

Alkaline phosphatase/ALPI Protein, Human, Recombinant (His)

General Information

Synonyms:	IAP;alkaline phosphatase, intestinal
Protein Construction:	A DNA sequence encoding the mature form of human ALPI (P09923) (Met 1-Asp 503),without the pro peptide, was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Val 20
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P09923
Molecular Weight:	54 kDa (predicted); 66 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its ability to cleave a fluorogenic substrate, 4-Methylumbelliferyl phosphate (4-MUP). The specific activity is > 1,000 pmoles/min/μg.
Purity:	> 95 % 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:
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

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.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

ALPI encodes for intestinal phosphatase alkaline, a brush border metalloenzyme that hydrolyses phosphate from the lipid A moiety of lipopolysaccharides and thereby drastically reduces Toll-like receptor 4 agonist activity. ALPI mutations impaired either stability or catalytic activity of ALPI and rendered it unable to detoxify lipopolysaccharide-dependent signalling. ALPI mutations should be included in screening for monogenic causes

of inflammatory bowel diseases and lay the groundwork for ALPI-based treatments in intestinal inflammatory disorders.

Reference

Nakano T, et al. (2009) Role of lysophosphatidylcholine in brush-border intestinal alkaline phosphatase release and restoration. *Am J Physiol Gastrointest Liver Physiol.* 297(1): G207-14.

Henthorn PS, et al. (1987) Nucleotide and amino acid sequences of human intestinal alkaline phosphatase: close homology to placental alkaline phosphatase. *Proc Natl Acad Sci.* 84(5): 1234-8.

Oetting WS, et al. (2003) Oculocutaneous albinism type 1: the last 100 years. *Pigment Cell Res.* 16(3): 307-11.

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