

Analyte List

Advanced Cholesterol Profile

Total cholesterol:

- Total cholesterol measures all types of cholesterol. Low values (generally values less than 4.14 mmol/L* ; 160 mg/dL*) are associated with genetic diseases of cholesterol metabolism such as SLOS (Smith-Lemli-Opitz syndrome). SLOS is an autosomal recessive genetic disorder associated with autism, multiple malformations and mental retardation syndrome, Tangier's disease, and abetalipoproteinemia. Low values are more common in hyperthyroidism, liver disease, malabsorption, malnutrition, autism, violent behavior, celiac disease, anxiety, bipolar disease, alcoholism, lung cancer, suicide, depression, and obesity associated with human adenovirus-36 infection. In China, where mean cholesterol is much lower than in the Western world, chronic hepatitis B virus infection is ubiquitous. Chronic carriers of hepatitis B, but not individuals with eradicated hepatitis B, have significantly lower total cholesterol than non-carriers, suggesting a cause-effect relationship. High cholesterol values are associated with atherosclerosis.

Apolipoprotein A-I (Apo A-1):

- The main protein component of HDL (high density lipoprotein). It accounts for approximately 65% of the total protein content of HDL. Apo A-I activates lecithin cholesterol acyltransferase which catalyses the esterification of cholesterol. The resulting esterified cholesterol can then be transported to the liver, metabolized, and excreted. Values of Apo A-I have been shown to decrease during infection.

Apolipoprotein B (Apo B):

- The main protein component of LDL (low density lipoprotein). It accounts for approximately 95% of the total protein content of LDL. Apolipoprotein B is necessary for the reaction with LDL receptors in the liver and on cell walls and is thus involved in transporting cholesterol from the liver to the cells. Recently the Mind Institute found that low values of Apo B are associated with autism, with the lowest values being found in low-functioning autism. LDL has been found to have protective effects against endotoxins from deadly staphylococcus bacteria.

Lipoprotein (a) (Lp (a)):

- A modified version of LDL containing Apo B and a unique protein, apolipoprotein (a), which are linked by a disulfide bridge. High values have been implicated as a risk factor for cardiovascular disease, Alzheimer's disease, Crohn's disease, and rheumatoid arthritis. Low values have also been found in those with autism who have higher doses of Apolipoprotein E epsilon-4 gene variants that are associated with increased risk of Alzheimer's disease. Lipoprotein (a) is biochemically unrelated to Apolipoprotein A.

Homocysteine:

- A sulfur-containing amino acid that can be converted to methionine by methionine synthetase or by betaine methyl transferase. The role of homocysteine in atherosclerosis gained attention after finding massive atherosclerosis in young people with the genetic disorder homocystinuria. Methionine synthetase requires the folic acid derivative 5-methyl tetrahydrofolate. Abnormally high values have been reported in stroke, cardiovascular disease, and in Alzheimer's disease. Both low and high values have been reported in autism.

The Advanced Cholesterol Profile uses FDA-approved diagnostic laboratory reagents, which assures quality results.

* Some countries (Canada, Europe, Middle East, and others) report cholesterol levels using mmol/L while the U.S. and Latin America use mg/dL.

