

PREWARMED ANTIBODY SCREEN OR CROSSMATCH

I. PRINCIPLE

Prewarming may be useful in the detection and identification of red cell antibodies that bind to antigen only at 37°C especially in testing sera of patients with cold-reactive autoantibody activity that may mask the simultaneous presence of clinically significant alloantibodies. Warm the red cell suspension and plasma separately before mixing to prevent attachment of cold antibodies to red blood cells, and the production of incompatible reactions in the antiglobulin phase caused by complement binding to the cells. Neither albumin nor LISS should be used in this technique because of its tendency to enhance the activity of cold antibodies.

This technique should be used with some caution as it may reduce the sensitivity of detection for some clinically significant antibodies.

II. CLINICAL SIGNIFICANCE

UnityPoint Health-Pekin Hospital laboratory technicians will utilize this procedure to prewarm antibody screens and crossmatches in patients that have cold-reactive autoantibodies.

III. SPECIMEN

- A. Use plasma and red cells from a pink top tube.
- B. The sample should be no more than three days old at the time of potential transfusion. (The day of sample draw is day zero.) Exception: samples may be used up to seven days for outpatients that have not been pregnant or transfused in the previous three months.
- C. At the time of specimen collection, a Blood Bank ID armband with the patient's name, date of birth, and/or identification number is to be placed on the patient (this is in addition to the hospital identification bracelet).
- D. The specimen tube is to have the patient's name, date of birth, and/or identification number, Blood Bank ID armband number, date, time of collection, and the initials of the phlebotomist.

IV. PROCEDURE:

- A. Prewarm a bottle of saline and a tube of IgG Coombs serum to 37°C.
- B. Place an aliquot of the patient's plasma in an appropriately labeled tube and place in a 37°C incubator. The pipette to be used for transferring the plasma should be left in this tube also to warm.
- C. Label one tube for each antibody screen cell or donor unit with screen cell number or donor number along with the first and last initial of patient being

tested. (Lengthen the minimum letters to differentiate patients with the same initials, if necessary).

- D. Add one drop of 2-4% saline-suspended red cells to each tube.
- E. Incubate the plasma and cells separately at 37°C for 15 minutes.
- F. Add two drops of the patient's plasma to each tube containing test cells and mix.
- G. Incubate for 10 - 15 minutes at 37°. Do not add LISS. Incubation can be extended to 30 minutes.
- H. Centrifuge for 20 seconds, or for an appropriate calibrated spin time, at 3400 rpm (1000 rcf).
- I. Gently resuspend cells and examine macroscopically for agglutination or hemolysis.
- J. Wash the cells three to four times with warm saline, decanting completely after the final wash.
- K. Add two drops of warm IgG Coombs serum and shake to mix.
- L. Centrifuge for 20 seconds, or for an appropriate calibrated spin time, at 3400 rpm (1000 rcf).
- M. Gently resuspend cells and examine macro and microscopically for agglutination or hemolysis.
- N. Add one drop of Coombs control cells to all tubes with negative results. Centrifuge for 20 seconds, or an appropriate calibrated spin time, examine macroscopically. If the cells are agglutinated, the negative result is valid.

V. REPORTING RESULTS

- A. All reactions are to be entered into the computer immediately after reading each phase.
- B. Add the Prewarmed Antibody Screen in Sunquest-Blood Order Processing (BOP) by using the "little s" key on the Specimen Test Keyboard.
- C. Add the Prewarmed Crossmatch to each unit in BOP by using the "little x" key on the Unit Test Keyboard.
- D. Enter reactions in the grids and interpretations just like entering any other Antibody Screen or Crossmatch, except there is no immediate spin phase reactions. (See example: UPPK BB 0518.01)
- E. If cold agglutinin present, order a Blood Bank Problem Comment Line in the Add Specimen Test Box by typing in ";PB ", then TAB. Click on the comment line added, then hit ; twice to free text "Cold Agglutinin Present. Use Blood Warmer

VI. PROCEDURAL NOTES/PROBLEM-SOLVING TIPS

- A. The prewarmed procedure will not detect alloantibodies that agglutinate at 37°C or lower that are not reactive in the antiglobulin phase.

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VII. REFERENCES

- A. AABB Technical Manual, 19th Edition, American Association of Blood Banks, Bethesda, MD, 2017.

POLICY CREATION :		<i>Date</i>
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DATE	NAME	SIGNATURE
SECTION MEDICAL DIRECTOR		

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