



LD Biopharma, Inc.
7384 Trade Street, Suite B
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Tel: 858-876-8266
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- PRODUCT DATA SHEET -

Name of Product: Recombinant YFP-Human **KPTN** Protein
Catalog Number: HRP-3440
Manufacturer: LD Biopharma, Inc. USA

Introduction

Human KICSTOR complex protein kaptin (KPTN) gene encodes a protein which is part of the KICSTOR complex functions in the amino acid-sensing branch of the TORC1 signaling pathway. Recruits, in an amino acid-independent manner, the GATOR1 complex to the lysosomal membranes and allows its interaction with GATOR2 and the RAG GTPases. KPTN functions upstream of the RAG GTPases and is required to negatively regulate mTORC1 signaling in absence of amino acids. In absence of the KICSTOR complex mTORC1 is constitutively localized to the lysosome and activated. The KICSTOR complex is also probably involved in the regulation of mTORC1 by glucose.

Full-length human KPTN cDNA (435aa, Isoform-I) was constructed with codon optimization gene synthesis and expressed with YFP Protein as N-terminal (YFP; 256aa) fusion protein 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: KPTN
Accession Number: NP_008990
Species: Human
Size: 75µg / Vial
Composition: 1.5mg / 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

Pacio Miguez M, et al., *Pathogenic variants in KPTN, a rare cause of macrocephaly and intellectual disability*. Am J Med Genet A 182 (10), 2222-2225 (2020)



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Wolfson RL, et al., *KICSTOR recruits GATOR1 to the lysosome and is necessary for nutrients to regulate mTORC1*. Nature 543 (7645), 438-442 (2017)

Baple EL, et al., *Mutations in KPTN cause macrocephaly, neurodevelopmental delay, and seizures*. Am J Hum Genet 94 (1), 87-94 (2014)

Applications

1. May be used for in vitro KPTN protein mediated signaling in mTOR pathway regulation for cancer cell study using intracellular delivery of recombinant human YFP-KPTN protein with protein delivery reagent such as ProFectin.
2. May be used for KPTN protein-protein interaction assay.
3. May be used as specific substrate protein for KPTN specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential therapeutic protein, modulating KPTN activity may be benefit for selective cancer treatment.
5. As native human KPTN antigen for its specific antibody production.

Quality Control

Purity: > 92 % by SDS-PAGE.

Recombinant **YFP**- Human KPTN Fusion Protein Sequence (77.1 kD)

MKHHHHHQQVSKGEEELFTGVVPIIIVELDGDVNGHKFSVSGEGEGDATYGKLTLLKLLCTTGKLPVPWPTLV
TTLGYGVQCFARYPDHMKQHDFFKSAMPEGYVQERTIFFKDDGNYKTRAEVKFEGDTLVNRIELKGIIDFK
EDGNILGHKLEYNYNSHNVYITADKQKNGIKANFKIRHNIEDGGVQLADHYQQNTPIGDGPVLLPDNHYL
SYQSALFKDPNEKRDHMLLEFLTAAGITEGMNELYK**GS**ENLY**FQGEF**MGEAAVAAGPCPLREDSFTRFS
SQSNVYGLAGGAGGRGELLAATLKGKVLGFRYQDLRQKIRPVAKELQFNYPVDAEIVSIDTFNKSPPKR
GLVVGITFIKDSGDKGSPFLNIYCDYEPGSEYNLDSIAQSCLNLELQFTPFQLCHAEVQVGDQLETVFL
SGNDPAIHLYKENEGHMQFEEQPVENLFPPELTNLTSSVLWLDVHNFPGTSRRLSALGCQSGYVVAHV
RSREVLQMWVSLQDGPISRVIVFSLSAKETKDRPLQDEYSVLVASMLEPAVVYRDLLNRGLEDQLLLPG
SDQFDSVLCSLVTDVLDGRPEVLVATYGQELLCYKYRGPESGLPEAQHGFHLLWQRSFSSPLLAMAHVD
LTGDGLQELAVVSLKGVHILQHSLIQASELVLTRLRHQVEQRRRLQGLEDGAGAGPAENAAS