

# Lipid Hydroperoxide (LPO) Assay Kit ab133085

[11 References](#) [1 Image](#)

### Overview

<b>Product name</b>	Lipid Hydroperoxide (LPO) Assay Kit
<b>Detection method</b>	Colorimetric
<b>Sample type</b>	Plasma, Cell culture extracts, Tissue Extracts
<b>Assay type</b>	Quantitative
<b>Range</b>	0.25 nM - 5 nM
<b>Species reactivity</b>	<b>Reacts with:</b> Mammals, Other species
<b>Product overview</b>	<p>Abcam's Lipid Hydroperoxide (LPO) Assay Kit (ab133085) measures the hydroperoxides directly utilizing the redox reactions with ferrous ions. Hydroperoxides are highly unstable and react readily with ferrous ions to produce ferric ions. The resulting ferric ions are detected using thiocyanate ion as the chromogen. Since this method relies on the measurement of ferric ions generated during the reaction, ferric ions present in the sample are a potential source of error. Also, many biological samples contain hydrogen peroxide which readily reacts with ferrous ions to give an over-estimation of lipid hydroperoxides. These problems are easily circumvented by performing the assay in chloroform.</p>

An easy to use, quantitative extraction method was developed to extract lipid hydroperoxides into chloroform and the extract is directly used in the assay. This procedure eliminates any interference caused by hydrogen peroxide or endogenous ferric ions in the sample and provides a sensitive and reliable assay for lipid peroxidation.

**Notes**

Quantification of lipid peroxidation is essential to assess the role of oxidative injury in pathophysiological disorders. Lipid peroxidation results in the formation of highly reactive and unstable hydroperoxides of both saturated and unsaturated lipids. Traditionally, lipid peroxidation is quantified by measuring malondialdehyde (MDA) and 4-hydroxy nonenal (4-HNE), the degradation products of polyunsaturated fatty acids (PUFAs) hydroperoxides.

Sensitive colorimetric assays have been developed to measure these aldehydes. However, these assays are non-specific and often lead to an over-estimation of lipid peroxidation. There are important additional problems in using these by-products as indicators of lipid peroxidation. The by-product formation is highly inefficient and varies according to the transition metal ion content of the sample. Only hydroperoxides derived from PUFAs give rise to these by-products. For example, 4-HNE is formed only from omega-6 PUFA hydroperoxides and is catalyzed by

transition metal ions like ferrous.

Decomposition of hydroperoxides derived from abundant cellular lipids such as cholesterol and oleic acid does not produce MDA or 4-HNE. These factors can lead to an under-estimation of lipid peroxidation. MDA is also produced in ng/ml concentrations by the platelet enzyme thromboxane synthase during whole blood clotting and platelet activation. This leads to gross over-estimation of lipid peroxidation. Estimation of lipid hydroperoxide levels range from 0.3-30  $\mu$ M depending on the method used. However, direct methods of estimation suggest that the concentration in normal human plasma is approximately 0.5  $\mu$ M. Given the limitations of the indirect methods, direct measurement of hydroperoxides is the obvious choice.

#### 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.

#### Platform

Microplate reader

#### Properties

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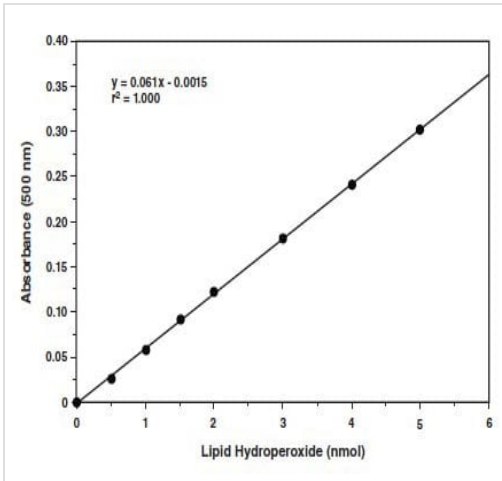
#### Storage instructions

Please refer to protocols.

Components	100 tests	100 tests
Lipid Hydroperoxide Standard	1 vial	1 vial
LPO Assay Extract R	1 vial	1 vial
LPO Assay FTS Reagent 1	1 vial	1 vial
LPO Assay FTS Reagent 2	1 vial	1 vial
LPO Assay Triphenylphosphine	1 vial	1 vial

#### Images

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Typical standard curve obtained using lipid hydroperoxide standard provided in the kit.

Functional Studies - Lipid Hydroperoxide (LPO)  
Assay Kit

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