LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human FH Protein
Catalog Number: hRP-1713
Manufacturer: LD Biopharma, Inc.

Introduction

The protein encoded by human Fumarate hydratase (FH, mitochondrial) gene is an enzymatic component of the tricarboxylic acid (TCA) cycle, or Krebs cycle, and catalyzes the formation of L-malate from fumarate. It exists in both a cytosolic form and an N-terminal extended form, differing only in the translation start site used. The N-terminal extended form is targeted to the mitochondrion, where the removal of the extension generates the same form as in the cytoplasm. It is similar to some thermostable class II fumarases and functions as a homotetramer. Mutations in this gene can cause fumarase deficiency and lead to progressive encephalopathy.

Full-length (cytosolic form) of human FH cDNA (45-510 aa) gene was constructed using gene synthesis technology with codon optimization. A tag of 31 aa (T7/His/TEV cleavage site) was fused to FH 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:	FH (FMRD; HLRCC; LRCC; MCL; MCUL1)
Accession Number:	NP_000134.2
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

Yuhui Jiang, et al., *Local generation of fumarate promotes DNA repair through*

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inhibition of histone H3 demethylation. Nature Cell Biology. doi:10.1038/ncb3209 (2015)

Clark GR, et al., *Germline FH mutations presenting with pheochromocytoma*. J. Clin. Endocrinol. Metab. 99 (10), E2046-E2050 (2014)

Tomlinson IP,et al., Multiple Leiomyoma Consortium. *Germline mutations in FH predispose to dominantly inherited uterine fibroids, skin leiomyomata and papillary renal cell cancer.* Nat. Genet. 30 (4), 406-410 (2002)

Applications

1. May be used for in vitro FH protein mediated H2A.Z dependent DNA double strand break (DSB) pathway regulation study in various cancer 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

MASMTGGQQMGRGHHHHHHENLYFQGGEFASQNSFRIEYDTFGELKVPNDKYYGAQTVRSTMNF
KIGGVTERMPTPVIKAFGILKRAAAEVNQDYGLDPKIANAIMKAADEVAEGKLNDHFPLVVWQT
GSGTQTNMNVNEVISNRAIEMLGGELGSKIPVHPNDHVNKSQSSNDTFPTAMHIAAAIEVHEVL
LPGLQKLHDALDAKSKEFAQIIKIGRTHTQDAVPLTLGQEFSGYVQQVKYAMTRIKAAMPRIYE
LAAGGTAVGTGLNTRIGFAEKVAAKVAALTGLPFVTAPNKFEALAAHDALVELSGAMNTTACSL
MKIANDIRFLGSGPRSGLGELILPENEPGSSIMPGKVNPTQCEAMTMVAAQVMGNHVAVTVGGS
NGHFELNVFKPMMIKNVLHSARLLGDASVSFTENCVVGIQANTERINKLMNESLMLVTALNPHI
GYDKAAKIAKTAHKNGSTLKETAIELGYLTAEQFDEWVKPKDMLGPK