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KD-Validated Anti-ALPL Mouse Monoclonal Antibody

Mouse monoclonal antibody
Catalog # AGI1924

Specification

KD-Validated Anti-ALPL Mouse Monoclonal Antibody - Product Information

Application	**WB, FC**
Primary Accession	P05186
Reactivity	**Human**
Clonality	**Monoclonal**
Isotype	**Mouse IgG1**
Calculated MW	**Predicted, 57 kDa, observed, 75 kDa KDa**
Gene Name	**ALPL**
Aliases	**Alkaline Phosphatase, Biomineralization Associated; TNSALP; TNALP; TNAP; Alkaline Phosphatase, Tissue-Nonspecific Isozyme; Alkaline Phosphatase Liver/Bone/Kidney Isozyme; Tissue Non-Specific Alkaline Phosphatase; Alkaline Phosphatase, Liver/Bone/Kidney; Phosphocreatine Phosphatase; Phosphoamidase; EC 3.1.3.1; AP-TNAP; TNS-ALP; HOPS; Liver/Bone/Kidney-Type Alkaline Phosphatase; Tissue-Nonspecific ALP; EC 3.9.1.1; APTNAP; HPPA; HPPC; HPPI; HPPO**
Immunogen	**Recombinant protein of human ALPL**

KD-Validated Anti-ALPL Mouse Monoclonal Antibody - 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}

KD-Validated Anti-ALPL Mouse Monoclonal Antibody - 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}

KD-Validated Anti-ALPL Mouse Monoclonal Antibody - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

KD-Validated Anti-ALPL Mouse Monoclonal Antibody - Images

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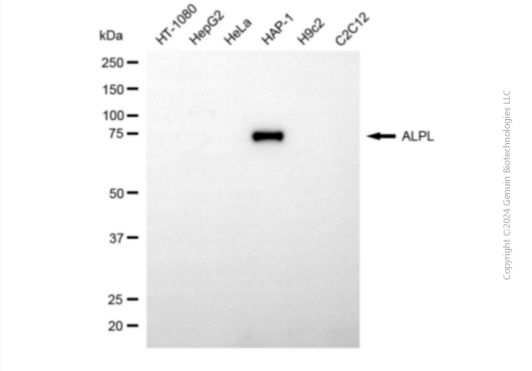
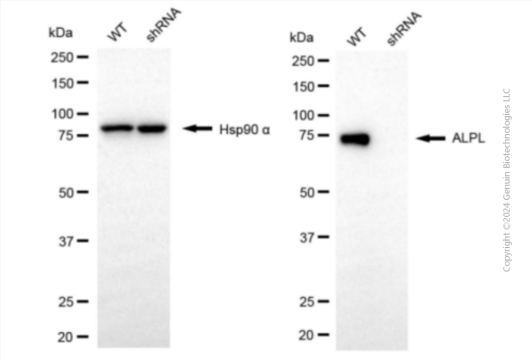
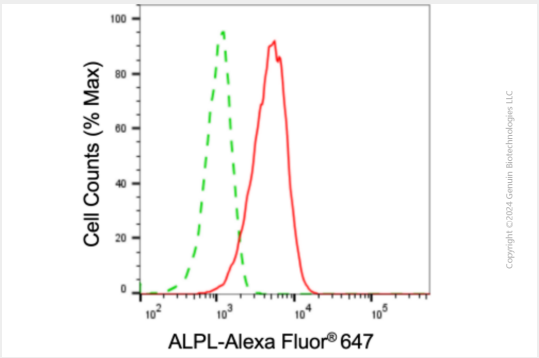


Western blotting analysis using anti-ALPL antibody (Cat#AGI1924). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-ALPL antibody (Cat#AGI1924, 1:5,000) and HRP-conjugated goat anti-mouse secondary antibody respectively.



Western blotting analysis using anti-ALPL antibody (Cat#AGI1924). ALPL expression in wild type (WT) and ALPL shRNA knockdown (KD) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-ALPL antibody (Cat#AGI1924, 1:5,000) and HRP-conjugated goat anti-mouse secondary antibody respectively.



Flow cytometric analysis of ALPL expression in HepG2 cells using anti-ALPL antibody (Cat#AGI1924, 1:2,000). Green, isotype control; red, ALPL.