MAYO CLINIC LABORATORIES

Test Definition: LPS

Lipase, S

Overview

Useful For
Investigating pancreatic disorders, usually pancreatitis

Method Name
Colorimetric Rate Reaction

NY State Available
Yes

Specimen

Specimen Type
Serum

Specimen Required
Patient Preparation: Patients should be fasting before the specimen is collected.

Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 0.5 mL

Collection Instructions:

1. Serum gel tube must be centrifuged within 2 hours of collection.

2. Red-top tube must be centrifuged and aliquoted within 2 hours of collection.

Reject Due To

Gross hemolysis	Reject
Other	Collection tubes with glycerol-lubricated stoppers

Specimen Minimum Volume
0.25 mL

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Lipases are enzymes that hydrolyze glycerol esters of long-chain fatty acids and produce fatty acids and 2-acylglycerol. Bile salts and a cofactor, colipase, are required for full catalytic activity and greatest specificity. The pancreas is the primary source of serum lipase. Both lipase and colipase are synthesized in the pancreatic acinar cells and secreted by the pancreas in roughly equimolar amounts. Lipase is filtered and reabsorbed by the kidneys. Pancreatic injury results in increased serum lipase levels.

Reference Values

13-60 U/L

Interpretation

In pancreatitis, lipase becomes elevated at about the same time as amylase (4-8 hours). But lipase may rise to a greater extent and remain elevated much longer (7-10 days) than amylase.

Elevations 2 to 50 times the upper reference have been reported. The increase in serum lipase is not necessarily proportional to the severity of the attack. Normalization is not necessarily a sign of resolution.

In acute pancreatitis, normoamylasemia may occur in up to 20% of such patients. Likewise, the existence of hyperlipemia may cause a spurious normoamylasemia. For these reasons, it is suggested that the 2 assays complement and not exclude each other, and that both enzymes should be assayed.

Cautions

Certain drugs such as cholinergics and opiates may elevate serum lipase.

Renal disease may elevate the serum lipase.

Clinical Reference

1. Rifai N, Horvath AR, Wittwer CT: Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics. Eighth edition. St. Louis, Elsevier, 2018, pp 323-324

2. Swaroop VS, Chari ST, Clain JE: Acute pancreatitis. JAMA 2004;291:2865-2868

Performance

Method Description

The lipase method is an enzymatic colorimetric method in which lipase catalyzes the hydrolysis of a natural 1,2-diglyceride to form monoglyceride and fatty acid. Monoglyceride is hydrolyzed by monoglyceride lipase to form glycerol and fatty acid. Glycerol is then phosphorylated by glycerol kinase in the presence of ATP to form glycerol-3-phosphate, which is oxidized by glycerol-3-phosphate oxidase to form dihydroxyacetone phosphate and hydrogen peroxide. Subsequently, hydrogen peroxide reacts with 4-aminoamtipyrine and sodium *N*-ethyl-*N*-(2-hydroxy-3-sulfopropyl)-m-toluidine in the presence of peroxidase to form quinone diimine dye. The dye absorbs light at 550 nm. The rate of increase in absorbance at 550 nm is directly proportional to the pancreatic lipase activity in the specimen. The method is sensitive and specific for pancreatic lipase and utilizes co-lipase and deoxycholate as activators.(Package insert: Equal Diagnostics Lipase reagent, Exton, PA. V2.0 03/2019)

PDF Report

No

Specimen Retention Time

1 week

Performing Laboratory Location

Rochester

Fees & Codes

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

83690

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
LPS	Lipase, S	3040-3

Result ID	Reporting Name	LOINC®
LPS	Lipase, S	3040-3