



CARRERA DE LABORATORIO CLÍNICO

CÁTEDRA: INMUHEMATOLOGÍA

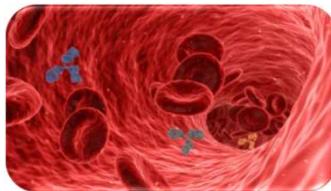
PERIODO ACADÉMICO: 2025-1S

Docente: Ms. Josué Orozco

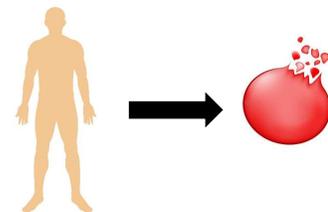


ANTICUERPOS IRREGULARES

- Anticuerpos no naturales del sistema ABO, generados por exposición a antígenos eritrocitarios extraños.



- Pueden causar hemólisis *in vivo* y acortar la vida de los eritrocitos.



ANTICUERPOS CLÍNICAMENTE SIGNIFICATIVOS

Clinically Significant

Immune Stimulated
Warm Antibodies (37°C)

- Anti-D
- Anti-C
- Anti-c
- Anti-K
- Anti-Jka
- Anti-Jkb
- Anti-Fya
- Anti-Fyb
- Anti-S
- Anti-s



Not Clinically Significant

Naturally Occurring
Cold Antibodies (Room Temperature)

- Anti-M
- Anti-N
- Anti-Le(a)
- Anti-Le(b)
- Anti-P1
- Anti-I
- Anti-H
- Anti-IH



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FACTORES QUE AFECTAN LA DETECCIÓN

1. RELACIÓN ANTÍGENO - ANTICUERPO

- Exceso de anticuerpo → falsos negativos.
- Algunos anticuerpos reaccionan más fuerte con GR homocigotos (ej.: anti-Jk^a).

2. TIEMPO DE INCUBACIÓN

- Mayor tiempo puede aumentar sensibilidad (ej. 15-30 min), pero prolongarlo puede reducir reactividad.

3. pH DEL MEDIO

- Óptimo: 6.5–7.5. Anti-M reacciona mejor a pH ácido (6.5), mientras que anti-Duffy pierde reactividad.



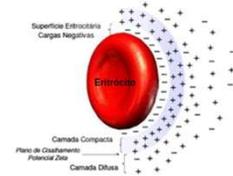
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MEDIOS DE POTENCIACIÓN

LISS (Solución de baja fuerza iónica)

- Reduce potencial zeta, acelera unión antígeno-anticuerpo.



PEG (Polietilenglicol)

- Excluye agua, aumenta aglutinación.



Enzimas Proteolíticas

- Mejoran detección de anticuerpos anti-Rh pero destruyen antígenos como M/N.



PROCEDIMIENTO



Obtener muestra en un tubo con EDTA



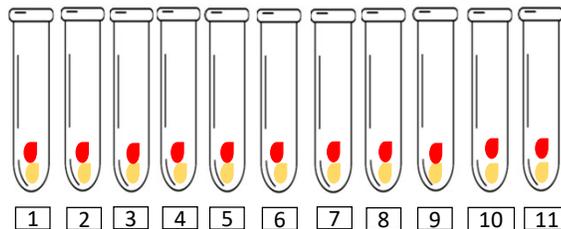
Centrifugar



Suspensión célula panel



Plasma del paciente



Incubar a 37°C durante 15-30 minutos.



PROCEDIMIENTO



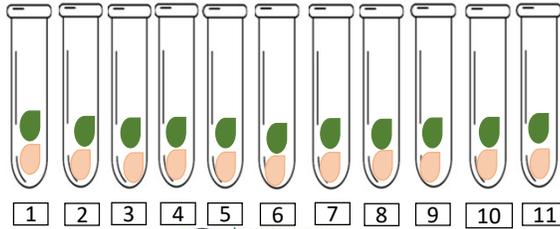
Obtener muestra en un tubo con EDTA



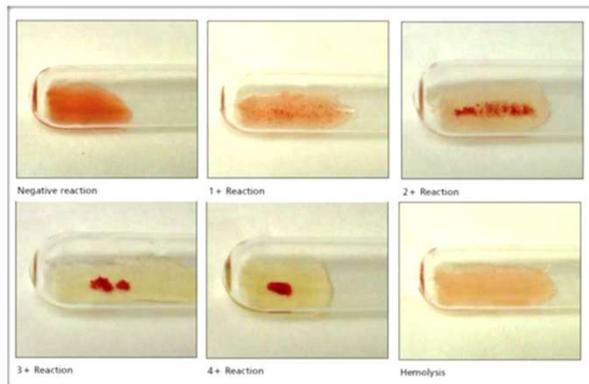
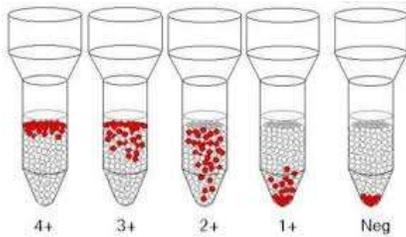
Centrifugar



Lavar 3-4 veces con solución salina



RANGO DE REACCIÓN



PANEL DE DETECCIÓN DE ANTICUERPOS IRREGULARES

Especificidad relacionada
Resultado del Paciente

| Cels | Donor | Rh-Hr | | | | | Kell | | | Duffy | | Kidd | | Lutheran | | P | | MNS | | | LISS | |
|------|--|-------|---|---|---|---|----------------|---|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|---|-----|---|---|------|----|
| | | D | C | c | E | e | C ⁺ | K | k | Fy ^a | Fy ^b | Jk ^a | Jk ^b | Lu ^a | Lu ^b | P ₁ | M | N | S | s | | |
| 1 | R ₂ R ₁ | + | + | o | + | + | o | o | + | + | o | + | + | o | + | + | + | + | o | + | + | 2+ |
| 2 | R ₁ ⁺ R ₁ | + | + | o | o | + | + | o | + | + | o | + | + | o | + | + | + | + | o | o | + | 0 |
| 3 | R ₂ R ₂ | + | o | + | + | o | o | o | + | o | + | + | + | + | + | + | + | + | o | + | 0 | |
| 4 | R _o r | + | o | + | o | + | o | o | + | o | + | o | + | o | + | + | + | + | + | o | 0 | |
| 5 | r ⁺ r | o | + | + | + | o | + | o | + | o | + | + | + | o | + | + | + | + | + | o | 0 | |
| 6 | r ⁺ r | o | o | + | + | + | + | o | + | + | o | + | + | o | + | + | + | + | + | + | 2+ | |
| 7 | rr | o | o | + | o | + | + | + | o | + | + | o | + | + | + | + | + | o | + | + | 0 | |
| 8 | rr | o | o | + | o | + | + | + | o | + | + | o | + | + | + | + | + | + | + | + | 2+ | |
| 9 | R ₁ R ₁ | + | + | o | o | + | + | o | + | + | o | + | + | o | + | + | + | + | o | + | 0 | |
| 10 | R ₂ R ₂ | + | o | + | + | o | o | + | + | o | + | + | + | o | + | + | + | + | o | + | 2+ | |
| 11 | R ₂ | + | o | + | + | + | o | o | + | + | o | + | + | o | + | + | + | + | o | + | 2+ | |



PANEL DE DETECCIÓN DE ANTICUERPOS IRREGULARES

| Rh-hr | Spender Donor / Donneur Donante / Donor | Rh-hr | | | | | Kell | | | | | Duffy | | Kidd | | Lewis | | MNS | | | Luth. | | Xg | | Special Antigens / Special types Antigenes part. / Otros Antigenes / Otros tipos especiales | Resultat / Result / Résultat / Resultado / Resultado / Resultado | | | Bemerkungen / Remarks / Note / Observaciones / Observaciones | |
|-------|---|--------|---|---|---|----------------|------|---|----|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|---|---|-------|-----------------|-----------------|-----------------|---|--|---------------|--------|--|-----|
| | | D | C | E | e | C ⁺ | K | k | Kp | Js | Us | Fy ^a | Fy ^b | Jk ^a | Jk ^b | Le ^a | Le ^b | P | M | N | S | Lu ^a | Lu ^b | Xg ¹ | | Xg ² | LISS / Coombs | Enzyme | | 4°C |
| 1 | CCC ^W D. ee R ₁ ^W R ₁ | 209390 | + | + | o | + | + | + | + | nt | nt | + | + | o | + | + | + | + | + | + | + | + | + | + | + | + | 1 | + | | |
| 2 | COD. ee R ₁ R ₁ | 156390 | + | + | o | + | + | + | + | nt | nt | o | + | + | o | + | + | + | + | + | + | + | + | + | + | + | 2 | + | | |
| 3 | ccD. EE R ₂ R ₂ | 285594 | + | + | + | o | o | + | + | nt | nt | o | + | + | o | + | + | + | + | + | + | + | + | + | + | 3 | - | | | |
| 4 | Coddee r ⁺ r | 111226 | o | + | + | + | o | + | + | nt | nt | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 4 | + | | | |
| 5 | ccddEe r ⁺ r | 854268 | o | + | + | + | o | + | + | nt | nt | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 5 | + | | | |
| 6 | ccddeee rr | 990171 | o | o | + | + | + | + | + | nt | nt | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 6 | + | | | |
| 7 | ccddeee rr | 359715 | o | o | + | + | + | + | + | nt | nt | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 7 | + | | | |
| 8 | ccD. ee R _{ur} | 403018 | + | o | + | + | + | o | + | + | o | + | + | o | + | + | + | + | + | + | + | + | + | + | + | 8 | + | | | |
| 9 | ccddeee rr | 152708 | o | o | + | + | + | + | + | nt | nt | o | + | + | o | + | + | + | + | + | + | + | + | + | + | 9 | + | | | |
| 10 | ccddeee rr | 301245 | o | o | + | + | + | + | + | nt | nt | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 10 | + | | | |
| 11 | ccddeee rr | 864826 | o | o | + | + | + | + | + | nt | nt | o | + | + | + | + | + | + | + | + | + | + | + | + | + | 11 | + | | | |



PANEL DE DETECCIÓN DE ANTICUERPOS IRREGULARES

| Rh-ir | Móvil/Genotipo Problema/Genotipo Probable genotipo Genotipo probable Genotipo probable | Número Donor Donaire Donaire Donaire | Rh-ir | | | | | | | | | | | | | Kell | Duffy | Kidd | Lewis | P | MNS | Luth. | Xg | Sistema Antigénico Sistema Antigénico Sistema Antigénico Sistema Antigénico Sistema Antigénico | Resultado (Resultado) Resultado (Resultado) Resultado (Resultado) | | | | | | | |
|-------|--|--|--------|---|---|---|---|----|---|---|----|-----|----|-----|-----------------|------|-------|------|-------|---|-----|-------|----|--|---|-----------------|-----------------|-----------------|-----------------|-----------------|----|----|
| | | | D | C | E | c | e | C* | K | k | Kp | Kp2 | Jk | Jk* | Fy ^a | | | | | | | | | | | Fy ^b | Jk ^a | Jk ^b | Le ^a | Le ^b | P | M |
| 1 | CCC*D.ée | R ₁ R ₂ | 243366 | + | + | 0 | 0 | + | + | 0 | + | 0 | + | + | nt | nt | + | 0 | 0 | 0 | + | + | 0 | 0 | + | + | 0 | + | + | N/A | 1 | 4+ |
| 2 | CCD.ée | R ₁ R ₂ | 955832 | + | + | 0 | 0 | + | + | 0 | + | 0 | + | + | nt | nt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 2 | 4+ |
| 3 | ccD.EE | R ₂ R ₂ | 879624 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | + | nt | nt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | HLA* | 3 | 0 |
| 4 | Ccddee | r ⁺ r ⁻ | 306335 | 0 | + | 0 | + | + | 0 | 0 | + | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | Ch(b)-* | 4 | 2+ |
| 5 | ccddEe | r ⁺ r ⁻ | 570132 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 5 | 0 |
| 6 | ccddeE | rr | 016748 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 6 | 0 |
| 7 | ccddeE | rr | 410001 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 7 | 0 |
| 8 | ccD.ée | R ₁ R ₂ | 698440 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | + | nt | nt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 8 | 0 |
| 9 | ccddeE | rr | 561182 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | HLA* | 9 | 0 |
| 10 | ccddeE | rr | 539190 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | HLA* | 10 | 0 |
| 11 | ccddeE | rr | 964740 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 11 | 0 |

Name: patient CRN - 3541
 Name: B Negative
 Name: CCeEK
 Name: - + + -

Blutgruppe + Antigene
 Blood group + antigens
 Groupe sanguin + antigènes
 Gruppo sanguigno + antigeni
 Grupo sanguíneo + antígenos

Interpretation
 Interpretation
 Interpretation
 Interpretation
 Interpretation

Datum
 Date
 Date
 Fecha
 Data

Anti C antibody present
12/7/23

EJERCICIO

BIO-RAD ID-DiaPanel ID-DiaPanel-P

Set ID-DiaPanel: 43161.83.x (Incluye: 416.83.x) 06171.83.x - 06271.83.x (Incluye: 0617.83.xx - 0627.83.x) 2024.02.05 (López: 06.02.26)

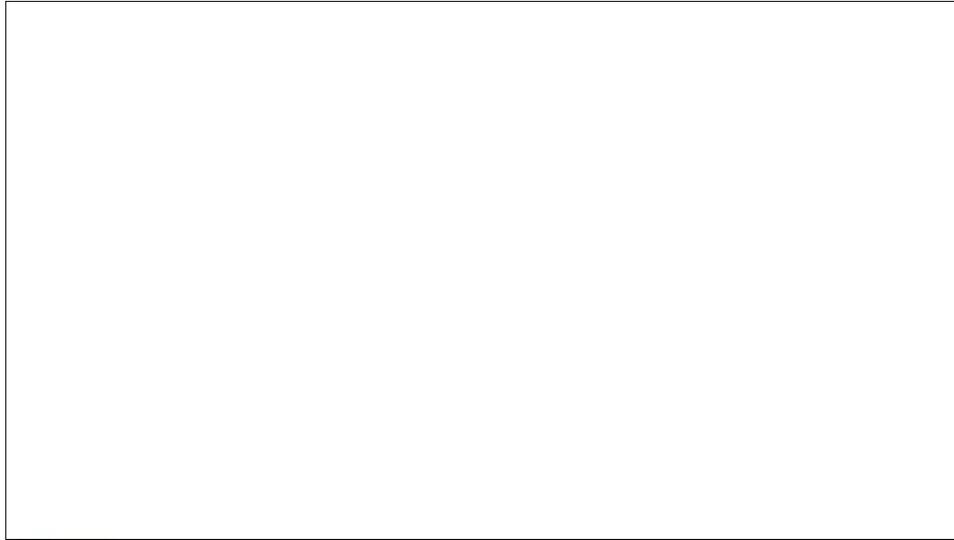
Set ID-DiaPanel P: 43171.83.x (Incluye: 4517.83.x) 05361.83.x - 05461.83.x (Incluye: 0536.83.xx - 0546.83.x)

Antigen Table / Antigen Table / Table d'antigènes / Tabella antigenica / Tabla de antígenos / Tabla de antígenos / Antigen-Identifizierung / Antibody identification / Identificación de anticuerpos / Identificazione anticorpale / Identificação dos anticorpos

| Rh-ir | Móvil/Genotipo Problema/Genotipo Probable genotipo Genotipo probable Genotipo probable | Número Donor Donaire Donaire Donaire | Rh-ir | | | | | | | | | | | | | Kell | Duffy | Kidd | Lewis | P | MNS | Luth. | Xg | Sistema Antigénico Sistema Antigénico Sistema Antigénico Sistema Antigénico Sistema Antigénico | Resultado (Resultado) Resultado (Resultado) Resultado (Resultado) | | | | | | | |
|-------|--|--|--------|---|---|---|---|----|---|---|----|-----|----|-----|-----------------|------|-------|------|-------|---|-----|-------|----|--|---|-----------------|-----------------|-----------------|-----------------|-----------------|----|----|
| | | | D | C | E | c | e | C* | K | k | Kp | Kp2 | Jk | Jk* | Fy ^a | | | | | | | | | | | Fy ^b | Jk ^a | Jk ^b | Le ^a | Le ^b | P | M |
| 1 | CCC*D.ée | R ₁ R ₂ | 209390 | + | + | 0 | 0 | + | + | 0 | + | 0 | + | + | nt | nt | + | 0 | 0 | 0 | + | + | 0 | 0 | + | + | 0 | + | N/A | HLA* | 1 | 0 |
| 2 | CCD.ée | R ₁ R ₂ | 753856 | + | + | 0 | 0 | + | + | 0 | + | 0 | + | + | nt | nt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 2 | 0 |
| 3 | ccD.EE | R ₂ R ₂ | 316558 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | + | nt | nt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 3 | 4+ |
| 4 | Ccddee | r ⁺ r ⁻ | 614031 | 0 | + | 0 | + | + | 0 | 0 | + | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 4 | 0 |
| 5 | ccddEe | r ⁺ r ⁻ | 003457 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 5 | 4+ |
| 6 | ccddeE | rr | 141997 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 6 | 0 |
| 7 | ccddeE | rr | 107502 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | HLA* | 7 | 0 |
| 8 | ccD.ée | R ₁ R ₂ | 722551 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | + | nt | nt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | HLA* | 8 | 0 |
| 9 | ccddeE | rr | 062303 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 9 | 0 |
| 10 | ccddeE | rr | 000398 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 10 | 0 |
| 11 | ccddeE | rr | 110180 | 0 | 0 | 0 | + | + | 0 | 0 | 0 | + | + | + | nt | nt | 0 | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A | | 11 | 0 |



AUTOMATIZACIÓN EN LA DETECCIÓN DE ANTICUERPOS IRREGULARES



EJERCICIOS

| Nro | PACIENTE 1 | PACIENTE 2 | PACIENTE 3 | PACIENTE 4 |
|-----|------------|------------|------------|------------|
| 1 | +4 | +4 | +4 | +4 |
| 2 | +4 | 0 | +3 | 0 |
| 3 | +3 | +4 | 0 | 0 |
| 4 | +4 | 0 | +4 | 0 |
| 5 | 0 | +3 | +4 | 0 |
| 6 | +4 | +4 | +4 | 0 |
| 7 | 0 | 0 | 0 | +4 |
| 8 | +3 | 0 | 0 | 0 |
| 9 | 0 | 0 | +3 | 0 |
| 10 | 0 | 0 | 0 | 0 |
| 11 | 0 | +3 | +3 | 0 |



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