10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

# ALPL Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP21662c

## Product Information

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| **Application** | WB, E |
| **Primary Accession** | P05186 |
| **Reactivity** | Human, Rat, Mouse |
| **Host** | Rabbit |
| **Clonality** | polyclonal |
| **Isotype** | Rabbit IgG |
| **Clone Names** | RB48144 |
| **Calculated MW** | 57305 |

## Additional Information

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| **Gene ID** | 249 |
| **Other Names** | Alkaline phosphatase, tissue-nonspecific isozyme, AP-TNAP, TNSALP, Alkaline phosphatase liver/bone/kidney isozyme, ALPL |
| **Target/Specificity** | This ALPL antibody is generated from a rabbit immunized with a KLH conjugated synthetic peptide between 377-410 amino acids from the Central region of human ALPL. |
| **Dilution** | WB~~1:2000 E~~Use at an assay dependent concentration. |
| **Format** | Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | ALPL Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **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 |

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| | 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} |

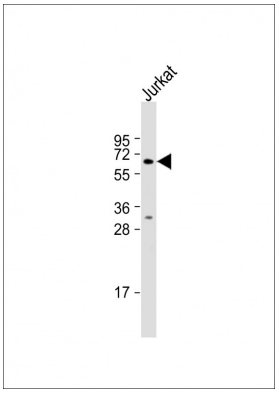
## Background

This isozyme may play a role in skeletal mineralization.

## References


Weiss M.J.,et al.Proc. Natl. Acad. Sci. U.S.A. 83:7182-7186(1986).
Weiss M.J.,et al.J. Biol. Chem. 263:12002-12010(1988).
Kishi F.,et al.Nucleic Acids Res. 17:2129-2129(1989).
Sugimoto N.,et al.J. Hum. Genet. 43:160-164(1998).
Ota T.,et al.Nat. Genet. 36:40-45(2004).


## Images




Anti-ALPL Antibody (Center) at 1:2000 dilution + Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 57 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

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