SANTA CRUZ BIOTECHNOLOGY, INC.

eIF6 (A-2): sc-390432

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. eIF6 (eukaryotic translation initiation factor 6) is also known as CAB, B2GCN homolog, $p27^{BBP}$ or B4 integrin interactor and is a 245 amino acid protein that is localized to the cytoplasm, as well as to the nucleolus within the nucleus. The eIF6 N-terminal and C-terminal subdomains are thought to contain important nucleolar localization sequences. eIF6 may be a regulator of ribosomal function and creation. eIF6 functions to bind and translocate the 60S ribosomal subunit from the nucleus to the cytoplasm, effectively preventing the 60S subunit from associating with the 40S subunit and inhibiting formation of the 80S initiation complex. The regulation of the formation of the 80S ribosomes also regulates transcription. Once translocated to the cytoplasm, the eIF6-60S ribosomal subunit complex is subject to phosphorylation via the RACK1/PKC pathway, an event that results in the dissociation of eIF6 from the 60S subunit. Upregulation of eIF6 is strongly associated with a variety of of cancers, such as ovarian cancer, suggesting that eIF6 may be involved in carcinogenesis.

REFERENCES

1. Groft, C.M., et al. 2000. Crystal structures of ribosome anti-association factor IF6. Nat. Struct. Biol. 7: 1156-1164.
2. Basu, U., et al. 2001. The *Saccharomyces cerevisiae* TIF6 gene encoding translation initiation factor 6 is required for 60S ribosomal subunit biogenesis. Mol. Cell. Biol. 21: 1453-1462.
3. Carotenuto, R., et al. 2005. Phosphorylation of $p27^{BBP}$/eIF6 and its association with the cytoskeleton are developmentally regulated in *Xenopus* oogenesis. Cell. Mol. Life Sci. 62: 1641-1652.

CHROMOSOMAL LOCATION

Genetic locus: EIF6 (human) mapping to 20q11.22; Eif6 (mouse) mapping to 2 H1.

SOURCE

eIF6 (A-2) is a mouse monoclonal antibody raised against amino acids 1-245 representing full length eIF6 of human origin.

PRODUCT

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

eIF6 (A-2) is available conjugated to agarose (sc-390432 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390432 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390432 PE), fluorescein (sc-390432 FITC), Alexa Fluor® 488 (sc-390432 AF488), Alexa Fluor® 546 (sc-390432 AF546), Alexa Fluor® 594 (sc-390432 AF594) or Alexa Fluor® 647 (sc-390432 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390432 AF680) or Alexa Fluor® 790 (sc-390432 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

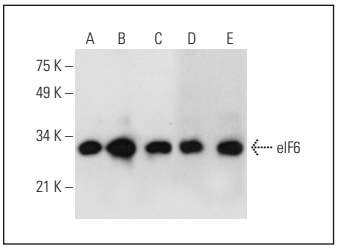
eIF6 (A-2) is recommended for detection of eIF6 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 eIF6 siRNA (h): sc-77255, eIF6 siRNA (m): sc-77256, eIF6 shRNA Plasmid (h): sc-77255-SH, eIF6 shRNA Plasmid (m): sc-77256-SH, eIF6 shRNA (h) Lentiviral Particles: sc-77255-V and eIF6 shRNA (m) Lentiviral Particles: sc-77256-V.

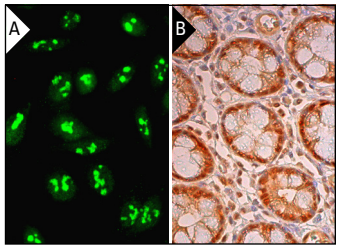
Molecular Weight of eIF6: 27 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, NIH/3T3 whole cell lysate: sc-2210 or HEK293 whole cell lysate: sc-45136.

DATA



eIF6 (A-2): sc-390432. Western blot analysis of eIF6 expression in K-562 (**A**), RKO (**B**), NIH/3T3 (**C**), HEK293 (**D**) and MIA PaCa-2 (**E**) whole cell lysates.



eIF6 (A-2): sc-390432. Immunofluorescence staining of formalin-fixed SW480 cells showing nucleolar localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic and nuclear staining of glandular cells and endothelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Ye, C., et al. 2020. BCCIP is required for nucleolar recruitment of eIF6 and 12S pre-rRNA production during 60S ribosome biogenesis. Nucleic Acids Res. 48: 12817-12832.
2. Theodoridis, P.R., et al. 2021. Local translation in nuclear condensate Amyloid bodies. Proc. Natl. Acad. Sci. USA 118: e2014457118.

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.

PROTOCOLS

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