



REF	102730024	102730048
Pack Size	24 Cards	48 Cards

### Matrix™ Forward Grouping DAT Card

#### SUMMARY

According to ABO blood group system, human red blood cell antigen can be divided into four groups A, B, AB and O depending on the presence or absence of corresponding antigens on the red blood cells. Also the human red blood cells are classified as Rho (D) positive or Rho (D) negative depending upon the presence or absence of Rho (D) antigen. The Anti-A, Anti-B and Anti-D reagents are used to detect the presence or absence of corresponding antigens on red blood cells. In pre transfusion testing, it is important to test the in vivo sensitization of red blood cells using Anti- Human globulin reagent.

Matrix™ Forward Grouping DAT Card facilitates the determination of forward grouping with two different Anti-D reagents and Direct Antiglobulin Test on one card.

#### REAGENTS

Matrix™ Forward Grouping DAT Card contains six microtubes prefilled with a gel in suitable buffer containing Monoclonal Anti-A (Clone 11H5), Anti-B (Clone 6F9), Anti-D (IgM) (DVI-) (Clone TH-28) and Anti-D (IgM) (DVI-) (Clone P3x61). The Control (Ctrl) microtube contains neutral gel and serves as a negative control. The AHG microtube contains goat polyclonal Anti-Human IgG and monoclonal Anti-C3d (Clone 12011D10).

#### STORAGE AND STABILITY

Store the Matrix™ gel cards in an upright position at 4-25°C. Do not freeze.

Avoid exposure of Matrix™ gel cards to direct sunlight or any heat source. The shelf life of Matrix gel cards is as per the expiry date mentioned on the label. Do not use beyond expiry date. Once the aluminium foil is removed from the microtube, it should be used immediately.

#### ADDITIONAL REAGENTS AND MATERIALS REQUIRED

Matrix™ Diluent -2 LISS for preparation of red cell suspension (Refer package insert before use). Gel card centrifuge (85 g), Work station, Micropipette capable of delivering 5-50µl of specimen and Bottle top dispenser.

#### PRINCIPLE

As the Matrix™ gel card containing red blood cells is centrifuged under specific conditions, red blood cells possessing the corresponding antigen will agglutinate in presence of the specific antibody and will be trapped in the gel column. The red blood cells which do not react, are not trapped in the gel column and get settled at the bottom of the microtube. The reactions are then read and graded according to their reactivity pattern.

#### SAMPLE COLLECTION

No special preparation of the patient is required prior to sample collection by approved techniques. For optimal results, freshly collected sample should be used. Anticoagulants like EDTA, CPD-A and Citrate can be used.

#### SAMPLE PREPARATION

Prepare a 0.8% red blood cell suspension in Matrix™ Diluent- 2 LISS as follows:

1. Bring the Matrix™ Diluent- 2 LISS to room temperature before testing.
2. Dispense 1.0 ml of Matrix™ Diluent- 2 LISS into a clean test tube.
3. Add 10 µl of packed red cells and mix gently.
4. Red blood cell suspension so obtained should be used for testing.

#### TEST PROCEDURE

1. Label the "Matrix™ Forward Grouping DAT Card" with patient's/donor's name or identification number. Remove the aluminium foil carefully by pulling it backwards.
2. Pipette 50µl of 0.8% patient's/donor's red cell suspension to all the microtubes.
3. Centrifuge the card for 10 minutes in the gel card centrifuge.
4. Retrieve the card from centrifuge, read and record the results.



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### INTERPRETATION OF RESULTS

The control microtube (Ctrl) must be negative to validate the results. If it is not negative then repeat the test after washing the patient's/donor's red blood cells with warm saline.

**Positive reaction:** Agglutinated red blood cells forming a clear line at the top of gel column or agglutinates dispersed in the gel column.

**Negative reaction:** Non-agglutinated red cells settle at the bottom of the microtube forming a button.

The reaction strength may be recorded as follows:

Strength of reaction	Comments
4+	Agglutinated red blood cells form a line at the top of the gel microtube.
3+	Most agglutinated red blood cells remain in the upper half of the gel microtube.
2+	Agglutinated red blood cells are observed throughout the length of the gel microtube. A small button of red blood cells may also be visible at the bottom of the gel microtube.
1+	Most agglutinated red blood cells remain in the lower half of the gel microtube. A button of cells may also be visible at the bottom of the gel microtube.
±	Most agglutinated red blood cells are in the lower third part of the gel microtube.
Negative	All the red blood cells pass through and form a compact button at the bottom of the gel microtube.
Mixed field agglutination	Agglutinated red blood cells form a line at the top of the gel and non-agglutinated red blood cells form a compact button at the bottom of the gel microtube.
H	Hemolysis of red blood cells

Expected reactivity pattern for ABO grouping with Matrix™ gel card:

Anti-A	Anti-B	Blood Group
± to 4+	Negative	A
Negative	± to 4+	B
± to 4+	± to 4+	AB
Negative	Negative	O

NOTE: Human red blood cells that show weak reaction with Anti-A and/or Anti-B probably indicate subgroups of A and/or B and further testing is recommended.

Expected reactivity pattern for Rho (D) typing with Matrix™ gel card:

Anti-D	Rho (D) Type
± to 4+	Rho (D) Positive
Negative	Rho (D) Negative

NOTE: Weak D/ Partial D type human red blood cells may give a weaker or negative reaction. Such cells should be retested for weak D confirmation with Matrix™ Coombs Anti-IgG card.

### DIRECT ANTIGLOBULIN TEST

Negative reaction indicates absence of detectable IgG antibodies or Complement component C3d on the red cells.

Positive reaction indicates that red blood cells are sensitized with IgG or Complement component C3d.

### NOTE

- In vitro diagnostic reagent for laboratory and professional use only. Not for medicinal use.
- The Matrix™ gel card contains sodium azide <0.1% as preservative. Avoid contact with skin and mucosa. On disposal flush with large quantity of water.

- All Matrix™ gel cards should be centrifuged for one complete cycle (10 minutes) in gel card centrifuge before use.
- Visually inspect the Matrix™ gel cards before use.
- Matrix™ gel cards having bubble(s) entrapped within the gel can be centrifuged for two complete cycles in gel card centrifuge to remove the bubbles, if bubbles are not removed the card should not be used.
- Matrix™ gel cards that exhibits any signs of drying (i.e. absence or reduced level of reagent buffer above the gel column), decreased volume of gel, cracked gel should not be used.
- Matrix™ gel cards with damaged aluminium foil seal should not be used.
- Freezing of Matrix™ gel cards or evaporation of gel or reagent buffer due to exposure to heat may lead to erroneous results.
- Fibrin or particulate matter if present in the sample may lead to erroneous results.
- Fibrin if present in the sample may trap red blood cells on top of gel column presenting a pink line. To avoid, samples should be well centrifuged at 1500g for 10 minutes before taking samples and RBCs should be washed if not collected properly in an anticoagulant.
- Use of Red blood cell concentration/ volume and reagents other than those described may lead to erroneous results. Follow the instructions carefully.
- Aged or stored red blood cells may exhibit weaker reactivity than freshly collected cells.
- Old cell panels may give an unclear background with Matrix™ gel cards.
- Do not use hemolysed, lipemic and icteric samples.
- Extreme turbidity or discoloration may indicate microbial contamination or denaturation of protein due to thermal damage. Such Matrix™ gel cards should be discarded.
- Contamination of reagents during usage may cause false positive or negative results.
- Red cell aggregation in the red blood cell suspension may interfere the passage.
- Aluminium foil seal of Matrix™ gel cards should be removed gently and carefully by pulling the foil seal backwards to avoid contamination of reagents from one microtube to another.
- To avoid contamination always use fresh tips before dispensing into each microtube.
- Some pathological conditions are reported as causing nonspecific reactions in AHG procedures.
- Matrix ContaVoid can be used to avoid contamination of reagents in microtubes while usage. For details refer pack insert of Matrix ContaVoid (Catalogue no. 102770100).

### REMARKS

- Known positive and negative control should be tested as per Good Laboratory Practices.
- ERYWELL (Catalogue no. 10253020) can be used as red blood cell preservative solution for preservation of known cells.
- Agrol™ (Cat. No. 10252010) can be used for quality control procedures related to AHG.
- The Anti-D does not detect the D VI variant.

### PERFORMANCE

The performance study has been evaluated on 3195 blood samples from 2700 donors, 377 patients, 68 newborns and 50 weak D blood samples. Each ABO/D test result showed complete agreement with the analysis method of the reference laboratory in a university blood bank. Blood samples with weak D expression showed different reaction strength.

### BIBLIOGRAPHY

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