

PRODUCT INFORMATION



eIF4E (human, recombinant)

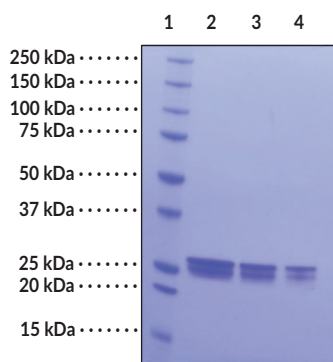
Item No. 15137

Overview and Properties

Synonyms: Eukaryotic Translation Initiation Factor 4E, mRNA Cap-binding Protein
Source: Recombinant protein expressed in *E. coli*
Amino Acids: 2-217 (full length)
Uniprot No.: P06730
Molecular Weight: 25.2 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: *batch specific* (≥55% estimated by SDS-PAGE)
Supplied in: 20 mM HEPES, pH 7.5, containing 100 mM potassium chloride, 2 mM DTT, and 10% glycerol

Protein Concentration: *batch specific* mg/ml

Image



Lane 1: MW Markers
Lane 2: eIF4E (human, recombinant) (4 µg)
Lane 3: eIF4E (human, recombinant) (2 µg)
Lane 4: eIF4E (human, recombinant) (1 µg)

Representative gel image shown; actual purity may vary between each batch.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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Description

Eukaryotic translation initiation factor 4E (eIF4E) is a component of the eIF4 complex that specifically binds to the methyl-7-guanosine cap structure at the 5' end of eukaryotic mRNA to initiate translation.¹⁻³ Nuclear eIF4E promotes export of mRNAs that contain the eIF4E sensitivity element (4E-SE) to the cytosol while cytosolic eIF4E, in a complex with eIF4A and eIF4G1/eIF4G3, mediates recruitment of mRNAs to the ribosome to initiate cap-dependent translation.^{1,3} eIF4E activity is regulated by eukaryotic translation initiation factor 4E-binding proteins (4E-BPs), which bind eIF4E to prevent eIF4 complex assembly and subsequent translation.³ Overexpression of eIF4E is observed in approximately 30% of human malignancies, including breast, colon, and head and neck carcinomas, and acute myeloid leukemias, particularly M4 and M5 subtypes, as well as prostate cancers.³⁻⁵ Increased eIF4E expression leads to increased translation of oncogenic mRNAs, such as those encoding VEGF and cyclin D1, and contributes to cancer cell survival and proliferation.

References

1. Marcotrigiano, J., Gingras, A.C., Sonenberg, N., *et al.* Cocystal structure of the messenger RNA 5' cap-binding protein (eIF4E) bound to 7-methyl-GDP. *Cell* **89(6)**, 951-961 (1997).
2. Hahighat, A. and Sonenberg, N. eIF4G dramatically enhances the binding of eIF4E to the mRNA 5'-cap structure. *J. Biol. Chem.* **272(35)**, 21677-21680 (1997).
3. Piserà, A., Campo, A., and Campo, S. Structure and functions of the translation initiation factor eIF4E and its role in cancer development and treatment. *J. Genet. Genomics* **45(1)**, 13-24 (2018).
4. Carroll, M. and Borden, K.L. The oncogene eIF4E: Using biochemical insights to target cancer. *J. Interferon Cytokine Res.* **33(5)**, 227-238 (2013).
5. Yin, X., Kim, R.H., Sun, G., *et al.* Overexpression of eukaryotic initiation factor 4E is correlated with increased risk for systemic dissemination in node-positive breast cancer patients. *J. Am. Coll. Surg.* **218(4)**, 663-671 (2014).

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