



LD Biopharma, Inc.
9924 Mesa Rim Road, Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human TFEB Protein
Catalog Number: hTF-1724
Manufacturer: LD Biopharma, Inc.

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 30 aa N-terminal T7 / His / TEV cleavage site Tag. 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_009093.1
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 7 days.

Key References



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Rushika M.Perera, et al., *Transcriptional control of autophage-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)

Applications

1. May be used for in vitro TFEB mediated autophagy–lysosome activation regulation study for maintaining intracellular amino acid pools 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 TFEB protein-protein interaction mapping.
4. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGFASRIGLRMQLMREQAQQEEQRERMQQQAVMHYMQQQ
QQQQQQQLGGPPTPAINTPVHVFQSPPPVPGEVLVKQVSYLENPTSYHLQQSQHQKVREYLSETYG
NKFAAHI SPAQGS PKPPPAASPGVRAGHVLSSSAGNSAPNSPMAMLHIGSNPERELDDVIDNIM
RLDDVLGYINPEMQMNTLPLSSSHLVYSSDPQVTASLVGVTSSSCPADLTQKRELTDAESRA
LAKERQKKNHNLIERRRRFNINDRIKELGMLIPKANDLDVRWNGKTI LKASVDYIRRMQKDLQ
KSRELENHSRRLEMTNKQLWLRIQELEMQARVHGLPTTSPSGMNMAELAQQVVKQELPSEEGPG
EALMLGAEVPDPEPLPALPPQAPLPLPTQPPSPFHHLDFSHSLSFGGREDEGPPGYPEPLAPGH
GSPFPSLSKKDLMLLDDSLPLASDPLLSTMSPEASKASSRRSSFSMEEGDVL