SANTA CRUZ BIOTECHNOLOGY, INC.

eIF2Bε (H-9): sc-514056

BACKGROUND

The initiation of protein synthesis in eukaryotic cells is regulated by interactions between protein initiation factors and RNA molecules. The eukaryotic initiation complex eIF2B exists as a five subunit complex composed of eIF2Bα, eIF2Bβ, eIF2Bγ, eIF2Bδ and eIF2Bε. The eIF2B complex catalyzes the exchange of GDP for GTP on the eIF2 complex following the interaction of eIF2/GTP with the 40S ribosomal subunit. Guanine nucleotide exchange factor (GEF) activity is exhibited by the eIF2Bε subunit alone, but is greater in the presence of all five eIF2B subunits. Phosphorylation of eIF2 inhibits GEF activity of eIF2B, an inhibition that requires the eIF2Bα subunit.

REFERENCES

1. Henderson, R.A., et al. 1994. The δ subunit of murine guanine nucleotide exchange factor eIF2B. Characterization of cDNAs predicts isoforms differing at the amino-terminal end. J. Biol. Chem. 269: 30517-30523.
2. Flowers, K.M., et al. 1995. Structure and sequence of the gene encoding the α subunit of rat translation initiation factor-2B. Biochim. Biophys. Acta 1264: 163-167.
3. Price, N.T., et al. 1996. Cloningof cDNA for the γ subunit of mammalian translation initiation factor 2B, the guanine nucleotide-exchange factor for eukaryotic initiation factor 2. Biochem. J. 318: 631-636.
4. Price, N.T., et al. 1996. eIF2B, the guanine nucleotide-exchange factor for eukaryotic initiation factor 2. Sequence conservation between the α, β and δ subunits of eIF2B from mammals and yeast. Biochem. J. 318: 637-643.
5. Asuru, A.I., et al. 1996. Cloning and characterization of cDNAs encoding the ε subunit of eukaryotic initiation factor-2B from rabbit and human. Biochim. Biophys. Acta 1307: 309-317.
6. Webb, B.L., et al. 1997. Eukaryotic initiation factor 2B (eIF2B). Int. J. Biochem. Cell Biol. 29: 1127-1131.

CHROMOSOMAL LOCATION

Genetic locus: EIF2B5 (human) mapping to 3q27.1; Eif2b5 (mouse) mapping to 16 A3.

SOURCE

eIF2Bε (H-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 44-64 near the N-terminus of eIF2Bε of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514056 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% 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

eIF2Bε (H-9) is recommended for detection of eIF2Bε 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for eIF2Bε siRNA (h): sc-35278, eIF2Bε siRNA (m): sc-35279, eIF2Bε shRNA Plasmid (h): sc-35278-SH, eIF2Bε shRNA Plasmid (m): sc-35279-SH, eIF2Bε shRNA (h) Lentiviral Particles: sc-35278-V and eIF2Bε shRNA (m) Lentiviral Particles: sc-35279-V.

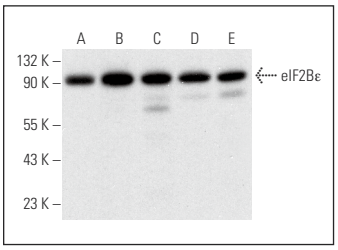
Molecular Weight of eIF2Bε: 90 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, MOLT-4 cell lysate: sc-2233 or HeLa whole cell lysate: sc-2200.

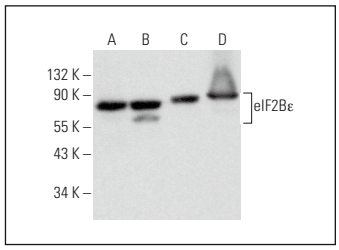
RECOMMENDED SUPPORT REAGENTS

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



eIF2Bε (H-9): sc-514056. Western blot analysis of eIF2Bε expression in HeLa (**A**), K-562 (**B**), MOLT-4 (**C**), Jurkat (**D**) and A-431 (**E**) whole cell lysates.



eIF2Bε (H-9): sc-514056. Western blot analysis of eIF2Bε expression in HeLa (**A**), Hep G2 (**B**) and IB4 (**C**) whole cell lysates and rat kidney tissue extract (**D**).

SELECT PRODUCT CITATIONS

1. Moon, S.L. and Parker, R. 2018. eIF2B2 mutations in vanishing white matter disease hypersuppress translation and delay recovery during the integrated stress response. RNA 24: 841-852.
2. Keefe, M.D., et al. 2020. Vanishing white matter disease expression of truncated EIF2B5 activates induced stress response. Elife 9: e56319.

RESEARCH USE

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