



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 eIF4E Protein
Catalog Number: hRP-2219
Manufacturer: LD Biopharma, Inc.

Introduction

Human eIF4E protein recognizes and binds the 7-methylguanosine-containing mRNA cap during an early step in the initiation of protein synthesis and facilitates ribosome binding by inducing the unwinding of the mRNAs secondary structures. As a component of the CYFIP1-eIF4E FMR1 complex which binds to the mRNA cap and mediates translational repression. In the CYFIP1-eIF4E-FMR1 complex this subunit mediates the binding to the mRNA cap. eIF4F comprises the cap-binding protein eIF4E, the scaffolding protein eIF4G, and the helicase eIF4A. eIF4E performs the key first step of eIF4F function by recognizing the 5' end of the mRNA via its interaction with the 7-methylguanosine (me7G) cap, thereby positioning eIF4F and the 43S PIC at the 5' end of the mRNA. mTORC1 phosphorylates the 4E-binding proteins (4EBPs), which rendering them inactive for binding to eIF4E. Recent data indicated that targeting mTORC1- eIF4E pathway might be benefits for specific blocking tumor cell growth.

Full-length human Eukaryotic translation initiation factor 4E protein (eIF4E) protein cDNA (216aa , derived from BC035166) was constructed with codon optimization gene synthesis and expressed with a N-terminal-T7-His-TEV cleavage site Tag (29aa) fusion. 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: eIF4E (AUTS19; CBP)
Accession Number: NP_001959
Species: Human
Size: 20 µg / Vial
Composition: 0.2 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 30 days.

Key References



LD Biopharma, Inc.
7384 Trade Street, Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

Heather R. Keys, et al., *Juxtacap Nucleotide Sequence Modulates eIF4E Binding and Translation*. bioRxiv preprint first posted online Jul. 18, 2017; doi: <http://dx.doi.org/10.1101/165142>.

Zhao Y, et al., *MicroRNA-455-3p functions as a tumor suppressor by targeting eIF4E in prostate cancer*. *Oncol. Rep.* 37 (4), 2449-2458 (2017)

Yang G, et al., *An eIF4E1/4E-T complex determines the genesis of neurons from precursors by translationally repressing a proneurogenic transcription program*. *Neuron* 84 (4), 723-739 (2014)

Feoktistova K, et al., *Human eIF4E promotes mRNA restructuring by stimulating eIF4A helicase activity*. *Proc. Natl. Acad. Sci. U.S.A.* 110 (33), 13339-13344 (2013)

Applications

1. May be used for in vitro eIF4E mediated mTORC1-eIF4E pathway regulation study in mRNA Cap processing for various cells by intracellular delivery of this protein with protein delivery reagent such as ProFectin reagent kit.
2. May be used for mapping protein-protein interaction.
3. Potential therapeutic protein, such as selectively killing tumor cells by specific regulating tumor cell's mTORC1-eIF4E pathway..
4. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFATVEPETTPTPNPPTTEEEKTESNQEVANPEHYIK
HPLQNRWALWFFKNDKSKTWQANLRLISKFDTVEDFWALYNHIQLSSNLMPGCDYSLFKDGI EP
MWEDEKNKRGRWLITLNKQQRSDLDLRFWLETLLCLIGESFDDYSDDVCGAVNVRAKGDKIA
IWTTECENREAVTHIGRVYKERLGLPPKIVIGYQSHADTATKSGSTTKNRFVV