



**LD Biopharma, Inc.**  
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## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human LHPP Protein  
**Catalog Number:** hRP-1706  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human phospholysine phosphohistidine inorganic pyrophosphate phosphatase (LHPP) gene encodes a phosphatase enzyme that hydrolyzes imidodiphosphate, 3-phosphohistidine and 6-phospholysine. LHPP has broad substrate specificity and can also hydrolyze inorganic diphosphate, but with lower efficiency. LHPP mRNA profiling data indicated that LHPP dominantly express in brain tissue. Recent data demonstrated that LHPP activity might be involved in major depressive disorder..

Full-length human LHPP cDNA (269 aa, Isoform-1) gene was constructed using gene synthesis technology with codon optimization. A tag of 31 aa (T7/His/TEV cleavage site) was fused to LHPP N-terminal. This protein is 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:** LHPP (HDHD2B)  
**Accession Number:** NP\_071409.1  
**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

CONVERGE Consortium., Sparse whole-genome sequencing identifies two loci for major depressive disorder. Nature 14 Jul 30: 523 (7562): 588-591 (2015)



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Neff CD, et al., *Evidence for HTR1A and LHPP as interacting genetic risk factors in major depression*. Mol. Psychiatry 14 (6), 621-630 (2009)

Koike E, et al., *Expression of new human inorganic pyrophosphatase in thyroid diseases: its intimate association with hyperthyroidism*. Biochem. Biophys. Res. Commun. 341 (3), 691-696 (2006)

## **Applications**

1. May be used for in vitro LHPP protein mediated hydrolyzes imidodiphosphate, 3-phosphohistidine & 6-phospholysine regulation study in neuronal cells for depression model with “ProFectin” reagent based intracellular delivery of this protein.
2. May be used as specific protein substrate for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
3. May be used for protein-protein interaction mapping.
4. As immunogen for specific antibody production.

## **Quality Control**

Purity: > 90% by SDS-PAGE.

## **Recombinant Protein Sequence**

MASMTGGQQMGRGHHHHHHENLYFQGGEFAPWGKRLAGVRGVLLDISGVLYDSGAGGGTAIAGS  
VEAVARLKRSLKVRFCNTNESQKSRAELVGQLQRLGFDISEQEVTAPAPAACQILKERGLRPYL  
LIHDGVRSEFDQIDTSNPNCVVIADAGESFSYQNMNNAFQVLMELEKPVLLISLGKGRYYKETSG  
LMLDVCPYMKALEYACGIKAEVVGKPSPEFFKSALQAIGVEAHQAQ