abcam

Product datasheet

Lipid Peroxidation (MDA) Assay Kit (Colorimetric/Fluorometric) ab118970

★★★★★ 1 Abreviews 430 References 5 Images

Overview

Product name	Lipid Peroxidation (MDA) Assay Kit (Colorimetric/Fluorometric)
Detection method	Colorimetric/Fluorometric
Sample type	Urine, Plasma, Cell culture extracts, Tissue Extracts
Assay type	Quantitative
Sensitivity	> 0.1 nmol/well
Assay time	1h 20m
Product overview	Lipid Peroxidation (MDA) Assay Kit (Colorimetric/Fluorometric) (ab118970) provides a convenient tool for sensitive detection of malondialdehyde (MDA). In the lipid peroxidation assay protocol, the MDA in the sample reacts with thiobarbituric acid (TBA) to generate a MDA-TBA adduct. The MDA-TBA adduct can be easily quantified colorimetrically (OD = 532 nm) or fluorometrically (Ex/Em = 532/553 nm). This assay detects MDA levels as low as 1 nmol/well colorimetrically and 0.1 nmol/well fluorometrically. The MDA assay is also refered to as a TBARS assay. **Lipid peroxidation assay protocol summary:** - add TBA solution to samples and standards, incubate at 95ºC for 60 min, cool in ice bath for 10 min - transfer to wells of microplate - analyze with microplate reader For higher sensitivity, precipitate with n-butanol, centrifuge, dry and resuspend pellet before analysis. **Chinese protocol available.** See protocols section below. For an alternative MDA assay, without the heating steps required in the TBARS assay, try **MDA assay ab233471**.
Notes	This product is manufactured by BioVision, an Abcam company and was previously called K739 Lipid Peroxidation (MDA) Colorimetric/Fluorometric Assay Kit. K739-100 is the same size as the 100 test size of ab118970.

Lipid peroxidation refers to the oxidative degradation of lipids. In this process free radicals take electrons from the lipids (generally in cell membranes), resulting in cell damage. Quantification of lipid peroxidation is essential to assess oxidative stress. Lipid peroxidation forms reactive aldehydes such as malondialdehyde (MDA) and 4-hydroxynonenal (4- HNE) as natural bi-products. Malondialdehyde (MDA) and 4-hydroxynonenal (4-HNE) are often used as markers of lipid peroxidation, and to assay for oxidative damage / oxidative stress.

Related products

Review the **oxidative stress marker and assay guide**, or the full **metabolism assay guide** to learn about more assays for metabolites, metabolic enzymes, mitochondrial function, and oxidative stress, and also how to assay metabolic function in live cells using your plate reader.

Also see the popular **4-HNE Assay Kit ab238538** as an alternative marker of lipid peroxidation and oxidative stress.

How other researchers have used Lipid Peroxidation Assay Kit ab118970

The MDA/TBARs assay kit has been used in publications in a variety of sample types, including:
- Human: serum[1], hippocampal primary cell extracts[2], A375 cultured cell lysates[3], plasma and platelet samples[4]
- Mouse: neuronal cell lysates[5], heart tissue extract[6], plasma[7], cell extracts[8]
- Rat: hippocampal tissue extracts[9], cardiomyocyte extracts of cultured cells[10], lung lysates[11]
- Pig: serum[12]

References: 1 - Shen J et al. 2018, 2 - Wang Q et al. 2019, 3 - Luo M et al. 2018, 4 - Mustafa AG et al. 2018, 5 - Murphy K et al. 2018, 6 - Guan F et al. 2019, 7 - Costa CRC et al. 2018, 8 - Eleftheriadis T et al. 2019, 9 - Malekiyan et al. 2019, 10 - Zhou Z et al. 2018, 11 - Li L et al. 2018, 12 - Lee SE and Kang KS 2019

Platform Microplate reader

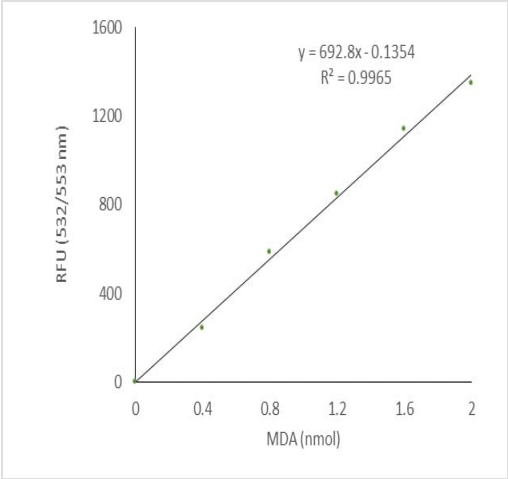
Properties

Storage instructions Store at -20°C. Please refer to protocols.

Components	100 tests	2000 tests
BHT Stock	1 x 1ml	20 x 1ml
MDA Lysis Buffer	1 x 25ml	20 x 25ml
MDA Standard	1 x 100µl	20 x 100µl
Phosphotungstic Acid Solution	1 x 12.5ml	20 x 12.5ml
Developer VII	4 vials	80 vials

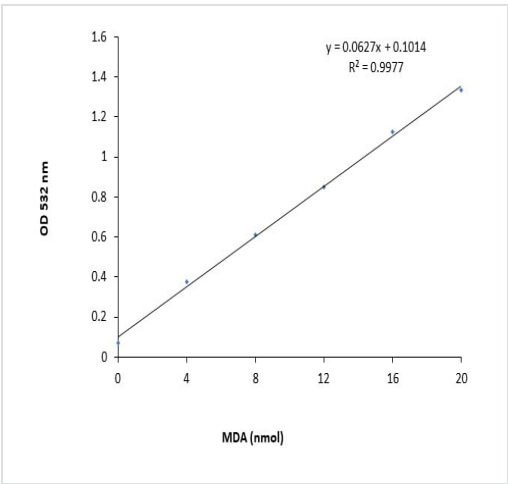
Relevance Lipid peroxidation refers to the oxidative degradation of lipids and is a well-defined mechanism of cellular damage. The formation of lipid peroxidation products leads to spread of free radical reactions leading to cell damage.

Images



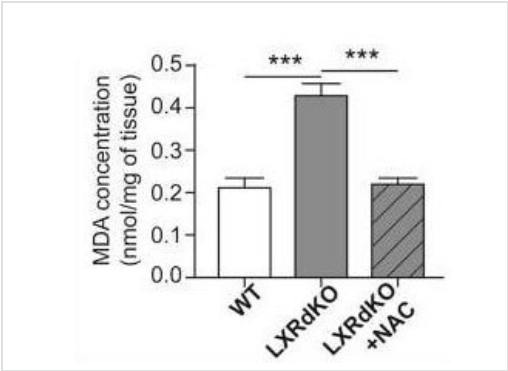
MDA assay standard curve

Typical MDA standard calibration curve using fluorometric reading.



MDA assay standard curve

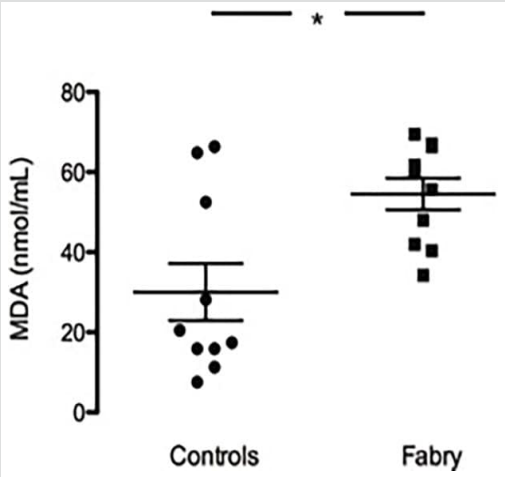
Typical MDA standard calibration curve using colorimetric reading.



Lipid Peroxidation Assay performed on mouse sciatic nerve samples

Hichor M et al. used the TBARS assay / MDA assay ab118970 to study the role of LXRs in the regulation of oxidative stress in peripheral nerves.

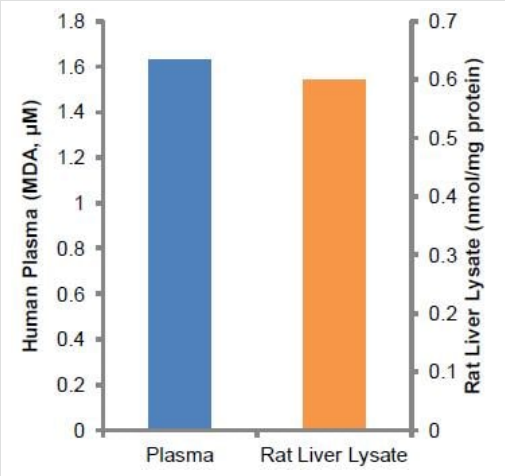
They identified that in sciatic nerves in LXR knockout mice (LXRdKO), the MDA concentration was significantly increased, and that this was corrected by the treatment of mice with the anti-oxidant ROS scavenger N-acetylcysteine (NAC).



Lipid Peroxidation measured with MDA assay in Fabry patients and healthy controls

Ravarotto V et al. used Lipid Peroxidation Assay Kit ab118970 to assess oxidative stress in Fabry disease. They identified that MDA levels are higher in Fabry patients, indicating higher levels of oxidative stress.

The MDA concentration was measured in plasma from Fabry patients compared to healthy control patients. Data are shown ±SEM. *: $p = 0.01$.



Functional Studies - Lipid Peroxidation (MDA) Assay Kit (ab118970)

Measurement of MDA in human plasma (20 µl) and rat liver lysate (10 mg).

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