

## Alkaline Phosphatase/ALPL Protein, Mouse, Recombinant (hFc)

### General Information

Synonyms:	Akp-2;TNSALP;TNAP;alkaline phosphatase, liver/bone/kidney;Akp2;APT NAP
Protein Construction:	A DNA sequence encoding the mouse Alpl (BAH03518.1) (Met1-Ser502) was expressed with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Phe 18
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	B7XGA6
Molecular Weight:	80.3 kDa (predicted)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90 % as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Alkaline phosphatase (ALPL) is a hydrolase enzyme responsible for removing phosphate groups from many types of molecules, including nucleotides, proteins, and alkaloids. The process of removing the phosphate group is called dephosphorylation. As the name suggests, alkaline phosphatases are most effective in an alkaline environment. It is sometimes used synonymously as basic phosphatase. Alkaline phosphatases (APs) are ubiquitous in many species, from bacteria to human. Four genes encode AP isoenzymes in humans and rodents.

Three AP genes are expressed in a tissue-specific manner (i.e., placental, embryonic, and intestinal AP isoenzymes). Expression of the fourth AP gene is nonspecific to a single tissue and is especially abundant in bone, liver, and kidney. This isoenzyme is also called tissue-nonspecific alkaline phosphatase (TNAP). The enzyme tissue non-specific alkaline phosphatase (TNAP) belongs to the ectophosphatase family. TNAP is present in large amounts in bone in which it plays a role in mineralization.

### Reference

Brun-Heath I, et al. (2011) Differential expression of the bone and the liver tissue non-specific alkaline phosphatase isoforms in brain tissues. *Cell Tissue Res.* 343(3): 521-36.

Whyte MP, et al. (1995) Alkaline phosphatase: placental and tissue-non-specific isoenzymes hydrolyze phosphoethanolamine, inorganic pyrophosphate, and pyridoxal 5-phosphate. *J Clin Invest.* 95: 1440-5.

Whyte MP. (1994) Hypophosphatasia and the role of alkaline phosphatase in skeletal mineralization. *Endocrinol Rev.* 4: 439-61.

Weinreb M, et al. (1990) Different pattern of alkaline phosphatase, osteopontin and osteocalcin expression in developing rat bone visualized by in situ hybridization. *J Bone Miner Res.* 5: 831-42.

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