abcam

ab240064

Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR5713
Purification technique	Affinity purification Protein A
Dissociation constant	5.4 x 10^{-11} M
Concentration	1.002 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	-
Notes	-

Expected

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

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat

Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information LTA4H

Function	Bifunctional zinc metalloenzyme that comprises both epoxide hydrolase (EH) and aminopeptidase activities. Acts as an epoxide hydrolase to catalyze the conversion of LTA4 to the pro-inflammatory mediator leukotriene B4 (LTB4) (PubMed:11917124, PubMed:12207002, PubMed:15078870, PubMed:18804029, PubMed:1897988, PubMed:1975494, PubMed:2244921, PubMed:2996528). Can utilize LTA5 less effectively as a substrate than LTA4, and produce LTB5 (PubMed:2996528). Also has aminopeptidase activity, with high affinity for N-terminal arginines of various synthetic tripeptides (PubMed:18804029, PubMed:20813919). In addition to its pro-inflammatory EH activity, may also counteract inflammation by its aminopeptidase activity, which inactivates by cleavage another neutrophil attractant, the tripeptide Pro-Gly-Pro (PGP), a bioactive fragment of collagen generated by the action of matrix metalloproteinase-9 (MMP9) and prolylendopeptidase (PREPL) (PubMed:20813919, PubMed:24591641). Involved also in the biosynthesis of resolvin E1 and 18S-resolvin E1 from eicosapentaenoic acid, two lipid mediators that show potent anti-inflammatory and pro-resolving actions (PubMed:21206090).

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

ab240064 is the carrier-free version of ab133512.

Patented technology

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?

This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility

- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

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	Leukotriene A4 hydrolase often called LTA4H is an enzyme that converts leukotriene A4 into leukotriene B4 an important mediator in inflammation. It has a molecular mass of approximately 69 kDa and functions as a zinc metalloprotease. Expression of LTA4H is widespread detected in various tissues including the lung liver and kidney. This enzyme plays an essential role in modulating inflammatory responses due to its ability to catalyze the transformation of leukotriene A4.
Biological function summary	Leukotriene A4 hydrolase (LTA4H) transforms leukotriene A4 an unstable epoxide into leukotriene B4 a potent chemoattractant. The enzyme does not function within a multi-protein complex but interacts with small molecules during leukotriene biosynthesis. Leukotriene B4 produced by LTA4H recruits neutrophils to sites of inflammation enhancing immune defense. While its primary function is promoting inflammation this activity also regulates the resolution phase by facilitating tissue repair and return to homeostasis.
Pathways	Leukotriene A4 hydrolase plays a role in the arachidonic acid cascade an important biological pathway for synthesizing eicosanoids. This pathway involves several steps where arachidonic acid releases from cell membrane phospholipids and converts to intermediate leukotriene A4 by 5-lipoxygenase. LTA4H then converts leukotriene A4 into leukotriene B4 which orchestrates inflammatory responses. LTA4H connects to proteins like 5-lipoxygenase which also acts within this cascade.
Associated diseases and disorders	Leukotriene A4 hydrolase associates with inflammatory diseases such as asthma and inflammatory bowel disease. In asthma the overproduction of leukotriene B4 can exacerbate airway inflammation and hyperresponsiveness. Here leukotrienes interact with receptors on effector cells which contributes to the pathology of asthma. Inflammatory bowel disease showcases a similar link where increased levels of leukotriene B4 potentiate intestinal inflammation. Effective management of these conditions may involve targeting leukotriene pathways specifically inhibiting the activity of LTA4H to ameliorate symptoms.

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

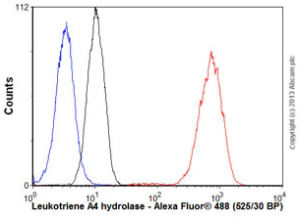
We do not recommend this combination. It is not covered by our product promise.

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.

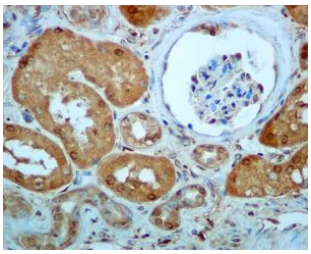
4 product images



Flow Cytometry (Intracellular) - Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] - BSA and Azide free (ab240064)

Leukotriene A4 hydrolase/LTA4H Flow Cytometry (Intracellular) staining using rabbit Anti-Leukotriene A4 hydrolase/LTA4H antibody

Overlay histogram showing Jurkat cells stained with ab133512 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab133512, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in Jurkat cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab133512).

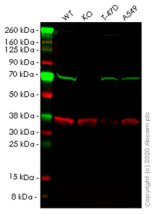


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] - BSA and Azide free (ab240064)

Leukotriene A4 hydrolase/LTA4H Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Leukotriene A4 hydrolase/LTA4H antibody

Immunohistochemical analysis of paraffin-embedded Human kidney tissue labelling Leukotriene A4 hydrolase/LTA4H with ab133512 at 1/250 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab133512).

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Western blot - Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] - BSA and Azide free (ab240064)

Leukotriene A4 hydrolase/LTA4H Western blot staining using rabbit Anti-Leukotriene A4 hydrolase/LTA4H antibody

This data was developed using the same antibody clone in a different buffer formulation (ab133512).
Lanes 1-4: Merged signal (red and green). Green - ab133512 observed at 69 kDa. Red - loading control ab8245 observed at 36 kDa.

ab133512 Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] was shown to specifically react with Leukotriene A4 hydrolase/LTA4H in wild-type HEK293T cells. Loss of signal was observed when knockout cell line ab266467 (knockout cell lysate ab258034) was used. Wild-type and Leukotriene A4 hydrolase/LTA4H knockout samples were subjected to SDS-PAGE. ab133512 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] (ab133512) at 1/1000 dilution

Lane 1:
Wild-type HEK293T cell lysate at 20 µg

Lane 2:
Western blot - Human LTA4H (Leukotriene A4 hydrolase) knockout HEK-293T cell lysate (ab258034) at 20 µg

Lane 3:
T-47D cell lysate at 20 µg

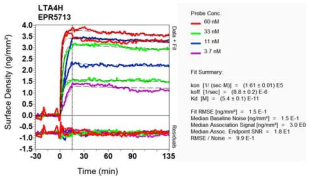
Lane 4:
A549 cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 69 kDa

Observed band size: 69 kDa



OI-RD Scanning - Anti-Leukotriene A4 hydrolase/LTA4H antibody [EPR5713] - BSA and Azide free (ab240064)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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