	Some	++		Yes some hemolytic	No to mild (in P <sup>+</sup> mothers with anti-P)	No to severe (rare)	All populations: > 99.9			Autoanti-P exists as a biphasic autohemolysis in PCH, detected by the Donath-Landsteiner test may occur after viral illness, particularly in children.
Anti-PP1P* (T <sup>+</sup> )			Yes	Some	Some	++		Yes	Yes	Yes	100			Alloantibody in sera of p- people may cause complete hemolysis in fresh serum. Anti-PP1P* is a potential cause of early abortion.

Panel	A		B		C		D		
	IAI		IAI		IAI		IAI		
	ATG	ENZ	ATG	ENZ	ATG	ENZ	ATG	ENZ	18°C
1	1	0	3	0	4	4	4	H	4
2	3	0	3	0	4	4	4	H	4
3	1	0	3	0	4	4	4	H	4
4	2	0	3	0	4	4	4	H	4
5	1	0	3	0	4	4	4	H	4
6	1	0	3	0	4	4	4	H	4
7	2	0	3	0	4	4	4	H	4
8	3	0	3	0	4	4	4	H	4
9	2	0	3	0	4	4	4	H	4
10	1	0	3	0	4	4	4	H	4
Auto	0	0	0	0	0	0	0	0	0

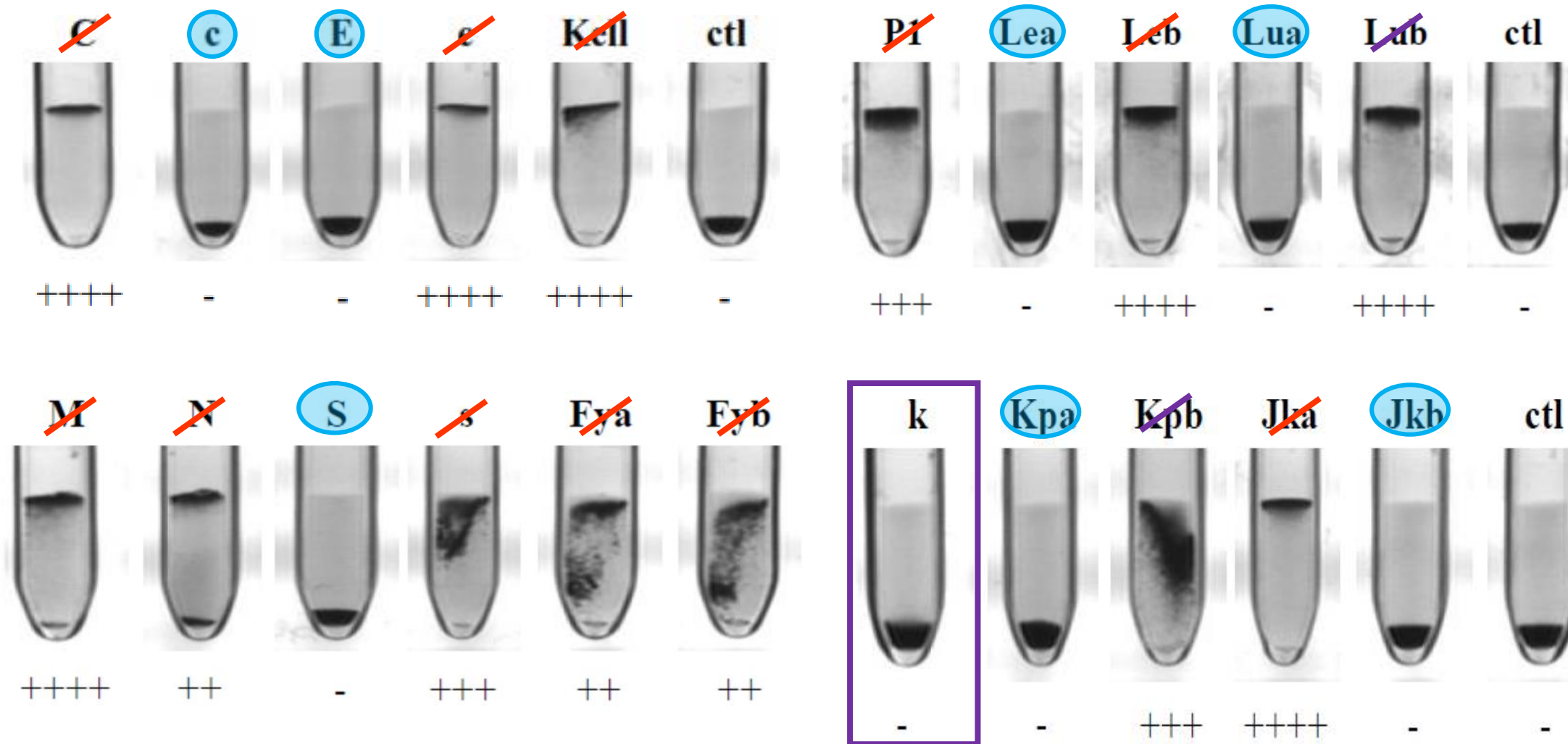
Ch/Rg, CD99, Kn <sup>a</sup> /McC <sup>a</sup>	JMH, In <sup>b</sup> , Ge2, Yt <sup>a</sup>	RH, KEL, JK, CO, DO, DI, CROM	Vel, PP1P <sup>k</sup> , H (in O <sub>h</sub> )
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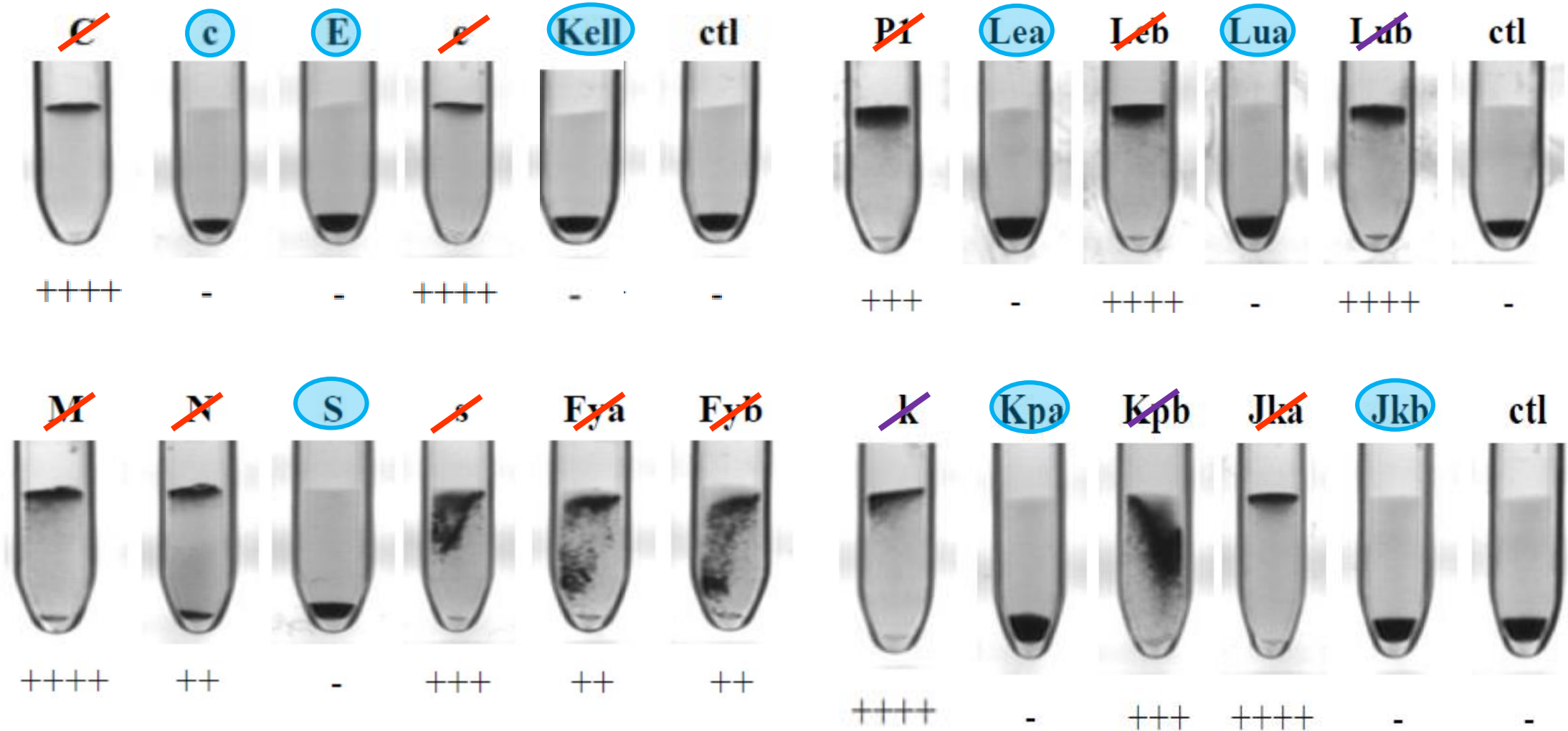


# CASO EN ESTUDIO



- Antígenos comunes positivos excluidos
- Antígenos comunes negativos
- Antígenos de alta incidencia (>90%)

## ESCENARIO 2



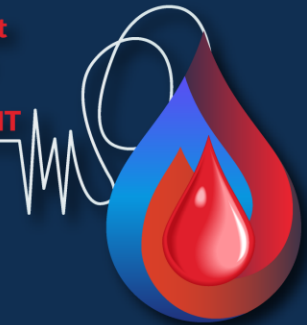
- Antígenos comunes positivos (excluidos)
- Antígenos comunes negativos
- Antígenos de alta incidencia (>90%)

**Ac dirigido contra un Ag diferente a los antígenos evaluados**

# ESCENARIO COMPLEMENTARIO

# 12

Congreso Colombiano **Acobasmet**  
de Bancos de Sangre y Medicina  
Transfusional  
Congreso Iberoamericano **GCIAMT**  
*Nuevamente juntos, innovando  
para fortalecer capacidades*

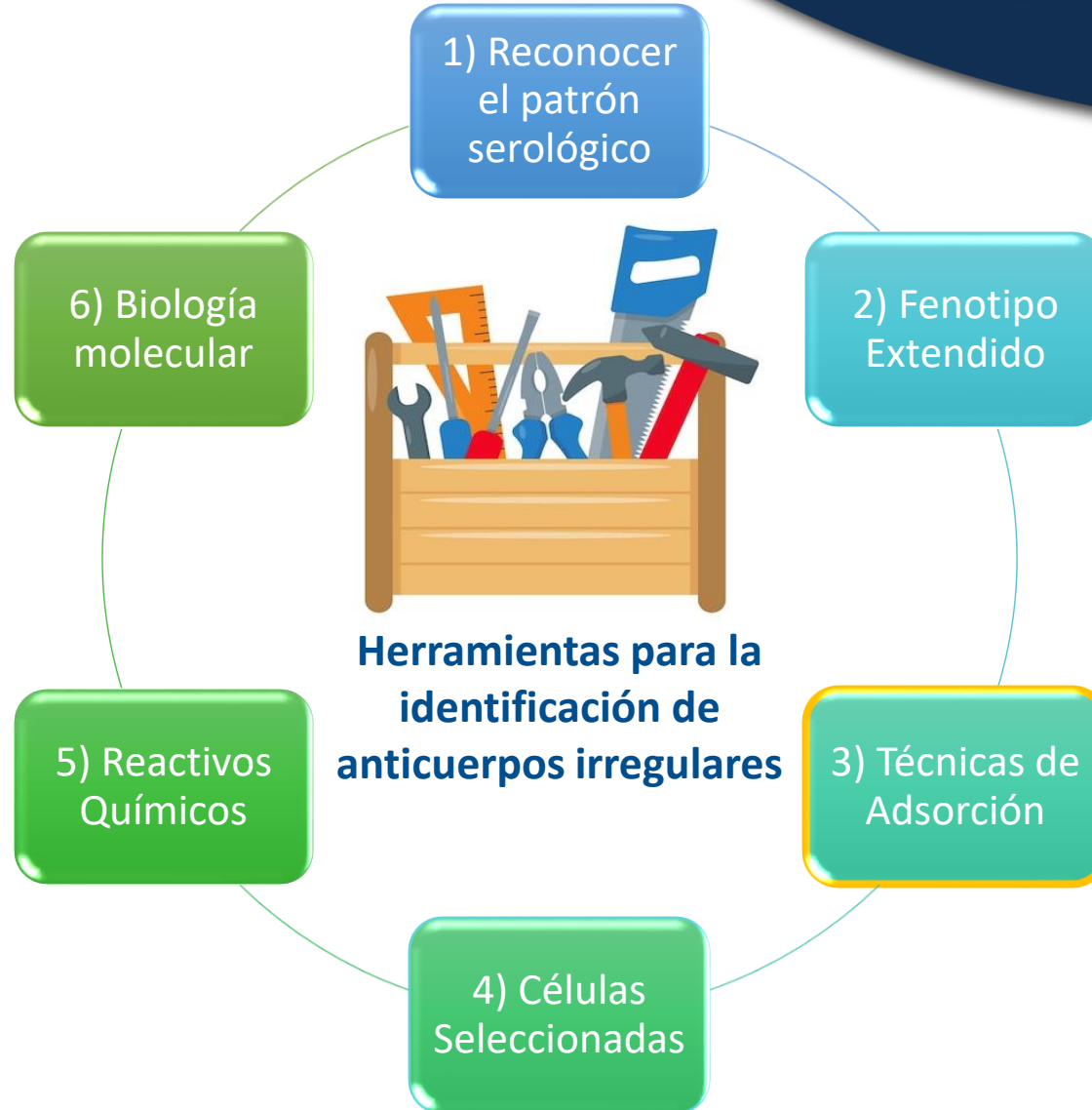
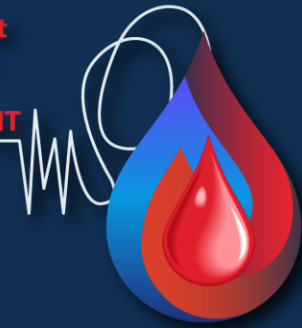


QC ANTI H

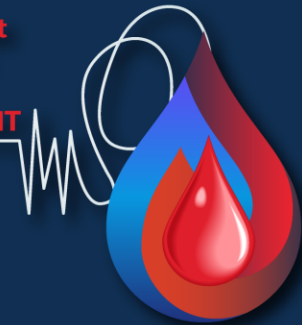


ANTI H PACIENTE

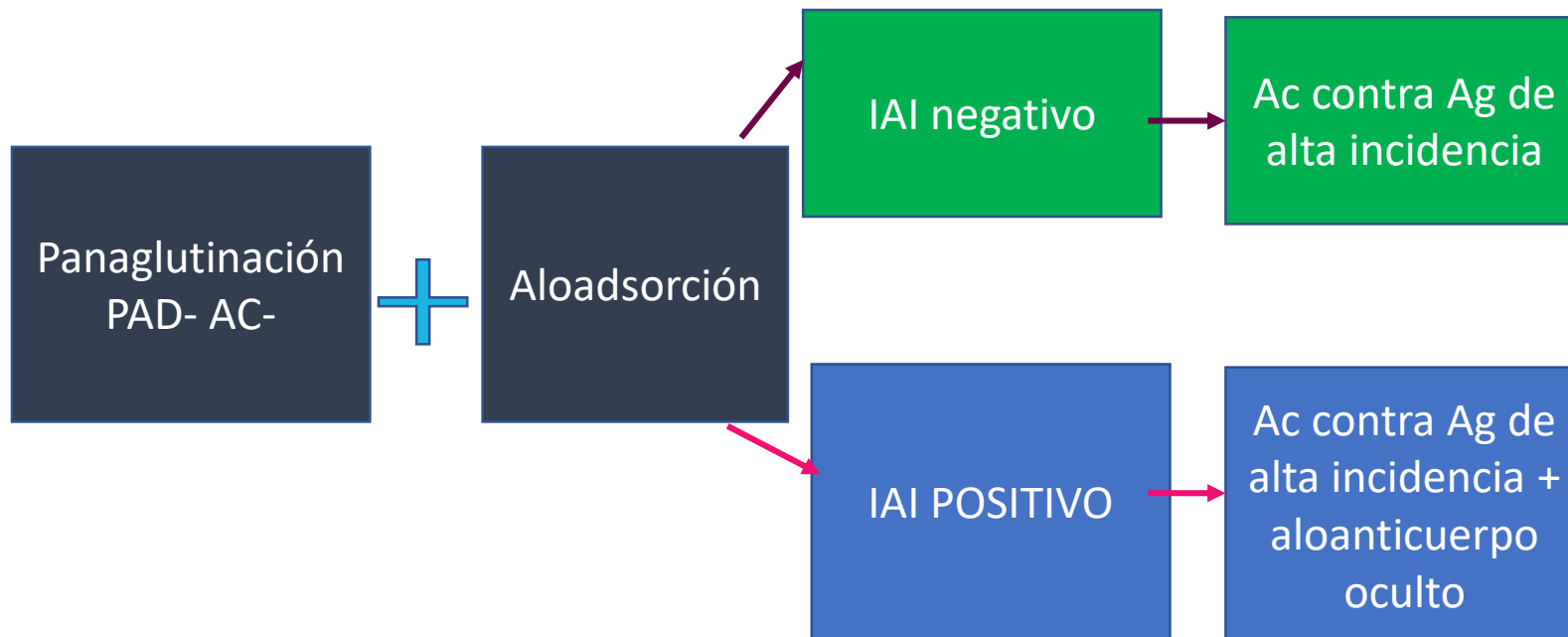
**Fenotipo BOMBAY (Oh)  
0.0004%**



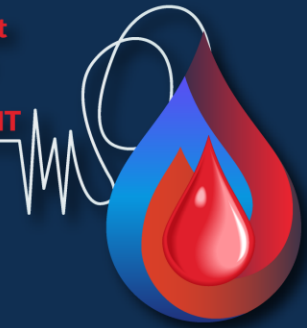




Adsorción alogénica con glóbulos rojos complementarios  
Objetivo: Identificar anticuerpos ocultos



El plasma adsorbido **NUNCA** se utilizará en estos casos para hacer pruebas cruzadas. Solo se utilizará para IAI (identificar Ac ocultos).



Ac contra  
Ag de alta  
incidencia



GR alogénicos

Panaglutinación  
PAD- AC-



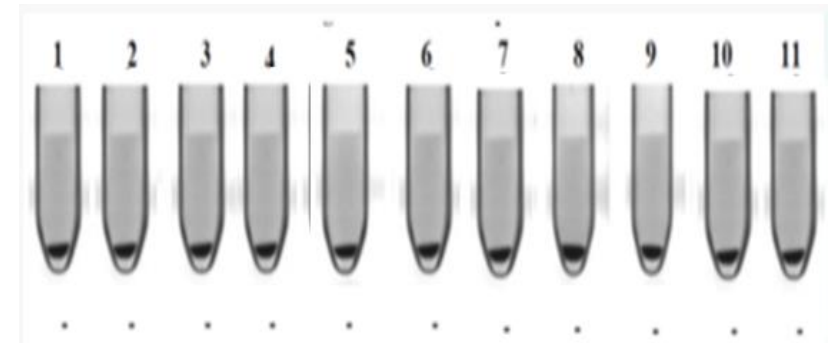
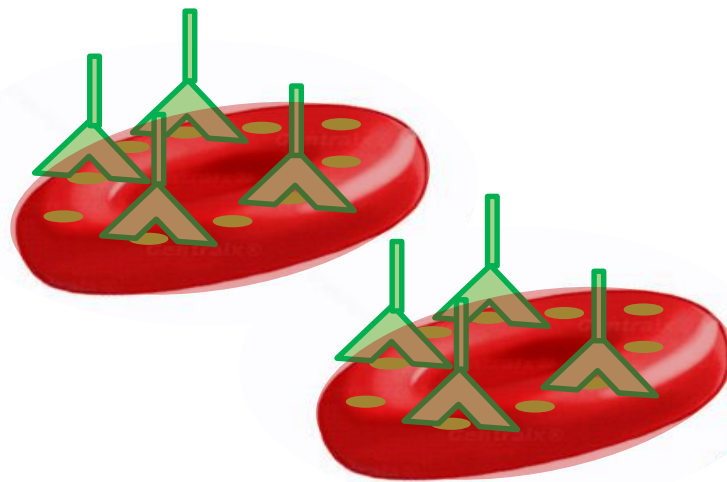
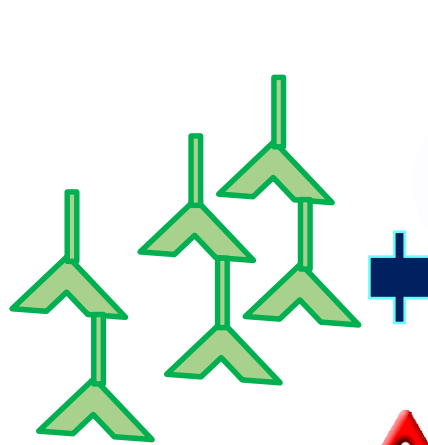
Aloadsorción



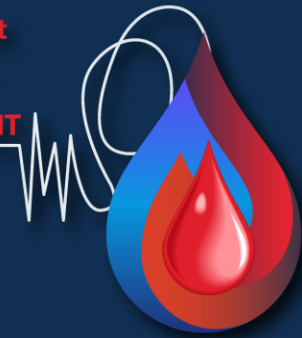
IAI negativo



Ac contra Ag de  
alta incidencia



**NO SE PUEDE REALIZAR AUTOADSORCIÓN**



Ac contra Ag de alta incidencia

GR alogénicos  
Alo-Ac oculto

Panaglutinación  
PAD- AC-



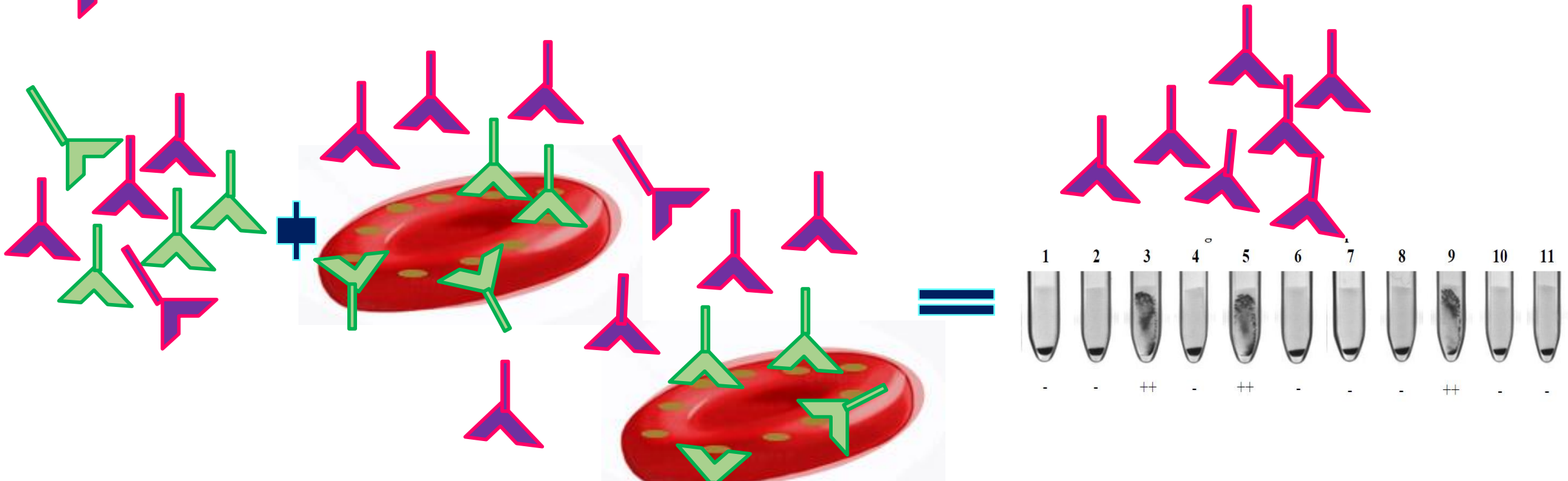
Aloadsorción

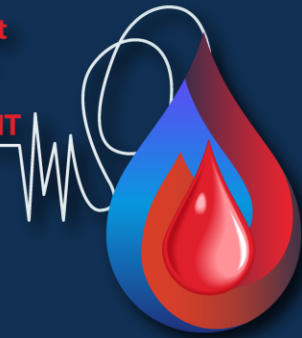


IAI POSITIVO



Ac contra Ag de alta incidencia + aloanticuerpo oculto





Los Alo-Ac contra  
Ag de Alta  
incidencia libres  
en el suero  
del paciente con  
panaglutinación

Las  
adsorciones  
alogenicas

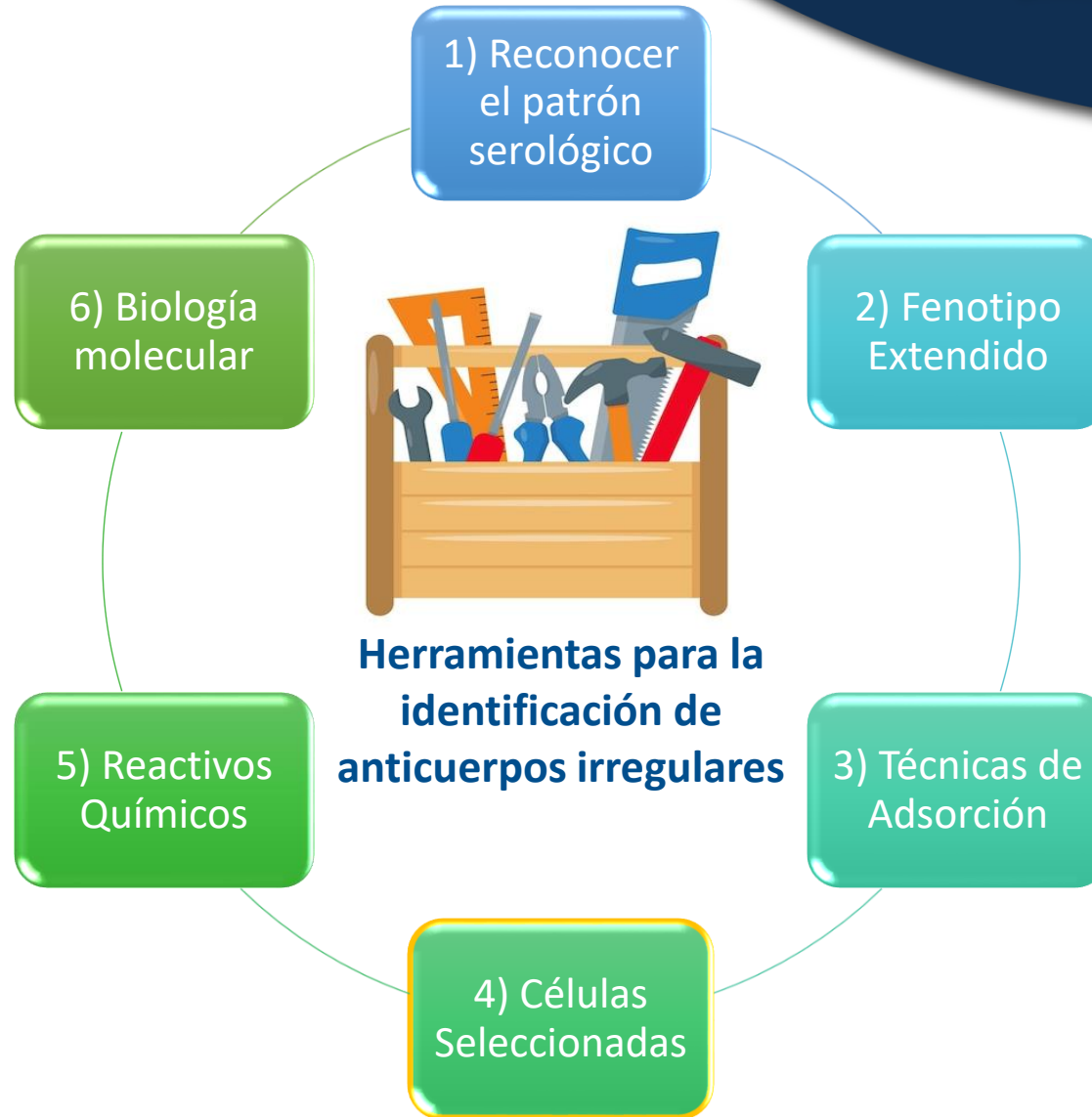
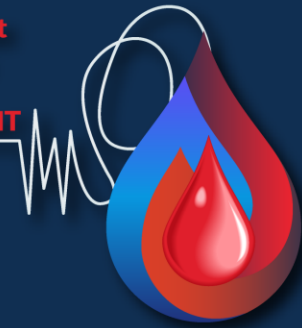


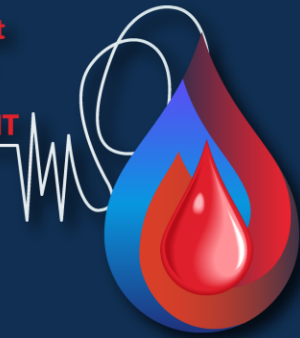
El plasma adsorbido **NUNCA** se utilizará en estos casos para hacer pruebas cruzadas. Solo se utilizara para IAI (identificar Ac ocultos).











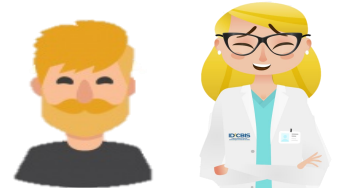
Son escogidas por expresar ciertos antígenos y carecer de otros. Pueden utilizarse diferentes combinaciones de antígenos para confirmar o descartar anticuerpos.

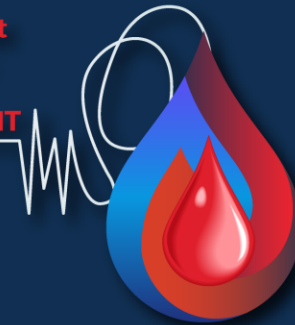
Paneles complementarios vigentes

Paneles caducados

Células de donantes con fenotipo conocido

Células con fenotipos poco comunes (Hemateca)



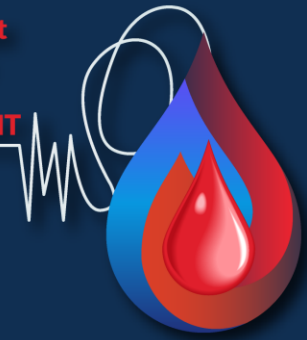


### Paneles caducados



**Manual Técnico de la AABB:** *“Pueden utilizarse reactivos caducados o sueros almacenado de pacientes o donantes, siempre y cuando los controles evaluados en el día de uso sean los aceptables.*

*Cada laboratorio deberá establecer una política para el uso de estos reactivos y para la validación de cualquier procedimiento asociado dicha práctica ”*



Estudis Sèrie Vermella: Full de Treball EAI Positiu

Núm. Mostra: 99690

DESCONGELACIÓ

Hematies	YKa-40780	YKa-2011014	YKa-21616	YKa-81682	YKa-4333036	YKa-41688	YKa-41610	YKa-41611	YKa-41611	YKa-41611
Tarjeta	H	H	H	H	H	H	H	H	H	H
Tub-AGT										
Tub-PEG										
S. AB	0	0	0	0	0	0	0	0	0	0

Hematies	J-31719	J-429186	J-3241110	J-41616	J-1233	J-1233	J-1233	J-1233	J-1233	J-1233
Tarjeta	H	H	H	H	H	H	H	H	H	H
Tub-AGT										
Tub-PEG										
S. AB	0	0	0	0	0	0	0	0	0	0



Estudis Sèrie Vermella: Full de Treball EAI Positiu

Núm. Mostra:

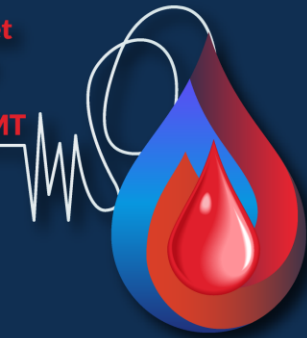
DESCONGELACIÓ

Hematies	W(6-b-)	W(6-b-)	W(6-b-)	W(6-b-)						
Tarjeta	0	0	0	0						
Tub-AGT										
Tub-PEG										
S. AB	0	0	0	0						

### Células de hemateca:

Células provenientes de donantes y pacientes con fenotipos poco comunes. Las células se acondicionan con reactivos crioprotectores *in house* o comerciales que permiten su conservación por largos periodos de tiempo.

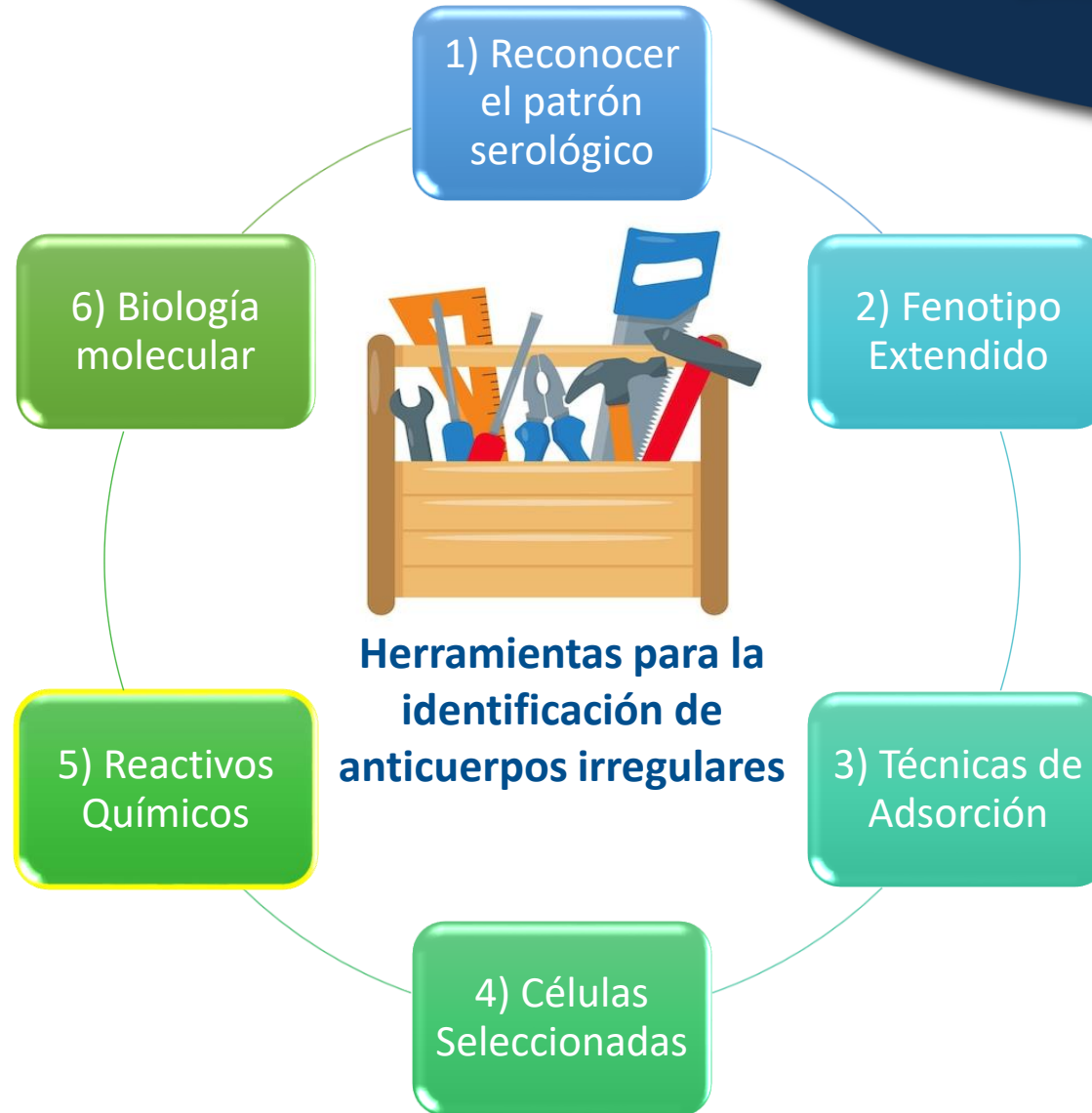
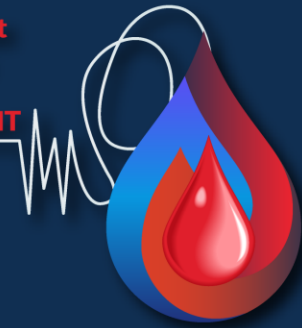
Imagenes de laboratorio de Inmunohematología del BST

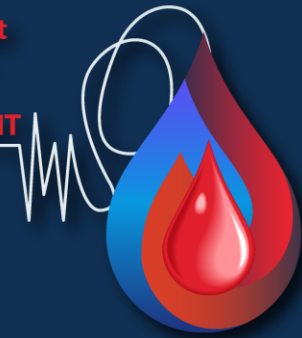


## CASO EN ESTUDIO

Donante	Donante	Rh - hr						Kell			Duffy		Kidd	Lewis		P1	MNS				Luth.		Xg	Otros Antígenos	Res ulta dos	
		D	C	E	c	e	Cw	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	Jk <sub>a</sub>	Jk <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P <sub>1</sub>	M	N	S	s	Lu <sup>a</sup>		Lu <sup>b</sup>	Xg <sup>a</sup>
13	CCC <sup>w</sup> D.ee 226600	+	+	0	0	+	+	0	+	0	+	+	0	+	+	0	+	+	0	+	+	0	+	0		4+
14	CCD.ee 643485	+	+	0	0	+	0	+	+	0	+	0	+	0	0	+	0	0	+	0	+	0	+	+		4+
15	ccD.EE 299969	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	+	+	+	0	+	0		4+
16	ccD.EE 704014	+	0	+	+	0	0	0	+	0	+	0	+	0	0	+	+	+	+	0	+	0	+	+		4+
17	CCDEe 515023	0	+	+	0	+	0	0	+	0	+	0	+	+	0	+	+	+	+	0	+	+	0		4+	
18	ccddee 488635	0	0	0	+	+	0	+	0	0	+	+	+	+	0	+	0	0	+	+	0	0	+	0		0+
Paciente																									Autocontrol I	0+







## Alteración de los Antígenos de Sistema de Grupo Sanguíneo por Varios Agentes Químicos

Agente	Ag usualmente desnaturalizados o alterados
<b>Enzimas proteolíticas</b>	M,N, S, Fya, Fyb, Yta, Ch, Rg, Pr, TN, Mg, Mia/vW, Cia, Je, JMH, algunos ge, Inb
<b>Ditiotreitol (DTT) o bromuro de 2-aminoetilisotiouronio (AET)</b>	Yta, JMH, Kna, MsCa, Yka, Lwa, LWb, Kell, Lutheran, Dombrock y Ag Cromer
<b>ZZAP (DTT+ enzima proteolíticas)</b>	Todos los antígenos mencionados

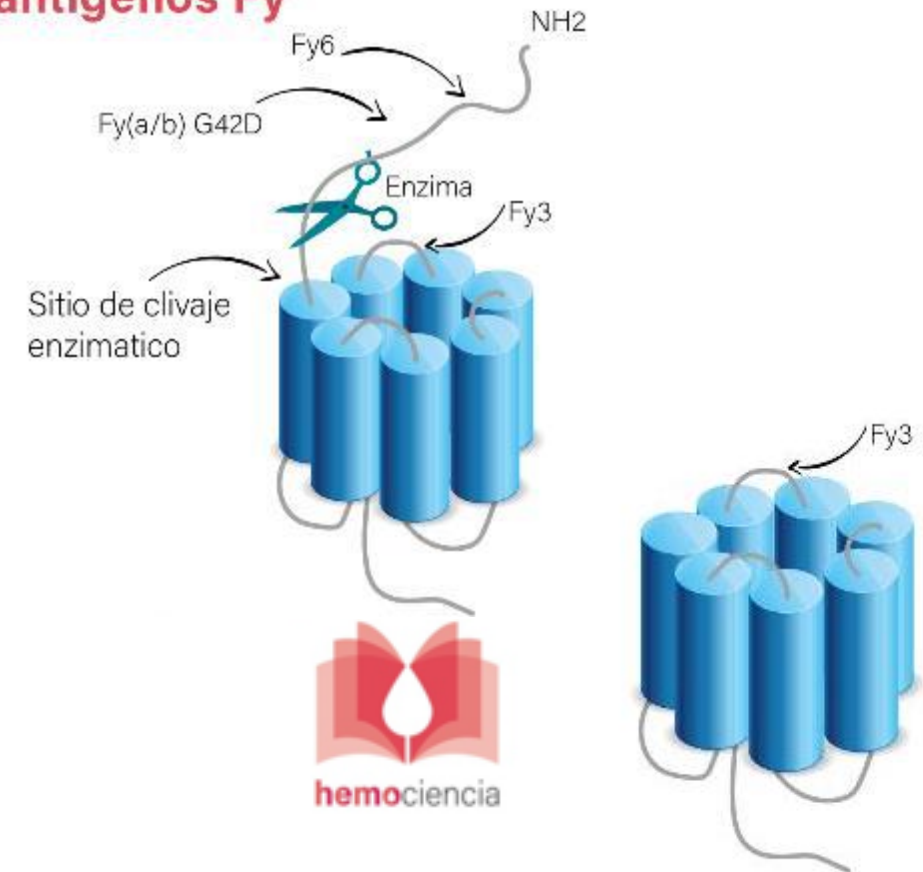
“Algunos Ag son debilitados mas que desnaturalizados completamente”

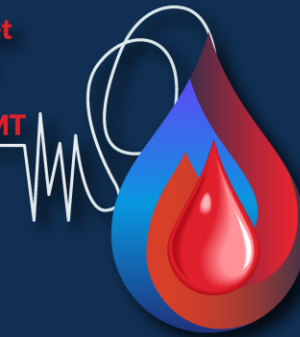
“Diferentes enzimas proteolíticas pueden tener efectos distintos sobre ciertos Ag”

Ficin/ Papain	Trypsin	$\alpha$ -Chymo- trypsin	200mM DTT/AET	Possible specificity
Negative	Negative	Negative	Positive	Bp <sup>2</sup> ; Ch/Rg; XG
Negative	Negative	Negative	Negative	IN; JMH
Negative	Negative	Positive	Positive	M, N, En <sup>3</sup> TS; Ge2, Ge4
Negative	Positive	Negative	Positive	'N'; Fy <sup>a</sup> , Fy <sup>b</sup>
Variable	Positive	Negative	Positive	S, s
Variable	Positive	Negative	Weak or negative	YT
Negative	Positive	Positive	Positive	En <sup>4</sup> FS
Positive	Negative	Negative	Weak or negative	LU, MER2
Positive – Papain Weak or negative – Ficin	Negative	Negative	Negative	KN
Positive	Negative	Weak	Negative	DO
Positive	Positive	Negative	Weak	CROM
Positive	Positive	Negative	Positive	Some DI (3 <sup>rd</sup> loop)
Positive	Positive	Positive/weak	Negative	LW
Positive	Positive/weak	Positive/weak	Positive	SC
Positive	Positive <sup>^</sup>	Positive <sup>^</sup>	Negative	KEL <sup>^</sup> (except KALT, which is trypsin sensitive)
Positive	Positive	Positive	Positive	ABO; En <sup>5</sup> FR, U; P1PK; RH; LE; Fy3; JK; most DI; CO; H; Ge3; OK; I/i; P; FORS; JR; LAN, Cs <sup>2</sup> ; ER; LKE, PX2; Vel, <sup>7</sup> ABT; At <sup>2</sup> ; Emm; AnWj; Sd <sup>2</sup> ; PEL; MAM
Positive	Positive	Positive	Enhanced	Kx

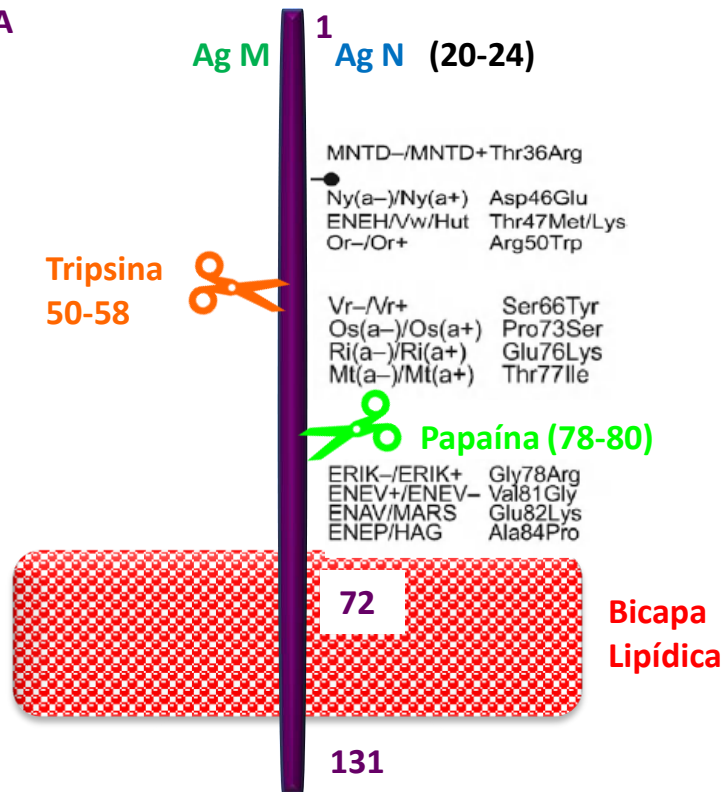
<sup>^</sup>Kell blood group system antigens are sensitive to treatment with a mixture of trypsin and  $\alpha$ -chymotrypsin.  
<sup>7</sup>DTT may be variable.

## Efecto de la enzima en antígenos Fy





## Glicoforina A



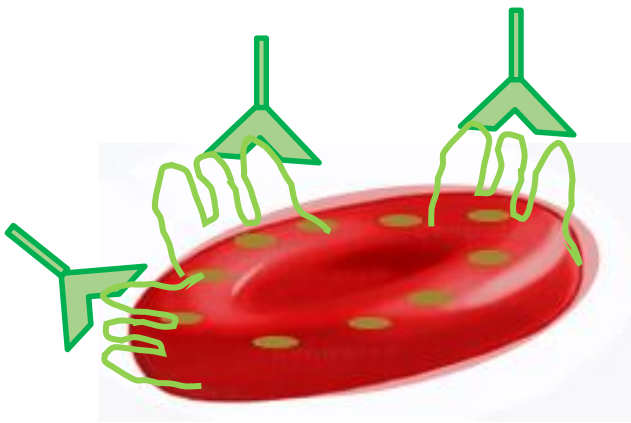
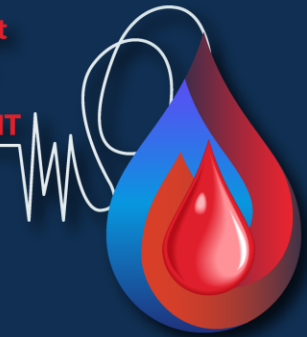
Enzimas proteolíticas

M, N, S, Fya, Fyb, Yta, Ch, Rg,  
Pr, TN, Mg, Mia/vW, Cia, Je,  
JMH, algunos ge, Inb

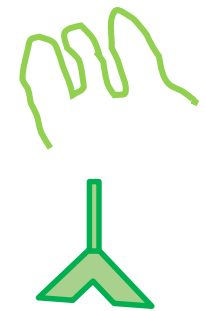
# Mecanismo de acción del DTT

12

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Congreso Iberoamericano **GCIAMT**  
Nuevamente juntos, innovando  
para fortalecer capacidades



<b>Ditiotreitol (DTT) o bromuro de 2-aminoetilisotiuronio (AET)</b>	<b>Yta, JMh, Kna, MsCa, Yka, Lwa, LWb, Kell, Lutheran, Dombrock y Ag Cromer</b>
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Ag sensible al tratamiento con DDT

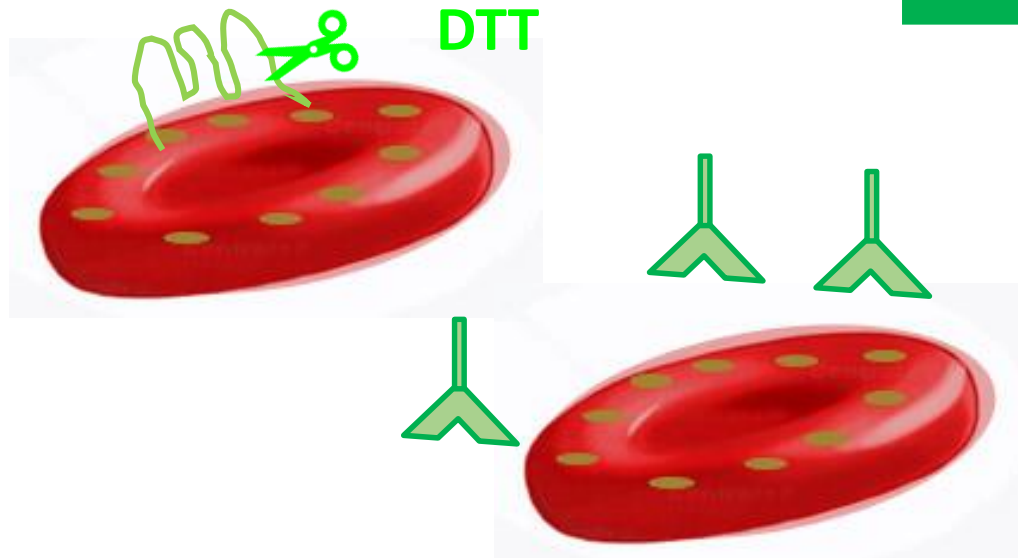
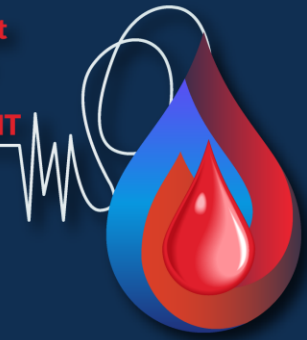
Ac dirigido contra un Ag sensible al tratamiento con DDT



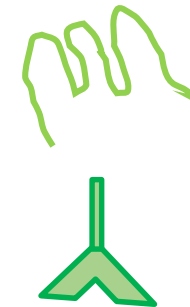
# Mecanismo de acción del DTT

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Ditiotreitol (DTT) o bromuro de 2-aminoetilisotiuronio (AET)	Yta, JMH, Kna, MsCa, Yka, Lwa, LWb, Kell, Lutheran, Dombrock y Ag Cromer
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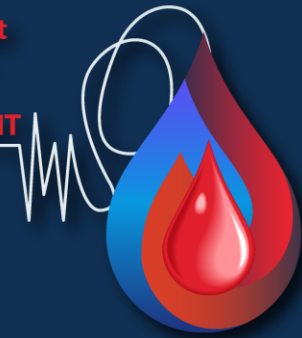
Ag sensible al tratamiento con DDT

Ac dirigido contra un Ag sensible al tratamiento con DDT

# Caso de Estudio

# 12

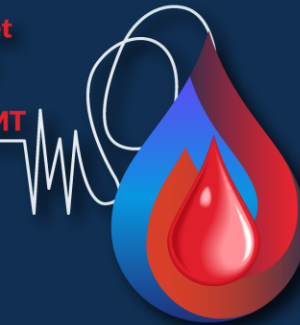
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para fortalecer capacidades



Rh-hr	Genotipo probable	Donante	Rh-hr							Kell				Duffy		Kidd		Lewis		P	MNS				Luth.		Xg	Resultados				
			D	C	E	c	e	C <sup>w</sup>	K	k	Kp <sup>a</sup>	Kp <sup>b</sup>	Fy <sup>a</sup>	Fy <sup>b</sup>	JK <sup>a</sup>	JK <sup>b</sup>	Le <sup>a</sup>	Le <sup>b</sup>	P <sub>1</sub>	M	N	S	s	Lu <sup>a</sup>	Lu <sup>b</sup>	Xg <sup>a</sup>	DTT					
1	CCC <sup>w</sup> D.ee	R <sub>1</sub> <sup>w</sup> R <sub>1</sub>	315028	+	+	0	0	+	+	0	+	0	+	+	0	+	0	0	+	0	+	0	+	0	+	+	0	+	+	0+		
2	ccD.EE	R <sub>2</sub> R <sub>2</sub>	563139	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	+	+	0	+	+	0	+	+	0+		
3	ccddee	rr	604689	0	0	0	+	+	0	+	+	0	+	0	+	+	0	+	+	+	+	0	+	+	0	+	+	0	0+			

Papaina/ Ficina	Tripsina	α- quimiotripsina	200 mM/DTT	Especificidad probable
Positivo	Positivo	Positivo	Negativo	KEL

Paciente con fenotipo k negativo



### Effect of enzymes and chemicals on K antigen on intact RBCs

Ficin/Papain	Resistant
Trypsin	Resistant
$\alpha$ -Chymotrypsin	Resistant*
DTT 200 mM/50 mM	Sensitive/sensitive (thus sensitive to WARM™ and ZZAP)
Acid	Sensitive (thus sensitive to EGA)

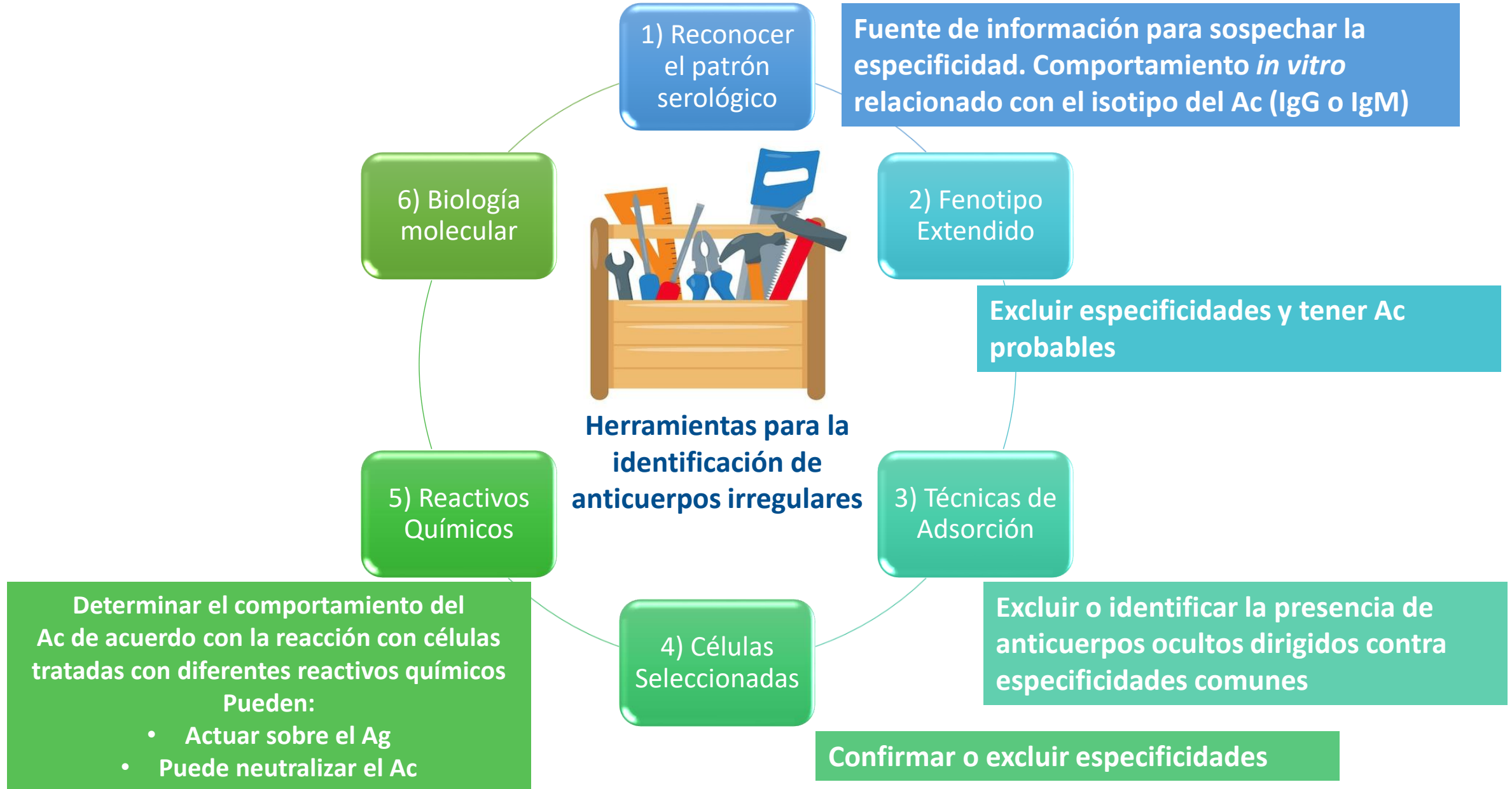
\*May be weakened or sensitive if the enzyme preparation is contaminated with trypsin.

### *In vitro* characteristics of alloanti-K

Immunoglobulin class	IgG more common than IgM
Optimal technique	IAT, sometimes RT; may not react well by LISS procedures
Complement binding	Rare

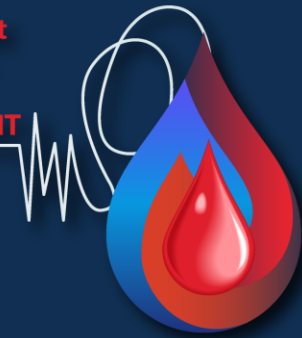
### Clinical significance of alloanti-K

Transfusion reaction	Mild to severe/delayed/hemolytic
HDFN	Mild to severe (rare); often with anemia, which is sometimes delayed

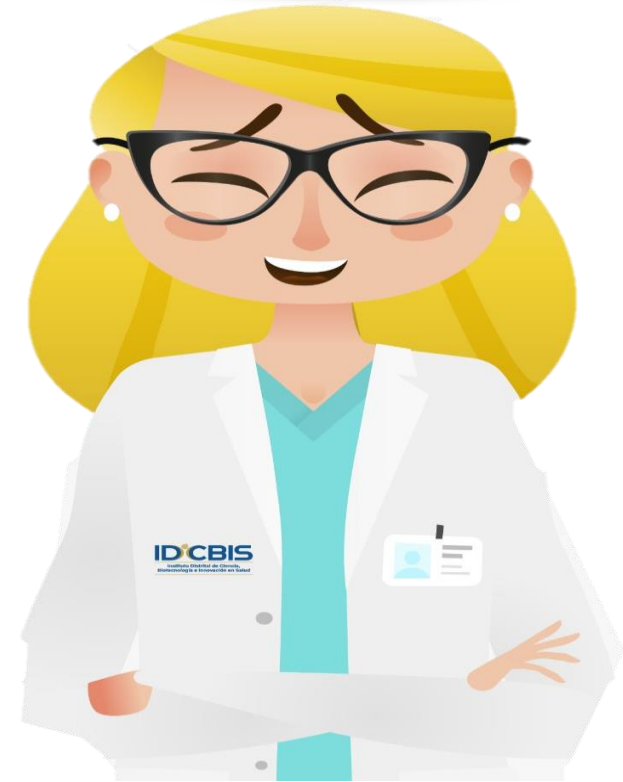


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## El anticuerpo anti-k viendo como buscas glóbulos rojos compatibles utilizando el plasma aloadsorbido



**iGracias!**



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— **Gracias** —

Recuerda seguirnos en nuestras redes sociales



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