## TITLE: Positive Antibody Workup

## PRINCIPLE:

In vitro antibody identification tests are employed to identify the specificity of these antibodies in patient or donor samples in order to prepare or select donor units for transfusion. Antibody identification can also aid in the diagnosis and treatment of hemolytic disease of the newborn or autoimmune hemolytic anemia.

**CLINCIAL SIGNIFICANCE:**

Unexpected antibodies are found most frequently in samples from patients who were exposed to foreign red cell antigens through transfusion or pregnancy (approximately 1% of all patient samples). Less frequently, red cell antibodies are found in samples from blood donors. Some red cell antibodies are of clinical importance since they may cause decreased red cell survival as the result of hemolytic transfusion reactions, hemolytic disease of the newborn or autoimmune hemolytic anemia.

### PERSONNEL:

Medical Technologists

**SPECIMEN:**

No special preparation of the patient is required prior to specimen collection. Collect 2 10ml red top tubes and two 7ml pink top tubes (if indicated) in addition to the tube that was collected for crossmatch. The blood sample should be tested as soon as possible after collection. If delay occurs, store sample at 2 C to 8 C. Sample can only be used for 3 days from collection time.

**REAGENT PREPARATION AND EQUIPMENT:**

1. Echo instrument and supplies
2. Rush Copley Antibody Identification Front Sheet
3. Heartland Blood Center Immunology Form (if indicated)

**CALIBRATION**

None necessary

### QUALITY CONTROL

WB corQC is run daily to evaluate the performance of Anti-A, Anti-B, Anti-D and the corresponding Rh control material, serum (reverse) grouping red blood cells, red blood cell antibody screening reagents; and Rh and Kell blood grouping reagents by automated methods. WB corQC should produce visible reactions with reagents where positive results are expected, and negative results where no reaction is expected. Reasons for false negative reaction with reagents where positive results are expected include reagent deterioration or suboptimal performance of test equipment. Reasons for false positive reactions with reagents where negative results are expected include reagent contamination or suboptimal performance of test equipment.

**STEPWISE PROCEDURE:**

**Preanalytical Considerations:**

1. Consider patient’s medical history
2. Have they ever been transfused? Where and When. Most Recent. Indicate this on the workup form.
3. (Females) Pregnancies? How many. Live births. Indicated this information on the workup form.
4. Patient history can be vital in antibody identification. Requesting the above information can also lead you to historical antibodies patients may have acquired at other hospitals.

Run panel of your choice

1. Access the blood sample results at the completion of the Galileo Echo assay.
2. Cross-reference this data with the lot-specific Capture-R® Ready-ID, EXTEND I or

EXTEND II Master List to determine the antibody identification (if any exist)

1. Interpret panel
2. Run additional panels, if necessary
3. Do Poly Coombs and/or IgG coombs in test tube (if indicated)
4. Do Rh antigen typing and any additional antigen typing that are necessary.

**CALCULATIONS**

None Necessary

**INTERPREATION OF RESULTS:**

Positive Test: Agglutination of any of the Panel cells.

Negative Test: Absence of agglutination indicates that the test serum does not contain detectable antibodies to any of the antigens present.

The following procedure should be followed to identify an unknown antibody:

1. Review the reactions obtained with the autologous control, if indicated, to determine if the antibody is allo or auto in nature.

2. Delete all antigens present on the red cells that are nonreactive and HOMOZYGOUS for the antigen being ruled out by drawing a slash through the particular antigen at the top of the panel. (See ‘Help Sheet for Antibody Workup’ for any exceptions to this rule).

3. Compare the pattern of agglutinated cells with the profiles of antigens not deleted from the Master List in Step 2.

a. If only one antigen remains after deleting the antigens present on all nonreactive panel cells, and the pattern of the antigen matches the pattern of reactivity obtained, the specificity of the antibody is tentatively identified.

b. If more than one antigen remains following the deletion procedure, steps must be taken to identify the multiple antibodies that might be present. (See Step 4 and 5).

c. Positive and negative results that do not fit any of the established patterns for any antigens may indicate the presence of multiple antibodies, or antibodies to unspecified antigens.

4. If multiple antibodies are suspected, run additional panels to identify the antibody. If unable to identify or rule out all clinically significant antibodies, specimen will need to be sent out to Heartland.

5. Test the patient’s own red cells for antigens corresponding to antibodies suspected. If the patient’s red cells posses the antigen, it is unlikely that the corresponding antibody is present unless the autologous control, in addition to reagent panel cells, is agglutinated. See Procedure for Red Cell Antigen Testing, No. 4840-BB-306 for more information.

**PROCEDURAL NOTES:**

1. Antigens reactive with low incidence antibodies may not always be represented on panel

cells; therefore negative reactions with the panel cells do not always indicate the absence of

antibody in the serum under test. If high incidence antibodies or multiple antibodies are

present, all cells may be agglutinated. A reference lab (Heartland Blood Center) should be

consulted if this situation occurs.

1. For further workup refer to Antibody Workup Flowchart.

**REFERENCES:**

1. Immucor Gamma, Norcross, GA, 30071.