MAYO CLINIC LABORATORIES

Test Definition: SDLDL

Small Dense Low Density Lipoprotein Cholesterol, Serum

Overview

Useful For

Aiding in risk management of lipoprotein disorders associated with cardiovascular disease when used in conjunction with other lipid measurements and clinical evaluation

Method Name

Enzymatic Colorimetric

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Patient Preparation:
Fasting: 8 hours; required
Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions:
1. Centrifuge and aliquot serum into a plastic vial.
2. Send frozen.

Forms

If not ordering electronically, complete, print, and send a Cardiovascular Test Request (T724) with the specimen.

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	Reject

Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Frozen (preferred)	30 days	
	Ambient	8 hours	
	Refrigerated	72 hours	

Clinical & Interpretive

Clinical Information

Low-density lipoprotein cholesterol (LDL-C) has long been known to be causally associated with atherosclerotic plaque development and progression and is the main target of lowering cardiovascular disease risk. Subfractions of LDL, particularly the concentration of small dense LDL-C, have been shown to also be associated with increased risk for coronary heart disease (CHD). It is thought that the smaller particles are especially pro-atherogenic given their higher probability to transverse the arterial wall and a longer circulating half-life, likely from a lower binding affinity to the LDL receptor. Several epidemiological and pathological studies have reported an association between the concentration of small dense LDL-C and CHD. Results should be used in conjunction with the patient's medical history and other laboratory and clinical results.

Reference Values

> or =18 years: <50 mg/dL

Reference values have not been established for patients who are younger than 18 years.

Interpretation

Results of 50 mg/dL or greater indicate increased risk of incident coronary heart disease (CHD) (myocardial infarction, fatal CHD, or cardiac procedure).

Cautions

Results should not be used as a replacement for low-density lipoprotein cholesterol and should not be used in risk calculators.

In very rare cases, gammopathy, in particular type IgM (Waldenstrom macroglobulinemia), may cause unreliable results.

Clinical Reference

1. Tsai MY, Steffen BT, Guan W, et al. New automated assay of small dense low-density lipoprotein cholesterol identifies risk of coronary heart disease: the multi-ethnic study of atherosclerosis. Arterioscler Thromb Vasc Biol. 2014;34(1):196-201. doi:10.1161/ATVBAHA.113.302401

2. Hoogeveen RC, Gaubatz JW, Sun W, et al. Small dense low-density lipoprotein-cholesterol concentrations predict risk for coronary heart disease: the atherosclerosis riskIn ommunities (ARIC) study. Arterioscler Thromb Vasc Biol. 2014;34(5):1069-1077. doi:10.1161/ATVBAHA.114.303284

3. Hirano T, Ito Y, Yoshino G. Measurement of small dense low-density lipoprotein particles. J Atheroscler Thromb. 2005;12(2):67-72
4. Ogita K, Ai M, Tanaka A, et al. Circadian rhythm of serum concentration of small dense low-density lipoprotein cholesterol. Clin Chim Acta. 2007;376(1-2):96-100
5. Balling M, Nordestgaard BG, Langsted A, Varbo A, Kamstrup PR, Afzal S. Small dense low-density lipoprotein cholesterol predicts atherosclerotic cardiovascular disease in the Copenhagen general population study. J Am Coll Cardiol. 2020;75(22):2873-2875. doi:10.1016/j.jacc.2020.03.072

Performance

Method Description
This test system is a multi-step method measured on automated chemistry analyzers. The assay consists of two steps and is based on the technique of using well-characterized surfactants and enzymes that selectively react with certain groups of lipoproteins.(Package insert: Small dense LDL Seiken. Roche Diagnostics; V 2.0, 11/2021)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
1 to 3 days

Specimen Retention Time
7 days

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.

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Small Dense Low Density Lipoprotein Cholesterol, Serum

CPT Code Information

83722

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SDLDL	Small Dense LDL Cholesterol, S	90364-1

Result ID	Test Result Name	Result LOINC® Value
SDLDL	Small Dense LDL Cholesterol, S	90364-1