MAYO CLINIC LABORATORIES

Test Definition: MYGLS

Myoglobin, Serum

Overview

Useful For
Assessing muscle damage from any cause

Method Name
Electrochemiluminescent Immunoassay (ECLIA)

NY State Available
Yes

Specimen

Specimen Type
Serum

Specimen Required
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions: Centrifuge and aliquot serum into plastic vial.

Specimen Minimum Volume
0.6 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	14 days	
	Ambient	7 days	
	Frozen	365 days	

Clinical & Interpretive

Clinical Information

Myoglobin is a heme protein found in smooth and skeletal muscles. Serum myoglobin reflects a balance between intravascular release of myoglobin from muscle and renal clearance.

Previously serum myoglobin had been advocated as a sensitive marker for early acute myocardial injury (eg, acute myocardial infarction: AMI). However, more recent studies indicate that newer markers (eg, troponin) provide superior diagnostic utility in detecting early myocardial injury.

Elevation of serum myoglobin may occur as a result of muscle trauma, resuscitation, myopathies, AMI, shock, strenuous body activity, or decreased elimination during renal insufficiency. Extreme elevations occur in rhabdomyolysis. Creatine kinase is released from muscle and used more commonly for this purpose.

Reference Values

Males: 0 to 72 mcg/L
Females: 0 to 58 mcg/L

Interpretation

Elevated myoglobin levels are seen in conditions of acute muscle injury.

Cautions

Elevation is nonspecific for acute myocardial infarction. The test is of no value in this regard in the presence of kidney failure, rhabdomyolysis, extensive trauma, acute peripheral vascular occlusion, or after seizures.

Serum levels rise in renal insufficiency.

In very rare cases, gammopathy, in particular type IgM (Waldenstrom macroglobulinemia), may cause unreliable results.

Clinical Reference

1. Lamb EJ, Jones GRD. Kidney functions tests. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:489
2. Cappenllini MD, Lo SF, Swinkels DW. Hemoglobin, iron, bilirubin. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:747

Performance

Method Description

This myoglobin test is a sandwich-principal assay. The first incubation is 9 mcL of sample, a biotinylated monoclonal myoglobin-specific antibody, and a monoclonal myoglobin-specific antibody labeled with a ruthenium complex, which react to form a sandwich complex. In the second incubation, the complex becomes bound to the solid phase via interaction of biotin and streptavidin after addition of streptavidin-coated microparticles. The reaction mixture is aspirated into the measuring cell where the microparticles are magnetically captured onto the surface of the electrode.

Results are determined via a calibration curve, which is instrument specifically generated by 2-point calibration, and a master curve provided via the cobas link.(Package insert: Elecsys Myoglobin. Roche Diagnostics; 10/2022)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
1 to 2 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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 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
83874

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MYGLS	Myoglobin, S	2639-3

Result ID	Test Result Name	Result LOINC® Value
MYGLS	Myoglobin, S	2639-3