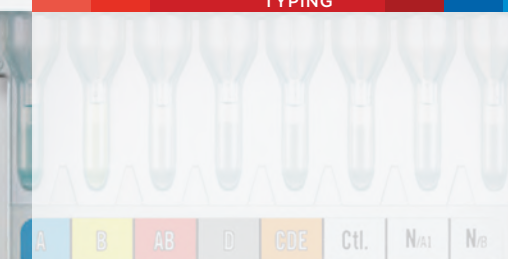


# DGgel

## Technical Guide

TYPING



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# Icon guideline



## IDENTIFY DG GEL CARD



## RED BLOOD CELL SAMPLE DILUTION

ABO/Rh/K typing: **5%** in DG Gel Sol  
 Antibody testing & special techniques:  
**1%** in DG Gel Sol

DILUTION REQUIRED	SAMPLE VOLUME (RBCs)	DILUENT VOLUME (DG GEL SOL)
5%	50 µL	1 mL
	10 µL	200 µL
1%	10 µL	1 mL
	5 µL	500 µL



## RED BLOOD CELL SAMPLE DILUTION DISPENSING

ABO/Rh/K typing: **10 µL**  
 Antibody testing & special techniques: **50 µL**



## REAGENT RED BLOOD CELLS DISPENSING

Serigrup Diana, Reverse-Cyte 0.8%  
 Serascan Diana, Sero-Cyte 0.8%\*  
 Screen-Cyte 0.8%\*  
 Indentisera Diana  
 Data-Cyte Plus 0.8%\*  
**50 µL**



## PLASMA OR SERUM SAMPLE/ANTISERA DISPENSING

Determination of reverse group: **50 µL**  
 Rest of techniques: **25 µL**



## INCUBATION OF THE DG GEL CARD

Coombs & enzymatic techniques:  
**15 min/37°C**  
 Saline techniques: **15 min/Room temperature**  
 (Possibility of incubation at 37°C or 2-8°C)  
 Incubator for DG Gel cards: DG Therm



## CENTRIFUGATION: 9 MIN

Centrifuge for DG Gel cards: DG Spin



## READING RESULTS

DG Reader can be used  
 See reaction patterns

\*And the papainized version.




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 Product registration and availability vary by country. Ask your local  
 Grifols representative for more information.

Notes: Ensure the resuspension of the red blood cells sample dilution  
 before use.

Homogenize the vials of reagent red blood cells before use.

# DG GEL PORTFOLIO

# Reagent red blood cells 0.8%

Determination of the reverse group	Screening of unexpected antibodies	Identification of unexpected antibodies	
			
<p><b>Serigrup Diana</b> <b>Reverse-Cyte</b></p>	<p><b>Serascan Diana*</b> <b>Sero-Cyte</b> <b>Screen-Cyte*</b></p>	<p><b>Identisera Diana*</b> <b>Data-Cyte Plus*</b></p>	
<p>Nine different options for determination of the reverse group.</p>	<p>Thirteen different options for screening panels with 1, 2, 3 and 4 cells.</p>	<p>Up to sixty-four different cells for the identification of unexpected antibodies.</p>	

\*And the papainized version. Product registration and availability vary by country. Ask your local Grifols representative for more information.

# Reagent red blood cells 0.8%

Determination of the reverse group

**Serigrup Diana Reverse-Cyte**

**Nine different options for determination of the reverse group**

## SERIGRUP DIANA



Serigrup Diana A<sub>1</sub>/B  
Ref. 213659



Serigrup Diana A<sub>2</sub>  
Ref. 213658



Serigrup Diana 4  
Ref. 210215

## REVERSE-CYTE



Reverse-Cyte A<sub>1</sub> 0.8%  
Ref. 213591



Reverse-Cyte A<sub>2</sub> 0.8%  
Ref. 213592



Reverse-Cyte B 0.8%  
Ref. 213593



Reverse-Cyte O 0.8%  
Ref. 213594



Reverse-Cyte A<sub>1</sub>, B 0.8%  
Ref. 213598



Reverse-Cyte A<sub>1</sub>, A<sub>2</sub>, B, O 0.8%  
Ref. 213588



Product registration and availability vary by country. Ask your local Grifols representative for more information.

# Reagent red blood cells 0.8%

Screening of unexpected antibodies

Serascan Diana  
Sero-Cyte  
Screen-Cyte

Thirteen different options for screening panels with 1, 2, 3 and 4 cells

## SERASCAN DIANA



Serascan Diana  
2/2P

Ref. 210204/210205

Serascan Diana  
3/3P

Ref. 210206/210207

Serascan Diana  
4/4P

Ref. 210208/210209

Serascan Diana Diª

Ref. 210203

## SERO-CYTE



Sero-Cyte  
0.8%

Ref. 213589



Sero-Cyte  
Pool 0.8%

Ref. 213634

## SCREEN-CYTE



Screen-Cyte  
0.8%

Ref. 213590



Screen-Cyte  
Diª 0.8%

Ref. 213653



Screen-Cyte  
P 0.8%

Ref. 213665

## DIEGO(A)-CYTE



Diego (a)-Cyte

Ref. 213802

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# Reagent red blood cells 0.8%

Identification of unexpected antibodies

Identisera Diana  
Data-Cyte Plus

Up to sixty-four different cells for the identification of unexpected antibodies

## IDENTISERA DIANA



Identisera Diana

Ref. 210210



Identisera Diana P

Ref. 210211



Identisera Diana Extend

Ref. 210212



Identisera Diana Extend P

Ref. 210213

## DATA-CYTE



Data-Cyte Plus 0.8%

Ref. 213587



Data-Cyte Plus P 0.8%

Ref. 213661



Data-Cyte Plus Di<sup>®</sup> 0.8%

Ref. 213627

Product registration and availability vary by country. Ask your local Grifols representative for more information.



# Antisera for DG Gel cards

Rare antigen typing



Antisera for DG Gel cards

Liquid antisera tool to solve routine testing and complex cases

Anti-H Mono-Type  
Ref. 213633

Anti A<sub>1</sub> Lectin  
Ref. 213437

Anti-D IgG Mono-Type  
Ref. 213005

Anti-C<sup>w</sup>  
Ref. 213140

Anti-K  
Ref. 213176

Anti-K Mono-Type (2)  
Ref. 213557

Anti-k (cellano) Mono-Type  
Ref. 213209

Anti-Kp<sup>a</sup> Dual  
Ref. 213995

Anti-Kp<sup>b</sup> Dual  
Ref. 213996

Anti-Fy<sup>a</sup> Mono-Type  
Ref. 213208

Anti-Fy<sup>a</sup> for DG Gel  
Ref. 213206

Anti-Fy<sup>b</sup> for DG Gel  
Ref. 213207

Anti-Jk<sup>a</sup> for DG Gel  
Ref. 213204

Anti-Jk<sup>b</sup> for DG Gel  
Ref. 213205

Anti-Le<sup>a</sup>  
Ref. 213217

Anti-Le<sup>b</sup>  
Ref. 21319

Anti-Lu<sup>a</sup>  
Ref. 213192

Anti-Lu<sup>b</sup>  
Ref. 213193

Anti-M Mono-Type Dual  
Ref. 213008

Anti-N (LN3/MN879) Mono-Type  
Ref. 213989

Anti-S Mono-Type  
Ref. 213993





Anti-s Mono-Type  
Ref. 213994

Anti-Di<sup>a</sup> Dual  
Ref. 213229

Anti-P1 Mono-Type  
Ref. 213230

Product registration and availability vary by country. Ask your local Grifols representative for more information.

## Complementary reagents and solutions for the DG Gel system

<p><b>DG Gel Sol</b> Ref. 210354</p>	<p><b>DG Gel CellMedia</b> Ref. 210385</p>	<p><b>DG-Papain</b> Ref. 210357</p>	<p><b>Bromelase 30</b> Ref. 210578</p>
			
<p>DG Gel Sol is a reagent for preparing red blood cell suspensions used in gel techniques.</p>	<p>Red blood cells preservative solution, fused to prepare red blood cell 0.8% suspensions for use with DG Gel cards.</p>	<p>A liquid papain solution for performing enzyme assays using DG Gel cards.</p>	<p>A liquid bromelain solution for performing enzyme assays in DG Gel techniques.</p>

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# Quality controls for the DG Gel system

## Essential II Control

Ref. 213287



Double set of two simulated whole blood tubes. Quality controls reagents for ABO/Rh(D) grouping, determination of the Rh phenotype and K antigen and screening of irregular antibodies.

## Extended IV Control

Ref. 213286



Single set of four simulated whole blood tubes. Quality control of reagents for ABO/Rh(D) grouping, determination of the Rh phenotype and K antigen and screening of irregular antibodies.

Product registration and availability vary by country. Ask your local Grifols representative for more information.

## Manual instrumentation for DG Gel cards

### DG Manual Station



- Workstation for manually processing the DG Gel cards and test tubes.
- Capacity for 16 DG Gel cards, 2 bottles of DG Gel Sol diluent, 8 vials of reagents (4, 5 and 10 mL), 32 dilution tubes (13 mm) and 16 sample tubes (16 mm).

Ref. 210366

### DG Pipette



- Manual dispenser for the precise pipetting of liquids in repeat series.
- One load can dispense multiple deposits of selectable volumes: 10  $\mu$ L in 40 wells, 25  $\mu$ L in 16 wells or 50  $\mu$ L in 8 wells.

Ref. 213722

### DG Dispenser Plus



- Fixed volume dispenser for volumes of 250  $\mu$ L to 2500  $\mu$ L.
- One load can dispense multiple deposits of selectable volumes: 10  $\mu$ L in 40 wells, 25  $\mu$ L in 16 wells or 50  $\mu$ L in 8 wells.

Ref. 213720

Product registration and availability vary by country. Ask your local Grifols representative for more information.

## Manual instrumentation for DG Gel cards

### DGtherm



Digital incubator for manual processing of DG Gel cards.

- 2 independent incubation zones
- Capacity for 12 DG Gel cards and 12 tubes each
- Digital on-screen display
- Fixed preset temperature of 37°C
- Adjustable, preset incubation time of 15 minutes

Ref. 213734

### DGspin



Digital centrifuge for the manual processing of DG Gel cards.

- Simultaneous centrifuge of up to 24 DG Gel cards
- Removable and exchangeable spinning head
- Pre-defined centrifuge parameters
- Digital on-screen display
- Automatic detection of incorrect placement of DG Gel cards on the spinning head

Ref. 210363

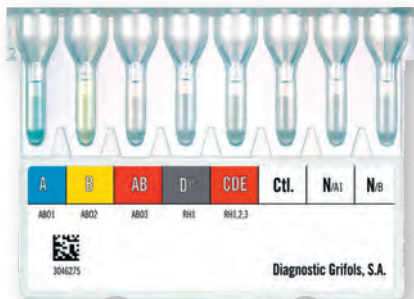
Product registration and availability vary by country. Ask your local Grifols representative for more information.

# PROCEDURES

## GROUP 1: COMPLETE ABO/RH BLOOD GROUPING

Product registration and availability vary by country. Ask your local Grifols representative for more information.

## DG Gel ABO/Rh



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu$ L of Serigrup Diana/Reverse-Cyte 0.8% into wells 7 and 8



3. Dispense 50  $\mu$ L of patient's serum/plasma into wells 7 and 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu$ L of RBC dilution into wells 1-6



6. Centrifuge for 9 min



7. Read results



## DG Gel ABO/Rh

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210355	2 x 25 cards	A, B, AB, D <sup>VI</sup> , CDE, Ctl., N <sub>A1*</sub> , N <sub>B</sub>	1

### TECHNIQUE

Determination of the antigens of the ABO and Rh (D) systems and determination of the reverse ABO group

### CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-AB: Monoclonal anti-AB (mixture of IgM and IgG antibodies of murine origin, clones 16245 F11 D8, 16247 E6 and 7821 D9)

Anti-D<sup>VI</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Anti-CDE: Monoclonal anti-CDE (mixture of IgM antibodies of human origin, clones P3x61, P3x25513 G8, P3x234)

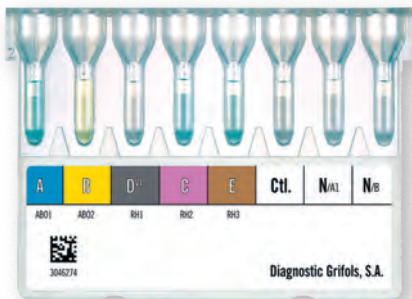
Ctl.: Buffered solution without antibodies (control well)

N: Buffered solution without antibodies (reverse group test)

### STORAGE

2-25°C

## DG Gel ABO-CDE



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu\text{L}$  of Serigrup Diana/Reverse-Cyte 0.8% into wells 7 and 8



3. Dispense 50  $\mu\text{L}$  of patient's serum/plasma into wells 7 and 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu\text{L}$  of RBC dilution into wells 1-6



6. Centrifuge for 9 min



7. Read results

# DG Gel ABO-CDE

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210340	2 x 25 cards	A, B, D <sup>VI</sup> , C, E, Ctl., N <sub>A1</sub> , N <sub>B</sub>	1

## TECHNIQUE

Determination of the antigens of the ABO and Rh (D, C, E) systems and determination of the reverse ABO group

## CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-D<sup>VI</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Anti-C: Monoclonal anti-C (IgM antibodies of human origin, clone P3x25513 G8)

Anti-E: Monoclonal anti-E (IgM antibodies of human origin, clone 906)

Ctl.: Buffered solution without antibodies (control well)

N: Buffered solution without antibodies (reverse group test)

## STORAGE

2-25°C

## DG Gel ABO/Rh (2D)



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu$ L of Serigrup Diana/Reverse-Cyte 0.8% into wells 7 and 8



3. Dispense 50  $\mu$ L of patient's serum/plasma into wells 7 and 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu$ L of RBC dilution into wells 1-6



6. Centrifuge for 9 min



7. Read results

## DG Gel ABO/Rh (2D)

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210338	2 x 25 cards	A, B, AB, D <sup>VI-</sup> , D <sup>VI+</sup> , Ctl., N/ <sub>A1</sub> , N/ <sub>B</sub>	1

### TECHNIQUE

Determination of the antigens of the ABO and Rh (D) systems and determination of the reverse ABO group

### CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM and IgG antibodies of murine origin, clone 9621 A8)

Anti-AB: Monoclonal anti-AB (mixture of IgM and IgG of murine origin, clones 16245 F11 D8, 16247 E6 and 7821 D9)

Anti-D<sup>VI-</sup>: Monoclonal anti-D (IgM and IgG antibodies of human origin, clone P3x61)

Anti-D<sup>VI+</sup>: Monoclonal anti-D (mixture of IgG and IgM antibodies of human origin, clones P3x290, P3x35, P3x61 and P3x21223 B10). This anti-D monoclonal reagent detects weak D and partial variants of the D antigen, including the D<sup>VI</sup> variant

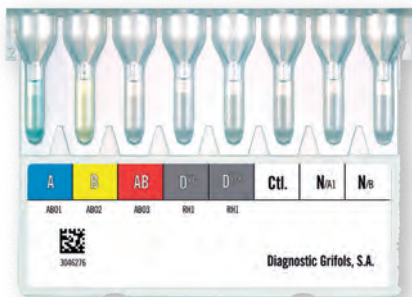
Ctl.: Buffered solution without antibodies (control well)

N: Buffered solution without antibodies (reverse group test)

### STORAGE

2-8°C

## DG Gel ABO/RH (2D) (RT)



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu$ L of Serigrup Diana/Reverse-Cyte 0.8% into wells 7 and 8



3. Dispense 50  $\mu$ L of patient's serum/plasma into wells 7 and 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu$ L of RBC dilution into wells 1-6



6. Centrifuge for 9 min



7. Read results

## DG Gel ABO/RH (2D) (RT)

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210126	2 x 25 cards	A, B, AB, D <sup>VI-</sup> , D <sup>VI+</sup> , Ctl., N <sub>A1</sub> , N <sub>B</sub>	1

### TECHNIQUE

Determination of the antigens of the ABO and Rh (D) systems and determination of the reverse ABO group

### CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM and IgG antibodies of murine origin, clone 9621 A8)

Anti-AB: Monoclonal anti-AB (mixture of IgM and IgG antibodies of murine origin, clones 16245 F11 D8, 16247 E6 and 7821 D9)

Anti-D<sup>VI-</sup>: Monoclonal anti-D (IgM and IgG antibodies of human origin, clone MS-201)

Anti-D<sup>VI+</sup>: Monoclonal anti-D (mixture of IgM antibodies of human origin, clones Anti-D P3x61 and ESD1M)

Ctl.: Buffered solution without antibodies (control well)

N: Buffered solution without antibodies (reverse group test)

### STORAGE

2-25°C

## DG Gel ABO/Rh (CR)



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu\text{L}$  of Serigrup Diana/Reverse-Cyte 0.8% into wells 6-8



3. Dispense 50  $\mu\text{L}$  of patient's serum/plasma into wells 6 to 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu\text{L}$  of RBC dilution into wells 1-5



6. Centrifuge for 9 min



7. Read results



## DG Gel ABO/Rh (CR)

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210378	2 x 25 cards	A, B, D <sup>VI-</sup> , D <sup>VI+</sup> , Ctl., N, N, N	1

### TECHNIQUE

Determination of the antigens of the ABO and Rh (D) systems and complete determination of the reverse ABO group

### CLONES

Anti-A: Monoclonal anti-A (IgM antibodies of murine origin, clone DAM-1)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-D<sup>VI-</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Anti-D<sup>VI+</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone MS-201)

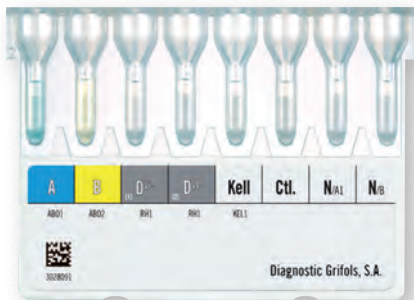
Ctl.: Buffered solution without antibodies (control well)

N: Buffered solution without antibodies (reverse group test)

### STORAGE

2-25°C

## DG Gel ABO/Rh (2D) + Kell



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu$ L of Serigrup Diana/Reverse-Cyte 0.8% into wells 7 and 8



3. Dispense 50  $\mu$ L of patient's serum/plasma into wells 7 and 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu$ L of RBC dilution into wells 1-6



6. Centrifuge for 9 min



7. Read results

## DG Gel ABO/Rh (2D) + Kell

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210348	2 x 25 cards	A, B, B, D <sup>Vit</sup> , D <sup>Vit</sup> Kell, Ctl., N/ <sub>A1*</sub> N/ <sub>B</sub>	1

### TECHNIQUE

Determination of the antigens of the ABO, Rh (D) and Kell systems and determination of the reverse ABO group

### CLONES

Anti-A: Monoclonal anti-A (IgM antibodies of murine origin, clone DAM-1)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-D<sup>Vit</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Anti-D<sup>Vit</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone MS-201)

Anti-Kell: Monoclonal anti-Kell (IgM antibodies of human origin, clone MS-56)

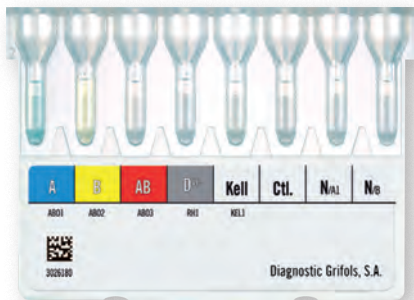
Ctl.: Buffered solution without antibodies (control well)

N: Buffered solution without antibodies (reverse group test)

### STORAGE

2-25°C

## DG Gel ABO/Rh + Kell (RT)



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dispense 50  $\mu\text{L}$  of Serigrup Diana/Reverse-Cyte 0.8% into wells 7 and 8



3. Dispense 50  $\mu\text{L}$  of patient's serum/plasma into wells 7 and 8



4. Dilute RBC sample to 5% with DG Gel Sol



5. Dispense 10  $\mu\text{L}$  of RBC dilution into wells 1-6



6. Centrifuge for 9 min



7. Read results

## DG Gel ABO/Rh + Kell (RT)

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210352	2 x 25 cards	A, B, AB, D <sup>VI</sup> , Kell, Ctl., N <sub>A/B</sub> , N <sub>B</sub>	1

### TECHNIQUE

Determination of the antigens of the ABO, Rh (D) and Kell systems and determination of the reverse ABO group

### CLONES

Anti-A: Monoclonal anti-A (IgM antibodies of murine origin, clone DAM-1)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-AB: Monoclonal anti-AB (mixture of IgM antibodies of murine origin, clones ES-15, LA-2, LB-2)

Anti-D<sup>VI</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Anti-Kell: Monoclonal anti-Kell (IgM antibodies of human origin, clone MS-56)

Ctl.: Buffered solution without antibodies (control microtube)

N: Buffered solution without antibodies (reverse group test)

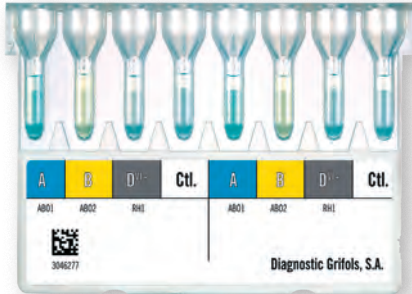
### STORAGE

2-25°C

## GROUP 2: BLOOD GROUP CONFIRMATION

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# DG Gel Confirm



## MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu\text{L}$  of RBC dilution into wells 1-4 or 5-8



4. Centrifuge for 9 min



5. Read results

# DG Gel Confirm

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210339	2 x 25 cards	A, B, D <sup>VI+</sup> , Ctl., A, B, D <sup>VI+</sup> , Ctl.	2

## TECHNIQUE

Confirmation of the blood groups of the ABO and Rh (D) systems in donors

## CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-D<sup>VI+</sup>: Monoclonal anti-D (mixture of IgG and IgM antibodies of human origin, clones P3x290, P3x35, P3x61 and P3x21223 B10). This anti-D monoclonal reagent detects weak D and partial variants of the D antigen, including the D<sup>VI</sup> variant

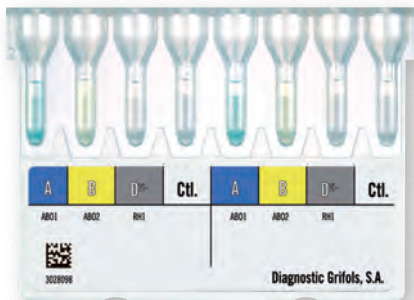
Ctl.: Buffered solution without antibodies (control well)

## STORAGE

2-8°C



# DG Gel Confirm P



## MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu$ L of RBC dilution into wells 1-4 or 5-8



4. Centrifuge for 9 min



5. Read results

# DG Gel Confirm P

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210351	2 x 25 cards	A, B, D <sup>VI</sup> -, Ctl., A, B, D <sup>VI</sup> -, Ctl.	2

## TECHNIQUE

Confirmation of the blood groups of the ABO and Rh (D) systems in patients

## CLONES

Anti-A: Monoclonal anti-A (IgM antibodies of murine origin, clone Birma-1)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone LB-2)

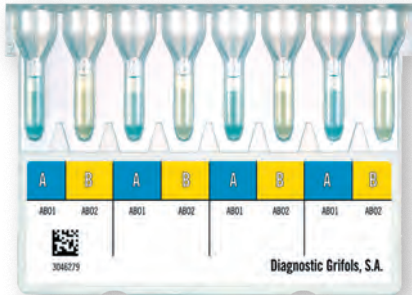
Anti-D<sup>VI</sup> -: Monoclonal anti-D (IgM antibodies of human origin, clone MS-201)

Ctl.: Buffered solution without antibodies (control well)

## STORAGE

2-25°C

## DG Gel AB (x4)



### MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu$ L of RBC dilution into wells 1-2, 3-4, 5-6 or 7-8



4. Centrifuge for 9 min



5. Read results

## DG Gel AB (x4)

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210346	2 x 25 cards	4 x (A, B)	4

### TECHNIQUE

Confirmation of the blood groups of the ABO system

### CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

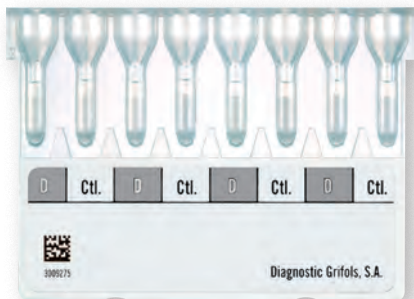
### STORAGE

2-25°C

## GROUP 3: RH PHENOTYPE + KELL DETERMINATION

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# DG Gel Anti-D



## MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu$ L of RBC dilution into wells 1-2, 3-4, 5-6 or 7-8



4. Centrifuge for 9 min



5. Read results

# DG Gel Anti-D

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210341	1 x 25 cards	4 x (D <sup>VI+</sup> , Ctl.)	4

## TECHNIQUE

Determination of the Rh (D)

## CLONES

Anti-D<sup>VI+</sup>: Monoclonal anti-D (mixture of IgG and IgM antibodies of human origin, clones P3x290, P3x35, P3x61 and P3x21223 B10). This anti-D monoclonal reagent detects weak D and partial variants of the D antigen, including the D<sup>VI</sup> variant

Ctl.: Buffered solution without antibodies (control well)

## STORAGE

2-8°C

## DG Gel Rh Pheno



### MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu$ L of RBC dilution into wells 1-4 or 5-8



4. Centrifuge for 9 min



5. Read results



# DG Gel Rh Pheno

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210349	2 x 25 cards	C, E, c, e, C, E, c, e	2

## TECHNIQUE

Determination of the antigens of the Rh system

## CLONES

Anti-C: Monoclonal anti-C (IgM antibodies of human origin, clone MS-24)

Anti-E: Monoclonal anti-E (IgM antibodies of human origin, clone MS-260)

Anti-c: Monoclonal anti-c (IgM antibodies of human origin, clone MS-33)

Anti-e: Monoclonal anti-e (mixture of IgM antibodies of human origin, clones MS-21, MS-16 and MS-63)

## STORAGE

2-25°C

## DG Gel Double Pheno



### MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu$ L of RBC dilution into all wells



4. Centrifuge for 9 min



5. Read results

# DG Gel Double Pheno

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210382	2 x 25 cards	<sub>(1)</sub> C, <sub>(1)</sub> E, <sub>(1)</sub> c, <sub>(1)</sub> e, <sub>(2)</sub> C, <sub>(2)</sub> E, <sub>(2)</sub> c, <sub>(2)</sub> e	1

## TECHNIQUE

Double determination of the antigens of the Rh system

## CLONES

Anti-<sub>(1)</sub>C: Monoclonal anti-C (IgM antibodies of human origin, clone MS-24)

Anti-<sub>(1)</sub>E: Monoclonal anti-E (IgM antibodies of human origin, clone MS-260)

Anti-<sub>(1)</sub>c: Monoclonal anti-c (IgM antibodies of human origin, clone 951)

Anti-<sub>(1)</sub>e: Monoclonal anti-e (mixture of IgM antibodies of human origin, clones MS-21, MS-63 and MS-16)

Anti-<sub>(2)</sub>C: Monoclonal anti-C (IgM antibodies of human origin, clone P3x25513G8)

Anti-<sub>(2)</sub>E: Monoclonal anti-E (IgM antibodies of human origin, clone 906)

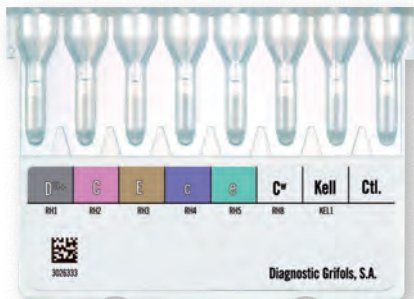
Anti-<sub>(2)</sub>c: Monoclonal anti-c (IgM antibodies of human origin, clone MS-33)

Anti-<sub>(2)</sub>e: Monoclonal anti-e (mixture of IgM antibodies of human origin, clones MS-63 and MS-16)

## STORAGE

2-25°C

## DG Gel Rh Pheno + Kell



### MATERIAL REQUIRED

Sample: red blood cells

Automatic pipette 10  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dilute RBC sample to 5% with DG Gel Sol



3. Dispense 10  $\mu$ L of RBC dilution into all wells



4. Centrifuge for 9 min



5. Read results

## DG Gel Rh Pheno + Kell

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210350	2 x 25 cards	D <sup>VI+</sup> , C, E, c, e, C <sup>w</sup> , Kell, Ctl.	1

### TECHNIQUE

Determination of the antigens of the Rh and Kell systems

### CLONES

Anti-D<sup>VI+</sup>: Monoclonal anti-D (mixture of IgM antibodies of human origin, clones RUM-1 and ESD-1M).  
This anti-D monoclonal reagent detects weak D and partial variants of the D antigen, including the D<sup>VI</sup> variant

Anti-C: Monoclonal anti-C (IgM antibodies of human origin, clone MS-24)

Anti-E: Monoclonal anti-E (IgM antibodies of human origin, clone 906)

Anti-c: Monoclonal anti-c (IgM antibodies of human origin, clone MS-33)

Anti-e: Monoclonal anti-e (mixture of IgM antibodies of human origin, clones MS-21, MS-63 and MS-16)

Anti- C<sup>w</sup> : Monoclonal anti-C w (IgM antibodies of human origin, clone MS-110)

Anti-Kell: Monoclonal anti-Kell (IgM antibodies of human origin, clone MS-56)

Ctl.: Buffered solution without antibodies (control well)

### STORAGE

2-25°C

## GROUP 4: UNEXPECTED ANTIBODY INVESTIGATION

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# DG Gel Coombs



## PROCEDURE

Screening of unexpected antibodies

Identification of unexpected antibodies

Crossmatch tests

Autocontrol

Direct Coombs

## MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Serascan Diana/Sero-Cyte 0.8%

Indentisera Diana/Screen-Cyte 0.8%/  
Data-Cyte Plus 0.8%

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## Procedure for the DG Gel Coombs

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210342	2 x 25 cards	8 x (AHG)	Depending on the test

### TECHNIQUE

Indirect Coombs and direct Coombs tests. The indirect Coombs tests include: screening and identification of unexpected antibodies, crossmatch tests, autocontrol and red blood cell typing

### CLONES

AHG: Coombs, buffered low ionic strength solution (LISS) with polyspecific anti-human globulin. Mixture of rabbit polyclonal anti-IgG and monoclonal anti-C3d antibodies (IgM antibodies of murine origin, clone 12011 D10)

### STORAGE

2-25°C



# Procedure for the DG Gel Coombs

## SCREENING OF UNEXPECTED ANTIBODIES



1. Identify



2. Dispense 50  $\mu$ L of reagent RBC into the corresponding wells (Serascan Diana 2, 3, 4 or Di<sup>®</sup>/Sero-Cyte 0.8%/Screen-Cyte 0.8%)



3. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



4. Incubate 15 min at 37°C



5. Centrifuge for 9 min



6. Read results

## IDENTIFICATION OF UNEXPECTED ANTIBODIES



1. Identify (2 cards)



2. Dispense 50  $\mu$ L of reagent RBC into the corresponding wells (Identisera Diana/Identisera Diana Extend/Data-Cyte Plus 0.8%/Data-Cyte Plus Di<sup>®</sup> 0.8%)



3. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



4. Incubate 15 min at 37°C



5. Centrifuge for 9 min



6. Read results

# Procedure for the DG Gel Coombs

## CROSSMATCH TEST



1. Identify card



2. Dilute RBC to 1% with DG Gel Sol Major CT: donor's RBC Minor CT: recipient's RBC



3. Dispense 50  $\mu$ L of RBC dilution in the corresponding wells



4. Dispense 25  $\mu$ L of serum/plasma into the same wells Major CT: recipient's serum Minor CT: donor's serum



5. Incubate 15 min at 37°C



6. Centrifuge for 9 min



7. Read results

## AUTOCONTROL



1. Identify card



2. Dilute patient's RBC to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution in the corresponding wells



4. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



5. Incubate 15 min at 37°C



6. Centrifuge for 9 min



7. Read results

## DIRECT COOMBS



1. Identify card



2. Dilute patient's RBC to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution in the corresponding wells



4. Centrifuge for 9 min



5. Read results

# DG Gel Neutral



## PROCEDURE

Screening of unexpected antibodies

Identification of unexpected antibodies

Crossmatch tests

Autocontrol

Determination of the reverse ABO group

## MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Serascan Diana\*/Sero-Cyte 0.8%

Indentisera Diana\*/Screen-Cyte\* 0.8%/Data-Cyte Plus\* 0.8%

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

\*And the papainized version.

## Procedure for the DG Gel Neutral

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210343	2 x 25 cards	8 x (N)	Depending on the test

### TECHNIQUE

Physical medium for saline and enzymatic tests. The saline and enzymatic technique tests include: screening and identification of unexpected antibodies, crossmatch tests, autocontrol, red blood cell typing and determination of the reverse ABO group

### CLONES

N: Buffered solution without antibodies (neutral wells)

### STORAGE

2-25°C

## Procedure for the DG Gel Neutral

### SCREENING OF UNEXPECTED ANTIBODIES



1. Identify card



2. Dispense 50  $\mu$ L of Reagent RBC into the corresponding wells (Serascan Diana 2, 3, 4 or Di<sup>®</sup>/Serascan Diana 2, 3, or 4/ Serascan Diana P 2, 3/Sero-Cyte 0.8%/ Screen-Cyte P 0.8%/Screen-Cyte 0.8%)



3. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



4. Incubate 15 min at 37°C, room temperature or 2-8°C (saline technique)/37°C (enzymatic technique)\*



5. Centrifuge for 9 min



6. Read results

### IDENTIFICATION OF UNEXPECTED ANTIBODIES



1. Identify (2 cards)



2. Dispense 50  $\mu$ L of Reagent RBC into the corresponding wells (Identisera Diana/ Identisera Diana P/ Identisera Diana Extend/Identisera Diana Extend/Data-Cyte Plus 0.8%/Data-Cyte Plus P 0.8%)



3. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



4. Incubate 15 min at 37°C, room temperature or 2-8°C (saline technique)/37°C (enzymatic technique)\*



5. Centrifuge for 9 min










6. Read results








\* For the performance of screening and identification of unexpected antibodies in enzymatic techniques use Serascan Diana P or Screen-Cyte P 0.8% and Identisera Diana P/Identisera Diana Extend P or Data-Cyte Plus P 0.8% reagents respectively.

# Procedure for the DG Gel Neutral






## CROSSMATCH TEST

1. Identify card 
2. Dilute RBC to 1% with DG Gel Sol Major CT: donor's RBC Minor CT: recipient's RBC 
3. Dispense 50 µL of RBC dilution in the corresponding wells 
4. Dispense 25 µL of serum/plasma into the same wells Major CT: recipient's serum Minor CT: donor's serum 
5. Incubate 15 min at 37°C, room temperature or 2-8°C (saline technique)/37°C (enzymatic technique)\* 
6. Centrifuge for 9 min 
7. Read results 

## AUTOCONTROL

1. Identify card 
2. Dilute patient's RBC to 1% with DG Gel Sol 
3. Dispense 50 µL of RBC dilution in the corresponding wells 
4. Dispense 25 µL of patient's serum/plasma in the same wells 
5. Incubate 15 min at 37°C, room temperature or 2-8°C (saline technique)/37°C (enzymatic technique)\* 
6. Centrifuge for 9 min 
7. Read results 

## DETERMINATION OF THE REVERSE ABO GROUP

1. Identify card 
2. Dispense 50 µL of the reagent RBC in the corresponding wells (Serigrup/Reverse-Cyte) 
3. Dispense 50 µL of patient's serum/plasma in the same wells 
4. Centrifuge for 9 min 
5. Read results 

\* The test method described in the instructions for using of DG-Papain must be followed for the performance of enzymatic techniques of the crossmatch and autocontrol tests, including two extra steps after dispensing the RBC dilution: Add 25 µL of DG-Papain, incubate for 10 minutes at 37°C. Then, dispense the corresponding serum/plasma.

# DG Gel Neutral/Coombs



REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210375	2 x 25 cards	N, N, N, N AHG, AHG AHG, AHG	Depending on the test

## TECHNIQUE

Indirect, direct Coombs tests and physical medium for saline and enzymatic tests. The tests include: screening and identification of unexpected antibodies, crossmatch tests, autocontrol and red blood cell typing

## CLONES

N: buffered solution without antibodies (neutral wells)

AHG: mixture of rabbit polyclonal anti-IgG and monoclonal anti-C3d (12011 D10 murine)

## STORAGE

2-25°C

## PROCEDURE

See DG Gel Neutral and DG Gel Coombs

# DG Gel Anti-IgG



## PROCEDURE

Screening of unexpected antibodies

Identification of unexpected antibodies

Crossmatch tests

Autocontrol

Direct Coombs

## MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Serascan Diana/Sero-Cyte 0.8%

Indentisera Diana/Screen-Cyte 0.8%/  
Data-Cyte Plus 0.8%

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin



## Procedure for the DG Gel Anti-IgG

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210344	2 x 25 cards	8 x (IgG)	Depending on the test

### TECHNIQUE

Indirect Coombs and direct Coombs tests. The indirect Coombs tests include: screening and identification of unexpected antibodies, crossmatch tests and autocontrol

### CLONES

Anti-IgG: Rabbit polyclonal anti-IgG in buffered low ionic strength solution (LISS)

### STORAGE

2-25°C

# Procedure for the DG Gel Anti-IgG

## SCREENING OF UNEXPECTED ANTIBODIES



1. Identify card



2. Dispense 50  $\mu$ L of reagent RBC into the corresponding wells (Serascan Diana 2, 3, 4 or Di<sup>®</sup>/Sero-Cyte 0.8%/Screen-Cyte 0.8%)



3. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



4. Incubate 15 min at 37°C



5. Centrifuge for 9 min



6. Read results

## IDENTIFICATION OF UNEXPECTED ANTIBODIES



1. Identify (2 cards)



2. Dispense 50  $\mu$ L of reagent RBC into the corresponding wells (Identisera Diana/Identisera Diana Extend/Data-Cyte Plus 0.8%/Data-Cyte Plus Di<sup>®</sup> 0.8%)



3. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



4. Incubate 15 min at 37°C



5. Centrifuge for 9 min



6. Read results

# Procedure for the DG Gel Anti-IgG

## CROSSMATCH TEST



1. Identify card



2. Dilute RBC to 1% with DG Gel Sol Major CT: donor's RBC Minor CT: recipient's RBC



3. Dispense 50  $\mu$ L of RBC dilution in the corresponding wells



4. Dispense 25  $\mu$ L of serum/plasma into the same wells Major CT: recipient's serum Minor CT: donor's serum



5. Incubate 15 min at 37°C



6. Centrifuge for 9 min



7. Read results

## AUTOCONTROL



1. Identify card



2. Dilute patient's RBC to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution in the corresponding wells



4. Dispense 25  $\mu$ L of patient's serum/plasma in the same wells



5. Incubate 15 min at 37°C



6. Centrifuge for 9 min



7. Read results

## DIRECT COOMBS



1. Identify card



2. Dilute patient's RBC to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution in the corresponding wells



4. Centrifuge for 9 min

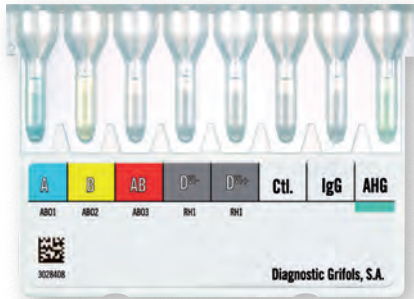


5. Read results

## GROUP 5: SPECIAL TESTS

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# DG Gel Newborn



## MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serigrup Diana/Reverse-Cyte 0.8%

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50  $\mu\text{L}$  of RBC dilution in all wells



4. Centrifuge for 9 min



5. Read results

# DG Gel Newborn

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210353	2 x 25 cards	A, B, AB, D <sup>VI+</sup> , D <sup>VI+</sup> , Ctl., IgG, AHG	1

## TECHNIQUE

Determination of the antigens of the ABO and Rh (D) systems and direct Coombs test in newborns

## CLONES

Anti-A: Monoclonal anti-A (IgM antibodies of murine origin, clone DAM-1)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-AB: Monoclonal anti-AB (mixture of IgM antibodies of murine origin, clones LA-2, LB-2 and ES-15)

Anti-D<sup>VI+</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Anti-D<sup>VI+</sup>: Monoclonal anti-D (mixture of IgM antibodies of human origin, clones RUM-1 and ESD-1M). This anti-D monoclonal reagent detects weak D and partial variants of the D antigen, including the D<sup>VI</sup> variant

Ctl.: Buffered solution without antibodies (control microtube)

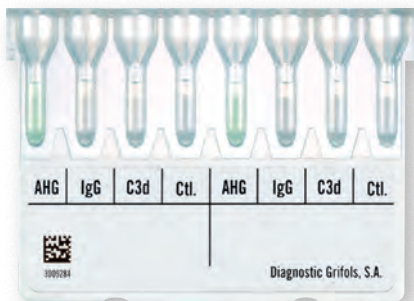
Anti-IgG: Rabbit polyclonal anti-IgG in buffered low ionic strength solution (LISS)

AHG: Coombs, buffered low ionic strength solution (LISS) with polyspecific anti-human globulin. Mixture of rabbit polyclonal anti-IgG and monoclonal anti-C3d antibodies (IgM antibodies of murine origin, clone 12011 D10)

## STORAGE

2-25°C

## DG Gel DC Scan



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50  $\mu\text{L}$  of RBC dilution in wells 1-4 or 5-8



4. Centrifuge for 9 min



5. Read results

# DG Gel DC Scan

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210345	1 x 25 cards	2 x (AHG, IgG, C3d, Ctl.)	2

## TECHNIQUE

Evaluation of positive direct Coombs samples. It allows differentiating red blood cells sensitized in vivo by IgG immunoglobulins or the C3d complement fraction.

## CLONES

AHG: Coombs, buffered low ionic strength solution (LISS) with polyspecific anti-human globulin. Mixture of rabbit polyclonal anti-IgG and monoclonal anti-C3d antibodies (IgM antibodies of murine origin, clone 12011 D10)

Anti-IgG: Rabbit polyclonal anti-IgG in buffered low ionic strength solution (LISS)

Anti-C3d: Monoclonal anti-C3d (IgM antibodies of murine origin, clone 12011 D10)

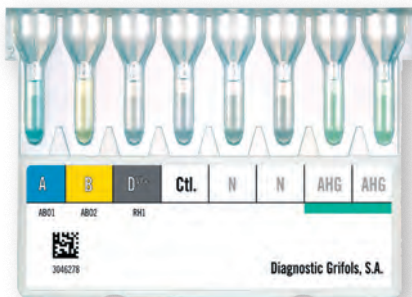
Ctl.: Buffered solution without antibodies (control well)

## STORAGE

2-8°C



## DG Gel CT



### MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu\text{L}$ , 25  $\mu\text{L}$ , 50  $\mu\text{L}$ , 1 mL

Disposable pipette tips

Glass tubes DG Gel Sol

Serascan Diana/Serascan Diana P/Sero-Cyte 0.8%/  
Screen-Cyte 0.8/Screen-Cyte P 0.8%

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

### PROCEDURE\*: ABO/RH GROUP CONFIRMATION



1. Identify card



2. Dilute RBC sample to 1% with  
DG Gel Sol



3. Dispense 50  $\mu\text{L}$  of RBC  
dilution in all wells 1-4



4. Centrifuge for 9 min



5. Read results

\* Regarding wells 5-8, see DG Gel Neutral and DG Gel Coombs procedures (there are other possible procedures depending on the tests performed)

# DG Gel CT

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210374	2 x 25 cards	A, B, D <sup>vi+</sup> , Ctl., N, N, AHG, AHG	1

## TECHNIQUE

Confirmation of the blood groups of the ABO and Rh (D) systems, ABO/Rh (D) isogroup compatibility test, screening of unexpected antibodies\*, crossmatch\* and autocontrol

## CLONES

Anti-A: Monoclonal anti-A (mixture of IgM and IgG antibodies of murine origin, clones 16243 G2 and 16247 E6)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-D<sup>vi+</sup> : Monoclonal anti-D (mixture of IgG and IgM antibodies of human origin, clones P3x290, P3x35, P3x61, P3x21223 B10). This anti-D monoclonal reagent detects weak D and partial variants of the D antigen, including the D<sup>vi</sup> variant

Ctl.: Buffered solution without antibodies (control microtube)

N: Buffered solution without antibodies (neutral microtubes)

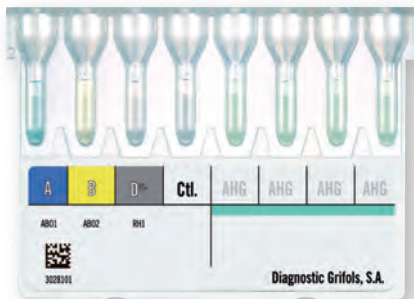
AHG: Coombs, buffered low ionic strength solution (LISS) with polyspecific anti-human globulin. Mixture of rabbit polyclonal anti-IgG and monoclonal anti-C3d antibodies (IgM antibodies of murine origin, clone 12011 D10)

## STORAGE

2-8°C

\* Saline, enzymatic and LISS-Coombs technique

# DG Gel T/S Poly



## MATERIAL REQUIRED

Samples: red blood cells and serum/plasma

Automatic pipette 10  $\mu$ L, 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable pipette tips

Glass tubes

DG Gel Sol

Serascan Diana/Serascan Diana P/Sero-Cyte 0.8%/  
Screen-Cyte 0.8/Screen-Cyte P 0.8%

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE\*:

### ABO/RH GROUP CONFIRMATION



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution in wells 1-4



4. Centrifuge for 9 min



5. Read results

\* Regarding wells 5-8, see DG Gel Coombs procedures (there are other possible procedures depending on the test performed)

## DG Gel T/S Poly

REFERENCE	PRESENTATION	PROFILE	NUMBER OF TESTS/CARD
210377	2 x 25 cards	A, B, D <sup>VI</sup> , Ctl., AHG, AHG, AHG, AHG	1

### TECHNIQUE

Confirmation of the blood groups of the ABO and Rh (D) systems and Indirect Coombs tests. The Indirect Coombs tests include screening of unexpected antibodies, crossmatch tests, and autocontrol.

### CLONES

Anti-A: Monoclonal anti-A (IgM antibodies of murine origin, clone DAM-1)

Anti-B: Monoclonal anti-B (IgM antibodies of murine origin, clone 9621 A8)

Anti-D<sup>VI</sup>: Monoclonal anti-D (IgM antibodies of human origin, clone P3x61)

Ctl.: Buffered solution without antibodies (control well)

AHG: Coombs, buffered low ionic strength solution (LISS) with polyspecific anti-human globulin. Mixture of rabbit polyclonal anti-IgG and monoclonal anti-C3d antibodies (IgM antibodies of murine origin, clone 12011 D10)

### STORAGE

2-25°C

## RARE ANTIGEN TYPING

Product registration and availability vary by country. Ask your local Grifols representative for more information.

# Anti-H Mono-Type\*



## MATERIAL REQUIRED

- \_\_\_\_ Samples: red blood cells
- \_\_\_\_ Automatic pipette 50 µL, 1 mL
- \_\_\_\_ Disposable tips
- \_\_\_\_ Glass tubes
- \_\_\_\_ DG Gel Sol
- \_\_\_\_ DG Gel Neutral card
- \_\_\_\_ Anti-H Mono-Type
- \_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50 µL of RBC dilution into well 1
4.  Dispense 50 µL of antisera into well 1
5.  Incubation RT for 10 min\*\*
6.  Centrifuge for 9 min
7.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213633	Anti-H Mono-Type	1 x 5 mL	Monoclonal murine IgM 10934C11

\*Antisera reagent also validated for use in conventional techniques.  
 \*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# Anti-A<sub>1</sub> Lectin\*



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 50 µL, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Neutral card

Anti-A<sub>1</sub> Lectin

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50 µL of RBC dilution into well 1



4. Dispense 50 µL of antisera into well 1



5. Incubation RT for 10 min\*\*



6. Centrifuge for 9 min



7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213437	Anti-A <sub>1</sub> Lectin	1 x 5 mL	Lectin from Dolichos biflorus

\*Antisera reagent also validated for use in conventional techniques.

\*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# Anti-D IgG Mono-Type



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Coombs card

Anti-D IgG Mono-Type

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1



5. Incubation 37°C for 10-15 min\*



6. Centrifuge for 9 min



7. Read results

## REFERENCE

213005

## PRODUCT

Anti-D IgG Mono-Type

## PRESENTATION

1 x 5 mL

## ANTIBODY TYPE AND ORIGIN

Monoclonal murine/human IgG ESD1

\*15 minutes in the incubation performed by the DG Gel fully automated instruments.










# Anti-Kp<sup>a</sup> Dual\*



## MATERIAL REQUIRED

- Samples: red blood cells
- Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- Disposable tips
- Glass tubes
- DG Gel Sol
- DG Gel Coombs card
- Anti-Kp<sup>a</sup> Dual
- Incubator for DG Gel cards: DG Therm
- Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

-  1. Identify card
-  2. Dilute RBC sample to 1% with DG Gel Sol
-  3. Dispense 50  $\mu$ L of RBC dilution into well 1
-  4. Dispense 25  $\mu$ L of antisera into well 1
-  5. Incubation 37°C for 10-15 min\*\*
-  6. Centrifuge for 9 min
-  7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213995	Anti-Kp <sup>a</sup> Dual	1 x 5 mL	Polyclonal human

\*Antisera reagent also validated for use in conventional techniques.  
 \*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# Anti-Kp<sup>b</sup> Dual\*



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25 µL, 50 µL, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Coombs card

Anti-Kp<sup>b</sup> Dual

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50 µL of RBC dilution into well 1



4. Dispense 25 µL of antisera into well 1



5. Incubation 37°C for 10-15 min\*\*



6. Centrifuge for 9 min



7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213996	Anti-Kp <sup>b</sup> Dual	1 x 5 mL	Polyclonal human

\*Antisera reagent also validated for use in conventional techniques.

\*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# Anti-C<sup>w</sup>



## MATERIAL REQUIRED

- Samples: red blood cells
- Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- Disposable tips
- Glass tubes
- DG Gel Sol
- DG Gel Neutral card
- Anti-C<sup>w</sup>
- Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1. Identify card
2. Dilute RBC sample to 0.8% with DG Gel Sol
3. Dispense 50  $\mu$ L of RBC dilution into well 1
4. Dispense 25  $\mu$ L of antisera into well 1\*
5. Centrifuge for 9 min
6. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213140	Anti-C <sup>w</sup>	1 x 5 mL	Monoclonal human IgM MS-110

\*It is also possible to use 10  $\mu$ L of antisera. See the Instructions for Use for further details.

# Anti-Le<sup>a</sup>



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Neutral card

Anti-Le<sup>a</sup>

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 0.8% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1



5. Centrifuge for 9 min



6. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213217	Anti-Le <sup>a</sup>	1 x 5 mL	Monoclonal murine IgA GA2


# Anti-Le<sup>b</sup>




## MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Neutral card
- \_\_\_\_\_ Anti-Le<sup>b</sup>
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin


## PROCEDURE

1.  Identify card


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2.  Dilute RBC sample to 0.8% with DG Gel Sol


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3.  Dispense 50  $\mu$ L of RBC dilution into well 1


---

4.  Dispense 25  $\mu$ L of antisera into well 1

---

5.  Centrifuge for 9 min

---

6.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213219	Anti-Le <sup>b</sup>	1 x 5 mL	Monoclonal murine IgM LEB1

# Anti-K



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Coombs card

Anti-K

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 0.8% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1\*



5. Centrifuge for 9 min



6. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213176	Anti-K	1 x 5 mL	Monoclonal human IgM MS-56

\*It is also possible to use 10  $\mu$ L of antisera. See the Instructions for Use for further details.

# Anti-K Mono-Type (2)\*



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Neutral card

Anti-K Mono-Type

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 0.8% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1\*\*



5. Centrifuge for 9 min



6. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213557	Anti-K Mono-Type	1 x 5 mL	Monoclonal human IgM AEK-4

\*Antisera reagent also validated for use in conventional techniques.

\*\*It is also possible to use 10  $\mu$ L of antisera. See the Instructions for Use for further details.

# Anti-k (cellano) Mono-Type\*



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Coombs card

Anti-k (cellano) Mono-Type

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1



5. Incubation 37°C for 10 min\*\*



6. Centrifuge for 9 min



7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213209	Anti-k (cellano) Mono-Type	1 x 5 mL	Monoclonal human IgG P3A1180L67

\*Antisera reagent also validated for use in conventional techniques.

\*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.



# Anti-Fy<sup>a</sup> Mono-Type\*



## MATERIAL REQUIRED

- Samples: red blood cells
- Automatic pipette 25 µL, 50 µL, 1 mL
- Disposable tips
- Glass tubes
- DG Gel Sol
- DG Gel Coombs card
- Anti-Fy<sup>a</sup> Mono-Type
- Incubator for DG Gel cards: DG Therm
- Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1. Identify card
2. Dilute RBC sample to 1% with DG Gel Sol
3. Dispense 50 µL of RBC dilution into well 1
4. Dispense 25 µL of antisera into well 1
5. Incubation 37°C for 10 min\*\*
6. Centrifuge for 9 min
7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213208	Anti-Fy <sup>a</sup> Mono-Type	1 x 5 mL	Monoclonal human IgG P3TIM

\*Antisera reagent also validated for use in conventional techniques.  
 \*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# Anti-Fy<sup>a</sup> for DG Gel



## MATERIAL REQUIRED

- Samples: red blood cells
- Automatic pipette 25 µL, 50 µL, 1 mL
- Disposable tips
- Glass tubes
- DG Gel Sol
- DG Gel Coombs card
- Anti-Fy<sup>a</sup> for DG Gel
- Incubator for DG Gel cards: DG Therm
- Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1. Identify card
2. Dilute RBC sample to 1% with DG Gel Sol
3. Dispense 50 µL of RBC dilution into well 1
4. Dispense 25 µL of antisera into well 1
5. Incubation 37°C for 10 min
6. Centrifuge for 9 min
7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213206	Anti-Fy <sup>a</sup> for DG Gel	1 x 5 mL	Polyclonal human








# Anti-Fy<sup>b</sup> for DG Gel



## MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 25 µL, 50 µL, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Coombs card
- \_\_\_\_\_ Anti-Fy<sup>b</sup> for DG Gel
- \_\_\_\_\_ Incubator for DG Gel cards: DG Therm
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50 µL of RBC dilution into well 1
4.  Dispense 25 µL of antisera into well 1
5.  Incubation 37°C for 10 min
6.  Centrifuge for 9 min
7.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213207	Anti-Fy <sup>b</sup> for DG Gel	1 x 5 mL	Polyclonal human

## Anti-Jk<sup>a</sup> for DG Gel



### MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 10  $\mu$ L, 25  $\mu$ L, 50  $\mu$ L, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Neutral card
- \_\_\_\_\_ Bromelase 30
- \_\_\_\_\_ Anti-Jk<sup>a</sup> for DG Gel
- \_\_\_\_\_ Incubator for DG Gel cards: DG Therm
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin

### PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50  $\mu$ L of RBC dilution into well 1
4.  Dispense 25  $\mu$ L of Bromelase 30 into well 1
5.  Incubation 37°C for 10 min
6.  Dispense 10  $\mu$ L of antisera into well 1
7.  Centrifuge for 9 min
8.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213204	Anti-Jk <sup>a</sup> for DG Gel	1 x 5 mL	Monoclonal human IgM MS-15

# Anti-Jk<sup>b</sup> for DG Gel



## MATERIAL REQUIRED

- Samples: red blood cells
- Automatic pipette 10 µL, 25 µL, 50 µL, 1 mL
- Disposable tips
- Glass tubes
- DG Gel Sol
- DG Gel Neutral card
- Bromelase 30
- Anti-Jk<sup>b</sup> for DG Gel
- Incubator for DG Gel cards: DG Therm
- Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

-  1. Identify card
-  2. Dilute RBC sample to 1% with DG Gel Sol
-  3. Dispense 50 µL of RBC dilution into well 1
-  4. Dispense 25 µL of Bromelase 30 into well 1
-  5. Incubation 37°C for 10 min
-  6. Dispense 10 µL of antisera into well 1
-  7. Centrifuge for 9 min
-  8. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213205	Anti-Jk <sup>b</sup> for DG Gel	1 x 5 mL	Monoclonal human IgM MS-8

# Anti-Lu<sup>a</sup>



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 10  $\mu$ L, 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Coombs card

Anti-Lu<sup>a</sup>

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 0.8% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1\*



5. Incubation 37°C for 15 min



6. Centrifuge for 9 min



7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213192	Anti-Lu <sup>a</sup>	1 x 5 mL	Polyclonal human

\*It is also possible to use 10  $\mu$ L of antisera. See the Instructions for Use for further details.

# Anti-Lu<sup>b</sup>



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Coombs card

Anti-Lu<sup>b</sup>

Incubator for DG Gel cards: DG Therm

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 0.8% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1\*



5. Incubation 37°C for 15 min



6. Centrifuge for 9 min



7. Read results

## REFERENCE

213193

## PRODUCT

Anti-Lu<sup>b</sup>

## PRESENTATION

1 x 5 mL

## ANTIBODY TYPE AND ORIGIN

Polyclonal human

\*It is also possible to use 10  $\mu$ L of antisera. See the Instructions for Use for further details.

# Anti-M Mono-Type Dual\*



## MATERIAL REQUIRED

Samples: red blood cells

Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL

Disposable tips

Glass tubes

DG Gel Sol

DG Gel Neutral card

Anti-M Mono-Type Dual

Centrifuge for DG Gel cards: DG Spin

## PROCEDURE



1. Identify card



2. Dilute RBC sample to 1% with DG Gel Sol



3. Dispense 50  $\mu$ L of RBC dilution into well 1



4. Dispense 25  $\mu$ L of antisera into well 1



5. Incubation RT for 10-15 min\*\*



6. Centrifuge for 9 min



7. Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213008	Anti-M Mono-Type Dual	1 x 5 mL	Monoclonal murine IgG LM110/140

\*Antisera reagent also validated for use in conventional techniques.

\*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.



# Anti-N (LN3/MN879) Mono-Type\*



## MATERIAL REQUIRED

- \_\_\_\_ Samples: red blood cells
- \_\_\_\_ Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- \_\_\_\_ Disposable tips
- \_\_\_\_ Glass tubes
- \_\_\_\_ DG Gel Sol
- \_\_\_\_ DG Gel Neutral card
- \_\_\_\_ Anti-N (LN3/MN879) Mono-Type
- \_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50  $\mu$ L of RBC dilution into well 1
4.  Dispense 25  $\mu$ L of antisera into well 1
5.  Incubation RT for 10-15 min\*\*
6.  Centrifuge for 9 min
7.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213989	Anti-N (LN3/MN879) Mono-Type	1 x 5 mL	Monoclonal murine IgG LN3/MN879

\*Antisera reagent also validated for use in conventional techniques.  
 \*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.








# Anti-S Mono-Type\*



## MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Coombs card
- \_\_\_\_\_ Anti-S Mono-Type
- \_\_\_\_\_ Incubator for DG Gel cards: DG Therm
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50  $\mu$ L of RBC dilution into well 1
4.  Dispense 25  $\mu$ L of antisera into well 1
5.  Incubation 37°C for 10-15 min\*\*
6.  Centrifuge for 9 min
7.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213993	Anti-S Mono-Type	1 x 5 mL	Monoclonal murine/human IgM MS-94

\*Antisera reagent also validated for use in conventional techniques.  
 \*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.








# Anti-s Mono-Type\*



## MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Coombs card
- \_\_\_\_\_ Anti-s Mono-Type
- \_\_\_\_\_ Incubator for DG Gel cards: DG Therm
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50  $\mu$ L of RBC dilution into well 1
4.  Dispense 25  $\mu$ L of antisera into well 1
5.  Incubation 37°C for 10-15 min\*\*
6.  Centrifuge for 9 min
7.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213994	Anti-s Mono-Type	1 x 5 mL	Monoclonal murine/human IgM P3BER

\*Antisera reagent also validated for use in conventional techniques.  
 \*\*15 minutes in the incubation performed by the DG Gel fully automated instruments.








# Anti-Di<sup>a</sup> Dual



## MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 25  $\mu$ L, 50  $\mu$ L, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Coombs card
- \_\_\_\_\_ Anti-Di<sup>a</sup> Dual
- \_\_\_\_\_ Incubator for DG Gel cards: DG Therm
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50  $\mu$ L of RBC dilution into well 1
4.  Dispense 25  $\mu$ L of antisera into well 1
5.  Incubation 37°C for 10-15 min\*
6.  Centrifuge for 9 min
7.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213229	Anti-Di <sup>a</sup> Dual	1 x 2 mL	Polyclonal human

\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# Anti-P<sub>1</sub> Mono-Type



## MATERIAL REQUIRED

- \_\_\_\_\_ Samples: red blood cells
- \_\_\_\_\_ Automatic pipette 25 µL, 50 µL, 1 mL
- \_\_\_\_\_ Disposable tips
- \_\_\_\_\_ Glass tubes
- \_\_\_\_\_ DG Gel Sol
- \_\_\_\_\_ DG Gel Neutral card
- \_\_\_\_\_ Anti-P<sub>1</sub> Mono-Type
- \_\_\_\_\_ Bromelase 30
- \_\_\_\_\_ Centrifuge for DG Gel cards: DG Spin

## PROCEDURE

1.  Identify card
2.  Dilute RBC sample to 1% with DG Gel Sol
3.  Dispense 50 µL of RBC dilution into well 1
4.  Dispense 25 µL of Bromelase 30 into well 1
5.  Dispense 25 µL of antisera into well 1
6.  Incubation 18-25°C for 10-15 min\*
7.  Centrifuge for 9 min
8.  Read results

REFERENCE	PRODUCT	PRESENTATION	ANTIBODY TYPE AND ORIGIN
213230	Anti-P <sub>1</sub> Mono-Type	1 x 5 mL	Monoclonal murine/human IgM P3NIL100

\*15 minutes in the incubation performed by the DG Gel fully automated instruments.

# CLEAR GUIDE

# DG Gel Clear guide



REF	CARD	CONFIGURATION	TECHNIQUE	SAMPLES & REAGENTS																						
210355	DG Gel ABO/Rh	A B AB D <sup>+</sup> CDE Ctl A1 B	Det. of ABO/Rh forward & reverse group	5%	10 µL								50 µL				50 µL		-	--	9 min	Yes				
210340	DG Gel ABO-CDE	A B D <sup>+</sup> C E Ctl A1 B	Det. of ABO/Rh forward & reverse group	5%	10 µL								50 µL				50 µL		-	--	9 min	Yes				
210338	DG Gel ABO/Rh (2D)	A B AB D <sup>+</sup> CDE Ctl A1 B	Det. of ABO/Rh forward & reverse group	5%	10 µL								50 µL				50 µL		-	--	9 min	Yes				
210378	DG Gel ABO/Rh (CR)	A B <sub>01</sub> D <sup>+</sup> <sub>02</sub> D <sup>+</sup> Kell Ctl N N N	Det. of ABO/Rh forward & reverse group	5%	10 µL								50 µL				50 µL		-	--	9 min	Yes				
210348	DG Gel ABO/Rh (2D)+Kell	A B <sub>01</sub> D <sup>+</sup> <sub>02</sub> D <sup>+</sup> Kell Ctl A1 B	Det. of ABO/Rh forward & reverse group and Kell antigen	5%	10 µL								50 µL				50 µL		-	--	9 min	Yes				
210352	DG Gel ABO/Rh+Kell (RT)	A B AB D <sup>+</sup> Kell Ctl A1 B	Det. of ABO/Rh forward & reverse group and Kell antigen	5%	10 µL														-	--	9 min	Yes				
210339	DG Gel Confirm	2 x (A B D <sup>+</sup> Ctl)	ABO/Rh group confirmation	5%	10 µL														-	--	9 min	Yes				
210351	DG Gel Confirm P	2 x (A B D <sup>+</sup> Ctl)	ABO/Rh group confirmation	5%	10 µL														-	--	9 min	Yes				
210346	DG Gel AB (x4)	4 X (A B)	ABO system confirmation	5%	10 µL														-	--	9 min	Yes				
210341	DG Gel Anti-D	4 x (D <sup>+</sup> Ctl)	Det. of Rh (D)	5%	10 µL														-	--	9 min	Yes				
210349	DG Gel Rh Pheno	2 x (C E c e)	Det. of Rh system antigens	5%	10 µL														-	--	9 min	Yes				
210382	DG Gel Double Pheno	<sub>01</sub> C <sub>02</sub> E <sub>03</sub> c <sub>04</sub> e <sub>05</sub> C <sub>06</sub> c <sub>07</sub> E <sub>08</sub> c <sub>09</sub> e	Det. of Rh system antigens	5%	10 µL														-	--	9 min	Yes				
210350	DG Gel Rh Pheno + Kell	D <sup>+</sup> C E c e C <sup>+</sup> Kell Ctl	Det. of Rh & Kell systems antigens	5%	10 µL														-	--	9 min	Yes				
210342	DG Gel Coombs	8 x (AHG)	Screening of unexpected Ab										50 µL				25 µL		15 min	37°C	9 min	Yes				
210344	DG Gel Anti-IgG	8 x (IgG)	Identification of unexpected Ab											50 µL			25 µL		15 min	37°C	9 min	Yes				
			Major Crossmatch			1%	50 µL									25 µL		15 min	37°C	9 min	Yes					
			Minor Crossmatch	1%	50 µL											25 µL		15 min	37°C	9 min	Yes					
			Autocontrol	1%	50 µL											25 µL		15 min	37°C	9 min	Yes					
			Direct Coombs	1%	50 µL															--	--	9 min	Yes			
			Red blood cell typing	FOLLOW THE INSTRUCTIONS OF THE HEMOCLASSIFICATION SERUM YOU ARE USING																						
210343	DG Gel Neutral	8 x (N)	Screening of unexpected Ab	Saline (1)										50 µL			25 µL		15 min	RT	9 min	Yes				
				Enzymatic (2)											50 µL			25 µL		15 min	37°C	9 min	Yes			
			Identification of unexpected Ab	Saline (1)												50 µL			25 µL		15 min	RT	9 min	Yes		
				Enzymatic (2)													50 µL			25 µL		15 min	37°C	9 min	Yes	
			Major Crossmatch	Saline (1)			1%	50 µL											25 µL		15 min	RT	9 min	Yes		
				Enzymatic (2)			1%	50 µL											25 µL		15 min	37°C	9 min	Yes		
			Minor Crossmatch	Saline (1)	1%	50 µL													25 µL		15 min	RT	9 min	Yes		
				Enzymatic (2)	1%	50 µL														25 µL		15 min	37°C	9 min	Yes	
			Autocontrol	Saline (1)	1%	50 µL														25 µL		15 min	RT	9 min	Yes	
				Enzymatic (2)	1%	50 µL															25 µL		15 min	37°C	9 min	Yes
			Red blood cell typing	FOLLOW THE INSTRUCTIONS OF THE HEMOCLASSIFICATION SERUM YOU ARE USING																						
			210375	DG Gel Neutral/Coombs	N N N N AHG AHG AHG AHG	Det. of Coombs, enzymatic and saline techniques	SEE GEL NEUTRAL AND DG GEL COOMBS																		Yes	
210353	DG Gel Newborn	A B AB D <sup>+</sup> D <sup>+</sup> Ctl. IgG AHG	Det. of ABO, Rh (D) & direct Coombs in newborns	1%	50 µL														--	--	9 min	Yes				
210345	DG Gel DC Scan	2 X (AHG IgG C3d Ctl.)	Evaluation of positive direct Coombs	1%	50 µL														--	--	9 min	Yes				
210374	DG Gel CT	A B D <sup>+</sup> Ctl. N N AHG AHG	ABO/Rh group confirmation	1%	50 µL															--	--	9 min	Yes			
			ABO/Rh isogroup compatibility test	1%	50 µL	1%	50 µL													--	--	9 min	Yes			
			Screening of unexpected Ab													50 µL	50 µL		25 µL		15 min	37°C	9 min	Yes		
			Crossmatch			1%	50 µL												25 µL		15 min	37°C	9 min	Yes		
			Autocontrol	1%	50 µL														25 µL		15 min	37°C	9 min	Yes		
210377	DG Gel T/S Poly	A B D <sup>+</sup> Ctl. AHG AHG AHG AHG	ABO/Rh group confirmation	1%	50 µL																	Yes				
			Screening of unexpected Ab																50 µL		25 µL		15 min	37°C	9 min	Yes
			Crossmatch			1%	50 µL												25 µL		15 min	37°C	9 min	Yes		
			Autocontrol	1%	50 µL														25 µL		15 min	37°C	9 min	Yes		



Card identification

DILUTION REQUIRED	SAMPLE VOLUME (RBC)	DILUENT VOLUME (DG GEL SOL)
5%	50 µL	1 mL
	10 µL	200 µL
1%	10 µL	1 mL
	5 µL	500 µL

(1) Possibility of incubation at 37°C or 2-8°C



Patient sample dilution (RBCs)  
 Patient red blood cell sample dilution (RBCs)  
 Donor sample dilution (RBCs from bag)  
 Patient red blood cell sample dilution (RBCs from bag)  
 Serogroup Diana / Reverse-Cyte 0.8%  
 Serascan Diana / Screen-Cyte 0.8%  
 Seroc-Cyte 0.8% / Seroc-Cyte Pool 0.8%  
 Serascan Diana P / Screen-Cyte P 0.8%  
 Identiser Diana / Data-Cyte Plus 0.8%  
 Identiser Diana P / Data-Cyte Plus P 0.8%  
 Patient plasma or serum  
 Donor plasma or serum  
 Incubation time in DG Therm  
 Incubation temperature in DG Therm  
 Centrifugation time in DG Spin  
 Reading in DG Reader

# DG Gel Clear guide



## 1 IDENTIFY THE DG GEL CARD

DG Gel card identification



## 2 RED BLOOD CELL SAMPLE DILUTION

ABO/Rh typing: **5%**  
Antibody testing & special techniques: **1%**



## 3 RED BLOOD CELL SAMPLE DILUTION DISPENSING

ABO/Rh typing: **10 µL**  
Antibody testing & special techniques: **50 µL**



## 4 RED BLOOD CELL REAGENTS DISPENSING: 50 µL

Serigrup Diana, Reverse-Cyte 8%, Sero-Cyte 0.8%, Data-Cyte Plus 0.8%, Serascan Diana, Identiseria Diana, Data-Cyte Plus 0.8%



## 5 PLASMA OR SERUM SAMPLE DISPENSING

Determination of reverse group: **50 µL**  
Other techniques: **25 µL**



## 6 INCUBATION OF THE DG GEL CARD

Use the incubator for DG Gel cards: DG Spin  
Coombs & enzymatic techniques: **15 min / 37°C**  
Saline techniques: **15 min / RT**



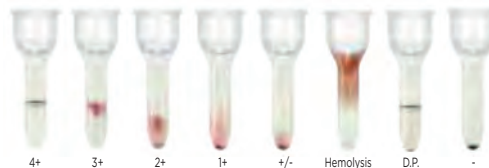
## 7 CENTRIFUGATION

Use centrifuge for DG Gel card: DG Spin



## 8 READING

DG Reader can be used  
See reaction patterns





# ANNEXES

# HUMAN BLOOD GROUP ANTIGENS & ANTIBODIES

# Human Blood Group Antigens & Antibodies

BLOOD GROUP SYSTEM & ISBT NUMBER	BLOOD GROUP ANTIGEN	ISBT SYMBOL	GENE(S)	ANTIGEN OCCURRENCE (%)			ANTIGEN DENSITY	IMMUNOGLOBULIN CLASS	ANTIBODY DETECTION TECHNIQUE				CLINICAL SIGNIFICANCE	
				CAUCASIAN	BLACK	ASIAN			4°C - RT	IAT	PAPAIN /FICIN*	DTT 0.2M†	HTR	HDFN
ABO 001	■ A	ABO1	ABO	43	27	28	Variable	IgM; (IgG)	Yes	Yes	Enhanced	Resistant	No-Severe	No-Moderate
	■ B	ABO2		9	20	27	Variable	IgM; (IgG)	Yes	Yes	Enhanced	Resistant	No-Severe	No-Moderate
	■ A,B	ABO3		56	51	57	Variable	IgM; (IgG)	Yes	Yes	Enhanced	Resistant	No-Mild	No-Moderate
	■ A1	ABO4		34	19	27	Variable	IgM; (IgG)	Yes	Rarely	Enhanced	Resistant	No-Mild	No
MNS 002	■ M	MNS1	GYPA	78	74	-	Dosage	IgG (cold); IgM	Yes	Rarely	Sensitive*	Resistant	Rare	Rare
	■ N	MNS2		72	75	-	Dosage	IgG (cold); IgM	Yes	Rarely	Sensitive*	Resistant	Rare	No
	■ S	MNS3	GYPB	55	31	-	Dosage	IgG; IgM	Yes	Yes	Variable**	Resistant	No-Mod.(Rare)	No-Mod.(Rare)
	■ s	MNS4		89	93	-	Dosage	IgG; IgM	Yes	Yes	Variable**	Resistant	No-Mild(Rare)	No-Severe(Rare)
	■ U	MNS5		99.9	99	-	-	IgG	-	Yes	Resistant	Resistant	Mild-Severe	Mild-Severe
	■ Mi†	MNS7	GYPA-B (Hybrid)	<0.01	<0.01	-5	-	IgM; IgG	Yes	Yes	Sensitive	Resistant	Rare	Mild-Severe
	■ Mur	MNS10		<0.01	<0.01	6-9	-	IgG; (IgM)	Yes	Yes	Sensitive	Resistant	No-Severe	No-Severe
PIPK 003	■ P1	PIPK1	A4GALT	79	94	20-30	Variable	IgM; (IgG)	Yes	Rarely	Enhanced	Resistant	No-Moderate	No
	■ p†	PIPK3		100	100	100	Variable	IgM; (IgG)	Yes	Yes	Enhanced	Resistant	No-Severe	No-Severe
Rh 004	■ D	RH1	RHD	85	92	99	Variable	IgG; (IgM)	Rarely	Yes	Enhanced	Resistant	Mild-Severe	Mild-Severe
	■ C	RH2	RHCE	68	27	93	Dosage	IgG; IgM	Rarely	Yes	Enhanced	Resistant	Mild-Severe	Mild-Severe
	■ E	RH3		29	22	39	Dosage	IgG; IgM	Yes	Yes	Enhanced	Resistant	Mild-Moderate	Mild
	■ c	RH4	80	98	47	Dosage	IgG; (IgM)	Rarely	Yes	Enhanced	Resistant	Mild-Severe	Mild-Severe	
	■ e	RH5	96	98	96	Dosage	IgG; (IgM)	Rarely	Yes	Enhanced	Resistant	Mild-Moderate	Rare (Mild)	
	■ f	RH6	65	92	12	-	IgG; (IgM)	Yes	Yes	Resistant	Resistant	Mild	Mild	
	■ Ce	RH7	68	27	92	-	IgG; (IgM)	Rarely	Yes	Enhanced	Resistant	Mild	Mild	
	■ C-	RH8	2	1	-	-	IgG; IgM	Yes	Yes	Enhanced	Resistant	Mild-Severe	Mild-Moderate	
	■ V	RH10	1	30	-	-	IgG	-	Yes	Resistant	Resistant	Mild	No	
	■ G	RH12	84	92	100	-	IgG	-	Yes	Enhanced	Resistant	No-Severe	No-Severe	
	■ hr†	RH19	96	97	98	-	IgG	-	Yes	Enhanced	Resistant	No-Fatal	No Evidence	
	■ VS	RH20	<0.01	26-40	<0.01	-	IgG	-	Yes	Enhanced	Resistant	Mild	No/+DAT	
	■ hr†	RH31	98	97	96	-	IgG	-	Yes	Enhanced	Resistant	No	No/+DAT	
	Lutheran 005	■ Lu†	LU1	LU, BCAM	8	5	-	Variable	IgM; IgG	Yes	Yes	Resistant	Sensitive	No
■ Lu†		LU2	99.8		99.8	99.8	Variable	IgG; IgM	Yes	Yes	Resistant	Sensitive	Mild-Moderate	Mild
■ Lu†		LU3	<99		>99	>99	-	IgG	Yes	Yes	Resistant	Sensitive	No Data	No Data
Kell 006	■ K	KEL1	KEL	9	2	Rare	-	IgG; (IgM)	Rarely	Yes	Resistant††	Sensitive	Mild-Severe	Mild-Severe
	■ k	KEL2		96.8	100	-	-	IgG; (IgM)	-	Yes	Resistant††	Sensitive	Mild-Moderate	Mild-Severe
	■ Kp†	KEL3		2	<0.01	-	-	IgG; (IgM)	-	Yes	Resistant††	Sensitive	Mild-Moderate	Mild-Severe
	■ Kp†	KEL4		99.9	100	100	-	IgG; (IgM)	-	Yes	Resistant††	Sensitive	No-Moderate	Mild-Moderate
	■ Js†	KEL6		<0.01	20	-	-	IgG; (IgM)	-	Yes	Resistant††	Sensitive	No-Moderate	Mild-Severe
	■ Js†	KEL7		>99	99	-	-	IgG	-	Yes	Resistant††	Sensitive	Mild-Moderate	Mild-Severe
Lewis 007	■ Le†	LE1	FUT3	22	23	-	Variable	IgM; (IgG)	Yes	Yes	Enhanced	Resistant	No/Rare Hemolytic	No-Mild
	■ Le†	LE2		72	56	-	Variable	IgM; (IgG)	Yes	Yes	Enhanced	Resistant	No	No-Mild
Duffy 008	■ Fy†	FY1	FY, DARC	66	10	99	Dosage	IgG; (IgM)	-	Yes	Sensitive***	Resistant	Mild-Severe/Delayed	Mild-Moderate
	■ Fy†	FY2		83	23	18.5	Dosage	IgG; (IgM)	-	Yes	Sensitive***	Resistant	Mild-Severe/Delayed	Mild
	■ Fy3	FY3		>99.9	32	99.9	-	IgG	-	Yes	Resistant	Resistant	Mild-Mod/Delayed	Mild
Kidd 009	■ Jk†	JK1	JK, SLC14A1	77	92	72	Dosage	IgG; IgM; IgG+IgM	-	Yes	Enhanced	Resistant	No-Severe/Delayed	Mild-Moderate
	■ Jk†	JK2		74	49	76	Dosage	IgG; IgM; IgG+IgM	-	Yes	Enhanced	Resistant	No-Severe/Delayed	No-Mild
	■ Fy3	JK3		100	-	-	-	IgG; (IgM)	-	Yes	Enhanced	Resistant	No-Severe/Delayed	No-Mild
Diego 010	■ Di†	DI1	DI, SLC4A1	0.01	0.01	-	Dosage	IgG	-	Yes	Resistant	Resistant	No-Severe	Mild-Severe
	■ Di†	DI2		100	-	-	Dosage	IgG	-	Yes	Resistant	Resistant	No-Moderate	Mild
	■ Wr†	DI3		<0.01	-	-	-	IgM; IgG	Yes	Yes	Resistant	Resistant	No-Severe	Mild-Severe
Yt 011	■ Yt†	YT1	YT, ACHE	>99.8	>99.8	-	-	IgG (IgG4)	-	Yes	Variable	Sensitive	No-Moderate	No
Xg 012	■ Yt†	YT2	8	-	-	-	IgG	-	Yes	Variable	Resistant	No	No	
Xg 012	■ Xg†	XG1	XG, MIC2	F-89 / M-66	-	-	Variable	IgG; (IgM)	-	Yes	Sensitive	Resistant	No	No
Dombrock 014	■ Do†	DO1	DO, ART4	67	55	-	-	IgG	-	Yes	Enhanced****	Sensitive	Delayed-Hemolytic	No/+DAT
	■ Do†	DO2		82	89	-	-	IgG	-	Yes	Enhanced****	Sensitive	Acute, Delayed	No/+DAT
	■ Gy†	DO3		100	100	>99.9	-	IgG	-	Yes	Enhanced****	Sensitive	No-Moderate	No/+DAT
	■ Hy†	DO4		100	>99	100	-	IgG	-	Yes	Enhanced****	Sensitive	No-Moderate	No/+DAT
	■ Jo†	DO5		100	>99	100	-	IgG	-	Yes	Enhanced****	Variable	No-Moderate	No
Colton 015	■ Co†	CO1	CO, AQP1	99.5	99.5	99.5	-	IgG; (IgM)	-	Yes	Resistant	Resistant	No-Moderate	Mild-Severe
	■ Co†	CO2		10	10	10	-	IgG	-	Yes	Resistant	Resistant	No-Moderate	Mild
Chido/Rodgers 017	■ Ch1	CH/RG1	C4B	96	-	-	Variable	IgG (IgG2; IgG4)	-	Yes	Resistant	Resistant	No	No
	■ Rg1	CH/RG11	C4A	>98	>98	>98	Variable	IgM	-	Yes	Resistant	Resistant	No	No
H 018	■ H	H1	FUT1	99.9	99.9	99.9	Variable	IgG; (IgG)	Yes	-	Resistant	Resistant	No-Severe	No
Gerbich 020	■ Ge2	GE2	GE, GYPC	>99.9	>99.9	>99.9	-	IgG	-	Yes	Variable	Variable	No-Moderate	No/+DAT
	■ Ge3	GE3		>99.9	>99.9	>99.9	-	IgG; IgM	-	Yes	Resistant	Resistant	No-Moderate	+DAT/Severe
	■ Ge4	GE4		>99.9	>99.9	>99.9	-	IgG	-	Yes	Resistant	Resistant	No Data	No Data
Knops 022	■ Kn†	KN1	KN, CRI JMH,	98	99	-	Variable	IgG	-	Yes	Sensitive	Sensitive	No	No
John Milton Hagen 026	■ JMH	JMH1	SEMA7A	94.5	99.9	-	Variable	IgG	-	Yes	Sensitive	Sensitive	No	No
I 027	■ I	I1	GCNT2	>99	>99	>99	Variable	IgM; (IgG)	Yes	-	Enhanced	Resistant	No	No
Globoside 028	■ P	GLOB1	B3GALNT1	>99.9	>99.9	>99.9	Variable	IgM; IgG	Yes	Yes	Enhanced	Resistant	No-Severe	No-Mild
Lan 033	■ Lan	LAN	LAN, ABCB6	>99	>99	>99	Variable	IgG	-	Yes	Resistant	Resistant	No-Severe / Hemolytic	No-Mild
Vel 034	■ Vel	VEL	SMIM1	>99	>99	>99	Variable	IgM with IgG	-	Yes	Enhanced	Variable	No-Severe / Hemolytic	+DAT/Severe

Antigens are color coded in the second column to represent: **Red: High Prevalence. Blue: Polymorphic. Green: Low Prevalence**

\* The enzyme & DTT information provided is to be used only as a guide because with all chemical treatment of RBCs, the effect varies depending on the exact conditions of treatment, purity of reagents and the age (condition) of the RBCs.

†† Most Kell blood group system antigens are sensitive to treatment with a mixture of trypsin and α-Chymotrypsin.

\* M,N: α-Chymotrypsin resistant

\*\* S,s: α-Chymotrypsin Sensitive

\*\*\* Fya, Fyb: Trypsin resistant (Fyb weakened)

\*\*\*\* Dombrock system is sensitive to Trypsin

\*\*\*\*\* Kna: Papain resistant, ficin sensitive

# Human Blood Group Antigens & Antibodies

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