

Overview**Useful For**

Cardiovascular risk assessment

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

FormsIf not ordering electronically, complete, print, and send a [Cardiovascular Test Request](#) (T724) with the specimen.**Specimen Minimum Volume**

0.25 mL

Reject Due To

Gross hemolysis	Reject
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Specimen Stability Information

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

Specimen Type	Temperature	Time	Special Container
	Frozen	30 days	

Clinical and Interpretive

Clinical Information

High-density lipoprotein (HDL) is the smallest of the lipoprotein particles and comprises a complex family of lipoprotein particles that exist in a constant state of dynamic flux as the particles interact with other HDL particles and with low-density lipoprotein (LDL) particles and very-low-density lipoprotein (VLDL) particles. HDL has the largest proportion of protein relative to lipid compared to other lipoproteins (>50% protein).

Total cholesterol levels have long been known to be related to coronary heart disease (CHD). HDL cholesterol is also an important tool used to assess an individual's risk of developing CHD since a strong negative relationship between HDL cholesterol concentration and the incidence of CHD has been reported.

In some individuals, exercise increases the HDL cholesterol level; those with more physical activity have higher HDL cholesterol values.

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:

HDL CHOLESTEROL

Males

> or =40 mg/dL

Females

> or =50 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 ages 2-17:

HDL CHOLESTEROL

Low HDL: <40 mg/dL

Borderline low: 40-45 mg/dL

Acceptable: >45 mg/dL

Interpretation

Low high-density lipoprotein (HDL) cholesterol correlates with increased risk for coronary heart disease (CHD). Values greater than or equal to 80 to 100 mg/dL may indicate metabolic response to certain medications such as hormone replacement therapy, chronic liver disease, or some form of chronic intoxication, such as with alcohol,

heavy metals, or industrial chemicals including pesticides.

HDL values of 5 mg/dL or less occur in Tangier disease, in association with cholestatic liver disease, and in association with diminished hepatocyte function.

See [Lipids and Lipoproteins in Blood Plasma \(Serum\)](#) in Special Instructions.

Cautions

Fasting is not necessary but is preferable. However, if the high-density lipoprotein (HDL) cholesterol data is used to calculate the low-density lipoprotein (LDL) cholesterol, fasting is required since triglycerides concentration is used in the calculation.

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

1. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Edited by CA Burtis, ER Ashwood, DE Bruns. St. Louis, MO: Elsevier Saunders, 2012
2. Rifai N, Warnick GR: Laboratory Measurement of Lipids, Lipoproteins, and Apolipoproteins. AACC Press, Washington DC, 1994
3. Jacobson TA, Ito MK, Maki KC, et al: National Lipid Association recommendations for patient-centered management of dyslipidemia: Part 1 - executive summary. J Clin Lipidol 2014 Sep-Oct;8(5):473-488
4. Expert panel on integrated guidelines for cardiovascular health and risk reduction in children and adolescents: summary report. Pediatrics 2011 Dec;128 Suppl 5:S213-S256

Performance

Method Description

Sulfated alpha-cyclodextrin forms water soluble complexes selectively with low-density lipoprotein (LDL), very-low-density lipoprotein, and chylomicrons, and renders these lipoprotein particles resistant to the enzymatic activity of polyethylene glycol (PEG)-modified cholesterol esterase and cholesterol oxidase. PEG-modified cholesterol esterase selectively converts HDL cholesterol esters to free cholesterol, which in the presence of O₂ reacts with PEG-cholesterol oxidase to produce delta-cholestenone and hydrogen peroxide. In the presence of peroxidase, the hydrogen peroxide generated reacts with 4-aminophenazone and *N*-ethyl-*N*-(3 methylphenyl)-*N*-succinyl ethylene diamine to form a quinone amine dye. The color intensity of this dye, measured photometrically at 600 nm, is proportional to the HDL-cholesterol concentration in the specimen. This method is referenced to the Centers of Disease Control and Prevention (CDC) standardized method performed in the Cardiovascular Risk Assessment Laboratory. (Package insert: Roche HDL-C Reagent, Roche Diagnostic Corp., Indianapolis)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

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, approved or is exempt 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

83718

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
HDCH	Cholesterol, HDL, S	2085-9

Result ID	Test Result Name	Result LOINC Value
HDCH	Cholesterol, HDL, S	2085-9