**Weak D Typing**

1. **PRINCIPLE**

1.1 Weak D phenotype red cells have reduced amounts of D antigen. They often react weakly, or not at all in direct agglutination tests with anti-D, but react with anti-D by the indirect antiglobulin test (IAT).

1. **PURPOSE**

### To test for a weak expression of the D antigen.

1. **RELEVANT REQUIREMENTS** 
   1. When testing potential blood component recipients, the test for weak D is usually not necessary.10.1
   2. Before performing and reporting a “weak D typing” an accurate transfusion and pregnancy history should be obtained. 10.1,
   3. Test for weak D may or may not be recommended to be performed in the following situations *(Refer to manufacturer instructions, as there may be limitations depending on the method and reagent in use)*:

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| **IF** | **THEN** |
| Direct antiglobulin test (DAT) is positive macroscopically on the red cells tested10.1 | Do not perform Weak D testing |
| Patient has been transfused within the last three months with red cells containing components of different or unknown Rh type | Do not perform Weak D testing |
| Weak or less than grade 2 reactions are found for RhD | Perform Weak D testing |
| Rh typing discrepancies are found between current and previous results | Perform Weak D testing |
| Newborn types as Rh negative or of when their mother is Rh negative and has no evidence of Rh alloimmunization or when mother’s blood type is unknown. 10.2 | Perform Weak D testing |
| Apparent Rh-negative obstetrical patients | Perform Weak D testing |

1. **RELATED POLICIES/PROCEDURES (POLICIES IN OTTRM)**
   1. [Glossary of Terms and Abbreviations](https://orbcon1.sharepoint.com/:f:/s/Goal2/ElO_9X0Yk_VApYJUICskoxkBfPzgcw2XHAixv8d8BA-fQA?e=I82fj9)

[QCA.001 – Quality Control of Reagent Red Cells and Antisera](http://transfusionontario.org/en/download/qca-001-quality-control-of-reagent-red-cells-and-antisera/).

[NRT.004 – Rh Type Problem Solving.](http://transfusionontario.org/en/download/nrt-004-rh-typing-problem-solving/)

[PA.002 – Determining Specimen Suitability](http://transfusionontario.org/en/download/pa-002-determining-specimen-suitability/)

[PA.003 – Patient History Check.](http://transfusionontario.org/en/download/pa-003-patient-history-check/)

[PA.004 – Labeling of Test Tubes and Block Set UP for Compatibility Testing.](http://transfusionontario.org/en/download/pa-004-labeling-of-test-tubes-and-block-set-up-for-compatibility-testing/)

[RT.003 – Preparation of a 3% Red Cell](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

[RT.001 – Reading and Recording Hemagglutination Reactions](http://transfusionontario.org/en/download/rt-001-reading-and-recording-hemagglutination-reactions/).

[RT.002 – Cell Washing Automated and Manual.](http://transfusionontario.org/en/download/rt-002-cell-washing-automated-and-manual/)

RT.015 – Feto-maternal Hemorrhage Testing

1. **MATERIALS**
   1. **Specimen:**

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| **> 4months old** | |
| **If** | **Then use** |
| Any type of transfusion service testing is requested | Minimum of 3 mL of EDTA anticoagulated whole blood or clotted blood from a non-additive collection tube.10.3 |
| Note: SST, PST and PLUS tubes must not be used for the collection of samples for blood banking. | |
| **Neonatal(<4months old)** | |
| **If** | **Then use** |
| ABO and Rh typing only | A cord blood sample or a venous or capillary blood specimen should be used |
| Pre-transfusion testing | A venous or capillary blood specimen must be used. Evaluation for clinically significant red cell antibodies performed using either neonatal or maternal plasma/serum. 10.2 |
| Investigation of Hemolytic Disease of the Fetus and Newborn (DAT) | A cord blood or venous specimen may be used. |

* 1. **Equipment:** Cell washer

Serologic centrifuge

Block for test tubes

Water bath/Heating block at 37° C

Microscope

* 1. **Reagents:** Low protein Anti-D reagent formulated with polyclonal or monoclonal

IgG anti-D, blended with monoclonal IgM anti-D. Alternatively, use a

high-protein reagent formulated with polyclonal IgG anti-D.

Control for Rh typing (appropriate for reagent in use according to manufacturer’s directions)

Anti-IgG

IgG coated control cells

Buffered Saline

* 1. **Supplies/**

**Related Forms:** Test tubes – 10 x 75 mm

Pasteur pipettes

[QCA.006F](http://transfusionontario.org/en/download/qca-006-temperature-calibration-of-waterbaths-and-heating-blocks/) Record of Temperature/Cleaning

1. **QUALITY CONTROL**
   1. Run a concurrent test with an inert Rh control reagent.10.3
   2. All reagents shall be used and controlled according to the manufacturer’s recommendations and procedures.10.2
   3. Follow manufacturer’s recommendations for frequency of testing.

### For anti-D reagent, [See QCA.001 – Quality Control of Reagent Red Cells and Antisera](http://transfusionontario.org/en/download/qca-001-quality-control-of-reagent-red-cells-and-antisera/).10.2

1. **PROCEDURE**

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| **STEP** | **ACTION** | |
| 7.1 Perform a patient history check and verify the specimen’s suitability | 7.1.1 See [PA.003 – Patient History Check.](http://transfusionontario.org/en/download/pa-003-patient-history-check/)  7.1.2 See [PA.002 – Determining Specimen Suitability￼](http://transfusionontario.org/en/download/pa-002-determining-specimen-suitability/) | |
| 7.2 Label tubes | 7.2.1 See PA.004 – Labeling of Test Tubes and Block Set UP for Compatibility Testing   * Label the 1st tube: -D (for anti-D)/Patient’s name * Label the 2nd tube: Con (for control)/Patient’s name | |
| 7.3 Add reagents | 7.3.1 Add 1 drop of anti-D to tube labeled -D. See Procedural Note 9.1  7.3.2 Add 1 drop of control reagent to tube labeled DC (if applicable). See Procedural Note 9.2 | |
| 7.4 Prepare and add 3% patient red cell suspension. | 7.4.1 Compare the patient’s name and identification number on each tube with the corresponding information on the request form or LIS to ensure they are the same  7.4.2 See RT.003- Preparation of a 3% Red Cell Suspension.  7.4.3 Add 1 drop of the 3% patient red cell suspension to the corresponding tubes labeled -D and DC | |
| [7.5 Centrifuge](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [7.5.1 Mix tubes](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)  [7.5.2 Centrifuge tubes at 3400 rpm for 10-15 seconds. See procedural note 9.3](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | |
| [7.6 Grade and record results](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [7.6.1 Remove the tubes from the serologic centrifuge in the same order in which they were placed](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)  [7.6.2 See](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) [RT.001 – Reading and Recording Hemagglutination Reactions](http://transfusionontario.org/en/download/rt-001-reading-and-recording-hemagglutination-reactions/)   |  |  | | --- | --- | | ***[If](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** | ***[Then](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** | | [The cells are strongly agglutinated (grade 2 or greater) in the anti-D tube and negative in the control tube](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Record the interpretations as “D positive” and do not proceed.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | | [Agglutination is less than grade 2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Continue to step 7.7](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | | |
| [7.7 Incubate at 37° C](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | 1. [Check and record the temperature of the water bath or heating block on form](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) [QCA.006F](http://transfusionontario.org/en/download/qca-006-temperature-calibration-of-waterbaths-and-heating-blocks/) [Record of Temperature/Cleaning. See procedural Note 9.4](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 2. [Mix the tubes](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 3. [Incubate the tubes at 37° C for 15 minutes](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 4. [Remove the tubes from the incubator](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | |
| 1. [Indirect Antiglobulin Testing (IAT)](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | 1. [Wash the cells as per RT.002 – Cell Washing Automated and Manual](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 2. [Add 2 drops of anti-IgG to each tube](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 3. [Mix the tubes](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 4. [Centrifuge at 3400 rpm for 10-15 seconds](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 5. [Resuspend the cells](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 6. [Read macroscopically](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 7. [Grade and record results. See RT.001–Reading and Recording Hemagglutination Reactions](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 8. [Add 1 drop of IgG-coated cells to the tube(s) with negative results.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 9. [Centrifuge tubes at 3400 rpm for 10-15 seconds](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 10. [Resuspend cells](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) 11. [Read macroscopically](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | |
| 1. [Interpret weak D](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | 1. [Grade reactions. Refer to section 8.0 – Reporting for interpretation of results. Record the result on the request form or in the LIS.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)   [See Procedural Note 9.6](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)   |  |  | | --- | --- | | ***[If](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** | ***[Then](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** | | [Mixed field agglutination is suspected](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Microscopic readings should be done](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | | [Patient cells do not react as described in 8.0- Reporting](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [A discrepancy exists and must be resolved before reporting the Rh type. See NRT.004 – Rh Typing Problem Solving](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | | [Previous Rh typing result was found in records’ database](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Compare it with the current Rh result. If results are discrepant, see NRT.004 – Rh Typing Problem Solving.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | | |
| 1. [Perform a clerical check](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [When the procedure is complete, perform a clerical check for each Rh type. Check that:](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)   * [The patient’s name and identification number are identical on all specimens and the request form or computer screen](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [The patient’s name is the same on all the test tubes and the request form or computer screen](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Verify that the test results have been interpreted and recorded correctly](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | |
| 1. [Complete paperwork](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | ***[If](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** | ***[Then](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** |
| [Manually entering on forms (downtime)](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Initial or sign and record the completion time and date on appropriate form](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [Manually entering in LIS](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | * [Enter results and file/perform the entry as per facility procedure](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Verify results as per facility procedure](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |

1. **[Reporting](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)**
   1. [The control must be negative. Interpret results as follows](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[10.3](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[:](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

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| **[Direct Agglutination test](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** | | **[IAT](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** | | **[Interpretation](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** |
| **[Anti-D](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** | **[Control](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** | **[Anti-D](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** | **[Control](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** |
| [2+ or greater](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Not Tested](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Not Tested](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Rh D positive](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [Less than 2+](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Less than 1+](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Rh D positive](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Rh D negative](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Less than 1+](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Unable to determine. Additional investigation is required.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)  [See Reporting 8.2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [0](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [1+ or greater](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [1+ or greater](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Unable to determine. Additional investigation is required. See Reporting 8.2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)  [See](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) [NRT.004 – Rh Typing Problem Solving.](http://transfusionontario.org/en/download/nrt-004-rh-typing-problem-solving/) |

* 1. [In cases where the result of the weak D testing cannot be reported or is unresolved:](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

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| ***[If](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** | ***[Then](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)*** |
| [Unable to determine the Rh type and the patient is a neonate delivered by an individual who is Rh negative](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Kleihauer-Betke test should be performed on the post-delivery maternal specimen and the appropriate dose of Rh Immune Globulin (RhIG) should be given to the neonate’s mother. See RT.015 Feto-maternal Hemorrhage Testing](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [Unable to determine Rh type on individuals under 45 years old with childbearing potential](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [They should be treated as Rh negative and have a sample sent for RHD Genotyping. Follow facility specific procedures for referring out testing. See Procedural Note 9.6](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [Individual of childbearing potential’s sample types as Weak D positive](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | [Report as Rh D positive with a comment “This patient should receive Rh negative blood products for transfusion. RhIG should be given as per Rh negative policy.” The sample should be referred out for RHD Genotyping. For purposes of transfusion or RhIG, treat as Rh negative until RHD Genotyping results are received.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[See Procedural Note 9.6](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |

* 1. [If the test for weak D is performed on an obstetrical patient and result is weakly positive and/or mixed field, there must be an investigation to determine if the result is due to a large feto-maternal hemorrhage. If a feto-maternal hemorrhage had occurred, the test for weak D cannot be interpreted. The patient’s physician must be notified.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

1. **[PROCEDURE NOTES](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)**

### [False positive results in the patient Rh control due to cold autoagglutinins or a protein imbalance may occur if testing with unwashed red cells.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

### [Spontaneous agglutination can usually be ruled out if negative reactions are observed in the forward ABO grouping (reaction with anti-A and/or anti-B).](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

* 1. [Hold the pipette or dropper vertically when dispensing the plasma or reagents.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
  2. [Centrifugation speed and time may vary depending on the centrifuge that you are using. Verification should be performed periodically to ensure that speed and timing gives consistent results.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[10.2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
  3. [Temperature check should be done and documented with every use of the incubator prior to incubation.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) [10.2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
  4. [Tests should be read immediately after centrifugation. Delay may cause bound IgG to dissociate from red cells and either leave too little IgG to detect or neutralize AHG reagent causing false negative results.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
  5. [RHD genotyping can identify patients with a serologic weak D phenotype who can be managed safely as Rh positive.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[Weak D types 1,2 and 3 can be safely treated as D positive in pregnancy.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[10.1](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)

1. **[REFERENCES](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)**
   1. [Cohn CS, ed. American Association of Blood Banks Technical Manual, 20](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[th](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) [ed. Bethesda, MD: AABB, 2020: 343, 348-349, 507](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
   2. [Standards for Hospital Transfusion Services Version 5 – December 2021 . Canadian Society for Transfusion Medicine, 3.3.2.1, 3.4.2, 3.4.3, 5.3.1.1, 5.3.3.2, 5.3.3.3, 5.5.2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
   3. [Judds WJ. Methods in Immunohematology, 3](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)[rd](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) [ed. Bethesda, MD: American Association of Blood Banks, 2008; Section I-D](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)
2. **[REVISION HISTORY](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)**

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| **[Revision Date](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** | **[Summary of Revisions](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/)** |
| [January 31, 2014](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | * [Revised name of manual](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Changed document number from RT 003 to RT 006](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Updated references and added reference 9.4](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Minor grammatical changes made in section 2.2](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Changed citation format in section 2.5](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Revised wording in section 5.3.1 to refer to the manufacturer’s instructions.](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [5.3.2 reworded for clarification](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [5.4.3 removed – duplicate information re weak D testing of infant of Rh Negative mother](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.4.2 added ‘if applicable’](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.10 and 6.13.4 change PA.006 to RT.001, added if no agglutination observed proceed to 6.11](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.13.3 changed PA.006 to RT.001](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.13.4 removed See PA.006 (duplication)](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.14 changed PA.005 to RT.002](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.15.1 added ‘for interpretation of results’](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [October 15, 2019](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | * [Sections 1.0, 2.0, 5.0, 7.0 and 8.0 Principle – added reference to RHD Genotyping](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [6.7 removed spin and read after 37C incubation](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Updated references](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |
| [September, 2022](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) | * [Added Principle section](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Renamed Scope and Related Procedures to Relevant Requirements](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Added Related Policies/Procedures Section](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Reformatted document](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Addition of Genotyping](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) * [Updated references](http://transfusionontario.org/en/download/rt-003-preparation-of-a-3-red-cell-suspension/) |