


Product datasheet

Lipoxygenase Inhibitor Screening Assay Kit ab133087

4 Images

Overview

Product name	Lipoxygenase Inhibitor Screening Assay Kit
Assay type	Enzyme activity
Species reactivity	Reacts with: Human
	Predicted to work with: Mammals 
Product overview	Lipoxygenase Inhibitor Screening Assay Kit (ab133087) detects and measures the hydroperoxides produced in the lipoxygenation reaction using a purified Lipoxygenases (LOs). The detection reaction is equally sensitive to hydroperoxides at various positions within the fatty acid, and will work with fatty acids of any carbon length. It is thus a general detection method for LO, and can be used to screen libraries of compounds for those which inhibit LO enzymes.

Properties

Storage instructions Please refer to protocols.

Components	96 tests
15-Lipoxygenase Standard	1 vial
96-Well Plate (Colorimetric Assay)	1 unit
96-Well Plate Cover	1 unit
Arachidonic Acid (substrate)	1 vial
Developing Reagent 1	1 vial
Developing Reagent 2	1 vial
Linoleic Acid (substrate)	1 vial
Lipoxygenase Inhibitor Screening Assay Buffer (10X)	1 vial
Nordihydroguaiaretic Acid Positive Control Inhibitor	1 vial
Potassium Hydroxide	1 vial

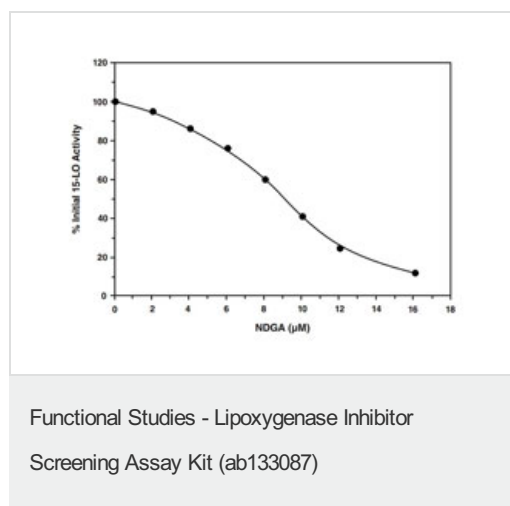
Relevance

The gene for arachidonate 5-lipoxygenase encodes a member of the lipoxygenase gene family and plays a dual role in the synthesis of leukotrienes from arachidonic acid. The encoded protein, which is expressed specifically in bone marrow-derived cells, catalyzes the conversion of arachidonic acid to 5(S)-hydroperoxy-6-trans-8,11,14-cis-eicosatetraenoic acid, and further to the allylic epoxide 5(S)-trans-7,9-trans-11,14-cis-eicosatetraenoic acid (leukotriene A₄). Leukotrienes are important mediators of a number of inflammatory and allergic conditions. Mutations in the promoter region of this gene lead to a diminished response to antileukotriene drugs used in the treatment of asthma and may also be associated with atherosclerosis and several cancers. Alternatively spliced transcript variants encoding different isoforms have been found for this gene. The gene for arachidonate 12-lipoxygenase, 12R type encodes an enzyme involved in the conversion of arachidonic acid to 12R-hydroxyeicosatetraenoic acid. Mutations in this gene are associated with nonbullous congenital ichthyosiform erythroderma. The gene for arachidonate 15-lipoxygenase, type B encodes a member of the lipoxygenase family of structurally related nonheme iron dioxygenases involved in the production of fatty acid hydroperoxides. The encoded protein converts arachidonic acid exclusively to 15S-hydroperoxyeicosatetraenoic acid, while metabolizing linoleic acid less effectively. This gene is located in a cluster of related genes and a pseudogene that spans approximately 100 kilobases on the short arm of chromosome 17. Alternatively spliced transcript variants encoding different isoforms have been described.

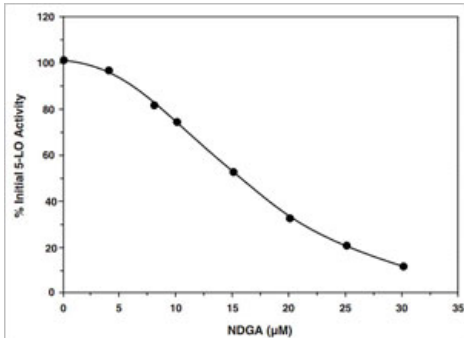
Cellular localization

Arachidonate 15-lipoxygenase B: Cytoplasm Arachidonate 5-lipoxygenase: Cytoplasm. Nucleus matrix. Nucleus membrane; Peripheral membrane protein. Note: Shuttles between cytoplasm and nucleus. Found exclusively in the nucleus, when phosphorylated on Ser-272. Calcium binding promotes translocation from the cytosol and the nuclear matrix to the nuclear envelope and membrane association.

Images

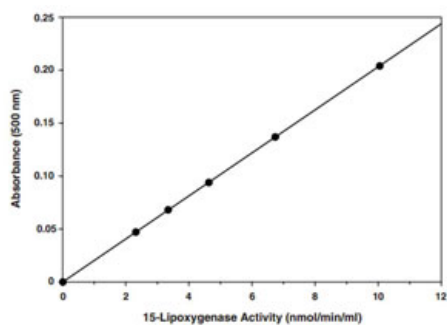


Inhibition of soybean 15-lipoxygenase by NDGA ($IC_{50} = 9 \mu M$).



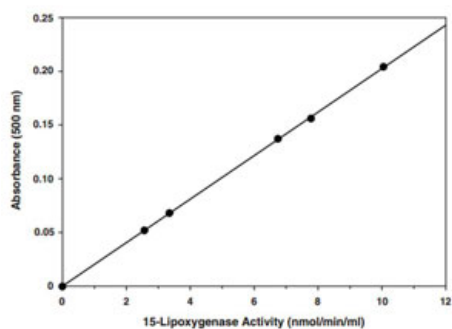
Inhibition of potato 5-lipoxygenase by NDGA ($IC_{50} = 15 \mu M$).

Functional Studies - Lipoxygenase Inhibitor
Screening Assay Kit (ab133087)



Linearity of the assay using linoleic acid as the substrate.

Functional Studies - Lipoxygenase Inhibitor
Screening Assay Kit (ab133087)



Linearity of the assay using arachidonic acid as the substrate.

Functional Studies - Lipoxygenase Inhibitor
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