Test Definition: HDCH

Cholesterol, High-Density Lipoprotein (HDL), Serum

Overview

Useful For

Measurement of serum high-density lipoprotein concentrations for managing atherosclerotic cardiovascular disease risk

Method Name

Colorimetric

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Patient Preparation:

Fasting: 8 hours, preferred but not required unless directed by the ordering provider.

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.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:

-Kidney Transplant Test Request

-Cardiovascular Test Request (T724)

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	30 days	

Clinical & Interpretive

Clinical Information

High-density lipoprotein cholesterol (HDL-C) is associated with lower risk of cardiovascular disease. Excess cholesterol is actively pumped into HDL to be carried in the blood circulation and cleared by the liver in a process known as reverse cholesterol transport. For these reasons, HDL-C is often referred to as "good" cholesterol.

HDL-C is rarely measured in isolation and most often ordered along with total cholesterol and triglycerides. Measuring HDL-C and total cholesterol enables calculation of non-HDL cholesterol (total cholesterol-HDL-C). Non-HDL cholesterol is the combination of low-density lipoprotein cholesterol and very-low density lipoprotein cholesterol. Non-HDL cholesterol is directly associated with risk for cardiovascular disease and referred to as "bad" cholesterol.

Reference Values

The National Lipid Association and the National Cholesterol Education Program have set the following guidelines for lipids in a context of cardiovascular risk for adults 18 years old and older:
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 in a context of cardiovascular risk for children 2-17 years of age:
HDL CHOLESTEROL
Low HDL: <40 mg/dL
Borderline Low: 40-45 mg/dL
Acceptable: >45 mg/dL
Reference values have not been established for patients who are younger than 24 months of age.

Interpretation

Low high-density lipoprotein cholesterol (HDL-C) is a risk factor for cardiovascular disease.

HDL-C can be increased by the same lifestyle changes that reduce risk for cardiovascular disease: physical activity, smoking cessation, and eating healthier. However, medications that specifically increase HDL levels have failed to reduce cardiovascular disease.

Extremely low HDL values (<20 mg/dL) may indicate liver disease or inherited dyslipidemia.

Cautions

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. Grundy SM, Stone NJ, Bailey AL, et al: AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. Circulation. 2019 Jun 18;139(25):e1082-e1143
2. 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. doi: 10.1016/j.jacl.2014.07.007
3. Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents; National Heart, Lung, and Blood Institute: Expert panel on integrated guidelines for cardiovascular health and risk reduction in children and adolescents: Summary report. Pediatrics. 2011 Dec;128 Suppl 5(Suppl 5):S213-S256. doi: 10.1542/peds.2009-2107C

Performance

Method Description

Non-high-density lipoprotein (HDL) lipoproteins such as low-density lipoprotein, very low-density lipoprotein, and chylomicrons are combined with polyanions and a detergent forming a water-soluble complex. In this complex, the enzymatic reaction of cholesterol esterase (CHER) and cholesterol oxidase (CHOD) towards non-HDL lipoproteins is blocked. Finally, only HDL-particles can react with CHER and CHOD. The concentration of HDL-cholesterol is determined enzymatically by CHER and CHOD. Cholesterol esters are broken down quantitatively into free cholesterol and fatty acids by CHER. In the presence of oxygen, cholesterol is oxidized to 4-cholesten-3-one and hydrogen peroxide. In the presence of peroxidase, the hydrogen peroxide generated reacts with 4-amino-antipyrine and N-ethyl-N-(3-methylphenyl)-N'-succinylethylenediamine to form a dye. The color intensity of this dye is directly proportional to the cholesterol concentration and is measured photometrically.(Package insert: HDL-Cholesterol Gen4. Roche Diagnostics; 02/2020)

PDF Report

No

Day(s) Performed

Monday through Sunday

Report Available

1 day

Specimen Retention Time

1 week

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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

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