SANTA CRUZ BIOTECHNOLOGY, INC.

eIF4AI (N-19): sc-14211

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Translation initiation in eukaryotes necessitates the assembly of an 80S ribosomal complex. Eukaryotic initiation factors (eIFs) are utilized in a sequence of reactions that leads to 80S ribosomal assembly and initiation of translation. Mammalian eukaryotic translation initiation factor 4F (eIF4F) is a protein complex that contains eIF4A, eIF4E, and eIF4G, binds mRNA at a 5'-cap motif and recruits the 43S ribosomal preinitiation complex to the eligible transcript. Along with eIF4B, the eIF4F complex mediates the unwinding of mRNA secondary structure to facilitate ribosome association. eIF4E specifically interacts with the 5' cap, eIF4A (I,II) are bidirectional RNA helicases, and eIF4G (I,II) are scaffolding proteins which coordinate eIF4E, eIF4A, eIF3, and the 40S ribosome. Human eIF4AI (eIF4A, DDX2A) is a 406 amino acid protein that is 92.7% homologous to mouse eIF4AI. The promoter region of human eIF4A1 contains TATA and CAAT motifs and consensus binding sites to SP1 and AP2.

CHROMOSOMAL LOCATION

Genetic locus: EIF4A1 (human) mapping to 17p13.1; Eif4a1 (mouse) mapping to 11 B3.

SOURCE

eIF4AI (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of eIF4AI of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-14211 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

eIF4AI (N-19) is recommended for detection of eIF4AI 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).

eIF4AI (N-19) is also recommended for detection of eIF4AI in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for eIF4AI siRNA (h): sc-40554, eIF4AI siRNA (m): sc-40555, eIF4AI shRNA Plasmid (h): sc-40554-SH, eIF4AI shRNA Plasmid (m): sc-40555-SH, eIF4AI shRNA (h) Lentiviral Particles: sc-40554-V and eIF4AI shRNA (m) Lentiviral Particles: sc-40555-V.

Molecular Weight of eIF4AI: 46 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

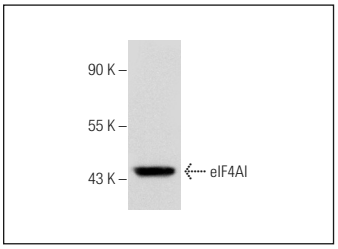
STORAGE

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

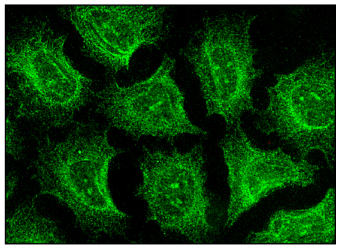
RESEARCH USE

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

DATA



eIF4AI (N-19): sc-14211. Western blot analysis of eIF4AI expression in HeLa whole cell lysate.



eIF4AI (N-19): sc-14211. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

1. Low, W.K., et al. 2005. Inhibition of eukaryotic translation initiation by the marine natural product pateamine A. Mol. Cell 20: 709-722.
2. Lee, S.H., et al. 2006. p97/DAP5 is a ribosome-associated factor that facilitates protein synthesis and cell proliferation by modulating the synthesis of cell cycle proteins. EMBO J. 25: 4008-4019.
3. Low, W.K., et al. 2007. Substrate-dependent targeting of eukaryotic translationinitiation factor 4A by pateamine A: negation of domain-linker regulation of activity. Chem. Biol. 14: 715-727.
4. Kedersha, N., et al. 2007. Mammalian stress granules and processing bodies. Methods Enzymol. 431: 61-81.
5. Otsuka, Y., et al. 2009. Identification of a cytoplasmic complex that adds a cap onto 5'-monophosphate RNA. Mol. Cell. Biol. 29: 2155-2167.
6. 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.
7. Locker, N., et al. 2011. A conserved structure within the HIV gag open reading frame that controls translation initiation directly recruits the 40S subunit and eIF3. Nucleic Acids Res. 39: 2367-2377.
8. Chung, L., et al. 2014. Norovirus translation requires an interaction between the C Terminus of the genome-linked viral protein VPg and eukaryotic translation initiation factor 4G. J. Biol. Chem. 289: 21738-21750.

PROTOCOLS

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