

# Summary

Production Name	Alkaline Phosphatase (4C17) Rabbit Monoclonal Antibody
Description	Rabbit Monoclonal Antibody
Host	Rabbit
Application	WB
Reactivity	Human,Mouse,Rat

### Performance

Conjugation	Unconjugated
Modification	Unmodified
lsotype	lgG
Clonality	Monoclonal
Form	Liquid
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.
Buffer	Supplied in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% New type preservative N and 0.05% BSA.
Purification	Affinity purification

## Immunogen

Gene Name	ALPL {ECO:0000303 PubMed:8406453, ECO:0000312 HGNC:HGNC:438}		
Alternative Names	Alkaline phosphatase, tissue-nonspecific isozyme; AP-TNAP; TNSALP; Alkaline		
	phosphatase liver/bone/kidney isozyme; ALPL;		
Gene ID	249.0		
SwissProt ID	P05186.A synthetic peptide of human Alkaline Phosphatase, Tissue Non-Specific		

# Application

Dilution Ratio	WB: 1:2000-1:10000
Molecular Weight	57kDa



### Background

There are at least four distinct but related alkaline phosphatases: intestinal, placental, placental-like, and liver/bone/kidney (tissue non-specific). The first three are located together on chromosome 2, while the tissue non-specific form is located on chromosome 1. The product of this gene is a membrane bound glycosylated enzyme that is not expressed in any particular tissue and is, therefore, referred to as the tissue-nonspecific form of the enzyme. Alkaline phosphatase that metabolizes various phosphate compounds and plays a key role in skeletal mineralization and adaptive thermogenesis (PubMed:<a href="http://www.uniprot.org/citations/12162492" target=" blank">12162492</a>, PubMed:<a href="http://www.uniprot.org/citations/23688511" target=" blank">23688511</a>, PubMed:<a href="http://www.uniprot.org/citations/25982064" target=" blank">25982064</a>). 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:<a href="http://www.uniprot.org/citations/12162492" target=" blank">12162492</a>, PubMed:<a href="http://www.uniprot.org/citations/2220817" target=" blank">2220817</a>). 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:<a href="http://www.uniprot.org/citations/23688511" target="\_blank">23688511</a>, PubMed:<a href="http://www.uniprot.org/citations/25982064" target=" blank">25982064</a>). 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:<a href="http://www.uniprot.org/citations/2220817" target=" blank">2220817</a>, PubMed:<a href="http://www.uniprot.org/citations/20049532" target=" blank">20049532</a>). 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:<a href="http://www.uniprot.org/citations/28448526" target="\_blank">28448526</a>). 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).

## **Research Area**



#### **Image Data**



Western blot detection of Alkaline Phosphatase in Hela,C6 cell lysates using Alkaline Phosphatase antibody(1:500 diluted).

#### Note

For research use only.