

SEROLOGICAL BOVINE ALBUMIN, 22% AND 30% SOLUTIONS POLYMER ENHANCED SEROLOGICAL ALBUMIN, 22% SOLUTION

PRINCIPLE

Incomplete antibodies have the ability to combine with their specific antigens in the first stage of agglutination but will not produce visible agglutination without the use of special techniques. Addition of serological albumin to the cell suspension enables some of these antibodies to complete the second stage of agglutination. Serological albumin has also been shown to enhance the sensitivity of the indirect antiglobulin test for some antibody specificities.

REAGENTS

Plasmatec 22% and 30% Serological Albumin reagents are prepared from bovine serum albumin. The polymer content of Plasmatec 22% Polymer Enhanced Serological Albumin is increased naturally by a process modification. No artificial avidity enhancers or high molecular weight agglutination potentiators are added to Plasmatec Serological Albumin solutions. These reagents do not contain sodium caprylate. Sodium azide at 0.1% is added as a preservative. These reagents should be used as supplied by the methods described; their suitability for use in other techniques must be determined by the user.

PRECAUTIONS

For in vitro diagnostic use only. Store at 2-8 deg C when not in use. Do not freeze or expose to elevated temperatures. Marked turbidity may indicate reagent deterioration or contamination. Plasmatec Serological Albumin Solutions are derived from accredited and inspected herds from areas where the risk of bovine spongiform encephalopathy is negligible. Additionally, during the manufacturing process the reagents are subjected to conditions of high temperature and low Ph for extended periods. Such procedures have been shown to completely inactivate BSE – like agents. Products of animal origin cannot be assumed to be free from infectious agents, therefore appropriate care should be taken in the use and disposal of the container and its contents.

SPECIMEN COLLECTION

Fresh serum obtained from a fully clotted specimen should be used in compatibility or antibody identification procedures. Red cells obtained from samples with or without anticoagulant can be used in antigen detection tests. Draw a blood specimen using an acceptable phlebotomy technique. Testing should be performed as soon as possible. If testing is delayed, store samples at 2-8 deg C. Serum or plasma can be separated from the cells and frozen.

TECHNIQUE – ALBUMIN REPLACEMENT METHOD

1. Prepare a 2-3% suspension of red cells in isotonic buffered saline (pH 6.8-7.2).
2. Place in a glass test tube:
1 volume of serum or plasma
1 volume of 2-3% cell suspension.
3. Mix well and incubate at 37 deg C for 45 – 90 minutes.
4. With a fine pipette remove the supernatant saline-serum mixture, leaving the button of red cells.
5. Add one volume of Plasmatec 22% Serological Albumin, taking care not to disturb the cell button.
6. Without mixing, re-incubate at 37 deg C for 15-30 minutes.
7. Examine for agglutination. Reactions may be examined with an optical aid, or microscopically. Record results.

TECHNIQUE – ALBUMIN DISPLACEMENT METHOD

1. Follow steps 1-3 of the Albumin Replacement Method.
2. Upwardly displace the supernatant saline-serum mixture by carefully allowing one volume of Plasmatec 30% Serological Albumin to run down the inside wall of the test tube.
3. Follow steps 6 and 7 of the Albumin Replacement Method.

TECHNIQUE – ALBUMIN MIX METHOD

1. Prepare a 2-3% suspension of red cells in isotonic buffered saline (pH 6.8-7.2).
2. Place in a glass test tube:
2 volumes of serum or plasma
1 volume of 2-3% cell suspension.
2 volumes of Plasmatec 22% or 30% Serological Albumin.
3. Mix well and incubate at 37 deg C for 15-60 minutes.
4. Centrifuge at 900-1,000 rcf for 30 seconds.*
5. Gently resuspend the cell button and examine for agglutination. Record results.

TECHNIQUE – INDIRECT ANTIGLOBULIN TEST

1. Follow steps 1-3 of the Albumin Mix Method.
2. Wash the cells 3-4 times in isotonic buffered saline, decanting the saline completely after each wash.
3. Add two volumes of Plasmatec Anti-Human Globulin to the dry cell button.
4. Mix gently and centrifuge at 900-1,000 rcf for 15 seconds.*
5. Gently resuspend the cell button and examine for agglutination. Reactions may be examined with an optical aid, or microscopically. Record results.
6. Confirm validity of all negative reactions by using IgG sensitised red cells, such as Plasmatec Coombs Control Cells.

TECHNIQUE – ANTIBODY TITRATION PROCEDURE

1. Prepare doubling dilutions of test serum in either inert group AB serum or 6% serological albumin. (The latter can be prepared by mixing 1 part Plasmatec 30% Serological Albumin with 4 parts isotonic buffered saline).
2. Prepare a 2% suspension of appropriate washed red cells in Plasmatec 22 or 30% Serological Albumin.
3. Add 1 volume of 2% cell suspension to 1 volume of each serum dilution, mix well, and incubate at 37 deg C for 15-60 minutes.
4. Centrifuge at 900-1,000 rcf for 30 seconds.*
5. Gently resuspend each cell button and examine for agglutination. Record results.
6. An antiglobulin test may be performed on those cells showing weak or negative results.

?? Alternatively, a time appropriate for the centrifuge being used may be determined, i.e., that which produces the strongest reaction of antibody with antigen-positive cells, yet allows easy resuspension of antigen-negative cells.

STABILITY OF THE REACTION

Following the recommended procedures, all tests should be read immediately and results interpreted without delay. Delays in reading, or delays in completion of washing steps where appropriate, may result in dissociation of antigen-antibody complexes, leading to false negative or weak positive reactions.

CONTROLS

Red cells sensitised with an autoantibody in vitro or in vivo may agglutinate spontaneously in concentrations of serological albumin as low as 6%. It is therefore essential to routinely set up control tests in which the test red cells are mixed with the appropriate serological albumin solution alone. The efficacy of serological albumin reagents should be confirmed throughout their use.

LIMITATIONS

Serological Albumin will not enhance the reactivity of all blood group antibodies.

Serological Albumin solutions should not be used as negative controls for potentiated IgG blood grouping reagents. False positive or false negative results may occur due to improper technique or contaminated test materials.

SPECIFIC PERFORMANCE CHARACTERISTICS

Plasmatec 22% and 30% Serological Albumin solutions have been shown to enhance agglutination of Rh and other antibodies when used according to insert methodologies. Each lot is tested to assure specificity in antibody-free system with red cells known to possess the most frequently inherited blood group antigens.

REFERENCES

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