BLOOD GROUPING REAGENT

Anti-C\textsuperscript{w}

ALBAclone®
(Human/Murine Monoclonal)
For Tube Technique

**REF Z106U**

- Meets FDA potency requirements
- Discard if turbid
- Preservative: 0.1% (w/v) sodium azide

**CAUTIONS:** THE ABSENCE OF ALL VIRUSES HAS NOT BEEN DETERMINED. THIS PRODUCT HAS COMPONENTS (DROPPER BULBS) CONTAINING DRY NATURAL RUBBER.

**INTERPRETATION OF LABELING SYMBOLS**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOT</strong></td>
<td>Batch code</td>
</tr>
<tr>
<td><strong>REF</strong></td>
<td>Product code</td>
</tr>
<tr>
<td><strong>2\textdegree C/8\textdegree C</strong></td>
<td>Storage temperature limitation (2–8 °C)</td>
</tr>
<tr>
<td><strong>IVD</strong></td>
<td>In vitro diagnostic medical device</td>
</tr>
<tr>
<td><strong>i</strong></td>
<td>Consult instructions for use</td>
</tr>
<tr>
<td><strong><a href="http://www.quotedbd.com">www.quotedbd.com</a></strong></td>
<td>Manufacturer</td>
</tr>
</tbody>
</table>

**SUMMARY AND EXPLANATION**

Since the description of the RhD antigen by Levine and Stetson in 1939, more than 40 other Rh antigen complexes have been identified. With the exception of C, c, E and e, and perhaps C\textsuperscript{w}, few of these antigens of their corresponding antibodies are encountered in routine testing. Rh antigens are controlled by a series of closely linked loci on chromosome 1, the genetic contribution from each parent being inherited as a haplotype e.g. Cde, cDE, etc. Used separately, anti-Rh blood grouping reagents will indicate whether an individual expresses the corresponding antigen – an essential procedure in the selection of blood for transfusion of patients with Rh antibodies.

Testing red blood cell samples with anti-C, anti-D, anti-E, anti-c and anti-e will disclose the Rh phenotype from which the most probable genotype may be deduced. Knowing the probable paternal genotype can be of value in the management of RhD hemolytic disease of the fetus and newborn, where Rh\textsuperscript{*}r infants are likely to be more severely affected than Rh\textsuperscript{r}r infants. Probable genotype information can also be useful in establishing antibody specificity and in selecting blood for transfusion of patients with Rh antibodies.

**PRINCIPLE OF THE TEST**

When used by the recommended technique, this reagent will cause agglutination (clumping) of red blood cells carrying the C\textsuperscript{w} antigen. Lack of agglutination demonstrates the absence of the C\textsuperscript{w} antigen.

**REAGENT DESCRIPTION**

The main component of this reagent is IgM antibody derived from the in vitro culture of the IgM secreting human/mouse heterozygoidoma of cell line MS-110:

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Product Code</th>
<th>Cell Line</th>
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</thead>
<tbody>
<tr>
<td>Anti-C\textsuperscript{w}</td>
<td>Z106U</td>
<td>MS-110</td>
</tr>
</tbody>
</table>

The formulation contains bovine material and 0.1% (w/v) sodium azide.

The volume delivered by the reagent bottle dropper is approximately 40 µL. Care should be taken to ensure that appropriate serum to cell ratios are maintained in all test systems.

**WARNINGS AND PRECAUTIONS**

For in vitro diagnostic use only
- Products should be used by qualified personnel
- Do not use beyond the expiration date
- Do not use if turbid
- Do not dilute
- The format of the expiration date is expressed as YYYY-MM-DD (Year-Month-Day)

This reagent contains 0.1% (w/v) sodium azide. Sodium azide may be toxic if ingested and may react with lead and copper plumbing to form explosive compounds. If discarded into a sink, flush with a large volume of water to prevent azide build-up.

This reagent is of animal origin (murine and bovine), therefore care must be taken during use and disposal as there is a potential infection risk.

**MATERIALS**

**Materials Provided**
- ALBAclone\textsuperscript{TM} Anti-C\textsuperscript{w}

**Materials required but not provided**
- Isotonic saline
- Reagent red blood cells suitable for the control of Anti-C\textsuperscript{w}
- 10 x 75 mm or 12 x 75 mm glass test tubes
- Pipettes
- Optical aid
- Centrifuge
- Timer
- Heating block/waterbath

**PROCEDURE**

**General Information**

NOTE: This reagent has been standardized for use by the technique described below and therefore its suitability for use by other techniques cannot be guaranteed. When a test is required to be incubated for a specific time period, a timer should be used.

When using supplemental testing equipment (i.e. centrifuge), follow the procedures that are contained in the operator’s manual provided by the device manufacturer.
RECOMMENDED TECHNIQUE

Tube Technique – 5-15 Minute Incubation/Spin

1. Prepare a 2-4% suspension of red blood cells in isotonic saline solution (Reagent Red Blood Cells may be used directly from the vial or according to the manufacturer's instructions.)
2. Add 1 drop of blood grouping reagent to a glass test tube.
3. Add 1 drop of red blood cell suspension. Steps 2 and 3 may be performed in either order.
4. Mix the contents of the test tube and incubate at 37 °C ± 1 °C for 5-15 minutes.
5. Centrifuge the test tube.

NOTE: Suggested centrifugation: 900-1000 g (approx. 3400 rpm) for 10 seconds or a time and speed appropriate for the centrifuge used that produces the strongest reaction of antibody with antigen-positive red blood cells, yet allows easy re-suspension of antigen-negative red blood cells.
6. After centrifugation, gently shake the tube to dislodge the cell button from the bottom and immediately observe macroscopically for agglutination. Negative reactions may be examined with an optical aid.
7. Record results.

STABILITY OF REACTION

Test results should be read and interpreted immediately after centrifugation. Delays may cause dissociation of antigen-antibody complexes resulting in weak positive or false negative reactions.

INTERPRETATION OF RESULTS

Agglutination = positive test result
No agglutination = negative test result

QUALITY CONTROL

Quality control of reagents is essential and should be performed on the day of use and in accordance with local, state and federal regulations.

C⁺⁺ red blood cells should be used as a positive control.
C⁻⁻ red blood cells should be used as a negative control.

PERFORMANCE LIMITATIONS

Heat blocks and waterbaths promote better heat transfer and are recommended for 37 °C tests, particularly where the incubation period is 30 minutes or less.

The expression of certain red blood cell antigens may diminish in strength during storage, particularly in EDTA and clotted samples. Better results will be obtained with fresh samples.

Gently re-suspend the tube tests before reading. Excessive agitation may disrupt weak agglutination and produce false negative results.

Excessive centrifugation can lead to difficulty in re-suspending the cell button, while inadequate centrifugation may result in agglutinates that are easily dispersed.

False positive or false negative results can occur due to contamination of test materials, improper reaction temperature, improper storage of materials, omission of test reagents and certain disease states.

Suppressed or weak expression of blood group antigens may give rise to false negative reactions.

SPECIFIC PERFORMANCE CHARACTERISTICS

Prior to release, each lot of ALBAclone® Anti-C⁺⁺ is tested by FDA recommended methods against a panel of antigen-positive and antigen-negative red blood cells to ensure suitable reactivity.

Comparator Study Results

During comparator studies (data on file at Alba Bioscience Limited), blood samples were tested with ALBAclone® Anti-C⁺⁺ (Monoclonal) as follows:

<table>
<thead>
<tr>
<th>Trial Reagent</th>
<th>Comparator Reagent</th>
<th>One-sided 95% Exact Lower Confidence Limit</th>
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</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
<td>Total</td>
</tr>
<tr>
<td>Anti-C⁺⁺</td>
<td>157</td>
<td>1</td>
</tr>
<tr>
<td>Comparator reagent</td>
<td>8</td>
<td>894</td>
</tr>
<tr>
<td>Total</td>
<td>165</td>
<td>895</td>
</tr>
<tr>
<td>Positive Percent Agreement</td>
<td>95.2</td>
<td>0.91</td>
</tr>
<tr>
<td>Negative Percent Agreement</td>
<td>99.9</td>
<td>0.99</td>
</tr>
</tbody>
</table>

In performance evaluation studies, 1060 samples were tested with ALBAclone® Anti-C⁺⁺ (Monoclonal). Test results were evaluated against a comparable approved product using the appropriate method for the comparator.

The positive percent agreement at the one-sided 95% exact lower confidence limit was 0.91 for agglutination tests based on a comparison of interpreted results. The negative agreement at the one-sided 95% exact lower confidence limit was 0.99 for agglutination tests based on a comparison of interpreted results.

The comparator reagent utilizes an enzyme addition method which may give false positive results with DAT positive samples which may have had an impact on the outcome of the testing and the discrepancies observed.

The low positive percent agreement at the one-sided 95% lower confidence limit (i.e. less than the acceptance criteria of 0.99) is partly due to the discrepancies observed with DAT positive red blood cells but is also influenced by the low frequency of positive samples encountered during the study.

Precision Study Results

As part of the performance evaluation, precision and lot to lot studies were performed using multiple operators, days and runs to confirm repeatability and reproducibility of test results in the same run, day and with the same operator and between runs, days and operators. The study took into account variables such as days of the week, times of day and supplementary reagents used in testing.

There were no discordant results; all antigen positive test outcomes generated unequivocal positive reactions and antigen negative test outcomes generated unequivocal negative reactions.

BIBLIOGRAPHY

2. AABB Standards Program Committee: Standards for Blood Banks and Transfusion Services, 29th ed. AABB, 2014

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