

**TNAP Polyclonal Antibody**  
Catalog # AP73746**Specification****TNAP Polyclonal Antibody - Product Information**

Application	WB
Primary Accession	<a href="#">P05186</a>
Reactivity	Human, Rat
Host	Rabbit
Clonality	Polyclonal

**TNAP Polyclonal Antibody - Additional Information**

Gene ID 249

**Other Names**

ALPL; Alkaline phosphatase, tissue-nonspecific isozyme; AP-TNAP; TNSALP; Alkaline phosphatase liver/bone/kidney isozyme

**Dilution**

WB~~Western Blot: 1/500 - 1/2000. IHC-p: 1:100-1:300. ELISA: 1/10000. Not yet tested in other applications.

**Format**

Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.

**Storage Conditions**

-20°C

**TNAP Polyclonal 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](http://www.uniprot.org/citations/12162492), PubMed: [23688511](http://www.uniprot.org/citations/23688511), PubMed: [25982064](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/12162492), PubMed: [2220817](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/23688511), PubMed: [23688511](http://www.uniprot.org/citations/23688511)).

[25982064](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/20049532), PubMed: [2220817](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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

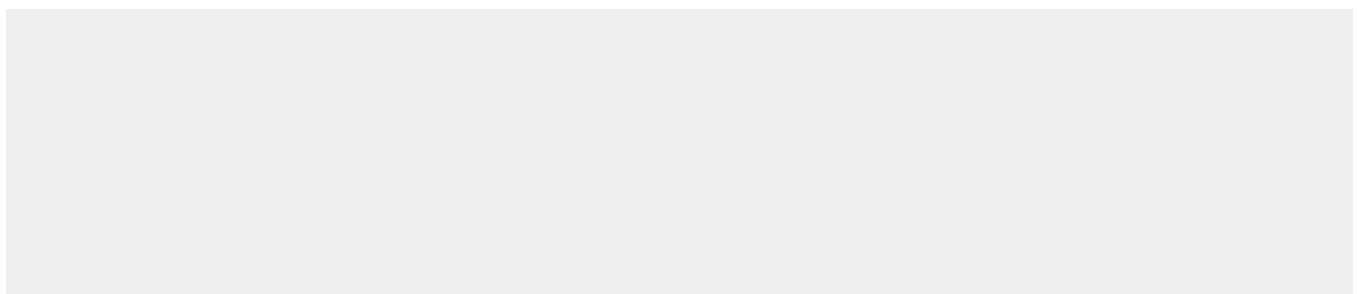
Cell membrane; Lipid-anchor, GPI-anchor Extracellular vesicle membrane {ECO:0000250|UniProtKB:P09242}; Lipid- anchor, GPI-anchor {ECO:0000250|UniProtKB:P09242}. Mitochondrion membrane {ECO:0000250|UniProtKB:P09242}; Lipid-anchor, GPI-anchor {ECO:0000250|UniProtKB:P09242}. Mitochondrion intermembrane 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}

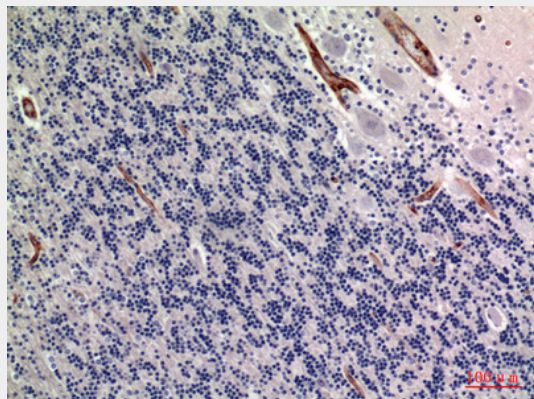
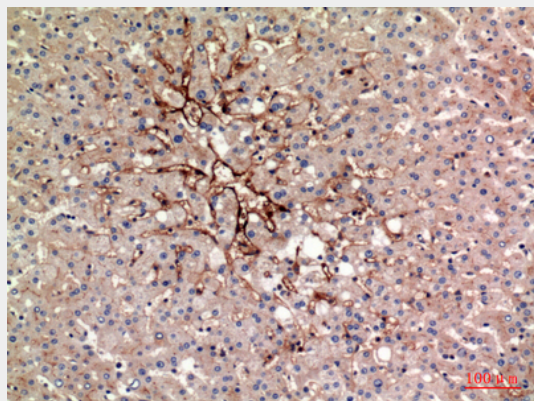
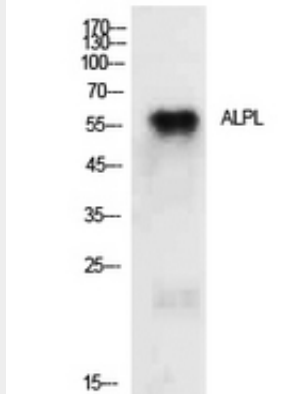
#### TNAP Polyclonal Antibody - Protocols

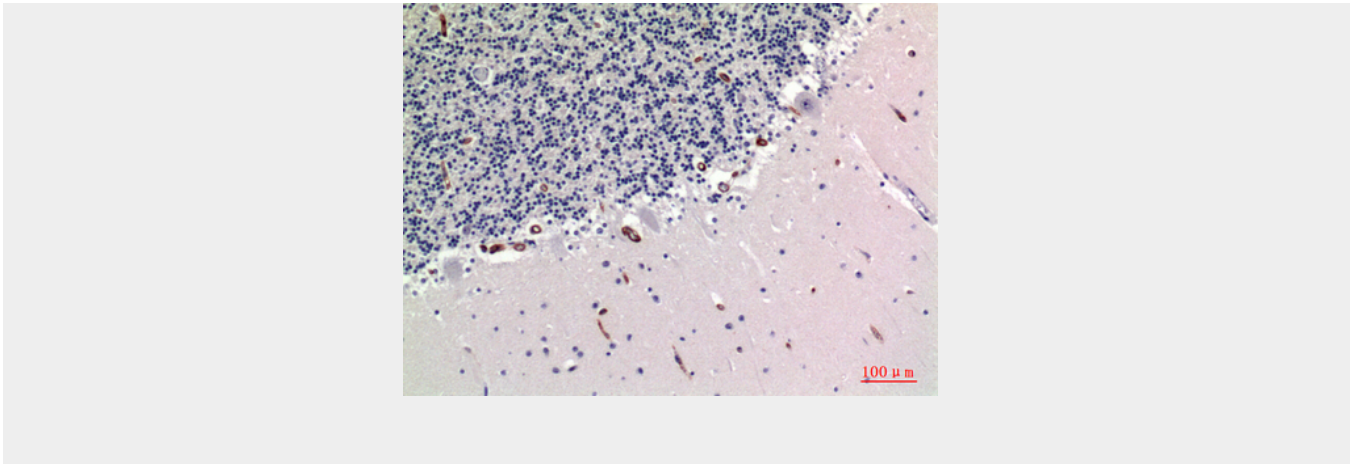
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

#### TNAP Polyclonal Antibody - Images







### **TNAP Polyclonal Antibody - Background**

This isozyme may play a role in skeletal mineralization.