MAYO CLINIC LABORATORIES

Test Definition: ALT

Alanine Aminotransferase (ALT) (GPT), Serum

Overview

Useful For
Diagnosis and monitoring of liver disease associated with hepatic necrosis

Method Name
Photometric

NY State Available
Yes

Specimen

Specimen Type
Serum

Necessary Information
Patient's age and sex are required.

Specimen Required
Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 0.5 mL

Collection Instructions:

1. Serum gel tubes should be centrifuged within 2 hours of collection.
2. Red-top tubes should be centrifuged and aliquoted within 2 hours of collection.

Forms
If not ordering electronically, complete, print, and send a Kidney Transplant Test Request with the specimen.

Specimen Minimum Volume
0.25 mL

Reject Due To

Gross hemolysis	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container

Serum	Refrigerated (preferred)	7 days	
	Frozen	7 days	

Clinical & Interpretive

Clinical Information

Alanine aminotransferase (ALT) is present primarily in liver cells. In viral hepatitis and other forms of liver disease associated with hepatic necrosis, serum ALT is elevated even before the clinical signs and symptoms of the disease appear. Although serum levels of both aspartate aminotransferase (AST) and ALT become elevated whenever disease processes affect liver cell integrity, ALT is a more liver-specific enzyme. Serum elevations of ALT are rarely observed in conditions other than parenchymal liver disease. Moreover, the elevation of ALT activity persists longer than does AST activity.

Reference Values

Males

> or =1 year: 7-55 U/L

Reference values have not been established for patients who are <12 months of age.

Females

> or =1 year: 7-45 U/L

Reference values have not been established for patients who are <12 months of age.

Interpretation

Elevated alanine aminotransferase (ALT) values are seen in parenchymal liver diseases characterized by a destruction of hepatocytes. Values are typically at least 10 times above the normal range. Levels may reach values as high as 100 times the upper reference limit, although 20- to 50-fold elevations are most frequently encountered. In infectious hepatitis and other inflammatory conditions affecting the liver, ALT is characteristically as high as or higher than aspartate aminotransferase (AST), and the ALT:AST ratio, which normally and in other condition is less than 1, becomes greater than unity. ALT levels are usually elevated before clinical signs and symptoms of disease appear.

Cautions

Pyridoxal phosphate is a cofactor in the reaction and must be present for optimal enzyme activity.

Clinical Reference

Tietz Textbook of Clinical Chemistry. Edited by CA Burtis, ER Ashwood. Philadelphia, WB Saunders Company, 1994

Performance

Method Description

Alanine aminotransferase (ALT) catalyzes the transfer of an amino group between L-alanine and 2-oxoglutarate to form pyruvate and L-glutamate. The pyruvate then reacts with reduced nicotinamide adenine dinucleotide (NADH) in the presence of lactate dehydrogenase to form L-lactate and NAD[+]. Pyridoxal phosphate serves as a coenzyme in the amino transfer reaction. It ensures full enzyme activation. The rate of NADH oxidation is directly proportional to the catalytic ALT activity. It is determined by measuring the decrease in absorbance.(Package insert: ALT reagent. Roche

Diagnostics; 04/2024)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 to 2 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
84460

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
ALT	Alanine Aminotransferase (ALT), S	1743-4

Result ID	Test Result Name	Result LOINC® Value
ALT	Alanine Aminotransferase (ALT), S	1743-4