



Resolving ABO Discrepancies

Quick Reference Chart

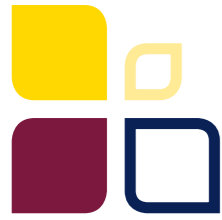


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Category

Check/Control/Investigate

1. General Points	<ul style="list-style-type: none"> ▪ Clerical details
	<ul style="list-style-type: none"> ▪ Previous records (Transfusion history, medication, age, clinical and obstetric data)
	<ul style="list-style-type: none"> ▪ Sample (Hemolyzed, spontaneous agglutination, lipemic)
2. Preliminary Investigations	<ul style="list-style-type: none"> ▪ Functionality of reagents/reagent contamination
	<ul style="list-style-type: none"> ▪ Centrifuge the sample
	<ul style="list-style-type: none"> ▪ Repeat the test <ul style="list-style-type: none"> - cells and serum/plasma - fresh sample - fresh reagents
3. Further Investigations	<ul style="list-style-type: none"> ▪ Patient/donor cells <ul style="list-style-type: none"> - wash and repeat
	<ul style="list-style-type: none"> ▪ Patient/donor serum/plasma <ul style="list-style-type: none"> - longer incubation time - incubate at 4°C
4. Unresolved Forward (cell) Group Discrepancy Weak/negative reactions	<ul style="list-style-type: none"> ▪ If unrelated to age, disease state or rouleaux formation
	<ul style="list-style-type: none"> ▪ Possible subgroup <ul style="list-style-type: none"> - include anti-A1 and anti-H in extended testing - perform adsorption-elution - perform saliva studies (if secretor) - refer to Reference Laboratory for serum transferrase studies and molecular analysis
	<ul style="list-style-type: none"> ▪ If unrelated to transfusion/transplant therapy
Mixed-field reactions	<ul style="list-style-type: none"> ▪ Possible subgroup ($A_{2,3}$, A_{weak}, B_1, B_{weak}) <ul style="list-style-type: none"> - see above
	<ul style="list-style-type: none"> ▪ Possible chimera <ul style="list-style-type: none"> - separate cell populations and retest each one
Unexpected positive reactions	<ul style="list-style-type: none"> ▪ Polyagglutinable cells <ul style="list-style-type: none"> - use monoclonal reagents - use lectins to characterize polyagglutination type
	<ul style="list-style-type: none"> ▪ Direct Antiglobulin Test (DAT) positive cells <ul style="list-style-type: none"> - check records (warm washing cells or other method)
	<ul style="list-style-type: none"> ▪ Acquired-B phenotype <ul style="list-style-type: none"> - check diagnosis - use monoclonal anti-B known not to react with acquired B
5. Unresolved Reverse Group Discrepancy Weak/negative reactions	<ul style="list-style-type: none"> ▪ Spontaneous agglutination (if sample stored at 4°C prior to test) <ul style="list-style-type: none"> - cold auto-antibody - retest at 37°C (new sample taken and maintained at 37°C may be necessary)
	<ul style="list-style-type: none"> ▪ Possible B(A) or A(B) phenotype <ul style="list-style-type: none"> - use other reagents
	<ul style="list-style-type: none"> ▪ If unrelated to age (newborn/elderly), immunosuppression, hypogammaglobulinemia or hemolysis of the reagent cells <ul style="list-style-type: none"> ▪ Fresh sample <ul style="list-style-type: none"> - retest at 4°C - increase the incubation time - use fresh set of cells and/or additional cells - retest forward group for confirmation
Additional unexpected reactions	<ul style="list-style-type: none"> ▪ Possible allo-antibody <ul style="list-style-type: none"> - identify specificity - retest with appropriate reverse grouping cells but negative for the antigen corresponding to the allo-antibody - anti-HI in A_1 samples; confirm with A_1, A_2 and O cell panels, include cord blood as a negative control
	<ul style="list-style-type: none"> ▪ Possible cold auto-antibody <ul style="list-style-type: none"> - autologous control - use a pre-warmed technique - autoadsorption and retest
	<ul style="list-style-type: none"> ▪ Possible rouleaux <ul style="list-style-type: none"> - saline replacement technique
	<ul style="list-style-type: none"> ▪ A_2 or other A subgroups with anti-A1 <ul style="list-style-type: none"> - test with other A_1 cells to confirm

Notes

- Recommended laboratory procedures/techniques should be followed for the investigation of any discrepancy e.g. AABB Technical Manual, other practical-based textbook, or in-house established Standard Operating Procedures.
- Where anomalous results persist, family studies can be useful, with serological and molecular biology techniques to establish inheritance pattern and genetic background.
- This chart is not necessarily comprehensive.