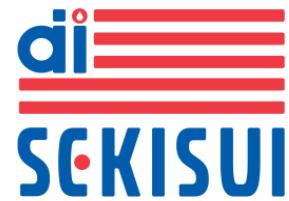


Malondialdehyde-modified low-density lipoprotein (MDA-LDL, ox-LDL)



Description

Modified lipoproteins, especially oxidatively modified low-density lipoprotein (ox-LDL), are present in the plasma of patients with atherosclerosis and related diseases. The modification of LDL is believed to play an important role in the development of atherosclerosis. The modification of LDL by oxidation alters its native properties: oxidized LDL becomes incorporated into macrophages by scavenger receptors and modulates the gene expression involved in the cellular function of endothelial cells and smooth muscle cells in the vessel walls.

Malondialdehyde (MDA) is a candidate suspected of causing oxidative modification of LDL. It is a lipid peroxide product released during prostanoïd metabolism as well as by chemical decomposition of polyunsaturated lipids, and MDA-LDL possibly reacts with the positively charged epsilon-amino group of apo B-100 protein lysyl residues.

Thus, measurement of plasma ox-LDL is essential not only for investigating its relevance to atherosclerotic diseases, but also for diagnosis.

Indication

- Atherosclerosis
- Coronary Artery Diseases (CAD)

Pathophysiology

Circulating ox-LDL and malondialdehyde-modified LDL (MDA-LDL) have been reported to be useful markers for identifying coronary artery disease (CAD). Additionally, it has been proposed that modified LDL might trigger an immune response leading to the production of autoantibodies and subsequently to the formation of immune complexes (IC).

MDA-LDL and LDL-IC are risk factors for increased risk of atherosclerosis in patients with RA. Furthermore, inflammation was associated with elevated levels of MDA-LDL and LDL-IC and may play an important role in the pathogenesis of cardiovascular disease particularly in atherosclerosis.

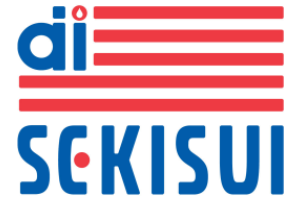
It has also been reported that circulating oxLDL levels, including MDA-LDL, not only serve as a marker of oxidative stress, but can also be used as a marker of plaque destabilization.

References

- The level of malondialdehyde-modified LDL and LDL immune complexes in patients with rheumatoid arthritis. Wang J et al. Clin Biochem. 2009 Sep;42(13-14):1352-1357.
- Circulating malondialdehyde-modified LDL and atherogenic lipoprotein profiles measured by nuclear magnetic resonance spectroscopy in patients with coronary artery disease. Miyazaki T et al. Atherosclerosis. 2005 Mar;179(1):139-145.
- Effect of pravastatin on malondialdehyde-modified low-density lipoprotein levels and coronary plaque regression as determined by three-dimensional intravascular ultrasound. Tani S et al. Am J Cardiol. 2005 Oct 15;96(8):1089-1094.
- Circulating malondialdehyde modified LDL is a biochemical risk marker for coronary artery disease. Amaki T et al. Heart 2004 Oct;90(10):1211-1213.
- Increased circulating malondialdehyde-modified LDL levels in patients with coronary artery diseases and their association with peak sizes of LDL particles. Tanaga K et al. Arterioscler Thromb Vasc Biol. 2002 Apr 1;22(4):662-666.

Product information MDA-LDL ELISAover

MDA-LDL ELISA



Principle of the assay

MDA-LDL ELISA is a quantitative enzyme-linked immunosorbent assay (ELISA) kit for malondialdehyde-modified low-density lipoprotein (MDA-LDL) in human serum.

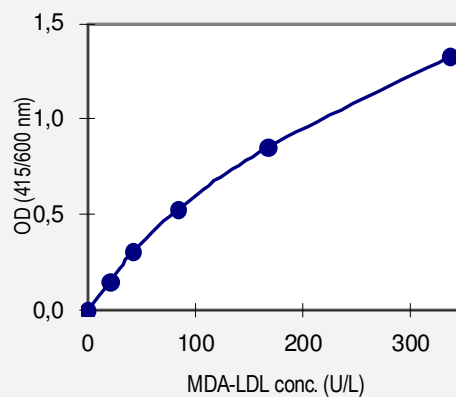
Test wells are coated with anti-MDL-LDL mAb, which binds with MDA-LDL in the sample. After the first incubation and washes to remove all of the unbound material, HRP-labeled anti-apolipoprotein B mAb is added, which binds to the MDA-LDL captured on the plate. After the 2nd incubation and subsequent washing, substrate solution is added. Next, stop reagent is added. The intensity of color that develops is read by a microplate reader. The absorbance is proportional to the concentration of MDA-LDL in the sample.

References

- Distribution of immunoreactive malondialdehyde-modified low-density lipoprotein in human serum. Kotani K et al. Biochim Biophys Acta. 1994 Nov 17;1215(1-2):121-125.

Key Features

- **Format:** 96-well plate
2- step sandwich ELISA
- **Sample type:** human serum
- **Assay range:** 10 – 330 U/l
- **Specificity:** 80 ~ 120% of expected value
- **Reproducibility:** CV value less than 15%
- **Shelf life:** 24 months



Scientific information on MDA-LDLover