

LDL-C Direct (Homogeneous)

Analyte: LDL Cholesterol

Specimen Type: Serum, Inquire for additional option(s)

Optimum Volume: 0.5 mL

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
5 days	3 months	2 years

Reporting Units: mg/dL

Method: Direct-Homogeneous (Enzymatic)

Biological or Clinical Significance:

Plasma lipoproteins are spherical particles that contain varying amounts of cholesterol, triglycerides, phospholipids and proteins. The phospholipid, free cholesterol and protein constitute the outer surface of the lipoprotein particle; the inner core contains mostly esterified cholesterol and triglycerides. These particles serve to solubilize and transport cholesterol and triglycerides in the bloodstream.

The relative proportions of protein and lipid determine the density of these plasma lipoproteins and provide a basis on which to begin their classification. The classes are: chylomicrons, very low density lipoproteins (VLDL), low density lipoproteins (LDL), and high density lipoproteins (HDL). Numerous clinical studies have shown that the different lipoprotein classes have very distinct and varied effects. The studies all point to LDL cholesterol as a key factor in the pathogenesis of atherosclerosis and coronary artery disease (CAD), while HDL cholesterol has often been observed to have a protective effect. Even within the normal range of total cholesterol concentrations, an increase in LDL cholesterol can occur with an associated increased risk for CAD.

Principle of Test Method:

The LDL Direct Cholesterol assay is a homogeneous method for directly quantitative determination of low density lipoprotein cholesterol (LDL-C) levels in human serum or plasma, without the need for any off-line pretreatment or centrifugation steps.

References:

1. Bachorik PS. "Measurement of Low-Density Lipoprotein Cholesterol". Handbook of Lipoprotein Testing, 2nd Edition. Rafai N, Warnick GR, and Dominiczak, MH, eds. AACC Press, Washington, 2000, pp. 245-263.
2. Nauck M, Warnick GR and Rifai N. Methods for measurement of LDL-cholesterol: A critical assessment of direct measurement by homogeneous assays versus calculation. Clin Chem. 2002; 48:236-254.
3. Evans K, Mitcheson J and Laker M. Effect of storage at 4 °C and -20 °C on lipid, lipoprotein, and apolipoprotein concentrations. Clin Chem 1995; 41:392-395.
4. Third report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel) final report. Circulation 2002; 106:3143-3421.