MAYO CLINIC LABORATORIES

# Test Definition: MYGLU

Myoglobin, Random, Urine

## Overview

### Useful For

Confirming the presence of a myopathy associated with any 1 of the following disorders
-Hereditary myoglobinuria
-Phosphorylase deficiency
-Sporadic myoglobinuria
-Exertional myoglobinuria in untrained individuals
-Crush syndrome
-Myocardial infarction
-Myoglobinuria of progressive muscle disease
-Heat injury

May suggest a myopathic cause for acute renal failure

### Method Name

Latex Particle-Enhanced Immunoturbidometric Assay

### NY State Available

Yes

## Specimen

### Specimen Type

Urine

### Specimen Required

**Supplies:** Urine Myoglobin Transport Tube (T691)
**Container/Tube:** Plastic, 10-mL urine myoglobin transport tube
**Specimen Volume:** 5 mL
**Collection Instructions:**
1. Collect a preservative-free, random urine specimen.
2. If specimen is at ambient temperature, aliquot the urine to a urine myoglobin transport tube (T691) within 1 hour of collection. Refrigerate specimen.
3. If specimen is refrigerate, aliquot the urine to a urine myoglobin transport tube (T691) within 2 hours of collection.
**Additional Information:** Urinary myoglobin is highly unstable unless alkalinized with sodium carbonate preservative. Even with alkalinization, myoglobin deterioration is variable and specimen dependent (approximate averages of 10% at 1 day, 20% at 3 days, and 30% at 7 days).

### Specimen Minimum Volume

1 mL

### Reject Due To

| | |
|---|---|
| Use of any transport tube other than urine myoglobin transport tube | Reject |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Urine | Refrigerated | 7 days | MYOGLOBIN TRANSPORT TUBE |

## Clinical & Interpretive

### Clinical Information

Myoglobin is the oxygen-binding protein of striated muscle. Injury to skeletal or cardiac muscle results in the release of myoglobin. High concentrations appear very rapidly in the urine in various conditions including some metabolic diseases.

Conditions associated with myoglobinuria include:
-Hereditary myoglobinuria
-Phosphorylase deficiency
-Sporadic myoglobinuria
-Exertional myoglobinuria in untrained individuals
-Crush syndrome
-Myocardial infarction
-Myoglobinuria of progressive muscle disease
-Heat injury

Urine myoglobin increases with muscle necrosis, but the clinical consequences are variable. Therefore, myoglobin can confirm a clinical diagnosis of myopathy, but an elevated urine excretion of myoglobin is not specific for a clinical disorder.

In acute renal failure, an elevated urinary myoglobin can suggest a potential cause and, consequently, may indicate appropriate treatment courses.

### Reference Values

< or =65 mcg/L for 18-83 years of age
Reference values have not been established for patients<18 or >83 years of age.

### Interpretation

Increased excretion of urinary myoglobin is suggestive of 1 of the following disorders:
-Hereditary myoglobinuria
-Phosphorylase deficiency
-Sporadic myoglobinuria
-Exertional myoglobinuria in untrained individuals
-Crush syndrome
-Myocardial infarction
-Myoglobinuria of progressive muscle disease
-Heat injury

Most clinically significant elevations are elevated 2 to 10 times normal.

Visual pigmenturia occurs at myoglobin concentrations about 200 times normal (approximately 4000 mcg/L).

Renal toxicity depends on multiple factors such as renal perfusion and degree of acidity of urine.

### Cautions

An elevated level of myoglobin in urine does not identify the clinical disorder.

Urine collected with acid as preservative will not be valid because acid interferes with analyte integrity.

Urinary myoglobin deteriorates rapidly unless stabilized immediately after collection by alkalizing with sodium carbonate.

Urinary myoglobin does not withstand freezing even when pH is raised with sodium carbonate.

### Clinical Reference

1. Rowland LP: Myoglobinuria. Can J Neurol Sci. 1984;11:1-13
2. Tonin P, Lewis P, Servidei S, DeMauro S: Metabolic causes of myoglobinuria. Ann Neurol. 1990;27:181-185
3. Dawley C: Myalgias and myopathies: rhabdomyolysis. FP Essent. 2016 Jan;440:28-36
4. Nance JR, Mammen AL: Diagnostic evaluation of rhabdomyolysis. Muscle Nerve. 2015 Jun;51(6):793-810. doi: 10.1002/mus.24606

## Performance

### Method Description

Latex-bound antimyoglobin antibodies react with antigen in the sample to form an antigen/antibody complex that after agglutination can be determined turbidimetrically.(Package insert: Tina-quant Myoglobin Gen 2. Roche Diagnostics; V9. 2017)

### PDF Report

No

### Day(s) Performed

Monday through Sunday

### Report Available
1 to 2 days

### Specimen Retention Time
7 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
This test has been modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

### CPT Code Information
83874

### LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| MYGLU | Myoglobin, Random, U | 2641-9 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| MYGLU | Myoglobin, Random, U | 2641-9 |