

## Overview

### Useful For

Assessing erythropoietic bone marrow activity in anemia and other hematologic conditions

### Method Name

Flow Cytometry

### NY State Available

Yes

## Specimen

### Specimen Type

Whole Blood EDTA

### Specimen Required

**Container/Tube:** Lavender top (EDTA)

**Specimen Volume:** 3 mL

**Collection Instructions:** Send whole blood specimen in original tube. **Do not aliquot.**

### Forms

If not ordering electronically, complete, print, and send a [Benign Hematology Test Request Form](#) (T755) with the specimen.

### Specimen Minimum Volume

0.5 mL

### Reject Due To

Gross hemolysis	Reject
Gross lipemia	OK
Gross icterus	OK
Clotted	Reject

### Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Whole Blood EDTA	Ambient	24 hours	
	Refrigerated (preferred)	48 hours	

## Clinical & Interpretive

### Clinical Information

Reticulocytes are immature erythrocytes (red blood cells) that have been released into the peripheral blood from the bone marrow after extrusion of their nucleus. The reticulocyte contains residual polyribosomes used in the formation of hemoglobin in the developing erythrocyte.

### Reference Values

% Reticulocytes

1-3 days: 3.47-5.40%

4 days-4 weeks: 1.06-2.37%

5 weeks-7 weeks: 2.12-3.47%

8 weeks-5 months: 1.55-2.70%

6 months-23 months: 0.99-1.82%

24 months-5 years: 0.82-1.45%

6-11 years: 0.98-1.94%

12-17 years: 0.90-1.49%

Adults: 0.60-2.71%

Absolute Reticulocytes

1-3 days: 147.5-216.4 x 10<sup>9</sup>/L

4 days-4 weeks: 51.3-110.4 x 10<sup>9</sup>/L

5 weeks-7 weeks: 51.8-77.9 x 10<sup>9</sup>/L

8 weeks-5 months: 48.2-88.2 x 10<sup>9</sup>/L

6 months-23 months: 43.5-111.1 x 10<sup>9</sup>/L

24 months-5 years: 36.4-68.0 x 10<sup>9</sup>/L

6-11 years: 42.4-70.2 x 10<sup>9</sup>/L

12-17 years: 41.6-65.1 x 10<sup>9</sup>/L

Adults: 30.4-110.9 x 10<sup>9</sup>/L

### Interpretation

The reticulocyte count is a measure of the number of red blood cells delivered by the bone marrow. It is elevated with active erythropoiesis, such as regeneration and is decreased in hypoplastic or deficiency conditions, such as vitamin B12 deficiency.

### Cautions

Reticulocyte counts must be carefully correlated with other clinical and laboratory findings.

Clotted specimens yield unreliable results and are unacceptable for analysis.

### Clinical Reference

1. Adeli K, Raizman J, Chen Y, et al. Complex biological profile of hematologic markers across pediatric, adult, and geriatric ages: establishment of robust pediatric and adult reference intervals on the basis of the Canadian Health Measures Survey. Clin Chem. 2015;61(8):1075-1086

2. Clinical and Laboratory Standards Institute (CLSI). Defining, Establishing, and Verifying Reference Intervals in the Clinical Laboratory; Approved Guideline. 3rd ed. CLSI document EP28-A3c. CLSI; 2008
3. Soldin J, Brugnara C, Wong EC. Pediatric Reference Intervals. 5th ed. AACC Press; 2005
4. Lotspeich-Steininger CA, Stiene-Martin EA, Koepke JA. Clinical Hematology: Principles, Procedures, Correlations. 2nd ed. Lippincott-Raven; 1998: 114-117

## Performance

### Method Description

The Sysmex XN 9100 reticulocyte analyzer is a flow cytometer that uses an argon laser as the light source. Whole blood specimens are stained with polymethine fluorescent dye and passed through the laser beam in a sheath flow cell. Each blood cell causes a forward light scatter that depends on cell size. This measurement permits a separation of the various blood cell types so that only erythrocytes are included in the cell count. Erythrocytes containing the protein reticulin (ie, reticulocytes) are stained by the dye in the laser beam. The right-angle fluorescence is measured to count these stained cells. The instrument counts 30,000 erythrocytes in each specimen. Because a known aliquot is counted, an actual red blood cell per unit volume is performed and an absolute reticulocyte count is obtained. (Instruction manual: Automated Hematology Analyzer XN series [XN-9000/XN-9100] North American Edition. Code No. BF691913 en-am. Sysmex Corp; 09/2022)

### PDF Report

No

### Day(s) Performed

Monday through Sunday

### Report Available

1 day

### Specimen Retention Time

3 days

### Performing Laboratory Location

Rochester

## Fees & Codes

### Fees

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact [Customer Service](#).

### Test Classification

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This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

**CPT Code Information**

85045

**LOINC® Information**

Test ID	Test Order Name	Order LOINC® Value
RTIC	Reticulocytes, B	50262-5

Result ID	Test Result Name	Result LOINC® Value
PRTIC	Reticulocytes, B	17849-1
ARTIC	Absolute Reticulocyte	60474-4