

# Malondialdehyde (MDA) Modified Low Density Lipoprotein (LDL)

<b>CATALOG NUMBER:</b>	STA-212
<b>STORAGE:</b>	-20°C; aliquot to avoid freeze/thaw cycles
<b>QUANTITY AND CONCENTRATION:</b>	100 µg at 1.0 mg/mL in PBS, pH 7.4, containing 1 mM EDTA, 0.02% NaN <sub>3</sub> and 50% glycerol
<b>SHELF LIFE:</b>	1 year from date of receipt under proper storage conditions
<b>SOURCE:</b>	Isolated from human plasma tested negative for Hepatitis surface antigens and HCV, HIV-I and HIV-II antibodies; purified by ultracentrifugation and modified with malondialdehyde
<b>PURITY:</b>	98% by SDS-PAGE

## **Background**

Lipid peroxidation is a well-defined mechanism of cellular damage in animals and plants. Lipid peroxides are unstable indicators of oxidative stress in cells that decompose to form more complex and reactive compounds such as Malondialdehyde (MDA) and 4-hydroxynonenal (4-HNE), natural bi-products of lipid peroxidation. Oxidative modification of lipids can be induced *in vitro* by a wide array of pro-oxidant agents and occurs *in vivo* during aging and in certain disease conditions. Measuring the end products of lipid peroxidation is one of the most widely accepted assays for oxidative damage. These aldehydic secondary products of lipid peroxidation are generally accepted markers of oxidative stress.

Both MDA and HNE have been shown to be capable of binding to proteins and forming stable adducts, also termed advanced lipid peroxidation end products. These modifications of proteins by MDA or HNE can cause both structural and functional changes of oxidized proteins.

## **Recent Product Citations**

1. Rudewicz-Kowalczyk, D. et al. (2023). Simultaneous Electrochemical Detection of LDL and MDA-LDL Using Antibody-Ferrocene or Anthraquinone Conjugates Coated Magnetic Beads. *Int J Mol Sci.* **24**(6):6005. doi: 10.3390/ijms24066005.
2. Irmscher, S. et al. (2021). Factor H-related protein 1 (FHR-1) is associated with atherosclerotic cardiovascular disease. *Sci Rep.* **11**(1):22511. doi: 10.1038/s41598-021-02011-w.
3. Krilis, M. et al. (2021). Clinical relevance of nitrated beta 2-glycoprotein I in antiphospholipid syndrome: Implications for thrombosis risk. *J Autoimmun.* **122**:102675. doi: 10.1016/j.jaut.2021.102675.

4. Irmscher, S. et al. (2019). Serum FHR1 binding to necrotic-type cells activates monocytic inflammasome and marks necrotic sites in vasculopathies. *Nat Commun.* **10**(1):2961. doi: 10.1038/s41467-019-10766-0.
5. Ye, Y. et al. (2019). Elevated oxidized lipids, anti-lipid autoantibodies and oxidized lipid immune complexes in active SLE. *Clin Immunol.* pii: S1521-6616(19)30088-9. doi: 10.1016/j.clim.2019.05.004.
6. Iype, J. et al. (2019). Differences in Self-Recognition between Secreted Antibody and Membrane-Bound B Cell Antigen Receptor. *J Immunol.* **202**(5):1417-1427. doi: 10.4049/jimmunol.1800690.
7. Shen, L. et al. (2015). B-1a lymphocytes attenuate insulin resistance. *Diabetes.* **64**:593-603.
8. Haller, E. et al. (2014). Gold nanoparticle–antibody conjugates for specific extraction and subsequent analysis by liquid chromatography–tandem mass spectrometry of malondialdehyde-modified low density lipoprotein as biomarker for cardiovascular risk. *Anal Chim Acta.* **857**:53-63.

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