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ALOX5 Antibody (Center) Blocking Peptide

Synthetic peptide
Catalog # BP7856c

Specification

ALOX5 Antibody (Center) Blocking Peptide - Product Information

Primary Accession P09917

ALOX5 Antibody (Center) Blocking Peptide - Additional Information

Gene ID 240

Other Names
Arachidonate 5-lipoxygenase, 5-LO, 5-lipoxygenase, ALOX5, LOG5

Target/Specificity
The synthetic peptide sequence used to generate the antibody AP7856c was selected from the Center region of human ALOX5. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

ALOX5 Antibody (Center) Blocking Peptide - Protein Information

Name ALOX5 (HGNC:435)

Synonyms LOG5

ALOX5 Antibody (Center) Blocking Peptide - Background

ALOX5 is 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-eicosatetrenoic acid (leukotriene A4). Leukotrienes are important mediators of a number of inflammatory and allergic conditions. Mutations in the promoter region of ALOX5 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.

ALOX5 Antibody (Center) Blocking Peptide - References

Mahshid,Y., BMC Immunol. 10, 2 (2009)Koeberle,A., J. Med. Chem. 51 (24), 8068-8076 (2008)

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:8631361, PubMed:21233389, PubMed:22516296, PubMed:24282679, PubMed:19022417, PubMed:23246375, PubMed:8615788, PubMed:24893149, PubMed:31664810). 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:21206090, PubMed:31664810, PubMed:8615788, PubMed:17114001, PubMed:32404334). 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). Also may 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).

Cellular Location
Cytoplasm {ECO:0000250|UniProtKB:P48999, ECO:0000269|PubMed:18978352}. Nucleus matrix. Nucleus membrane; Peripheral membrane protein. Cytoplasm, perinuclear region. Cytoplasm, cytosol. Nucleus

envelope. Nucleus intermembrane space. Note=Shuttles between cytoplasm and nucleus (PubMed:19233132). Found exclusively in the nucleus, when phosphorylated on Ser-272 (PubMed:18978352). Calcium binding promotes translocation from the cytosol and the nuclear matrix to the nuclear envelope and membrane association (PubMed:19233132, PubMed:3118366, PubMed:8245774, PubMed:16275640).

ALOX5 Antibody (Center) Blocking Peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides