

eIF5A (C-1): sc-390062

BACKGROUND

In mammalian cells, translation is controlled at the level of polypeptide chain initiation by eukaryotic initiation factors. The human eukaryotic translation initiation factor 5A gene, also designated eIF-4D or eIF5A1, maps to chromosome 17p13.1 and encodes a 154 amino acid protein that is linked to cellular polyamine homeostasis. eIF5A1 localizes to the nuclear and cytoplasmic compartments of mammalian cells where it can stimulate ribosomal peptidyl-transferase and may be involved in nucleocytoplasmic mRNA transport and/or protein translation. eIF5A1 contains a unique spermidine-derived post-translational modification at Lys-50, hypusine, which is necessary for eIF5A1's biochemical activity and for cellular proliferative signaling. In addition, eIF5A1 is a cellular cofactor for the function of the Rev transactivator protein of human immunodeficiency virus type 1 (HIV-1). Inhibition of eIF5A1 interaction with Rev leads to a block of the viral replication cycle. A highly-conserved protein that is found in all living organisms, eIF5A2 (eukaryotic translation initiation factor 5A-2) is a 153 amino acid protein that has 94% sequence similarity to eIF5A1 and also shares the hypusine residue. Amplification of the gene encoding eIF5A2 is observed in ovarian carcinomas and overexpression of eIF5A2 is linked to advanced stages of ovarian cancers.

REFERENCES

1. Smit-McBride, Z., et al. 1989. Sequence determination and cDNA cloning of eukaryotic initiation factor 4D, the hypusine-containing protein. *J. Biol. Chem.* 264: 1578-1583.
2. Hershey, J.W. 1991. Translational control in mammalian cells. *Ann. Rev. Biochem.* 60: 717-755.
3. Merrick, W.C. 1992. Mechanism and regulation of eukaryotic protein synthesis. *Microbiol. Rev.* 56: 291-315.
4. Bevec, D., et al. 1994. Induced gene expression of the hypusine-containing protein eukaryotic initiation factor 5A in activated human T lymphocytes. *Proc. Natl. Acad. Sci. USA* 91: 10829-10833.
5. Steinkasserer, A., et al. 1995. The eukaryotic cofactor for the human immunodeficiency virus type 1 (HIV-1) rev protein, eIF-5A, maps to chromosome 17p12-p13: three eIF-5A pseudogenes map to 10q23.3, 17q25, and 19q13.2. *Genomics* 25: 749-752.
6. Jenkins, Z.A., et al. 2001. Human eIF5A2 on chromosome 3q25-q27 is a phylogenetically conserved vertebrate variant of eukaryotic translation initiation factor 5A with tissue-specific expression. *Genomics* 71: 101-119.
7. Guan, X.Y., et al. 2001. Isolation of a novel candidate oncogene within a frequently amplified region at 3q26 in ovarian cancer. *Cancer Res.* 61: 3806-3809.

SOURCE

eIF5A (C-1) is a mouse monoclonal antibody raised against amino acids 9-124 mapping near the N-terminus of eIF5A1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₃ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

eIF5A (C-1) is recommended for detection of eIF5A1 and eIF5A2 of mouse, rat and human origin and eIF5A1 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

eIF5A (C-1) is also recommended for detection of eIF5A1, eIF5A2 and eIF5A1 in additional species, including equine, canine, bovine and porcine.

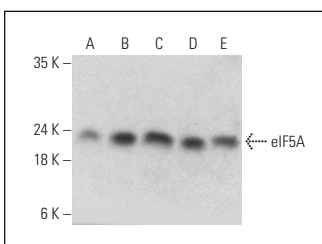
Molecular Weight of eIF5A: 17 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, I-11.15 whole cell lysate: sc-364370 or C2C12 whole cell lysate: sc-364188.

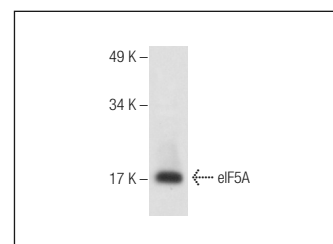
RECOMMENDED SUPPORT REAGENTS

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



eIF5A (C-1): sc-390062. Western blot analysis of eIF5A expression in MOLT-4 (A), C2C12 (B), I-11.15 (C), NRK (D) and A-10 (E) whole cell lysates.



eIF5A (C-1): sc-390062. Western blot analysis of eIF5A expression in Jurkat whole cell lysate.

SELECT PRODUCT CITATIONS

1. Subbaiah, K.C.V., et al. 2023. Ciclopirox inhibition of eIF5A hypusination attenuates fibroblast activation and cardiac fibrosis. *J. Cardiovasc. Dev. Dis.* 10: 52.

STORAGE

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

RESEARCH USE

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