MAYO CLINIC LABORATORIES

# Test Definition: LPS

Lipase, Serum

## Overview

### Useful For
Investigating pancreatic disorders, usually pancreatitis

### Method Name
Colorimetric

### 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:** 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 the serum aliquoted into a plastic vial within 2 hours of collection.

### Specimen Minimum Volume
0.25 mL

### Reject Due To

| | |
|---|---|
| Gross hemolysis | Reject |
| Other | Collection tubes with glycerol-lubricated stoppers |

### Specimen Stability Information

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

Enzymatic colorimetric assay with 1,2-O-dilauryl-rac-glycero-3-glutaric-acid-(6-methylresorufin) ester as substrate. The chromogenic lipase substrate, 1,2-O-dilauryl-rac-glycero-3-glutaric-acid-(6-methylresorufin) ester is cleaved by the catalytic action of alkaline lipase solution to form 1,2-O-dilauryl-rac-glycerol and an unstable intermediate, glutaric acid-(6-methylresorufin) ester. This decomposes spontaneously in alkaline solution to form glutaric acid and methylresorufin. Addition of detergent and colipase increases the specificity of the assay for pancreatic lipase. The color intensity of the red dye formed is directly proportional to the lipase activity and can be determined photometrically.(Package insert: Lipase Colorimetric Assay. Roche Diagnostics; 09/2024)

# Test Definition: LPS

Lipase, Serum

### 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
83690

### LOINC® Information

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

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| LPS | Lipase, S | 3040-3 |