



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human **TFEB-11R** Protein
Catalog Number: HTF-3208
Manufacturer: LD Biopharma, Inc. USA

Introduction

Recent studies suggest that a number of genes encoding lysosomal proteins exhibit coordinated transcriptional behavior and are regulated by the transcription factor EB (TFEB). As transcription factor, TFEB specifically recognizes and binds E-box sequences (5'-CANNTG-3'). Efficient DNA-binding requires dimerization with itself or with another MiT/TFE family member such as TFE3 or MITF. In association with TFE3, activates the expression of CD40L in T-cells, thereby playing a role in T-cell-dependent antibody responses in activated CD4⁺ T-cells and thymus-dependent humoral immunity. TFEB also specifically recognizes and binds the CLEAR-box sequence (5'-GTCACGTGAC-3') present in the regulatory region of many lysosomal genes, leading to activate their expression. It thereby plays a central role in expression of lysosomal genes. Acts as a positive regulator of autophagy by promoting expression of genes involved in autophagy. TFEB specifically recognizes the gamma-E3 box, a subset of E-boxes, present in the heavy-chain immunoglobulin enhancer. TFEB plays a role in the signal transduction processes required for normal vascularization of the placenta.

Full-length human TFEB (475aa, Isoform-1. derived from BC032448) gene was constructed with codon optimized gene synthesis technology, and fusion with 28 aa N-terminal T7/His /TEV cleavage site Tag and 11 arginine (11R tag) at C-terminal. It 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: TFEB (ALPHATFEB; BHLHE35; TCFEB)
Accession Number: NP_009093
Species: Human
Size: 40 µg / Vial
Composition: 0.4 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT & Others.
Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least two weeks.



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Key References

Rushika M.Perera, et al., *Transcriptional control of autophagy-lysosome function drives pancreatic cancer metabolism*. Nature. Vol 524, 361-365 (2015)

Magini A, et al., *TFEB activation promotes the recruitment of lysosomal glycohydrolases beta-hexosaminidase and beta-galactosidase to the plasma membrane*. Biochem. Biophys. Res. Commun. 440 (2), 251-257 (2013)

Song W, et al., *TFEB regulates lysosomal proteostasis*. Hum. Mol. Genet. 22 (10), 1994-2009 (2013)

Pastore N, et al., *Gene transfer of master autophagy regulator TFEB results in clearance of toxic protein and correction of hepatic disease in alpha-1-anti-trypsin deficiency*. EMBO Mol Med 5 (3), 397-412 (2013)

Hongyan Zhou, et al. *Generation of Induced Pluripotent Stem Cells Using Recombinant Proteins*. Cell Stem Cell. 2009. 4: 381-384.

Applications

- May be used for studying TFEB mediated autophagy-lysosome activation regulation for maintaining intracellular amino acid pools in vitro using intracellular protein delivery of recombinant TFEB-11R protein by adding protein directly into culture medium.
- May be used for mapping TFEB protein-protein interaction.
- May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
- Highly purified human TFEB antigen for specific antibody development.

Quality Control

Purity: > 91 % by SDS-PAGE.

Recombinant Human TFEB-11R Protein Sequence (58.5 kD)



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MASMTGGQQMGRGHHHHHENLYFQGGFASRIGLRMQLMREQAQQEEQRERMQQQAVMHYMQQQ
QQQQQQQLGGPPTPAINTPVHFAQSPPPVPGEVLKVSYLENPTS YHLQQSQHQKVREYLSEYTG
NKFAAHI SPAQGS PKPPPAASPGVRAGHVLSSSAGNSAPNSPMAMLHIGSNPERELDDVIDNIM
RLDDVLGYINPEMQMPNTLPLSSSHLNVYSSDPQVTASLVGVTSSSCPADLTQKRELTDAESRA
LAKERQKKNHNLIERRRRFNINDRIKELGMLIPKANDLDVRWNKGTILKASVDYIRRMQKDLQ
KSRELENHSRRLEMTNKQLWLRIQELEMQARVHGLPTTSPSGMNMAELAQQVVKQELPSEEGPG
EALMLGAEVPDPEPLPALPPQAPLPLPTQPPSPFHHLDFSHSLSFGGREDEGPPGYPEPLAPGH
GSPFPSLSKKDLMLLDDSLPLASDPLLSTMSPEASKASSRRSSFSMEEGDVLGGRESGGGG
SPGRRRRRRRRRR