



LD Biopharma, Inc.
9924 Mesa Rim Road Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human IDH1 Protein
Catalog Number: hRP-1573
Manufacturer: LD Biopharma, Inc.

Introduction

Isocitrate dehydrogenases catalyze the oxidative decarboxylation of isocitrate to 2-oxoglutarate. These enzymes belong to two distinct subclasses, one of which utilizes NAD(+) as the electron acceptor and the other NADP(+). Five isocitrate dehydrogenases have been reported: three NAD(+)-dependent isocitrate dehydrogenases, which localize to the mitochondrial matrix, and two NADP(+)-dependent isocitrate dehydrogenases, one of which is mitochondrial and the other predominantly cytosolic. Each NADP(+)-dependent isozyme is a homodimer. Human IDH1 gene is the NADP(+)-dependent isocitrate dehydrogenase found in the cytoplasm and peroxisomes. It contains the PTS-1 peroxisomal targeting signal sequence. The presence of this enzyme in peroxisomes suggests roles in the regeneration of NADPH for intraperoxisomal reductions, such as the conversion of 2, 4-dienoyl-CoAs to 3-enoyl-CoAs, as well as in peroxisomal reactions that consume 2-oxoglutarate, namely the alpha-hydroxylation of phytanic acid. The cytoplasmic enzyme serves a significant role in cytoplasmic NADPH production. Recent report indicated that gain-of-function mutations of IDH1 gene are among the most prevalent in low-grade gliomas and secondary glioblastoma. They lead to intracellular accumulation of the onco-metabolite 2-hydroxyglutarate, represent an early pathogenic event and are considered a therapeutic target.

Full-length human IDH1 (413aa, derived from BC093020) gene was constructed with 29 aa N-terminal T7 / His / TEV cleavage site Tags and 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: IDH1 (HEL-216; HEL-S-26; IDCD; IDP; IDPC)
Accession Number: NP_005887.2
Species: Human
Size: 50 µg / Vial



LD Biopharma, Inc.
9924 Mesa Rim Road Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

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 .

Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Hu X, et al., *Up-regulated isocitrate dehydrogenase 1 suppresses proliferation, migration and invasion in osteosarcoma: in vitro and in vivo*. Cancer Lett. 346 (1), 114-121 (2014)

Zhang CB, et al., *Correlation of IDH1/2 mutation with clinic opathologic factors and prognosis in anaplastic gliomas: a report of 203 patients from China*. J. Cancer Res. Clin. Oncol. 140 (1), 45-51 (2014)

Wick W, et al., *Prognostic or predictive value of MGMT promoter methylation in gliomas depends on IDH1 mutation*. Neurology 81 (17), 1515-1522 (2013)

Chaumeil MM, et al., *Non-invasive in vivo assessment of IDH1 mutational status in glioma*. Nat Commun 4, 2429 (2013)

Applications

1. May be used as auto-antibodies detection reagent, which will react with sera of some auto-immuno-diseases and cancer patients.
2. May be used for in vitro IDH1 mediated cytoplasmic NADPH production pathway regulation study by intracellularly delivery this protein with “ProFectin” reagent.
3. May be used for IDH1 protein-protein interaction assay.
4. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
5. As antigen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence



LD Biopharma, Inc.
9924 Mesa Rim Road Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

MASMTGGQQMGRGHHHHHENLYFQGGEFSKKISGGSVEMQGDEMTRIIWELIKEKLIFFPYVE
LDLHSYDLGIENRDATNDQVTKDAAEAIKKHNVGVKCATITPDEKRVEEFKLLKQMWKSPNGTIR
NILGGTVFREAIIICKNIPRLVSGWVKPIIIIGRHAYGDQYRATDFVVPGPVKVEITYTPSDGTQK
VTYLVHNFEEGGVAMGMYNQDKSIEDFAHSSFQMALSKGWPLYLSTKNTILKKYDGRFKDIFQ
EIYDKQYKSQFEAQKIWYEHRLIDDMVAQAMKSEGGFIWACKNYDGDVQSDSVAQGYGSLGMMT
SVLVCPDGKTVEAESAHGTVTRHYRMYQKGQETSTNPIASIFAWTRGLAHRKLDNNKELAFFA
NALEEVSIEETIEAGFMTKDLAACIKGLPNVQRSDYLNTFEFMDKLGLENLKI KLAQAKL