**Name  Panel Studies**

**Principle**
If positive reactions (agglutination and/or hemolysis) are obtained at any phase of the antibody screen or crossmatch procedure, a panel study must be performed. Positive reactions indicate the presence of unexpected, possibly clinically significant, alloantibodies in the patient’s serum. The specificity of the antibody must be determined so that known potent antiserums can be used to verify that compatible units are antigen negative.

**Clinical Significance**
Alloantibodies are formed by exposure to red cell antigens due to prior transfusion or pregnancy. Since some individual's antibody levels may decrease or may even fall below the level of detectability, it is important to identify the specificity of the antibody and keep it on permanent file. This will prevent the transfusion of seemingly compatible but antigen positive blood, since all blood given to the recipient will be typed with potent antiserums and only antigen negative blood will be given to the patient.

**Acceptable Student Result Range**
Identify with 100% accuracy any alloantibody in a patient serum sample.

**Time Frame**
Approximately 1-2 hours, this includes the panel and antigen typing of the patient and donors.

**Specimen**
Clot specimen less than 72 hours old.

**Reagents**
Blood bank reagent rack
Reagent panel set
0.85% saline

**Procedure**
1. Label twelve tubes with patient initials at top 1-11 and AC (refer to chart for correct order of tubes in rack).

2. Add one drop of reagent panel cell to each appropriate tube and one drop patient cells in AC tube.
3. If a ± - 2+ reaction was obtained in screens/crossmatch, add four drop of patient serum to each tube. If 3-4+ reaction was obtained in screens/crossmatch, add three drops of patient serum to each tube.

4. Mix and centrifuge for 15 seconds. Read and record results as each tube is read on the appropriate panel antigram.

5. Add two drops of 22% bovine albumin to all twelve tubes. Place in 37°C incubator for a) 20 minutes if 3-4+ reaction or b) 30 minutes if 2+ or less reaction was obtained.

6. After incubation centrifuge, read and record reactions of each tube as it is read on the panel antigram.

7. Wash all tubes three times with saline, blotting dry after last wash.

8. Add two drops of Coomb's serum to each tube, mix and centrifuge for 15 seconds.

9. Read macroscopically and all negative tubes microscopically. Record reactions.

10. Add one drop of check cells to all negative tubes. Centrifuge 15 seconds. Positive reactions must be obtained or results are invalid.

**Interpretation**

A pattern of results should be obtained indicating the antigen to which the antibody is directed against. Select the appropriate antiserums and antigen type the patient (if not recently transfused) and donors (even if incompatible). If your interpretation of the panel was correct the patient and compatible donors will be antigen negative and any incompatible donors will be antigen positive. If the antigen typing does not support your conclusions, you have misinterpreted the panel and need help.
Instructions for using Rh Typing Antisera (anti-c, anti-E, anti-C, etc.)

1. Tubes needed:

<table>
<thead>
<tr>
<th>Source</th>
<th>How Labeled</th>
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<tbody>
<tr>
<td>Positive control</td>
<td>Screen cells (select a cell that is positive for the antigen corresponding to the antisera being used.)</td>
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<tr>
<td></td>
<td>Pos Cont. anti-______</td>
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<tr>
<td>Negative control</td>
<td>Screen cells (select a cell that is negative for the antigen corresponding to the antisera being used.)</td>
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<td></td>
<td>Neg Cont. anti-______</td>
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<tr>
<td>Patient</td>
<td>Patient cell suspension</td>
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<tr>
<td></td>
<td>Patient ID, anti-______</td>
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<tr>
<td>Donor unit(s)</td>
<td>Cell suspension from each respective donor unit.</td>
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<tr>
<td></td>
<td>Donor ID, anti-______</td>
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</tbody>
</table>

2. Add two (2) drops on the antisera to each tube.
3. Add one drop of the appropriate cell suspension to each tube.
5. Read and record **only** the positive tubes (graded reactions).
6. Place all negative tubes in the 37°C water bath / heat block for 15 minutes.
7. Spin for 15 seconds, read and record (graded reactions).
8. For test to be valid, positive and negative controls must produce expected results.
<table>
<thead>
<tr>
<th>PI - Patient Initials</th>
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<tbody>
<tr>
<td>Patient Serum</td>
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<tr>
<td>Clot Patient cell suspension</td>
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</tbody>
</table>

**Summary:**
- Table showing patient initials and corresponding serum samples.
- Clot patient cell suspension samples are indicated in the Patient Serum column.

**Note:** The table is labeled as MLAB 2360 Panel Studies.