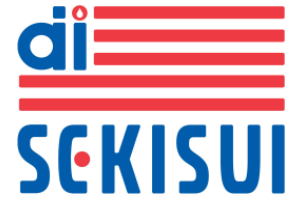


Lipoprotein lipase (LPL)



Description

Lipoprotein lipase (LPL) is a multifunctional enzyme produced by many tissues, including adipose tissue, cardiac and skeletal muscle, islets, and macrophages. LPL is the rate-limiting enzyme for the hydrolysis of the triglyceride (TG) core of circulating TG-rich lipoproteins, chylomicrons, and very low-density lipoproteins (VLDL).

LPL-catalyzed reaction products, fatty acids, and monoacylglycerol are in part taken up by the tissues locally and processed differentially; e.g., they are stored as neutral lipids in adipose tissue, oxidized, or stored in skeletal and cardiac muscle or as cholesteryl ester and TG in macrophages.

Indication

- Hyperlipidemia
- Hypertriglyceridemia
- Diabetes mellitus Type 2

Pathophysiology

Dysfunction of LPL is observed in patients with type I, IV, or V hyperlipidemia. Also, low concentrations of plasma LPL is thought to cause hypertriglyceridemia.

Over the last decade, increasing attention has been paid to the clinical significance of measuring serum LPL protein mass without heparin injection to the study subjects. Studies have shown that pre-heparin plasma or serum LPL mass has significant relationships with serum lipids and lipoproteins, visceral fat area, insulin resistance, and even the development of coronary atherosclerosis in cross-sectional studies, although this might be a metabolic surrogate marker with almost no catalytic activities, which does not appear to be involved in catalyzing hydrolysis of TG in TG-rich lipoproteins.

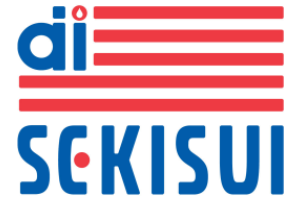
Recently, a prospective study has demonstrated that low serum LPL concentration predicts future coronary events. Taken together, we suggest that pre-heparin LPL mass in plasma or sera provide us with useful and important information on the development of metabolic disorders leading to atherosclerotic disease

References

- Serum lipoprotein lipase mass: clinical significance of its measurement. Kobayashi J et al. Clin Chim Acta 2007 Mar;378(1-2):7-12
- Effect of metformin on serum lipoprotein lipase mass levels and LDL particle size in type 2 diabetes mellitus patients. Ohira M et al. Diabetes Res Clin Pract. 2007 Oct;78(1):34-41.
- Association between preheparin serum lipoprotein lipase mass and acute myocardial infarction in Japanese men. Hitsumoto T et al. J Atheroscler Thromb. 2002;9(4):163-169.

Product information LPL ELISAover

LPL ELISA



Principle of the assay

The LPL ELISA kit is an enzyme-linked immuno-sorbent assay for the quantitative determination of lipoprotein lipase (LPL) in human serum, plasma, or post-heparin plasma

Test wells are coated with anti-LPL mAb, which binds with LPL in the sample. After the first incubation and washes to remove all of the unbound material, anti-LPL pAb is added. The pAb binds with LPL immobilized in the well by the coated mAb. After the second incubation and subsequent washes, enzyme-labeled pAb is added. The enzyme-labeled pAb binds with anti-LPL pAb. After the third incubation and subsequent washes, the antibody/LPL/enzyme complex is incubated with a substrate solution and terminated with a stop solution. The intensity of color that develops is read by a microplate reader. The absorbance is proportional to the concentration of LPL in the sample.

References

- Lipoprotein lipase mass and activity in severe hypertriglyceridemia. Kobayashi J, et al. Clin Chim Acta 1993;216:113.
- Effects of alcohol on lipoprotein lipase, hepatic lipase, cholesteryl ester transfer protein, and lecithin: cholesterol acyltransferase in high-density lipoprotein cholesterol elevation. Nishiwaki M, et al. Atherosclerosis 1994;111:99.
- Sensitive non-radioisotopic method for measuring lipoprotein lipase and hepatic triglyceride lipase in post-heparin plasma. Nozaki S, et al. Clin Chem 1984;30:748.
- Preheparin serum lipoprotein lipase mass level: the effects of age, gender, and types of hyperlipidemias. Watanabe H, et al. Atherosclerosis 1999;145:45.
- Serum lipoprotein lipase in healthy subjects: effects of gender and age, and relationships to lipid parameters. Saito K, et al. Ann Clin Biochem 1998;35:733.

Key Features

- **Format:** 96-well plate
2- step sandwich ELISA
- **Sample type:** human serum, plasma,
or post-heparin plasma
- **Reference range:** 164 - 284 ng/ml
- **Linearity:** 0.2 - 5 ng/ml
- **Sensitivity:** 0 ng/ml \leq 0.2 Abs
10 ng/ml 0.3 ~ 1.4Abs
- **Specificity:** 85 ~ 115% of expected value
- **No cross-reactivity** with hepatic triglyceride lipase
and pancreatic lipase
- **Reproducibility:** CV value less than 10%
- **Shelf life:** 24 months



Scientific information on LPLover