



Resolving Rh Discrepancies

Quick Reference Chart

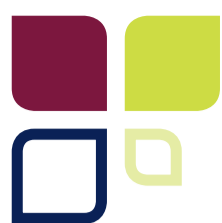


**Bio-Rad
Laboratories**

Clinical
Diagnostics Group

Website www.bio-rad.com/diagnostics **Australia** +61(2)9914-2800 **Austria** +43-1-877-8901 **Belgium** +32(3)710-53-00 **Brazil** +55(31)3689-6600
Canada +1 514 334-4372 **China** +86-21-61698500 **Czech Republic** +420-241-430-532 **Denmark** +45-4452-1000 **Finland** +358-9-804-22-00
France +33 1 47 95 60 00 **Germany** +49(0)89-318-840 **Greece** +30-210-7774396 **Hong Kong** +852-2789-3300 **Hungary** +36-1-459-6100
India +1-800-180-1224 **Israel** +972-3-9636050 **Italy** +39-02-216091 **Japan** +81-3-6361-7070 **Korea** +82-2-3473-4460 **Mexico** +52(55)5488-7670
The Netherlands +31-318-540666 **New Zealand** +64-9-415-2280 **Norway** +47-23-38-41-30 **Poland** +48-22-3319999 **Portugal** +351-21-472-7700
Russia +7-495-721-14-04 **Singapore** +65-6415-3170 **South Africa** +27-11-442-85-08 **Spain** +34-91-590-5200 **Sweden** +46-8-555-127-00
Switzerland +41 26 674 55 05/06 **Taiwan** +886-2-2578-7189 **Thailand** +662-651-8311 **United Kingdom** +44(0)20-8328-2000





Category	Check/Control/Investigate
1. General Points	<ul style="list-style-type: none"> ▪ Clerical details ▪ Previous records (Transfusion history, medication, age, clinical and obstetric data) ▪ Sample (Hemolyzed, spontaneous agglutination, lipemic) ▪ Functionality of reagents/reagent contamination
2. Preliminary Investigations	<ul style="list-style-type: none"> ▪ Centrifuge the sample ▪ Repeat the test <ul style="list-style-type: none"> - wash cells - fresh sample - fresh reagents - additional sera of same specificity
3. Unresolved Problems	
Unexpected positive reactions	<ul style="list-style-type: none"> ▪ Check for rouleaux formation related to disease state (rouleaux not associated with the ID-System)
Previously tested negative or autocontrol also positive	<ul style="list-style-type: none"> ▪ Direct Antiglobulin Test (DAT) positive cells <ul style="list-style-type: none"> - use monoclonal reagents - remove <i>in vivo</i> coating by warm-washing cells or other approved method ▪ Confirm positive result <ul style="list-style-type: none"> - adsorption and elution ▪ Antibody to low-frequency antigen present in human polyclonal reagent <ul style="list-style-type: none"> - use monoclonal reagents ▪ Polyagglutinable cells <ul style="list-style-type: none"> - use monoclonal reagents - use lectins to characterize polyagglutination type ▪ Sample mix up this time/previous time tested <ul style="list-style-type: none"> - check all previous records; confirm identity and repeat from a second sample
Antisera of apparently the same specificity showing discrepant results	<ul style="list-style-type: none"> ▪ Possible antigen variant – most commonly associated with D antigen <ul style="list-style-type: none"> - test with a panel of monoclonal anti-D's to characterize the variant D type - test with antisera to known Rh low-frequency antigens associated with partial D types - perform family studies - refer to Reference Laboratory for molecular analysis ▪ Possible weak D <ul style="list-style-type: none"> - characterize and differentiate from a partial D type as above
Unexpected weak or negative reactions	<ul style="list-style-type: none"> ▪ Weak positive may be due to any of the above reasons. Check and control ▪ Rare phenotypes <ul style="list-style-type: none"> - Rh_{null}/Rh_{mod} - deletions e.g. D-- - suppressed antigenic complexes e.g. (C)D(e) ▪ Compound antisera <ul style="list-style-type: none"> - human polyclonal anti-C is often predominantly anti-Ce +C, weak or negative reactions with certain phenotypes ▪ Sample mix up this time/previous time tested <ul style="list-style-type: none"> - check all previous records; confirm identity and repeat from a second sample
Mixed-field reactions	<ul style="list-style-type: none"> ▪ Post-transfusion <ul style="list-style-type: none"> - check records ▪ Post-transplantation therapy (bone-marrow/stem cells) <ul style="list-style-type: none"> - check records ▪ Rh mosaicism due to myeloproliferative disorder <ul style="list-style-type: none"> - monitor Rh type beyond remission ▪ Chimerism (twin or dispermic) <ul style="list-style-type: none"> - separate cell populations and retest - full blood group phenotyping to check for chimerism in other blood group systems - cytogenetic studies - tissue culture e.g. analysis of fibroblasts

Notes

- Generally a sample confirmed as a weak D and/or variant D must be treated as RhD positive for donor purposes. Transfusion recipients/antenatal patients should only be treated as RhD positive when clear-cut reactions have been obtained with suitable anti-D reagents in accordance with local/national guidelines.
- The DVI phenotype is the most important variant to consider. Anti-D known to react with DVI should be used for RhD typing of donor bloods, and weak D types should be detected. Anti-D known NOT to react with DVI bloods should be used for RhD typing of transfusion recipients/antenatal patients.
- Human Anti-D sera most often require a potentiating medium and will give positive reactions with variant D as well as weak D types. Care should be exercised not to misclassify a DVI patient sample as RhD positive, particularly in the case of pre-menopausal females.
- 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.