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Anti-ALOX5 Antibody

Catalog # ABO10959

Product Information

Application	WB, IHC-P
Primary Accession	P09917
Host	Rabbit
Reactivity	Human
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Arachidonate 5-lipoxygenase(ALOX5) detection. Tested with WB, IHC-P in Human.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	240
Other Names	Arachidonate 5-lipoxygenase, 5-LO, 5-lipoxygenase, 1.13.11.34, ALOX5, LOG5
Calculated MW	77983
Application Details	Immunohistochemistry(Paraffin-embedded Section), 0.5-1 □g/ml, Human, By Heat Western blot, 0.1-0.5 □g/ml, Human
Subcellular Localization	Cytoplasm. Nucleus matrix. Nucleus membrane; Peripheral membrane protein. 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.
Source	Eukaryota
Protein Name	Arachidonate 5-lipoxygenase(5-LO/5-lipoxygenase)
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence at the C-terminus of human ALOX5 (650-667aa AERNKKKQLPYYYLSPDR), different from the related rat and mouse sequences by two amino acids.
Purification	Immunogen affinity purified.

Cross Reactivity	No cross reactivity with other proteins
Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.
Sequence Similarities	Belongs to the lipoxygenase family.

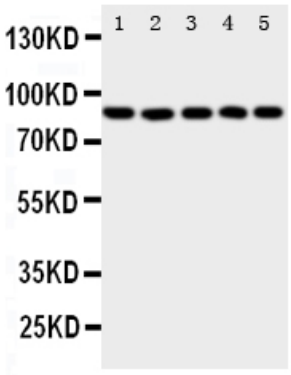
Protein Information

Name	ALOX5 (HGNC:435)
Synonyms	LOG5
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).
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:16275640, PubMed:19233132, PubMed:3118366, PubMed:8245774).

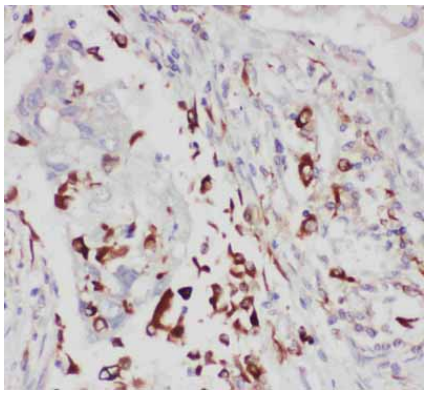
Background

ALOX5(ARACHIDONATE 5-LIPOXYGENASE), also known as LOG5 or 5-LO(5-LIPOXYGENASE), is an enzyme that in humans is encoded by the ALOX5 gene. ALOX5 is a member of the lipoxygenase family of enzymes which also transforms EFAs into leukotrienes and is a current target for pharmaceutical intervention in a number of diseases. The enzyme 5-lipoxygenase catalyzes 2 reactions in the formation of leukotrienes. The ALOX5 gene is mapped to chromosome 10q11.21 based on an alignment of the ALOX5 sequence with the genomic sequence. Human 5-LO contains 3 nuclear localization sequences(NLSs) and a phosphorylation site involved in nuclear localization. Compared with age-matched 5-LO competent mice, the 5-LO knockout mice developed less right heart hypertrophy. Pharmacologic inhibition or ALOX5 gene disruption resulted in a significant decrease of beta-amyloid production and gamma-secretase levels. ALOX5 activity is short-lived, apparently in part because of an intrinsic instability of the enzyme.

Images



Anti-ALOX5 antibody, ABO10959, Western blottingAll lanes: Anti ALOX5 (ABO10959) at 0.5ug/mlLane 1: SW620 Whole Cell Lysate at 40ugLane 2: JURKAT Whole Cell Lysate at 40ugLane 3: COLO320 Whole Cell Lysate at 40ugLane 4: A549 Whole Cell Lysate at 40ugLane 5: MCF-7 Whole Cell Lysate at 40ugPredicted bind size: 78KDObserved bind size: 78KD



Anti-ALOX5 antibody, ABO10959, IHC(P)IHC(P): Human Lung Cancer Tissue