

eIF5 (20): sc-135894

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 eIF2 α , eIF2 β and eIF2 γ 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 (20) is a mouse monoclonal antibody raised against amino acids 100-215 of eIF5 of human origin.

PRODUCT

Each vial contains 50 μ g IgG₁ in 500 μ l of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

STORAGE

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

APPLICATIONS

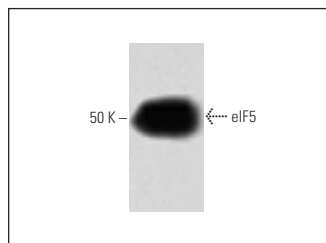
eIF5 (20) is recommended for detection of eIF5 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

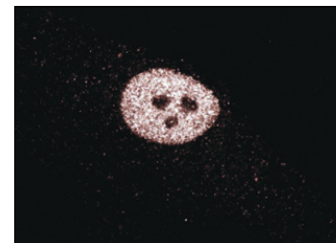
Molecular Weight of eIF5: 50 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, A-431 whole cell lysate: sc-2201 or BC₃H1 cell lysate: sc-2299.

DATA



eIF5 (20): sc-135894. Western blot analysis of eIF5 expression in Hep G2 whole cell lysate.



eIF5 (20): sc-135894. Immunofluorescence staining of WI-38 cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Theodoridis, P.R., et al. 2021. Local translation in nuclear condensate Amyloid bodies. *Proc. Natl. Acad. Sci. USA* 118: e2014457118.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.