



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human BECN1 Protein
Catalog Number: HRP-2159
Manufacturer: LD Biopharma, Inc.

Introduction

Human Beclin-1 (BECN1) plays a central role in autophagy pathway. It acts as core subunit of the PI3K complex that mediates formation of phosphatidylinositol 3-phosphate; different complex forms are believed to play a role in multiple membrane trafficking pathways: PI3KC3-C1 is involved in initiation of autophagosomes and PI3KC3-C2 in maturation of autophagosomes and endocytosis. BECN1 is involved in regulation of degradative endocytic trafficking and required for the abscission step in cytokinesis, probably in the context of PI3KC3-C2. It is essential for the formation of PI3KC3-C2 but not PI3KC3-C1 PI3K complex forms. BECN1 is also involved in endocytosis. It protects against infection by a neurovirulent strain of Sindbis virus. It may play a role in antiviral host defense

Full-length human BECN1 cDNA (449aa, Isoform-I, derived from BC010276) was constructed with codon optimization gene synthesis and expressed with a human N-terminalT7-His-TEV cleavage site Tag (29aa) fusion. 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:	BECN1	(ATG6; Beclin1; VPS30)
Accession Number:	NP_003757	
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 other.	
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.	

Key References



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Bi C, et al., **High Beclin-1 and ARID1A expression correlates with poor survival and high recurrence in intrahepatic cholangiocarcinoma: a histopathological retrospective study.** BMC Cancer 19 (1), 213 (2019)

Tamrakar S, et al., **Clinicopathological Significance of Autophagy-related Proteins and its Association With Genetic Alterations in Gliomas.** Anticancer Res. 39 (3), 1233-1242 (2019)

Chang C, et al., **Bidirectional Control of Autophagy by BECN1 BARA Domain Dynamics.** Mol. Cell 73 (2), 339-353 (2019)

Furuya N, et al., **The evolutionarily conserved domain of Beclin 1 is required for Vps34 binding, autophagy and tumor suppressor function.** Autophagy 1 (1), 46-52 (2005)

Applications

1. May be used for in vitro BECN1 mediated autophagy signaling pathway regulation for cancer cell progression study using intracellular delivery of recombinant human BECN1 protein with protein delivery reagent such as ProFectin.
2. May be used for BECN1 protein-protein interaction assay.
3. May be used as specific substrate protein for BECN1 specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential diagnostic protein, which may be used for as biomarker protein for cancer prognosis, such as monitoring intrahepatic cholangiocarcinoma or glioblastoma.
5. As native human BECN1 immunogen for its specific antibody production.

Quality Control

Purity: > 92 % by SDS-PAGE.

Recombinant Human BECN1 Protein Sequence. (55.6 kD)

MASMTGGQQMGRGHHHHHHENLYFQ**Q**GEFEGSKTSNNSTMQVSFVCQRCSQPLKLDTSFKILDR
VTIQELTAPLLTTAQAKPGETQEEETNSGEEPFIETPRQDGVSRRFIPPARMMSTESANSFTLI
GEASDGGTMENLSRRLKVTGDLFDIMSGQTDVDHPLCEECDTLLDQLDTQLNVTENECQNYKR
CLEILEQMNEDDSEQLQMELEKELALEEERLIQELEDVEKNRKIVAENLEKVQAEAEERLDQEEAQ
YQREYSEFKRQQLDDELKSVENQMRYAQTQLDKLKKTNVFNATFHIWHSGQFGTINNFRLLGR
LPSVPVEWNEINAAWGQTVLLLHALANKMGLKFQRYRLVPYGNHSYLESLLTDKSKELPLYCSGG
LRFFWDNKFDDHAMVAFLDCVQQFKEEVEKGETRFCLPYRMDVEKGKIEDTGGSGGSYSIKTQFN
SEEQWTKALKFMLTNLKWGLAWVSSQFYNK