Overview

Useful For
Evaluation of cardiovascular risk

Special Instructions
- Lipids and Lipoproteins in Blood Plasma (Serum)

Method Name
EnzymaticColorimetric

NY State Available
Yes

Specimen

Specimen Type
Serum

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 Cardiovascular Test Request Form (T724) with the specimen.

Specimen Minimum Volume
0.25 mL

Reject Due To

<table>
<thead>
<tr>
<th>Condition</th>
<th>Rejection</th>
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</thead>
<tbody>
<tr>
<td>Hemolysis</td>
<td>Mild OK; Gross reject</td>
</tr>
<tr>
<td>Lipemia</td>
<td>NA</td>
</tr>
<tr>
<td>Icterus</td>
<td>NA</td>
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<tr>
<td>Other</td>
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</table>
Specimen Stability Information

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
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<tbody>
<tr>
<td>Serum</td>
<td>Refrigerated (preferred)</td>
<td>7 days</td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>90 days</td>
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Clinical and Interpretive

Clinical Information

Cholesterol is a steroid with a secondary hydroxyl group in the C3 position. It is synthesized in many types of tissue, but particularly in the liver and intestinal wall. Approximately 75% of cholesterol is newly synthesized and 25% originates from dietary intake. Normally, the cholesterol in the plasma or serum is 60% to 80% esterified. Approximately 50% to 75% of the plasma cholesterol is transported by low-density lipoproteins (LDL) and 15% to 40% by high-density lipoproteins (HDL).

Serum cholesterol is elevated in the hereditary hyperlipoproteinemias and in various other metabolic diseases. Moderate-to-markedly elevated values are also seen in cholestatic liver disease. Hypercholesterolemia reflects an increase of lipoproteins of 1 or more specific classes (e.g., beta-LDL, alpha-1 HDL, alpha-2 HDL, or LP-X). Hypercholesterolemia is a risk factor for cardiovascular disease.

Low levels of cholesterol can be seen in disorders that include hyperthyroidism, malabsorption, and deficiencies of apolipoproteins.

Reference Values

The National Lipid Association and the National Cholesterol Education Program (NCEP) have set the following guidelines for lipids (total cholesterol, triglycerides, high-density lipoprotein [HDL] cholesterol, low-density lipoprotein [LDL] cholesterol, and non-HDL cholesterol) in adults ages 18 and up:

**TOTAL CHOLESTEROL**

Desirable: <200 mg/dL

Borderline high: 200-239 mg/dL

High: > or =240 mg/dL

The Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents has set the following guidelines for lipids (total cholesterol, triglycerides, HDL cholesterol, LDL cholesterol, and non-HDL cholesterol) in children 2 to 17 years of age:

**TOTAL CHOLESTEROL**

Acceptable: <170 mg/dL

Borderline high: 170-199 mg/dL

High: > or =200 mg/dL
Interpretation
The National Lipid Association and the National Cholesterol Education Program (NCEP) have set the following guidelines for total cholesterol:

Desirable: <200 mg/dL

Borderline high: 200 to 239 mg/dL

High: > or =240 mg/dL

Values above the normal range indicate a need for quantitative analysis of the lipoprotein profile.

Values in hyperthyroidism usually are in the lower normal range; malabsorption values may be below 100 mg/dL, while beta-lipoprotein or apolipoprotein B deficiency values usually are below 80 mg/dL.

See Lipids and Lipoproteins in Blood Plasma (Serum) in Special Instructions.

Cautions
Patients must be fasting for at least 12 to 14 hours if a lipid screen is ordered. If total cholesterol is the only lipid test ordered, fasting is not necessary.

Result can be falsely decreased in patients with elevated levels of N-acetyl-p-benzoquinone imine (NAPQI, a metabolite of acetaminophen), N-acetylcysteine (NAC), and Metamizole.

Clinical Reference


Performance

Method Description
Cholesterol is measured by an automated enzymatic method. The reagents include cholesterol ester hydrolase, cholesterol oxidase, and a coupled colorimetric end-point chemistry system. The method is referenced to the Centers of Disease Control standardized method performed in the Cardiovascular Risk Assessment Laboratory.(Package insert: Bayer Cholesterol Reagent, Bayer Diagnostics Corporation, Tarrytown, NY; package insert: Roche Cholesterol Reagent, Roche Diagnostics Corporation, Indianapolis)

PDF Report
No

Day(s) and Time(s) Test Performed
Test Definition: CHOL
Cholesterol, Total, S

Monday through Sunday; Continuously

Analytic Time
Same day/1 day

Maximum Laboratory Time
1 day

Specimen Retention Time
1 week

Performing Laboratory Location
Rochester

Fees and 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 Regional Manager. For assistance, contact Customer Service.

Test Classification
This test has been cleared or approved by the U.S. 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
82465

LOINC® Information

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<th>Order LOINC Value</th>
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<tr>
<td>CHOL</td>
<td>Cholesterol, Total, S</td>
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