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Anti-Alkaline Phosphatase ALPL Rabbit Monoclonal Antibody

Catalog # ABO14271

Product Information

Application	WB, IHC, IF, ICC, IP, FC
Primary Accession	P05186
Host	Rabbit
Isotype	Rabbit IgG
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Format	Liquid
Description	Anti-Alkaline Phosphatase ALPL Rabbit Monoclonal Antibody . Tested in WB, IHC, ICC/IF, IP, Flow Cytometry applications. This antibody reacts with Human, Mouse, Rat.

Additional Information

Gene ID	249
Other Names	Alkaline phosphatase, tissue-nonspecific isozyme, AP-TNAP, TNS-ALP, TNSALP, 3.1.3.1, Alkaline phosphatase liver/bone/kidney isozyme, Phosphoamidase, Phosphocreatine phosphatase, ALPL {ECO:0000303|PubMed:8406453, ECO:0000312|HGNC:HGNC:438}
Calculated MW	57305
Application Details	WB 1:5000-1:10000 IHC 1:50-1:200 ICC/IF 1:50-1:100 IP 1:50 FC 1:50
Subcellular Localization	Cell membrane ; Lipid-anchor, GPI-anchor.
Source	Eukaryota
Contents	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
Clone Names	Clone: DBF-1
Immunogen	A synthesized peptide derived from human Alkaline Phosphatase
Purification	Affinity-chromatography
Storage	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

Protein Information

Name

ALPL {ECO:0000303|PubMed:8406453, ECO:0000312|HGNC:HGNC:438}

Function

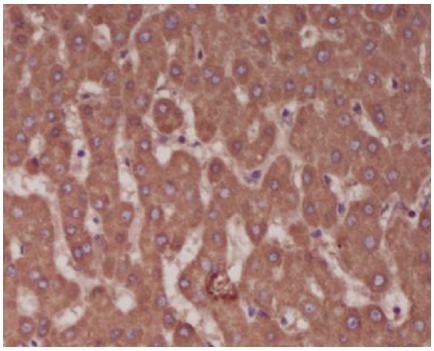
Alkaline phosphatase that metabolizes various phosphate compounds and plays a key role in skeletal mineralization and adaptive thermogenesis (PubMed:12162492, PubMed:23688511, PubMed:25982064). Has broad substrate specificity and can hydrolyze a considerable variety of compounds: however, only a few substrates, such as diphosphate (inorganic pyrophosphate; PPi), pyridoxal 5'-phosphate (PLP) and N- phosphocreatine are natural substrates (PubMed:12162492, PubMed:2220817). Plays an essential role in skeletal and dental mineralization via its ability to hydrolyze extracellular diphosphate, a potent mineralization inhibitor, to phosphate: it thereby promotes hydroxyapatite crystal formation and increases inorganic phosphate concentration (PubMed:23688511, PubMed:25982064). Acts in a non- redundant manner with PHOSPHO1 in skeletal mineralization: while PHOSPHO1 mediates the initiation of hydroxyapatite crystallization in the matrix vesicles (MVs), ALPL/TNAP catalyzes the spread of hydroxyapatite crystallization in the extracellular matrix (By similarity). Also promotes dephosphorylation of osteopontin (SSP1), an inhibitor of hydroxyapatite crystallization in its phosphorylated state; it is however unclear whether ALPL/TNAP mediates SSP1 dephosphorylation via a direct or indirect manner (By similarity). Catalyzes dephosphorylation of PLP to pyridoxal (PL), the transportable form of vitamin B6, in order to provide a sufficient amount of PLP in the brain, an essential cofactor for enzymes catalyzing the synthesis of diverse neurotransmitters (PubMed:20049532, PubMed:2220817). Additionally, also able to mediate ATP degradation in a stepwise manner to adenosine, thereby regulating the availability of ligands for purinergic receptors (By similarity). Also capable of dephosphorylating microbial products, such as lipopolysaccharides (LPS) as well as other phosphorylated small-molecules, such as poly-inosine:cytosine (poly I:C) (PubMed:28448526). Acts as a key regulator of adaptive thermogenesis as part of the futile creatine cycle: localizes to the mitochondria of thermogenic fat cells and acts by mediating hydrolysis of N-phosphocreatine to initiate a futile cycle of creatine dephosphorylation and phosphorylation (By similarity). During the futile creatine cycle, creatine and N-phosphocreatine are in a futile cycle, which dissipates the high energy charge of N-phosphocreatine as heat without performing any mechanical or chemical work (By similarity).

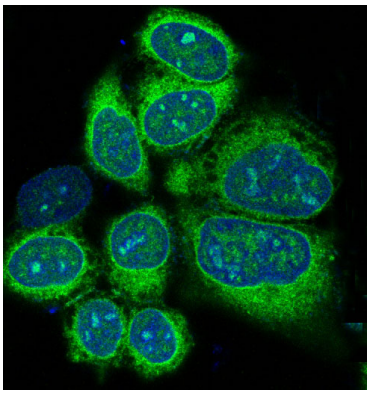
Cellular Location

Cell membrane; Lipid-anchor, GPI-anchor Extracellular vesicle membrane {ECO:0000250|UniProtKB:P09242}; Lipid- anchor, GPI-anchor {ECO:0000250|UniProtKB:P09242}. Mitochondrion membrane {ECO:0000250|UniProtKB:P09242}; Lipid-anchor, GPI-anchor {ECO:0000250|UniProtKB:P09242}. Mitochondrion intermembrane space {ECO:0000250|UniProtKB:P09242}. Note=Localizes to special class of extracellular vesicles, named matrix vesicles (MVs), which are released by osteogenic cells. Localizes to the mitochondria of thermogenic fat cells: tethered to mitochondrial membranes via a GPI-anchor and probably resides in the mitochondrion intermembrane space {ECO:0000250|UniProtKB:P09242}

Images

Immunohistochemical analysis of paraffin-embedded human liver, using Alkaline Phosphatase Antibody.





Immunofluorescent analysis of Hela cells, using Alkaline Phosphatase Antibody .

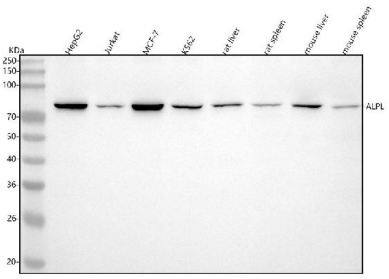


Figure 1. Western blot analysis of ALPL using anti-ALPL antibody (M01008-1).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human HepG2 whole cell lysates,
Lane 2: human Jurkat whole cell lysates,
Lane 3: human MCF-7 whole cell lysates,
Lane 4: human K562 whole cell lysates,
Lane 5: rat liver tissue lysates,
Lane 6: rat spleen tissue lysates,
Lane 7: mouse liver tissue lysates,
Lane 8: mouse spleen tissue lysates.
After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-ALPL antigen affinity purified monoclonal antibody (Catalog # M01008-1) at 1:5000 overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for ALPL at approximately 80 kDa. The expected band size for ALPL is at 57 kDa.

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