SANTA CRUZ BIOTECHNOLOGY, INC.

eIF5 (A-3): sc-48419

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

In mammalian cells, translation is controlled at the level of polypeptide chain initiation by eukaryotic initiation factors. The translation initiation factor 5 (eIF5) catalyzes the hydrolysis of GTP bound to the 40S ribosomal subunit, a function necessary for the subsequent joining of the 40S and 60S subunits to form the 80S initiation complex. eIF4E specifically binds to the mRNA cap to promote unwinding and exposure of the AUG-initiation codon. Overexpression of eIF4E can lead to cell transformation and tumorigenesis. An additional initiation factor, eIF2, is present as a heterotrimer composed of eIF2α, eIF2β and eIF2γ subunits. This heterotrimer forms a complex with GTP and tRNA which then binds to the 40S ribosomal subunit. After the formation of the 80S initiation complex, eIF2 is hydrolyzed and eIF2-GDP is released from the complex. eIF2-GDP is subsequently converted to eIF2-GTP, a reaction catalyzed by eIF2B, and is then available to catalyze another round of initiation.

REFERENCES

1. Kozak, M. 1983. Comparison of initiation of protein synthesis in procaryotes, eucaryotes and organelles. Microbiol. Rev. 47: 1-45.
2. Ernst, H., et al. 1987. Cloning and sequencing of complementary DNAs encoding the α-subunit of translational initiation factor eIF2. Characterization of the protein and its messenger RNA. J. Biol. Chem. 262: 1206-1212.
3. Hershey, J.W. 1991. Translational control in mammalian cells. Annu. Rev. Biochem. 60: 717-755.
4. Merrick, W.C. 1992. Mechanism and regulation of eukaryotic protein synthesis. Microbiol. Rev. 56: 291-315.
5. Rinker-Schaeffer, C.W., et al. 1993. Decreasing the level of translation initiation factor 4E with antisense RNA causes reversal of Ras-mediated transformation and tumorigenesis of cloned rat embryo fibroblasts. Int. J. Cancer 55: 841-847.
6. Pause, A., et al. 1994. Insulin-dependent stimulation of protein synthesis by phosphorylation of a regulator of 5'-cap function. Nature 371: 762-767.

CHROMOSOMAL LOCATION

Genetic locus: EIF5 (human) mapping to 14q32.32; Eif5 (mouse) mapping to 12 F1.

SOURCE

eIF5 (A-3) is a mouse monoclonal antibody raised against amino acids 1-300 of eIF5 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

eIF5 (A-3) is recommended for detection of eIF5 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for eIF5 siRNA (h): sc-35288, eIF5 siRNA (m): sc-35289, eIF5 shRNA Plasmid (h): sc-35288-SH, eIF5 shRNA Plasmid (m): sc-35289-SH, eIF5 shRNA (h) Lentiviral Particles: sc-35288-V and eIF5 shRNA (m) Lentiviral Particles: sc-35289-V.

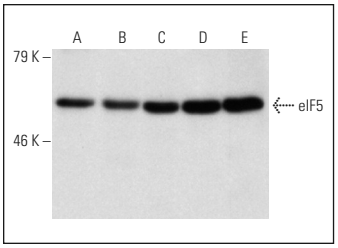
Molecular Weight of eIF5: 50 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, SK-BR-3 cell lysate: sc-2218 or K-562 whole cell lysate: sc-2203.

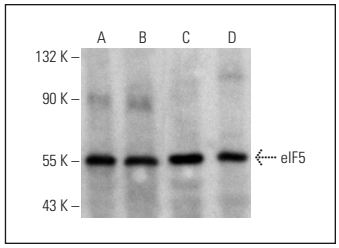
RECOMMENDED SUPPORT REAGENTS

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.

DATA



eIF5 (A-3): sc-48419. Western blot analysis of eIF5 expression in A-431 (**A**), BC_3H1 (**B**), NIH/3T3 (**C**), 3611-RF (**D**) and KNRK (**E**) whole cell lysates.



eIF5 (A-3): sc-48419. Western blot analysis of eIF5 expression in Jurkat (**A**), MCF7 (**B**), EOC 20 (**C**) and A-10 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Piñeiro, D., et al. 2010. Analysis of the protein expression changes during taxol-induced apoptosis under translation inhibition conditions. Mol. Cell. Biochem. 345: 131-144.
2. Ayuso, M.I., et al. 2016. Stress granule induction after brain ischemia is independent of eukaryotic translation initiation factor (eIF) 2α phosphorylation and is correlated with a decrease in eIF4B and eIF4E proteins. J. Biol. Chem. 291: 27252-27264.

RESEARCH USE

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