LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human ALPP Protein
Catalog Number: hRP-1842
Manufacturer: LD Biopharma, Inc.

Introduction

The protein encoded by human alkaline phosphatase, placental type preproprotein (ALPP) gene is an alkaline phosphatase, a metalloenzyme that catalyzes the hydrolysis of phosphoric acid monoesters. It belongs to a multigene family composed of four alkaline phosphatase isoenzymes. The enzyme functions as a homodimer and has a catalytic site containing one magnesium and two zinc ions, which are required for its enzymatic function. The protein is primarily expressed in placental and endometrial tissue; however, strong ectopic expression has been detected in ovarian adenocarcinoma, serous cystadenocarcinoma, and other ovarian cancer cells.

Mature form of human ALPP cDNA (23-506aa, derived from BC009647) was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein was expressed in E. coli as inclusion bodies. The final product was refolded using our unique "temperature shift inclusion body refolding" technology and chromatographically purified.

Gene Symbol:	ALPP (ALP; PALP; PLAP-1)
Accession Number:	NP_001623.3
Species:	Human
Size:	50 µg / Vial
Composition:	1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Vatin M, et al., *Polymorphisms of human placental alkaline phosphatase are associated*

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with in vitro fertilization success and recurrent pregnancy loss. Am. J. Pathol. 184 (2), 362-368 (2014)

Ravenni,N., et al., *A human monoclonal antibody specific to placental alkaline phosphatase, a marker of ovarian cancer*. MAbs 6 (1), 86-94 (2014)

Solomon AL, et al., *Placental alkaline phosphatase de-phosphorylates insulin-like growth factor(IGF) binding protein-1*. Placenta 35 (7), 520-522 (2014)

Bellazi L, et al., *A sequence variation in the promoter of the placental alkaline phosphatase gene (ALPP) is associated with allele-specific expression in human term placenta*. Placenta 31 (9), 764-769 (2010)

Lowe ME. *Site-specific mutations in the COOH-terminus of placental alkaline phosphatase: a single amino acid change converts a phosphatidylinositol-glycan-anchored protein to a secreted protein*. J. Cell Biol. 116 (3), 799-807 (1992)

Applications

1. May be used for in vitro ALPP mediated Insulin-like growth factor (IGF) pathway regulation study in stem cell proliferation by coating this protein as matrix protein or use it as soluble factor.
2. May be used for protein-protein interaction mapping.
3. As enzymatic substrate for various proteases.
4. Potential biomarker protein for tumor diagnosis, such as ovarian cancer, et al.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHGNLYFQGGEFIIPVEEENPDFWNREAAEALGAAKKLQPAQTAAKNLIIFLGDG
MGVSTVTAARILKGQKKDKLGPEIPLAMDRFPYVALSKTYNVDKHVPDSGATATAYLCGVKGNFQTIGLSAAARFNQ
CNTTRGNEVISVMNRAKKAGKSVGVVTTTRVQHASPAGTYAHTVNRNWYSDADVPASARQEGCQDIATQLISNMDID
VILGGGRKYMFRMGTPDPEYPDDYSQGGTRLDGKNLVQEWLAKRQGARYVWNRTELMQASLDPSVTHLMGLFEPGDM

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KYEIHRDSTLDPSLMEMTEAALRLLSRNPRGFFLFVEGGRIDHGHHESRAYRALTETIMFDDAIERAGQLTSEEDTL
SLVTADHSHVFSFGGYPLRGSSIFGLAPGKARDRKAYTVLLYGNGPGYVLKDGARPDVTESESGSPEYRQQSAVPLD
EETHAGEDVAVFARGPQAHLVHGVQEQTFIAHVMAFAACLEPYTACDLAPPAGTTD