



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 Human **CD71** Protein
Catalog Number: HRP-3142
Manufacturer: LD Biopharma, Inc. USA

Introduction

Human transferrin receptor protein 1 (TFRC, CD71) gene encodes a receptor which plays a role in cellular uptake of iron occurs via receptor-mediated endocytosis of ligand-occupied transferrin receptor into specialized endosomes. Endosomal acidification leads to iron release. The apotransferrin-receptor complex is then recycled to the cell surface with a return to neutral pH and the concomitant loss of affinity of apotransferrin for its receptor. Transferrin receptor is necessary for development of erythrocytes and the nervous system. A second ligand, the hereditary hemochromatosis protein HFE, competes for binding with transferrin for an overlapping C-terminal binding site. Positively regulates T and B cell proliferation through iron uptake.

Full-length extracellular domain of human CD71 cDNA (89 – 760aa, derived from BC001188) was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) -His-TEV cleavage site Tag (217aa) fusion at CD71 N-terminal 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: | CD71 (TFRC; sTfR; p90; T9) |
| Accession Number: | NP_003225 |
| Species: | Human |
| Size: | 30 µg / Vial |
| Composition: | 0.3 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



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Mihalisis S. Kariolis, et al., **Brain delivery of therapeutic protein using an Fc garment blood-brain barrier transport vehicle in mice and monkeys**. Science Translational Medicine. May 27;12(545):eaay1359 (2020).

Deng QW, et al., **The transferrin receptor CD71 regulates type II CD38, revealing tight topological compartmentalization of intracellular cyclic ADP-ribose production**. J. Biol. Chem. 294 (42), 15293-15303 (2019)

Acharya S et al., **Role of CD71 in acute leukemia- An immunophenotypic marker for erythroid lineage or proliferation?**. Indian J Pathol Microbiol 62 (3), 418-422 (2019)

Applications

1. May be used for in vitro CD71 mediated endocytosis studying of ligand-occupied transferrin receptor into specialized endosomes in vitro for brain endothelial cells with this recombinant CD71 protein either as soluble factor or as coating matrix protein.
2. May be used for CD71 protein-protein interaction assay.
3. Potential therapeutic protein, which may be used as key reagent for modulating blood-brain barrier (BBB) drug delivery (such as anti-CD71 antibody) for various neuronal diseases.
4. As native human CD71 immunogen for specific antibody production.

Quality Control

Purity: > 85 % by SDS-PAGE.

Recombinant Human **AFPn**- CD71 Fusion Protein Sequence (99.9 kD)

**MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEQEATYKEVSKMVKDALTAIEKPTGDEQ
SSGCLLENQLPAFLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT
SCEAYEEDRETFMNFYIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT
KELRESSGGSHHHHHGSENLYFQGCKGVEPKTECERLAGTESPVREEPGEDFPAARRLYWDDL
KRKLSSEKLDSTDFGTGIKLLNENSYPREAGSQDENLALYVENQFREFKLSKVWRDQHFVKIQ
VKDSAQNSVIIIVDKNGRLVYLVENPGGYVAYSKAATVTGKLVHANFGTKKDFEDLYTPVNGSIV
IVRAGKITFAEKVANAESLNAIGVLIYMDQTKFPIVNAELSFFGHAHLGTGDPYTPGFPSFNHT**



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QFPPSRSSGLPNI PVQTI SRAAA EKLFGNMEGDCPSDWKTDSTCRMVTSESKNVKLT VSNVLKE
IKILNIFGVIKGFVEPDHYVVVGAQRDAWGPGAAKSGVGTALLKLAQMFSDMVLK DGFQPSRS
IIFASWSAGDFGSVGATEWLEGYLSSLHLKAFTYINLDKAVLGT SNFKVSASPLLYTLIEKTMQ
NVKHPVTGQFLYQDSNWASKVEKLTLDNAAFPFLAYSGIPAVSFCFCEDTDYPYLGTTMDTYKE
LIERIPELNKVARAAAEVAGQFVIKLT HDVELNLDYERYNSQLLSFVRDLN QYRADIKEMGLSL
QWLYSARGDFFRATSRLTTDFGNAEKTDRFVMKKLNDRVMRVEYHF LSPYVSPKESPF RHVFWG
SGSHTLPALLENLKL RKQNNGAFNETLFRNQLALATWTIQGAANALS GDVWDIDNEF