abcam

ab211506

Anti-12 Lipoxygenase/ALOX12 antibody - C-terminal

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.09% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human ALOX12 aa 600-650 conjugated to Keyhole Limpet Haemocyanin. The exact immunogen used to generate this antibody is proprietary information. Database link P18054
Purification technique	Precipitation Ammonium Sulphate
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/50
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/10 - 1/50
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information ALOX12

Function

Catalyzes the regio and stereo-specific incorporation of molecular oxygen into free and esterified polyunsaturated fatty acids generating lipid hydroperoxides that can be further reduced to the corresponding hydroxy species (PubMed:17493578, PubMed:18311922, PubMed:1851637, PubMed:32404334, PubMed:8319693, PubMed:8500694). Mainly converts arachidonate ((5Z,8Z,11Z,14Z)-eicosatetraenoate) to the specific bioactive lipid (12S)-hydroperoxyeicosatetraenoate/(12S)-HPETE (PubMed:17493578, PubMed:22984144, PubMed:24282679, PubMed:8319693, PubMed:8500694). Through the production of bioactive lipids like (12S)-HPETE it regulates different biological processes including platelet activation (PubMed:8319693, PubMed:8500694). It can also catalyze the epoxidation of double bonds of polyunsaturated fatty acids such as (14S)-hydroperoxy-docosahexaenoate/(14S)-HPDHA resulting in the formation of (13S,14S)-epoxy-DHA (PubMed:23504711). Furthermore, it may participate in the sequential oxidations of DHA ((4Z,7Z,10Z,13Z,16Z,19Z)-docosahexaenoate) to generate specialized pro-resolving mediators (SPMs) like resolvin D5 ((7S,17S)-diHPDHA) and (7S,14S)-diHPDHA, that

actively down-regulate the immune response and have anti-aggregation properties with platelets (PubMed:32404334). An additional function involves a multistep process by which it transforms leukotriene A4/LTA4 into the bioactive lipids lipoxin A4/LXA4 and lipoxin B4/LXB4, both are vasoactive and LXA4 may regulate neutrophil function via occupancy of specific recognition sites (PubMed:8250832). Can also peroxidize linoleate ((9Z,12Z)-octadecadienoate) to (13S)-hydroperoxyoctadecadienoate/ (13S-HPODE) (By similarity). Due to its role in regulating both the expression of the vascular endothelial growth factor (VEGF, an angiogenic factor involved in the survival and metastasis of solid tumors) and the expression of integrin beta-1 (known to affect tumor cell migration and proliferation), it can be regarded as protumorigenic (PubMed:16638750, PubMed:22237009, PubMed:9751607). Important for cell survival, as it may play a role not only in proliferation but also in the prevention of apoptosis in vascular smooth muscle cells (PubMed:23578768).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	12-Lipoxygenase (12-LOX) also known as ALOX12 is an enzyme that catalyzes the oxygenation of arachidonic acid to produce 12-hydroxyeicosatetraenoic acid (12-HETE). It has a molecular mass of approximately 75 kDa. This enzyme is widely expressed in various tissues including platelets lungs and pancreatic tissue. By converting polyunsaturated fatty acids such as arachidonic acid into bioactive lipids 12-LOX plays an important role in regulating cellular and physiological functions.
Biological function summary	12-LOX influences many cellular processes such as inflammation and thrombosis regulation. It is part of the lipoxygenase pathway synthesizing lipid signaling molecules that modulate immune responses and cellular growth. The enzyme does not form part of a large protein complex but interacts with lipid membranes where it exerts its catalytic function. Through its activity 12-LOX contributes to the

	production of eicosanoids which are signaling molecules with various physiological roles.
Pathways	12-LOX is involved in the arachidonic acid metabolism pathway and the eicosanoid signaling pathway. These pathways play roles in inflammation and immune response modulation. It works alongside other related lipoxygenases such as ALOX5 which produce different but related signaling molecules. The interaction between these enzymes helps maintain a balanced production of inflammatory mediators which controls cell proliferation and responses to external stimuli.
Associated diseases and disorders	Alterations in 12-LOX expression or function associate strongly with cardiovascular diseases and various types of cancers. In cardiovascular disease 12-LOX-derived eicosanoids contribute to the development of atherosclerosis by promoting inflammation and endothelial dysfunction. In cancer the dysregulation of 12-LOX can lead to increased tumor growth and metastasis. These conditions often exhibit altered interactions with proteins such as COX-2 another enzyme involved in eicosanoid production highlighting the role of 12-LOX in complex disease mechanisms.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

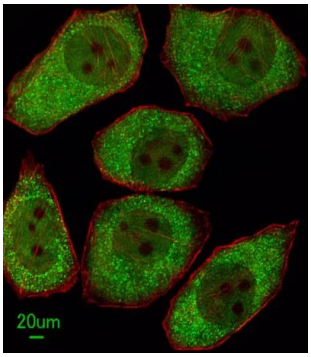
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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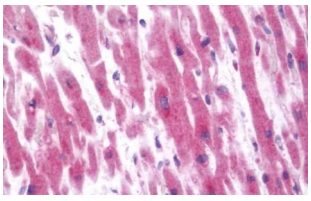
4 product images



Immunocytochemistry/ Immunofluorescence - Anti-12 Lipoxygenase/ALOX12 antibody - C-terminal (ab211506)

12 Lipoxygenase/ALOX12 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-12 Lipoxygenase/ALOX12 antibody

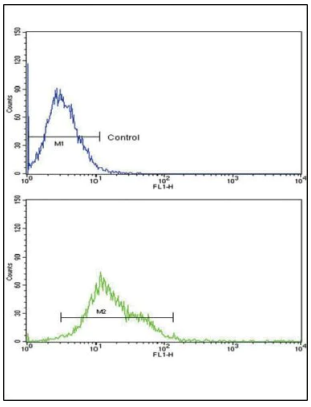
Immunofluorescence analysis of A549 cells, labeling 12 Lipoxygenase/ALOX12 using ab211506 at a 1/100 dilution. Alexa Fluor 488-conjugated goat anti-rabbit lgG at 1/400 dilution was used as the secondary antibody (green). Cytoplasmic actin was counterstained with Dylight Fluor 554 (red) conjugated Phalloidin (red).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-12 Lipoxygenase/ALOX12 antibody - C-terminal (ab211506)

12 Lipoxygenase/ALOX12 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-12 Lipoxygenase/ALOX12 antibody

Immunohistochemical analysis of formalin-fixed, paraffin-embedded Human heart tissue, labeling 12 Lipoxygenase/ALOX12 using ab211506 at a 1/50 dilution.



Flow Cytometry (Intracellular) - Anti-12 Lipoxygenase/ALOX12 antibody - C-terminal (ab211506)

12 Lipoxygenase/ALOX12 Flow Cytometry (Intracellular) staining using rabbit Anti-12 Lipoxygenase/ALOX12 antibody

Intracellular Flow Cytometry analysis of K562 cells labeling 12 Lipoxygenase/ALOX12 (bottom histogram), using ab211506 at a 1/10 dilution, and negative control cells (top histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.



Western blot - Anti-12 Lipoxygenase/ALOX12 antibody - C-terminal (ab211506)

All lanes:
Western blot - Anti-12 Lipoxygenase/ALOX12 antibody - C-terminal (ab211506) at 1/1000 dilution

All lanes:
K562 cell lysate at 35 µg

Predicted band size: 76 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.