

VLDL-Apolipoproteins C-III

Analyte: VLDL Apolipoproteins CIII

Specimen Type: Serum, EDTA Plasma

Optimum Volume: 2.5 mL*

Stability:

2-8 Degrees C	-20 Degrees C	-70 Degrees C
6 days	1 month	2.5 years

Reporting Units: mg/dL

Method: Ultracentrifugation & Immunoturbidimetric

Biological or Clinical Significance:

Apolipoprotein-lipid complexes are referred to as lipoproteins. The apolipoproteins are plasma protein components that complex with cholesterol, cholesterol esters, glycerides (triglycerides, etc.) and phospholipids, as well as other lipid soluble substances, such as lipid-soluble vitamins, and facilitate their transport and metabolism. Apolipoprotein C-III is an 8.8 kDa protein that appears to inhibit lipoprotein lipase (LPL) and activate lecithin-cholesterol acyltransferase (LCAT), and thus regulates the activities of these enzymes. Apolipoprotein C-III (apo C-III) is found in chylomicrons, very low density lipoproteins (VLDL) and high density lipoproteins (HDL).

Plasma levels of lipoprotein apo C-III predict coronary heart disease (CHD), and are associated with metabolic syndrome and hypertriglyceridemia, which are in turn associated with type 2 diabetes. Apo C-III may cause hypertriglyceridemia by inhibiting the catabolism and the clearance of TG-rich lipoproteins (TLRs), and the association of apo C-III with CHD has been commonly attributed to these properties. Recent studies demonstrated that the apo C-III in TLRs not only modulates their metabolism, but also may directly contribute to the development of atherosclerosis by activating the proinflammatory signal transduction of vascular cells.

Principle of Test Method:

In this method, the bottom fraction is obtained by ultracentrifugation (see LDL-C by ultracentrifugation). Apolipoprotein CII is then measured in both the whole sample and bottom fraction using an immunoturbidimetric method. The VLDL Apo C-III is obtained by calculating the difference between the Apo C-III measured in the whole sample and the Apo C-III measured in the bottom fraction. *1.2 mL minimum volume; 2.5 mL allows for a repeat if needed.