Lab Dept: Transfusion Services

Test Name: ANTIBODY IDENTIFICATION, RED CELLS

General Information

Lab Order Codes: Submitted by Transfusion Service personnel to resolve positive antibody screens and/or incompatible crossmatches.

Synonyms: Antibody panel, Antibody Investigation

CPT Codes:
86870 – Antibody Identification
86900 – ABO
86901 – Rh
86880 – DAT
86800 – Elution
86905 – Antigen typing
86850 – Antibody Screen

Test Includes: Antibody screen, Direct Coombs, Antibody Identification, Antigen typing, and elutions as applicable

Logistics

Test Indications: To resolve positive antibody screens and/or incompatible crossmatches.

Lab Testing Sections: Transfusion Service

Referred to: Memorial Blood Center – Minneapolis

Phone Numbers: MIN Lab: 612-813-6824

STP Lab: 651-220-6558

Test Availability: Daily, 24 hours

Turnaround Time: Highly variable

Special Instructions: Provide Transfusion Service with diagnosis, history of pregnancies and transfusions, and list of medications taken by patient.

Use: Antibody identification is necessary before transfusion if antibody screen is positive. Used for diagnosis of possible hemolytic disease of the newborn, and in hemolytic anemia when direct or indirect antiglobulin test is positive.

Specimen

Specimen Type:	Whole blood
Container:	Lavender top tube (EDTA) or Red top tube **(SST TUBE IS NOT ACCEPTABLE.)**
Draw Volume:	5 – 10 mL *Contact Transfusion Service
Collection:	All specimens submitted to the Transfusion Service must be appropriately labeled at bedside with the time and date of collection, and the signature of the individual collecting the specimen. A completed order, either through the HIS or general requisition must accompany each specimen. It is not always necessary to collect a new sample prior to the provision of blood for patients. Consult with the Transfusions Service prior to collecting additional samples if status unknown.
Special Processing:	Refrigerate
Patient Preparation:	Refer to Collection of Patient Specimens for full details. The patient must be positively identified when the specimen is collected. The label on the blood specimen must correspond with the identification on the patient's Medical Record band (or ED ID) and on the physician/practitioner's orders. The specimen must be timed, dated, and signed by the phlebotomist at the bedside.
Sample Rejection:	Gross hemolysis, sample placed in a serum separator tube, specimen tube not properly labeled

Interpretive

Reference Range:	Immunization to red cell antigens may present crossmatch problems. When a panel identifies an antibody in a patient's serum, the patient's red cells are tested for the corresponding antigen. If the antibody is clinically significant (see table below), donor units must also lack the corresponding antigen. Elution and testing the eluate against a panel may identify the antibody causing a positive direct antiglobulin test. Donor blood compatible with the eluate may be acceptable in the case of an alloantibody. With autoantibody of the warm type, it is often the case that no donor blood is completely compatible.

Clinically Significant Blood Group Antibodies	
General	Potentially clinically significant antibodies are those that have been associated with hemolytic disease of the newborn, hemolytic transfusion reactions, or notably decreased survival of transfused red cells.
	Antibodies that react at 37ºC and by antiglobulin, that show hemolysis in vitro, and that have been reported to cause hemolytic reactions
Examples	Anti-A and Anti-B; antibodies of the Rh, Kell, Duffy, Kidd systems; also Anti-S, -s, -U, and some others reacting as above
Clinically Unimportant Blood Group Antibodies	
General	Antibodies reacting only at room temperature or below, which do not show hemolysis
Examples*	Antibodies of the Lewis, P, MN systems; high-titer, low-avidity antibodies; cold agglutinins
***Rare exceptions exist, usually when activity extends to 37ºC.	
An interpretive report is generated.	

Limitations: Antibody may be too weak to detect or identified. Antibodies to low incidence antigens may not be detected.

Methodology: Panel of separate, selected red cell samples, each of known antigenic composition, exposed to patient's serum or to eluate. Serum may be absorbed with certain test red cells, followed by a repeat panel with the absorbed serum or with antibody eluted from the absorbing cells. Auto controls are extremely important to rule out autoagglutination.

Contraindications: Remove any autoagglutinins first by cold or warm autoabsorption. Transfusion within the past 3 – 4 months invalidates warm autoabsorption because of the possibility of removing a significant alloantibody.

References: Turgeon ML (1995) Fundamentals of Immunohematology: Theory and Technique, 2nd ed, Baltimore, MD: Williams and Wilkins pp 365-7