



LD Biopharma, Inc.
9924 Mesa Rim Road, Suite B
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human NUDT16 Protein
Catalog Number: hRP-1703
Manufacturer: LD Biopharma, Inc.

Introduction

Human NUDT16 is a member of the NUDIX hydrolase superfamily. NUDIX hydrolases belong to the category of “housecleaning” enzymes (NUDIX: nucleoside diphosphate linked to another moiety X). They are hydrolases that are specific for substrates composed by a Nucleoside Diphosphate linked to another moiety X. NUDT16 is a *RNA-binding and decapping enzyme* that catalyzes the cleavage of the cap structure of snoRNAs and mRNAs in a metal-dependent manner. Part of the U8 snoRNP complex that is required for the accumulation of mature 5.8S and 28S rRNA. It has diphosphatase activity and removes m7G and/or m227G caps from U8 snoRNA and leaves a 5' monophosphate on the RNA. U8 snoRNP complex also catalyzes also the cleavage of the cap structure on mRNAs. This complex has broad substrate specificity with manganese or cobalt as cofactor and can act on various RNA species. Binds to the U8 snoRNA; metal is not required for RNA-binding. May play a role in the regulation of snoRNAs and mRNAs degradation. NUDT16 acts also as a phosphatase; hydrolyzes the non-canonical IDP and dITP as well as GDP, dGDP, XDP, ITP and ITP to their respective monophosphate derivatives and does not distinguish between the deoxy- and ribose forms. NUDT16 participates in the hydrolysis of dIDP/IDP and probably excludes non-canonical purines from RNA and DNA precursor pools, thus preventing their incorporation into RNA and DNA and avoiding chromosomal lesions.

Full-length human NUDT16 (194aa, Isoform-II, derived from BC031215) gene was constructed with codon optimization. A tag of 31 aa (T7/His/TEV cleavage site) was fused to NUDT16 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: NUDT16
Accession Number: NP_689608
Species: Human



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Size: 40 µg / Vial

Composition: 0.40 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

Tresaugues L, et al., *Structure basis for the specificity of human NUDT16 and its regulation by Inosine monophosphate*. Plos One. Jun 29; 10 (6): e0131507. (2015)

Lu G, et al., *hNUDT16: a universal decapping enzyme for small nucleolar RNA and cytoplasmic mRNA*. Protein Cell 2 (1), 64-73 (2011)

Iyama T, et al., *NUDT16 is a (deoxy)inosine diphosphatase, and its deficiency induces accumulation of single-strand breaks in nuclear DNA and growth arrest*. Nucleic Acids Res. 38 (14), 4834-4843 (2010)

Applications

1. May be used for in vitro NUDT16 mediated mRNA stability regulation study in U8 snoRNP complex for various cells 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

MASMTGGQQMGRGHHHHHENLYFQGGEFAGARRLELGEALALGSGWRHVCHALLYAPDPGMLF
GR I PLRYAILMQMRFDGRLGFPGGFVDTQDRSLEDGLNRELREELGEAAAAFRVERTDYRSSHV
GSGPRVVAHFYAKRLTLEELLAVEAGATRAKDHGLEVLGLVVRVPLYTLRDGVGGLPTFLENSFI
GSAREQLLEALQDLGLLQSGSISGLKIPAAH