The Oxidative Stress & Atherosclerosis Product Line

BI-5007  OXSTAT ASSAY
BI-20032  oLAB ELISA
BI-20042  OXIDIZED LDL ELISA
BI-20062  MGP ELISA

Colorimetric Assay for the Quantitative Determination of Peroxides in Human Samples, Enzyme Immunoassay for the Quantitative Determination of Oxidized LDL, Autoantibodies Against Oxidized LDL and MGP in Human Samples

Atherosclerosis is initiated by the oxidation (elevated oxidative status) of Low Density Lipoprotein LDL. Oxidized LDL is accumulated in macrophages, which turn into foam cells afterwards. Foam cells are the initial step in the formation of atherosclerotic plaques.

Another important marker for atherosclerosis is Matrix Gla Protein MGP, an 84 amino acid protein which was originally identified in bone. MGP belongs to the group generally referred to as the vitamin K-dependent proteins or Gla proteins, which are known to bind calcium. MGP accumulates in cartilage and vascular tissue, notably around sites at risk for calcification and around calcium salt deposits. So it is found highly elevated around calcified atherosclerotic plaques.

Assay Characteristics

OxyStat ELISA

Method: Colorimetric Assay, streptavidin HRP/TMB
Sample type: plasma, serum
Sample size: 10 µl / test, 12x8 tests
Standard range: 7 – 600 µmol/l
Detection limit: 7 µmol/l
Incubation time: 30 min

oLAB ELISA

Method: Sandwich ELISA, streptavidin HRP/TMB
Sample type: serum
Sample size: 50 µl / test, 12x8 tests
Standard range: 37 – 1200 mU/ml
Detection limit: 37 mU/ml
Incubation time: 3 h

Oxidized LDL ELISA

Method: Sandwich ELISA, streptavidin HRP/TMB
Sample type: plasma, serum
Sample size: 10 µl / test, 12x8 tests
Standard range: 0 – 250 ng/ml
Detection limit: 1.2 ng/ml
Incubation time: 4 h / 1 h / 30 min

Matrix Gla Protein ELISA

Method: competitive E/A, streptavidin HRP/TMB
Sample type: serum, cell culture supernatants
Sample size: 20 µl / test, 12x8 tests
Standard range: 0 – 90 nmol/l
Detection limit: 0.3 nmol/l
Incubation time: overnight / 1 h / 30 min

Literature

Evaluation of the atherogenic tendency of lipids and lipoprotein content and their relationships with antioxidant-antioxidant system in patients with psoriasis.

Circulating autoantibodies to oxidized LDL correlate with impaired coronary endothelial function after cardiac transplantation.

Autoantibodies to malondialdehyde-modified low density lipoprotein in patients with angiographically confirmed coronary artery disease.

Matrix Gla protein (MGP) and bone morphogenetic protein-2 in aortic calcified lesions of aging rats.

Matrix Gla protein accumulates at the border of regions of calcification and normal tissue in the media of the arterial vessel wall.

Effect of N-acetyl-cysteine on the hypoxic ventilatory response and erythropoietin production: linkage between plasma thiol redox state and O2 chemosensitivity.
Hildebrandt W. et al., Blood 2002, 99:1552-1555