MAYO CLINIC LABORATORIES

Test Definition: LD

Lactate Dehydrogenase (LDH), Serum

Overview

Useful For

Investigation of a variety of diseases involving the heart, liver, muscle, kidney, lung, and blood

Monitoring changes in tumor burden after chemotherapy; lactate dehydrogenase elevations in patients with cancer are too erratic to be of use in the diagnosis of cancer

Testing Algorithm

For more information see Multiple Myeloma: Laboratory Screening

Special Instructions

- Multiple Myeloma: Laboratory Screening

Method Name

Photometric

NY State Available

Yes

Specimen

Specimen Type

Serum

Necessary Information

Patient's age is required.

Specimen Required

Collection Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Serum gel tubes should be centrifuged within 2 hours of collection.
2. Red-top tubes should be centrifuged, and the serum aliquoted into a plastic vial within 2 hours of collection.

Specimen Minimum Volume

0.25 mL

Reject Due To

Gross hemolysis	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Ambient (preferred)	7 days	
	Refrigerated	48 hours	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Lactate dehydrogenase (LDH) activity is present in all cells of the body with highest concentrations in heart, liver, muscle, kidney, lung, and erythrocytes. Serum LDH is elevated in a number of clinical conditions.

Reference Values

1-30 days: 135-750 U/L
31 days-11 months: 180-435 U/L
1-3 years: 160-370 U/L
4-6 years: 145-345 U/L
7-9 years: 143-290 U/L
10-12 years: 120-293 U/L
13-15 years: 110-283 U/L
16-17 years: 105-233 U/L
> or =18 years: 122-222 U/L

Interpretation

Marked elevations in lactate dehydrogenase (LDH) activity can be observed in megaloblastic anemia, untreated pernicious anemia, Hodgkin disease, abdominal and lung cancers, severe shock, and hypoxia.

Moderate to slight increases in LDH levels are seen in myocardial infarction, pulmonary infarction, pulmonary embolism, leukemia, hemolytic anemia, infectious mononucleosis, progressive muscular dystrophy (especially in the early and middle stages of the disease), liver disease, and kidney disease.

In liver disease, elevations of LDH are not as great as the increases in aspartate aminotransferase (AST) and alanine aminotransferase (ALT).

Increased levels of the enzyme are found in about one-third of patients with kidney disease, especially those with tubular necrosis or pyelonephritis. However, these elevations do not correlate well with proteinuria or other parameters of kidney disease.

On occasion a raised LDH level may be the only evidence to suggest the presence of a hidden pulmonary embolus.

Cautions

Red blood cells contain much more lactate dehydrogenase (LDH) than serum. A hemolyzed specimen is not acceptable. LDH activity is one of the most sensitive indicators of in vitro hemolysis. Causes can include transportation via pneumatic tube, vigorous mixing, or traumatic venipuncture.

While increases in serum LDH also are seen following a myocardial infarction, the test has been replaced by the determination of troponin.

Clinical Reference

Panteghini M, Bais R: Serum enzymes. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:407-431

Performance

Method Description

Lactate dehydrogenase (LD) catalyzes the conversion of L-lactate to pyruvate; nicotinamide adenine dinucleotide (NAD[+]) is reduced to NADH in the process. The initial rate of the NADH formation is directly proportional to the catalytic LD activity. It is determined by photometrically measuring the increase in absorbance.(Package insert: Lactate Dehydrogenase acc. IFCC ver.2. Roche Diagnostics; 03/2023)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

Same day/1 to 3 days

Specimen Retention Time

1 week

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

83615

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
LD	Lactate Dehydrogenase (LD), S	14804-9

Result ID	Test Result Name	Result LOINC® Value
LD	Lactate Dehydrogenase (LD), S	14804-9