LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human NRDP1 Protein
Catalog Number: hRP-1754
Manufacturer: LD Biopharma, Inc.

Introduction

Human E3 ubiquitin-protein ligase (NRDP1) gene encodes an E3 ubiquitin ligase. The encoded protein plays a role in type 1 cytokine receptor signaling by controlling the balance between JAK2-associated cytokine receptor degradation and ectodomain shedding. Recent data indicated that NRDP1 acts as E3 ubiquitin-protein ligase and regulates the degradation of target proteins. It polyubiquitinates MYD88. Negatively regulates MYD88-dependent production of proinflammatory cytokines. It may also promote TRIF-dependent production of type I interferon and inhibits infection with vesicular stomatitis virus. NRDP1 promotes activation of TBK1 and IRF3. It involved in the ubiquitination of erythropoietin (EPO) and interleukin-3 (IL-3) receptors. Thus, through maintaining basal levels of cytokine receptors, NRDP1 is involved in the control of hematopoietic progenitor cell differentiation into myeloerythroid lineages. It contributes to the maintenance of steady-state ERBB3 levels by mediating its growth factor-independent degradation. It is also involved in the degradation of the inhibitor of apoptosis BIRC6 and thus is an important regulator of cell death by promoting apoptosis. NRDP1 acts as a PARK2 modifier that accelerates its degradation, resulting in a reduction of PARK2 activity, influencing the balance of intracellular redox state. The RNF41-PARK2 pathway regulates autophagosome-lysosome fusion during late mitophagy. Mitophagy is a selective form of autophagy necessary for mitochondrial quality control. By interacting with Zap70, NRDP1 plays a role in controlling CD8+ T cell activation in vitro.

Full-length human NRDP1 cDNA (316 aa) was constructed with codon optimization gene synthesis technology 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: NRDP1 (FLRF; SBBI03, RNF41)
Accession Number: NP_005776
Species: Human

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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

Tang M, et al., *K33-linked polyubiquitination of Zap70 by Nrdp1 controls CD8+ T cell activation.* Nature Immunology. 21 September doi: 10.1038/ni.3258 (2015).

Zhou A, et al., *Overexpression of Nrdp1/FLRF sensitizes cells to oxidative stress*. Biochem. Biophys. Res. Commun. 410 (4), 771-774 (2011)

Fry WH, et al., *Quantity control of the ErbB3 receptor tyrosine kinase at the endoplasmic reticulum*. Mol. Cell. Biol. 31 (14), 3009-3018 (2011)

Wauman J, et al., *RNF41 (Nrdp1) controls type 1 cytokine receptor degradation and ectodomain shedding*. J. Cell. Sci. 124 (PT 6), 921-932 (2011)

Applications

1. May be used for in vitro NRDP1 mediated Zap70 ubiquiting regulation study for T cell activation cells with “ProFectin” reagent based intracellular delivery of this protein.
2. May be used for mapping NRDP1 protein-protein interaction.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for kidney tumor diagnosis.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

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MASMTGGQQMGRGHHHHHHENLYFQGGEFGYDVTRFQGDVDEDLICPICSGVLEEPVQAPHCEH
AFCNACITQWFSQQQTCPVDRSVVTVAHLRPVPRIMRNMLSKLQIACDNAVFGCSAVVRLDNLM
SHLSDCEHNPKRPVTCEQGCGLEMPKDELPNHNCIKHLRSVVQQQQTRIAELEKTSAEHKHQLA
EQKRDIQLLKAYMRAIRSVNPNLQNLEETIEYNEILEWVNSLQPARVTRWGGMISTPDAVLQAV
IKRSLVESGCPASIVNELIENAHERSWPQGLATLETRQMNRRYYENYVAKRIPGKQAVVVMACE
NQHMGDDMVQEPGLVMIFAHGVEEI