Antibody Identification Policy and Guidance

Antibody Identification Policy

1) All IUH AHC Blood Bank technologists will follow the antibody rule-in and rule-out process/ABID Process identified in this document.

2) When testing an antibody positive sample, all testing will be documented:
   a. Antibody Workup Form for DAT, Antigen Typing and Titer.
   b. Panel testing on appropriate antigram.
   c. IAT testing on appropriate antigram
   d. Selected cells on appropriate antigram

3) Antigen typing of the patient is not required on all patient samples.
   a. If time allows, and reagent is available then the testing may be performed. However, all antibody positive samples will be submitted for RBC Molecular Testing/"Submit to BA." BA = BioArray
   b. Antisera will available at RHBB, but not stocked routinely at UH and MH.
   c. UH and MH samples should always be marked for RBC molecular testing.

4) Antibody identification will be completed every 28 days and/or if the patient who has been transfused in the last 28 days demonstrates a positive tube IgG DAT.

If	Then
A patient does not have a history of an antibody and now has a positive IAT,	• ABID is required • See applicable flowchart.
A patient has a history of an antibody and the patient <u>has not had ABID testing in the last 28 days,</u>	• Repeat ABID testing is required. • See applicable flowchart.
A patient current positive IAT and the patient ***<u>has had an antibody identification in the last 28 days,</u>***	• No ABID is required. • The antigen matched, AHG XM compatible blood is the indicator of transfusion safety.
If the patient has been transfused in the last 28 days AND has a positive tube IgG-DAT,	• Repeat ABID testing is required. • See applicable flowchart

5) Antibody identification may be completed at all IUH AHC BB locations.
   a. Based on the testing completed, any sample which requires autoantibody or reference bench investigation will be submitted to RHBB for this testing. This testing should be routine, as provision of blood should be addressed as soon as possible.
   b. If workload does not allow for completion of the ABID at MH or UH, then the sample and applicable paperwork may be sent to RHBB for testing.
   c. If one is working by themselves or with a lab assistant, then forward the completed antibody identification to another tech for second tech review before submitting it for daily supervisory review.
   d. All ABID Work Up forms and documentation will be forwarded to RHBB daily for supervisory review.
      i. These should be submitted in an interoffice envelope with proper routing information.
      ii. The envelope must be used for privacy for the patient information and to ensure these are not misplaced between blood bank locations.

Antibody Identification Policy and Guidance

Antibody Identification Process

1) Test a panel in the same method which the IAT was tested (either Echo, Gel or LISS-AHG).
   a. Add an autocontrol if testing in Gel or tube methods.
   b. No autocontrol for Echo or Neo Testing

2) Complete the rule out process using non-reactive cells and documenting on the rows within the antigram.
   a. From the left to right mark the cells in the row of the negative cell with:
      X if the cell is homozygous
      /, if the cell is heterozygous or single expression on panel such as D, low incidence (Cw, Kpa, Jsa, Lua), P1 or Xga)

Left → Right

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	0	+	0	+	+	0	0	+	+	+	0	+	+	0

   b. Go to the next non-reactive cell

   c. From the left to the right mark the cells in the row same as indicated in step b.

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	0	+	0	+	+	0	0	+	+	+	0	+	+	0
+	+	0	0	+	0	+	+	+	+	+	0	+	+	+	+	+	+	0

   d. Rule out completely those specificities which have been excluded **twice** by using the top columns within the antigram.
      i. If there is one homozygous, AND one other homozygous or heterozygous, then mark the top of the panel with an X in that column. This is now considered, ruled out.
      ii. Once the specificity is ruled out at the top row of the panel antigram, additional X or / do not have to be marked in the panel on subsequent non-reactive rows.

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	0	+	0	+	+	0	0	+	+	+	0	+	+	0
+	+	0	0	+	0	+	+	+	+	+	0	+	+	+	+	+	+	0

   e. Repeat steps c and d until all the non-reactive cells have been marked in each row

Two rule outs In each column

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	0	+	0	+	+	0	0	+	+	+	0	+	+	0
+	+	0	0	+	0	+	+	+	+	+	0	+	+	+	+	+	+	0
0	+	0	+	+	0	+	+	0	0	+	+	0	0	0	+	+	0	0
0	0	+	+	+	0	+	0	+	+	0	+	0	0	0	+	+	+	0
+	+	+	+	+	+	0	+	+	+	0	+	0	+	+	+	+	+	4+

Example = Anti-K

Antibody Identification Policy and Guidance

3) Evaluate the pattern
   a. Circle or indicate the specificities which need to be excluded with additional testing on the top row of the panel antigram.

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	0	+	0	+	+	0	0	+	+	+	0	+	+	0
+	+	0	0	+	0	+	+	+	+	+	0	+	+	+	+	+	+	0
0	+	0	+	+	0	+	+	0	0	+	+	0	0	0	+	+	0	0
0	0	+	+	+	0	+	0	+	+	0	+	0	0	0	+	+	+	0
+	+	+	+	+	+	0	+	+	+	0	+	0	+	+	+	+	+	4+

In this example, Pattern of anti-K
Anti-s is not excluded x2.

K1

   a. If there are not two exclusions
      i. Apply any of the Antibody Process Exceptions listed below
         (OR)
      ii. Additional cells will have to be tested to exclude additional alloantibodies.
         (OR)
      iii. If the patient has a red cell phenotype on file or if the patient is not transfused, then one may use the patient's phenotype to exclude a specificity.
      For example, if the patient is E+, then the patient may not make anti-E. Therefore, E may be excluded using the patient's phenotype.

   b. Transfer what needs to be ruled out to the next panel antigram being tested. This is what has to be ruled out or excluded.

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	0	+	0	+	+	0	0	+	+	+	0	0	+	0

Anti-s is ruled out now x 2.

4) Complete the rule in process
   a. To verify a specificity, we must have a minimum of 2+2 rule applied, two positive for the specificity and two negative for the specificity.
   b. Document the verification of 2 positive cells for each specificity.
   One may document by several methods:
      i. Highlight the positive cells
      (OR)
      ii. Label #1 and #2 verification. Example, K1 and K2.

   c. If there are not 2 positives tested, then a selected cell for confirmation is necessary.

D	C	E	c	e	K	k	Fya	Fyb	Jka	Jkb	Lea	Leb	P1	M	N	S	s	Echo
+	0	+	+	0	+	+	0	+	+	0	0	+	+	+	0	0	+	4+

Anti-K verified

K2

Antibody Identification Policy and Guidance

Antibody Identification Process Exceptions

Pediatric or Adult Samples which are QNS for full x2 ABID exclusion process

If an antibody positive pediatric or adult sample is quantity not sufficient (QNS) for full ABID exclusion per this policy and a redraw of the patient is not possible, then x1 exclusion process may be acceptable. These must be approved with Blood Bank Management on a case-by-case basis.

Anti-K

- Rule out anti-K with two heterozygous cells.
- Often vendors do not make a homozygous cell available; therefore, anti-K may be ruled out with two heterozygous cells rather than one homozygous and one heterozygous.
- If the panel testing does allow for homozygous exclusion of anti-K, then one may use one homozygous cell and one heterozygous cell.

Single Homozygous rule out for Anti-Le^a and Anti-Le^b rule

- One may rule out Lea and Leb with a single homozygous expression, since these specificities are not considered clinically significant.
- If panel testing allows for a x2 exclusion of Le^a and Le^b, that is preferable, but not required and selected cells should **not be tested** to exclude these specificities x2.

Single expression rule out for f, P1 and Xg^a

- One may rule out f, P1 and Xg^a with a single expression, since these specificities are listed alone in the panel antigram.
- One may rule out f, P1 and Xg^a with two non-reactive cells positive for f, P1 or Xg^a.

Low incidence omission or exclusion

- Low incidence antigens on the common panel include but are not limited to Cw, Kp^a, Js^a and Lu^a.
- These specificities may be initially omitted in the exclusion process.
- If a panel is positive for a low incidence antigen and the cell is non-reactive, then the low incidence specificity may be excluded with one homozygous or heterozygous expression. Selected cells should **not be tested** to exclude these specificities x2.

With the pattern of anti-D

- Rule out anti-C and anti-E on a heterozygous cell in the presence of anti-D
- Use one heterozygous exclusion for anti-C, r'r cell
- Use one heterozygous exclusion for anti-E, r''r cell

With the pattern of anti-c

- Rule out anti-E on a heterozygous cell in the presence of anti-c
- Use one heterozygous exclusion for anti-E, RzR1 cell
- If one is not available to test, then honor E for provision of blood.

With a pattern of anti-e

- Rule out anti-C on a heterozygous cell in the presence of anti-e
- Use one heterozygous exclusion for anti-C, RzR2 cell
- If one is not available to test, then honor C for provision of blood.

With a pattern of Anti-M

- Rule out anti-S with one homozygous and one heterozygous cell whenever possible.
- However, in the presence of anti-M, it is exceedingly difficult to rule out anti-S.
- One should try to find an in-date or expired cell to rule out anti-S, M-S+s-; however, it is also acceptable to rule out anti-S in the presence of anti-M with **2 heterozygous cells, M-S+s+**.