SANTA CRUZ BIOTECHNOLOGY, INC.

eIF3ε (H-4): sc-514292

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. Eukaryotic initiation factors (eIFs) are utilized in a sequence of reactions that lead to 80S ribosomal assembly and, ultimately, translation. The eukaryotic initiation factor-3 (eIF3) scaffolding structure is the largest of the eIF complexes and includes eIF3α, eIF3β, eIF3γ, eIF3δ, eIF3ε, eIF3ζ, eIF3η and eIF3θ, all of which function to control the assembly of the 40S ribosomal subunit. Association of eIF3 proteins with the 40S ribosomal subunit stabilizes eIF2-GTP-Met-tRNAiMet complex association and mRNA binding, and promotes dissociation of 80S ribosomes into 40S and 60S subunits, thereby promoting the assembly of the pre-initiation complex. Overexpression of eIF3 proteins is common in several cancers, suggesting a role for eIF3 proteins in tumorigenesis.

REFERENCES

1. Valásek, L., et al. 2004. Interactions of eukaryotic translation initiation factor 3 (eIF3) subunit NIP1/c with eIF1 and eIF5 promote preinitiation complex assembly and regulate start codon selection. Mol. Cell. Biol. 24: 9437-9455.
2. Peterson, T.R. and Sabatini, D.M. 2005. eIF3: a connecTOR of S6K1 to the translation preinitiation complex. Mol. Cell 20: 655-657.
3. Dong, Z. and Zhang, J.T. 2006. Initiation factor eIF3 and regulation of mRNA translation, cell growth, and cancer. Crit. Rev. Oncol. Hematol. 59: 169-180.
4. LeFebvre, A.K., et al. 2006. Translation initiation factor eIF4G-1 binds to eIF3 through the eIF3ε subunit. J. Biol. Chem. 281: 22917-22932.
5. Hinnebusch, A.G. 2006. eIF3: a versatile scaffold for translation initiation complexes. Trends Biochem. Sci. 31: 553-562.
6. Masutani, M., et al. 2007. Reconstitution reveals the functional core of mammalian eIF3. EMBO J. 26: 3373-3383.
7. Zhang, L., et al. 2007. Individual overexpression of five subunits of human translation initiation factor eIF3 promotes malignant transformation of immortal fibroblast cells. J. Biol. Chem. 282: 5790-5800.

CHROMOSOMAL LOCATION

Genetic locus: EIF3F (human) mapping to 11p15.4; Eif3f (mouse) mapping to 7 E3.

SOURCE

eIF3ε (H-4) is a mouse monoclonal antibody raised against amino acids 78-229 mapping within an internal region of eIF3ε of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

eIF3ε (H-4) is recommended for detection of eIF3ε of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for eIF3ε siRNA (h): sc-105324, eIF3ε siRNA (m): sc-144615, eIF3ε shRNA Plasmid (h): sc-105324-SH, eIF3ε shRNA Plasmid (m): sc-144615-SH, eIF3ε shRNA (h) Lentiviral Particles: sc-105324-V and eIF3ε shRNA (m) Lentiviral Particles: sc-144615-V.

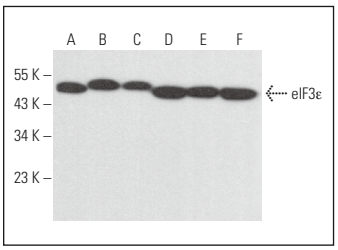
Molecular Weight of eIF3ε: 52 kDa.

Positive Controls: COLO 205 whole cell lysate: sc-364177, PC-12 cell lysate: sc-2250 or SH-SY5Y cell lysate: sc-3812.

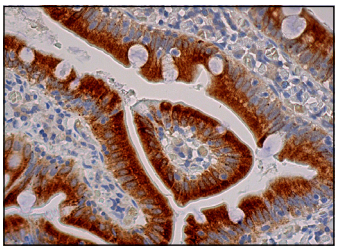
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



eIF3ε (H-4): sc-514292. Western blot analysis of eIF3ε expression in COLO 205 (**A**), PC-12 (**B**), SH-SY5Y (**C**), Daudi (**D**), HCT-116 (**E**) and SUP-T1 (**F**) whole cell lysates.



eIF3ε (H-4): sc-514292. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Cuesta, R., et al. 2019. Estrogen receptor α promotes protein synthesis by fine-tuning the expression of the eukaryotic translation initiation factor 3 subunit f (eIF3f). J. Biol. Chem. 294: 2267-2278.

RESEARCH USE

For research use only, not for use in diagnostic procedures.