



MONOCLONAL BLOOD GROUPING REAGENTS

Anti-Le^a and Anti-Le^b

For Tube Technique

SUMMARY

The Lewis system antigens are not an integral part of the red cell membrane and are produced by tissue cells and found primarily in plasma and watery secretions. Red cells acquire Lewis antigens by absorption from surrounding plasma. The amount of Lewis antigen expressed on a cell can vary with the cell's ABO phenotype. Anti-Le^a and Anti-Le^b have not been associated with Haemolytic Disease of the Newborn, but examples of Anti-Le^a have caused Haemolytic Transfusion Reactions.

Anti-Le ^a	Anti-Le	Phenotype	Caucasians %	Afro-Americans %
+	0	Le (a+b-)	22	23
0	+	Le(a-b+)	72	55
0	0	Le(a-b-)	6	22
+	+	Le(a+b+)	Rare	Rare

PRINCIPLE

The reagents will cause agglutination (clumping) of test red cells, that carry the corresponding Lewis antigen, after centrifugation. No agglutination generally indicates the absence of the corresponding Lewis antigen (see Limitations).

REAGENTS

Atlas Monoclonal Anti-Le^a and Anti-Le^b blood grouping reagents contain mouse monoclonal IgM antibodies, diluted in a phosphate buffer containing sodium chloride, EDTA, bovine albumin and macromolecular potentiators. Anti-Le^a is made with Clone LEA2 and Anti-Le^b is made with Clone LEB2. Each reagent is supplied at optimal dilution for use with all the recommended techniques stated below without the need for further dilution or addition. For lot reference number and expiry date see Vial Label.

STORAGE

Do not freeze. Reagents vials should be stored at 2 - 8°C on receipt. Prolonged storage at temperatures outside this range may result in accelerated loss of reagent reactivity. Reagents will remain stable for up to 7 days when subjected to temperatures not exceeding 30°C.

SAMPLE COLLECTION AND PREPARATION

Blood samples drawn with or without anticoagulant may be used for antigen typing. If testing is delayed then store specimens at 2-8°C. EDTA and citrate samples should be typed within 48 hours. Samples collected into ACID, CPD or CPDA-1 may be tested up to 35 days from the date of withdrawal. All blood samples should be washed at least twice with PBS before being tested.

PRECAUTIONS

1. The reagents are intended for *in vitro* diagnostic use only.
2. If a reagent vial is cracked or leaking, discard the contents immediately.
3. Do not use the reagents past the expiration date (see Vial Label).
4. Do not use the reagents if a precipitate is present.
5. Protective clothing should be worn when handling the reagents, such as disposable gloves and a laboratory coat.
6. The reagents have been filtered through a 0.2 Nm capsule to reduce the bio-burden. Once a vial has been opened the contents should remain viable up until the expiry date as long as there is no marked turbidity, which can indicate reagent deterioration or contamination.
7. The reagents contain 0.1% sodium azide. Sodium azide may be toxic if ingested and may react with lead and copper plumbing to form explosive metal azides. On disposal flush away with large volumes of water.
8. No known tests can guarantee that products derived from human or animal sources are free from infectious agents. Care must be taken in the use and disposal of each vial and its contents.

CONTROLS AND ADVICE

1. It is recommended a positive and negative control be tested in parallel with each batch of tests. Tests must be considered invalid if controls do not show expected results.
2. In the Tube Technique one volume is approximately 40µl when using the vial dropper provided.
3. The use of the reagent and the interpretation of results must be carried out by properly trained and qualified personnel in accordance with the requirements of the country where the reagent is in use.
4. The user must determine suitability of the reagent for use in other techniques.

5. REAGENTS AND MATERIALS REQUIRED

- Glass test tubes (10 x 75 mm or 12 x 75 mm).
- Phosphate Buffered Saline (PBS): NaCl 0.9%, pH 7.0 ± 0.2 at 22°C ± 1 °C.
- Positive and negative control red cells.
- Test tube centrifuge.
- Volumetric pipettes.

RECOMMENDED TECHNIQUE

A. Tube Technique

1. Prepare a 2-3% suspension of washed test red cells in PBS.
2. Place in a labelled test tube: 1 volume of Atlas Lewis reagent and 1 volume of test red cell suspension.
3. Mix thoroughly and incubate at room temperature for 15 minutes.
4. Centrifuge all tubes for 20 seconds at 1000 rcf or for a suitable alternative time and force.
5. Gently resuspend red cell button and read macroscopically for agglutination

INTERPRETATION OF TEST RESULTS

- Positive: Agglutination of the test red cells constitutes a positive test result and within accepted limitations of test procedure, indicates the presence of the appropriate Lewis antigen on the test red cells.
- Negative: No agglutination of the test red cells constitutes a negative result and within the accepted limitations of the test procedure, indicates the absence of the appropriate Lewis antigen on the test red cells.

STABILITY OF THE REACTIONS

0. Tests should be read immediately after centrifugation. Delays may result in dissociation of antigen-antibody complexes leading to false negative, or weak positive reactions.
1. Caution should be exercised in the interpretation of results of tests performed at temperatures other than those recommended.

LIMITATIONS

1. Atlas Lewis reagents must only be used with washed red cells suspended in physiological saline because Lewis antigens are present in plasma. Cells suspended in plasma/serum cannot be used since the soluble antigen present may neutralise the test reagent, giving false negative results.
2. Weaker reactions may occur when Anti-Le^b is tested against A, or A,B Le(b+) red cells because amount of Lewis antigen expressed on red cell can vary with cell's ABO phenotype.
3. Red cells of most new-borns will type Le(a-b-) with monoclonal or human anti-Lewis reagents, although some specimens will produce weak positive reactions in direct antiglobulin tests with mouse monoclonal Anti-Le^a.
4. The Lewis phenotypes of children under six years of age cannot be accurately determined. Red cell Lewis antigens are weaker during pregnancy and some women with red cells of the Le(a-b+) phenotype may type as Le(a-b-) whilst pregnant.
5. Stored blood may give weaker reactions than fresh blood
6. False positive or false negative results may also occur due to:
 - Contamination of test materials
 - Improper storage, cell concentration, incubation time or temperature
 - Improper or excessive centrifugation
 - Deviation from the recommended techniques

SPECIFIC PERFORMANCE CHARACTERISTICS

1. The reagents have been characterised by all the procedures mentioned in the Recommended Techniques.
2. Prior to release, each lot of Atlas Monoclonal Anti-Le^a and Anti-Le^b is tested by the Recommended Technique against a panel of antigen-positive red cells to ensure suitable reactivity.
3. Specificity of source monoclonal antibodies is demonstrated using a panel of antigen-negative cells.
4. The Quality Control of the reagents was performed using red cells that had been washed twice with PBS prior to use.
5. The reagents comply with the recommendations contained in the latest issue of the Guidelines for the UK Blood Transfusion Services.

DISCLAIMER

1. The user is responsible for the performance of the reagents by any method other than those mentioned in the Recommended Technique.
2. Any deviations from the **Recommended** Technique should be validated prior to use[®].

BIBLIOGRAPHY

1. Kholer G, Milstein C. Continuous culture of fused cells secreting antibody of predefined specificity. *Nature* 1975; **256**, 495-497
2. Mollison PL. *Blood Transfusion in Clinical Medicine*, 8th Edition, Blackwell Scientific, Oxford 1987; Chapter 7.
3. Issitt PD. *Applied Blood Group Serology*, 3rd Edition. Montgomery Scientific, Miami 1985; Chapter 6
4. BSCH Blood Transfusion Task Force. Guidelines for microplate techniques in liquid-phase blood grouping and antibody screening, *Clinical Laboratory Haematology* 1990; 12, 437-460.
5. Guidelines for:the Blood Transfusion Service in the United Kingdom. H.M.S.O. Current Edition.
6. British Committee for Standards in Haematology, Blood Transfusion Task Force. Recommendations for evaluation, validation and implementation of new techniques for blood grouping, antibody screening and cross matching. *Transfusion Medicine*, 1995, 5, 145-150.

ATLAS MEDICAL

William James House, Cowley Rd,

Cambridge, CB4 4WX, UK

Tel: ++44 (0) 1223 858 910

Fax: ++44 (0) 1223 858 524

PPI355A01

Revision A (18.07.2006)