



LD Biopharma, Inc.
7384 Trade Street, Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant YFP-Human **DNPH1** Protein
Catalog Number: HRP-4392
Manufacturer: LD Biopharma, Inc. USA

Introduction

Human 5-hydroxymethyl-dUMP N-hydrolase (DNPH1) encodes a enzyme, which is part of a nucleotide salvage pathway that eliminates epigenetically modified 5-hydroxymethyl-dCMP (hmdCMP) in a two-step process entailing deamination to cytotoxic 5-hydroxymethyl-dUMP (hmdUMP), followed by its hydrolysis into 5-hydroxymethyluracil (hmU) and 2-deoxy-D-ribose 5-phosphate (deoxyribosephosphate). It catalyzes the second step in that pathway, the hydrolysis of the N-glycosidic bond in hmdUMP, degrading this cytotoxic nucleotide to avoid its genomic integration. Recent data indicated that genomic hmdU is a key determinant of PARP inhibitor sensitivity, targeting DNPH1 may provide a promising strategy for the hypersensitization of *BRCA*-deficient cancers to PARP inhibitor therapy.

Full-length human DNPH1 cDNA (173aa) was constructed with codon optimization gene synthesis and expressed with YFP Protein as N-terminal (YFP; 256aa) fusion protein 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:	DNPH1 (C6orf108; RCL)
Accession Number:	NP_006434
Species:	Human
Size:	50µg / 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, DTT and others.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least two weeks.

Key References



LD Biopharma, Inc.
7384 Trade Street, Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

Kasper Fugger, et al., *Targeting the nucleotide salvage factor DNPH1 sensitizes BRCA-deficient cells to PARP inhibitors*. Science, vol 372. Issue 6538. pp:156 – 165. (2021). DOI: 10.1126/science.abb4542

Applications

1. May be used for in vitro DNPH1 protein mediated epigenomic pathway regulation for various cancer cells study using intracellular delivery of recombinant human YFP-DNPH1 protein with protein delivery reagent such as ProFectin.
2. May be used for DNPH1 protein-protein interaction assay.
3. May be used as specific substrate protein for DNPH1 specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential therapeutic protein, modulating DNPH1 activity may be benefit for hypersensitization of *BRCA*-deficient cancers to PARP inhibitor therapy
5. As native human DNPH1 antigen for its specific antibody production.

Quality Control

Purity: > 92 % by SDS-PAGE.

YFP protein: **Ex λ** = 517nm, and **Em λ** = 530nm.

Recombinant **YFP**- Human DNPH1 Fusion Protein Sequence (48.2 kD)

MK**HHHHHH**QVSKGEELFTGVVPILVELDGDVNGHKFSVSGEGEGDATYGKLTLLCTTGKLPV
PWPTLVTTLGYGVCFAFYPDHMKQHDFFKSAMPEGYVQERTIFFKDDGNYKTRAEVKFEGDTL
VNRIELKGIDFKEDGNILGHKLEYNNSHNVIITADKQKNGIKANFKIRHNIEDGGVQLADHYQ
QNTPIGDGPVLLPDNHYLSYQSALFKDPNEKRDHMLLEFLTAAGITEGMNELYK**GS**ENLY**FQG**
EFAAAMVPGRSESWERGEPRPALYFCGSIRGGREDRTLYERIVSRLRRFGTVLTEHVAAAEELG
ARGEAAAGDRLIHEQDLEWLQQADVVAEVTQPSLGVGYELGRAVAFNKRILCLFRPQSGRVL
SAMIRGAADGSRFQVWDYEEGEVEALLDRYFEADPPGQVAASPDPTT