

# INSTRUCTIONS FOR USE

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## BLOOD GROUPING REAGENT ORTHO™ Sera Anti-s (Anti-MNS4)

REF 6904491

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### Intended Use

For *in vitro* diagnostic use only  
For Indirect Antiglobulin Test by Column Agglutination Technology

The Anti-s reagent is for the qualitative *in vitro* detection of human s positive red blood cells by the indirect antiglobulin test.

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### Summary and Explanation

The MNS system is a complex system where the genes are located on chromosome 4. The gene for M and N is *GYP A* for S and s is *GYP B*. The locuses are closely linked between M, N and S, s due to this gene location. These are inherited as a haplotype for examples MS, NS etc<sup>4</sup>.

The s antigen is carried on a glycoprotein molecule glycoprotein B (GYB), where it is characterized by a single amino acid substitution (threonine) at position 29. The s antigen is generally destroyed when red cells are exposed to papain, bromelain and ficin. Trypsin generally has no adverse effect<sup>1,2</sup>.

Complexities within the MNS system also produce a number of phenotypes in which S/s expression may have been modified<sup>1</sup>.

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### Principles of Procedure

When used by the recommended technique, this reagent will cause agglutination (clumping) of red blood cells carrying the s antigen. Lack of agglutination of the red blood cells demonstrates the absence of the s antigen.

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### Reagents

Anti-s is supplied as one reagent.

- 1 vial containing 5 mL of human monoclonal antibodies of type IgG (cell line P3YAN3) containing <0.1% (w/v) sodium azide, potentiators and bovine material.

No preparation of the reagent is required. Use directly from the vial.

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### Storage Requirements

Store at 2–8 °C.

May be at room temperature (15–30 °C) while in use. Replace cap when not in use.

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### Specimen Collection

No special preparation of the patient/donor is required prior to specimen collection. Specimens should be collected by aseptic technique with an anticoagulant. The specimen should be tested as soon as possible after collection. If testing is delayed, the specimen should be stored at 2–8 °C. Blood specimens exhibiting gross hemolysis or contamination should not be used. Do not use collection tubes that contain plasma/cell separation media. Samples collected in EDTA should be tested within seven days from collection. Donor blood stored in citrate anticoagulant may be tested until the expiry date of the donation.

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### Precautions

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#### Precautions

Do not use if turbid.  
Do not dilute.  
Do not use beyond the expiry date.  
This reagent contains <0.1% (w/v) sodium azide.  
Handle and dispose of reagents as potentially infectious.  
This reagent is for *in vitro* diagnostic use only.

**Caution:** Sodium azide may be toxic if ingested and may react with lead and copper plumbing to form explosive compounds. If discarded into sink, flush with a large volume of water to prevent azide buildup.

**Caution:** Source material from which this product is derived was found non-reactive for HBsAg, Anti-HIV 1/2 and Anti-HCV. No known test methods can offer complete assurance that products derived from human blood will not transmit infectious disease. Appropriate care should be taken in the use and disposal of this product. Source materials may include human components and antibody producing cells that are used in the manufacture of polyclonal and monoclonal products.

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#### Procedure

##### General Information

This reagent has been standardized for use by the technique described below. When using methods other than those described in this IFU, the procedures provided by the manufacturer of those methods must be followed. Approved validation procedures must be performed. We advise that regulatory agencies be consulted to determine specific validation requirements. When using automated instruments, follow the procedures that are contained in the operator's manual provided by the device manufacturer.

##### Materials Provided

ORTHO™ Sera Anti-s

##### Additional Materials Required but not Provided

- Isotonic saline
- Reagent red blood cells suitable for the control of Anti-s
- Anti-Human Globulin Anti-IgG Ortho BioVue® System Cassettes
- Micropipettors for delivery of 10 µL, 40 µL and 50 µL
- Ortho BioVue® System Heatblock, 37 °C
- Ortho BioVue® System Centrifuge

##### Test Procedure

###### Indirect Antiglobulin Test

1. Prepare a 0.8% or 3-5% red cell suspension from patient or donor cells, using isotonic saline.
2. Allow the cassette and reagent to come to room temperature before use.
3. Label the cassette appropriately with a sample identifier.
4. Add 40 µL of the reagent antisera to the appropriate reaction chamber(s) of the opened cassette. **Do not touch the pipette to the side of the reaction chamber. If this occurs, change pipette tip before proceeding to the next chamber.**
5. Add 50 µL of 0.8% red cell suspension or add 10 µL of 3-5% red cell suspension to the appropriate reaction chamber(s) of the cassette.
6. Observe that the contents of the reaction chamber(s) are combined. If necessary tap gently.  
**NOTE:** Assure that the reagents remain in the reaction chamber. There should be no mixing of reactants with reagents in the column prior to centrifugation.
7. Incubate at 37 °C for 15 minutes.
8. Immediately centrifuge the cassette using the Ortho BioVue® System Centrifuge.
9. Read the front and back of the individual columns for agglutination upon test completion.
10. Record the reaction strength.

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### Interpretation of Results

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Agglutination = positive test result  
No agglutination = negative test result

#### Stability of Results

Test results should be read, interpreted and recorded upon completion of centrifugation.

#### Quality Control

Quality Control (QC) of reagents is required. Quality Control should be performed on each lot of reagent on each day of use according to standard operating procedures.

#### Limitations of the Procedure

1. The expression of certain red blood cell antigens may diminish in strength during storage, particularly in EDTA samples. Better results will be obtained with fresh samples.
2. Suppressed or weak expression of blood group antigens may give rise to false-negative reactions.
3. Anomalous results may be caused by the following:
  - Fibrin or particulate matter
  - Red blood cells sticking to the sides of the reaction chamber
  - DAT positive red cells
  - Do not use cassettes that appear damaged (i.e., break in foil seal or break, crack or bubble in the column), exhibit drying (i.e., liquid level is at or below the top of the glass beads) or exhibit discoloration (due to bacterial contamination, which can cause false reactions).
  - Loss of fluid in the cassette column may cause (weak) false positive results.
  - J reactions may occasionally be observed with high red cell concentrations. J reactions may also be observed if during centrifugation the cassettes are not seated properly in the holder or not allowed to spin at a 90° angle.

**Note:** A J reaction consists of cells forming a button at the bottom of the bead column or microtube when either end of the cell button goes up the side of the column. The cell button may be disrupted. A J reaction may represent a weakly positive reaction.
4. Tests with these or other anomalous results should be repeated.
5. Erroneous results could occur if final reactions are not read upon completion of centrifugation.
6. Mixed cell populations may be encountered as a result of, for example, transfusion, fetal maternal hemorrhage, or transplantation. Consult patient history when results of this nature are encountered before assigning an antigen type.

#### Performance Characteristics

##### Expected Results\*

In performance evaluation studies, samples were tested with ORTHO™ Sera Anti-s Human Monoclonal IgG by Ortho BioVue® System Column Agglutination Technology (CAT) as follows:

Reagent	Number Tested	CAT Red Cell Suspension	Concordance**	Positive Samples in Performance Evaluation	
				N	Frequency (%)
Anti-s	411	0.8%	100%	371	90
	100	3-5%			

\* Data on file at Alba Bioscience Limited.

\*\*Concordance indicates agreement between the corresponding reagents only and does not indicate which reagents gave the correct results.

Results were evaluated against comparable CE marked products using the appropriate methods for the comparators.

The testing included the following minimum numbers of samples: donor and patient samples, a minimum of 10% each; neonatal samples, a minimum of 2%; samples of ABO blood group A or B, minimum of 40%. The total proportion of group O samples tested with both reagents was 44%. The test outcomes were representative of typical antigen frequency, based on the UK population as the testing was performed at sites in the UK.<sup>1</sup>

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### Bibliography

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#### Specific Performance Characteristics

ORTHO™ Sera Anti-s Human Monoclonal IgG Blood Grouping Reagent has been tested manually using the Ortho BioVue® System and when used according to the recommended instructions for use, found to specifically agglutinate human red cells with the corresponding antigen.

The ORTHO™ Sera Anti-s reagent reacts with cells expressing the s antigen.

For additional information or technical support, contact Customer Technical Support.

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#### Bibliography

1. Daniels, G. Human Blood Groups, 2nd ed. Oxford; Malden MA: Blackwell Science, 2002.
2. Reid MA, Lomas-Francis C. The Blood Group Antigen Facts Book, 2nd ed. London, Academic Press, 2012.
3. Klein HG, Anstee DJ. Mollison's Blood Transfusion in Clinical Medicine, 11th ed. Oxford; Malden MA: Blackwell Publishing, 2005.
4. Roback JD, Combs MR, Grossman BJ, Hillyer CD, eds. Technical Manual, 17th ed. Bethesda, MD: AABB, 2011.

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### Glossary of Symbols

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The following symbols may have been used in the labeling of this product.

	Do Not Reuse		Contains Sufficient for "n" Tests		Fragile, Handle with Care.
	Use by or Expiration Date (Year-Month-Day)		<i>In vitro</i> Diagnostic Medical Device		Keep Dry
	Batch Code or Lot Number		Upper Limit of Temperature		This end up
	Serial Number		Lower Limit of Temperature		Do Not Use if Damaged
	Catalog Number or Product Code		Temperature Limitation		Cassette
	Caution		Consult instructions for use		Concentration
	Date of Manufacture		Biological Risks		Der Grüne Punkt (the Green Dot). Manufacturer follows certain packaging material waste disposal management regulations.
	Manufacturer		Harmful		
	Authorized Representative in the European Community				

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Summary of Revisions

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### Summary of Revisions

Date of Revision	Version	Section	Description of Technical Changes*
2013-03-13	1.0		Initial version of Instructions for Use.

\* The change bars indicate the position of a technical amendment to the text with respect to the previous version of the document.



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