abcam

ab227991

Anti-5 Lipoxygenase/5-LO antibody [EP6072(2)] - BSA and Azide free

Recombinant RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EP6072(2)
Purification technique	Affinity purification Protein A
Concentration	1.036 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-

Notes	ab199376 - Rabbit monoclonal IgG (Low endotoxin, Azide free), is suitable for use as an isotype control with this antibody.

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG (Low endotoxin, Azide free), is suitable for use as an isotype control with this antibody.

Species	Dog
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse, Dog

Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse, Dog
Dilution info	-
Notes	-

WB

Tested

Species	Rat, Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Dog
Dilution info	-
Notes	-

Target data

See full target information ALOX5

Function	Catalyzes the oxygenation of arachidonate ((5Z,8Z,11Z,14Z)-eicosatetraenoate) to 5-hydroperoxyeicosatetraenoate (5-HPETE) followed by the dehydration to 5,6-epoxyeicosatetraenoate (Leukotriene A4/LTA4), the first two steps in the biosynthesis of leukotrienes, which are potent mediators of inflammation (PubMed:19022417, PubMed:21233389, PubMed:22516296, PubMed:23246375, PubMed:24282679, PubMed:24893149, PubMed:31664810, PubMed:8615788, PubMed:8631361). Also catalyzes the oxygenation of arachidonate into 8-hydroperoxyicosatetraenoate (8-HPETE) and 12-hydroperoxyicosatetraenoate (12-HPETE) (PubMed:23246375). Displays lipoxin synthase activity being able to convert (15S)-HETE into a conjugate tetraene (PubMed:31664810). Although arachidonate is the preferred substrate, this enzyme can also metabolize oxidized fatty acids derived from arachidonate such as (15S)-HETE, eicosapentaenoate (EPA) such as (18R)- and (18S)-HEPE or docosahexaenoate (DHA) which lead to the formation of specialized pro-resolving mediators (SPM) lipoxin and resolvins E and D respectively, therefore it participates in anti-inflammatory responses (PubMed:17114001, PubMed:21206090, PubMed:31664810, PubMed:32404334, PubMed:32841762, PubMed:8615788). Oxidation of DHA directly inhibits endothelial cell proliferation and sprouting angiogenesis via peroxisome proliferator-activated receptor gamma (PPARgamma) (By similarity). It does not catalyze the oxygenation of linoleic acid and does not convert (5S)-HETE to lipoxin isomers (PubMed:31664810). In addition to inflammatory processes, it participates in dendritic cell migration, wound healing through an antioxidant mechanism based on heme oxygenase-1 (HO-1) regulation expression, monocyte adhesion to the endothelium via ITGAM expression on monocytes (By similarity). Moreover, it helps establish an adaptive humoral immunity by regulating primary resting B cells and follicular helper T cells and participates in the CD40-induced production of reactive oxygen species (ROS) after CD40 ligation in B cells through interaction with PIK3R1 that bridges ALOX5 with CD40 (PubMed:21200133). May also play a role in glucose homeostasis, regulation of insulin secretion and palmitic acid-induced insulin resistance via AMPK (By similarity). Can regulate bone mineralization and fat cell differentiation increases in induced pluripotent stem cells (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab227991 is the carrier-free version of ab169755.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	5-Lipoxygenase also known as 5-LO or 5-LOX is an enzyme that catalyzes the oxidation of arachidonic acid to produce leukotrienes which are signaling molecules in the body. 5-LOX has a molecular weight of approximately 78 kDa. It is mainly expressed in leukocytes like macrophages neutrophils and mast cells. This enzyme plays an important role in the inflammatory response and the regulation of immune functions in these cells.
Biological function summary	The activity of 5-Lipoxygenase contributes to the production of leukotrienes which are pivotal in mediating inflammatory and allergic responses. This enzyme operates alone but it often interacts with 5-LOX-activating protein (FLAP) to facilitate the synthesis of leukotrienes efficiently. These interactions suggest that 5-LOX has a significant role in cellular processes related to inflammation and immune reactions.
Pathways	5-Lipoxygenase is integral to the arachidonic acid metabolic pathway initiating the biosynthesis of leukotrienes from arachidonic acid. This pathway also involves other enzymes like phospholipase A2 which releases arachidonic acid from membrane phospholipids and cyclooxygenase enzymes (COX) which convert arachidonic acid into prostaglandins. The end products of this pathway including leukotrienes manage and resolve inflammation and immune responses illustrating the collaborative effort between these enzymes.
Associated diseases and disorders	5-Lipoxygenase is significantly linked to inflammatory diseases such as asthma and atherosclerosis. In asthma the overproduction of leukotrienes due to enhanced 5-LOX activity results in bronchoconstriction and inflammation of the airways. In atherosclerosis leukotrienes contribute to the development and progression of plaques driving chronic inflammation in the vascular system. Additionally through its pathway its activity relates closely to cyclooxygenase enzymes showing its importance in disease mechanisms targeted by anti-inflammatory therapies.

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.

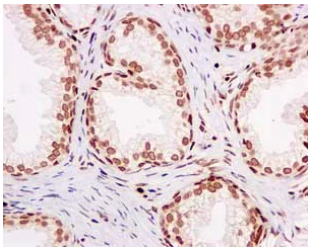
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

Full details and terms and conditions can be found here:
Terms & Conditions.

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5 product images

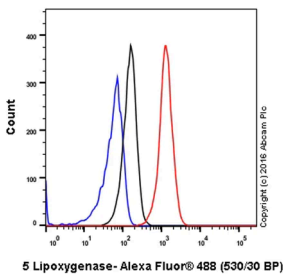


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-5 Lipoxygenase/5-LO antibody [EP6072(2)] - BSA and Azide free (ab227991)

5 Lipoxygenase/5-LO Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-5 Lipoxygenase/5-LO antibody

Immunohistochemical analysis of paraffin-embedded Human prostate tissue labeling 5 Lipoxygenase/5-LO with ab169755, unpurified, at 1/100 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab169755).

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



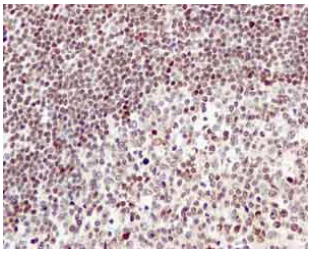
Flow Cytometry (Intracellular) - Anti-5 Lipoxygenase/5-LO antibody [EP6072(2)] - BSA and Azide free (ab227991)

5 Lipoxygenase/5-LO Flow Cytometry (Intracellular) staining using rabbit Anti-5 Lipoxygenase/5-LO antibody

ab169755 staining 5 Lipoxygenase/5-LO in HUVEC (human umbilical vein/vascular endothelium) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permabilised with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/130. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody. Isoytype control: Rabbit monoclonal IgG (black).

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (blue).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab169755).

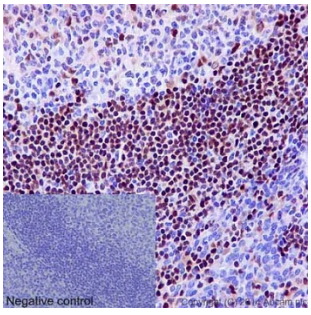


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-5 Lipoxygenase/5-LO antibody [EP6072(2)] - BSA and Azide free (ab227991)

5 Lipoxygenase/5-LO Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-5 Lipoxygenase/5-LO antibody

Immunohistochemical analysis of paraffin-embedded Human tonsil tissue labeling 5 Lipoxygenase/5-LO with ab169755, unpurified, at 1/100 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab169755).

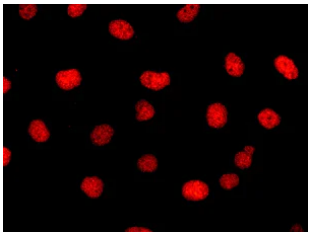
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-5 Lipoxygenase/5-LO antibody [EP6072(2)] - BSA and Azide free (ab227991)

5 Lipoxygenase/5-LO Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-5 Lipoxygenase/5-LO antibody

This IHC data was generated using the same anti-5 Lipoxygenase/5-LO antibody clone, EP6072(2), in a different buffer formulation (ab169755).
ab169755 staining 5 Lipoxygenase/5-LO in Human tonsil tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed and paraffin-embedded, antigen retrieval was by heat mediation in Tris/EDTA buffer pH9. Samples were incubated with primary antibody (1/100). An undiluted HRP-conjugated mouse anti-rabbit IgG was used as the secondary antibody. Tissue counterstained with Hematoxylin. PBS was used in the negative control rather than the Primary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-5 Lipoxygenase/5-LO antibody [EP6072(2)] - BSA and Azide free (ab227991)

5 Lipoxygenase/5-LO Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-5 Lipoxygenase/5-LO antibody

Immunofluorescent analysis of HUVEC cells labeling 5 Lipoxygenase/5-LO with ab169755, unpurified, at 1/100 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab169755).

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